

# Huawei Antenna Products Catalogue 2020



# 1+1, Muscle up 5G

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2019 was the first year of large scale 5G commercial adoption, with 5G spectrum now licensed in more than 50 countries. In China, UK, Japan and South Korea, 5G services have already been rolled-out at a large scale. More than 70 countries are scheduled to issue 5G licenses by 2021. In the next few years, 5G network construction will be a top priority for global operators.

Three major 5G trends will gather momentum in the future:

## All Bands Step to 5G for Superior Capacity

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5G networks can provide 1000 times more capacity, and 10 to 100 times higher speed than 4G networks, in order to deliver service features. The International Telecommunication Union (ITU) has explicit specifications of up to 1 Gbps peak rate and ubiquitous 100 Mbps outdoor perceived rate for 5G networks. As the 5G industry chain matures and enhanced mobile broadband (eMBB), massive machine-type communications (mMTC), and ultra-reliable low-latency communication (URLLC) services are fully rolled-out, 5G will be implemented on all bands through dynamic spectrum sharing.

## Co-site Co-coverage for No-edge Coverage

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During the early stage of 5G, the xGbps experience is primarily based on the high bandwidth of the C-bands or 2.6GHz with Massive MIMO technology, or through mmWave resources. Network coverage is fulfilled using both LTE and NR based on E-UTRA-NR dual connectivity (EN-DC). Flexible sharing is implemented between LTE and NR in both time and frequency domains.

## Simplified Network for TCO Saving

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5G must enable premium service experiences for individual users and digital transformations in industrial applications, while allowing operators to tackle both business innovation and OPEX reduction. Accumulated constructions involving 2G, 3G and 4G have made networks too complex to support all of these requirements. Simplifying site deployment as well as network operation and maintenance (O&M) is becoming inevitable for operators. This is required in order to be able to provide sufficient bandwidth and low-latency capabilities for emerging services, and to support quick service launches, while reducing per-bit construction and maintenance costs.

In 2020, we will see 5G deployed at an even larger scale. In line with this trend, the Huawei 1+1 antenna reconstruction strategy enables efficient 5G Massive MIMO deployment:

**1 + 1 = 2**

Two poles scenario, space is enough to deploy two antennas per sector, one for Sub-3GHz all in one and another one for 5G Massive MIMO.



**1 + 1 = 1**

One pole per sector, to deploy one antenna supporting up to Sub-6GHz all in one.



The advantages of this strategy are as follows:

- Massive MIMO centric deployment, improving network performance.
- Simplified site construction, reducing TCO.
- Quick deployment, improving TTM and blending well into surrounding environments.

To support network evolution, antenna development is adapting the following trends:

- All in one: One antenna will support multiple bands, reducing antenna space in tower.
- Integrated: Active and passive antennas will be integrated in order to simplify network deployment.
- Coordinated: Antennas will be designed in coordination with RAN equipment, bringing overall performance improvements.
- Intelligent: Antennas will be not a "black box" anymore, they become a "white box" to improve network O&M efficiency.

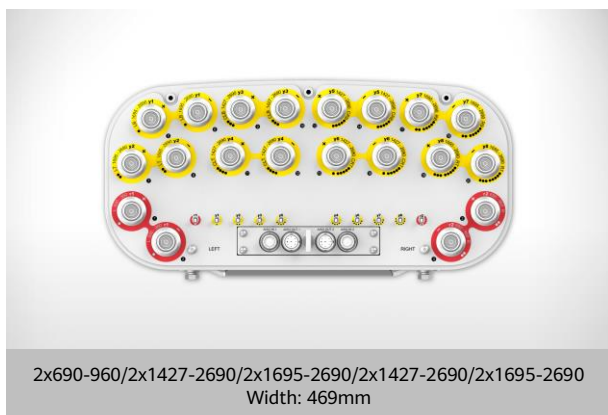
# 1+1 Antenna Solutions for All Scenarios, Speeding up 5G Scaled Commercialization

## Sub-3GHz All in One: Fulfills 1+1 Deployment Requirements for All Scenarios

### Munich Platform Series

#### All bands 4T4R Multi-port Antenna

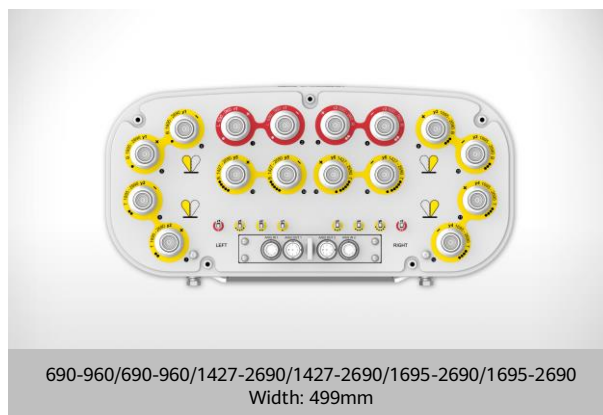
- Industry's highest integration, smallest dimensions.
- Supports 2T4R and 4T4R on all Sub-3GHz bands, and L-band 4T.
- No PIM3 risks on the 700/800/900 MHz and 1400/1800/2100/2600 MHz.



### Bangkok Platform Series

#### High capacity Multi-beam Antenna

- Snake array 2.0 and adaptive feeding system for ultra-wideband 4T6S from 1800 to 2600 MHz.
- Based on 4R UE devices, the 4T6S solution enables 2.3x to 2.8x capacity increase.
- Supports hybrid network with low-bands 2T2R or 2T4R three-sector and high-bands 4T4R six-sector sites.

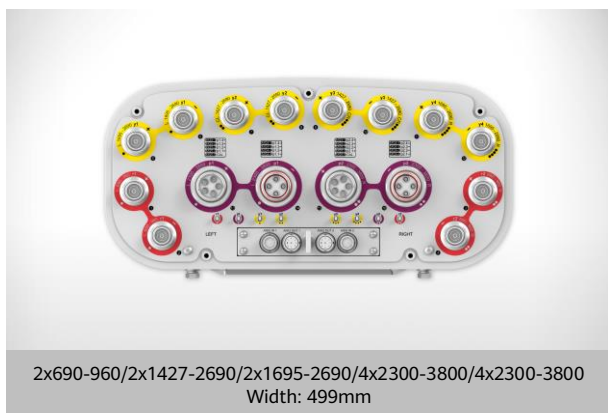


## One-Box-One-Sector for 5G: 1+1=1 Deployment at Sites with Limited Space

### London/London Pro Platform Series

#### Sub-4GHz All in One

- FDD 4T4R on all Sub-3GHz bands and 5G NR 8T8R are integrated in one antenna, to accelerate 5G deployments.
- Multi-layer interleaved design reduces antenna width by 50%, compared to traditional antennas.



### Massive MIMO + Passive: BladeAAU

#### Industry 1<sup>st</sup> Sub-6GHz All in One

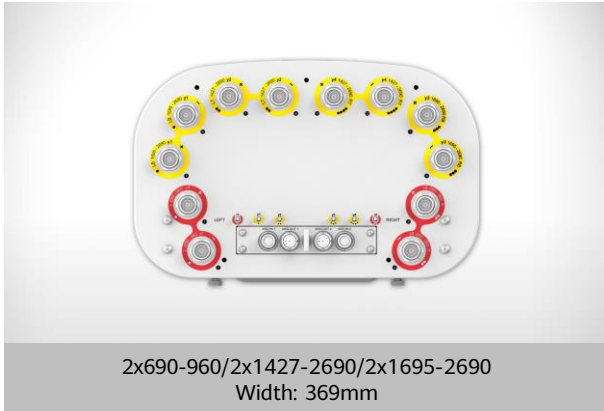
- Massive MIMO and passive antenna integration, enabling simplified site deployment.
- 2m length to support Massive MIMO and passive deployment on all Sub-6GHz bands in a single module.
- Shortens site acquisition duration, making site deployment easier.



## Slim Design Overcomes Site Limits and Supports Flexible Evolution

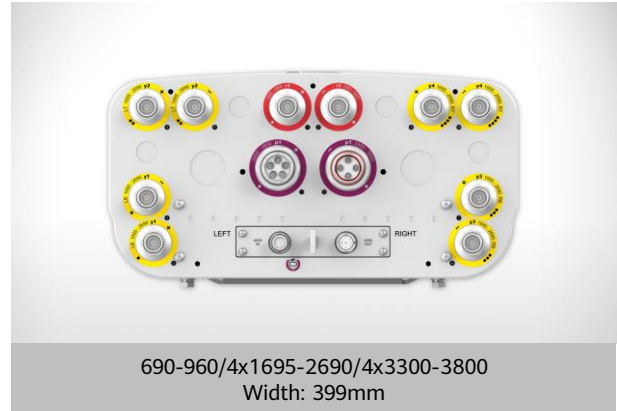
### Golden Mini Industry's Narrowest Dual Low Band Antenna

- 2L4H configuration in 369mm width.
- Optimized design for wind load improvement.



### London Mini Slimmest TDD + FDD All in One

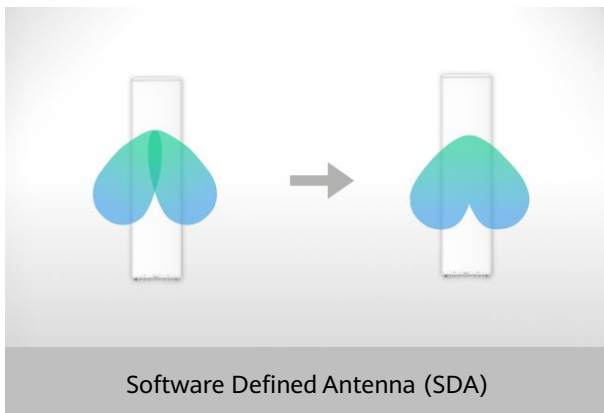
- High configuration up to 1L4H + 4SH@8T8R.
- Small dimensions with 0.9m length and 399mm width.
- Flexibly supports pole site deployment and suitable for ACSM.



## Unique Design Supporting NR Evolution and Innovation

### Software Defined Antenna (SDA) Beam Adjustable for Smooth LTE & NR Evolution

- Beam configurable, supporting 8T3S and 4T6S deployment.
- Power sharing offsets uneven user distribution, while retaining capacity performance.
- Reduce duplicate investments, bringing customers TCO savings.



# Leading Technology is Essential for Future Networks

## Continuous Innovation

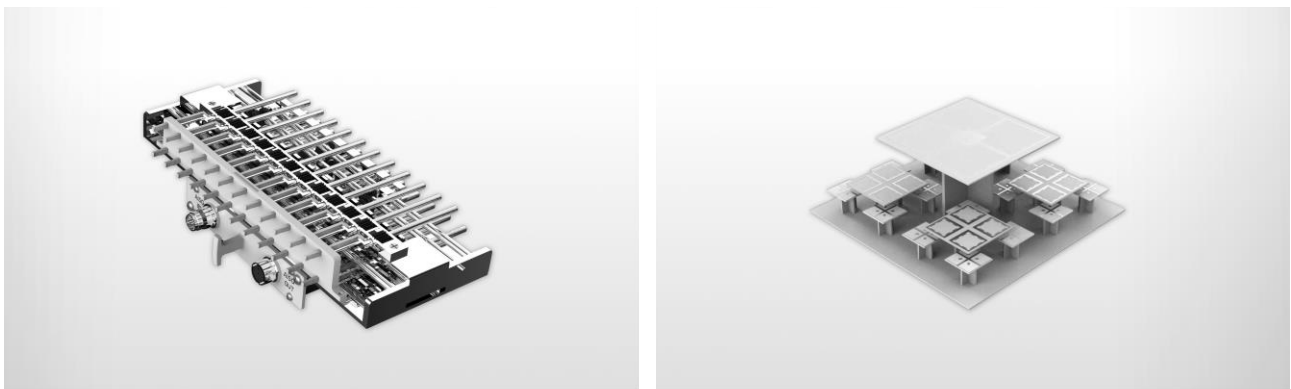
Antenna represents a core basic capability of radio access networks (RANs), and will continue to serve as a key component in 5G networks. Huawei has been heavily investing in antenna research and development. To date, Huawei has seven global antenna R&D centers, bringing together more than 400 experts and teams dedicated to active and passive antenna research. With more than 20 years of experience in the RAN domain, Huawei has achieved a RAN-antenna coordinated design that can significantly improve antenna performance. According to the 2019 ABI Research's analysis report, Huawei's antenna technology innovation and implementation scored highest in the industry with 94.5 points, confirming the company's lead in the antenna industry.

Antenna innovation focuses on pursuing high integration and high performance, to support network reconstruction and evolution. Huawei has developed many innovative solutions to deliver higher antenna performance, as well as related manufacturing and quality control process to constantly enhance Passive Intermodulation (PIM). Innovative Huawei technologies such as Enhanced Streamline, Dual Belt Line and Golf Ball Effect improves wind load performance. Huawei has also persistently explored the fields of high power and heat dissipation, represented by Cable Free 2.0 and the ceramic filters that have been applied to BladeAAU products.



Wind Load Optimization Design

Cable Free 2.0



20 Bands RET

Multi-layer Interleaved Design

## Contribution to Industry Development

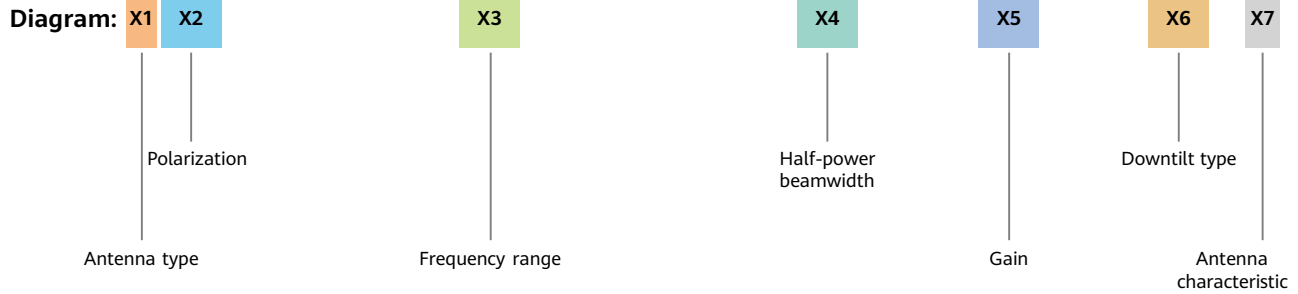
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Huawei is dedicated to promoting the development of the antenna industry. To date, Huawei participates in more than 50 standardization related organizations, making continuous contributions to industry coordination, alignment and standardization.

- With the support of telecom operators, Huawei has successfully held the Global Antenna Technology & Industry Forum in eight occasions. The forum has evolved to become the most influential platform of the antenna industry, bringing together leading telecom operators, third-party organizations, tower companies, industry organizations and media to jointly promote the development of antenna technology.
- Huawei co-leads and is a major contributor of the Next Generation Mobile Networks (NGMN) Alliance, promoting MQ4 and MQ5 cluster connectors to become an industry standard. Huawei MQ4 and MQ5 cluster connectors have been selected by NGMN for early 5G NR deployment by this alliance.
- Huawei is a major participant and contributor of P-BASTA 11.1 and AISG 3.0 standards.
- Huawei is the leader and a major contributor of BASTA AAS.
- Huawei released the industry's first white paper on antenna industry trends in the 5G era in 2019.

## Antenna Type Naming Rule: Type1

Example: D-XXXXX-690-960/1710-2690/1710-2690/1710-2690-65/65/65/65/65-17i/18i/18i/17.5i/17.5i-M/M/M/M/M-B/R



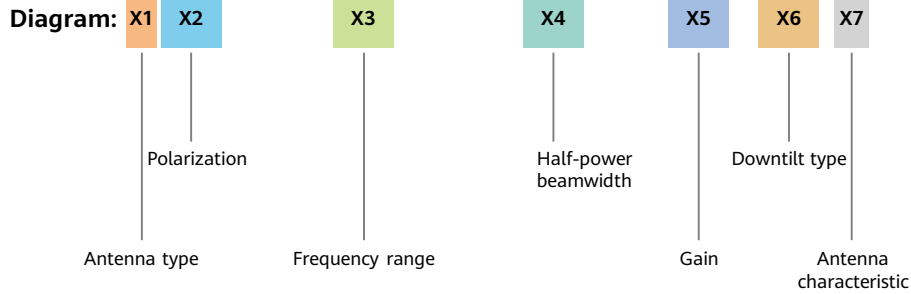
|    |                 |                                  |
|----|-----------------|----------------------------------|
| X1 | D               | Directional                      |
|    | O               | Omni-directional                 |
|    | C               | Cluster                          |
|    | I               | Indoor                           |
|    | Number + M      | Multi Beam, 3M means three beams |
|    | CP              | Camouflage Pipe                  |
|    | CS              | Camouflage Square Column         |
| X2 | X               | X Polarization                   |
|    | V               | Vertical Polarization            |
|    | H               | Horizontal Polarization          |
|    | C               | Circular Polarization            |
| X3 | Number          | Frequency Bandwidth              |
| X4 | Number          | Half-power Beam Width            |
| X5 | Number          | Gain(dBi)                        |
| X6 | Number + Letter | 0F: Fixed Downtilt               |
|    | Letter          | M: Electrical Downtilt           |
| X7 | C               | Combiner Integrated              |
|    | B               | Bias Tee Integrated              |
|    | T               | TMA Integrated                   |
|    | R               | RCU Integrated                   |
|    | AS              | Azimuth Steering                 |
|    | HE              | High Efficiency                  |
|    | ESLS            | Enhanced Side Lobe Suppression   |
|    | AISU            | Antenna Information Sensor Unit  |

\*\* For antennas with 14 or more ports, the same letters are represented in the "Number + Letter" format for the X2, X3, X4, and X6 bits. For example, for the "X2" bit, "7X" indicates "XXXXXXX".



## Antenna Type Naming Rule: Type2

Example: D-06X-2x690-960/4x1710-2690-2x65/4x65-2x15.5i/4x18i-6xM-R

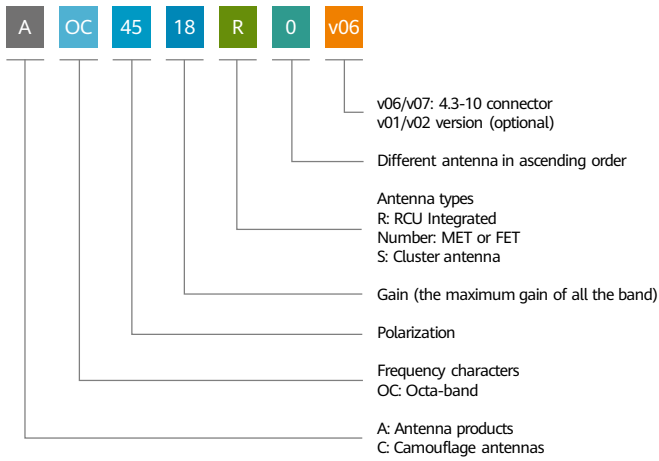


|    |                 |                                  |
|----|-----------------|----------------------------------|
| X1 | D               | Directional                      |
|    | O               | Omni-directional                 |
|    | C               | Cluster                          |
|    | I               | Indoor                           |
|    | Number + M      | Multi Beam, 3M means three beams |
|    | CP              | Camouflage Pipe                  |
|    | CS              | Camouflage Square Column         |
| X2 | X               | X Polarization                   |
|    | V               | Vertical Polarization            |
|    | H               | Horizontal Polarization          |
|    | C               | Circular Polarization            |
| X3 | Number          | Frequency Bandwidth              |
| X4 | Number          | Half-power Beam Width            |
| X5 | Number          | Gain(dBi)                        |
| X6 | Number + Letter | 0F: Fixed Downtilt               |
|    | Letter          | M: Electrical Downtilt           |
| X7 | C               | Combiner Integrated              |
|    | B               | Bias Tee Integrated              |
|    | R               | RCU Integrated                   |
|    | AS              | Azimuth Steering                 |
|    | ESLS            | Enhanced Side Lobe Suppression   |
|    | AISU            | Antenna Information Sensor Unit  |
|    | CF              | Cable Free                       |
|    | EMF             | EMF                              |
|    | TD              | Topology detection               |

# Product Model Naming Rule

## Antenna Model Naming Example

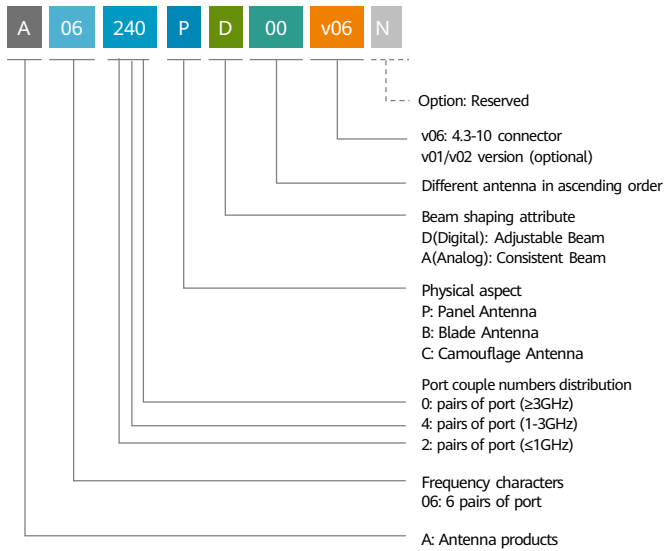
### Type1



### Notes for frequency characters:

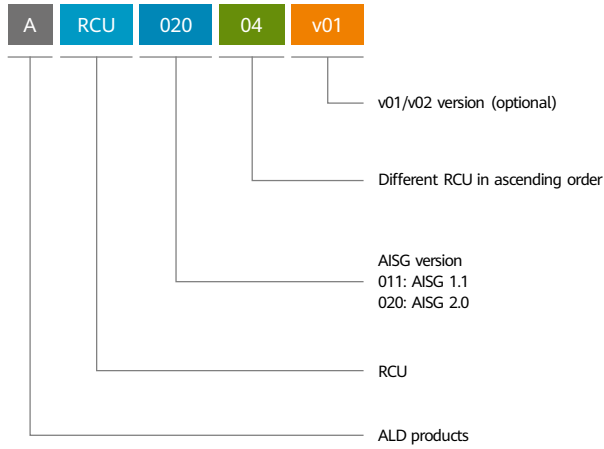
- 45: Single-band antennas (450-470 MHz)
- 70: Single-band antennas (690-960 MHz)
- 79: Single-band antennas (790-960 MHz)
- 19: Single-band antennas (1710-2200 MHz or 1710-2170 MHz)
- 26: Single-band antennas (1710-2690 MHz)
- DU: Dual-band antennas
- TR: Tri-band antennas
- QU: Quad-band antennas
- PE: Penta-band antennas
- SI: Six-band antennas
- HP: Hepta-band antennas
- OC: Octa-band antennas
- TD: TDD antennas
- MB: Multi-beam antennas

### Type2

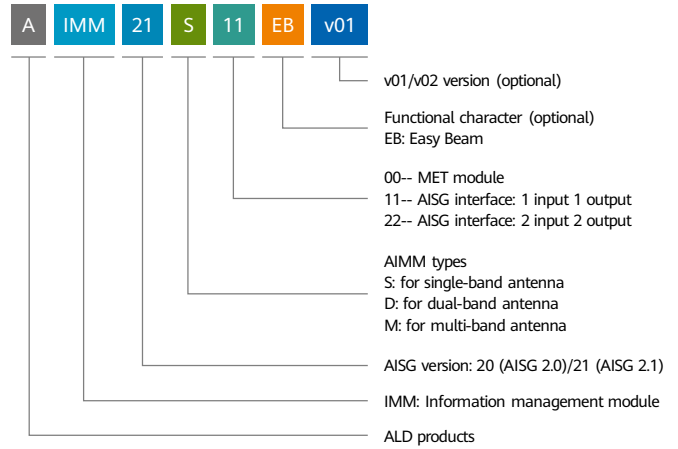


# Product Model Naming Rule

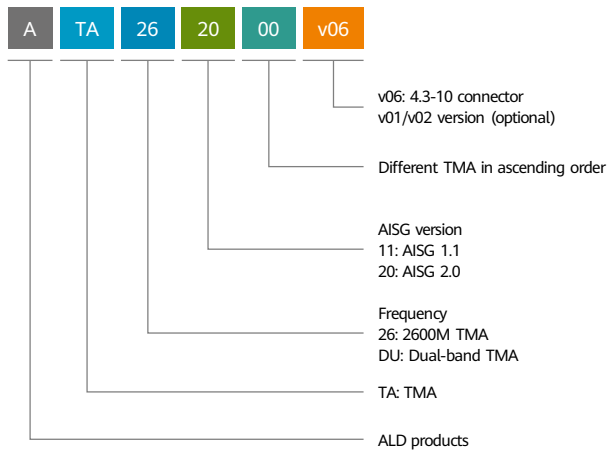
## RCU Model Naming Example:



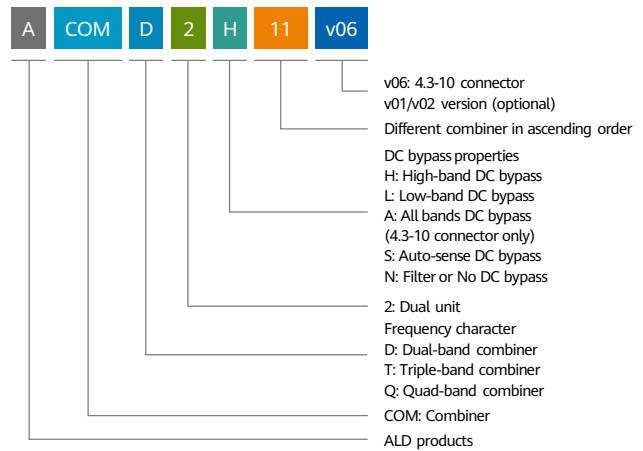
## AIMM Model Naming Example:



## TMA Model Naming Example:



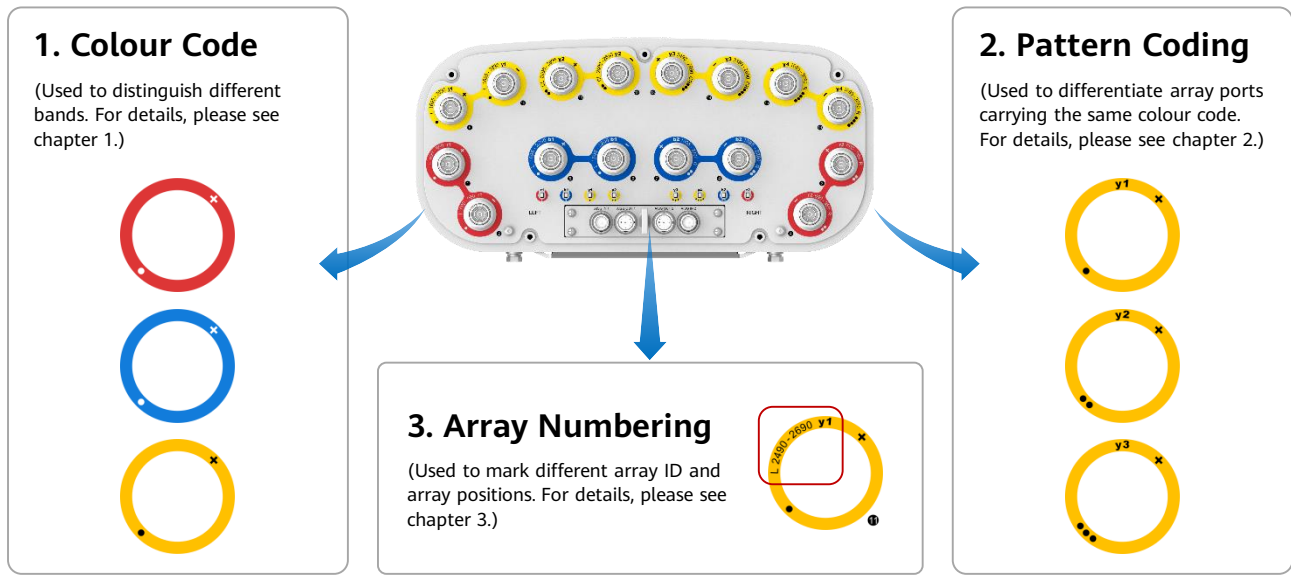
## Combiner Model Naming Example:



# AISG Colour Coding

## Antenna Port Colour Coding

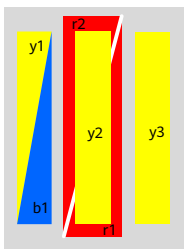
Colour coding is used to identify antenna RF ports and also for RET remote identification. Colour coding consists of five parts generally: colour code, pattern coding, array numbering, array symbol and RCU serial number. 14-Port EasyRET antenna is used as an example to illustrate colour coding:



## 4. Array Symbol

(Used to display the physical structure of the antennas. For details, please see chapter 4.) Two types of array symbol are used (Type 1 and Type 2). Which type is used depends on specific antennas. This also applies to chapter 3 Array numbering and chapter 7 RCU serial number.

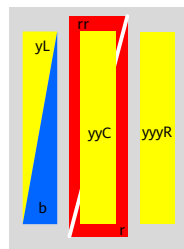
### Type 1



**2 Low Bands Filtered**  
r1: 690-862MHz  
r2: 880-960MHz  
r1 and r2 share the same low-band array

**4 high-band arrays**  
b1: 1695-2200MHz  
y1: 2490-2690MHz  
y2: 1695-2690MHz  
y3: 1427-2690MHz  
b1 and y1 share the same high-band array

### Type 2



**2 Low Bands Filtered**  
r: 690-862MHz  
rr: 880-960MHz  
r and rr share the same low-band array

**4 high-band arrays**  
b: 1695-2200MHz  
yL: 2490-2690MHz  
yyC: 1695-2690MHz  
yyyR: 1427-2690MHz  
b and yL share the same high-band array

## 5. Integrated RCU Serial Number

(Used to distinguish RCUs of different bands to support remote RCU identification. For details, please see chapter 5.)

### Type 1:

HWxxx.....r1                      HWxxx.....b2  
HWxxx.....r2                      HWxxx.....b3  
HWxxx.....b1                      HWxxx.....y2  
HWxxx.....y1

### Type 2:

HWxxx.....r                      HWxxx.....bbC  
HWxxx.....rr                      HWxxx.....bbbR  
HWxxx.....b                      HWxxx.....yyR  
HWxxx.....yL

# AISG Colour Coding

## 1. Colour Code

According to AISG, the upper band edge ranges of the antenna port are represented by red, green, blue, and yellow in sequence from the low band range to the high band range. The following table shows the definition of the frequency range and the associated colour code abbreviation.

| Upper Band Edge Range | Assigned Colour Code | Colour Code Abbreviation |
|-----------------------|----------------------|--------------------------|
| 380MHz to 1000MHz     | RAL 3020             | r                        |
| 1001MHz to 1700MHz    | RAL 6029             | g                        |
| 1701MHz to 2300MHz    | RAL 5015             | b                        |
| 2301MHz to 3000MHz    | RAL 1023             | y                        |
| 3001MHz to 5000MHz    | RAL 4006             | p                        |
| 5001MHz to 6000MHz    | RAL 2009             | o                        |

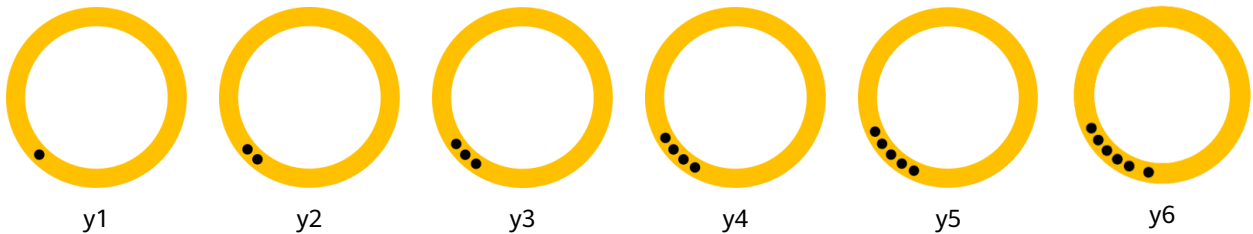
## 2. Pattern Coding

Pattern coding is used to differentiate array ports carrying the same colour code. Two types of pattern coding are used (Type A and Type B). Which type is used depends on specific antennas.

### Type A:

The number of dots is shown in the following figure.

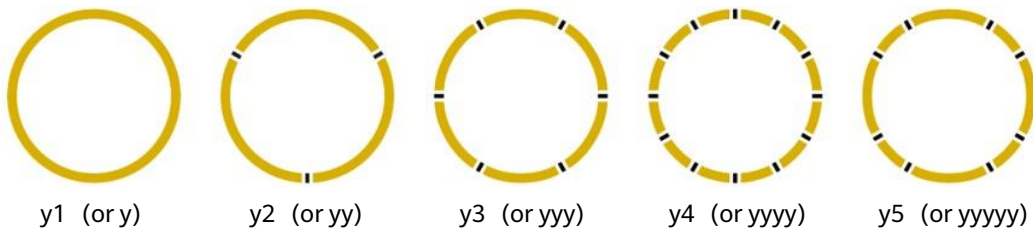
*Note: The dot may be black or white.*



### Type B:

Different segments of color and gaps are shown in the following figure.

*Note: Gaps between colored segments may be white gaps or black lines.*



### Multi-beam Coding:

*Note: the yellow color will related to corresponding port ,*



## 3. Array Numbering

For multi-band antennas, different arrays are indicated by their colour code abbreviations, array IDs, as well as array positions. There are two types of array numbering.

Array ID: e.g. "y1" or "y" for the first high-band array, "y2" or "yy" for the second high-band array.

# AISG Colour Coding

Array position is represented by abbreviation (e.g. L, C, R, T, M, and B), the following table shows the details.

| Array Horizontal Definition |              | Array Vertical Definition |              |
|-----------------------------|--------------|---------------------------|--------------|
| Abbreviation                | Full Name    | Abbreviation              | Full Name    |
| L                           | Left Array   | T                         | Top Array    |
| C                           | Center Array | M                         | Middle Array |
| R                           | Right Array  | B                         | Bottom Array |

Take 14-port antenna for example, array with Ry2 or yyR means the second high-band array and located at right position inside of antenna.

## 4. Array Symbol

In order to better display the physical structure of Huawei antennas, the array symbol corresponding to the array ID and array position is shown in the catalogue.

The following figures show the physical structures of different antennas as examples:

|  |  |
|--|--|
| <p>I. 4-Port Antenna<br/>2 Filtered Low Bands ("Dipole reuse")<br/>e.g. 790-862/880-960 or 690-803/824-960 MHz</p>             | <p>II. 4-Port Antenna<br/>2 Filtered High Bands ("Dipole reuse")<br/>e.g. 1710-2170/2490-2690 MHz</p>  |
| <p>III. 4-Port Antenna<br/>2 Side-by-side High-band Arrays<br/>e.g. 1710-2690/1710-2690 MHz</p>                                | <p>IV. 6-Port Antenna<br/>1 Low Band<br/>2 Side-by-side High-band Arrays<br/>e.g. 790-960/1710-2690/1710-2690 or 690-960/1710-2690/1710-2690 MHz</p> |
| <p>V. 8-Port Antenna<br/>1 Low Band<br/>3 Side-by-side High-band Arrays<br/>e.g. 690-960/1710-2690/1710-2690/1710-2690 MHz</p> | <p>VI. 10-Port Antenna<br/>1 Low Band and 4 High-bands<br/>e.g. 690-960/1695-2690/1695-2690/1695-2690 MHz</p>  |

# AISG Colour Coding

## 5. RCU Serial Number

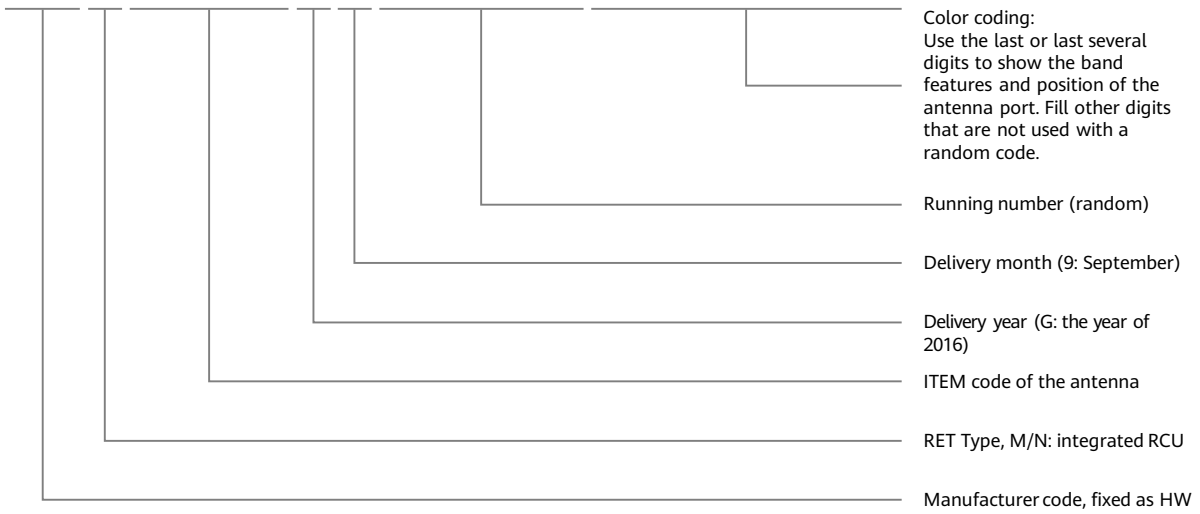
The SN (serial number) of integrated RCU contains colour coding information, EasyRET antennas support remote RCU identification by colour coding.

The SN of an integrated RCU contains 19 digits. The following describes a hexa-band EasyRET antenna's SN as an example:

*Note: This naming convention is the mainstream scene. If you have any questions, please contact us.*

**Type 1:** H W N 2 4 3 0 G 9 0 0 1 0 0 2 1 R y 2

**Type 2:** H W M 2 4 3 0 G 9 0 0 1 0 0 2 1 y y R



**A** Active Antenna AAU

|          |                 |                                      |                 |  |   |                 |
|----------|-----------------|--------------------------------------|-----------------|--|---|-----------------|
| <b>B</b> | Passive Antenna | Multi-band                           | B - 1 Low Band  | 2 ports<br>4 ports   | 6 ports   | L Band & H Band |
|          |                 |                                      | B - 2 High Band | 2 ports<br>4 ports   | 6 ports<br>8 ports                                    |                 |
|          |                 |                                      | B - 3 1LnH      | 2 ports - 1L1H<br>4 ports - 1L2H<br>8 ports - 1L3H                     | 10 ports - 1L4H<br>12 ports - 1L5H                    | 1LnH Band       |
|          |                 |                                      | B - 4 2LnH      | 6 ports - 2L1H<br>8 ports - 2L2H<br>10 ports - 2L3H<br>12 ports - 2L4H | 14 ports - 2L5H<br>16 ports - 2L6H<br>20 ports - 2L8H | 2LnH Band       |
|          |                 |                                      | B - 5 3LnH      | 10 ports - 3L2H<br>16 ports - 3L5H<br>30 ports - 3L12H                 |   | 3LnH Band       |
|          |                 | Multi-beam                           |                 |  |   | Multi-beam      |
|          |                 | FDD + NR\TDD                         |                 |  |   | FDD + NR\TDD    |
|          |                 | TDD Antenna<br>Special Scene Antenna |                 | TDD 8T8R Antenna<br>Cluster Antenna<br>Small Antenna                   |   | NR\TDD & Others |

**C** Digital Antenna System  
 C - 1 RET System  
 C - 2 Intelligent Management

**D** Antenna Line Product  
 D - 1 TMA  
 D - 2 Combiner

**E** Bracket & Installation Guide  
 E - 1 Bracket  
 E - 2 Installation Guide

- AAU
- L Band & H Band
- 1LnH Band
- 2LnH Band
- 3LnH Band
- Multi-beam
- FDD + NR\TDD
- NR\TDD & Others
- Digital
- TMA
- Combiner
- Bracket & Installation Guide



## Product Replacement List 1

| Product in the catalogue 2019 | Product in the catalogue 2020 |
|-------------------------------|-------------------------------|
| <b>MMIK</b>                   |                               |
| MMIK000102                    | MMIK000103                    |
| <b>ANT</b>                    |                               |
| APE4518R17v06                 | APE4518R17v07                 |
| AHP4518R4v06                  | AHP4518R4v07                  |
| AOC4518R5v06                  | AOC4518R6v06                  |
| <b>TMA</b>                    |                               |
| ATADU2005v06                  | ATADU2024v06                  |
| ATADU2003v06                  | ATADU2023v06                  |

## Index of Antenna and Antenna Line Product

The products are listed in an alphabetical & numeric order. **New or changed product.**

| Model                  | Page       | Model               | Page       | Model                | Page       | Model                | Page       |
|------------------------|------------|---------------------|------------|----------------------|------------|----------------------|------------|
| <b>Active Antenna</b>  |            | <b>A2...</b>        |            | AHP4517R2v06         | <b>179</b> | <b>AOC4518R6v06</b>  | <b>191</b> |
|                        |            | A264518R0v06        | <b>32</b>  | AHP4517R7v06         | <b>168</b> | AOC4518R7v06         | <b>185</b> |
| <b>AAU...</b>          |            | A264521R1v06        | <b>34</b>  | <b>AHP4517R12v06</b> | <b>167</b> | AOC4518R8v06         | <b>311</b> |
| AAU5950                | <b>6</b>   | A264521R2v06        | <b>36</b>  | AHP4518R3v06         | <b>158</b> | AOC4518R9v06         | <b>208</b> |
| AAU5951                | <b>8</b>   |                     |            | AHP4518R4v06         | <b>161</b> | <b>AOC4518R11v06</b> | <b>182</b> |
|                        |            | <b>A7...</b>        |            | AHP4518R5v06         | <b>164</b> |                      |            |
| <b>ACS...</b>          |            | A704515R0v06        | <b>10</b>  | <b>AHP4519R1v06</b>  | <b>261</b> | <b>APE...</b>        |            |
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## A. Antenna with Cabinet Suite

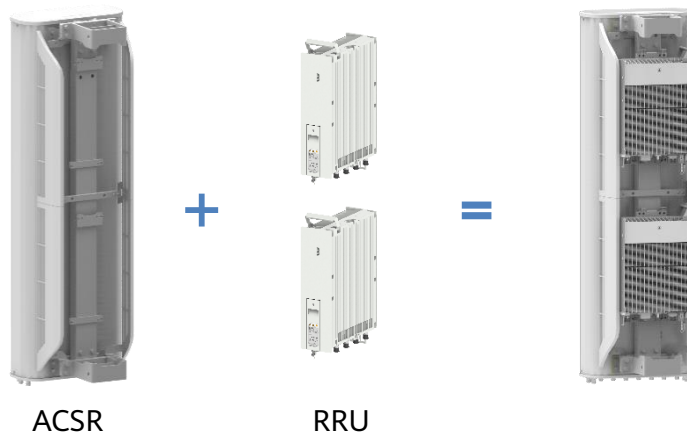
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*\*\* Preliminary Issue*

## Product Description

ACSR (Antenna with Cabinet Suite for RRU) is an extensible antenna solution, which can be integrated with Huawei RRU to realize passive antenna and RRU in one box. ACSR helps operators to deploy sub 3GHz full 4T4R by one installation in one box to simplify the site configuration and reduce TCO.



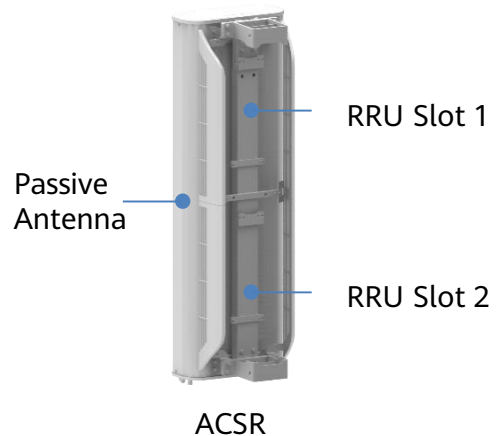
### ACSR Features

#### Passive Antenna

- Based on advanced multi-band antennas with innovative antenna platforms (Golden Platform, Munich Platform etc.), providing future evolution capability and best performance.
- Slim size
- EasyRET 2.0

#### RRU Slot

- Support Huawei multi-band RRU to reduce boxes.
- Compatible with Huawei 24L/18L/12L RRU.
- Maximum 2 RRUs can be integrated with ACSR.



**Preliminary Issue**

| Electrical Properties   |                             |                   |                   |
|---|-----------------------------|-------------------|-------------------|
| Frequency range (MHz)   | 2 x (690 - 960)             | 2 x (1427 - 2690) | 2 x (1695 - 2690) |
| Electrical downtilt (°)   | 0 - 14                      | 2 - 12            | 2 - 12            |
| Gain (dBi)  | 14.3                        | 17.5              | 17.5              |
| Side lobe suppression for first side lobe above main beam (Typ.) (dB) | 16                          | 16                | 16                |
| Horizontal 3dB beam width (°)   | 66                          | 65                | 63                |
| Vertical 3dB beam width (°)   | 14                          | 7                 | 6                 |
| VSWR  | < 1.5                       |                   |                   |
| Front to back ratio, copolar (dB)                                     | Typ. 25                     |                   |                   |
| Cross polar ratio (dB)  | 0°                          | Typ. 17           |                   |
| Intermodulation IM3 (dBc)   | ≤ -150 (2 x 43 dBm carrier) |                   |                   |

| Mechanical Properties               |                    |
|-------------------------------------|--------------------|
| Antenna dimensions (H x W x D) (mm) | 1509 x 469 x 360   |
| Packing dimensions (H x W x D) (mm) | 1800 x 650 x 620   |
| Antenna net weight (kg)             | 55                 |
| Mechanical downtilt (°)             | 0 - 8              |
| Connector                           | 12 x 4.3-10 Female |
| RET type                            | Integrated RET     |
| RET protocols                       | AISG 2.0 / 3GPP    |

**Antenna with Cabinet Suite Properties**

| ACS Properties  |                                |                   |
|-----------------|--------------------------------|-------------------|
| Case1: 1 Active | RRU supported in Upper positon | 24L /18L /12L RRU |
|                 | RRU supported in Lower positon | /                 |
| Case2: 2 Active | RRU supported in Upper positon | 18L /12L RRU      |
|                 | RRU supported in Lower positon | 18L /12L RRU      |



Notes: Only HUAWEI RRU supported. Contact technical support to get specific RRU type.



**Preliminary Issue**

| Electrical Properties   |                             |                          |                             |
|---|-----------------------------|--------------------------|-----------------------------|
| Frequency range (MHz)   | 2 x (690 - 960)             | 2 x (1695 - 2690)<br>Top | 2 x (1695 - 2690)<br>Bottom |
| Electrical downtilt (°)   | 0 - 10                      | 2 - 12                   | 2 - 12                      |
| Gain (dBi)  | 15.7                        | 16                       | 16.5                        |
| Side lobe suppression for first side lobe above main beam (Typ.) (dB) | 15                          | 15                       | 15                          |
| Horizontal 3dB beam width (°)   | 65                          | 65                       | 65                          |
| Vertical 3dB beam width (°)   | 9.5                         | 9                        | 8                           |
| VSWR  | < 1.5                       |                          |                             |
| Front to back ratio, copolar (dB)                                     | Typ. 25                     |                          |                             |
| Cross polar ratio (dB)  | 0°                          | Typ. 17                  |                             |
| Intermodulation IM3 (dBc)   | ≤ -150 (2 x 43 dBm carrier) |                          |                             |

| Mechanical Properties               |                    |
|-------------------------------------|--------------------|
| Antenna dimensions (H x W x D) (mm) | 1999 x 429 x 335   |
| Packing dimensions (H x W x D) (mm) | 2340 x 730 x 710   |
| Antenna net weight (kg)             | 64                 |
| Mechanical downtilt (°)             | 0 - 8              |
| Connector                           | 12 x 4.3-10 Female |
| RET type                            | Integrated RET     |
| RET protocols                       | AISG 2.0 / 3GPP    |

**Antenna with Cabinet Suite Properties**

| ACS Properties  |                                 |                   |
|-----------------|---------------------------------|-------------------|
| Case1: 1 Active | RRU supported in Upper position | 24L /18L /12L RRU |
|                 | RRU supported in Lower position | /                 |
| Case2: 2 Active | RRU supported in Upper position | 24L /18L /12L RRU |
|                 | RRU supported in Lower position | 24L /18L /12L RRU |

Notes: Only HUAWEI RRU supported. Contact technical support to get specific RRU type.



## Product Description

ACSM which includes passive antenna and MMIK(Massive MIMO Mechanical Integration Kit) is a solution to integrate passive antenna and Massive MIMO.

With ACSM, operators can deploy passive antenna and Massive MIMO on single pole as one box, or reserve space for future Massive MIMO deployment, to reduce site cost and shorten TTM.



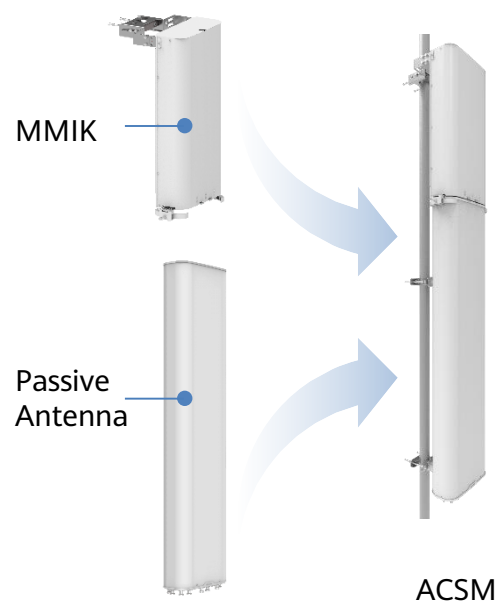
### ACSM Features

#### Passive Antenna

- Based on advanced multi-band antennas with Pearl Platform and Munich Platform, providing future evolution capability and best performance.
- Slim size with 469mm width.
- EasyRET 2.0

#### MMIK (Massive MIMO Mechanical Integration Kit)

- Flip cover design for easy installation and maintenance of Massive MIMO.
- Fit Huawei passive antennas with 469mm width.



| Mechanical Properties  |   |
|--|---|
| Dimensions (H x W x D) (mm)  | 999 x 469 x 206   |
| Packing dimensions (H x W x D) (mm)  | 1130 x 720 x 455  |
| Mounting kit   | Included  |
| Net weight (kg)  | 6.5   |
| Weight with mounting kit (kg)  | 10  |
| Packaging weight (kg)  | 18.5  |
| Mast diameter supported (mm)   | 50 - 115  |
| Radome material  | GFRPP   |
| Radome colour  | Light grey  |
| Operational temperature (°C)   | -40 .. +65  |
| Wind load with back cover (N)  | Frontal: 365 (at 150 km/h)<br>Lateral: 190 (at 150 km/h)<br>Maximum: 590 (at 150 km/h)  |
| Wind load with Massive MIMO <sup>*1</sup> installed and together with 1.5m passive antenna <sup>*2</sup> (N) | Frontal: 760 (at 150 km/h)<br>Lateral: 670 (at 150 km/h)<br>Maximum: 1155 (at 150 km/h) |
| Wind load with Massive MIMO <sup>*1</sup> installed and together with 2.0m passive antenna <sup>*3</sup> (N) | Frontal: 890 (at 150 km/h)<br>Lateral: 780 (at 150 km/h)<br>Maximum: 1300 (at 150 km/h) |
| Max. operational wind speed (km/h)   | 200   |
| Survival wind speed (km/h)   | 250   |

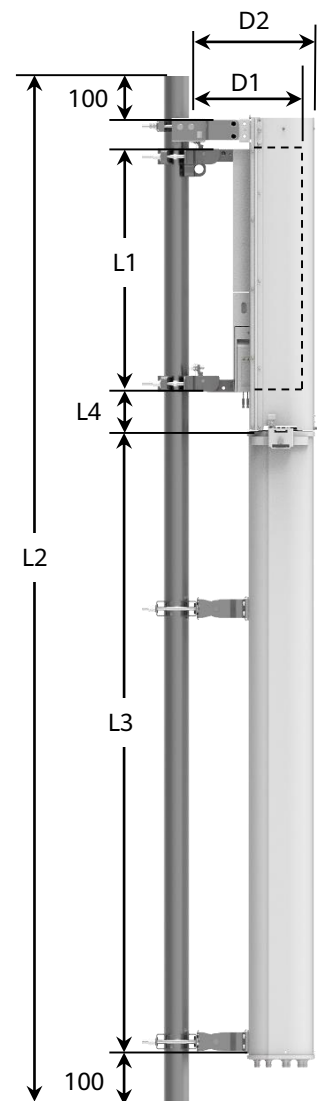
\*1: Based on Huawei Massive MIMO AAU5613

\*2: Based on Huawei passive antenna AHP4518R3v06

\*3: Based on Huawei passive antenna AHP4518R4v06

| Installation Limitation   |  |
|---|--|
| Mechanical tilt (°)   | 0  |
| Outlet of Huawei antenna (W x D) (mm)                                       | 469 x 206  |
| Maximum length of Massive MIMO (L1) (mm)                                    | 850  |
| Maximum width of Massive MIMO (mm)  | 430  |
| Maximum depth allowed from Massive MIMO front to pole (D1) (mm)             | 365 (Antenna with Clamps kit-F, fit for ASMDT0F01)<br>325 (Antenna with Clamps Kit-D, fit for ASMDT0D01) |
| Depth from MIK front to pole (D2) (mm)                                      | 395 (Antenna with Clamps kit-F, fit for ASMDT0F01)<br>360 (Antenna with Clamps Kit-D, fit for ASMDT0D01) |
| Minimum length of pole (L2) (mm)  | L3 + 1200  |
| Minimum operation spacing from antenna top to Massive MIMO bottom (L4) (mm) | 100  |

**Certification** : CE, ROHS



## Product Description

- AAU5950, which is based on 2 low band & 4 high bands antenna, can support active 1800M-2100M high band 4T4R as well as passive low band and high band.
- With the highly integrated design, AAU5950 also helps operators to simplify sites.



| AAU5950                |   |
|------------------------|---|
| Frequency(Hz)          | Active: 1800M-2100M<br>Passive:690-960M+1800M-2600M   |
| TX/RX                  | 4T4R  |
| EIRP                   | 4*61.3dBm   |
| Technology             | GSM\UMTS\LTE\NR   |
| Dimensions (H x W x D) | 1999mm(H)*429mm(W)*426mm(D)   |
| Weight                 | 79kg  |
| Temperature            | - 40°C~55°C   |
| Heat Dissipation       | Natural Cooling   |
| Wind load              | Frontal/lateral/rearside:910N/655N/1115N at 150km/h   |
| Passive Connectors     | 8 x 4.3-10  |
| Electrical downtilt    | Low Band: 0 - 10° , continuously adjustable<br>High Band: 2 - 12° , continuously adjustable |

## Antenna Specifications

| Electrical Properties  |        |   |           |           |           |   |             |             |             |           |
|--|--------|---|-----------|-----------|-----------|---|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  |        | 2 x (690 - 960)                                       |           |           |           | 4 x (1695 - 2690)                                     |             |             |             |           |
|  |        | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   |        | +45°, -45°  |           |           |           |   |             |             |             |           |
| Electrical downtilt (°)  |        | 0 - 10, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |           |
| Gain (dBi)   |        | at mid Tilt   | 14.4      | 15.2      | 15.5      | 15.7  |             |             |             |           |
|  |        | over all Tilts  | 14.3 ±0.5 | 15.1 ±0.5 | 15.4 ±0.5 | 15.5 ±0.5   |             |             |             |           |
|  | Bottom | at mid Tilt   |           |           |           |   | 15.3        | 15.7        | 16.3        | 16.5      |
|  |        | over all Tilts  |           |           |           |   | 15.2 ±0.5   | 15.6 ±0.5   | 16.2 ±0.4   | 16.4 ±0.6 |
|  | Top    | at mid Tilt   |           |           |           |   | 15.0        | 15.4        | 15.7        | 16.2      |
|  |        | over all Tilts  |           |           |           |   | 14.9 ±0.6   | 15.3 ±0.6   | 15.6 ±0.5   | 16.1 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 16  | > 16      | > 16      | > 15      | > 16  | > 16        | > 16        | > 16        |           |
| Horizontal 3dB beam width (°)                                  |        | 68 ±5   | 63 ±5     | 61 ±5     | 60 ±5     | 66 ±5   | 63 ±5       | 60 ±5       | 58 ±5       |           |
| Vertical 3dB beam width (°)                                    |        | 10.5 ±0.9   | 9.5 ±0.8  | 9.2 ±0.7  | 8.5 ±0.7  |   |             |             |             |           |
|  | Bottom |   |           |           |           | 10.4 ±0.6   | 9.4 ±0.5    | 8.1 ±0.3    | 7.4 ±0.3    |           |
|  | Top    |   |           |           |           | 9.7 ±0.6  | 8.9 ±0.5    | 7.9 ±0.3    | 7.1 ±0.3    |           |
| VSWR   |        | < 1.5   |           |           |           |   |             |             |             |           |
| Cross polar isolation (dB)                                     |        | ≥ 28  |           |           |           | ≥ 28  |             |             |             |           |
| Interband isolation (dB)                                       |        | ≥ 28  |           |           |           |   |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 |        | > 22  | > 23      | > 24      | > 24      | > 25  | > 25        | > 25        | > 25        |           |
| Cross polar ratio (dB)   |        | 0°  | > 16      | > 17      | > 18      | > 18  | > 20        | > 20        | > 18        |           |
| Max. power per input (W)                                       |        | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature)                     |             |             |             |           |
| Total power (W)  |        | 900 (at 50°C ambient temperature)                     |           |           |           |   |             |             |             |           |

## Product Description

- AAU5951, which is based on 2 low band & 4 high bands antenna, can support active 1800M-2100M high band 4T4R as well as passive low band and high band.
- With the highly integrated design, AAU5951 also helps operators to simplify sites.



| AAU5951                |   |
|------------------------|---|
| Frequency(Hz)          | Active: 1800M-2100M<br>Passive:690-960M+1800M-2600M   |
| TX/RX                  | 4T4R  |
| EIRP                   | 4*61.3dBm   |
| Technology             | GSM\UMTS\LTE\NR   |
| Dimensions (H x W x D) | 1999mm(H)*429mm(W)*426mm(D)   |
| Weight                 | 87kg  |
| Temperature            | - 40°C~55°C   |
| Heat Dissipation       | Natural Cooling   |
| Wind load              | Frontal/lateral/rearside:910N/655N/1115N at 150km/h   |
| Passive Connector      | 12 x 4.3-10   |
| Electrical downtilt    | Low Band: 0 - 10° , continuously adjustable<br>High Band: 2 - 12° , continuously adjustable |

## Antenna Specifications

| Electrical Properties  |        |   |           |           |           |   |             |             |             |           |
|--|--------|---|-----------|-----------|-----------|---|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  |        | 2 x (690 - 960)                                       |           |           |           | 4 x (1695 - 2690)                                     |             |             |             |           |
|  |        | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   |        | +45°, -45°  |           |           |           |   |             |             |             |           |
| Electrical downtilt (°)  |        | 0 - 10, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |           |
| Gain (dBi)   |        | at mid Tilt   | 14.4      | 15.2      | 15.5      | 15.7  |             |             |             |           |
|  |        | over all Tilts  | 14.3 ±0.5 | 15.1 ±0.5 | 15.4 ±0.5 | 15.5 ±0.5   |             |             |             |           |
|  | Bottom | at mid Tilt   |           |           |           |   | 15.3        | 15.7        | 16.3        | 16.5      |
|  |        | over all Tilts  |           |           |           |   | 15.2 ±0.5   | 15.6 ±0.5   | 16.2 ±0.4   | 16.4 ±0.6 |
|  | Top    | at mid Tilt   |           |           |           |   | 15.0        | 15.4        | 15.7        | 16.2      |
|  |        | over all Tilts  |           |           |           |   | 14.9 ±0.6   | 15.3 ±0.6   | 15.6 ±0.5   | 16.1 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 16  | > 16      | > 16      | > 15      | > 16  | > 16        | > 16        | > 16        |           |
| Horizontal 3dB beam width (°)                                  |        | 68 ±5   | 63 ±5     | 61 ±5     | 60 ±5     | 66 ±5   | 63 ±5       | 60 ±5       | 58 ±5       |           |
| Vertical 3dB beam width (°)                                    |        | 10.5 ±0.9   | 9.5 ±0.8  | 9.2 ±0.7  | 8.5 ±0.7  |   |             |             |             |           |
|  | Bottom |   |           |           |           | 10.4 ±0.6   | 9.4 ±0.5    | 8.1 ±0.3    | 7.4 ±0.3    |           |
|  | Top    |   |           |           |           | 9.7 ±0.6  | 8.9 ±0.5    | 7.9 ±0.3    | 7.1 ±0.3    |           |
| VSWR   |        | < 1.5   |           |           |           |   |             |             |             |           |
| Cross polar isolation (dB)                                     |        | ≥ 28  |           |           |           | ≥ 28  |             |             |             |           |
| Interband isolation (dB)                                       |        | ≥ 28  |           |           |           |   |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 |        | > 22  | > 23      | > 24      | > 24      | > 25  | > 25        | > 25        | > 25        |           |
| Cross polar ratio (dB)   |        | 0°  | > 16      | > 17      | > 18      | > 18  | > 20        | > 20        | > 20        |           |
| Max. power per input (W)                                       |        | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature)                     |             |             |             |           |
| Total power (W)  |        | 900 (at 50°C ambient temperature)                     |           |           |           |   |             |             |             |           |

# B. Passive Antenna

## Multi-band

### B - 1 Low Band

#### 2 Ports

| Frequency Range (MHz) | 3dB Horizontal Beam Width(°) | Gain (dBi) | Electrical Downtilt(°) | Tilt Method | Connector  | Dimension(mm)    | Model        | Page      | Array symbol |
|-----------------------|------------------------------|------------|------------------------|-------------|------------|------------------|--------------|-----------|--------------|
| 690-960               | 65                           | 15         | 0-14                   | EasyRET2.0  | 2 x 4.3-10 | 1415 x 298 x 149 | A704515R0v06 | <b>10</b> | A            |
| 690-960               | 65                           | 16.5       | 0-12                   | EasyRET2.0  | 2 x 4.3-10 | 1936 x 298 x 149 | A704516R0v06 | <b>12</b> | A            |
| 690-960               | 65                           | 17.5       | 0-10                   | EasyRET2.0  | 2 x 4.3-10 | 2535 x 298 x 149 | A704517R0v06 | <b>14</b> | A            |
| 690-960               | 33                           | 20.5       | 0-10                   | EasyRET2.0  | 2 x 4.3-10 | 2580 x 590 x 169 | A704521R0v06 | <b>16</b> | A            |
| 790-960               | 90                           | 15         | 0-12                   | EasyRET2.0  | 2 x 4.3-10 | 1936 x 259 x 135 | A794515R1v06 | <b>18</b> | A            |

#### 4 Ports

| Frequency Range (MHz) | 3dB Horizontal Beam Width (°) | Gain (dBi) | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model        | Page      | Array symbol |
|-----------------------|-------------------------------|------------|-------------------------|-------------|------------|------------------|--------------|-----------|--------------|
| 690-960/<br>690-960   | 65/65                         | 14.5/14.5  | 0-14/0-14               | EasyRET2.0  | 4 x 4.3-10 | 1499 x 429 x 196 | ADU4515R5v06 | <b>20</b> | E            |
| 690-960/<br>690-960   | 65/65                         | 16/16      | 0-10/0-10               | EasyRET2.0  | 4 x 4.3-10 | 1999 x 429 x 196 | ADU4516R6v06 | <b>22</b> | E            |
| 690-960/<br>690-960   | 65/65                         | 17/17      | 0-10/0-10               | EasyRET2.0  | 4 x 4.3-10 | 2550 x 429 x 196 | ADU4517R6v06 | <b>24</b> | E            |



# Multi-band

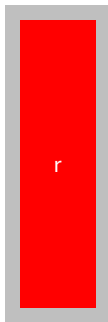
## B - 1 Low Band

### 6 Ports

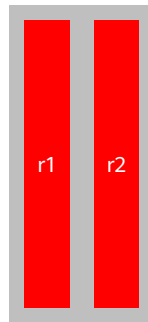
| Frequency Range (MHz)           | 3dB Horizontal Beam Width (°) | Gain (dBi)       | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model         | Page      | Array symbol |
|---------------------------------|-------------------------------|------------------|-------------------------|-------------|------------|------------------|---------------|-----------|--------------|
| 690-862/<br>880-906/<br>690-960 | 65/65/65                      | 15/15.5/<br>16   | 0-10/0-10/<br>0-10      | EasyRET2.0  | 6 x 4.3-10 | 1999 x 429 x 196 | ATR4516R2v06  | <b>26</b> | EE           |
| 690-862/<br>880-906/<br>690-960 | 65/65/65                      | 16.5/16.5/<br>17 | 2-12/2-12/<br>2-12      | EasyRET2.0  | 6 x 4.3-10 | 2550 x 429 x 196 | ATR4517R10v06 | <b>28</b> | EE           |

### Array Symbol Type

Type A

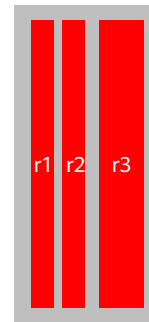


Type E



2 Low-bands array side-by-side

Type EE



## Multi-band

### B - 2 High Band

#### 2 Ports

| Frequency Range (MHz) | 3dB Horizontal Beam Width (°) | Gain (dBi) | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model        | Page      | Array symbol |
|-----------------------|-------------------------------|------------|-------------------------|-------------|------------|------------------|--------------|-----------|--------------|
| 1710-2200             | 65                            | 18         | 0-10                    | EasyRET2.0  | 2 x 4.3-10 | 1365 x 155 x 89  | A194518R0v06 | <b>30</b> | B            |
| 1710-2690             | 65                            | 18         | 0-12                    | EasyRET2.0  | 2 x 4.3-10 | 1365 x 155 x 89  | A264518R0v06 | <b>32</b> | C            |
| 1695-2690             | 65                            | 21         | 0-6                     | EasyRET2.0  | 2 x 4.3-10 | 2099 x 155 x 89  | A264521R1v06 | <b>34</b> | C            |
| 1695-2690             | 33                            | 21         | 2-12                    | EasyRET2.0  | 2 x 4.3-10 | 1365 x 299 x 109 | A264521R2v06 | <b>36</b> | C            |

#### 4 Ports

| Frequency Range (MHz)   | 3dB Horizontal Beam Width (°) | Gain (dBi) | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model          | Page      | Array symbol |
|-------------------------|-------------------------------|------------|-------------------------|-------------|------------|------------------|----------------|-----------|--------------|
| 1710-2200/<br>1710-2200 | 65/65                         | 18/18      | 0-10/0-10               | EasyRET2.0  | 4 x 4.3-10 | 1365 x 269 x 86  | ADU4518R1v06   | <b>38</b> | H            |
| 1710-2690/<br>1710-2690 | 65/65                         | 18/18      | 0-12/0-12               | EasyRET2.0  | 4 x 4.3-10 | 1365 x 269 x 86  | ADU4518R6v06   | <b>40</b> | I            |
| 1695-2690/<br>1695-2690 | 65/65                         | 21/21      | 0-6/0-6                 | EasyRET2.0  | 4 x 4.3-10 | 2099 x 269 x 86  | ADU4521R0v06   | <b>42</b> | I            |
| 1710-2690/<br>1710-2690 | 33/33                         | 21/21      | 0-10/0-10               | EasyRET2.0  | 4 x 4.3-10 | 1399 x 449 x 196 | **ADU4521R3v06 | <b>44</b> | I            |

#### 6 Ports

| Frequency Range (MHz)                 | 3dB Horizontal Beam Width (°) | Gain (dBi) | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)   | Model         | Page      | Array symbol |
|---------------------------------------|-------------------------------|------------|-------------------------|-------------|------------|-----------------|---------------|-----------|--------------|
| 1710-2690/<br>1710-2690/<br>1710-2690 | 65/65/65                      | 18/18/18   | 0-12/0-12/<br>0-12      | EasyRET2.0  | 6 x 4.3-10 | 1365 x 376 x 99 | ATR4518R14v06 | <b>46</b> | P            |

\*\* Preliminary Issue

# Multi-band

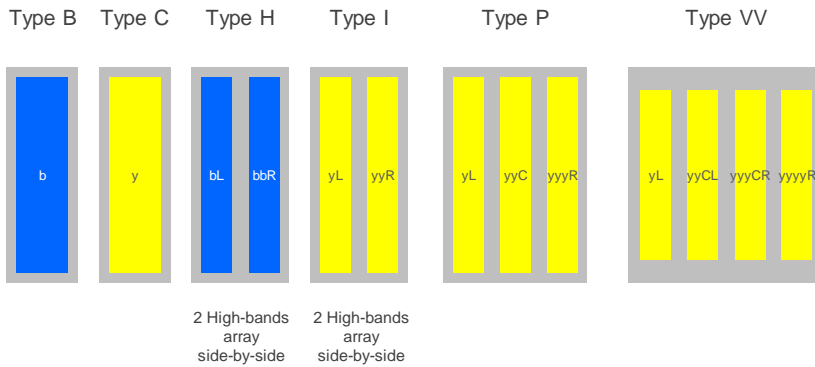
## B - 2 High Band

### 8 Ports

| Frequency Range (MHz)                               | 3dB Horizontal Beam Width (°) | Gain (dBi)      | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model         | Page      | Array symbol |
|---|-------------------------------|-----------------|-------------------------|-------------|------------|------------------|---------------|-----------|--------------|
| 1710-2690/<br>1710-2690/<br>1710-2690/<br>1710-2690 | 65/65/65/65                   | 18/18/<br>18/18 | 0-12/0-12/<br>0-12/0-12 | EasyRET2.0  | 8 x 4.3-10 | 1499 x 449 x 115 | AQU4518R21v06 | <b>48</b> | VV           |

*\*\* Preliminary Issue*

### Array Symbol Type

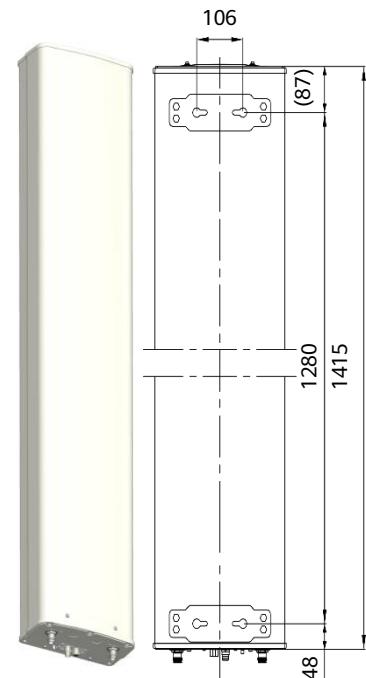


## Antenna Specifications

| Electrical Properties  |                |                                   |           |           |           |
|--|----------------|-----------------------------------|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 690 - 960                         |           |           |           |
|  |                | 690 - 803                         | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45° , -45°                       |           |           |           |
| Electrical downtilt (°)  |                | 0 - 14 , continuously adjustable  |           |           |           |
| Gain (dBi)   | at mid Tilt    | 13.9                              | 14.4      | 14.6      | 14.8      |
|  | over all Tilts | 13.9 ±0.3                         | 14.3 ±0.3 | 14.5 ±0.3 | 14.7 ±0.4 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15                              | > 15      | > 15      | > 17      |
| Horizontal 3dB beam width (°)                                  |                | 69 ±1.4                           | 68 ±1.0   | 67 ±1.0   | 65 ±2.0   |
| Vertical 3dB beam width (°)                                    |                | 16.4 ±1.0                         | 15.0 ±1.0 | 14.5 ±0.7 | 13.2 ±0.9 |
| VSWR   |                | < 1.5                             |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 30                              |           |           |           |
| Front to back ratio , ±30° (dB)                                |                | > 24                              | > 25      | > 25      | > 25      |
| Cross polar ratio (dB)   | 0°             | > 17                              | > 17      | > 17      | > 17      |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature) |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)       |           |           |           |
| Impedance (Ω)  |                | 50                                |           |           |           |
| Grounding  |                | DC Ground                         |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1415 x 298 x 149   |
| Packing dimensions (H x W x D) (mm) | 1835 x 360 x 225   |
| Antenna weight (kg)                 | 12.3   |
| Clamps weight (kg)                  | 2.9 (2 units)  |
| Antenna packing weight (kg)         | 21.3 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 435 (at 150 km/h)<br>Lateral: 195 (at 150 km/h)<br>Maximum: 580 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 2 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0B01 | Mechanical downtilt:<br>0 - 16 ° | 1.3 kg | 1 (Separate packing) |

**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

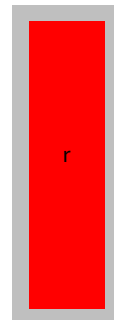
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



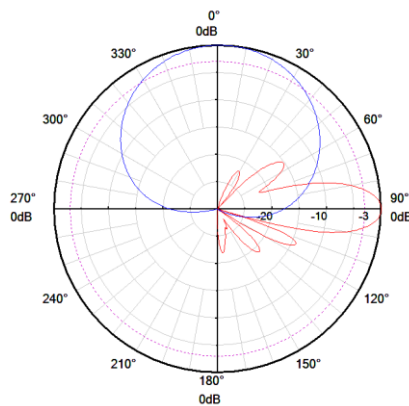
**Integrated RET S/N:**

**a** HWxxxx.....r

r - Red



**Pattern sample for reference**



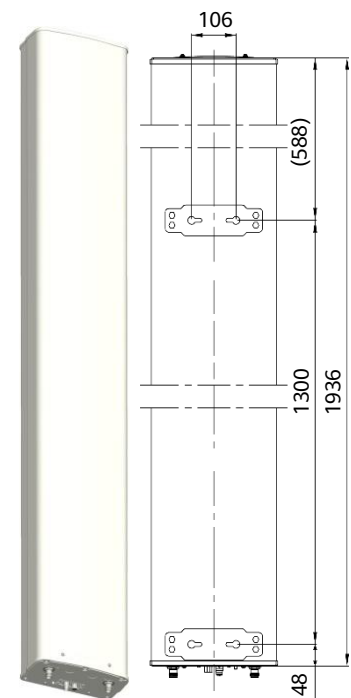
690 - 960 MHz

## Antenna Specifications

| Electrical Properties  |                                   |           |           |           |           |
|--|-----------------------------------|-----------|-----------|-----------|-----------|
| Frequency range (MHz)  | 690 - 960                         |           |           |           |           |
|  | 690 - 803                         | 790 - 862 | 824 - 894 | 880 - 960 |           |
| Polarization   | +45°, -45°                        |           |           |           |           |
| Electrical downtilt (°)  | 0 - 12, continuously adjustable   |           |           |           |           |
| Gain (dBi)   | at mid Tilt                       | 15.5      | 15.9      | 16.1      | 16.4      |
|  | over all Tilts                    | 15.4 ±0.3 | 15.7 ±0.4 | 15.9 ±0.5 | 16.1 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15                              | > 15      | > 15      | > 15      |           |
| Horizontal 3dB beam width (°)                                  | 69 ±1.0                           | 68 ±1.2   | 67 ±1.2   | 65 ±1.8   |           |
| Vertical 3dB beam width (°)                                    | 11.3 ±0.8                         | 10.3 ±0.5 | 9.8 ±0.6  | 9.2 ±0.5  |           |
| VSWR   | < 1.5                             |           |           |           |           |
| Cross polar isolation (dB)                                     | ≥ 30                              |           |           |           |           |
| Front to back ratio, ±30° (dB)                                 | > 24                              | > 25      | > 25      | > 25      |           |
| Cross polar ratio (dB)   | 0°                                | > 18      | > 18      | > 18      |           |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature) |           |           |           |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)       |           |           |           |           |
| Impedance (Ω)  | 50                                |           |           |           |           |
| Grounding  | DC Ground                         |           |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1936 x 298 x 149   |
| Packing dimensions (H x W x D) (mm) | 2365 x 360 x 230   |
| Antenna weight (kg)                 | 15.3   |
| Clamps weight (kg)                  | 3.0 (2 units)  |
| Antenna packing weight (kg)         | 25.8 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 620 (at 150 km/h)<br>Lateral: 280 (at 150 km/h)<br>Maximum: 830 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 2 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0C01 | Mechanical downtilt:<br>0 - 12 ° | 2.1 kg | 1 (Separate packing) |

**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

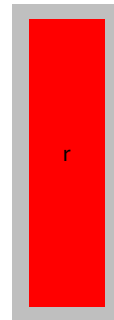
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



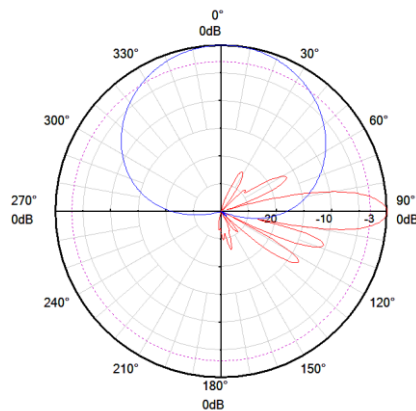
**Integrated RET S/N:**

**a** HWxxxx.....r

r - Red



**Pattern sample for reference**



**690 - 960 MHz**

## Antenna Specifications

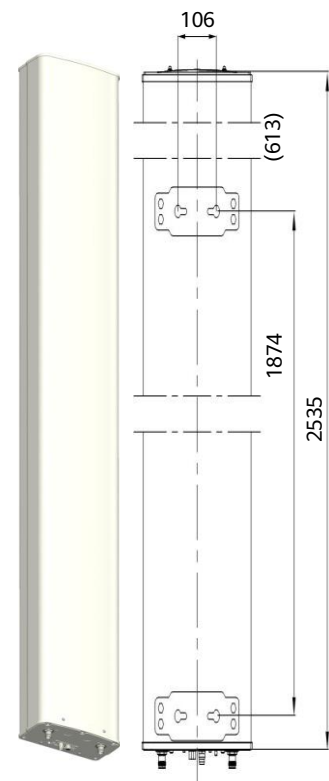
| Electrical Properties  |                |                                   |           |           |           |
|--|----------------|-----------------------------------|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 690 - 960                         |           |           |           |
|  |                | 690 - 803                         | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45°, -45°                        |           |           |           |
| Electrical downtilt (°)  |                | 0 - 10, continuously adjustable   |           |           |           |
| Gain (dBi)   | at mid Tilt    | 16.5                              | 16.7      | 17.0      | 17.2      |
|  | over all Tilts | 16.4 ±0.3                         | 16.6 ±0.4 | 16.7 ±0.4 | 16.9 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 17                              | > 18      | > 18      | > 17      |
| Horizontal 3dB beam width (°)                                  |                | 69 ±1.0                           | 68 ±1.2   | 67 ±1.2   | 65 ±2.0   |
| Vertical 3dB beam width (°)                                    |                | 8.7 ±0.6                          | 8.0 ±0.5  | 7.7 ±0.4  | 7.2 ±0.5  |
| VSWR   |                | < 1.5                             |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 30                              |           |           |           |
| Front to back ratio, ±30° (dB)                                 |                | > 25                              | > 26      | > 26      | > 26      |
| Cross polar ratio (dB)   | 0°             | > 18                              | > 18      | > 18      | > 18      |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature) |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)       |           |           |           |
| Impedance (Ω)  |                | 50                                |           |           |           |
| Grounding  |                | DC Ground                         |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2535 x 298 x 149  |
| Packing dimensions (H x W x D) (mm) | 2910 x 375 x 200  |
| Antenna weight (kg)                 | 19.3  |
| Clamps weight (kg)                  | 3.0 (2 units)   |
| Antenna packing weight (kg)         | 27.0 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 845 (at 150 km/h)<br>Lateral: 380 (at 150 km/h)<br>Maximum: 1130 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 2 x 4.3-10 Female   |
| Connector position                  | Bottom  |

## Accessories

| Item         | Model     | Description                    | Weight | Units per antenna    |
|--------------|-----------|--------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0C01 | Mechanical downtilt:<br>0 - 8° | 2.1 kg | 1 (Separate packing) |





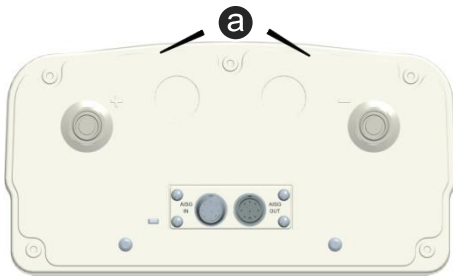
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

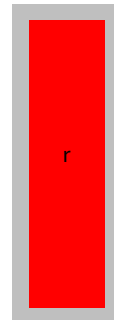
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



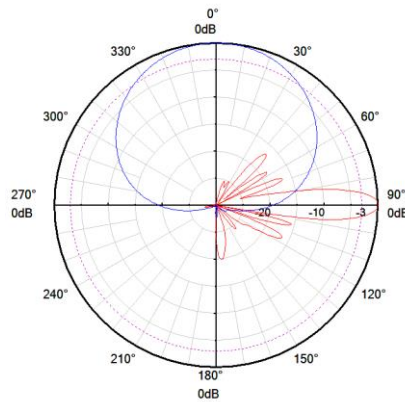
**Integrated RET S/N:**

**a** HWxxxx.....r

r - Red



**Pattern sample for reference**



690 - 960 MHz

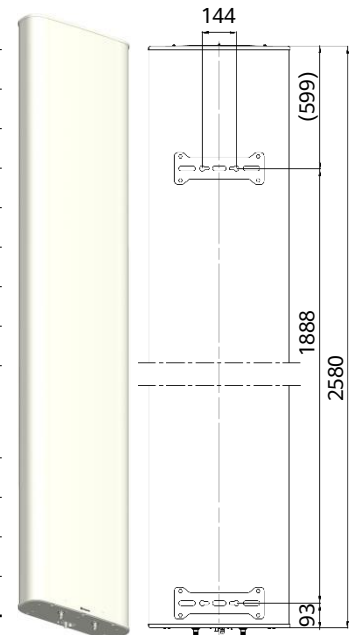
**Antenna Specifications**

| Electrical Properties  |                                   |           |           |           |           |
|--|-----------------------------------|-----------|-----------|-----------|-----------|
| Frequency range (MHz)  | 690 - 960                         |           |           |           |           |
|  | 690 - 803                         | 790 - 862 | 824 - 894 | 880 - 960 |           |
| Polarization   | +45°, -45°                        |           |           |           |           |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable   |           |           |           |           |
| Gain (dBi)   | at mid Tilt                       | 19.1      | 19.7      | 20.0      | 20.3      |
|  | over all Tilts                    | 19.0 ±0.5 | 19.6 ±0.4 | 19.9 ±0.5 | 20.2 ±0.3 |
| Side lobe suppression for first side lobe above main beam (dB) | > 19                              | > 21      | > 21      | > 19      |           |
| Azimuth side lobe suppression(dB)                              | > 18                              | > 18      | > 19      | > 19      |           |
| Horizontal 3dB beam width (°)                                  | 35 ±1.5                           | 32.5 ±1.0 | 31.5 ±1.5 | 29 ±1.0   |           |
| Vertical 3dB beam width (°)                                    | 8.8 ±0.5                          | 8.0 ±0.5  | 7.7 ±0.3  | 7.2 ±0.5  |           |
| VSWR   | < 1.5                             |           |           |           |           |
| Cross polar isolation (dB)                                     | ≥ 28                              | ≥ 30      |           |           |           |
| Front to back ratio, ±30°(dB)                                  | > 32                              | > 35      | > 33      | > 32      |           |
| Cross polar ratio (dB)   | 0°                                | > 21      | > 28      | > 26      | > 24      |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature) |           |           |           |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)       |           |           |           |           |
| Impedance (Ω)  | 50                                |           |           |           |           |
| Grounding  | DC Ground                         |           |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2580 x 590 x 169   |
| Packing dimensions (H x W x D) (mm) | 2875 x 740 x 300   |
| Antenna weight (kg)                 | 44.8   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 64.2 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 1665 (at 150 km/h)<br>Lateral: 240 (at 150 km/h)<br>Maximum: 1665 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 2 x 4.3-10 Female  |
| Connector position                  | Bottom   |

**Accessories**

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt:<br>0 - 8 ° | 3.1 kg | 1 (Separate packing) |

**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

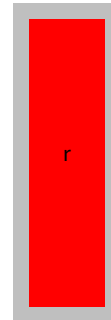
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



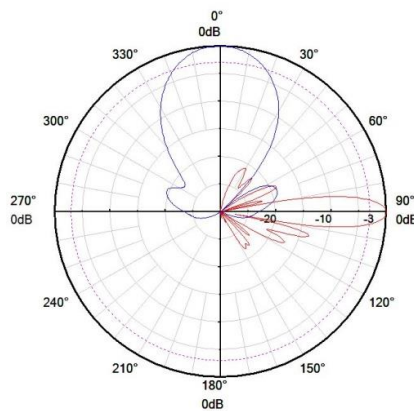
**Integrated RET S/N:**

**a** HWxxxx.....r

r - Red



**Pattern sample for reference**



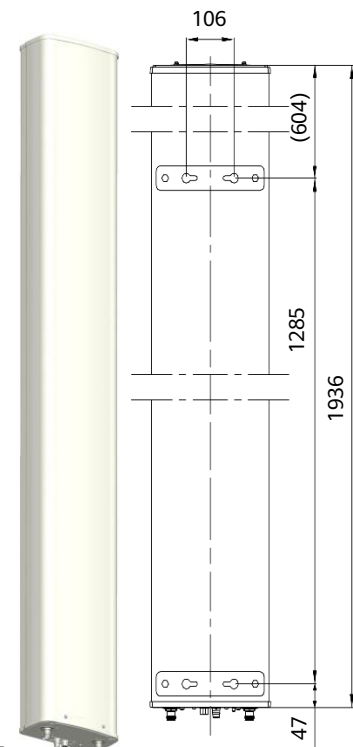
**690 - 960 MHz**

## Antenna Specifications

| Electrical Properties  |                |                                   |           |           |
|--|----------------|-----------------------------------|-----------|-----------|
| Frequency range (MHz)  |                | 790 - 960                         |           |           |
|  |                | 790 - 862                         | 824 - 894 | 880 - 960 |
| Polarization   |                | +45° , -45°                       |           |           |
| Electrical downtilt (° )                                       |                | 0 - 12 , continuously adjustable  |           |           |
| Gain (dBi)   | at mid Tilt    | 15.0                              | 15.2      | 15.3      |
|  | over all Tilts | 14.8 ±0.3                         | 15.0 ±0.3 | 15.0 ±0.4 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 18                              | > 18      | > 18      |
| Horizontal 3dB beam width (° )                                 |                | 86 ±1.0                           | 85 ±1.0   | 85 ±1.5   |
| Vertical 3dB beam width (° )                                   |                | 10.0 ±0.4                         | 9.8 ±0.4  | 9.3 ±0.3  |
| VSWR   |                | < 1.5                             |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 30                              |           |           |
| Front to back ratio , ±30° (dB)                                |                | > 24                              | > 24      | > 24      |
| Cross polar ratio (dB)   | 0°             | > 20                              | > 20      | > 20      |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature) |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)       |           |           |
| Impedance (Ω)  |                | 50                                |           |           |
| Grounding  |                | DC Ground                         |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1936 x 259 x 135   |
| Packing dimensions (H x W x D) (mm) | 2255 x 305 x 190   |
| Antenna weight (kg)                 | 13.5   |
| Clamps weight (kg)                  | 3.0 (2 units)  |
| Antenna packing weight (kg)         | 22.4 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 545 (at 150 km/h)<br>Lateral: 250 (at 150 km/h)<br>Maximum: 730 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 2 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0C01 | Mechanical downtilt:<br>0 - 12 ° | 2.1 kg | 1 (Separate packing) |

**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

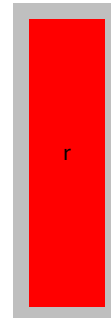
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



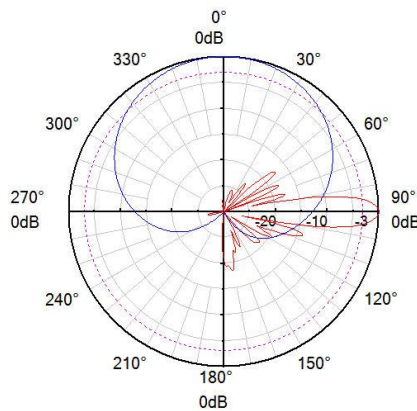
**Integrated RET S/N:**

**a** HWxxxx.....r

r - Red



**Pattern sample for reference**



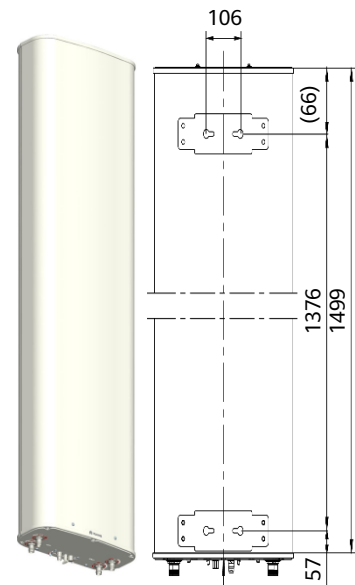
**790 - 960 MHz**

## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |
|--|----------------|---|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 2 x (690 - 960)   |           |           |           |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45° , -45°   |           |           |           |
| Electrical downtilt (°)  |                | 0 - 14 , continuously adjustable , each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 13.8  | 14.2      | 14.4      | 14.5      |
|  | over all Tilts | 13.7 ±0.5   | 14.1 ±0.5 | 14.3 ±0.5 | 14.4 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 17      | > 17      | > 16      |
| Horizontal 3dB beam width (°)                                  |                | 66 ±5   | 63 ±5     | 62 ±5     | 60 ±5     |
| Vertical 3dB beam width (°)                                    |                | 15.3 ±1.2   | 14.0 ±1.1 | 13.3 ±1.0 | 12.2 ±0.8 |
| VSWR   |                | < 1.5   |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |           |
| Front to back ratio , ±30° (dB)                                |                | > 22  | > 24      | > 24      | > 25      |
| Cross polar ratio (dB)   | 0°             | > 16  | > 18      | > 19      | > 20      |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)                       |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                             |           |           |           |
| Impedance (Ω)  |                | 50  |           |           |           |
| Grounding  |                | DC Ground   |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1499 x 429 x 196   |
| Packing dimensions (H x W x D) (mm) | 1695 x 530 x 270   |
| Antenna weight (kg)                 | 22.4   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 33.8 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 410 (at 150 km/h)<br>Lateral: 245 (at 150 km/h)<br>Maximum: 540 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 4 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 16 ° | 2.1 kg | 1 (Separate packing) |

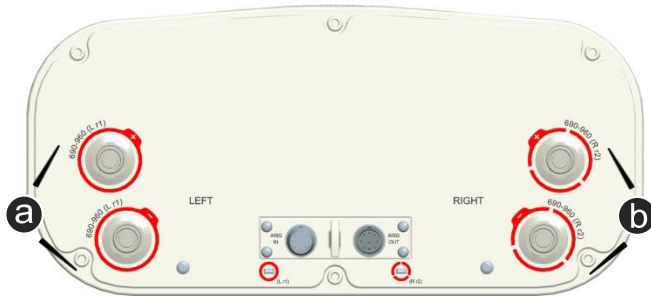
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

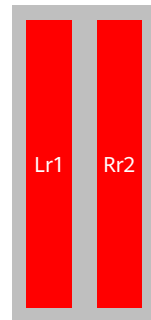


**Integrated RET S/N:**

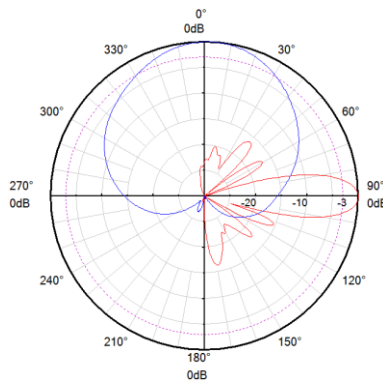
**a** HWxxxx.....Lr1

**b** HWxxxx.....Rr2

r - Red  
L - Left array R - Right array



**Pattern sample for reference**



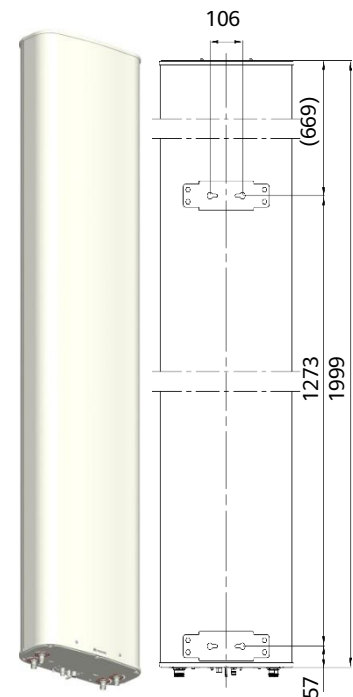
**690 - 960 MHz**

## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |
|--|----------------|---|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 2 x (690 - 960)                                       |           |           |           |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45°, -45°  |           |           |           |
| Electrical downtilt (°)  |                | 0 - 10, continuously adjustable, each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 15.0  | 15.5      | 15.8      | 16.0      |
|  | over all Tilts | 14.8 ±0.5   | 15.3 ±0.5 | 15.6 ±0.5 | 15.8 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 17      | > 17      | > 17      |
| Horizontal 3dB beam width (°)                                  |                | 68 ±5   | 65 ±5     | 62 ±5     | 60 ±5     |
| Vertical 3dB beam width (°)                                    |                | 10.5 ±0.9   | 9.5 ±0.8  | 9.2 ±0.7  | 8.5 ±0.7  |
| VSWR   |                | < 1.5   |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |           |
| Front to back ratio, ±30° (dB)                                 |                | > 23  | > 24      | > 25      | > 26      |
| Cross polar ratio (dB)   | 0°             | > 17  | > 18      | > 19      | > 20      |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)                     |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |
| Impedance (Ω)  |                | 50  |           |           |           |
| Grounding  |                | DC Ground   |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 429 x 196   |
| Packing dimensions (H x W x D) (mm) | 2195 x 530 x 270   |
| Antenna weight (kg)                 | 28.2   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 38.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 555 (at 150 km/h)<br>Lateral: 340 (at 150 km/h)<br>Maximum: 735 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 4 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDTOD01 | Mechanical downtilt: 0 - 12 ° | 2.1 kg | 1 (Separate packing) |



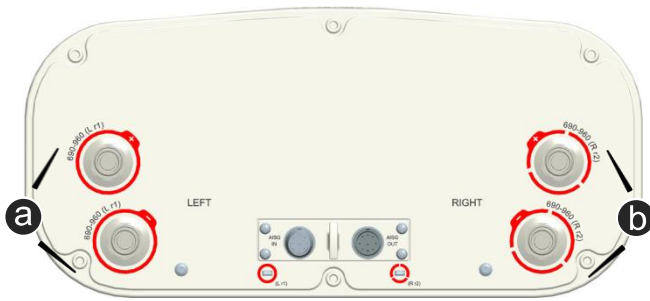
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

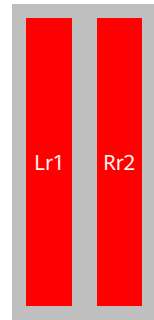
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



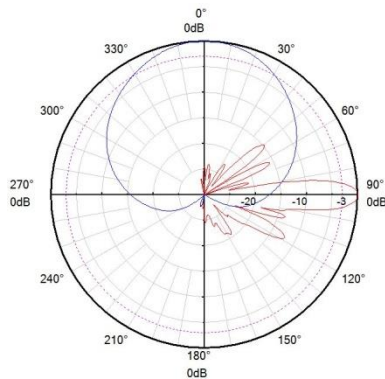
**Integrated RET S/N:**

- a HWxxxx.....Lr1
- b HWxxxx.....Rr2

r - Red  
L - Left array R - Right array



**Pattern sample for reference**



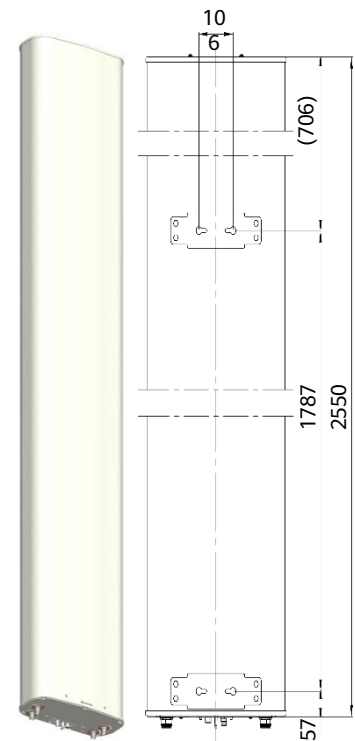
**690 - 960 MHz**

## Antenna Specifications

| Electrical Properties  |   |           |           |           |           |
|--|---|-----------|-----------|-----------|-----------|
| Frequency range (MHz)  | 2 x (690 - 960)   |           |           |           |           |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 |           |
| Polarization   | +45° , -45°   |           |           |           |           |
| Electrical downtilt (°)  | 0 - 10 , continuously adjustable , each band separately |           |           |           |           |
| Gain (dBi)   | at mid Tilt   | 15.8      | 16.4      | 16.7      | 17.2      |
|  | over all Tilts  | 15.5 ±0.5 | 16.2 ±0.5 | 16.4 ±0.5 | 16.9 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 17      | > 17      | > 17      |           |
| Horizontal 3dB beam width (°)                                  | 68 ±5   | 65 ±5     | 62 ±5     | 60 ±5     |           |
| Vertical 3dB beam width (°)                                    | 8.8 ±0.7  | 8.0 ±0.6  | 7.8 ±0.5  | 7.5 ±0.5  |           |
| VSWR   | < 1.5   |           |           |           |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           |           |
| Interband isolation (dB)                                       | ≥ 28  |           |           |           |           |
| Front to back ratio , ±30° (dB)                                | > 23  | > 24      | > 25      | > 26      |           |
| Cross polar ratio (dB)   | 0°  | > 17      | > 18      | > 19      | > 20      |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)                       |           |           |           |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                             |           |           |           |           |
| Impedance (Ω)  | 50  |           |           |           |           |
| Grounding  | DC Ground   |           |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2550 x 429 x 196   |
| Packing dimensions (H x W x D) (mm) | 2770 x 530 x 275   |
| Antenna weight (kg)                 | 33.4   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 55.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 735 (at 150 km/h)<br>Lateral: 450 (at 150 km/h)<br>Maximum: 965 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 4 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |

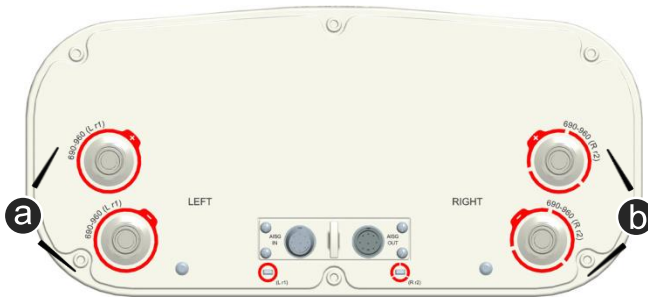
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

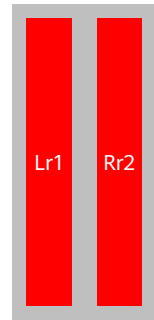
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



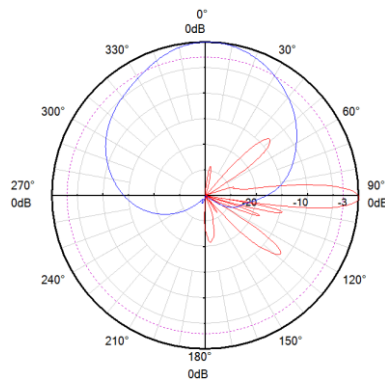
**Integrated RET S/N:**

- a** HWxxxx.....Lr1
- b** HWxxxx.....Rr2

r - Red  
L - Left array R - Right array



**Pattern sample for reference**



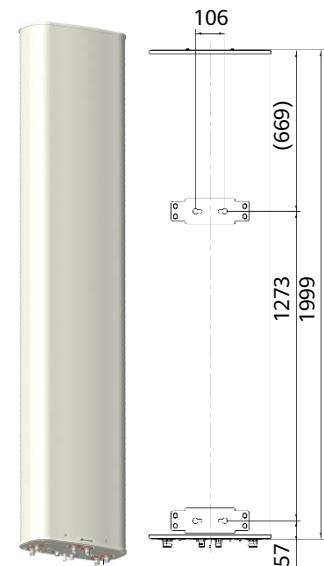
**690 - 960 MHz**

## Antenna Specifications

| Electrical Properties  |   |           |                 |                                    |           |           |           |           |
|--|---|-----------|-----------------|------------------------------------|-----------|-----------|-----------|-----------|
| Frequency range (MHz)  | 690 - 862 (Lr1)                                       |           | 880 - 960 (Lr2) | 690 - 960 (Rr3)                    |           |           |           |           |
|  | 690 - 803   | 790 - 862 |                 | 690 - 803                          | 790 - 862 | 824 - 894 | 880 - 960 |           |
| Polarization   | +45°, -45°  |           |                 | +45°, -45°                         |           |           |           |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |           |                 |                                    |           |           |           |           |
| Gain (dBi)   | at mid Tilt   | 14.2      | 14.7            | 15.3                               | 14.5      | 15        | 15.3      | 15.6      |
|  | over all Tilts  | 14.1 ±0.5 | 14.5 ±0.6       | 15.1 ±0.5                          | 14.3 ±0.5 | 14.8 ±0.5 | 15.1 ±0.5 | 15.4 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 15      | > 15            | > 15                               | > 15      | > 15      | > 15      | > 15      |
| Horizontal 3dB beam width (°)                                  | 66 ±7   | 61 ±6     | 58 ±6           | 66 ±7                              | 61 ±6     | 60 ±6     | 58 ±6     |           |
| Vertical 3dB beam width (°)                                    | 11 ±1.1   | 9.9 ±0.9  | 8.8 ±0.8        | 10.5 ±1                            | 9.5 ±0.9  | 9.2 ±0.9  | 8.5 ±0.8  |           |
| VSWR   | < 1.5   |           | < 1.5           | < 1.5                              |           |           |           |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           | ≥ 28            | ≥ 28                               |           |           |           |           |
| Interband isolation (dB)                                       | ≥ 28  |           | ≥ 28            | ≥ 28                               |           |           |           |           |
| Front to back ratio, ±30° (dB)                                 | > 21  | > 22      | > 24            | > 21                               | > 22      | > 22      | > 24      |           |
| Cross polar ratio (dB)   | 0°  | > 15      | > 16            | > 18                               | > 15      | > 16      | > 17      | > 18      |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)*                    |           |                 | 500 (at 50°C ambient temperature)* |           |           |           |           |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                           |           |                 | ≤ -153 (2 x 43 dBm carrier)        |           |           |           |           |
| Impedance (Ω)  | 50  |           |                 |                                    |           |           |           |           |
| Grounding  | DC Ground   |           |                 |                                    |           |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 429 x 196   |
| Packing dimensions (H x W x D) (mm) | 2195 x 530 x 270   |
| Antenna weight (kg)                 | 30.3   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 41.3 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 555 (at 150 km/h)<br>Lateral: 340 (at 150 km/h)<br>Maximum: 735 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 6 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 12° | 2.1 kg | 1 (Separate packing) |

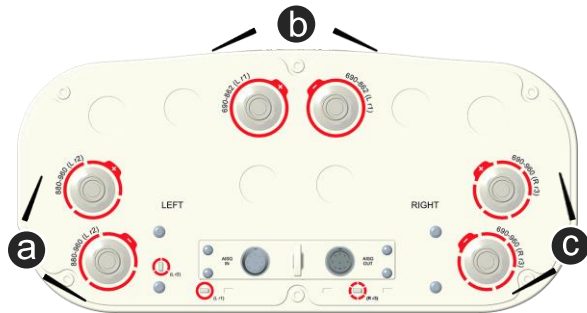
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

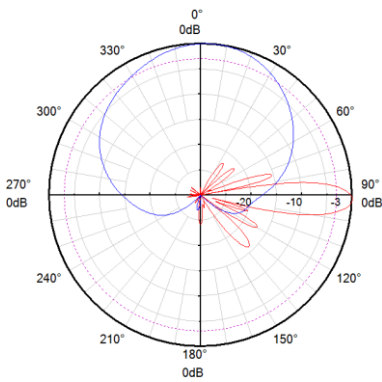


**Integrated RET S/N:**

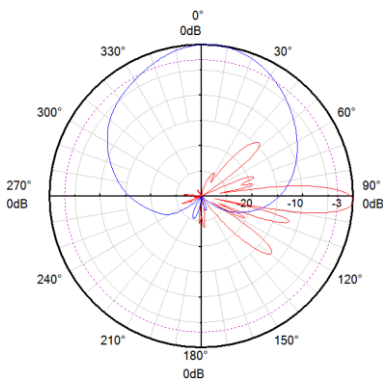
- a** HWxxxx.....Lr2
- b** HWxxxx.....Lr1
- c** HWxxxx.....Rr3

r - Red  
L - Left array      R - Right array

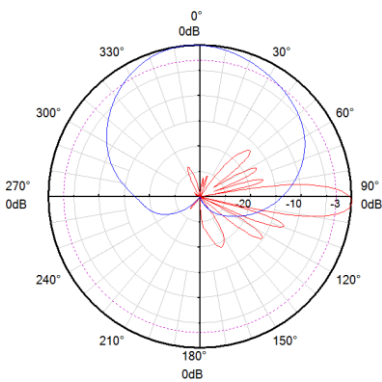
**Pattern sample for reference**



**690 - 862 MHz**



**880 - 960 MHz**



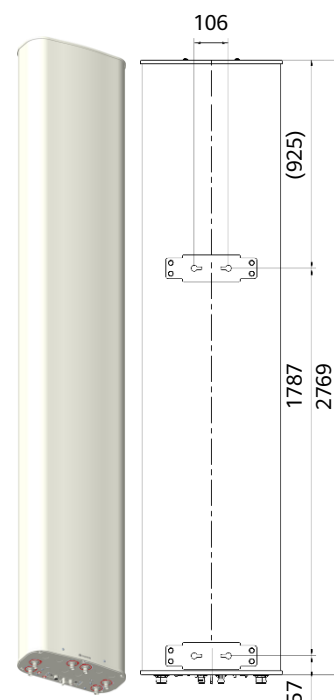
**690 - 960 MHz**

## Antenna Specifications

| Electrical Properties  |                |   |           |           |                                    |           |           |           |
|--|----------------|---|-----------|-----------|------------------------------------|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 690 - 862   |           | 880 - 960 | 690 - 960                          |           |           |           |
|  |                | 690 - 803   | 790 - 862 |           | 690 - 803                          | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45° , -45°   |           |           | +45° , -45°                        |           |           |           |
| Electrical downtilt (°)  |                | 2 - 12 , continuously adjustable , each band separately |           |           |                                    |           |           |           |
| Gain (dBi)   | at mid Tilt    | 15.2  | 15.8      | 16.4      | 15.4                               | 16.1      | 16.3      | 16.7      |
|  | over all Tilts | 15.1 ±0.5   | 15.7 ±0.6 | 16.2 ±0.5 | 15.3 ±0.6                          | 16.0 ±0.6 | 16.2 ±0.5 | 16.5 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 15      | > 17      | > 15                               | > 16      | > 16      | > 17      |
| Horizontal 3dB beam width (°)                                  |                | 68 ±6   | 62 ±5     | 58 ±5     | 68 ±6                              | 62 ±5     | 60 ±5     | 58 ±5     |
| Vertical 3dB beam width (°)                                    |                | 8.2 ±0.6  | 7.4 ±0.5  | 6.5 ±0.4  | 8.5 ±0.7                           | 7.7 ±0.6  | 7.4 ±0.6  | 7.0 ±0.5  |
| VSWR   |                | < 1.5   |           | < 1.5     | < 1.5                              |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           | ≥ 28      | ≥ 28                               |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 28  |           | ≥ 28      | ≥ 28                               |           |           |           |
| Front to back ratio , ±30° (dB)                                |                | > 22  | > 23      | > 25      | > 22                               | > 23      | > 24      | > 25      |
| Cross polar ratio (dB)   |                | 0°  | > 16      | > 20      | > 20                               | > 16      | > 19      | > 20      |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                      |           |           | 500 (at 50°C ambient temperature)* |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                             |           |           | ≤ -153 (2 x 43 dBm carrier)        |           |           |           |
| Impedance (Ω)  |                | 50  |           |           |                                    |           |           |           |
| Grounding  |                | DC Ground   |           |           |                                    |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2769 x 429 x 196  |
| Packing dimensions (H x W x D) (mm) | 2980 x 530 x 275  |
| Antenna weight (kg)                 | 38.5  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 59.0 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 805 (at 150 km/h)<br>Lateral: 495 (at 150 km/h)<br>Maximum: 1060 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 6 x 4.3-10 Female   |
| Connector position                  | Bottom  |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |

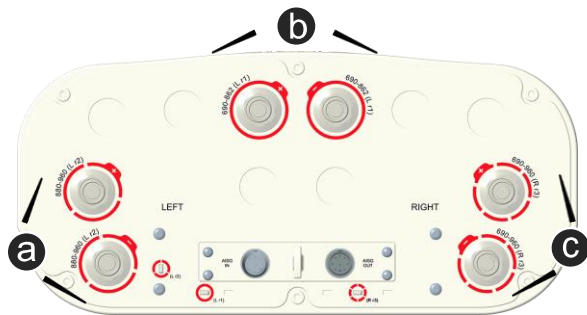
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

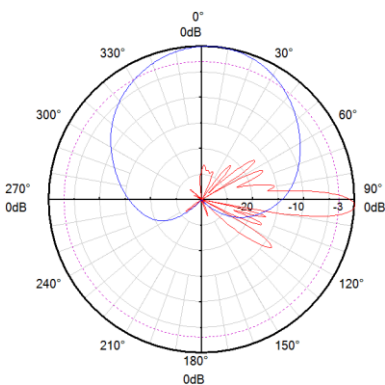


**Integrated RET S/N:**

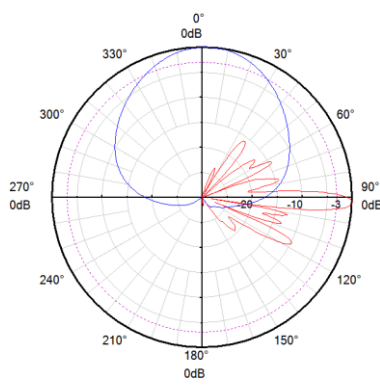
- a** HWxxxx.....Lr2
- b** HWxxxx.....Lr1
- c** HWxxxx.....Rr3

r - Red  
L - Left array      R - Right array

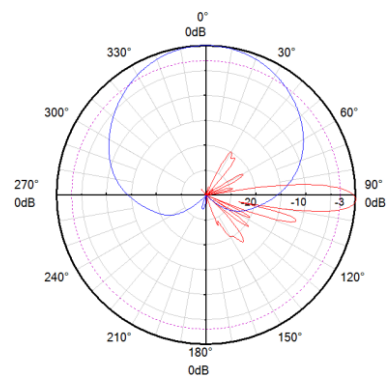
**Pattern sample for reference**



690 - 862 MHz



880 - 960 MHz



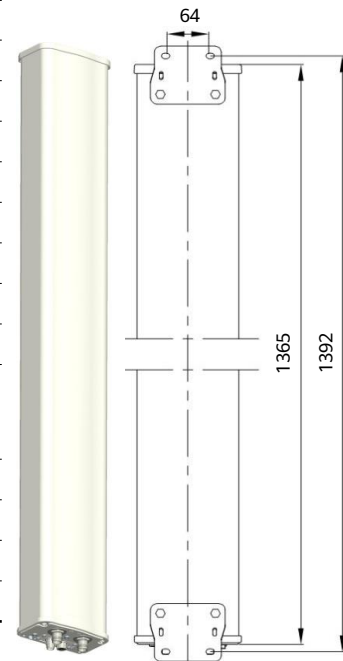
690 - 960 MHz

## Antenna Specifications

| Electrical Properties  |                |                                   |             |             |             |
|--|----------------|-----------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 1710 - 2200                       |             |             |             |
|  |                | 1710 - 1880                       | 1850 - 1990 | 1920 - 2170 | 2170 - 2200 |
| Polarization   |                | +45°, -45°                        |             |             |             |
| Electrical downtilt (°)  |                | 0 - 10, continuously adjustable   |             |             |             |
| Gain (dBi)   | at mid Tilt    | 17.4                              | 17.8        | 18.0        | 17.9        |
|  | over all Tilts | 17.2 ±0.4                         | 17.6 ±0.4   | 17.7 ±0.4   | 17.8 ±0.4   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 19                              | > 19        | > 18        | > 17        |
| Horizontal 3dB beam width (°)                                  |                | 68 ±1.5                           | 67 ±1.5     | 66 ±2       | 63 ±2       |
| Vertical 3dB beam width (°)                                    |                | 7.4 ±0.4                          | 6.9 ±0.4    | 6.5 ±0.4    | 6.0 ±0.3    |
| VSWR   |                | < 1.5                             |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 30                              |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 28                              | > 28        | > 27        | > 27        |
| Cross polar ratio (dB)   | 0°             | > 22                              | > 22        | > 22        | > 18        |
| Max. power per input (W)                                       |                | 300 (at 50°C ambient temperature) |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)       |             |             |             |
| Impedance (Ω)  |                | 50                                |             |             |             |
| Grounding  |                | DC Ground                         |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1365 x 155 x 89  |
| Packing dimensions (H x W x D) (mm) | 1695 x 195 x 155   |
| Antenna weight (kg)                 | 6.2  |
| Clamps weight (kg)                  | 2.0 (2 units)  |
| Antenna packing weight (kg)         | 10.7 (Included clamps)   |
| Mast diameter supported (mm)        | 38 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 220 (at 150 km/h)<br>Lateral: 110 (at 150 km/h)<br>Maximum: 290 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 2 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0A01 | Mechanical downtilt:<br>0 - 12 ° | 0.6 kg | 1 (Separate packing) |



**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

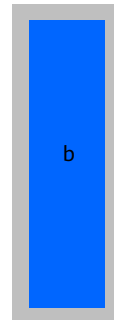
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



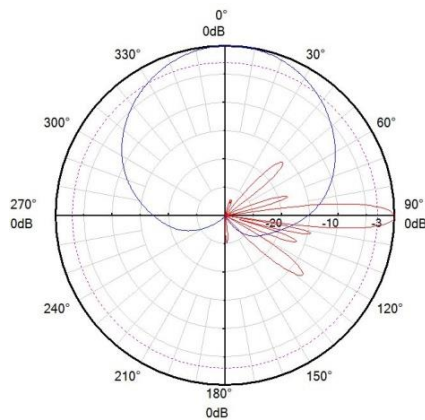
**Integrated RET S/N:**

**a** HWxxxx.....**b**

**b** - Blue



**Pattern sample for reference**



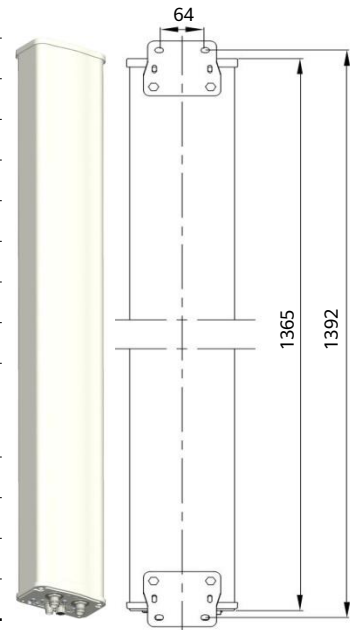
**1710 - 2200 MHz**

## Antenna Specifications

| Electrical Properties  |                |                                   |             |             |             |
|--|----------------|-----------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 1710 - 2690                       |             |             |             |
|  |                | 1710 - 1990                       | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°                        |             |             |             |
| Electrical downtilt (°)  |                | 0 - 12, continuously adjustable   |             |             |             |
| Gain (dBi)   | at mid Tilt    | 17.4                              | 18.0        | 18.5        | 18.6        |
|  | over all Tilts | 17.2 ±0.3                         | 17.6 ±0.5   | 18.3 ±0.4   | 18.4 ±0.4   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 18                              | > 18        | > 18        | > 18        |
| Horizontal 3dB beam width (°)                                  |                | 68 ±2.0                           | 65 ±2.4     | 62 ±2.7     | 60 ±1.5     |
| Vertical 3dB beam width (°)                                    |                | 6.8 ±0.4                          | 6.1 ±0.4    | 5.5 ±0.4    | 5.0 ±0.3    |
| VSWR   |                | < 1.5                             |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 30                              |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 28                              | > 29        | > 29        | > 29        |
| Cross polar ratio (dB)   | 0°             | > 20                              | > 20        | > 20        | > 20        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature) |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)       |             |             |             |
| Impedance (Ω)  |                | 50                                |             |             |             |
| Grounding  |                | DC Ground                         |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1365 x 155 x 89  |
| Packing dimensions (H x W x D) (mm) | 1695 x 195 x 155   |
| Antenna weight (kg)                 | 7.0  |
| Clamps weight (kg)                  | 2.0 (2 units)  |
| Antenna packing weight (kg)         | 11.5 (included clamps)   |
| Mast diameter supported (mm)        | 38 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 220 (at 150 km/h)<br>Lateral: 110 (at 150 km/h)<br>Maximum: 290 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 2 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0A01 | Mechanical downtilt:<br>0 - 12° | 0.6 kg | 1 (Separate packing) |

**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

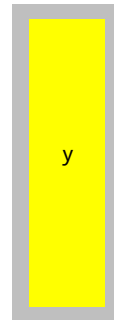
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



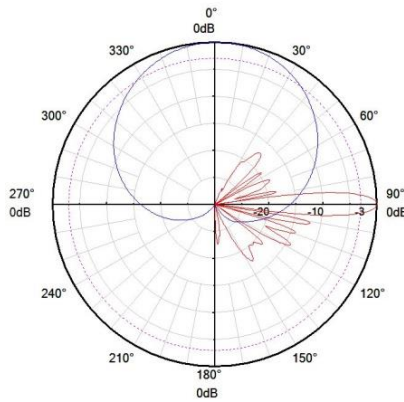
**Integrated RET S/N:**

**a** HWxxxx.....y

y - Yellow



**Pattern sample for reference**



**1710 - 2690 MHz**

A264521R1v06

DX-1695-2690-65-21i-M-R

EasyRET High-Band 2-Port Antenna with 1 Integrated RCU - 2.0m



HUAWEI

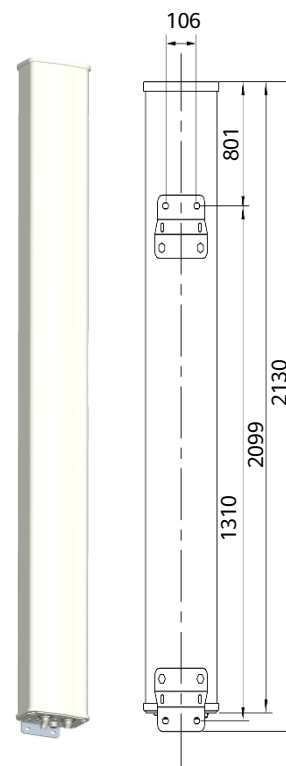
L Band &  
H Band

## Antenna Specifications

| Electrical Properties  |                |                                   |             |             |             |
|--|----------------|-----------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 1695 - 2690                       |             |             |             |
|  |                | 1695 - 1990                       | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45° , -45°                       |             |             |             |
| Electrical downtilt (°)  |                | 0 - 6 , continuously adjustable   |             |             |             |
| Gain (dBi)   | at mid Tilt    | 19.8                              | 20.3        | 20.7        | 21.0        |
|  | over all Tilts | 19.8 ±0.5                         | 20.3 ±0.5   | 20.7 ±0.5   | 21.0 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 18                              | > 17        | > 17        | > 17        |
| Horizontal 3dB beam width (°)                                  |                | 68 ±4                             | 65 ±3       | 61 ±2       | 59 ±4       |
| Vertical 3dB beam width (°)                                    |                | 4.4 ±0.4                          | 4.0 ±0.4    | 3.5 ±0.2    | 3.3 ±0.3    |
| VSWR   |                | < 1.5                             |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28                              |             |             |             |
| Front to back ratio , ±30° (dB)                                |                | > 27                              | > 27        | > 27        | > 27        |
| Cross polar ratio (dB)   | 0°             | > 20                              | > 20        | > 20        | > 20        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature) |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)       |             |             |             |
| Impedance (Ω)  |                | 50                                |             |             |             |
| Grounding  |                | DC Ground                         |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2099 x 155 x 89  |
| Packing dimensions (H x W x D) (mm) | 2515 x 210 x 170   |
| Antenna weight (kg)                 | 9.8  |
| Clamps weight (kg)                  | 2.9 (2 units)  |
| Antenna packing weight (kg)         | 16.8 (Included clamps)   |
| Mast diameter supported (mm)        | 50 -115  |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 360 (at 150 km/h)<br>Lateral: 180 (at 150 km/h)<br>Maximum: 475 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 2 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0B01 | Mechanical downtilt: 0 - 12 ° | 1.3 kg | 1 (Separate packing) |

**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

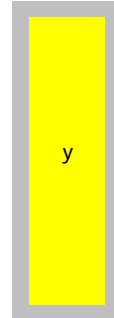
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



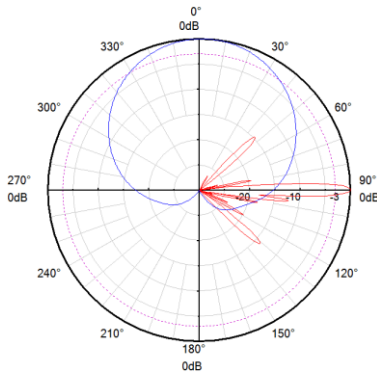
**Integrated RET S/N:**

**a** HWxxxx.....y1

y - Yellow



**Pattern sample for reference**



**1695 - 2690 MHz**

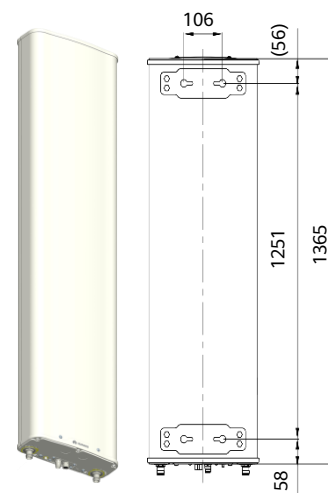
## Antenna Specifications

| Electrical Properties  |                |                                    |             |             |             |
|--|----------------|------------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 1695 - 2690                        |             |             |             |
|  |                | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°                         |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable    |             |             |             |
| Gain (dBi)   | at mid Tilt    | 19.5                               | 19.8        | 19.9        | 20.0        |
|  | over all Tilts | 19.4 ±0.5                          | 19.7 ±0.4   | 19.8 ±0.4   | 19.9 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 17                               | > 17        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 36 ±2.0                            | 34 ±1.5     | 32 ±1.5     | 30 ±1.5     |
| Vertical 3dB beam width (°)                                    |                | 7.1 ±0.5                           | 6.5 ±0.5    | 5.5 ±0.4    | 5.1 ±0.4    |
| VSWR   |                | < 1.5                              |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28                               |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28                               |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 29                               | > 32        | > 33        | > 33        |
| Cross polar ratio (dB)   | 0°             | > 21                               | > 21        | > 20        | > 24        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)* |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |
| Impedance (Ω)  |                | 50                                 |             |             |             |
| Grounding  |                | DC Ground                          |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1365 x 299 x 109   |
| Packing dimensions (H x W x D) (mm) | 1660 x 347 x 180   |
| Antenna weight (kg)                 | 13.4   |
| Clamps weight (kg)                  | 2.9 (2 units)  |
| Antenna packing weight (kg)         | 21.3 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 385 (at 150 km/h)<br>Lateral: 130 (at 150 km/h)<br>Maximum: 440 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 2 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0B01 | Mechanical downtilt:<br>0 - 16° | 1.3 kg | 1 (Separate packing) |

**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

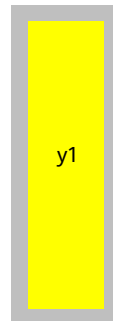
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



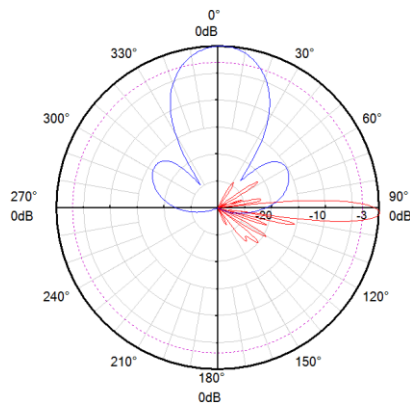
**Integrated RET S/N:**

**a** HWxxxx.....y1

y - Yellow



**Pattern sample for reference**



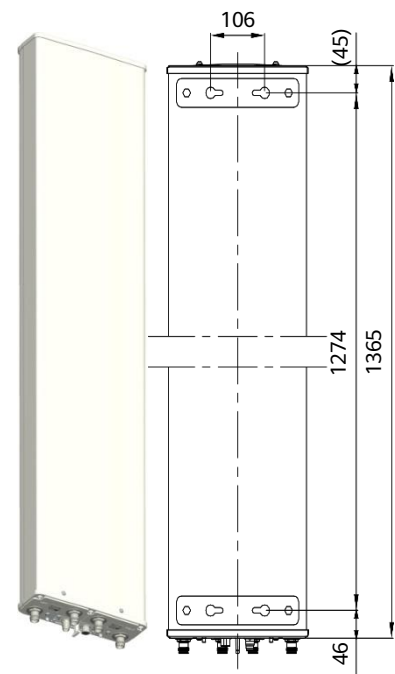
**1695 - 2690 MHz**

## Antenna Specifications

| Electrical Properties  |                |   |             |             |             |
|--|----------------|---|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (1710 - 2200)                                     |             |             |             |
|  |                | 1710 - 1880   | 1850 - 1990 | 1920 - 2170 | 2170 - 2200 |
| Polarization   |                | +45°, -45°  |             |             |             |
| Electrical downtilt (°)  |                | 0 - 10, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 17.6  | 18.0        | 18.2        | 18.1        |
|  | over all Tilts | 17.5 ±0.5   | 17.8 ±0.4   | 18.0 ±0.4   | 17.9 ±0.4   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 20  | > 18        | > 18        | > 17        |
| Horizontal 3dB beam width (°)                                  |                | 67 ±3   | 66 ±3       | 64 ±5       | 61 ±4       |
| Vertical 3dB beam width (°)                                    |                | 7.4 ±0.4  | 6.9 ±0.4    | 6.5 ±0.6    | 6.0 ±0.3    |
| VSWR   |                | < 1.5   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 30  |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 30 (1710 - 2200 // 1710 - 2200 MHz)                 |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 27  | > 27        | > 26        | > 26        |
| Cross polar ratio (dB)   | 0°             | > 22  | > 22        | > 21        | > 18        |
| Max. power per input (W)                                       |                | 300 (at 50°C ambient temperature)                     |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |
| Impedance (Ω)  |                | 50  |             |             |             |
| Grounding  |                | DC Ground   |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1365 x 269 x 86  |
| Packing dimensions (H x W x D) (mm) | 1680 x 340 x 155   |
| Antenna weight (kg)                 | 10.6   |
| Clamps weight (kg)                  | 2.9 (2 units)  |
| Antenna packing weight (kg)         | 17.6 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 340 (at 150 km/h)<br>Lateral: 105 (at 150 km/h)<br>Maximum: 395 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 4 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0B01 | Mechanical downtilt:<br>0 - 16° | 1.3 kg | 1 (Separate packing) |



**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

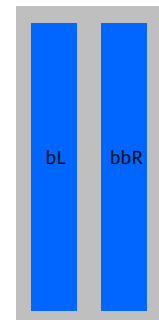
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



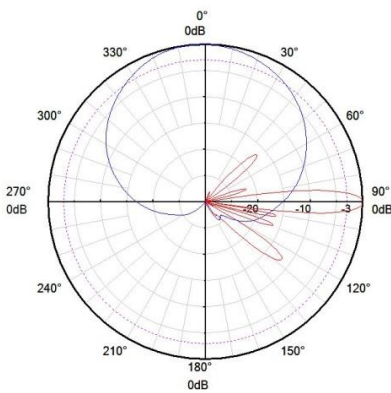
**Integrated RET S/N:**

- a** HWxxxx.....bL
- b** HWxxxx.....bbR

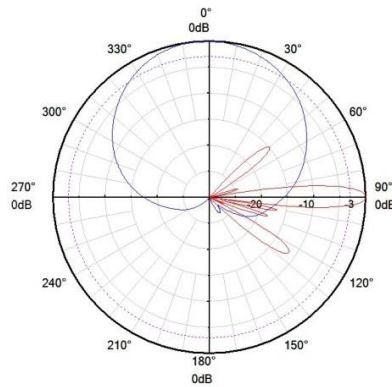
L - Left array R - Right array



**Pattern sample for reference**



**1710 - 2200 MHz (Left)**



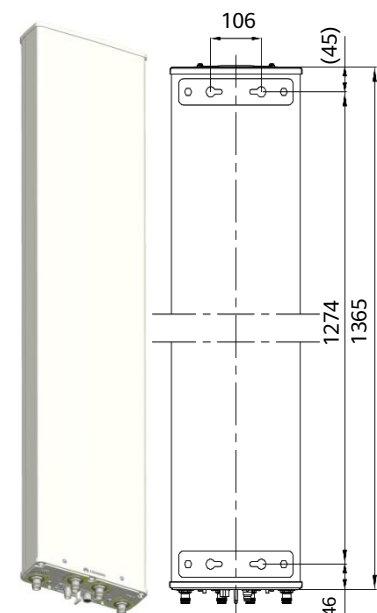
**1710 - 2200 MHz (Right)**

## Antenna Specifications

| Electrical Properties  |                |   |             |             |             |
|--|----------------|---|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (1710 - 2690)                                     |             |             |             |
|  |                | 1710 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |             |             |             |
| Electrical downtilt (°)  |                | 0 - 12, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 17.4  | 17.9        | 18.2        | 18.4        |
|  | over all Tilts | 17.3 ±0.3   | 17.7 ±0.4   | 18.0 ±0.3   | 18.2 ±0.4   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 18  | > 18        | > 18        | > 18        |
| Horizontal 3dB beam width (°)                                  |                | 66 ±2.7   | 65 ±2.7     | 63 ±2.8     | 61 ±2.6     |
| Vertical 3dB beam width (°)                                    |                | 6.9 ±0.3  | 6.3 ±0.3    | 5.5 ±0.3    | 5.0 ±0.3    |
| VSWR   |                | < 1.5   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 30  |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 30 (1710 - 2690 // 1710 - 2690 MHz)                 |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 27  | > 27        | > 27        | > 27        |
| Cross polar ratio (dB)   | 0°             | > 20  | > 20        | > 20        | > 20        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)                     |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |
| Impedance (Ω)  |                | 50  |             |             |             |
| Grounding  |                | DC Ground   |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1365 x 269 x 86  |
| Packing dimensions (H x W x D) (mm) | 1680 x 340 x 155   |
| Antenna weight (kg)                 | 11.8   |
| Clamps weight (kg)                  | 2.9 (2 units)  |
| Antenna packing weight (kg)         | 18.8 (included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 340 (at 150 km/h)<br>Lateral: 105 (at 150 km/h)<br>Maximum: 395 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 4 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0B01 | Mechanical downtilt:<br>0 - 16 ° | 1.3 kg | 1 (Separate packing) |

**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

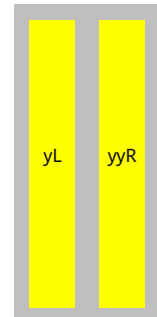
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



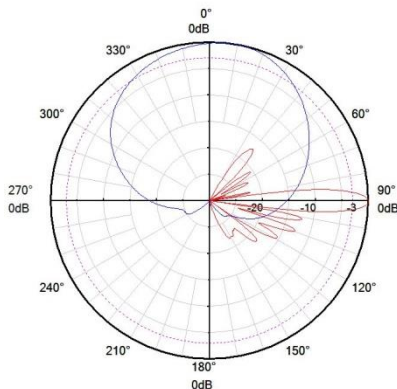
**Integrated RET S/N:**

- a** HWxxxx.....yL
- b** HWxxxx.....yyR

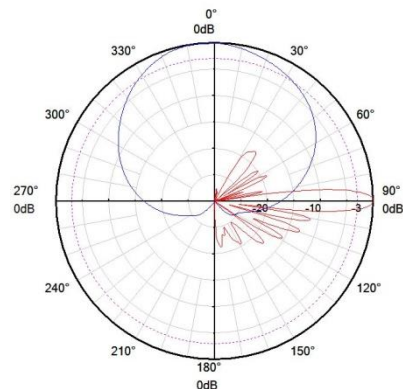
y - Yellow  
 L - Left array  
 R - Right array



**Pattern sample for reference**



**1710 - 2690 MHz (Left)**



**1710 - 2690 MHz (Right)**

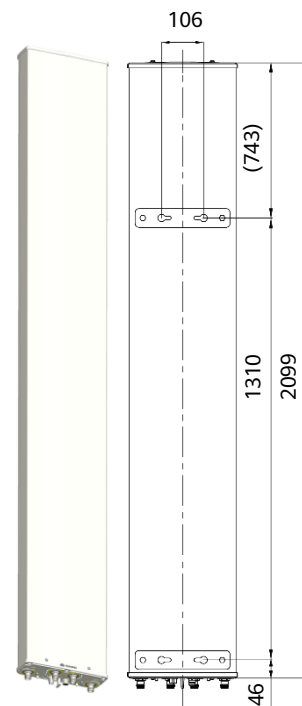
## Antenna Specifications

| Electrical Properties  |                |  |             |             |             |
|--|----------------|--|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (1695 - 2690)                                    |             |             |             |
|  |                | 1695 - 1990  | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°   |             |             |             |
| Electrical downtilt (°)  |                | 0 - 6, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 20.0   | 20.5        | 20.7        | 21.0        |
|  | over all Tilts | 20.0 ±0.5  | 20.5 ±0.5   | 20.7 ±0.5   | 21.0 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 18   | > 17        | > 17        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 65 ±4  | 62 ±3       | 60 ±3       | 58 ±5       |
| Vertical 3dB beam width (°)                                    |                | 4.4 ±0.4   | 4.0 ±0.4    | 3.5 ±0.2    | 3.3 ±0.3    |
| VSWR   |                | < 1.5  |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28   |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28   |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 26   | > 26        | > 26        | > 26        |
| Cross polar ratio (dB)   | 0°             | > 20   | > 20        | > 20        | > 20        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                   |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                          |             |             |             |
| Impedance (Ω)  |                | 50   |             |             |             |
| Grounding  |                | DC Ground  |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2099 x 269 x 86  |
| Packing dimensions (H x W x D) (mm) | 2415 x 340 x 160   |
| Antenna weight (kg)                 | 16.2   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 26.8 (Included clamps)   |
| Mast diameter supported (mm)        | 50-115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 560 (at 150 km/h)<br>Lateral: 170 (at 150 km/h)<br>Maximum: 645 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 4 x 4.3-10 Female Connector  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 12° | 2.1 kg | 1 (Separate packing) |

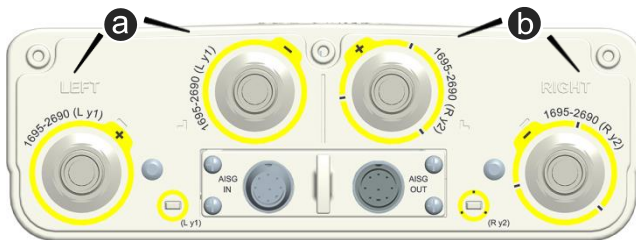
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

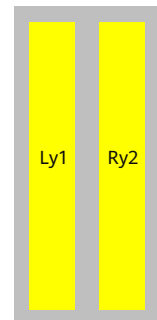
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



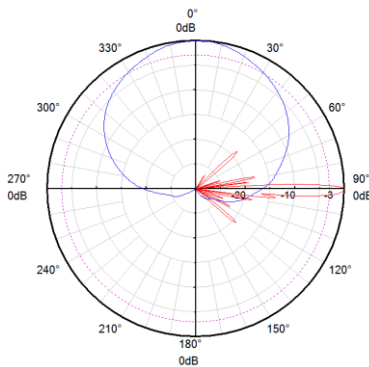
**Integrated RET S/N:**

- a** HWxxxx.....Ly1
- b** HWxxxx.....Ry2

y - Yellow  
L - Left array  
R - Right array



**Pattern sample for reference**

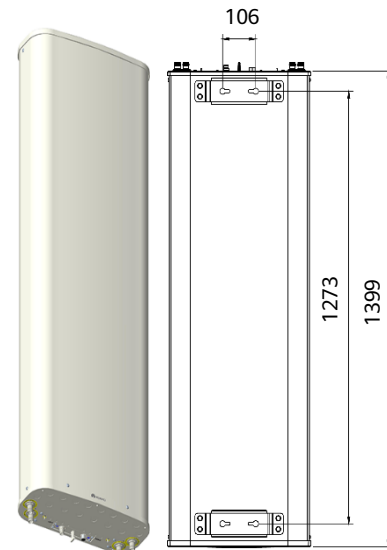


1695 - 2690 MHz

**Preliminary Issue**

| Electrical Properties  |   |             |             |             |
|--|---|-------------|-------------|-------------|
| Frequency range (MHz)  | 2 x (1710 - 2690)                                     |             |             |             |
|  | 1710 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   | +45°, -45°  |             |             |             |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | 20.2  | 20.5        | 20.5        | 20.8        |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  | 36  | 34          | 33          | 32          |
| Vertical 3dB beam width (°)                                    | 7.0   | 6.3         | 5.5         | 5.0         |
| VSWR   | < 1.5   |             |             |             |
| Cross polar isolation (dB)                                     | ≥ 25  |             |             |             |
| Interband isolation (dB)                                       | ≥ 25  |             |             |             |
| Front to back ratio, ±30° (dB)                                 | > 25  |             |             |             |
| Cross polar ratio at boresight (dB)                            | > 15  |             |             |             |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)                     |             |             |             |
| Total power (W)  | 700 (at 50°C ambient temperature)                     |             |             |             |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |
| Impedance (Ω)  | 50  |             |             |             |
| Grounding  | DC Ground   |             |             |             |

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1399 x 449 x 196   |
| Packing dimensions (H x W x D) (mm) | 1640 x 535 x 240   |
| Antenna weight (kg)                 | 19.5   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 30.6 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 400 (at 150 km/h)<br>Lateral: 235 (at 150 km/h)<br>Maximum: 525 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 4 x 4.3-10 Female  |
| Connector position                  | Bottom   |

**Accessories**

| Item         | Model     | Description                  | Weight | Units per antenna |
|--------------|-----------|------------------------------|--------|-------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 16° | 2.1 kg | ASMDT0D01         |

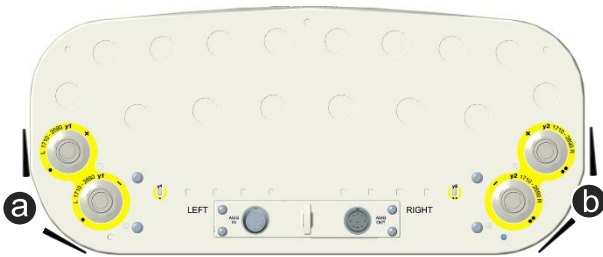
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

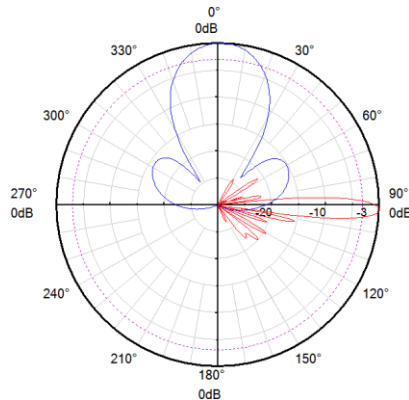


**Integrated RET S/N:**

- a HWxxxx.....Ly1
- b HWxxxx.....Ry2

y - Yellow  
L - Left array    R - Right array

**Pattern sample for reference**



1710 - 2690 MHz

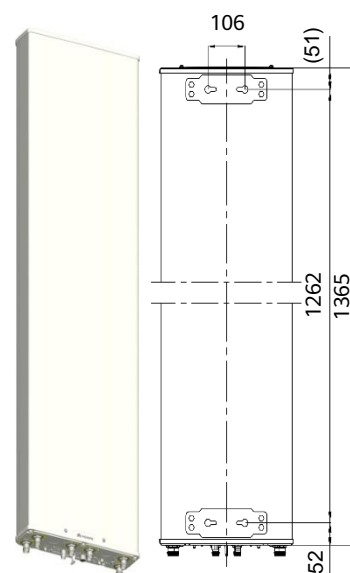
## Antenna Specifications

| Electrical Properties  |                |  |             |             |             |
|--|----------------|--|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 3 x (1710 - 2690)                                      |             |             |             |
|  |                | 1710 - 1990  | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45° , -45°  |             |             |             |
| Electrical downtilt (°)  |                | 0 - 12 , continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 17.6   | 18.0        | 18.4        | 18.6        |
|  | over all Tilts | 17.4 ±0.4  | 17.8 ±0.4   | 18.1 ±0.4   | 18.3 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 19   | > 22        | > 20        | > 19        |
| Horizontal 3dB beam width (°)                                  |                | 66 ±5.5  | 65 ±4.2     | 64 ±3.8     | 60 ±3.2     |
| Vertical 3dB beam width (°)                                    |                | 6.7 ±0.5   | 6.1 ±0.3    | 5.4 ±0.4    | 5.0 ±0.2    |
| VSWR   |                | < 1.5  |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 30   |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 30   |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 27   | > 27        | > 29        | > 29        |
| Cross polar ratio (dB)   | 0°             | > 26   | > 25        | > 23        | > 23        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)                      |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                            |             |             |             |
| Impedance (Ω)  |                | 50   |             |             |             |
| Grounding  |                | DC Ground  |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1365 x 376 x 99  |
| Packing dimensions (H x W x D) (mm) | 1680 x 440 x 170   |
| Antenna weight (kg)                 | 17.3   |
| Clamps weight (kg)                  | 3.0 (2 units)  |
| Antenna packing weight (kg)         | 27.0 (included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 660 (at 150 km/h)<br>Lateral: 145 (at 150 km/h)<br>Maximum: 660 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 6 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0C01 | Mechanical downtilt:<br>0 - 16 ° | 2.1 kg | 1 (Separate packing) |



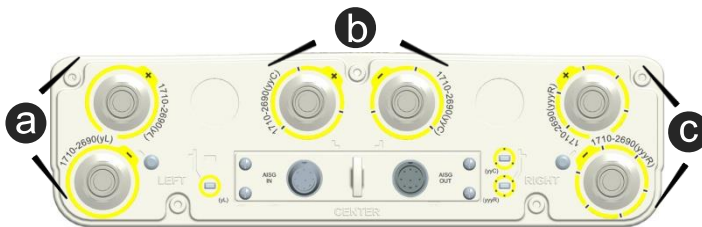
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

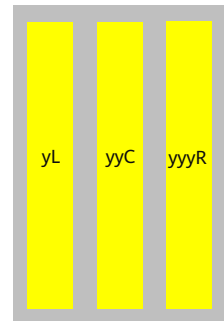
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



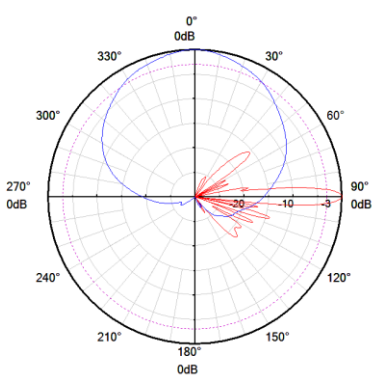
**Integrated RET S/N:**

- a** HWxxxx.....yL
- b** HWxxxx.....yyC
- c** HWxxxx.....yyyR

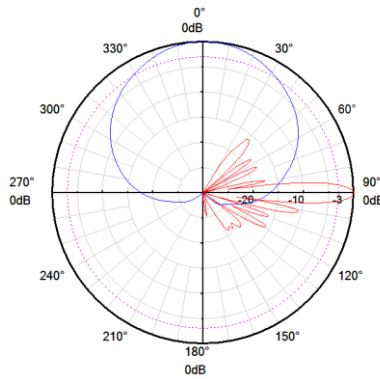
y - Yellow  
L - Left array  
R - Right array  
C - Center array



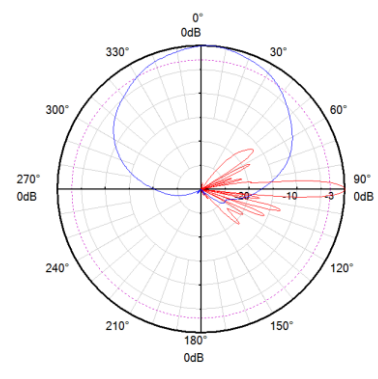
**Pattern sample for reference**



**1710 - 2690 MHz (Left)**



**1710 - 2690 MHz (Center)**



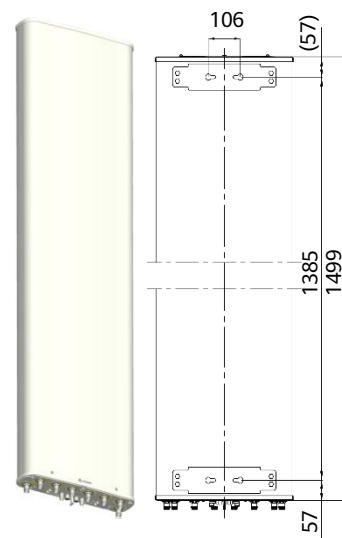
**1710 - 2690 MHz (Right)**

## Antenna Specifications

| Electrical Properties  |                |  |             |             |             |
|--|----------------|--|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 4 x (1710 - 2690)                                      |             |             |             |
|  |                | 1710 - 1990  | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45° , -45°  |             |             |             |
| Electrical downtilt (° )                                       |                | 0 - 12 , continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 17.4   | 17.7        | 17.9        | 18.3        |
|  | over all Tilts | 17.2 ±0.5  | 17.5 ±0.5   | 17.7 ±0.5   | 18.0 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 18   | > 18        | > 19        | > 20        |
| Horizontal 3dB beam width (° )                                 |                | 68 ±5  | 64 ±5       | 61 ±5       | 60 ±5       |
| Vertical 3dB beam width (° )                                   |                | 6.8 ±0.5   | 6.1 ±0.4    | 5.4 ±0.4    | 5.0 ±0.3    |
| VSWR   |                | < 1.5  |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28   |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28 (1710 - 2690 // 1710 - 2690 MHz)                  |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 27   | > 28        | > 28        | > 28        |
| Cross polar ratio (dB)   |                | 0°   | > 22        | > 22        | > 23        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)                      |             |             |             |
| Total power (W)  |                | 800 (at 50°C ambient temperature)                      |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                            |             |             |             |
| Impedance (Ω)  |                | 50   |             |             |             |
| Grounding  |                | DC Ground  |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 1499 x 449 x 115  |
| Packing dimensions (H x W x D) (mm) | 1835 x 510 x 185  |
| Antenna weight (kg)                 | 23.9  |
| Clamps weight (kg)                  | 3.6 (2 units)   |
| Antenna packing weight (kg)         | 35.8 (included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 715 (at 150 km/h)<br>Lateral: 85 (at 150 km/h)<br>Maximum: 715 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 8 x 4.3-10 Female   |
| Connector position                  | Bottom  |



## Accessories

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 16° | 2.1 kg | 1 (Separate packing) |

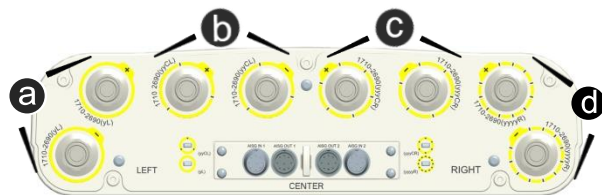
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

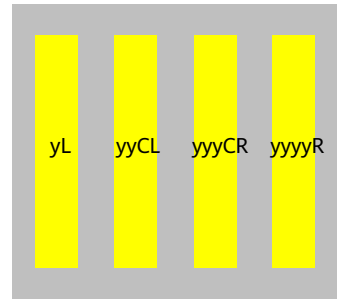
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



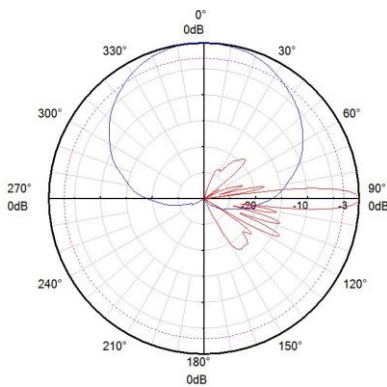
**Integrated RET S/N:**

- a HWxxx.....yL
- b HWxxx.....yyCL
- c HWxxx.....yyyCR
- d HWxxx.....yyyyR

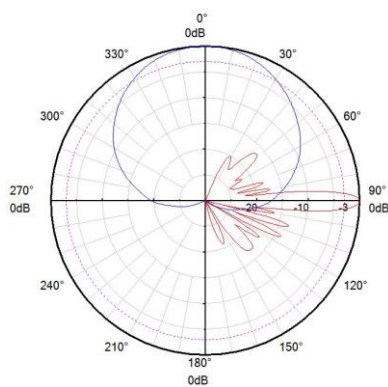


y - Yellow L - Left array  
R - Right array C - Center array

**Pattern sample for reference**



**1710 - 2690 MHz (Left)**



**1710 - 2690 MHz (Center Left)**

## Multi-band

### B - 3 1LnH

#### 4 Ports - 1L1H

| Frequency Range (MHz) | 3dB Horizontal Beam Width (°) | Gain (dBi) | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model        | Page      | Array symbol |
|-----------------------|-------------------------------|------------|-------------------------|-------------|------------|------------------|--------------|-----------|--------------|
| 690-960/<br>1710-2690 | 65/65                         | 15/17.5    | 0-15/2-12               | EasyRET2.0  | 4 x 4.3-10 | 1499 x 259 x 135 | ADU4518R9v06 | <b>50</b> | G            |
| 690-960/<br>1710-2690 | 65/65                         | 16/18      | 0-12/2-12               | EasyRET2.0  | 4 x 4.3-10 | 2087 x 259 x 135 | ADU4518R7v06 | <b>52</b> | G            |
| 690-960/<br>1710-2690 | 65/65                         | 17/18      | 0-10/2-12               | EasyRET2.0  | 4 x 4.3-10 | 2555 x 259 x 135 | ADU4518R8v06 | <b>54</b> | G            |

#### 6 Ports - 1L2H

| Frequency Range (MHz)               | 3dB Horizontal Beam Width (°) | Gain (dBi) | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model         | Page      | Array symbol |
|-------------------------------------|-------------------------------|------------|-------------------------|-------------|------------|------------------|---------------|-----------|--------------|
| 617-894/<br>1695-2690/<br>1695-2690 | 65/65/65                      | 16/18/18   | 0-12/0-<br>12/0-12      | EasyRET2.0  | 6 x 4.3-10 | 2099 x 399 x 196 | ATR4518R28v06 | <b>56</b> | N            |
| 690-960/<br>1695-2690/<br>1695-2690 | 65/65/65                      | 15/18/18   | 0-14/0-10/<br>0-10      | EasyRET2.0  | 6 x 4.3-10 | 1499 x 349 x 166 | ATR4518R13v06 | <b>58</b> | N            |
| 690-960/<br>1695-2690/<br>1695-2690 | 65/65/65                      | 16/18/18   | 0-10/0-10/<br>0-10      | EasyRET2.0  | 6 x 4.3-10 | 1999 x 349 x 166 | ATR4518R6v06  | <b>60</b> | N            |
| 690-960/<br>1695-2690/<br>1695-2690 | 65/65/65                      | 17/18/18   | 0-10/0-10/<br>0-10      | EasyRET2.0  | 6 x 4.3-10 | 2528 x 349 x 166 | ATR4518R11v06 | <b>62</b> | N            |

\*\* Preliminary Issue

## Multi-band

### B - 3 1LnH

#### 8 Ports - 1L3H

| Frequency Range (MHz)                             | 3dB Horizontal Beam Width (°) | Gain (dBi)            | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model         | Page      | Array symbol |
|---|-------------------------------|-----------------------|-------------------------|-------------|------------|------------------|---------------|-----------|--------------|
| 690-960/<br>1427-2690/<br>1695-2690/<br>1695-2690 | 65/65/65/65                   | 15/17.5/<br>18/18     | 0-14/2-12/<br>2-12/2-12 | EasyRET2.0  | 8 x 4.3-10 | 1499 x 369 x 149 | AQU4518R27v06 | <b>64</b> | TT           |
| 690-960/<br>1427-2690/<br>1695-2690/<br>1695-2690 | 65/65/65/65                   | 16/17.5/<br>18/18     | 2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 8 x 4.3-10 | 1999 x 369 x 149 | AQU4518R22v07 | <b>67</b> | TT           |
| 690-960/<br>1710-2690/<br>1710-2690/<br>1710-2690 | 65/65/65/65                   | 15/17.5/<br>17.5/17.5 | 0-14/2-12/<br>2-12/2-12 | EasyRET2.0  | 8 x 4.3-10 | 1499 x 369 x 149 | AQU4518R14v07 | <b>70</b> | TT           |
| 690-960/<br>1695-2690/<br>1695-2690/<br>1695-2690 | 65/65/65/65                   | 16/18/<br>18/18       | 2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 8 x 4.3-10 | 1999 x 369 x 149 | AQU4518R11v07 | <b>73</b> | TT           |
| 690-960/<br>1695-2690/<br>1695-2690/<br>1695-2690 | 65/65/65/65                   | 17/18/<br>18/17.5     | 0-10/0-10/<br>0-10/0-10 | EasyRET2.0  | 8 x 4.3-10 | 2528 x 349 x 166 | AQU4518R9v06  | <b>76</b> | U            |

#### 10 Ports - 1L4H

| Frequency Range (MHz)   | 3dB Horizontal Beam Width (°) | Gain (dBi)                   | Electrical Downtilt (°)          | Tilt Method | Connector   | Dimension(mm)    | Model         | Page      | Array symbol |
|---|-------------------------------|------------------------------|----------------------------------|-------------|-------------|------------------|---------------|-----------|--------------|
| 690-960/<br>1427-2690/<br>1695-2200/<br>2490-2690/<br>1695-2690 | 65/65/65/65/<br>65            | 15/17.5/<br>17/17.5/<br>17.5 | 0-14/2-12/<br>2-12/2-12/<br>2-12 | EasyRET2.0  | 10 x 4.3-10 | 1499 x 369 x 149 | APE4518R37v06 | <b>78</b> | X3           |
| 690-960/<br>1695-2200/<br>1695-2200/<br>2490-2690/<br>2490-2690 | 65/65/65/<br>65/65            | 16/17.5/<br>17.5/18/<br>18   | 0-10/0-10/<br>0-10/0-10/<br>0-10 | EasyRET2.0  | 10 x 4.3-10 | 1999 x 349 x 166 | APE4518R19v06 | <b>81</b> | X2           |

\*\* Preliminary Issue

## Multi-band

### B - 3 1LnH

#### 10 Ports - 1L4H

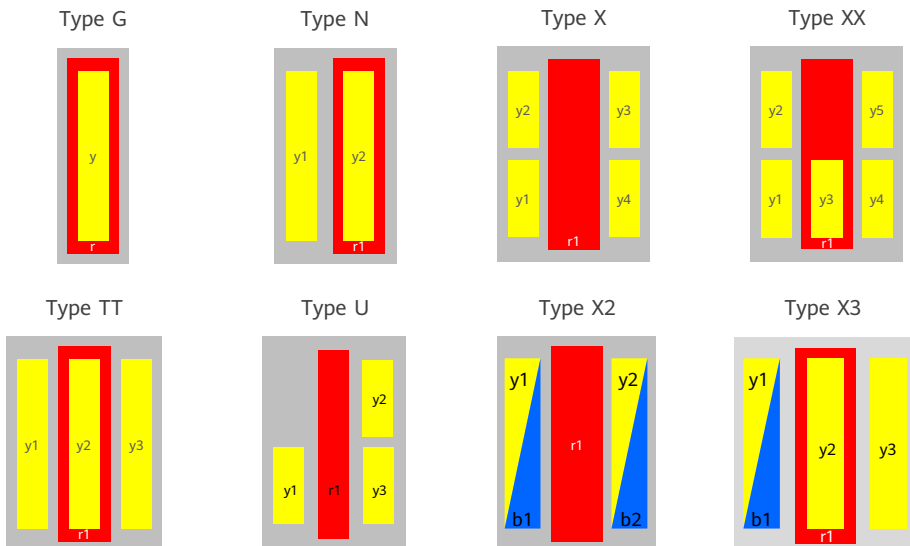
| Frequency Range (MHz)   | 3dB Horizontal Beam Width (°) | Gain (dBi)             | Electrical Downtilt (°)          | Tilt Method | Connector   | Dimension(mm)    | Model        | Page      | Array symbol |
|---|-------------------------------|------------------------|----------------------------------|-------------|-------------|------------------|--------------|-----------|--------------|
| 690-960/<br>1695-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690 | 65/65/65/<br>65/65            | 16/16.5/<br>16.5/16/16 | 0-10/2-12/<br>2-12/2-12/<br>2-12 | EasyRET2.0  | 10 x 4.3-10 | 1999 x 349 x 166 | APE4516R1v06 | <b>83</b> | X            |
| 690-960/<br>1695-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690 | 65/65/65/<br>65/65            | 17/18/18<br>/17.5/17.5 | 0-10/0-10/<br>0-10/0-10/<br>0-10 | EasyRET2.0  | 10 x 4.3-10 | 2528 x 349 x 166 | APE4517R0v06 | <b>85</b> | X            |

#### 12 Ports - 1L5H

| Frequency Range (MHz)   | 3dB Horizontal Beam Width (°) | Gain (dBi)                          | Electrical Downtilt (°)               | Tilt Method | Connector   | Dimension(mm)    | Model         | Page      | Array symbol |
|---|-------------------------------|-------------------------------------|---------------------------------------|-------------|-------------|------------------|---------------|-----------|--------------|
| 690-960/<br>1427-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690 | 65/65/65/<br>65/65/65         | 17/17.5/1<br>7.5/17.5/1<br>7.5/17.5 | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 12 x 4.3-10 | 2769 x 369 x 149 | ASI4518R30v06 | <b>87</b> | XX           |

\*\* Preliminary Issue

#### Array Symbol Type



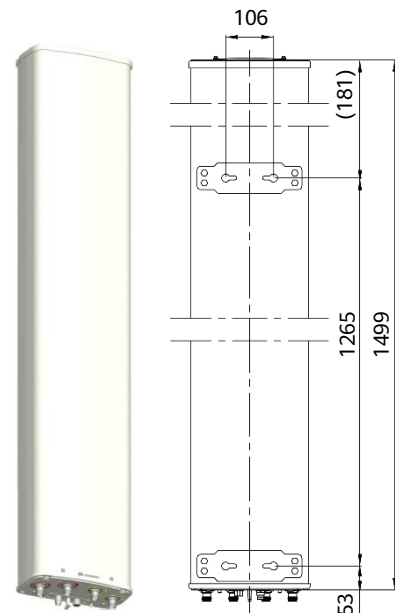
## Antenna Specifications

| Electrical Properties  |                |                                     |           |           |           |                                   |           |           |           |
|--|----------------|-------------------------------------|-----------|-----------|-----------|-----------------------------------|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 690 - 960                           |           |           |           | 1710 - 2690                       |           |           |           |
|  |                | 690 - 803                           | 790 - 862 | 824 - 894 | 880 - 960 | 1710-1990                         | 1920-2200 | 2200-2490 | 2490-2690 |
| Polarization   |                | +45°, -45°                          |           |           |           |                                   |           |           |           |
| Electrical downtilt (°)  |                | 0 - 15, continuously adjustable     |           |           |           | 2 - 12, continuously adjustable   |           |           |           |
| Gain (dBi)   | at mid Tilt    | 14.5                                | 14.5      | 14.6      | 14.7      | 16.8                              | 17.2      | 17.4      | 18.1      |
|  | over all Tilts | 14.5 ±0.3                           | 14.5 ±0.3 | 14.6 ±0.4 | 14.7 ±0.4 | 16.7 ±0.5                         | 17.1 ±0.5 | 17.4 ±0.5 | 17.9 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 17                                | > 18      | > 18      | > 17      | > 17                              | > 18      | > 18      | > 18      |
| Horizontal 3dB beam width (°)                                  |                | 68 ±5                               | 66 ±4     | 64 ±3     | 62 ±3     | 60 ±5                             | 62 ±5     | 60 ±5     | 60 ±5     |
| Vertical 3dB beam width (°)                                    |                | 15.3 ±1                             | 14.0 ±0.7 | 13.3 ±0.6 | 12.3 ±0.7 | 7.2 ±0.7                          | 6.5 ±0.6  | 5.7 ±0.5  | 5.3 ±0.3  |
| VSWR   |                | < 1.5                               |           |           |           | < 1.5                             |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28                                |           |           |           | ≥ 28                              |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 28 (690 - 960 // 1710 - 2690 MHz) |           |           |           |                                   |           |           |           |
| Front to back ratio, ±30° (dB)                                 |                | > 25                                | > 26      | > 26      | > 25      | > 26                              | > 28      | > 28      | > 29      |
| Cross polar ratio (dB) 0°                                      |                | > 20                                | > 26      | > 23      | > 20      | > 25                              | > 26      | > 24      | > 21      |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)   |           |           |           | 250 (at 50°C ambient temperature) |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)         |           |           |           |                                   |           |           |           |
| Impedance (Ω)  |                | 50                                  |           |           |           |                                   |           |           |           |
| Grounding  |                | DC Ground                           |           |           |           |                                   |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1499 x 259 x 135   |
| Packing dimensions (H x W x D) (mm) | 1835 x 360 x 225   |
| Antenna weight (kg)                 | 16.5   |
| Clamps weight (kg)                  | 3.0 (2 units)  |
| Antenna packing weight (kg)         | 25.5 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 405 (at 150 km/h)<br>Lateral: 185 (at 150 km/h)<br>Maximum: 545 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 4 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0C01 | Mechanical downtilt:<br>0 - 16 ° | 2.1 kg | 1 (Separate packing) |

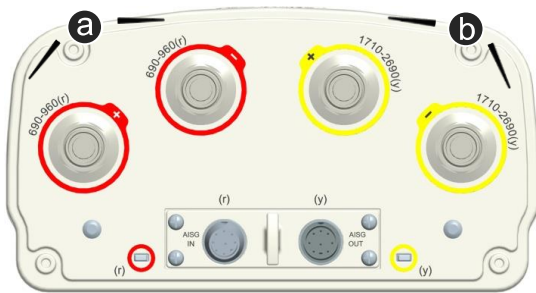
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

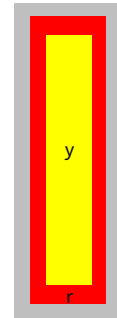
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



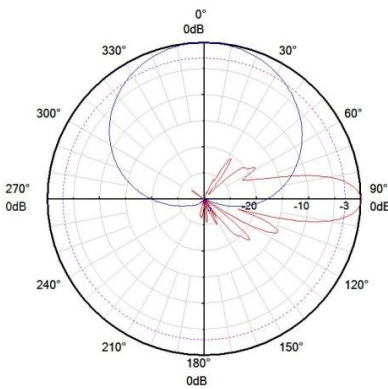
**Integrated RET S/N:**

- a) HWxxxx.....r
- b) HWxxxx.....y

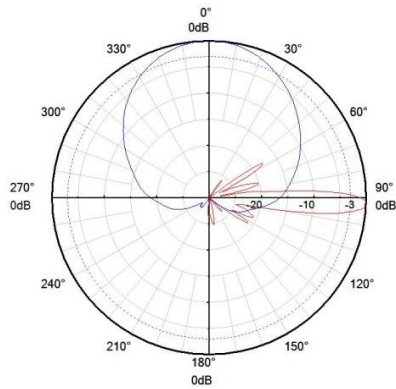
r - Red    y - Yellow



**Pattern sample for reference**



690 - 960 MHz



1710 - 2690 MHz

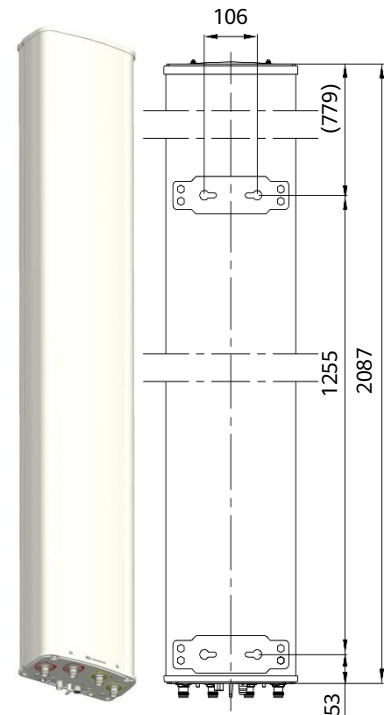


## Antenna Specifications

| Electrical Properties  |                |                                     |           |           |           |                                   |           |           |           |
|--|----------------|-------------------------------------|-----------|-----------|-----------|-----------------------------------|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 690 - 960                           |           |           |           | 1710 - 2690                       |           |           |           |
|  |                | 690 - 803                           | 790 - 862 | 824 - 894 | 880 - 960 | 1710-1990                         | 1920-2200 | 2200-2490 | 2490-2690 |
| Polarization   |                | +45°, -45°                          |           |           |           |                                   |           |           |           |
| Electrical downtilt (°)  |                | 0 - 12, continuously adjustable     |           |           |           | 2 - 12, continuously adjustable   |           |           |           |
| Gain (dBi)   | at mid Tilt    | 15.5                                | 15.9      | 16.0      | 16.1      | 17.1                              | 17.5      | 17.8      | 18.3      |
|  | over all Tilts | 15.5 ±0.4                           | 15.7 ±0.4 | 15.8 ±0.3 | 16.0 ±0.3 | 17.0 ±0.5                         | 17.4 ±0.5 | 17.7 ±0.3 | 18.1 ±0.4 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 18                                | > 18      | > 18      | > 18      | > 17                              | > 17      | > 17      | > 17      |
| Horizontal 3dB beam width (°)                                  |                | 69 ±2.4                             | 66 ±1.6   | 64 ±1.5   | 63 ±2.1   | 63 ±4.8                           | 61 ±4.0   | 60±2.2    | 60 ±4.0   |
| Vertical 3dB beam width (°)                                    |                | 10.5 ±0.5                           | 9.8 ±0.4  | 9.5 ±0.4  | 8.9 ±0.4  | 7.2 ±0.5                          | 6.5 ±0.5  | 5.6 ±0.3  | 5.5 ±0.3  |
| VSWR   |                | < 1.5                               |           |           |           | < 1.5                             |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28                                |           |           |           | ≥ 28                              |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 28 (690 - 960 // 1710 - 2690 MHz) |           |           |           |                                   |           |           |           |
| Front to back ratio, ±30° (dB)                                 |                | > 24                                | > 25      | > 25      | > 25      | > 24                              | > 25      | > 25      | > 26      |
| Cross polar ratio (dB) 0°                                      |                | > 20                                | > 20      | > 20      | > 20      | > 20                              | > 20      | > 20      | > 20      |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)   |           |           |           | 250 (at 50°C ambient temperature) |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)         |           |           |           |                                   |           |           |           |
| Impedance (Ω)  |                | 50                                  |           |           |           |                                   |           |           |           |
| Grounding  |                | DC Ground                           |           |           |           |                                   |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2087 x 259 x 135   |
| Packing dimensions (H x W x D) (mm) | 2380 x 315 x 220   |
| Antenna weight (kg)                 | 20.2   |
| Clamps weight (kg)                  | 3.0 (2 units)  |
| Antenna packing weight (kg)         | 28.2 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 590 (at 150 km/h)<br>Lateral: 270 (at 150 km/h)<br>Maximum: 795 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 4 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0C01 | Mechanical downtilt:<br>0 - 12° | 2.1 kg | 1 (Separate packing) |

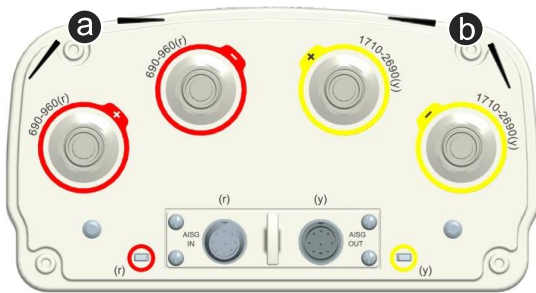
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

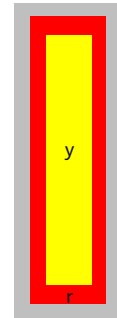
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



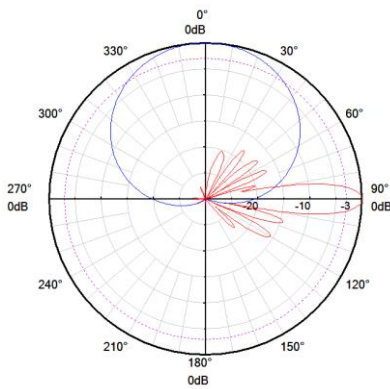
**Integrated RET S/N:**

- a** HWxxxx.....r
- b** HWxxxx.....y

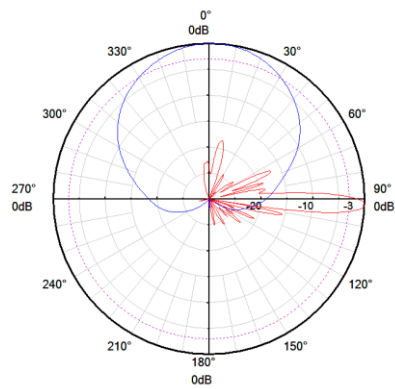
r - Red y - Yellow



**Pattern sample for reference**



**690 - 960 MHz**



**1710 - 2690 MHz**

## Antenna Specifications

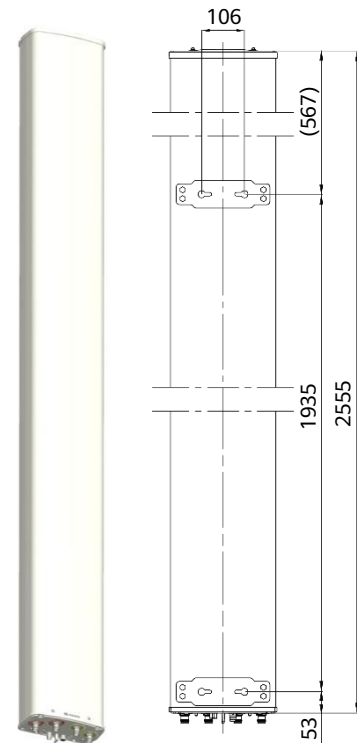
| Electrical Properties  |                |                                     |           |           |           |                                   |           |           |           |
|--|----------------|-------------------------------------|-----------|-----------|-----------|-----------------------------------|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 690 - 960                           |           |           |           | 1710 - 2690                       |           |           |           |
|  |                | 690 - 803                           | 790 - 862 | 824 - 894 | 880 - 960 | 1710-1990                         | 1920-2200 | 2200-2490 | 2490-2690 |
| Polarization   |                | +45°, -45°                          |           |           |           |                                   |           |           |           |
| Electrical downtilt (°)  |                | 0 - 10 , continuously adjustable    |           |           |           | 2 - 12 , continuously adjustable  |           |           |           |
| Gain (dBi)   | at mid Tilt    | 16.6                                | 16.7      | 17.1      | 17.3      | 17.1                              | 17.5      | 17.8      | 18.3      |
|  | over all Tilts | 16.5 ±0.3                           | 16.6 ±0.4 | 17.0 ±0.4 | 17.2 ±0.4 | 17.0 ±0.5                         | 17.4 ±0.5 | 17.7 ±0.3 | 18.1 ±0.4 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 17                                | > 18      | > 18      | > 18      | > 17                              | > 17      | > 17      | > 17      |
| Horizontal 3dB beam width (°)                                  |                | 69 ±2.5                             | 66 ±2.5   | 64 ±2.3   | 63 ±2.0   | 63 ±4.8                           | 61 ±4.0   | 60 ±2.2   | 60 ±4.0   |
| Vertical 3dB beam width (°)                                    |                | 8.9 ±0.5                            | 8.3 ±0.4  | 7.9 ±0.4  | 7.3 ±0.4  | 7.2 ±0.5                          | 6.5 ±0.5  | 5.6 ±0.3  | 5.5 ±0.3  |
| VSWR   |                | < 1.5                               |           |           |           | < 1.5                             |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28                                |           |           |           | ≥ 28                              |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 28 (690 - 960 // 1710 - 2690 MHz) |           |           |           |                                   |           |           |           |
| Front to back ratio, ±30° (dB)                                 |                | > 24                                | > 25      | > 25      | > 26      | > 24                              | > 25      | > 25      | > 26      |
| Cross polar ratio (dB)   |                | 0°                                  | > 20      | > 20      | > 20      | > 20                              | > 20      | > 20      | > 20      |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)   |           |           |           | 250 (at 50°C ambient temperature) |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)         |           |           |           |                                   |           |           |           |
| Impedance (Ω)  |                | 50                                  |           |           |           |                                   |           |           |           |
| Grounding  |                | DC Ground                           |           |           |           |                                   |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2555 x 259 x 135  |
| Packing dimensions (H x W x D) (mm) | 2970 x 315 x 220  |
| Antenna weight (kg)                 | 23.0  |
| Clamps weight (kg)                  | 3.6 (2 units)   |
| Antenna packing weight (kg)         | 33.2 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 745 (at 150 km/h)<br>Lateral: 340 (at 150 km/h)<br>Maximum: 1005 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 4 x 4.3-10 Female   |
| Connector position                  | Bottom  |

## Accessories

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 8 ° | 2.1 kg | 1 (Separate packing) |



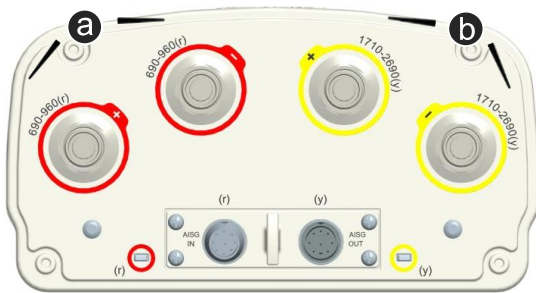
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

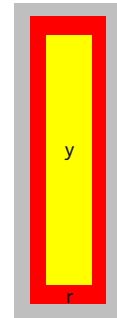
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



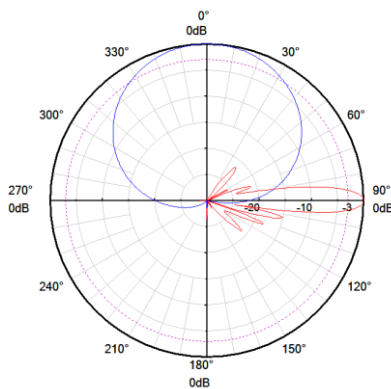
**Integrated RET S/N:**

- a** HWxxxx.....r
- b** HWxxxx.....y

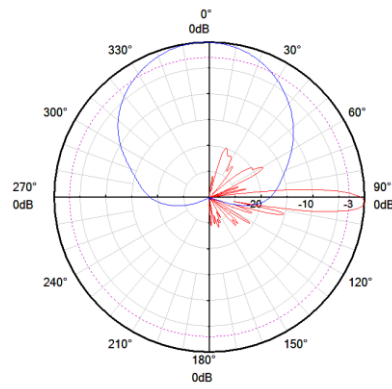
r - Red    y - Yellow



**Pattern sample for reference**



**690 - 960 MHz**



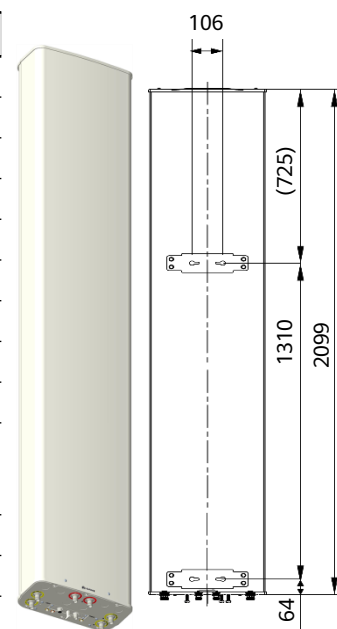
**1710 - 2690 MHz**

## Antenna Specifications

| Electrical Properties  |                |   |           |           |                                   |             |             |             |
|--|----------------|---|-----------|-----------|-----------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 617 - 894   |           |           | 2 x (1695 - 2690)                 |             |             |             |
|  |                | 617 - 698   | 698 - 798 | 798 - 894 | 1695 - 1990                       | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |           |           | +45°, -45°                        |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |           |           |                                   |             |             |             |
| Gain (dBi)   | at mid Tilt    | 15.2  | 15.8      | 16.2      | 17.3                              | 17.6        | 17.8        | 18.2        |
|  | over all Tilts | 15.0 ±0.5   | 15.7 ±0.5 | 16.0 ±0.5 | 17.1 ±0.5                         | 17.4 ±0.5   | 17.6 ±0.5   | 18.0 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 17  | > 17      | > 17      | > 16                              | > 17        | > 17        | > 17        |
| Horizontal 3dB beam width (°)                                  |                | 67 ±3   | 64 ±3     | 61 ±3     | 65 ±5                             | 63 ±3       | 62 ±4       | 60 ±5       |
| Vertical 3dB beam width (°)                                    |                | 12.5 ±0.8   | 10.8 ±0.7 | 9.4 ±0.5  | 6.7 ±0.6                          | 6.0 ±0.5    | 5.4 ±0.3    | 5.0 ±0.3    |
| VSWR   |                | < 1.5   |           |           |                                   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |                                   |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |                                   |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 23  | > 25      | > 25      | > 26                              | > 27        | > 26        | > 26        |
| Cross polar ratio (dB)   |                | 0°  | > 20      | > 20      | > 20                              | > 18        | > 19        | > 20        |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)                     |           |           | 250 (at 50°C ambient temperature) |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |                                   |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |                                   |             |             |             |
| Grounding  |                | DC Ground   |           |           |                                   |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2099 x 399 x 196   |
| Packing dimensions (H x W x D) (mm) | 2285 x 465 x 250   |
| Antenna weight (kg)                 | 29.5   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 40.5 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 570 (at 150 km/h)<br>Lateral: 340 (at 150 km/h)<br>Maximum: 725 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 6 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 12 ° | 2.1 kg | 1 (Separate packing) |

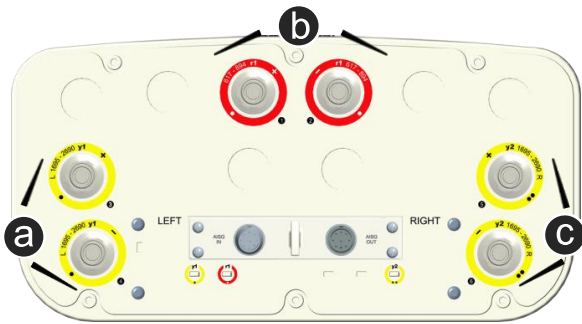
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

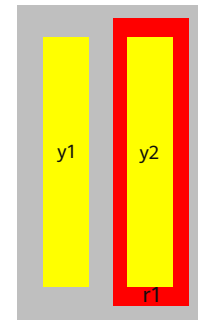
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



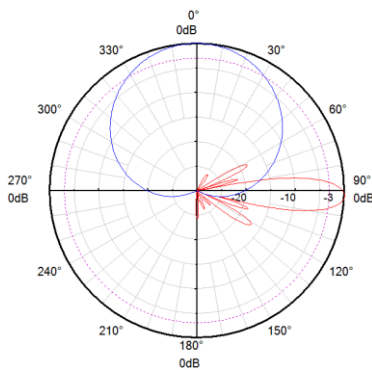
**Integrated RET S/N:**

- a** HWxxx.....Ly1
- b** HWxxx.....r1
- c** HWxxx.....Ry2

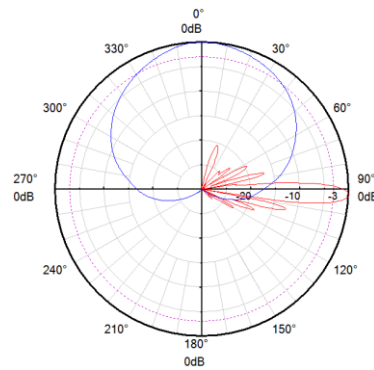
r - Red      y - Yellow  
L - Left array      R - Right array



**Pattern sample for reference**



617 - 894 MHz



1695 - 2690 MHz

## Antenna Specifications

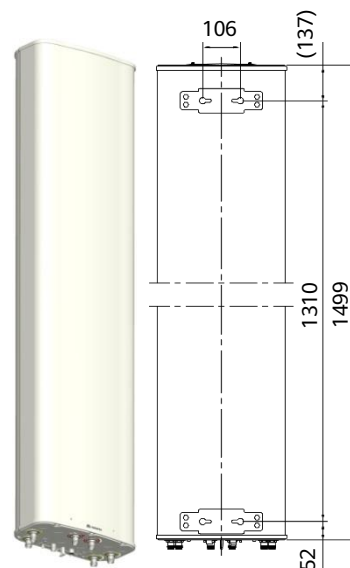
| Electrical Properties  |                |                                   |           |           |           |   |           |           |           |
|--|----------------|-----------------------------------|-----------|-----------|-----------|---|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 690 - 960                         |           |           |           | 2 x (1695 - 2690)                                     |           |           |           |
|  |                | 690 - 803                         | 790 - 862 | 824 - 894 | 880 - 960 | 1695-1990   | 1920-2200 | 2200-2490 | 2490-2690 |
| Polarization   |                | +45°, -45°                        |           |           |           |   |           |           |           |
| Electrical downtilt (°)  |                | 0 - 14, continuously adjustable   |           |           |           | 0 - 10, continuously adjustable, each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 14.4                              | 14.5      | 14.7      | 15.1      | 17.5  | 17.8      | 18.2      | 18.3      |
|  | over all Tilts | 14.3 ±0.5                         | 14.5 ±0.5 | 14.8 ±0.5 | 15.0 ±0.5 | 17.3 ±0.6   | 17.7 ±0.5 | 18.1 ±0.6 | 18.2 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16                              | > 17      | > 17      | > 17      | > 19  | > 19      | > 19      | > 19      |
| Horizontal 3dB beam width (°)                                  |                | 65 ±2.5                           | 64 ±2.0   | 64 ±2.0   | 64 ±3.2   | 65 ±3.9   | 63 ±3.3   | 62 ±4.8   | 60 ±4.5   |
| Vertical 3dB beam width (°)                                    |                | 15.6 ±1.2                         | 13.7 ±0.9 | 13.1 ±0.8 | 12.2 ±0.8 | 7.1 ±0.6  | 6.5 ±0.5  | 5.8 ±0.5  | 5.2 ±0.3  |
| VSWR   |                | < 1.5                             |           |           |           |   |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28                              |           |           |           |   |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 30                              |           |           |           |   |           |           |           |
| Front to back ratio, ±30° (dB)                                 |                | > 23                              | > 24      | > 24      | > 23      | > 25  | > 27      | > 26      | > 25      |
| Cross polar ratio (dB)   |                | 0°                                | > 19      | > 20      | > 20      | > 22  | > 18      | > 19      | > 20      |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature) |           |           |           | 250 (at 50°C ambient temperature)                     |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)       |           |           |           |   |           |           |           |
| Impedance (Ω)  |                | 50                                |           |           |           |   |           |           |           |
| Grounding  |                | DC Ground                         |           |           |           |   |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1499 x 349 x 166   |
| Packing dimensions (H x W x D) (mm) | 1740 x 445 x 230   |
| Antenna weight (kg)                 | 19.7   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 27.5 (included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 460 (at 150 km/h)<br>Lateral: 130 (at 150 km/h)<br>Maximum: 480 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 6 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 16 ° | 2.1 kg | 1 (Separate packing) |

**Integrated RET Specifications**

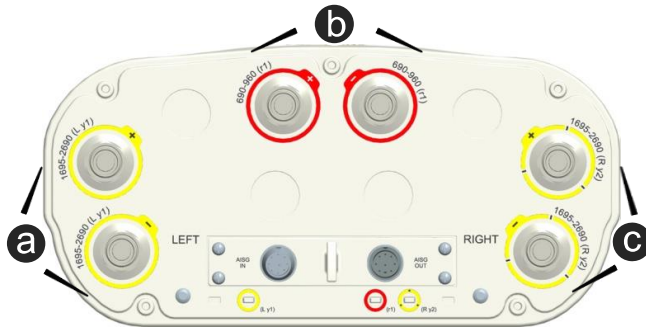
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

1L2H Band

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

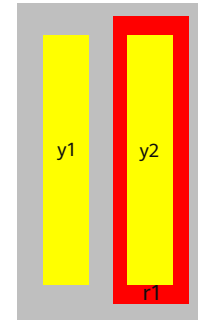
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



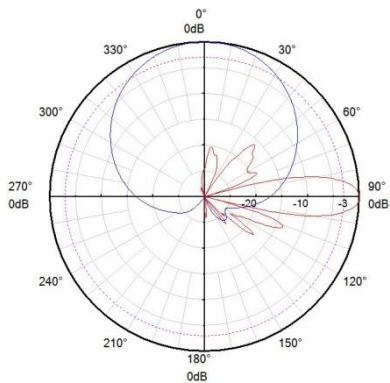
**Integrated RET S/N:**

- a HWxxxx.....Ly1
- b HWxxxx.....r1
- c HWxxxx.....Ry2

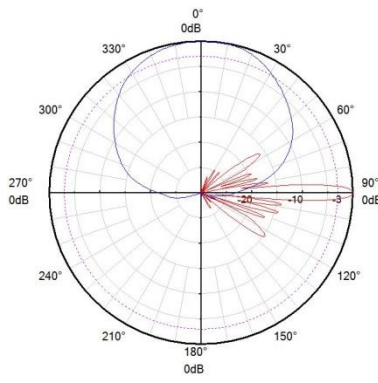
r - Red      y - Yellow  
L - Left array    R - Right array



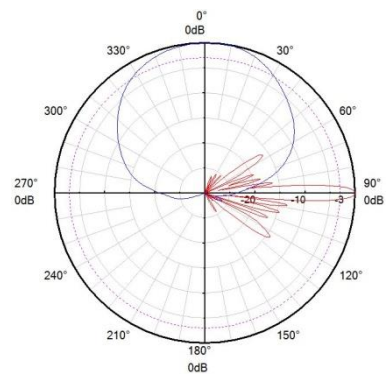
**Pattern sample for reference**



690 - 960 MHz



1695 - 2690 MHz (Left)



1695 - 2690 MHz (Right)

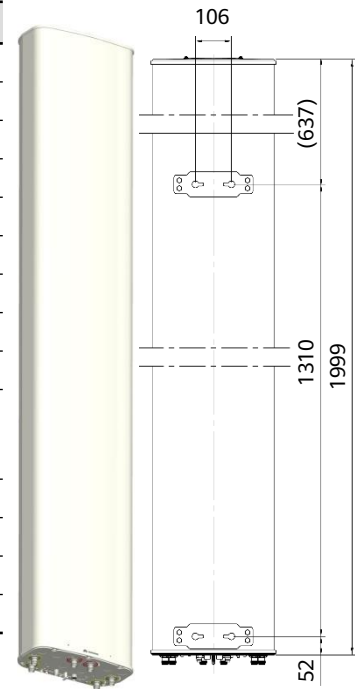


## Antenna Specifications

| Electrical Properties  |                |                                   |           |           |           |   |           |           |           |
|--|----------------|-----------------------------------|-----------|-----------|-----------|---|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 690 - 960                         |           |           |           | 2 x (1695 - 2690)                                     |           |           |           |
|  |                | 690 - 803                         | 790 - 862 | 824 - 894 | 880 - 960 | 1695-1990   | 1920-2200 | 2200-2490 | 2490-2690 |
| Polarization   |                | +45°, -45°                        |           |           |           |   |           |           |           |
| Electrical downtilt (°)  |                | 0 - 10, continuously adjustable   |           |           |           | 0 - 10, continuously adjustable, each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 15.5                              | 15.9      | 16.0      | 16.1      | 17.1  | 17.5      | 17.8      | 18.3      |
|  | over all Tilts | 15.5 ±0.5                         | 15.8 ±0.5 | 15.8 ±0.5 | 16.0 ±0.6 | 17.1 ±0.5   | 17.5 ±0.4 | 17.8 ±0.5 | 18.2 ±0.4 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 18                              | > 18      | > 18      | > 18      | > 19  | > 19      | > 19      | > 19      |
| Horizontal 3dB beam width (°)                                  |                | 65 ±1.7                           | 65 ±1.4   | 65 ±1.7   | 65 ±2.4   | 65 ±4.3   | 64 ±3.2   | 63 ±4.4   | 62 ±4.1   |
| Vertical 3dB beam width (°)                                    |                | 10.3 ±0.7                         | 9.5 ±0.5  | 9.2 ±0.6  | 8.6 ±0.5  | 7.1 ±0.5  | 6.5 ±0.5  | 5.8 ±0.4  | 5.3 ±0.2  |
| VSWR   |                | < 1.5                             |           |           |           |   |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28                              |           |           |           |   |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 30                              |           |           |           |   |           |           |           |
| Front to back ratio, ±30° (dB)                                 |                | > 25                              | > 25      | > 25      | > 25      | > 25  | > 27      | > 26      | > 25      |
| Cross polar ratio (dB)   |                | 0°                                | > 18      | > 18      | > 18      | > 18  | > 18      | > 17      | > 17      |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature) |           |           |           | 250 (at 50°C ambient temperature)                     |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)       |           |           |           |   |           |           |           |
| Impedance (Ω)  |                | 50                                |           |           |           |   |           |           |           |
| Grounding  |                | DC Ground                         |           |           |           |   |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 349 x 166   |
| Packing dimensions (H x W x D) (mm) | 2235 x 435 x 215   |
| Antenna weight (kg)                 | 23.4   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 31.5 (included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 630 (at 150 km/h)<br>Lateral: 180 (at 150 km/h)<br>Maximum: 665 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 6 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 12° | 2.1 kg | 1 (Separate packing) |

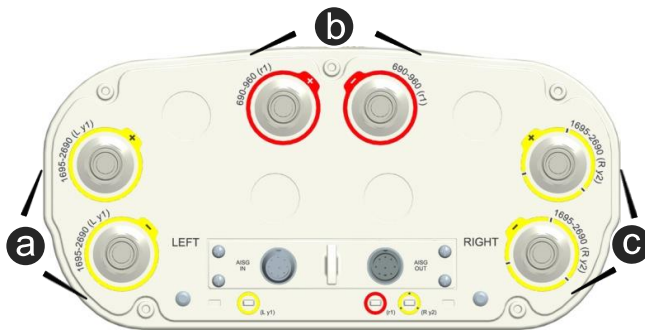
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

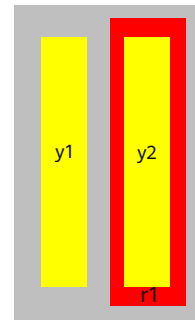
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



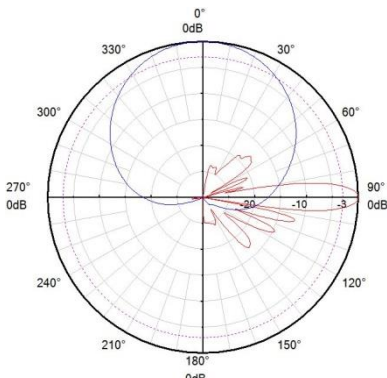
**Integrated RET S/N:**

- a** HWxxxx.....Ly1
- b** HWxxxx.....r1
- c** HWxxxx.....Ry2

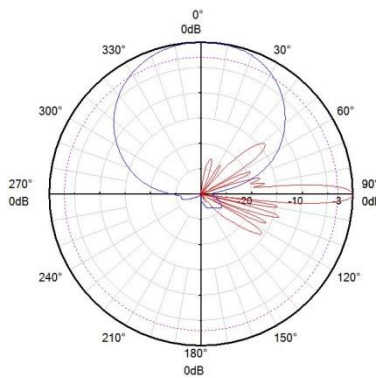
r - Red      y - Yellow  
L - Left array    R - Right array



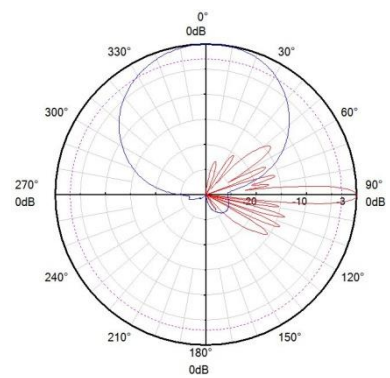
**Pattern sample for reference**



**690 - 960 MHz**



**1695 - 2690 MHz (Left)**



**1695 - 2690 MHz (Right)**

## Antenna Specifications

| Electrical Properties  |                |                                   |           |           |           |   |           |           |           |
|--|----------------|-----------------------------------|-----------|-----------|-----------|---|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 690 - 960                         |           |           |           | 2 x (1695 - 2690)                                     |           |           |           |
|  |                | 690 - 803                         | 790 - 862 | 824 - 894 | 880 - 960 | 1695-1990   | 1920-2200 | 2200-2490 | 2490-2690 |
| Polarization   |                | +45°, -45°                        |           |           |           |   |           |           |           |
| Electrical downtilt (°)  |                | 0 - 10, continuously adjustable   |           |           |           | 0 - 10, continuously adjustable, each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 16.5                              | 16.7      | 16.8      | 17.0      | 17.1  | 17.5      | 17.8      | 18.2      |
|  | over all Tilts | 16.4 ±0.4                         | 16.6 ±0.3 | 16.7 ±0.2 | 16.8 ±0.4 | 17.1 ±0.5   | 17.5 ±0.4 | 17.8 ±0.5 | 18.2 ±0.3 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 17                              | > 17      | > 17      | > 17      | > 19  | > 19      | > 19      | > 19      |
| Horizontal 3dB beam width (°)                                  |                | 66 ±1.3                           | 66 ±1.4   | 65 ±1.3   | 65 ±1.9   | 65 ±4.6   | 64 ±4.1   | 63 ±3.4   | 62 ±4.1   |
| Vertical 3dB beam width (°)                                    |                | 9.0 ±0.6                          | 8.3 ±0.4  | 7.5 ±0.4  | 7.2 ±0.4  | 7.1 ±0.5  | 6.5 ±0.5  | 5.8 ±0.3  | 5.3 ±0.2  |
| VSWR   |                | < 1.5                             |           |           |           |   |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28                              |           |           |           |   |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 30                              |           |           |           |   |           |           |           |
| Front to back ratio, ±30° (dB)                                 |                | > 25                              | > 26      | > 27      | > 26      | > 25  | > 27      | > 26      | > 25      |
| Cross polar ratio (dB)   |                | 0°                                | > 18      | > 18      | > 18      | > 18  | > 18      | > 18      | > 18      |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature) |           |           |           | 250 (at 50°C ambient temperature)                     |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)       |           |           |           |   |           |           |           |
| Impedance (Ω)  |                | 50                                |           |           |           |   |           |           |           |
| Grounding  |                | DC Ground                         |           |           |           |   |           |           |           |

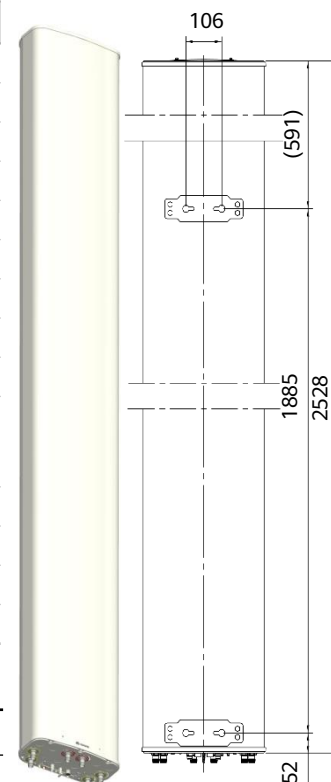
1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2528 x 349 x 166   |
| Packing dimensions (H x W x D) (mm) | 2880 x 415 x 245   |
| Antenna weight (kg)                 | 27.4   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 43.1 (included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 825 (at 150 km/h)<br>Lateral: 240 (at 150 km/h)<br>Maximum: 870 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 6 x 4.3-10 Female  |
| Connector position                  | Bottom   |

## Accessories

| Item         | Model     | Description                    | Weight | Units per antenna    |
|--------------|-----------|--------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 8° | 2.1 kg | 1 (Separate packing) |



**Integrated RET Specifications**

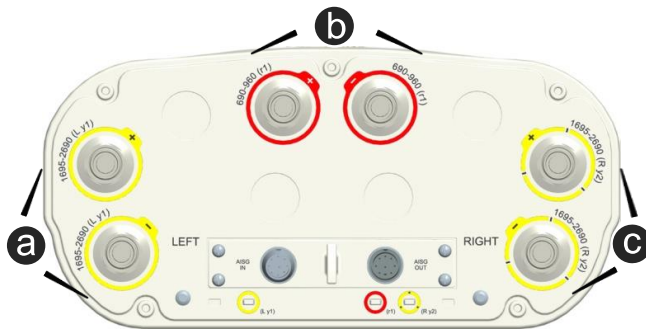
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

1L2H Band

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

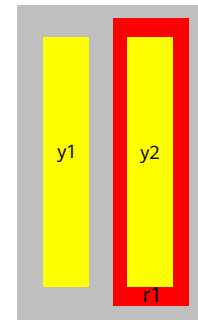
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



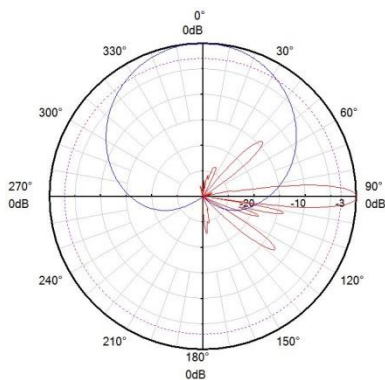
**Integrated RET S/N:**

- a HWxxxx.....Ly1
- b HWxxxx.....r1
- c HWxxxx.....Ry2

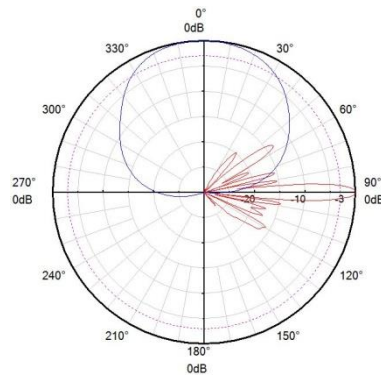
r - Red      y - Yellow  
L - Left array    R - Right array



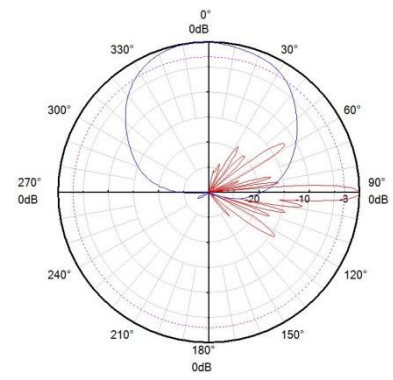
**Pattern sample for reference**



690 - 960 MHz



1695 - 2690 MHz (Left)



1695 - 2690 MHz (Right)

## Antenna Specifications

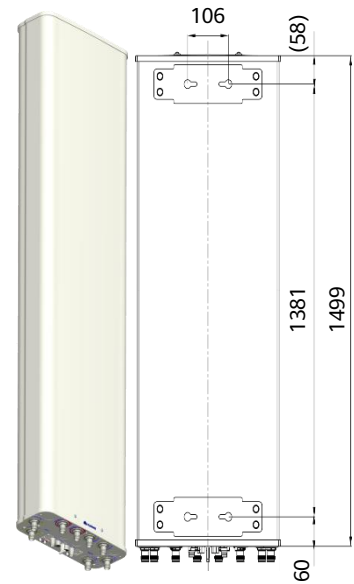
| Electrical Properties  |                                    |           |           |           |                                    |           |           |           |           |           |
|--|------------------------------------|-----------|-----------|-----------|------------------------------------|-----------|-----------|-----------|-----------|-----------|
| Frequency range (MHz)  | 690 - 960 (r1)                     |           |           |           | 1427 - 2690 (Ry3)                  |           |           |           |           |           |
|  | 690 - 803                          | 790 - 862 | 824 - 894 | 880 - 960 | 1427-1518                          | 1695-1990 | 1920-2200 | 2200-2490 | 2490-2690 |           |
| Polarization   | +45°, -45°                         |           |           |           | +45°, -45°                         |           |           |           |           |           |
| Electrical downtilt (°)  | 0 - 14, continuously adjustable    |           |           |           | 2 - 12, continuously adjustable    |           |           |           |           |           |
| Gain (dBi)   | at mid Tilt                        | 14.0      | 14.5      | 14.7      | 15.0                               | 15.9      | 17.3      | 17.5      | 17.8      | 18.1      |
|  | over all Tilts                     | 14.0 ±0.5 | 14.4 ±0.5 | 14.7 ±0.5 | 14.9 ±0.5                          | 15.8 ±0.5 | 17.1 ±0.5 | 17.2 ±0.5 | 17.5 ±0.4 | 17.6 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 17                               | > 17      | > 16      | > 16      | > 15                               | > 17      | > 17      | > 15      | > 16      |           |
| Horizontal 3dB beam width (°)                                  | 68 ±1.8                            | 66 ±2.5   | 64 ±2.5   | 61 ±2.0   | 73 ±6.0                            | 69 ±5.5   | 68 ±5.7   | 63 ±4.7   | 58 ±4.0   |           |
| Vertical 3dB beam width (°)                                    | 15.4 ±1.1                          | 13.8 ±1.0 | 13.2 ±0.7 | 12.3 ±0.6 | 8.0 ±0.4                           | 6.5 ±0.6  | 5.9 ±0.5  | 5.1 ±0.4  | 4.8 ±0.4  |           |
| VSWR   | < 1.5                              |           |           |           | < 1.5                              | < 1.5     |           |           |           |           |
| Cross polar isolation (dB)                                     | ≥ 28                               |           |           |           | ≥ 28                               | ≥ 28      |           |           |           |           |
| Interband isolation (dB)                                       | ≥ 28                               |           |           |           | ≥ 28                               | ≥ 28      |           |           |           |           |
| Front to back ratio, ±30° (dB)                                 | > 22                               | > 23      | > 24      | > 26      | > 22                               | > 23      | > 23      | > 27      | > 24      |           |
| Cross polar ratio (dB)   | 0°                                 | > 20      | > 22      | > 22      | > 20                               | > 20      | > 22      | > 21      | > 22      | > 17      |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature)* |           |           |           | 250 (at 50°C ambient temperature)* |           |           |           |           |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)        |           |           |           | ≤ -153 (2 x 43 dBm carrier)        |           |           |           |           |           |
| Impedance (Ω)  | 50                                 |           |           |           |                                    |           |           |           |           |           |
| Grounding  | DC Ground                          |           |           |           |                                    |           |           |           |           |           |

| Electrical Properties  |                                    |             |             |             |                                    |             |             |             |           |  |
|--|------------------------------------|-------------|-------------|-------------|------------------------------------|-------------|-------------|-------------|-----------|--|
| Frequency range (MHz)  | 1695 - 2690 (Cy2)                  |             |             |             | 1695 - 2690 (Ly1)                  |             |             |             |           |  |
|  | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |  |
| Polarization   | +45°, -45°                         |             |             |             |                                    |             |             |             |           |  |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable    |             |             |             | 2 - 12, continuously adjustable    |             |             |             |           |  |
| Gain (dBi)   | at mid Tilt                        | 17.3        | 17.5        | 18.0        | 18.2                               | 17.4        | 17.8        | 18.3        | 18.4      |  |
|  | over all Tilts                     | 17.1 ±0.5   | 17.3 ±0.5   | 17.8 ±0.4   | 18.0 ±0.5                          | 17.2 ±0.5   | 17.6 ±0.5   | 18.0 ±0.4   | 18.3 ±0.5 |  |
| Side lobe suppression for first side lobe above main beam (dB) | > 16                               | > 16        | > 18        | > 18        | > 17                               | > 17        | > 18        | > 18        |           |  |
| Horizontal 3dB beam width (°)                                  | 63 ±6.0                            | 62 ±6.0     | 58 ±5.0     | 58 ±5.0     | 69 ±4.0                            | 67 ±4.0     | 62 ±3.0     | 58 ±4.0     |           |  |
| Vertical 3dB beam width (°)                                    | 6.5 ±0.5                           | 5.9 ±0.5    | 5.1 ±0.2    | 4.8 ±0.3    | 6.5 ±0.5                           | 5.9 ±0.4    | 5.1 ±0.2    | 4.8 ±0.2    |           |  |
| VSWR   | < 1.5                              |             |             |             | < 1.5                              |             |             |             |           |  |
| Cross polar isolation (dB)                                     | ≥ 28                               |             |             |             | ≥ 28                               |             |             |             |           |  |
| Interband isolation (dB)                                       | ≥ 28                               |             |             |             | ≥ 28                               |             |             |             |           |  |
| Front to back ratio, ±30° (dB)                                 | > 27                               | > 28        | > 28        | > 27        | > 24                               | > 27        | > 27        | > 26        |           |  |
| Cross polar ratio (dB)   | 0°                                 | > 22        | > 19        | > 17        | > 22                               | > 22        | > 19        | > 22        |           |  |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)* |             |             |             | 250 (at 50°C ambient temperature)* |             |             |             |           |  |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)        |             |             |             | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |           |  |
| Impedance (Ω)  | 50                                 |             |             |             |                                    |             |             |             |           |  |
| Grounding  | DC Ground                          |             |             |             | DC Ground                          |             |             |             |           |  |

\* Total power : 700 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1499 x 369 x 149   |
| Packing dimensions (H x W x D) (mm) | 1790 x 435 x 240   |
| Antenna weight (kg)                 | 24.8   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 35.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 425 (at 150 km/h)<br>Lateral: 140 (at 150 km/h)<br>Maximum: 510 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |

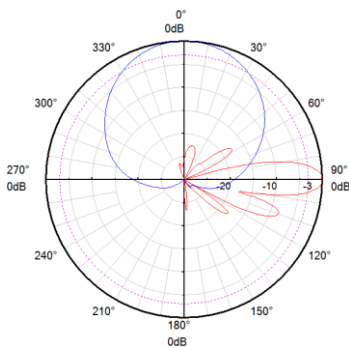


1L3H Band

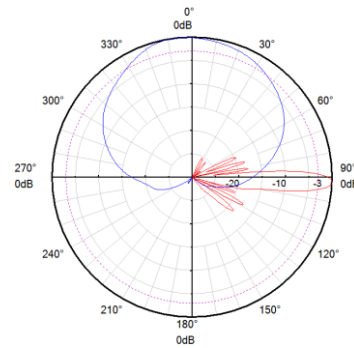
**Accessories**

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 16 ° | 2.1 kg | 1 (Separate packing) |

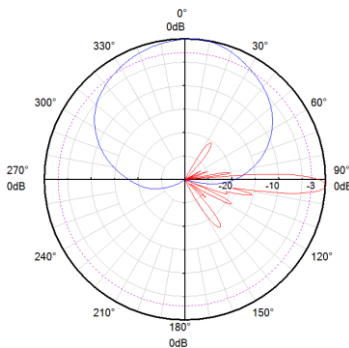
**Pattern sample for reference**



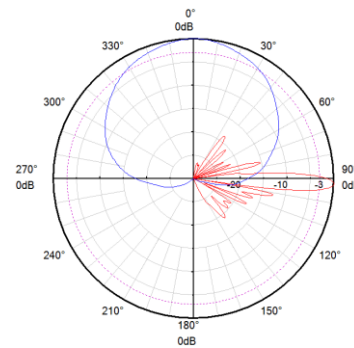
690 - 960 MHz



1427 - 2690 MHz (Ry3)



1695 - 2690 MHz (Cy2)



1695 - 2690 MHz (Ly1)

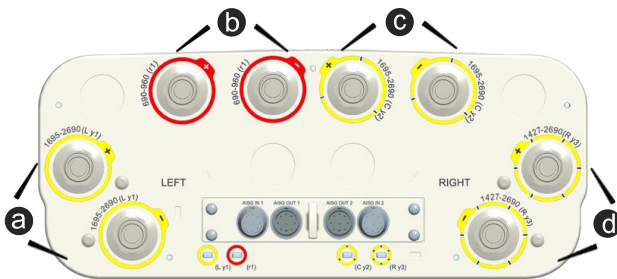
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

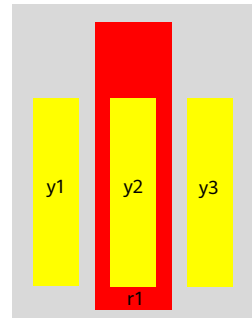
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Integrated RET S/N:**

- a** HWxxx.....Ly1
- b** HWxxx.....r1
- c** HWxxx.....Cy2
- d** HWxxx.....Ry3

r - Red                      y - Yellow  
 L - Left array          C - Center array  
 R - Right array



## Antenna Specifications

| Electrical Properties  |   |           |           |           |                                    |             |             |             |             |           |
|--|---|-----------|-----------|-----------|------------------------------------|-------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 690 - 960   |           |           |           | 1427 - 2690 (Ry3)                  |             |             |             |             |           |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1427 - 1518                        | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°  |           |           |           | +45°, -45°                         |             |             |             |             |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |           |           |           |                                    |             |             |             |             |           |
| Gain (dBi)   | at mid Tilt   | 15.4      | 15.7      | 15.9      | 16.1                               | 16.0        | 17.3        | 17.5        | 17.8        | 18.1      |
|  | over all Tilts  | 15.3 ±0.5 | 15.6 ±0.5 | 15.8 ±0.5 | 16.0 ±0.5                          | 15.9 ±0.5   | 17.1 ±0.5   | 17.2 ±0.5   | 17.5 ±0.4   | 17.6 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 17  | > 17      | > 17      | > 17      | > 15                               | > 17        | > 17        | > 17        | > 17        | > 16      |
| Horizontal 3dB beam width (°)                                  | 67 ±3.1   | 65 ±1.5   | 65 ±2.0   | 63 ±2.7   | 73 ±6.0                            | 68 ±5.0     | 67 ±5.0     | 65 ±3.7     | 60 ±5.4     |           |
| Vertical 3dB beam width (°)                                    | 10.8 ±1.0   | 9.7 ±0.5  | 9.4 ±0.5  | 8.8 ±0.4  | 8.1 ±0.4                           | 6.6 ±0.5    | 6.0 ±0.5    | 5.1 ±0.4    | 4.8 ±0.3    |           |
| VSWR   | < 1.5   |           |           |           | < 1.5                              | < 1.5       |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           | ≥ 28                               | ≥ 28        |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28  |           |           |           | ≥ 28                               | ≥ 28        |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 23  | > 25      | > 25      | > 25      | > 22                               | > 25        | > 25        | > 26        | > 25        |           |
| Cross polar ratio (dB)   | 0°  | > 22      | > 22      | > 22      | > 22                               | > 19        | > 20        | > 20        | > 20        | > 18      |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)*                    |           |           |           | 250 (at 50°C ambient temperature)* |             |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |             |           |
| Impedance (Ω)  | 50  |           |           |           |                                    |             |             |             |             |           |
| Grounding  | DC Ground   |           |           |           |                                    |             |             |             |             |           |

| Electrical Properties  |   |             |             |             |                                    |             |             |             |           |  |
|--|---|-------------|-------------|-------------|------------------------------------|-------------|-------------|-------------|-----------|--|
| Frequency range (MHz)  | 1695 - 2690 (Cy2)                                     |             |             |             | 1695 - 2690 (Ly1)                  |             |             |             |           |  |
|  | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |  |
| Polarization   | +45°, -45°  |             |             |             | +45°, -45°                         |             |             |             |           |  |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |             |             |                                    |             |             |             |           |  |
| Gain (dBi)   | at mid Tilt   | 17.2        | 17.5        | 18.0        | 18.1                               | 17.4        | 17.7        | 18.0        | 18.4      |  |
|  | over all Tilts  | 17.0 ±0.5   | 17.3 ±0.5   | 17.8 ±0.4   | 18.0 ±0.6                          | 17.2 ±0.5   | 17.5 ±0.5   | 17.8 ±0.4   | 18.1 ±0.5 |  |
| Side lobe suppression for first side lobe above main beam (dB) | > 17  | > 17        | > 17        | > 16        | > 17                               | > 17        | > 17        | > 17        | > 16      |  |
| Horizontal 3dB beam width (°)                                  | 67 ±5.0   | 65 ±3.5     | 60 ±5.0     | 59 ±5.5     | 67 ±5.2                            | 65 ±4.6     | 62.0 ±3.0   | 59 ±4.4     |           |  |
| Vertical 3dB beam width (°)                                    | 6.6 ±0.5  | 6.0 ±0.5    | 5.2 ±0.4    | 5.0 ±0.4    | 6.6 ±0.5                           | 6.0 ±0.4    | 5.2 ±0.4    | 5.0 ±0.4    |           |  |
| VSWR   | < 1.5   |             |             |             | < 1.5                              |             |             |             |           |  |
| Cross polar isolation (dB)                                     | ≥ 28  |             |             |             | ≥ 28                               |             |             |             |           |  |
| Interband isolation (dB)                                       | ≥ 28  |             |             |             | ≥ 28                               |             |             |             |           |  |
| Front to back ratio, ±30° (dB)                                 | > 27  | > 28        | > 26        | > 26        | > 25                               | > 25        | > 26        | > 25        |           |  |
| Cross polar ratio (dB)   | 0°  | > 20        | > 20        | > 17        | > 20                               | > 20        | > 20        | > 20        |           |  |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |             |             | 250 (at 50°C ambient temperature)* |             |             |             |           |  |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |           |  |
| Impedance (Ω)  | 50  |             |             |             |                                    |             |             |             |           |  |
| Grounding  | DC Ground   |             |             |             |                                    | DC Ground   |             |             |           |  |

\* Total power : 900 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.



AQU4518R22v07

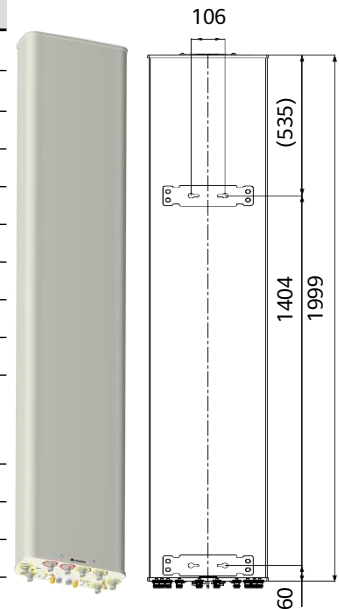
DXXXX-690-960/1427-2690/1695-2690/1695-2690-65/65/65/65-

16i/17.5i/18i/18i-M/M/M/M-R

EasyRET 1L3H 8-Port Antenna with 4 Integrated RCUs - 2.0m



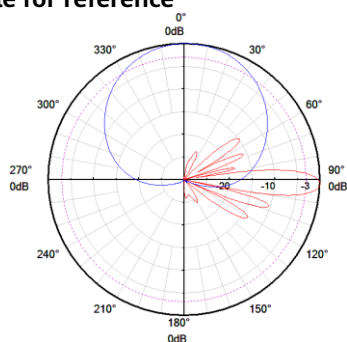
| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 369 x 149   |
| Packing dimensions (H x W x D) (mm) | 2265 x 435 x 240   |
| Antenna weight (kg)                 | 30.0   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 46.3 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 580 (at 150 km/h)<br>Lateral: 195 (at 150 km/h)<br>Maximum: 700 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |



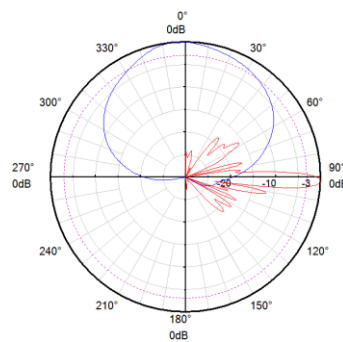
**Accessories**

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 12 ° | 2.1 kg | 1 (Separate packing) |

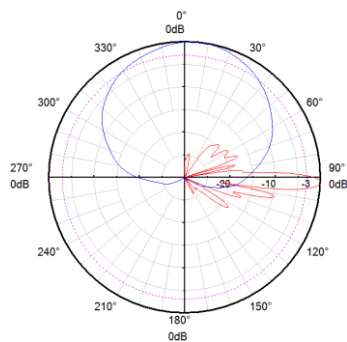
**Pattern sample for reference**



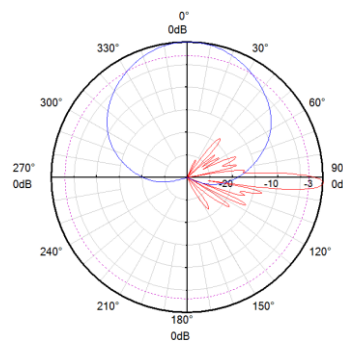
**690 - 960 MHz**



**1427 - 2690 MHz (Ry3)**



**1695 - 2690 MHz (Cy2)**



**1695 - 2690 MHz (Ly1)**

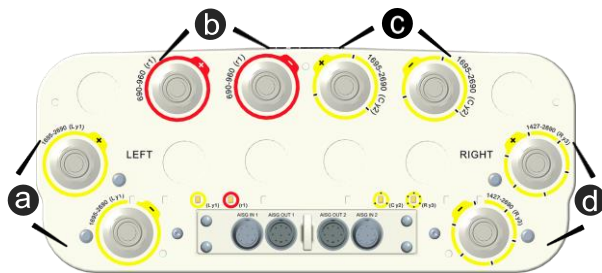
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

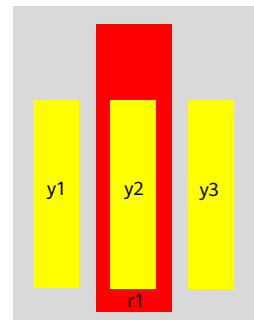
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a HWxxx.....Ly1
- b HWxxx.....r1
- c HWxxx.....Cy2
- d HWxxx.....Ry3

r - Red                      y - Yellow  
 L - Left array            C - Center array  
 R - Right array



## Antenna Specifications

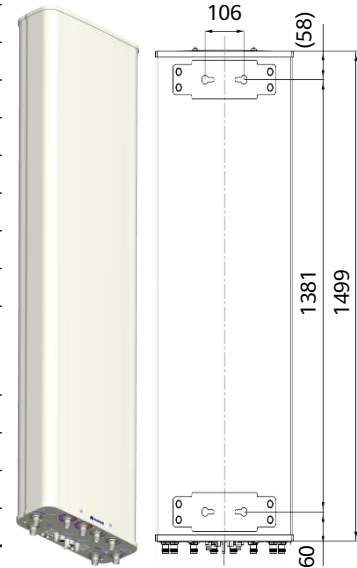
| Electrical Properties  |                |                                    |           |           |           |                                    |             |             |             |
|--|----------------|------------------------------------|-----------|-----------|-----------|------------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 690 - 960(r1)                      |           |           |           | 1710 - 2690(Ry3)                   |             |             |             |
|  |                | 690 - 803                          | 790 - 862 | 824 - 894 | 880 - 960 | 1710 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°                         |           |           |           | +45°, -45°                         |             |             |             |
| Electrical downtilt (°)  |                | 0 - 14, continuously adjustable    |           |           |           | 2 - 12, continuously adjustable    |             |             |             |
| Gain (dBi)   | at mid Tilt    | 14.1                               | 14.5      | 14.6      | 14.8      | 17.3                               | 17.6        | 18.0        | 18.1        |
|  | over all Tilts | 14.1 ±0.5                          | 14.5 ±0.5 | 14.6 ±0.5 | 14.7 ±0.5 | 17.1 ±0.5                          | 17.4 ±0.5   | 17.7 ±0.4   | 17.8 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16                               | > 17      | > 17      | > 17      | > 16                               | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 66 ±1.1                            | 67 ±0.8   | 65 ±1.4   | 63 ±3     | 66 ±5.1                            | 64 ±5.3     | 60 ±4.5     | 59 ±4.7     |
| Vertical 3dB beam width (°)                                    |                | 15.3 ±1.0                          | 13.7 ±1.0 | 13.0 ±0.7 | 12.0 ±0.8 | 6.9 ±0.6                           | 6.2 ±0.5    | 5.4 ±0.4    | 5.1 ±0.4    |
| VSWR   |                | < 1.5                              |           |           |           | < 1.5                              |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28                               |           |           |           | ≥ 28                               |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28                               |           |           |           | ≥ 28                               |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 24                               | > 25      | > 25      | > 24      | > 25                               | > 25        | > 28        | > 26        |
| Cross polar ratio (dB)   |                | 0°                                 | > 21      | > 20      | > 20      | > 20                               | > 20        | > 18        | > 17        |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)* |           |           |           | 250 (at 50°C ambient temperature)* |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)        |           |           |           | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |
| Impedance (Ω)  |                | 50                                 |           |           |           |                                    |             |             |             |
| Grounding  |                | DC Ground                          |           |           |           |                                    |             |             |             |

| Electrical Properties  |                |                                    |             |             |             |                                    |             |             |             |
|--|----------------|------------------------------------|-------------|-------------|-------------|------------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 1710 - 2690(Cy2)                   |             |             |             | 1710 - 2690(Ly1)                   |             |             |             |
|  |                | 1710 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1710 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°                         |             |             |             |                                    |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable    |             |             |             | 2 - 12, continuously adjustable    |             |             |             |
| Gain (dBi)   | at mid Tilt    | 17.2                               | 17.5        | 17.8        | 18.0        | 17.4                               | 17.7        | 18.0        | 18.2        |
|  | over all Tilts | 17.0 ±0.5                          | 17.3 ±0.5   | 17.6 ±0.4   | 17.7 ±0.5   | 17.2 ±0.5                          | 17.5 ±0.5   | 17.8 ±0.4   | 18.0 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16                               | > 16        | > 16        | > 16        | > 17                               | > 17        | > 17        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 64 ±6.3                            | 63 ±6.7     | 60 ±6.1     | 59 ±4.0     | 67 ±5.3                            | 65 ±4.8     | 61 ±3.5     | 60 ±2.9     |
| Vertical 3dB beam width (°)                                    |                | 6.9 ±0.5                           | 6.2 ±0.5    | 5.4 ±0.4    | 5.1 ±0.3    | 6.9 ±0.6                           | 6.2 ±0.5    | 5.4 ±0.5    | 5.1 ±0.4    |
| VSWR   |                | < 1.5                              |             |             |             | < 1.5                              |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28                               |             |             |             | ≥ 28                               |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28                               |             |             |             | ≥ 28                               |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 25                               | > 25        | > 28        | > 26        | > 25                               | > 26        | > 28        | > 27        |
| Cross polar ratio (dB)   |                | 0°                                 | > 20        | > 20        | > 18        | > 17                               | > 22        | > 22        | > 19        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)* |             |             |             | 250 (at 50°C ambient temperature)* |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)        |             |             |             | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |
| Impedance (Ω)  |                | 50                                 |             |             |             |                                    |             |             |             |
| Grounding  |                | DC Ground                          |             |             |             | DC Ground                          |             |             |             |

\* Total power : 700 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1499 x 369 x 149   |
| Packing dimensions (H x W x D) (mm) | 1790 x 435 x 240   |
| Antenna weight (kg)                 | 24.8   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 35.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 425 (at 150 km/h)<br>Lateral: 140 (at 150 km/h)<br>Maximum: 510 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |

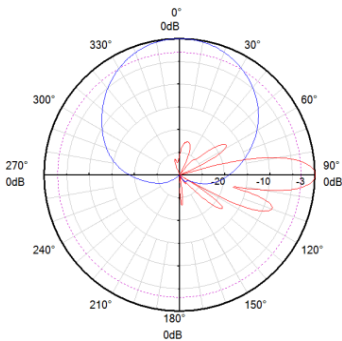


1L3H Band

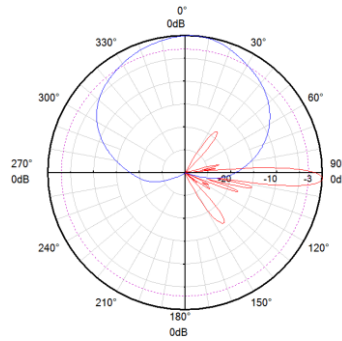
**Accessories**

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 16 ° | 2.1 kg | 1 (Separate packing) |

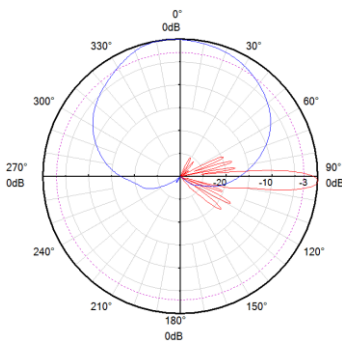
**Pattern sample for reference**



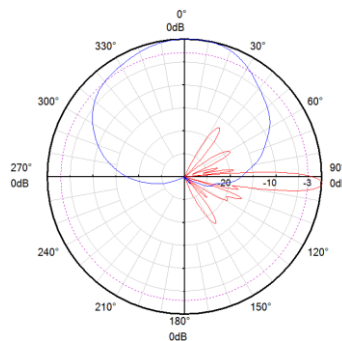
**690 - 960 MHz**



**1710 - 2690 MHz  
(Ry3)**



**1710 - 2690 MHz  
(Cy2)**



**1710 - 2690 MHz  
(Ly1)**



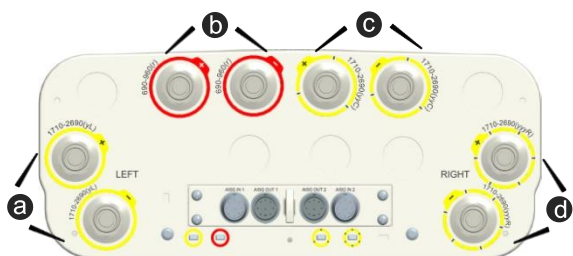
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

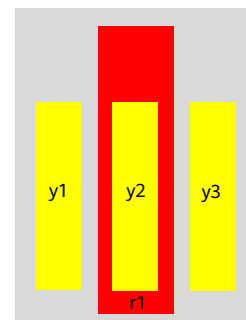
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a HWxxx.....Ly1
- b HWxxx.....r1
- c HWxxx.....Cy2
- d HWxxx.....Ry3

r - Red                      y - Yellow  
 L - Left array            C - Center array  
 R - Right array



## Antenna Specifications

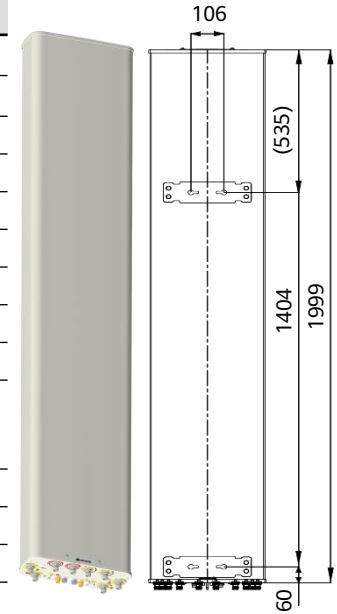
| Electrical Properties  |                |   |           |           |           |                                    |             |             |             |
|--|----------------|---|-----------|-----------|-----------|------------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 690 - 960   |           |           |           | 1695 - 2690 (Ry3)                  |             |             |             |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |           |           |           | +45°, -45°                         |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |           |           |           |                                    |             |             |             |
| Gain (dBi)   | at mid Tilt    | 15.4  | 15.8      | 15.9      | 16.2      | 17.4                               | 17.8        | 18.0        | 18.4        |
|  | over all Tilts | 15.3 ±0.5   | 15.7 ±0.5 | 15.8 ±0.5 | 16.1 ±0.5 | 17.3 ±0.5                          | 17.7 ±0.5   | 17.8 ±0.4   | 18.0 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 17      | > 17      | > 17      | > 17                               | > 17        | > 17        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 68 ±3.0   | 65 ±2.5   | 66 ±3.5   | 63 ±3.7   | 68 ±4.5                            | 66 ±4.9     | 62 ±3.7     | 60 ±4.8     |
| Vertical 3dB beam width (°)                                    |                | 10.8 ±1.0   | 9.5 ±0.5  | 9.2 ±0.4  | 8.5 ±0.5  | 6.7 ±0.5                           | 5.9 ±0.5    | 5.3 ±0.5    | 4.8 ±0.3    |
| VSWR   |                | < 1.5   |           |           |           | < 1.5                              |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           | ≥ 28                               |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |           | ≥ 28                               |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 25  | > 25      | > 25      | > 25      | > 25                               | > 25        | > 26        | > 25        |
| Cross polar ratio (dB)   |                | 0°  | > 22      | > 22      | > 22      | > 22                               | > 21        | > 20        | > 18        |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                    |           |           |           | 250 (at 50°C ambient temperature)* |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |           |                                    |             |             |             |
| Grounding  |                | DC Ground   |           |           |           |                                    |             |             |             |

| Electrical Properties  |                |   |             |             |             |                                    |             |             |             |
|--|----------------|---|-------------|-------------|-------------|------------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 1695 - 2690 (Cy2)                                     |             |             |             | 1695 - 2690 (Ly1)                  |             |             |             |
|  |                | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |             |             |             | +45°, -45°                         |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |             |             |             |                                    |             |             |             |
| Gain (dBi)   | at mid Tilt    | 17.1  | 17.6        | 17.7        | 18.1        | 17.4                               | 17.8        | 18.0        | 18.4        |
|  | over all Tilts | 17.0 ±0.5   | 17.4 ±0.5   | 17.6 ±0.4   | 17.9 ±0.5   | 17.2 ±0.5                          | 17.7 ±0.5   | 17.8 ±0.4   | 18.3 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 17  | > 16        | > 16        | > 16        | > 17                               | > 17        | > 17        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 67 ±4.8   | 65 ±4.8     | 60 ±5.0     | 57 ±4.5     | 68 ±5.2                            | 66 ±4.6     | 61.0 ±5.2   | 60 ±4.4     |
| Vertical 3dB beam width (°)                                    |                | 6.5 ±0.5  | 5.8 ±0.5    | 5.4 ±0.4    | 4.8 ±0.4    | 6.7 ±0.5                           | 5.9 ±0.4    | 5.3 ±0.4    | 4.8 ±0.4    |
| VSWR   |                | < 1.5   |             |             |             | < 1.5                              |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |             |             |             | ≥ 28                               |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |             |             |             | ≥ 28                               |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 27  | > 28        | > 26        | > 26        | > 24                               | > 25        | > 26        | > 26        |
| Cross polar ratio (dB)   |                | 0°  | > 21        | > 20        | > 17        | > 22                               | > 22        | > 22        | > 22        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                    |             |             |             | 250 (at 50°C ambient temperature)* |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |
| Impedance (Ω)  |                | 50  |             |             |             | 50                                 |             |             |             |
| Grounding  |                | DC Ground   |             |             |             | DC Ground                          |             |             |             |

\* Total power : 900 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

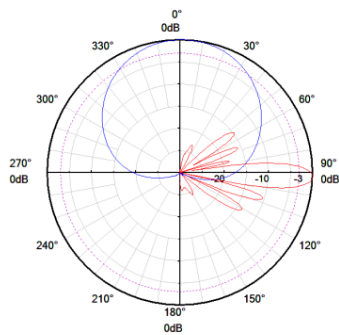
| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 369 x 149   |
| Packing dimensions (H x W x D) (mm) | 2265 x 435 x 240   |
| Antenna weight (kg)                 | 30.0   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 46.3 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 580 (at 150 km/h)<br>Lateral: 195 (at 150 km/h)<br>Maximum: 700 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |



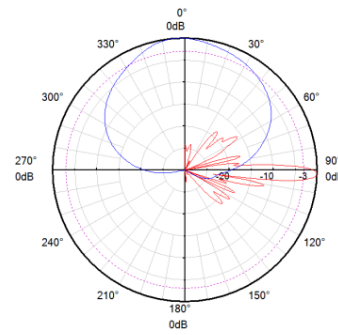
**Accessories**

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 12 ° | 2.1 kg | 1 (Separate packing) |

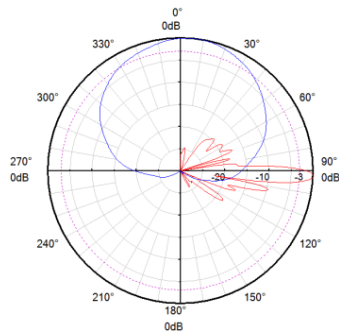
**Pattern sample for reference**



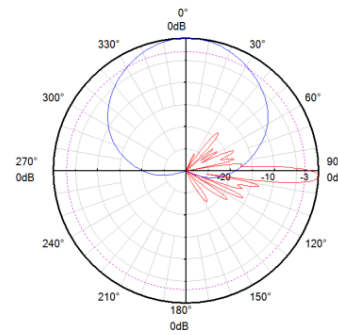
**690 - 960 MHz**



**1695 - 2690 MHz (Ry3)**



**1695 - 2690 MHz (Cy2)**



**1695 - 2690 MHz (Ly1)**

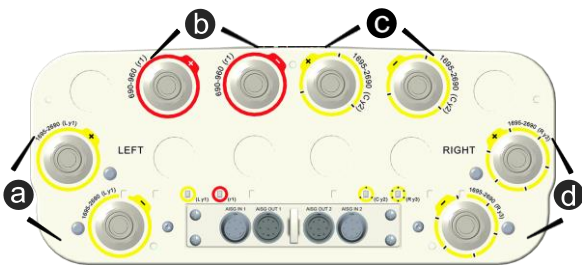
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

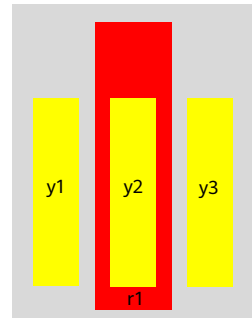
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a HWxxx.....Ly1
- b HWxxx.....r1
- c HWxxx.....Cy2
- d HWxxx.....Ry3

r - Red                      y - Yellow  
 L - Left array            C - Center array  
 R - Right array





## Antenna Specifications

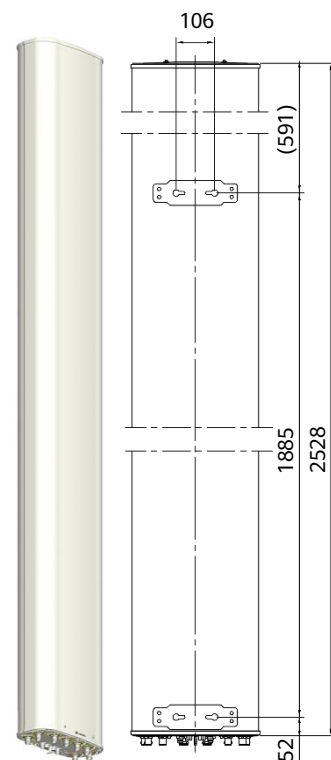
| Electrical Properties          |  |   |           |           |           |                                   |             |             |             |           |
|--------------------------------|--|---|-----------|-----------|-----------|-----------------------------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)          |  | 690 - 960   |           |           |           | 3 x (1695 - 2690)                 |             |             |             |           |
|                                |  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990                       | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization                   |  | +45°, -45°  |           |           |           |                                   |             |             |             |           |
| Electrical downtilt (°)        |  | 0 - 10, continuously adjustable, each band separately |           |           |           |                                   |             |             |             |           |
| Gain (dBi)                     | Bottom   | at mid Tilt   | 16.2      | 16.5      | 16.7      | 17.0                              |             |             |             |           |
|                                |  | over all Tilts  | 16.1 ±0.5 | 16.3 ±0.4 | 16.5 ±0.4 | 16.8 ±0.4                         |             |             |             |           |
|                                | Top  | at mid Tilt   |           |           |           |                                   | 17.1        | 17.3        | 17.1        | 17.6      |
|                                |  | over all Tilts  |           |           |           |                                   | 16.9 ±0.5   | 17.1 ±0.3   | 17.0 ±0.4   | 17.4 ±0.5 |
|                                | Side lobe suppression for first side lobe above main beam (dB) |   | > 17      | > 18      | > 17      | > 17                              | > 17        | > 17        | >17         | > 16      |
|                                | Horizontal 3dB beam width (°)                                  |   | 67 ±1.9   | 66 ±3.5   | 65 ±2.4   | 62 ±3.3                           | 63 ±3.4     | 62 ±2.8     | 61 ±3.7     | 60 ±3.1   |
| Vertical 3dB beam width (°)    |  | 8.8 ±0.6  | 8.5 ±0.4  | 8.0 ±0.3  | 7.4 ±0.3  | 7.4 ±0.5                          | 6.8 ±0.5    | 6.0 ±0.4    | 5.5 ±0.4    |           |
| VSWR                           |  | < 1.5   |           |           |           |                                   |             |             |             |           |
| Cross polar isolation (dB)     |  | ≥ 28  |           |           |           |                                   |             |             |             |           |
| Interband isolation (dB)       |  | ≥ 30  |           |           |           |                                   |             |             |             |           |
| Front to back ratio, ±30° (dB) |  | > 25  | > 25      | > 25      | > 25      | > 24                              | > 24        | > 25        | > 25        |           |
| Cross polar ratio (dB) 0°      |  | > 20  | > 20      | > 20      | > 20      | > 17                              | > 17        | > 17        | > 17        |           |
| Max. power per input (W)       |  | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature) |             |             |             |           |
| Total power (W)                |  | 960 (at 50°C ambient temperature)                     |           |           |           |                                   |             |             |             |           |
| Intermodulation IM3 (dBc)      |  | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |                                   |             |             |             |           |
| Impedance (Ω)                  |  | 50  |           |           |           |                                   |             |             |             |           |
| Grounding                      |  | DC Ground   |           |           |           |                                   |             |             |             |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2528 x 349 x 166   |
| Packing dimensions (H x W x D) (mm) | 2880 x 415 x 245   |
| Antenna weight (kg)                 | 29.7   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 45.2 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 825 (at 150 km/h)<br>Lateral: 240 (at 150 km/h)<br>Maximum: 870 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |

## Accessories

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 8 ° | 2.1 kg | 1 (Separate packing) |



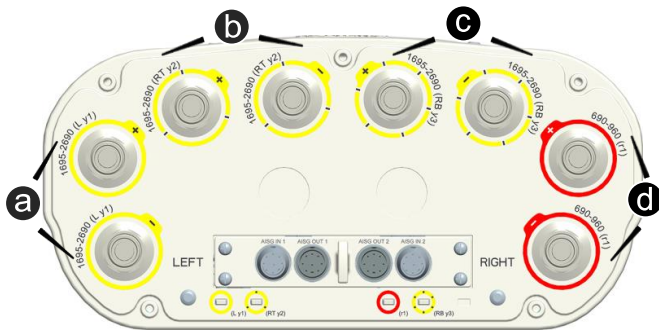
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

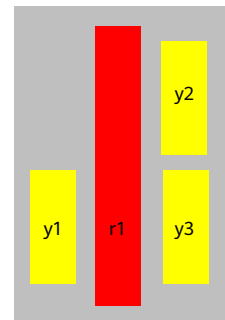
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



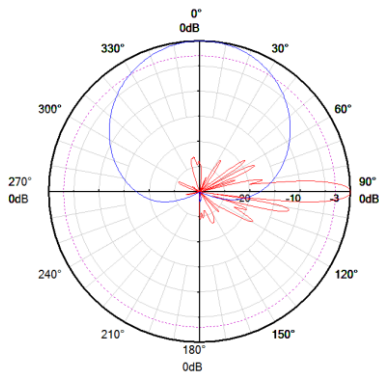
**Integrated RET S/N:**

- a) HWxxxx.....Ly1
- b) HWxxxx.....RTy2
- c) HWxxxx.....RBy3
- d) HWxxxx.....r1

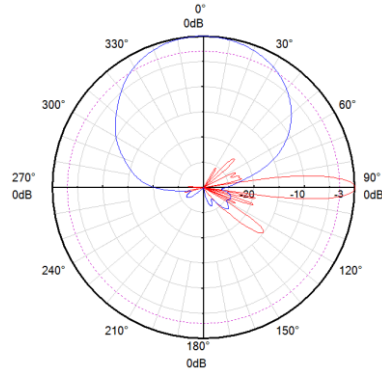


r - Red      y - Yellow  
 L - Left array    R - Right array  
 T - Top array    B - Bottom array

**Pattern sample for reference**



690 - 960 MHz



1695 - 2690 MHz

## Antenna Specifications

| Electrical Properties  |                |                                    |           |           |           |                                    |             |             |             |             |
|--|----------------|------------------------------------|-----------|-----------|-----------|------------------------------------|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 690 - 960 (r1)                     |           |           |           | 1427 - 2690 (Ry3)                  |             |             |             |             |
|  |                | 690 - 803                          | 790 - 862 | 824 - 894 | 880 - 960 | 1427 - 1518                        | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°                         |           |           |           | +45°, -45°                         |             |             |             |             |
| Electrical downtilt (°)  |                | 0 - 14, continuously adjustable    |           |           |           | 2 - 12, continuously adjustable    |             |             |             |             |
| Gain (dBi)   | at mid Tilt    | 14.0                               | 14.4      | 14.6      | 14.9      | 15.8                               | 17.3        | 17.4        | 17.6        | 17.9        |
|  | over all Tilts | 14.0 ±0.4                          | 14.4 ±0.5 | 14.6 ±0.5 | 14.8 ±0.4 | 15.7 ±0.5                          | 17.1 ±0.5   | 17.2 ±0.5   | 17.4 ±0.4   | 17.7 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 17                               | > 17      | > 16      | > 16      | > 15                               | > 17        | > 17        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 67 ±2.0                            | 66 ±3.0   | 64 ±3.0   | 61 ±4.0   | 74 ±6.0                            | 69 ±5.0     | 68 ±5.5     | 64 ±5.0     | 60 ±4.0     |
| Vertical 3dB beam width (°)                                    |                | 15.3 ±2.0                          | 13.6 ±2.0 | 13.2 ±0.7 | 12.2 ±0.8 | 8.0 ±0.4                           | 6.5 ±0.6    | 5.9 ±0.5    | 5.1 ±0.4    | 4.8 ±0.4    |
| VSWR   |                | < 1.5                              |           |           |           | < 1.5                              | < 1.5       |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28                               |           |           |           | ≥ 28                               | ≥ 28        |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28                               |           |           |           | ≥ 28                               | ≥ 28        |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 22                               | > 23      | > 24      | > 24      | > 22                               | > 24        | > 24        | > 26        | > 24        |
| Cross polar ratio (dB)   |                | 0°                                 | > 20      | > 20      | > 20      | > 18                               | > 20        | > 20        | > 20        | > 17        |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)* |           |           |           | 250 (at 50°C ambient temperature)* |             |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)        |           |           |           | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |             |
| Impedance (Ω)  |                | 50                                 |           |           |           | 50                                 |             |             |             |             |
| Grounding  |                | DC Ground                          |           |           |           | DC Ground                          |             |             |             |             |

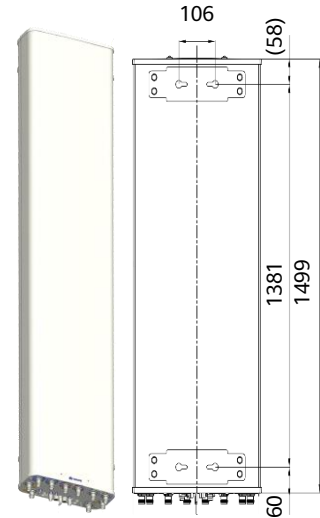
| Electrical Properties  |                |   |             |                   |                                    |             |             |             |      |  |
|--|----------------|---|-------------|-------------------|------------------------------------|-------------|-------------|-------------|------|--|
| Frequency range (MHz)  |                | 1695 - 2200 (b1)                                      |             | 2490 - 2690 (Ly1) | 1695 - 2690 (Cy2)                  |             |             |             |      |  |
|  |                | 1695 - 1990   | 1920 - 2200 |                   | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |      |  |
| Polarization   |                | +45°, -45°  |             |                   |                                    |             |             |             |      |  |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |             |                   |                                    |             |             |             |      |  |
| Gain (dBi)   | at mid Tilt    | 16.9  | 17.5        | 18.0              | 17.3                               | 17.5        | 17.8        | 17.9        |      |  |
|  | over all Tilts | 16.7 ±0.5   | 17.2 ±0.5   | 17.7 ±0.5         | 17.1 ±0.5                          | 17.3 ±0.5   | 17.6 ±0.4   | 17.7 ±0.5   |      |  |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 17        | > 16              | > 16                               | > 16        | > 16        | > 17        |      |  |
| Horizontal 3dB beam width (°)                                  |                | 69 ±5.0   | 66 ±5.0     | 58 ±5.0           | 63 ±5.0                            | 62 ±6.0     | 58 ±5.3     | 58 ±5.1     |      |  |
| Vertical 3dB beam width (°)                                    |                | 6.4 ±0.5  | 5.8 ±0.5    | 4.6 ±0.3          | 6.5 ±0.6                           | 5.8 ±0.5    | 5.1 ±0.4    | 4.8 ±0.3    |      |  |
| VSWR   |                | < 1.5   |             |                   | < 1.5                              |             |             |             |      |  |
| Cross polar isolation (dB)                                     |                | ≥ 28  |             |                   | ≥ 28                               |             |             |             |      |  |
| Interband isolation (dB)                                       |                | ≥ 28  |             |                   | ≥ 28                               |             |             |             |      |  |
| Front to back ratio, ±30° (dB)                                 |                | > 23  | > 26        | > 24              | > 27                               | > 28        | > 28        | > 26        |      |  |
| Cross polar ratio (dB)   |                | 0°  | > 22        | > 21              | > 20                               | > 22        | > 19        | > 17        | > 21 |  |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                    |             |                   | 250 (at 50°C ambient temperature)* |             |             |             |      |  |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                           |             |                   | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |      |  |
| Impedance (Ω)  |                | 50  |             |                   |                                    |             |             |             |      |  |
| Grounding  |                | DC Ground   |             |                   |                                    |             |             |             |      |  |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1499 x 369 x 149   |
| Packing dimensions (H x W x D) (mm) | 1790 x 435 x 240   |
| Antenna weight (kg)                 | 26.3   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 38.4 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 425 (at 150 km/h)<br>Lateral: 140 (at 150 km/h)<br>Maximum: 510 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female   |
| Connector position                  | Bottom   |

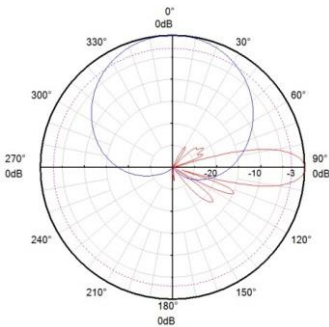


1L4H Band

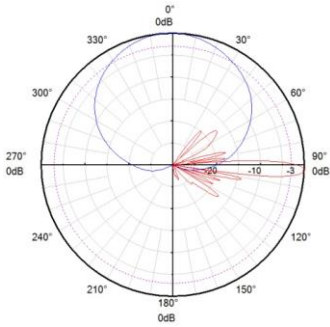
**Accessories**

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 16 ° | 2.1 kg | 1 (Separate packing) |

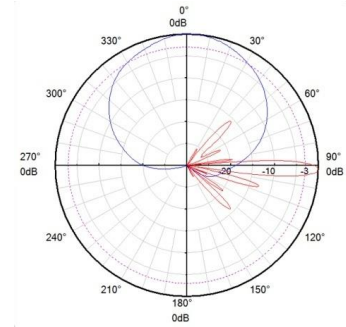
**Pattern sample for reference**



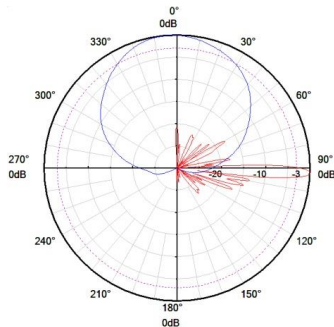
690 - 960 MHz



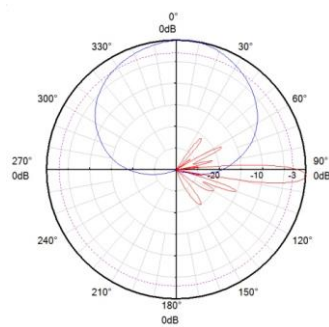
1427 - 2690 MHz



1695 - 2200 MHz



2490 - 2690 MHz



1695 - 2690 MHz

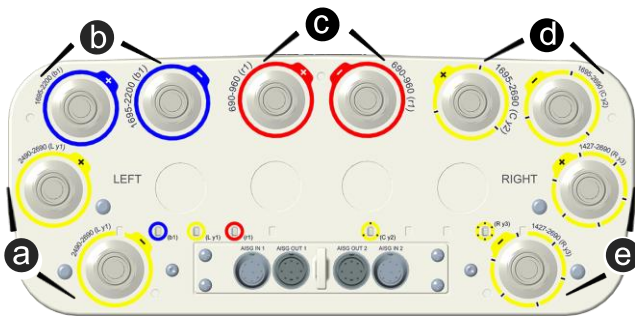
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)s  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

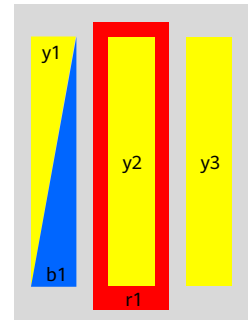
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Integrated RET S/N:**

- a HWxxxx.....Ly1
- b HWxxxx.....b1
- c HWxxxx.....r1
- d HWxxxx.....Cy2
- e HWxxxx.....Ry3



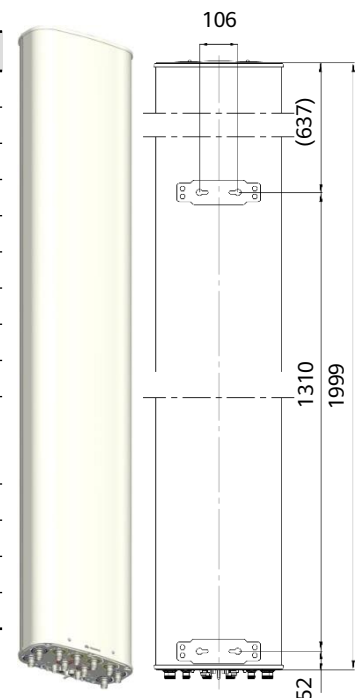
r - Red                      y - Yellow                      b - Blue  
C - Center array          L - Left array                  R - Right array

## Antenna Specifications

| Electrical Properties  |   |           |           |           |                                   |             |                   |           |
|--|---|-----------|-----------|-----------|-----------------------------------|-------------|-------------------|-----------|
| Frequency range (MHz)  | 690 - 960   |           |           |           | 2 x (1695 - 2200)                 |             | 2 x (2490 - 2690) |           |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1920                       | 1920 - 2200 |                   |           |
| Polarization   | +45°, -45°  |           |           |           |                                   |             |                   |           |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable, each band separately |           |           |           |                                   |             |                   |           |
| Gain (dBi)   | at mid Tilt   | 15.4      | 15.7      | 16.0      | 16.1                              | 17.0        | 17.3              | 18.0      |
|  | over all Tilts  | 15.3 ±0.5 | 15.6 ±0.5 | 15.8 ±0.5 | 16.0 ±0.5                         | 16.9 ±0.4   | 17.2 ±0.4         | 17.9 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 17  | > 17      | > 17      | > 17      | > 17                              | > 17        | > 17              | > 16      |
| Horizontal 3dB beam width (°)                                  | 67 ±2   | 67 ±3     | 66 ±3     | 64 ±4     | 63 ±4                             | 61 ±4       |                   | 60 ±5     |
| Vertical 3dB beam width (°)                                    | 10.3 ±0.7   | 9.5 ±0.5  | 9.2 ±0.6  | 8.6 ±0.5  | 6.4 ±0.7                          | 5.8 ±0.4    |                   | 4.9 ±0.4  |
| VSWR   | < 1.5   |           |           |           | < 1.5                             |             | < 1.5             |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           | ≥ 28                              |             | ≥ 28              |           |
| Interband isolation (dB)                                       | ≥ 30  |           |           |           | ≥ 30                              |             | ≥ 30              |           |
| Front to back ratio, ±30° (dB)                                 | > 23  | > 24      | > 24      | > 24      | > 25                              | > 26        |                   | > 24      |
| Cross polar ratio (dB) 0°                                      | > 18  | > 18      | > 18      | > 17      | > 18                              | > 18        |                   | > 18      |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature) |             |                   |           |
| Total power (W)  | 1000 (at 50°C ambient temperature)                    |           |           |           |                                   |             |                   |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |                                   |             |                   |           |
| Impedance (Ω)  | 50  |           |           |           |                                   |             |                   |           |
| Grounding  | DC Ground   |           |           |           |                                   |             |                   |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 349 x 166   |
| Packing dimensions (H x W x D) (mm) | 2235 x 435 x 215   |
| Antenna weight (kg)                 | 26.5   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 36.5 (included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 630 (at 150 km/h)<br>Lateral: 180 (at 150 km/h)<br>Maximum: 665 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female   |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 12 ° | 2.1 kg | 1 (Separate packing) |

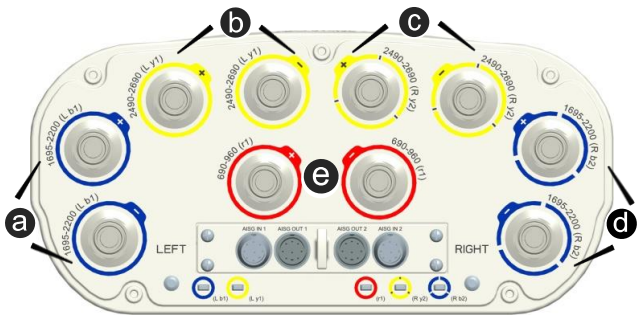
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

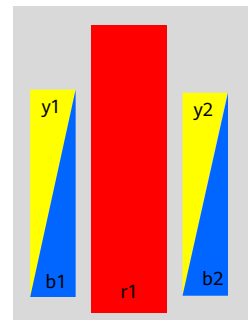
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



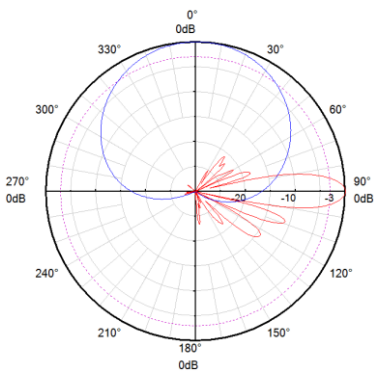
**Integrated RET S/N:**

- a HWxxxx.....Lb1
- b HWxxxx.....Ly1
- c HWxxxx.....Ry2
- d HWxxxx.....Rb2
- e HWxxxx.....r1

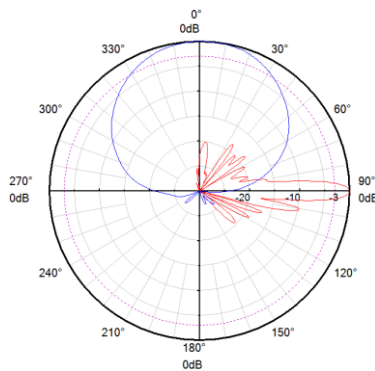


r - Red      y - Yellow      b - Blue  
L - Left array      R - Right array

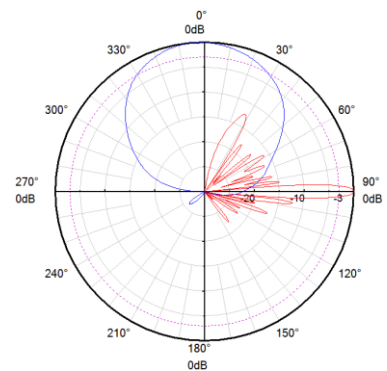
**Pattern sample for reference**



690 - 960 MHz



1695 - 2200 MHz



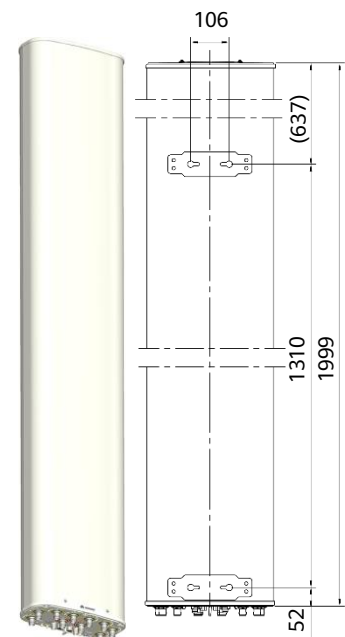
2490 - 2690 MHz

## Antenna Specifications

| Electrical Properties  |        |                                    |           |           |           |   |             |             |             |          |
|--|--------|------------------------------------|-----------|-----------|-----------|---|-------------|-------------|-------------|----------|
| Frequency range (MHz)  |        | 690 - 960                          |           |           |           | 4 x (1695 - 2690)                                     |             |             |             |          |
|  |        | 690 - 803                          | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |          |
| Polarization   |        | +45°, -45°                         |           |           |           |   |             |             |             |          |
| Electrical downtilt (°)  |        | 0 - 10, continuously adjustable    |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |          |
| Gain (dBi)   | Bottom | at mid Tilt                        | 15.4      | 15.7      | 16.0      | 16.1  |             |             |             |          |
|  |        | over all Tilts                     | 15.3±0.5  | 15.6±0.5  | 15.8±0.5  | 16.0±0.5  |             |             |             |          |
|  | Top    | at mid Tilt                        |           |           |           |   | 15.8        | 16.2        | 16.5        | 16.7     |
|  |        | over all Tilts                     |           |           |           |   | 15.8±0.5    | 16.2±0.5    | 16.5±0.4    | 16.6±0.6 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 17                               | > 17      | > 17      | > 17      | > 17  | > 17        | > 17        | > 17        |          |
| Horizontal 3dB beam width (°)                                  |        | 67 ±3.0                            | 67 ±3.0   | 66 ±3.0   | 64 ±4.0   | 63 ±4.0   | 61 ±4.0     | 60 ±4.0     | 61 ±5.0     |          |
| Vertical 3dB beam width (°)                                    | Bottom | 10.3 ±0.7                          | 9.3 ±0.5  | 9.1 ±0.6  | 8.4 ±0.6  |   |             |             |             |          |
|  | Top    |                                    |           |           |           | 10.3 ±0.7   | 9.4 ±0.6    | 8.1 ±0.5    | 7.5 ±0.5    |          |
| VSWR   |        | < 1.5                              |           |           |           | < 1.5   |             |             |             |          |
| Cross polar isolation (dB)                                     |        | ≥ 28                               |           |           |           | ≥ 28  |             |             |             |          |
| Interband isolation (dB)                                       |        | ≥ 30                               |           |           |           | ≥ 30  |             |             |             |          |
| Front to back ratio, ±30° (dB)                                 |        | > 25                               | > 24      | > 24      | > 24      | > 24  | > 26        | > 25        | > 25        |          |
| Cross polar ratio (dB) 0°                                      |        | > 18                               | > 18      | > 18      | > 17      | > 18  | > 18        | > 18        | > 20        |          |
| Max. power per input (W)                                       |        | 500 (at 50°C ambient temperature)  |           |           |           | 250 (at 50°C ambient temperature)                     |             |             |             |          |
| Total power (W)  |        | 1000 (at 50°C ambient temperature) |           |           |           |   |             |             |             |          |
| Intermodulation IM3 (dBc)                                      |        | ≤ -153 (2 x 43 dBm carrier)        |           |           |           |   |             |             |             |          |
| Impedance (Ω)  |        | 50                                 |           |           |           |   |             |             |             |          |
| Grounding  |        | DC Ground                          |           |           |           |   |             |             |             |          |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 349 x 166   |
| Packing dimensions (H x W x D) (mm) | 2235 x 435 x 215   |
| Antenna weight (kg)                 | 26.5   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 36.5 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 630 (at 150 km/h)<br>Lateral: 180 (at 150 km/h)<br>Maximum: 665 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female   |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 12° | 2.1 kg | 1 (Separate packing) |



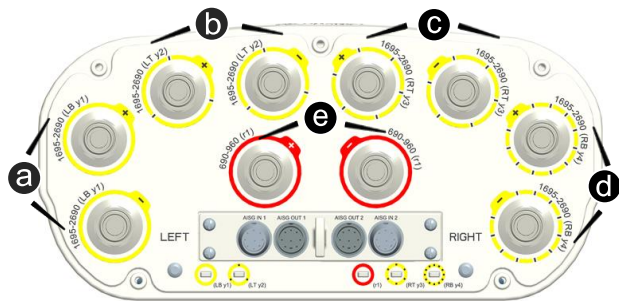
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

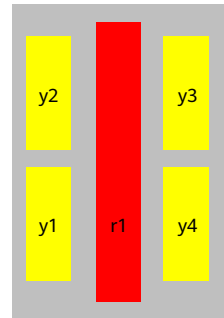
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



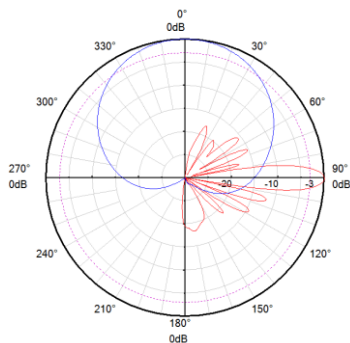
**Integrated RET S/N:**

- a HWxxxx.....LBy1
- b HWxxxx.....LTy2
- c HWxxxx.....RTy3
- d HWxxxx.....RBy4
- e HWxxxx.....r1

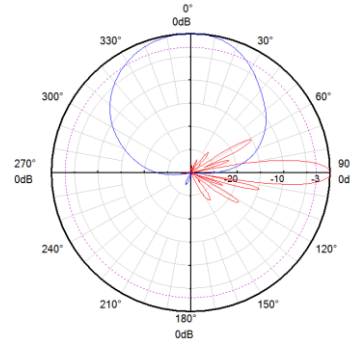


r - Red      y - Yellow  
L - Left array   R - Right array  
T - Top array   B - Bottom array

**Pattern sample for reference**



690 - 960 MHz



1695 - 2690 MHz

## Antenna Specifications

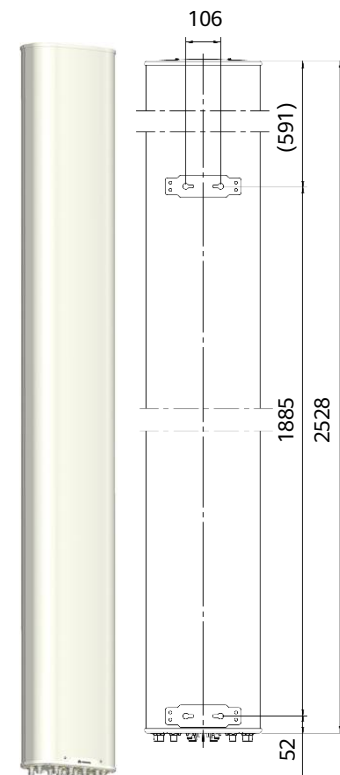
| Electrical Properties  |        |   |           |           |           |                                   |             |             |             |           |
|--|--------|---|-----------|-----------|-----------|-----------------------------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  |        | 690 - 960   |           |           |           | 4 x (1695 - 2690)                 |             |             |             |           |
|  |        | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990                       | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   |        | +45°, -45°  |           |           |           |                                   |             |             |             |           |
| Electrical downtilt (°)  |        | 0 - 10, continuously adjustable, each band separately |           |           |           |                                   |             |             |             |           |
| Gain (dBi)   | Bottom | at mid Tilt   | 16.2      | 16.5      | 16.7      | 17.0                              |             |             |             |           |
|  |        | over all Tilts  | 16.1 ±0.5 | 16.3 ±0.4 | 16.5 ±0.4 | 16.8 ±0.4                         |             |             |             |           |
|  | Top    | at mid Tilt   |           |           |           |                                   | 17.1        | 17.3        | 17.1        | 17.6      |
|  |        | over all Tilts  |           |           |           |                                   | 16.9 ±0.5   | 17.1±0.3    | 17.0 ±0.4   | 17.4 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 17  | > 17      | > 17      | > 17      | > 17                              | > 17        | > 17        | > 16        |           |
| Horizontal 3dB beam width (°)                                  |        | 67 ±1.9   | 66 ±3.5   | 65 ±2.4   | 62 ±3.3   | 63 ±3.4                           | 62 ±2.8     | 61 ±3.7     | 60 ±3.1     |           |
| Vertical 3dB beam width (°)                                    |        | 8.8 ±0.6  | 8.5 ±0.4  | 8.0 ±0.3  | 7.4 ±0.3  | 7.4 ±0.5                          | 6.8 ±0.5    | 6.0 ±0.4    | 5.5 ±0.2    |           |
| VSWR   |        | < 1.5   |           |           |           | < 1.5                             |             |             |             |           |
| Cross polar isolation (dB)                                     |        | ≥ 28  |           |           |           | ≥ 28                              |             |             |             |           |
| Interband isolation (dB)                                       |        | ≥ 30  |           |           |           | ≥ 30                              |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 |        | > 25  | > 25      | > 25      | > 25      | > 24                              | > 24        | > 25        | > 25        |           |
| Cross polar ratio (dB) 0°                                      |        | > 20  | > 20      | > 20      | > 20      | > 17                              | > 17        | > 17        | > 17        |           |
| Max. power per input (W)                                       |        | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature) |             |             |             |           |
| Total power (W)  |        | 1000 (at 50°C ambient temperature)                    |           |           |           |                                   |             |             |             |           |
| Intermodulation IM3 (dBc)                                      |        | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |                                   |             |             |             |           |
| Impedance (Ω)  |        | 50  |           |           |           |                                   |             |             |             |           |
| Grounding  |        | DC Ground   |           |           |           |                                   |             |             |             |           |

- Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
- Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2528 x 349 x 166   |
| Packing dimensions (H x W x D) (mm) | 2880 x 415 x 245   |
| Antenna weight (kg)                 | 32.0   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 47.5 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 825 (at 150 km/h)<br>Lateral: 240 (at 150 km/h)<br>Maximum: 870 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female   |
| Connector position                  | Bottom   |

## Accessories

| Item         | Model     | Description                    | Weight | Units per antenna    |
|--------------|-----------|--------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 8° | 2.1 kg | 1 (Separate packing) |



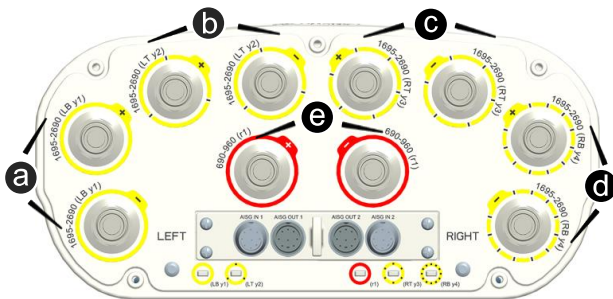
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

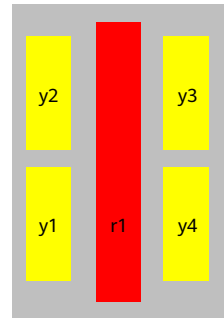
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



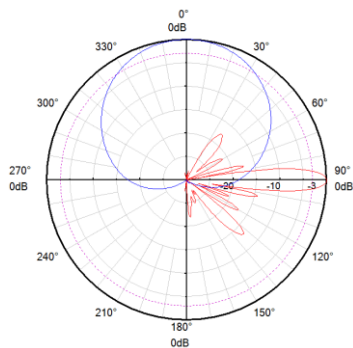
**Integrated RET S/N:**

- a HWxxx.....LBy1
- b HWxxx.....LTy2
- c HWxxx.....RTy3
- d HWxxx.....RBy4
- e HWxxx.....r1

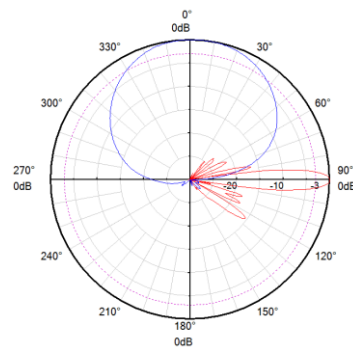


r - Red      y - Yellow  
 L - Left array    R - Right array  
 T - Top array    B - Bottom array

**Pattern sample for reference**



690 - 960 MHz



1695 - 2690 MHz



### Antenna Specifications

| Electrical Properties  |                |  |           |           |           |                                    |             |             |             |             |
|--|----------------|--|-----------|-----------|-----------|------------------------------------|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 690 - 960  |           |           |           | 1427 - 2690                        |             |             |             |             |
|  |                | 690 - 803  | 790 - 862 | 824 - 894 | 880 - 960 | 1427 - 1518                        | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°   |           |           |           | +45°, -45°                         |             |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable , each band separately |           |           |           |                                    |             |             |             |             |
| Gain (dBi)   | at mid Tilt    | 16.2   | 16.6      | 16.8      | 17.0      | 15.9                               | 17.3        | 17.5        | 17.8        | 18.1        |
|  | over all Tilts | 16.1 ±0.5  | 16.5 ±0.5 | 16.7 ±0.5 | 16.9 ±0.5 | 15.8 ±0.5                          | 17.1 ±0.5   | 17.2 ±0.5   | 17.5 ±0.4   | 17.6 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | >17  | >16       | >16       | >16       | > 15                               | > 17        | > 17        | > 15        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 67 ±2.5  | 65 ±2.6   | 63 ±2.1   | 61 ±1.6   | 73 ±6.0                            | 69 ±4.5     | 68 ±4.7     | 63 ±4.7     | 58 ±4.0     |
| Vertical 3dB beam width (°)                                    |                | 8.9 ±0.8   | 7.9 ±0.4  | 7.7 ±0.3  | 7.2 ±0.3  | 8.0 ±0.4                           | 6.5 ±0.6    | 5.9 ±0.5    | 5.1 ±0.4    | 4.8 ±0.4    |
| VSWR   |                | < 1.5  |           |           |           | < 1.5                              | < 1.5       |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28   |           |           |           | ≥ 28                               | ≥ 28        |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28   |           |           |           | ≥ 28                               | ≥ 28        |             |             |             |
| Front to back ratio , ±30° (dB)                                |                | > 24   | > 26      | > 26      | > 26      | > 22                               | > 23        | > 23        | > 27        | > 24        |
| Cross polar ratio (dB)   |                | 0°   | > 18      | > 18      | > 20      | > 20                               | > 18        | > 22        | > 22        | > 20        |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)*                     |           |           |           | 250 (at 50°C ambient temperature)* |             |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                            |           |           |           | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |             |
| Impedance (Ω)  |                | 50   |           |           |           |                                    |             |             |             |             |
| Grounding  |                | DC Ground  |           |           |           |                                    |             |             |             |             |

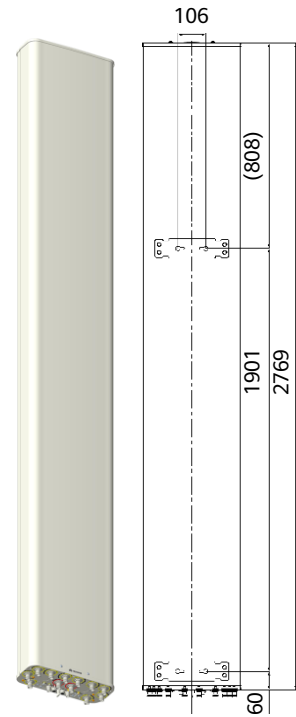
| Electrical Properties  |        |  |             |             |             |           |  |  |  |  |
|--|--------|--|-------------|-------------|-------------|-----------|--|--|--|--|
| Frequency range (MHz)  |        | 4 x (1695 - 2690)                                      |             |             |             |           |  |  |  |  |
|  |        | 1695 - 1990  | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |  |  |  |  |
| Polarization   |        | +45°, -45°   |             |             |             |           |  |  |  |  |
| Electrical downtilt (°)  |        | 2 - 12, continuously adjustable , each band separately |             |             |             |           |  |  |  |  |
| Gain (dBi)   | Bottom | at mid Tilt  | 17.3        | 17.5        | 18.1        | 18.2      |  |  |  |  |
|  |        | over all Tilts   | 17.1 ±0.5   | 17.3 ±0.5   | 17.9 ±0.4   | 18.0 ±0.5 |  |  |  |  |
| Gain (dBi)   | Top    | at mid Tilt  | 16.8        | 17.1        | 17.6        | 18.0      |  |  |  |  |
|  |        | over all Tilts   | 16.5 ±0.5   | 16.9 ±0.5   | 17.4 ±0.4   | 17.7 ±0.5 |  |  |  |  |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 17   | > 17        | > 17        | > 17        |           |  |  |  |  |
| Horizontal 3dB beam width (°)                                  |        | 67 ±4.7  | 65 ±4.9     | 60 ±4.8     | 58 ±5.0     |           |  |  |  |  |
| Vertical 3dB beam width (°)                                    |        | 6.6 ±0.7   | 6.0 ±0.7    | 5.2 ±0.5    | 4.8 ±0.4    |           |  |  |  |  |
| VSWR   |        | < 1.5  |             |             |             |           |  |  |  |  |
| Cross polar isolation (dB)                                     |        | ≥ 28   |             |             |             |           |  |  |  |  |
| Interband isolation (dB)                                       |        | ≥ 28   |             |             |             |           |  |  |  |  |
| Front to back ratio, ±30° (dB)                                 |        | > 25   | > 27        | > 27        | > 26        |           |  |  |  |  |
| Cross polar ratio (dB)   |        | 0°   | > 22        | > 20        | > 19        |           |  |  |  |  |
| Max. power per input (W)                                       |        | 250 (at 50°C ambient temperature)*                     |             |             |             |           |  |  |  |  |
| Intermodulation IM3 (dBc)                                      |        | ≤ -153 (2 x 43 dBm carrier)                            |             |             |             |           |  |  |  |  |
| Impedance (Ω)  |        | 50   |             |             |             |           |  |  |  |  |
| Grounding  |        | DC Ground  |             |             |             |           |  |  |  |  |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

1L5H Band

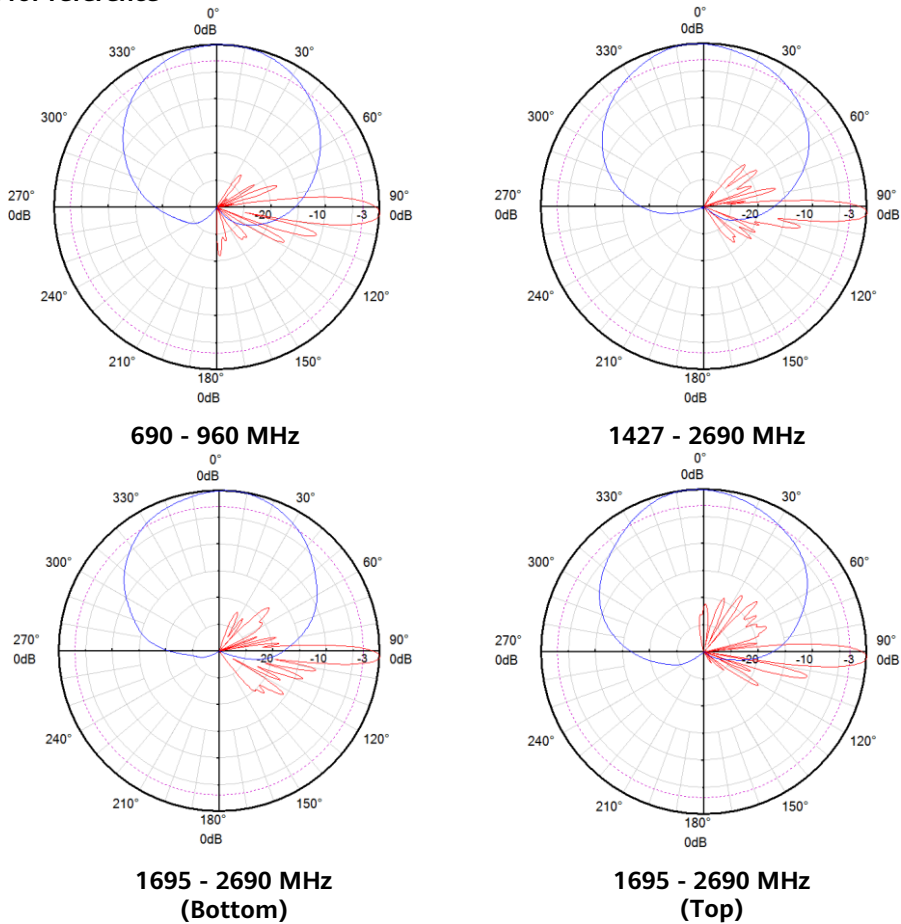
| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2769 x 369 x 149  |
| Packing dimensions (H x W x D) (mm) | 2965 x 435 x 240  |
| Antenna weight (kg)                 | 41.5  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 62.3 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 845 (at 150 km/h)<br>Lateral: 280 (at 150 km/h)<br>Maximum: 1015 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 12 x 4.3-10 Female  |
| Connector position                  | Bottom  |



**Accessories**

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt:<br>0 - 8 ° | 3.1 kg | 1 (Separate packing) |

**Pattern sample for reference**



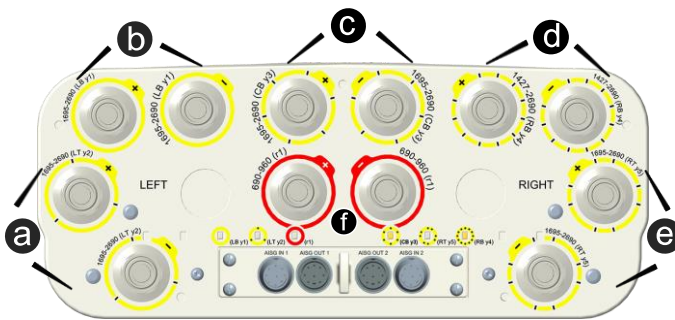
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

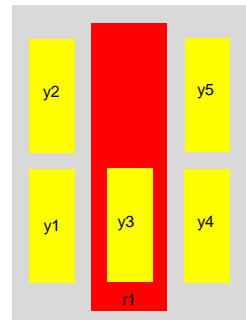
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a HWxxxx.....LTy2
- b HWxxxx.....LBy1
- c HWxxxx.....CBy3
- d HWxxxx.....RBy4
- e HWxxxx.....RTy5
- f HWxxxx.....r1



r - Red                      y - Yellow  
 C - Center array      L - Left array      R - Right array  
 T - Top array          B - Bottom array



## Multi-band

### B - 4 2LnH

#### 6 Ports - 2L1H

| Frequency Range (MHz)             | 3dB Horizontal Beam Width (°) | Gain (dBi)       | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model           | Page      | Array symbol |
|-----------------------------------|-------------------------------|------------------|-------------------------|-------------|------------|------------------|-----------------|-----------|--------------|
| 690-960/<br>690-960/<br>1695-2690 | 65/65/65                      | 14.5/14.5/<br>18 | 0-14/0-14/<br>2-12      | EasyRET2.0  | 6 x 4.3-10 | 1499 x 429 x 196 | ATR4518R24v06   | <b>90</b> | KK           |
| 690-960/<br>690-960/<br>1695-2690 | 65/65/65                      | 16/16/18         | 0-10/0-10/<br>2-12      | EasyRET2.0  | 6 x 4.3-10 | 1999 x 429 x 196 | ATR4518R25v06   | <b>92</b> | KK           |
| 690-960/<br>690-960/<br>1695-2690 | 65/65/65                      | 17/17/18         | 0-10/0-10/<br>2-12      | EasyRET2.0  | 6 x 4.3-10 | 2550 x 429 x 196 | ATR4518R26v06   | <b>94</b> | KK           |
| 690-862/<br>880-960/<br>1710-2690 | 65/65/65                      | 14/14.5/<br>17.5 | 0-12/0-12/<br>2-12      | EasyRET2.0  | 6 x 4.3-10 | 1490 x 298 x 150 | ATR4517R5v06    | <b>96</b> | K            |
| 690-862/<br>880-960/<br>1695-2690 | 65/65/65                      | 15.5/16/18       | 0-10/0-10/<br>0-10      | EasyRET2.0  | 6 x 4.3-10 | 1999 x 349 x 166 | **ATR4518R40v06 | <b>98</b> | KKK          |

#### 8 Ports - 2L2H

| Frequency Range (MHz)                           | 3dB Horizontal Beam Width (°) | Gain (dBi)              | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model         | Page       | Array symbol |
|---|-------------------------------|-------------------------|-------------------------|-------------|------------|------------------|---------------|------------|--------------|
| 690-960/<br>690-960/<br>1427-2690/<br>1427-2690 | 65/65/65/65                   | 14.5/14.5/<br>17.5/17.5 | 0-14/0-14/<br>2-12/2-12 | EasyRET2.0  | 8 x 4.3-10 | 1509 x 449 x 196 | AQU4518R37v06 | <b>99</b>  | S            |
| 690-960/<br>690-960/<br>1427-2690/<br>1427-2690 | 65/65/65/65                   | 16/16/<br>17.5/17.5     | 0-10/0-10/<br>2-12/2-12 | EasyRET2.0  | 8 x 4.3-10 | 2099 x 449 x 196 | AQU4518R36v06 | <b>101</b> | S            |
| 690-960/<br>690-960/<br>1695-2690/<br>1695-2690 | 65/65/65/65                   | 14.5/14.5/<br>18/18     | 0-14/0-14/<br>2-12/2-12 | EasyRET2.0  | 8 x 4.3-10 | 1499 x 429 x 196 | AQU4518R23v06 | <b>103</b> | S            |
| 690-960/<br>690-960/<br>1695-2690/<br>1695-2690 | 65/65/65/65                   | 16/16/<br>18/18         | 0-10/0-10/<br>2-12/2-12 | EasyRET2.0  | 8 x 4.3-10 | 1999 x 429 x 196 | AQU4518R24v06 | <b>105</b> | S            |
| 690-960/<br>690-960/<br>1695-2690/<br>1695-2690 | 65/65/65/65                   | 17/17/<br>18/18         | 0-10/0-10/<br>2-12/2-12 | EasyRET2.0  | 8 x 4.3-10 | 2550 x 429 x 196 | AQU4518R25v06 | <b>107</b> | S            |

\*\* Preliminary Issue



## Multi-band

### B - 4 2LnH

| Frequency Range (MHz)                           | 3dB Horizontal Beam Width (°) | Gain (dBi)            | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model           | Page       | Array symbol |
|---|-------------------------------|-----------------------|-------------------------|-------------|------------|------------------|-----------------|------------|--------------|
| 690-960/<br>690-960/<br>1695-2690/<br>1695-2690 | 65/65/65/65                   | 17/17/<br>21/21       | 0-10/0-10/<br>2-8/2-8   | EasyRET2.0  | 8 x 4.3-10 | 2550 x 429 x 196 | **AQU4521R2v06  | <b>109</b> | S            |
| 690-862/<br>880-960/<br>1710-2690/<br>1710-2690 | 65/65/65/65                   | 14/14.5/<br>17.5/17.5 | 0-12/0-12/<br>0-10/0-10 | EasyRET2.0  | 8 x 4.3-10 | 1499 x 359 x 178 | AQU4517R4v06    | <b>111</b> | R            |
| 690-862/<br>880-960/<br>1695-2690/<br>1695-2690 | 65/65/65/65                   | 15.5/16/<br>18/18     | 0-10/0-10/<br>0-10/0-10 | EasyRET2.0  | 8 x 4.3-10 | 1999 x 349 x 166 | AQU4518R30v07   | <b>113</b> | RR           |
| 690-862/<br>880-960/<br>1695-2690/<br>1695-2690 | 65/65/65/65                   | 16.5/17/<br>18/18     | 0-10/0-10/<br>0-10/0-10 | EasyRET2.0  | 8 x 4.3-10 | 2528 x 349 x 166 | **AQU4518R58v06 | <b>115</b> | RR           |

### 10 Ports - 2L3H

| Frequency Range (MHz)   | 3dB Horizontal Beam Width (°) | Gain (dBi)                 | Electrical Downtilt (°)          | Tilt Method | Connector   | Dimension(mm)    | Model         | Page       | Array symbol |
|---|-------------------------------|----------------------------|----------------------------------|-------------|-------------|------------------|---------------|------------|--------------|
| 690-960/<br>690-960/<br>1427-2690/<br>1695-2690/<br>1695-2690 | 65/65/65/<br>65/65            | 14.5/14.5/<br>17.5/18/18   | 0-14/0-14/<br>2-12/2-12/<br>2-12 | EasyRET2.0  | 10 x 4.3-10 | 1499 x 469 x 206 | APE4518R13v06 | <b>116</b> | WW           |
| 690-960/<br>690-960/<br>1427-2200/<br>1695-2690/<br>1695-2690 | 65/65/65/<br>65/65            | 16/16/<br>17.5/18/18       | 0-10/0-10/<br>2-12/2-12/<br>2-12 | EasyRET2.0  | 10 x 4.3-10 | 1999 x 469 x 206 | APE4518R14v06 | <b>119</b> | W4           |
| 690-960/<br>690-960/<br>1427-2690/<br>1695-2690/<br>1695-2690 | 65/65/65/<br>65/65            | 17/17/<br>17.5/18/<br>18   | 2-12/2-<br>12/2-12/2-<br>12/2-12 | EasyRET2.0  | 10 x 4.3-10 | 2550 x 469 x 206 | APE4518R30v06 | <b>122</b> | WW           |
| 690-862/<br>880-960/<br>1710-2690/<br>1710-2690/<br>1710-2690 | 65/65/65/<br>65/65            | 16.5/17/<br>17.5/18/<br>18 | 0-10/0-10/<br>0-10/0-10/<br>0-10 | EasyRET2.0  | 10 x 4.3-10 | 2769 x 359 x 178 | APE4518R12v06 | <b>125</b> | W2           |

\*\* Preliminary Issue

## Multi-band

### B - 4 2L4H

#### 12 Ports - 2L4H

| Frequency Range (MHz)   | 3dB Horizontal Beam Width (°) | Gain (dBi)                            | Electrical Downtilt (°)               | Tilt Method | Connector   | Dimension(mm)    | Model         | Page       | Array symbol |
|---|-------------------------------|---------------------------------------|---------------------------------------|-------------|-------------|------------------|---------------|------------|--------------|
| 2x617-894/<br>4x1695-2690   | 65/65/65/<br>65/65/65         | 15.5/15.5/<br>17.5/17.5/<br>17.5/17.5 | 2-14/2-14/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 12 x 4.3-10 | 2099 x 499 x 206 | ASI4516R0v07  | <b>128</b> | Y4           |
| 2x690-960/<br>2x1427-<br>2690/<br>2x1695-2690                               | 65/65/65/<br>65/65/65         | 17/17/17.<br>5/17.5/17.<br>5/17.5     | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 12 x 4.3-10 | 2769 x 449 x 196 | ASI4518R36v06 | <b>130</b> | Z            |
| 2x690-960/<br>2x1695-<br>2200/<br>2x2490-2690                               | 65/65/65/<br>65/65/65         | 14.5/14.5/<br>17/17/<br>17.5/17.5     | 0-14/0-14/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 12 x 4.3-10 | 1499 x 429 x 196 | ASI4518R14v06 | <b>133</b> | X3           |
| 2x690-960<br>4x1695-2690  | 65/65/65/<br>65/65/65         | 16/16/<br>16.5/16.5/<br>16.5/16.5     | 0-10/0-10/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 12 x 4.3-10 | 1999 x 429 x 196 | ASI4517R3v06  | <b>135</b> | Z            |
| 2x690-960/<br>4x1695-2690   | 65/65/65/<br>65/65/65         | 17/17/<br>17.5/17.5/<br>17.5/17.5     | 0-10/0-10/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 12 x 4.3-10 | 2769 x 429 x 196 | ASI4518R10v06 | <b>137</b> | Z            |
| 690-862/<br>880-960/<br>1427-2690/<br>1695-2200/<br>2490-2690/<br>1695-2690 | 65/65/65/<br>65/65/65         | 14/14.5/<br>17.5/17/<br>17.5/17.5     | 2-16/2-16/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 12 x 4.3-10 | 1499 x 369 x 149 | ASI4518R41v06 | <b>139</b> | Y2           |

## Multi-band

### B - 4 2L4H

#### 12 Ports - 2L4H

| Frequency Range (MHz)   | 3dB Horizontal Beam Width (°) | Gain (dBi)                            | Electrical Downtilt (°)               | Tilt Method | Connector   | Dimension(mm)    | Model           | Page       | Array symbol |
|---|-------------------------------|---------------------------------------|---------------------------------------|-------------|-------------|------------------|-----------------|------------|--------------|
| 690-862/<br>880-960/<br>1427-2690/<br>1695-2690/<br>1695-2200/<br>2490-2690 | 65/65/65/<br>65/65/65         | 15/15.5/<br>17.5/17.5/<br>17/17.5     | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 12 x 4.3-10 | 1999 x 369 x 149 | ASI4518R32v06   | <b>142</b> | Y2           |
| 690-862/<br>880-960/<br>4x1710-2690   | 65/65/65/<br>65/65/65         | 16.5/17/1<br>8/18/17.5/<br>17.5       | 0-10/0-10/<br>0-10/0-10/<br>0-10/0-10 | EasyRET2.0  | 12 x 4.3-10 | 2769 x 359 x 178 | ASI4518R4v06    | <b>145</b> | Y            |
| 2x690-960/<br>2x1427-<br>2690/<br>2x1695-2690                               | 65/65/65/<br>65/65/65         | 14.5/14.5/<br>17.5/17.5/<br>17.5/17.5 | 0-14/0-14/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 12 x 4.3-10 | 1509 x 469 x 206 | ASI4518R37v06   | <b>148</b> | Y3           |
| 2x690-960/<br>2x1427-2690/<br>2x1695-2690                                   | 65/65/65/<br>65/65/65         | 15.5/15.5/<br>17.5/17.5/<br>17.5/17.5 | 0-10/0-10/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 12 x 4.3-10 | 2009 x 469 x 206 | ASI4518R39v06   | <b>151</b> | Y3           |
| 2x690-960/<br>2x1427-2690/<br>2x1695-2690                                   | 65/65/65/<br>65/65/65         | 15/15/<br>16.5/16.5/<br>16.5/16.5     | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 12 x 4.3-10 | 2099 x 369 x 226 | ASI4517R12v06   | <b>154</b> | Y2           |
| 2x690-960/<br>2x1427-2690/<br>2x1695-2690                                   | 65/65/65/<br>65/65/65         | 16/16/<br>17.5/17.5/<br>17.5/17.5     | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 12 x 4.3-10 | 2769 x 369 x226  | **ASI4518R57v06 | <b>157</b> | Y2           |

\*\* Preliminary Issue

## Multi-band

### B - 4 2LnH

#### 14 Ports - 2L5H

| Frequency Range (MHz)<br>158                                      | 3dB Horizontal Beam Width (°) | Gain (dBi)                                   | Electrical Downtilt (°)                        | Tilt Method | Connector   | Dimension(mm)    | Model           | Page       | Array symbol |
|---|-------------------------------|--|--|-------------|-------------|------------------|-----------------|------------|--------------|
| 690-960/<br>690-960/<br>1427-2690/<br>2*1695-2200/<br>2*2490-2690 | 7 x 65                        | 14.5/14.5/<br>17.5/17/<br>17/17.5/<br>17.5   | 0-14/0-14/<br>2-12/2-12/<br>2-12/2-12/<br>2-12 | EasyRET2.0  | 14 x 4.3-10 | 1499 x 469 x 206 | AHP4518R3v06    | <b>158</b> | Z5           |
| 690-960/<br>690-960/<br>1427-2690/<br>2*1695-2200/<br>2*2490-2690 | 7 x 65                        | 16/16/<br>17.5/17/<br>17/17.5/<br>17.5       | 0-10/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12 | EasyRET2.0  | 14 x 4.3-10 | 1999 x 469 x 206 | AHP4518R4v06    | <b>161</b> | Z5           |
| 690-960/<br>690-960/<br>1427-2690/<br>4*2490-2690                 | 7 x 65                        | 17/17/<br>17.5/17.5/<br>17.5/17.5/<br>/17.5  | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12 | EasyRET2.0  | 14 x 4.3-10 | 2769 x 469 x 206 | AHP4518R5v06    | <b>164</b> | Z7           |
| 2*690-960/<br>2*1427-1518<br>3*1695-2690                          | 7 x 65                        | 14.5/14.5/<br>15.5/15.5/<br>17/17/<br>17.5   | 2-14/2-14/<br>2-12/2-12/<br>2-12/2-12/<br>2-12 | EasyRET2.0  | 14 x 4.3-10 | 1509 x 469 x 206 | **AHP4517R12v06 | <b>167</b> | Z6           |
| 2*690-960/<br>2*1427-1518<br>3*1695-2690                          | 7 x 65                        | 16/16/<br>15.5/15.5/<br>17/17/<br>17.5       | 0-10/0-10/<br>2-12/2-12/<br>2-12/2-12/<br>2-12 | EasyRET2.0  | 14 x 4.3-10 | 2099 x 449 x 196 | AHP4517R7v06    | <b>168</b> | Z6           |
| 690-862/<br>880-960/<br>1427-2690/<br>2*1695-2200/<br>2*2490-2690 | 7 x 65                        | 14/14.5/<br>17.5/17/<br>17/17.5/<br>17.5     | 2-16/2-16/<br>2-12/2-12/<br>2-12/2-12/<br>2-12 | EasyRET2.0  | 14 x 4.3-10 | 1499 x 369 x 149 | AHP4517R1v06    | <b>171</b> | W6           |
| 690-862/<br>880-960/<br>1427-2690/<br>2*1695-2200/<br>2*2490-2690 | 7 x 65                        | 15/15.5/<br>17.5/17/<br>17/17.5/<br>17.5     | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12 | EasyRET2.0  | 14 x 4.3-10 | 1999 x 369 x 149 | AHP4517R0v07    | <b>175</b> | W6           |
| 690-862/<br>880-960/<br>1427-2690/<br>4*1695-2690                 | 7 x 65                        | 16.5/17/<br>17.5/17.5/<br>17.5/17.5/<br>17.5 | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12 | EasyRET2.0  | 14 x 4.3-10 | 2769 x 369 x 149 | AHP4517R2v06    | <b>179</b> | Z4           |

2LnH Band

\*\* Preliminary Issue

## Multi-band

### B - 4 2LnH

#### 16 Ports - 2L6H

| Frequency Range (MHz)                                   | 3dB Horizontal Beam Width (°) | Gain (dBi)  | Electrical Downtilt (°)                             | Tilt Method | Connector   | Dimension(mm)    | Model         | Page       | Array symbol |
|---|-------------------------------|---|---|-------------|-------------|------------------|---------------|------------|--------------|
| 2*617-894/<br>2*1695-2690<br>2*1695-2200<br>2*2490-2690 | 8 x 65                        | 15.5/15.5/<br>16/16/<br>17/17/<br>17.5/17.5       | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 16 x 4.3-10 | 2099 x 499 x 206 | AOC4518R11v06 | <b>182</b> | Y5           |
| 2*690-960/<br>2*1427-2690<br>2*1695-2200<br>2*2490-2690 | 8 x 65                        | 14.5/14.5/<br>17.5/17.5/<br>16.5/16.5/<br>17/17   | 0-14/0-14/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 16 x 4.3-10 | 1509 x 469 x 206 | AOC4518R7v06  | <b>185</b> | Y5           |
| 2*690-960/<br>2*1427-2690<br>2*1695-2200<br>2*2490-2690 | 8 x 65                        | 15.5/15.5/<br>17.5/17.5/<br>16.5/16.5/<br>17/17   | 2-14/2-14/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 16 x 4.3-10 | 2009 x 469 x 206 | AOC4518R4v06  | <b>188</b> | Y5           |
| 2*690-960/<br>2*1427-2690/<br>4*1695-2690               | 8 x 65                        | 17/17/<br>17.5/17.5/<br>17.5/17.5/<br>17.5/17.5   | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 16 x 4.3-10 | 2769 x 469 x 206 | AOC4518R6v06  | <b>191</b> | W8           |
| 690-862/<br>880-960/<br>6*1695-2690                     | 8 x 65                        | 15/15.5/<br>16.5/16.5/<br>16.5/16/<br>16/16       | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 16 x 4.3-10 | 1999 x 369 x 149 | AOC4517R1v06  | <b>194</b> | W7           |
| 690-862/<br>880-960/<br>1427-2690/<br>5*1695-2690       | 8 x 65                        | 16.5/17/<br>17.5/17.5/<br>17.5/17.5/<br>17.5/17.5 | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 16 x 4.3-10 | 2769 x 369 x 149 | AOC4518R3v06  | <b>198</b> | W7           |

#### 20 Ports - 2L8H

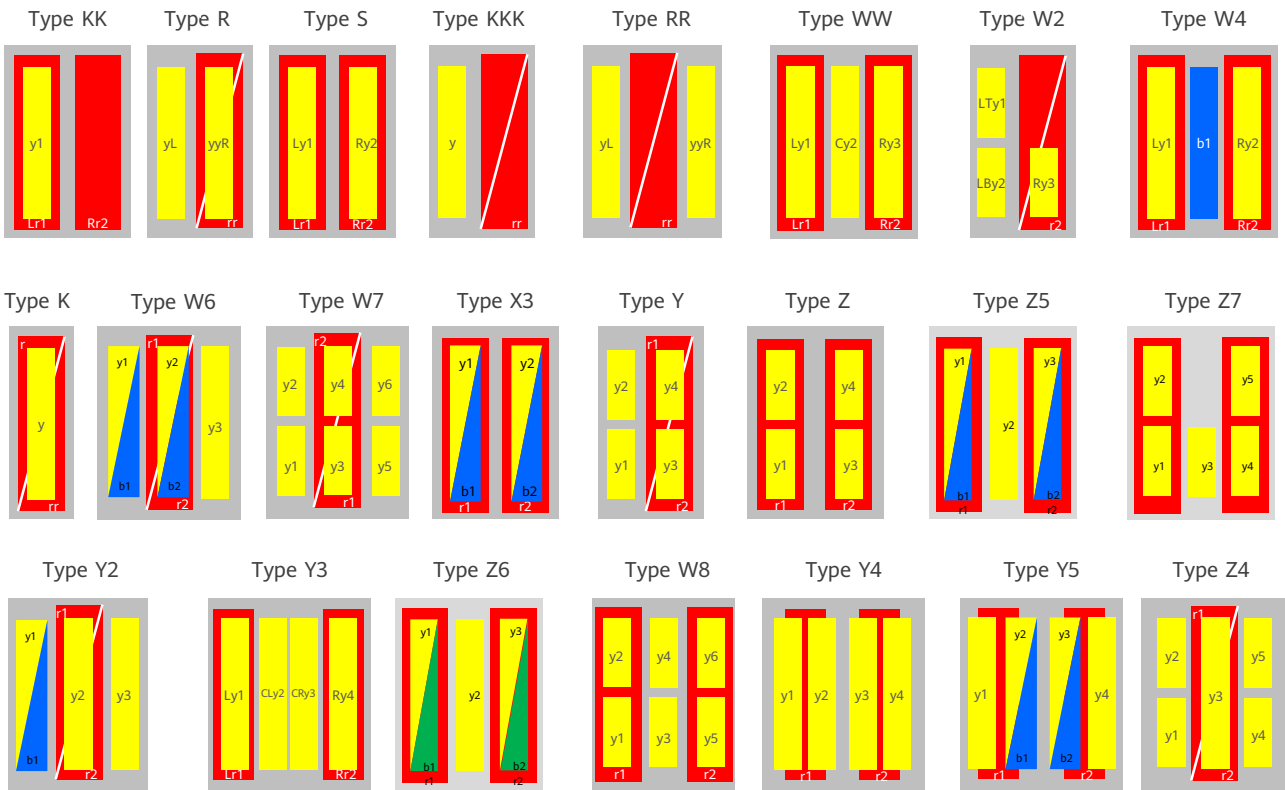
| Frequency Range (MHz)   | 3dB Horizontal Beam Width (°) | Gain (dBi)  | Electrical Downtilt (°)   | Tilt Method | Connector   | Dimension(mm)    | Model          | Page       | Array symbol |
|---|-------------------------------|---|---|-------------|-------------|------------------|----------------|------------|--------------|
| 2*690-960/<br>2*1427-2690/<br>2*1695-2690/<br>2*1420-2690/<br>2*1695-2690 | 10 x 65                       | 16.5/16.5/<br>17.5/17.5/<br>17.5/17.5/<br>17/17/17/1<br>7 | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 20 x 4.3-10 | 2769 x 469 x 206 | **A104518R1v06 | <b>201</b> | /            |

\*\* Preliminary Issue

# Multi-band

B - 4 2LnH

## Array Symbol Type



2LnH Band

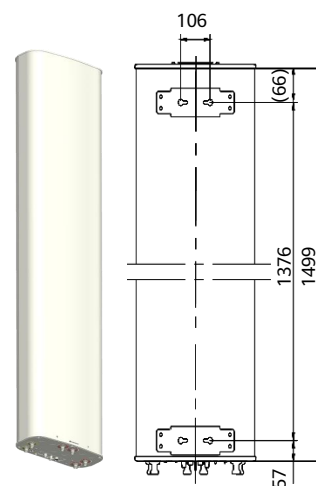
## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |                                   |             |             |             |
|--|----------------|---|-----------|-----------|-----------|-----------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (690 - 960)                                       |           |           |           | 1695 - 2690                       |             |             |             |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990                       | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45° , -45°   |           |           |           |                                   |             |             |             |
| Electrical downtilt (°)  |                | 0 - 14, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable   |             |             |             |
| Gain (dBi)   | at mid Tilt    | 13.8  | 14.2      | 14.4      | 14.5      | 17.0                              | 17.2        | 17.4        | 18.1        |
|  | over all Tilts | 13.7 ±0.5   | 14.1 ±0.5 | 14.3 ±0.5 | 14.4 ±0.5 | 16.8 ±0.5                         | 17.1 ±0.5   | 17.3 ±0.5   | 17.9 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 17      | > 17      | > 16      | > 16                              | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 66 ±5   | 63 ±5     | 62 ±5     | 60 ±5     | 65 ±5                             | 63 ±5       | 60 ±5       | 60 ±5       |
| Vertical 3dB beam width (°)                                    |                | 15.3 ±1.2   | 14 ±1.1   | 13.3 ±1.0 | 12.2 ±0.8 | 6.8 ±0.7                          | 5.8 ±0.5    | 5.3 ±0.4    | 5.0 ±0.5    |
| VSWR   |                | < 1.5   |           |           |           |                                   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           |                                   |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |           |                                   |             |             |             |
| Front to back ratio , ±30° (dB)                                |                | > 22  | > 24      | > 24      | > 25      | > 26                              | > 27        | > 27        | > 27        |
| Cross polar ratio (dB)   |                | 0°  | > 16      | > 18      | > 19      | > 20                              | > 15        | > 16        | > 17        |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature) |             |             |             |
| Total power (W)  |                | 720 (at 50°C ambient temperature)                     |           |           |           |                                   |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |                                   |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |           |                                   |             |             |             |
| Grounding  |                | DC Ground   |           |           |           |                                   |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1499 x 429 x 196   |
| Packing dimensions (H x W x D) (mm) | 1695 x 530 x 270   |
| Antenna weight (kg)                 | 25.5   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 36.9 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 410 (at 150 km/h)<br>Lateral: 245 (at 150 km/h)<br>Maximum: 540 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 6 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 16 ° | 2.1 kg | 1 (Separate packing) |

### Integrated RET Specifications

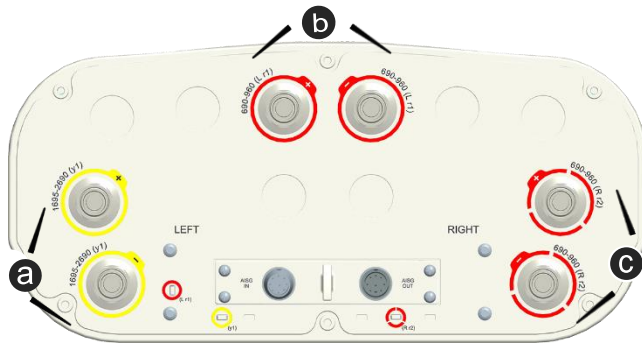
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

2L1H Band

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

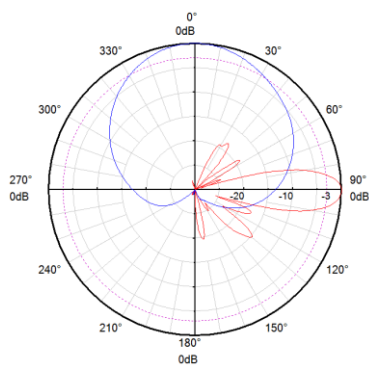


#### Integrated RET S/N:

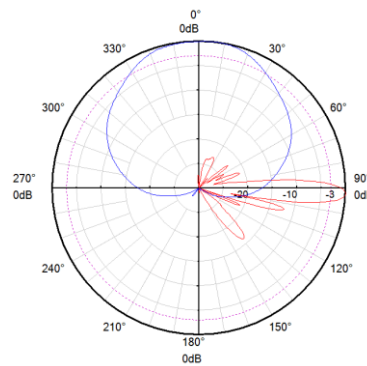
- a** HWMxxx.....y1
- b** HWMxxx.....Lr 1
- c** HWMxxx.....Rr 2

r - Red      y - Yellow  
L - Left array   R - Right array

#### Pattern sample for reference



690 - 960 MHz



1695 - 2690 MHz

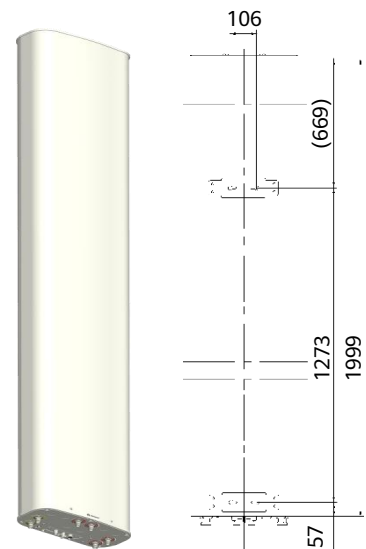


## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |                                   |             |             |             |
|--|----------------|---|-----------|-----------|-----------|-----------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (690 - 960)                                       |           |           |           | 1695 - 2690                       |             |             |             |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990                       | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |           |           |           |                                   |             |             |             |
| Electrical downtilt (°)  |                | 0 - 10, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable   |             |             |             |
| Gain (dBi)   | at mid Tilt    | 15.0  | 15.5      | 15.8      | 16.0      | 17.0                              | 17.2        | 17.7        | 18.1        |
|  | over all Tilts | 14.7 ±0.5   | 15.3 ±0.5 | 15.6 ±0.5 | 15.8 ±0.5 | 16.8 ±0.5                         | 17.1 ±0.5   | 17.5 ±0.5   | 17.9 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 17      | > 17      | > 17      | > 16                              | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 68 ±5   | 65 ±5     | 62 ±5     | 60 ±5     | 65 ±5                             | 63 ±5       | 61 ±5       | 60 ±5       |
| Vertical 3dB beam width (°)                                    |                | 10.5 ±0.9   | 9.5 ±0.8  | 9.2 ±0.7  | 8.5 ±0.7  | 6.8 ±0.7                          | 5.8 ±0.5    | 5.3 ±0.4    | 5.0 ±0.5    |
| VSWR   |                | < 1.5   |           |           |           |                                   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           |                                   |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |           |                                   |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 23  | > 25      | > 26      | > 26      | > 26                              | > 27        | > 27        | > 28        |
| Cross polar ratio (dB) 0°                                      |                | > 17  | > 18      | > 19      | > 20      | > 15                              | > 16        | > 17        | > 17        |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature) |             |             |             |
| Total power (W)  |                | 720 (at 50°C ambient temperature)                     |           |           |           |                                   |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |                                   |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |           |                                   |             |             |             |
| Grounding  |                | DC Ground   |           |           |           |                                   |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 429 x 196   |
| Packing dimensions (H x W x D) (mm) | 2195 x 530 x 270   |
| Antenna weight (kg)                 | 30.5   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 44.2 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 555 (at 150 km/h)<br>Lateral: 340 (at 150 km/h)<br>Maximum: 735 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 6 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 12 ° | 2.1 kg | 1 (Separate packing) |

**Integrated RET Specifications**

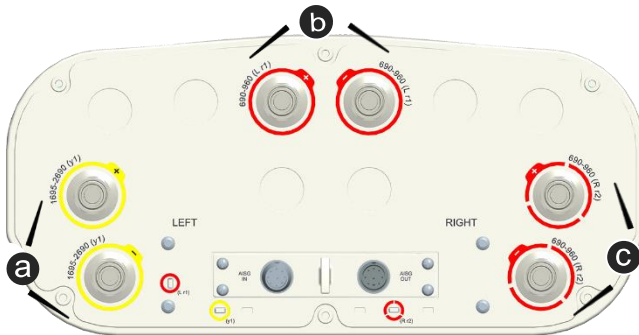
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

2L1H Band

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

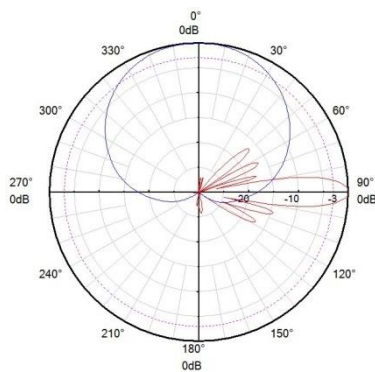


**Integrated RET S/N:**

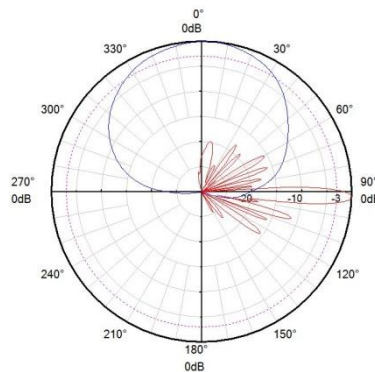
- a** HWMxxx.....y1
- b** HWMxxx.....Lr 1
- c** HWMxxx.....Rr 2

r - Red      y - Yellow  
L - Left array   R - Right array

**Pattern sample for reference**



**690 - 960 MHz**



**1695 - 2690 MHz**

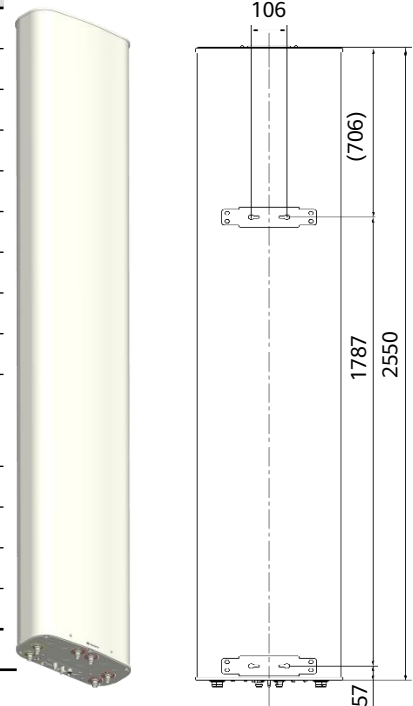
## Antenna Specifications

| Electrical Properties  |   |           |           |           |                                   |             |             |             |           |
|--|---|-----------|-----------|-----------|-----------------------------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 2 x (690 - 960)                                       |           |           |           | 1695 - 2690                       |             |             |             |           |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990                       | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°  |           |           |           |                                   |             |             |             |           |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable   |             |             |             |           |
| Gain (dBi)   | at mid Tilt   | 15.8      | 16.4      | 16.7      | 17                                | 17.0        | 17.2        | 17.7        | 18.1      |
|  | over all Tilts  | 15.5 ±0.5 | 16.3 ±0.5 | 16.5 ±0.5 | 16.7 ±0.5                         | 16.8 ±0.5   | 17.1 ±0.5   | 17.5 ±0.5   | 17.9 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 17      | > 17      | > 17      | > 16                              | > 17        | > 17        | > 17        | > 16      |
| Horizontal 3dB beam width (°)                                  | 68 ±5   | 63 ±5     | 62 ±5     | 60 ±5     | 65 ±5                             | 63 ±5       | 61 ±5       | 60 ±5       |           |
| Vertical 3dB beam width (°)                                    | 8.8 ±0.7  | 8.0 ±0.6  | 7.8 ±0.5  | 7.5 ±0.5  | 6.8 ±0.7                          | 5.8 ±0.5    | 5.3 ±0.4    | 5.0 ±0.5    |           |
| VSWR   | < 1.5   |           |           |           |                                   |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           |                                   |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28  |           |           |           |                                   |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 23  | > 25      | > 26      | > 26      | > 25                              | > 26        | > 27        | > 28        |           |
| Cross polar ratio (dB)   | 0°  | > 17      | > 18      | > 19      | > 20                              | > 15        | > 16        | > 17        | > 17      |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature) |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |                                   |             |             |             |           |
| Impedance (Ω)  | 50  |           |           |           |                                   |             |             |             |           |
| Grounding  | DC Ground   |           |           |           |                                   |             |             |             |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2550 x 429 x 196   |
| Packing dimensions (H x W x D) (mm) | 2770 x 530 x 275   |
| Antenna weight (kg)                 | 36.5   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 58.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 735 (at 150 km/h)<br>Lateral: 450 (at 150 km/h)<br>Maximum: 965 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 6 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |

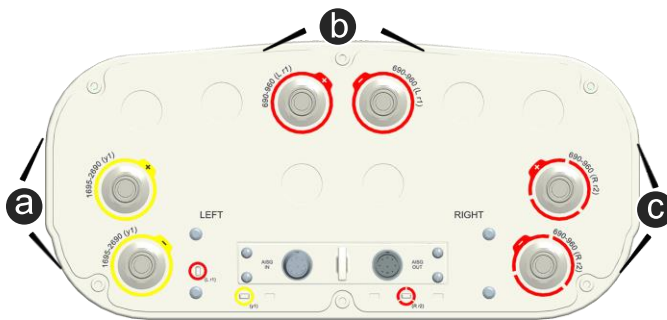
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

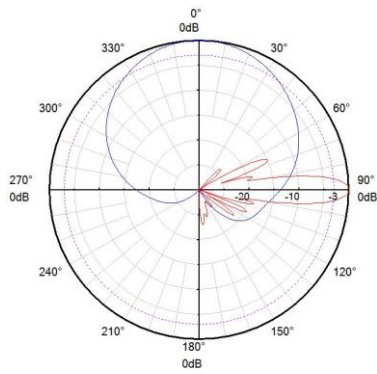


**Integrated RET S/N:**

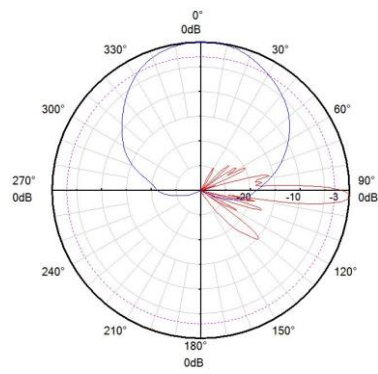
- a** HWMxxx.....y1
- b** HWMxxx.....Lr1
- c** HWMxxx.....Rr2

r - Red                      y - Yellow  
L - Left array              R - Right array

**Pattern sample for reference**



690 - 960 MHz



1695 - 2690 MHz

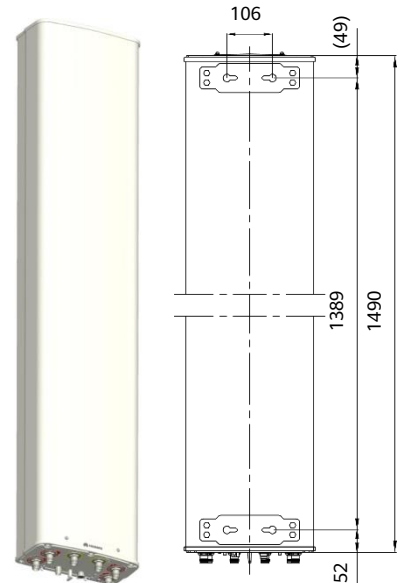
## Antenna Specifications

| Electrical Properties  |   |           |           |                                   |             |             |             |           |
|--|---|-----------|-----------|-----------------------------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 690 - 862   |           | 880 - 960 | 1710 - 2690                       |             |             |             |           |
|  | 690 - 820   | 790 - 862 | 880 - 960 | 1710 - 1990                       | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°  |           |           |                                   |             |             |             |           |
| Electrical downtilt (°)  | 0 - 12, continuously adjustable, each band separately   |           |           | 2 - 12, continuously adjustable   |             |             |             |           |
| Gain (dBi)   | at mid Tilt   | 13.8      | 13.8      | 14.3                              | 16.8        | 17.0        | 17.2        | 17.5      |
|  | over all Tilts  | 13.7 ±0.3 | 13.7 ±0.3 | 14.1 ±0.5                         | 16.6 ±0.4   | 16.8 ±0.4   | 17.1 ±0.4   | 17.4 ±0.4 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 16      | > 17      | > 15                              | > 15        | > 15        | > 15        | > 15      |
| Horizontal 3dB beam width (°)                                  | 69 ±2.0   | 66 ±2.0   | 63 ±2.0   | 63 ±5.0                           | 61 ±5.0     | 60 ±5.0     | 60 ±5.0     | 60 ±5.0   |
| Vertical 3dB beam width (°)                                    | 15.3 ±1.0   | 13.5 ±1.0 | 12.0 ±1.0 | 6.5 ±0.5                          | 6.0 ±0.5    | 5.2 ±0.3    | 4.8 ±0.3    | 4.8 ±0.3  |
| VSWR   | < 1.5   |           |           |                                   |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           | ≥ 28                              |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28 (690 - 862 // 880 - 960 MHz)<br>≥ 28 (690 - 862 // 1710 - 2690 MHz)<br>≥ 28 (880 - 960 // 1710 - 2690 MHz) |           |           |                                   |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 28  | > 28      | > 26      | > 27                              | > 27        | > 27        | > 27        | > 28      |
| Cross polar ratio (dB)   | 0°  | > 25      | > 22      | > 18                              | > 17        | > 17        | > 20        | > 19      |
| Max. power per input (W)                                       | 300 (at 50°C ambient temperature)   |           |           | 250 (at 50°C ambient temperature) |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)   |           |           |                                   |             |             |             |           |
| Impedance (Ω)  | 50  |           |           |                                   |             |             |             |           |
| Grounding  | DC Ground   |           |           |                                   |             |             |             |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1490 x 298 x 150   |
| Packing dimensions (H x W x D) (mm) | 1835 x 360 x 225   |
| Antenna weight (kg)                 | 20.3   |
| Clamps weight (kg)                  | 3.0 (2 units)  |
| Antenna packing weight (kg)         | 30.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 460 (at 150 km/h)<br>Lateral: 205 (at 150 km/h)<br>Maximum: 615 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 6 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0C01 | Mechanical downtilt: 0 - 16 ° | 2.1 kg | 1 (Separate packing) |

### Integrated RET Specifications

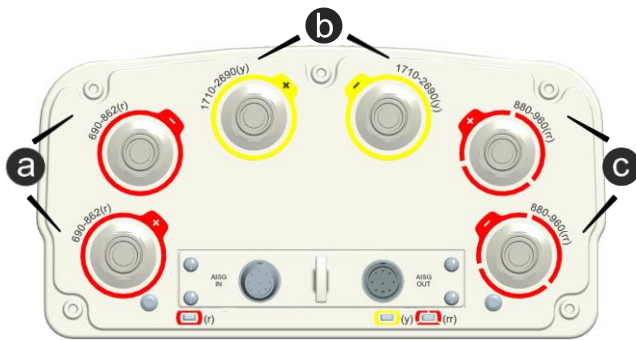
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

2L1H Band

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



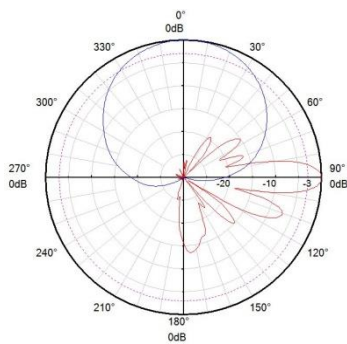
#### Integrated RET S/N:

- a** HWMxxx.....r
- b** HWMxxx.....y
- c** HWMxxx.....rr

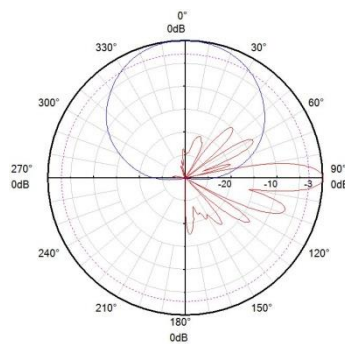
r - Red

y - Yellow

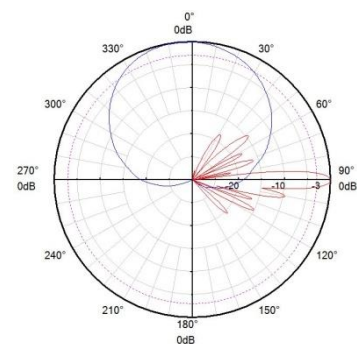
#### Pattern sample for reference



690 - 862 MHz



880 - 960 MHz



1710 - 2690 MHz

**Preliminary Issue**

| Electrical Properties   |                             |           |             |
|---|-----------------------------|-----------|-------------|
| Frequency range (MHz)   | 690 - 862                   | 880 - 960 | 1695 - 2690 |
| Electrical downtilt (°)   | 0 - 10                      | 0 - 10    | 0 - 10      |
| Gain (dBi)  | 15.0                        | 15.4      | 17.7        |
| Side lobe suppression for first side lobe above main beam (Typ.) (dB) | 15                          | 16        | 16          |
| Horizontal 3dB beam width (°)   | 67                          | 64        | 65          |
| Vertical 3dB beam width (°)   | 10.5                        | 9         | 5.5         |
| VSWR  | < 1.5                       |           |             |
| Front to back ratio, copolar (dB)                                     | Typ. 25                     | Typ. 25   | Typ. 25     |
| Cross polar ratio (dB)  | 0°                          | Typ. 17   | Typ. 17     |
| Intermodulation IM3 (dBc)   | ≤ -150 (2 x 43 dBm carrier) |           |             |

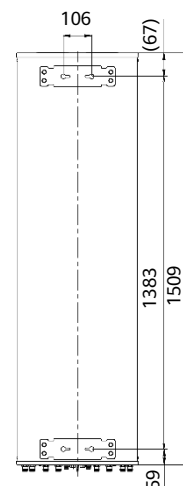
| Mechanical Properties               |                   |
|-------------------------------------|-------------------|
| Antenna dimensions (H x W x D) (mm) | 1999 x 349 x 166  |
| Packing dimensions (H x W x D) (mm) | 2350 x 415 x 240  |
| Antenna net weight (kg)             | 27                |
| Mechanical downtilt (°)             | 0 - 12            |
| Connector                           | 6 x 4.3-10 Female |
| RET type                            | Integrated RET    |
| RET protocols                       | AISG 2.0 / 3GPP   |

## Antenna Specifications

| Electrical Properties  |   |           |           |           |   |             |             |             |             |           |
|--|---|-----------|-----------|-----------|---|-------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 2 x (690 - 960) (Lr1/Rr2)                             |           |           |           | 2 x (1427 - 2690) (Ly1/Ry2)                           |             |             |             |             |           |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°  |           |           |           |   |             |             |             |             |           |
| Electrical downtilt (°)  | 0 - 14, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |             |           |
| Gain (dBi)   | at mid Tilt   | 13.7      | 14.1      | 14.2      | 14.3  | 15.6        | 16.8        | 17.1        | 17.2        | 17.5      |
|  | over all Tilts  | 13.6 ±0.5 | 14.0 ±0.5 | 14.1 ±0.5 | 14.2 ±0.5   | 15.5 ±0.6   | 16.7 ±0.5   | 17.0 ±0.5   | 17.1 ±0.5   | 17.4 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 16      | > 16      | > 16      | > 15  | > 16        | > 16        | > 16        | > 16        | > 16      |
| Horizontal 3dB beam width (°)                                  | 69 ±6   | 67 ±6     | 66 ±6     | 65 ±6     | 70 ±7   | 69 ±6       | 65 ±6       | 60 ±6       | 58 ±6       | 58 ±6     |
| Vertical 3dB beam width (°)                                    | 15.1 ±1.5   | 13.8 ±0.9 | 13.3 ±0.9 | 12.4 ±0.8 | 9.0 ±0.5  | 7.1 ±0.7    | 6.3 ±0.5    | 5.6 ±0.4    | 5.1 ±0.4    | 5.1 ±0.4  |
| VSWR   | < 1.5   |           |           |           | < 1.5   | < 1.5       |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           | ≥ 28  | ≥ 28        |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 26  |           |           |           | ≥ 28  | ≥ 28        |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 20  | > 21      | > 22      | > 22      | > 23  | > 25        | > 25        | > 25        | > 25        | > 24      |
| Cross polar ratio (dB) 0°                                      | > 18  | > 18      | > 18      | > 18      | > 16  | > 17        | > 17        | > 17        | > 17        | > 16      |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature)                     |             |             |             |             |           |
| Total power (W)  | 700 (at 50°C ambient temperature)                     |           |           |           |   |             |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |   |             |             |             |             |           |
| Impedance (Ω)  | 50  |           |           |           |   |             |             |             |             |           |
| Grounding  | DC Ground   |           |           |           |   |             |             |             |             |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1509 x 449 x 196   |
| Packing dimensions (H x W x D) (mm) | 1780 x 535 x 240   |
| Antenna weight (kg)                 | 26.7   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 38.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 435 (at 150 km/h)<br>Lateral: 260 (at 150 km/h)<br>Maximum: 570 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 16 ° | 2.1 kg | 1 (Separate packing) |



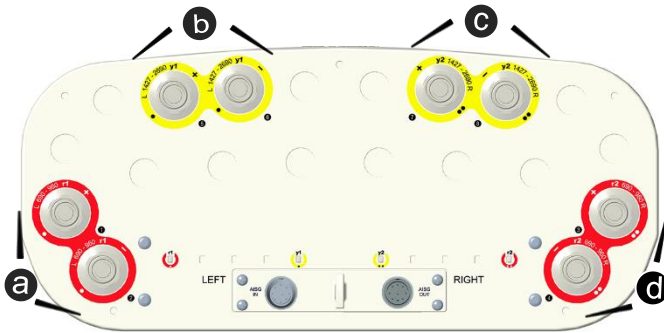
## Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

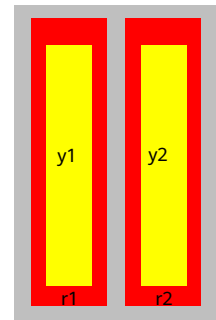
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



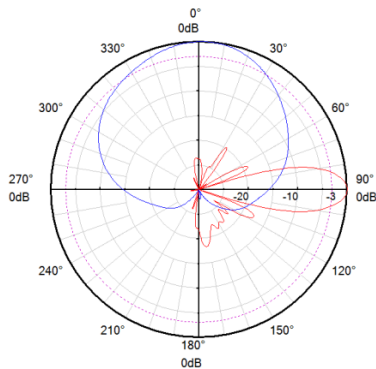
### Integrated RET S/N:

- a** HWxxxx.....Lr1
- b** HWxxxx.....Ly 1
- c** HWxxxx.....Ry 2
- d** HWxxxx.....Rr2

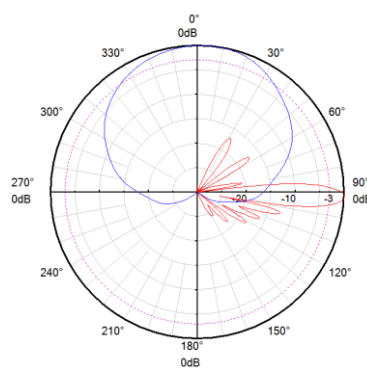
r - Red      y - Yellow  
 L - Left array   R - Right array



### Pattern sample for reference



690 - 960 MHz



1427 - 2690 MHz

## Antenna Specifications

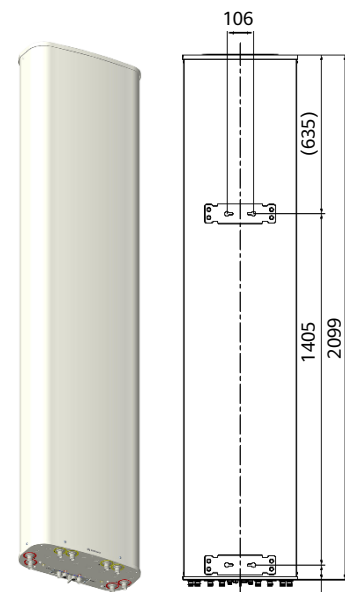
| Electrical Properties  |   |           |           |           |   |             |             |             |             |          |
|--|---|-----------|-----------|-----------|---|-------------|-------------|-------------|-------------|----------|
| Frequency range (MHz)  | 2 x (690 - 960) (Lr1/Rr2)                             |           |           |           | 2 x (1427 - 2690) (Ly1/Ry2)                           |             |             |             |             |          |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |          |
| Polarization   | +45°, -45°  |           |           |           |   |             |             |             |             |          |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |             |          |
| Gain (dBi)   | at mid Tilt   | 14.8      | 15.1      | 15.4      | 15.7  | 15.7        | 16.9        | 17.1        | 17.3        | 17.5     |
|  | over all Tilts  | 14.7±0.5  | 15.0±0.5  | 15.3±0.5  | 15.5±0.5  | 15.6±0.6    | 16.8±0.5    | 17.0±0.5    | 17.2±0.5    | 17.4±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 16      | > 16      | > 16      | > 15  | > 16        | > 16        | > 16        | > 16        | > 16     |
| Horizontal 3dB beam width (°)                                  | 68 ±6   | 66 ±6     | 65 ±6     | 64 ±6     | 70 ±7   | 68 ±6       | 66 ±6       | 63 ±6       | 58 ±6       |          |
| Vertical 3dB beam width (°)                                    | 10.7±0.8  | 9.7±0.5   | 9.3±0.5   | 8.6±0.5   | 8.9±0.5   | 7.1±0.6     | 6.3±0.6     | 5.5±0.5     | 5.1±0.4     |          |
| VSWR   | < 1.5   |           |           |           | < 1.5   | < 1.5       |             |             |             |          |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           | ≥ 28  | ≥ 28        |             |             |             |          |
| Interband isolation (dB)                                       | ≥ 26  |           |           |           | ≥ 28  | ≥ 28        |             |             |             |          |
| Front to back ratio, ±30° (dB)                                 | > 22  | > 25      | > 25      | > 25      | >24   | >25         | >26         | >26         | >25         |          |
| Cross polar ratio (dB)   | 0°  | > 18      | > 18      | > 18      | >17   | >18         | >18         | >18         | >17         |          |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature)                     |             |             |             |             |          |
| Total power (W)  | 900 (at 50°C ambient temperature)                     |           |           |           |   |             |             |             |             |          |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |   |             |             |             |             |          |
| Impedance (Ω)  | 50  |           |           |           |   |             |             |             |             |          |
| Grounding  | DC Ground   |           |           |           |   |             |             |             |             |          |

- Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
- Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2099 x 449 x 196   |
| Packing dimensions (H x W x D) (mm) | 2360 x 535 x 240   |
| Antenna weight (kg)                 | 37.3   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 51.3 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 615 (at 150 km/h)<br>Lateral: 375 (at 150 km/h)<br>Maximum: 810 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |

## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 16 ° | 2.1 kg | 1 (Separate packing) |



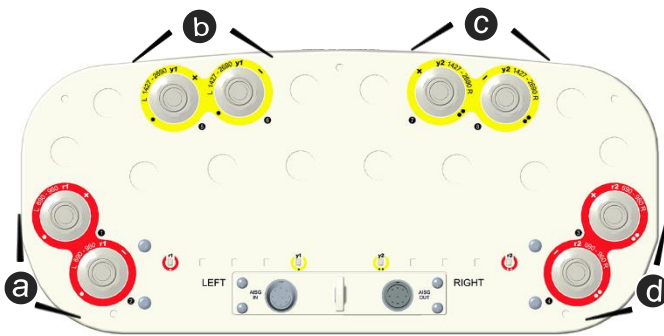
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission),  
 EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

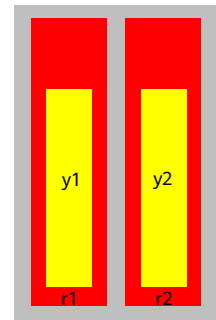
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



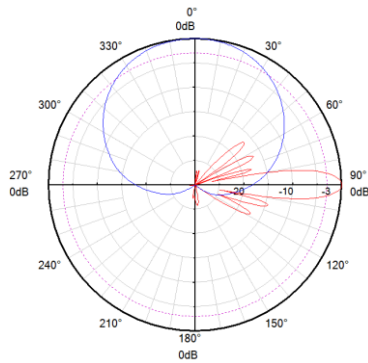
#### Integrated RET S/N:

- a** HWxxxx.....Lr1
- b** HWxxxx.....Ly 1
- c** HWxxxx.....Ry 2
- d** HWxxxx.....Rr2

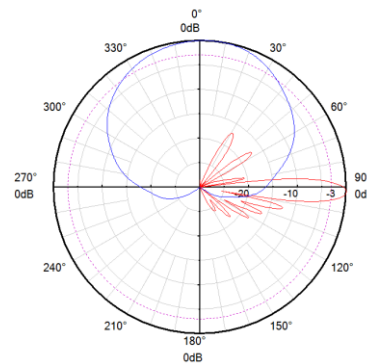
r - Red      y - Yellow  
 L - Left array   R - Right array



#### Pattern sample for reference



690 - 960 MHz



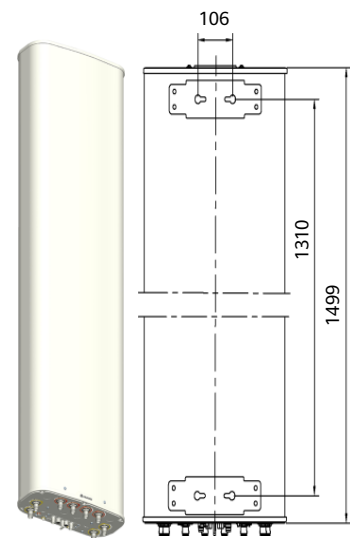
1427 - 2690 MHz

## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |   |             |             |             |
|--|----------------|---|-----------|-----------|-----------|---|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (690 - 960)                                       |           |           |           | 2 x (1695 - 2690)                                     |             |             |             |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45° , -45°   |           |           |           |   |             |             |             |
| Electrical downtilt (°)  |                | 0 - 14, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 13.8  | 14.2      | 14.4      | 14.5      | 17.0  | 17.2        | 17.4        | 18.1        |
|  | over all Tilts | 13.7 ±0.5   | 14.1 ±0.5 | 14.3 ±0.5 | 14.4 ±0.5 | 16.8 ±0.5   | 17.1 ±0.5   | 17.3 ±0.5   | 17.9 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 17      | > 17      | > 16      | > 16  | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 66 ±5   | 63 ±5     | 62 ±5     | 60 ±5     | 65 ±5   | 63 ±5       | 60 ±5       | 60 ±5       |
| Vertical 3dB beam width (°)                                    |                | 15.3 ±1.2   | 14.0 ±1.1 | 13.3 ±1.0 | 12.2 ±0.8 | 6.8 ±0.7  | 5.8 ±0.5    | 5.3 ±0.4    | 5.0 ±0.5    |
| VSWR   |                | < 1.5   |           |           |           |   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           |   |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |           |   |             |             |             |
| Front to back ratio , ±30° (dB)                                |                | > 22  | > 24      | > 24      | > 25      | > 26  | > 27        | > 27        | > 27        |
| Cross polar ratio (dB)   |                | 0°  | > 16      | > 18      | > 19      | > 20  | > 15        | > 16        | > 17        |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature)                     |             |             |             |
| Total power (W)  |                | 960 (at 50°C ambient temperature)                     |           |           |           |   |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |   |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |           |   |             |             |             |
| Grounding  |                | DC Ground   |           |           |           |   |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1499 x 429 x 196   |
| Packing dimensions (H x W x D) (mm) | 1740 x 515 x 250   |
| Antenna weight (kg)                 | 27.8   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 38.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 410 (at 150 km/h)<br>Lateral: 245 (at 150 km/h)<br>Maximum: 540 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 16 ° | 2.1 kg | 1 (Separate packing) |

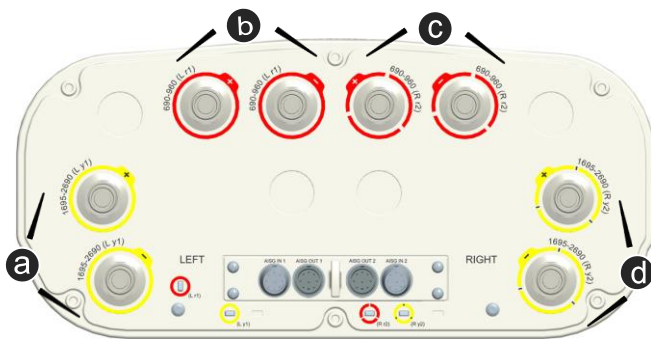
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

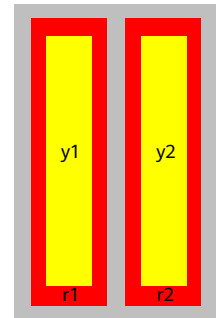
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



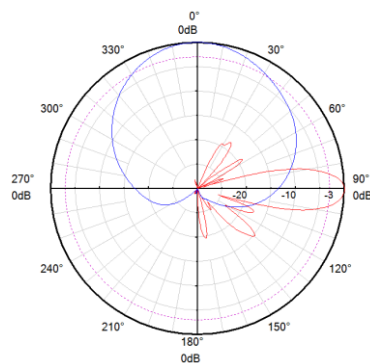
#### Integrated RET S/N:

- a** HWxxxx.....Ly1
- b** HWxxxx.....Lr1
- c** HWxxxx.....Rr2
- d** HWxxxx.....Ry2

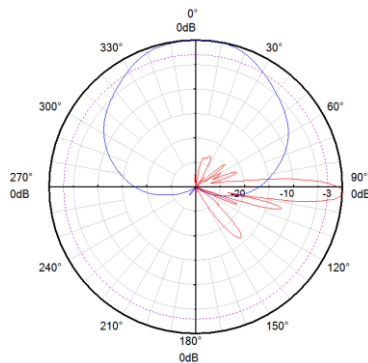
r - Red      y - Yellow  
L - Left array    R - Right array



#### Pattern sample for reference



690 - 960 MHz



1695 - 2690 MHz

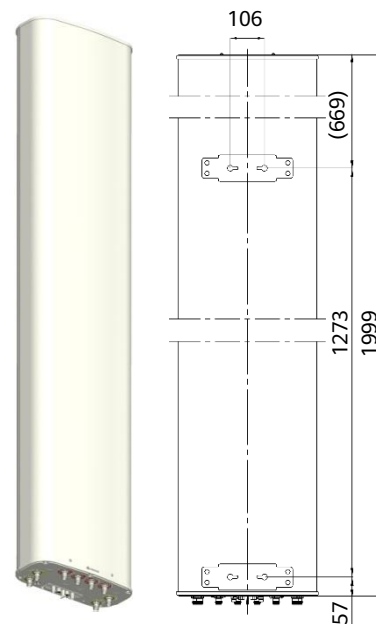


## Antenna Specifications

| Electrical Properties  |   |           |           |           |   |             |             |             |           |
|--|---|-----------|-----------|-----------|---|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 2 x (690 - 960)                                       |           |           |           | 2 x (1695 - 2690)                                     |             |             |             |           |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°  |           |           |           |   |             |             |             |           |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |           |
| Gain (dBi)   | at mid Tilt   | 15.0      | 15.5      | 15.8      | 16.0  | 17.0        | 17.2        | 17.7        | 18.1      |
|  | over all Tilts  | 14.7 ±0.5 | 15.3 ±0.5 | 15.6 ±0.5 | 15.8 ±0.5   | 16.8 ±0.5   | 17.1 ±0.5   | 17.5 ±0.5   | 17.9 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 17      | > 17      | > 17      | > 16  | > 16        | > 16        | > 16        | > 16      |
| Horizontal 3dB beam width (°)                                  | 68 ±5   | 65 ±5     | 62 ±5     | 60 ±5     | 65 ±5   | 63 ±5       | 61 ±5       | 60 ±5       |           |
| Vertical 3dB beam width (°)                                    | 10.5 ±0.9   | 9.5 ±0.8  | 9.2 ±0.7  | 8.5 ±0.7  | 6.8 ±0.7  | 5.8 ±0.5    | 5.3 ±0.4    | 5.0 ±0.5    |           |
| VSWR   | < 1.5   |           |           |           |   |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           |   |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28  |           |           |           |   |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 23  | > 25      | > 26      | > 26      | > 26  | > 27        | > 27        | > 28        |           |
| Cross polar ratio (dB)   | 0°  | > 17      | > 18      | > 19      | > 20  | > 15        | > 16        | > 17        | > 17      |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature)                     |             |             |             |           |
| Total power (W)  | 960 (at 50°C ambient temperature)                     |           |           |           |   |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |   |             |             |             |           |
| Impedance (Ω)  | 50  |           |           |           |   |             |             |             |           |
| Grounding  | DC Ground   |           |           |           |   |             |             |             |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 429 x 196   |
| Packing dimensions (H x W x D) (mm) | 2270 x 515 x 235   |
| Antenna weight (kg)                 | 32.2   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 43.5 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 555 (at 150 km/h)<br>Lateral: 340 (at 150 km/h)<br>Maximum: 735 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model         | Description                   | Weight | Units per antenna    |
|--------------|---------------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D0<br>1 | Mechanical downtilt: 0 - 12 ° | 2.1 kg | 1 (Separate packing) |

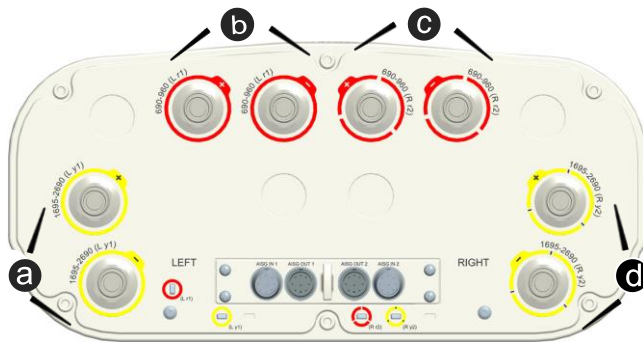
### Integrated RET Specifications

| Properties                       |   |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
|----------------------------------|---|---------|-----|---------|----|-----------|-----|---|---|----|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP   |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V)  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| Pin assignment according AISG    | <table border="1"> <thead> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> </tr> </thead> <tbody> <tr> <td>DC</td> <td>n/c</td> <td>RS-485B</td> <td>n/c</td> <td>RS-485A</td> <td>DC</td> <td>DC return</td> <td>n/c</td> </tr> </tbody> </table> | 1       | 2   | 3       | 4  | 5         | 6   | 7 | 8 | DC | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| 1                                | 2   | 3       | 4   | 5       | 6  | 7         | 8   |   |   |    |     |         |     |         |    |           |     |
| DC                               | n/c   | RS-485B | n/c | RS-485A | DC | DC return | n/c |   |   |    |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)   |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

Standards: EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN 55024 (Immunity), ETSI EN 301 489, FCC Part15, ICES-003

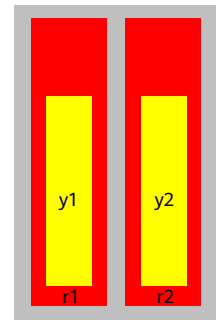
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



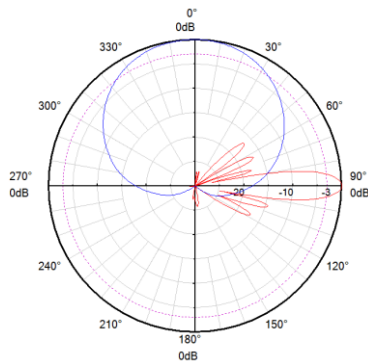
### Integrated RET S/N:

- a** HWxxxx.....Ly1
- b** HWxxxx.....Lr 1
- c** HWxxxx.....Rr 2
- d** HWxxxx.....Ry2

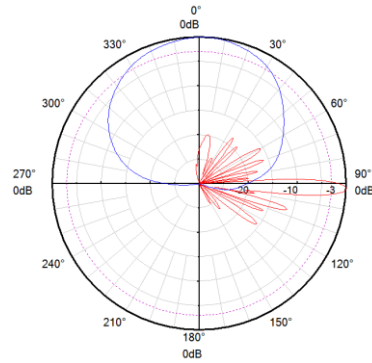
r - Red      y - Yellow  
L - Left array   R - Right array



### Pattern sample for reference



690 - 960 MHz



1695 - 2690 MHz

## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |   |             |             |             |
|--|----------------|---|-----------|-----------|-----------|---|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (690 - 960)                                       |           |           |           | 2 x (1695 - 2690)                                     |             |             |             |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |           |           |           |   |             |             |             |
| Electrical downtilt (°)  |                | 0 - 10, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 15.8  | 16.4      | 16.7      | 17.0      | 17.0  | 17.2        | 17.7        | 18.1        |
|  | over all Tilts | 15.5 ±0.5   | 16.3 ±0.5 | 16.5 ±0.5 | 16.7 ±0.5 | 16.8 ±0.5   | 17.1 ±0.5   | 17.5 ±0.5   | 17.9 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 17      | > 17      | > 17      | > 16  | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 68 ±5   | 65 ±5     | 60 ±5     | 58 ±5     | 65 ±5   | 63 ±5       | 61 ±5       | 60 ±5       |
| Vertical 3dB beam width (°)                                    |                | 8.8 ±0.7  | 8.0 ±0.6  | 7.8 ±0.5  | 7.5 ±0.5  | 6.8 ±0.7  | 5.8 ±0.5    | 5.3 ±0.4    | 5.0 ±0.5    |
| VSWR   |                | < 1.5   |           |           |           |   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           |   |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |           |   |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 25  | > 26      | > 26      | > 26      | > 26  | > 27        | > 27        | > 28        |
| Cross polar ratio (dB)   |                | 0°  | > 17      | > 18      | > 19      | > 20  | > 15        | > 16        | > 17        |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature)                     |             |             |             |
| Total power (W)  |                | 960 (at 50°C ambient temperature)                     |           |           |           |   |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |   |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |           |   |             |             |             |
| Grounding  |                | DC Ground   |           |           |           |   |             |             |             |

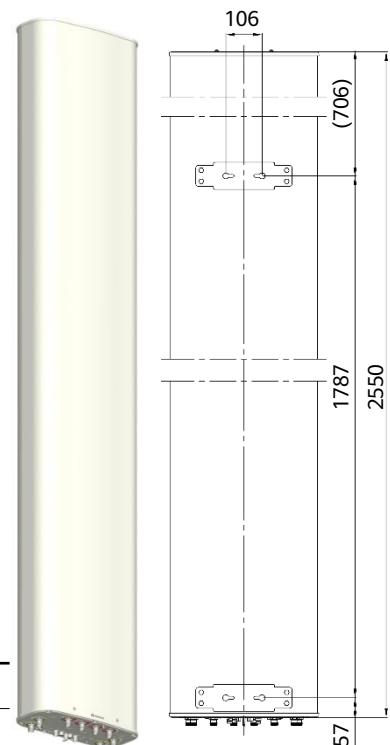
1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2550 x 429 x 196   |
| Packing dimensions (H x W x D) (mm) | 2770 x 530 x 275   |
| Antenna weight (kg)                 | 37.4   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 58.9 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 735 (at 150 km/h)<br>Lateral: 450 (at 150 km/h)<br>Maximum: 965 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |

## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |





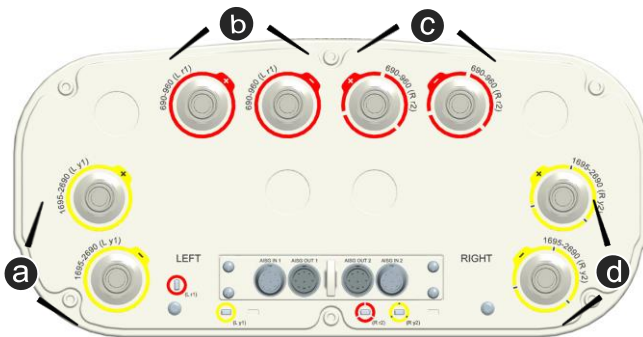
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

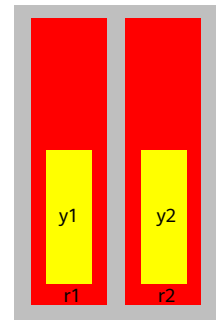
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



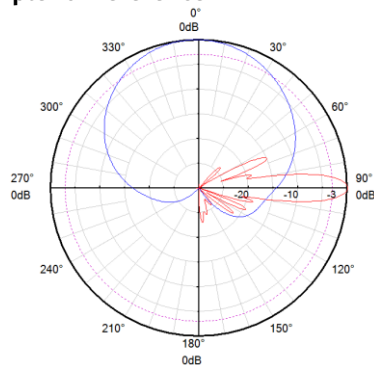
#### Integrated RET S/N:

- a HWxxxx.....Ly1
- b HWxxxx.....Lr 1
- c HWxxxx.....Rr 2
- d HWxxxx.....Ry2

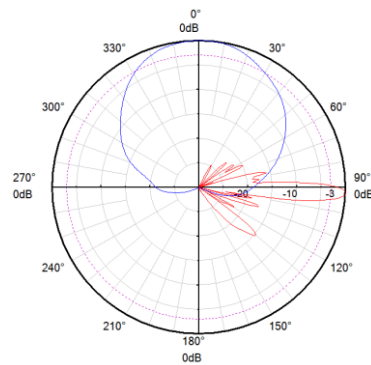
r - Red y - Yellow  
 L - Left array R - Right array



#### Pattern sample for reference



690 - 960 MHz



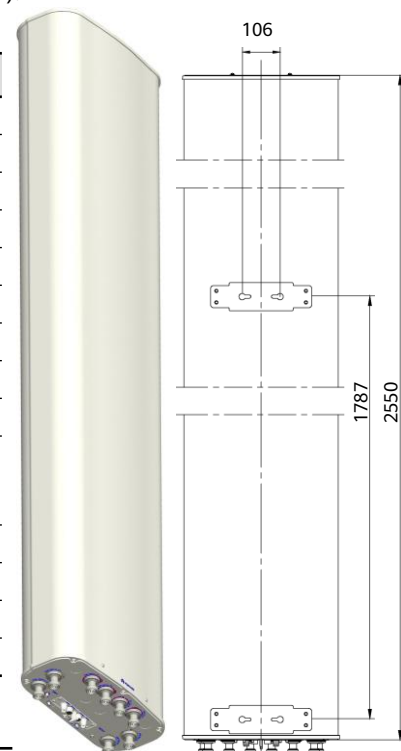
1695 - 2690 MHz

## Preliminary Issue

| Electrical Properties   |             |   |           |           |           |  |             |             |             |
|---|-------------|---|-----------|-----------|-----------|--|-------------|-------------|-------------|
| Frequency range (MHz)   |             | 2 x (690 - 960)                                       |           |           |           | 2 x (1695 - 2690)                                    |             |             |             |
|   |             | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990  | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization  |             | +45° , -45°   |           |           |           |  |             |             |             |
| Electrical downtilt (°)   |             | 0 - 10, continuously adjustable, each band separately |           |           |           | 2 - 8, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)  | at mid Tilt | 15.5  | 16.0      | 16.3      | 16.6      | 19.2   | 19.7        | 20.1        | 20.5        |
| Side lobe suppression for first side lobe above main beam (Typ.) (dB) |             | 16  | 17        | 17        | 17        | 16   | 16          | 16          | 16          |
| Horizontal 3dB beam width (°)   |             | 68  | 65        | 60        | 58        | 65   | 64          | 61          | 58          |
| Vertical 3dB beam width (°)   |             | 8.8   | 8.0       | 7.8       | 7.5       | 4.4  | 4.0         | 3.5         | 3.3         |
| VSWR  |             | < 1.5   |           |           |           |  |             |             |             |
| Cross polar isolation (dB)  |             | ≥ 28  |           |           |           |  |             |             |             |
| Interband isolation (dB)  |             | ≥ 28  |           |           |           |  |             |             |             |
| Front to back ratio , ±30° (dB)                                       |             | Typ.22  | Typ.24    | Typ.25    | Typ.25    | Typ.26   | Typ.26      | Typ.26      | Typ.26      |
| Cross polar ratio (dB) 0°   |             | Typ.17  | Typ.18    | Typ.18    | Typ.18    | Typ.18   | Typ.18      | Typ.18      | Typ.17      |
| Max. power per input (W)  |             | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature)                    |             |             |             |
| Total power (W)   |             | 1000 (at 50°C ambient temperature)                    |           |           |           |  |             |             |             |
| Intermodulation IM3 (dBc)   |             | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |  |             |             |             |
| Impedance (Ω)   |             | 50  |           |           |           |  |             |             |             |
| Grounding   |             | DC Ground   |           |           |           |  |             |             |             |

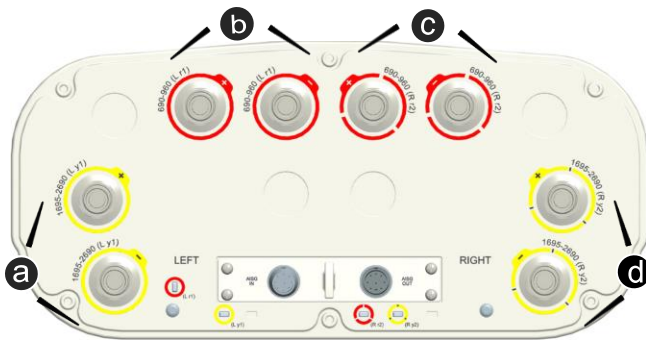
1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2550 x 429 x 196   |
| Packing dimensions (H x W x D) (mm) | 2770 x 530 x 275   |
| Antenna weight (kg)                 | 40.5   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 62 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 735 (at 150 km/h)<br>Lateral: 450 (at 150 km/h)<br>Maximum: 965 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |



**Integrated RET S/N:**

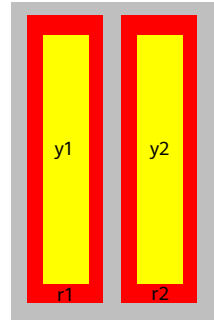
**a** HWxxxx.....Ly1

**b** HWxxxx.....Lr 1

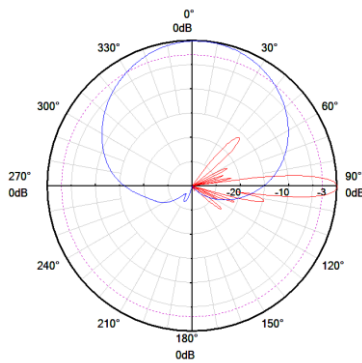
**c** HWxxxx.....Rr 2

**d** HWxxxx.....Ry2

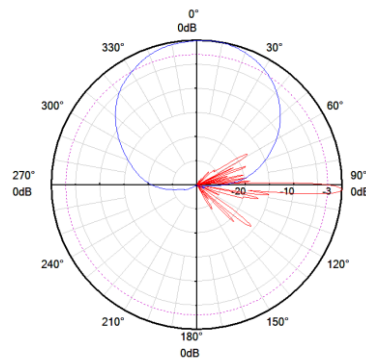
r - Red      y - Yellow  
L - Left array   R - Right array



**Pattern sample for reference**



**690 - 960 MHz**



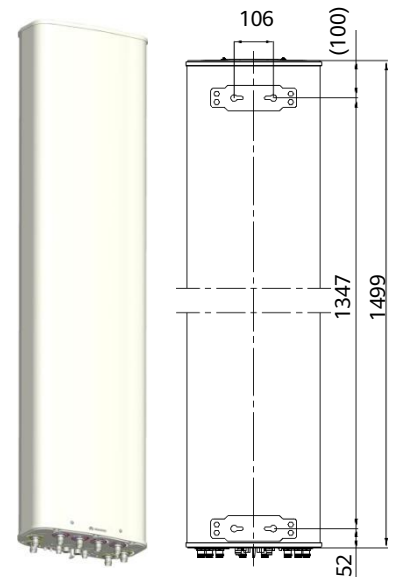
**1695 - 2690 MHz**

## Antenna Specifications

| Electrical Properties  |                |  |           |           |   |             |             |             |
|--|----------------|--|-----------|-----------|---|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 690 - 862  |           | 880 - 960 | 2 x (1710 - 2690)                                     |             |             |             |
|  |                | 690 - 803  | 790 - 862 |           | 1710 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°   |           |           |   |             |             |             |
| Electrical downtilt (°)  |                | 0 - 12, continuously adjustable, each band separately  |           |           | 0 - 10, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 13.8   | 13.9      | 14.2      | 17.4  | 17.8        | 18.2        | 18.3        |
|  | Over all Tilts | 14.0 ±0.5  | 14.1 ±0.3 | 14.3 ±0.3 | 17.3 ±0.5   | 17.7 ±0.5   | 18.1 ±0.5   | 18.2 ±0.4   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16   | > 16      | > 15      | > 18  | > 18        | > 18        | > 18        |
| Horizontal 3dB beam width (°)                                  |                | 66 ±1.7  | 64 ±2.6   | 64 ±3.5   | 65 ±3.9   | 63 ±3.3     | 62 ±4.8     | 60 ±4.5     |
| Vertical 3dB beam width (°)                                    |                | 15.2 ±2.3  | 13.3 ±1.8 | 11.8 ±2.0 | 7.1 ±0.6  | 6.5 ±0.5    | 5.8 ±0.5    | 5.2 ±0.3    |
| VSWR   |                | < 1.5  |           |           |   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28   |           | ≥ 28      | ≥ 28  |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28 (690 - 862 // 880 - 960 MHz)<br>≥ 30 (690 - 862 // 1710 - 2690 MHz)<br>≥ 30 (880 - 960 // 1710 - 2690 MHz)<br>≥ 30 (1710 - 2690 // 1710 - 2690 MHz) |           |           |   |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 25   | > 25      | > 25      | > 30  | > 28        | > 28        | > 28        |
| Cross polar ratio (dB)   0°                                    |                | > 18   | > 20      | > 20      | > 19  | > 19        | > 20        | > 20        |
| Max. power per input (W)                                       |                | 300 (at 50°C ambient temperature)  |           |           | 250 (at 50°C ambient temperature)                     |             |             |             |
| Total power (W)  |                | 700 (at 50°C ambient temperature)  |           |           |   |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)  |           |           |   |             |             |             |
| Impedance (Ω)  |                | 50   |           |           |   |             |             |             |
| Grounding  |                | DC Ground  |           |           |   |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 1499 x 359 x 178  |
| Packing dimensions (H x W x D) (mm) | 1880 x 425 x 255  |
| Antenna net weight (kg)             | 26.5  |
| Bracket weight (kg)                 | 3.6 (2 units)   |
| Packing weight (kg)                 | 40.3 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal : 475 (at 150 km/h)<br>Lateral: 140 (at 150 km/h)<br>Maximum: 495 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 8 x 4.3-10 Female   |
| Connector position                  | Bottom  |



2L2H Band

## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 16° | 2.1 kg | 1 (Separate packing) |

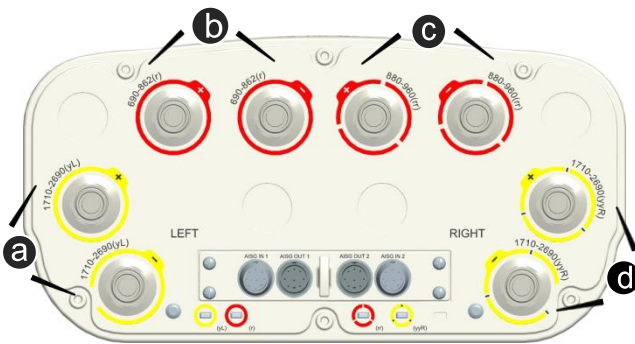
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

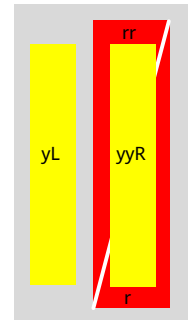
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



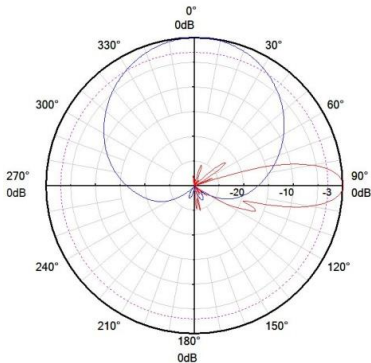
**Integrated RET S/N:**

- a** HWxxxx.....yL
- b** HWxxxx.....r
- c** HWxxxx.....rr
- d** HWxxxx....yyR

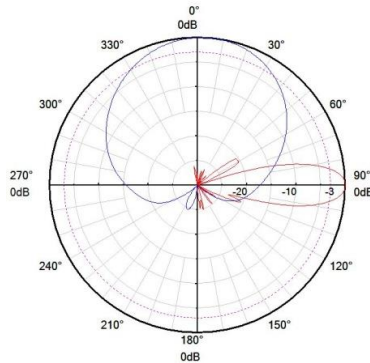
r - Red                      y - Yellow  
L - Left array              R - Right array



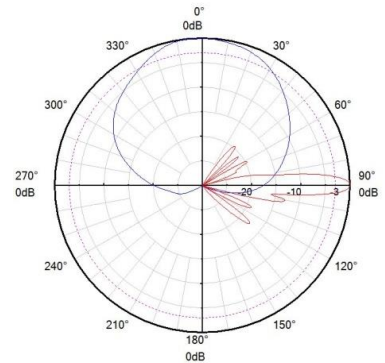
**Pattern sample for reference**



790 - 862 MHz



880 - 960 MHz



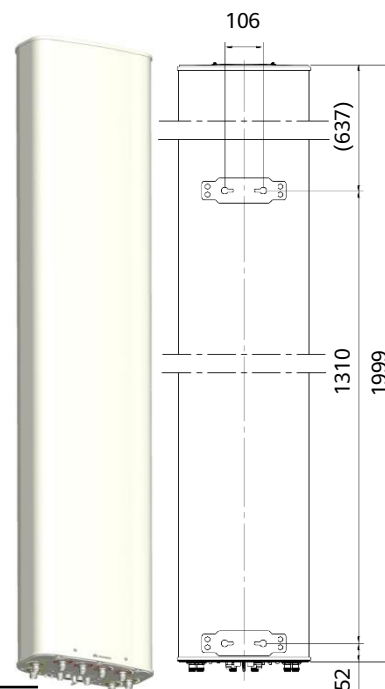
1710 - 2690 MHz

## Antenna Specifications

| Electrical Properties  |  |           |           |                                   |             |             |             |           |
|--|--|-----------|-----------|-----------------------------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 690 - 862  |           | 880 - 960 | 2 x (1695 - 2690)                 |             |             |             |           |
|  | 690 - 803  | 790 - 862 |           | 1695 - 1990                       | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°   |           |           |                                   |             |             |             |           |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable, each band separately  |           |           |                                   |             |             |             |           |
| Gain (dBi)   | at mid tilt  | 14.9      | 15.2      | 15.6                              | 17.2        | 17.5        | 17.9        | 18.0      |
|  | over all tilts   | 14.9 ±0.5 | 15.0 ±0.5 | 15.5 ±0.3                         | 17.1 ±0.4   | 17.4 ±0.5   | 17.8 ±0.5   | 17.9 ±0.4 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15   | > 15      | > 16      | > 15                              | > 15        | > 16        | > 16        | > 16      |
| Horizontal 3dB beam width (°)                                  | 69 ±5  | 67 ±5     | 64 ±5     | 64 ±5                             | 62 ±5       | 61 ±5       | 60 ±5       | 60 ±5     |
| Vertical 3dB beam width (°)                                    | 11.2 ±0.8  | 10.0 ±0.7 | 8.7 ±0.6  | 6.3 ±0.5                          | 5.7 ±0.4    | 5.0 ±0.5    | 4.6 ±0.3    | 4.6 ±0.3  |
| VSWR   | < 1.5  |           |           |                                   |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 28   |           |           |                                   |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28 (690 - 862 // 880 - 960 MHz)<br>≥ 30 (690 - 862 // 1695 - 2690 MHz)<br>≥ 30 (880 - 960 // 1695 - 2690 MHz)<br>≥ 30 (1695 - 2690 // 1695 - 2690 MHz) |           |           |                                   |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 26   | > 27      | > 27      | > 25                              | > 26        | > 26        | > 26        | > 26      |
| Cross polar ratio (dB)   | 0°   | > 17      | > 16      | > 16                              | > 18        | > 18        | > 18        | > 18      |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)  |           |           | 250 (at 50°C ambient temperature) |             |             |             |           |
| Total power (W)  | 700 (at 50°C ambient temperature)  |           |           |                                   |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)  |           |           |                                   |             |             |             |           |
| Impedance (Ω)  | 50   |           |           |                                   |             |             |             |           |
| Grounding  | DC Ground  |           |           |                                   |             |             |             |           |

- Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
- Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 349 x 166   |
| Packing dimensions (H x W x D) (mm) | 2350 x 415 x 240   |
| Antenna weight (kg)                 | 25.7   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 38 (included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 630 (at 150 km/h)<br>Lateral: 180 (at 150 km/h)<br>Maximum: 665 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 12° | 2.1 kg | 1 (Separate packing) |

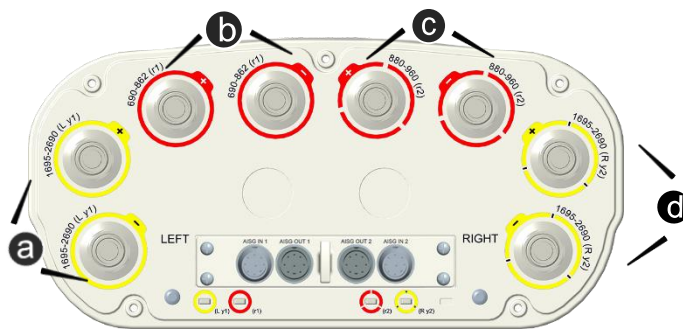
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

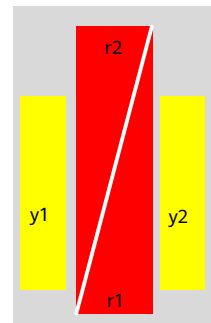
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



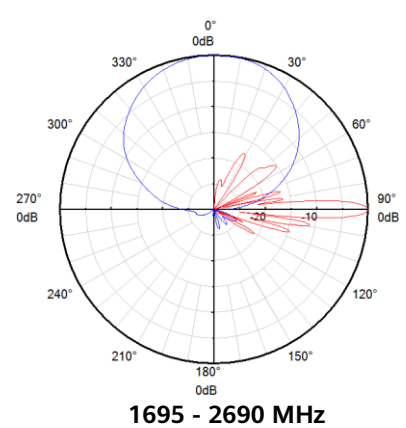
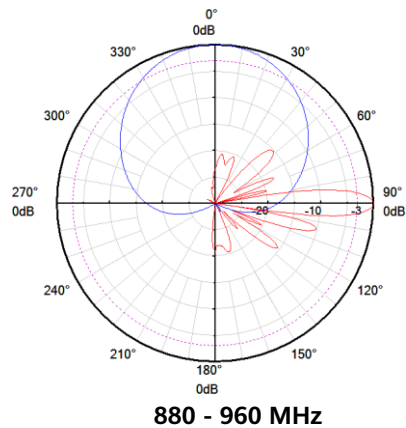
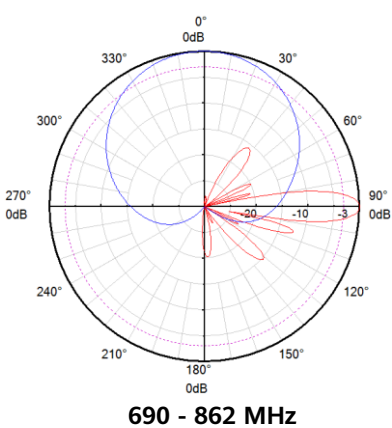
#### Integrated RET S/N:

- a** HWxxxx.....Ly1
- b** HWxxxx.....r1
- c** HWxxxx.....r2
- d** HWxxxx.....Ry2

r - Red  
 L - Left array  
 y - Yellow  
 R - Right array



#### Pattern sample for reference



**Preliminary Issue**

| Electrical Properties   |                             |           |                   |
|---|-----------------------------|-----------|-------------------|
| Frequency range (MHz)   | 690 - 862                   | 880 - 960 | 2 x (1695 - 2690) |
| Electrical downtilt (°)   | 0 - 10                      | 0 - 10    | 0 - 10            |
| Gain (dBi)  | 16.2                        | 16.6      | 17.7              |
| Side lobe suppression for first side lobe above main beam (Typ.) (dB) | 15                          | 16        | 16                |
| Horizontal 3dB beam width (°)   | 66                          | 65        | 64                |
| Vertical 3dB beam width (°)   | 9                           | 7.5       | 5.5               |
| VSWR  | < 1.5                       |           |                   |
| Front to back ratio, copolar (dB)                                     | Typ. 25                     | Typ. 25   | Typ. 25           |
| Cross polar ratio (dB)  | 0°                          | Typ. 17   | Typ. 17           |
| Intermodulation IM3 (dBc)   | ≤ -150 (2 x 43 dBm carrier) |           |                   |

| Mechanical Properties               |                   |
|-------------------------------------|-------------------|
| Antenna dimensions (H x W x D) (mm) | 2528 x 349 x 166  |
| Packing dimensions (H x W x D) (mm) | 2880 x 415 x 245  |
| Antenna net weight (kg)             | 31                |
| Mechanical downtilt (°)             | 0 - 8             |
| Connector                           | 8 x 4.3-10 Female |
| RET type                            | Integrated RET    |
| RET protocols                       | AISG 2.0 / 3GPP   |



## Antenna Specifications

| Electrical Properties  |   |           |           |           |             |                                    |             |             |             |           |
|--|---|-----------|-----------|-----------|-------------|------------------------------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 2 x (690 - 960)                                       |           |           |           |             | 1427 - 2690                        |             |             |             |           |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1427 - 1518 | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°  |           |           |           |             | +45°, -45°                         |             |             |             |           |
| Electrical downtilt (°)  | 0 - 14, continuously adjustable, each band separately |           |           |           |             | 2 - 12, continuously adjustable    |             |             |             |           |
| Gain (dBi)   | at mid Tilt   | 13.7      | 14.3      | 14.6      | 14.8        | 16.2                               | 17.4        | 17.8        | 18.1        | 18.1      |
|  | over all Tilts  | 13.6 ±0.5 | 14.2 ±0.5 | 14.5 ±0.5 | 14.7 ±0.5   | 16.1 ±0.5                          | 17.3 ±0.5   | 17.7 ±0.5   | 18.0 ±0.5   | 18.0 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 17      | > 17      | > 17      | > 15        | > 16                               | > 16        | > 17        | > 17        |           |
| Horizontal 3dB beam width (°)                                  | 70 ±5   | 70 ±4     | 69 ±4     | 65 ±4     | 62 ±7       | 61 ±7                              | 60 ±6       | 58 ±5       | 58 ±5       |           |
| Vertical 3dB beam width (°)                                    | 15.4 ±1.5   | 13.8 ±0.9 | 13.3 ±0.7 | 12.1 ±0.7 | 7.9 ±0.5    | 6.4 ±0.5                           | 5.8 ±0.5    | 5.1 ±0.3    | 4.7 ±0.3    |           |
| VSWR   | < 1.5   |           |           |           |             | < 1.5                              | < 1.5       |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           |             | ≥ 28                               | ≥ 28        |             |             |           |
| Interband isolation (dB)                                       | ≥ 28  |           |           |           |             | ≥ 28                               | ≥ 28        |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 22  | > 23      | > 24      | > 24      | > 25        | > 28                               | > 28        | > 28        | > 26        |           |
| Cross polar ratio (dB)   | 0°  | > 18      | > 20      | > 23      | > 23        | > 15                               | > 18        | > 18        | > 16        | > 15      |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature)*                    |           |           |           |             | 300 (at 50°C ambient temperature)* |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |             | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |           |
| Impedance (Ω)  | 50  |           |           |           |             |                                    |             |             |             |           |
| Grounding  | DC Ground   |           |           |           |             |                                    |             |             |             |           |

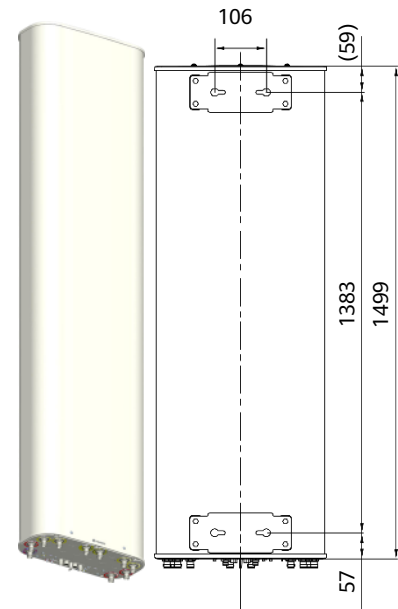
| Electrical Properties  |   |             |             |             |           |  |  |  |  |  |
|--|---|-------------|-------------|-------------|-----------|--|--|--|--|--|
| Frequency range (MHz)  | 2 x (1695 - 2690)                                     |             |             |             |           |  |  |  |  |  |
|  | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |  |  |  |  |  |
| Polarization   | +45°, -45°  |             |             |             |           |  |  |  |  |  |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |             |             |           |  |  |  |  |  |
| Gain (dBi)   | at mid Tilt   | 17.4        | 17.8        | 18.0        | 18.0      |  |  |  |  |  |
|  | over all Tilts  | 17.3 ±0.5   | 17.7 ±0.5   | 17.9 ±0.5   | 17.9 ±0.5 |  |  |  |  |  |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 17        | > 17        | > 17        |           |  |  |  |  |  |
| Horizontal 3dB beam width (°)                                  | 62 ±6   | 60 ±6       | 58 ±5       | 58 ±4       |           |  |  |  |  |  |
| Vertical 3dB beam width (°)                                    | 6.5 ±0.5  | 5.6 ±0.3    | 5.2 ±0.2    | 4.7 ±0.3    |           |  |  |  |  |  |
| VSWR   | < 1.5   |             |             |             |           |  |  |  |  |  |
| Cross polar isolation (dB)                                     | ≥ 28  |             |             |             |           |  |  |  |  |  |
| Interband isolation (dB)                                       | ≥ 28  |             |             |             |           |  |  |  |  |  |
| Front to back ratio, ±30° (dB)                                 | > 26  | > 26        | > 26        | > 26        |           |  |  |  |  |  |
| Cross polar ratio (dB)   | 0°  | > 19        | > 19        | > 17        |           |  |  |  |  |  |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |             |             |           |  |  |  |  |  |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |           |  |  |  |  |  |
| Impedance (Ω)  | 50  |             |             |             |           |  |  |  |  |  |
| Grounding  | DC Ground   |             |             |             |           |  |  |  |  |  |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1499 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 1870 x 535 x 285   |
| Antenna weight (kg)                 | 33.1   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 50.4 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 440 (at 150 km/h)<br>Lateral: 265 (at 150 km/h)<br>Maximum: 585 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female   |
| Connector position                  | Bottom   |

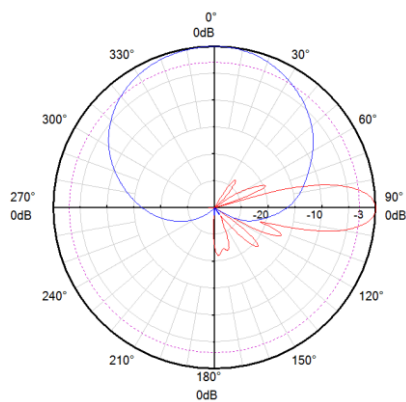


2LnH Band

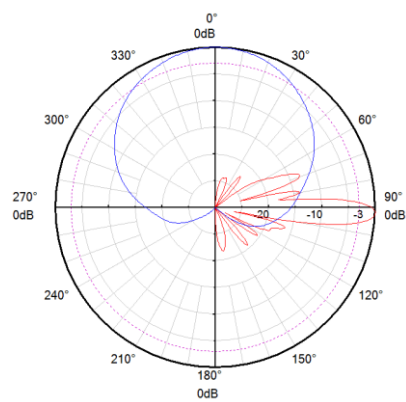
**Accessories**

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 16° | 3.1 kg | 1 (Separate packing) |

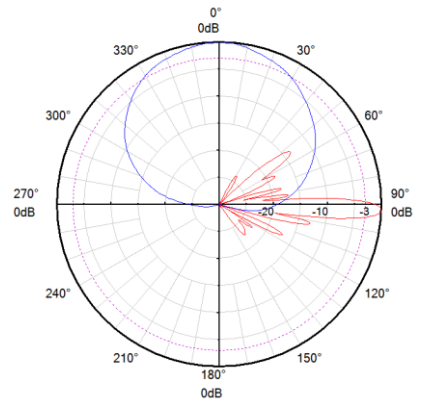
**Pattern sample for reference**



690 - 960 MHz



1427 - 2690 MHz



1695 - 2690 MHz

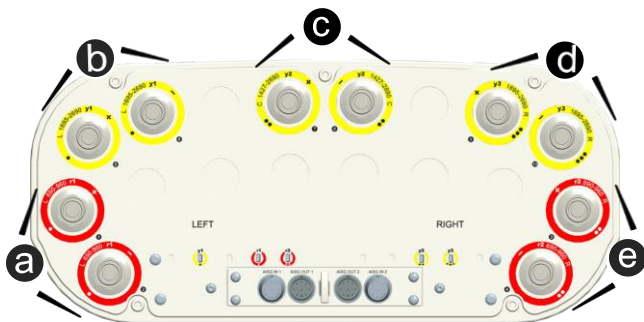
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

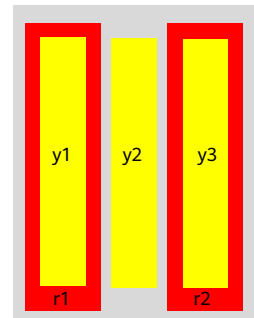
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a HWxxxx.....Lr 1
- b HWxxxx.....Ly1
- c HWxxxx.....Cy2
- d HWxxxx.....Ry3
- e HWxxxx.....Rr 2

r - Red                      y - Yellow  
 L - Left array          C - Center array  
 R - Right array



## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |                                    |             |             |
|--|----------------|---|-----------|-----------|-----------|------------------------------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (690 - 960)                                       |           |           |           | 1427 - 2200                        |             |             |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1427 - 1518                        | 1695 - 1990 | 1920 - 2200 |
| Polarization   |                | +45°, -45°  |           |           |           | +45°, -45°                         |             |             |
| Electrical downtilt (°)  |                | 0 - 10, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable    |             |             |
| Gain (dBi)   | at mid Tilt    | 14.8  | 15.4      | 15.7      | 16.0      | 16.0                               | 17.3        | 17.4        |
|  | over all Tilts | 14.7 ±0.4   | 15.3 ±0.4 | 15.5 ±0.3 | 15.8 ±0.4 | 15.8 ±0.6                          | 17.2 ±0.4   | 17.3 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 17  | > 17      | > 17      | > 17      | > 15                               | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 70 ±5   | 69 ±4     | 68 ±3     | 64 ±4     | 63 ±7                              | 64 ±7       | 65 ±6       |
| Vertical 3dB beam width (°)                                    |                | 11.0 ±0.8   | 9.8 ±0.5  | 9.5 ±0.5  | 8.8 ±0.5  | 7.9 ±0.3                           | 6.3 ±0.5    | 5.8 ±0.4    |
| VSWR   |                | < 1.5   |           |           |           | < 1.5                              | < 1.5       |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           | ≥ 28                               | ≥ 28        |             |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |           | ≥ 28                               | ≥ 28        |             |
| Front to back ratio, ±30° (dB)                                 |                | > 24  | > 25      | > 25      | > 25      | > 25                               | > 27        | > 27        |
| Cross polar ratio (dB)   |                | 0°  | > 20      | > 20      | > 20      | > 21                               | > 16        | > 18        |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)*                    |           |           |           | 300 (at 50°C ambient temperature)* |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           | ≤ -153 (2 x 43 dBm carrier)        |             |             |
| Impedance (Ω)  |                | 50  |           |           |           |                                    |             |             |
| Grounding  |                | DC Ground   |           |           |           |                                    |             |             |

| Electrical Properties  |                |   |             |             |             |  |  |  |
|--|----------------|---|-------------|-------------|-------------|--|--|--|
| Frequency range (MHz)  |                | 2 x (1695 - 2690)                                     |             |             |             |  |  |  |
|  |                | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |  |  |  |
| Polarization   |                | +45°, -45°  |             |             |             |  |  |  |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |             |             |             |  |  |  |
| Gain (dBi)   | at mid Tilt    | 17.0  | 17.5        | 17.6        | 18.0        |  |  |  |
|  | over all Tilts | 16.9 ±0.6   | 17.4 ±0.5   | 17.5 ±0.5   | 17.9 ±0.5   |  |  |  |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 18  | > 19        | > 19        | > 18        |  |  |  |
| Horizontal 3dB beam width (°)                                  |                | 63 ±6   | 61 ±6       | 60 ±6       | 60 ±6       |  |  |  |
| Vertical 3dB beam width (°)                                    |                | 7.4 ±0.7  | 6.6 ±0.6    | 5.8 ±0.3    | 5.3 ±0.3    |  |  |  |
| VSWR   |                | < 1.5   |             |             |             |  |  |  |
| Cross polar isolation (dB)                                     |                | ≥ 28  |             |             |             |  |  |  |
| Interband isolation (dB)                                       |                | ≥ 28  |             |             |             |  |  |  |
| Front to back ratio, ±30° (dB)                                 |                | > 25  | > 27        | > 27        | > 27        |  |  |  |
| Cross polar ratio (dB)   |                | 0°  | > 18        | > 18        | > 17        |  |  |  |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                    |             |             |             |  |  |  |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |  |  |  |
| Impedance (Ω)  |                | 50  |             |             |             |  |  |  |
| Grounding  |                | DC Ground   |             |             |             |  |  |  |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

APE4518R14v06

DXXXX-690-960/690-960/1427-2200/1695-2690/1695-2690-

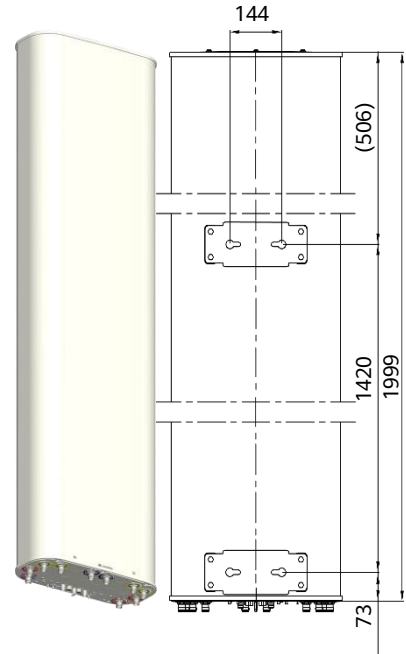
65/65/65/65/65-16i/16i/17.5i/18i/18i-M/M/M/M/M-R

EasyRET 2L3H 10-Port Antenna with 5 Integrated RCUs - 2.0m



**Mechanical Properties**

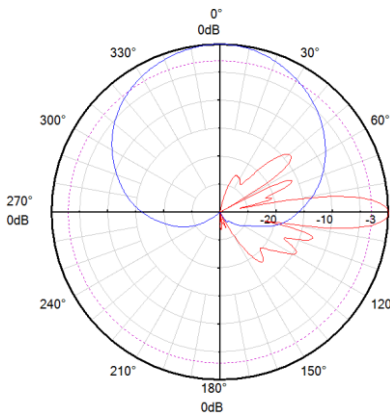
|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 2255 x 535 x 285   |
| Antenna weight (kg)                 | 38.9   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 60.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 600 (at 150 km/h)<br>Lateral: 365 (at 150 km/h)<br>Maximum: 795 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female   |
| Connector position                  | Bottom   |



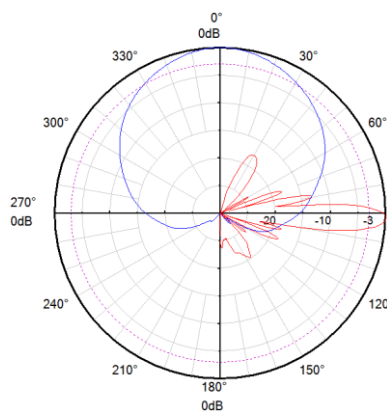
**Accessories**

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12° | 3.1 kg | 1 (Separate packing) |

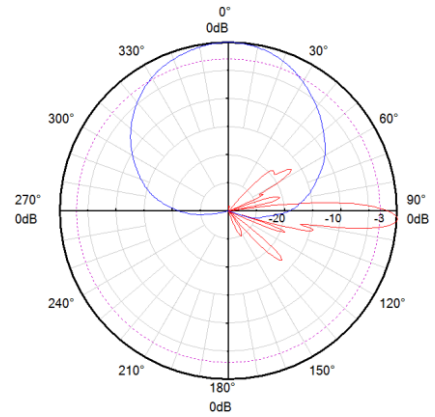
**Pattern sample for reference**



**690 - 960 MHz**



**1427 - 2200 MHz**



**1695 - 2690 MHz**

## Integrated RET Specifications

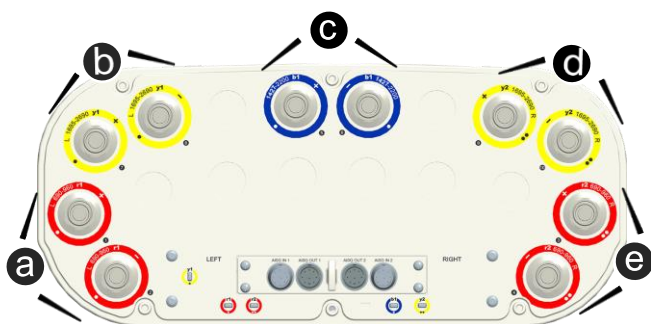
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |

2LnH Band

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

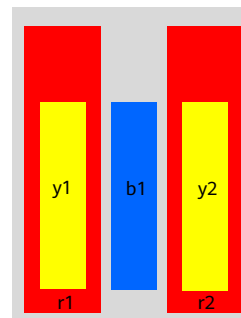
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



### Integrated RET S/N:

- a HWxxx.....Lr 1
- b HWxxx.....Ly1
- c HWxxx.....b 1
- d HWxxx.....Ry2
- e HWxxx.....Rr 2

r - Red                      y - Yellow  
 b - Blue  
 L - Left array          R - Right array



## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |                                    |             |             |             |             |
|--|----------------|---|-----------|-----------|-----------|------------------------------------|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (690 - 960)                                       |           |           |           | 1427 - 2690                        |             |             |             |             |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1427 - 1518                        | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |           |           |           | +45°, -45°                         |             |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable    |             |             |             |             |
| Gain (dBi)   | at mid Tilt    | 15.8  | 16.4      | 16.7      | 17.0      | 16.2                               | 17.3        | 17.4        | 17.9        | 18.0        |
|  | over all Tilts | 15.6 ±0.5   | 16.3 ±0.5 | 16.5 ±0.5 | 16.7 ±0.5 | 16.1 ±0.5                          | 17.2 ±0.5   | 17.3 ±0.5   | 17.8 ±0.5   | 17.9 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 15      | > 16      | > 16      | > 15                               | > 16        | > 16        | > 17        | > 17        |
| Horizontal 3dB beam width (°)                                  |                | 70 ±5   | 69 ±4     | 68 ±3     | 64 ±4     | 62 ±7                              | 61 ±7       | 62 ±6       | 58 ±5       | 58 ±5       |
| Vertical 3dB beam width (°)                                    |                | 9.0 ±0.5  | 8.0 ±0.4  | 7.7 ±0.5  | 7.2 ±0.4  | 7.9 ±0.4                           | 6.6 ±0.4    | 5.8 ±0.3    | 5.2 ±0.3    | 4.8 ±0.2    |
| VSWR   |                | < 1.5   |           |           |           | < 1.5                              | < 1.5       |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           | ≥ 28                               | ≥ 28        |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |           | ≥ 28                               | ≥ 28        |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 22  | > 24      | > 24      | > 25      | > 25                               | > 28        | > 28        | > 28        | > 28        |
| Cross polar ratio (dB) 0°                                      |                | > 20  | > 24      | > 24      | > 24      | > 15                               | > 18        | > 16        | > 16        | > 15        |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)*                    |           |           |           | 250 (at 50°C ambient temperature)* |             |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |           |                                    |             |             |             |             |
| Grounding  |                | DC Ground   |           |           |           |                                    |             |             |             |             |

| Electrical Properties  |                |   |             |             |             |           |  |           |  |  |
|--|----------------|---|-------------|-------------|-------------|-----------|--|-----------|--|--|
| Frequency range (MHz)  |                | 2 x (1695 - 2690)                                     |             |             |             |           |  |           |  |  |
|  |                | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |  |           |  |  |
| Polarization   |                | +45°, -45°  |             |             |             |           |  |           |  |  |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |             |             |             |           |  |           |  |  |
| Gain (dBi)   | at mid Tilt    | 17.0  |             | 17.5        |             | 17.6      |  | 18.0      |  |  |
|  | over all Tilts | 16.9 ±0.6   |             | 17.4 ±0.5   |             | 17.5 ±0.5 |  | 17.9 ±0.5 |  |  |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  |             | > 16        |             | > 18      |  | > 17      |  |  |
| Horizontal 3dB beam width (°)                                  |                | 62 ±5   |             | 60 ±5       |             | 58 ±4     |  | 58 ±4     |  |  |
| Vertical 3dB beam width (°)                                    |                | 6.5 ±0.5  |             | 5.6 ±0.4    |             | 5.2 ±0.2  |  | 4.8 ±0.3  |  |  |
| VSWR   |                | < 1.5   |             |             |             |           |  |           |  |  |
| Cross polar isolation (dB)                                     |                | ≥ 28  |             |             |             |           |  |           |  |  |
| Interband isolation (dB)                                       |                | ≥ 28  |             |             |             |           |  |           |  |  |
| Front to back ratio, ±30° (dB)                                 |                | > 27  |             | > 27        |             | > 27      |  | > 27      |  |  |
| Cross polar ratio (dB) 0°                                      |                | > 22  |             | > 20        |             | > 19      |  | > 18      |  |  |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                    |             |             |             |           |  |           |  |  |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |           |  |           |  |  |
| Impedance (Ω)  |                | 50  |             |             |             |           |  |           |  |  |
| Grounding  |                | DC Ground   |             |             |             |           |  |           |  |  |

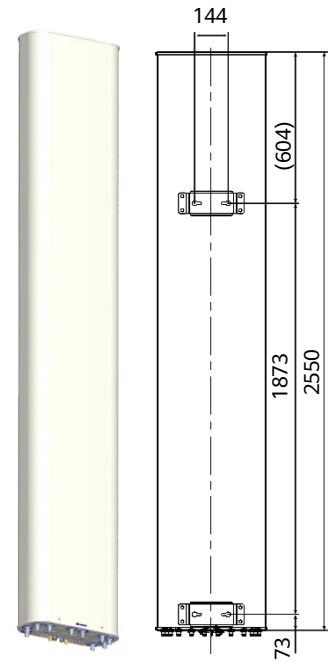
\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

### Mechanical Properties

|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2550 x 469 x 206  |
| Packing dimensions (H x W x D) (mm) | 2805 x 535 x 285  |
| Antenna weight (kg)                 | 44.0  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 67.5 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 780 (at 150 km/h)<br>Lateral: 485 (at 150 km/h)<br>Maximum: 1035 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 10 x 4.3-10 Female  |
| Connector position                  | Bottom  |

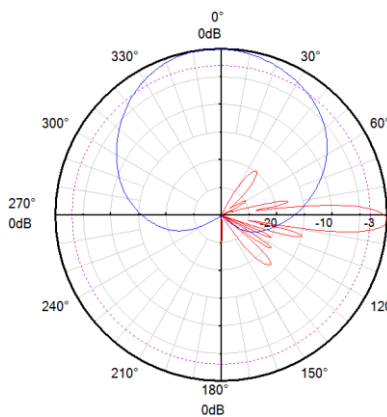


2LnH Band

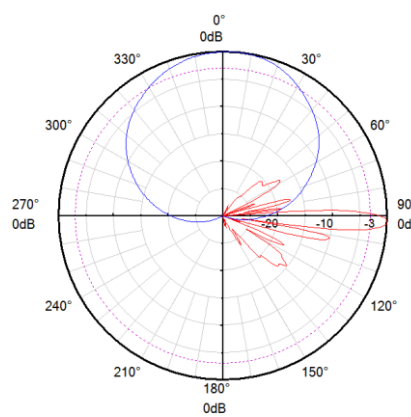
### Accessories

| Item         | Model     | Description                 | Weight | Units per antenna    |
|--------------|-----------|-----------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8° | 3.1 kg | 1 (Separate packing) |

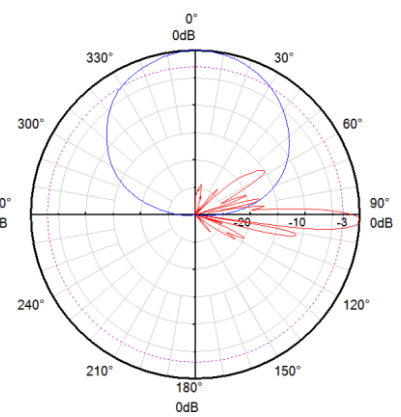
### Pattern sample for reference



690 - 960 MHz



1427 - 2690 MHz



1695 - 2690 MHz



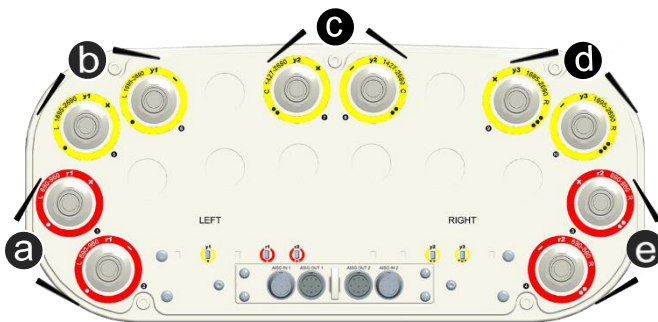
## Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

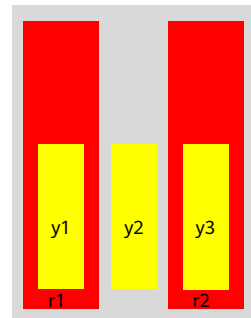
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



### Integrated RET S/N:

- a HWxxx.....Lr1
- b HWxxx.....Ly1
- c HWxxx.....Cy2
- d HWxxx.....Ry3
- e HWxxx.....Rr2

r - Red                      y - Yellow  
 L - Left array            R - Right array    C - Center array

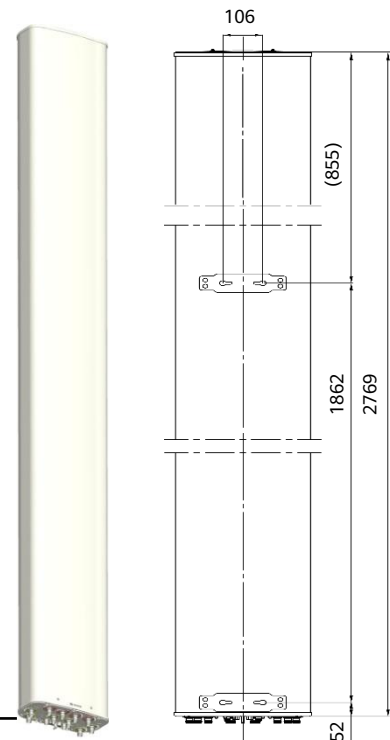


## Antenna Specifications

| Electrical Properties  |  |                |           |           |                                   |             |             |             |           |
|--|--|----------------|-----------|-----------|-----------------------------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 690 - 862  |                |           | 880 - 960 | 3 x (1710 - 2690)                 |             |             |             |           |
|  | 690 - 803  | 790 - 862      |           |           | 1710 - 1990                       | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°   |                |           |           |                                   |             |             |             |           |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable, each band separately  |                |           |           |                                   |             |             |             |           |
| Gain (dBi)   | Bottom   | at mid Tilt    | 16.2      | 16.5      | 16.9                              |             |             |             |           |
|  |  | over all Tilts | 16.0 ±0.5 | 16.3 ±0.5 | 16.8 ±0.6                         |             |             |             |           |
|  | Top  | at mid Tilt    |           |           |                                   | 17.3        | 17.4        | 17.6        | 18.1      |
|  |  | over all Tilts |           |           |                                   | 17.2 ±0.5   | 17.4 ±0.5   | 17.5 ±0.6   | 18.0 ±0.6 |
| Side lobe suppression for first side lobe above main beam (dB) | > 20   | > 18           | > 17      | > 20      | > 20                              | > 19        | > 19        | > 19        |           |
| Horizontal 3dB beam width (°)                                  | 66 ±2.7  | 65 ±2.9        | 63 ±4.1   | 66 ±4.7   | 63 ±3.3                           | 61 ±5.2     | 60 ±4.4     | 60 ±4.4     |           |
| Vertical 3dB beam width (°)                                    | 8.6 ±1.1   | 7.4 ±0.9       | 6.5 ±0.6  | 7.6 ±0.6  | 6.8 ±0.5                          | 6.1 ±0.5    | 5.6 ±0.2    | 5.6 ±0.2    |           |
| VSWR   | < 1.5  |                |           |           |                                   |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 28   |                |           | ≥ 28      | ≥ 28                              |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28 (690 - 862 // 880 - 960 MHz)<br>≥ 30 (690 - 862 // 1710 - 2690 MHz)<br>≥ 30 (880 - 960 // 1710 - 2690 MHz)<br>≥ 30 (1710 - 2690 // 1710 - 2690 MHz) |                |           |           |                                   |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 25   | > 27           | > 26      | > 30      | > 30                              | > 27        | > 27        | > 27        |           |
| Cross polar ratio (dB) 0°                                      | > 18   | > 22           | > 22      | > 19      | > 19                              | > 21        | > 20        | > 20        |           |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)  |                |           |           | 250 (at 50°C ambient temperature) |             |             |             |           |
| Total power (W)  | 1000 (at 50°C ambient temperature)   |                |           |           |                                   |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)  |                |           |           |                                   |             |             |             |           |
| Impedance (Ω)  | 50   |                |           |           |                                   |             |             |             |           |
| Grounding  | DC Ground  |                |           |           |                                   |             |             |             |           |

- Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
- Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2769 x 359 x 178   |
| Packing dimensions (H x W x D) (mm) | 2980 x 425 x 255   |
| Antenna weight (kg)                 | 42.9   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 61.4 (included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 945 (at 150 km/h)<br>Lateral: 285 (at 150 km/h)<br>Maximum: 995 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female   |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                 | Weight | Units per antenna    |
|--------------|-----------|-----------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8° | 3.1 kg | 1 (Separate packing) |

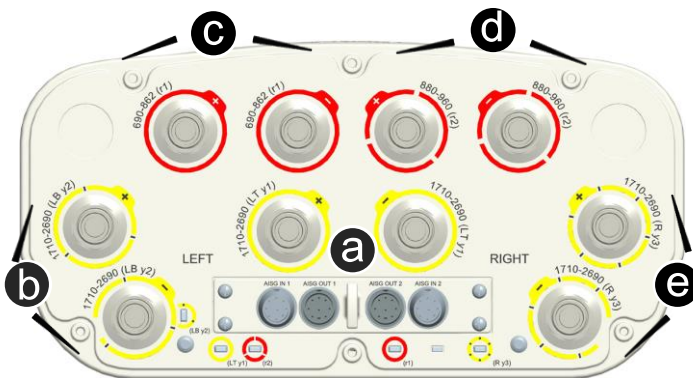
**Integrated RET Specifications**

| Properties                       |   |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
|----------------------------------|---|---------|-----|---------|----|-----------|-----|---|---|----|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP   |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V)  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| Pin assignment according AISG    | <table border="1"> <thead> <tr> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> <th>7</th> <th>8</th> </tr> </thead> <tbody> <tr> <td>DC</td> <td>n/c</td> <td>RS-485B</td> <td>n/c</td> <td>RS-485A</td> <td>DC</td> <td>DC return</td> <td>n/c</td> </tr> </tbody> </table> | 1       | 2   | 3       | 4  | 5         | 6   | 7 | 8 | DC | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| 1                                | 2   | 3       | 4   | 5       | 6  | 7         | 8   |   |   |    |     |         |     |         |    |           |     |
| DC                               | n/c   | RS-485B | n/c | RS-485A | DC | DC return | n/c |   |   |    |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)   |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

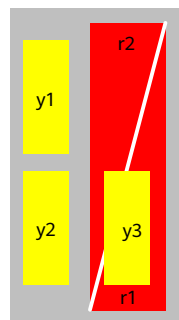
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



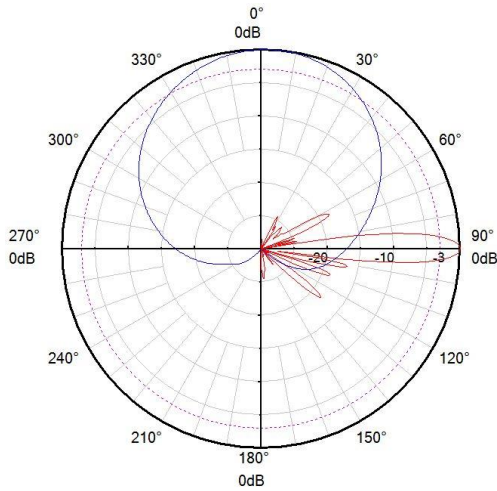
**Integrated RET S/N:**

- a HWxxxx.....LTy1
- b HWxxxx.....LBy2
- c HWxxxx.....r1
- d HWxxxx.....r2
- e HWxxxx.....Ry3

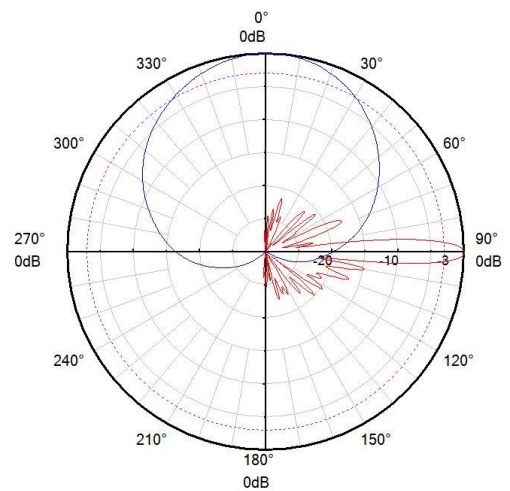
r - Red                      y - Yellow  
L - Left array              R - Right array  
T - Top array                B - Bottom array



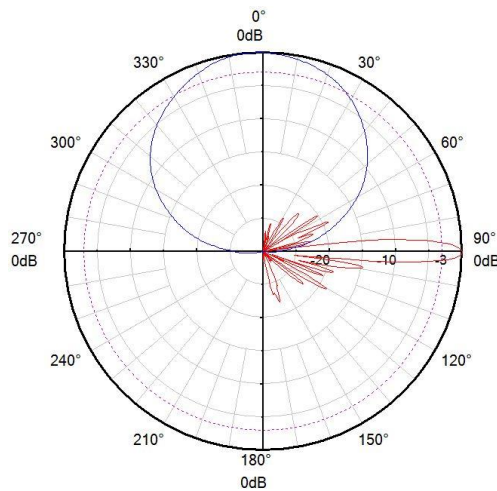
Pattern sample for reference



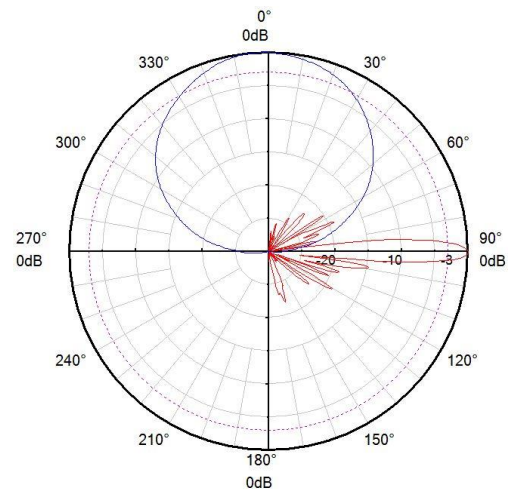
690 - 862 MHz



880 - 960 MHz



1710 - 2690 MHz  
(Bottom)



1710 - 2690 MHz  
(Top)

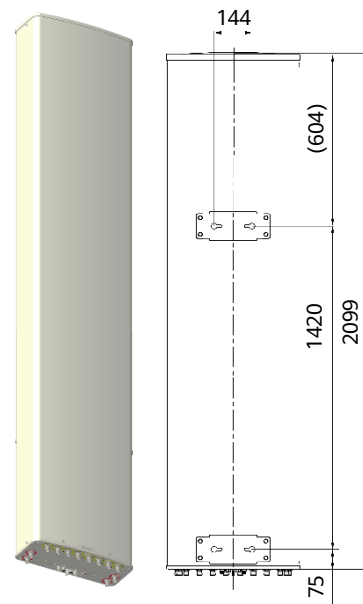
2LnH Band

## Antenna Specifications

| Electrical Properties  |                |   |           |           |   |             |             |             |
|--|----------------|---|-----------|-----------|---|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (617 - 894) (Lr1/Rr2)                             |           |           | 4 x (1695 - 2690) (Ly1/CLy2/CRy3/Ry4)                 |             |             |             |
|  |                | 617 - 698   | 698 - 798 | 814 - 894 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |           |           |   |             |             |             |
| Electrical downtilt (°)  |                | 2 - 14, continuously adjustable, each band separately |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 14.3  | 14.9      | 15.4      | 17.0  | 17.2        | 17.6        | 18.0        |
|  | over all Tilts | 14.1 ±0.6   | 14.8 ±0.5 | 15.2 ±0.6 | 16.9 ±0.5   | 17.2 ±0.5   | 17.5 ±0.5   | 17.9 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 16      | > 16      | > 15  | > 15        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 69 ±5   | 67 ±6     | 63 ±6     | 65 ±6   | 62 ±5       | 61 ±5       | 60 ±6       |
| Vertical 3dB beam width (°)                                    |                | 13.0 ±1.3   | 10.9 ±1   | 9.6 ±0.8  | 7.4 ±0.6  | 6.6 ±0.5    | 5.8 ±0.4    | 5.3 ±0.4    |
| VSWR   |                | < 1.5   |           |           |   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |   |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |   |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 21  | > 21      | > 22      | > 24  | > 24        | > 25        | > 25        |
| Cross polar ratio (dB) 0°                                      |                | > 17  | > 17      | > 18      | > 17  | > 17        | > 17        | > 18        |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)                     |           |           | 250 (at 50°C ambient temperature)                     |             |             |             |
| Total power (W)  |                | 900 (at 50°C ambient temperature)                     |           |           |   |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |   |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |   |             |             |             |
| Grounding  |                | DC Ground   |           |           |   |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2099 x 499 x 206  |
| Packing dimensions (H x W x D) (mm) | 2360 x 550 x 245  |
| Antenna weight (kg)                 | 43.0  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 56.2 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 895 (at 150 km/h)<br>Lateral: 425 (at 150 km/h)<br>Maximum: 1075 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 12 x 4.3-10 Female  |
| Connector position                  | Bottom  |



## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12 ° | 3.1 kg | 1 (Separate packing) |

**Integrated RET Specifications**

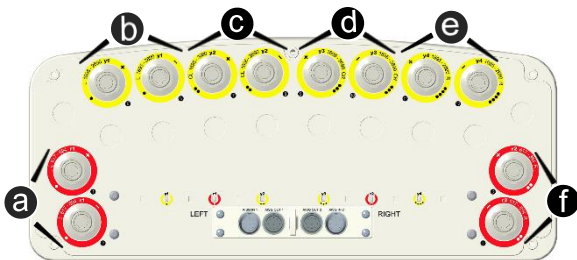
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

2LnH Band

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

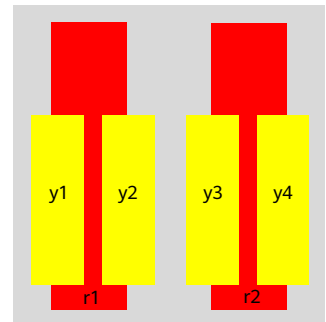
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



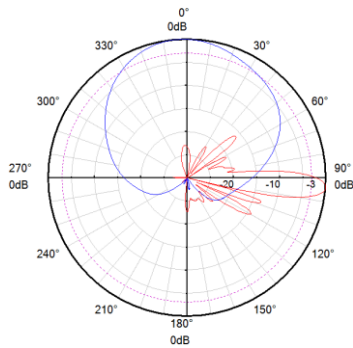
**Integrated RET S/N:**

- a HWxxxx.....Lr1
- b HWxxxx.....Ly1
- c HWxxxx.....CLy2
- d HWxxxx.....CRy3
- e HWxxxx.....Ry4
- f HWxxxx.....Rr2

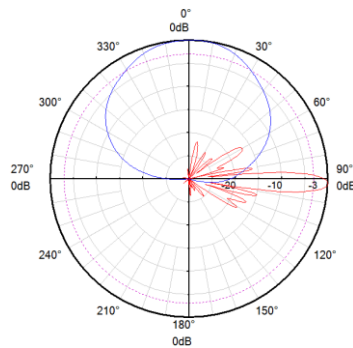


r - Red                      y - Yellow  
C - Center array      L - Left array              R - Right array

**Pattern sample for reference**



617 - 894 MHz



1695 - 2690 MHz

## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |   |             |             |             |
|--|----------------|---|-----------|-----------|-----------|---|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (690 - 960) (Lr1/Rr2)                             |           |           |           | 2 x (1695 - 2690) (LTy2/RTy4)                         |             |             |             |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |           |           |           |   |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 15.7  | 16.1      | 16.3      | 16.4      | 16.8  | 17.0        | 17.1        | 17.3        |
|  | over all Tilts | 15.6 ±0.5   | 16.0 ±0.5 | 16.2 ±0.5 | 16.3 ±0.5 | 16.7 ±0.6   | 16.9 ±0.5   | 17.0 ±0.5   | 17.2 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 16      | > 16      | > 16      | > 16  | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 70 ±6   | 67 ±6     | 66 ±6     | 64 ±6     | 67 ±6   | 65 ±6       | 60 ±6       | 58 ±6       |
| Vertical 3dB beam width (°)                                    |                | 8.8 ±0.8  | 8.1 ±0.4  | 7.7 ±0.5  | 7.2 ±0.4  | 7.2 ±0.5  | 6.3 ±0.6    | 5.6 ±0.4    | 5.1 ±0.4    |
| VSWR   |                | < 1.5   |           |           |           |   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           |   |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 26  |           |           |           | ≥ 28  |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 21  | > 23      | > 24      | > 24      | > 25  | > 25        | > 25        | > 25        |
| Cross polar ratio (dB)   |                | 0°  | > 18      | > 18      | > 18      | > 18  | > 18        | > 18        | > 17        |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                    |           |           |           | 250 (at 50°C ambient temperature)*                    |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |   |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |           |   |             |             |             |
| Grounding  |                | DC Ground   |           |           |           |   |             |             |             |

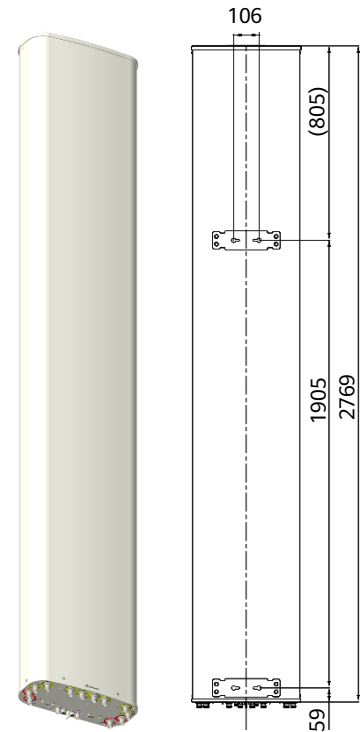
| Electrical Properties  |                |   |             |             |             |             |      |  |  |
|--|----------------|---|-------------|-------------|-------------|-------------|------|--|--|
| Frequency range (MHz)  |                | 2 x (1427- 2690) (LBy1/RBy3)                          |             |             |             |             |      |  |  |
|  |                | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |      |  |  |
| Polarization   |                | +45°, -45°  |             |             |             |             |      |  |  |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |             |             |             |             |      |  |  |
| Gain (dBi)   | at mid Tilt    | 15.7  | 16.8        | 17.0        | 17.2        | 17.5        |      |  |  |
|  | over all Tilts | 15.6 ±0.6   | 16.7 ±0.5   | 16.9 ±0.5   | 17.1±0.5    | 17.4 ±0.5   |      |  |  |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 16        | > 16        | > 16        | > 16        |      |  |  |
| Horizontal 3dB beam width (°)                                  |                | 70 ±7   | 69 ±6       | 66 ±6       | 62 ±6       | 59 ±6       |      |  |  |
| Vertical 3dB beam width (°)                                    |                | 9.0 ±0.5  | 7.1 ±0.7    | 6.3 ±0.5    | 5.6 ±0.4    | 5.1 ±0.4    |      |  |  |
| VSWR   |                | < 1.5   |             | < 1.5       |             |             |      |  |  |
| Cross polar isolation (dB)                                     |                | ≥ 28  |             | ≥ 28        |             |             |      |  |  |
| Interband isolation (dB)                                       |                | ≥ 28  |             | ≥ 28        |             |             |      |  |  |
| Front to back ratio, ±30° (dB)                                 |                | > 24  | > 26        | > 26        | > 26        | > 25        |      |  |  |
| Cross polar ratio (dB)   |                | 0°  | > 17        | > 18        | > 18        | > 18        | > 17 |  |  |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                    |             |             |             |             |      |  |  |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |             |      |  |  |
| Impedance (Ω)  |                | 50  |             |             |             |             |      |  |  |
| Grounding  |                | DC Ground   |             |             |             |             |      |  |  |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2769 x 449 x 196  |
| Packing dimensions (H x W x D) (mm) | 2975 x 540 x 245  |
| Antenna weight (kg)                 | 52.5  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 69.4 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 840 (at 150 km/h)<br>Lateral: 515 (at 150 km/h)<br>Maximum: 1105 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 12 x 4.3-10 Female  |
| Connector position                  | Bottom  |

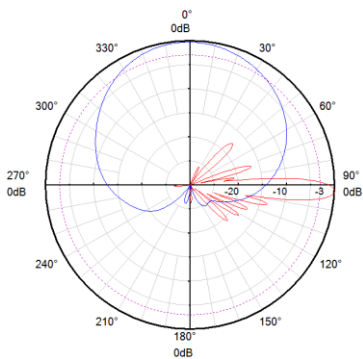


2L4H Band

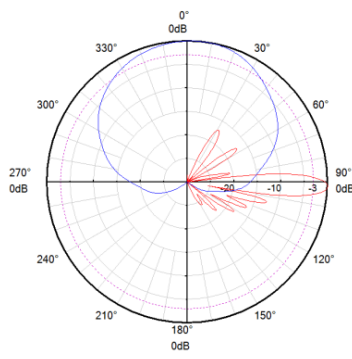
**Accessories**

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |

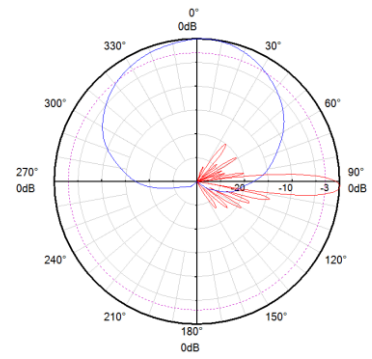
**Pattern sample for reference**



690 - 960 MHz



1427 - 2690 MHz



1695 - 2690 MHz



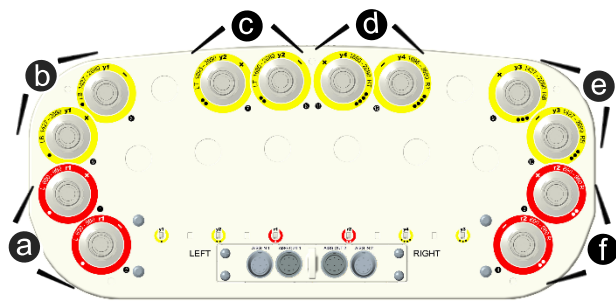
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

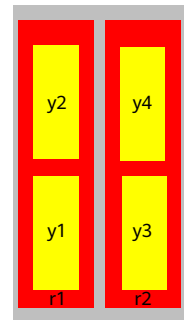
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a HWxxx.....Lr1
- b HWxxx.....LBy1
- c HWxxx.....LTy2
- d HWxxx.....RTy4
- e HWxxx.....RBy3
- f HWxxx.....Rr2



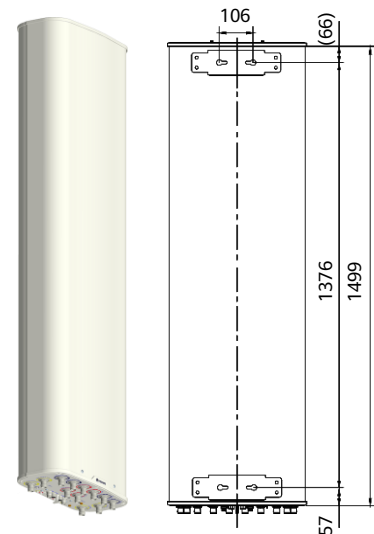
r - Red                      y - Yellow  
 L - Left array            R - Right array  
 T - Top array             B - Bottom array

## Antenna Specifications

| Electrical Properties  |   |           |           |           |   |             |                   |           |
|--|---|-----------|-----------|-----------|---|-------------|-------------------|-----------|
| Frequency range (MHz)  | 2 x (690 - 960)                                       |           |           |           | 2 x (1695 - 2200)                                     |             | 2 x (2490 - 2690) |           |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2490 - 2690       |           |
| Polarization   | +45°, -45°  |           |           |           |   |             |                   |           |
| Electrical downtilt (°)  | 0 - 14, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |                   |           |
| Gain (dBi)   | at mid Tilt   | 13.8      | 14.2      | 14.4      | 14.5  | 16.7        | 16.9              | 17.8      |
|  | over all Tilts  | 13.7 ±0.5 | 14.1 ±0.5 | 14.3 ±0.5 | 14.4 ±0.5   | 16.5 ±0.5   | 16.8 ±0.5         | 17.6 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 17      | > 17      | > 16      | > 16  | > 16        | > 16              |           |
| Horizontal 3dB beam width (°)                                  | 66 ±5   | 63 ±5     | 62 ±5     | 60 ±5     | 65 ±5   | 63 ±5       | 60 ±5             |           |
| Vertical 3dB beam width (°)                                    | 15.3 ±1.2   | 14.0 ±1.1 | 13.3 ±1.0 | 12.2 ±0.8 | 6.5 ±0.7  | 5.8 ±0.5    | 5.0 ±0.5          |           |
| VSWR   | < 1.5   |           |           |           |   |             |                   |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           |   |             |                   |           |
| Interband isolation (dB)                                       | ≥ 28  |           |           |           |   |             |                   |           |
| Front to back ratio, ±30° (dB)                                 | > 22  | > 24      | > 24      | > 25      | > 26  | > 27        | > 27              |           |
| Cross polar ratio (dB)   | 0°  | > 16      | > 18      | > 19      | > 20  | > 15        | > 16              | > 18      |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature)                     |             |                   |           |
| Total power (W)  | 960 (at 50°C ambient temperature)                     |           |           |           |   |             |                   |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           | ≤ -150 (2 x 43 dBm carrier)                           |             |                   |           |
| Impedance (Ω)  | 50  |           |           |           |   |             |                   |           |
| Grounding  | DC Ground   |           |           |           |   |             |                   |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1499 x 429 x 196   |
| Packing dimensions (H x W x D) (mm) | 1740 x 515 x 250   |
| Antenna weight (kg)                 | 31.3   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 41.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 410 (at 150 km/h)<br>Lateral: 245 (at 150 km/h)<br>Maximum: 540 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 12 x 4.3-10 Female   |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 16 ° | 2.1 kg | 1 (Separate packing) |

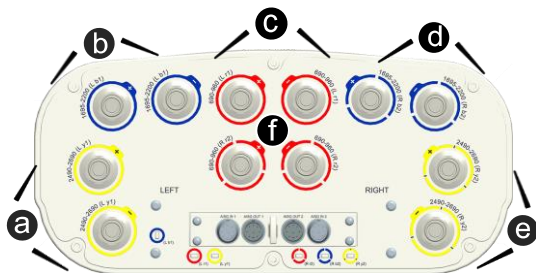
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

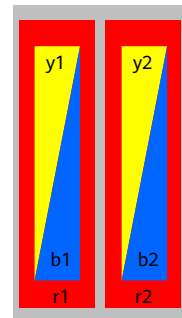
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



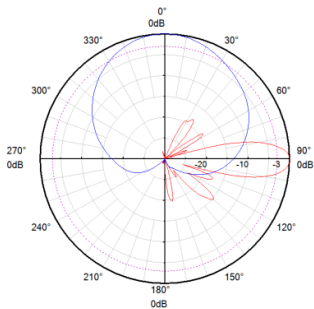
#### Integrated RET S/N:

- a HWxxxx.....Ly1
- b HWxxxx.....Lb1
- c HWxxxx.....Lr1
- d HWxxxx.....Rb2
- e HWxxxx.....Ry2
- f HWxxxx.....Rr2

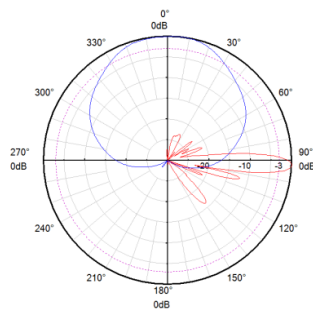
r - Red      y - Yellow      b - Blue  
 L - Left array      R - Right array



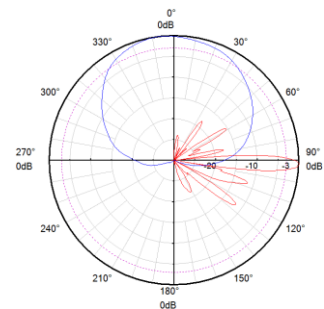
#### Pattern sample for reference



690 - 960 MHz



1695 - 2200 MHz



2490 - 2690 MHz

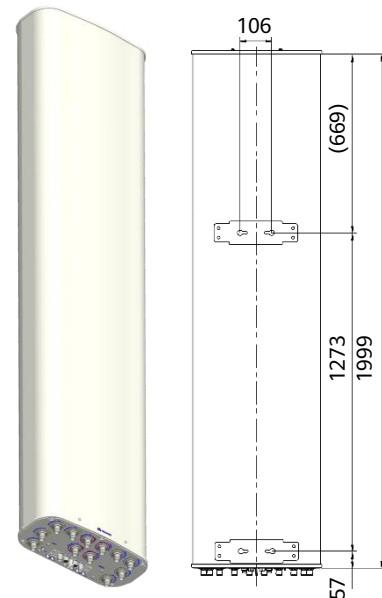
## Antenna Specifications

| Electrical Properties          |  |   |                |            |            |   |             |             |             |            |            |
|--------------------------------|--|---|----------------|------------|------------|---|-------------|-------------|-------------|------------|------------|
| Frequency range (MHz)          |  | 2 x (690 - 960)                                       |                |            |            | 4 x (1695 - 2690)                                     |             |             |             |            |            |
|                                |  | 690 - 803   | 790 - 862      | 824 - 894  | 880 - 960  | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |            |            |
| Polarization                   |  | +45°, -45°  |                |            |            |   |             |             |             |            |            |
| Electrical downtilt (°)        |  | 0 - 10, continuously adjustable, each band separately |                |            |            | 2 - 12, continuously adjustable, each band separately |             |             |             |            |            |
| Gain (dBi)                     | Bottom   | at mid Tilt   | 14.9           | 15.5       | 15.8       | 16.0  |             |             |             |            |            |
|                                |  | over all Tilts  | 14.7 ± 0.5     | 15.3 ± 0.5 | 15.6 ± 0.5 | 15.8 ± 0.5  |             |             |             |            |            |
|                                | Top  | at mid Tilt   |                |            |            |   | 15.5        | 15.9        | 16.4        | 16.7       |            |
|                                |  | over all Tilts  |                |            |            |   | 15.4 ± 0.5  | 15.8 ± 0.5  | 16.3 ± 0.4  | 16.6 ± 0.6 |            |
|                                | Side lobe suppression for first side lobe above main beam (dB) | 0°  | at mid Tilt    |            |            |   |             | 15.0        | 15.4        | 15.7       | 16.2       |
|                                |  |   | over all Tilts |            |            |   |             | 14.9 ± 0.6  | 15.3 ± 0.6  | 15.6 ± 0.5 | 16.1 ± 0.5 |
| Horizontal 3dB beam width (°)  |  | 68 ± 4  | 63 ± 3         | 61 ± 3     | 60 ± 3     | 63 ± 5  | 62 ± 5      | 61 ± 5      | 60 ± 5      |            |            |
| Vertical 3dB beam width (°)    | Bottom   | 10.5 ± 0.9  | 9.5 ± 0.8      | 9.2 ± 0.7  | 8.5 ± 0.7  |   |             |             |             |            |            |
|                                | Top  |   |                |            |            | 10.4 ± 0.6  | 9.4 ± 0.5   | 8.1 ± 0.3   | 7.4 ± 0.3   |            |            |
| VSWR                           |  | < 1.5   |                |            |            |   |             |             |             |            |            |
| Cross polar isolation (dB)     |  | ≥ 28  |                |            |            | ≥ 28  |             |             |             |            |            |
| Interband isolation (dB)       |  | ≥ 28  |                |            |            |   |             |             |             |            |            |
| Front to back ratio, ±30° (dB) |  | > 22  | > 25           | > 25       | > 24       | > 25  | > 25        | > 25        | > 25        |            |            |
| Cross polar ratio (dB)         |  | > 18  | > 18           | > 18       | > 20       | > 20  | > 20        | > 20        | > 20        |            |            |
| Max. power per input (W)       |  | 500 (at 50°C ambient temperature)                     |                |            |            | 250 (at 50°C ambient temperature)                     |             |             |             |            |            |
| Total power (W)                |  | 1000 (at 50°C ambient temperature)                    |                |            |            |   |             |             |             |            |            |
| Intermodulation IM3 (dBc)      |  | ≤ -153 (2 x 43 dBm carrier)                           |                |            |            |   |             |             |             |            |            |
| Impedance (Ω)                  |  | 50  |                |            |            |   |             |             |             |            |            |
| Grounding                      |  | DC Ground   |                |            |            |   |             |             |             |            |            |

- Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
- Electrical datasheet in XML format is available.

## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 429 x 196   |
| Packing dimensions (H x W x D) (mm) | 2270 x 515 x 235   |
| Antenna weight (kg)                 | 36.0   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 49.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 555 (at 150 km/h)<br>Lateral: 340 (at 150 km/h)<br>Maximum: 735 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 12 x 4.3-10 Female   |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12 ° | 3.1 kg | 1 (Separate packing) |

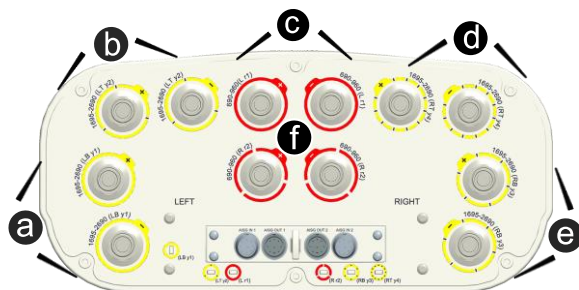
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

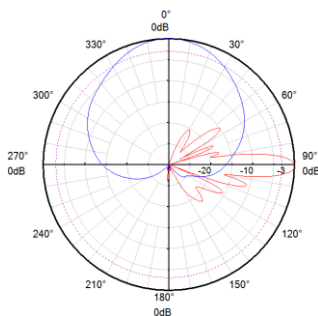
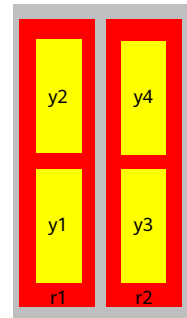
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



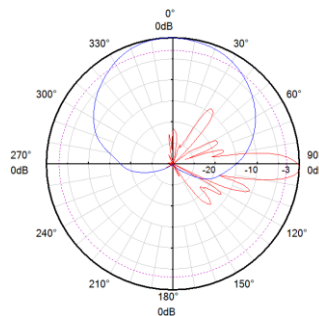
#### Integrated RET S/N:

- a HWxxxx.....LBy1
- b HWxxxx.....LTy2
- c HWxxxx.....Lr1
- d HWxxxx.....RTy4
- e HWxxxx.....RBy3
- f HWxxxx.....Rr2

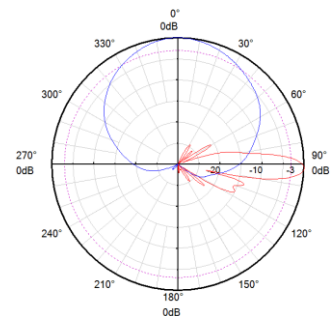
r - Red  
L - Left array  
T - Top array  
y - Yellow  
R - Right array  
B - Bottom array



690 - 960 MHz



1695 - 2690 MHz (Bottom)



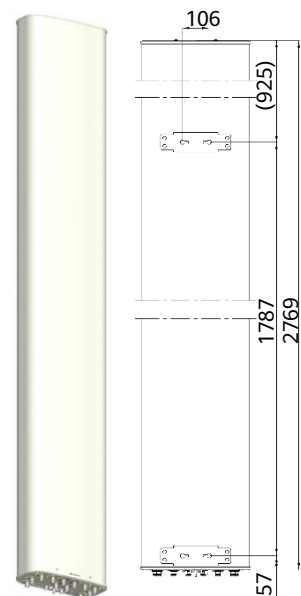
1695 - 2690 MHz (Top)

## Antenna Specifications

| Electrical Properties  |        |   |           |           |           |   |             |             |             |           |
|--|--------|---|-----------|-----------|-----------|---|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  |        | 2 x (690 - 960)                                       |           |           |           | 4 x (1695 - 2690)                                     |             |             |             |           |
|  |        | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   |        | +45°, -45°  |           |           |           |   |             |             |             |           |
| Electrical downtilt (°)  |        | 0 - 10, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |           |
| Gain (dBi)   | Bottom | at mid Tilt   | 15.8      | 16.5      | 16.7      | 17.0  |             |             |             |           |
|  |        | over all Tilts  | 15.5 ±0.5 | 16.3 ±0.5 | 16.5 ±0.5 | 16.7 ±0.5   |             |             |             |           |
|  | Top    | at mid Tilt   |           |           |           |   | 16.6        | 17.0        | 17.2        | 17.6      |
|  |        | over all Tilts  |           |           |           |   | 16.4 ±0.6   | 16.8 ±0.5   | 17.0 ±0.5   | 17.4 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 16  | > 17      | > 17      | > 17      | > 16  | > 16        | > 16        | > 16        |           |
| Horizontal 3dB beam width (°)                                  |        | 68 ±5   | 65 ±5     | 62 ±5     | 60 ±5     | 65 ±5   | 63 ±5       | 61 ±5       | 60 ±5       |           |
| Vertical 3dB beam width (°)                                    |        | 8.8 ±0.7  | 8.0 ±0.6  | 7.8 ±0.5  | 7.5 ±0.5  | 7.0 ±0.7  | 6.0 ±0.5    | 5.5 ±0.4    | 5.0 ±0.5    |           |
| VSWR   |        | < 1.5   |           |           |           |   |             |             |             |           |
| Cross polar isolation (dB)                                     |        | ≥ 28  |           |           |           |   |             |             |             |           |
| Interband isolation (dB)                                       |        | ≥ 28  |           |           |           |   |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 |        | > 23  | > 26      | > 26      | > 26      | > 26  | > 27        | > 27        | > 28        |           |
| Cross polar ratio (dB) 0°                                      |        | > 17  | > 18      | > 19      | > 20      | > 15  | > 16        | > 17        | > 17        |           |
| Max. power per input (W)                                       |        | 500 (at 50°C ambient temperature)                     |           |           |           | 250 (at 50°C ambient temperature)                     |             |             |             |           |
| Total power (W)  |        | 1200 (at 50°C ambient temperature)                    |           |           |           |   |             |             |             |           |
| Intermodulation IM3 (dBc)                                      |        | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |   |             |             |             |           |
| Impedance (Ω)  |        | 50  |           |           |           |   |             |             |             |           |
| Grounding  |        | DC Ground   |           |           |           |   |             |             |             |           |

- Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
- Electrical datasheet in XML format is available.

| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2769 x 429 x 196  |
| Packing dimensions (H x W x D) (mm) | 2980 x 530 x 275  |
| Antenna weight (kg)                 | 45.6  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 66.1 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 805 (at 150 km/h)<br>Lateral: 495 (at 150 km/h)<br>Maximum: 1060 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 12 x 4.3-10 Female  |
| Connector position                  | Bottom  |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |

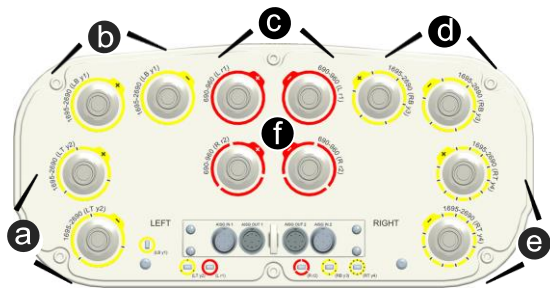
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

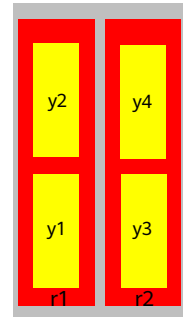
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Integrated RET S/N:**

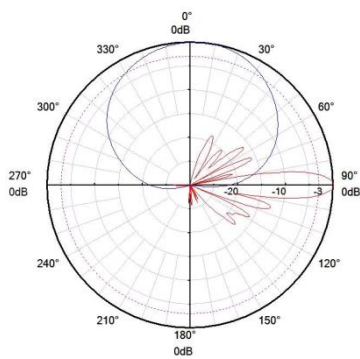
- a HWxxxx.....LTy2
- b HWxxxx.....LBy1
- c HWxxxx.....Lr1
- d HWxxxx.....RBy3
- e HWxxxx.....RTy4
- f HWxxxx.....Rr2



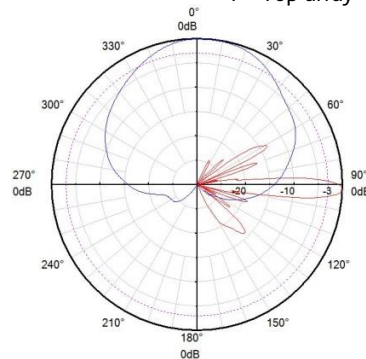
r - Red  
L - Left array  
T - Top array

y - Yellow  
R - Right array  
B - Bottom array

**Pattern sample for reference**



**690 - 960 MHz**



**1695 - 2690 MHz**

## Antenna Specifications

| Electrical Properties  |                |   |           |           |                                    |             |             |             |             |
|--|----------------|---|-----------|-----------|------------------------------------|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 690 - 862 (r1)  |           | 880 - 960 | 1427 - 2690 (Ry3)                  |             |             |             |             |
|  |                | 690 - 803   | 790 - 862 | (r2)      | 1427 - 1518                        | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |           |           | +45°, -45°                         |             |             |             |             |
| Electrical downtilt (°)  |                | 2 - 16, continuously adjustable, each band separately |           |           | 2 - 12, continuously adjustable    |             |             |             |             |
| Gain (dBi)   | at mid Tilt    | 13.8  | 14.2      | 14.6      | 15.8                               | 17.3        | 17.5        | 17.8        | 18.1        |
|  | over all Tilts | 13.7 ±0.5   | 14.1 ±0.5 | 14.5 ±0.6 | 15.7 ±0.5                          | 17.1 ±0.5   | 17.3 ±0.5   | 17.5 ±0.4   | 17.7 ±0.4   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 15      | > 16      | > 15                               | > 17        | > 17        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 66 ±3.0   | 64 ±2.8   | 61 ±3.5   | 74 ±6.0                            | 69 ±4.5     | 68 ±5.2     | 63 ±4.7     | 59 ±4.0     |
| Vertical 3dB beam width (°)                                    |                | 14.7 ±1.2   | 13.1 ±0.6 | 12.3 ±0.5 | 8.0 ±0.4                           | 6.5 ±0.5    | 5.9 ±0.5    | 5.2 ±0.4    | 4.8 ±0.4    |
| VSWR   |                | < 1.5   |           |           | < 1.5                              | < 1.5       |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           | ≥ 28                               | ≥ 28        |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           | ≥ 28                               | ≥ 28        |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 22  | > 23      | > 24      | > 22                               | > 24        | > 26        | > 26        | > 24        |
| Cross polar ratio (dB)   |                | 0°  | > 21      | > 22      | > 22                               | > 19        | > 20        | > 20        | > 17        |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                    |           |           | 250 (at 50°C ambient temperature)* |             |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                           |           |           | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |                                    |             |             |             |             |
| Grounding  |                | DC Ground   |           |           |                                    |             |             |             |             |

| Electrical Properties  |                |   |             |                   |                                    |             |             |             |      |
|--|----------------|---|-------------|-------------------|------------------------------------|-------------|-------------|-------------|------|
| Frequency range (MHz)  |                | 1695 - 2200 (b1)                                      |             | 2490 - 2690 (Ly1) | 1695 - 2690 (Cy2)                  |             |             |             |      |
|  |                | 1695 - 1990   | 1920 - 2200 |                   | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |      |
| Polarization   |                | +45°, -45°  |             |                   |                                    |             |             |             |      |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |             |                   |                                    |             |             |             |      |
| Gain (dBi)   | at mid Tilt    | 16.9  | 17.2        | 17.8              | 17.3                               | 17.5        | 17.9        | 18.0        |      |
|  | over all Tilts | 16.7 ±0.5   | 17.0 ±0.6   | 17.8 ±0.5         | 17.1 ±0.5                          | 17.3 ±0.5   | 17.7 ±0.4   | 17.8 ±0.5   |      |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 18        | > 16              | > 16                               | > 16        | > 17        | > 17        |      |
| Horizontal 3dB beam width (°)                                  |                | 68 ±5.2   | 66 ±5.0     | 58 ±4.5           | 64 ±5.0                            | 62 ±6.0     | 58 ±5.3     | 58 ±5.1     |      |
| Vertical 3dB beam width (°)                                    |                | 6.5 ±0.5  | 5.9 ±0.5    | 4.7 ±0.3          | 6.5 ±0.6                           | 5.8 ±0.5    | 5.3 ±0.4    | 4.7 ±0.3    |      |
| VSWR   |                | < 1.5   |             |                   | < 1.5                              |             |             |             |      |
| Cross polar isolation (dB)                                     |                | ≥ 28  |             |                   | ≥ 28                               |             |             |             |      |
| Interband isolation (dB)                                       |                | ≥ 28  |             |                   | ≥ 28                               |             |             |             |      |
| Front to back ratio, ±30° (dB)                                 |                | > 24  | > 27        | > 26              | > 27                               | > 28        | > 28        | > 27        |      |
| Cross polar ratio (dB)   |                | 0°  | > 22        | > 22              | > 20                               | > 22        | > 19        | > 17        | > 21 |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                    |             |                   | 250 (at 50°C ambient temperature)* |             |             |             |      |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                           |             |                   | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |      |
| Impedance (Ω)  |                | 50  |             |                   |                                    |             |             |             |      |
| Grounding  |                | DC Ground   |             |                   |                                    |             |             |             |      |

\* Total power : 1000 W (at 50°C ambient temperature)

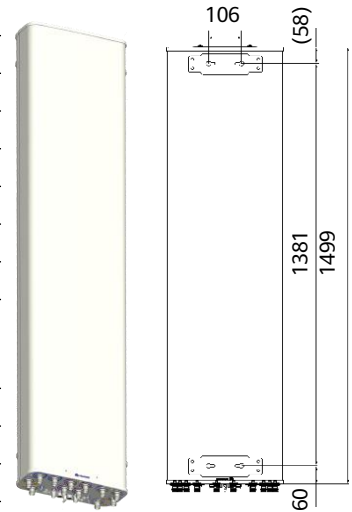
1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.



**Mechanical Properties**

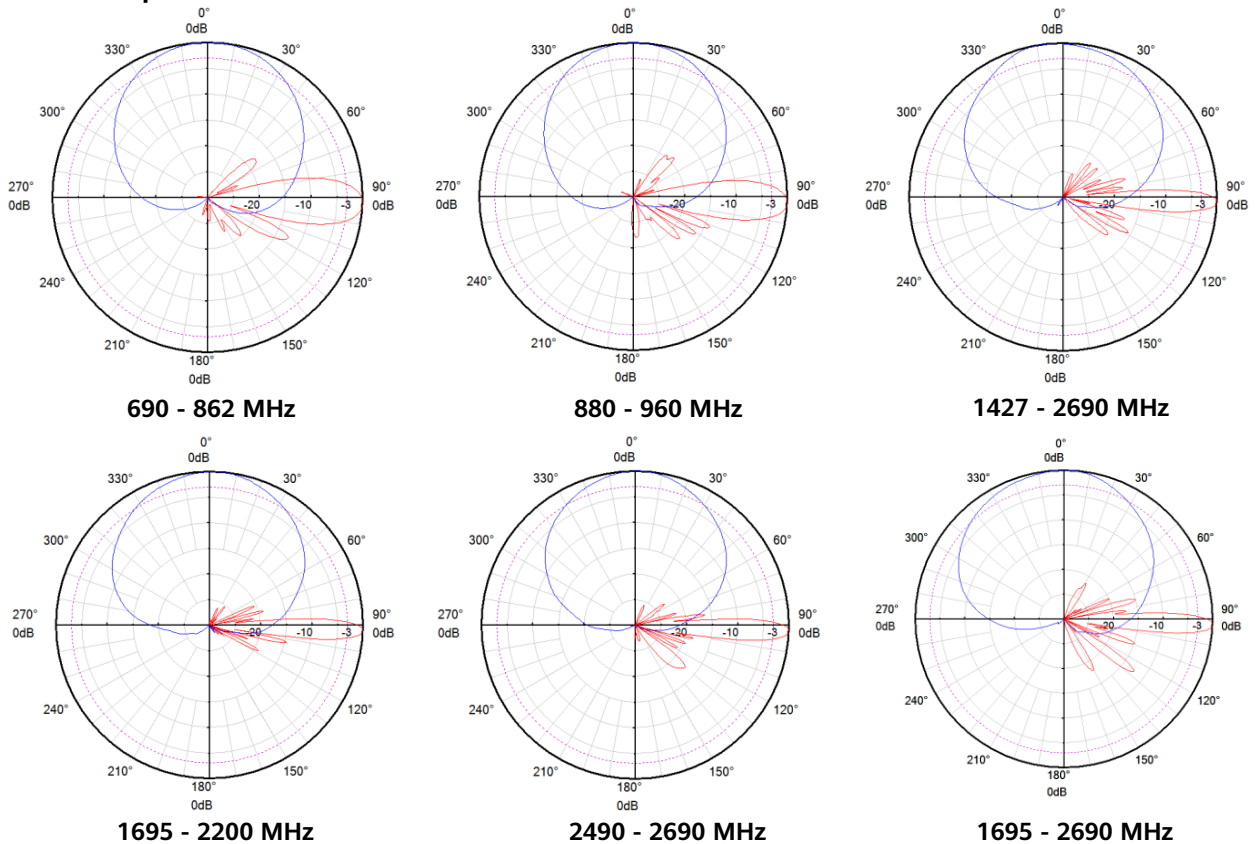
|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1499 x 369 x 149   |
| Packing dimensions (H x W x D) (mm) | 1790 x 435 x 240   |
| Antenna weight (kg)                 | 28.0   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 40.2 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 720 (at 150 km/h)<br>Lateral: 140 (at 150 km/h)<br>Rear side: 715 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 12 x 4.3-10 Female   |
| Connector position                  | Bottom   |



**Accessories**

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 16 ° | 2.1 kg | 1 (Separate packing) |

**Pattern sample for reference**



### Integrated RET Specifications

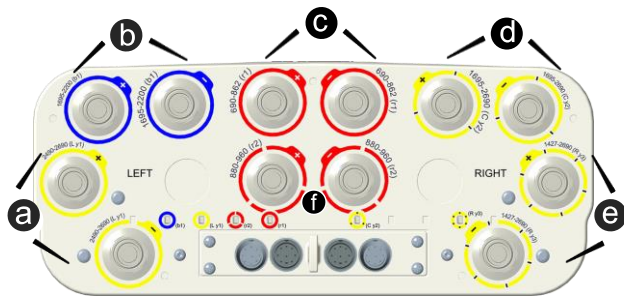
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

2L4H Band

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

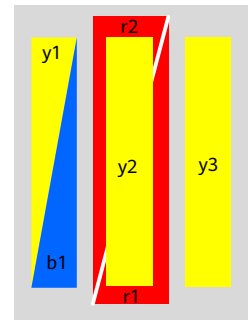
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a HWxxxx.....Ly1
- b HWxxxx.....b1
- c HWxxxx.....r1
- d HWxxxx.....Cy2
- e HWxxxx.....Ry3
- f HWxxxx.....r2

r - Red                      y - Yellow  
C - Center array        L - Left array



b - Blue  
R - Right array

## Antenna Specifications

| Electrical Properties  |   |           |           |                                    |             |             |             |             |             |
|--|---|-----------|-----------|------------------------------------|-------------|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  | 690 - 862   |           |           | 880 - 960                          | 1427 - 2690 |             |             |             |             |
|  | 690 - 803   | 790 - 862 |           |                                    | 1427 - 1518 | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   | +45°, -45°  |           |           | +45°, -45°                         |             |             |             |             |             |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |           |           |                                    |             |             |             |             |             |
| Gain (dBi)   | at mid Tilt   | 15.2      | 15.5      | 15.8                               | 15.9        | 17.3        | 17.5        | 17.8        | 18.1        |
|  | over all Tilts  | 15.1 ±0.5 | 15.3 ±0.5 | 15.7 ±0.5                          | 15.8 ±0.5   | 17.1 ±0.5   | 17.2 ±0.5   | 17.5 ±0.4   | 17.6 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 15      | > 17      | > 15                               | > 17        | > 17        | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  | 67 ±2.5   | 65 ±2.6   | 61 ±2.3   | 73 ±6.0                            | 69 ±5.5     | 68 ±5.7     | 63 ±4.7     | 58 ±4.0     | 58 ±4.0     |
| Vertical 3dB beam width (°)                                    | 11.3 ±0.6   | 10.0 ±0.6 | 8.8 ±0.4  | 8.0 ±0.4                           | 6.5 ±0.5    | 5.9 ±0.5    | 5.1 ±0.4    | 4.8 ±0.4    | 4.8 ±0.4    |
| VSWR   | < 1.5   |           |           | < 1.5                              | < 1.5       |             |             |             |             |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           | ≥ 28                               | ≥ 28        |             |             |             |             |
| Interband isolation (dB)                                       | ≥ 28  |           |           | ≥ 28                               | ≥ 28        |             |             |             |             |
| Front to back ratio, ±30° (dB)                                 | > 23  | > 25      | > 25      | > 22                               | > 24        | > 24        | > 27        | > 25        | > 25        |
| Cross polar ratio (dB)   | 0°  | > 22      | > 22      | > 22                               | > 19        | > 22        | > 21        | > 20        | > 17        |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)*                    |           |           | 250 (at 50°C ambient temperature)* |             |             |             |             |             |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                           |           |           | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |             |             |
| Impedance (Ω)  | 50  |           |           |                                    |             |             |             |             |             |
| Grounding  | DC Ground   |           |           |                                    |             |             |             |             |             |

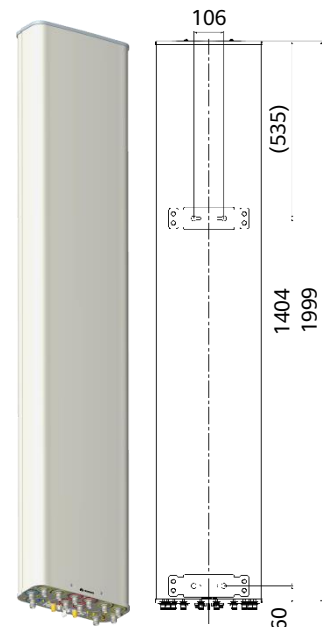
| Electrical Properties  |   |             |             |             |                                    |             |             |           |  |
|--|---|-------------|-------------|-------------|------------------------------------|-------------|-------------|-----------|--|
| Frequency range (MHz)  | 1695 - 2690   |             |             |             | 1695 - 2200                        |             | 2490 - 2690 |           |  |
|  | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990                        | 1920 - 2200 |             |           |  |
| Polarization   | +45°, -45°  |             |             |             | +45°, -45°                         |             |             |           |  |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |             |             |                                    |             |             |           |  |
| Gain (dBi)   | at mid Tilt   | 17.3        | 17.5        | 18.0        | 18.2                               | 16.9        | 17.3        | 18.0      |  |
|  | over all Tilts  | 17.1 ±0.5   | 17.3 ±0.5   | 17.8 ±0.4   | 18.0 ±0.6                          | 16.8 ±0.5   | 17.1 ±0.5   | 17.7 ±0.5 |  |
| Side lobe suppression for first side lobe above main beam (dB) | > 17  | > 17        | > 16        | > 16        | > 17                               | > 18        | > 17        | > 17      |  |
| Horizontal 3dB beam width (°)                                  | 65 ±4.8   | 64 ±6.0     | 58 ±6.8     | 58 ±6.9     | 67 ±4.2                            | 66 ±4.6     | 58 ±4.4     | 58 ±4.4   |  |
| Vertical 3dB beam width (°)                                    | 6.5 ±0.5  | 5.9 ±0.5    | 5.1 ±0.4    | 4.8 ±0.3    | 6.5 ±0.5                           | 5.9 ±0.4    | 4.8 ±0.4    | 4.8 ±0.4  |  |
| VSWR   | < 1.5   |             |             |             | < 1.5                              |             |             |           |  |
| Cross polar isolation (dB)                                     | ≥ 28  |             |             |             | ≥ 28                               |             |             |           |  |
| Interband isolation (dB)                                       | ≥ 28  |             |             |             | ≥ 28                               |             |             |           |  |
| Front to back ratio, ±30 (dB)                                  | > 27  | > 28        | > 27        | > 27        | > 24                               | > 26        | > 25        | > 25      |  |
| Cross polar ratio (dB)   | 0°  | > 21        | > 21        | > 17        | > 22                               | > 22        | > 22        | > 21      |  |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |             |             | 250 (at 50°C ambient temperature)* |             |             |           |  |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             | ≤ -150 (2 x 43 dBm carrier)        |             |             |           |  |
| Impedance (Ω)  | 50  |             |             |             |                                    |             |             |           |  |
| Grounding  | DC Ground   |             |             |             | DC Ground                          |             |             |           |  |

\* Total power : 900 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

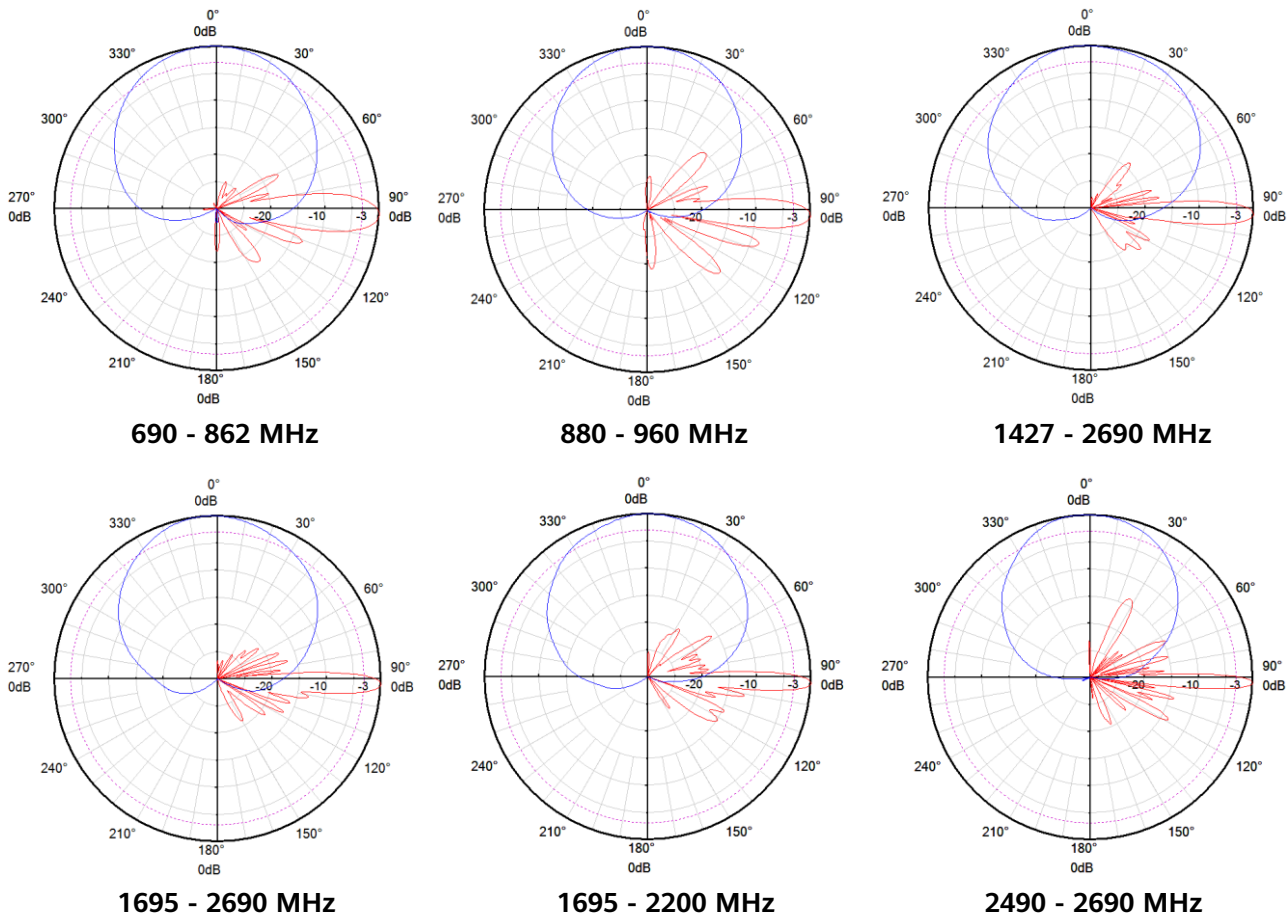
| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 369 x 149   |
| Packing dimensions (H x W x D) (mm) | 2265 x 435 x 240   |
| Antenna weight (kg)                 | 33.2   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 49.5 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 580 (at 150 km/h)<br>Lateral: 195 (at 150 km/h)<br>Maximum: 700 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 12 x 4.3-10 Female   |
| Connector position                  | Bottom   |



2L4H Band

| Accessories  |           |                               |        |                      |
|--------------|-----------|-------------------------------|--------|----------------------|
| Item         | Model     | Description                   | Weight | Units per antenna    |
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 12 ° | 2.1 kg | 1 (Separate packing) |

Pattern sample for reference



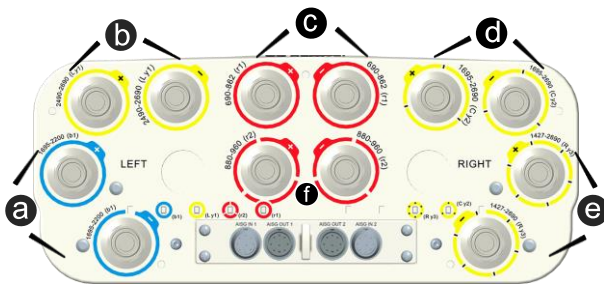
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

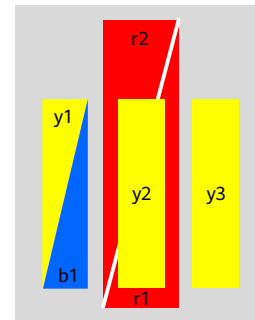
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Integrated RET S/N:**

- Ⓐ HWxxxx.....b1
- Ⓑ HWxxxx.....Ly1
- Ⓒ HWxxxx.....r1
- Ⓓ HWxxxx.....Cy2
- Ⓔ HWxxxx.....Ry3
- Ⓕ HWxxxx.....r2

r - Red                      y - Yellow                      b - Blue  
 C - Center array        L - Left array                R - Right array



## Antenna Specifications

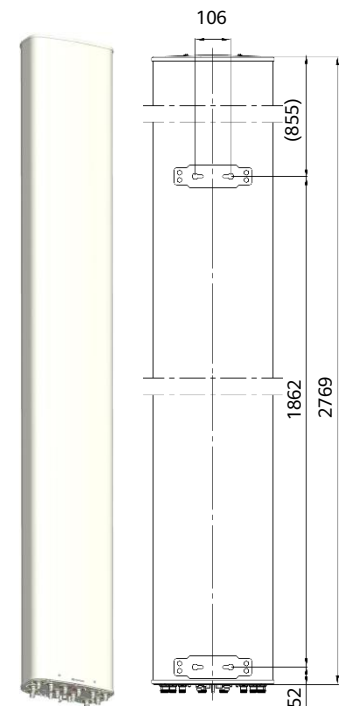
| Electrical Properties  |        |  |           |           |                                   |             |             |             |           |
|--|--------|--|-----------|-----------|-----------------------------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  |        | 690 - 862  |           | 880 - 960 | 4 x (1710 - 2690)                 |             |             |             |           |
|  |        | 690 - 803  | 790 - 862 |           | 1710 - 1990                       | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   |        | +45°, -45°   |           |           |                                   |             |             |             |           |
| Electrical downtilt (°)  |        | 0 - 10, continuously adjustable, each band separately  |           |           |                                   |             |             |             |           |
| Gain (dBi)   | Bottom | at mid Tilt  | 16.2      | 16.5      | 16.9                              |             |             |             |           |
|  |        | over all Tilts   | 16.0 ±0.5 | 16.3 ±0.5 | 16.8 ±0.6                         |             |             |             |           |
|  | Top    | at mid Tilt  |           |           |                                   | 17.3        | 17.4        | 17.6        | 18.1      |
|  |        | over all Tilts   |           |           |                                   | 17.2 ±0.5   | 17.4 ±0.5   | 17.5 ±0.6   | 18.0 ±0.6 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 20   | > 18      | > 17      | > 20                              | > 20        | > 19        | > 19        |           |
| Horizontal 3dB beam width (°)                                  |        | 66 ±2.7  | 65 ±2.9   | 63 ±4.1   | 66 ±4.7                           | 63 ±3.3     | 61 ±5.2     | 60 ±4.4     |           |
| Vertical 3dB beam width (°)                                    |        | 8.6 ±1.1   | 7.4 ±0.9  | 6.5 ±0.6  | 7.6 ±0.6                          | 6.8 ±0.5    | 6.1 ±0.5    | 5.6 ±0.2    |           |
| VSWR   |        | < 1.5  |           |           |                                   |             |             |             |           |
| Cross polar isolation (dB)                                     |        | ≥ 28   |           | ≥ 28      | ≥ 28                              |             |             |             |           |
| Interband isolation (dB)                                       |        | ≥ 28 (690 - 862 // 880 - 960 MHz)<br>≥ 30 (690 - 862 // 1710 - 2690 MHz)<br>≥ 30 (880 - 960 // 1710 - 2690 MHz)<br>≥ 30 (1710 - 2690 // 1710 - 2690 MHz) |           |           |                                   |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 |        | > 25   | > 27      | > 26      | > 30                              | > 30        | > 27        | > 27        |           |
| Cross polar ratio (dB) 0°                                      |        | > 18   | > 22      | > 22      | > 19                              | > 19        | > 21        | > 20        |           |
| Max. power per input (W)                                       |        | 400 (at 50°C ambient temperature)  |           |           | 250 (at 50°C ambient temperature) |             |             |             |           |
| Total power (W)  |        | 1000 (at 50°C ambient temperature)   |           |           |                                   |             |             |             |           |
| Intermodulation IM3 (dBc)                                      |        | ≤ -150 (2 x 43 dBm carrier)  |           |           |                                   |             |             |             |           |
| Impedance (Ω)  |        | 50   |           |           |                                   |             |             |             |           |
| Grounding  |        | DC Ground  |           |           |                                   |             |             |             |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2769 x 359 x 178  |
| Packing dimensions (H x W x D) (mm) | 2980 x 425 x 255  |
| Antenna weight (kg)                 | 45.1  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 63.6 (included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal : 945 (at 150 km/h)<br>Lateral: 285 (at 150 km/h)<br>Maximum: 995 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 12 x 4.3-10 Female  |
| Connector position                  | Bottom  |

## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |



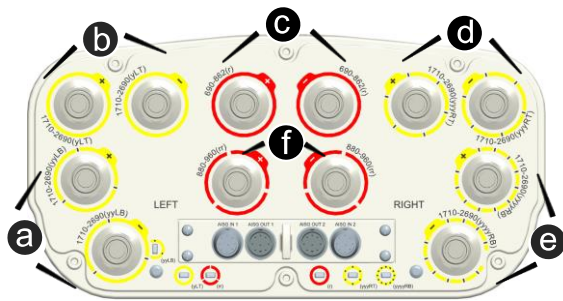
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

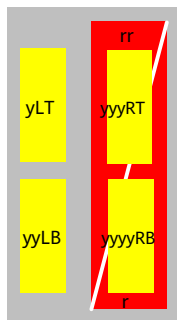
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



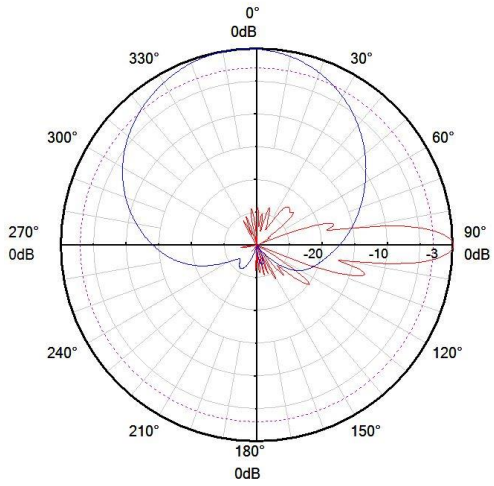
**Integrated RET S/N:**

- a HWxxxx.....yyLB
- b HWxxxx.....yLT
- c HWxxxx.....r
- d HWxxxx...yyyRT
- e HWxxxx..yyyyRB
- f HWxxxx.....rr

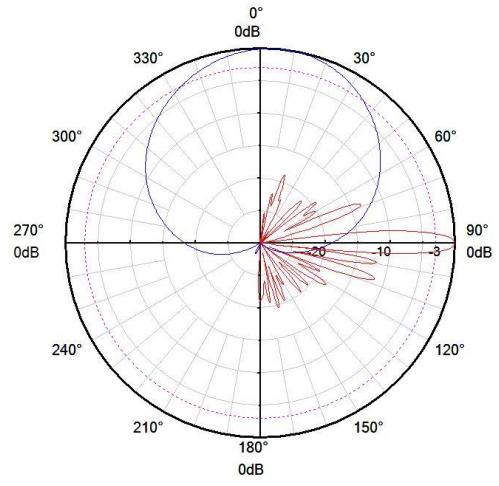
r - Red                      y - Yellow  
 L - Left array              R - Right array  
 T - Top array                B -Bottom array



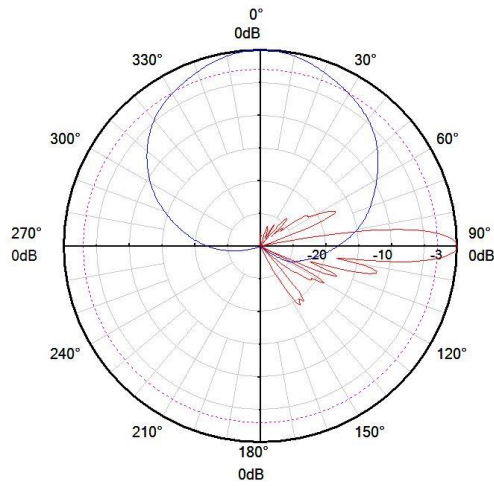
Pattern sample for reference



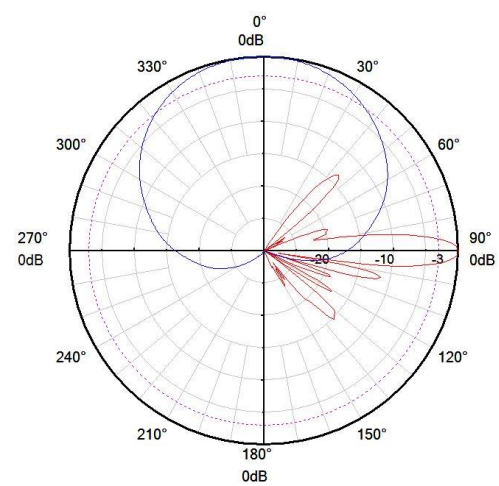
690 - 862 MHz



880 - 960 MHz



1710 - 2690 MHz  
(Top)



1710 - 2690 MHz  
(Bottom)

2LnH Band



## Antenna Specifications

| Electrical Properties  |                |   |            |            |            |   |             |             |             |
|--|----------------|---|------------|------------|------------|---|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (690 - 960)                                       |            |            |            | 2 x (1695 - 2690)                                     |             |             |             |
|  |                | 690 - 803   | 790 - 862  | 824 - 894  | 880 - 960  | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |            |            |            |   |             |             |             |
| Electrical downtilt (°)  |                | 0 - 14, continuously adjustable, each band separately |            |            |            | 2 - 12, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 13.7  | 14.0       | 14.1       | 14.3       | 16.7  | 17.2        | 17.4        | 17.6        |
|  | over all Tilts | 13.6 ± 0.5  | 14.0 ± 0.5 | 14.1 ± 0.5 | 14.2 ± 0.5 | 16.6 ± 0.5  | 17.1 ± 0.5  | 17.3 ± 0.5  | 17.5 ± 0.5  |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 16       | > 16       | > 16       | > 15  | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 69 ± 6  | 67 ± 6     | 66 ± 6     | 65 ± 6     | 68 ± 8  | 65 ± 6      | 60 ± 6      | 58 ± 6      |
| Vertical 3dB beam width (°)                                    |                | 15.1 ± 1.5  | 13.8 ± 0.9 | 13.3 ± 0.9 | 12.4 ± 0.8 | 6.9 ± 0.5   | 6.2 ± 0.6   | 5.5 ± 0.3   | 4.9 ± 0.4   |
| VSWR   |                | < 1.5   |            |            |            | < 1.5   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |            |            |            | ≥ 28  |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 26  |            |            |            | ≥ 26  |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 20  | > 21       | > 22       | > 22       | > 24  | > 26        | > 25        | > 26        |
| Cross polar ratio (dB)   |                | 0°  | > 18       | > 18       | > 18       | > 17  | > 17        | > 17        | > 18        |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                    |            |            |            | 250 (at 50°C ambient temperature)*                    |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |            |            |            | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |
| Impedance (Ω)  |                | 50  |            |            |            | 50  |             |             |             |
| Grounding  |                | DC Ground   |            |            |            | DC Ground   |             |             |             |

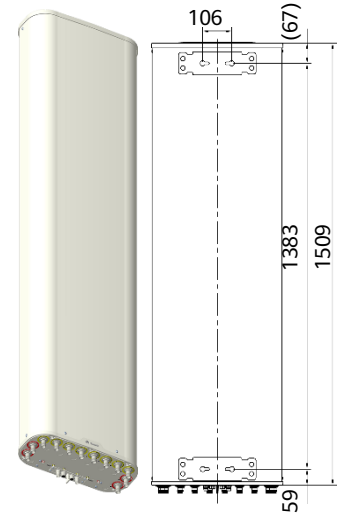
| Electrical Properties  |                |   |             |             |             |             |
|--|----------------|---|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (1427 - 2690)                                     |             |             |             |             |
|  |                | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |             |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |             |             |             |             |
| Gain (dBi)   | at mid Tilt    | 15.9  | 17.2        | 17.3        | 17.4        | 17.5        |
|  | over all Tilts | 15.8 ± 0.5  | 17.1 ± 0.5  | 17.2 ± 0.5  | 17.3 ± 0.5  | 17.4 ± 0.5  |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 16        | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 70 ± 7  | 69 ± 6      | 68 ± 6      | 66 ± 6      | 59 ± 7      |
| Vertical 3dB beam width (°)                                    |                | 8.8 ± 0.5   | 7.1 ± 0.5   | 6.3 ± 0.5   | 5.6 ± 0.3   | 5.1 ± 0.4   |
| VSWR   |                | < 1.5   | < 1.5       |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  | ≥ 28        |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 26  | ≥ 26        |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 23  | > 26        | > 25        | > 24        | > 24        |
| Cross polar ratio (dB)   |                | 0°  | > 18        | > 18        | > 18        | > 16        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                    |             |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |             |
| Impedance (Ω)  |                | 50  |             |             |             |             |
| Grounding  |                | DC Ground   |             |             |             |             |

\* Total power : 700 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1509 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 1760 x 540 x 250   |
| Antenna weight (kg)                 | 35.8   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 45.8 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 445 (at 150 km/h)<br>Lateral: 265 (at 150 km/h)<br>Maximum: 590 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 12 x 4.3-10 Female   |
| Connector position                  | Bottom   |

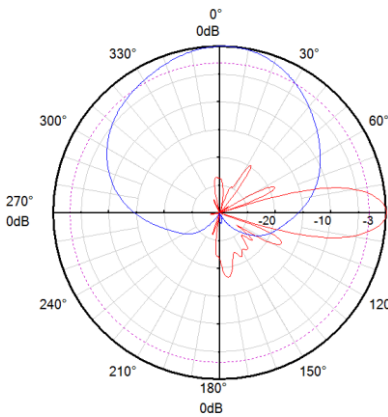


2LnH Band

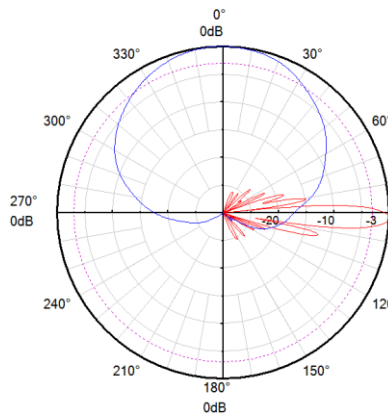
**Accessories**

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 16 ° | 2.1 kg | 1 (Separate packing) |

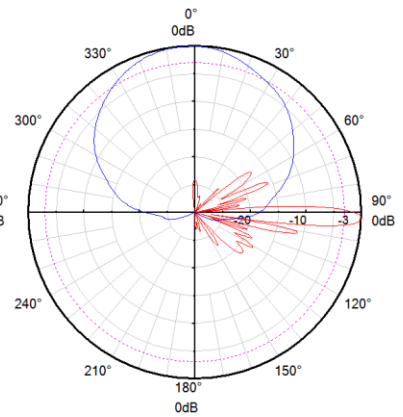
**Pattern sample for reference**



690 - 960 MHz



1427 - 2690 MHz



1695 - 2690 MHz

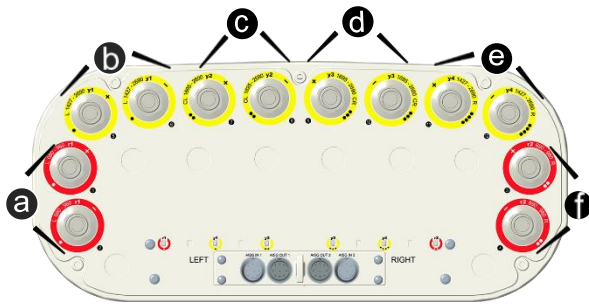
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

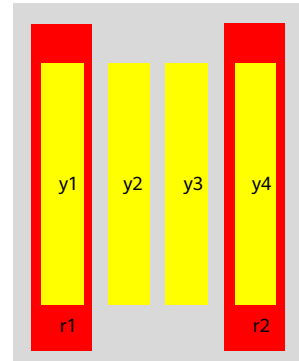
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Integrated RET S/N:**

- a** HWxxxx.....Lr1
- b** HWxxxx.....Ly1
- c** HWxxxx....CLy2
- d** HWxxxx....CRy3
- e** HWxxxx.....Ry4
- f** HWxxxx.....Rr2



r - Red                      y - Yellow  
L - Left array            R - Right array    C - Center array

## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |   |             |             |             |
|--|----------------|---|-----------|-----------|-----------|---|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (690 - 960) (Lr1/Rr2)                             |           |           |           | 2 x (1695 - 2690) (CLy2/CRy3)                         |             |             |             |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |           |           |           |   |             |             |             |
| Electrical downtilt (°)  |                | 0 - 10, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 14.6  | 14.9      | 15.1      | 15.3      | 16.6  | 17.2        | 17.4        | 17.6        |
|  | over all Tilts | 14.5 ±0.5   | 14.8 ±0.5 | 15.0 ±0.5 | 15.2 ±0.5 | 16.5 ±0.7   | 17.1 ±0.5   | 17.3 ±0.5   | 17.5 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 16      | > 16      | > 16      | > 15  | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 70 ±6   | 69 ±6     | 68 ±6     | 66 ±6     | 70 ±6   | 65 ±6       | 60 ±6       | 58 ±6       |
| Vertical 3dB beam width (°)                                    |                | 10.8 ±0.8   | 10.0 ±0.6 | 9.5 ±0.6  | 8.9 ±0.5  | 6.9 ±0.6  | 6.1 ±0.6    | 5.5 ±0.3    | 5.0 ±0.3    |
| VSWR   |                | < 1.5   |           |           |           | < 1.5   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           | ≥ 28  |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 27  |           |           |           | ≥ 27  |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 21  | > 21      | > 22      | > 23      | > 24  | > 26        | > 25        | > 26        |
| Cross polar ratio (dB)   |                | 0°  | > 18      | > 18      | > 18      | > 17  | > 17        | > 17        | > 18        |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                    |           |           |           | 250 (at 50°C ambient temperature)*                    |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |           | 50  |             |             |             |
| Grounding  |                | DC Ground   |           |           |           | DC Ground   |             |             |             |

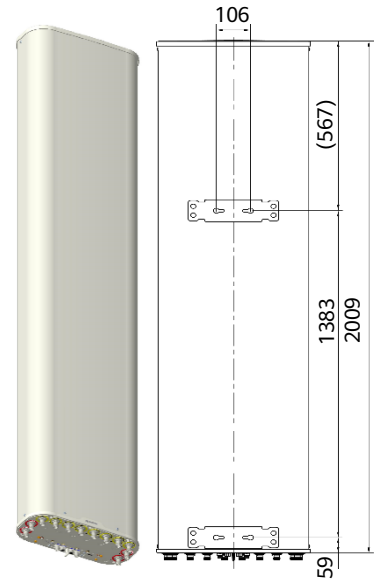
| Electrical Properties  |                |   |             |             |             |             |      |  |  |
|--|----------------|---|-------------|-------------|-------------|-------------|------|--|--|
| Frequency range (MHz)  |                | 2 x (1427 - 2690) (Ly1/Ry4)                           |             |             |             |             |      |  |  |
|  |                | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |      |  |  |
| Polarization   |                | +45°, -45°  |             |             |             |             |      |  |  |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |             |             |             |             |      |  |  |
| Gain (dBi)   | at mid Tilt    | 15.8  | 17.0        | 17.2        | 17.3        | 17.6        |      |  |  |
|  | over all Tilts | 15.7 ±0.6   | 16.9 ±0.6   | 17.1 ±0.5   | 17.2 ±0.5   | 17.5 ±0.5   |      |  |  |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 16        | > 16        | > 16        | > 16        |      |  |  |
| Horizontal 3dB beam width (°)                                  |                | 70 ±7   | 69 ±6       | 68 ±6       | 65 ±6       | 59 ±6       |      |  |  |
| Vertical 3dB beam width (°)                                    |                | 8.9±0.6   | 7.2 ±0.5    | 6.4 ±0.6    | 5.6 ±0.4    | 5.1 ±0.4    |      |  |  |
| VSWR   |                | < 1.5   |             | < 1.5       |             |             |      |  |  |
| Cross polar isolation (dB)                                     |                | ≥ 28  |             | ≥ 28        |             |             |      |  |  |
| Interband isolation (dB)                                       |                | ≥ 27  |             | ≥ 27        |             |             |      |  |  |
| Front to back ratio, ±30° (dB)                                 |                | > 23  | > 26        | > 25        | > 24        | > 24        |      |  |  |
| Cross polar ratio (dB)   |                | 0°  | > 17        | > 18        | > 18        | > 18        | > 16 |  |  |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                    |             |             |             |             |      |  |  |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |             |      |  |  |
| Impedance (Ω)  |                | 50  |             |             |             |             |      |  |  |
| Grounding  |                | DC Ground   |             |             |             |             |      |  |  |

\* Total power : 900 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

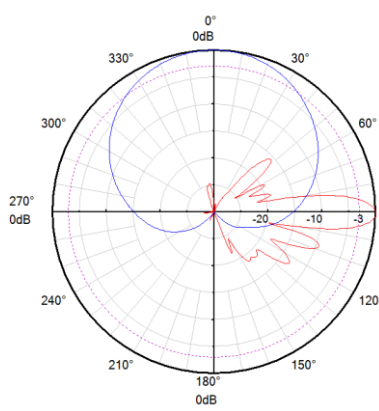
|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2009 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 2265 x 555 x 255   |
| Antenna weight (kg)                 | 42.9   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 58.9 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 605 (at 150 km/h)<br>Lateral: 370 (at 150 km/h)<br>Maximum: 800 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 12 x 4.3-10 Female   |
| Connector position                  | Bottom   |



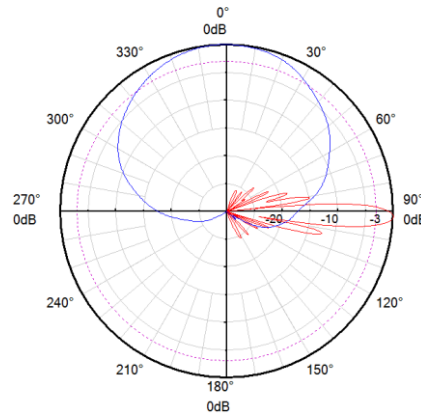
**Accessories**

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12 ° | 3.1 kg | 1 (Separate packing) |

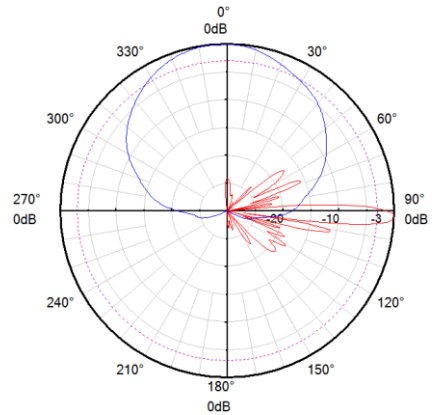
**Pattern sample for reference**



690 - 960 MHz



1427 - 2690 MHz



1695 - 2690 MHz

**Integrated RET Specifications**

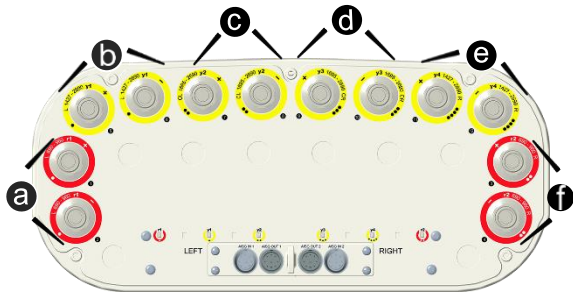
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

2L4H Band

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

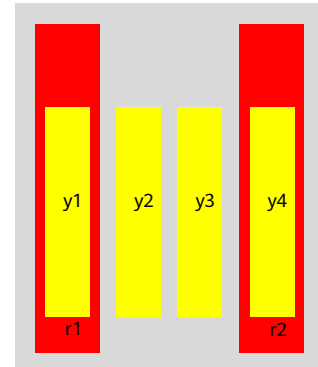
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Integrated RET S/N:**

- a HWxxxx.....Lr1
- b HWxxxx.....Ly1
- c HWxxxx....CLy2
- d HWxxxx....CRy3
- e HWxxxx.....Ry4
- f HWxxxx.....Rr2

r - Red                      y - Yellow  
 L - Left array            R - Right array    C - Center array



## Antenna Specifications

| Electrical Properties  |   |            |            |            |   |             |             |             |            |
|--|---|------------|------------|------------|---|-------------|-------------|-------------|------------|
| Frequency range (MHz)  | 2 x (690 - 960) (Lr1/Rr2)                             |            |            |            | 2 x (1695 - 2690) (LBy1/RBy3)                         |             |             |             |            |
|  | 690 - 803   | 790 - 862  | 824 - 894  | 880 - 960  | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |            |
| Polarization   | +45°, -45°  |            |            |            |   |             |             |             |            |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |            |            |            | 2 - 12, continuously adjustable, each band separately |             |             |             |            |
| Gain (dBi)   | at mid Tilt   | 14.1       | 14.7       | 14.9       | 15.2  | 15.5        | 15.9        | 16.1        | 16.3       |
|  | over all Tilts  | 14.0 ± 0.5 | 14.6 ± 0.5 | 14.8 ± 0.5 | 15.0 ± 0.5  | 15.4 ± 0.6  | 15.8 ± 0.5  | 16.0 ± 0.5  | 16.2 ± 0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 16       | > 16       | > 15       | > 16  | > 16        | > 16        | > 16        | > 16       |
| Horizontal 3dB beam width (°)                                  | 70 ± 6  | 62 ± 6     | 59 ± 6     | 56 ± 6     | 63 ± 6  | 60 ± 6      | 59 ± 6      | 57 ± 6      |            |
| Vertical 3dB beam width (°)                                    | 10.9 ± 0.9  | 9.9 ± 0.7  | 9.4 ± 0.5  | 8.9 ± 0.5  | 9.0 ± 0.8   | 8.0 ± 0.7   | 7.2 ± 0.4   | 6.5 ± 0.4   |            |
| VSWR   | < 1.5   |            |            |            | < 1.5   |             |             |             |            |
| Cross polar isolation (dB)                                     | ≥ 25  |            |            |            | ≥ 25  |             |             |             |            |
| Interband isolation (dB)                                       | ≥ 25  |            |            |            | ≥ 28  |             |             |             |            |
| Front to back ratio, ±30° (dB)                                 | > 20  | > 21       | > 22       | > 22       | > 24  | > 24        | > 25        | > 24        |            |
| Cross polar ratio (dB)   | 0°  | > 18       | > 18       | > 18       | > 18  | > 17        | > 17        | > 16        |            |
| Max. power per input (W)                                       | 300 (at 50°C ambient temperature)*                    |            |            |            | 250 (at 50°C ambient temperature)*                    |             |             |             |            |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |            |            |            | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |            |
| Impedance (Ω)  | 50  |            |            |            | 50  |             |             |             |            |
| Grounding  | DC Ground   |            |            |            | DC Ground   |             |             |             |            |

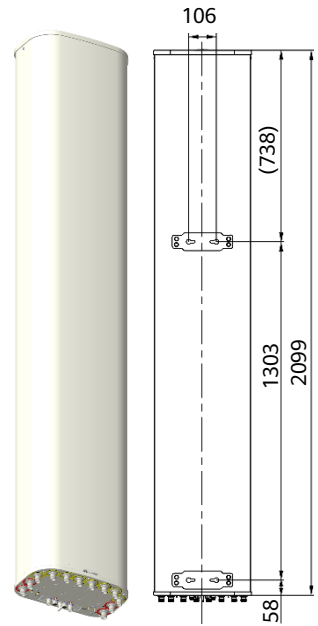
| Electrical Properties  |   |             |             |             |             |            |
|--|---|-------------|-------------|-------------|-------------|------------|
| Frequency range (MHz)  | 2 x (1427 - 2690) (LTy2/RTy4)                         |             |             |             |             |            |
|  | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |            |
| Polarization   | +45°, -45°  |             |             |             |             |            |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |             |             |             |            |
| Gain (dBi)   | at mid Tilt   | 14.8        | 15.6        | 16.0        | 16.2        | 16.3       |
|  | over all Tilts  | 14.7 ± 0.6  | 15.5 ± 0.6  | 15.9 ± 0.6  | 16.1 ± 0.5  | 16.2 ± 0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 16        | > 16        | > 16        | > 16        |            |
| Horizontal 3dB beam width (°)                                  | 65 ± 6  | 66 ± 6      | 62 ± 6      | 59 ± 6      | 57 ± 6      |            |
| Vertical 3dB beam width (°)                                    | 11.1 ± 0.8  | 9.0 ± 0.8   | 8.1 ± 0.7   | 7.2 ± 0.4   | 6.5 ± 0.4   |            |
| VSWR   | < 1.5   | < 1.5       |             |             |             |            |
| Cross polar isolation (dB)                                     | ≥ 25  | ≥ 25        |             |             |             |            |
| Interband isolation (dB)                                       | ≥ 28  | ≥ 28        |             |             |             |            |
| Front to back ratio, ±30° (dB)                                 | > 24  | > 26        | > 26        | > 26        | > 25        |            |
| Cross polar ratio (dB)   | 0°  | > 18        | > 16        | > 16        | > 17        |            |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |             |             |             |            |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |             |            |
| Impedance (Ω)  | 50  |             |             |             |             |            |
| Grounding  | DC Ground   |             |             |             |             |            |

\* Total power : 900 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2099 x 369 x 226   |
| Packing dimensions (H x W x D) (mm) | 2335 x 455 x 270   |
| Antenna weight (kg)                 | 34.5   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 45.9 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 425 (at 150 km/h)<br>Lateral: 505 (at 150 km/h)<br>Maximum: 770 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 12 x 4.3-10 Female   |
| Connector position                  | Bottom   |

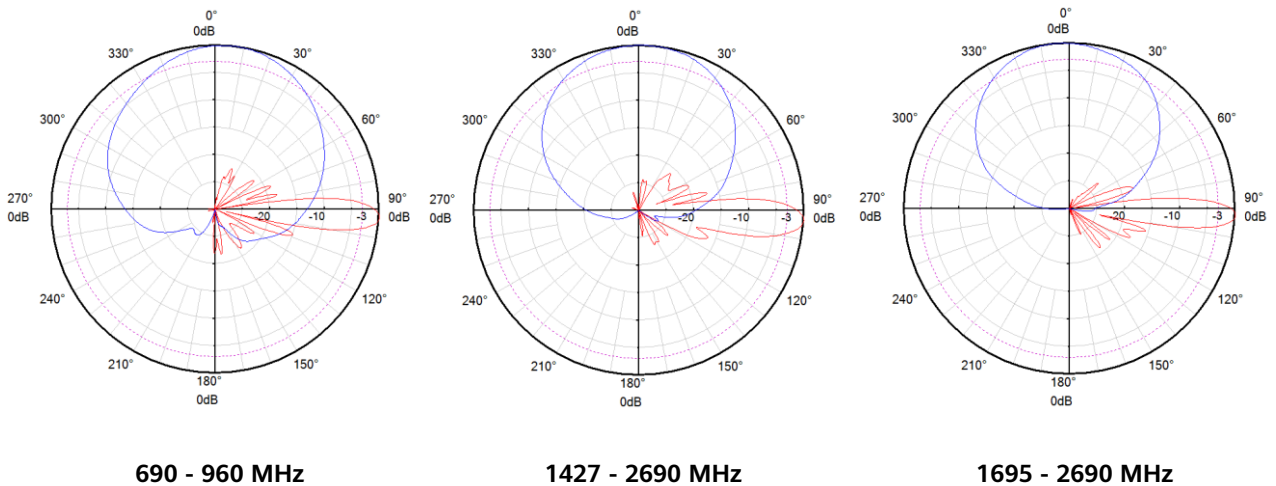


2LnH Band

**Accessories**

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 12° | 2.1 kg | 1 (Separate packing) |

**Pattern sample for reference**





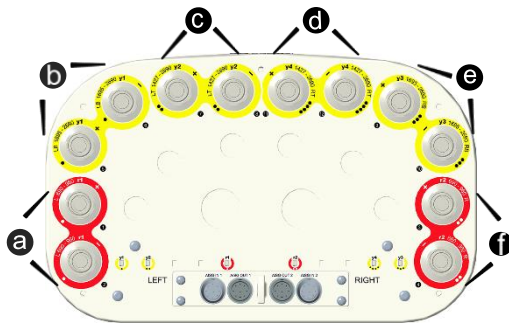
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

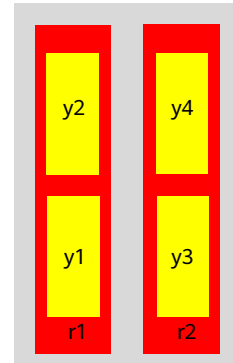
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Integrated RET S/N:**

- a HWxxxx.....Lr1
- b HWxxxx.....LBy1
- c HWxxxx.....LTy2
- d HWxxxx.....RTy4
- e HWxxxx.....RBy3
- f HWxxxx.....Rr2



r - Red                      y - Yellow  
 L - Left array            R - Right array    T - Top array        B - Bottom array

## Preliminary Issue

| Electrical Properties   |                             |                   |             |                   |
|---|-----------------------------|-------------------|-------------|-------------------|
| Frequency range (MHz)   | 2 x (690 - 960)             | 2 x (1427 - 2690) |             | 2 x (1695 - 2690) |
|   |                             | 1427 - 1518       | 1695 - 2690 |                   |
| Electrical downtilt (°)   | 2 - 12                      | 2 - 12            |             | 2 - 12            |
| Gain (dBi)  | 16.0                        | 15.6              | 17.3        | 17.3              |
| Side lobe suppression for first side lobe above main beam (Typ.) (dB) | 15                          | 15                | 16          | 16                |
| Horizontal 3dB beam width (°)   | 68                          | 65                | 62          | 63                |
| Vertical 3dB beam width (°)   | 8                           | 8.5               | 6           | 6                 |
| VSWR  | < 1.5                       | < 1.5             | < 1.5       | < 1.5             |
| Front to back ratio, copolar (dB)                                     | Typ. 23                     | Typ. 25           | Typ. 25     | Typ. 25           |
| Cross polar ratio (dB)  | 0°                          | Typ. 17           | Typ. 17     | Typ. 17           |
| Intermodulation IM3 (dBc)   | ≤ -153 (2 x 43 dBm carrier) |                   |             |                   |

| Mechanical Properties               |                   |
|-------------------------------------|-------------------|
| Antenna dimensions (H x W x D) (mm) | 2769 x 369 x 226  |
| Packing dimensions (H x W x D) (mm) | 3035 x 465 x 280  |
| Antenna net weight (kg)             | 43                |
| Mechanical downtilt (°)             | 0 - 8             |
| Connector                           | 12x 4.3-10 Female |
| RET type                            | Integrated RET    |
| RET protocols                       | AISG 2.0 / 3GPP   |

## Antenna Specifications

| Electrical Properties  |   |           |           |           |   |             |                   |           |
|--|---|-----------|-----------|-----------|---|-------------|-------------------|-----------|
| Frequency range (MHz)  | 2 x (690 - 960)                                       |           |           |           | 2 x (1695 - 2200)                                     |             | 2 x (2490 - 2690) |           |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2490 - 2690       |           |
| Polarization   | +45°, -45°  |           |           |           |   |             |                   |           |
| Electrical downtilt (°)  | 0 - 14, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |                   |           |
| Gain (dBi)   | at mid Tilt   | 13.7      | 14.3      | 14.6      | 14.8  | 16.9        | 17.3              | 17.6      |
|  | over all Tilts  | 13.6 ±0.5 | 14.2 ±0.5 | 14.5 ±0.5 | 14.7 ±0.5   | 16.8 ±0.5   | 17.2 ±0.5         | 17.5 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 17  | > 17      | > 17      | > 17      | > 17  | > 17        | > 17              | > 17      |
| Horizontal 3dB beam width (°)                                  | 70 ±5   | 70 ±4     | 69 ±4     | 65 ±4     | 62 ±6   | 60 ±5       | 58 ±4             |           |
| Vertical 3dB beam width (°)                                    | 15.4 ±1.2   | 13.7 ±0.7 | 13.3 ±0.7 | 12.5 ±0.7 | 6.5 ±0.5  | 5.9 ±0.4    | 4.7 ±0.3          |           |
| VSWR   | < 1.5   |           |           |           |   |             |                   |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           |   |             |                   |           |
| Interband isolation (dB)                                       | ≥ 28  |           |           |           |   |             |                   |           |
| Front to back ratio, ±30° (dB)                                 | > 22  | > 23      | > 24      | > 24      | > 26  | > 26        | > 28              |           |
| Cross polar ratio (dB)   | 0°  | > 22      | > 22      | > 22      | > 22  | > 20        | > 20              | > 18      |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature)*                    |           |           |           | 250 (at 50°C ambient temperature)*                    |             |                   |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           | ≤ -153 (2 x 43 dBm carrier)                           |             |                   |           |
| Impedance (Ω)  | 50  |           |           |           |   |             |                   |           |
| Grounding  | DC Ground   |           |           |           |   |             |                   |           |

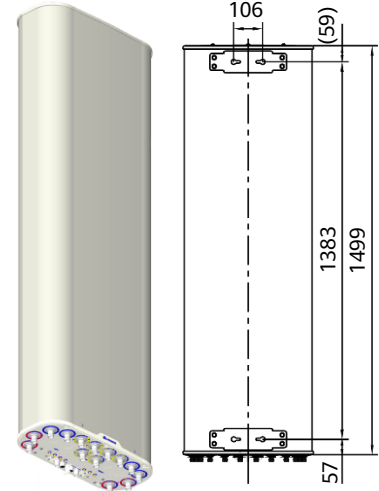
| Electrical Properties  |   |             |             |             |             |           |
|--|---|-------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 1427 - 2690   |             |             |             |             |           |
|  | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°  |             |             |             |             |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |             |             |             |           |
| Gain (dBi)   | at mid Tilt   | 16.2        | 17.3        | 17.4        | 17.9        | 18.0      |
|  | over all Tilts  | 16.1 ±0.5   | 17.2 ±0.5   | 17.3 ±0.5   | 17.8 ±0.5   | 17.9 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 17        | > 17        | > 17        | > 16        |           |
| Horizontal 3dB beam width (°)                                  | 62 ±7   | 61 ±7       | 62 ±6       | 58 ±5       | 58 ±5       |           |
| Vertical 3dB beam width (°)                                    | 7.9 ±0.4  | 6.6 ±0.4    | 5.8 ±0.3    | 5.2 ±0.3    | 4.8 ±0.2    |           |
| VSWR   | < 1.5   | < 1.5       |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 28  | ≥ 28        |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28  | ≥ 28        |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 25  | > 28        | > 27        | > 27        | > 27        |           |
| Cross polar ratio (dB)   | 0°  | > 15        | > 17        | > 18        | > 17        |           |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |             |           |
| Impedance (Ω)  | 50  |             |             |             |             |           |
| Grounding  | DC Ground   |             |             |             |             |           |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1499 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 1870 x 535 x 285   |
| Antenna weight (kg)                 | 36.2   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 53.5 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 440 (at 150 km/h)<br>Lateral: 265 (at 150 km/h)<br>Maximum: 585 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 14 x 4.3-10 Female   |
| Connector position                  | Bottom   |

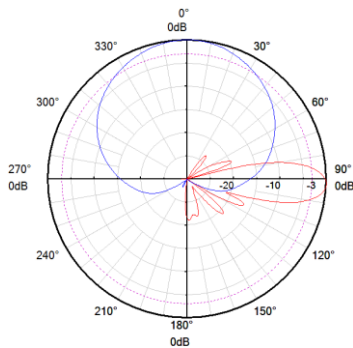


2L5H Band

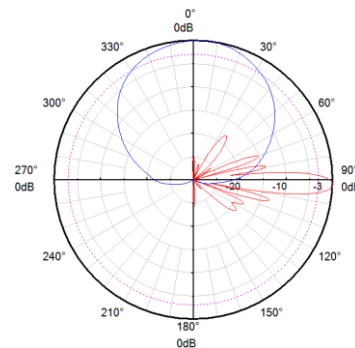
**Accessories**

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 16 ° | 3.1 kg | 1 (Separate packing) |

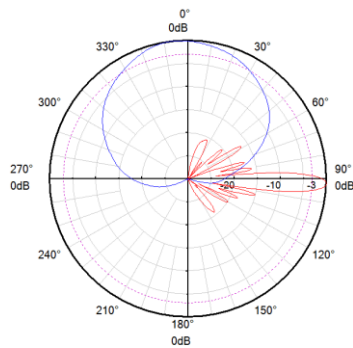
**Pattern sample for reference**



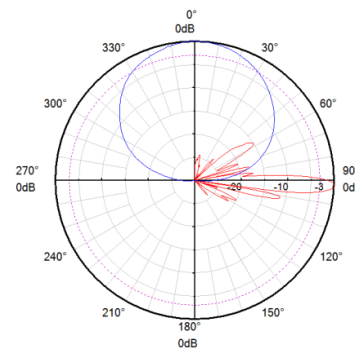
**690 - 960 MHz**



**1427 - 2690 MHz**



**1695 - 2200 MHz**



**2490 - 2690 MHz**

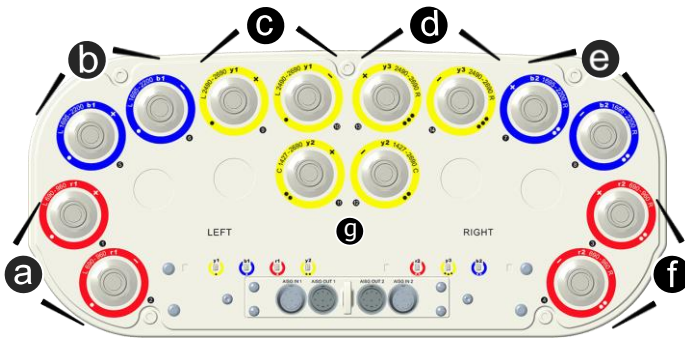
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

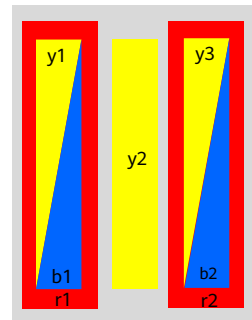
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a HWxxxx.....Lr1
- b HWxxxx.....Lb1
- c HWxxxx.....Ly1
- d HWxxxx.....Ry3
- e HWxxxx.....Rb2
- f HWxxxx.....Rr2
- g HWxxxx.....Cy2

r - Red                      y - Yellow  
C - Center array          L - Left array  
T - Top array              B - Bottom array



R - Right array

## Antenna Specifications

| Electrical Properties  |   |           |           |           |   |             |                   |           |
|--|---|-----------|-----------|-----------|---|-------------|-------------------|-----------|
| Frequency range (MHz)  | 2 x (690 - 960)                                       |           |           |           | 2 x (1695 - 2200)                                     |             | 2 x (2490 - 2690) |           |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2490 - 2690       |           |
| Polarization   | +45°, -45°  |           |           |           |   |             |                   |           |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |                   |           |
| Gain (dBi)   | at mid Tilt   | 14.8      | 15.4      | 15.7      | 16.0  | 16.9        | 17.3              | 17.7      |
|  | over all Tilts  | 14.7 ±0.4 | 15.3 ±0.4 | 15.5 ±0.3 | 15.8 ±0.4   | 16.8 ±0.5   | 17.2 ±0.5         | 17.6 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 17  | > 17      | > 17      | > 17      | > 17  | > 17        | > 17              | > 17      |
| Horizontal 3dB beam width (°)                                  | 70 ±5   | 69 ±4     | 68 ±3     | 65 ±4     | 63 ±6   | 61 ±5       | 58 ±4             |           |
| Vertical 3dB beam width (°)                                    | 11.0 ±0.8   | 9.8 ±0.5  | 9.5 ±0.5  | 8.8 ±0.5  | 6.5 ±0.5  | 5.9 ±0.4    | 4.7 ±0.3          |           |
| VSWR   | < 1.5   |           |           |           |   |             |                   |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           |   |             |                   |           |
| Interband isolation (dB)                                       | ≥ 28  |           |           |           |   |             |                   |           |
| Front to back ratio, ±30° (dB)                                 | > 22  | > 23      | > 24      | > 24      | > 27  | > 27        | > 28              |           |
| Cross polar ratio (dB)   | 0°  | > 20      | > 20      | > 22      | > 22  | > 20        | > 20              | > 18      |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature)*                    |           |           |           | 250 (at 50°C ambient temperature)*                    |             |                   |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           | ≤ -153 (2 x 43 dBm carrier)                           |             |                   |           |
| Impedance (Ω)  | 50  |           |           |           |   |             |                   |           |
| Grounding  | DC Ground   |           |           |           |   |             |                   |           |

| Electrical Properties  |                                    |             |             |             |             |           |
|--|------------------------------------|-------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 1427 - 2690                        |             |             |             |             |           |
|  | 1427 - 1518                        | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°                         |             |             |             |             |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable    |             |             |             |             |           |
| Gain (dBi)   | at mid Tilt                        | 16.2        | 17.3        | 17.4        | 17.9        | 18.0      |
|  | over all Tilts                     | 16.1 ±0.5   | 17.2 ±0.5   | 17.3 ±0.5   | 17.8 ±0.5   | 17.9 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15                               | > 16        | > 17        | > 16        | > 16        |           |
| Horizontal 3dB beam width (°)                                  | 62 ±7                              | 61 ±7       | 62 ±6       | 58 ±5       | 58 ±5       |           |
| Vertical 3dB beam width (°)                                    | 7.9 ±0.4                           | 6.6 ±0.4    | 5.8 ±0.3    | 5.2 ±0.3    | 4.8 ±0.2    |           |
| VSWR   | < 1.5                              | < 1.5       |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 28                               | ≥ 28        |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28                               | ≥ 28        |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 26                               | > 28        | > 28        | > 28        | > 28        |           |
| Cross polar ratio (dB)   | 0°                                 | > 15        | > 16        | > 17        | > 16        | > 15      |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)* |             |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |             |           |
| Impedance (Ω)  | 50                                 |             |             |             |             |           |
| Grounding  | DC Ground                          |             |             |             |             |           |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

AHP4518R4v06

D7X-690-960/690-960/1427-2690/2x(1695-2200)/2x(2490-2690)-7x65-

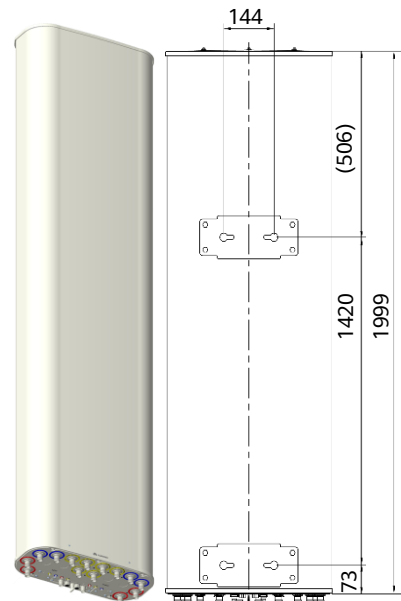
16i/16i/17.5i/17i/17i/17.5i/17.5i-7xM-R

EasyRET 2L5H 14-Port Antenna with 7 Integrated RCUs - 2.0m



**Mechanical Properties**

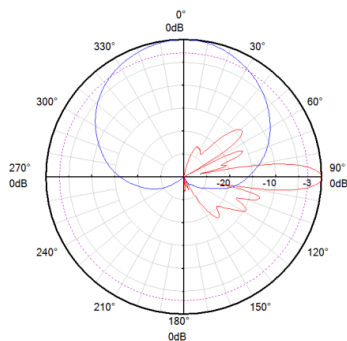
|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 2255 x 535 x 285   |
| Antenna weight (kg)                 | 42.0   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 61.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 600 (at 150 km/h)<br>Lateral: 365 (at 150 km/h)<br>Maximum: 795 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 14 x 4.3-10 Female   |
| Connector position                  | Bottom   |



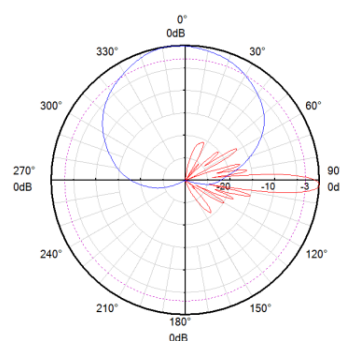
**Accessories**

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12 ° | 3.1 kg | 1 (Separate packing) |

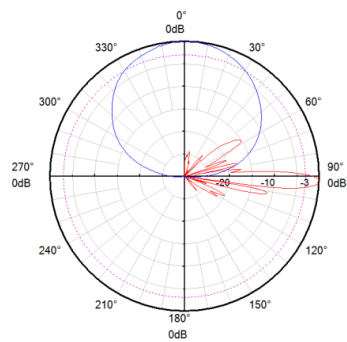
**Pattern sample for reference**



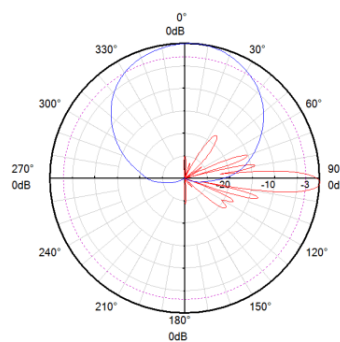
**690 - 960 MHz**



**1695 - 2200 MHz**



**2490 - 2690 MHz**



**1427 - 2690 MHz**

### Integrated RET Specifications

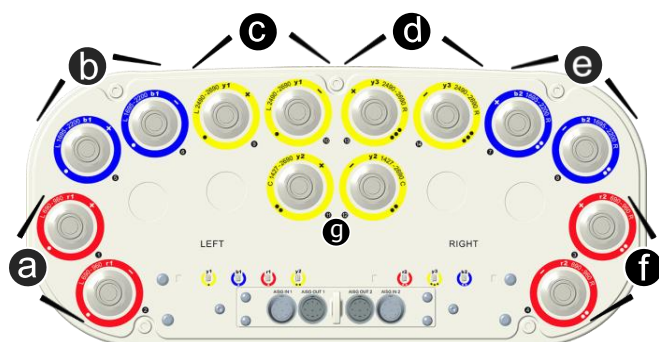
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

2LnH Band

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

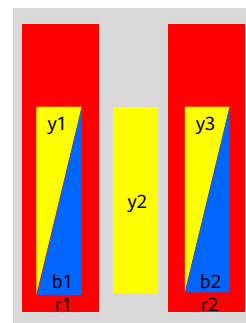
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a HWxxxx.....Lr1
- b HWxxxx.....Lb1
- c HWxxxx.....Ly1
- d HWxxxx.....Ry3
- e HWxxxx.....Rb2
- f HWxxxx.....Rr2
- g HWxxxx.....Cy2



r - Red                      y - Yellow                      b - Blue  
 L - Left array              R - Right array              C - Center array



AHP4518R5v06

D7X-690-960/690-960/1427-2690/4x(1695-2690)-7x65-

17i/17i/17.5i/17.5i/17.5i/17.5i/17.5i-7xM-R

EasyRET 2L5H 14-Port Antenna with 7 Integrated RCUs - 2.6m



## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |
|--|----------------|---|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 2 x (690 - 960)                                       |           |           |           |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45°, -45°  |           |           |           |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 15.8  | 16.4      | 16.7      | 16.9      |
|  | over all Tilts | 15.6 ±0.5   | 16.3 ±0.5 | 16.5 ±0.5 | 16.7 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 16      | > 16      | > 16      |
| Horizontal 3dB beam width (°)                                  |                | 70 ±5   | 69 ±4     | 68 ±3     | 64 ±4     |
| Vertical 3dB beam width (°)                                    |                | 9.0 ±0.5  | 8.0 ±0.4  | 7.7 ±0.5  | 7.2 ±0.4  |
| VSWR   |                | < 1.5   |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |           |
| Front to back ratio, ±30° (dB)                                 |                | > 22  | > 24      | > 24      | > 25      |
| Cross polar ratio (dB) 0°                                      |                | > 20  | > 22      | > 22      | > 22      |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)*                    |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |
| Impedance (Ω)  |                | 50  |           |           |           |
| Grounding  |                | DC Ground   |           |           |           |

| Electrical Properties  |        |   |             |             |             |             |                                    |             |             |             |           |
|--|--------|---|-------------|-------------|-------------|-------------|------------------------------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  |        | 1427 - 2690   |             |             |             |             | 4 x (1695 - 2690)                  |             |             |             |           |
|  |        | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   |        | +45°, -45°  |             |             |             |             | +45°, -45°                         |             |             |             |           |
| Electrical downtilt (°)  |        | 2 - 12, continuously adjustable, each band separately |             |             |             |             |                                    |             |             |             |           |
| Gain (dBi)   |        | at mid Tilt   | 16.2        | 17.3        | 17.4        | 17.9        | 18.0                               |             |             |             |           |
|  |        | over all Tilts  | 16.1 ±0.5   | 17.2 ±0.5   | 17.3 ±0.5   | 17.8 ±0.5   | 17.9 ±0.5                          |             |             |             |           |
|  | Bottom | at mid Tilt   |             |             |             |             |                                    | 16.6        | 17.0        | 17.2        | 17.7      |
|  |        | over all Tilts  |             |             |             |             |                                    | 16.5 ±0.5   | 16.9 ±0.5   | 17.1 ±0.5   | 17.5 ±0.5 |
|  | Top    | at mid Tilt   |             |             |             |             |                                    | 16.7        | 17.1        | 17.2        | 17.7      |
|  |        | over all Tilts  |             |             |             |             |                                    | 16.6 ±0.5   | 17.0 ±0.5   | 17.1 ±0.5   | 17.5 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 15  | > 17        | > 17        | > 17        | > 16        | > 16                               | > 16        | > 16        | > 16        |           |
| Horizontal 3dB beam width (°)                                  |        | 62 ±7   | 61 ±7       | 62 ±6       | 58 ±5       | 58 ±5       | 61 ±5                              | 61 ±5       | 59 ±4       | 58 ±4       |           |
| Vertical 3dB beam width (°)                                    |        | 7.9 ±0.4  | 6.6 ±0.4    | 5.8 ±0.3    | 5.2 ±0.3    | 4.8 ±0.2    |                                    |             |             |             |           |
|  | Bottom |   |             |             |             |             | 7.6 ±0.5                           | 6.7 ±0.4    | 6.0 ±0.3    | 5.4 ±0.3    |           |
|  | Top    |   |             |             |             |             | 6.5 ±0.5                           | 5.8 ±0.4    | 5.2 ±0.3    | 4.8 ±0.3    |           |
| VSWR   |        | < 1.5   | < 1.5       |             |             | < 1.5       |                                    |             |             |             |           |
| Cross polar isolation (dB)                                     |        | ≥ 28  | ≥ 28        |             |             | ≥ 28        |                                    |             |             |             |           |
| Interband isolation (dB)                                       |        | ≥ 28  | ≥ 28        |             |             | ≥ 28        |                                    |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 |        | > 25  | > 28        | > 28        | > 28        | > 28        | > 25                               | > 25        | > 25        | > 26        |           |
| Cross polar ratio (dB) 0°                                      |        | > 15  | > 17        | > 18        | > 16        | > 15        | > 20                               | > 18        | > 17        | > 18        |           |
| Max. power per input (W)                                       |        | 250 (at 50°C ambient temperature)*                    |             |             |             |             | 250 (at 50°C ambient temperature)* |             |             |             |           |
| Intermodulation IM3 (dBc)                                      |        | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |             | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |           |
| Impedance (Ω)  |        | 50  |             |             |             |             |                                    |             |             |             |           |
| Grounding  |        | DC Ground   |             |             |             |             |                                    |             |             |             |           |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

AHP4518R5v06

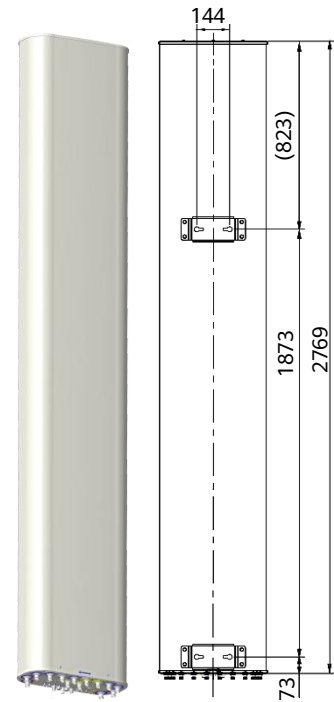
D7X-690-960/690-960/1427-2690/4x(1695-2690)-7x65-

17i/17i/17.5i/17.5i/17.5i/17.5i/17.5i-7xM-R

EasyRET 2L5H 14-Port Antenna with 7 Integrated RCUs - 2.6m



| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2769 x 469 x 206  |
| Packing dimensions (H x W x D) (mm) | 3024 x 535 x 285  |
| Antenna weight (kg)                 | 51.2  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 76.0 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 860 (at 150 km/h)<br>Lateral: 535 (at 150 km/h)<br>Maximum: 1140 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 14 x 4.3-10 Female  |
| Connector position                  | Bottom  |

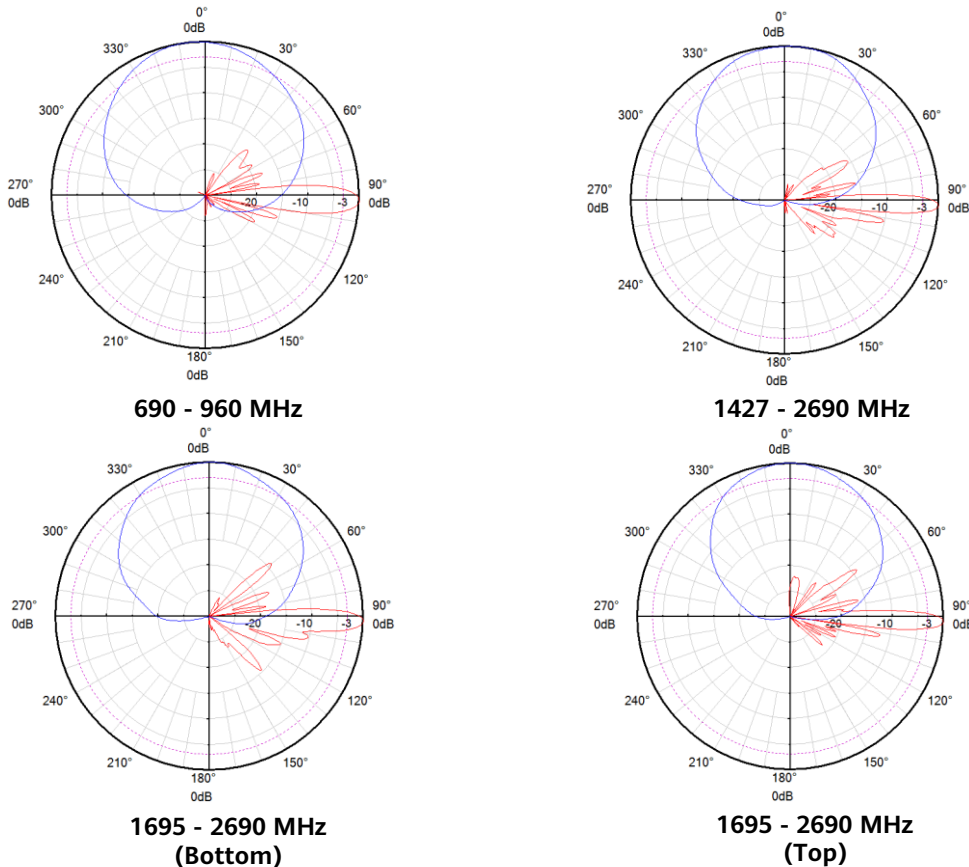


2L5H Band

**Accessories**

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |

**Pattern sample for reference**



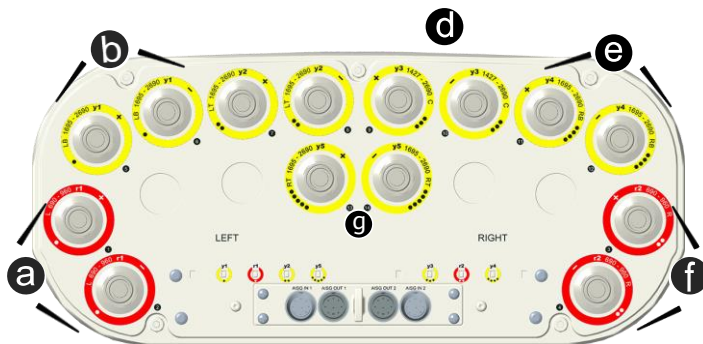
## Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

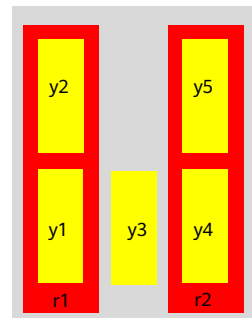
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



### Integrated RET S/N:

- a HWxxxx.....Lr1
- b HWxxxx.....LBy1
- c HWxxxx.....LTy2
- d HWxxxx.....Cy3
- e HWxxxx.....RBy4
- f HWxxxx.....Rr2
- g HWxxxx.....RTy5



r - Red                      y - Yellow  
L - Left array              C - Center array      R - Right array  
T - Top array                B - Bottom array

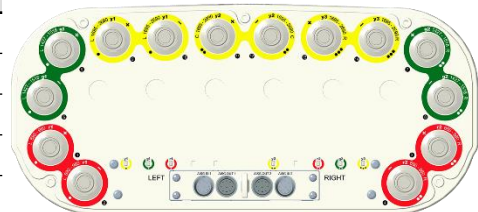
AHP4517R12v06  
D7X-2x(690-960)/2x(1427-1518)/3x(1695-2690)-7x65-  
14.5i/14.5i/15.5i/15.5i/17i/17i/17.5i-7xM-R  
EasyRET 2L5H 14-Port Antenna with 7 Integrated RCUs - 1.5m



## Preliminary Issue

| Electrical Properties   |                             |                  |                   |             |
|---|-----------------------------|------------------|-------------------|-------------|
| Frequency range (MHz)   | 2 x (690 - 960)             | 2 x (1427 -1518) | 2 x (1695 - 2690) | 1695 - 2690 |
| Electrical downtilt (°)   | 2 - 14                      | 2 - 12           | 2 - 12            | 2 - 12      |
| Gain (dBi)  | 14.5                        | 15.2             | 17.0              | 17.5        |
| Side lobe suppression for first side lobe above main beam (Typ.) (dB) | 16                          | 16               | 16                | 16          |
| Horizontal 3dB beam width (°)   | 68                          | 68               | 65                | 65          |
| Vertical 3dB beam width (°)   | 13.5                        | 9                | 6                 | 6           |
| VSWR  | < 1.5                       |                  |                   |             |
| Front to back ratio, copolar (dB)                                     | Typ. 25                     | Typ. 25          | Typ. 25           | Typ. 25     |
| Cross polar ratio (dB)  | 0°                          | Typ. 16          | Typ. 16           | Typ. 16     |
| Intermodulation IM3 (dBc)   | ≤ -153 (2 x 43 dBm carrier) |                  |                   |             |

| Mechanical Properties               |                              |
|-------------------------------------|------------------------------|
| Antenna dimensions (H x W x D) (mm) | 1509 x 469 x 206             |
| Packing dimensions (H x W x D) (mm) | 1760 x 540 x 250             |
| Antenna net weight (kg)             | 32                           |
| Mechanical downtilt (°)             | 0 - 16                       |
| Connector                           | 14 x 4.3-10 connector Female |
| RET type                            | Integrated RET               |
| RET protocols                       | AISG 2.0 / 3GPP              |



2LnH Band

## Antenna Specifications

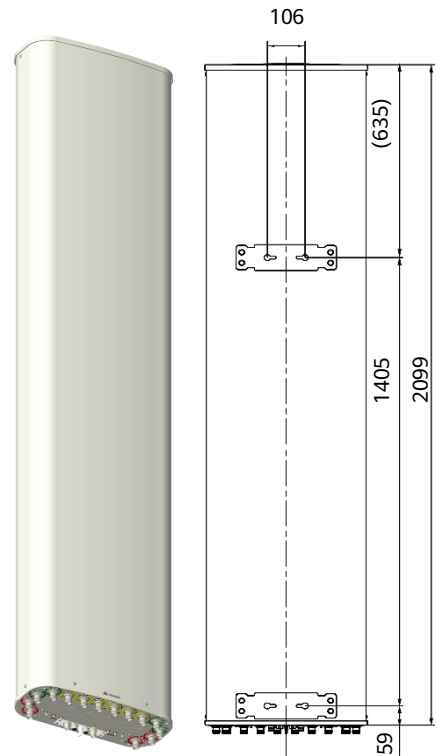
| Electrical Properties  |                |   |           |           |           |                                    |             |             |             |
|--|----------------|---|-----------|-----------|-----------|------------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (690 - 960) (Lr1 / Rr2)                           |           |           |           | 1695 - 2690 (Cy2)                  |             |             |             |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |           |           |           |                                    |             |             |             |
| Electrical downtilt (°)  |                | 0 - 10, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable    |             |             |             |
| Gain (dBi)   | at mid Tilt    | 14.8  | 15.3      | 15.5      | 15.9      | 17.3                               | 17.6        | 17.6        | 17.7        |
|  | over all Tilts | 14.7 ±0.5   | 15.2 ±0.5 | 15.4 ±0.5 | 15.7 ±0.5 | 17.2 ±0.5                          | 17.4 ±0.5   | 17.5 ±0.5   | 17.6 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 17      | > 17      | > 16      | > 17                               | > 18        | > 17        | > 18        |
| Horizontal 3dB beam width (°)                                  |                | 67 ±5   | 64 ±5     | 64 ±5     | 63 ±5     | 62 ±5                              | 62 ±5       | 60 ±5       | 59 ±5       |
| Vertical 3dB beam width (°)                                    |                | 11.0 ±0.7   | 10.0 ±0.5 | 9.4 ±0.5  | 8.8 ±0.5  | 7.0 ±0.5                           | 6.3 ±0.5    | 5.5 ±0.3    | 5.1 ±0.3    |
| VSWR   |                | < 1.5   |           |           |           |                                    |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           |                                    |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 26 (690 - 788 // 690 - 788)<br>≥ 28 (others)        |           |           |           |                                    |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 21  | > 23      | > 23      | > 24      | > 26                               | > 26        | > 26        | > 26        |
| Cross polar ratio (dB)   |                | 0°  | > 18      | > 18      | > 18      | > 18                               | > 18        | > 17        | > 17        |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                    |           |           |           | 250 (at 50°C ambient temperature)* |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |                                    |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |           |                                    |             |             |             |
| Grounding  |                | DC Ground   |           |           |           |                                    |             |             |             |

| Electrical Properties  |                |   |             |                               |             |             |
|--|----------------|---|-------------|-------------------------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (1427 - 1518) (Lg1 / Rg2)                         |             | 2 x (1695 - 2690) (Ly1 / Ry3) |             |             |
|  |                | 1427 - 1518   | 1695 - 1990 | 1920 - 2200                   | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |             |                               |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |             |                               |             |             |
| Gain (dBi)   | at mid Tilt    | 15.5  | 16.8        | 17.1                          | 17.2        | 17.3        |
|  | over all Tilts | 15.3 ±0.7   | 16.7 ±0.5   | 16.9 ±0.5                     | 17 ±0.5     | 17.1 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 17        | > 17                          | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 70 ±6   | 64 ±5       | 65 ±5                         | 62 ±5       | 58 ±5       |
| Vertical 3dB beam width (°)                                    |                | 9.2 ±0.5  | 7.4 ±0.5    | 6.5 ±0.5                      | 5.8 ±0.3    | 5.2 ±0.4    |
| VSWR   |                | < 1.5   |             |                               |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |             |                               |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |             |                               |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 24  | > 26        | > 27                          | > 27        | > 24        |
| Cross polar ratio (dB)   |                | 0°  | > 18        | > 18                          | > 18        | > 18        |
| Max. power per input (W)                                       |                | 200 (at 50°C ambient temperature)*                    |             |                               |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                           |             |                               |             |             |
| Impedance (Ω)  |                | 50  |             |                               |             |             |
| Grounding  |                | DC Ground   |             |                               |             |             |

\* Total power : 900 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

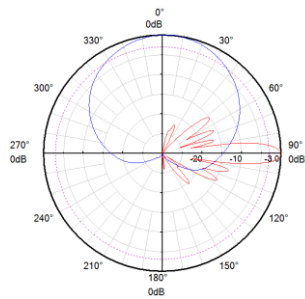
| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2099 x 449 x 196   |
| Packing dimensions (H x W x D) (mm) | 2360 x 535 x 240   |
| Antenna weight (kg)                 | 37.0   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 50.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | GFRPP  |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 615 (at 150 km/h)<br>Lateral: 375 (at 150 km/h)<br>Maximum: 810 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 14 x 4.3-10 Female   |
| Connector position                  | Bottom   |



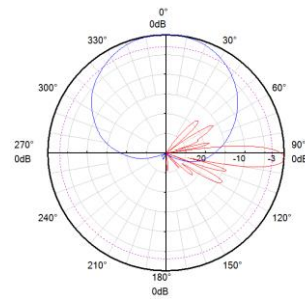
### Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12 ° | 3.1 kg | 1 (Separate packing) |

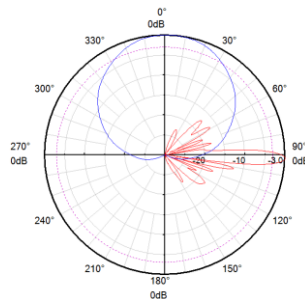
### Pattern sample for reference



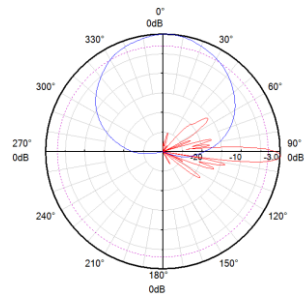
690 - 960 MHz



1427 - 1518 MHz



1695 - 2690 MHz  
(Cy2)



1695 - 2690 MHz  
(Ry3)

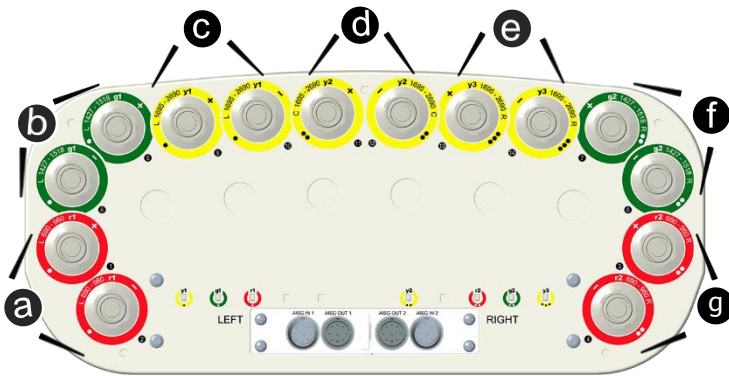
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

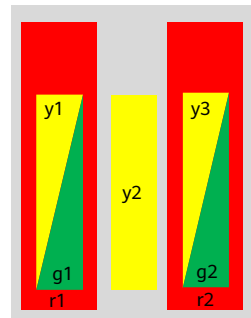
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a HWxxxx.....Lr1
- b HWxxxx.....Lg1
- c HWxxxx.....Ly1
- d HWxxxx.....Cy2
- e HWxxxx.....Ry3
- f HWxxxx.....Rg2
- g HWxxxx.....Rr2



r - Red                      y - Yellow                      g - Green  
 L - Left array              R - Right array              C - Center array

## Antenna Specifications

| Electrical Properties  |   |           |           |                                    |                   |             |             |             |             |
|--|---|-----------|-----------|------------------------------------|-------------------|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  | 690 - 862 (r1)  |           |           | 880 - 960 (r2)                     | 1427 - 2690 (Ry3) |             |             |             |             |
|  | 690 - 803   | 790 - 862 |           |                                    | 1427 - 1518       | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   | +45°, -45°  |           |           | +45°, -45°                         |                   |             |             |             |             |
| Electrical downtilt (°)  | 2 - 16, continuously adjustable, each band separately |           |           | 2 - 12, continuously adjustable    |                   |             |             |             |             |
| Gain (dBi)   | at mid Tilt   | 13.8      | 14.3      | 14.7                               | 15.9              | 17.3        | 17.5        | 17.8        | 18.1        |
|  | over all Tilts  | 13.8 ±0.5 | 14.2 ±0.5 | 14.6 ±0.5                          | 15.8 ±0.5         | 17.1 ±0.5   | 17.2 ±0.5   | 17.5 ±0.4   | 17.6 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 15      | > 16      | > 15                               | > 17              | > 17        | > 15        | > 16        |             |
| Horizontal 3dB beam width (°)                                  | 68 ±2.7   | 66 ±4.3   | 60 ±3.5   | 73 ±6.0                            | 69 ±5.5           | 68 ±5.7     | 63 ±4.7     | 58 ±4.0     |             |
| Vertical 3dB beam width (°)                                    | 14.9 ±1.4   | 13.0 ±0.8 | 12.2 ±0.6 | 8.0 ±0.4                           | 6.5 ±0.6          | 5.9 ±0.5    | 5.1 ±0.4    | 4.8 ±0.4    |             |
| VSWR   | < 1.5   |           |           | < 1.5                              | < 1.5             |             |             |             |             |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           | ≥ 28                               | ≥ 28              |             |             |             |             |
| Interband isolation (dB)                                       | ≥ 28  |           |           | ≥ 28                               | ≥ 28              |             |             |             |             |
| Front to back ratio, ±30° (dB)                                 | > 22  | > 23      | > 25      | > 22                               | > 23              | > 23        | > 27        | > 24        |             |
| Cross polar ratio (dB)   | 0°  | > 17      | > 18      | > 19                               | > 20              | > 22        | > 21        | > 22        | > 17        |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)*                    |           |           | 250 (at 50°C ambient temperature)* |                   |             |             |             |             |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                           |           |           | ≤ -153 (2 x 43 dBm carrier)        |                   |             |             |             |             |
| Impedance (Ω)  | 50  |           |           |                                    |                   |             |             |             |             |
| Grounding  | DC Ground   |           |           |                                    |                   |             |             |             |             |

| Electrical Properties  |   |             |           |   |                   |             |                   |
|--|---|-------------|-----------|---|-------------------|-------------|-------------------|
| Frequency range (MHz)  | 1695 - 2200 (Rb2)                                     |             |           | 2490 - 2690 (Cy2)                                     | 1695 - 2200 (Lb1) |             | 2490 - 2690 (Ly1) |
|  | 1695 - 1990   | 1920 - 2200 |           |   | 1695 - 1990       | 1920 - 2200 |                   |
| Polarization   | +45°, -45°  |             |           | +45°, -45°  |                   |             |                   |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |           | 2 - 12, continuously adjustable, each band separately |                   |             |                   |
| Gain (dBi)   | at mid Tilt   | 16.8        | 17.0      | 17.7  | 16.9              | 17.3        | 18.0              |
|  | over all Tilts  | 16.6 ±0.5   | 16.8 ±0.5 | 17.5 ± 0.5  | 16.8 ±0.5         | 17.1 ±0.5   | 17.7 ± 0.5        |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 16        | > 17      | > 17  | > 16              | > 16        |                   |
| Horizontal 3dB beam width (°)                                  | 65 ±6.0   | 64 ±6.0     | 58 ±5.0   | 67 ±4.0   | 66 ±4.0           | 58 ±4.0     |                   |
| Vertical 3dB beam width (°)                                    | 6.5 ±0.5  | 5.9 ±0.5    | 4.8 ±0.3  | 6.5 ±0.5  | 5.9 ±0.4          | 4.8 ±0.2    |                   |
| VSWR   | < 1.5   |             |           | < 1.5   |                   |             |                   |
| Cross polar isolation (dB)                                     | ≥ 28  |             |           | ≥ 28  |                   |             |                   |
| Interband isolation (dB)                                       | ≥ 28  |             |           | ≥ 28  |                   |             |                   |
| Front to back ratio, ±30 (dB)                                  | > 26  | > 27        | > 25      | > 24  | > 27              | > 26        |                   |
| Cross polar ratio (dB)   | 0°  | > 22        | > 21      | > 22  | > 22              | > 21        |                   |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |           | 250 (at 50°C ambient temperature)*                    |                   |             |                   |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                           |             |           | ≤ -150 (2 x 43 dBm carrier)                           |                   |             |                   |
| Impedance (Ω)  | 50  |             |           |   |                   |             |                   |
| Grounding  | DC Ground   |             |           |   |                   |             |                   |

\* Total power : 700 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.



AHP4517R1v06

D7X-690-862/880-960/1427-2690/2x(1695-2200)/2x(2490-2690)-7x65-

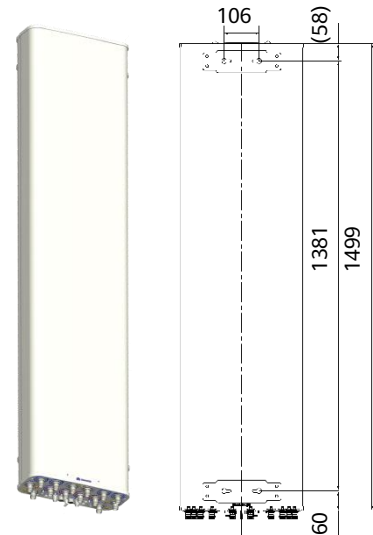
14i/14.5i/17.5i/17i/17i/17.5i/17.5i-7xM-R

EasyRET 2L5H 14-Port Antenna with 7 Integrated RCUs - 1.4m



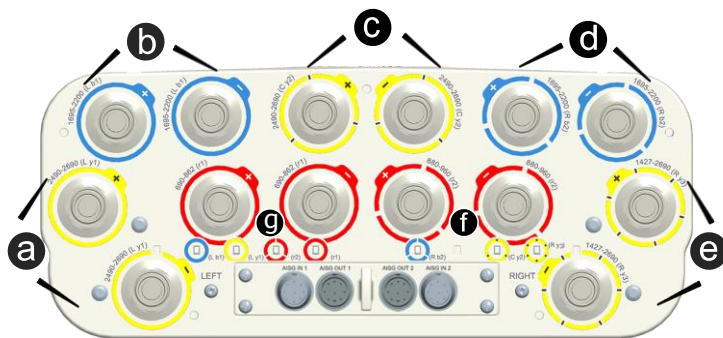
**Mechanical Properties**

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1499 x 369 x 149   |
| Packing dimensions (H x W x D) (mm) | 1790 x 435 x 240   |
| Antenna weight (kg)                 | 30.0   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 40.2 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 425 (at 150 km/h)<br>Lateral: 140 (at 150 km/h)<br>Maximum: 510 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 14 x 4.3-10 Female   |
| Connector position                  | Bottom   |



**Accessories**

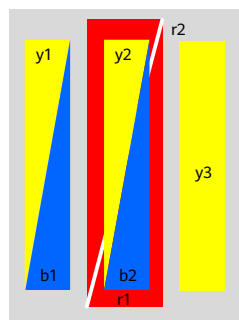
| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 16 ° | 2.1 kg | 1 (Separate packing) |



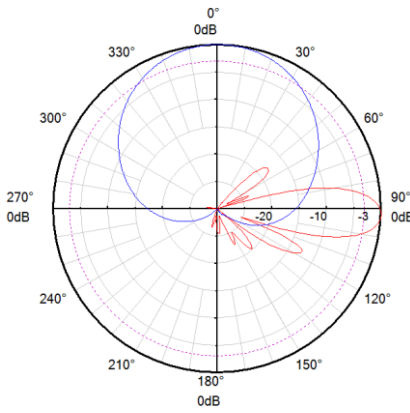
**Integrated RET S/N:**

- a** HWxxxx.....Ly1
- b** HWxxxx.....Lb1
- c** HWxxxx.....Cy2
- d** HWxxxx.....Rb2
- e** HWxxxx.....Ry3
- f** HWxxxx.....r2
- g** HWxxxx.....r1

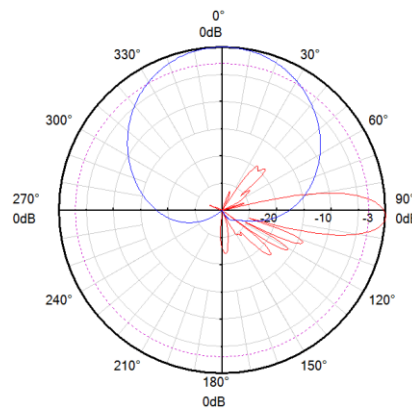
r - Red                      y - Yellow                      b - Blue  
C - Center array        L - Left array                R - Right array



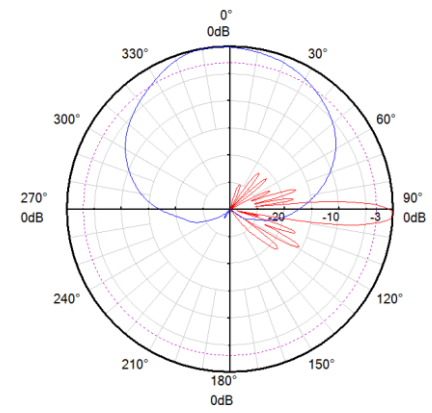
Pattern sample for reference



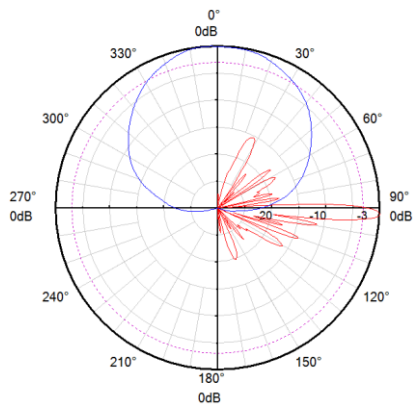
690 - 862 MHz



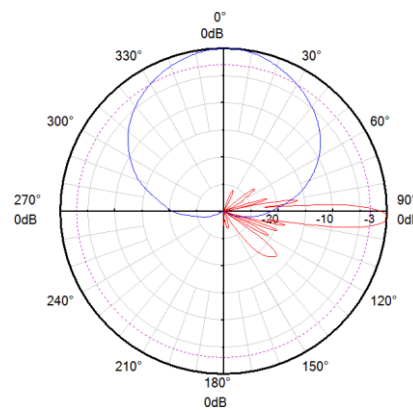
880 - 960 MHz



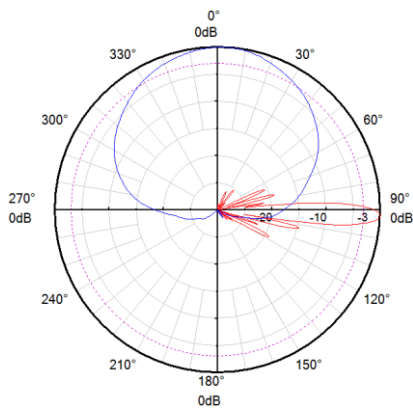
1427 - 2690 MHz



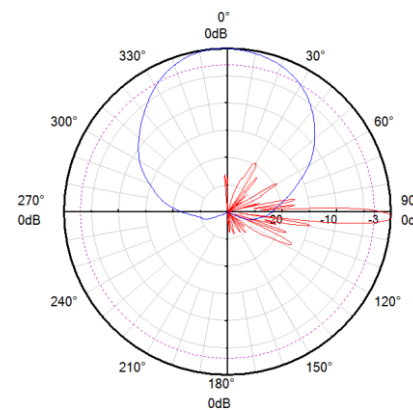
1695 - 2200 MHz  
(Lb1)



1695 - 2200 MHz  
(Rb2)



2490 - 2690 MHz  
(Ly1)



2490 - 2690 MHz  
(Cy2)

AHP4517R1v06

D7X-690-862/880-960/1427-2690/2x(1695-2200)/2x(2490-2690)-7x65-

14i/14.5i/17.5i/17i/17i/17.5i/17.5i-7xM-R

EasyRET 2L5H 14-Port Antenna with 7 Integrated RCUs - 1.4m



HUAWEI

## Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

## Antenna Specifications

| Electrical Properties  |   |           |           |                                    |             |             |             |             |             |
|--|---|-----------|-----------|------------------------------------|-------------|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  | 690 - 862   |           |           | 880 - 960                          | 1427 - 2690 |             |             |             |             |
|  | 690 - 803   | 790 - 862 |           |                                    | 1427 - 1518 | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   | +45°, -45°  |           |           | +45°, -45°                         |             |             |             |             |             |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |           |           |                                    |             |             |             |             |             |
| Gain (dBi)   | at mid Tilt   | 15.2      | 15.5      | 15.8                               | 16.1        | 17.4        | 17.5        | 17.8        | 18.1        |
|  | over all Tilts  | 15.1 ±0.5 | 15.3 ±0.5 | 15.7 ±0.5                          | 16.0 ±0.5   | 17.2 ±0.5   | 17.3 ±0.5   | 17.5 ±0.4   | 17.6 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 15      | > 17      | > 15                               | > 17        | > 17        | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  | 67 ±2.5   | 65 ±2.5   | 61 ±2.5   | 73 ±6.0                            | 68 ±5.5     | 65 ±6.7     | 63 ±4.7     | 58 ±4.0     | 58 ±4.0     |
| Vertical 3dB beam width (°)                                    | 11.6 ±0.8   | 10.3 ±0.8 | 9.0 ±0.5  | 8.1 ±0.5                           | 6.7 ±0.6    | 6.0 ±0.6    | 5.1 ±0.4    | 4.8 ±0.3    | 4.8 ±0.3    |
| VSWR   | < 1.5   |           |           | < 1.5                              | < 1.5       |             |             |             |             |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           | ≥ 28                               | ≥ 28        |             |             |             |             |
| Interband isolation (dB)                                       | ≥ 28  |           |           | ≥ 28                               | ≥ 28        |             |             |             |             |
| Front to back ratio, ±30° (dB)                                 | > 23  | > 26      | > 26      | > 22                               | > 25        | > 25        | > 27        | > 25        | > 25        |
| Cross polar ratio (dB)   | 0°  | > 22      | > 22      | > 22                               | > 19        | > 22        | > 21        | > 20        | > 17        |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)*                    |           |           | 250 (at 50°C ambient temperature)* |             |             |             |             |             |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                           |           |           | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |             |             |
| Impedance (Ω)  | 50  |           |           |                                    |             |             |             |             |             |
| Grounding  | DC Ground   |           |           |                                    |             |             |             |             |             |

| Electrical Properties  |   |             |           |                                    |                   |             |                   |
|--|---|-------------|-----------|------------------------------------|-------------------|-------------|-------------------|
| Frequency range (MHz)  | 1695 - 2200 (Rb2)                                     |             |           | 2490 - 2690 (Cy2)                  | 1695 - 2200 (Lb1) |             | 2490 - 2690 (Ly1) |
|  | 1695 - 1990   | 1920 - 2200 |           |                                    | 1695 - 1990       | 1920 - 2200 |                   |
| Polarization   | +45°, -45°  |             |           | +45°, -45°                         |                   |             |                   |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |           |                                    |                   |             |                   |
| Gain (dBi)   | at mid Tilt   | 17.1        | 17.4      | 17.9                               | 17.2              | 17.5        | 18.0              |
|  | over all Tilts  | 16.9 ±0.5   | 17.2 ±0.5 | 17.7 ±0.5                          | 17.0 ±0.5         | 17.4 ±0.4   | 17.9 ±0.5         |
| Side lobe suppression for first side lobe above main beam (dB) | > 17  | > 18        | > 17      | > 18                               | > 18              | > 16        | > 16              |
| Horizontal 3dB beam width (°)                                  | 67 ±6.8   | 62 ±7.0     | 58 ±6.9   | 67 ±4.2                            | 64 ±4.6           | 60 ±4.4     | 60 ±4.4           |
| Vertical 3dB beam width (°)                                    | 6.4 ±0.6  | 5.8 ±0.4    | 4.8 ±0.4  | 6.4 ±0.5                           | 5.8 ±0.5          | 4.8 ±0.4    | 4.8 ±0.4          |
| VSWR   | < 1.5   |             |           | < 1.5                              |                   |             |                   |
| Cross polar isolation (dB)                                     | ≥ 28  |             |           | ≥ 28                               |                   |             |                   |
| Interband isolation (dB)                                       | ≥ 28  |             |           | ≥ 28                               |                   |             |                   |
| Front to back ratio, ±30° (dB)                                 | > 27  | > 27        | > 26      | > 24                               | > 27              | > 26        | > 26              |
| Cross polar ratio (dB)   | 0°  | > 21        | > 21      | > 22                               | > 22              | > 22        | > 21              |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |           | 250 (at 50°C ambient temperature)* |                   |             |                   |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                           |             |           | ≤ -150 (2 x 43 dBm carrier)        |                   |             |                   |
| Impedance (Ω)  | 50  |             |           | 50                                 |                   |             |                   |
| Grounding  | DC Ground   |             |           | DC Ground                          |                   |             |                   |

\* Total power : 900 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

AHP4517R0v07

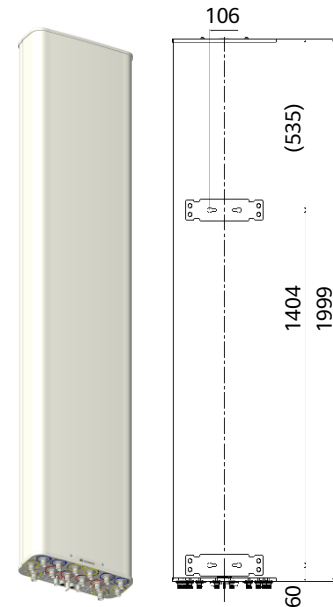
D7X-690-862/880-960/1427-2690/2x(1695-2200)/2x(2490-2690)-7x65-15i/15.5i/17.5i/17i/17i/17.5i/17.5i-7xM-R

EasyRET 2L5H 14-Port Antenna with 7 Integrated RCUs - 2.0m



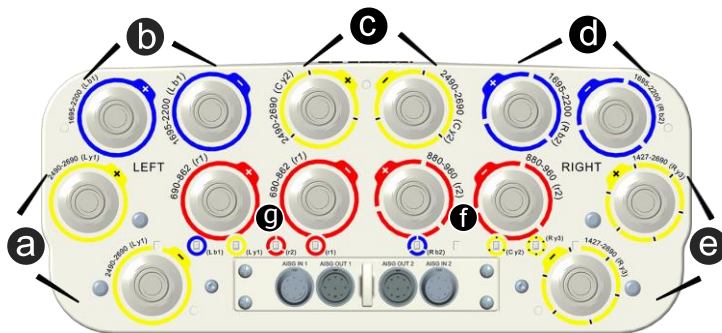
**Mechanical Properties**

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 369 x 149   |
| Packing dimensions (H x W x D) (mm) | 2265 x 435 x 240   |
| Antenna weight (kg)                 | 35.0   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 51.3 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 580 (at 150 km/h)<br>Lateral: 195 (at 150 km/h)<br>Maximum: 700 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 14 x 4.3-10 Female   |
| Connector position                  | Bottom   |



**Accessories**

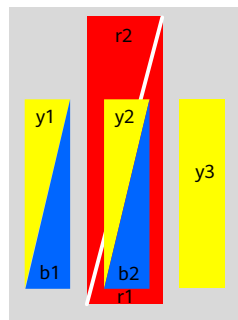
| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 12 ° | 2.1 kg | 1 (Separate packing) |



**Integrated RET S/N:**

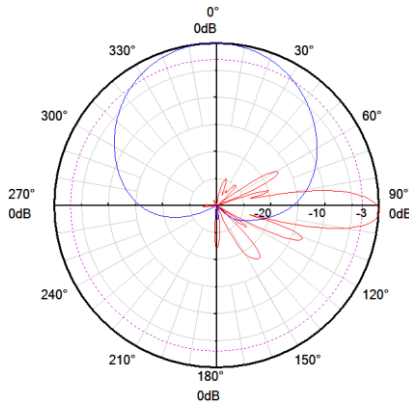
- a HWxxx.....Ly1
- b HWxxx.....Lb1
- c HWxxx.....Cy2
- d HWxxx.....Rb2
- e HWxxx.....Ry3
- f HWxxx.....r2
- g HWxxx.....r1

r - Red                      y - Yellow                      b - Blue  
C - Center array        L - Left array                R - Right array

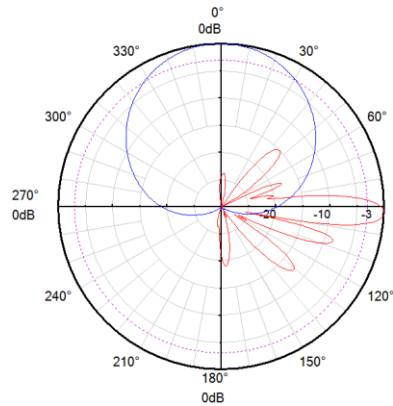


**Pattern sample for reference**

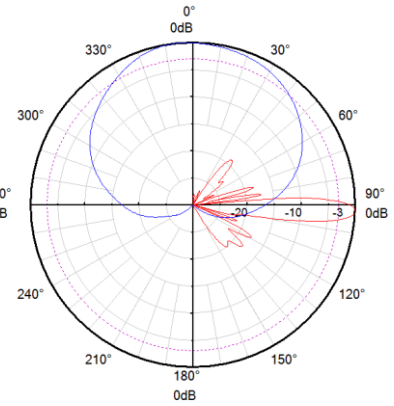
2LnH Band



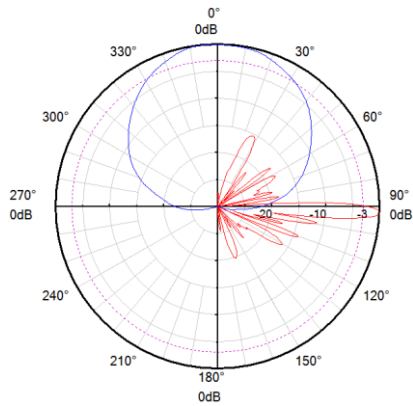
**690 - 862 MHz**



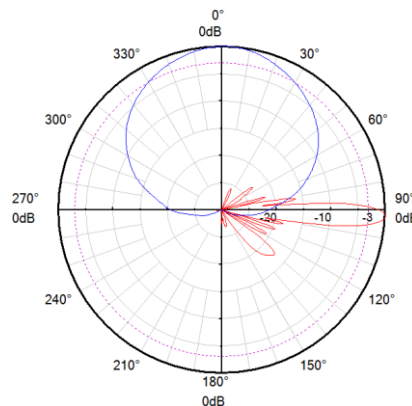
**880 - 960 MHz**



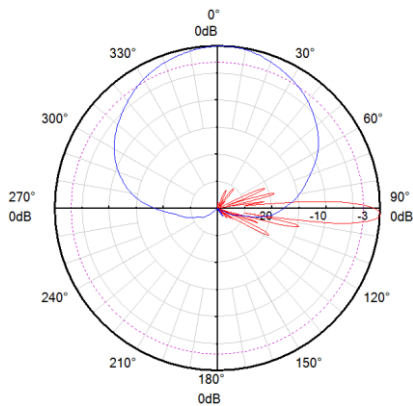
**1427 - 2690 MHz**



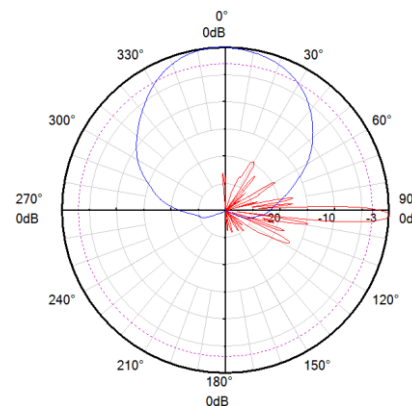
**1695 - 2200 MHz  
(Lb1)**



**1695 - 2200 MHz  
(Rb2)**



**2490 - 2690 MHz  
(Ly1)**



**2490 - 2690 MHz  
(Cy2)**

AHP4517R0v07

D7X-690-862/880-960/1427-2690/2x(1695-2200)/2x(2490-2690)-7x65-

15i/15.5i/17.5i/17i/17i/17.5i/17.5i-7xM-R

EasyRET 2L5H 14-Port Antenna with 7 Integrated RCUs - 2.0m



## Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



## Antenna Specifications

| Electrical Properties  |                |   |           |                |                                    |             |             |             |             |
|--|----------------|---|-----------|----------------|------------------------------------|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 690 - 862 (r1)  |           | 880 - 960 (r2) | 1427 - 2690 (RBy4)                 |             |             |             |             |
|  |                | 690 - 803   | 790 - 862 |                | 1427 - 1518                        | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |           |                | +45°, -45°                         |             |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |           |                | 2 - 12, continuously adjustable    |             |             |             |             |
| Gain (dBi)   | at mid Tilt    | 15.9  | 16.3      | 17.0           | 15.9                               | 17.3        | 17.5        | 17.8        | 18.1        |
|  | over all Tilts | 15.8 ±0.5   | 16.0 ±0.5 | 16.7 ±0.5      | 15.8 ±0.5                          | 17.1 ±0.5   | 17.2 ±0.5   | 17.5 ±0.4   | 17.6 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 15      | > 16           | > 15                               | > 17        | > 17        | > 15        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 67 ±1.5   | 66 ±2.6   | 60 ±2.3        | 73 ±6.0                            | 69 ±5.5     | 68 ±5.7     | 63 ±4.7     | 58 ±4.0     |
| Vertical 3dB beam width (°)                                    |                | 9.2 ±0.8  | 8.6 ±1.3  | 7.3 ±0.5       | 8.0 ±0.4                           | 6.5 ±0.6    | 5.9 ±0.5    | 5.1 ±0.4    | 4.8 ±0.4    |
| VSWR   |                | < 1.5   |           |                | < 1.5                              | < 1.5       |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |                | ≥ 28                               | ≥ 28        |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |           |                | ≥ 28                               | ≥ 28        |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 23  | > 24      | > 25           | > 22                               | > 23        | > 23        | > 27        | > 24        |
| Cross polar ratio (dB)   |                | 0°  | > 18      | > 19           | > 22                               | > 20        | > 22        | > 21        | > 22        |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                    |           |                | 250 (at 50°C ambient temperature)* |             |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                           |           |                | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |             |
| Impedance (Ω)  |                | 50  |           |                |                                    |             |             |             |             |
| Grounding  |                | DC Ground   |           |                |                                    |             |             |             |             |

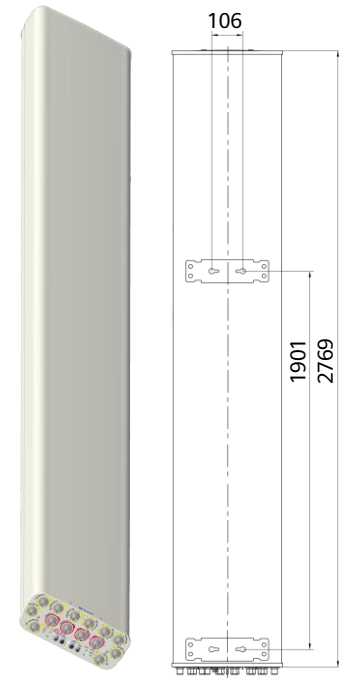
| Electrical Properties  |        |   |           |             |           |             |           |             |           |
|--|--------|---|-----------|-------------|-----------|-------------|-----------|-------------|-----------|
| Frequency range (MHz)  |        | 4 x (1695 - 2690)                                     |           |             |           |             |           |             |           |
|  |        | 1695 - 1990   |           | 1920 - 2200 |           | 2200 - 2490 |           | 2490 - 2690 |           |
| Polarization   |        | +45°, -45°  |           |             |           |             |           |             |           |
| Electrical downtilt (°)  |        | 2 - 12, continuously adjustable, each band separately |           |             |           |             |           |             |           |
| Gain (dBi)   | Bottom | at mid Tilt   | 17.3      |             | 17.5      |             | 18.1      |             | 18.2      |
|  |        | over all Tilts  | 17.1 ±0.5 |             | 17.3 ±0.5 |             | 17.9 ±0.4 |             | 18.0 ±0.5 |
|  | Top    | at mid Tilt   | 16.8      |             | 17.1      |             | 17.6      |             | 18.0      |
|  |        | over all Tilts  | 16.5 ±0.5 |             | 16.9 ±0.5 |             | 17.4 ±0.4 |             | 17.7 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 17  |           | > 17        |           | > 18        |           | > 17        |           |
| Horizontal 3dB beam width (°)                                  |        | 66 ±4.7   |           | 66 ±5.2     |           | 60 ±5.3     |           | 58 ±5.1     |           |
| Vertical 3dB beam width (°)                                    |        | 6.6 ±0.6  |           | 6.0 ±0.5    |           | 5.2 ±0.5    |           | 4.8 ±0.4    |           |
| VSWR   |        | < 1.5   |           |             |           |             |           |             |           |
| Cross polar isolation (dB)                                     |        | ≥ 28  |           |             |           |             |           |             |           |
| Interband isolation (dB)                                       |        | ≥ 28  |           |             |           |             |           |             |           |
| Front to back ratio, ±30° (dB)                                 |        | > 25  |           | > 27        |           | > 27        |           | > 26        |           |
| Cross polar ratio (dB)   |        | 0°  | > 23      |             | > 20      |             | > 19      |             | > 23      |
| Max. power per input (W)                                       |        | 250 (at 50°C ambient temperature)*                    |           |             |           |             |           |             |           |
| Intermodulation IM3 (dBc)                                      |        | ≤ -153 (2 x 43 dBm carrier)                           |           |             |           |             |           |             |           |
| Impedance (Ω)  |        | 50  |           |             |           |             |           |             |           |
| Grounding  |        | DC Ground   |           |             |           |             |           |             |           |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.



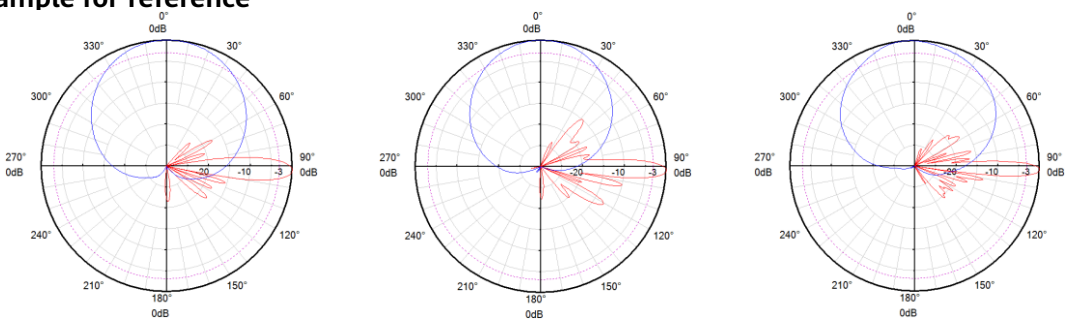
| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2769 x 369 x 149  |
| Packing dimensions (H x W x D) (mm) | 2965 x 435 x 240  |
| Antenna weight (kg)                 | 43.7  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 64.5 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 845 (at 150 km/h)<br>Lateral: 280 (at 150 km/h)<br>Maximum: 1015 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 14 x 4.3-10 Female  |
| Connector position                  | Bottom  |



### Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |

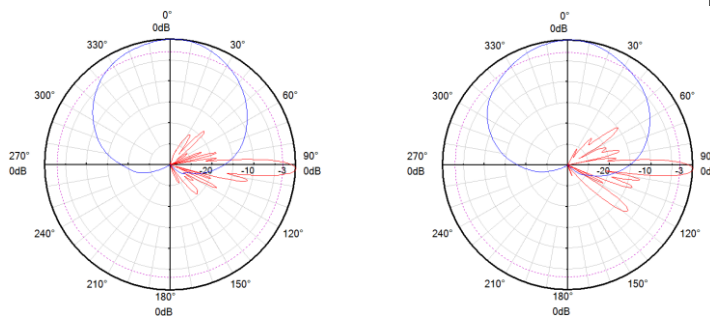
### Pattern sample for reference



690 - 862 MHz

880 - 960 MHz

1427 - 2690 MHz



1695 - 2690 MHz  
(Bottom)

1695 - 2690 MHz  
(Top)

### Integrated RET Specifications

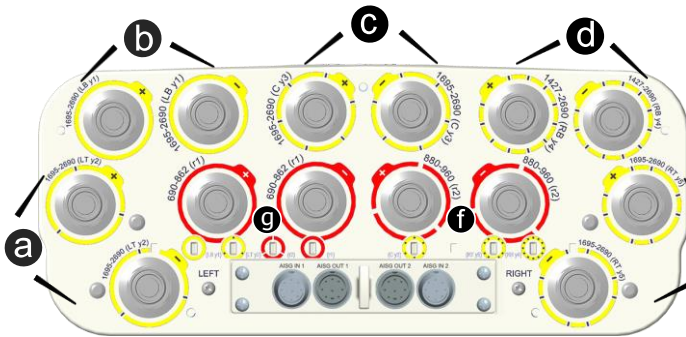
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

2L5H Band

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

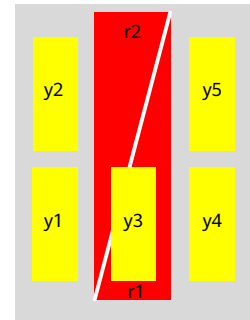
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a HWxxxx.....LTy2
- b HWxxxx.....LBy1
- c HWxxxx.....Cy3
- d HWxxxx.....RBy4
- e HWxxxx.....RTy5
- f HWxxxx.....r2
- g HWxxxx.....r1

r - Red  
 C - Center array  
 T - Top array  
 L - Left array  
 B - Bottom array



b - Blue  
 R - Right array

## Antenna Specifications

| Electrical Properties  |                |  |           |           |   |             |             |             |
|--|----------------|--|-----------|-----------|---|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (617 - 894) (Lr1/Rr2)                              |           |           | 2 x (1695 - 2690) (Ly1/Ry4)                           |             |             |             |
|  |                | 617 - 698  | 698 - 798 | 814 - 894 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45° , -45°  |           |           |   |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12 , continuously adjustable, each band separately |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 14.3   | 14.9      | 15.4      | 17.0  | 17.2        | 17.6        | 18.0        |
|  | over all Tilts | 14.1 ±0.5  | 14.8 ±0.4 | 15.2 ±0.5 | 16.9 ±0.5   | 17.2 ±0.5   | 17.5 ±0.5   | 17.9 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15   | > 16      | > 16      | > 15  | > 15        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 69 ±5  | 67 ±5     | 63 ±6     | 65 ±6   | 62 ±5       | 61 ±5       | 60 ±6       |
| Vertical 3dB beam width (°)                                    |                | 13.1 ±1.3  | 10.9 ±1   | 9.6 ±0.8  | 7.4 ±0.6  | 6.6 ±0.5    | 5.8±0.4     | 5.3 ±0.4    |
| VSWR   |                | < 1.5  |           |           |   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28   |           |           |   |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28   |           |           |   |             |             |             |
| Front to back ratio , ±30° (dB)                                |                | > 21   | > 21      | > 22      | > 24  | > 24        | > 25        | > 25        |
| Cross polar ratio (dB)   0°                                    |                | > 17   | > 17      | > 18      | > 17  | > 17        | > 17        | > 18        |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)                      |           |           | 250 (at 50°C ambient temperature)                     |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                            |           |           |   |             |             |             |
| Impedance (Ω)  |                | 50   |           |           |   |             |             |             |
| Grounding  |                | DC Ground  |           |           |   |             |             |             |

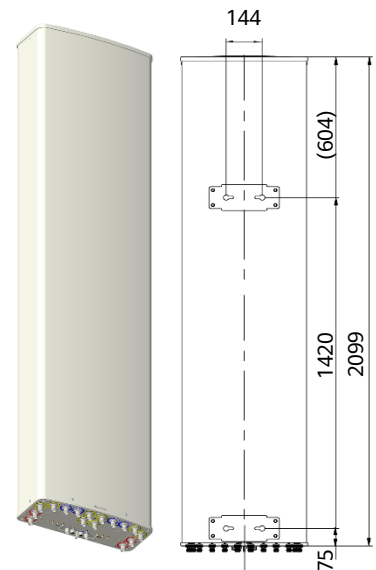
| Electrical Properties  |                |  |             |                               |
|--|----------------|--|-------------|-------------------------------|
| Frequency range (MHz)  |                | 2 x (1695 - 2200) (Lb1/Rb2)                            |             | 2 x (2490 - 2690) (CLy2/CRy3) |
|  |                | 1695 - 1990  | 1920 - 2200 | 2490 - 2690                   |
| Polarization   |                | +45° , -45°  |             |                               |
| Electrical downtilt (°)  |                | 2 - 12 , continuously adjustable, each band separately |             |                               |
| Gain (dBi)   | at mid Tilt    | 16.5   | 16.9        | 17.4                          |
|  | over all Tilts | 16.4 ±0.5  | 16.8 ±0.5   | 17.2 ±0.5                     |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15   | > 16        | > 16                          |
| Horizontal 3dB beam width (°)                                  |                | 66 ±6  | 63 ±5       | 58 ±6                         |
| Vertical 3dB beam width (°)                                    |                | 7.9 ±0.7   | 7.0 ±0.6    | 5.4 ±0.4                      |
| VSWR   |                | < 1.5  |             |                               |
| Cross polar isolation (dB)                                     |                | ≥ 28   |             |                               |
| Interband isolation (dB)                                       |                | ≥ 28   |             |                               |
| Front to back ratio , ±30° (dB)                                |                | > 24   | > 24        | > 25                          |
| Cross polar ratio (dB)   0°                                    |                | > 17   | > 17        | > 18                          |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                     |             |                               |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                            |             |                               |
| Impedance (Ω)  |                | 50   |             |                               |
| Grounding  |                | DC Ground  |             |                               |

\* Total power : 900 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2099 x 499 x 206  |
| Packing dimensions (H x W x D) (mm) | 2360 x 550 x 245  |
| Antenna weight (kg)                 | 46.0  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 59.2 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 895 (at 150 km/h)<br>Lateral: 425 (at 150 km/h)<br>Maximum: 1075 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 16 x 4.3-10 Female  |
| Connector position                  | Bottom  |

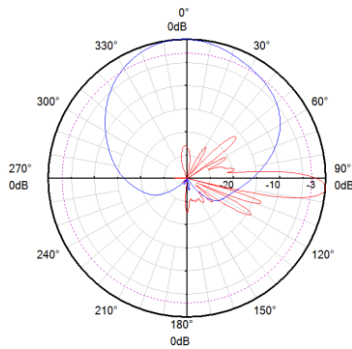


2LnH Band

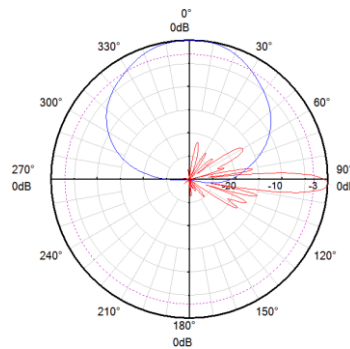
**Accessories**

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12° | 3.1 kg | 1 (Separate packing) |

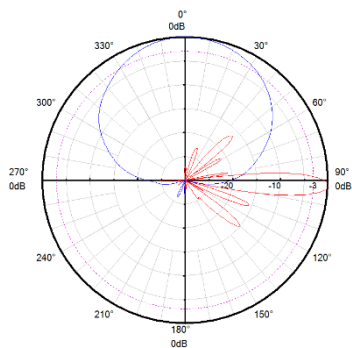
**Pattern sample for reference**



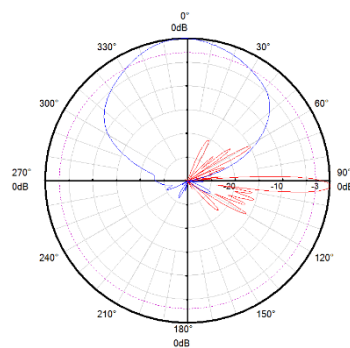
**617 - 894 MHz**



**1695 - 2690 MHz**



**1695- 2200 MHz**



**2490 - 2690 MHz**

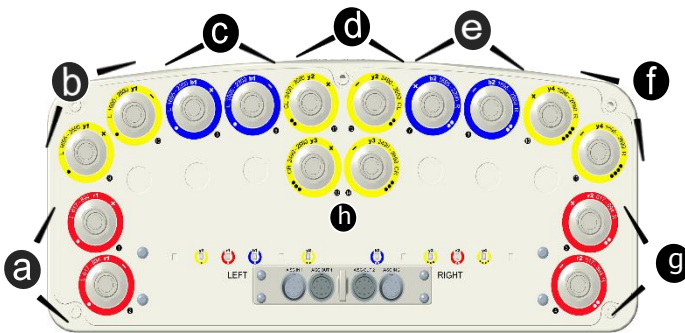
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

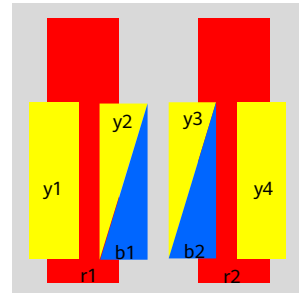
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN 55024 (Immunity), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



### Integrated RET S/N:

- a HWxxx.....Lr1
- b HWxxx.....Ly1
- c HWxxx.....Lb1
- d HWxxx.....CLy2
- e HWxxx.....Rb2
- f HWxxx.....Ry4
- g HWxxx.....Rr2
- h HWxxx.....CRy3



r - Red                      y - Yellow                      b-Blue  
 C - Center array        L - Left array                R - Right array

## Antenna Specifications

| Electrical Properties  |   |           |           |           |   |             |                               |           |
|--|---|-----------|-----------|-----------|---|-------------|-------------------------------|-----------|
| Frequency range (MHz)  | 2 x (690 - 960) (Lr1/Rr2)                             |           |           |           | 2 x (1695 - 2200) (Lb1/Rb2)                           |             | 2 x (2490 - 2690) (CLy2/CRy3) |           |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 |                               |           |
| Polarization   | +45°, -45°  |           |           |           |   |             |                               |           |
| Electrical downtilt (°)  | 0 - 14, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |                               |           |
| Gain (dBi)   | at mid Tilt   | 13.7      | 14.0      | 14.1      | 14.3  | 16.1        | 16.7                          | 17.1      |
|  | over all Tilts  | 13.6 ±0.5 | 14.0 ±0.5 | 14.1 ±0.5 | 14.2 ±0.5   | 16.0 ±0.6   | 16.6 ±0.5                     | 17.0 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 16      | > 16      | > 16      | > 15  | > 16        | > 16                          | > 16      |
| Horizontal 3dB beam width (°)                                  | 69 ±6   | 67 ±6     | 66 ±6     | 65 ±6     | 70 ±7   | 66 ±6       | 63 ±6                         | 63 ±6     |
| Vertical 3dB beam width (°)                                    | 15.1 ±1.5   | 13.8 ±0.9 | 13.3 ±0.9 | 12.4 ±0.8 | 7.2 ±0.8  | 6.4 ±0.7    | 5.0 ±0.6                      | 5.0 ±0.6  |
| VSWR   | < 1.5   |           |           |           | < 1.5   |             |                               |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           | ≥ 28  |             |                               |           |
| Interband isolation (dB)                                       | ≥ 26  |           |           |           | ≥ 26  |             |                               |           |
| Front to back ratio, ±30° (dB)                                 | > 20  | > 21      | > 22      | > 22      | > 23  | > 25        | > 24                          | > 24      |
| Cross polar ratio (dB)   | 0°  | > 18      | > 18      | > 18      | > 18  | > 16        | > 16                          | > 18      |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)*                    |           |           |           | 250 (at 50°C ambient temperature)*                    |             |                               |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           | ≤ -153 (2 x 43 dBm carrier)                           |             |                               |           |
| Impedance (Ω)  | 50  |           |           |           | 50  |             |                               |           |
| Grounding  | DC Ground   |           |           |           | DC Ground   |             |                               |           |

| Electrical Properties  |   |             |             |             |             |           |  |  |  |
|--|---|-------------|-------------|-------------|-------------|-----------|--|--|--|
| Frequency range (MHz)  | 2 x (1427 - 2690) (Ly1/Ry4)                           |             |             |             |             |           |  |  |  |
|  | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |  |  |  |
| Polarization   | +45°, -45°  |             |             |             |             |           |  |  |  |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |             |             |             |           |  |  |  |
| Gain (dBi)   | at mid Tilt   | 15.8        | 17.0        | 17.2        | 17.3        | 17.6      |  |  |  |
|  | over all Tilts  | 15.7 ±0.6   | 16.9 ±0.6   | 17.1 ±0.5   | 17.2 ±0.5   | 17.5 ±0.5 |  |  |  |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 16        | > 16        | > 16        | > 16        | > 16      |  |  |  |
| Horizontal 3dB beam width (°)                                  | 70 ±7   | 69 ±6       | 68 ±6       | 65 ±6       | 59 ±6       |           |  |  |  |
| Vertical 3dB beam width (°)                                    | 8.9 ±0.6  | 7.2 ±0.5    | 6.4 ±0.6    | 5.6 ±0.4    | 5.1 ±0.4    |           |  |  |  |
| VSWR   | < 1.5   | < 1.5       |             |             |             |           |  |  |  |
| Cross polar isolation (dB)                                     | ≥ 28  | ≥ 28        |             |             |             |           |  |  |  |
| Interband isolation (dB)                                       | ≥ 26  | ≥ 26        |             |             |             |           |  |  |  |
| Front to back ratio, ±30° (dB)                                 | > 23  | > 26        | > 25        | > 24        | > 24        | > 24      |  |  |  |
| Cross polar ratio (dB)   | 0°  | > 17        | > 18        | > 18        | > 18        | > 16      |  |  |  |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |             |             |             |           |  |  |  |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |             |           |  |  |  |
| Impedance (Ω)  | 50  |             |             |             |             |           |  |  |  |
| Grounding  | DC Ground   |             |             |             |             |           |  |  |  |

\* Total power : 700 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

AOC4518R7v06

D8X-2x(690-960)/2x(1427-2690)/2x(1695-2200)/2x(2490-2690)-8x65-

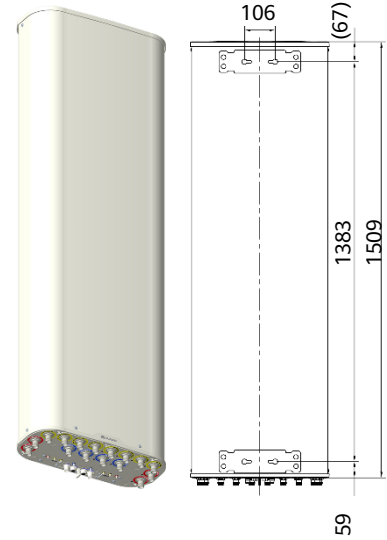
14.5i/14.5i/17.5i/17.5i/16.5i/16.5i/17i/17i-8xM-R

EasyRET 2L6H 16-Port Antenna with 8 Integrated RCUs - 1.5m



**Mechanical Properties**

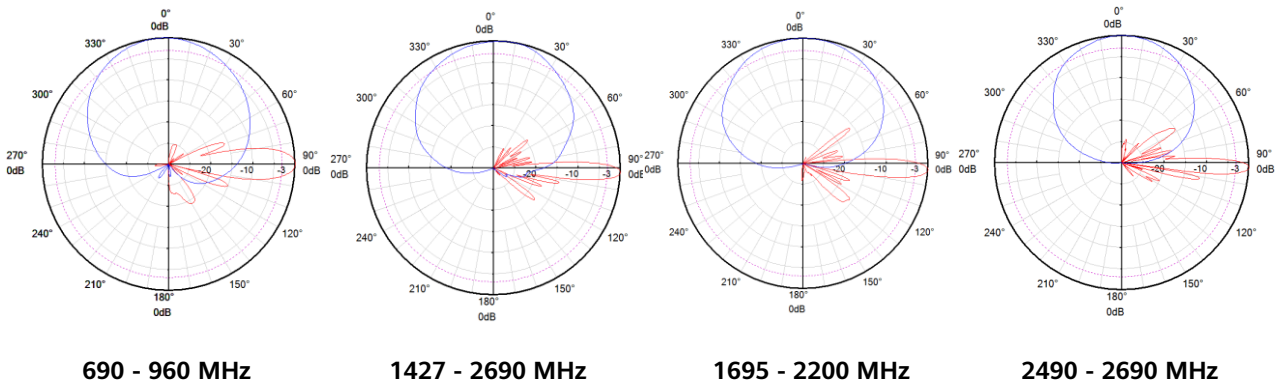
|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1509 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 1760 x 540 x 250   |
| Antenna weight (kg)                 | 39.3   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 51.5 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 445 (at 150 km/h)<br>Lateral: 265 (at 150 km/h)<br>Maximum: 590 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 16 x 4.3-10 Female   |
| Connector position                  | Bottom   |



**Accessories**

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 16 ° | 3.1 kg | 1 (Separate packing) |

**Pattern sample for reference**



**Integrated RET Specifications**

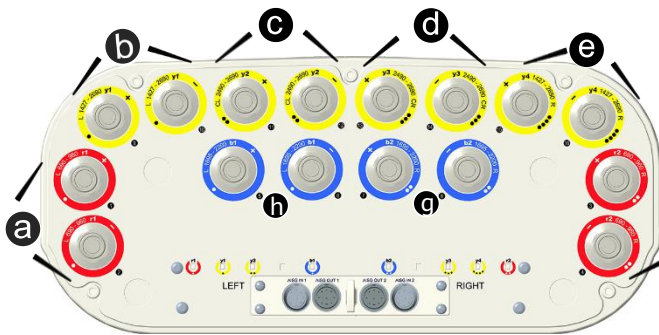
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

2L6H Band

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

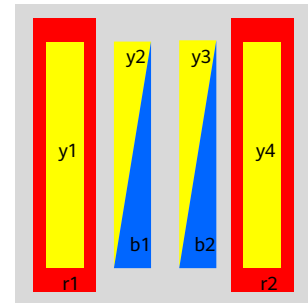
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Integrated RET S/N:**

- a HWxxxx.....Lr1
- b HWxxxx.....Ly1
- c HWxxxx.....CLy2
- d HWxxxx.....CRy3
- e HWxxxx.....Ry4
- f HWxxxx.....Rr2
- g HWxxxx.....Rb2
- h HWxxxx.....Lb1



r - Red                      y - Yellow                      b - Blue  
 L - Left array              R - Right array              C - Center array





## Antenna Specifications

| Electrical Properties  |   |           |           |           |   |             |                               |           |
|--|---|-----------|-----------|-----------|---|-------------|-------------------------------|-----------|
| Frequency range (MHz)  | 2 x (690 - 960) (Lr1/Rr2)                             |           |           |           | 2 x (1695 - 2200) (Lb1/Rb2)                           |             | 2 x (2490 - 2690) (CLy2/CRy3) |           |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 |                               |           |
| Polarization   | +45°, -45°  |           |           |           |   |             |                               |           |
| Electrical downtilt (°)  | 2 - 14, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |                               |           |
| Gain (dBi)   | at mid Tilt   | 14.6      | 14.9      | 15.1      | 15.3  | 16.1        | 16.7                          | 17.1      |
|  | over all Tilts  | 14.5 ±0.5 | 14.8 ±0.5 | 15.0 ±0.5 | 15.2 ±0.5   | 16.0 ±0.6   | 16.6 ±0.5                     | 17.0 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 16      | > 16      | > 16      | > 15  | > 16        | > 16                          | > 16      |
| Horizontal 3dB beam width (°)                                  | 70 ±6   | 69 ±6     | 68 ±6     | 66 ±6     | 70 ±7   | 66 ±6       | 63 ±6                         |           |
| Vertical 3dB beam width (°)                                    | 10.8 ±0.8   | 10.0 ±0.6 | 9.5 ±0.6  | 8.9 ±0.5  | 7.2 ±0.8  | 6.4 ±0.7    | 5.0 ±0.6                      |           |
| VSWR   | < 1.5   |           |           |           | < 1.5   |             |                               |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           | ≥ 28  |             |                               |           |
| Interband isolation (dB)                                       | ≥ 27  |           |           |           | ≥ 27  |             |                               |           |
| Front to back ratio, ±30° (dB)                                 | > 21  | > 21      | > 22      | > 23      | > 23  | > 25        | > 24                          |           |
| Cross polar ratio (dB)   | 0°  | > 18      | > 18      | > 18      | > 18  | > 16        | > 16                          | > 18      |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)*                    |           |           |           | 250 (at 50°C ambient temperature)*                    |             |                               |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           | ≤ -153 (2 x 43 dBm carrier)                           |             |                               |           |
| Impedance (Ω)  | 50  |           |           |           | 50  |             |                               |           |
| Grounding  | DC Ground   |           |           |           | DC Ground   |             |                               |           |

| Electrical Properties  |   |             |             |             |             |           |  |
|--|---|-------------|-------------|-------------|-------------|-----------|--|
| Frequency range (MHz)  | 2 x (1427 - 2690) (Ly1/Ry4)                           |             |             |             |             |           |  |
|  | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |  |
| Polarization   | +45°, -45°  |             |             |             |             |           |  |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |             |             |             |           |  |
| Gain (dBi)   | at mid Tilt   | 15.8        | 17.0        | 17.2        | 17.3        | 17.6      |  |
|  | over all Tilts  | 15.7 ±0.6   | 16.9 ±0.6   | 17.1 ±0.5   | 17.2 ±0.5   | 17.5 ±0.5 |  |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 16        | > 16        | > 16        | > 16        | > 16      |  |
| Horizontal 3dB beam width (°)                                  | 70 ±7   | 69 ±6       | 68 ±6       | 65 ±6       | 59 ±6       |           |  |
| Vertical 3dB beam width (°)                                    | 8.9 ±0.6  | 7.2 ±0.5    | 6.4 ±0.6    | 5.6 ±0.4    | 5.1 ±0.4    |           |  |
| VSWR   | < 1.5   | < 1.5       |             |             |             |           |  |
| Cross polar isolation (dB)                                     | ≥ 28  | ≥ 28        |             |             |             |           |  |
| Interband isolation (dB)                                       | ≥ 27  | ≥ 27        |             |             |             |           |  |
| Front to back ratio, ±30° (dB)                                 | > 23  | > 26        | > 25        | > 24        | > 24        |           |  |
| Cross polar ratio (dB)   | 0°  | > 17        | > 18        | > 18        | > 18        | > 16      |  |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |             |             |             |           |  |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |             |           |  |
| Impedance (Ω)  | 50  |             |             |             |             |           |  |
| Grounding  | DC Ground   |             |             |             |             |           |  |

\* Total power : 900 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

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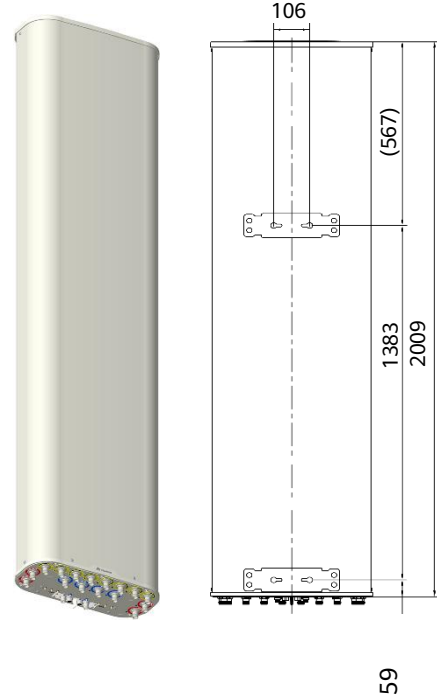
D8X-2x(690-960)/2x(1427-2690)/2x(1695-2200)/2x(2490-2690)-8x65-

15.5i/15.5i/17.5i/17.5i/16.5i/16.5i/17i/17i-8xM-R

EasyRET 2L6H 16-Port Antenna with 8 Integrated RCUs - 2.0m



| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2009 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 2265 x 555 x 255   |
| Antenna weight (kg)                 | 45.5   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 61 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 605 (at 150 km/h)<br>Lateral: 370 (at 150 km/h)<br>Maximum: 800 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 16 x 4.3-10 Female   |
| Connector position                  | Bottom   |

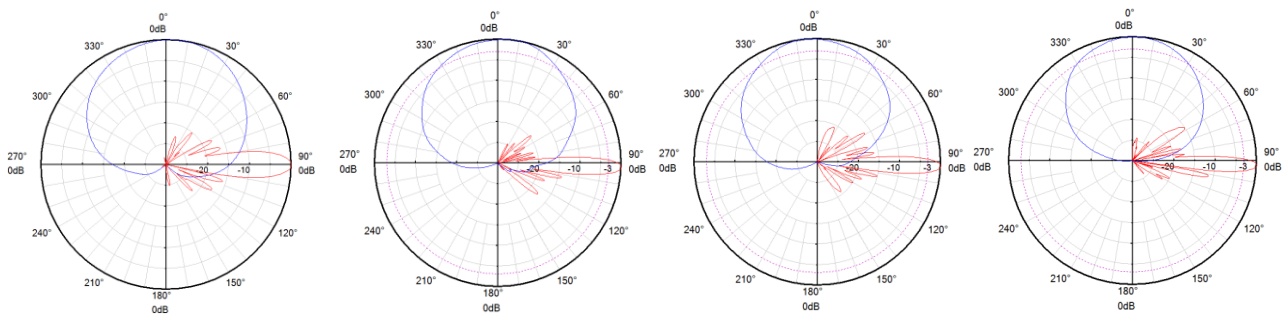


2LnH Band

### Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12 ° | 3.1 kg | 1 (Separate packing) |

### Pattern sample for reference



690 - 960 MHz

1427 - 2690 MHz

1695 - 2200 MHz

2490 - 2690 MHz

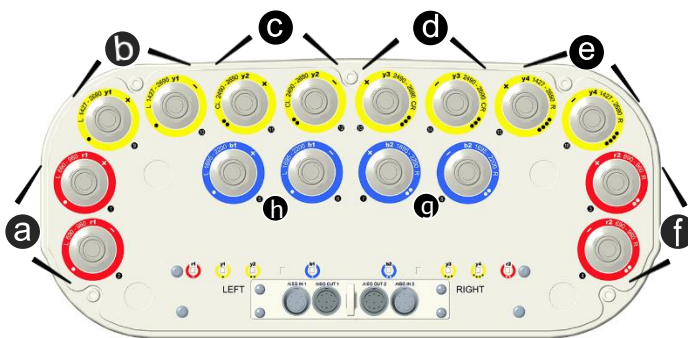
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

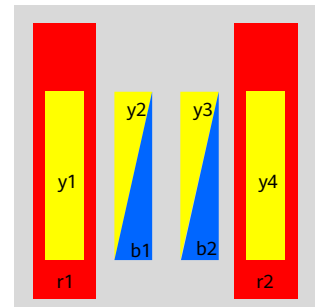
**Standards:** EN/IEC 60950-1 (Safety), EN/IEC 60950-22 (Safety – Equipment installed outdoor), EN 55032 (Emission), EN/IEC 62368-1 (Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Integrated RET S/N:**

- a HWxxx.....Lr1
- b HWxxx.....Ly1
- c HWxxx.....CLy2
- d HWxxx.....CRy3
- e HWxxx.....Ry4
- f HWxxx.....Rr2
- g HWxxx.....Rb2
- h HWxxx.....Lb1



r - Red                      y - Yellow                      b- Blue  
 L - Left array              C - Center array              R - Right array

## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |
|--|----------------|---|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 2 x (690 - 960) (Lr1 / Rr2)                             |           |           |           |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45° , -45°   |           |           |           |
| Electrical downtilt (°)  |                | 2 - 12 , continuously adjustable , each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 15.8  | 16.4      | 16.7      | 16.9      |
|  | over all Tilts | 15.6 ±0.5   | 16.3 ±0.5 | 16.5 ±0.5 | 16.7 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 16      | > 16      | > 16      |
| Horizontal 3dB beam width (°)                                  |                | 70 ±5   | 69 ±4     | 68 ±3     | 64 ±4     |
| Vertical 3dB beam width (°)                                    |                | 9.0 ±0.5  | 8.0 ±0.4  | 7.7 ±0.5  | 7.2 ±0.4  |
| VSWR   |                | < 1.5   |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |           |
| Front to back ratio , ±30° (dB)                                |                | > 22  | > 24      | > 24      | > 25      |
| Cross polar ratio (dB) 0°                                      |                | > 20  | > 22      | > 22      | > 20      |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)*                      |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                             |           |           |           |
| Impedance (Ω)  |                | 50  |           |           |           |
| Grounding  |                | DC Ground   |           |           |           |

| Electrical Properties  |        |   |             |             |             |             |  |             |             |             |           |
|--|--------|---|-------------|-------------|-------------|-------------|--|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  |        | 2 x (1427 - 2690)<br>(CBy3 / CTy4)                      |             |             |             |             | 4 x (1695 - 2690)<br>(LBy1 / LTy2 / RBy5 / RTy6) |             |             |             |           |
|  |        | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990                                      | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   |        | +45° , -45°   |             |             |             |             | +45° , -45°                                      |             |             |             |           |
| Electrical downtilt (°)  |        | 2 - 12 , continuously adjustable , each band separately |             |             |             |             |  |             |             |             |           |
| Gain (dBi)   | Bottom | at mid Tilt   | 15.9        | 16.8        | 16.9        | 17.1        | 17.5   | 16.5        | 16.9        | 17.1        | 17.6      |
|  |        | over all Tilts  | 15.8 ±0.5   | 16.7 ±0.5   | 16.8 ±0.5   | 17.0 ±0.5   | 17.4 ±0.5  | 16.4 ±0.5   | 16.8 ±0.5   | 17.0 ±0.5   | 17.5 ±0.5 |
|  | Top    | at mid Tilt   | 16.1        | 16.8        | 17.0        | 17.2        | 17.5   | 16.6        | 17.0        | 17.1        | 17.6      |
|  |        | over all Tilts  | 16.0 ±0.5   | 16.7 ±0.5   | 16.9 ±0.5   | 17.1 ±0.5   | 17.4 ±0.5  | 16.5 ±0.5   | 16.9 ±0.5   | 17.0 ±0.5   | 17.5 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 15  | > 17        | > 17        | > 16        | > 16        | > 16   | > 16        | > 16        | > 16        |           |
| Horizontal 3dB beam width (°)                                  |        | 62 ±7   | 61 ±7       | 62 ±6       | 58 ±5       | 58 ±5       | 61 ±5  | 61 ±5       | 59 ±4       | 58 ±4       |           |
| Vertical 3dB beam width (°)                                    | Bottom | 8.8 ±0.5  | 7.1 ±0.5    | 6.3 ±0.5    | 5.6 ±0.3    | 5.2 ±0.3    | 7.6 ±0.5   | 6.7 ±0.4    | 6.0 ±0.3    | 5.4 ±0.3    |           |
|  | Top    | 7.9 ±0.4  | 6.6 ±0.4    | 5.8 ±0.3    | 5.2 ±0.3    | 4.8 ±0.2    | 6.5 ±0.5   | 5.8 ±0.4    | 5.2 ±0.3    | 4.8 ±0.3    |           |
| VSWR   |        | < 1.5   | < 1.5       |             |             |             | < 1.5  |             |             |             |           |
| Cross polar isolation (dB)                                     |        | ≥ 28  | ≥ 28        |             |             |             | ≥ 28   |             |             |             |           |
| Interband isolation (dB)                                       |        | ≥ 28  | ≥ 28        |             |             |             | ≥ 28   |             |             |             |           |
| Front to back ratio , ±30° (dB)                                |        | > 25  | > 28        | > 28        | > 28        | > 28        | > 25   | > 25        | > 26        | > 26        |           |
| Cross polar ratio (dB) 0°                                      |        | > 15  | > 17        | > 18        | > 16        | > 15        | > 20   | > 18        | > 17        | > 18        |           |
| Max. power per input (W)                                       |        | 250 (at 50°C ambient temperature)*                      |             |             |             |             | 250 (at 50°C ambient temperature)*               |             |             |             |           |
| Intermodulation IM3 (dBc)                                      |        | ≤ -153 (2 x 43 dBm carrier)                             |             |             |             |             | ≤ -153 (2 x 43 dBm carrier)                      |             |             |             |           |
| Impedance (Ω)  |        | 50  |             |             |             |             |  |             |             |             |           |
| Grounding  |        | DC Ground   |             |             |             |             |  |             |             |             |           |

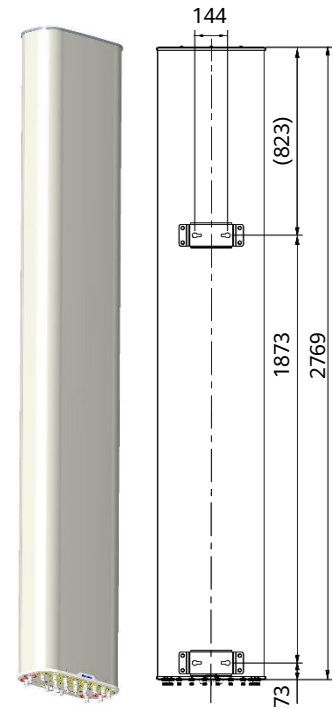
\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

**Mechanical Properties**

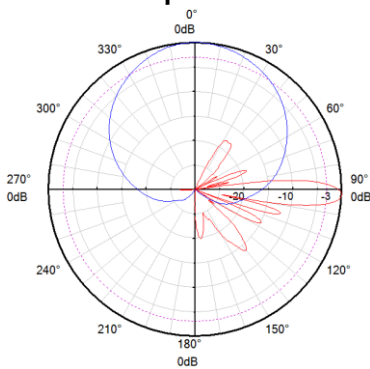
|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2769 x 469 x 206  |
| Packing dimensions (H x W x D) (mm) | 2960 x 545 x 275  |
| Antenna weight (kg)                 | 54.8  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 79.6 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 860 (at 150 km/h)<br>Lateral: 535 (at 150 km/h)<br>Maximum: 1140 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 16 x 4.3-10 Female  |
| Connector position                  | Bottom  |



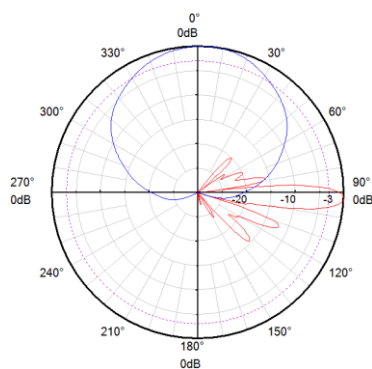
**Accessories**

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |

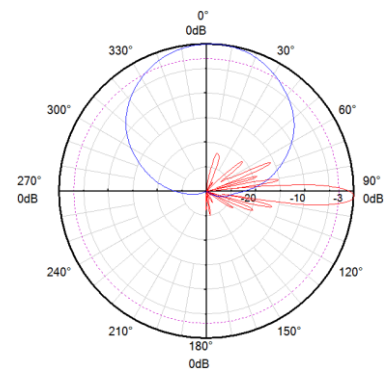
**Pattern sample for reference**



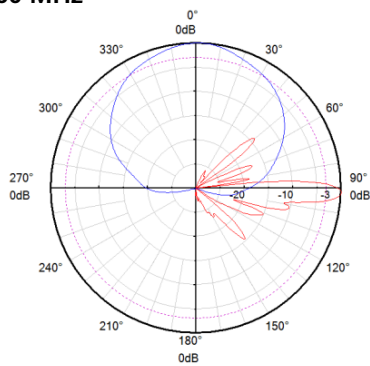
690 - 960 MHz



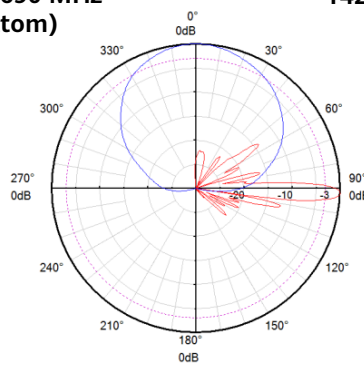
1427 - 2690 MHz (Bottom)



1427 - 2690 MHz (Top)



1695 - 2690 MHz (Bottom)



1695 - 2690 MHz (Top)

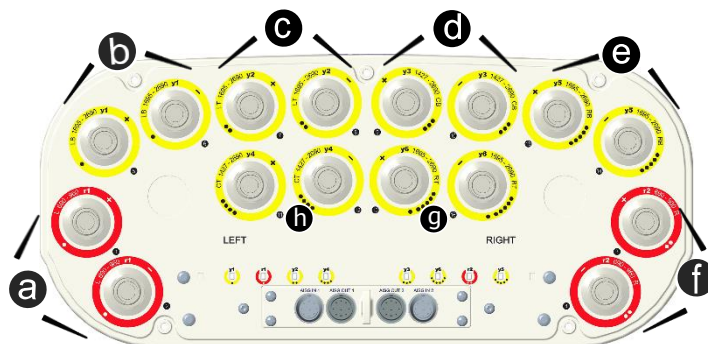
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

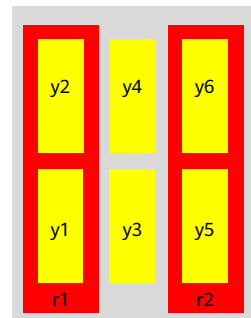
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a HWxxxx.....Lr1
- b HWxxxx.....LBy1
- c HWxxxx.....LTy2
- d HWxxxx.....CBy3
- e HWxxxx.....RBy5
- f HWxxxx.....Rr2
- g HWxxxx.....RTy6
- h HWxxxx.....CTy4

r - Red                      y - Yellow  
 L - Left array              C - Center array              R - Right array  
 T - Top array                B - Bottom array



2LnH Band

## Antenna Specifications

| Electrical Properties  |   |           |           |                |
|--|---|-----------|-----------|----------------|
| Frequency range (MHz)  | 690 - 862 (r1)  |           |           | 880 - 960 (r2) |
|  | 690 - 803   |           | 790 - 862 |                |
| Polarization   | +45° , -45°   |           |           |                |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |           |           |                |
| Gain (dBi)   | at mid Tilt   | 15.0      | 15.2      | 15.5           |
|  | over all Tilts  | 14.9 ±0.5 | 15.1 ±0.5 | 15.4 ±0.5      |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  |           | > 15      | > 16           |
| Horizontal 3dB beam width (°)                                  | 65 ±3   |           | 65 ±3     | 62 ±3          |
| Vertical 3dB beam width (°)                                    | 11.2 ±1.0   |           | 10.0 ±0.8 | 9.0 ±0.7       |
| VSWR   | < 1.5   |           |           |                |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |                |
| Interband isolation (dB)                                       | ≥ 28  |           |           |                |
| Front to back ratio, ±30° (dB)                                 | > 23  |           | > 25      | > 25           |
| Cross polar ratio (dB)   | 0°  | > 20      | > 20      | > 20           |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)*                    |           |           |                |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                           |           |           |                |
| Impedance (Ω)  | 50  |           |           |                |
| Grounding  | DC Ground   |           |           |                |

| Electrical Properties  |  |             |             |             |                               |             |             |             |           |
|--|--|-------------|-------------|-------------|-------------------------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 2 x (1695 - 2690) (LBy1/RBy5)                          |             |             |             | 2 x (1695 - 2690) (LTy2/RTy6) |             |             |             |           |
|  | 1695 - 1990  | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990                   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45° , -45°  |             |             |             |                               |             |             |             |           |
| Electrical downtilt (°)  | 2 - 12 , continuously adjustable, each band separately |             |             |             |                               |             |             |             |           |
| Gain (dBi)   | at mid Tilt  | 15.6        | 16.0        | 16.1        | 16.5                          | 15.1        | 15.5        | 15.7        | 16.0      |
|  | over all Tilts   | 15.4 ±0.6   | 15.8 ±0.6   | 16.0 ±0.6   | 16.3 ±0.6                     | 14.9 ±0.6   | 15.3 ±0.6   | 15.5 ±0.6   | 15.8 ±0.6 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16   | > 16        | > 16        | > 16        | > 15                          | > 16        | > 16        | > 16        | > 16      |
| Horizontal 3dB beam width (°)                                  | 66 ±6  | 66 ±6       | 60 ±6       | 60 ±8       | 66 ±6                         | 66 ±6       | 60 ±6       | 60 ±8       |           |
| Vertical 3dB beam width (°)                                    | 10.4 ±1.0  | 9.4 ±0.9    | 8.1 ±0.8    | 7.4 ±0.7    | 10.1 ±1.0                     | 9.1 ±0.9    | 8.0 ±0.8    | 7.2 ±0.7    |           |
| VSWR   | < 1.5  |             |             |             | < 1.5                         |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 28   |             |             |             | ≥ 28                          |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28   |             |             |             | ≥ 28                          |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 25   | > 25        | > 25        | > 25        | > 25                          | > 25        | > 25        | > 25        | > 25      |
| Cross polar ratio (dB)   | 0°   | > 18        | > 18        | > 18        | > 18                          | > 18        | > 18        | > 18        | > 18      |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                     |             |             |             |                               |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                            |             |             |             |                               |             |             |             |           |
| Impedance (Ω)  | 50   |             |             |             |                               |             |             |             |           |
| Grounding  | DC Ground  |             |             |             |                               |             |             |             |           |

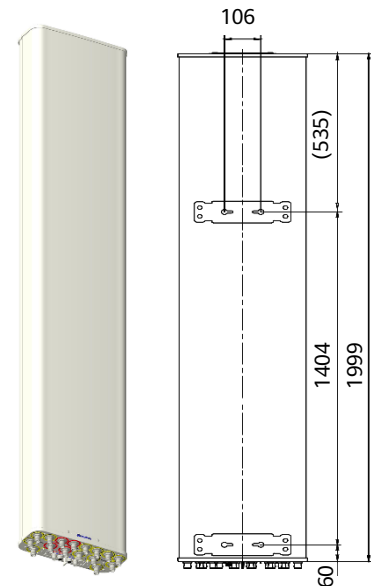
## Antenna Specifications

| Electrical Properties  |  |             |             |             |                    |             |             |             |           |
|--|--|-------------|-------------|-------------|--------------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 1695 - 2690 (CBy3)                                     |             |             |             | 1695 - 2690 (CTy4) |             |             |             |           |
|  | 1695 - 1990  | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45° , -45°  |             |             |             |                    |             |             |             |           |
| Electrical downtilt (°)  | 2 - 12 , continuously adjustable, each band separately |             |             |             |                    |             |             |             |           |
| Gain (dBi)   | at mid Tilt  | 15.6        | 15.9        | 16.2        | 16.5               | 15.0        | 15.4        | 15.6        | 16.0      |
|  | over all Tilts   | 15.4 ±0.6   | 15.7 ±0.6   | 16.0 ±0.6   | 16.3 ±0.6          | 14.9 ±0.6   | 15.2 ±0.6   | 15.5 ±0.6   | 15.8 ±0.6 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16   | > 16        | > 16        | > 16        | > 16               | > 16        | > 16        | > 16        | > 16      |
| Horizontal 3dB beam width (°)                                  | 66 ±6  | 65 ±6       | 60 ±6       | 60 ±8       | 66 ±6              | 65 ±6       | 60 ±6       | 60 ±6       |           |
| Vertical 3dB beam width (°)                                    | 9.8 ±0.9   | 8.8 ±0.8    | 7.8 ±0.6    | 7.0 ±0.6    | 10.1 ±1.0          | 9.1 ±0.9    | 8.0 ±0.8    | 7.2 ±0.7    |           |
| VSWR   | < 1.5  |             |             |             | < 1.5              |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 28   |             |             |             | ≥ 28               |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28   |             |             |             | ≥ 28               |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 25   | > 25        | > 25        | > 25        | > 25               | > 25        | > 25        | > 25        |           |
| Cross polar ratio (dB)   | 0°   | > 18        | > 18        | > 18        | > 18               | > 18        | > 18        | > 18        |           |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                     |             |             |             |                    |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                            |             |             |             |                    |             |             |             |           |
| Impedance (Ω)  | 50   |             |             |             |                    |             |             |             |           |
| Grounding  | DC Ground  |             |             |             |                    |             |             |             |           |

\* Total power : 900 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 369 x 149   |
| Packing dimensions (H x W x D) (mm) | 2265 x 435 x 240   |
| Antenna weight (kg)                 | 36.0   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 56.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 580 (at 150 km/h)<br>Lateral: 195 (at 150 km/h)<br>Maximum: 700 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 16 x 4.3-10 Female   |
| Connector position                  | Bottom   |

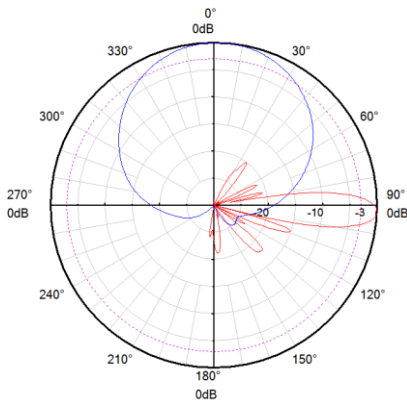


## Accessories

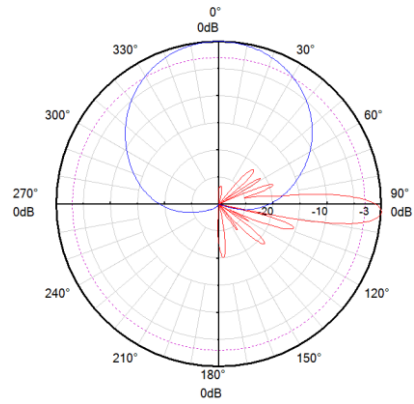
| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12 ° | 3.1 kg | 1 (Separate packing) |



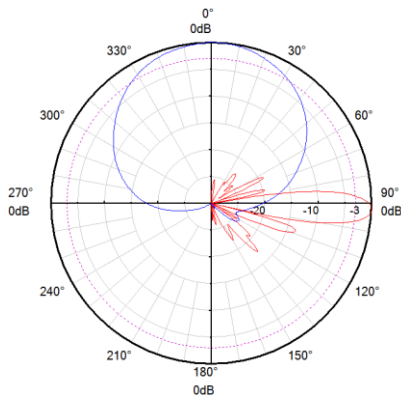
**Pattern sample for reference**



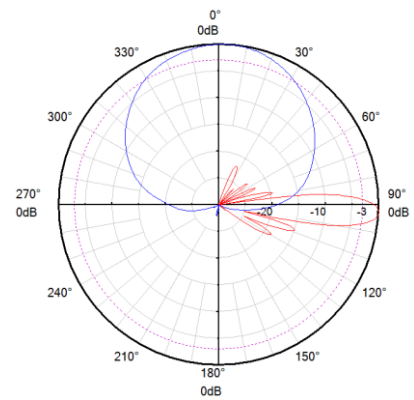
**690 - 862 MHz**



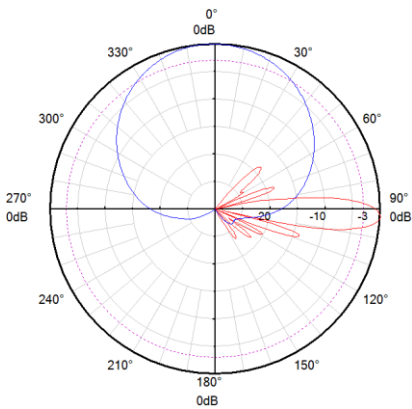
**880 - 960 MHz**



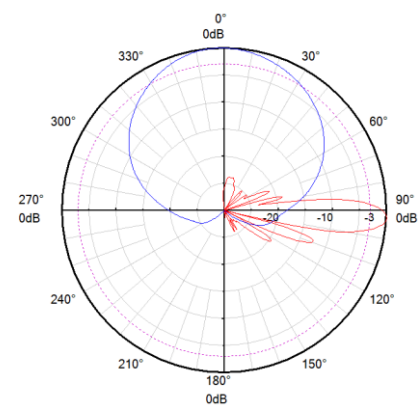
**1695 - 2690 MHz  
(LBy1/RBy5)**



**1695 - 2690 MHz  
(LTy2/RTy6)**



**1695 - 2690 MHz  
(CBy3)**



**1695 - 2690 MHz  
(CTy4)**

### Integrated RET Specifications

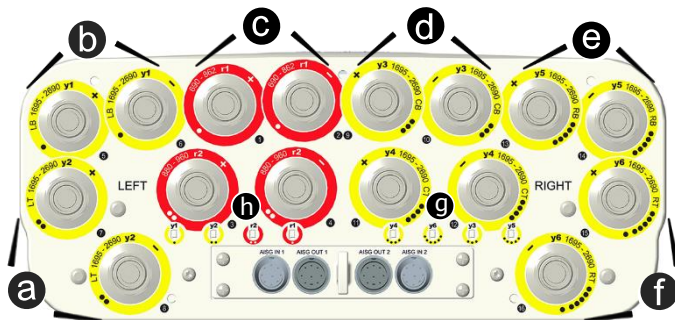
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

2LnH Band

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

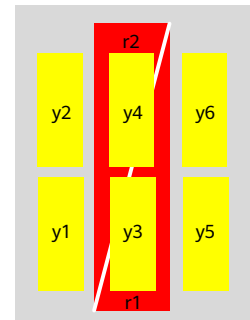
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a HWxxx.....LTy2
- b HWxxx.....LBy1
- c HWxxx.....r1
- d HWxxx.....CBy3
- e HWxxx.....RBy5
- f HWxxx.....RTy6
- g HWxxx.....CTy4
- h HWxxx.....r2



## Antenna Specifications

| Electrical Properties  |   |           |           |                                    |             |             |             |             |             |
|--|---|-----------|-----------|------------------------------------|-------------|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  | 690 - 862   |           |           | 880 - 960                          | 1427 - 2690 |             |             |             |             |
|  | 690 - 803   | 790 - 862 |           |                                    | 1427 - 1518 | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   | +45°, -45°  |           |           | +45°, -45°                         |             |             |             |             |             |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |           |           |                                    |             |             |             |             |             |
| Gain (dBi)   | at mid Tilt   | 15.9      | 16.3      | 17.0                               | 15.9        | 17.3        | 17.5        | 17.8        | 18.1        |
|  | over all Tilts  | 15.8 ±0.5 | 16.0 ±0.5 | 16.7 ±0.5                          | 15.8 ±0.5   | 17.1 ±0.5   | 17.2 ±0.5   | 17.5 ±0.4   | 17.6 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) | >15   | >15       | >16       | > 15                               | > 17        | > 17        | > 15        | > 16        |             |
| Horizontal 3dB beam width (°)                                  | 67 ±1.5   | 66 ±2.6   | 60 ±2.3   | 73 ±6.0                            | 69 ±5.5     | 68 ±5.7     | 63 ±4.7     | 58 ±4.0     |             |
| Vertical 3dB beam width (°)                                    | 9.2 ±0.8  | 8.6 ±1.3  | 7.3 ±0.5  | 8.0 ±0.4                           | 6.5 ±0.6    | 5.9 ±0.5    | 5.1 ±0.4    | 4.8 ±0.4    |             |
| VSWR   | < 1.5   |           |           | < 1.5                              | < 1.5       |             |             |             |             |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           | ≥ 28                               | ≥ 28        |             |             |             |             |
| Interband isolation (dB)                                       | ≥ 28  |           |           | ≥ 28                               | ≥ 28        |             |             |             |             |
| Front to back ratio, ±30° (dB)                                 | > 23  | > 24      | > 25      | > 22                               | > 23        | > 23        | > 27        | > 24        |             |
| Cross polar ratio (dB)   | 0°  | > 18      | > 19      | > 22                               | > 20        | > 22        | > 21        | > 22        | > 17        |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)*                    |           |           | 250 (at 50°C ambient temperature)* |             |             |             |             |             |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                           |           |           | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |             |             |
| Impedance (Ω)  | 50  |           |           |                                    |             |             |             |             |             |
| Grounding  | DC Ground   |           |           |                                    |             |             |             |             |             |

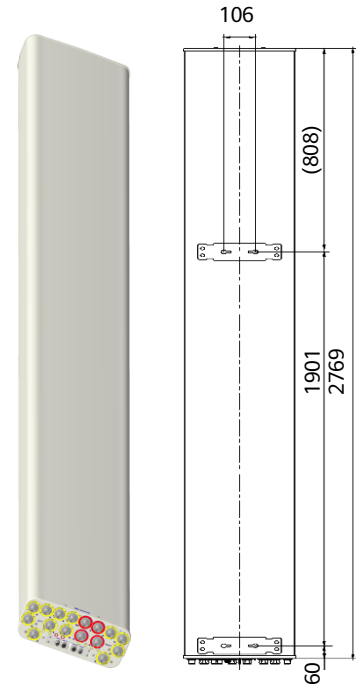
| Electrical Properties  |   |                |             |           |             |           |             |  |  |
|--|---|----------------|-------------|-----------|-------------|-----------|-------------|--|--|
| Frequency range (MHz)  | 5 x (1695 - 2690)                                     |                |             |           |             |           |             |  |  |
|  | 1695 - 1990   |                | 1920 - 2200 |           | 2200 - 2490 |           | 2490 - 2690 |  |  |
| Polarization   | +45°, -45°  |                |             |           |             |           |             |  |  |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |                |             |           |             |           |             |  |  |
| Gain (dBi)   | Bottom  | at mid Tilt    | 17.3        | 17.5      | 18.1        | 18.2      |             |  |  |
|  |   | over all Tilts | 17.1 ±0.5   | 17.3 ±0.5 | 17.9 ±0.4   | 18.0 ±0.5 |             |  |  |
|  | Top   | at mid Tilt    | 16.8        | 17.1      | 17.6        | 18.0      |             |  |  |
|  |   | over all Tilts | 16.5 ±0.5   | 16.9 ±0.5 | 17.4 ±0.4   | 17.7 ±0.5 |             |  |  |
| Side lobe suppression for first side lobe above main beam (dB) | > 17  | > 17           | > 18        | > 17      |             |           |             |  |  |
| Horizontal 3dB beam width (°)                                  | 66 ±4.7   | 66 ±5.2        | 60 ±5.3     | 58 ±5.1   |             |           |             |  |  |
| Vertical 3dB beam width (°)                                    | 6.6 ±0.6  | 6.0 ±0.5       | 5.2 ±0.5    | 4.8 ±0.4  |             |           |             |  |  |
| VSWR   | < 1.5   |                |             |           |             |           |             |  |  |
| Cross polar isolation (dB)                                     | ≥ 28  |                |             |           |             |           |             |  |  |
| Interband isolation (dB)                                       | ≥ 28  |                |             |           |             |           |             |  |  |
| Front to back ratio, ±30° (dB)                                 | > 25  | > 27           | > 27        | > 26      |             |           |             |  |  |
| Cross polar ratio (dB)   | 0°  | > 23           | > 20        | > 19      | >23         |           |             |  |  |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |                |             |           |             |           |             |  |  |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |                |             |           |             |           |             |  |  |
| Impedance (Ω)  | 50  |                |             |           |             |           |             |  |  |
| Grounding  | DC Ground   |                |             |           |             |           |             |  |  |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

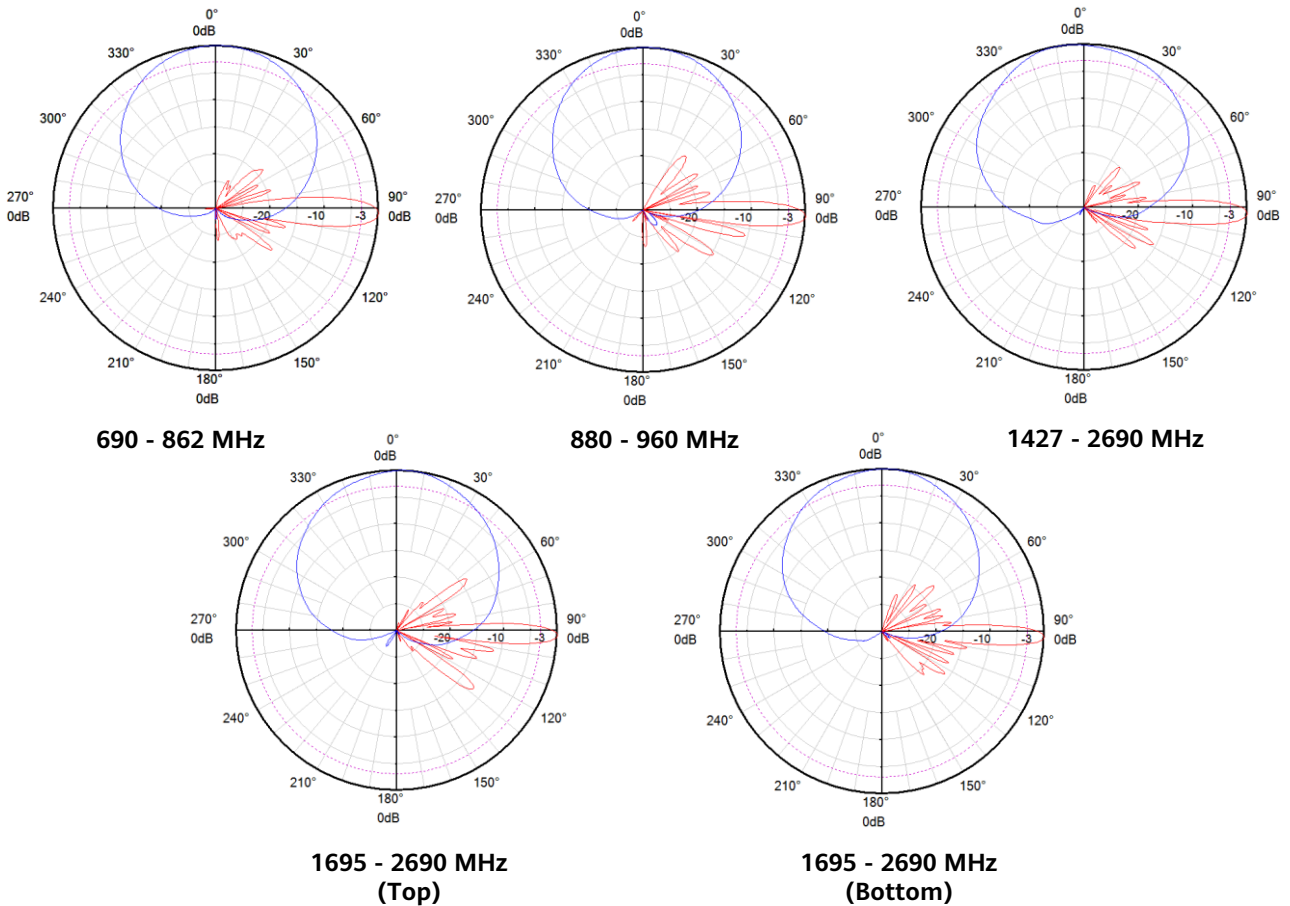
|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2769 x 369 x 149  |
| Packing dimensions (H x W x D) (mm) | 2965 x 435 x 240  |
| Antenna weight (kg)                 | 46.7  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 67.5 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 845 (at 150 km/h)<br>Lateral: 280 (at 150 km/h)<br>Maximum: 1015 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 16 x 4.3-10 Female  |
| Connector position                  | Bottom  |



**Accessories**

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |

**Pattern sample for reference**



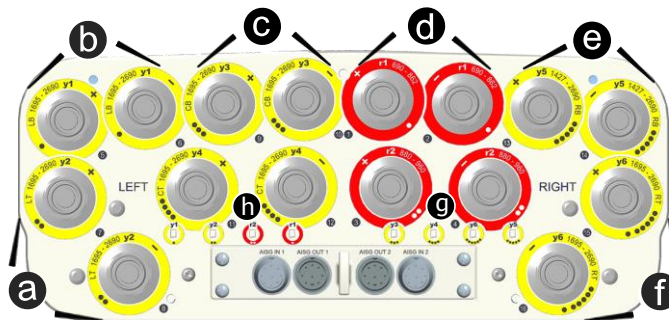
## Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

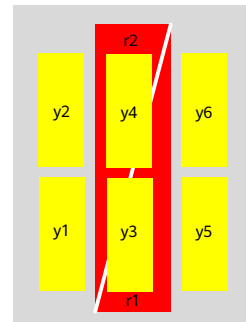
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety),ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



### Integrated RET S/N:

- a HWxxx.....LTy2
- b HWxxx.....LBy1
- c HWxxx.....CBy3
- d HWxxx.....r1
- e HWxxx.....RBy5
- f HWxxx.....RTy6
- g HWxxx.....r2
- h HWxxx.....CTy4



r - Red  
 b - Blue  
 L - Left array  
 T - Top array  
 y - Yellow  
 C - Center array  
 R - Right array  
 B - Bottom array

A104518R1v06

D10X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/2x(1427-2690)/2x(1695-2690)-10x65-16.5i/16.5i/17.5i/17.5i/17.5i/17.5i/17i/17i/17i/17i-10xM-R

EasyRET 2L8H 20-Port Antenna with Integrated RCUs - 2.6m



## Preliminary Issue

| Electrical Properties   |                             |                   |             |                   |
|---|-----------------------------|-------------------|-------------|-------------------|
| Frequency range (MHz)   | 2 x (690 - 960)             | 4 x (1427 - 2690) |             | 4 x (1695 - 2690) |
|   |                             | 1427 - 1518       | 1695 - 2690 |                   |
| Electrical downtilt (°)   | 2 - 12                      | 2 - 12            |             | 2 - 12            |
| Gain (dBi)  | 16.4                        | 15.4              | 17.5        | 17.5              |
|   |                             | 15.0              | 17.0        | 17.0              |
| Side lobe suppression for first side lobe above main beam (Typ.) (dB) | 15                          | 15                | 16          | 16                |
| Horizontal 3dB beam width (°)   | 68                          | 72                | 65          | 65                |
| Vertical 3dB beam width (°)   | 7.5                         | 8.5               | 5.5         | 5.5               |
| VSWR  | < 1.5                       | < 1.5             | < 1.5       | < 1.5             |
| Front to back ratio, copolar (dB)                                     | Typ. 25                     | Typ. 25           | Typ. 25     | Typ. 25           |
| Cross polar ratio (dB)  | 0°                          | Typ. 17           | Typ. 17     | Typ. 17           |
| Intermodulation IM3 (dBc)   | ≤ -150 (2 x 43 dBm carrier) |                   |             |                   |

| Mechanical Properties               |                    |
|-------------------------------------|--------------------|
| Antenna dimensions (H x W x D) (mm) | 2769 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 2980 x 555 x 255   |
| Antenna net weight (kg)             | 65                 |
| Mechanical downtilt (°)             | 0 - 8              |
| Connector                           | 20 x 4.3-10 Female |
| RET type                            | Integrated RET     |
| RET protocols                       | AISG 2.0 / 3GPP    |

2LnH Band



## Multi-band

### B - 5 3L2H&3L5H

#### 10 Ports - 3L2H

| Frequency Range (MHz)                                       | 3dB Horizontal Beam Width (°) | Gain (dBi)                 | Electrical Downtilt (°)          | Tilt Method | Connector   | Dimension(mm)    | Model         | Page       | Array symbol |
|---|-------------------------------|----------------------------|----------------------------------|-------------|-------------|------------------|---------------|------------|--------------|
| 690-862/<br>880-960/<br>690-960/<br>1427-2690/<br>1695-2690 | 65/65/65/65/6<br>5            | 15/15.5/<br>16/18/18       | 0-10/0-10/<br>0-10/2-<br>12/2-12 | EasyRET2.0  | 10 x 4.3-10 | 1999 x 469 x 206 | APE4518R34v06 | <b>202</b> | ZZ4          |
| 690-862/<br>880-960/<br>690-960/<br>1427-2690/<br>1695-2690 | 65/65/65/65/6<br>5            | 16/16.5/<br>17/17.5/1<br>8 | 2-12/2-12/<br>2-12               | EasyRET2.0  | 10 x 4.3-10 | 2769 x 469 x 206 | APE4518R25v07 | <b>205</b> | ZZ4          |

#### 16 Ports - 3L5H

| Frequency Range (MHz)   | 3dB Horizontal Beam Width (°) | Gain (dBi)                                      | Electrical Downtilt (°)                             | Tilt Method | Connector   | Dimension(mm)    | Model        | Page       | Array symbol |
|---|-------------------------------|---|---|-------------|-------------|------------------|--------------|------------|--------------|
| 690-862/<br>880-960/<br>690-960/<br>1427-2690/<br>2x1695-2200/<br>2x2490-2690 | 8 x 65                        | 15/15.5/<br>16/17.5/<br>17/17/<br>17.5/17.5     | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 16 x 4.3-10 | 1999 x 469 x 206 | AOC4518R9v06 | <b>208</b> | ZZ5          |
| 690-862/<br>880-960/<br>690-960/<br>1427-2690/<br>4x1695-2690                 | 8 x 65                        | 16/16.5/<br>17/17.5/<br>17.5/17.5/<br>17.5/17.5 | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 10 x 4.3-10 | 2769 x 469 x 206 | AOC4518R0v06 | <b>211</b> | ZZ3          |



# Multi-band

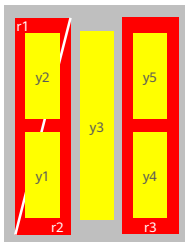
## B - 6 3L12H

### 30 Ports - 3L12H

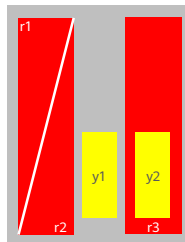
| Frequency Range (MHz)  | 3dB Horizontal Beam Width (°) | Gain (dBi)   | Electrical Downtilt (°)  | Tilt Method | Connector   | Dimension(mm)    | Model        | Page       | Array symbol |
|--|-------------------------------|--|--|-------------|-------------|------------------|--------------|------------|--------------|
| 690-862<br>880-960<br>690-960<br>2x1695-2690/<br>2x1695-1880/<br>2x2300-2690/<br>2x1427-1880/<br>2x2300-2690/<br>2x1695-2690 | 15 x 65                       | 15.5/16/<br>16.5/17.5/<br>17.5/16.5/<br>16.5/17.5/<br>17.5/16/<br>16/17/<br>17/17.5/<br>17.5 | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12 | EasyRET2.0  | 30 x 4.3-10 | 2769 x 469 x 206 | A154517R0v06 | <b>214</b> | ZZ6          |

### Array Symbol Type

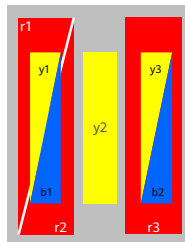
Type ZZ3



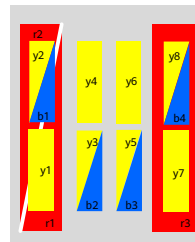
Type ZZ4



Type ZZ5



Type ZZ6



## Antenna Specifications

| Electrical Properties  |                |                                    |           |           |           |                                    |             |             |             |
|--|----------------|------------------------------------|-----------|-----------|-----------|------------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 690 - 960 (Rr3)                    |           |           |           | 1695 - 2690 (Ry2)                  |             |             |             |
|  |                | 690 - 803                          | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45° , -45°                        |           |           |           |                                    |             |             |             |
| Electrical downtilt (° )                                       |                | 0 - 10 , continuously adjustable   |           |           |           | 2 - 12 , continuously adjustable   |             |             |             |
| Gain (dBi)   | at mid Tilt    | 14.8                               | 15.4      | 15.6      | 15.9      | 17.0                               | 17.5        | 17.6        | 18.0        |
|  | over all Tilts | 14.7 ±0.5                          | 15.3 ±0.5 | 15.5 ±0.5 | 15.7 ±0.5 | 16.9 ±0.6                          | 17.4 ±0.5   | 17.5 ±0.5   | 17.9 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15                               | > 16      | > 16      | > 15      | > 16                               | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (° )                                 |                | 70 ±5                              | 69 ±5     | 68 ±5     | 66 ±5     | 62 ±5                              | 60 ±5       | 60 ±5       | 58 ±5       |
| Vertical 3dB beam width (° )                                   |                | 11.0 ±0.8                          | 9.8 ±0.5  | 9.5 ±0.5  | 8.8 ±0.5  | 6.5 ±0.5                           | 5.9 ±0.5    | 5.2 ±0.5    | 4.8 ±0.5    |
| VSWR   |                | < 1.5                              |           |           |           |                                    |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28                               |           |           |           |                                    |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28                               |           |           |           |                                    |             |             |             |
| Front to back ratio , ±30° (dB)                                |                | > 22                               | > 23      | > 24      | > 24      | > 25                               | > 26        | > 26        | > 27        |
| Cross polar ratio (dB) 0°                                      |                | > 20                               | > 20      | > 20      | > 20      | > 20                               | > 20        | > 20        | > 18        |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)* |           |           |           | 250 (at 50°C ambient temperature)* |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)        |           |           |           | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |
| Impedance (Ω)  |                | 50                                 |           |           |           |                                    |             |             |             |
| Grounding  |                | DC Ground                          |           |           |           |                                    |             |             |             |

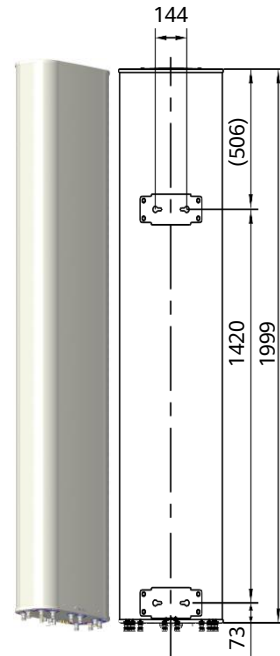
| Electrical Properties  |                |                                    |             |             |             |             |   |           |                 |
|--|----------------|------------------------------------|-------------|-------------|-------------|-------------|---|-----------|-----------------|
| Frequency range (MHz)  |                | 1427 - 2690 (Ly1)                  |             |             |             |             | 690 - 862 (Lr1)   |           | 880 - 960 (Lr2) |
|  |                | 1427 - 1518                        | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 690 - 803   | 790 - 862 |                 |
| Polarization   |                | +45° , -45°                        |             |             |             |             |   |           |                 |
| Electrical downtilt (° )                                       |                | 2 - 12 , continuously adjustable   |             |             |             |             | 0 - 10 , continuously adjustable , each band separately |           |                 |
| Gain (dBi)   | at mid Tilt    | 16.2                               | 17.3        | 17.4        | 17.8        | 18.0        | 14.5  | 15.1      | 15.5            |
|  | over all Tilts | 16.1 ±0.5                          | 17.2 ±0.5   | 17.3 ±0.5   | 17.7 ±0.5   | 17.9 ±0.5   | 14.4 ±0.5   | 15.0 ±0.5 | 15.4 ±0.5       |
| Side lobe suppression for first side lobe above main beam (dB) |                | >15                                | >16         | >16         | >15         | >15         | > 15  | > 15      | > 16            |
| Horizontal 3dB beam width (° )                                 |                | 62 ±7                              | 61 ±7       | 62 ±6       | 58 ±5       | 58 ±5       | 70 ±5   | 69 ±5     | 66 ±5           |
| Vertical 3dB beam width (° )                                   |                | 7.9 ±0.5                           | 6.6 ±0.5    | 5.8 ±0.5    | 5.2 ±0.5    | 4.8 ±0.5    | 11.0 ±0.8   | 9.8 ±0.5  | 8.8 ±0.5        |
| VSWR   |                | < 1.5                              | < 1.5       |             |             |             | < 1.5   |           |                 |
| Cross polar isolation (dB)                                     |                | ≥ 28                               | ≥ 28        |             |             |             | ≥ 28  |           |                 |
| Interband isolation (dB)                                       |                | ≥ 28                               | ≥ 28        |             |             |             | ≥ 28  |           |                 |
| Front to back ratio , ±30° (dB)                                |                | > 25                               | > 28        |             |             | > 28        | > 22  | > 23      | > 24            |
| Cross polar ratio (dB) 0°                                      |                | > 15                               | > 16        | > 16        | > 16        | > 15        | > 20  | > 20      | > 20            |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)* |             |             |             |             | 400 (at 50°C ambient temperature)*                      |           |                 |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |             | ≤ -150 (2 x 43 dBm carrier)                             |           |                 |
| Impedance (Ω)  |                | 50                                 |             |             |             |             |   |           |                 |
| Grounding  |                | DC Ground                          |             |             |             |             |   |           |                 |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

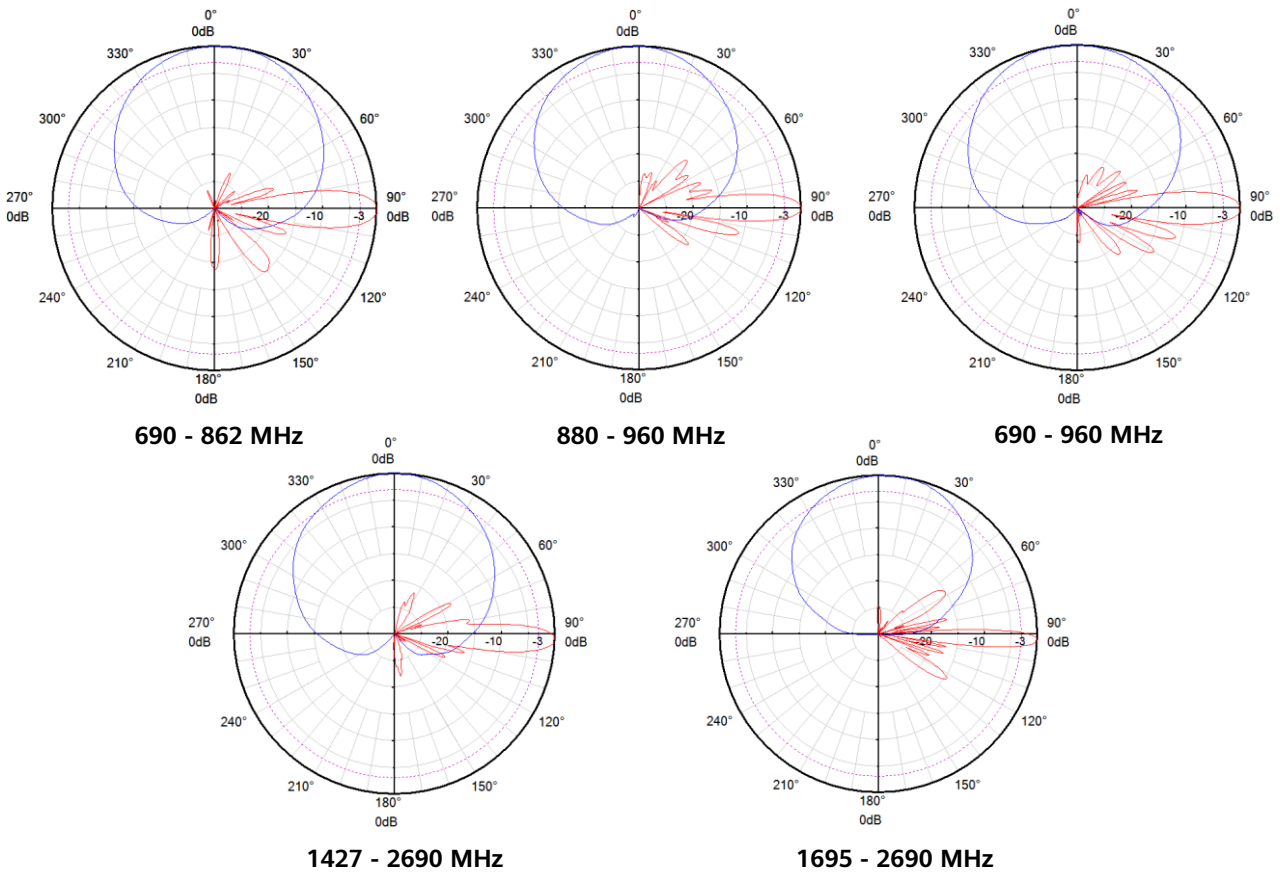
|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 2255 x 535 x 285   |
| Antenna weight (kg)                 | 40.0   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 61.1 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 600 (at 150 km/h)<br>Lateral: 365 (at 150 km/h)<br>Maximum: 795 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female   |
| Connector position                  | Bottom   |



**Accessories**

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt:<br>0 - 12 ° | 3.1 kg | 1 (Separate packing) |

**Pattern sample for reference**



## Integrated RET Specifications

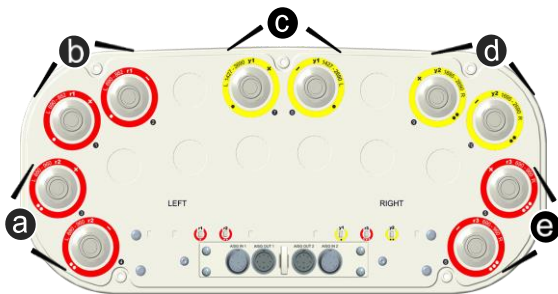
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

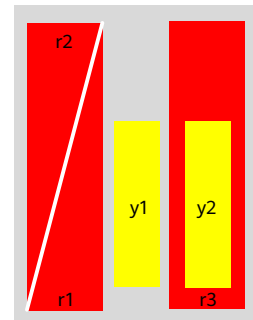
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

3L2H Band



### Integrated RET S/N:

- a HWxxxx.....Lr2
- b HWxxxx.....Lr1
- c HWxxxx.....Ly1
- d HWxxxx.....Ry2
- e HWxxxx.....Rr3



r - Red      y - Yellow  
 L - Left array      R - Right array      C - Center array

## Antenna Specifications

| Electrical Properties  |   |            |                 |                                    |            |            |            |            |
|--|---|------------|-----------------|------------------------------------|------------|------------|------------|------------|
| Frequency range (MHz)  | 690 - 862 (Lr1)   |            | 880 - 960 (Lr2) | 690 - 960 (Rr3)                    |            |            |            |            |
|  | 690 - 803   | 790 - 862  |                 | 690 - 803                          | 790 - 862  | 824 - 894  | 880 - 960  |            |
| Polarization   | +45° , -45°   |            |                 | +45° , -45°                        |            |            |            |            |
| Electrical downtilt (° )                                       | 2 - 12 , continuously adjustable , each band separately |            |                 |                                    |            |            |            |            |
| Gain (dBi)   | at mid Tilt   | 15.4       | 16.0            | 16.5                               | 15.8       | 16.3       | 16.6       | 16.9       |
|  | over all Tilts  | 15.2 ± 0.5 | 15.9 ± 0.5      | 16.2 ± 0.5                         | 15.6 ± 0.5 | 16.2 ± 0.5 | 16.4 ± 0.5 | 16.6 ± 0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | >15   | >15        | >16             | >15                                | >15        | >16        | >16        | >16        |
| Horizontal 3dB beam width (° )                                 | 70 ± 5  | 69 ± 5     | 65 ± 4          | 70 ± 5                             | 69 ± 5     | 68 ± 4     | 65 ± 4     |            |
| Vertical 3dB beam width (° )                                   | 8.3 ± 0.5   | 7.4 ± 0.5  | 6.4 ± 0.4       | 8.7 ± 0.7                          | 7.8 ± 0.6  | 7.5 ± 0.6  | 7.2 ± 0.5  |            |
| VSWR   | < 1.5   |            |                 | < 1.5                              |            |            |            |            |
| Cross polar isolation (dB)                                     | ≥ 28  |            |                 | ≥ 28                               |            |            |            |            |
| Interband isolation (dB)                                       | ≥ 28  |            |                 | ≥ 28                               |            |            |            |            |
| Front to back ratio , ± 30° (dB)                               | > 22  | > 23       | > 25            | > 22                               | > 24       | > 24       | > 25       |            |
| Cross polar ratio (dB)   | 0°  | > 19       | > 22            | > 22                               | > 19       | > 21       | > 22       | > 22       |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)*                      |            |                 | 500 (at 50°C ambient temperature)* |            |            |            |            |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                             |            |                 | ≤ -153 (2 x 43 dBm carrier)        |            |            |            |            |
| Impedance (Ω)  | 50  |            |                 |                                    |            |            |            |            |
| Grounding  | DC Ground   |            |                 |                                    |            |            |            |            |

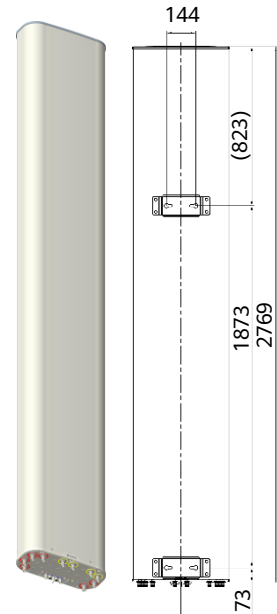
| Electrical Properties  |   |             |             |             |             |                                    |             |             |             |            |
|--|---|-------------|-------------|-------------|-------------|------------------------------------|-------------|-------------|-------------|------------|
| Frequency range (MHz)  | 1427 - 2690 (Ly1)                                       |             |             |             |             | 1695 - 2690 (Ry2)                  |             |             |             |            |
|  | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |            |
| Polarization   | +45° , -45°   |             |             |             |             | +45° , -45°                        |             |             |             |            |
| Electrical downtilt (° )                                       | 2 - 12 , continuously adjustable , each band separately |             |             |             |             |                                    |             |             |             |            |
| Gain (dBi)   | at mid Tilt   | 16.2        | 17.3        | 17.4        | 17.8        | 18.0                               | 17.1        | 17.4        | 17.5        | 18.0       |
|  | over all Tilts  | 16.1 ± 0.5  | 17.2 ± 0.6  | 17.3 ± 0.6  | 17.7 ± 0.5  | 17.8 ± 0.5                         | 17.0 ± 0.6  | 17.3 ± 0.6  | 17.4 ± 0.6  | 17.8 ± 0.7 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 16        | > 16        | > 16        | > 15        | > 16                               | > 17        | > 16        | > 16        |            |
| Horizontal 3dB beam width (° )                                 | 62 ± 7  | 61 ± 7      | 62 ± 6      | 58 ± 6      | 58 ± 5      | 62 ± 6                             | 61 ± 5      | 60 ± 5      | 58 ± 5      |            |
| Vertical 3dB beam width (° )                                   | 7.9 ± 0.4   | 6.5 ± 0.4   | 5.8 ± 0.4   | 5.2 ± 0.4   | 4.8 ± 0.4   | 6.5 ± 0.5                          | 5.7 ± 0.5   | 5.2 ± 0.4   | 4.8 ± 0.4   |            |
| VSWR   | < 1.5   | < 1.5       |             |             |             | < 1.5                              |             |             |             |            |
| Cross polar isolation (dB)                                     | ≥ 28  | ≥ 28        |             |             |             | ≥ 28                               |             |             |             |            |
| Interband isolation (dB)                                       | ≥ 28  | ≥ 28        |             |             |             | ≥ 28                               |             |             |             |            |
| Front to back ratio , ± 30° (dB)                               | > 25  | > 28        | > 28        | > 28        | > 28        | > 26                               | > 26        | > 27        | > 27        |            |
| Cross polar ratio (dB)   | 0°  | > 15        | > 16        | > 16        | > 16        | > 15                               | > 22        | > 20        | > 18        | > 18       |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                      |             |             |             |             | 250 (at 50°C ambient temperature)* |             |             |             |            |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                             |             |             |             |             | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |            |
| Impedance (Ω)  | 50  |             |             |             |             |                                    |             |             |             |            |
| Grounding  | DC Ground   |             |             |             |             |                                    |             |             |             |            |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

### Mechanical Properties

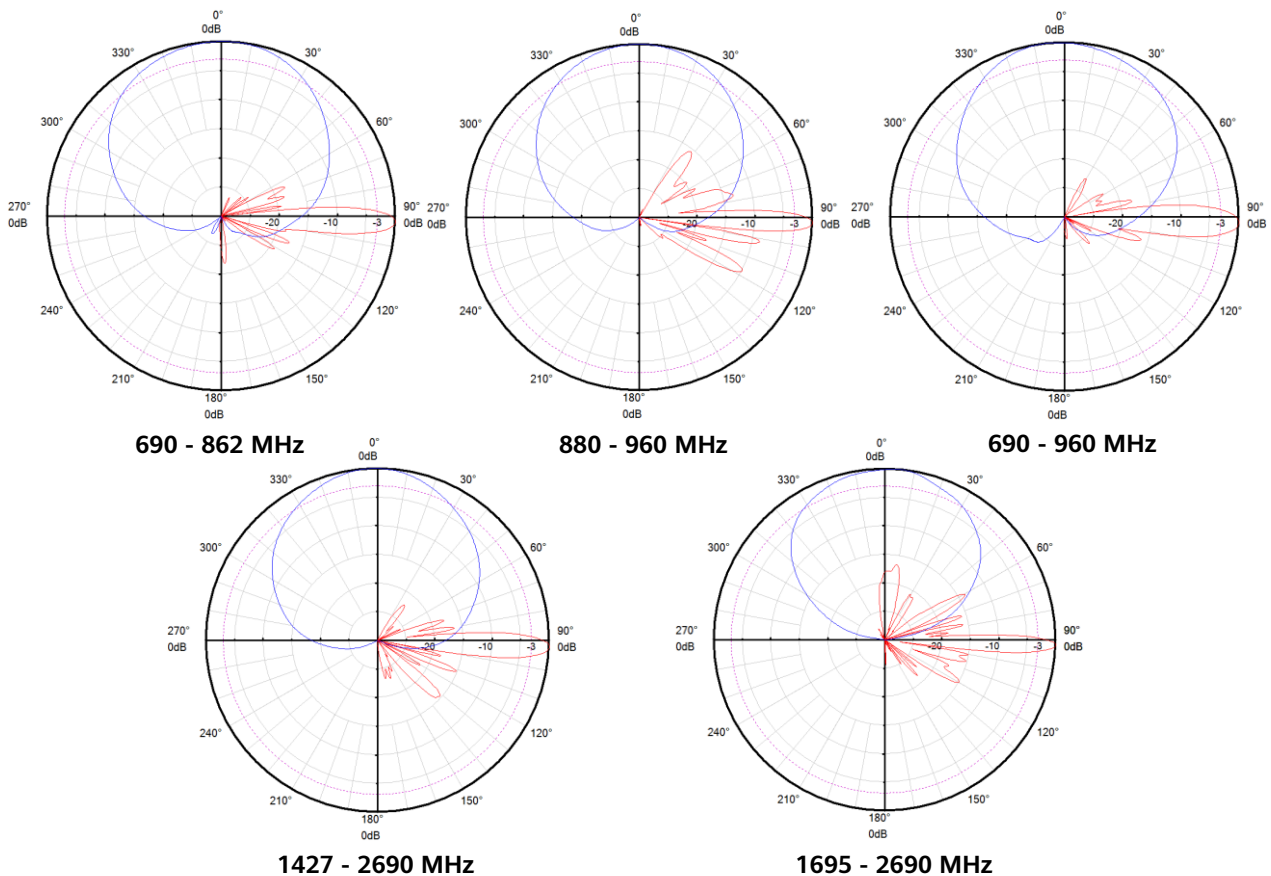
|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2769 x 469 x 206  |
| Packing dimensions (H x W x D) (mm) | 2960 x 535 x 275  |
| Antenna weight (kg)                 | 46.5  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 71.3 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 860 (at 150 km/h)<br>Lateral: 535 (at 150 km/h)<br>Maximum: 1140 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 10 x 4.3-10 Female  |
| Connector position                  | Bottom  |



### Accessories

| Item         | Model     | Description                    | Weight | Units per antenna    |
|--------------|-----------|--------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt:<br>0 - 8° | 3.1 kg | 1 (Separate packing) |

### Pattern sample for reference



3Lnh Band

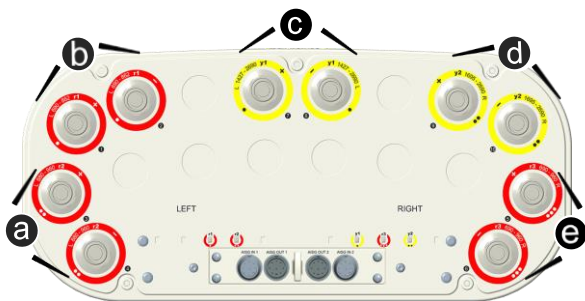
## Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission),  
 EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

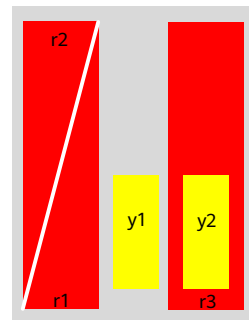
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



### Integrated RET S/N:

- a HWxxxx.....Lr2
- b HWxxxx.....Lr1
- c HWxxxx.....Ly1
- d HWxxxx.....Ry2
- e HWxxxx.....Rr3

r - Red                      y - Yellow  
 L - Left array            R - Right array





## Antenna Specifications

| Electrical Properties  |                |                                    |            |            |            |                                    |            |            |            |            |
|--|----------------|------------------------------------|------------|------------|------------|------------------------------------|------------|------------|------------|------------|
| Frequency range (MHz)  |                | 690 - 960 (Rr3)                    |            |            |            | 1427 - 2690 (Cy2)                  |            |            |            |            |
|  |                | 690 - 803                          | 790 - 862  | 824 - 894  | 880 - 960  | 1427 -1518                         | 1695 -1990 | 1920 -2200 | 2200 -2490 | 2490 -2690 |
| Polarization   |                | +45° , -45°                        |            |            |            | +45° , -45°                        |            |            |            |            |
| Electrical downtilt (° )                                       |                | 2 - 12 , continuously adjustable   |            |            |            | 2 - 12 , continuously adjustable   |            |            |            |            |
| Gain (dBi)   | at mid Tilt    | 14.8                               | 15.4       | 15.6       | 15.9       | 16.2                               | 17.3       | 17.4       | 17.8       | 18.0       |
|  | over all Tilts | 14.7 ± 0.5                         | 15.3 ± 0.5 | 15.5 ± 0.5 | 15.7 ± 0.5 | 16.1 ± 0.5                         | 17.2 ± 0.5 | 17.3 ± 0.5 | 17.7 ± 0.5 | 17.9 ± 0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15                               | > 16       | > 16       | > 15       | >15                                | >16        | >16        | >16        | >15        |
| Horizontal 3dB beam width (° )                                 |                | 70 ± 5                             | 69 ± 5     | 68 ± 5     | 66 ± 5     | 62 ± 7                             | 61 ± 7     | 62 ± 6     | 58 ± 5     | 58 ± 5     |
| Vertical 3dB beam width (° )                                   |                | 11.0 ± 0.8                         | 9.8 ± 0.5  | 9.5 ± 0.5  | 8.8 ± 0.5  | 7.9 ± 0.5                          | 6.5 ± 0.5  | 5.8 ± 0.5  | 5.2 ± 0.5  | 4.8 ± 0.5  |
| VSWR   |                | < 1.5                              |            |            |            | < 1.5                              | < 1.5      |            |            |            |
| Cross polar isolation (dB)                                     |                | ≥ 28                               |            |            |            | ≥ 28                               | ≥ 28       |            |            |            |
| Interband isolation (dB)                                       |                | ≥ 28                               |            |            |            | ≥ 28                               | ≥ 28       |            |            |            |
| Front to back ratio , ± 30° (dB)                               |                | > 22                               | > 23       | > 24       | > 24       | > 25                               | > 28       | > 28       | > 28       | > 26       |
| Cross polar ratio (dB)   |                | 0°                                 | > 20       | > 20       | > 20       | > 15                               | > 16       | > 16       | > 16       | > 15       |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)* |            |            |            | 250 (at 50°C ambient temperature)* |            |            |            |            |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)        |            |            |            | ≤ -153 (2 x 43 dBm carrier)        |            |            |            |            |
| Impedance (Ω)  |                | 50                                 |            |            |            | 50                                 |            |            |            |            |
| Grounding  |                | DC Ground                          |            |            |            | DC Ground                          |            |            |            |            |

| Electrical Properties  |                |   |            |                 |                             |   |                             |      |  |  |
|--|----------------|---|------------|-----------------|-----------------------------|---|-----------------------------|------|--|--|
| Frequency range (MHz)  |                | 690 - 862 (Lr1)   |            | 880 - 960 (Lr2) | 2 x (1695 - 2200) (Lb1/Rb2) |   | 2 x (2490 - 2690) (Ly1/Ry3) |      |  |  |
|  |                | 690 - 803   | 790 - 862  |                 | 1695 - 1990                 | 1920 - 2200   |                             |      |  |  |
| Polarization   |                | +45° , -45°   |            |                 |                             |   |                             |      |  |  |
| Electrical downtilt (° )                                       |                | 2 - 12 , continuously adjustable , each band separately |            |                 |                             | 2 - 12 , continuously adjustable , each band separately |                             |      |  |  |
| Gain (dBi)   | at mid Tilt    | 14.5  | 15.1       | 15.5            | 16.9                        | 17.3  | 17.7                        |      |  |  |
|  | over all Tilts | 14.4 ± 0.5  | 15.0 ± 0.5 | 15.4 ± 0.5      | 16.8 ± 0.5                  | 17.2 ± 0.5  | 17.6 ± 0.5                  |      |  |  |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 15       | > 16            | > 16                        | > 17  | > 16                        |      |  |  |
| Horizontal 3dB beam width (° )                                 |                | 70 ± 5  | 69 ± 5     | 66 ± 5          | 63 ± 6                      | 61 ± 5  | 58 ± 5                      |      |  |  |
| Vertical 3dB beam width (° )                                   |                | 11.0 ± 0.8  | 9.8 ± 0.5  | 8.8 ± 0.5       | 6.5 ± 0.5                   | 5.8 ± 0.5   | 4.8 ± 0.5                   |      |  |  |
| VSWR   |                | < 1.5   |            |                 |                             |   |                             |      |  |  |
| Cross polar isolation (dB)                                     |                | ≥ 28  |            |                 |                             |   |                             |      |  |  |
| Interband isolation (dB)                                       |                | ≥ 28  |            |                 |                             |   |                             |      |  |  |
| Front to back ratio , ± 30° (dB)                               |                | > 22  | > 23       | > 24            | > 26                        | > 25  | > 26                        |      |  |  |
| Cross polar ratio (dB)   |                | 0°  | > 20       | > 20            | > 20                        | > 20  | > 20                        | > 18 |  |  |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature)*                      |            |                 |                             | 250 (at 50°C ambient temperature)*                      |                             |      |  |  |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                             |            |                 |                             | ≤ -153 (2 x 43 dBm carrier)                             |                             |      |  |  |
| Impedance (Ω)  |                | 50  |            |                 |                             |   |                             |      |  |  |
| Grounding  |                | DC Ground   |            |                 |                             |   |                             |      |  |  |

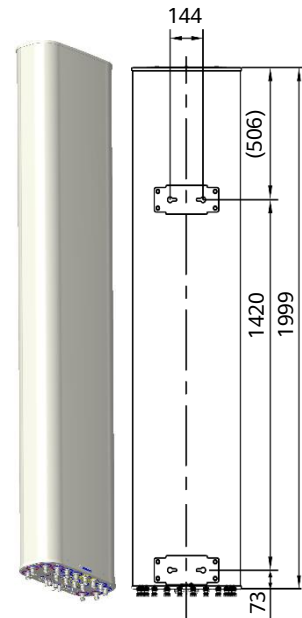
\* Total power : 900 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.



**Mechanical Properties**

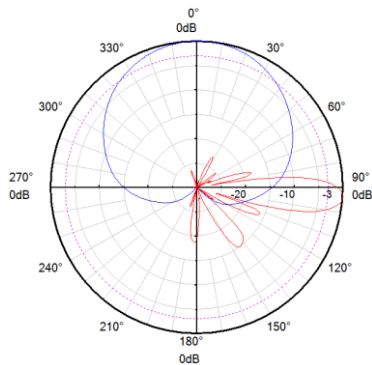
|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1999 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 2255 x 535 x 285   |
| Antenna weight (kg)                 | 44.0   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 63.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 600 (at 150 km/h)<br>Lateral: 365 (at 150 km/h)<br>Maximum: 795 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 16 x 4.3-10 Female   |
| Connector position                  | Bottom   |



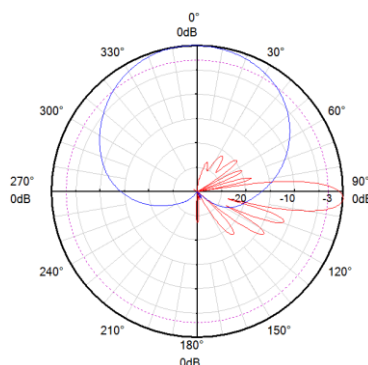
**Accessories**

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt:<br>0 - 12 ° | 3.1 kg | 1 (Separate packing) |

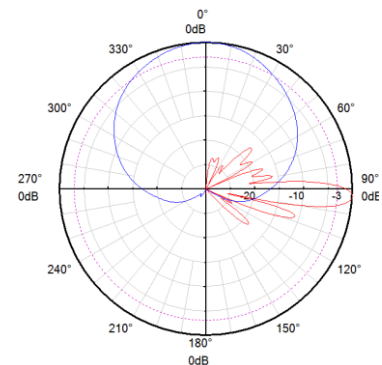
**Pattern sample for reference**



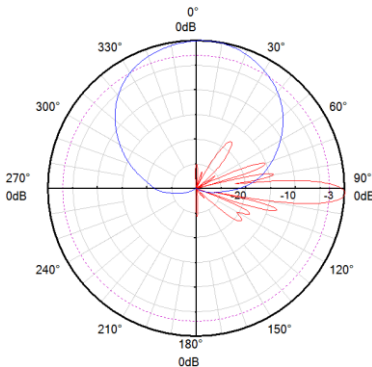
**690 - 862 MHz**



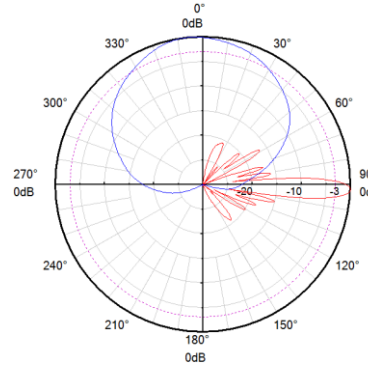
**880 - 960 MHz**



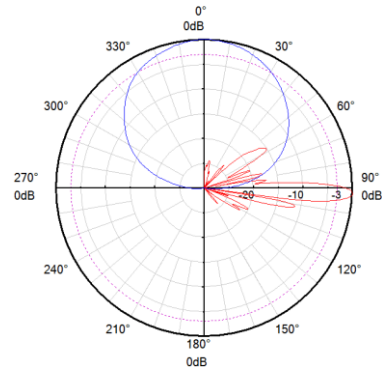
**690 - 960 MHz**



**1427 - 2690 MHz**



**1695 - 2200 MHz**



**2490 - 2690 MHz**

**Integrated RET Specifications**

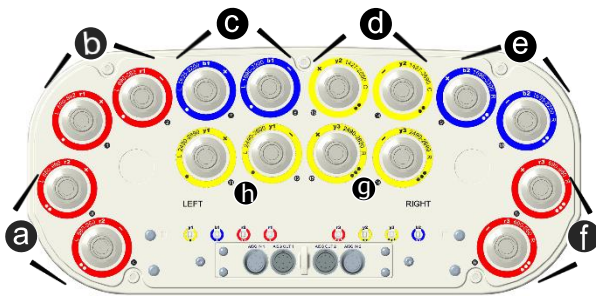
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

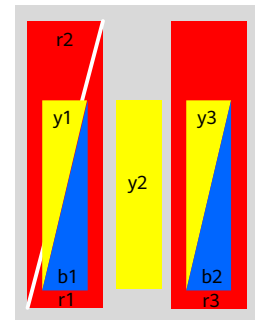
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

3L5H Band



**Integrated RET S/N:**

- a HWxxxx.....Lr2
- b HWxxxx.....Lr1
- c HWxxxx.....Lb1
- d HWxxxx.....Cy2
- e HWxxxx.....Rb2
- f HWxxxx.....Rr3
- g HWxxxx.....Ry3
- h HWxxxx.....Ly1



r - Red      y - Yellow      b- Blue  
L - Left array      C - Center array      R - Right array

## Antenna Specifications

| Electrical Properties  |                |  |            |            |                                    |            |            |            |           |
|--|----------------|--|------------|------------|------------------------------------|------------|------------|------------|-----------|
| Frequency range (MHz)  |                | 690 - 862  |            |            | 880 - 960                          | 690 - 960  |            |            |           |
|  |                | 690 - 803  | 790 - 862  |            |                                    | 690 - 803  | 790 - 862  | 824 - 894  | 880 - 960 |
| Polarization   |                | +45° , -45°  |            |            | +45° , -45°                        |            |            |            |           |
| Electrical downtilt (° )                                       |                | 2 - 12, continuously adjustable , each band separately |            |            |                                    |            |            |            |           |
| Gain (dBi)   | at mid Tilt    | 15.4   | 16.0       | 16.5       | 15.8                               | 16.4       | 16.7       | 16.9       |           |
|  | over all Tilts | 15.2 ± 0.5   | 15.9 ± 0.5 | 16.2 ± 0.5 | 15.6 ± 0.5                         | 16.3 ± 0.5 | 16.5 ± 0.5 | 16.7 ± 0.5 |           |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15   | > 15       | > 16       | > 15                               | > 15       | > 16       | > 16       |           |
| Horizontal 3dB beam width (° )                                 |                | 70 ± 5   | 69 ± 4     | 64 ± 4     | 70 ± 5                             | 69 ± 4     | 68 ± 3     | 64 ± 4     |           |
| Vertical 3dB beam width (° )                                   |                | 8.3 ± 0.5  | 7.4 ± 0.4  | 6.4 ± 0.3  | 9.0 ± 0.5                          | 8.0 ± 0.4  | 7.7 ± 0.5  | 7.2 ± 0.4  |           |
| VSWR   |                | < 1.5  |            |            | < 1.5                              |            |            |            |           |
| Cross polar isolation (dB)                                     |                | ≥ 28   |            |            | ≥ 28                               |            |            |            |           |
| Interband isolation (dB)                                       |                | ≥ 28   |            |            | ≥ 28                               |            |            |            |           |
| Front to back ratio , ± 30° (dB)                               |                | > 22   | > 24       | > 25       | > 22                               | > 24       | > 24       | > 25       |           |
| Cross polar ratio (dB)   |                | 0°   | > 20       | > 24       | > 24                               | > 20       | > 24       | > 24       |           |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                     |            |            | 500 (at 50°C ambient temperature)* |            |            |            |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                            |            |            | ≤ -153 (2 x 43 dBm carrier)        |            |            |            |           |
| Impedance (Ω)  |                | 50   |            |            |                                    |            |            |            |           |
| Grounding  |                | DC Ground  |            |            |                                    |            |            |            |           |

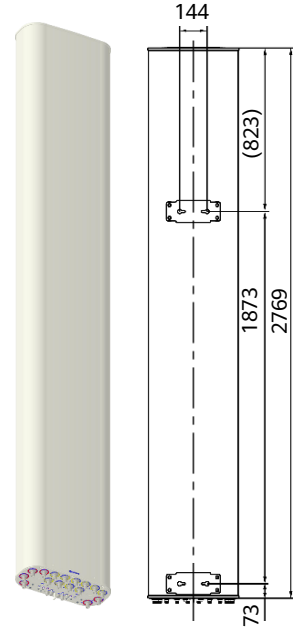
| Electrical Properties  |        |  |             |             |             |             |                                    |             |             |             |            |
|--|--------|--|-------------|-------------|-------------|-------------|------------------------------------|-------------|-------------|-------------|------------|
| Frequency range (MHz)  |        | 1427 - 2690  |             |             |             |             | 4 x (1695 - 2690)                  |             |             |             |            |
|  |        | 1427 - 1518  | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |            |
| Polarization   |        | +45° , -45°  |             |             |             |             | +45° , -45°                        |             |             |             |            |
| Electrical downtilt (° )                                       |        | 2 - 12, continuously adjustable , each band separately |             |             |             |             |                                    |             |             |             |            |
| Gain (dBi)   |        | at mid Tilt  | 16.2        | 17.3        | 17.4        | 17.9        | 18.0                               |             |             |             |            |
|  |        | over all Tilts   | 16.1 ± 0.5  | 17.2 ± 0.5  | 17.3 ± 0.5  | 17.8 ± 0.5  | 17.9 ± 0.5                         |             |             |             |            |
|  | Bottom | at mid Tilt  |             |             |             |             |                                    | 16.6        | 17.0        | 17.2        | 17.7       |
|  |        | over all Tilts   |             |             |             |             |                                    | 16.5 ± 0.5  | 16.9 ± 0.5  | 17.1 ± 0.5  | 17.5 ± 0.5 |
|  | Top    | at mid Tilt  |             |             |             |             |                                    | 16.7        | 17.1        | 17.2        | 17.7       |
|  |        | over all Tilts   |             |             |             |             |                                    | 16.6 ± 0.5  | 17.0 ± 0.5  | 17.1 ± 0.5  | 17.5 ± 0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 15   | > 16        | > 16        | > 17        | > 17        | > 16                               | > 16        | > 16        | > 16        |            |
| Horizontal 3dB beam width (° )                                 |        | 62 ± 7   | 61 ± 7      | 62 ± 6      | 58 ± 5      | 58 ± 5      | 61 ± 5                             | 61 ± 5      | 59 ± 4      | 58 ± 4      |            |
| Vertical 3dB beam width (° )                                   |        | 7.9 ± 0.4  | 6.6 ± 0.4   | 5.8 ± 0.3   | 5.2 ± 0.3   | 4.8 ± 0.2   |                                    |             |             |             |            |
|  | Bottom |  |             |             |             |             | 7.6 ± 0.5                          | 6.7 ± 0.4   | 6.0 ± 0.3   | 5.4 ± 0.3   |            |
|  | Top    |  |             |             |             |             | 6.5 ± 0.5                          | 5.8 ± 0.4   | 5.2 ± 0.3   | 4.8 ± 0.3   |            |
| VSWR   |        | < 1.5  | < 1.5       |             |             | < 1.5       |                                    |             |             |             |            |
| Cross polar isolation (dB)                                     |        | ≥ 28   | ≥ 28        |             |             | ≥ 28        |                                    |             |             |             |            |
| Interband isolation (dB)                                       |        | ≥ 28   | ≥ 28        |             |             | ≥ 28        |                                    |             |             |             |            |
| Front to back ratio , ± 30° (dB)                               |        | > 25   | > 28        | > 28        | > 28        | > 28        | > 25                               | > 25        | > 25        | > 26        |            |
| Cross polar ratio (dB)   |        | 0°   | > 15        | > 18        | > 16        | > 16        | > 15                               | > 20        | > 18        | > 17        |            |
| Max. power per input (W)                                       |        | 250 (at 50°C ambient temperature)*                     |             |             |             |             | 250 (at 50°C ambient temperature)* |             |             |             |            |
| Intermodulation IM3 (dBc)                                      |        | ≤ -153 (2 x 43 dBm carrier)                            |             |             |             |             | ≤ -153 (2 x 43 dBm carrier)        |             |             |             |            |
| Impedance (Ω)  |        | 50   |             |             |             |             |                                    |             |             |             |            |
| Grounding  |        | DC Ground  |             |             |             |             |                                    |             |             |             |            |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2769 x 469 x 206  |
| Packing dimensions (H x W x D) (mm) | 3024 x 535 x 285  |
| Antenna weight (kg)                 | 52.8  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 77.8 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 860 (at 150 km/h)<br>Lateral: 535 (at 150 km/h)<br>Maximum: 1140 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 16 x 4.3-10 Female  |
| Connector position                  | Bottom  |

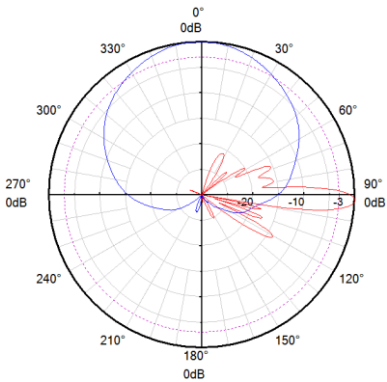


3L5H Band

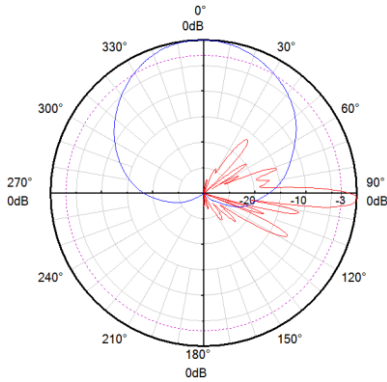
**Accessories**

| Item         | Model     | Description                    | Weight | Units per antenna    |
|--------------|-----------|--------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt:<br>0 - 8° | 3.1 kg | 1 (Separate packing) |

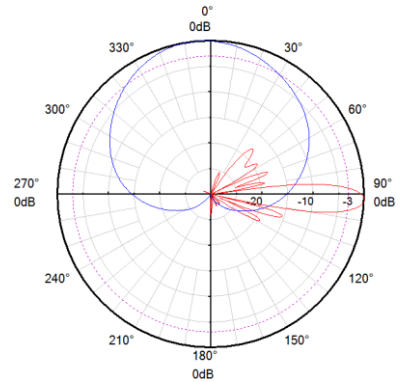
**Pattern sample for reference**



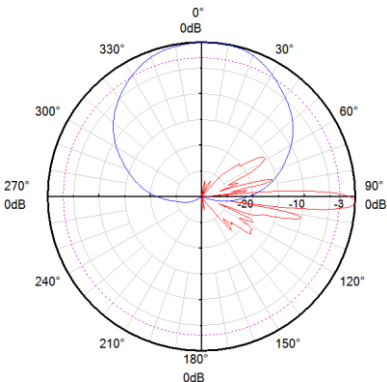
**690 - 862 MHz**



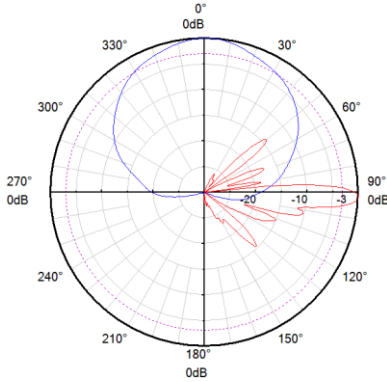
**880 - 960 MHz**



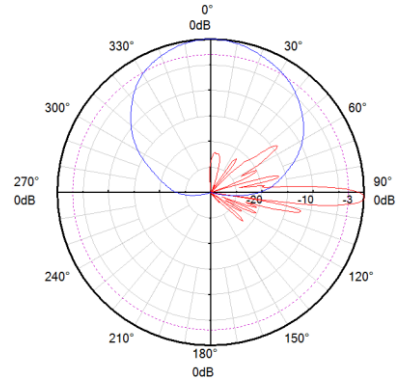
**690 - 960 MHz**



**1427 - 2690 MHz**



**1695 - 2690 MHz (Bottom)**



**1695 - 2690 MHz (Top)**

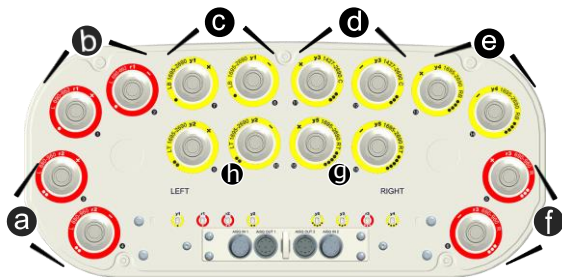
## Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

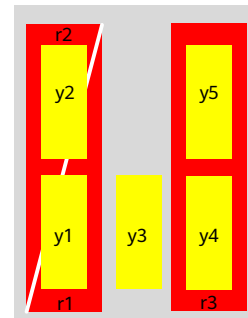
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission),  
EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



### Integrated RET S/N:

- a HWxxxx.....Lr2
- b HWxxxx.....Lr1
- c HWxxxx.....LBy1
- d HWxxxx.....Cy3
- e HWxxxx.....RBy4
- f HWxxxx.....Rr3
- g HWxxxx.....RTy5
- h HWxxxx.....LTy2



r - Red            y - Yellow  
L - Left array    C - Center array    R - Right array  
T - Top array    B - Bottom array

# A154517R0v06

D15X-690-862/880-960/690-960/2x(1695-2690/1695-1880/2300-2690/1427-1880/2300-2690/1695-2690)-15x65-15.5i/16i/16.5i/2x(17.5i/16.5i/17.5i/16i/17i/17.5i)-15xM-R  
EasyRET 3L12H 30-Port Antenna with 10 Integrated RCUs - 2.6m



## Antenna Specifications

| Electrical Properties  |  |            |                 |                                    |            |            |            |            |
|--|--|------------|-----------------|------------------------------------|------------|------------|------------|------------|
| Frequency range (MHz)  | 690 - 862 (Lr1)  |            | 880 - 960 (Lr2) | 690 - 960 (Rr3)                    |            |            |            |            |
|  | 690 - 803  | 790 - 862  |                 | 690 - 803                          | 790 - 862  | 824 - 894  | 880 - 960  |            |
| Polarization   | +45° , -45°  |            |                 |                                    |            |            |            |            |
| Electrical downtilt (° )                                       | 2 - 12 , continuously adjustable, each band separately |            |                 |                                    |            |            |            |            |
| Gain (dBi)   | at mid Tilt  | 15.6       | 15.8            | 16.2                               | 15.7       | 16.0       | 16.2       | 16.4       |
|  | over all Tilts   | 15.5 ± 0.5 | 15.7 ± 0.5      | 16.0 ± 0.5                         | 15.6 ± 0.5 | 15.9 ± 0.5 | 16.0 ± 0.5 | 16.2 ± 0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15   | > 15       | > 16            | > 15                               | > 16       | > 16       | > 16       | > 16       |
| Horizontal 3dB beam width (° )                                 | 70 ± 6   | 68 ± 6     | 67 ± 6          | 70 ± 6                             | 69 ± 6     | 68 ± 6     | 66 ± 6     |            |
| Vertical 3dB beam width (° )                                   | 8.2 ± 0.6  | 7.4 ± 0.5  | 6.4 ± 0.5       | 8.8 ± 0.7                          | 7.9 ± 0.5  | 7.6 ± 0.5  | 7.2 ± 0.4  |            |
| VSWR   | < 1.5  |            |                 | < 1.5                              |            |            |            |            |
| Cross polar isolation (dB)                                     | ≥ 28   |            |                 | ≥ 28                               |            |            |            |            |
| Interband isolation (dB)                                       | ≥ 27   |            |                 | ≥ 27                               |            |            |            |            |
| Front to back ratio , ± 30° (dB)                               | > 21   | > 22       | > 22            | > 21                               | > 22       | > 22       | > 22       | > 22       |
| Cross polar ratio (dB)   | 0°   | > 18       | > 18            | > 18                               | > 18       | > 18       | > 18       | > 18       |
| Max. power per input (W)                                       | 350 (at 50°C ambient temperature)*                     |            |                 | 400 (at 50°C ambient temperature)* |            |            |            |            |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                            |            |                 |                                    |            |            |            |            |
| Impedance (Ω)  | 50   |            |                 |                                    |            |            |            |            |
| Grounding  | DC Ground  |            |                 |                                    |            |            |            |            |

| Electrical Properties  |  |             |             |             |                                  |             |             |             |            |
|--|--|-------------|-------------|-------------|----------------------------------|-------------|-------------|-------------|------------|
| Frequency range (MHz)  | 2 x (1695 - 2690) (LBy1/RBy4)                          |             |             |             | 2 x (1695 - 2690) (RTy5)         |             |             |             |            |
|  | 1695 - 1990  | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990                      | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |            |
| Polarization   | +45° , -45°  |             |             |             |                                  |             |             |             |            |
| Electrical downtilt (° )                                       | 2 - 12 , continuously adjustable, each band separately |             |             |             | 2 - 12 , continuously adjustable |             |             |             |            |
| Gain (dBi)   | at mid Tilt  | 16.9        | 17.2        | 17.3        | 17.7                             | 16.1        | 16.9        | 17.1        | 17.4       |
|  | over all Tilts   | 16.8 ± 0.5  | 17.1 ± 0.5  | 17.2 ± 0.5  | 17.6 ± 0.5                       | 16.0 ± 0.6  | 16.8 ± 0.5  | 17.0 ± 0.5  | 17.3 ± 0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15   | > 16        | > 16        | > 16        | > 15                             | > 15        | > 16        | > 16        |            |
| Horizontal 3dB beam width (° )                                 | 70 ± 6   | 69 ± 6      | 66 ± 6      | 58 ± 6      | 69 ± 7                           | 67 ± 6      | 62 ± 6      | 60 ± 6      |            |
| Vertical 3dB beam width (° )                                   | 7.1 ± 0.6  | 6.3 ± 0.6   | 5.6 ± 0.3   | 5.1 ± 0.3   | 7.0 ± 0.6                        | 6.2 ± 0.5   | 5.5 ± 0.3   | 5.1 ± 0.3   |            |
| VSWR   | < 1.5  |             |             |             | < 1.5                            |             |             |             |            |
| Cross polar isolation (dB)                                     | ≥ 28   |             |             |             | ≥ 28                             |             |             |             |            |
| Interband isolation (dB)                                       | ≥ 27   |             |             |             | ≥ 27                             |             |             |             |            |
| Front to back ratio , ± 30° (dB)                               | > 25   | > 25        | > 25        | > 24        | > 24                             | > 25        | > 25        | > 24        |            |
| Cross polar ratio (dB)   | 0°   | > 18        | > 18        | > 18        | > 18                             | > 17        | > 17        | > 17        | > 18       |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                     |             |             |             |                                  |             |             |             |            |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                            |             |             |             |                                  |             |             |             |            |
| Impedance (Ω)  | 50   |             |             |             |                                  |             |             |             |            |
| Grounding  | DC Ground  |             |             |             |                                  |             |             |             |            |

3L12H Band

# A154517R0v06

D15X-690-862/880-960/690-960/2x(1695-2690/1695-1880/2300-2690/1427-1880/2300-2690/1695-2690)-15x65-15.5i/16i/16.5i/2x(17.5i/16.5i/17.5i/16i/17i/17.5i)-15xM-R  
EasyRET 3L12H 30-Port Antenna with 10 Integrated RCUs - 2.6m



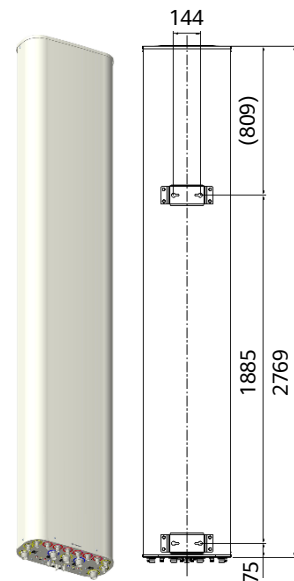
## Antenna Specifications

| Electrical Properties  |                |                                    |                                  |             |                                  |             |                                  |             |
|--|----------------|------------------------------------|----------------------------------|-------------|----------------------------------|-------------|----------------------------------|-------------|
| Frequency range (MHz)  |                | 2 x (1695 - 1880) (Bb1)            | 2 x (2300 - 2690) (CBY3)         |             | 2 x (1427 - 1880) (Tb2)          |             | 2 x (2300 - 2690) (LTy2)         |             |
|  |                |                                    | 2300 - 2490                      | 2490 - 2690 | 1427 - 1518                      | 1695 - 1880 | 2300 - 2490                      | 2490 - 2690 |
| Polarization   |                | +45° , -45°                        |                                  |             |                                  |             |                                  |             |
| Electrical downtilt (° )                                       |                | 2 - 12 , continuously adjustable   | 2 - 12 , continuously adjustable |             | 2 - 12 , continuously adjustable |             | 2 - 12 , continuously adjustable |             |
| Gain (dBi)   | at mid Tilt    | 16.1                               | 17.0                             | 17.4        | 15.5                             | 16.2        | 16.5                             | 17.2        |
|  | over all Tilts | 16.0 ±0.6                          | 16.9 ±0.5                        | 17.3 ±0.5   | 15.4 ±0.6                        | 16.1 ±0.5   | 16.4 ±0.5                        | 17.0 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15                               | > 16                             | > 16        | > 15                             | > 16        | > 16                             | > 16        |
| Horizontal 3dB beam width (° )                                 |                | 69 ±7                              | 61 ±6                            | 60 ±6       | 70 ±7                            | 69 ±6       | 65 ±6                            | 58 ±6       |
| Vertical 3dB beam width (° )                                   |                | 7.6 ±0.7                           | 5.7 ±0.3                         | 5.2 ±0.3    | 9.3 ±0.5                         | 7.8 ±0.5    | 5.9 ±0.3                         | 5.3 ±0.3    |
| VSWR   |                | < 1.5                              |                                  |             | < 1.5                            | < 1.5       | < 1.5                            |             |
| Cross polar isolation (dB)                                     |                | ≥ 28                               |                                  |             | ≥ 28                             | ≥ 28        | ≥ 28                             |             |
| Interband isolation (dB)                                       |                | ≥ 27                               |                                  |             | ≥ 27                             | ≥ 27        | ≥ 27                             |             |
| Front to back ratio , ±30° (dB)                                |                | > 23                               | > 25                             | > 24        | > 23                             | > 25        | > 24                             | > 24        |
| Cross polar ratio (dB)   |                | 0°                                 | > 16                             | > 16        | > 17                             | > 18        | > 18                             | > 17        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)* |                                  |             |                                  |             |                                  |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)        |                                  |             |                                  |             |                                  |             |
| Impedance (Ω)  |                | 50                                 |                                  |             |                                  |             |                                  |             |
| Grounding  |                | DC Ground                          |                                  |             |                                  |             |                                  |             |

\* Total power : 1600 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

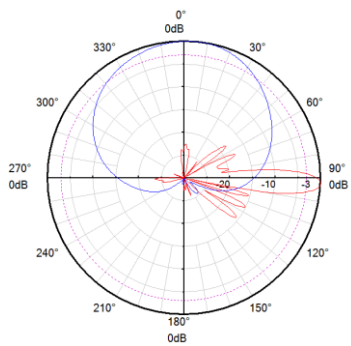
| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2769 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 2980 x 555 x 255   |
| Antenna weight (kg)                 | 62.5   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 80.8 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | GFRPP  |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 860(at 150 km/h)<br>Lateral: 535(at 150 km/h)<br>Maximum: 1140(at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female +5 x MQ4 Male   |
| Connector position                  | Bottom   |



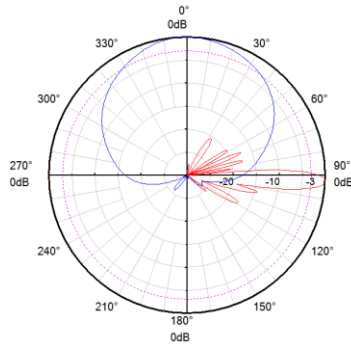
## Accessories

| Item         | Model     | Description                    | Weight | Units per antenna    |
|--------------|-----------|--------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt:<br>0 - 8° | 3.1 kg | 1 (Separate packing) |

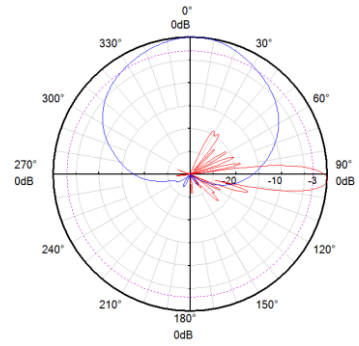
Pattern sample for reference



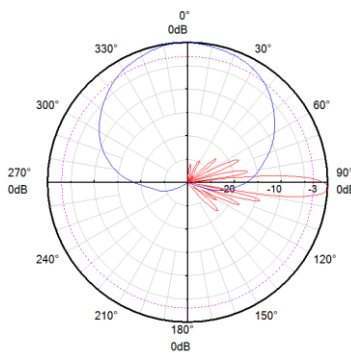
**690 - 862 MHz  
(Lr1)**



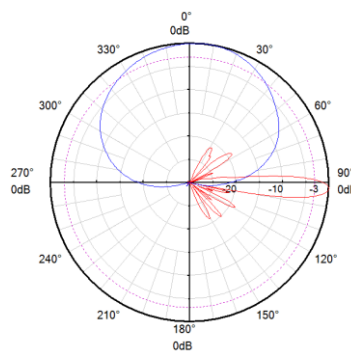
**880 - 960 MHz  
(Lr2)**



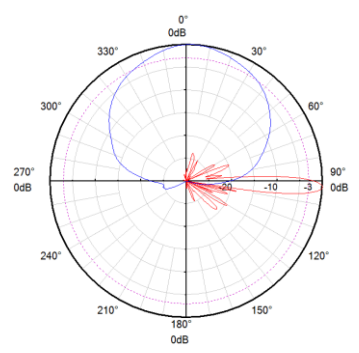
**690 - 960 MHz  
(Rr3)**



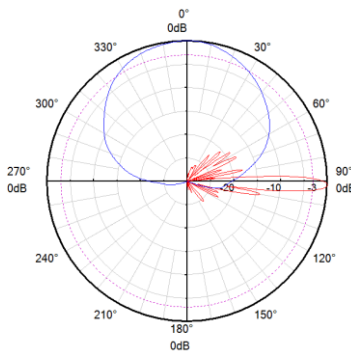
**1695 - 2690 MHz  
(LBy1 / RBy4)**



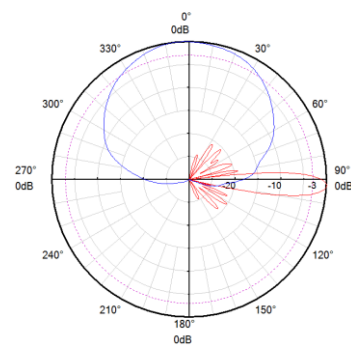
**1695 - 1880 MHz  
(Bb1)**



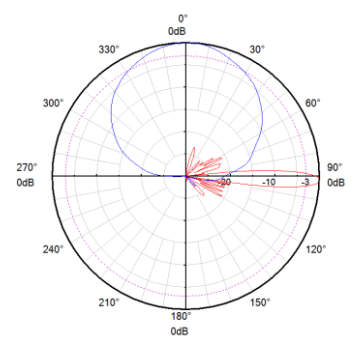
**2300 - 2690 MHz  
(CBY3)**



**1695 - 2690 MHz  
(RTy5)**



**1427 - 1880 MHz  
(Tb2)**



**2300 - 2690 MHz  
(LTy2)**

3LnH Band



# A154517R0v06

D15X-690-862/880-960/690-960/2x(1695-2690/1695-1880/2300-2690/1427-1880/2300-2690/1695-2690)-15x65-15.5i/16i/16.5i/2x(17.5i/16.5i/17.5i/16i/17i/17.5i)-15xM-R  
EasyRET 3L12H 30-Port Antenna with 10 Integrated RCUs - 2.6m



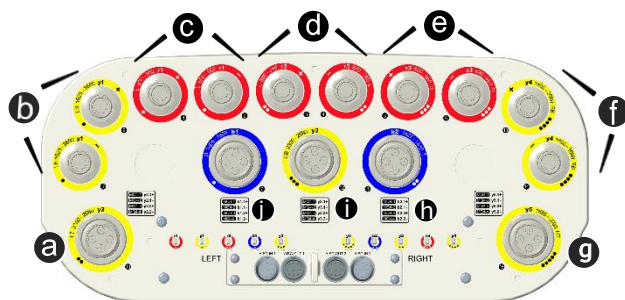
## Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

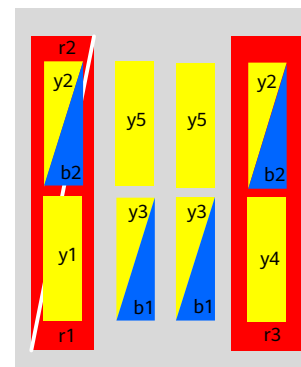
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



### Integrated RET S/N:

- a HWxxxx.....LTy2
- b HWxxxx.....LBy1
- c HWxxxx.....Lr1
- d HWxxxx.....Lr2
- e HWxxxx.....Rr3
- f HWxxxx.....RBy4
- g HWxxxx.....RTy5
- h HWxxxx.....Tb2
- i HWxxxx.....CBy3
- j HWxxxx.....Bb1



r - Red      y - Yellow      b- Blue  
 T- Top array      B - Bottom array  
 L - Left array      C - Center array      R - Right array

## B. Passive Antenna

### Multi-beam

#### 1. Dual-beam Antenna

| Frequency Range (MHz)   | 3dB Horizontal Beam Width (°) | Gain (dBi) | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model        | Page       |
|-------------------------|-------------------------------|------------|-------------------------|-------------|------------|------------------|--------------|------------|
| 690-960/<br>690-960     | 33(-30)/<br>33(+30)           | 18.5/18.5  | 0-10/0-10               | EasyRET2.0  | 4 x 4.3-10 | 2090 x 590 x 169 | AMB4519R0v06 | <b>218</b> |
| 1695-2690/<br>1695-2690 | 33(-30)/<br>33(+30)           | 20/20      | 2-12/2-12               | EasyRET2.0  | 4 x 4.3-10 | 1499 x 399 x 196 | AMB4520R8v06 | <b>220</b> |

#### 2. Hybrid Multi-beam Antenna

| Frequency Range (MHz)   | 3dB Horizontal Beam Width (°)              | Gain (dBi)                               | Electrical Downtilt (°)                        | Tilt Method | Connector   | Dimension(mm)    | Model        | Page       |
|---|--|--|--|-------------|-------------|------------------|--------------|------------|
| 690-960/<br>1710-2200/<br>1710-2200   | 65/<br>33(-30)/<br>33(+30)                 | 16/19.5/<br>19.5                         | 0-10/2-12/<br>2-12                             | EasyRET2.0  | 6 x 4.3-10  | 2022 x 359 x 178 | AMB4520R2v06 | <b>222</b> |
| 690-960/<br>1695-2690/<br>1695-2690/<br>1695-2200/<br>1695-2200                             | 65/65/65/<br>33(-30)/<br>33(+30)           | 17/17.5/<br>17.5/18.5/<br>18.5           | 0-10/2-12/<br>2-12/0-10/<br>0-10               | EasyRET2.0  | 10 x 4.3-10 | 2685 x 359 x 178 | AMB4519R2v06 | <b>225</b> |
| 690-960/<br>1695-2200/<br>1695-2200/<br>2490-2690/<br>2490-2690/<br>1695-2200/<br>1695-2200 | 65/65/65/<br>65/65/<br>33(-30)/<br>33(+30) | 17/<br>17.5/17.5/1<br>8/18/<br>18.5/18.5 | 0-10/<br>2-12/2-12/<br>2-12/2-12/<br>0-10/0-10 | EasyRET2.0  | 14 x 4.3-10 | 2685 x 359 x 178 | AMB4519R4v06 | <b>228</b> |
| 1710-2690/<br>1710-2690/<br>1710-2200/<br>1710-2200   | 65/65/<br>33(-30)/<br>33(+30)              | 18/18/<br>19.5/19.5                      | 0-12/0-12/<br>2-12/2-12                        | EasyRET2.0  | 8 x 4.3-10  | 2688 x 349 x 166 | AMB4520R4v06 | <b>231</b> |

## Multi-beam

### 3. Dual-band Dual-beam Antenna

| Frequency Range (MHz)                           | 3dB Horizontal Beam Width (°)               | Gain (dBi)          | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model        | Page       |
|---|---|---------------------|-------------------------|-------------|------------|------------------|--------------|------------|
| 790-960/<br>790-960/<br>1710-2200/<br>1710-2200 | 33(-30)/<br>33(+30)/<br>33(-30)/<br>33(+30) | 16/16/<br>18.5/18.5 | 2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 8 x 4.3-10 | 2090 x 590 x 169 | AMB4519R3v06 | <b>234</b> |

### 4. 4T4R Dual-beam Antenna

| Frequency Range (MHz)                               | 3dB Horizontal Beam Width (°)               | Gain (dBi)              | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model        | Page       |
|---|---|-------------------------|-------------------------|-------------|------------|------------------|--------------|------------|
| 1695-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690 | 33(-30)/<br>33(+30)/<br>33(-30)/<br>33(+30) | 19/19/<br>19/19         | 2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 8 x 4.3-10 | 2099 x 399 x 196 | AMB4519R6v06 | <b>237</b> |
| 1695-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690 | 33(-30)/<br>33(+30)/<br>33(-30)/<br>33(+30) | 19.5/19.5/<br>19.5/19.5 | 2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 8 x 4.3-10 | 2550 x 399 x 196 | AMB4520R9v06 | <b>240</b> |

### 5. Triple-beam Antenna

| Frequency Range (MHz)                 | 3dB Horizontal Beam Width (°) | Gain (dBi) | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)    | Model        | Page       |
|---------------------------------------|-------------------------------|------------|-------------------------|-------------|------------|------------------|--------------|------------|
| 1710-2200/<br>1710-2200/<br>1710-2200 | 22(-30)/<br>22(0)/<br>22(+30) | 21/21/21   | 2-12/2-12/<br>2-12      | EasyRET2.0  | 6 x 4.3-10 | 1499 x 449 x 115 | AMB4521R0v06 | <b>243</b> |

## Multi-beam

### 6. Hybrid 4T4R Dual-beam Antenna

| Frequency Range (MHz)   | 3dB Horizontal Beam Width (°)                                | Gain (dBi)  | Electrical Downtilt (°)                             | Tilt Method | Connector   | Dimension(mm)    | Model           | Page       |
|---|--|---|---|-------------|-------------|------------------|-----------------|------------|
| 690-960/<br>1695-2200/<br>1695-2200/<br>1695-2200/<br>1695-2200   | 65/<br>33(-30)/<br>33(+30)/<br>33(-30)/<br>33(+30)/          | 17/<br>19/19/<br>19/19                              | 0-10/2-12/<br>2-12/2-12/<br>2-12                    | EasyRET2.0  | 10 x 4.3-10 | 2685 x 359 x 178 | AMB4519R5v06    | <b>247</b> |
| 1427-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690                                       | 65/<br>33(-30)/<br>33(+30)/<br>33(-30)/<br>33(+30)/          | 17.5/<br>18.5/18.5/<br>18.5/18.5                    | 2-12/2-12/<br>2-12/2-12/<br>2-12                    | EasyRET2.0  | 10 x 4.3-10 | 2009 x 499 x 206 | **AMB4519R23v06 | <b>245</b> |
| 690-960/<br>690-960/<br>1695-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690                             | 65/65/<br>33(-30)/<br>33(+30)/<br>33(-30)/<br>33(+30)/       | 15.5/15.5/<br>18.5/18.5/<br>18.5/18.5               | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12               | EasyRET2.0  | 12 x 4.3-10 | 2009 x 499 x 206 | AMB4519R13v06   | <b>250</b> |
| 690-960/<br>690-960/<br>1695-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690                             | 65/65/<br>33(-30)/<br>33(+30)/<br>33(-30)/<br>33(+30)/       | 16.5/16.5/<br>19/19/<br>19/19                       | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12               | EasyRET2.0  | 12 x 4.3-10 | 2769 x 499 x 206 | AMB4519R9v06    | <b>253</b> |
| 690-960/<br>1427-2690/<br>1427-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690             | 65/65/65/<br>33(-30)/<br>33(+30)/<br>33(-30)/<br>33(+30)/    | 15.5/<br>17.5/17.5/<br>18.5/18.5/<br>18.5/18.5      | 2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12      | EasyRET2.0  | 14 x 4.3-10 | 2009 x 499 x 206 | **AMB4519R24v06 | <b>256</b> |
| 690-960/<br>690-960/<br>1427-2690/<br>1427-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690/<br>1695-2690 | 65/65/65/65/<br>33(-30)/<br>33(+30)/<br>33(-30)/<br>33(+30)/ | 15.5/15.5/<br>17.5/17.5/<br>18.5/18.5/<br>18.5/18.5 | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 16 x 4.3-10 | 2009 x 499 x 206 | AMB4519R18v06   | <b>258</b> |

\*\* Preliminary Issue

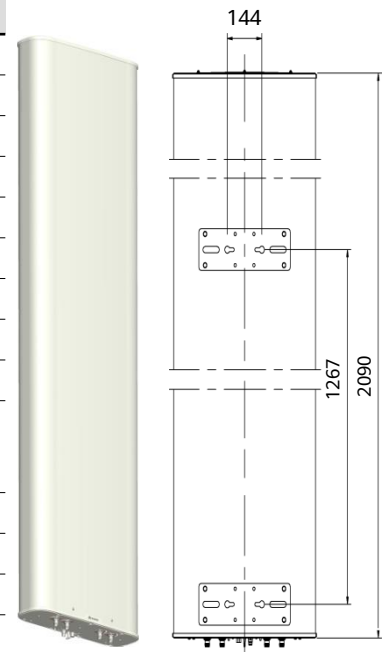
## Antenna Specifications

| Electrical Properties  |   |                |           |           |           |
|--|---|----------------|-----------|-----------|-----------|
| Frequency range (MHz)  | 690 - 960   |                |           |           |           |
|  | 690 - 803   | 790 - 862      | 824 - 894 | 880 - 960 |           |
| Polarization   | +45° , -45°   |                |           |           |           |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable                                       |                |           |           |           |
| Gain (dBi)   | at mid Tilt   | 16.6           | 18.0      | 18.2      | 18.3      |
|  | over all Tilts  | 16.5 ±0.5      | 17.8 ±0.4 | 18.0 ±0.3 | 18.2 ±0.3 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 17           | > 18      | > 18      |           |
| Horizontal 3dB beam width (°)                                  | 39 ±3   | 37 ±3          | 36 ±2     | 34 ±2     |           |
| Vertical 3dB beam width (°)                                    | 10.0 ±0.5   | 9.2 ±0.3       | 8.9 ±0.3  | 8.3 ±0.3  |           |
| VSWR   | < 1.5   |                |           |           |           |
| Horizontal beam centers (°)                                    | ± 30  | ± 28           | ± 27      | ± 25      |           |
| Cross polar isolation (dB)                                     | Same beam: ≥ 22   | Same beam: ≥26 |           |           |           |
| Beam to beam isolation (dB)                                    | ≥ 18 (758 - 788MHz & 791-821MHz & 869-894MHz ≥ 25; 925 - 960MHz ≥ 21) |                |           |           |           |
| Front to back ratio, ±30° (dB)                                 | > 25  | > 26           | > 26      | > 26      |           |
| Cross polar ratio at boresight (dB)                            | > 17  | > 22           | > 23      | > 23      |           |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature)                                     |                |           |           |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)   |                |           |           |           |
| Impedance (Ω)  | 50  |                |           |           |           |
| Grounding  | DC Ground   |                |           |           |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2090 x 590 x 169   |
| Packing dimensions (H x W x D) (mm) | 2350 x 705 x 275   |
| Antenna weight (kg)                 | 36.1   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 49.1 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 1330 (at 150 km/h)<br>Lateral: 190 (at 150 km/h)<br>Maximum: 1330 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 4 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                      | Weight | Units per antenna    |
|--------------|-----------|----------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt:<br>0 - 12 ° | 3.1 kg | 1 (Separate packing) |

**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

Standards: EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003  
 Certification: CE, FCC, IC, RCM, RoHS, REACH, WEEE

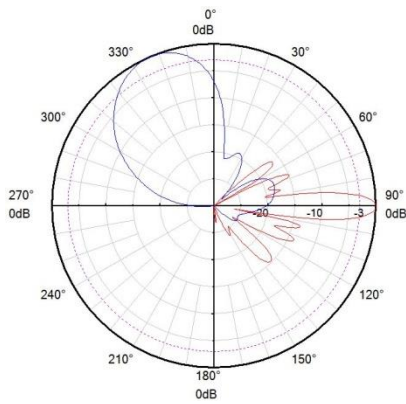
Multi-beam



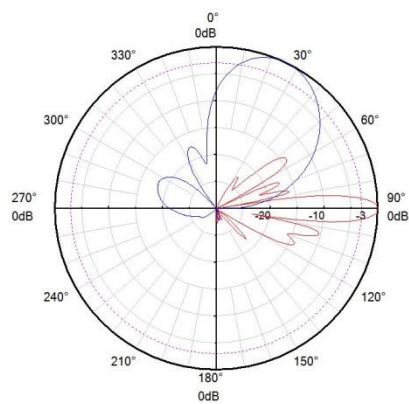
**Integrated RET S/N:**

- a** HWMxxx.....r
  - b** HWMxxx.....rr
- r - Red

**Pattern sample for reference**



**690 - 960 MHz  
(rr-30)**



**690 - 960 MHz  
(r+30)**

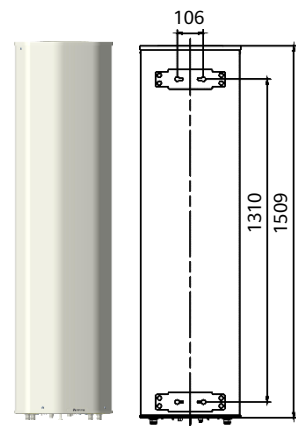
## Antenna Specifications

| Electrical Properties  |   |             |             |             |           |
|--|---|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 1695 - 2690   |             |             |             |           |
|  | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45° , -45°   |             |             |             |           |
| Electrical downtilt (° )                                       | 2 - 12 , continuously adjustable , each band separately |             |             |             |           |
| Gain (dBi)   | at mid Tilt   | 19.1        | 19.6        | 20.0        | 20.3      |
|  | over all Tilts  | 18.9 ±0.6   | 19.4 ±0.4   | 19.8 ±0.5   | 20.1 ±0.6 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 16        | > 16        | > 16        |           |
| Horizontal 3dB beam width (° )                                 | 37 ±4   | 36 ±3       | 34 ±3       | 32 ±3       |           |
| Vertical 3dB beam width (° )                                   | 7.1 ±0.5  | 6.3 ±0.6    | 5.6 ±0.4    | 5.1 ±0.3    |           |
| VSWR   | < 1.5   |             |             |             |           |
| Horizontal beam centers (° )                                   | ±31   | ±31         | ±31         | ±32         |           |
| Cross polar isolation (dB)                                     | ≥ 28  |             |             |             |           |
| Port to port isolation(dB)                                     | ≥ 25  |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 28  | > 28        | > 28        | > 29        |           |
| Cross polar ratio at boresight (dB)                            | > 15  | > 16        | > 15        | > 16        |           |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)                       |             |             |             |           |
| Total power (W)  | 700 (at 50°C ambient temperature)                       |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                             |             |             |             |           |
| Impedance (Ω)  | 50  |             |             |             |           |
| Grounding  | DC Ground   |             |             |             |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

### Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1509 x 399 x 196   |
| Packing dimensions (H x W x D) (mm) | 1785 x 480 x 250   |
| Antenna weight (kg)                 | 20   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 30.4 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 400 (at 150 km/h)<br>Lateral: 235 (at 150 km/h)<br>Maximum: 510 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 4 x 4.3-10 Female  |
| Connector position                  | Bottom   |



### Accessories

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt:<br>0 - 16° | 2.1 kg | 1 (Separate packing) |

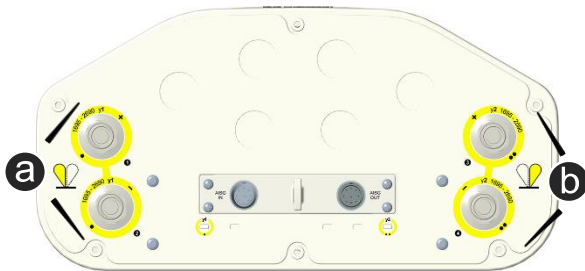
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

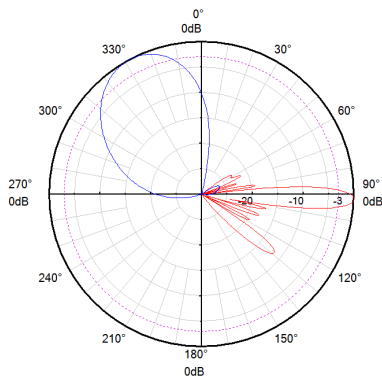


**Integrated RET S/N:**

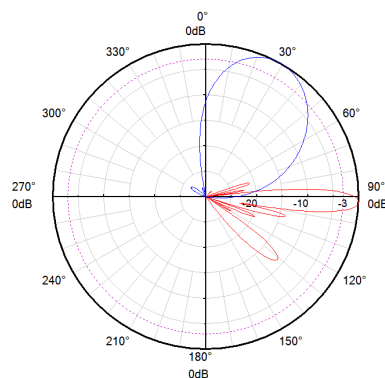
- a** HWMxxx.....y1
- b** HWMxxx.....y2

y - Yellow

**Pattern sample for reference**



**1695 - 2690 MHz (y2)**



**1695 - 2690 MHz (y1)**

Multi-beam



## Antenna Specifications

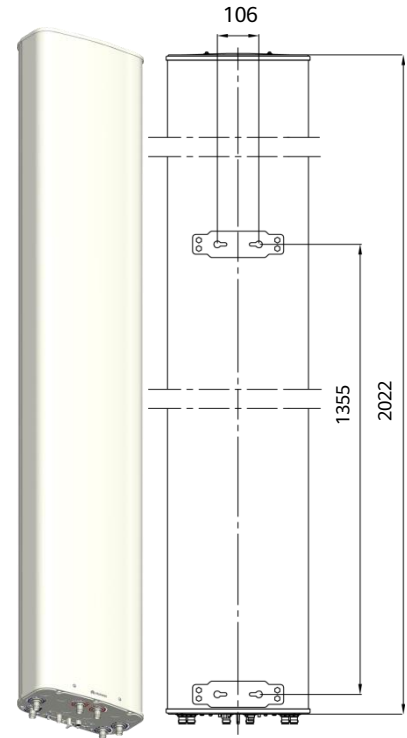
| Electrical Properties  |                                   |           |           |           |           |
|--|-----------------------------------|-----------|-----------|-----------|-----------|
| Frequency range (MHz)  | 690 - 960                         |           |           |           |           |
|  | 690 - 803                         | 790 - 862 | 824 - 894 | 880 - 960 |           |
| Polarization   | +45°, -45°                        |           |           |           |           |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable   |           |           |           |           |
| Gain (dBi)   | at mid Tilt                       | 15.4      | 15.7      | 15.8      | 16.0      |
|  | over all Tilts                    | 15.3 ±0.5 | 15.6 ±0.5 | 15.7 ±0.5 | 15.8 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16                              | > 18      | > 17      | > 17      |           |
| Horizontal 3dB beam width (°)                                  | 63 ±2.5                           | 60 ±2.5   | 60 ±2.5   | 59 ±3     |           |
| Vertical 3dB beam width (°)                                    | 10.6 ±0.7                         | 9.5 ±0.5  | 9.2 ±0.4  | 8.7 ±0.4  |           |
| VSWR   | < 1.5                             |           |           |           |           |
| Cross polar isolation (dB)                                     | ≥ 25                              |           |           |           |           |
| Interband isolation (dB)                                       | ≥ 28                              |           |           |           |           |
| Front to back ratio, ±30° (dB)                                 | > 21                              | > 24      | > 24      | > 24      |           |
| Cross polar ratio (dB)   | 0°                                | > 17      | > 18      | > 17      | > 17      |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature) |           |           |           |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)       |           |           |           |           |
| Impedance (Ω)  | 50                                |           |           |           |           |
| Grounding  | DC Ground                         |           |           |           |           |

| Electrical Properties  |                                   |           |             |           |
|--|-----------------------------------|-----------|-------------|-----------|
| Frequency range (MHz)  | 1710 - 2200                       |           |             |           |
|  | 1710 - 1990                       |           | 1920 - 2200 |           |
| Polarization   | +45°, -45°                        |           |             |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable   |           |             |           |
| Gain (dBi)   | at mid Tilt                       | 18.7      |             | 19.4      |
|  | over all Tilts                    | 18.5 ±0.8 |             | 19.2 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 17                              |           | > 17        |           |
| Horizontal 3dB beam width (°)                                  | 32 ±1                             |           | 30 ±1       |           |
| Vertical 3dB beam width (°)                                    | 6.2 ±0.5                          |           | 5.6 ±0.4    |           |
| VSWR   | < 1.5                             |           |             |           |
| Horizontal beam centers (°)                                    | ± 30                              |           | ± 26        |           |
| Cross polar isolation (dB)                                     | Same beam: ≥ 25                   |           |             |           |
| Beam to beam isolation(dB)                                     | ≥ 18                              |           |             |           |
| Interband isolation (dB)                                       | ≥ 28                              |           |             |           |
| Front to back ratio, ±30° (dB)                                 | > 28                              |           | > 28        |           |
| Cross polar ratio at boresight (dB)                            | > 17                              |           | > 15        |           |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature) |           |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)       |           |             |           |
| Impedance (Ω)  | 50                                |           |             |           |
| Grounding  | DC Ground                         |           |             |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

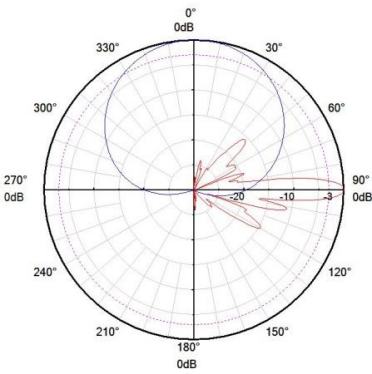
| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2022 x 359 x 178   |
| Packing dimensions (H x W x D) (mm) | 2400 x 430 x 255   |
| Antenna weight (kg)                 | 25.0   |
| Clamps weight (kg)                  | 3.6 (2 nuts)   |
| Antenna packing weight (kg)         | 39.7 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 to +65   |
| Wind load (N)                       | Frontal: 655 (at 150 km/h)<br>Lateral: 200 (at 150 km/h)<br>Maximum: 690 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 6 x 4.3-10 Female  |
| Connector position                  | Bottom   |



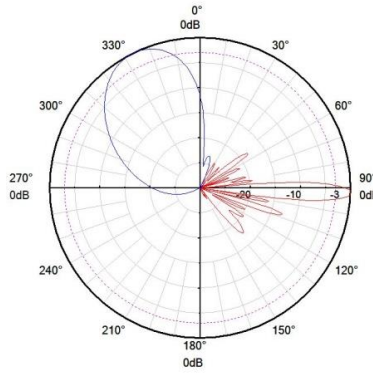
**Accessories**

| Item         | Model      | Description                   | Weight | Units per antenna    |
|--------------|------------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D0 1 | Mechanical downtilt: 0 - 12 ° | 2.1 kg | 1 (Separate packing) |

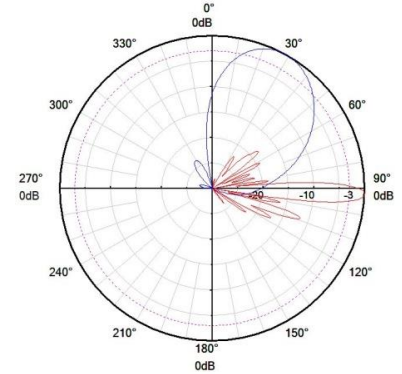
**Pattern sample for reference**



690 - 960 MHz



1710 - 2200 MHz (b2-30)



1710 - 2200 MHz (b1+30)

Multi-beam

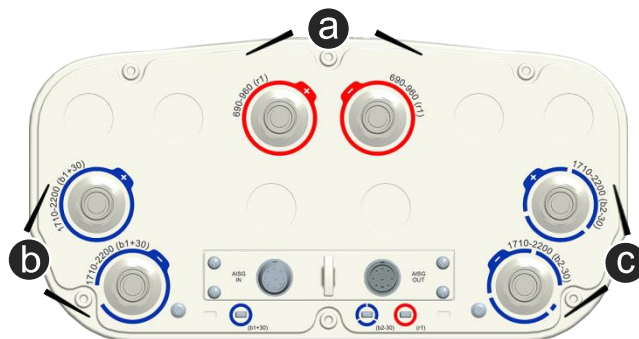
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



#### Integrated RET S/N:

- a** HWMxxx.....r1
- b** HWMxxx.....b1
- c** HWMxxx.....b2

r - Red      b - Blue



## Antenna Specifications

| Electrical Properties  |                                    |           |           |           |   |             |             |             |           |
|--|------------------------------------|-----------|-----------|-----------|---|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 690 - 960                          |           |           |           | 2 x (1695 - 2690)                                     |             |             |             |           |
|  | 690 - 803                          | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°                         |           |           |           |   |             |             |             |           |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable    |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |           |
| Gain (dBi)   | at mid Tilt                        | 15.9      | 16.0      | 16.1      | 16.4  | 16.9        | 17.1        | 17.2        | 17.3      |
|  | over all Tilts                     | 15.7 ±0.4 | 15.8 ±0.5 | 15.9 ±0.4 | 16.2 ±0.5   | 16.8 ±0.6   | 17.0 ±0.5   | 17.0 ±0.5   | 17.2 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 18                               | > 19      | > 18      | > 18      | > 17  | > 17        | > 17        | > 17        | > 17      |
| Horizontal 3dB beam width (°)                                  | 68 ±4                              | 67 ±4     | 67 ±3     | 66 ±4     | 60 ±5   | 61 ±5       | 63 ±5       | 58 ±5       |           |
| Vertical 3dB beam width (°)                                    | 9.5 ±0.6                           | 8.8 ±0.6  | 8.4 ±0.6  | 7.8 ±0.4  | 6.5 ±0.6  | 5.8 ±0.4    | 5.0 ±0.5    | 4.8 ±0.3    |           |
| VSWR   | < 1.5                              |           |           |           |   |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 25                               |           |           |           | ≥ 28  |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28                               |           |           |           | ≥ 28  |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 25                               | > 26      | > 26      | > 26      | > 26  | > 27        | > 27        | > 27        | > 28      |
| Cross polar ratio (dB)   | 0°                                 | > 15      | > 17      | > 17      | > 17  | > 17        | > 20        | > 20        | > 20      |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature)* |           |           |           | 250 (at 50°C ambient temperature)*                    |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)        |           |           |           |   |             |             |             |           |
| Impedance (Ω)  | 50                                 |           |           |           |   |             |             |             |           |
| Grounding  | DC Ground                          |           |           |           |   |             |             |             |           |

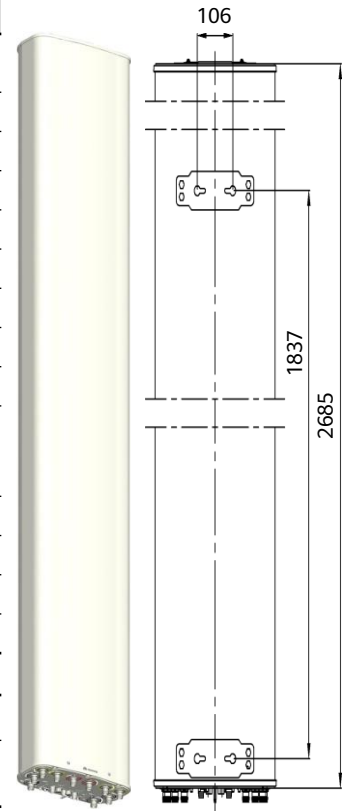
| Electrical Properties  |                                    |           |  |  |             |           |  |  |  |
|--|------------------------------------|-----------|--|--|-------------|-----------|--|--|--|
| Frequency range (MHz)  | 1695 - 2200                        |           |  |  |             |           |  |  |  |
|  | 1695 - 1990                        |           |  |  | 1920 - 2200 |           |  |  |  |
| Polarization   | +45°, -45°                         |           |  |  |             |           |  |  |  |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable    |           |  |  |             |           |  |  |  |
| Gain (dBi)   | at mid Tilt                        | 17.3      |  |  |             | 18.1      |  |  |  |
|  | over all Tilts                     | 17.1 ±0.6 |  |  |             | 17.9 ±0.6 |  |  |  |
| Side lobe suppression for first side lobe above main beam (dB) | > 17                               |           |  |  | > 17        |           |  |  |  |
| Horizontal 3dB beam width (°)                                  | 33 ±3                              |           |  |  | 30 ±3       |           |  |  |  |
| Vertical 3dB beam width (°)                                    | 7.2 ±0.5                           |           |  |  | 6.5 ±0.5    |           |  |  |  |
| VSWR   | < 1.5                              |           |  |  |             |           |  |  |  |
| Horizontal beam centers (°)                                    | ± 29                               |           |  |  | ± 27        |           |  |  |  |
| Cross polar isolation (dB)                                     | Same beam: ≥ 25                    |           |  |  |             |           |  |  |  |
| Beam to beam isolation (dB)                                    | ≥ 18                               |           |  |  |             |           |  |  |  |
| Interband isolation (dB)                                       | ≥ 28                               |           |  |  |             |           |  |  |  |
| Front to back ratio, ±30° (dB)                                 | > 27                               |           |  |  | > 29        |           |  |  |  |
| Cross polar ratio at boresight (dB)                            | > 15                               |           |  |  | > 17        |           |  |  |  |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)* |           |  |  |             |           |  |  |  |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)        |           |  |  |             |           |  |  |  |
| Impedance (Ω)  | 50                                 |           |  |  |             |           |  |  |  |
| Grounding  | DC Ground                          |           |  |  |             |           |  |  |  |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

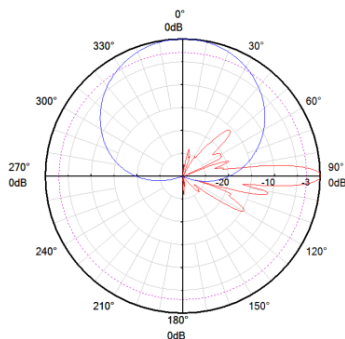
|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2685 x 359 x 178  |
| Packing dimensions (H x W x D) (mm) | 2985 x 425 x 255  |
| Antenna weight (kg)                 | 35.0  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 54.1 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal : 910 (at 150 km/h)<br>Lateral: 275 (at 150 km/h)<br>Maximum: 960 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 10 x 4.3-10 Female  |
| Connector position                  | Bottom  |



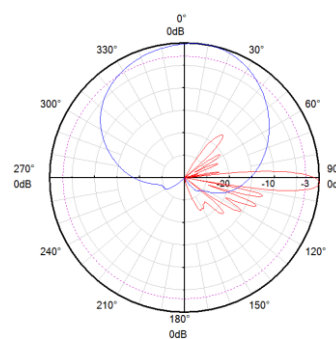
**Accessories**

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt:<br>0 - 8 ° | 3.1 kg | 1 (Separate packing) |

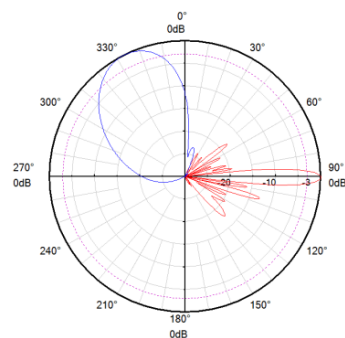
**Pattern sample for reference**



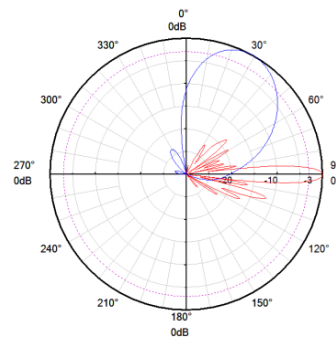
**690 - 960 MHz**



**1695 - 2690 MHz**



**1695 - 2200 MHz  
(b2-30)**



**1695 - 2200 MHz  
(b1+30)**

### Integrated RET Specifications

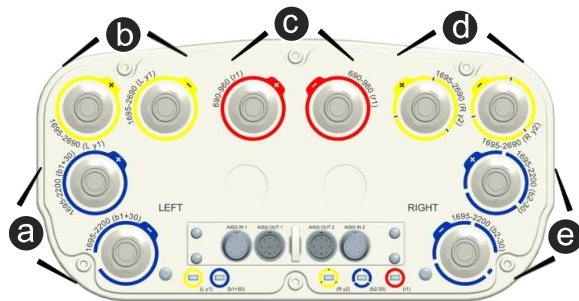
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

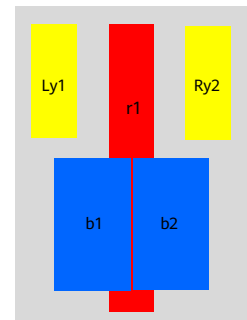
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

Multi-beam



#### Integrated RET S/N:

- a HWMxxx.....b1
- b HWMxxx.....Ly1
- c HWMxxx.....r1
- d HWMxxx.....Ry2
- e HWMxxx.....b2



r - Red    y - Yellow    b - Blue  
L - Left array    R - Right array

## Antenna Specifications

| Electrical Properties  |                                    |           |           |           |   |             |                   |           |
|--|------------------------------------|-----------|-----------|-----------|---|-------------|-------------------|-----------|
| Frequency range (MHz)  | 690 - 960                          |           |           |           | 2 x (1695 - 2200)                                       |             | 2 x (2490 - 2690) |           |
|  | 690 - 803                          | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2490 - 2690       |           |
| Polarization   | +45° , -45°                        |           |           |           |   |             |                   |           |
| Electrical downtilt (°)  | 0 - 10 , continuously adjustable   |           |           |           | 2 - 12 , continuously adjustable , each band separately |             |                   |           |
| Gain (dBi)   | at mid Tilt                        | 15.9      | 16.1      | 16.3      | 16.5  | 17.1        | 17.6              | 18.0      |
|  | over all Tilts                     | 15.7 ±0.4 | 15.9 ±0.5 | 16.1 ±0.4 | 16.3 ±0.5   | 17.0 ±0.4   | 17.4 ±0.4         | 17.8 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 18                               | > 19      | > 18      | > 18      | > 17  | > 17        | > 17              |           |
| Horizontal 3dB beam width (°)                                  | 68 ±4                              | 67 ±4     | 67 ±3     | 66 ±4     | 60 ±5   | 61 ±5       | 58 ±5             |           |
| Vertical 3dB beam width (°)                                    | 9.5 ±0.6                           | 8.8 ±0.6  | 8.4 ±0.6  | 7.8 ±0.4  | 6.4 ±0.6  | 5.8 ±0.4    | 4.8 ±0.3          |           |
| VSWR   | < 1.5                              |           |           |           |   |             |                   |           |
| Cross polar isolation (dB)                                     | ≥ 25                               |           |           |           | ≥ 28  |             |                   |           |
| Interband isolation (dB)                                       | ≥ 28                               |           |           |           | ≥ 28  |             |                   |           |
| Front to back ratio, ±30° (dB)                                 | > 25                               | > 26      | > 26      | > 26      | > 26  | > 27        | > 28              |           |
| Cross polar ratio (dB)   | 0°                                 | > 15      | > 17      | > 17      | > 17  | > 18        | > 18              | > 18      |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature)* |           |           |           | 250 (at 50°C ambient temperature)*                      |             |                   |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)        |           |           |           |   |             |                   |           |
| Impedance (Ω)  | 50                                 |           |           |           |   |             |                   |           |
| Grounding  | DC Ground                          |           |           |           |   |             |                   |           |

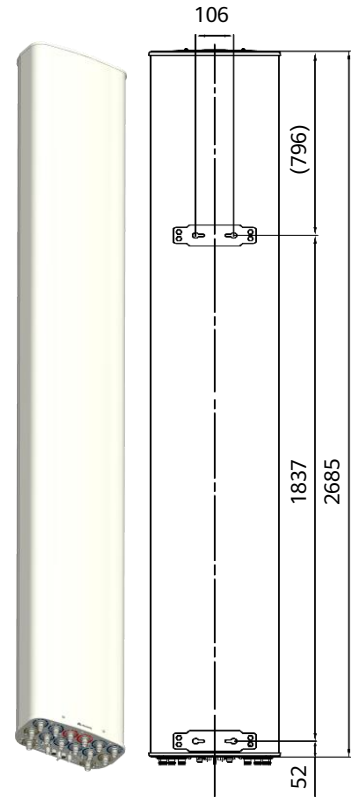
| Electrical Properties  |                                    |           |  |  |             |           |  |  |
|--|------------------------------------|-----------|--|--|-------------|-----------|--|--|
| Frequency range (MHz)  | 1695 - 2200                        |           |  |  |             |           |  |  |
|  | 1695 - 1990                        |           |  |  | 1920 - 2200 |           |  |  |
| Polarization   | +45° , -45°                        |           |  |  |             |           |  |  |
| Electrical downtilt (°)  | 0 - 10 , continuously adjustable   |           |  |  |             |           |  |  |
| Gain (dBi)   | at mid Tilt                        | 17.3      |  |  |             | 18.1      |  |  |
|  | over all Tilts                     | 17.1 ±0.6 |  |  |             | 17.9 ±0.6 |  |  |
| Side lobe suppression for first side lobe above main beam (dB) | > 17                               |           |  |  | > 17        |           |  |  |
| Horizontal 3dB beam width (°)                                  | 33 ±3                              |           |  |  | 30 ±3       |           |  |  |
| Vertical 3dB beam width (°)                                    | 7.2 ±0.5                           |           |  |  | 6.5 ±0.5    |           |  |  |
| VSWR   | < 1.5                              |           |  |  |             |           |  |  |
| Horizontal beam centers (°)                                    | ± 29                               |           |  |  | ± 27        |           |  |  |
| Cross polar isolation (dB)                                     | Same beam: ≥ 25                    |           |  |  |             |           |  |  |
| Beam to beam isolation (dB)                                    | ≥ 18                               |           |  |  |             |           |  |  |
| Interband isolation (dB)                                       | ≥ 28                               |           |  |  |             |           |  |  |
| Front to back ratio, ±30° (dB)                                 | > 27                               |           |  |  | > 29        |           |  |  |
| Cross polar ratio at boresight (dB)                            | > 15                               |           |  |  | > 17        |           |  |  |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)* |           |  |  |             |           |  |  |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)        |           |  |  |             |           |  |  |
| Impedance (Ω)  | 50                                 |           |  |  |             |           |  |  |
| Grounding  | DC Ground                          |           |  |  |             |           |  |  |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

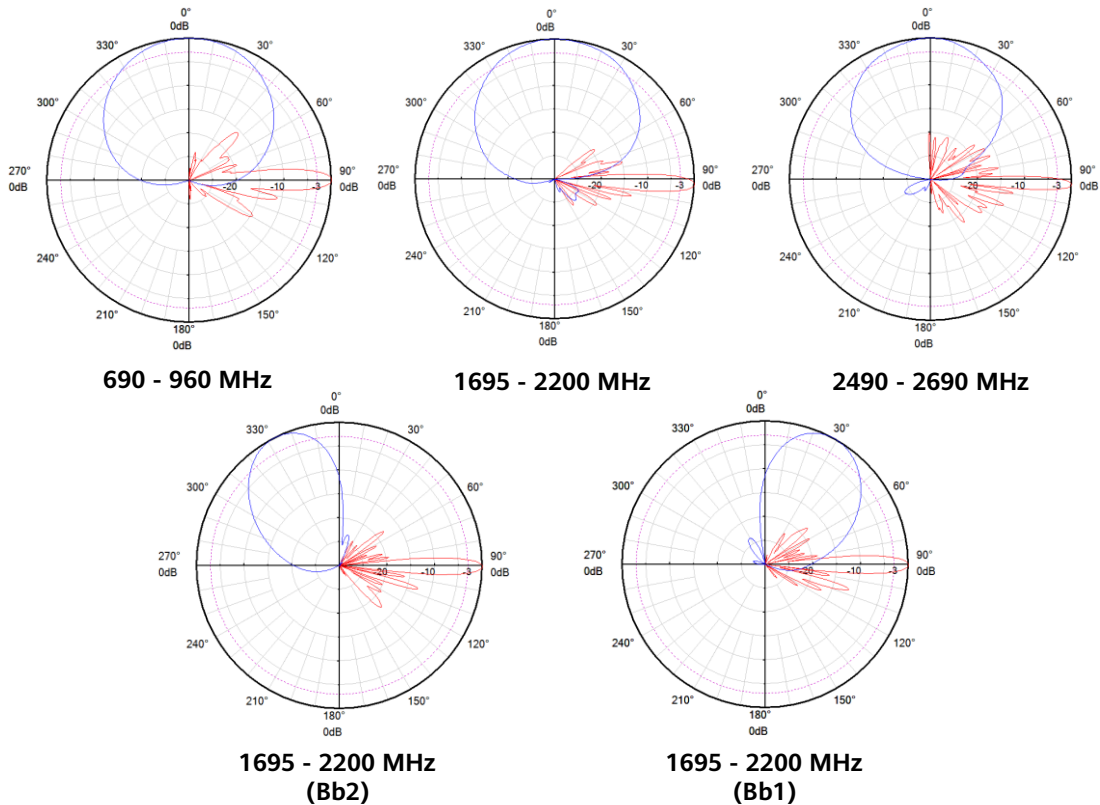
|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2685 x 359 x 178  |
| Packing dimensions (H x W x D) (mm) | 2985 x 425 x 255  |
| Antenna weight (kg)                 | 39.5  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 57.8 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal : 910 (at 150 km/h)<br>Lateral: 275 (at 150 km/h)<br>Maximum: 960 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 14 x 4.3-10 Female  |
| Connector position                  | Bottom  |



**Accessories**

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |

**Pattern sample for reference**



Multi-beam



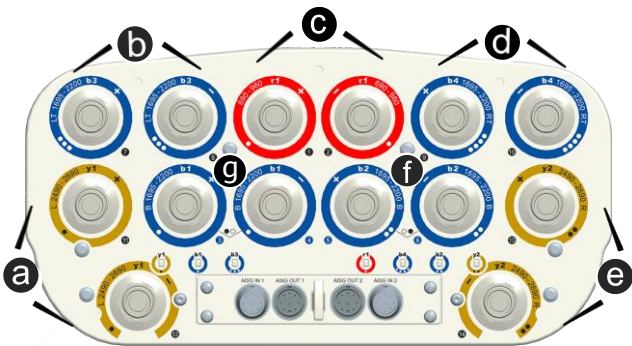
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

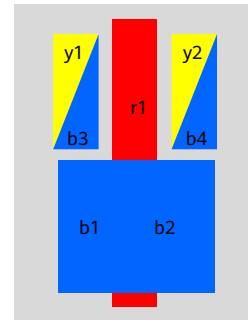
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Integrated RET S/N:**

- a HWMxxx.....Ly1
- b HWMxxx..... LTb3
- c HWMxxx.....r1
- d HWMxxx.....RTb4
- e HWMxxx.....Ry2
- f HWMxxx.....Bb2
- g HWMxxx.....Bb1



r - Red      y - Yellow      b - Blue  
L - Left array      R - Right array  
T - Top array      B - Bottom array

## Antenna Specifications

| Electrical Properties  |                |   |             |             |             |
|--|----------------|---|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (1710 - 2690)                                       |             |             |             |
|  |                | 1710 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45° , -45°   |             |             |             |
| Electrical downtilt (°)  |                | 0 - 12 , continuously adjustable , each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 17.0  | 17.3        | 17.6        | 17.7        |
|  | over all Tilts | 16.9 ±0.5   | 17.2 ±0.4   | 17.4 ±0.5   | 17.5 ±0.4   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 18  | > 20        | > 19        | > 19        |
| Horizontal 3dB beam width (°)                                  |                | 67 ±3   | 64 ±2.5     | 62 ±2.5     | 61 ±2.5     |
| Vertical 3dB beam width (°)                                    |                | 6.9 ±0.5  | 6.3 ±0.3    | 5.5 ±0.5    | 5.0 ±0.3    |
| VSWR   |                | < 1.5   |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 27  | > 27        | > 27        | > 27        |
| Cross polar ratio (dB)   |                | 0° > 19   | > 19        | > 22        | > 22        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)                       |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                             |             |             |             |
| Impedance (Ω)  |                | 50  |             |             |             |
| Grounding  |                | DC Ground   |             |             |             |

| Electrical Properties  |                |                                   |             |             |
|--|----------------|-----------------------------------|-------------|-------------|
| Frequency range (MHz)  |                | 1710 - 2200                       |             |             |
|  |                | 1710 - 1880                       | 1850 - 1990 | 1920 - 2200 |
| Polarization   |                | +45° , -45°                       |             |             |
| Electrical downtilt (°)  |                | 2 - 12 , continuously adjustable  |             |             |
| Gain (dBi)   | at mid Tilt    | 18.6                              | 19.2        | 19.5        |
|  | over all Tilts | 18.4 ±0.6                         | 19.0 ±0.6   | 19.3 ±0.4   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 18                              | > 18        | > 18        |
| Horizontal 3dB beam width (°)                                  |                | 36 ±2                             | 33 ±2       | 31 ±2       |
| Vertical 3dB beam width (°)                                    |                | 7.2 ±0.4                          | 6.9 ±0.4    | 6.6 ±0.4    |
| VSWR   |                | < 1.5                             |             |             |
| Horizontal beam centers (°)                                    |                | ± 31                              | ± 30        | ± 28        |
| Cross polar isolation (dB)                                     |                | Same beam: ≥ 28                   |             |             |
| Beam to beam isolation (dB)                                    |                | ≥ 18                              |             |             |
| Interband isolation (dB)                                       |                | ≥ 28                              |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 32                              | > 32        | > 34        |
| Cross polar ratio at boresight (dB)                            |                | > 20                              | > 20        | > 20        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature) |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)       |             |             |
| Impedance (Ω)  |                | 50                                |             |             |
| Grounding  |                | DC Ground                         |             |             |

\* Total power : 960W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

AMB4520R4v06

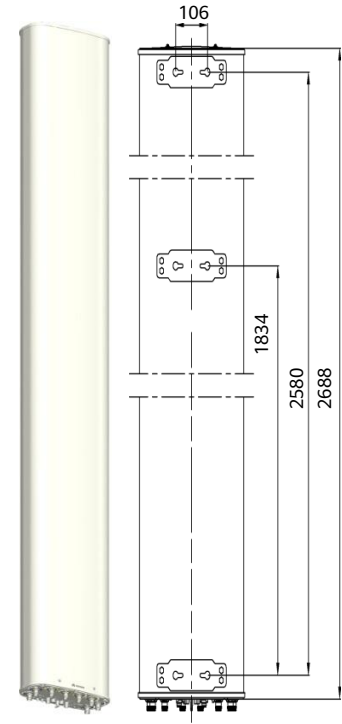
2MXX-1710-2690/1710-2690/1710-2200-65/65/33-18i/18i/19.5i-  
M/M/M-R

EasyRET Hybrid Quad-beam Antenna with 4 Integrated RCUs - 2.6m



**Mechanical Properties**

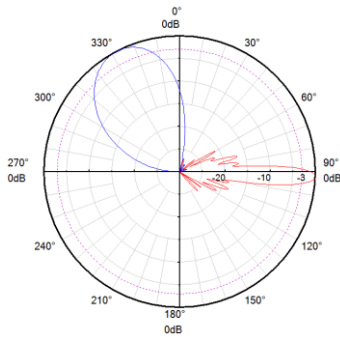
|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2688 x 349 x 166   |
| Packing dimensions (H x W x D) (mm) | 2985 x 425 x 255   |
| Antenna weight (kg)                 | 32.5   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 48.5 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 885 (at 150 km/h)<br>Lateral: 255 (at 150 km/h)<br>Maximum: 935 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |



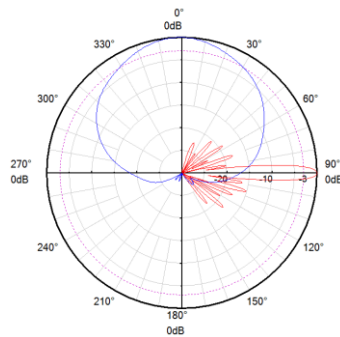
**Accessories**

| Item         | Model      | Description                  | Weight | Units per antenna    |
|--------------|------------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D0 1 | Mechanical downtilt: 0 - 8 ° | 2.1 kg | 1 (Separate packing) |

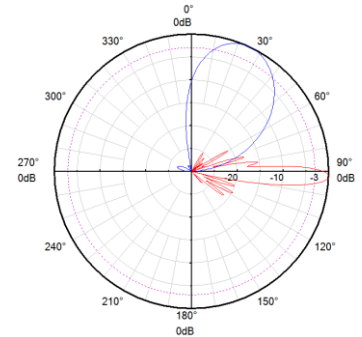
**Pattern sample for reference**



**1710 - 2200 MHz  
(b2-30)**



**1710 - 2690 MHz**



**1710 - 2200 MHz  
(b1+30)**

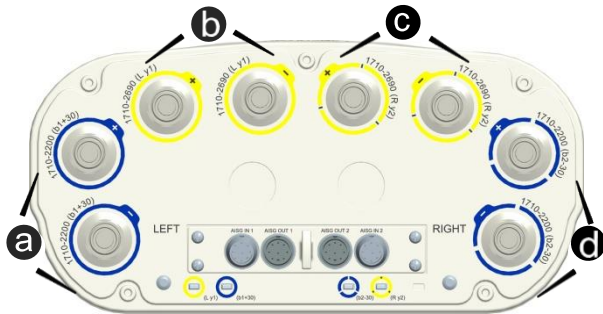
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Integrated RET S/N:**

- Ⓐ HWMxxx.....b1
- Ⓑ HWMxxx.....Ly1
- Ⓒ HWMxxx.....Ry2
- Ⓓ HWMxxx.....b2

r - Red                      y - Yellow  
 L - Left array              R - Right array

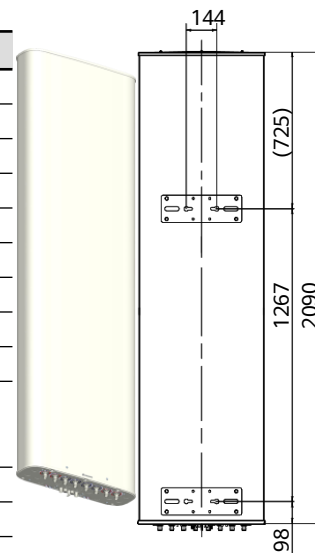
## Antenna Specifications

| Electrical Properties  |   |           |           |                                   |             |           |
|--|---|-----------|-----------|-----------------------------------|-------------|-----------|
| Frequency range (MHz)  | 790 - 960   |           |           | 1710 - 2200                       |             |           |
|  | 790 - 862   | 824 - 894 | 880 - 960 | 1710 - 1990                       | 1920 - 2200 |           |
| Polarization   | +45°, -45°  |           |           |                                   |             |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |           |           |                                   |             |           |
| Gain (dBi)   | at mid Tilt   | 14.8      | 15.2      | 15.7                              | 18.2        | 19.2      |
|  | over all Tilts  | 14.7 ±0.8 | 15.1 ±0.8 | 15.5 ±0.8                         | 18.0 ±0.8   | 19.0 ±0.6 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 17      | > 17      | > 17                              | > 18        |           |
| Horizontal 3dB beam width (°)                                  | 38 ±3   | 37 ±3     | 35 ±3     | 30 ±3                             | 29 ±1.5     |           |
| Vertical 3dB beam width (°)                                    | 16.0 ±2.4   | 15.5 ±2.6 | 14.2 ±2.5 | 7.2 ±0.5                          | 6.5 ±0.5    |           |
| VSWR   | < 1.5   |           |           |                                   |             |           |
| Horizontal beam centers (°)                                    | ± 27  | ± 26      | ± 24      | ± 30                              | ± 29        |           |
| Cross polar isolation (dB)                                     | Same beam: ≥ 25                                       |           |           | Same beam: ≥ 25                   |             |           |
| Beam to beam isolation(dB)                                     | ≥ 18  |           |           | ≥ 18                              |             |           |
| Interband isolation (dB)                                       | ≥ 28  |           |           |                                   |             |           |
| Front to back ratio, ±30° (dB)                                 | > 25  |           |           | > 30                              |             |           |
| Cross polar ratio at boresight (dB)                            | > 18  |           |           | > 17                              | > 18        |           |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature)                     |           |           | 250 (at 50°C ambient temperature) |             |           |
| Total power (W)  | 960 (at 50°C ambient temperature)                     |           |           |                                   |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |           |           |                                   |             |           |
| Impedance (Ω)  | 50  |           |           |                                   |             |           |
| Grounding  | DC Ground   |           |           |                                   |             |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2090 x 590 x 169   |
| Packing dimensions (H x W x D) (mm) | 2350 x 705 x 275   |
| Antenna weight (kg)                 | 38.5   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 55.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 1330 (at 150 km/h)<br>Lateral: 190 (at 150 km/h)<br>Maximum: 1330 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model         | Description                 | Weight | Units per antenna    |
|--------------|---------------|-----------------------------|--------|----------------------|
| Downtilt kit | ASMDT0FO<br>1 | Mechanical downtilt: 0 - 12 | 3.1 kg | 1 (Separate packing) |

**Integrated RET Specifications**

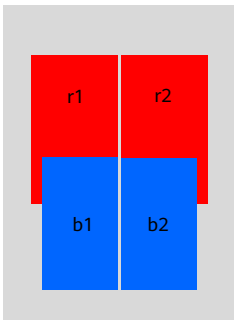
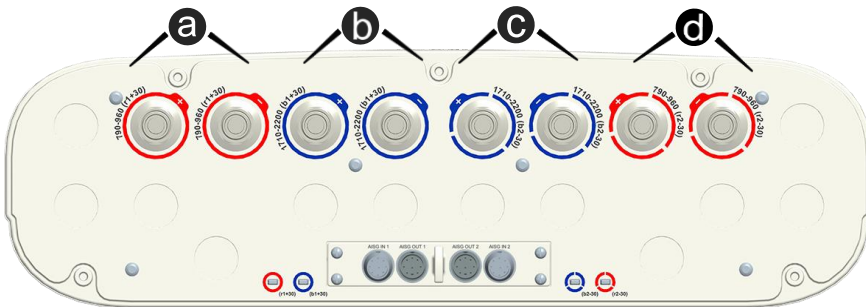
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

Multi-beam

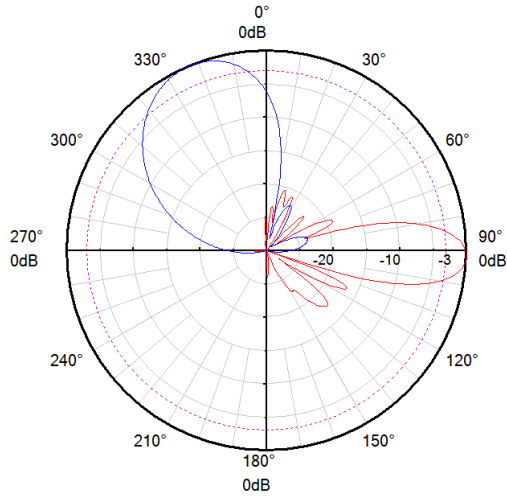


**Integrated RET S/N:**

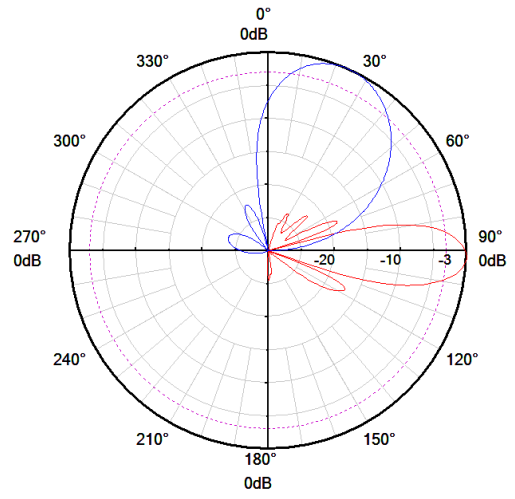
- a** HWMxxx.....r1
- b** HWMxxx.....b1
- c** HWMxxx.....b2
- d** HWMxxx.....r2

r - Red      b - Blue

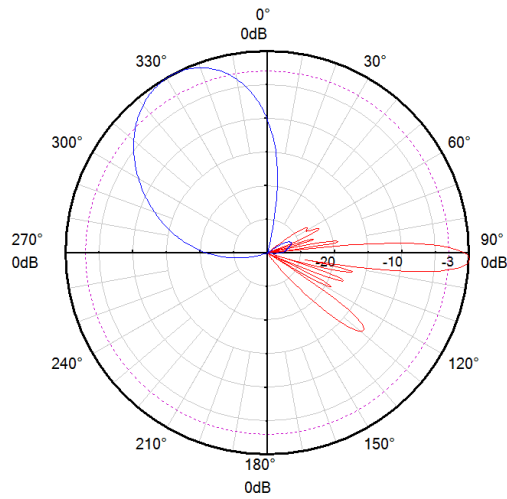
Pattern sample for reference



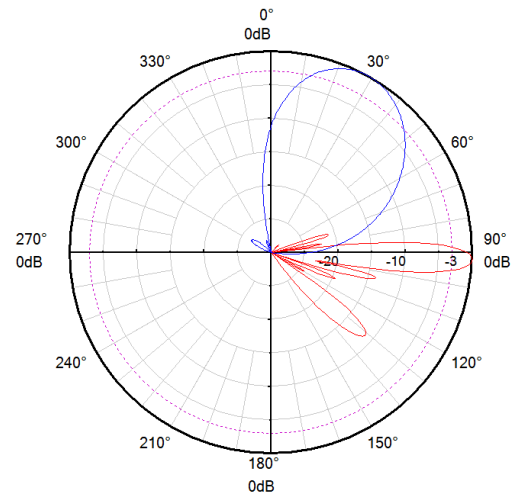
790 - 960 MHz  
(r2-30)



790 - 960 MHz  
(r1+30)



1710 - 2200 MHz  
(b2-30)



1710 - 2200 MHz  
(b1+30)

## Antenna Specifications

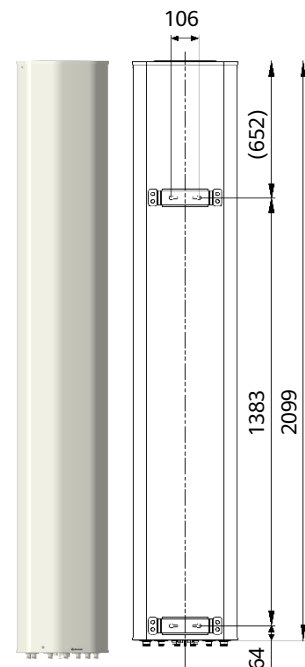
| Electrical Properties  |        |   |             |             |             |           |
|--|--------|---|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  |        | 2 x (1695 - 2690)                                       |             |             |             |           |
|  |        | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   |        | +45° , -45°   |             |             |             |           |
| Electrical downtilt (°)  |        | 2 - 12 , continuously adjustable , each band separately |             |             |             |           |
| Gain (dBi)   | Top    | at mid Tilt   | 18.0        | 18.4        | 18.9        | 19.4      |
|  |        | over all Tilts  | 17.8 ±0.6   | 18.2 ±0.4   | 18.7 ±0.7   | 19.2 ±0.6 |
|  | Bottom | at mid Tilt   | 18.0        | 18.6        | 19.2        | 19.7      |
|  |        | over all Tilts  | 17.8 ±0.6   | 18.4 ±0.5   | 19.0 ±0.6   | 19.5 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 16  | > 16        | > 15        | > 16        |           |
| Horizontal 3dB beam width (°)                                  |        | 37 ±4   | 36 ±3       | 34 ±3       | 32 ±3       |           |
| Vertical 3dB beam width (°)                                    |        | 8.9 ±0.8  | 8.0 ±0.6    | 7.1 ±0.5    | 6.4 ±0.3    |           |
| VSWR   |        | < 1.5   |             |             |             |           |
| Horizontal beam centers (°)                                    |        | ±31   | ±31         | ±31         | ±32         |           |
| Cross polar isolation (dB)                                     |        | ≥ 28  |             |             |             |           |
| Port to port isolation(dB)                                     |        | ≥ 25  |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 |        | > 28  | > 28        | > 28        | > 29        |           |
| Cross polar ratio at boresight (dB)                            |        | > 15  | > 16        | > 15        | > 16        |           |
| Max. power per input (W)                                       |        | 250 (at 50°C ambient temperature)                       |             |             |             |           |
| Total power (W)  |        | 900 (at 50°C ambient temperature)                       |             |             |             |           |
| Intermodulation IM3 (dBc)                                      |        | ≤ -153 (2 x 43 dBm carrier)                             |             |             |             |           |
| Impedance (Ω)  |        | 50  |             |             |             |           |
| Grounding  |        | DC Ground   |             |             |             |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2099 x 399 x 196   |
| Packing dimensions (H x W x D) (mm) | 2285 x 465 x 250   |
| Antenna weight (kg)                 | 28.5   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 40.3 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 570 (at 150 km/h)<br>Lateral: 340 (at 150 km/h)<br>Maximum: 725 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |

## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 12° | 2.1 kg | 1 (Separate packing) |





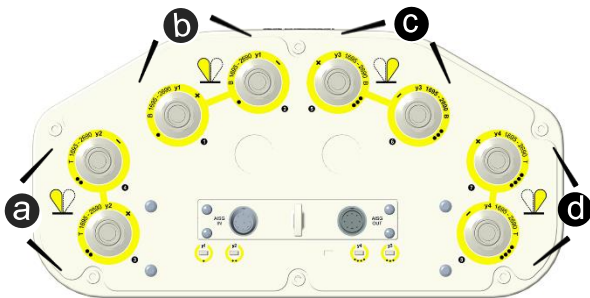
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

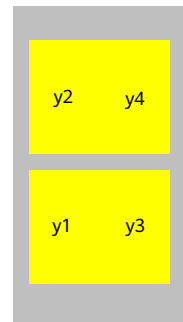
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



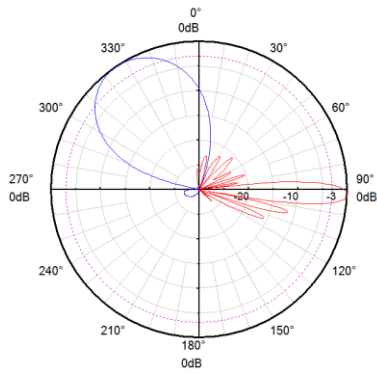
**Integrated RET S/N:**

- a** HWMxxx.....y2
- b** HWMxxx.....y1
- c** HWMxxx.....y3
- d** HWMxxx.....y4

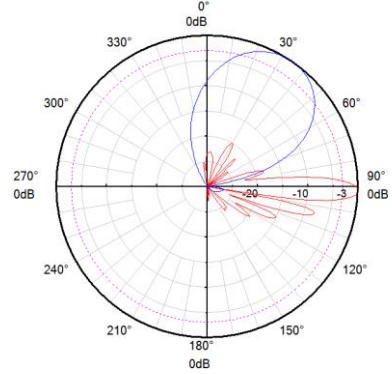
y - Yellow T - Top array  
B - Bottom array



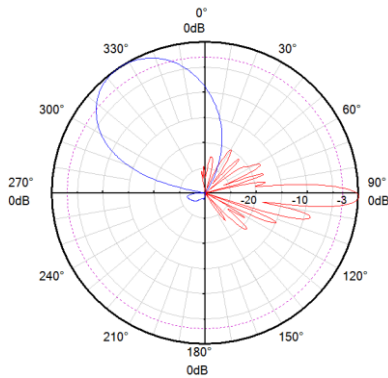
Pattern sample for reference



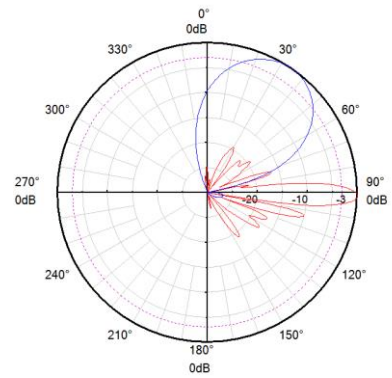
1695 - 2690 MHz  
(y3)



1695 - 2690 MHz  
(y2)



1695 - 2690 MHz  
(y4)



1695 - 2690 MHz  
(y1)

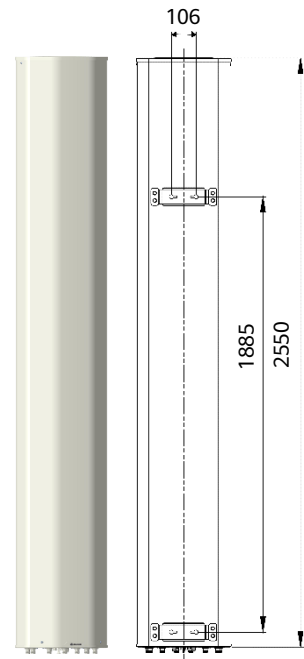
Multi-beam

## Antenna Specifications

| Electrical Properties  |        |   |             |             |             |          |
|--|--------|---|-------------|-------------|-------------|----------|
| Frequency range (MHz)  |        | 2 x (1695 - 2690)                                     |             |             |             |          |
|  |        | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |          |
| Polarization   |        | +45°, -45°  |             |             |             |          |
| Electrical downtilt (°)  |        | 2 - 12, continuously adjustable, each band separately |             |             |             |          |
| Gain (dBi)   | Top    | at mid Tilt   | 18.5        | 19.0        | 19.4        | 19.9     |
|  |        | over all Tilts  | 18.3±0.7    | 18.8±0.7    | 19.2±0.7    | 19.7±0.7 |
|  | Bottom | at mid Tilt   | 18.8        | 19.3        | 19.7        | 20.2     |
|  |        | over all Tilts  | 18.6±0.7    | 19.1±0.7    | 19.5±0.7    | 20.0±0.7 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 16  | > 16        | > 15        | > 16        |          |
| Horizontal 3dB beam width (°)                                  |        | 37 ±4   | 36 ±3       | 34 ±3       | 32 ±3       |          |
| Vertical 3dB beam width (°)                                    |        | 7.3 ±0.7  | 6.5 ±0.5    | 5.8 ±0.4    | 5.2 ±0.3    |          |
| VSWR   |        | < 1.5   |             |             |             |          |
| Horizontal beam centers (°)                                    |        | ±32   | ±32         | ±32         | ±32         |          |
| Cross polar isolation (dB)                                     |        | ≥ 28  |             |             |             |          |
| Port to port isolation(dB)                                     |        | ≥ 25  |             |             |             |          |
| Front to back ratio, ±30° (dB)                                 |        | > 28  | > 28        | > 28        | > 29        |          |
| Cross polar ratio at boresight (dB)                            |        | > 15  | > 15        | > 15        | > 15        |          |
| Max. power per input (W)                                       |        | 250 (at 50°C ambient temperature)                     |             |             |             |          |
| Total power (W)  |        | 1000 (at 50°C ambient temperature)                    |             |             |             |          |
| Intermodulation IM3 (dBc)                                      |        | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |          |
| Impedance (Ω)  |        | 50  |             |             |             |          |
| Grounding  |        | DC Ground   |             |             |             |          |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2550 x 399 x 196   |
| Packing dimensions (H x W x D) (mm) | 2820 x 470 x 240   |
| Antenna weight (kg)                 | 32.4   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 45.4 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 710 (at 150 km/h)<br>Lateral: 420 (at 150 km/h)<br>Maximum: 910 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 8 x 4.3-10 Female  |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8 ° | 3.1 kg | 1 (Separate packing) |

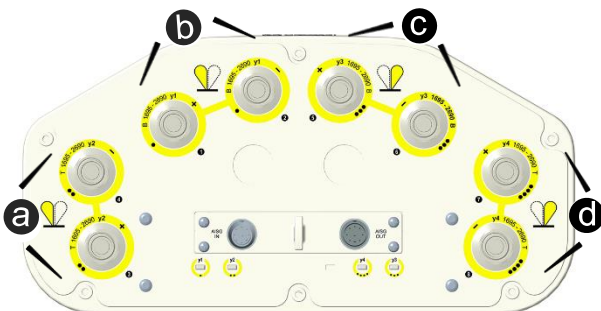
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)  |     |         |     |         |    |           |     |
|                                  | 10 (8/20 μs)   |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

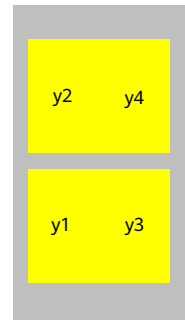
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Integrated RET S/N:**

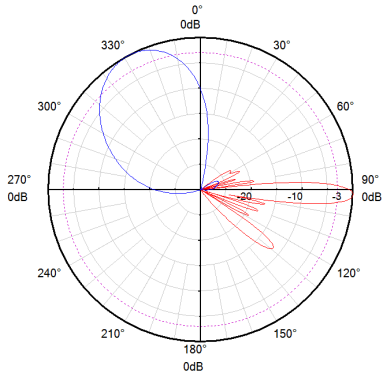
- Ⓐ HWMxxx.....y2
- Ⓑ HWMxxx.....y1
- Ⓒ HWMxxx.....y3
- Ⓓ HWMxxx.....y4

y - Yellow T - Top array  
B - Bottom array

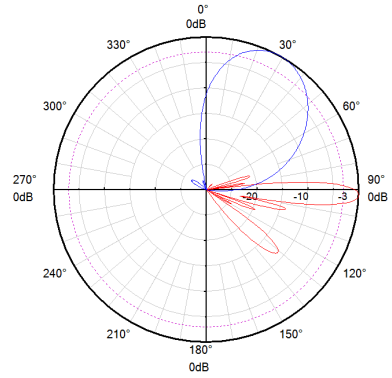


Multi-beam

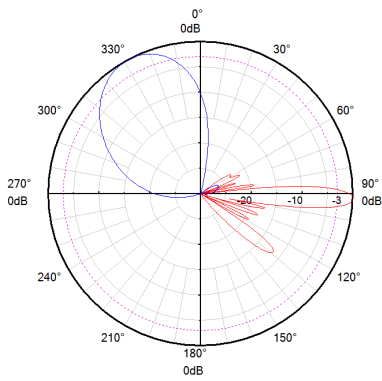
**Pattern sample for reference**



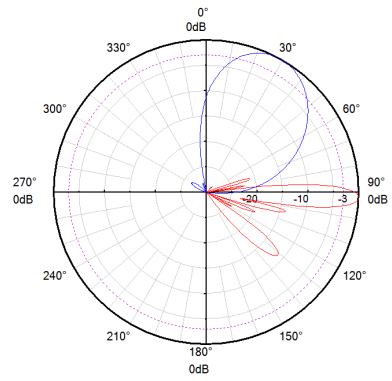
**1695 - 2690 MHz  
(y4)**



**1695 - 2690 MHz  
(y2)**



**1695 - 2690 MHz  
(y3)**



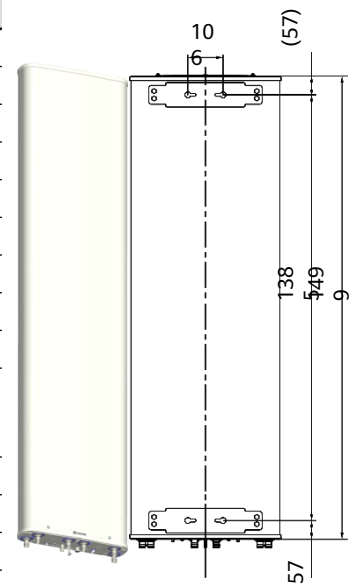
**1695 - 2690 MHz  
(y1)**

## Antenna Specifications

| Electrical Properties  |                                   |             |
|--|-----------------------------------|-------------|
| Frequency range (MHz)  | 1710 - 2200                       |             |
|  | 1710 - 1990                       | 1920 - 2200 |
| Polarization   | +45° , -45°                       |             |
| Electrical downtilt (°)  | 2 - 12 , continuously adjustable  |             |
| Gain (dBi)   | at mid Tilt (M beam)              | 20.3        |
|  | over all Tilts (M beam)           | 20.1 ±0.6   |
|  | at mid Tilt (L and R beam)        | 18.7        |
|  | over all Tilts (L and R beam)     | 18.5 ±0.6   |
| Side lobe suppression for first side lobe above main beam (dB) | > 17                              | > 17        |
| Horizontal 3dB beam width (°) (M beam)                         | 23 ±2                             | 21 ±1.4     |
| Horizontal 3dB beam width (°) (L and R beam)                   | 28 ±2                             | 24 ±1.4     |
| Vertical 3dB beam width (°)                                    | 7.5 ±0.5                          | 7.0 ±0.5    |
| VSWR   | < 1.5                             |             |
| Cross polar isolation (dB)                                     | Same beam: ≥ 25                   |             |
| Beam to beam isolation (dB)                                    | ≥ 18                              |             |
| Front to back ratio , ±30° (dB)                                | > 29                              | > 30        |
| Cross polar ratio at boresight (dB)                            | > 17                              | > 17        |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature) |             |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)       |             |
| Impedance (Ω)  | 50                                |             |
| Grounding  | DC Ground                         |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 1499 x 449 x 115  |
| Packing dimensions (H x W x D) (mm) | 1835 x 510 x 185  |
| Antenna weight (kg)                 | 22.6  |
| Clamps weight (kg)                  | 3.6 (2 units)   |
| Antenna packing weight (kg)         | 34.0 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 715 (at 150 km/h)<br>Lateral: 85 (at 150 km/h)<br>Maximum: 715 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 6 x 4.3-10 Female   |
| Connector position                  | Bottom  |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 16° | 2.1kg  | 1 (Separate packing) |

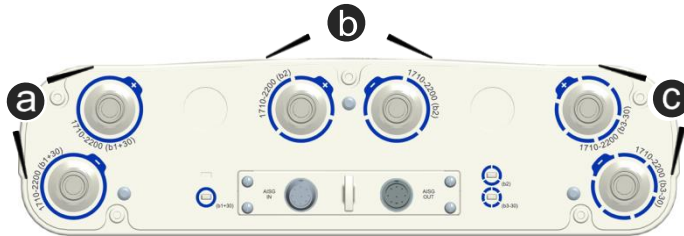
**Integrated RET Specifications**

| Properties                       |   |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
|----------------------------------|---|---------|-----|---------|----|-----------|-----|---|---|----|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP   |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V)  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female  |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |
| Pin assignment according AISG    | <table border="1"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> </tr> <tr> <td>DC</td> <td>n/c</td> <td>RS-485B</td> <td>n/c</td> <td>RS-485A</td> <td>DC</td> <td>DC return</td> <td>n/c</td> </tr> </table> | 1       | 2   | 3       | 4  | 5         | 6   | 7 | 8 | DC | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| 1                                | 2   | 3       | 4   | 5       | 6  | 7         | 8   |   |   |    |     |         |     |         |    |           |     |
| DC                               | n/c   | RS-485B | n/c | RS-485A | DC | DC return | n/c |   |   |    |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)   |         |     |         |    |           |     |   |   |    |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

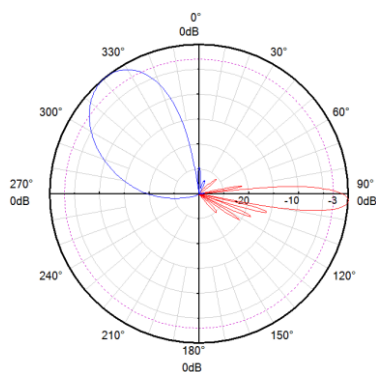


**Integrated RET S/N:**

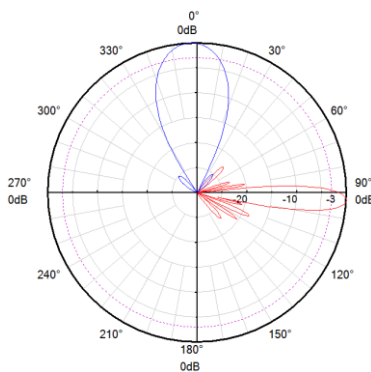
- a** HWMxxx.....b1
- b** HWMxxx.....b2
- c** HWMxxx.....b3

b - Blue

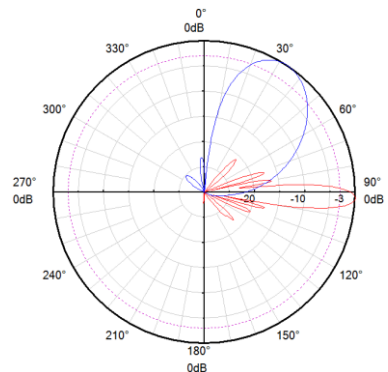
**Pattern sample for reference**



**1710 - 2200 MHz  
(b3-30)**



**1710 - 2200 MHz  
(b2)**



**1710 - 2200 MHz  
(b1+30)**

## Preliminary Issue

| Electrical Properties  |   |             |             |             |             |           |
|--|---|-------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 1427 - 2690   |             |             |             |             |           |
|  | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°  |             |             |             |             |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |             |             |             |           |
| Gain (dBi)   | at mid Tilt   | 14.9        | 16.2        | 16.7        | 16.9        | 16.7      |
|  | over all Tilts  | 14.7 ±0.5   | 16.1 ±0.7   | 16.5 ±0.5   | 16.7 ±0.6   | 16.5 ±0.8 |
| Side lobe suppression for first side lobe above main beam (dB) | > 17  | > 17        | > 17        | > 17        | > 17        |           |
| Horizontal 3dB beam width (°)                                  | 71 ±5   | 62 ±4       | 61 ±3       | 60 ±5       | 59 ±5       |           |
| Vertical 3dB beam width (°)                                    | 11.3 ±0.8   | 9.2 ±0.7    | 8.3 ±0.6    | 7.3 ±0.5    | 6.9 ±0.5    |           |
| VSWR   | < 1.5   |             |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 25  |             |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28  |             |             |             |             |           |
| Front to back ratio total, ±30° (dB)                           | > 21  | > 22        | > 22        | > 22        | > 22        |           |
| Cross polar ratio at boresight (dB)                            | > 18  | > 18        | > 18        | > 16        | > 18        |           |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |             |           |
| Impedance (Ω)  | 50  |             |             |             |             |           |
| Grounding  | DC Ground   |             |             |             |             |           |

| Electrical Properties  |   |             |             |             |           |
|--|---|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 2 x (1695 - 2690)                                     |             |             |             |           |
|  | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°  |             |             |             |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |             |             |           |
| Gain (dBi)   | at mid Tilt   | 17.3        | 18.0        | 18.5        | 18.2      |
|  | over all Tilts  | 17.1 ±0.8   | 17.8 ±0.8   | 18.3 ±0.8   | 18.0 ±0.8 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 16        | > 16        | > 16        | > 15      |
| Horizontal 3dB beam width (°)                                  | 36 ±4   | 32 ±3       | 31 ±2       | 30 ±2       |           |
| Vertical 3dB beam width (°)                                    | 9.9 ±0.8  | 9.1 ±0.7    | 7.8 ±0.5    | 7.2 ±0.5    |           |
| VSWR   | < 1.5   |             |             |             |           |
| Horizontal beam centers (°)                                    | ±30   | ±28         | ±27         | ±24         |           |
| Cross polar isolation (dB)                                     | ≥ 25  |             |             |             |           |
| Beam to Beam isolation (dB)                                    | ≥ 18  |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28  |             |             |             |           |
| Front to back ratio total, ±30° (dB)                           | > 25  | > 26        | > 28        | > 28        |           |
| Cross polar ratio at boresight (dB)                            | > 15  | > 15        | > 16        | > 15        |           |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |           |
| Impedance (Ω)  | 50  |             |             |             |           |
| Grounding  | DC Ground   |             |             |             |           |

\* Total power : 900 W (at 50°C ambient temperature)



AMB4519R23v06

2MXX-1427-2690/1695-2690/1695-2690-65/33/33-17.5i/18.5i/18.5i-  
M/M/M-R

EasyRET Hybrid Multi-beam Antenna with Integrated RCUs - 2.0m



### Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2009 x 499 x 206   |
| Packing dimensions (H x W x D) (mm) | 2360 x 550 x 245   |
| Antenna weight (kg)                 | 42.8   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 57.5 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 730 (at 150 km/h)<br>Lateral: 380 (at 150 km/h)<br>Maximum: 955 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female   |
| Connector position                  | Bottom   |

### Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12° | 3.1 kg | 1 (Separate packing) |

## Antenna Specifications

| Electrical Properties  |                |                                   |           |           |           |
|--|----------------|-----------------------------------|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 690 - 960                         |           |           |           |
|  |                | 690 - 803                         | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45° , -45°                       |           |           |           |
| Electrical downtilt (°)  |                | 0 - 10 , continuously adjustable  |           |           |           |
| Gain (dBi)   | at mid tile    | 15.8                              | 16.2      | 16.4      | 16.6      |
|  | over all tilts | 15.7 ±0.5                         | 16.0 ±0.5 | 16.3 ±0.5 | 16.5 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16                              | > 16      | > 16      | > 16      |
| Horizontal 3dB beam width (°)                                  |                | 65 ±4.0                           | 63 ±4.0   | 62 ±3.0   | 60 ±3.0   |
| Vertical 3dB beam width (°)                                    |                | 8.5 ±0.7                          | 7.8 ±0.5  | 7.5 ±0.5  | 7.2 ±0.5  |
| VSWR   |                | < 1.5                             |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 25                              |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 30 (690 - 960 // 1695 - 2690)   |           |           |           |
| Front to back ratio, ±30° (dB)                                 |                | > 23                              | > 23      | > 23      | > 23      |
| Cross polar ratio (dB)   | 0°             | > 17                              | > 17      | > 17      | > 17      |
| Max. power per input (W)                                       |                | 500 (at 50°C ambient temperature) |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)       |           |           |           |
| Impedance (Ω)  |                | 50                                |           |           |           |
| Grounding  |                | DC Ground                         |           |           |           |

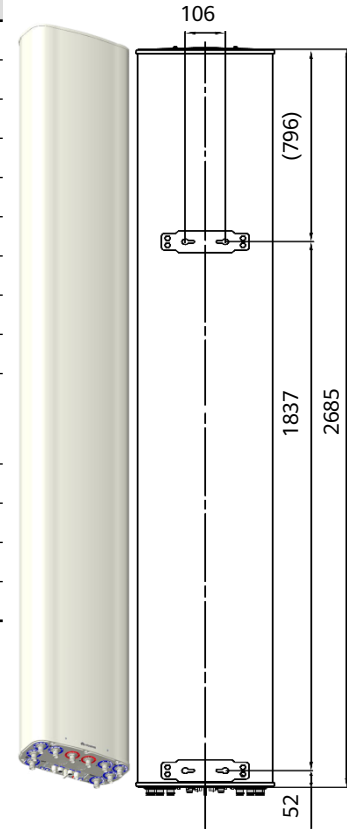
| Electrical Properties  |        |   |             |             |           |
|--|--------|---|-------------|-------------|-----------|
| Frequency range (MHz)  |        | 2 x (1695 - 2200)                                       |             |             |           |
|  |        | 1695 - 1880   | 1850 - 1990 | 1920 - 2200 |           |
| Polarization   |        | +45° , -45°   |             |             |           |
| Electrical downtilt (°)  |        | 2 - 12 , continuously adjustable , each band separately |             |             |           |
| Gain (dBi)   | Bottom | at mid tile   | 17.6        | 18.0        | 18.5      |
|  |        | over all tilts  | 17.4 ±0.6   | 17.9 ±0.6   | 18.3 ±0.6 |
|  | Top    | at mid tile   | 17.2        | 17.6        | 18.0      |
|  |        | over all tilts  | 17.0 ±0.6   | 17.4 ±0.5   | 17.8 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 15  | > 15        | > 15        |           |
| Horizontal 3dB beam width (°)                                  |        | 34 ±3.0   | 32 ±3.0     | 30 ±3.0     |           |
| Vertical 3dB beam width (°)                                    | Bottom | 7.6 ±0.7  | 7.1 ±0.7    | 6.6 ±0.7    |           |
|  | Top    | 7.6 ±0.7  | 7.1 ±0.7    | 6.6 ±0.7    |           |
| VSWR   |        | < 1.5   |             |             |           |
| Cross polar isolation (dB)                                     |        | ≥ 25  |             |             |           |
| Beam to beam isolation (dB)                                    |        | ≥ 18  |             |             |           |
| Interband isolation (dB)                                       |        | ≥ 30 (690 - 960 // 1695 - 2690)                         |             |             |           |
| Front to back ratio, ±30° (dB)                                 |        | > 26  |             |             |           |
| Cross polar ratio at boresight (dB)                            |        | > 15  |             |             |           |
| Max. power per input (W)                                       |        | 250 (at 50°C ambient temperature)                       |             |             |           |
| Intermodulation IM3 (dBc)                                      |        | ≤ -153 (2 x 43 dBm carrier)                             |             |             |           |
| Impedance (Ω)  |        | 50  |             |             |           |
| Grounding  |        | DC Ground   |             |             |           |

\* Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

**Mechanical Properties**

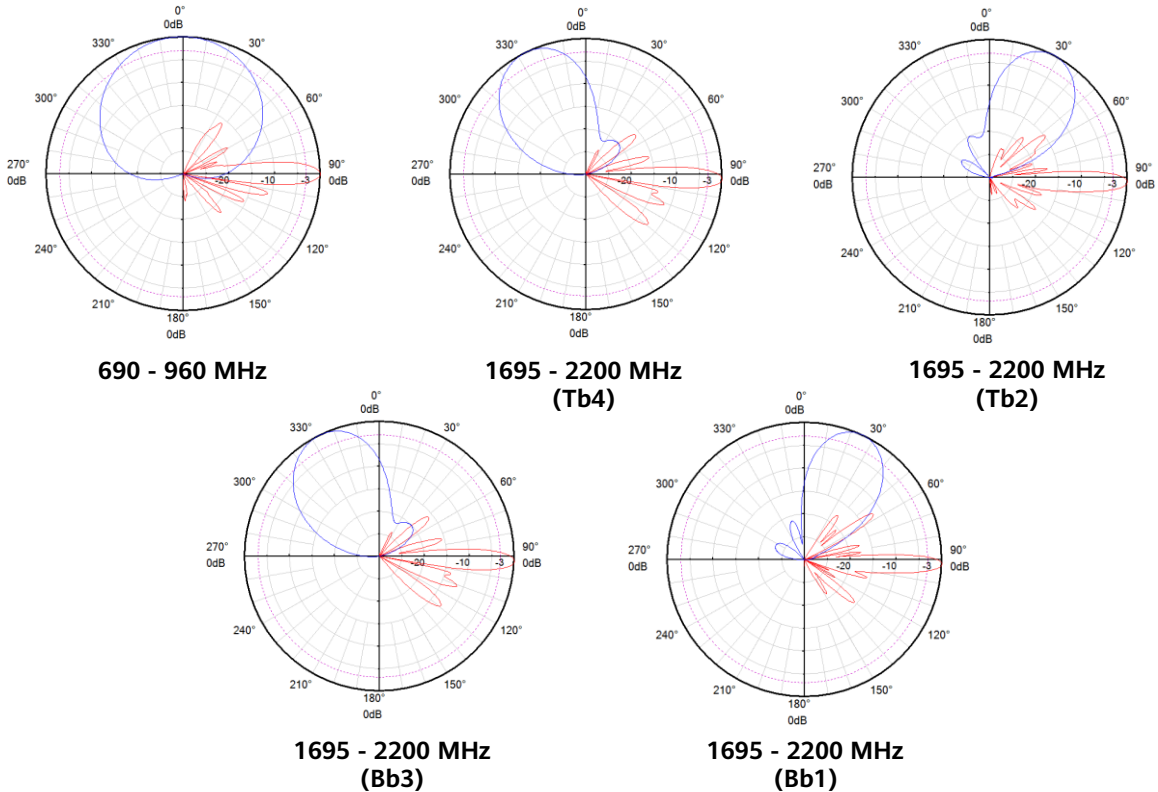
|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2685 x 359 x 178  |
| Packing dimensions (H x W x D) (mm) | 2985 x 425 x 255  |
| Antenna weight (kg)                 | 34.5  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 53.6 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal : 910 (at 150 km/h)<br>Lateral: 275 (at 150 km/h)<br>Maximum: 960 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 10 x 4.3-10 Female  |
| Connector position                  | Bottom  |



**Accessories**

| Item         | Model     | Description                     | Weight | Units per antenna    |
|--------------|-----------|---------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt:<br>0 - 8 ° | 3.1 kg | 1 (Separate packing) |

**Pattern sample for reference**



### Integrated RET Specifications

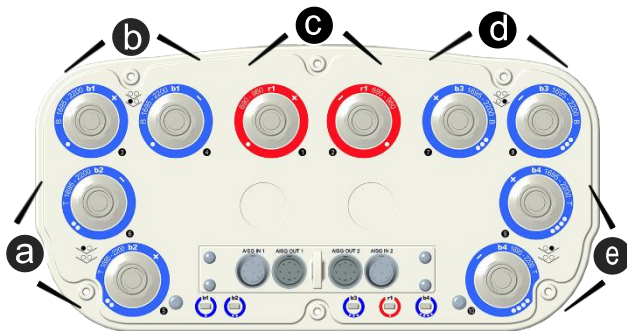
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

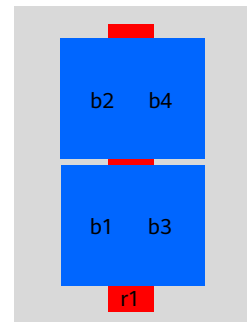
Multi-beam



#### Integrated RET S/N:

- a HWxxxx.....Tb2
- b HWxxxx.....Bb1
- c HWxxxx.....r1
- d HWxxxx.....Bb3
- e HWxxxx.....Tb4

r - Red                      b - Blue  
 T - Top array              B - Bottom array



## Antenna Specifications

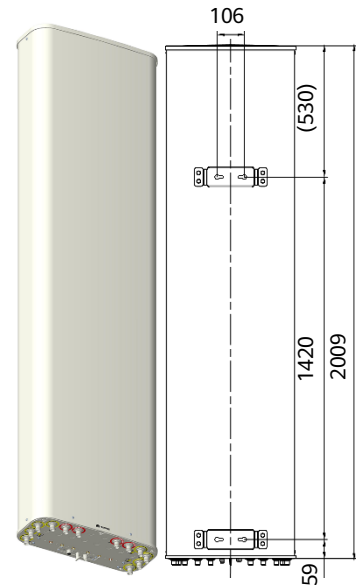
| Electrical Properties  |                |   |           |           |           |
|--|----------------|---|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 2 x (690 - 960)                                       |           |           |           |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45° , -45°   |           |           |           |
| Electrical downtilt (°)  |                | 2- 12, continuously adjustable , each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 14.9  | 15.0      | 15.1      | 15.3      |
|  | over all Tilts | 14.7 ±0.5   | 14.8 ±0.4 | 14.9 ±0.4 | 15.0 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 16      | > 16      | > 15      |
| Horizontal 3dB beam width (°)                                  |                | 69 ±6   | 67 ±6     | 68 ±5     | 69 ±5     |
| Vertical 3dB beam width (°)                                    |                | 11.0 ±0.9   | 9.9 ±0.7  | 9.7 ±0.6  | 9.3 ±0.5  |
| VSWR   |                | < 1.5   |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 25  |           |           |           |
| Port to port isolation(dB)                                     |                | ≥ 25  |           |           |           |
| Front to back ratio total, ±30° (dB)                           |                | > 22  | > 22      | > 23      | > 23      |
| Cross polar ratio (dB) 0°                                      |                | > 18  | > 18      | > 18      | > 18      |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                    |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |
| Impedance (Ω)  |                | 50  |           |           |           |
| Grounding  |                | DC Ground   |           |           |           |

| Electrical Properties  |        |   |             |             |             |           |
|--|--------|---|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  |        | 2 x (1695 - 2690)                                       |             |             |             |           |
|  |        | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   |        | +45° , -45°   |             |             |             |           |
| Electrical downtilt (°)  |        | 2 - 12 , continuously adjustable , each band separately |             |             |             |           |
| Gain (dBi)   | Top    | at mid Tilt   | 17.3        | 18.0        | 18.0        | 17.8      |
|  |        | over all Tilts  | 17.1 ±0.8   | 17.8 ±0.5   | 17.8 ±0.7   | 17.6 ±0.8 |
|  | Bottom | at mid Tilt   | 17.6        | 18.3        | 18.3        | 18.1      |
|  |        | over all Tilts  | 17.4 ±0.8   | 18.1 ±0.5   | 18.1 ±0.5   | 17.9 ±0.8 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 16  | > 16        | > 16        | > 15        |           |
| Horizontal 3dB beam width (°)                                  |        | 36 ±4   | 33 ±3       | 33 ±3       | 31 ±3       |           |
| Vertical 3dB beam width (°)                                    |        | 9.8 ±0.9  | 8.8 ±0.7    | 7.8 ±0.6    | 7.1 ±0.5    |           |
| VSWR   |        | < 1.5   |             |             |             |           |
| Horizontal beam centers (°)                                    |        | ±28   | ±29         | ±29         | ±29         |           |
| Cross polar isolation (dB)                                     |        | ≥ 25  |             |             |             |           |
| Port to port isolation(dB)                                     |        | ≥ 25  |             |             |             |           |
| Front to back ratio total, ±30° (dB)                           |        | > 24  | > 26        | > 26        | > 26        |           |
| Cross polar ratio at boresight (dB)                            |        | > 15  | > 18        | > 18        | > 16        |           |
| Max. power per input (W)                                       |        | 250 (at 50°C ambient temperature)*                      |             |             |             |           |
| Intermodulation IM3 (dBc)                                      |        | ≤ -153 (2 x 43 dBm carrier)                             |             |             |             |           |
| Impedance (Ω)  |        | 50  |             |             |             |           |
| Grounding  |        | DC Ground   |             |             |             |           |

\* Total power : 900 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

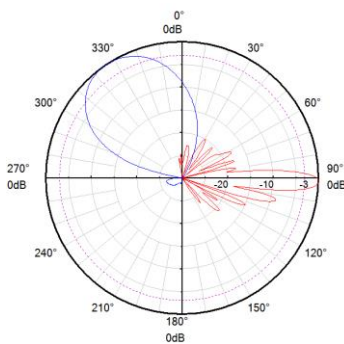
| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2009 x 499 x 206   |
| Packing dimensions (H x W x D) (mm) | 2360 x 550 x 245   |
| Antenna weight (kg)                 | 40.5   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 55 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 730 (at 150 km/h)<br>Lateral: 380 (at 150 km/h)<br>Maximum: 955 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 12 x 4.3-10 Female   |
| Connector position                  | Bottom   |



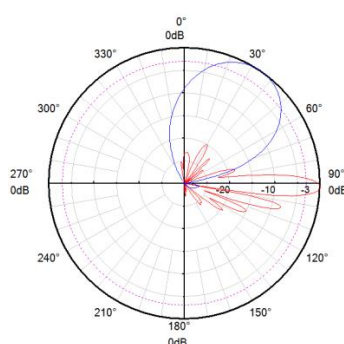
**Accessories**

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12° | 3.1 kg | 1 (Separate packing) |

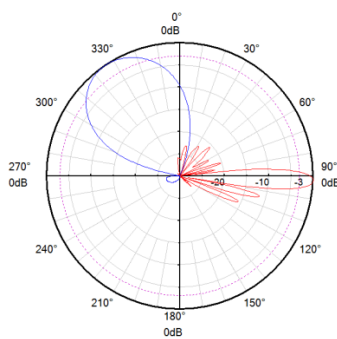
**Pattern sample for reference**



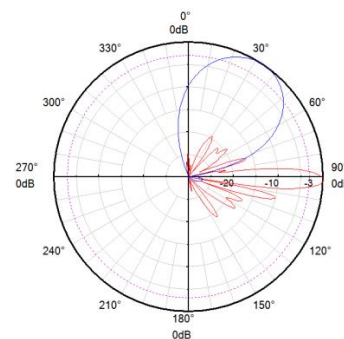
**1695 - 2690 MHz (y4)**



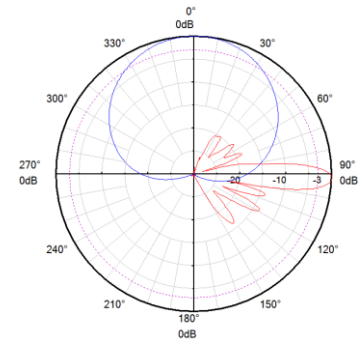
**1695 - 2690 MHz (y2)**



**1695 - 2690 MHz (y3)**



**1695 - 2690 MHz (y1)**



**690 - 960 MHz**

Multi-beam

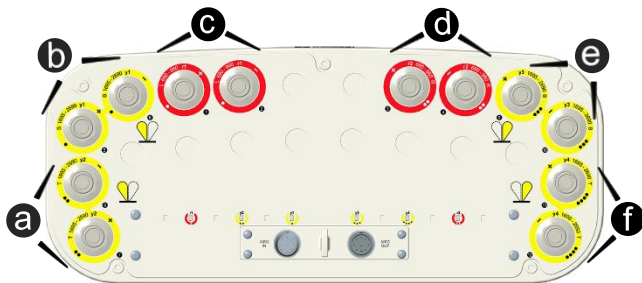
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

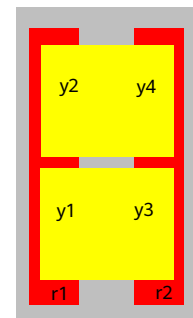
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



### Integrated RET S/N:

- a HWMxxx.....y2
- b HWMxxx.....y1
- c HWMxxx.....r1
- d HWMxxx.....r2
- e HWMxxx.....y3
- f HWMxxx.....y4



y - Yellow L - Left array R - Right array  
T - Top array B - Bottom array



## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |
|--|----------------|---|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 2 x (690 - 960)                                       |           |           |           |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45°, -45°  |           |           |           |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 15.7  | 15.9      | 16.0      | 16.1      |
|  | over all Tilts | 15.5 ±0.5   | 15.7 ±0.5 | 15.8 ±0.5 | 15.9 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15  | > 16      | > 16      | > 16      |
| Horizontal 3dB beam width (°)                                  |                | 69 ±5   | 68 ±5     | 68 ±6     | 69 ±6     |
| Vertical 3dB beam width (°)                                    |                | 8.7 ±0.6  | 8.0 ±0.4  | 7.7 ±0.4  | 7.3 ±0.3  |
| VSWR   |                | < 1.5   |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 25  |           |           |           |
| Interband isolation(dB)  |                | ≥ 25  |           |           |           |
| Front to back ratio, ±30° (dB)                                 |                | > 22  | > 22      | > 22      | > 22      |
| Cross polar ratio (dB)   | 0°             | > 18  | > 18      | > 18      | > 18      |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                    |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |
| Impedance (Ω)  |                | 50  |           |           |           |
| Grounding  |                | DC Ground   |           |           |           |

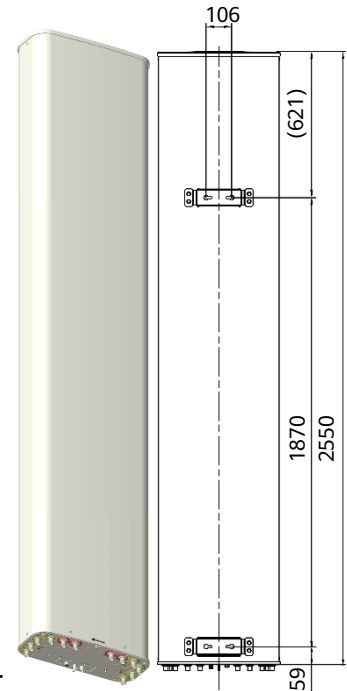
| Electrical Properties  |        |   |             |             |             |           |
|--|--------|---|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  |        | 2 x (1695 - 2690)                                     |             |             |             |           |
|  |        | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   |        | +45°, -45°  |             |             |             |           |
| Electrical downtilt (°)  |        | 2 - 12, continuously adjustable, each band separately |             |             |             |           |
| Gain (dBi)   | Top    | at mid Tilt   | 18.3        | 18.9        | 18.8        | 18.7      |
|  |        | over all Tilts  | 18.1 ±0.8   | 18.7 ±0.5   | 18.6 ±0.8   | 18.5 ±0.8 |
|  | Bottom | at mid Tilt   | 18.6        | 19.2        | 19.1        | 19.0      |
|  |        | over all Tilts  | 18.4 ±0.8   | 19.0 ±0.5   | 18.9 ±0.8   | 18.8 ±0.8 |
| Side lobe suppression for first side lobe above main beam (dB) |        | > 15  | > 15        | > 15        | > 15        |           |
| Horizontal 3dB beam width (°)                                  |        | 36 ±4   | 33 ±3       | 34 ±3       | 31 ±3       |           |
| Vertical 3dB beam width (°)                                    |        | 7.1 ±0.6  | 6.4 ±0.5    | 5.6 ±0.3    | 5.4 ±0.4    |           |
| Horizontal beam centers (°)                                    |        | ±28   | ±30         | ±30         | ±29         |           |
| VSWR   |        | < 1.5   |             |             |             |           |
| Cross polar isolation (dB)                                     |        | ≥ 25  |             |             |             |           |
| Beam to beam isolation(dB)                                     |        | ≥ 25  |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 |        | > 24  | > 27        | > 27        | > 26        |           |
| Cross polar ratio at boresight (dB)                            |        | > 15  | > 16        | > 16        | > 15        |           |
| Max. power per input (W)                                       |        | 250 (at 50°C ambient temperature)*                    |             |             |             |           |
| Intermodulation IM3 (dBc)                                      |        | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |           |
| Impedance (Ω)  |        | 50  |             |             |             |           |
| Grounding  |        | DC Ground   |             |             |             |           |

\*Total power : 1000 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.



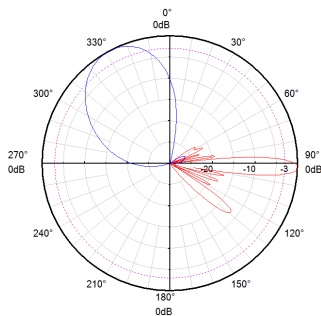
| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2550 x 499 x 206  |
| Packing dimensions (H x W x D) (mm) | 2810 x 560 x 250  |
| Antenna weight (kg)                 | 49.0  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 66.0 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 945 (at 150 km/h)<br>Lateral: 495 (at 150 km/h)<br>Maximum: 1235 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 12 x 4.3-10 Female  |
| Connector position                  | Bottom  |



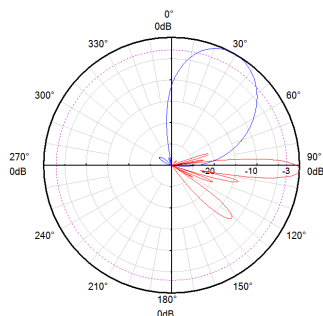
**Accessories**

| Item         | Model     | Description                    | Weight | Units per antenna    |
|--------------|-----------|--------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt:<br>0 - 8° | 3.1 kg | 1 (Separate packing) |

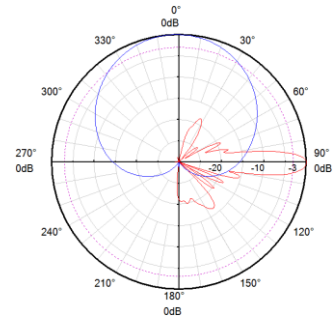
**Pattern sample for reference**



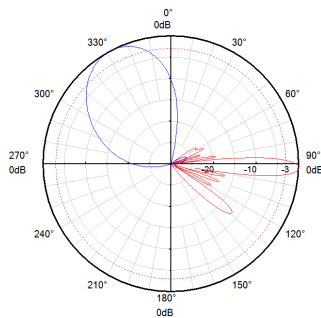
**1695 - 2690 MHz (y3)**



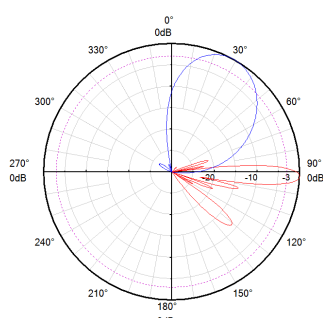
**1695 - 2690 MHz (y1)**



**690 - 960 MHz**



**1695 - 2690 MHz (y4)**



**1695 - 2690 MHz (y2)**

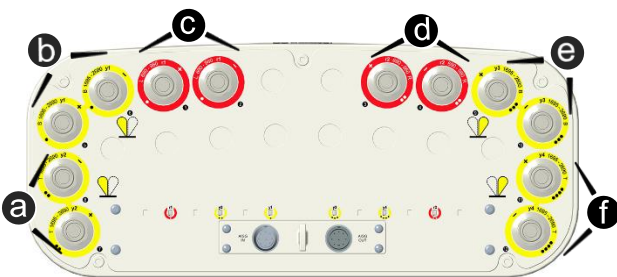
### Integrated RET Specifications

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

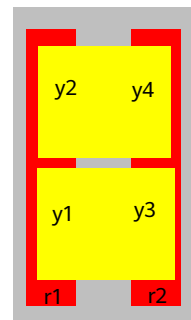
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



### Integrated RET S/N:

- a HWMxxx.....y2
- b HWMxxx.....y1
- c HWMxxx.....r1
- d HWMxxx.....r2
- e HWMxxx.....y3
- f HWMxxx.....y4



y - Yellow                      r - Red  
 T - Top array                  B - Bottom array

Multi-beam

## Preliminary Issue

| Electrical Properties  |                |   |           |           |           |   |             |             |             |             |
|--|----------------|---|-----------|-----------|-----------|---|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 690 - 960   |           |           |           | 2 x (1427 - 2690)                                     |             |             |             |             |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |           |           |           | +45°, -45°  |             |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |             |
| Gain (dBi)   | at mid Tilt    | 14.7  | 15.0      | 15.1      | 15.2      | 14.9  | 16.2        | 16.7        | 16.9        | 16.7        |
|  | over all Tilts | 14.5 ±0.5   | 14.8 ±0.4 | 14.9 ±0.4 | 15.0 ±0.5 | 14.7 ±0.5   | 16.1 ±0.7   | 16.5 ±0.5   | 16.7 ±0.6   | 16.5 ±0.8   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 16      | > 16      | > 16      | > 17  | > 17        | > 17        | > 17        | > 17        |
| Horizontal 3dB beam width (°)                                  |                | 72 ±7   | 71 ±7     | 70 ±7     | 69 ±6     | 71 ±5   | 62 ±4       | 61 ±3       | 60 ±5       | 59 ±5       |
| Vertical 3dB beam width (°)                                    |                | 11.0 ±0.9   | 10.0 ±0.7 | 9.7 ±0.6  | 9.1 ±0.5  | 11.3 ±0.8   | 9.2 ±0.7    | 8.3 ±0.6    | 7.3 ±0.5    | 6.9 ±0.5    |
| VSWR   |                | < 1.5   |           |           |           | < 1.5   | < 1.5       |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 25  |           |           |           | ≥ 25  | ≥ 25        |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 25  |           |           |           | ≥ 28  | ≥ 28        |             |             |             |
| Front to back ratio total, ±30° (dB)                           |                | > 21  | > 22      | > 22      | > 22      | > 21  | > 22        | > 22        | > 22        | > 22        |
| Cross polar ratio at boresight (dB)                            |                | > 18  | > 18      | > 18      | > 18      | > 18  | > 18        | > 18        | > 16        | > 18        |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                    |           |           |           | 250 (at 50°C ambient temperature)*                    |             |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |   |             |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |           |   |             |             |             |             |
| Grounding  |                | DC Ground   |           |           |           |   |             |             |             |             |

| Electrical Properties  |                |   |             |             |             |
|--|----------------|---|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (1695 - 2690)                                     |             |             |             |
|  |                | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 17.3  | 18.0        | 18.5        | 18.2        |
|  | over all Tilts | 17.1 ±0.8   | 17.8 ±0.8   | 18.3 ±0.8   | 18.0 ±0.8   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 16        | > 16        | > 15        |
| Horizontal 3dB beam width (°)                                  |                | 36 ±4   | 32 ±3       | 31 ±2       | 30 ±2       |
| Vertical 3dB beam width (°)                                    |                | 9.9 ±0.8  | 9.1 ±0.7    | 7.8 ±0.5    | 7.2 ±0.5    |
| VSWR   |                | < 1.5   |             |             |             |
| Horizontal beam centers (°)                                    |                | ±30   | ±28         | ±27         | ±24         |
| Cross polar isolation (dB)                                     |                | ≥ 25  |             |             |             |
| Beam to Beam isolation (dB)                                    |                | ≥ 18  |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |             |             |             |
| Front to back ratio total, ±30° (dB)                           |                | > 25  | > 26        | > 28        | > 28        |
| Cross polar ratio at boresight (dB)                            |                | > 15  | > 15        | > 16        | > 15        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                    |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |
| Impedance (Ω)  |                | 50  |             |             |             |
| Grounding  |                | DC Ground   |             |             |             |

\* Total power : 900 W (at 50°C ambient temperature)

AMB4519R24v06

2MXXXX-690-960/1427-2690/1427-2690/1695-2690/1695-2690-

65/65/65/33/33-15.5i/17.5i/17.5i/18.5i/18.5i-M/M/M/M/M-R

EasyRET Hybrid Multi-beam Antenna with Integrated RCUs - 2.0m



### Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2009 x 499 x 206   |
| Packing dimensions (H x W x D) (mm) | 2360 x 550 x 245   |
| Antenna weight (kg)                 | 44.8   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 59.5 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 730 (at 150 km/h)<br>Lateral: 380 (at 150 km/h)<br>Maximum: 955 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 14 x 4.3-10 Female   |
| Connector position                  | Bottom   |

### Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12° | 3.1 kg | 1 (Separate packing) |

Multi-beam

## Antenna Specifications

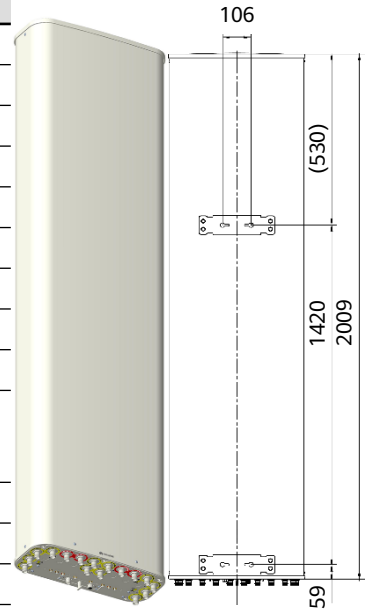
| Electrical Properties  |                |   |           |           |           |   |             |             |             |             |
|--|----------------|---|-----------|-----------|-----------|---|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (690 - 960)                                       |           |           |           | 2 x (1427 - 2690)                                     |             |             |             |             |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |           |           |           | +45°, -45°  |             |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |             |
| Gain (dBi)   | at mid Tilt    | 14.7  | 15.0      | 15.1      | 15.2      | 14.9  | 16.2        | 16.7        | 16.9        | 16.7        |
|  | over all Tilts | 14.5 ±0.5   | 14.8 ±0.4 | 14.9 ±0.4 | 15.0 ±0.5 | 14.7 ±0.5   | 16.1 ±0.7   | 16.5 ±0.5   | 16.7 ±0.6   | 16.5 ±0.8   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 16      | > 16      | > 16      | > 17  | > 17        | > 17        | > 17        | > 17        |
| Horizontal 3dB beam width (°)                                  |                | 72 ±7   | 71 ±7     | 70 ±7     | 69 ±6     | 71 ±5   | 62 ±4       | 61 ±3       | 60 ±5       | 59 ±5       |
| Vertical 3dB beam width (°)                                    |                | 11.0 ±0.9   | 10.0 ±0.7 | 9.7 ±0.6  | 9.1 ±0.5  | 11.3 ±0.8   | 9.2 ±0.7    | 8.3 ±0.6    | 7.3 ±0.5    | 6.9 ±0.5    |
| VSWR   |                | < 1.5   |           |           |           | < 1.5   | < 1.5       |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 25  |           |           |           | ≥ 25  | ≥ 25        |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 25  |           |           |           | ≥ 28  | ≥ 28        |             |             |             |
| Front to back ratio total, ±30° (dB)                           |                | > 21  | > 22      | > 22      | > 22      | > 21  | > 22        | > 22        | > 22        | > 22        |
| Cross polar ratio at boresight (dB)                            |                | > 18  | > 18      | > 18      | > 18      | > 18  | > 18        | > 18        | > 16        | > 18        |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                    |           |           |           | 250 (at 50°C ambient temperature)*                    |             |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |           |           |           |   |             |             |             |             |
| Impedance (Ω)  |                | 50  |           |           |           |   |             |             |             |             |
| Grounding  |                | DC Ground   |           |           |           |   |             |             |             |             |

| Electrical Properties  |                |   |             |             |             |
|--|----------------|---|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (1695 - 2690)                                     |             |             |             |
|  |                | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 17.3  | 18.0        | 18.5        | 18.2        |
|  | over all Tilts | 17.1 ±0.8   | 17.8 ±0.8   | 18.3 ±0.8   | 18.0 ±0.8   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 16        | > 16        | > 15        |
| Horizontal 3dB beam width (°)                                  |                | 36 ±4   | 32 ±3       | 31 ±2       | 30 ±2       |
| Vertical 3dB beam width (°)                                    |                | 9.9 ±0.8  | 9.1 ±0.7    | 7.8 ±0.5    | 7.2 ±0.5    |
| VSWR   |                | < 1.5   |             |             |             |
| Horizontal beam centers (°)                                    |                | ±30   | ±28         | ±27         | ±24         |
| Cross polar isolation (dB)                                     |                | ≥ 25  |             |             |             |
| Beam to Beam isolation (dB)                                    |                | ≥ 18  |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  |             |             |             |
| Front to back ratio total, ±30° (dB)                           |                | > 25  | > 26        | > 28        | > 28        |
| Cross polar ratio at boresight (dB)                            |                | > 15  | > 15        | > 16        | > 15        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                    |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -153 (2 x 43 dBm carrier)                           |             |             |             |
| Impedance (Ω)  |                | 50  |             |             |             |
| Grounding  |                | DC Ground   |             |             |             |

\* Total power : 900 W (at 50°C ambient temperature)

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

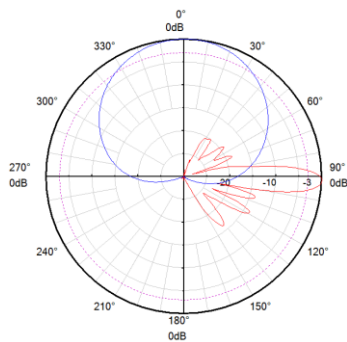
| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2009 x 499 x 206   |
| Packing dimensions (H x W x D) (mm) | 2360 x 550 x 245   |
| Antenna weight (kg)                 | 46.8   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 61.5 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 730 (at 150 km/h)<br>Lateral: 380 (at 150 km/h)<br>Maximum: 955 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 16 x 4.3-10 Female   |
| Connector position                  | Bottom   |



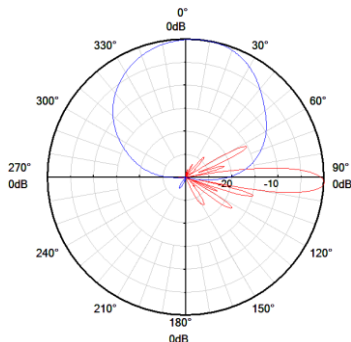
**Accessories**

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12° | 3.1 kg | 1 (Separate packing) |

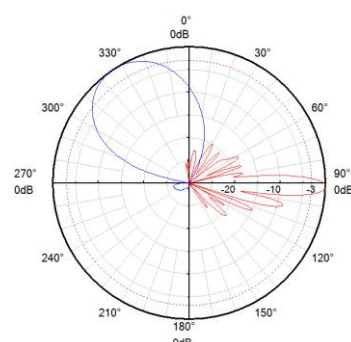
**Pattern sample for reference**



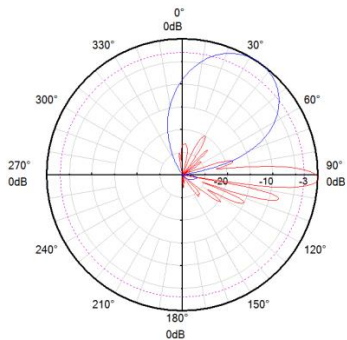
**690 - 960 MHz**



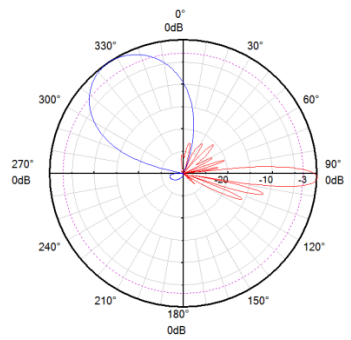
**1427- 2690 MHz**



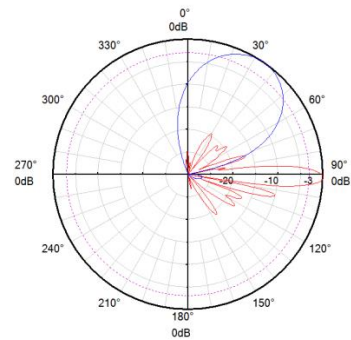
**1695 - 2690 MHz (y4)**



**1695 - 2690 MHz (y2)**



**1695 - 2690 MHz (y3)**



**1695 - 2690 MHz (y1)**

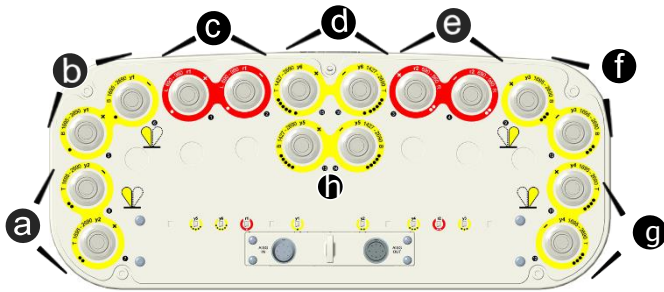
**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

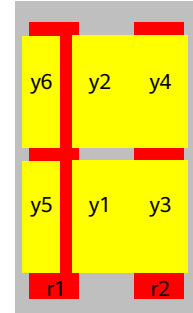
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Integrated RET S/N:**

- a HWxxxx.....y2
- b HWxxxx.....y1
- c HWxxxx.....r1
- d HWxxxx.....y6
- e HWxxxx.....r2
- f HWxxxx.....y3
- g HWxxxx.....y4
- h HWxxxx.....y5



r - Red  
L - Left array  
T - Top array  
y - Yellow  
R - Right array  
B - Bottom array

## B. Passive Antenna

### FDD+TDD Antenna

| Frequency Range (MHz)   | 3dB Horizontal Beam Width (°)    | Gain (dBi)                                      | Electrical Downtilt (°)                             | Tilt Method | Connector                                 | Dimension(mm)    | Model          | Page       |
|---|----------------------------------|---|---|-------------|---|------------------|----------------|------------|
| 690-960/<br>2*1695-2690/<br>4*2300-3800   | 65/65/65/<br>65*                 | 12.5/15.5/<br>15.5/19                           | 2 fix/2-12/<br>2-12/2-12                            | EasyRET2.0  | 6 x 4.3-10<br>Female<br>+<br>2 x Cluster  | 849 x 399 x 196  | **AHP4519R1v06 | <b>261</b> |
| 690-960/<br>4*1695-2690/<br>4*2300-3800   | 65/65/65/<br>65/65/65*           | 12.5/12.5/<br>12.5/12.5/<br>12.5/19             | 2 fix/2 fix/<br>2 fix/2 fix/<br>2 fix/2-12          | EasyRET2.0  | 10 x 4.3-10<br>Female<br>+<br>2 x Cluster | 849 x 399 x 196  | **A094519R2v06 | <b>263</b> |
| 690-960/<br>4*1695-2690/<br>4*2300-3800   | 65/65/65/<br>65/65/65*           | 14.5/15.5/<br>15.5/15.5/<br>15.5/19             | 2-16/2-12/<br>2-12/2-12/<br>2-12/2-12               | EasyRET2.0  | 10 x 4.3-10<br>Female<br>+<br>2 x Cluster | 1599 x 399 x 196 | **A094519R3v06 | <b>266</b> |
| 2*690-864/<br>4*2300-2690/<br>2*690-960/<br>2*1427-2690/<br>1695-2690/<br>4*3300-3800 | 65/65/65*                        | 16/16/<br>18                                    | 2-12/2-12/<br>2-12                                  | EasyRET2.0  | 13 x 4.3-10<br>Female                     | 2009 x 499 x 196 | ASI4518R54v06  | <b>268</b> |
| 2*690-960/<br>2*1427-2690/<br>1695-2690/<br>4*3300-3800                               | 65/65/65/<br>65/65/65*           | 14.5/14.5/<br>17.5/17.5/<br>17.5/21             | 0-14/0-14/<br>2-12/2-12/<br>2-12/2-12               | EasyRET2.0  | 10 x 4.3-10<br>Female<br>+<br>2 x Cluster | 1509 x 499 x 196 | A094521R4v06   | <b>272</b> |
| 2*690-960/<br>2*1427-2690/<br>1695-2690/<br>4*2300-3800                               | 65/65/65/<br>65/65/65*           | 15.5/15.5/<br>17.5/17.5/<br>17.5/17             | 0-10/0-10/<br>2-12/2-12/<br>2-12/2-12               | EasyRET2.0  | 10 x 4.3-10<br>Female<br>+<br>2 x Cluster | 2099 x 449 x 196 | ASI4518R42v06  | <b>278</b> |
| 2*690-960/<br>2*1427-2690/<br>1695-2690/<br>4*2300-2690/<br>4*3300-3800               | 65/65/65/<br>65/65/65*/65*       | 15.5/15.5/<br>17.5/17.5/<br>17.5/16/<br>21      | 0-10/0-10/<br>2-12/2-12/<br>2-12/2-12/<br>2-12      | EasyRET2.0  | 10 x 4.3-10<br>Female<br>+<br>4 x Cluster | 2199 x 449 x 196 | A134521R0v06   | <b>285</b> |
| 2*690-960/<br>2*1427-2690/<br>2*1695-2690/<br>4*3300-3800                             | 65/65/65/<br>65/65/65/65*        | 15.5/15.5/<br>17.5/17.5/<br>17.5/17.5/<br>21    | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12      | EasyRET2.0  | 12 x 4.3-10<br>Female<br>+<br>2 x Cluster | 2099 x 469 x 206 | **A104521R3v06 | <b>291</b> |
| 2*690-960/<br>2*1427-2690/<br>2*1695-2690/<br>4*3300-3800                             | 65/65/65/<br>65/65/65/65*        | 16.5/16.5/<br>17.5/17.5/<br>17.5/17.5/<br>21    | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12      | EasyRET2.0  | 12 x 4.3-10<br>Female<br>+<br>2 x Cluster | 2550 x 499 x 206 | **A104521R0v06 | <b>295</b> |
| 2*690-960/<br>2*1427-2690/<br>2*1695-2690/<br>4*3300-3800/<br>4*3300-3800             | 65/65/65/<br>65/65/65/<br>65/65* | 16.5/16.5/<br>17.5/17.5/<br>17.5/17.5/<br>21/21 | 2-12/2-12/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 12 x 4.3-10<br>Female<br>+<br>4 x Cluster | 2550 x 499 x 206 | A144521R0v06   | <b>299</b> |
| 2*690-960/<br>2*1427-2200/<br>2*2490-2690/<br>1695-2690/<br>4*3300-3800               | 65/65/65/<br>65/65/65/<br>65/65* | 14.5/14.5/<br>17/17/<br>17/17/<br>17/21         | 0-14/0-14/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 14 x 4.3-10<br>Female<br>+<br>2 x Cluster | 1509 x 499 x 206 | A114521R1v06   | <b>305</b> |
| 2*690-960/<br>1427-2690/<br>2*1695-2200/<br>2*2490-2690/<br>4*2300-3800               | 65/65/65/<br>65/65/65/<br>65/65* | 15.5/15.5/<br>17.5/17/<br>17/17/<br>17/17       | 0-10/0-10/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 14 x 4.3-10<br>Female<br>+<br>2 x Cluster | 2099 x 449 x 196 | AOC4518R8v06   | <b>311</b> |
| 2*690-960/<br>1427-2690/<br>2*1695-2200/<br>2*2490-2690/<br>4*2300-3800               | 65/65/65/<br>65/65/65/<br>65/65* | 16.5/16.5/<br>17.5/17/<br>17/17/<br>17/21       | 0-10/0-10/<br>2-12/2-12/<br>2-12/2-12/<br>2-12/2-12 | EasyRET2.0  | 14 x 4.3-10<br>Female<br>+<br>2 x Cluster | 2769 x 449 x 196 | A114521R5v06   | <b>318</b> |

\* Broadcast beam

\*\* Preliminary Issue



# AHP4519R1v06

D07X-690-960/2x(1695-2690)/4x(3300-3800)-4x65-12.5i/15.5i/15.5i/19i-4xM-R  
 EasyRET 14-port 1L2H FDD/3.3-3.8GHz 8T8R TDD Antenna with Integrated  
 RCUs - 0.9m



## Preliminary Issue

| Electrical Properties          |                                    |           |           |           |   |             |             |             |
|--------------------------------|------------------------------------|-----------|-----------|-----------|---|-------------|-------------|-------------|
| Frequency range (MHz)          | 690 - 960                          |           |           |           | 2 x (1695 - 2690)                                     |             |             |             |
|                                | 690 - 803                          | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization                   | +45°, -45°                         |           |           |           | +45°, -45°  |             |             |             |
| Electrical downtilt (°)        | 2, Fixed                           |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |
| Gain (dBi)                     | 11.4                               | 11.6      | 11.8      | 12.1      | 13.7  | 14.2        | 14.7        | 15.2        |
| Horizontal 3dB beam width (°)  | 67                                 | 66        | 65        | 65        | 66  | 65          | 63          | 62          |
| Vertical 3dB beam width (°)    | 26.9                               | 24.8      | 23.0      | 20.0      | 14.5  | 13.2        | 11.9        | 10.7        |
| VSWR                           | < 1.5                              |           |           |           | < 1.5   |             |             |             |
| Cross polar isolation (dB)     | ≥ 25                               |           |           |           | ≥ 25  |             |             |             |
| Interband isolation (dB)       | ≥ 28                               |           |           |           | ≥ 28  |             |             |             |
| Front to back ratio, ±30° (dB) | > 20                               | > 21      | > 21      | > 22      | > 20  | > 21        | > 22        | > 22        |
| Cross polar ratio (dB)         | 0°                                 | > 16      | > 17      | > 17      | > 16  | > 17        | > 17        | > 16        |
| Max. power per input (W)       | 400 (at 50°C ambient temperature)* |           |           |           | 250 (at 50°C ambient temperature)*                    |             |             |             |
| Intermodulation IM3 (dBc)      | ≤ -150 (2 x 43 dBm carrier)        |           |           |           |   |             |             |             |
| Impedance (Ω)                  | 50                                 |           |           |           |   |             |             |             |
| Grounding                      | DC Ground                          |           |           |           |   |             |             |             |

| 5G NR Electrical Properties                        |   |         |
|--|---|---------|
| Frequency range (MHz)                              | 3300 - 3800   |         |
| Electrical downtilt (°)                            | 2 - 12, continuously adjustable                                     |         |
| Calibration and electrical parameters              | Coupling factor between calibration port and each antenna port (dB) | -26 ± 2 |
|  | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.9     |
|  | Max. phase tolerance from calibration port to input ports (°)       | 7       |
|  | Co-polarization isolation between ports (dB)                        | ≥ 20    |
|  | Cross-polarization isolation between ports (dB)                     | ≥ 23    |
|  | Ports VSWR  | 1.5     |
| Single column beam                                 | Horizontal 3dB beam width (°)                                       | 70      |
|  | Gain (dBi)  | 13.4    |
|  | Vertical 3dB beam width (°)   | 9.2     |
| Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Horizontal 3dB beam width (°)                                       | 65      |
|  | Gain (dBi)  | 18.8    |
|  | Vertical 3dB beam width (°)   | 9.2     |
| Service beam                                       | 0° direction beam horizontal 3dB beam width (°)                     | 18.5    |
|  | 0° direct beam gain (dBi)   | 19      |
| Avg. power capacity (W)                            | 40 (at 50°C ambient temperature)*                                   |         |
| Impedance (Ω)                                      | 50  |         |
| Grounding  | DC Ground   |         |

\* Total power : 700 W (at 50°C ambient temperature)

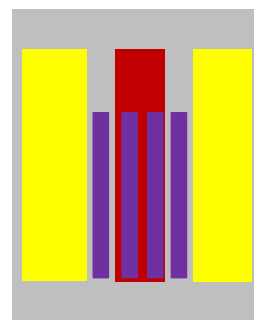
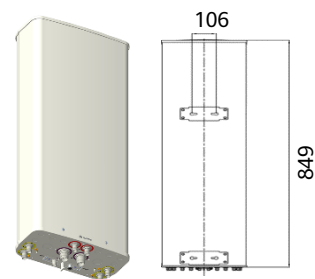
# AHP4519R1v06

D07X-690-960/2x(1695-2690)/4x(3300-3800)-4x65-12.5i/15.5i/15.5i/19i-4xM-R  
EasyRET 14-port 1L2H FDD/3.3-3.8GHz 8T8R TDD Antenna with Integrated  
RCUs - 0.9m



## Mechanical Properties

|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 849 x 399 x 196   |
| Packing dimensions (H x W x D) (mm) | 1155 x 485 x 250  |
| Antenna weight (kg)                 | 19.5  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 29.7 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 250 (at 150 km/h)<br>Lateral: 95 (at 150 km/h)<br>Maximum: 300 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 6 x 4.3-10 Female +<br>1 x MQ4 Male + 1 x MQ5 Male                                    |
| Connector position                  | Bottom  |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F02 | Mechanical downtilt: 0 - 36° | 3.1 kg | 1 (Separate packing) |

## Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 1.5 (when the motor does not work, 12 V)<br>< 6 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |     |         |     |         |    |           |     |
| Connectors                       | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |
| RAE Properties                   |  |     |         |     |         |    |           |     |
| RAE type                         | Integrated RAE   |     |         |     |         |    |           |     |
| RAE protocols                    | AISG-ES-RAE V2.1.0   |     |         |     |         |    |           |     |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

FDD +  
NR/TDD

# A094519R2v06

D09X-690-960/4x(1695-2690)/4x(3300-3800)-6x65-

12.5i/12.5i/12.5i/12.5i/12.5i/19i-6xM-R

EasyRET 18-port 1L4H FDD/3.3-3.8GHz 8T8R TDD Antenna with Integrated RCU- 0.9m



## Preliminary Issue

| Electrical Properties          |                                    |           |           |           |
|--------------------------------|------------------------------------|-----------|-----------|-----------|
| Frequency range (MHz)          | 690 - 960                          |           |           |           |
|                                | 690 - 803                          | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization                   | +45°, -45°                         |           |           |           |
| Electrical downtilt (°)        | 2, Fixed                           |           |           |           |
| Gain (dBi)                     | 11.4                               | 11.6      | 11.8      | 12.1      |
| Horizontal 3dB beam width (°)  | 68                                 | 67        | 67        | 65        |
| Vertical 3dB beam width (°)    | 26.5                               | 23.5      | 22.5      | 20.5      |
| VSWR                           | < 1.5                              |           |           |           |
| Cross polar isolation (dB)     | ≥ 25                               |           |           |           |
| Interband isolation (dB)       | ≥ 28                               |           |           |           |
| Front to back ratio, ±30° (dB) | > 20                               | > 21      | > 21      | > 22      |
| Cross polar ratio (dB)   0°    | > 16                               | > 17      | > 17      | > 16      |
| Max. power per input (W)       | 400 (at 50°C ambient temperature)* |           |           |           |
| Intermodulation IM3 (dBc)      | ≤ -150 (2 x 43 dBm carrier)        |           |           |           |
| Impedance (Ω)                  | 50                                 |           |           |           |
| Grounding                      | DC Ground                          |           |           |           |

| Electrical Properties          |                                    |             |             |             |                                    |             |             |             |
|--------------------------------|------------------------------------|-------------|-------------|-------------|------------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)          | 2 x (1695 - 2690) (Bottom)         |             |             |             | 2 x (1695 - 2690) (Top)            |             |             |             |
|                                | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization                   | +45°, -45°                         |             |             |             | +45°, -45°                         |             |             |             |
| Electrical downtilt (°)        | 2, Fixed                           |             |             |             | 2, Fixed                           |             |             |             |
| Gain (dBi)                     | 11.3                               | 11.8        | 12.4        | 13.0        | 11.2                               | 11.7        | 12.2        | 12.8        |
| Horizontal 3dB beam width (°)  | 63                                 | 62          | 67          | 65          | 63                                 | 64          | 62          | 60          |
| Vertical 3dB beam width (°)    | 22.5                               | 20.5        | 18.5        | 16.3        | 23.0                               | 21.0        | 18.8        | 16.5        |
| VSWR                           | < 1.5                              |             |             |             | < 1.5                              |             |             |             |
| Cross polar isolation (dB)     | ≥ 25                               |             |             |             | ≥ 25                               |             |             |             |
| Interband isolation (dB)       | ≥ 28                               |             |             |             | ≥ 28                               |             |             |             |
| Front to back ratio, ±30° (dB) | > 20                               | > 21        | > 21        | > 22        | > 20                               | > 21        | > 21        | > 22        |
| Cross polar ratio (dB)   0°    | > 16                               | > 17        | > 17        | > 16        | > 16                               | > 17        | > 17        | > 16        |
| Max. power per input (W)       | 250 (at 50°C ambient temperature)* |             |             |             | 250 (at 50°C ambient temperature)* |             |             |             |
| Intermodulation IM3 (dBc)      | ≤ -150 (2 x 43 dBm carrier)        |             |             |             |                                    |             |             |             |
| Impedance (Ω)                  | 50                                 |             |             |             |                                    |             |             |             |
| Grounding                      | DC Ground                          |             |             |             |                                    |             |             |             |

# A094519R2v06

D09X-690-960/4x(1695-2690)/4x(3300-3800)-6x65-

12.5i/12.5i/12.5i/12.5i/12.5i/19i-6xM-R

EasyRET 18-port 1L4H FDD/3.3-3.8GHz 8T8R TDD Antenna with Integrated RCU- 0.9m

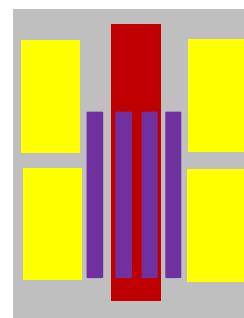
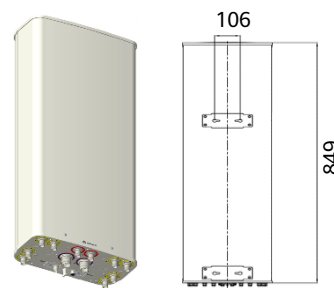


## 5G NR Electrical Properties

|  |   |        |
|--|---|--------|
| Frequency range (MHz)                              | 3300 - 3800   |        |
| Electrical downtilt (°)                            | 2 - 12, continuously adjustable                                     |        |
| Calibration and electrical parameters              | Coupling factor between calibration port and each antenna port (dB) | -26 ±2 |
|  | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.9    |
|  | Max. phase tolerance from calibration port to input ports (°)       | 7      |
|  | Co-polarization isolation between ports (dB)                        | ≥ 20   |
|  | Cross-polarization isolation between ports (dB)                     | ≥ 23   |
|  | Ports VSWR  | 1.5    |
| Single column beam                                 | Horizontal 3dB beam width (°)                                       | 70     |
|  | Gain (dBi)  | 13.4   |
|  | Vertical 3dB beam width (°)   | 9.2    |
| Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Horizontal 3dB beam width (°)                                       | 65     |
|  | Gain (dBi)  | 18.8   |
|  | Vertical 3dB beam width (°)   | 9.2    |
| Service beam                                       | 0°direction beam horizontal 3dB beam width (°)                      | 18.5   |
|  | 0°direct beam gain (dBi)  | 19     |
| Avg. power capacity (W)                            | 40 (at 50°C ambient temperature)*                                   |        |
| Impedance (Ω)                                      | 50  |        |
| Grounding  | DC Ground   |        |
| Rated power : 700 W (at 50°C ambient temperature)  |   |        |

## Mechanical Properties

|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 849 x 399 x 196   |
| Packing dimensions (H x W x D) (mm) | 1155 x 485 x 250  |
| Antenna weight (kg)                 | 19  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 29.2 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 250 (at 150 km/h)<br>Lateral: 95 (at 150 km/h)<br>Maximum: 300 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 10 x 4.3-10 Female +<br>1 x MQ4 Male + 1 x MQ5 Male                                   |
| Connector position                  | Bottom  |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F02 | Mechanical downtilt: 0 - 36° | 3.1 kg | 1 (Separate packing) |

FDD + NR/TDD

# A094519R2v06

D09X-690-960/4x(1695-2690)/4x(3300-3800)-6x65-

12.5i/12.5i/12.5i/12.5i/12.5i/19i-6xM-R

EasyRET 18-port 1L4H FDD/3.3-3.8GHz 8T8R TDD Antenna with Integrated RCU- 0.9m



## Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 3.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30  |     |         |     |         |    |           |     |
| Connectors                       | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |
| RAE Properties                   |  |     |         |     |         |    |           |     |
| RAE type                         | Integrated RAE   |     |         |     |         |    |           |     |
| RAE protocols                    | AISG-ES-RAE V2.1.0   |     |         |     |         |    |           |     |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

# A094519R3v06

D09X-690-960/4x(1695-2690)/4x(3300-3800)-6x65-14.5i/15.5i/15.5i/15.5i/15.5i/19i  
-6xM-R  
EasyRET 1L4H FDD/3.3-3.8GHz 8T8R TDD Antenna with Integrated RCUs - 1.6m



## Preliminary Issue

| Electrical Properties   |                                    |           |           |           |   |             |             |             |      |
|---|------------------------------------|-----------|-----------|-----------|---|-------------|-------------|-------------|------|
| Frequency range (MHz)   | 690 - 960                          |           |           |           | 4 x (1695 - 2690)                                     |             |             |             |      |
|   | 690 - 803                          | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |      |
| Polarization  | +45°, -45°                         |           |           |           | +45°, -45°  |             |             |             |      |
| Electrical downtilt (°)   | 2 - 16, continuously adjustable    |           |           |           | 2 - 12, continuously adjustable, each band separately |             |             |             |      |
| Gain (dBi)  |                                    | 13.8      | 14.0      | 14.2      | 14.5  |             |             |             |      |
|   | Top                                |           |           |           |   | 13.6        | 14.1        | 14.6        | 15.1 |
|   | Bottom                             |           |           |           |   | 13.8        | 14.3        | 14.8        | 15.3 |
| Side lobe suppression for first side lobe above main beam (Typ.) (dB) | 15                                 |           |           |           | 15  |             |             |             |      |
| Horizontal 3dB beam width (°)   | 67                                 | 66        | 64        | 63        | 64  | 63          | 62          | 60          |      |
| Vertical 3dB beam width (°)   | 15.0                               | 13.5      | 13.0      | 12.3      | 14.9  | 13.3        | 12.0        | 10.3        |      |
| VSWR  | < 1.5                              |           |           |           |   |             |             |             |      |
| Cross polar isolation (dB)  | ≥ 25                               |           |           |           |   |             |             |             |      |
| Interband isolation (dB)  | ≥ 28                               |           |           |           |   |             |             |             |      |
| Front to back ratio, ±30° (dB)  | > 22                               | > 23      | > 23      | > 23      | > 22  | > 23        | > 23        | > 23        |      |
| Cross polar ratio (dB)  | 0°                                 | > 17      | > 17      | > 17      | > 17  | > 17        | > 17        | > 17        |      |
| Max. power per input (W)  | 400 (at 50°C ambient temperature)* |           |           |           | 250 (at 50°C ambient temperature)*                    |             |             |             |      |
| Intermodulation IM3 (dBc)   | ≤ -150 (2 x 43 dBm carrier)        |           |           |           |   |             |             |             |      |
| Impedance (Ω)   | 50                                 |           |           |           |   |             |             |             |      |
| Grounding   | DC Ground                          |           |           |           |   |             |             |             |      |

| 5G NR Electrical Properties                        |   |        |
|--|---|--------|
| Frequency range (MHz)                              | 3300 - 3800   |        |
| Electrical downtilt (°)                            | 2 - 12, continuously adjustable                                     |        |
| Calibration and electrical parameters              | Coupling factor between calibration port and each antenna port (dB) | -26 ±2 |
|  | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.9    |
|  | Max. phase tolerance from calibration port to input ports (°)       | 7      |
|  | Co-polarization isolation between ports (dB)                        | ≥ 20   |
|  | Cross-polarization isolation between ports (dB)                     | ≥ 23   |
|  | Ports VSWR  | 1.5    |
| Single column beam                                 | Horizontal 3dB beam width (°)                                       | 70     |
|  | Gain (dBi)  | 13.4   |
|  | Vertical 3dB beam width (°)   | 9.2    |
| Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Horizontal 3dB beam width (°)                                       | 65     |
|  | Gain (dBi)  | 18.8   |
|  | Vertical 3dB beam width (°)   | 9.2    |
| Service beam                                       | 0°direction beam horizontal 3dB beam width (°)                      | 18.5   |
|  | 0°direct beam gain (dBi)  | 19     |
| Avg. power capacity (W)                            | 40 (at 50°C ambient temperature)*                                   |        |
| Impedance (Ω)                                      | 50  |        |
| Grounding  | DC Ground   |        |

\* Total power : 800 W (at 50°C ambient temperature)

FDD + NR/TDD

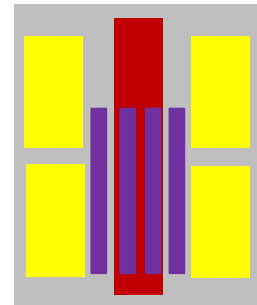
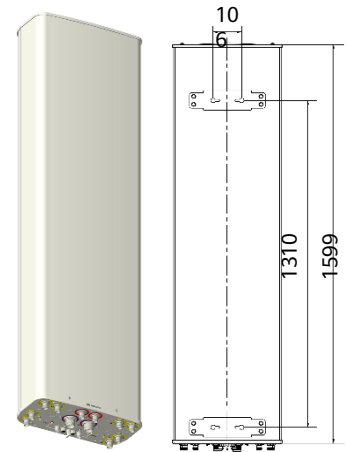
# A094519R3v06

D09X-690-960/4x(1695-2690)/4x(3300-3800) -6x65-14.5i/15.5i/15.5i/15.5i/15.5i/19i  
-6xM-R  
EasyRET 1L4H FDD/3.3-3.8GHz 8T8R TDD Antenna with Integrated RCUs - 1.6m



## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1599 x 399 x 196   |
| Packing dimensions (H x W x D) (mm) | 1860 x 485 x 240   |
| Antenna weight (kg)                 | 28.5   |
| Clamps weight (kg)                  | 3.6 (2 units)  |
| Antenna packing weight (kg)         | 37.9 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 495 (at 150 km/h)<br>Lateral: 200 (at 150 km/h)<br>Maximum: 590 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female +<br>1 x MQ4 Male + 1 x MQ5 Male                                    |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model      | Description                  | Weight | Units per antenna    |
|--------------|------------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D0 1 | Mechanical downtilt: 0 - 16° | 2.1 kg | 1 (Separate packing) |

## Antenna Information Management Module (AIMM) Specifications

### RET Properties

|                                  |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |     |         |     |         |    |           |     |
| Connectors                       | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

### RAE Properties

|               |                    |
|---------------|--------------------|
| RAE type      | Integrated RAE     |
| RAE protocols | AISG-ES-RAE V2.1.0 |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

# ASI4518R54v06

D06X-2x(690-894)/4x(2300-2690)-3x65-16i/16i/18i-3xM-R

EasyRET 12-port 2L FDD/2.3-2.69GHz TDD 8T8R Antenna with 3 Integrated

RCUs - 2.0m



## Antenna Specifications

| Electrical Properties                               |   |
|---|---|
| Frequency range (MHz)                               | 2 x (690 - 894) (Lr1/Rr2)                               |
|   | 690 - 824      824 - 894                                |
| Polarization  | +45°, -45°  |
| Electrical downtilt (°)                             | 2 - 12 , continuously adjustable , each band separately |
| Gain (dBi)  | 15.0      15.7  |
| Vertical side lobe suppression above main beam (dB) | > 16      > 16  |
| Horizontal 3dB beam width (°)                       | 68 ±6      67 ±7  |
| Vertical 3dB beam width (°)                         | 10.5 ±0.7      9.5 ±0.8                                 |
| VSWR  | < 1.5   |
| Cross polar isolation (dB)                          | ≥ 28  |
| Interband isolation (dB)                            | ≥ 28  |
| Front to back ratio, ±30° (dB)                      | > 25  |
| Cross polar ratio (dB)                              | 0° > 16   |
| Max. power per input (W)                            | 400 (at 50°C ambient temperature)*                      |
| Intermodulation IM3 (dBc)                           | ≤ -150 (2 x 43 dBm carrier)                             |
| Impedance (Ω)                                       | 50  |
| Grounding   | DC Ground   |

| General Electrical Properties         |   |  |
|---------------------------------------|---|--|
| General parameters                    | Frequency range (MHz)   | 2300 - 2690 (y1)   |
|                                       | Polarization  | +45°, -45°   |
|                                       | Electrical downtilt (°)   | 2 - 12, continuously adjustable                                      |
|                                       | Electrical downtilt tolerance (°)                                   | ±1   |
|                                       | Avg. power capacity (W)*  | 40   |
|                                       | Impedance (Ω)   | 50   |
|                                       | Grounding   | DC Ground  |
| Calibration and electrical parameters | Coupling factor between calibration port and each antenna port (dB) | -26 ±2   |
|                                       | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.7  |
|                                       | Max. phase tolerance from calibration port to input ports (°)       | 5  |
|                                       | Ports VSWR  | 1.5  |
|                                       | Co-polarization isolation between ports (dB)                        | ≥ 20 @ 2°- 6°Electrical downtilt ; ≥ 25 @ 7°- 12°Electrical downtilt |
|                                       | Cross-polarization isolation between ports (dB)                     | ≥ 23 @ 2°- 6°Electrical downtilt ; ≥ 25 @ 7°- 12°Electrical downtilt |

\* Total power : 900 W (at 50°C ambient temperature)

FDD + NR/TDD



# ASI4518R54v06

D06X-2x(690-894)/4x(2300-2690)-3x65-16i/16i/18i-3xM-R

EasyRET 12-port 2L FDD/2.3-2.69GHz TDD 8T8R Antenna with 3 Integrated RCU - 2.0m



## TDD LTE Electrical Properties

| Frequency range (MHz) |                                     | 2300 - 2690 (y1)   |             |      |
|-----------------------|-------------------------------------|--|-------------|------|
|                       |                                     | 2300 - 2400  | 2496 - 2690 |      |
| Radiation parameters  | Single column beam                  | Gain (dBi)   | 15.5        | 16.0 |
|                       |                                     | Horizontal 3dB beam width (°)                                  | 85          | 70   |
|                       |                                     | Front to back ratio (dB)                                       | ≥ 25        | ≥ 25 |
|                       |                                     | Cross polar ratio (0°) (dB)                                    | ≥ 26        | ≥ 20 |
|                       |                                     | Vertical 3dB beam width (0°)                                   | 6.0         | 5.5  |
|                       |                                     | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        | ≥ 15 |
|                       | 65° Broadcast beam                  | Gain (dBi)   | 17.3        | 17.6 |
|                       |                                     | Horizontal 3dB beam width (0°)                                 | 60          | 59   |
|                       |                                     | Front to back ratio (dB)                                       | ≥ 28        | ≥ 30 |
|                       |                                     | Cross polar ratio (0°) (dB)                                    | ≥ 16        | ≥ 21 |
|                       |                                     | Vertical 3dB beam width (0°)                                   | 6.0         | 5.5  |
|                       |                                     | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        | ≥ 15 |
|                       | Service beam                        | 0°direct beam gain (dBi)                                       | 20.8        | 21   |
|                       |                                     | 0°direction beam horizontal 3dB beam width (0°)                | 26          | 25   |
|                       |                                     | 0°direction beam front to back ratio (dB)                      | ≥ 30        | ≥ 30 |
|                       |                                     | 0°direction beam cross polar ratio (0°) (dB)                   | ≥ 20        | ≥ 20 |
| Soft split multi-beam | Gain (dBi)                          | 20.3   | 19.9        |      |
|                       | Horizontal 3dB beam width (°)       | 29   | 28          |      |
|                       | Front to back ratio (dB)            | ≥ 28   | ≥ 28        |      |
|                       | Cross polar ratio at boresight (dB) | ≥ 18   | ≥ 18        |      |

**Notes:**

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

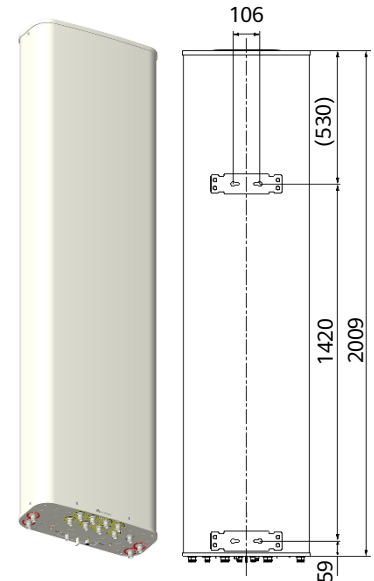
# ASI4518R54v06

D06X-2x(690-894)/4x(2300-2690)-3x65-16i/16i/18i-3xM-R

EasyRET 12-port 2L FDD/2.3-2.69GHz TDD 8T8R Antenna with 3 Integrated RCUs - 2.0m

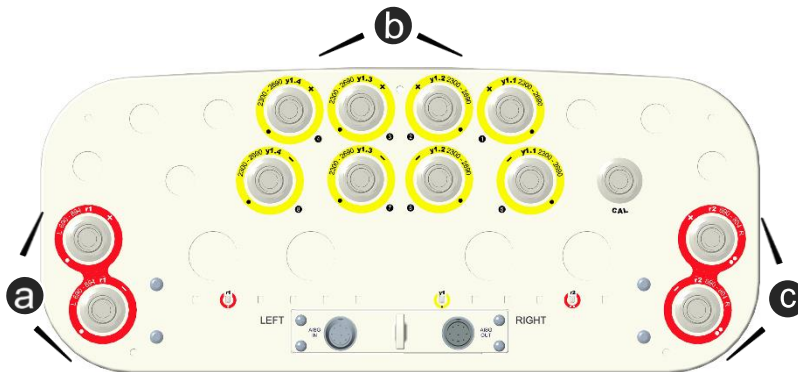


| Mechanical Properties               |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2009 x 499 x 206   |
| Packing dimensions (H x W x D) (mm) | 2360 x 550 x 245   |
| Antenna weight (kg)                 | 37.0   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 51.5 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 730 (at 150 km/h)<br>Lateral: 380 (at 150 km/h)<br>Maximum: 955 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 13 x 4.3-10 Female   |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12 ° | 3.1 kg | 1 (Separate packing) |



### RET S/N:

- a** HWMxxx.....Lr1
- b** HWMxxx.....y1
- c** HWMxxx.....Rr2

### RAE S/N:

- b** HWXxxx.....y1

r - Red                      y - Yellow  
L - Left array              R - Right array

FDD + NR/TDD

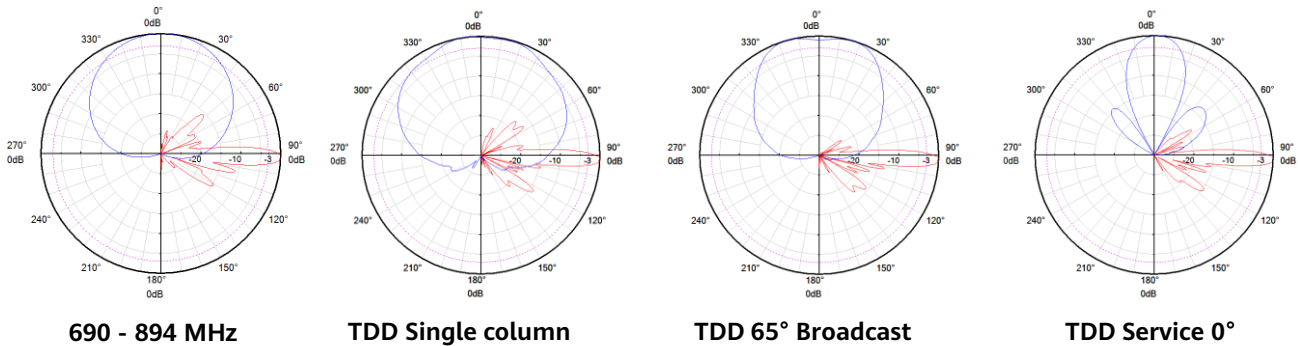
# ASI4518R54v06

D06X-2x(690-894)/4x(2300-2690)-3x65-16i/16i/18i-3xM-R

EasyRET 12-port 2L FDD/2.3-2.69GHz TDD 8T8R Antenna with 3 Integrated RCU - 2.0m



## Pattern sample for reference



## Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 6 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |     |         |     |         |    |           |     |
| Connectors                       | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |
| RAE Properties                   |  |     |         |     |         |    |           |     |
| RAE type                         | Integrated RAE   |     |         |     |         |    |           |     |
| RAE protocols                    | AISG-ES-RAE V2.1.0   |     |         |     |         |    |           |     |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

# A094521R4v06

D09X-2x(690-960)/2x(1427-2690)/1695-2690/4x(3300-3800)-6x65-14.5i/14.5i/17.5i/17.5i/17.5i/21i-6xM-R  
 EasyRET 18-port 2L3H FDD/3.3-3.8GHz 8T8R TDD Antenna with 6 Integrated RCUs - 1.5m



## Antenna Specifications

| Electrical Properties  |                |  |           |           |           |
|--|----------------|--|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 2 x (690 - 960) (Lr1 / Rr2)                            |           |           |           |
|  |                | 690 - 803  | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45° , -45°  |           |           |           |
| Electrical downtilt (°)  |                | 0 - 14 , continuously adjustable, each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 13.5   | 13.8      | 14.0      | 14.1      |
|  | over all Tilts | 13.5 ±0.5  | 13.7 ±0.5 | 13.9 ±0.5 | 14.0 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15   | > 15      | > 15      | > 15      |
| Horizontal 3dB beam width (°)                                  |                | 69 ±7  | 68 ±6     | 68 ±6     | 67 ±6     |
| Vertical 3dB beam width (°)                                    |                | 14.9 ±1.4  | 13.5 ±1.3 | 12.8 ±1.2 | 12.0 ±1.2 |
| VSWR   |                | < 1.5  |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28   |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 28   |           |           |           |
| Front to back ratio , ±30° (dB)                                |                | > 20   | > 21      | > 22      | > 22      |
| Cross polar ratio (dB)   | 0°             | > 17   | > 18      | > 18      | > 18      |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                     |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                            |           |           |           |
| Impedance (Ω)  |                | 50   |           |           |           |
| Grounding  |                | DC Ground  |           |           |           |

| Electrical Properties  |                |                                    |             |             |             |             |
|--|----------------|------------------------------------|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (1427 - 2690) (Ly1 / Ry3)      |             |             |             |             |
|  |                | 1427 - 1518                        | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45° , -45°                        |             |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12 , continuously adjustable   |             |             |             |             |
| Gain (dBi)   | at mid Tilt    | 15.6                               | 16.7        | 17.0        | 17.3        | 17.5        |
|  | over all Tilts | 15.4 ±0.6                          | 16.6 ±0.5   | 16.9 ±0.5   | 17.2 ±0.5   | 17.4 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15                               | > 16        | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 70 ±7                              | 62 ±6       | 60 ±6       | 60 ±6       | 58 ±5       |
| Vertical 3dB beam width (°)                                    |                | 9.1 ±0.8                           | 7.3 ±0.7    | 6.6 ±0.6    | 5.6 ±0.5    | 5.3 ±0.5    |
| VSWR   |                | < 1.5                              | < 1.5       |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28                               | ≥ 28        |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28                               | ≥ 28        |             |             |             |
| Front to back ratio , ±30° (dB)                                |                | > 23                               | > 26        | > 25        | > 26        | > 24        |
| Cross polar ratio (dB)   | 0°             | > 17                               | > 18        | > 18        | > 18        | > 17        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)* |             |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)        |             |             |             |             |
| Impedance (Ω)  |                | 50                                 |             |             |             |             |
| Grounding  |                | DC Ground                          |             |             |             |             |

FDD + NR/TDD

# A094521R4v06

D09X-2x(690-960)/2x(1427-2690)/1695-2690/4x(3300-3800)-6x65-14.5i/14.5i/17.5i/17.5i/17.5i/21i-6xM-R  
EasyRET 18-port 2L3H FDD/3.3-3.8GHz 8T8R TDD Antenna with 6 Integrated RCUs - 1.5m



## Electrical Properties

| Frequency range (MHz)  |                | 1695 - 2690 (Cy2)                  |             |             |             |
|--|----------------|------------------------------------|-------------|-------------|-------------|
|  |                | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°                         |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable    |             |             |             |
| Gain (dBi)   | at mid Tilt    | 16.6                               | 17.0        | 17.1        | 17.4        |
|  | over all Tilts | 16.5 ±0.5                          | 16.9 ±0.5   | 17.0 ±0.6   | 17.3 ±0.6   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15                               | > 16        | > 16        | > 15        |
| Horizontal 3dB beam width (°)                                  |                | 66 ±6                              | 61 ±6       | 60 ±6       | 60 ±6       |
| Vertical 3dB beam width (°)                                    |                | 7.2 ±0.6                           | 6.5 ±0.6    | 5.7 ±0.5    | 5.2 ±0.5    |
| VSWR   |                | < 1.5                              |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28                               |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28                               |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 26                               | > 26        | > 26        | > 25        |
| Cross polar ratio (dB) 0°                                      |                | > 18                               | > 18        | > 18        | > 18        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)* |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)        |             |             |             |
| Impedance (Ω)  |                | 50                                 |             |             |             |
| Grounding  |                | DC Ground                          |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available

## General Electrical Properties

|                                       |   |                                 |
|---------------------------------------|---|---------------------------------|
| General parameters                    | Frequency (MHz)   | 3300 - 3800 (p1)                |
|                                       | Polarization  | +45°, -45°                      |
|                                       | Electrical downtilt (°)   | 2 - 12, continuously adjustable |
|                                       | Electrical downtilt tolerance (°)                                   | ±1                              |
|                                       | Avg. power capacity (W)   | 40                              |
|                                       | Impedance (Ω)   | 50                              |
|                                       | Grounding   | DC Ground                       |
| Calibration and electrical parameters | Coupling factor between calibration port and each antenna port (dB) | -26 ±2                          |
|                                       | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.9                             |
|                                       | Max. phase tolerance from calibration port to input ports (°)       | 7                               |
|                                       | Ports VSWR  | 1.5                             |
|                                       | Co-polarization isolation between ports (dB)                        | ≥ 20                            |
|                                       | Cross-polarization isolation between ports (dB)                     | ≥ 23                            |

\* Total power : 800 W (at 50°C ambient temperature)

# A094521R4v06

D09X-2x(690-960)/2x(1427-2690)/1695-2690/4x(3300-3800)-6x65-14.5i/14.5i/17.5i/17.5i/17.5i/21i-6xM-R  
 EasyRET 18-port 2L3H FDD/3.3-3.8GHz 8T8R TDD Antenna with 6 Integrated RCUs - 1.5m



## TDD LTE Electrical Properties

| Frequency range (MHz)                   |                    | 3300 - 3800 (p1)   |      |
|---|--------------------|--|------|
| Radiation parameters                    | Single column beam | Gain (dBi)   | 15.6 |
|   |                    | Horizontal 3dB beam width (°)                                  | 70   |
|   |                    | Front to back ratio (dB)                                       | ≥ 24 |
|   |                    | Cross polar ratio (0°) (dB)                                    | ≥ 15 |
|   |                    | Vertical 3dB beam width (°)                                    | 5.5  |
|   |                    | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15 |
|   | 65° Broadcast beam | Gain (dBi)   | 16.9 |
|   |                    | Horizontal 3dB beam width (°)                                  | 65   |
|   |                    | Front to back ratio (dB)                                       | ≥ 25 |
|   |                    | Cross polar ratio (0°) (dB)                                    | ≥ 15 |
|   |                    | Vertical 3dB beam width (°)                                    | 5.5  |
|   |                    | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15 |
|   | Service beam       | 0°direct beam gain (dBi)                                       | 20.7 |
|   |                    | 0°direction beam horizontal 3dB beam width (°)                 | 21   |
|   |                    | 0°direction beam front to back ratio (dB)                      | ≥ 30 |
| 0°direction beam cross polar ratio (dB) |                    | ≥ 19   |      |

**Notes:**

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

## 5G NR Electrical Properties

| Frequency range (MHz) |   | 3300 - 3800 (p1)   |      |
|-----------------------|---|--|------|
| Radiation parameters  | Single column beam                                    | Gain (dBi)   | 15.6 |
|                       |   | Horizontal 3dB beam width (°)                                  | 70   |
|                       |   | Front to back ratio (dB)                                       | ≥ 24 |
|                       |   | Cross polar ratio (0°) (dB)                                    | ≥ 15 |
|                       |   | Vertical 3dB beam width (°)                                    | 5.5  |
|                       |   | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15 |
|                       | NR Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Gain (dBi)   | 20.7 |
|                       |   | Horizontal 3dB beam width (°)                                  | 65   |
|                       |   | Front to back ratio (dB)                                       | ≥ 25 |
|                       |   | Vertical 3dB beam width (°)                                    | 5.5  |
|                       | NR Service beam                                       | 0°direct beam gain (dBi)                                       | 20.7 |
|                       |   | 0°direction beam horizontal 3dB beam width (°)                 | 21   |
|                       |   | 0°direction beam front to back ratio (dB)                      | 30   |
|                       |   | 0°direction beam cross polar ratio (0°) (dB)                   | 19   |

**Notes:**

1. The 5G NR broadcast beam is the envelope of SSB(synchronization signal block) sweeping beams and the gain is the maximum gain of SSB sweeping beams.
2. Downlink broadcast beam gain values and pattern files can only be used for broadcast channel coverage prediction.
3. Downlink and uplink budgets need to be calculated based on the gain of single column beam and the correct Tx/Rx number.

FDD + NR/TDD

# A094521R4v06

D09X-2x(690-960)/2x(1427-2690)/1695-2690/4x(3300-3800)-6x65-

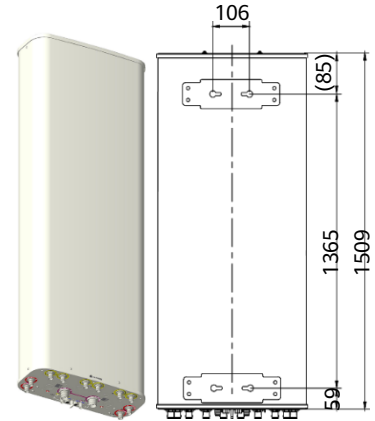
14.5i/14.5i/17.5i/17.5i/17.5i/21i-6xM-R

EasyRET 18-port 2L3H FDD/3.3-3.8GHz 8T8R TDD Antenna with 6 Integrated RCU's - 1.5m



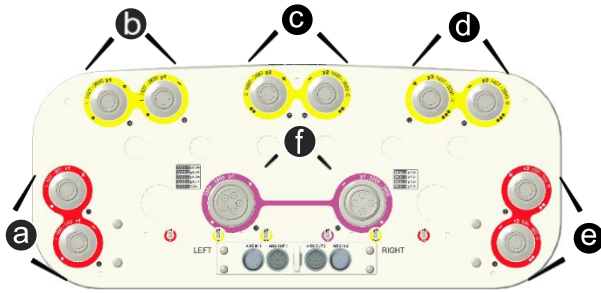
## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1509 x 499 x 206   |
| Packing dimensions (H x W x D) (mm) | 1770 x 555 x 245   |
| Antenna weight (kg)                 | 36.0   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 47.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 540 (at 150 km/h)<br>Lateral: 270 (at 150 km/h)<br>Maximum: 705 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female<br>1 x MQ4 Male + 1 x MQ5 Male                                      |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 16 ° | 3.1 kg | 1 (Separate packing) |



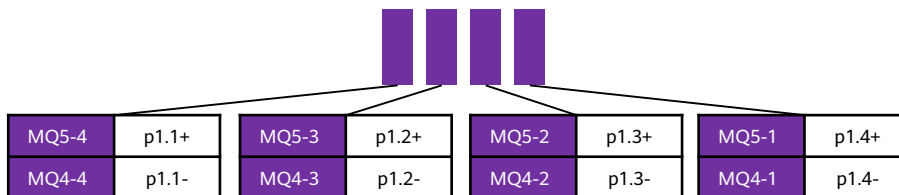
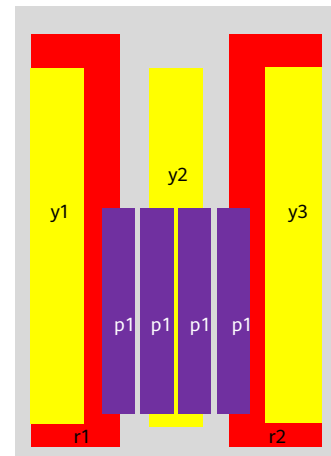
r - Red      y - Yellow      p - Purple  
L - Left array      R - Right array      C - Center array

### RET S/N:

- a HWMxxx.....Lr1
- b HWMxxx.....Ly1
- c HWMxxx.....Cy2
- d HWMxxx.....Ry3
- e HWMxxx.....Rr2
- f HWMxxx.....p1

### RAE S/N:

- f HWXxxx.....p1



### Notes:

Before installing the antenna, it is recommended to plan the use of antenna connectors based on frequency bands in use currently and in the future. This is to avoid adjusting antenna connector configuration when new frequency bands are deployed

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D09X-2x(690-960)/2x(1427-2690)/1695-2690/4x(3300-3800)-6x65-14.5i/14.5i/17.5i/17.5i/17.5i/21i-6xM-R  
 EasyRET 18-port 2L3H FDD/3.3-3.8GHz 8T8R TDD Antenna with 6 Integrated RCUs - 1.5m



## Antenna Information Management Module (AIMM) Specifications

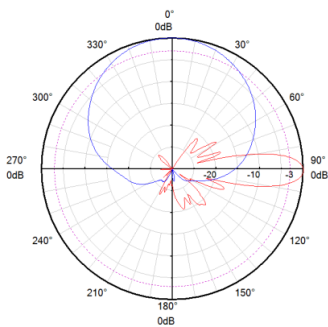
| RET Properties                   |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |     |         |     |         |    |           |     |
| Connectors                       | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |

| RAE Properties |                    |
|----------------|--------------------|
| RAE type       | Integrated RAE     |
| RAE protocols  | AISG-ES-RAE V2.1.0 |

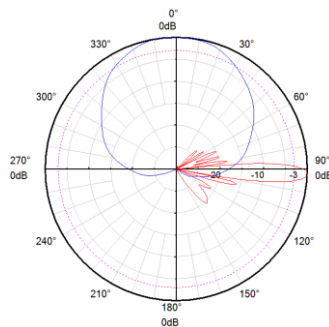
| TDD LTE EasyBeam Properties |                               |          |    |    |
|-----------------------------|-------------------------------|----------|----|----|
| Frequency range (MHz)       | 3300 - 3800                   |          |    |    |
| Electrical downtilt (°)     | 2 - 12                        |          |    |    |
| Broadcast beam              | Horizontal 3dB beam width (°) | 30       | 65 | 90 |
|                             | Electrical azimuth (°)        | -15..+15 |    | 0  |
|                             | Electrical azimuth step(°)    | 1        |    | /  |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003  
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

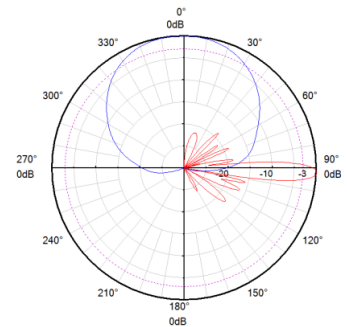
### Pattern sample for reference



**690 - 960 MHz  
(Lr1 / Rr2)**



**1427 - 2690 MHz  
(Ly1/Ry3)**



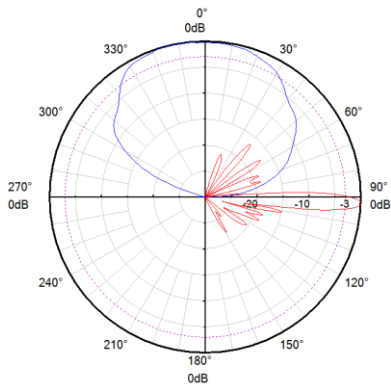
**1695 - 2690 MHz  
(Cy2)**

FDD + NR/TDD

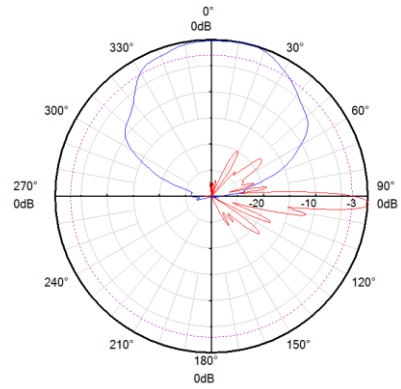


# A094521R4v06

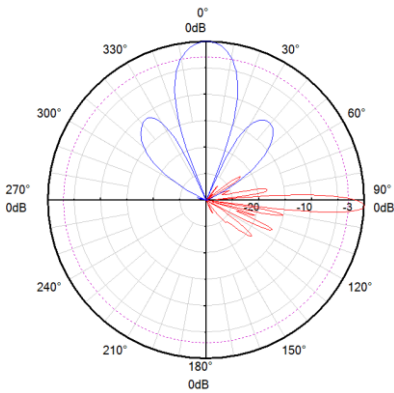
D09X-2x(690-960)/2x(1427-2690)/1695-2690/4x(3300-3800)-6x65-14.5i/14.5i/17.5i/17.5i/17.5i/21i-6xM-R  
EasyRET 18-port 2L3H FDD/3.3-3.8GHz 8T8R TDD Antenna with 6 Integrated RCUs - 1.5m



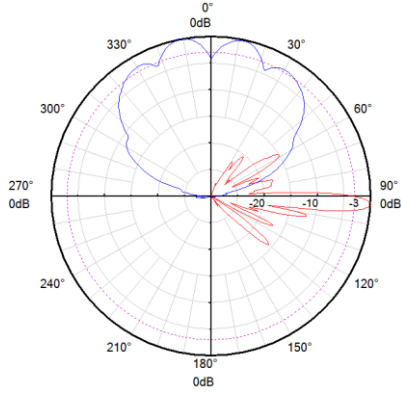
**Single column  
(3300 - 3800 MHz)**



**65° Broadcast  
(3300 - 3800 MHz)**



**Service 0°  
(3300 - 3800 MHz)**



**5G NR Broadcast  
(3300 - 3800 MHz)**

# ASI4518R42v06

DXXXXXX-690-960/690-960/1427-2690/1427-2690/1695-2690/2300-3800-  
6x65-15.5i/15.5i/17.5i/17.5i/17.5i/17i-M/M/M/M/M/M-R  
EasyRET 2L3H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
6 Integrated RCUs - 2.0m



## Antenna Specifications

| Electrical Properties  |                |   |           |           |           |
|--|----------------|---|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 2 x (690 - 960) (Lr1 / Rr2)                           |           |           |           |
|  |                | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45°, -45°  |           |           |           |
| Electrical downtilt (°)  |                | 0 - 10, continuously adjustable, each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 14.8  | 15.1      | 15.3      | 15.6      |
|  | over all Tilts | 14.7 ±0.5   | 15.0 ±0.5 | 15.2 ±0.5 | 15.5 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 16      | > 16      | > 16      |
| Horizontal 3dB beam width (°)                                  |                | 64 ±6   | 62 ±5     | 60 ±5     | 60 ±6     |
| Vertical 3dB beam width (°)                                    |                | 11.0 ±0.7   | 9.9 ±0.7  | 9.4 ±0.6  | 8.9 ±0.5  |
| VSWR   |                | < 1.5   |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28  |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 28  |           |           |           |
| Front to back ratio, ±30° (dB)                                 |                | > 21  | > 22      | > 23      | > 23      |
| Cross polar ratio (dB)   | 0°             | > 18  | > 18      | > 18      | > 18      |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                    |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                           |           |           |           |
| Impedance (Ω)  |                | 50  |           |           |           |
| Grounding  |                | DC Ground   |           |           |           |

| Electrical Properties  |                |   |             |             |             |             |                                    |             |             |             |
|--|----------------|---|-------------|-------------|-------------|-------------|------------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (1427 - 2690) (Ly1 / Ry3)                         |             |             |             |             | 1695 - 2690 (Cy2)                  |             |             |             |
|  |                | 1427 - 1518   | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°  |             |             |             |             | +45°, -45°                         |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable, each band separately |             |             |             |             | 2 - 12, continuously adjustable    |             |             |             |
| Gain (dBi)   | at mid Tilt    | 15.9  | 17.1        | 17.3        | 17.3        | 17.5        | 17.2                               | 17.4        | 17.4        | 17.6        |
|  | over all Tilts | 15.8 ±0.5   | 17.0 ±0.6   | 17.2 ±0.7   | 17.2 ±0.7   | 17.4 ±0.6   | 17.1 ±0.6                          | 17.3 ±0.7   | 17.3 ±0.7   | 17.4 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16  | > 16        | > 16        | > 16        | > 16        | > 16                               | > 16        | > 17        | > 17        |
| Horizontal 3dB beam width (°)                                  |                | 70 ±6   | 68 ±5       | 67 ±5       | 65 ±6       | 58 ±6       | 62 ±4                              | 64 ±4       | 62 ±4       | 60 ±6       |
| Vertical 3dB beam width (°)                                    |                | 8.9 ±0.5  | 7.2 ±0.6    | 6.5 ±0.6    | 5.6 ±0.5    | 5.1 ±0.5    | 7.1 ±0.5                           | 6.3 ±0.5    | 5.6 ±0.5    | 5.1 ±0.5    |
| VSWR   |                | < 1.5   | < 1.5       |             |             | < 1.5       |                                    |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28  | ≥ 28        |             |             | ≥ 28        |                                    |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28  | ≥ 28        |             |             | ≥ 28        |                                    |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 25  | > 26        | > 26        | > 26        | > 25        | > 26                               | > 26        | > 26        | > 25        |
| Cross polar ratio (dB)   | 0°             | > 18  | > 18        | > 18        | > 18        | > 18        | > 18                               | > 18        | > 18        | > 18        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                    |             |             |             |             | 250 (at 50°C ambient temperature)* |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                           |             |             |             |             | ≤ -150 (2 x 43 dBm carrier)        |             |             |             |
| Impedance (Ω)  |                | 50  |             |             |             |             | 50                                 |             |             |             |
| Grounding  |                | DC Ground   |             |             |             |             | DC Ground                          |             |             |             |

FDD + NR/TDD

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

# ASI4518R42v06

DXXXXXX-690-960/690-960/1427-2690/1427-2690/1695-2690/2300-3800-6x65-15.5i/15.5i/17.5i/17.5i/17.5i/17i-M/M/M/M/M/M-R  
EasyRET 2L3H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
6 Integrated RCUs - 2.0m



## General Electrical Properties

|  | Frequency range (MHz)                 | 2300 – 3800 (p1)  |             |
|--|---------------------------------------|---|-------------|
|  |                                       | 2300 - 2690   | 3300 - 3800 |
| General parameters   | Polarization                          | +45°, -45°  |             |
|  | Electrical downtilt (°)               | 2 - 12, continuously adjustable                                     |             |
|  | Electrical downtilt tolerance (°)     | ±1  |             |
|  | Max. power per input (W)              | 40 (at 50°C ambient temperature)*                                   |             |
|  | Impedance (Ω)                         | 50  |             |
|  | Grounding                             | DC Ground   |             |
|  | Calibration and electrical parameters | Coupling factor between calibration port and each antenna port (dB) | -26 ±2      |
| Max. amplitude tolerance from calibration port to input ports (dB) |                                       | 0.7   | 0.9         |
| Max. phase tolerance from calibration port to input ports (°)      |                                       | 6   | 8           |
| Ports VSWR   |                                       | 1.5   | 1.5         |
| Co-polarization isolation between ports (dB)                       |                                       | ≥ 20  | ≥ 20        |
| Cross-polarization isolation between ports (dB)                    |                                       | ≥ 23  | ≥ 23        |

\* Total power : 1000 W (at 50°C ambient temperature)

## TDD LTE Electrical Properties

|                          | Frequency range (MHz)               | 2300 – 3800 (p1)   |             |      |
|--------------------------|-------------------------------------|--|-------------|------|
|                          |                                     | 2300 - 2690  | 3300 - 3800 |      |
| Radiation parameters     | Single column beam                  | Gain (dBi)   | 15.0        | 15.7 |
|                          |                                     | Horizontal 3dB beam width (°)                                  | 90          | 70   |
|                          |                                     | Front to back ratio (dB)                                       | ≥ 25        | ≥ 25 |
|                          |                                     | Cross polar ratio (0°) (dB)                                    | ≥ 16        | ≥ 15 |
|                          |                                     | Vertical 3dB beam width (°)                                    | 8.0         | 5.5  |
|                          |                                     | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        | ≥ 15 |
|                          | 65° Broadcast beam                  | Gain (dBi)   | 16.0        | 17.1 |
|                          |                                     | Horizontal 3dB beam width (°)                                  | 65          | 65   |
|                          |                                     | Front to back ratio (dB)                                       | ≥ 26        | ≥ 25 |
|                          |                                     | Cross polar ratio (0°) (dB)                                    | ≥ 17        | ≥ 16 |
|                          |                                     | Vertical 3dB beam width (°)                                    | 8.0         | 5.5  |
|                          | Service beam                        | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        | ≥ 15 |
|                          |                                     | 0°direct beam gain (dBi)                                       | 20.0        | 21.1 |
|                          |                                     | 0°direction beam horizontal 3dB beam width (°)                 | 26          | 20   |
|                          |                                     | 0°direction beam front to back ratio (dB)                      | ≥ 30        | ≥ 30 |
|                          | Soft split multi-beam               | 0°direction beam cross polar ratio (dB)                        | ≥ 19        | ≥ 18 |
|                          |                                     | Gain (dBi)   | 19          | /    |
|                          |                                     | Horizontal 3dB beam width (°)                                  | 32          | /    |
| Front to back ratio (dB) |                                     | ≥ 30   | /           |      |
|                          | Cross polar ratio at boresight (dB) | ≥ 18   | /           |      |

Notes:

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

# ASI4518R42v06

DXXXXXX-690-960/690-960/1427-2690/1427-2690/1695-2690/2300-3800-6x65-15.5i/15.5i/17.5i/17.5i/17.5i/17i-M/M/M/M/M/M-R  
EasyRET 2L3H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
6 Integrated RCUs - 2.0m



## 5G NR Electrical Properties

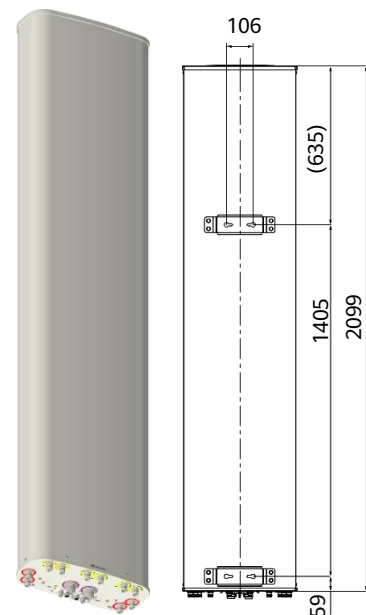
| Frequency range (MHz)                        |   | 2300 – 3800 (p1)   |             |      |
|--|---|--|-------------|------|
|  |   | 2300 - 2690  | 3300 - 3800 |      |
| Radiation parameters                         | Single column beam                                    | Gain (dBi)   | /           | 15.7 |
|  |   | Horizontal 3dB beam width (°)                                  | /           | 70   |
|  |   | Front to back ratio (dB)                                       | /           | ≥ 25 |
|  |   | Cross polar ratio (0°) (dB)                                    | /           | ≥ 15 |
|  |   | Vertical 3dB beam width (°)                                    | /           | 5.5  |
|  |   | Side lobe suppression for first side lobe above main beam (dB) | /           | ≥ 15 |
|  | NR Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Gain (dBi)   | /           | 20.8 |
|  |   | Horizontal 3dB beam width (°)                                  | /           | 65   |
|  |   | Front to back ratio (dB)                                       | /           | ≥ 25 |
|  |   | Vertical 3dB beam width (°)                                    | /           | 5.5  |
|  |   | Side lobe suppression for first side lobe above main beam (dB) | /           | ≥ 15 |
|  | NR Service beam                                       | 0°direct beam gain (dBi)                                       | /           | 21.1 |
|  |   | 0°direction beam horizontal 3dB beam width (°)                 | /           | 20   |
|  |   | 0°direction beam front to back ratio (dB)                      | /           | ≥ 30 |
| 0°direction beam cross polar ratio (0°) (dB) |   | /  | ≥ 18        |      |

### Notes:

- The 5G NR broadcast beam is the envelope of SSB(synchronization signal block) sweeping beams and the gain is the maximum gain of SSB sweeping beams.
- Downlink broadcast beam gain values and pattern files can only be used for broadcast channel coverage prediction.
- Downlink and uplink budgets need to be calculated based on the gain of single column beam and the correct Tx/Rx number.

## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Distance between TDD columns (mm)   | 59   |
| Antenna dimensions (H x W x D) (mm) | 2099 x 449 x 196   |
| Packing dimensions (H x W x D) (mm) | 2360 x 535 x 240   |
| Antenna weight (kg)                 | 41.7   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 53.6 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | GFRPP  |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 615 (at 150 km/h)<br>Lateral: 375 (at 150 km/h)<br>Maximum: 810 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female<br>1 x MQ4 Male + 1 x MQ5 Male                                      |
| Connector position                  | Bottom   |



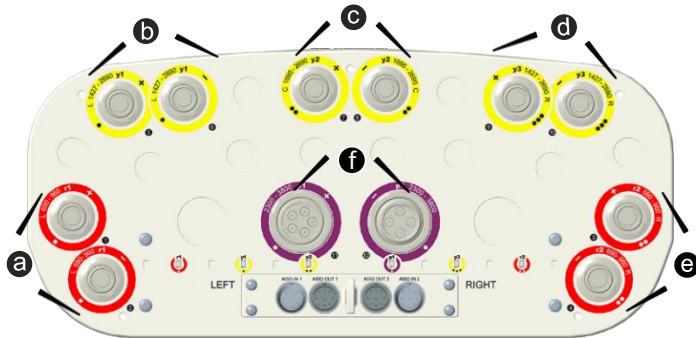
FDD + NR/TDD

## Accessories

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12 ° | 3.1 kg | 1 (Separate packing) |

# ASI4518R42v06

DXXXXXX-690-960/690-960/1427-2690/1427-2690/1695-2690/2300-3800-  
 6x65-15.5i/15.5i/17.5i/17.5i/17.5i/17i-M/M/M/M/M/M-R  
 EasyRET 2L3H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
 6 Integrated RCUs - 2.0m



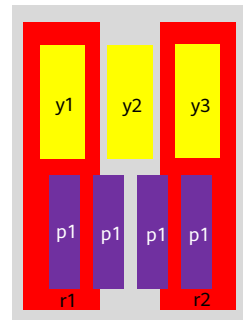
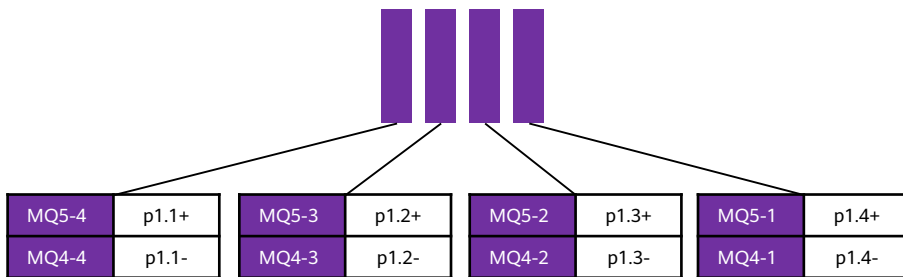
r - Red      y - Yellow      p - Purple  
 L - Left array    R - Right array    C - Center array

### Integrated RET S/N:

- a HWMxxx.....Lr1
- b HWMxxx.....Ly1
- c HWMxxx.....Cy2
- d HWMxxx.....Ry3
- e HWMxxx.....Rr2
- f HWMxxx.....p1

### RAE S/N:

- f HWXxxx.....p1



# ASI4518R42v06

DXXXXXX-690-960/690-960/1427-2690/1427-2690/1695-2690/2300-3800-6x65-15.5i/15.5i/17.5i/17.5i/17.5i/17i-M/M/M/M/M/M-R  
EasyRET 2L3H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
6 Integrated RCUs - 2.0m



## Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |          |         |     |             |    |           |     |
|----------------------------------|--|----------|---------|-----|-------------|----|-----------|-----|
| RET type                         | Integrated RET   |          |         |     |             |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |          |         |     |             |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |          |         |     |             |    |           |     |
| Power consumption (W)            | < 1.5 (when the motor does not work, 12 V)<br>< 6 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |          |         |     |             |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |          |         |     |             |    |           |     |
| Connectors                       | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |          |         |     |             |    |           |     |
| Pin assignment according AISG    | 1  | 2        | 3       | 4   | 5           | 6  | 7         | 8   |
|                                  | DC   | n/c      | RS-485B | n/c | RS-485A     | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |          |         |     |             |    |           |     |
| RAE Properties                   |  |          |         |     |             |    |           |     |
| RAE type                         | Integrated RAE   |          |         |     |             |    |           |     |
| RAE protocols                    | AISG-ES-RAE V2.1.0   |          |         |     |             |    |           |     |
| TDD LTE EasyBeam Properties      |  |          |         |     |             |    |           |     |
| Frequency range (MHz)            | 2300 - 2690  |          |         |     | 3300 - 3800 |    |           |     |
| Electrical downtilt (°)          | 2 - 12   |          |         |     | 2 - 12      |    |           |     |
| Broadcast beam                   | Horizontal 3dB beam width (°)  | 30       | 65      | 90  | 30          | 65 | 90        |     |
|                                  | Electrical azimuth (°)   | -15..+15 |         | 0   | -15..+15    |    | 0         |     |
|                                  | Electrical azimuth step(°)   | 1        |         | /   | 1           |    | /         |     |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

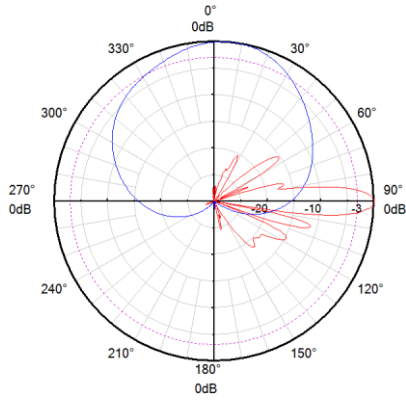
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

# ASI4518R42v06

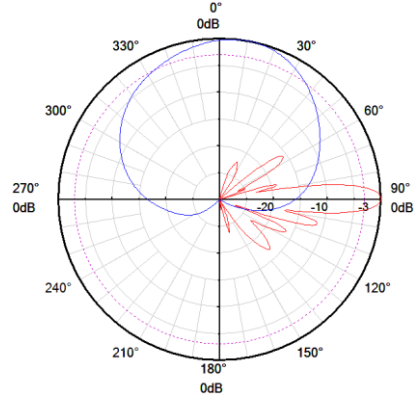
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6x65-15.5i/15.5i/17.5i/17.5i/17.5i/17i-M/M/M/M/M/M-R  
EasyRET 2L3H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
6 Integrated RCUs - 2.0m



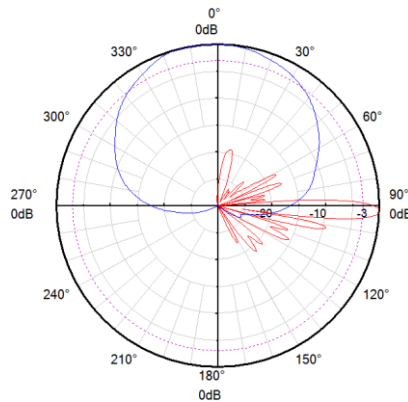
## Pattern sample for reference



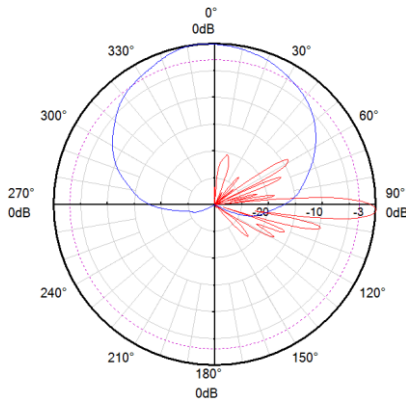
**690 - 960 MHz  
(Lr1)**



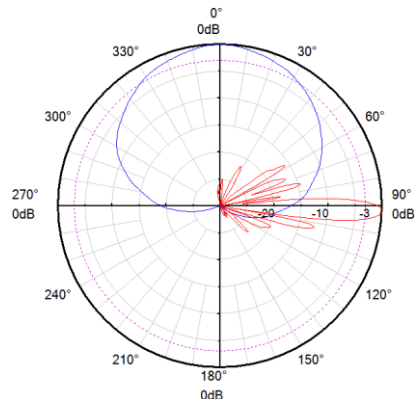
**690 - 960 MHz  
(Rr2)**



**1695 - 2690 MHz  
(Cy2)**



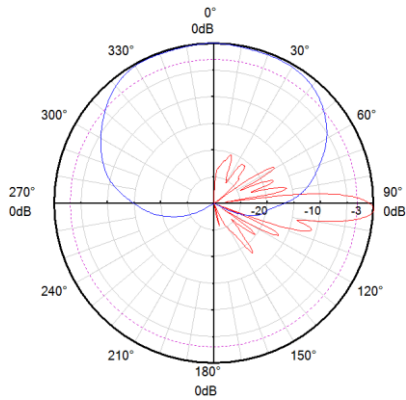
**1427 - 2690 MHz  
(Ly1)**



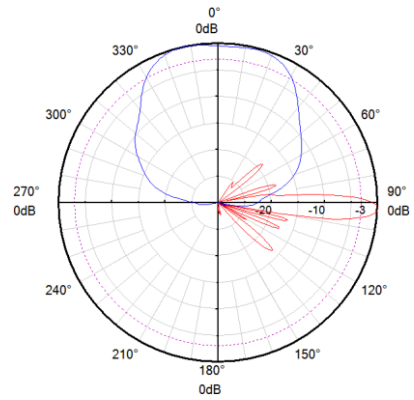
**1427 - 2690 MHz  
(Ry3)**

# ASI4518R42v06

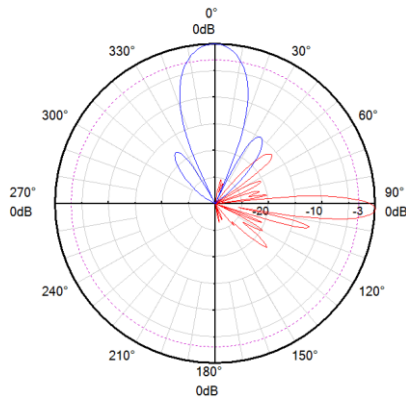
DXXXXXX-690-960/690-960/1427-2690/1427-2690/1695-2690/2300-3800-  
6x65-15.5i/15.5i/17.5i/17.5i/17.5i/17i-M/M/M/M/M/M-R  
EasyRET 2L3H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
6 Integrated RCUs - 2.0m



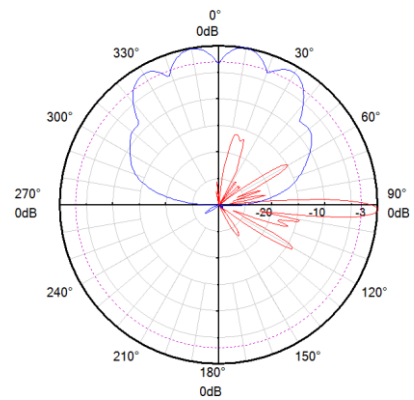
**Single column  
(2300 - 3800 MHz)**



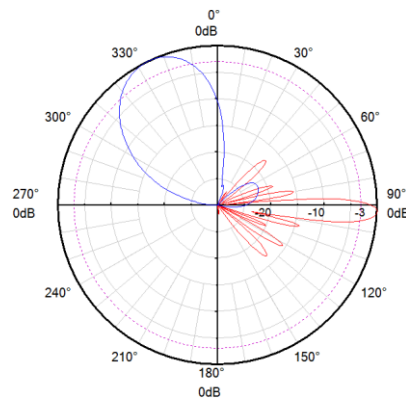
**65° Broadcast  
(2300 - 3800 MHz)**



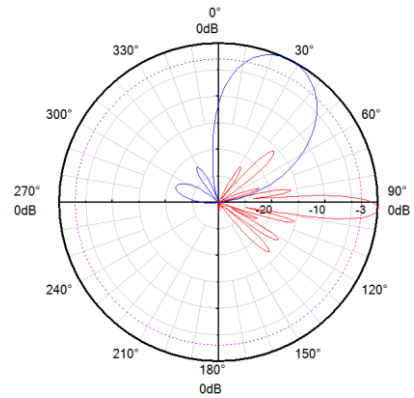
**Service 0°  
(2300 - 3800 MHz)**



**5G NR Broadcast  
(3300 - 3800 MHz)**



**Multi-Beam-30°  
(2300 - 2690 MHz)**



**Multi-Beam+30°  
(2300 - 2690 MHz)**

FDD +  
NR/TDD



# A134521R0v06

D13X-2x(690-960)/2x(1427-2690)/1695-2690/4x(2300-2690)/4x(3300-3800)-7x65-15.5i/15.5i/17.5i/17.5i/17.5i/16i/21i-7xM-R

EasyRET 26-port 2L3H FDD/2.3-2.6 & 3.3-3.8GHz 8T8R TDD Antenna with 7 Integrated RCUs - 2.0m



## Antenna Specifications

| Electrical Properties  |                |  |           |           |           |
|--|----------------|--|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 2 x (690 - 960) (Lr1 / Rr2)                            |           |           |           |
|  |                | 690 - 803  | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45° , -45°  |           |           |           |
| Electrical downtilt (°)  |                | 0 - 10 , continuously adjustable, each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 14.8   | 15.1      | 15.3      | 15.6      |
|  | over all Tilts | 14.7 ±0.5  | 15 ±0.5   | 15.2 ±0.5 | 15.5 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15   | > 15      | > 16      | > 16      |
| Horizontal 3dB beam width (°)                                  |                | 67 ±7  | 64 ±5     | 62 ±5     | 60 ±6     |
| Vertical 3dB beam width (°)                                    |                | 10.8 ±0.8  | 9.9 ±0.7  | 9.5 ±0.6  | 8.9 ±0.6  |
| VSWR   |                | < 1.5  |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28   |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 28   |           |           |           |
| Front to back ratio , ±30° (dB)                                |                | > 20   | > 22      | > 23      | > 23      |
| Cross polar ratio (dB)   | 0°             | > 18   | > 18      | > 18      | > 18      |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                     |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                            |           |           |           |
| Impedance (Ω)  |                | 50   |           |           |           |
| Grounding  |                | DC Ground  |           |           |           |

| Electrical Properties  |                |  |             |             |             |             |                                    |             |             |             |
|--|----------------|--|-------------|-------------|-------------|-------------|------------------------------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (1427 - 2690) (LTy2 / RTy4)                        |             |             |             |             | 1695 - 2690 (CTy3)                 |             |             |             |
|  |                | 1427 - 1518  | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45° , -45°  |             |             |             |             | +45° , -45°                        |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12 , continuously adjustable, each band separately |             |             |             |             | 2 - 12 , continuously adjustable   |             |             |             |
| Gain (dBi)   | at mid Tilt    | 15.8   | 16.7        | 17          | 17          | 17.4        | 16.8                               | 17.1        | 17.1        | 17.5        |
|  | over all Tilts | 15.7 ±0.5  | 16.6 ±0.5   | 16.9 ±0.5   | 16.9 ±0.8   | 17.3 ±0.6   | 16.7 ±0.5                          | 17 ±0.5     | 17 ±0.6     | 17.4 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16   | > 16        | > 16        | > 16        | > 16        | > 16                               | > 16        | > 17        | > 17        |
| Horizontal 3dB beam width (°)                                  |                | 70 ±6  | 66 ±4       | 68 ±5       | 65 ±6       | 58 ±6       | 61 ±5                              | 64 ±5       | 61 ±5       | 61 ±5       |
| Vertical 3dB beam width (°)                                    |                | 8.9 ±0.5   | 7.2 ±0.6    | 6.5 ±0.6    | 5.6 ±0.5    | 5.1 ±0.5    | 7.2 ±0.5                           | 6.4 ±0.5    | 5.7 ±0.4    | 5.2 ±0.4    |
| VSWR   |                | < 1.5  | < 1.5       |             |             | < 1.5       |                                    |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28   | ≥ 28        |             |             | ≥ 28        |                                    |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28   | ≥ 28        |             |             | ≥ 28        |                                    |             |             |             |
| Front to back ratio , ±30° (dB)                                |                | > 25   | > 26        | > 26        | > 26        | > 25        | > 27                               | > 27        | > 26        | > 25        |
| Cross polar ratio (dB)   | 0°             | > 18   | > 18        | > 18        | > 18        | > 18        | > 18                               | > 18        | > 18        | > 18        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                     |             |             |             |             | 250 (at 50°C ambient temperature)* |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                            |             |             |             |             | ≤ -150 (2 x 43 dBm carrier)        |             |             |             |
| Impedance (Ω)  |                | 50   |             |             |             |             | 50                                 |             |             |             |
| Grounding  |                | DC Ground  |             |             |             |             | DC Ground                          |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).

2. Electrical datasheet in XML format is available.

# A134521R0v06

D13X-2x(690-960)/2x(1427-2690)/1695-2690/4x(2300-2690)/4x(3300-3800)-7x65-15.5i/15.5i/17.5i/17.5i/17.5i/16i/21i-7xM-R

EasyRET 26-port 2L3H FDD/2.3-2.6 & 3.3-3.8GHz 8T8R TDD Antenna with 7 Integrated RCUs - 2.0m



## General Electrical Properties

| General parameter s                    | Frequency range (MHz)   | 2300 - 2690 (By1)                 | 3300 - 3800 (p1)                  |
|--|---|-----------------------------------|-----------------------------------|
|  | Polarization  |                                   | +45°, -45°                        |
| Electrical downtilt (°)                |   | 2 - 12, continuously adjustable   | 2 - 12, continuously adjustable   |
| Electrical downtilt tolerance (°)      |   | ±1                                | ±1                                |
| Max. power per input (W)               |   | 60 (at 50°C ambient temperature)* | 60 (at 50°C ambient temperature)* |
| Impedance (Ω)                          |   | 50                                | 50                                |
| Grounding                              |   | DC Ground                         | DC Ground                         |
| Calibration and electrical parameter s | Coupling factor between calibration port and each antenna port (dB) | -26 ±2                            | -26 ±2                            |
|  | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.8                               | 1.0                               |
|  | Max. phase tolerance from calibration port to input ports (°)       | 6                                 | 8                                 |
|  | Ports VSWR  | 1.5                               | 1.5                               |
|  | Co-polarization isolation between ports (dB)                        | ≥ 20                              | ≥ 20                              |
|  | Cross-polarization isolation between ports (dB)                     | ≥ 23                              | ≥ 23                              |
|  | Interband isolation (dB)  | ≥ 25                              |                                   |

\* Total power : 1000 W (at 50°C ambient temperature)

## TDD LTE Electrical Properties

| Radiation parameters   | Frequency range (MHz)  | 2300 - 2690 (By1) | 3300 - 3800 (p1) |
|--|--|-------------------|------------------|
|  | Single column beam   | Gain (dBi)        | 14.5             |
| Horizontal 3dB beam width (°)                                  |  | 90                | 70               |
| Front to back ratio (dB)                                       |  | ≥ 24              | ≥ 24             |
| Cross polar ratio (0°) (dB)                                    |  | ≥ 16              | ≥ 15             |
| Vertical 3dB beam width (°)                                    |  | 8.2               | 5.6              |
| Side lobe suppression for first side lobe above main beam (dB) |  | ≥ 15              | ≥ 15             |
| 65° Broadcast beam   | Gain (dBi)   | 16.0              | 16.8             |
|  | Horizontal 3dB beam width (°)                                  | 65                | 68               |
|  | Front to back ratio (dB)                                       | ≥ 25              | ≥ 24             |
|  | Cross polar ratio (0°) (dB)                                    | ≥ 17              | ≥ 16             |
|  | Vertical 3dB beam width (°)                                    | 8.2               | 5.6              |
| Service beam   | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15              | ≥ 15             |
|  | 0°direct beam gain (dBi)                                       | 19.8              | 20.8             |
|  | 0°direction beam horizontal 3dB beam width (°)                 | 26                | 20               |
|  | 0°direction beam front to back ratio (dB)                      | ≥ 28              | ≥ 28             |
| Soft split multi-beam  | 0°direction beam cross polar ratio (dB)                        | ≥ 19              | ≥ 19             |
|  | Gain (dBi)   | 19.0              | /                |
|  | Horizontal 3dB beam width (°)                                  | 32                | /                |
|  | Front to back ratio (dB)                                       | ≥ 28              | /                |
| Cross polar ratio at boresight (dB)                            | ≥ 18   | /                 |                  |

Notes:

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

FDD + NR/TDD

# A134521R0v06

D13X-2x(690-960)/2x(1427-2690)/1695-2690/4x(2300-2690)/4x(3300-3800)-7x65-15.5i/15.5i/17.5i/17.5i/17.5i/16i/21i-7xM-R

EasyRET 26-port 2L3H FDD/2.3-2.6 & 3.3-3.8GHz 8T8R TDD Antenna with 7 Integrated RCUs - 2.0m



## 5G NR Electrical Properties

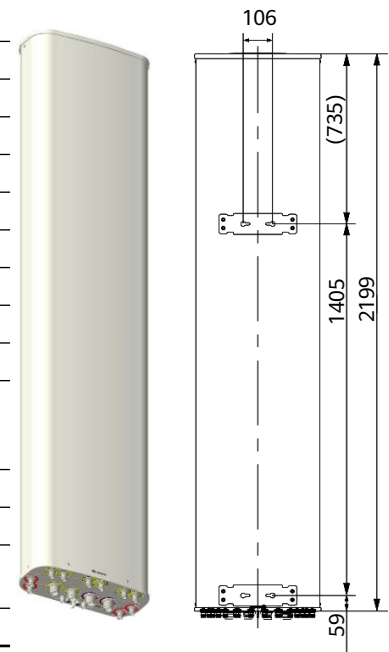
| Frequency range (MHz) |   | 2300 - 2690 (By1)  | 3300 - 3800 (p1) |      |
|-----------------------|---|--|------------------|------|
| Radiation parameters  | Single column beam                                    | Gain (dBi)   | /                | 15.3 |
|                       |   | Horizontal 3dB beam width (°)                                  | /                | 70   |
|                       |   | Front to back ratio (dB)                                       | /                | ≥ 24 |
|                       |   | Cross polar ratio (0°) (dB)                                    | /                | ≥ 15 |
|                       |   | Vertical 3dB beam width (°)                                    | /                | 5.6  |
|                       |   | Side lobe suppression for first side lobe above main beam (dB) | /                | ≥ 15 |
|                       | NR Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Gain (dBi)   | /                | 20.6 |
|                       |   | Horizontal 3dB beam width (°)                                  | /                | 65   |
|                       |   | Front to back ratio (dB)                                       | /                | ≥ 25 |
|                       |   | Vertical 3dB beam width (°)                                    | /                | 5.6  |
|                       | NR Service beam                                       | 0°direct beam gain (dBi)                                       | /                | 20.8 |
|                       |   | 0°direction beam horizontal 3dB beam width (°)                 | /                | 20   |
|                       |   | 0°direction beam front to back ratio (dB)                      | /                | ≥ 28 |
|                       |   | 0°direction beam cross polar ratio (0°) (dB)                   | /                | ≥ 19 |

### Notes:

- The 5G NR broadcast beam is the envelope of SSB(synchronization signal block) sweeping beams and the gain is the maximum gain of SSB sweeping beams.
- Downlink broadcast beam gain values and pattern files can only be used for broadcast channel coverage prediction.
- Downlink and uplink budgets need to be calculated based on the gain of single column beam and the correct Tx/Rx number.

## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Distance between TDD columns (mm)   | 55 @2300-2690<br>53 @3300-3800   |
| Antenna dimensions (H x W x D) (mm) | 2199 x 449 x 196   |
| Packing dimensions (H x W x D) (mm) | 2410 x 540 x 245   |
| Antenna weight (kg)                 | 47.2   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 62.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | GFRPP  |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 645 (at 150 km/h)<br>Lateral: 395 (at 150 km/h)<br>Maximum: 850 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 10 x 4.3-10 Female<br>2 x MQ4 Male + 2 x MQ5 Male                                      |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12° | 3.1 kg | 1 (Separate packing) |

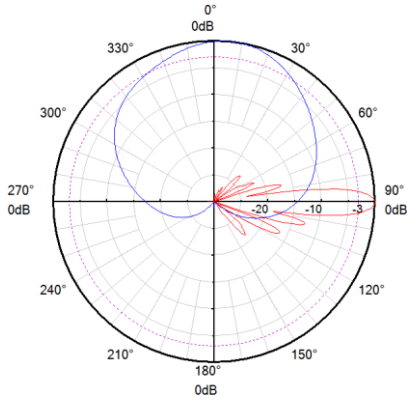
# A134521R0v06

D13X-2x(690-960)/2x(1427-2690)/1695-2690/4x(2300-2690)/4x(3300-3800)-7x65-15.5i/15.5i/17.5i/17.5i/17.5i/16i/21i-7xM-R

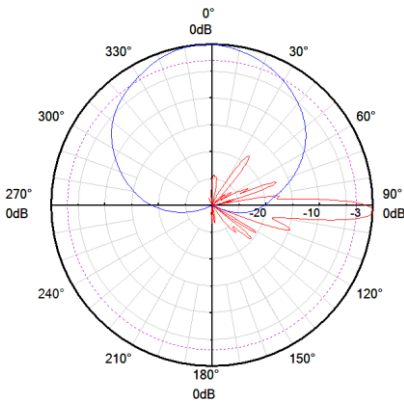
EasyRET 26-port 2L3H FDD/2.3-2.6 & 3.3-3.8GHz 8T8R TDD Antenna with 7 Integrated RCUs - 2.0m



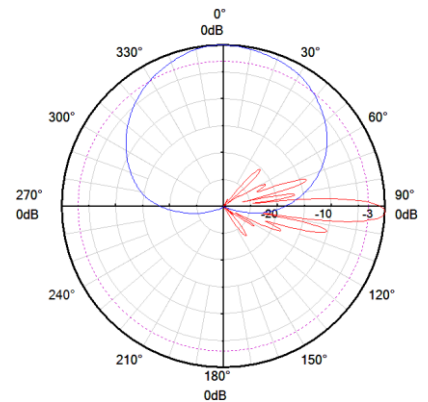
## Pattern sample for reference



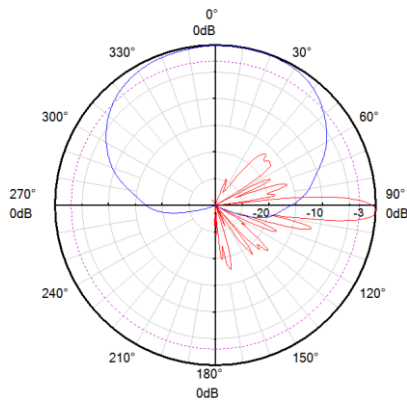
**690 - 960 MHz  
(Lr1 / Rr2)**



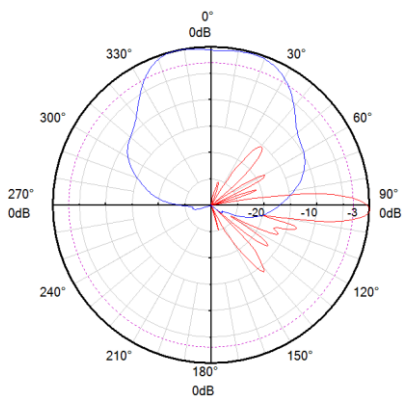
**1427 - 2690 MHz  
(LTy2 / RTy4)**



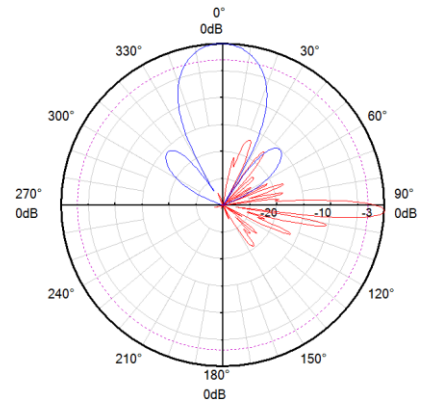
**1695 - 2690 MHz  
(CTy3)**



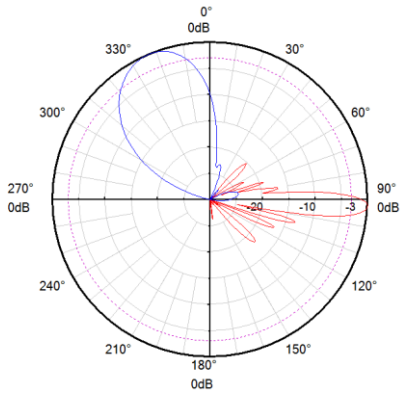
**Single column  
(2300 - 2690 MHz)**



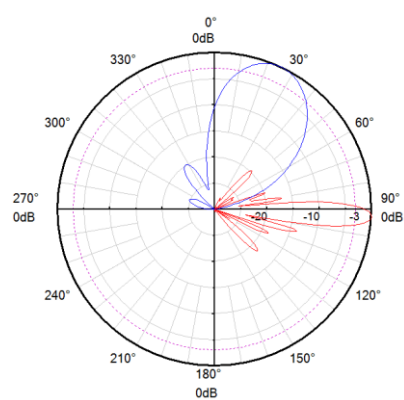
**65° Broadcast  
(2300 - 2690 MHz)**



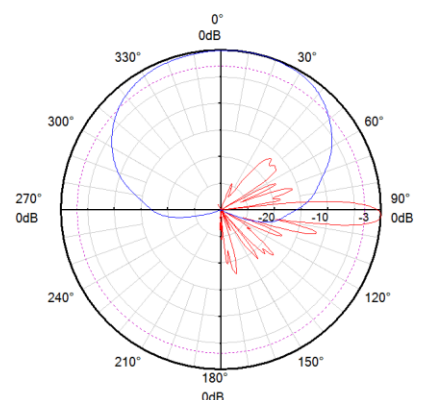
**Service 0°  
(2300 - 2690 MHz)**



**Multi-Beam-30°  
(2300 - 2690 MHz)**



**Multi-Beam+30°  
(2300 - 2690 MHz)**



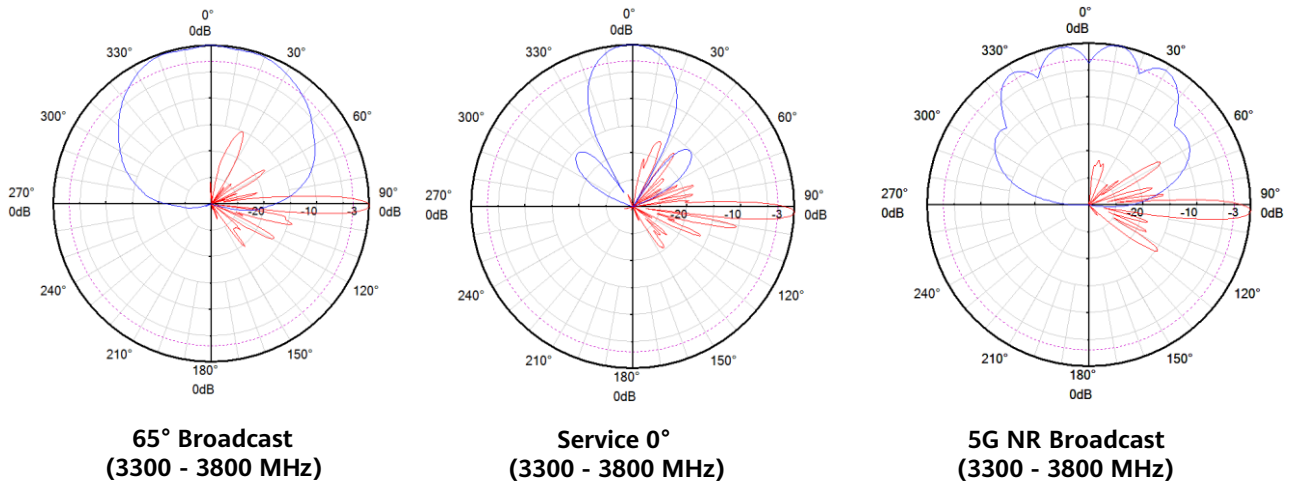
**Single column  
(3300 - 3800 MHz)**

FDD + NR/TDD

# A134521R0v06

D13X-2x(690-960)/2x(1427-2690)/1695-2690/4x(2300-2690)/4x(3300-3800)-7x65-15.5i/15.5i/17.5i/17.5i/17.5i/16i/21i-7xM-R

EasyRET 26-port 2L3H FDD/2.3-2.6 & 3.3-3.8GHz 8T8R TDD Antenna with 7 Integrated RCUs - 2.0m



## Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |          |         |             |          |    |           |     |
|----------------------------------|--|----------|---------|-------------|----------|----|-----------|-----|
| RET type                         | Integrated RET   |          |         |             |          |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |          |         |             |          |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |          |         |             |          |    |           |     |
| Power consumption (W)            | < 1.5 (when the motor does not work, 12 V)<br>< 6 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |          |         |             |          |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |          |         |             |          |    |           |     |
| Connectors                       | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |          |         |             |          |    |           |     |
| Pin assignment according AISG    | 1  | 2        | 3       | 4           | 5        | 6  | 7         | 8   |
|                                  | DC   | n/c      | RS-485B | n/c         | RS-485A  | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |          |         |             |          |    |           |     |
| RAE Properties                   |  |          |         |             |          |    |           |     |
| RAE type                         | Integrated RAE   |          |         |             |          |    |           |     |
| RAE protocols                    | AISG-ES-RAE V2.1.0   |          |         |             |          |    |           |     |
| TDD LTE EasyBeam Properties      |  |          |         |             |          |    |           |     |
| Frequency range (MHz)            | 2300 - 2690  |          |         | 3300 - 3800 |          |    |           |     |
| Electrical downtilt (°)          | 2 - 12   |          |         | 2 - 12      |          |    |           |     |
| Broadcast beam                   | Horizontal 3dB beam width (°)  | 30       | 65      | 90          | 30       | 65 | 90        |     |
|                                  | Electrical azimuth (°)   | -15..+15 |         | 0           | -15..+15 |    | 0         |     |
|                                  | Electrical azimuth step(°)   | 1        |         | /           | 1        |    | /         |     |

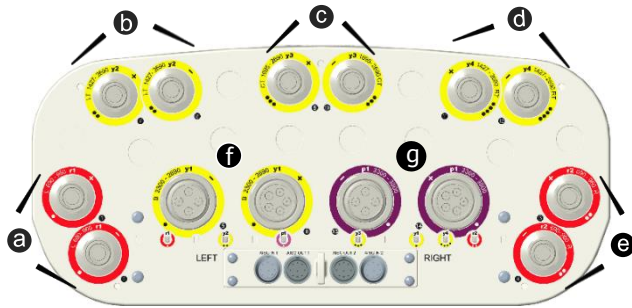
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

# A134521R0v06

D13X-2x(690-960)/2x(1427-2690)/1695-2690/4x(2300-2690)/4x(3300-3800)-7x65-15.5i/15.5i/17.5i/17.5i/17.5i/16i/21i-7xM-R

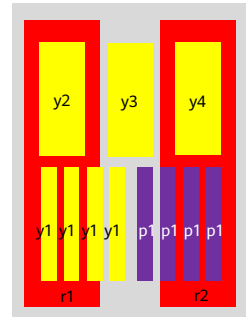
EasyRET 26-port 2L3H FDD/2.3-2.6 & 3.3-3.8GHz 8T8R TDD Antenna with 7 Integrated RCUs - 2.0m



r - Red      y - Yellow      p - Purple  
 L - Left array    R - Right array    C - Center array  
 T - Top            B - Bottom

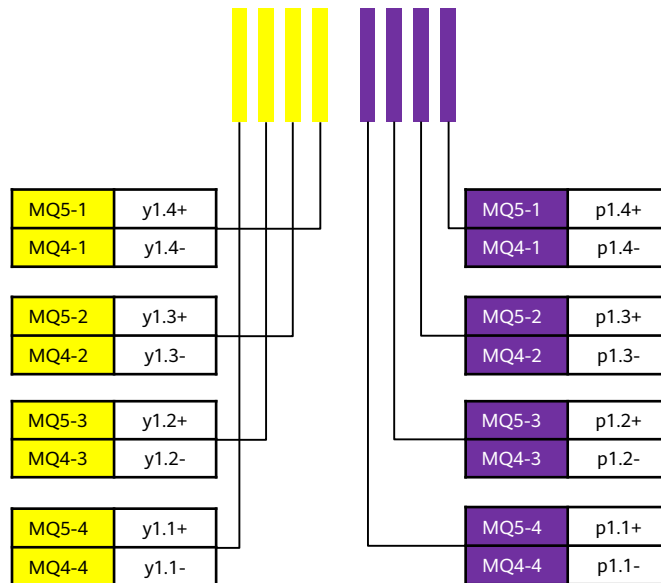
## Integrated RET S/N:

- a** HWMxxx.....Lr1
- b** HWMxxx.....LTy2
- c** HWMxxx.....CTy3
- d** HWMxxx.....RTy4
- e** HWMxxx.....Rr2
- f** HWMxxx.....By1
- g** HWMxxx.....p1



## Integrated RAE S/N:

- f** HWXxxx.....By1
- g** HWXxxx.....p1



FDD + NR/TDD

# A104521R3v06

D10X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)-7x65-15.5i/15.5i/17.5i/17.5i/17.5i/17.5i/21i-7xM-R

EasyRET 20-port 2L4H FDD/2.3-3.8GHz 8T8R TDD Antenna with Integrated RCU - 2.0m



## Preliminary Issue

| Electrical Properties  |  |           |           |           |
|--|--|-----------|-----------|-----------|
| Frequency range (MHz)  | 2 x (690 - 960)  |           |           |           |
|  | 690 - 803  | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   | +45° , -45°  |           |           |           |
| Electrical downtilt (°)  | 2 - 12 , continuously adjustable, each band separately |           |           |           |
| Gain (dBi)   | 14.6   | 14.9      | 15.1      | 15.3      |
| Side lobe suppression for first side lobe above main beam (Typ. ) (dB) | 16   | 16        | 16        | 16        |
| Horizontal 3dB beam width (°)  | 70   | 69        | 68        | 66        |
| Vertical 3dB beam width (°)  | 10.8   | 10.0      | 9.5       | 8.9       |
| VSWR   | < 1.5  |           |           |           |
| Cross polar isolation (dB)   | ≥ 26   |           |           |           |
| Interband isolation (dB)   | ≥ 26   |           |           |           |
| Front to back ratio , ±30° (dB)  | Typ. 21  | Typ. 22   | Typ. 22   | Typ. 22   |
| Cross polar ratio (dB)   0°  | Typ. 18  | Typ. 18   | Typ. 18   | Typ. 18   |
| Intermodulation IM3 (dBc)  | ≤ -150 (2 x 43 dBm carrier)                            |           |           |           |

| Electrical Properties  |  |             |             |             |             |
|--|--|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  | 2 x (1427 - 2690)                                      |             |             |             |             |
|  | 1427 - 1518  | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   | +45° , -45°  |             |             |             |             |
| Electrical downtilt (°)  | 2 - 12 , continuously adjustable, each band separately |             |             |             |             |
| Gain (dBi)   | 15.3   | 16.6        | 17.0        | 17.3        | 17.4        |
| Side lobe suppression for first side lobe above main beam (Typ. ) (dB) | 16   | 16          | 16          | 16          | 16          |
| Horizontal 3dB beam width (°)  | 73   | 67          | 65          | 61          | 58          |
| Vertical 3dB beam width (°)  | 8.9  | 7.7         | 6.9         | 6.2         | 5.5         |
| VSWR   | < 1.5  | < 1.5       |             |             |             |
| Cross polar isolation (dB)   | ≥ 26   | ≥ 26        |             |             |             |
| Interband isolation (dB)   | ≥ 26   | ≥ 26        |             |             |             |
| Front to back ratio , ±30° (dB)  | Typ. 25  | Typ. 25     | Typ. 25     | Typ. 25     | Typ.25      |
| Cross polar ratio (dB)   0°  | Typ. 18  | Typ. 18     | Typ. 18     | Typ. 18     | Typ. 18     |
| Intermodulation IM3 (dBc)  | ≤ -150 (2 x 43 dBm carrier)                            |             |             |             |             |

# A104521R3v06

D10X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)-7x65-15.5i/15.5i/17.5i/17.5i/17.5i/17.5i/21i-7xM-R  
 EasyRET 20-port 2L4H FDD/2.3-3.8GHz 8T8R TDD Antenna with Integrated RCUs - 2.0m



## Electrical Properties

| Frequency range (MHz)  | 2 x (1695 - 2690)                                      |             |             |             |
|--|--|-------------|-------------|-------------|
|  | 1695 - 1990  | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   | +45° , -45°  |             |             |             |
| Electrical downtilt (°)  | 2 - 12 , continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | 16.6   | 17.0        | 17.3        | 17.4        |
| Side lobe suppression for first side lobe above main beam (Typ. ) (dB) | 16   | 16          | 16          | 16          |
| Horizontal 3dB beam width (°)  | 67   | 65          | 62          | 58          |
| Vertical 3dB beam width (°)  | 7.7  | 7.0         | 6.2         | 5.5         |
| VSWR   | < 1.5  |             |             |             |
| Cross polar isolation (dB)   | ≥ 26   |             |             |             |
| Interband isolation (dB)   | ≥ 26   |             |             |             |
| Front to back ratio , ±30° (dB)  | Typ. 24  | Typ. 25     | Typ. 25     | Typ. 25     |
| Cross polar ratio (dB)   0°  | Typ. 18  | Typ. 18     | Typ. 18     | Typ. 18     |
| Intermodulation IM3 (dBc)  | ≤ -150 (2 x 43 dBm carrier)                            |             |             |             |

## General Electrical Properties

| General parameters  | Frequency range (MHz)           | 2300 - 3800 |             |
|---|---------------------------------|-------------|-------------|
|   |                                 | 2300 - 2690 | 3300 - 3800 |
| Polarization  | +45° , -45°                     |             |             |
| Electrical downtilt (°)   | 2 - 12, continuously adjustable |             |             |
| Ports VSWR  | 1.5                             |             |             |
| Coupling factor between calibration port and each antenna port (dB) | -26 ±2                          | -26 ±2      |             |

FDD + NR/TDD



# A104521R3v06

D10X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)-7x65-

15.5i/15.5i/17.5i/17.5i/17.5i/17.5i/21i-7xM-R

EasyRET 20-port 2L4H FDD/2.3-3.8GHz 8T8R TDD Antenna with Integrated RCU - 2.0m



## TDD LTE Electrical Properties

| Frequency range (MHz)               |                       | 2300 - 3800  |             |         |
|-------------------------------------|-----------------------|--|-------------|---------|
|                                     |                       | 2300 - 2690  | 3300 - 3800 |         |
| Radiation parameters                | Single column beam    | Gain (dBi)   | 15.0        | 15.7    |
|                                     |                       | Horizontal 3dB beam width (°)  | 90          | 70      |
|                                     |                       | Front to back ratio (dB)   | Typ. 25     | Typ. 25 |
|                                     |                       | Cross polar ratio (0°) (dB)  | Typ. 16     | Typ. 15 |
|                                     |                       | Vertical 3dB beam width (°)  | 8.0         | 5.5     |
|                                     |                       | Side lobe suppression for first side lobe above main beam (Typ. ) (dB) | 15          | 15      |
|                                     | 65° Broadcast beam    | Gain (dBi)   | 16.0        | 16.8    |
|                                     |                       | Horizontal 3dB beam width (°)  | 65          | 65      |
|                                     |                       | Front to back ratio (dB)   | Typ. 26     | Typ. 25 |
|                                     |                       | Cross polar ratio (0°) (dB)  | Typ. 17     | Typ. 16 |
|                                     |                       | Side lobe suppression for first side lobe above main beam (Typ. ) (dB) | 15          | 15      |
|                                     | Service beam          | 0°direct beam gain (dBi)   | 20.0        | 21.1    |
|                                     |                       | 0°direction beam horizontal 3dB beam width (°)                         | 26          | 19      |
|                                     |                       | 0°direction beam front to back ratio (dB)                              | Typ. 30     | Typ. 30 |
|                                     |                       | 0°direction beam cross polar ratio (dB)                                | Typ. 19     | Typ. 19 |
|                                     | Soft split multi-beam | Gain (dBi)   | 19          | /       |
| Horizontal 3dB beam width (°)       |                       | 32   | /           |         |
| Front to back ratio (dB)            |                       | Typ. 30  | /           |         |
| Cross polar ratio at boresight (dB) |                       | Typ. 19  | /           |         |

### Notes:

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

## 5G NR Electrical Properties

| Frequency range (MHz) |   | 2300 - 3800  |             |         |
|-----------------------|---|--|-------------|---------|
|                       |   | 2300 - 2690  | 3300 - 3800 |         |
| Radiation parameters  | Single column beam                                    | Gain (dBi)   | /           | 15.7    |
|                       |   | Horizontal 3dB beam width (°)  | /           | 70      |
|                       |   | Front to back ratio (dB)   | /           | Typ. 25 |
|                       |   | Cross polar ratio (0°) (dB)  | /           | Typ. 15 |
|                       |   | Side lobe suppression for first side lobe above main beam (Typ. ) (dB) | /           | 15      |
|                       | NR Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Gain (dBi)   | /           | 20.8    |
|                       |   | Horizontal 3dB beam width (°)  | /           | 65      |
|                       |   | Front to back ratio (dB)   | /           | Typ. 30 |
|                       |   | Side lobe suppression for first side lobe above main beam (Typ. ) (dB) | /           | 15      |
|                       | NR Service beam                                       | 0°direct beam gain (dBi)   | /           | 21.1    |
|                       |   | 0°direction beam horizontal 3dB beam width (°)                         | /           | 20      |
|                       |   | 0°direction beam front to back ratio (dB)                              | /           | Typ. 30 |
|                       |   | 0°direction beam cross polar ratio (0°) (dB)                           | /           | Typ. 19 |

### Notes:

1. The 5G NR broadcast beam is the envelope of SSB(synchronization signal block) sweeping beams and the gain is the maximum gain of SSB sweeping beams.
2. Downlink broadcast beam gain values and pattern files can only be used for broadcast channel coverage prediction.
3. Downlink and uplink budgets need to be calculated based on the gain of single column beam and the correct Tx/Rx number.

# A104521R3v06

D10X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)-7x65-15.5i/15.5i/17.5i/17.5i/17.5i/17.5i/21i-7xM-R

EasyRET 20-port 2L4H FDD/2.3-3.8GHz 8T8R TDD Antenna with Integrated RCUs - 2.0m



## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 2099 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 2400 x 550 x 250   |
| Antenna weight (kg)                 | 43   |
| Wind load (N)                       | Frontal: 630 (at 150 km/h)<br>Lateral: 390 (at 150 km/h)<br>Maximum: 835 (at 150 km/h) |
| Connector                           | 12 x 4.3-10 Female<br>1 x MQ4 Male + 1 x MQ5 Male                                      |
| RET type                            | Integrated RET   |
| RET protocols                       | AISG 2.0 / 3GPP  |

# A104521R0v06

D10X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)-7x65-16.5i/16.5i/17.5i/17.5i/17.5i/17.5i/21i-7xM-R  
 EasyRET 2L4H FDD/2.3-3.8GHz 8T8R TDD Antenna with Integrated RCUs - 2.6m



## Preliminary Issue

| Electrical Properties  |  |           |           |           |
|--|--|-----------|-----------|-----------|
| Frequency range (MHz)  | 2 x (690 - 960)  |           |           |           |
|  | 690 - 803  | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   | +45° , -45°  |           |           |           |
| Electrical downtilt (°)  | 2 - 12 , continuously adjustable, each band separately |           |           |           |
| Gain (dBi)   | 15.4   | 15.8      | 16.0      | 16.2      |
| Side lobe suppression for first side lobe above main beam (Typ. ) (dB) | 15   | 16        | 15        | 15        |
| Horizontal 3dB beam width (°)  | 70   | 68        | 65        | 63        |
| Vertical 3dB beam width (°)  | 8.7  | 8.0       | 7.8       | 7.3       |
| VSWR   | < 1.5  |           |           |           |
| Cross polar isolation (dB)   | ≥ 26   |           |           |           |
| Interband isolation (dB)   | ≥ 26   |           |           |           |
| Front to back ratio , ±30° (dB)  | Typ. 21  | Typ. 22   | Typ. 22   | Typ. 22   |
| Cross polar ratio (dB)   0°  | Typ. 18  | Typ. 18   | Typ. 18   | Typ. 18   |
| Intermodulation IM3 (dBc)  | ≤ -150 (2 x 43 dBm carrier)                            |           |           |           |

| Electrical Properties  |  |             |             |             |             |
|--|--|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  | 2 x (1427 - 2690)                                      |             |             |             |             |
|  | 1427 - 1518  | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   | +45° , -45°  |             |             |             |             |
| Electrical downtilt (°)  | 2 - 12 , continuously adjustable, each band separately |             |             |             |             |
| Gain (dBi)   | 15.4   | 16.6        | 17.0        | 17.3        | 17.4        |
| Side lobe suppression for first side lobe above main beam (Typ. ) (dB) | 16   | 16          | 16          | 16          | 16          |
| Horizontal 3dB beam width (°)  | 73   | 67          | 65          | 61          | 58          |
| Vertical 3dB beam width (°)  | 8.9  | 7.1         | 6.4         | 5.6         | 5.2         |
| VSWR   | < 1.5  | < 1.5       |             |             |             |
| Cross polar isolation (dB)   | ≥ 26   | ≥ 26        |             |             |             |
| Interband isolation (dB)   | ≥ 26   | ≥ 26        |             |             |             |
| Front to back ratio , ±30° (dB)  | Typ. 23  | Typ. 25     | Typ. 25     | Typ. 25     | Typ.25      |
| Cross polar ratio (dB)   0°  | Typ. 18  | Typ. 18     | Typ. 18     | Typ. 18     | Typ. 18     |
| Intermodulation IM3 (dBc)  | ≤ -150 (2 x 43 dBm carrier)                            |             |             |             |             |

# A104521R0v06

D10X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)-7x65-16.5i/16.5i/17.5i/17.5i/17.5i/17.5i/21i-7xM-R  
 EasyRET 2L4H FDD/2.3-3.8GHz 8T8R TDD Antenna with Integrated RCU - 2.6m



## Electrical Properties

| Frequency range (MHz)  | 2 x (1695 - 2690)                                      |             |             |             |
|--|--|-------------|-------------|-------------|
|  | 1695 - 1990  | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   | +45° , -45°  |             |             |             |
| Electrical downtilt (°)  | 2 - 12 , continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | 16.6   | 17.0        | 17.3        | 17.4        |
| Side lobe suppression for first side lobe above main beam (Typ. ) (dB) | 16   | 16          | 16          | 16          |
| Horizontal 3dB beam width (°)  | 67   | 65          | 62          | 58          |
| Vertical 3dB beam width (°)  | 7.1  | 6.4         | 5.6         | 5.2         |
| VSWR   | < 1.5  |             |             |             |
| Cross polar isolation (dB)   | ≥ 26   |             |             |             |
| Interband isolation (dB)   | ≥ 26   |             |             |             |
| Front to back ratio , ±30° (dB)  | Typ. 25  | Typ. 25     | Typ. 25     | Typ. 25     |
| Cross polar ratio (dB)   | 0°   | Typ. 18     | Typ. 18     | Typ. 18     |
| Intermodulation IM3 (dBc)  | ≤ -150 (2 x 43 dBm carrier)                            |             |             |             |

## General Electrical Properties

| General parameters  | Frequency range (MHz)           | 2300 - 3800 |             |
|---|---------------------------------|-------------|-------------|
|   |                                 | 2300 - 2690 | 3300 - 3800 |
| Polarization  | +45° , -45°                     |             |             |
| Electrical downtilt (°)   | 2 - 12, continuously adjustable |             |             |
| Ports VSWR  | 1.5                             |             |             |
| Coupling factor between calibration port and each antenna port (dB) | -26 ±2                          | -26 ±2      |             |

FDD + NR/TDD

# A104521R0v06

D10X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)-7x65-16.5i/16.5i/17.5i/17.5i/17.5i/17.5i/21i-7xM-R  
 EasyRET 2L4H FDD/2.3-3.8GHz 8T8R TDD Antenna with Integrated RCU - 2.6m



## TDD LTE Electrical Properties

| Frequency range (MHz)               |                       | 2300 - 3800  |             |         |
|-------------------------------------|-----------------------|--|-------------|---------|
|                                     |                       | 2300 - 2690  | 3300 - 3800 |         |
| Radiation parameters                | Single column beam    | Gain (dBi)   | 15.0        | 15.7    |
|                                     |                       | Horizontal 3dB beam width (°)  | 90          | 70      |
|                                     |                       | Front to back ratio (dB)   | Typ. 25     | Typ. 25 |
|                                     |                       | Cross polar ratio (0°) (dB)  | Typ. 16     | Typ. 15 |
|                                     |                       | Vertical 3dB beam width (°)  | 8.0         | 5.5     |
|                                     |                       | Side lobe suppression for first side lobe above main beam (Typ. ) (dB) | 15          | 15      |
|                                     | 65° Broadcast beam    | Gain (dBi)   | 16.0        | 16.8    |
|                                     |                       | Horizontal 3dB beam width (°)  | 65          | 65      |
|                                     |                       | Front to back ratio (dB)   | Typ. 26     | Typ. 25 |
|                                     |                       | Cross polar ratio (0°) (dB)  | Typ. 17     | Typ. 16 |
|                                     | Service beam          | 0°direct beam gain (dBi)   | 20.0        | 21.1    |
|                                     |                       | 0°direction beam horizontal 3dB beam width (°)                         | 26          | 19      |
|                                     |                       | 0°direction beam front to back ratio (dB)                              | Typ. 30     | Typ. 30 |
|                                     |                       | 0°direction beam cross polar ratio (dB)                                | Typ. 19     | Typ. 19 |
|                                     | Soft split multi-beam | Gain (dBi)   | 19          | /       |
|                                     |                       | Horizontal 3dB beam width (°)  | 32          | /       |
| Front to back ratio (dB)            |                       | Typ. 30  | /           |         |
| Cross polar ratio at boresight (dB) |                       | Typ. 19  | /           |         |

### Notes:

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

## 5G NR Electrical Properties

| Frequency range (MHz)                        |   | 2300 - 3800  |             |         |
|--|---|--|-------------|---------|
|  |   | 2300 - 2690  | 3300 - 3800 |         |
| Radiation parameters                         | Single column beam                                    | Gain (dBi)   | /           | 15.7    |
|  |   | Horizontal 3dB beam width (°)  | /           | 70      |
|  |   | Front to back ratio (dB)   | /           | Typ. 25 |
|  |   | Cross polar ratio (0°) (dB)  | /           | Typ. 15 |
|  |   | Side lobe suppression for first side lobe above main beam (Typ. ) (dB) | /           | 15      |
|  | NR Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Gain (dBi)   | /           | 20.8    |
|  |   | Horizontal 3dB beam width (°)  | /           | 65      |
|  |   | Front to back ratio (dB)   | /           | Typ. 30 |
|  |   | Side lobe suppression for first side lobe above main beam (Typ. ) (dB) | /           | 15      |
|  | NR Service beam                                       | 0°direct beam gain (dBi)   | /           | 21.1    |
|  |   | 0°direction beam horizontal 3dB beam width (°)                         | /           | 20      |
|  |   | 0°direction beam front to back ratio (dB)                              | /           | Typ. 30 |
| 0°direction beam cross polar ratio (0°) (dB) |   | /  | Typ. 19     |         |

### Notes:

- The 5G NR broadcast beam is the envelope of SSB(synchronization signal block) sweeping beams and the gain is the maximum gain of SSB sweeping beams.
- Downlink broadcast beam gain values and pattern files can only be used for broadcast channel coverage prediction.
- Downlink and uplink budgets need to be calculated based on the gain of single column beam and the correct Tx/Rx number.

# A104521R0v06

D10X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)-7x65-16.5i/16.5i/17.5i/17.5i/17.5i/17.5i/21i-7xM-R  
EasyRET 2L4H FDD/2.3-3.8GHz 8T8R TDD Antenna with Integrated RCUs - 2.6m



## Mechanical Properties

|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2550 x 499 x 206  |
| Packing dimensions (H x W x D) (mm) | 2900 x 550 x 250  |
| Antenna weight (kg)                 | 56  |
| Wind load (N)                       | Frontal: 945 (at 150 km/h)<br>Lateral: 495 (at 150 km/h)<br>Maximum: 1235 (at 150 km/h) |
| Connector                           | 12 x 4.3-10 Female<br>1 x MQ4 Male + 1 x MQ5 Male                                       |
| RET type                            | Integrated RET  |
| RET protocols                       | AISG 2.0 / 3GPP   |

# A144521R0v06

D14X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17.5i/17.5i/17.5i/21i/21i-8xM-R  
 EasyRET 2L4H FDD/2x(2.3-3.8GHz) 8T8R TDD Antenna with Integrated  
 RCUs - 2.6m



## Antenna Specifications

| Electrical Properties  |                |  |           |           |           |  |             |             |             |
|--|----------------|--|-----------|-----------|-----------|--|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (690 - 960) (Lr1/Rr2)                              |           |           |           | 2 x (1695 - 2690) (Ly1/Ry4)                            |             |             |             |
|  |                | 690 - 803  | 790 - 862 | 824 - 894 | 880 - 960 | 1695 - 1990  | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°   |           |           |           | +45°, -45°   |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12 , continuously adjustable, each band separately |           |           |           | 2 - 12 , continuously adjustable, each band separately |             |             |             |
| Gain (dBi)   | at mid Tilt    | 15.7   | 16.0      | 16.1      | 16.2      | 16.6   | 17.1        | 17.4        | 17.6        |
|  | over all Tilts | 15.6 ±0.5  | 15.9 ±0.5 | 16.0 ±0.5 | 16.0 ±0.5 | 16.5 ±0.7  | 17.0 ±0.5   | 17.3 ±0.5   | 17.5 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 17   | > 16      | > 15      | > 16      | > 16   | > 17        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 68 ±6  | 65 ±5     | 63 ±5     | 60 ±5     | 68 ±6  | 65 ±6       | 62 ±6       | 58 ±6       |
| Vertical 3dB beam width (°)                                    |                | 8.7 ±0.7   | 7.9 ±0.5  | 7.6 ±0.5  | 7.2 ±0.4  | 7.2 ±0.6   | 6.4 ±0.6    | 5.6 ±0.5    | 5.2 ±0.4    |
| VSWR   |                | < 1.5  |           |           |           | < 1.5  |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 26   |           |           |           | ≥ 26   |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 26   |           |           |           | ≥ 26   |             |             |             |
| Front to back ratio , ±30° (dB)                                |                | > 21   | > 22      | > 22      | > 22      | > 26   | > 26        | > 26        | > 25        |
| Cross polar ratio (dB)   0°                                    |                | > 18   | > 18      | > 18      | > 18      | > 18   | > 18        | > 18        | > 18        |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                     |           |           |           | 250 (at 50°C ambient temperature)*                     |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                            |           |           |           | ≤ -150 (2 x 43 dBm carrier)                            |             |             |             |
| Impedance (Ω)  |                | 50   |           |           |           | 50   |             |             |             |
| Grounding  |                | DC Ground  |           |           |           | DC Ground  |             |             |             |

| Electrical Properties  |                |  |             |             |             |             |
|--|----------------|--|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 2 x (1427 - 2690) (CLy2/CRy3)                          |             |             |             |             |
|  |                | 1427 - 1518  | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°   |             |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12 , continuously adjustable, each band separately |             |             |             |             |
| Gain (dBi)   | at mid Tilt    | 15.1   | 16.8        | 17.2        | 17.4        | 17.6        |
|  | over all Tilts | 15.0 ±0.6  | 16.7 ±0.6   | 17.1 ±0.5   | 17.3 ±0.5   | 17.5 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15   | > 16        | > 17        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 72 ±8  | 68 ±6       | 63 ±6       | 60 ±6       | 58 ±7       |
| Vertical 3dB beam width (°)                                    |                | 9.0 ±0.6   | 7.2 ±0.6    | 6.4 ±0.6    | 5.6 ±0.5    | 5.2 ±0.4    |
| VSWR   |                | < 1.5  |             | < 1.5       |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 26   |             | ≥ 26        |             |             |
| Interband isolation (dB)                                       |                | ≥ 26   |             | ≥ 26        |             |             |
| Front to back ratio , ±30° (dB)                                |                | > 23   | > 26        | > 26        | > 26        | > 24        |
| Cross polar ratio (dB)   0°                                    |                | > 18   | > 18        | > 18        | > 18        | > 18        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)*                     |             |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                            |             |             |             |             |
| Impedance (Ω)  |                | 50   |             |             |             |             |
| Grounding  |                | DC Ground  |             |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

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D14X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17.5i/17.5i/17.5i/21i/21i-8xM-R  
 EasyRET 2L4H FDD/2x(2.3-3.8GHz) 8T8R TDD Antenna with Integrated  
 RCUs - 2.6m



## General Electrical Properties

| General parameters                      | Frequency range (MHz)   | 2 x (2300 - 3800) (Lp1/Rp2)                           |             |        |
|---|---|---|-------------|--------|
|   |   | 2300 - 2690   | 3300 - 3800 |        |
|   | Polarization  | +45°, -45°  |             |        |
|   | Electrical downtilt (°)   | 2 - 12, continuously adjustable, each band separately |             |        |
|   | Electrical downtilt tolerance (°)                                   | ±1  |             |        |
|   | Avg. power capacity (W)*  | 40  |             |        |
|   | Impedance (Ω)   | 50  |             |        |
|   | Grounding   | DC Ground   |             |        |
| Calibration and electrical parameters   | Coupling factor between calibration port and each antenna port (dB) |   | -26 ±2      | -26 ±2 |
|   | Max. amplitude tolerance from calibration port to input ports (dB)  |   | 0.7         | 0.9    |
|   | Max. phase tolerance from calibration port to input ports (°)       |   | 6           | 8      |
|   | Ports VSWR  |   | 1.5         | 1.5    |
|   | Intraband isolation   | Co-polarization isolation between ports (dB)          | ≥ 20        | ≥ 20   |
|   |   | Cross-polarization isolation between ports (dB)       | ≥ 23        | ≥ 23   |
| Interband isolation between Lp1 and Rp2 |   | ≥ 22  | ≥ 26        |        |

\* Total power : 1200 W (at 50°C ambient temperature)

## TDD LTE Electrical Properties

|                                     | Frequency range (MHz) | 2 x (2300 - 3800) (Lp1/Rp2)                                    |             |      |
|-------------------------------------|-----------------------|--|-------------|------|
|                                     |                       | 2300 - 2690  | 3300 - 3800 |      |
| Radiation parameters                | Single column beam    | Gain (dBi)   | 14.8        | 15.7 |
|                                     |                       | Horizontal 3dB beam width (°)                                  | 90          | 70   |
|                                     |                       | Front to back ratio (dB)                                       | ≥ 22        | ≥ 22 |
|                                     |                       | Cross polar ratio (0°) (dB)                                    | ≥ 16        | ≥ 15 |
|                                     |                       | Vertical 3dB beam width (°)                                    | 8.0         | 5.5  |
|                                     |                       | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        | ≥ 15 |
|                                     | 65° Broadcast beam    | Gain (dBi)   | 15.8        | 17.0 |
|                                     |                       | Horizontal 3dB beam width (°)                                  | 65          | 62   |
|                                     |                       | Front to back ratio (dB)                                       | ≥ 26        | ≥ 25 |
|                                     |                       | Cross polar ratio (0°) (dB)                                    | ≥ 17        | ≥ 16 |
|                                     |                       | Vertical 3dB beam width (°)                                    | 8.0         | 5.5  |
|                                     |                       | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        | ≥ 15 |
|                                     | Service beam          | 0°direct beam gain (dBi)                                       | 19.8        | 21.0 |
|                                     |                       | 0°direction beam horizontal 3dB beam width (°)                 | 26          | 18   |
|                                     |                       | 0°direction beam front to back ratio (dB)                      | ≥ 30        | ≥ 30 |
|                                     |                       | 0°direction beam cross polar ratio (dB)                        | ≥ 18        | ≥ 18 |
|                                     | Soft split multi-beam | Gain (dBi)   | 19          | /    |
|                                     |                       | Horizontal 3dB beam width (°)                                  | 31          | /    |
| Front to back ratio (dB)            |                       | ≥ 30   | /           |      |
| Cross polar ratio at boresight (dB) |                       | ≥ 18   | /           |      |

### Notes:

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.



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D14X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17.5i/17.5i/17.5i/21i/21i-8xM-R  
 EasyRET 2L4H FDD/2x(2.3-3.8GHz) 8T8R TDD Antenna with Integrated RCU - 2.6m



## 5G NR Electrical Properties

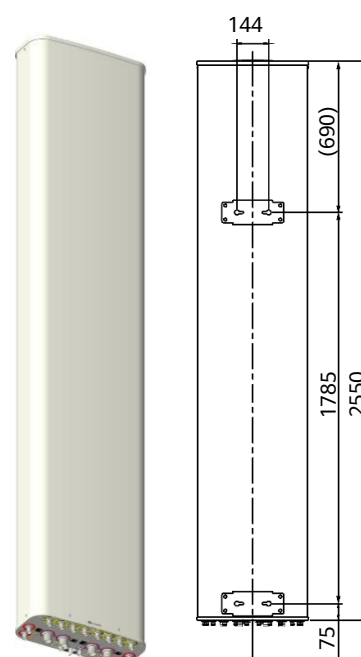
| Radiation parameters                                  | Frequency range (MHz) |  | 2 x (2300 - 3800) (Lp1/Rp2) |             |
|---|-----------------------|--|-----------------------------|-------------|
|   |                       |  | 2300 - 2690                 | 3300 - 3800 |
| Single column beam                                    |                       | Gain (dBi)   | /                           | 15.7        |
|   |                       | Horizontal 3dB beam width (°)                                  | /                           | 70          |
|   |                       | Front to back ratio (dB)                                       | /                           | ≥ 22        |
|   |                       | Cross polar ratio (0°) (dB)                                    | /                           | ≥ 15        |
|   |                       | Vertical 3dB beam width (°)                                    | /                           | 5.5         |
|   |                       | Side lobe suppression for first side lobe above main beam (dB) | /                           | ≥ 15        |
| NR Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) |                       | Gain (dBi)   | /                           | 20.7        |
|   |                       | Horizontal 3dB beam width (°)                                  | /                           | 65          |
|   |                       | Front to back ratio (dB)                                       | /                           | ≥ 25        |
|   |                       | Vertical 3dB beam width (°)                                    | /                           | 5.5         |
|   |                       | Side lobe suppression for first side lobe above main beam (dB) | /                           | ≥ 15        |
| NR Service beam                                       |                       | 0°direct beam gain (dBi)                                       | /                           | 21.0        |
|   |                       | 0°direction beam horizontal 3dB beam width (°)                 | /                           | 18          |
|   |                       | 0°direction beam front to back ratio (dB)                      | /                           | ≥ 30        |
|   |                       | 0°direction beam cross polar ratio (0°) (dB)                   | /                           | ≥ 18        |

### Notes:

- The 5G NR broadcast beam is the envelope of SSB(synchronization signal block) sweeping beams and the gain is the maximum gain of SSB sweeping beams.
- Downlink broadcast beam gain values and pattern files can only be used for broadcast channel coverage prediction.
- Downlink and uplink budgets need to be calculated based on the gain of single column beam and the correct Tx/Rx number.

## Mechanical Properties

|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 2550 x 499 x 206  |
| Packing dimensions (H x W x D) (mm) | 2810 x 555 x 250  |
| Antenna weight (kg)                 | 53.0  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 69.0 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 945 (at 150 km/h)<br>Lateral: 495 (at 150 km/h)<br>Maximum: 1235 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 12 x 4.3-10 Female<br>2 x MQ4 Male + 2 x MQ5 Male                                       |
| Connector position                  | Bottom  |

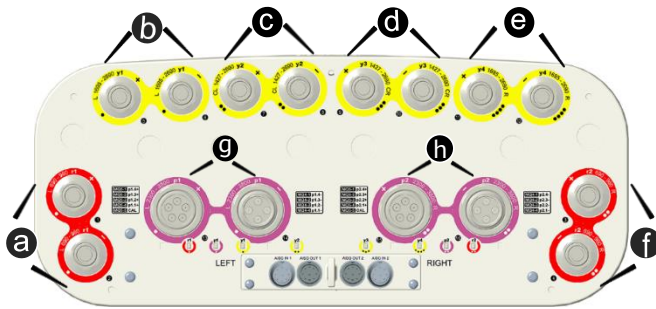


## Accessories

| Item         | Model     | Description                 | Weight | Units per antenna    |
|--------------|-----------|-----------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 8° | 3.1 kg | 1 (Separate packing) |

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D14X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17.5i/17.5i/17.5i/21i/21i-8xM-R  
 EasyRET 2L4H FDD/2x(2.3-3.8GHz) 8T8R TDD Antenna with Integrated RCUs - 2.6m



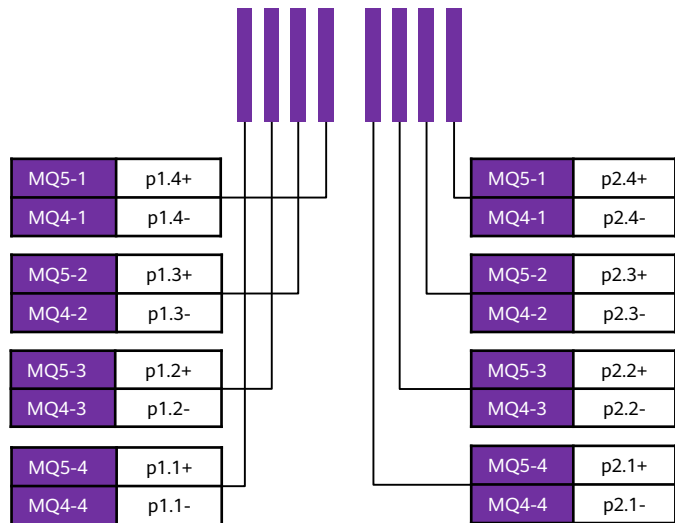
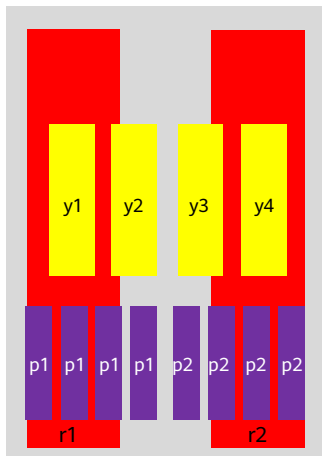
r - Red      y - Yellow      p - Purple  
 L - Left array      R - Right array      C - Center array

### RET S/N:

- a HWMxxx.....Lr1
- b HWMxxx.....Ly1
- c HWMxxx.....CLy2
- d HWMxxx.....CRy3
- e HWMxxx.....Ry4
- f HWMxxx.....Rr2
- g HWMxxx.....Lp1
- h HWMxxx.....Rp2

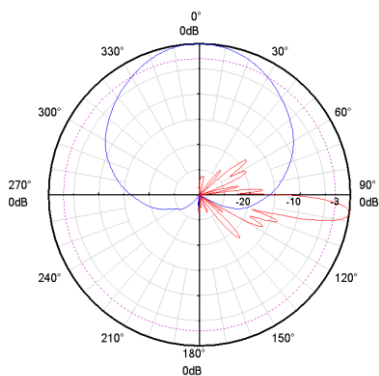
### RAE S/N:

- g HWXxxx.....Lp1
- h HWXxxx.....Rp2

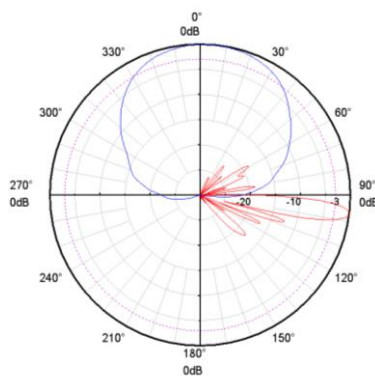


FDD + NR/TDD

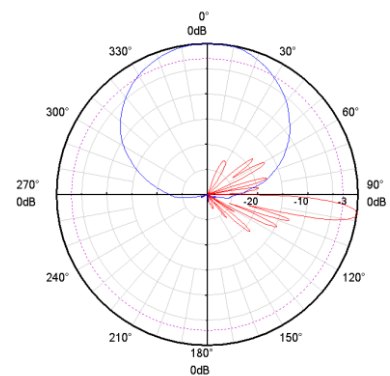
### Pattern sample for reference



690 - 960 MHz  
(Lr1 / Rr2)



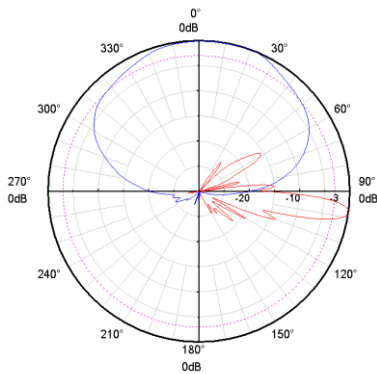
1695 - 2200 MHz  
(Ly1/R42)



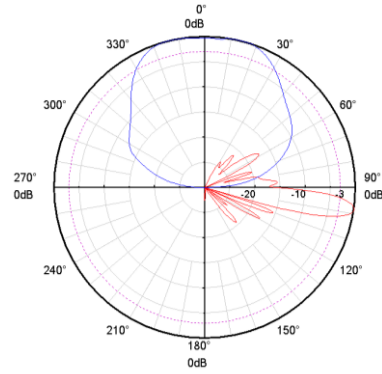
1427 - 2690 MHz  
(CLy2/CRy3)

# A144521R0v06

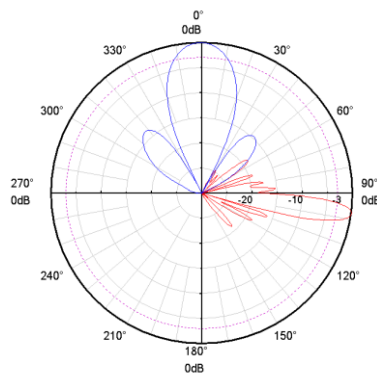
D14X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17.5i/17.5i/17.5i/21i/21i-8xM-R  
EasyRET 2L4H FDD/2x(2.3-3.8GHz) 8T8R TDD Antenna with Integrated RCUs - 2.6m



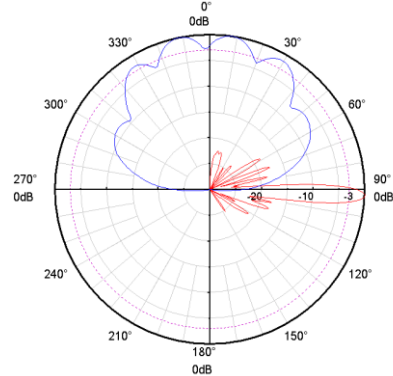
**Single column  
(2300 - 3800 MHz)**



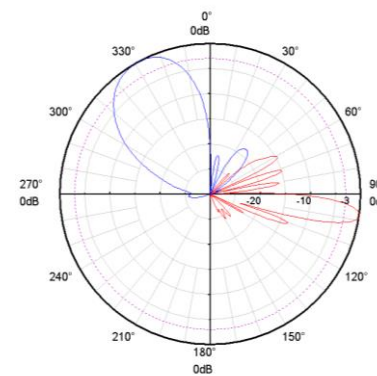
**65° Broadcast  
(2300 - 3800 MHz)**



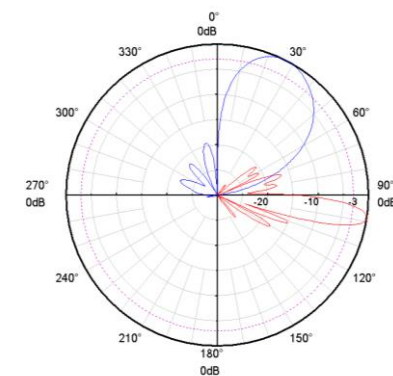
**Service 0°  
(2300 - 3800 MHz)**



**5G NR Broadcast  
(3300 - 3800 MHz)**



**Multi-Beam-30°  
(2300 - 2690 MHz)**



**Multi-Beam+30°  
(2300 - 2690 MHz)**

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D14X-2x(690-960)/2x(1427-2690)/2x(1695-2690)/4x(2300-3800)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17.5i/17.5i/17.5i/21i/21i-8xM-R  
 EasyRET 2L4H FDD/2x(2.3-3.8GHz) 8T8R TDD Antenna with Integrated RCU - 2.6m



## Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |          |         |     |             |    |           |     |
|----------------------------------|--|----------|---------|-----|-------------|----|-----------|-----|
| RET type                         | Integrated RET   |          |         |     |             |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |          |         |     |             |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |          |         |     |             |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |          |         |     |             |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |          |         |     |             |    |           |     |
| Connectors                       | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |          |         |     |             |    |           |     |
| Pin assignment according AISG    | 1  | 2        | 3       | 4   | 5           | 6  | 7         | 8   |
|                                  | DC   | n/c      | RS-485B | n/c | RS-485A     | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |          |         |     |             |    |           |     |
| RAE Properties                   |  |          |         |     |             |    |           |     |
| RAE type                         | Integrated RAE   |          |         |     |             |    |           |     |
| RAE protocols                    | AISG-ES-RAE V2.1.0   |          |         |     |             |    |           |     |
| TDD LTE EasyBeam Properties      |  |          |         |     |             |    |           |     |
| Frequency range (MHz)            | 2300 - 2690  |          |         |     | 3300 - 3800 |    |           |     |
| Electrical downtilt (°)          | 2 - 12   |          |         |     | 2 - 12      |    |           |     |
| Broadcast beam                   | Horizontal 3dB beam width (°)  | 30       | 65      | 90  | 30          | 65 | 90        |     |
|                                  | Electrical azimuth (°)   | -15..+15 |         | 0   | -15..+15    |    | 0         |     |
|                                  | Electrical azimuth step(°)   | 1        |         | /   | 1           |    | /         |     |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

FDD + NR/TDD

# A114521R1v06

D11X-2x(690-960)/2x(1427-2200)/2x(2490-2690)/1695-2690/4x(3300-3800)-8x65-14.5i/14.5i/16i/16i/17i/17i/17i/21i-8xM-R

EasyRET 22-port 2L5H FDD/3.3-3.8GHz 8T8R TDD Antenna with Integrated RCUs - 1.5m



## Antenna Specifications

| Electrical Properties  |                |  |           |           |           |
|--|----------------|--|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 2 x (690 - 960) (Lr1 / Rr2)                            |           |           |           |
|  |                | 690 - 803  | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45° , -45°  |           |           |           |
| Electrical downtilt (°)  |                | 0 - 14 , continuously adjustable, each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 13.5   | 13.8      | 14.0      | 14.1      |
|  | over all Tilts | 13.5 ±0.5  | 13.7 ±0.5 | 13.9 ±0.5 | 14.0 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15   | > 15      | > 15      | > 15      |
| Horizontal 3dB beam width (°)                                  |                | 69 ±7  | 68 ±6     | 68 ±6     | 67 ±6     |
| Vertical 3dB beam width (°)                                    |                | 14.9 ±1.4  | 13.5 ±1.3 | 12.8 ±1.2 | 12.2 ±1.1 |
| VSWR   |                | < 1.5  |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28   |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 28   |           |           |           |
| Front to back ratio , ±30° (dB)                                |                | > 20   | > 21      | > 22      | > 22      |
| Cross polar ratio (dB)   | 0°             | > 17   | > 18      | > 18      | > 18      |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                     |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                            |           |           |           |
| Impedance (Ω)  |                | 50   |           |           |           |
| Grounding  |                | DC Ground  |           |           |           |

| Electrical Properties  |                |                                    |             |             |                               |
|--|----------------|------------------------------------|-------------|-------------|-------------------------------|
| Frequency range (MHz)  |                | 2 x (1427 - 2200) (Lb1 / Rb2)      |             |             | 2 x (2490 - 2690) (Ly1 / Ry3) |
|  |                | 1427 - 1518                        | 1695 - 1990 | 1920 - 2200 |                               |
| Polarization   |                | +45° , -45°                        |             |             |                               |
| Electrical downtilt (°)  |                | 2 - 12 , continuously adjustable   |             |             |                               |
| Gain (dBi)   | at mid Tilt    | 15.4                               | 16.5        | 16.8        | 17.1                          |
|  | over all Tilts | 15.2 ±0.6                          | 16.4 ±0.5   | 16.7 ±0.5   | 17.0 ±0.5                     |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15                               | > 16        | > 16        | > 16                          |
| Horizontal 3dB beam width (°)                                  |                | 69 ±7                              | 62 ±6       | 60 ±6       | 58 ±5                         |
| Vertical 3dB beam width (°)                                    |                | 9.1 ±0.8                           | 7.5 ±0.7    | 6.8 ±0.6    | 5.3 ±0.5                      |
| VSWR   |                | < 1.5                              | < 1.5       | < 1.5       | < 1.5                         |
| Cross polar isolation (dB)                                     |                | ≥ 28                               | ≥ 28        | ≥ 28        | ≥ 28                          |
| Interband isolation (dB)                                       |                | ≥ 28                               | ≥ 28        | ≥ 28        | ≥ 28                          |
| Front to back ratio , ±30° (dB)                                |                | > 23                               | > 26        | > 25        | > 24                          |
| Cross polar ratio (dB)   | 0°             | > 17                               | > 18        | > 18        | > 17                          |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)* |             |             |                               |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)        |             |             |                               |
| Impedance (Ω)  |                | 50                                 |             |             |                               |
| Grounding  |                | DC Ground                          |             |             |                               |

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D11X-2x(690-960)/2x(1427-2200)/2x(2490-2690)/1695-2690/4x(3300-3800)-8x65-14.5i/14.5i/16i/16i/17i/17i/17i/21i-8xM-R

EasyRET 22-port 2L5H FDD/3.3-3.8GHz 8T8R TDD Antenna with Integrated RCUs - 1.5m



## Electrical Properties

| Frequency range (MHz)  |                | 1695 - 2690(Cy2)                   |             |             |             |
|--|----------------|------------------------------------|-------------|-------------|-------------|
|  |                | 1695 - 1990                        | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45°, -45°                         |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12, continuously adjustable    |             |             |             |
| Gain (dBi)   | at mid Tilt    | 16.6                               | 17.0        | 17.1        | 17.4        |
|  | over all Tilts | 16.5 ±0.5                          | 16.9 ±0.5   | 17.0 ±0.6   | 17.3 ±0.6   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 15                               | > 16        | > 16        | > 15        |
| Horizontal 3dB beam width (°)                                  |                | 66 ±6                              | 61 ±6       | 60 ±6       | 58 ±6       |
| Vertical 3dB beam width (°)                                    |                | 7.2 ±0.6                           | 6.5 ±0.6    | 5.7 ±0.5    | 5.2 ±0.5    |
| VSWR   |                | < 1.5                              |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28                               |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28                               |             |             |             |
| Front to back ratio, ±30° (dB)                                 |                | > 26                               | > 26        | > 26        | > 25        |
| Cross polar ratio (dB)   | 0°             | > 18                               | > 18        | > 18        | > 18        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)* |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)        |             |             |             |
| Impedance (Ω)  |                | 50                                 |             |             |             |
| Grounding  |                | DC Ground                          |             |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

## General Electrical Properties

|                                       |   |                                 |
|---------------------------------------|---|---------------------------------|
| General parameters                    | Frequency range (MHz)   | 3300 - 3800 (p1)                |
|                                       | Polarization  | +45°, -45°                      |
|                                       | Electrical downtilt (°)   | 2 - 12, continuously adjustable |
|                                       | Electrical downtilt tolerance (°)                                   | ±1                              |
|                                       | Avg. power capacity (W)*  | 40                              |
|                                       | Impedance (Ω)   | 50                              |
|                                       | Grounding   | DC Ground                       |
| Calibration and electrical parameters | Coupling factor between calibration port and each antenna port (dB) | -26 ±2                          |
|                                       | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.9                             |
|                                       | Max. phase tolerance from calibration port to input ports (°)       | 7                               |
|                                       | Ports VSWR  | 1.5                             |
|                                       | Co-polarization isolation between ports (dB)                        | ≥ 20                            |
|                                       | Cross-polarization isolation between ports (dB)                     | ≥ 23                            |

\* Total power : 800 W (at 50°C ambient temperature)

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D11X-2x(690-960)/2x(1427-2200)/2x(2490-2690)/1695-2690/4x(3300-3800)-8x65-14.5i/14.5i/16i/16i/17i/17i/17i/21i-8xM-R

EasyRET 22-port 2L5H FDD/3.3-3.8GHz 8T8R TDD Antenna with Integrated RCUs - 1.5m



## TDD LTE Electrical Properties

| Frequency range (MHz)                   |                    | 3300 - 3800 (p1)   |      |
|---|--------------------|--|------|
| Radiation parameters                    | Single column beam | Gain (dBi)   | 15.6 |
|   |                    | Horizontal 3dB beam width (°)                                  | 70   |
|   |                    | Front to back ratio (dB)                                       | ≥ 24 |
|   |                    | Cross polar ratio (0°) (dB)                                    | ≥ 15 |
|   |                    | Vertical 3dB beam width (°)                                    | 5.5  |
|   |                    | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15 |
|   | 65° Broadcast beam | Gain (dBi)   | 16.9 |
|   |                    | Horizontal 3dB beam width (°)                                  | 65   |
|   |                    | Front to back ratio (dB)                                       | ≥ 25 |
|   |                    | Cross polar ratio (0°) (dB)                                    | ≥ 15 |
|   |                    | Vertical 3dB beam width (°)                                    | 5.5  |
|   |                    | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15 |
|   | Service beam       | 0°direct beam gain (dBi)                                       | 20.7 |
|   |                    | 0°direction beam horizontal 3dB beam width (°)                 | 21   |
|   |                    | 0°direction beam front to back ratio (dB)                      | ≥ 30 |
| 0°direction beam cross polar ratio (dB) |                    | ≥ 19   |      |

### Notes:

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

## 5G NR Electrical Properties

| Frequency range (MHz) |   | 3300 - 3800 (p1)   |      |
|-----------------------|---|--|------|
| Radiation parameters  | Single column beam                                    | Gain (dBi)   | 15.6 |
|                       |   | Horizontal 3dB beam width (°)                                  | 70   |
|                       |   | Front to back ratio (dB)                                       | ≥ 24 |
|                       |   | Cross polar ratio (0°) (dB)                                    | ≥ 15 |
|                       |   | Vertical 3dB beam width (°)                                    | 5.5  |
|                       |   | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15 |
|                       | NR Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Gain (dBi)   | 20.7 |
|                       |   | Horizontal 3dB beam width (°)                                  | 65   |
|                       |   | Front to back ratio (dB)                                       | ≥ 25 |
|                       |   | Vertical 3dB beam width (°)                                    | 5.5  |
|                       |   | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15 |
|                       | NR Service beam                                       | 0°direct beam gain (dBi)                                       | 20.7 |
|                       |   | 0°direction beam horizontal 3dB beam width (°)                 | 21   |
|                       |   | 0°direction beam front to back ratio (dB)                      | 30   |
|                       |   | 0°direction beam cross polar ratio (0°) (dB)                   | 19   |

### Notes:

1. The 5G NR broadcast beam is the envelope of SSB(synchronization signal block) sweeping beams and the gain is the maximum gain of SSB sweeping beams.
2. Downlink broadcast beam gain values and pattern files can only be used for broadcast channel coverage prediction.
3. Downlink and uplink budgets need to be calculated based on the gain of single column beam and the correct Tx/Rx number.

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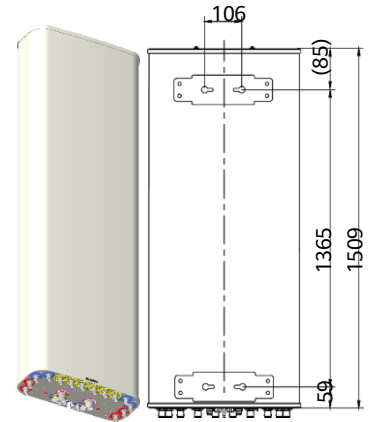
D11X-2x(690-960)/2x(1427-2200)/2x(2490-2690)/1695-2690/4x(3300-3800)-8x65-14.5i/14.5i/16i/16i/17i/17i/17i/21i-8xM-R

EasyRET 22-port 2L5H FDD/3.3-3.8GHz 8T8R TDD Antenna with Integrated RCUs - 1.5m



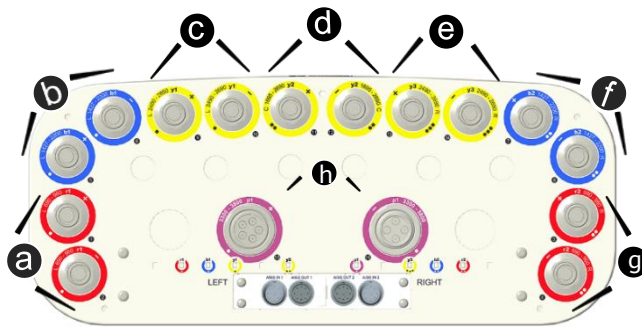
## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Antenna dimensions (H x W x D) (mm) | 1509 x 499 x 206   |
| Packing dimensions (H x W x D) (mm) | 1770 x 555 x 245   |
| Antenna weight (kg)                 | 38.0   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 49.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 540 (at 150 km/h)<br>Lateral: 270 (at 150 km/h)<br>Maximum: 705 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 14 x 4.3-10 Female<br>1 x MQ4 Male + 1 x MQ5 Male                                      |
| Connector position                  | Bottom   |



## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 16° | 3.1 kg | 1 (Separate packing) |



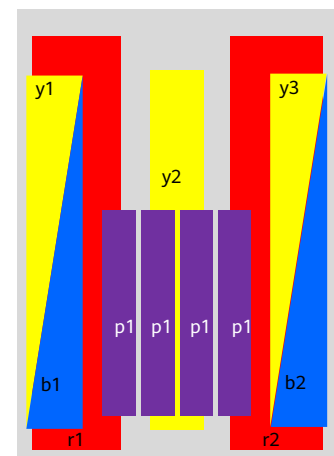
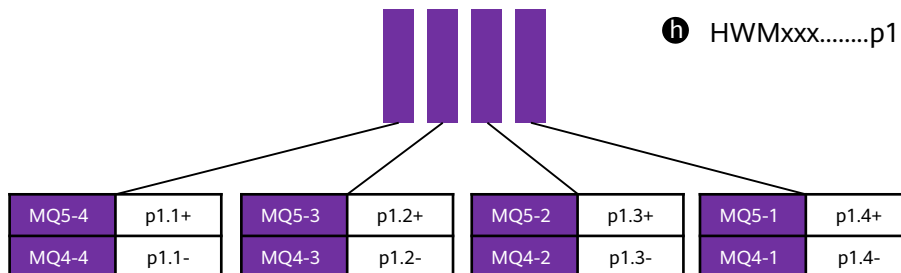
r - Red      y - Yellow      b - Blue      p - Purple  
L - Left array      R - Right array      C - Center array

### RET S/N:

- a HWMxxx.....Lr1
- b HWMxxx.....Lb1
- c HWMxxx.....Ly1
- d HWMxxx.....Cy2
- e HWMxxx.....Ry3
- f HWMxxx.....Rb2
- g HWMxxx.....Rr2
- h HWMxxx.....p1

### RAE S/N:

- h HWXxxx.....p1



FDD + NR/TDD

### Notes:

Before installing the antenna, it is recommended to plan the use of antenna connectors based on frequency bands in use currently and in the future. This is to avoid adjusting antenna connector configuration when new frequency bands are deployed.



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D11X-2x(690-960)/2x(1427-2200)/2x(2490-2690)/1695-2690/4x(3300-3800)-8x65-14.5i/14.5i/16i/16i/17i/17i/17i/21i-8xM-R

EasyRET 22-port 2L5H FDD/3.3-3.8GHz 8T8R TDD Antenna with Integrated RCUs - 1.5m



## Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |     |         |     |         |    |           |     |
| Connectors                       | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |

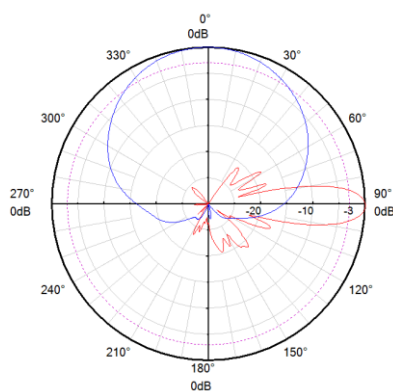
| RAE Properties |                    |
|----------------|--------------------|
| RAE type       | Integrated RAE     |
| RAE protocols  | AISG-ES-RAE V2.1.0 |

| TDD LTE EasyBeam Properties |                               |          |    |    |
|-----------------------------|-------------------------------|----------|----|----|
| Frequency range (MHz)       | 3300 - 3800                   |          |    |    |
| Electrical downtilt (°)     | 2 - 12                        |          |    |    |
| Broadcast beam              | Horizontal 3dB beam width (°) | 30       | 65 | 90 |
|                             | Electrical azimuth (°)        | -15..+15 |    | 0  |
|                             | Electrical azimuth step(°)    | 1        |    | /  |

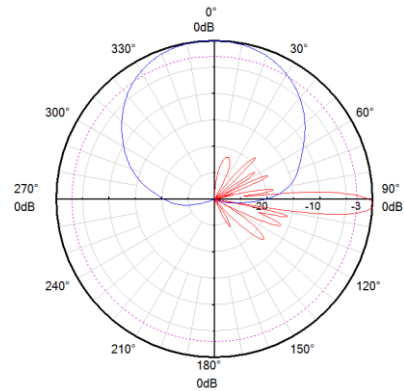
**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

### Pattern sample for reference



690 - 960 MHz  
(Lr1 / Rr2)

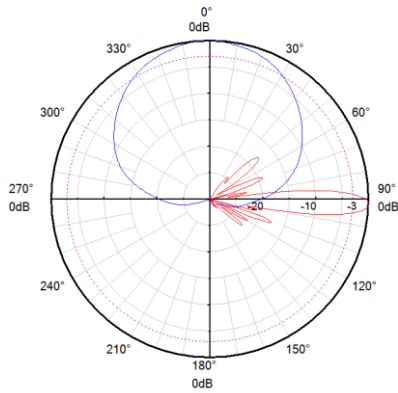


1695 - 2690 MHz  
(Cy2)

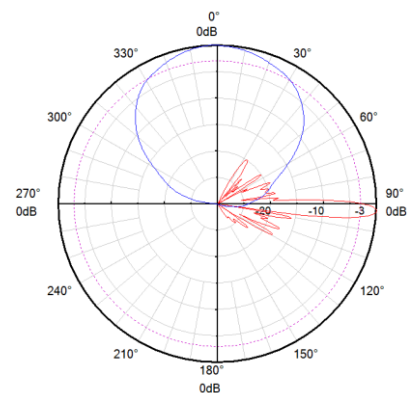
# A114521R1v06

D11X-2x(690-960)/2x(1427-2200)/2x(2490-2690)/1695-2690/4x(3300-3800)-8x65-14.5i/14.5i/16i/16i/17i/17i/17i/21i-8xM-R

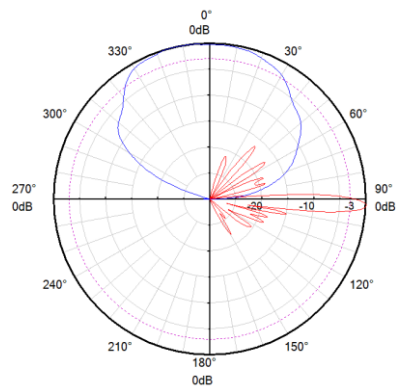
EasyRET 22-port 2L5H FDD/3.3-3.8GHz 8T8R TDD Antenna with Integrated RCUs - 1.5m



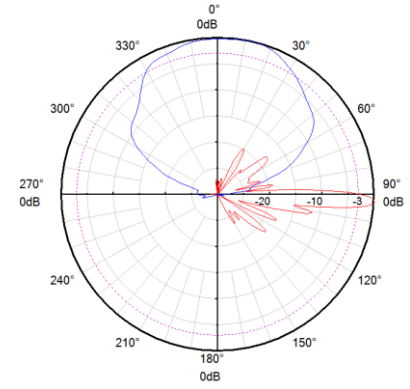
**1427 - 2200 MHz  
(Lb1/Rb2)**



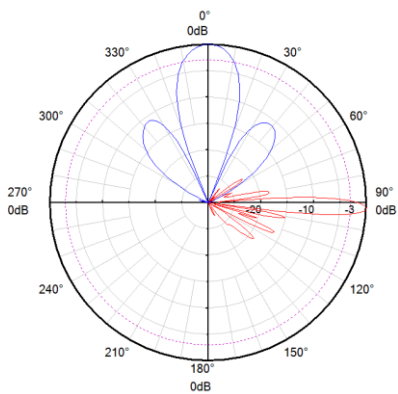
**2490 - 2690 MHz  
(Ly1/Ry3)**



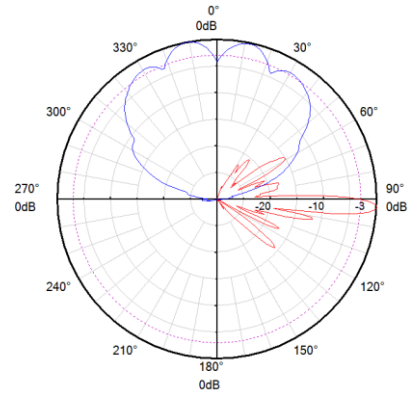
**Single column  
(3300 - 3800 MHz)**



**65° Broadcast  
(3300 - 3800 MHz)**



**Service 0°  
(3300 - 3800 MHz)**



**5G NR Broadcast  
(3300 - 3800 MHz)**

FDD +  
NR/TDD

# AOC4518R8v06

D8X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/2300-3800-8x65-15.5i/15.5i/17.5i/17i/17i/17i/17i/17i-8xM-R  
EasyRET 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with 8 Integrated RCUs - 2.0m



## Antenna Specifications

| Electrical Properties  |                |  |           |           |           |
|--|----------------|--|-----------|-----------|-----------|
| Frequency range (MHz)  |                | 2 x (690 - 960) (Lr1 / Rr2)                            |           |           |           |
|  |                | 690 - 803  | 790 - 862 | 824 - 894 | 880 - 960 |
| Polarization   |                | +45° , -45°  |           |           |           |
| Electrical downtilt (°)  |                | 0 - 10 , continuously adjustable, each band separately |           |           |           |
| Gain (dBi)   | at mid Tilt    | 14.8   | 15.1      | 15.3      | 15.6      |
|  | over all Tilts | 14.7 ±0.5  | 15.0 ±0.5 | 15.2 ±0.5 | 15.5 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16   | > 16      | > 16      | > 16      |
| Horizontal 3dB beam width (°)                                  |                | 65 ±5  | 62 ±5     | 60 ±5     | 60 ±5     |
| Vertical 3dB beam width (°)                                    |                | 10.9 ±0.7  | 9.8 ±0.6  | 9.4 ±0.5  | 8.9 ±0.5  |
| VSWR   |                | < 1.5  |           |           |           |
| Cross polar isolation (dB)                                     |                | ≥ 28   |           |           |           |
| Interband isolation (dB)                                       |                | ≥ 28   |           |           |           |
| Front to back ratio , ±30° (dB)                                |                | > 21   | > 22      | > 23      | > 23      |
| Cross polar ratio (dB)   0°                                    |                | > 18   | > 18      | > 18      | > 18      |
| Max. power per input (W)                                       |                | 400 (at 50°C ambient temperature)*                     |           |           |           |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)                            |           |           |           |
| Impedance (Ω)  |                | 50   |           |           |           |
| Grounding  |                | DC Ground  |           |           |           |

| Electrical Properties  |                |                                    |             |             |             |             |
|--|----------------|------------------------------------|-------------|-------------|-------------|-------------|
| Frequency range (MHz)  |                | 1427 - 2690 (Ry3)                  |             |             |             |             |
|  |                | 1427 - 1518                        | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |
| Polarization   |                | +45° , -45°                        |             |             |             |             |
| Electrical downtilt (°)  |                | 2 - 12 , continuously adjustable   |             |             |             |             |
| Gain (dBi)   | at mid Tilt    | 16.0                               | 17.2        | 17.4        | 17.5        | 17.6        |
|  | over all Tilts | 15.9 ±0.5                          | 17.1 ±0.5   | 17.3 ±0.5   | 17.4 ±0.5   | 17.5 ±0.5   |
| Side lobe suppression for first side lobe above main beam (dB) |                | > 16                               | > 16        | > 16        | > 16        | > 16        |
| Horizontal 3dB beam width (°)                                  |                | 70 ±6                              | 68 ±5       | 67 ±5       | 65 ±5       | 58 ±5       |
| Vertical 3dB beam width (°)                                    |                | 8.7 ±0.5                           | 7.1 ±0.5    | 6.3 ±0.5    | 5.6 ±0.5    | 5.1 ±0.5    |
| VSWR   |                | < 1.5                              | < 1.5       |             |             |             |
| Cross polar isolation (dB)                                     |                | ≥ 28                               | ≥ 28        |             |             |             |
| Interband isolation (dB)                                       |                | ≥ 28                               | ≥ 28        |             |             |             |
| Front to back ratio , ±30° (dB)                                |                | > 25                               | > 26        | > 26        | > 26        | > 25        |
| Cross polar ratio (dB)   0°                                    |                | > 18                               | > 18        | > 18        | > 18        | > 18        |
| Max. power per input (W)                                       |                | 250 (at 50°C ambient temperature)* |             |             |             |             |
| Intermodulation IM3 (dBc)                                      |                | ≤ -150 (2 x 43 dBm carrier)        |             |             |             |             |
| Impedance (Ω)  |                | 50                                 |             |             |             |             |
| Grounding  |                | DC Ground                          |             |             |             |             |

# AOC4518R8v06

D8X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/2300-3800-8x65-15.5i/15.5i/17.5i/17i/17i/17i/17i-8xM-R  
EasyRET 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with 8 Integrated RCUs - 2.0m



| Electrical Properties  |   |             |                   |           |
|--|---|-------------|-------------------|-----------|
| Frequency range (MHz)  | 1695 - 2200 (Lb1)                                     |             | 2490 - 2690 (Ly1) |           |
|  | 1695 - 1990   | 1920 - 2200 | 2490 - 2690       |           |
| Polarization   | +45°, -45°  |             |                   |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |                   |           |
| Gain (dBi)   | at mid Tilt   | 16.7        | 16.8              | 17.0      |
|  | over all Tilts  | 16.6 ±0.5   | 16.7 ±0.5         | 16.9 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 16        | > 17              |           |
| Horizontal 3dB beam width (°)                                  | 67 ±5   | 66 ±5       | 58 ±5             |           |
| Vertical 3dB beam width (°)                                    | 7.5 ±0.5  | 6.8 ±0.5    | 5.3 ±0.5          |           |
| VSWR   | < 1.5   |             |                   |           |
| Cross polar isolation (dB)                                     | ≥ 28  |             |                   |           |
| Interband isolation (dB)                                       | ≥ 28  |             |                   |           |
| Front to back ratio, ±30° (dB)                                 | > 25  | > 26        | > 25              |           |
| Cross polar ratio (dB)   | 0°  | > 18        | > 18              |           |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |                   |           |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                           |             |                   |           |
| Impedance (Ω)  | 50  |             |                   |           |
| Grounding  | DC Ground   |             |                   |           |

| Electrical Properties  |   |             |                   |           |
|--|---|-------------|-------------------|-----------|
| Frequency range (MHz)  | 1695 - 2200 (Rb2)                                     |             | 2490 - 2690 (Cy2) |           |
|  | 1695 - 1990   | 1920 - 2200 | 2490 - 2690       |           |
| Polarization   | +45°, -45°  |             |                   |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |                   |           |
| Gain (dBi)   | at mid Tilt   | 16.8        | 16.9              | 17.2      |
|  | over all Tilts  | 16.7 ±0.5   | 16.8 ±0.5         | 17.1 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 16        | > 17              |           |
| Horizontal 3dB beam width (°)                                  | 62 ±5   | 61 ±5       | 58 ±5             |           |
| Vertical 3dB beam width (°)                                    | 7.6 ±0.5  | 6.8 ±0.5    | 5.3 ±0.5          |           |
| VSWR   | < 1.5   |             |                   |           |
| Cross polar isolation (dB)                                     | ≥ 28  |             |                   |           |
| Interband isolation (dB)                                       | ≥ 28  |             |                   |           |
| Front to back ratio, ±30° (dB)                                 | > 27  | > 27        | > 26              |           |
| Cross polar ratio (dB)   | 0°  | > 18        | > 18              |           |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |                   |           |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                           |             |                   |           |
| Impedance (Ω)  | 50  |             |                   |           |
| Grounding  | DC Ground   |             |                   |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

FDD + NR/TDD

# AOC4518R8v06

D8X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/2300-3800-8x65-15.5i/15.5i/17.5i/17i/17i/17i/17i/17i-8xM-R  
EasyRET 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with 8 Integrated RCUs - 2.0m



## General Electrical Properties

|                                       |   | 2300 - 3800 (p1)                |             |
|---------------------------------------|---|---------------------------------|-------------|
|                                       |   | 2300 - 2690                     | 3300 - 3800 |
| General parameters                    | Frequency range (MHz)   |                                 |             |
|                                       | Polarization  | +45° , -45°                     |             |
|                                       | Electrical downtilt (°)   | 2 - 12, continuously adjustable |             |
|                                       | Electrical downtilt tolerance (°)                                   | ±1                              |             |
|                                       | Avg. power capacity (W)*  | 40                              |             |
|                                       | Impedance (Ω)   | 50                              |             |
|                                       | Grounding   | DC Ground                       |             |
| Calibration and electrical parameters | Coupling factor between calibration port and each antenna port (dB) | -26 ±2                          | -26 ±2      |
|                                       | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.7                             | 0.9         |
|                                       | Max. phase tolerance from calibration port to input ports (°)       | 5                               | 7           |
|                                       | Ports VSWR  | 1.5                             | 1.5         |
|                                       | Co-polarization isolation between ports (dB)                        | ≥ 20                            | ≥ 20        |
|                                       | Cross-polarization isolation between ports (dB)                     | ≥ 23                            | ≥ 23        |

\* Total power : 1000 W (at 50°C ambient temperature)

## TDD LTE Electrical Properties

|                                     |                       | 2300 - 3800 (p1)   |             |      |
|-------------------------------------|-----------------------|--|-------------|------|
|                                     |                       | 2300 - 2690  | 3300 - 3800 |      |
| Radiation parameters                | Frequency range (MHz) |  |             |      |
|                                     | Single column beam    | Gain (dBi)   | 15.0        | 15.7 |
|                                     |                       | Horizontal 3dB beam width (°)                                  | 90          | 70   |
|                                     |                       | Front to back ratio (dB)                                       | ≥ 25        | ≥ 25 |
|                                     |                       | Cross polar ratio (0°) (dB)                                    | 16          | 15   |
|                                     |                       | Vertical 3dB beam width (°)                                    | 8.0         | 5.5  |
|                                     |                       | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        | ≥ 15 |
|                                     | 65° Broadcast beam    | Gain (dBi)   | 16.0        | 17.1 |
|                                     |                       | Horizontal 3dB beam width (°)                                  | 65          | 65   |
|                                     |                       | Front to back ratio (dB)                                       | ≥ 26        | ≥ 25 |
|                                     |                       | Cross polar ratio (0°) (dB)                                    | 17          | 16   |
|                                     |                       | Vertical 3dB beam width (°)                                    | 8.0         | 5.5  |
|                                     |                       | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        | ≥ 15 |
|                                     | Service beam          | 0°direct beam gain (dBi)                                       | 20.0        | 21.1 |
|                                     |                       | 0°direction beam horizontal 3dB beam width (°)                 | 26          | 20   |
|                                     |                       | 0°direction beam front to back ratio (dB)                      | 30          | 30   |
|                                     |                       | 0°direction beam cross polar ratio (dB)                        | 19          | 19   |
|                                     | Soft split multi-beam | Gain (dBi)   | 19          | /    |
|                                     |                       | Horizontal 3dB beam width (°)                                  | 32          | /    |
|                                     |                       | Front to back ratio (dB)                                       | ≥ 30        | /    |
| Cross polar ratio at boresight (dB) |                       | 19   | /           |      |

### Notes:

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

# AOC4518R8v06

D8X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/2300-3800-8x65-15.5i/15.5i/17.5i/17i/17i/17i/17i/17i-8xM-R  
EasyRET 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with 8 Integrated RCUs - 2.0m



## 5G NR Electrical Properties

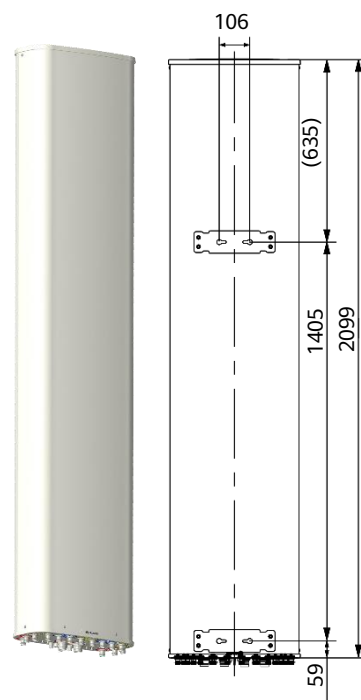
|                      | Frequency range (MHz)                                 | 2300 - 3800 (p1)   |  |      |    |
|----------------------|---|--|--|------|----|
|                      |   | 2300 - 2690  | 3300 - 3800                                  |      |    |
| Radiation parameters | Single column beam                                    | Gain (dBi)   | /  | 15.7 |    |
|                      |   | Horizontal 3dB beam width (°)                                  | /  | 70   |    |
|                      |   | Front to back ratio (dB)                                       | /  | ≥ 25 |    |
|                      |   | Cross polar ratio (0°) (dB)                                    | /  | 15   |    |
|                      |   | Vertical 3dB beam width (°)                                    | /  | 5.5  |    |
|                      |   | Side lobe suppression for first side lobe above main beam (dB) | /  | ≥ 15 |    |
|                      | NR Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Gain (dBi)   | /  | 20.8 |    |
|                      |   | Horizontal 3dB beam width (°)                                  | /  | 65   |    |
|                      |   | Front to back ratio (dB)                                       | /  | 25   |    |
|                      |   | Vertical 3dB beam width (°)                                    | /  | 5.5  |    |
|                      | NR Service beam                                       | Side lobe suppression for first side lobe above main beam (dB) | /  | ≥ 15 |    |
|                      |   | 0°direct beam gain (dBi)                                       | /  | 21.1 |    |
|                      |   | 0°direction beam horizontal 3dB beam width (°)                 | /  | 20   |    |
|                      |   | 0°direction beam front to back ratio (dB)                      | /  | 30   |    |
|                      |   |  | 0°direction beam cross polar ratio (0°) (dB) | /    | 19 |

### Notes:

- The 5G NR broadcast beam is the envelope of SSB(synchronization signal block) sweeping beams and the gain is the maximum gain of SSB sweeping beams.
- Downlink broadcast beam gain values and pattern files can only be used for broadcast channel coverage prediction.
- Downlink and uplink budgets need to be calculated based on the gain of single column beam and the correct Tx/Rx number.

## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Distance between TDD columns (mm)   | 59   |
| Antenna dimensions (H x W x D) (mm) | 2099 x 449 x 196   |
| Packing dimensions (H x W x D) (mm) | 2360 x 535 x 240   |
| Antenna weight (kg)                 | 43.0   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 54.9 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | GFRPP  |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 615 (at 150 km/h)<br>Lateral: 375 (at 150 km/h)<br>Maximum: 810 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 14 x 4.3-10 Female<br>1 x MQ4 Male + 1 x MQ5 Male                                      |
| Connector position                  | Bottom   |



FDD + NR/TDD

## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 12° | 3.1 kg | 1 (Separate packing) |

# AOC4518R8v06

D8X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/2300-3800-8x65-15.5i/15.5i/17.5i/17i/17i/17i/17i/17i-8xM-R  
 EasyRET 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with 8 Integrated RCUs - 2.0m

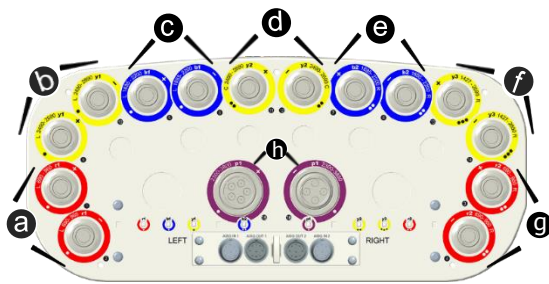


## Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |          |         |     |             |    |           |     |
|----------------------------------|--|----------|---------|-----|-------------|----|-----------|-----|
| RET type                         | Integrated RET   |          |         |     |             |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |          |         |     |             |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |          |         |     |             |    |           |     |
| Power consumption (W)            | < 1.5 (when the motor does not work, 12 V)<br>< 6 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |          |         |     |             |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |          |         |     |             |    |           |     |
| Connectors                       | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |          |         |     |             |    |           |     |
| Pin assignment according AISG    | 1  | 2        | 3       | 4   | 5           | 6  | 7         | 8   |
|                                  | DC   | n/c      | RS-485B | n/c | RS-485A     | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |          |         |     |             |    |           |     |
| RAE Properties                   |  |          |         |     |             |    |           |     |
| RAE type                         | Integrated RAE   |          |         |     |             |    |           |     |
| RAE protocols                    | AISG-ES-RAE V2.1.0   |          |         |     |             |    |           |     |
| TDD LTE EasyBeam Properties      |  |          |         |     |             |    |           |     |
| Frequency range (MHz)            | 2300 - 2690  |          |         |     | 3300 - 3800 |    |           |     |
| Electrical downtilt (°)          | 2 - 12   |          |         |     | 2 - 12      |    |           |     |
| Broadcast beam                   | Horizontal 3dB beam width (°)  | 30       | 65      | 90  | 30          | 65 | 90        |     |
|                                  | Electrical azimuth (°)   | -15..+15 |         | 0   | -15..+15    |    | 0         |     |
|                                  | Electrical azimuth step(°)   | 1        |         | /   | 1           |    | /         |     |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



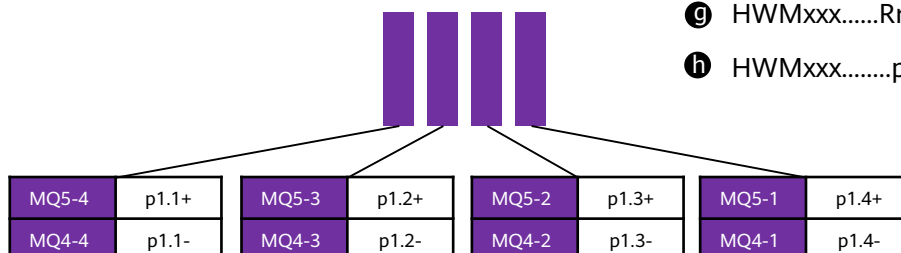
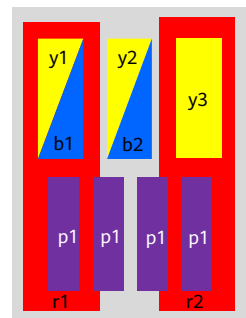
r - Red      y - Yellow      b - Blue      p - Purple  
 L - Left array      R - Right array      C - Center array

### RET S/N:

- a HWMxxx.....Lr1
- b HWMxxx.....Ly1
- c HWMxxx.....Lb1
- d HWMxxx.....Cy2
- e HWMxxx.....Rb2
- f HWMxxx.....Ry3
- g HWMxxx.....Rr2
- h HWMxxx.....p1

### RAE S/N:

- h HWXxxx.....p1

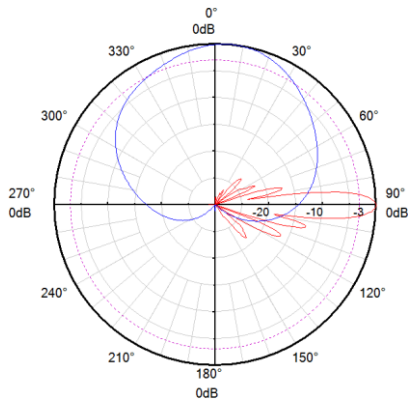


# AOC4518R8v06

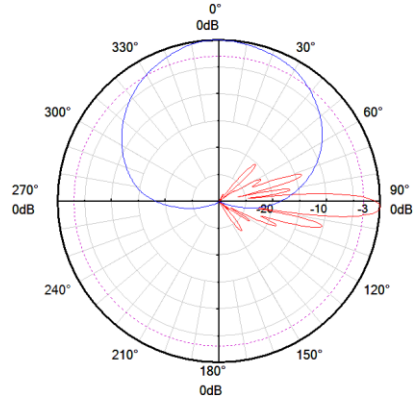
D8X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/2300-3800-8x65-15.5i/15.5i/17.5i/17i/17i/17i/17i/17i-8xM-R  
EasyRET 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with 8 Integrated RCUs - 2.0m



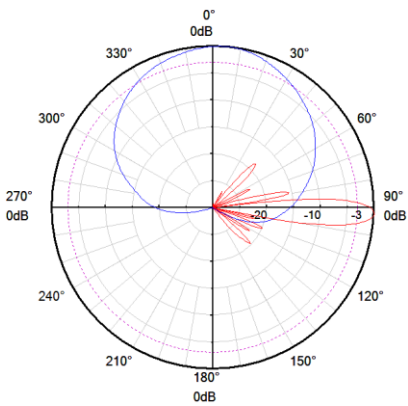
## Pattern sample for reference



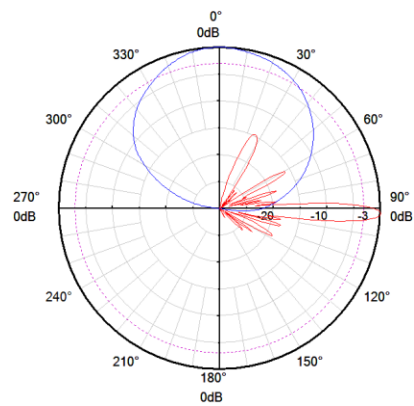
**690 - 960 MHz  
(Lr1 / Rr2)**



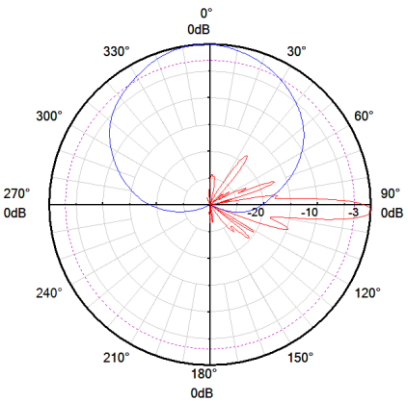
**1427 - 2690 MHz  
(Ry3)**



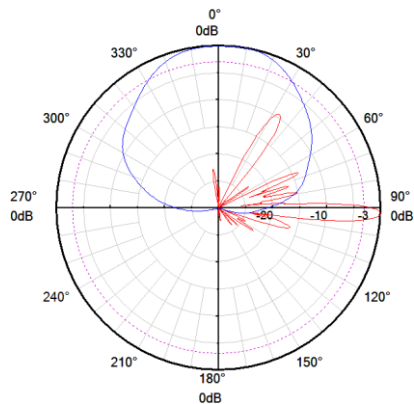
**1695 - 2200 MHz  
(Lb1)**



**2490 - 2690 MHz  
(Ly1)**



**1695 - 2200 MHz  
(Rb2)**



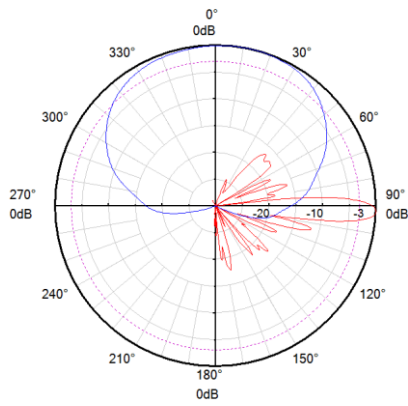
**2490 - 2690 MHz  
(Cy2)**

FDD +  
NR/TDD

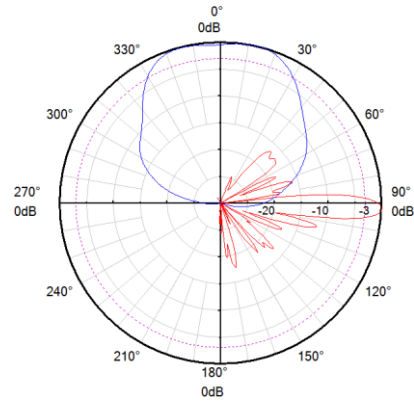


# AOC4518R8v06

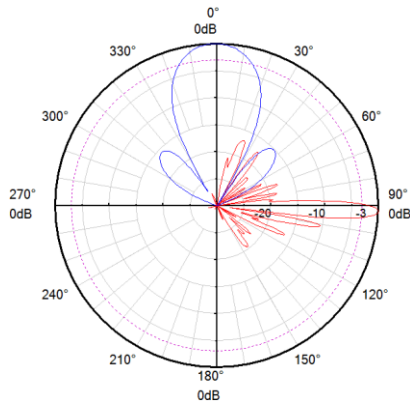
D8X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/2300-3800-8x65-15.5i/15.5i/17.5i/17i/17i/17i/17i-8xM-R  
EasyRET 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with 8 Integrated RCUs - 2.0m



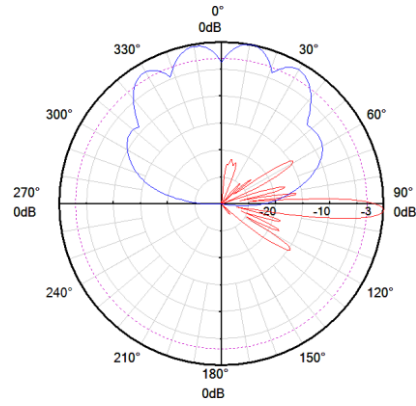
**Single column  
(2300 - 3800 MHz)**



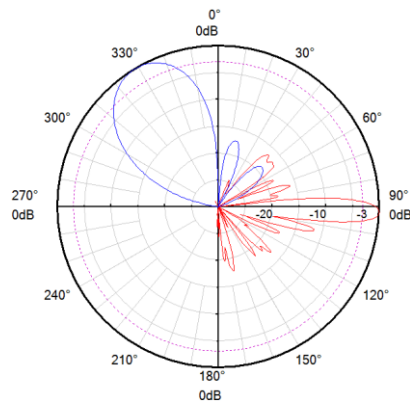
**65° Broadcast  
(2300 - 3800 MHz)**



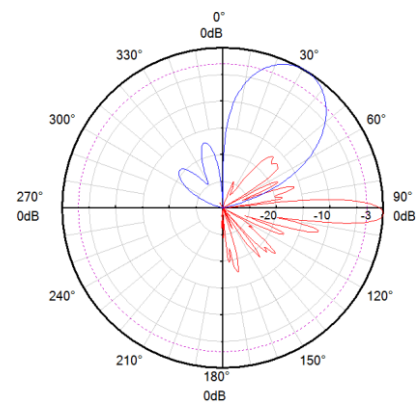
**Service 0°  
(2300 - 3800 MHz)**



**5G NR Broadcast  
(3300 - 3800 MHz)**



**Multi-Beam-30°  
(2300 - 2690 MHz)**



**Multi-Beam+30°  
(2300 - 2690 MHz)**

# A114521R5v06

D11X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17i/17i/17i/21i-8xM-R  
 EasyRET 22-port 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
 8 Integrated RCUs - 2.6m



## Antenna Specifications

| Electrical Properties  |   |           |           |           |           |
|--|---|-----------|-----------|-----------|-----------|
| Frequency range (MHz)  | 2 x (690 - 960) (Lr1/Rr2)                             |           |           |           |           |
|  | 690 - 803   | 790 - 862 | 824 - 894 | 880 - 960 |           |
| Polarization   | +45°, -45°  |           |           |           |           |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable, each band separately |           |           |           |           |
| Gain (dBi)   | at mid Tilt   | 15.6      | 16.0      | 16.2      | 16.4      |
|  | over all Tilts  | 15.5 ±0.6 | 15.8 ±0.6 | 16.0 ±0.7 | 16.2 ±0.8 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  |           |           |           |           |
| Horizontal 3dB beam width (°)                                  | 66 ±7   | 65 ±7     | 66 ±7     | 64 ±7     |           |
| Vertical 3dB beam width (°)                                    | 8.9 ±0.8  | 8.1 ±0.8  | 7.9 ±0.7  | 7.4 ±0.7  |           |
| VSWR   | < 1.5   |           |           |           |           |
| Cross polar isolation (dB)                                     | ≥ 28  |           |           |           |           |
| Interband isolation (dB)                                       | ≥ 28  |           |           |           |           |
| Front to back ratio, ±30° (dB)                                 | > 21  | > 23      | > 23      | > 23      |           |
| Cross polar ratio (dB)   | 0°  | > 18      | > 18      | > 18      |           |
| Max. power per input (W)                                       | 400 (at 50°C ambient temperature)*                    |           |           |           |           |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                           |           |           |           |           |
| Impedance (Ω)  | 50  |           |           |           |           |
| Grounding  | DC Ground   |           |           |           |           |

| Electrical Properties  |                                    |             |             |             |             |           |
|--|------------------------------------|-------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)2   | 1427 - 2690 (Ry3)                  |             |             |             |             |           |
|  | 1427 - 1518                        | 1695 - 1990 | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°                         |             |             |             |             |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable    |             |             |             |             |           |
| Gain (dBi)   | at mid Tilt                        | 15.7        | 17.0        | 17.2        | 17.3        | 17.4      |
|  | over all Tilts                     | 15.6 ±0.6   | 16.9 ±0.6   | 17.1 ±0.7   | 17.2 ±0.7   | 17.3 ±0.8 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16                               |             |             |             |             |           |
| Horizontal 3dB beam width (°)                                  | 73 ±7                              | 66 ±6       | 67 ±6       | 62 ±6       | 58 ±6       |           |
| Vertical 3dB beam width (°)                                    | 8.4 ±0.7                           | 6.8 ±0.6    | 6.0 ±0.6    | 5.3 ±0.5    | 4.9 ±0.5    |           |
| VSWR   | < 1.5                              | < 1.5       |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 28                               | ≥ 28        |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28                               | ≥ 28        |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 24                               | > 25        | > 26        | > 26        | > 25        |           |
| Cross polar ratio (dB)   | 0°                                 | > 18        | > 18        | > 18        | > 18        |           |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)* |             |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)        |             |             |             |             |           |
| Impedance (Ω)  | 50                                 |             |             |             |             |           |
| Grounding  | DC Ground                          |             |             |             |             |           |

FDD + NR/TDD

# A114521R5v06

D11X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17i/17i/17i/21i-8xM-R  
 EasyRET 22-port 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
 8 Integrated RCUs - 2.6m



| Electrical Properties  |   |             |                   |           |
|--|---|-------------|-------------------|-----------|
| Frequency range (MHz)  | 1695 - 2200 (Lb1)                                     |             | 2490 - 2690 (Ly1) |           |
|  | 1695 - 1990   | 1920 - 2200 | 2490 - 2690       |           |
| Polarization   | +45°, -45°  |             |                   |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |                   |           |
| Gain (dBi)   | at mid Tilt   | 16.6        | 16.7              | 16.9      |
|  | over all Tilts  | 16.5 ±0.7   | 16.6 ±0.7         | 16.8 ±0.7 |
| Side lobe suppression for first side lobe above main beam (dB) | > 15  | > 16        | > 17              |           |
| Horizontal 3dB beam width (°)                                  | 66 ±6   | 66 ±6       | 58 ±6             |           |
| Vertical 3dB beam width (°)                                    | 7.0 ±0.7  | 6.3 ±0.6    | 5.0 ±0.5          |           |
| VSWR   | < 1.5   |             |                   |           |
| Cross polar isolation (dB)                                     | ≥ 28  |             |                   |           |
| Interband isolation (dB)                                       | ≥ 28  |             |                   |           |
| Front to back ratio, ±30° (dB)                                 | > 25  | > 26        | > 25              |           |
| Cross polar ratio (dB)   | 0°  | > 18        | > 18              |           |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |                   |           |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                           |             |                   |           |
| Impedance (Ω)  | 50  |             |                   |           |
| Grounding  | DC Ground   |             |                   |           |

| Electrical Properties  |   |             |                   |           |
|--|---|-------------|-------------------|-----------|
| Frequency range (MHz)  | 1695 - 2200 (Rb2)                                     |             | 2490 - 2690 (Cy2) |           |
|  | 1695 - 1990   | 1920 - 2200 | 2490 - 2690       |           |
| Polarization   | +45°, -45°  |             |                   |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable, each band separately |             |                   |           |
| Gain (dBi)   | at mid Tilt   | 16.7        | 16.8              | 17.1      |
|  | over all Tilts  | 16.6 ±0.7   | 16.7 ±0.7         | 17.0 ±0.7 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16  | > 16        | > 16              |           |
| Horizontal 3dB beam width (°)                                  | 64 ±6   | 64 ±6       | 58 ±6             |           |
| Vertical 3dB beam width (°)                                    | 7.0 ±0.6  | 6.3 ±0.6    | 5.0 ±0.5          |           |
| VSWR   | < 1.5   |             |                   |           |
| Cross polar isolation (dB)                                     | ≥ 28  |             |                   |           |
| Interband isolation (dB)                                       | ≥ 28  |             |                   |           |
| Front to back ratio, ±30° (dB)                                 | > 27  | > 27        | > 26              |           |
| Cross polar ratio (dB)   | 0°  | > 18        | > 18              |           |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature)*                    |             |                   |           |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)                           |             |                   |           |
| Impedance (Ω)  | 50  |             |                   |           |
| Grounding  | DC Ground   |             |                   |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

# A114521R5v06

D11X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17i/17i/17i/21i-8xM-R  
 EasyRET 22-port 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
 8 Integrated RCUs - 2.6m



## General Electrical Properties

|  | Frequency range (MHz)                 | 2300 - 3800 (p1)  |             |
|--|---------------------------------------|---|-------------|
|  |                                       | 2300 - 2690   | 3300 - 3800 |
| General parameters   | Polarization                          | +45° , -45°   |             |
|  | Electrical downtilt (°)               | 2 - 12, continuously adjustable                                     |             |
|  | Electrical downtilt tolerance (°)     | ±1  |             |
|  | Avg. power capacity (W)*              | 40  |             |
|  | Impedance (Ω)                         | 50  |             |
|  | Grounding                             | DC Ground   |             |
|  | Calibration and electrical parameters | Coupling factor between calibration port and each antenna port (dB) | -26 ±2      |
| Max. amplitude tolerance from calibration port to input ports (dB) |                                       | 0.7   | 0.9         |
| Max. phase tolerance from calibration port to input ports (°)      |                                       | 5   | 7           |
| Ports VSWR   |                                       | 1.5   | 1.5         |
| Co-polarization isolation between ports (dB)                       |                                       | ≥ 20  | ≥ 20        |
| Cross-polarization isolation between ports (dB)                    |                                       | ≥ 23  | ≥ 23        |

\* Total power : 1000 W (at 50°C ambient temperature)

## TDD LTE Electrical Properties

|                                     | Frequency range (MHz) | 2300 - 3800 (p1)   |             |      |
|-------------------------------------|-----------------------|--|-------------|------|
|                                     |                       | 2300 - 2690  | 3300 - 3800 |      |
| Radiation parameters                | Single column beam    | Gain (dBi)   | 15.0        | 15.7 |
|                                     |                       | Horizontal 3dB beam width (°)                                  | 90          | 70   |
|                                     |                       | Front to back ratio (dB)                                       | ≥ 25        | ≥ 25 |
|                                     |                       | Cross polar ratio (0°) (dB)                                    | ≥ 16        | ≥ 15 |
|                                     |                       | Vertical 3dB beam width (°)                                    | 8.0         | 5.5  |
|                                     |                       | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        | ≥ 15 |
|                                     | 65° Broadcast beam    | Gain (dBi)   | 16.0        | 17.1 |
|                                     |                       | Horizontal 3dB beam width (°)                                  | 65          | 65   |
|                                     |                       | Front to back ratio (dB)                                       | ≥ 26        | ≥ 25 |
|                                     |                       | Cross polar ratio (0°) (dB)                                    | ≥ 17        | ≥ 16 |
|                                     |                       | Vertical 3dB beam width (°)                                    | 8.0         | 5.5  |
|                                     | Service beam          | 0°direct beam gain (dBi)                                       | 20.0        | 21.1 |
|                                     |                       | 0°direction beam horizontal 3dB beam width (°)                 | 26          | 20   |
|                                     |                       | 0°direction beam front to back ratio (dB)                      | ≥ 30        | ≥ 30 |
|                                     |                       | 0°direction beam cross polar ratio (dB)                        | ≥ 19        | ≥ 19 |
|                                     | Soft split multi-beam | Gain (dBi)   | 19          | /    |
|                                     |                       | Horizontal 3dB beam width (°)                                  | 32          | /    |
|                                     |                       | Front to back ratio (dB)                                       | ≥ 30        | /    |
| Cross polar ratio at boresight (dB) |                       | ≥ 19   | /           |      |

Notes:

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

FDD + NR/TDD

# A114521R5v06

D11X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17i/17i/17i/17i/21i-8xM-R  
 EasyRET 22-port 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
 8 Integrated RCUs - 2.6m



## 5G NR Electrical Properties

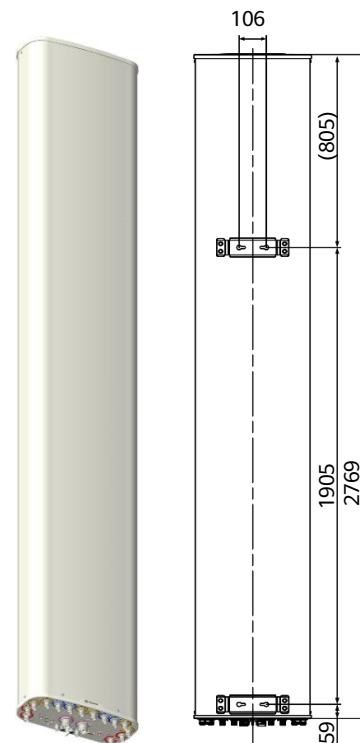
| Radiation parameters                                  | Frequency range (MHz) |  | 2300 - 3800 (p1) |             |
|---|-----------------------|--|------------------|-------------|
|   |                       |  | 2300 - 2690      | 3300 - 3800 |
| Single column beam                                    |                       | Gain (dBi)   | /                | 15.7        |
|   |                       | Horizontal 3dB beam width (°)                                  | /                | 70          |
|   |                       | Front to back ratio (dB)                                       | /                | ≥ 25        |
|   |                       | Cross polar ratio (0°) (dB)                                    | /                | ≥ 15        |
|   |                       | Vertical 3dB beam width (°)                                    | /                | 5.5         |
|   |                       | Side lobe suppression for first side lobe above main beam (dB) | /                | ≥ 15        |
| NR Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) |                       | Gain (dBi)   | /                | 20.8        |
|   |                       | Horizontal 3dB beam width (°)                                  | /                | 65          |
|   |                       | Front to back ratio (dB)                                       | /                | ≥ 25        |
|   |                       | Vertical 3dB beam width (°)                                    | /                | 5.5         |
|   |                       | Side lobe suppression for first side lobe above main beam (dB) | /                | ≥ 15        |
| NR Service beam                                       |                       | 0°direct beam gain (dBi)                                       | /                | 21.1        |
|   |                       | 0°direction beam horizontal 3dB beam width (°)                 | /                | 20          |
|   |                       | 0°direction beam front to back ratio (dB)                      | /                | ≥ 30        |
|   |                       | 0°direction beam cross polar ratio (0°) (dB)                   | /                | ≥ 19        |

### Notes:

- The 5G NR broadcast beam is the envelope of SSB(synchronization signal block) sweeping beams and the gain is the maximum gain of SSB sweeping beams.
- Downlink broadcast beam gain values and pattern files can only be used for broadcast channel coverage prediction.
- Downlink and uplink budgets need to be calculated based on the gain of single column beam and the correct Tx/Rx number.

## Mechanical Properties

|                                     |   |
|-------------------------------------|---|
| Distance between TDD columns (mm)   | 59  |
| Antenna dimensions (H x W x D) (mm) | 2769 x 449 x 196  |
| Packing dimensions (H x W x D) (mm) | 2975 x 540 x 245  |
| Antenna weight (kg)                 | 56.5  |
| Clamps weight (kg)                  | 5.8 (2 units)   |
| Antenna packing weight (kg)         | 73.4 (Included clamps)  |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | Frontal: 840 (at 150 km/h)<br>Lateral: 515 (at 150 km/h)<br>Maximum: 1105 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 14 x 4.3-10 Female<br>1 x MQ4 Male + 1 x MQ5 Male                                       |
| Connector position                  | Bottom  |

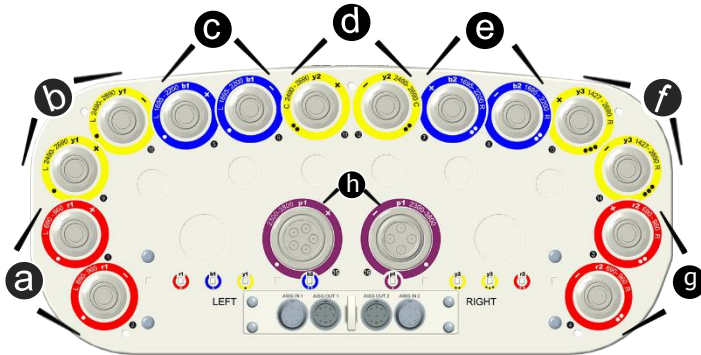


## Accessories

| Item         | Model     | Description                    | Weight | Units per antenna    |
|--------------|-----------|--------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt:<br>0 - 8° | 3.1 kg | 1 (Separate packing) |

# A114521R5v06

D11X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17i/17i/17i/21i-8xM-R  
 EasyRET 22-port 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
 8 Integrated RCUs - 2.6m



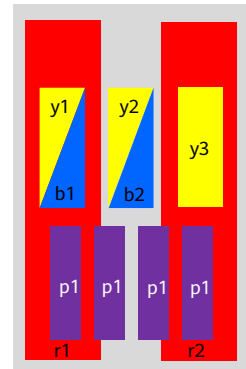
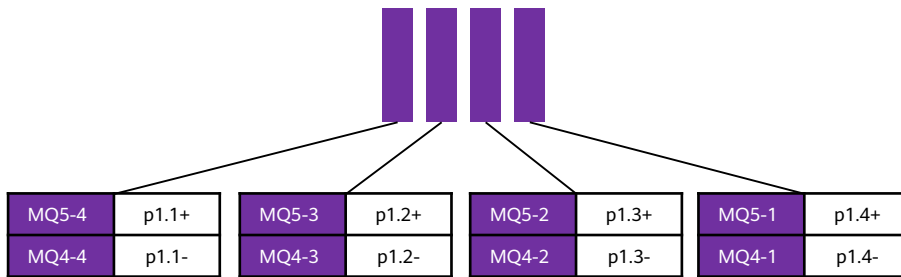
r - Red      y - Yellow      b - Blue      p - Purple  
 L - Left array      R - Right array      C - Center array

### RET S/N:

- a HWMxxx.....Lr1
- b HWMxxx.....Ly1
- c HWMxxx.....Lb1
- d HWMxxx.....Cy2
- e HWMxxx.....Rb2
- f HWMxxx.....Ry3
- g HWMxxx.....Rr2
- h HWMxxx.....p1

### RAE S/N:

- h HWXxxx.....p1



FDD +  
NR/TDD

# A114521R5v06

D11X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17i/17i/17i/17i/21i-8xM-R  
EasyRET 22-port 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
8 Integrated RCUs - 2.6m



## Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |     |         |     |         |    |           |     |
| Connectors                       | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |

| RAE Properties |                    |
|----------------|--------------------|
| RAE type       | Integrated RAE     |
| RAE protocols  | AISG-ES-RAE V2.1.0 |

| TDD LTE EasyBeam Properties |                               |          |    |             |          |    |    |
|-----------------------------|-------------------------------|----------|----|-------------|----------|----|----|
| Frequency range (MHz)       | 2300 - 2690                   |          |    | 3300 - 3800 |          |    |    |
| Electrical downtilt (°)     | 2 - 12                        |          |    | 2 - 12      |          |    |    |
| Broadcast beam              | Horizontal 3dB beam width (°) | 30       | 65 | 90          | 30       | 65 | 90 |
|                             | Electrical azimuth (°)        | -15..+15 |    | 0           | -15..+15 |    | 0  |
|                             | Electrical azimuth step(°)    | 1        |    | /           | 1        |    | /  |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

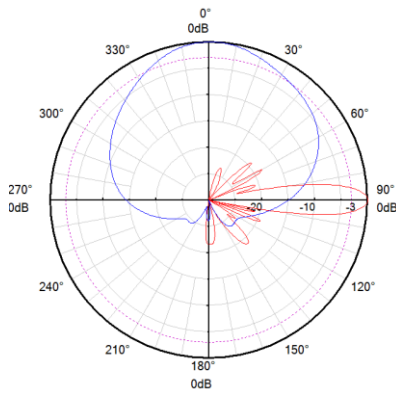
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

# A114521R5v06

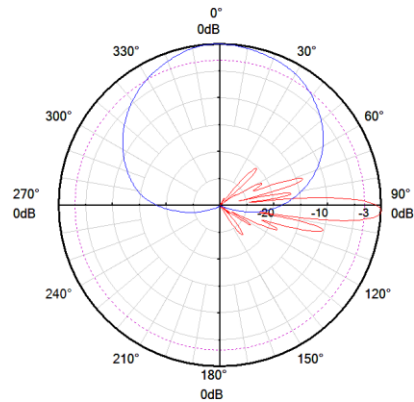
D11X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17i/17i/17i/17i/21i-8xM-R  
EasyRET 22-port 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
8 Integrated RCUs - 2.6m



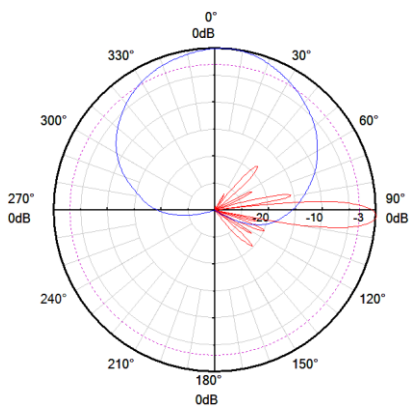
## Pattern sample for reference



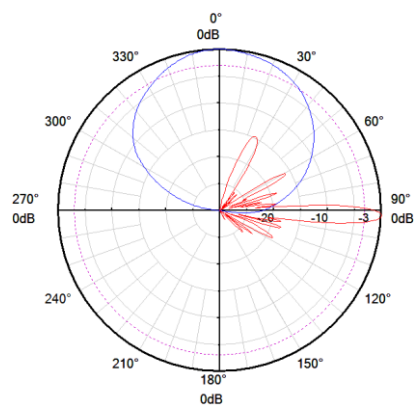
**690 - 960 MHz  
(Lr1 / Rr2)**



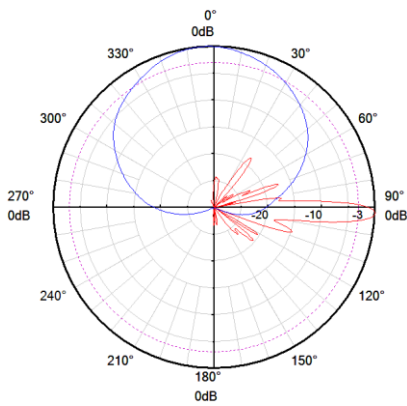
**1427 - 2690 MHz  
(Ry3)**



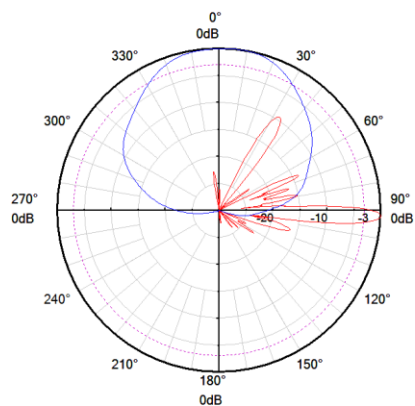
**1695 - 2200 MHz  
(Lb1)**



**2490 - 2690 MHz  
(Ly1)**



**1695 - 2200 MHz  
(Rb2)**



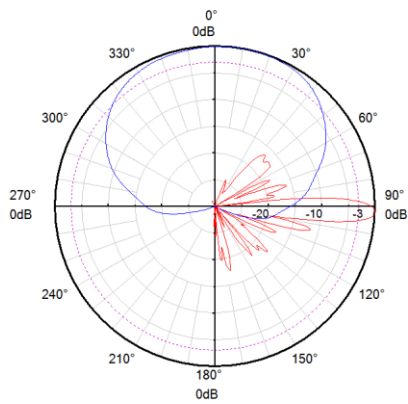
**2490 - 2690 MHz  
(Cy2)**

FDD +  
NR/TDD

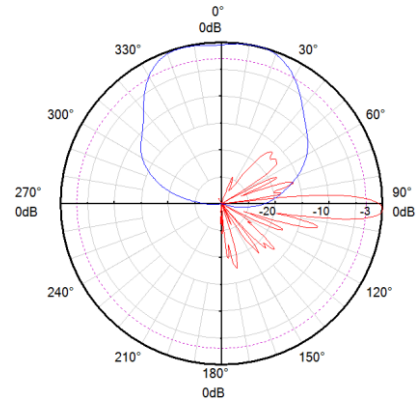


# A114521R5v06

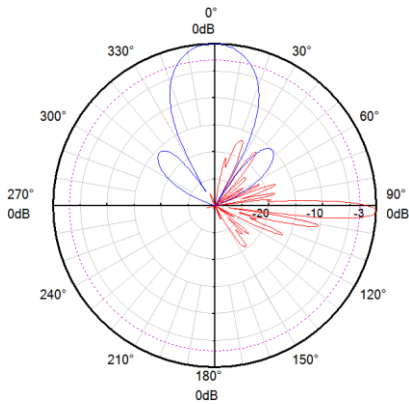
D11X-2x(690-960)/1427-2690/2x(1695-2200)/2x(2490-2690)/4x(2300-3800)-8x65-16.5i/16.5i/17.5i/17i/17i/17i/17i/21i-8xM-R  
EasyRET 22-port 2L5H FDD/2.3-3.8GHz 8T8R TDD Antenna with  
8 Integrated RCUs - 2.6m



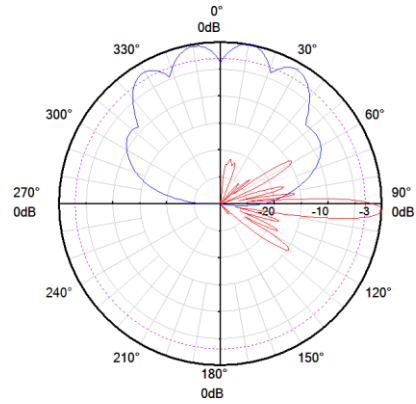
**Single column  
(2300 - 3800 MHz)**



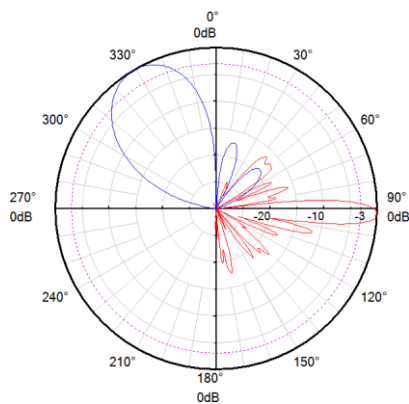
**65° Broadcast  
(2300 - 3800 MHz)**



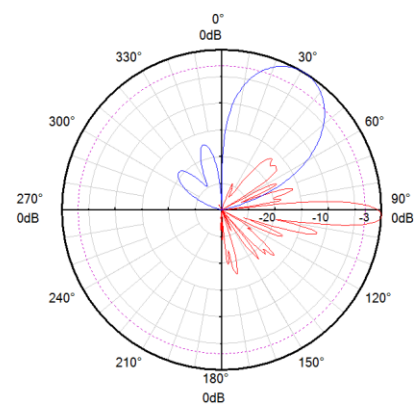
**Service 0°  
(2300 - 3800 MHz)**



**5G NR Broadcast  
(3300 - 3800 MHz)**



**Multi-Beam-30°  
(2300 - 2690 MHz)**



**Multi-Beam+30°  
(2300 - 2690 MHz)**

## B. Passive Antenna

### TDD Antenna

| Frequency Range (MHz)                 | 3dB Horizontal Beam Width (°) | Gain (dBi) | Electrical Downtilt (°) | Tilt Method | Connector         | Dimension(mm)    | Model           | Page       |
|---------------------------------------|-------------------------------|------------|-------------------------|-------------|-------------------|------------------|-----------------|------------|
| 2300-2690                             | 65*                           | 17.5       | 2-12                    | EasyRET2.0  | 9 x N Female      | 1445 x 299 x 109 | ATD4516R5       | <b>326</b> |
| 2300-2690                             | 65*                           | 17.5       | 2-12                    | EasyRET2.0  | 1 x MQ4 + 1 x MQ5 | 1445 x 299 x 109 | ATD4516R5v07    | <b>330</b> |
| 3300-3800                             | 65*                           | 17         | 2-12                    | EasyRET2.0  | 9 x N Female      | 1100 x 259 x 135 | ATD4516R8       | <b>334</b> |
| 3300-3800                             | 65*                           | 17         | 2-12                    | EasyRET2.0  | 1 x MQ4 + 1 x MQ5 | 1445 x 299 x 109 | ATD4516R8v07    | <b>338</b> |
| 2300-2690/<br>3300-3800               | 65*/65*                       | 17/16      | 2-12/2-12               | EasyRET2.0  | 18 x N Female     | 1499 x 469 x 206 | ATD4516R9       | <b>342</b> |
| 2300-2690/<br>3300-3800               | 65*/65*                       | 17/16      | 2-12/2-12               | EasyRET2.0  | 2 x MQ4 + 2 x MQ5 | 1499 x 469 x 206 | ATD4516R9v07    | <b>346</b> |
| 2545-2645/<br>3400-3600/<br>3600-5000 | 65*/65*/65*                   | 21/22/22   | 5-15/5-<br>15/5-15      | EasyRET2.0  | 3 x MQ4 + 3 x MQ5 | φ332 x 982       | **CTD4522R01v06 | <b>350</b> |
| 2300-2690                             | 18   65                       | 22   17.5  | 2-12                    | EasyRET2.0  | 1 x MQ4 + 1 x MQ5 | 1509 x 499 x 206 | **A04040PD00v06 | <b>353</b> |

\* Broadcast beam

\*\* Preliminary Issue

## Antenna Specifications

| General Electrical Properties                   |  |   |             |
|---|--|---|-------------|
| General parameters                              | Frequency range (MHz)  | 2300 - 2400   | 2496 - 2690 |
|   | Polarization   | +45°, -45°  |             |
|   | Electrical downtilt (°)  | 2 - 12, continuously adjustable   |             |
|   | Electrical downtilt tolerance (°)  | ±1  |             |
|   | Grounding  | DC Ground   |             |
| Calibration and electrical parameters           | Coupling factor between calibration port and each antenna port (dB)                                  | -26 ±2  |             |
|   | Max. amplitude tolerance from calibration port to input ports (dB)                                   | 0.7   |             |
|   | Max. phase tolerance from calibration port to input ports (°)  | 5   |             |
|   | Ports VSWR   | 1.5   |             |
|   | Co-polarization isolation between ports (dB)   | ≥ 20 @ 2°Electrical downtilt ; ≥ 25 @ 3°- 6°Electrical downtilt;<br>≥ 28 @ 7°- 12°Electrical downtilt |             |
| Cross-polarization isolation between ports (dB) | ≥ 25 @ 2°Electrical downtilt; ≥ 28 @ 3°- 6°Electrical downtilt;<br>≥ 30 @ 7°- 12°Electrical downtilt |   |             |

| Beamforming Electrical Properties |  |  |             |             |
|-----------------------------------|--|--|-------------|-------------|
| Radiation parameters              | Frequency range (MHz)                      |  | 2300 - 2400 | 2496 - 2690 |
|                                   | Single column beam                         | Horizontal 3dB beam width (°)                                  | 90          | 75          |
|                                   |  | Gain (dBi)   | 16          | 17          |
|                                   |  | Cross polar ratio (0°) (dB)                                    | 20          | 20          |
|                                   |  | Side lobe suppression for first side lobe above main beam (dB) | ≥ 18        | ≥ 18        |
|                                   |  | Front to back ratio (dB)                                       | ≥ 28        | ≥ 27        |
|                                   | 65° Broadcast beam                         | Horizontal 3dB beam width (°)                                  | 65          | 65          |
|                                   |  | Gain (dBi)   | 17.5        | 18          |
|                                   |  | Gain roll-off at sector edge (dB)                              | 12          | 12          |
|                                   |  | Vertical 3dB beam width (°)                                    | 6.5         | 5.7         |
|                                   |  | Cross polar ratio (0°) (dB)                                    | 22          | 22          |
|                                   |  | Front to back ratio (dB)                                       | ≥ 30        | ≥ 30        |
|                                   | Service beam                               | Side lobe suppression for first side lobe above main beam (dB) | ≤ -18       | ≤ -18       |
|                                   |  | 0° direct beam gain (dBi)                                      | 21          | 22          |
|                                   |  | 0° direction beam horizontal 3dB beam width (°)                | 25.5        | 23          |
|                                   |  | 0° direction beam horizontal side lobe suppression (dB)        | -12         | -12         |
|                                   |  | ±30° direction beam gain (dBi)                                 | 20.5        | 21          |
|                                   |  | 0° direction beam cross polar ratio (0°) (dB)                  | 22          | 22          |
|                                   | 0° direction beam front to back ratio (dB) | 30   | 30          |             |

**Soft Split Electrical Properties**

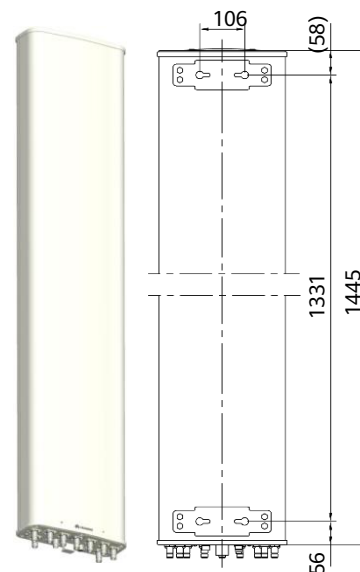
|                      |            | Frequency range (MHz)  | 2300 - 2400 | 2496 - 2690 |
|----------------------|------------|--|-------------|-------------|
| Radiation parameters | Multi-beam | Horizontal 3dB beam width (°)                                  | 30          | 27          |
|                      |            | Gain (dBi)   | 20.5        | 21.5        |
|                      |            | Vertical 3dB beam width (°)                                    | 6.5         | 5.7         |
|                      |            | Front to back ratio (dB)                                       | ≥ 30        | ≥ 30        |
|                      |            | Side lobe suppression for first side lobe above main beam (dB) | ≥ 18        | ≥ 18        |

**Notes:**

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

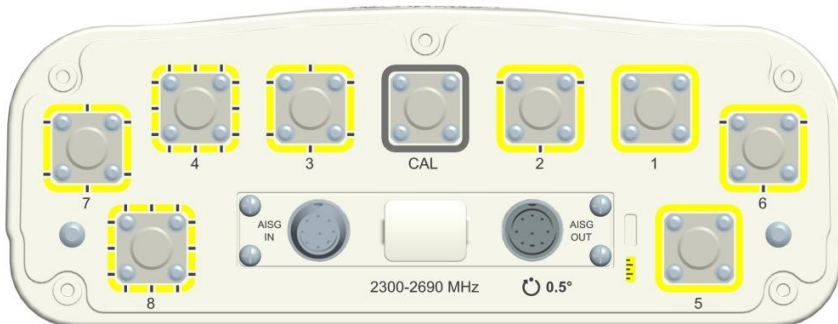
**Mechanical Properties**

|                                     |  |
|-------------------------------------|--|
| Distance between columns (mm)       | 62   |
| Antenna dimensions (H x W x D) (mm) | 1445 x 299 x 109   |
| Packing dimensions (H x W x D) (mm) | 1770 x 350 x 180   |
| Antenna weight (kg)                 | 16.0   |
| Clamps weight (kg)                  | 2.9 (2 units)  |
| Antenna packing weight (kg)         | 22.8 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 410 (at 150 km/h)<br>Lateral: 140 (at 150 km/h)<br>Maximum: 470 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 9 x N Female   |
| Connector position                  | Bottom   |



**Accessories**

| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0B01 | Mechanical downtilt: 0 - 16 ° | 1.3 kg | 1 (Separate packing) |



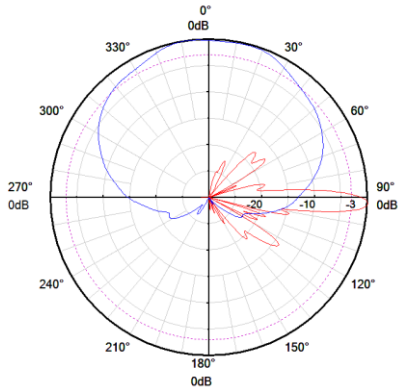
**RET S/N:** HWMxxx....y

**RAE S/N:** HWXxxx.....y

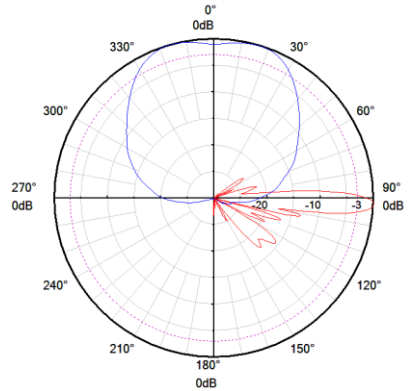
y - Yellow

NR/TTD & Others

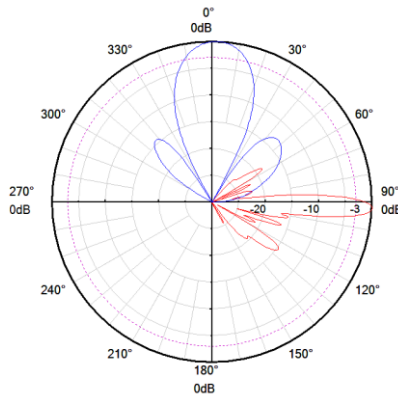
Pattern sample for reference



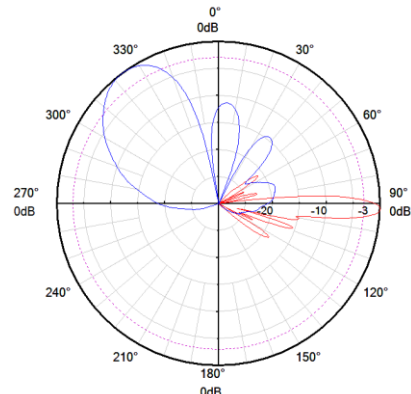
Single column



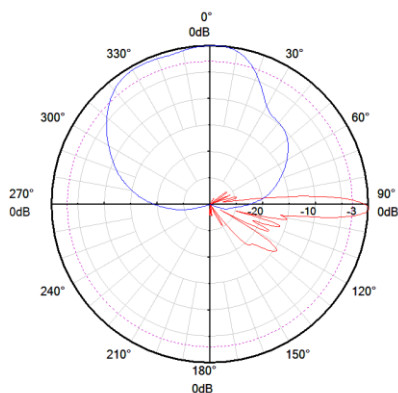
65° Broadcast



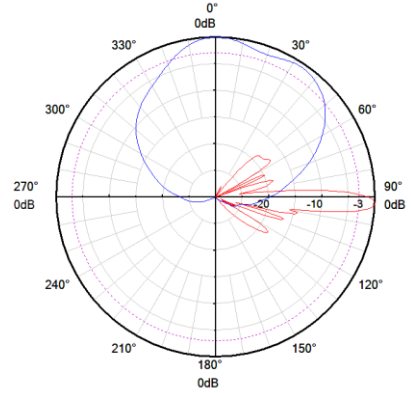
Service 0°



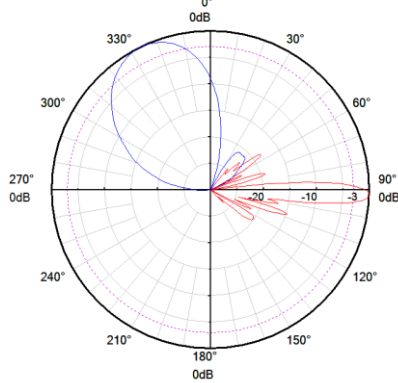
Service 30°



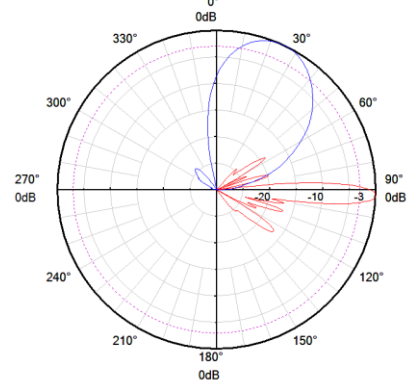
Azimuth -15°



Azimuth +15°



Multi-Beam -30°



Multi-Beam +30°

### Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |          |         |     |             |    |           |     |
|----------------------------------|--|----------|---------|-----|-------------|----|-----------|-----|
| RET type                         | Integrated RET   |          |         |     |             |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |          |         |     |             |    |           |     |
| Input voltage range (V)          | DC 10 - 30   |          |         |     |             |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |          |         |     |             |    |           |     |
| Adjustment time (full range) (s) | Typ. 30  |          |         |     |             |    |           |     |
| RET interface 1 (RF feeder)      | Calibration channel integrate the Bias-T and supporting OOK modulation signal communication  |          |         |     |             |    |           |     |
| RET interface 2 (485 connector)  | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |          |         |     |             |    |           |     |
| Pin assignment according AISG    | 1  | 2        | 3       | 4   | 5           | 6  | 7         | 8   |
|                                  | DC   | n/c      | RS-485B | n/c | RS-485A     | DC | DC return | n/c |
| Lightning protection (kA)        | 10 (8/20 $\mu$ s)  |          |         |     |             |    |           |     |
| RAE Properties                   |  |          |         |     |             |    |           |     |
| RAE type                         | Integrated RAE, manages antenna information  |          |         |     |             |    |           |     |
| RAE protocols                    | AISG-ES-RAE V2.1.0   |          |         |     |             |    |           |     |
| EasyBeam Properties              |  |          |         |     |             |    |           |     |
| Frequency range (MHz)            | 2300 - 2400  |          |         |     | 2496 - 2690 |    |           |     |
| Electrical downtilt (°)          | 2 - 12   |          |         |     |             |    |           |     |
| Broadcast beam                   | Horizontal 3dB beam width (°)  | 30       | 65      | 90  | 30          | 65 | 90        |     |
|                                  | Electrical azimuth (°)   | -15..+15 |         | 0   | -15..+15    |    | 0         |     |
|                                  | Electrical azimuth step(°)   | 1        |         | /   | 1           |    | /         |     |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

## Antenna Specifications

| General Electrical Properties         |   |   |             |
|---------------------------------------|---|---|-------------|
| General parameters                    | Frequency range (MHz)   | 2300 - 2400   | 2496 - 2690 |
|                                       | Polarization  | +45°, -45°  |             |
|                                       | Electrical downtilt (°)   | 2 - 12, continuously adjustable   |             |
|                                       | Electrical downtilt tolerance (°)                                   | ±1  |             |
|                                       | Max. power per input (W)  | 40 (at 50°C ambient temperature)*   |             |
|                                       | Impedance (Ω)   | 50  |             |
|                                       | Grounding   | DC Ground   |             |
| Calibration and electrical parameters | Coupling factor between calibration port and each antenna port (dB) | -26 ±2  |             |
|                                       | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.7   |             |
|                                       | Max. phase tolerance from calibration port to input ports (°)       | 5   |             |
|                                       | Ports VSWR  | 1.5   |             |
|                                       | Co-polarization isolation between ports (dB)                        | ≥ 20 @ 2°Electrical downtilt ; ≥ 25 @ 3°- 6°Electrical downtilt;<br>≥ 28 @ 7°- 12°Electrical downtilt |             |
|                                       | Cross-polarization isolation between ports (dB)                     | ≥ 25 @ 2°Electrical downtilt; ≥ 28 @ 3°- 6°Electrical downtilt;<br>≥ 30 @ 7°- 12°Electrical downtilt  |             |

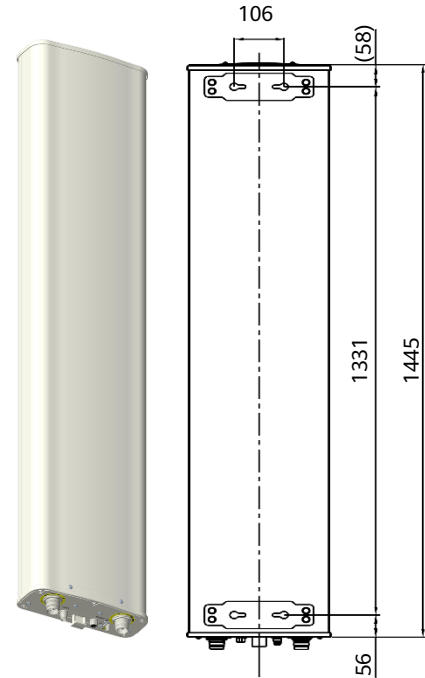
\* Total power : 320W (at 50°C ambient temperature)

| Beamforming Electrical Properties |                       |  |             |             |
|-----------------------------------|-----------------------|--|-------------|-------------|
| Radiation parameters              | Frequency range (MHz) |  | 2300 - 2400 | 2496 - 2690 |
|                                   | Single column beam    | Gain (dBi)   | 16          | 17          |
|                                   |                       | Horizontal 3dB beam width (°)                                  | 90          | 75          |
|                                   |                       | Front to back ratio (dB)                                       | ≥ 28        | ≥ 27        |
|                                   |                       | Cross polar ratio (0°) (dB)                                    | 20          | 20          |
|                                   |                       | Vertical 3dB beam width (°)                                    | 6.5         | 5.7         |
|                                   |                       | Side lobe suppression for first side lobe above main beam (dB) | ≥ 18        | ≥ 18        |
|                                   | 65° Broadcast beam    | Gain (dBi)   | 17.5        | 18          |
|                                   |                       | Horizontal 3dB beam width (°)                                  | 65          | 65          |
|                                   |                       | Front to back ratio (dB)                                       | ≥ 30        | ≥ 30        |
|                                   |                       | Cross polar ratio (0°) (dB)                                    | 22          | 22          |
|                                   |                       | Vertical 3dB beam width (°)                                    | 6.5         | 5.7         |
|                                   |                       | Side lobe suppression for first side lobe above main beam (dB) | ≤ -18       | ≤ -18       |
|                                   | Service beam          | 0° direct beam gain (dBi)                                      | 21          | 22          |
|                                   |                       | 0° direction beam horizontal 3dB beam width (°)                | 25.5        | 23          |
|                                   |                       | 0° direction beam cross polar ratio (0°) (dB)                  | 22          | 22          |
|                                   |                       | 0° direction beam front to back ratio (dB)                     | 30          | 30          |
|                                   | Soft split multi-beam | Gain (dBi)   | 20.5        | 21.5        |
|                                   |                       | Horizontal 3dB beam width (°)                                  | 30          | 27          |
|                                   |                       | Front to back ratio (dB)                                       | ≥ 30        | ≥ 30        |
|                                   |                       | Cross polar ratio at boresight (dB)                            | 18          | 18          |

**Notes:**

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

| Mechanical Properties               |  |
|-------------------------------------|--|
| Distance between columns (mm)       | 62   |
| Antenna dimensions (H x W x D) (mm) | 1445 x 299 x 109   |
| Packing dimensions (H x W x D) (mm) | 1770 x 350 x 180   |
| Antenna weight (kg)                 | 16.0   |
| Clamps weight (kg)                  | 2.9 (2 units)  |
| Antenna packing weight (kg)         | 22.8 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 410 (at 150 km/h)<br>Lateral: 140 (at 150 km/h)<br>Maximum: 470 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 1 x MQ4 Male + 1 x MQ5 Male  |
| Connector position                  | Bottom   |



**Accessories**

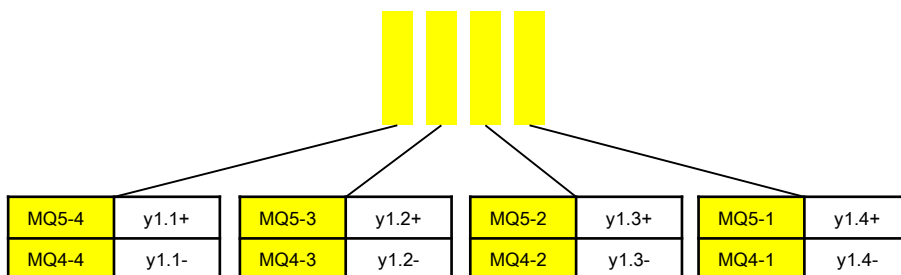
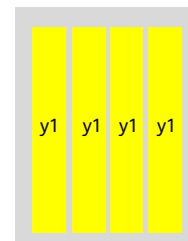
| Item         | Model     | Description                   | Weight | Units per antenna    |
|--------------|-----------|-------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0B01 | Mechanical downtilt: 0 - 16 ° | 1.3 kg | 1 (Separate packing) |



**RET S/N:** HWMxxx....y1

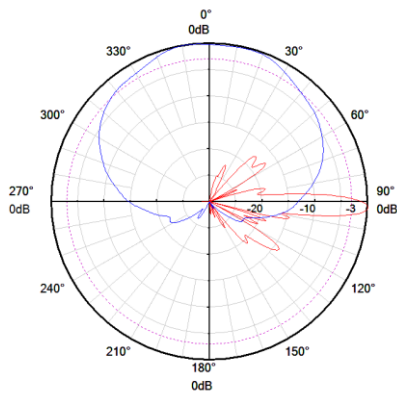
**RAE S/N:** HWXxxx....y1

y - Yellow

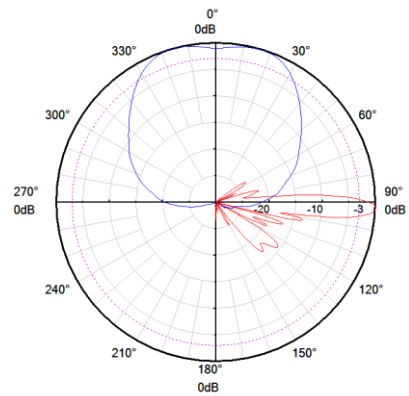




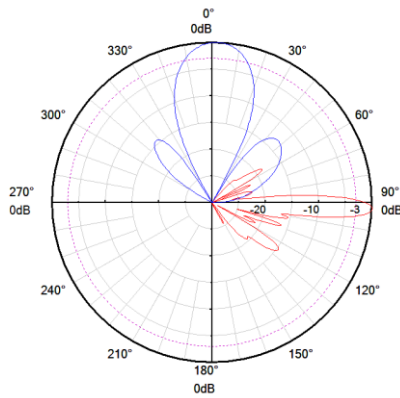
**Pattern sample for reference**



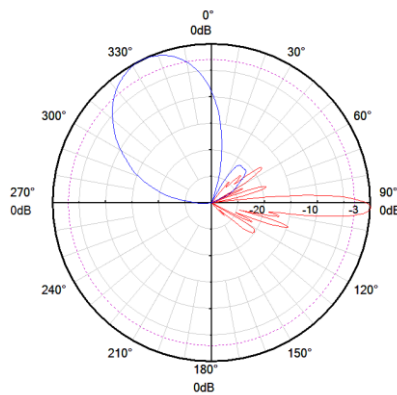
**Single column**



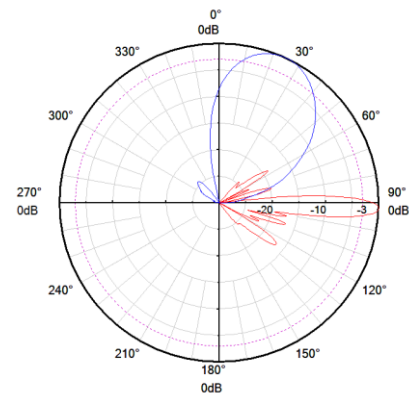
**65° Broadcast**



**Service 0°**



**Multi-Beam -30°**



**Multi-Beam +30°**

### Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |          |         |     |             |    |           |     |
|----------------------------------|--|----------|---------|-----|-------------|----|-----------|-----|
| RET type                         | Integrated RET   |          |         |     |             |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |          |         |     |             |    |           |     |
| Input voltage range (V)          | DC 10 - 30   |          |         |     |             |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |          |         |     |             |    |           |     |
| Adjustment time (full range) (s) | Typ. 30  |          |         |     |             |    |           |     |
| RET interface 1 (RF feeder)      | Calibration channel integrate the Bias-T and supporting OOK modulation signal communication  |          |         |     |             |    |           |     |
| RET interface 2 (485 connector)  | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |          |         |     |             |    |           |     |
| Pin assignment according AISG    | 1  | 2        | 3       | 4   | 5           | 6  | 7         | 8   |
|                                  | DC   | n/c      | RS-485B | n/c | RS-485A     | DC | DC return | n/c |
| Lightning protection (kA)        | 10 (8/20 $\mu$ s)  |          |         |     |             |    |           |     |
| RAE Properties                   |  |          |         |     |             |    |           |     |
| RAE type                         | Integrated RAE, manages antenna information  |          |         |     |             |    |           |     |
| RAE protocols                    | AISG-ES-RAE V2.1.0   |          |         |     |             |    |           |     |
| EasyBeam Properties              |  |          |         |     |             |    |           |     |
| Frequency range (MHz)            | 2300 - 2400  |          |         |     | 2496 - 2690 |    |           |     |
| Electrical downtilt (°)          | 2 - 12   |          |         |     |             |    |           |     |
| Broadcast beam                   | Horizontal 3dB beam width (°)  | 30       | 65      | 90  | 30          | 65 | 90        |     |
|                                  | Electrical azimuth (°)   | -15..+15 |         | 0   | -15..+15    |    | 0         |     |
|                                  | Electrical azimuth step(°)   | 1        |         | /   | 1           |    | /         |     |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

## Antenna Specifications

| General Electrical Properties         |   |                                   |
|---------------------------------------|---|-----------------------------------|
| General parameters                    | Frequency range (MHz)   | 3300 - 3800                       |
|                                       | Polarization  | +45° , -45°                       |
|                                       | Electrical downtilt (°)   | 2 - 12, continuously adjustable   |
|                                       | Electrical downtilt tolerance (°)                                   | ±1                                |
|                                       | Max. power per input (W)  | 25 (at 50°C ambient temperature)* |
|                                       | Impedance (Ω)   | 50                                |
|                                       | Grounding   | DC Ground                         |
| Calibration and electrical parameters | Coupling factor between calibration port and each antenna port (dB) | -26 ±2                            |
|                                       | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.9                               |
|                                       | Max. phase tolerance from calibration port to input ports (°)       | 7                                 |
|                                       | Ports VSWR  | 1.5                               |
|                                       | Co-polarization isolation between ports (dB)                        | ≥ 20                              |
|                                       | Cross-polarization isolation between ports (dB)                     | ≥ 25                              |

\* Total power : 200W (at 50°C ambient temperature)

| TDD LTE Electrical Properties |                       |  |             |
|-------------------------------|-----------------------|--|-------------|
| Radiation parameters          | Frequency range (MHz) |  | 3300 - 3800 |
|                               | Single column beam    | Gain (dBi)   | 15.5        |
|                               |                       | Horizontal 3dB beam width (°)                                  | 78          |
|                               |                       | Front to back ratio (dB)                                       | ≥ 23        |
|                               |                       | Cross polar ratio (0°) (dB)                                    | ≥ 18        |
|                               |                       | Vertical 3dB beam width (°)                                    | 5.5         |
|                               |                       | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        |
|                               | 65° Broadcast beam    | Gain (dBi)   | 17          |
|                               |                       | Horizontal 3dB beam width (°)                                  | 65          |
|                               |                       | Front to back ratio (dB)                                       | ≥ 25        |
|                               |                       | Cross polar ratio (0°) (dB)                                    | ≥ 22        |
|                               |                       | Vertical 3dB beam width (°)                                    | 5.5         |
|                               |                       | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        |
|                               | Service beam          | 0° direct beam gain (dBi)                                      | 21          |
|                               |                       | 0° direction beam horizontal 3dB beam width (°)                | 26          |
|                               |                       | 0° direction beam front to back ratio (dB)                     | ≥ 28        |
|                               |                       | 0° direction beam cross polar ratio (0°) (dB)                  | ≥ 22        |
|                               | Soft split multi-beam | Gain (dBi)   | 20          |
|                               |                       | Horizontal 3dB beam width (°)                                  | 30          |
|                               |                       | Front to back ratio (dB)                                       | ≥ 25        |
|                               |                       | Cross polar ratio at boresight (dB)                            | ≥ 18        |

### Notes:

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

## 5G NR Electrical Properties

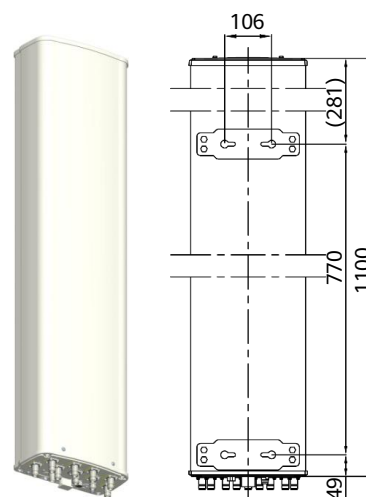
| Frequency range (MHz)                        |   | 3300 - 3800  |      |
|--|---|--|------|
| Radiation parameters                         | Single column beam                                    | Gain (dBi)   | 15.5 |
|  |   | Horizontal 3dB beam width (°)                                  | 78   |
|  |   | Front to back ratio (dB)                                       | ≥ 23 |
|  |   | Cross polar ratio (0°) (dB)                                    | ≥ 18 |
|  |   | Vertical 3dB beam width (°)                                    | 5.5  |
|  |   | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15 |
|  | NR Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Gain (dBi)   | 20.7 |
|  |   | Horizontal 3dB beam width (°)                                  | 65   |
|  |   | Front to back ratio (dB)                                       | ≥ 25 |
|  |   | Vertical 3dB beam width (°)                                    | 5.5  |
|  |   | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15 |
|  | NR Service beam                                       | 0°direct beam gain (dBi)                                       | 21   |
|  |   | 0°direction beam horizontal 3dB beam width (°)                 | 26   |
|  |   | 0°direction beam front to back ratio (dB)                      | ≥ 28 |
| 0°direction beam cross polar ratio (0°) (dB) |   | ≥ 22   |      |

## Notes:

1. The 5G NR broadcast beam is the envelope of SSB(synchronization signal block) sweeping beams and the gain is the maximum gain of SSB sweeping beams.
2. Downlink broadcast beam gain values and pattern files can only be used for broadcast channel coverage prediction.
3. Downlink and uplink budgets need to be calculated based on the gain of single column beam and the correct Tx/Rx number.

## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Distance between columns (mm)       | 43   |
| Antenna dimensions (H x W x D) (mm) | 1100 x 259 x 135   |
| Packing dimensions (H x W x D) (mm) | 1290 x 340 x 205   |
| Antenna weight (kg)                 | 13.0   |
| Clamps weight (kg)                  | 2.9 (2 units)  |
| Antenna packing weight (kg)         | 20.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 285 (at 150 km/h)<br>Lateral: 130 (at 150 km/h)<br>Maximum: 385 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 9 x N Female   |
| Connector position                  | Bottom   |

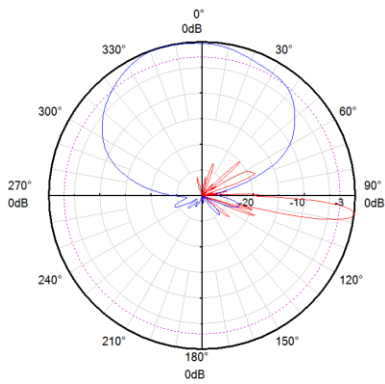


NR/TTD &amp; Others

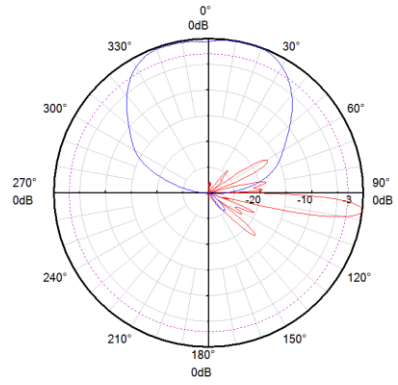
## Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0B01 | Mechanical downtilt: 0 - 16° | 1.3 kg | 1 (Separate packing) |

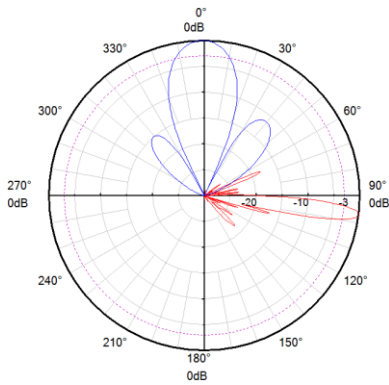
Pattern sample for reference



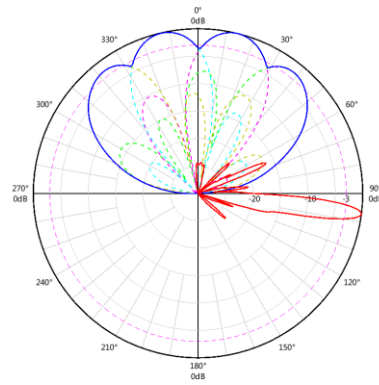
Single column



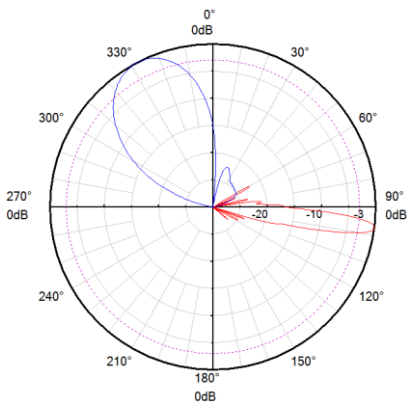
65° Broadcast



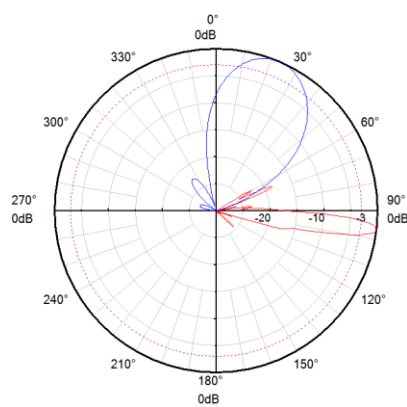
Service 0°



5G NR Broadcast



Multi-Beam -30°



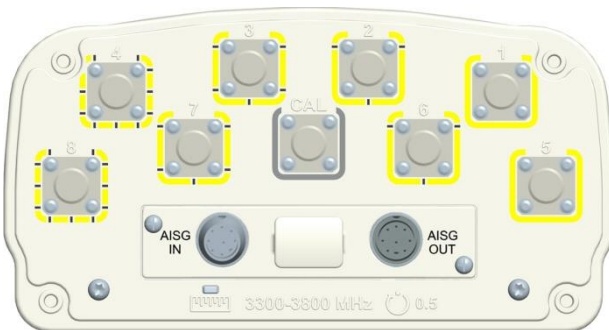
Multi-Beam +30°

### Antenna Information Management Module (AIMM) Specifications

| RET Properties                     |  |          |         |     |         |    |           |     |
|------------------------------------|--|----------|---------|-----|---------|----|-----------|-----|
| RET type                           | Integrated RET   |          |         |     |         |    |           |     |
| RET protocols                      | AISG 2.0 / 3GPP  |          |         |     |         |    |           |     |
| Input voltage range (V)            | DC 10 - 30   |          |         |     |         |    |           |     |
| Power consumption (W)              | < 1 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |          |         |     |         |    |           |     |
| Adjustment time (full range) (s)   | Typ. 30  |          |         |     |         |    |           |     |
| RET interface 1 (RF feeder)        | Calibration channel integrate the Bias-T and supporting OOK modulation signal communication  |          |         |     |         |    |           |     |
| RET interface 2 (485 connector)    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |          |         |     |         |    |           |     |
| Pin assignment according AISG      | 1  | 2        | 3       | 4   | 5       | 6  | 7         | 8   |
|                                    | DC   | n/c      | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)          | 5 (8/20 $\mu$ s)   |          |         |     |         |    |           |     |
| RAE Properties                     |  |          |         |     |         |    |           |     |
| RAE type                           | Integrated RAE, manages antenna information  |          |         |     |         |    |           |     |
| RAE protocols                      | AISG-ES-RAE V2.1.0   |          |         |     |         |    |           |     |
| EasyBeam Properties                |  |          |         |     |         |    |           |     |
| Frequency range (MHz)              | 3300 - 3800  |          |         |     |         |    |           |     |
| Electrical downtilt ( $^{\circ}$ ) | 2 - 12   |          |         |     |         |    |           |     |
| Broadcast beam                     | Horizontal 3dB beam width ( $^{\circ}$ )   | 30       |         | 65  |         |    | 90        |     |
|                                    | Electrical azimuth ( $^{\circ}$ )  | -15..+15 |         |     |         |    | 0         |     |
|                                    | Electrical azimuth step( $^{\circ}$ )  | 1        |         |     |         |    | /         |     |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**RET S/N:** HWMxxx...y

**RAE S/N:** HWXxxx...y

y - Yellow

### Antenna Specifications

| General Electrical Properties         |   |                                   |
|---------------------------------------|---|-----------------------------------|
| General parameters                    | Frequency range (MHz)   | 3300 - 3800                       |
|                                       | Polarization  | +45° , -45°                       |
|                                       | Electrical downtilt (°)   | 2 - 12, continuously adjustable   |
|                                       | Electrical downtilt tolerance (°)                                   | ±1                                |
|                                       | Max. power per input (W)  | 40 (at 50°C ambient temperature)* |
|                                       | Impedance (Ω)   | 50                                |
|                                       | Grounding   | DC Ground                         |
| Calibration and electrical parameters | Coupling factor between calibration port and each antenna port (dB) | -26 ±2                            |
|                                       | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.9                               |
|                                       | Max. phase tolerance from calibration port to input ports (°)       | 7                                 |
|                                       | Ports VSWR  | 1.5                               |
|                                       | Co-polarization isolation between ports (dB)                        | ≥ 20                              |
|                                       | Cross-polarization isolation between ports (dB)                     | ≥ 25                              |

\* Total power : 320W (at 50°C ambient temperature)

| TDD LTE Electrical Properties |                       |  |             |
|-------------------------------|-----------------------|--|-------------|
| Radiation parameters          | Frequency range (MHz) |  | 3300 - 3800 |
|                               | Single column beam    | Gain (dBi)   | 15.5        |
|                               |                       | Horizontal 3dB beam width (°)                                  | 78          |
|                               |                       | Front to back ratio (dB)                                       | ≥ 23        |
|                               |                       | Cross polar ratio (0°) (dB)                                    | ≥ 18        |
|                               |                       | Vertical 3dB beam width (°)                                    | 5.5         |
|                               |                       | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        |
|                               | 65° Broadcast beam    | Gain (dBi)   | 17          |
|                               |                       | Horizontal 3dB beam width (°)                                  | 65          |
|                               |                       | Front to back ratio (dB)                                       | ≥ 25        |
|                               |                       | Cross polar ratio (0°) (dB)                                    | ≥ 22        |
|                               |                       | Vertical 3dB beam width (°)                                    | 5.5         |
|                               |                       | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        |
|                               | Service beam          | 0° direct beam gain (dBi)                                      | 21          |
|                               |                       | 0° direction beam horizontal 3dB beam width (°)                | 26          |
|                               |                       | 0° direction beam front to back ratio (dB)                     | ≥ 28        |
|                               |                       | 0° direction beam cross polar ratio (0°) (dB)                  | ≥ 22        |
|                               | Soft split multi-beam | Gain (dBi)   | 20          |
|                               |                       | Horizontal 3dB beam width (°)                                  | 30          |
|                               |                       | Front to back ratio (dB)                                       | ≥ 25        |
|                               |                       | Cross polar ratio at boresight (dB)                            | ≥ 18        |

#### Notes:

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

## 5G NR Electrical Properties

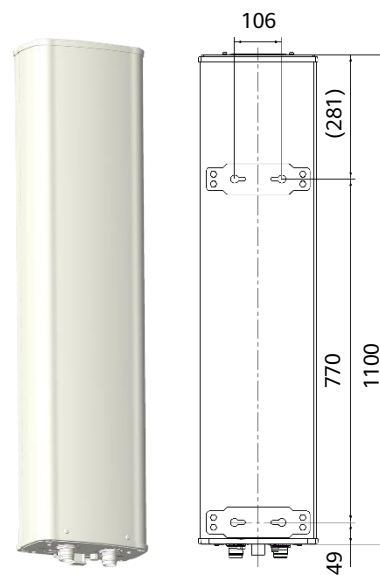
| Frequency range (MHz) |   | 3300 - 3800  |      |
|-----------------------|---|--|------|
| Radiation parameters  | Single column beam                                    | Gain (dBi)   | 15.5 |
|                       |   | Horizontal 3dB beam width (°)                                  | 78   |
|                       |   | Front to back ratio (dB)                                       | ≥ 23 |
|                       |   | Cross polar ratio (0°) (dB)                                    | ≥ 18 |
|                       |   | Vertical 3dB beam width (°)                                    | 5.5  |
|                       |   | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15 |
|                       | NR Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Gain (dBi)   | 20.7 |
|                       |   | Horizontal 3dB beam width (°)                                  | 65   |
|                       |   | Front to back ratio (dB)                                       | ≥ 25 |
|                       |   | Vertical 3dB beam width (°)                                    | 5.5  |
|                       |   | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15 |
|                       | NR Service beam                                       | 0°direct beam gain (dBi)                                       | 21   |
|                       |   | 0°direction beam horizontal 3dB beam width (°)                 | 26   |
|                       |   | 0°direction beam front to back ratio (dB)                      | ≥ 28 |
|                       |   | 0°direction beam cross polar ratio (0°) (dB)                   | ≥ 22 |

## Notes:

- The 5G NR broadcast beam is the envelope of SSB(synchronization signal block) sweeping beams and the gain is the maximum gain of SSB sweeping beams.
- Downlink broadcast beam gain values and pattern files can only be used for broadcast channel coverage prediction.
- Downlink and uplink budgets need to be calculated based on the gain of single column beam and the correct Tx/Rx number.

## Mechanical Properties

|                                     |  |
|-------------------------------------|--|
| Distance between columns (mm)       | 43   |
| Antenna dimensions (H x W x D) (mm) | 1100 x 259 x 135   |
| Packing dimensions (H x W x D) (mm) | 1290 x 340 x 205   |
| Antenna weight (kg)                 | 13.0   |
| Clamps weight (kg)                  | 2.9 (2 units)  |
| Antenna packing weight (kg)         | 20.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 285 (at 150 km/h)<br>Lateral: 215 (at 150 km/h)<br>Maximum: 435 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 1 x MQ4 Male + 1 x MQ5 Male  |
| Connector position                  | Bottom   |



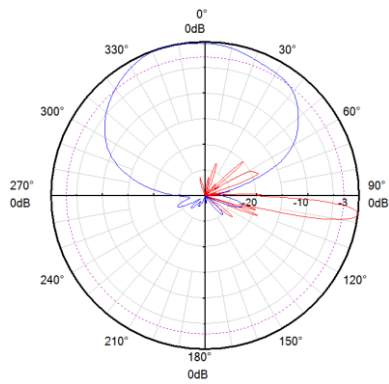
NR/TTD &amp; Others

## Accessories

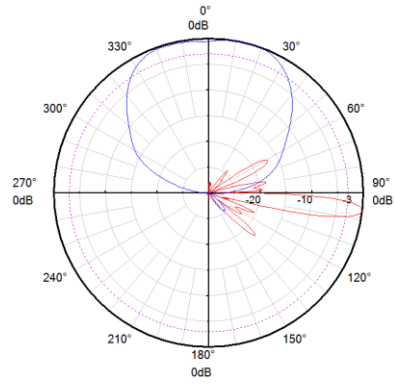
| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0B01 | Mechanical downtilt: 0 - 16° | 1.3 kg | 1 (Separate packing) |



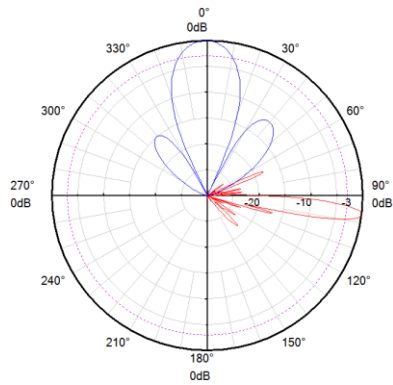
**Pattern sample for reference**



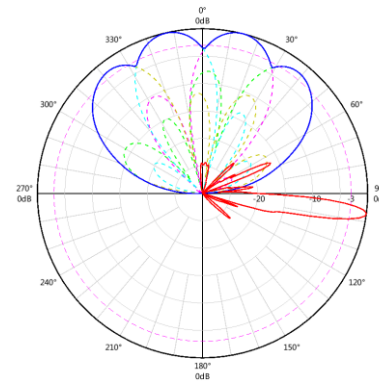
**Single column**



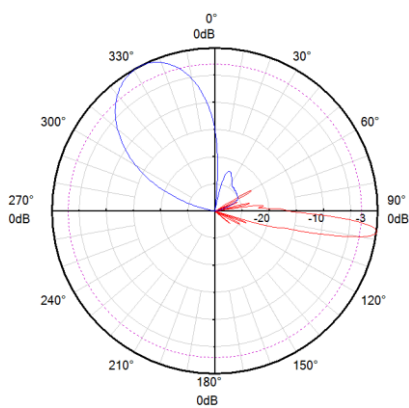
**65° Broadcast**



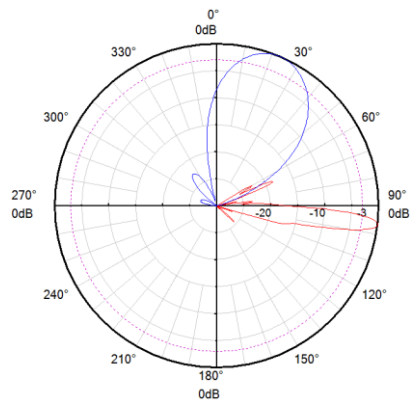
**Service 0°**



**5G NR Broadcast**



**Multi-Beam -30°**



**Multi-Beam +30°**

**Antenna Information Management Module (AIMM) Specifications**

| RET Properties                   |  |          |         |     |         |    |           |     |
|----------------------------------|--|----------|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |          |         |     |         |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |          |         |     |         |    |           |     |
| Input voltage range (V)          | DC 10 - 30   |          |         |     |         |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |          |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30  |          |         |     |         |    |           |     |
| RET interface 1 (RF feeder)      | Calibration channel integrate the Bias-T and supporting OOK modulation signal communication  |          |         |     |         |    |           |     |
| RET interface 2 (485 connector)  | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |          |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2        | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c      | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 5 (8/20 μs)  |          |         |     |         |    |           |     |
| RAE Properties                   |  |          |         |     |         |    |           |     |
| RAE type                         | Integrated RAE, manages antenna information  |          |         |     |         |    |           |     |
| RAE protocols                    | AISG-ES-RAE V2.1.0   |          |         |     |         |    |           |     |
| EasyBeam Properties              |  |          |         |     |         |    |           |     |
| Frequency range (MHz)            | 3300 - 3800  |          |         |     |         |    |           |     |
| Electrical downtilt (°)          | 2 - 12   |          |         |     |         |    |           |     |
| Broadcast beam                   | Horizontal 3dB beam width (°)  | 30       |         | 65  |         |    | 90        |     |
|                                  | Electrical azimuth (°)   | -15..+15 |         |     |         |    | 0         |     |
|                                  | Electrical azimuth step(°)   | 1        |         |     |         |    | /         |     |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

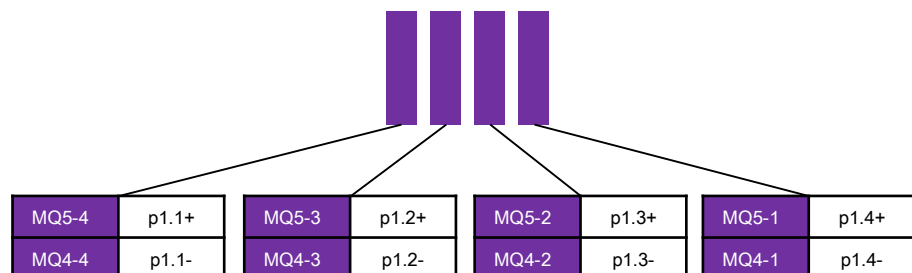
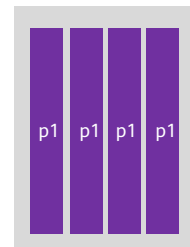
**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



RET S/N: HWMxxx....p1

RAE S/N: HWXxxx....p1

p - Purple



NR/TDD & Others

## Antenna Specifications

| General Electrical Properties         |   |                                 |                                 |
|---------------------------------------|---|---------------------------------|---------------------------------|
| General parameters                    | Frequency range (MHz)   | 2300 - 2690                     | 3300 - 3800                     |
|                                       | Polarization  | +45° , -45°                     | +45° , -45°                     |
|                                       | Electrical downtilt (°)   | 2 - 12, continuously adjustable | 2 - 12, continuously adjustable |
|                                       | Grounding   | DC Ground                       | DC Ground                       |
| Calibration and electrical parameters | Coupling factor between calibration port and each antenna port (dB) | -26 ±2                          | -26 ±2                          |
|                                       | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.7                             | 0.9                             |
|                                       | Max. phase tolerance from calibration port to input ports (°)       | 5                               | 7                               |
|                                       | Ports VSWR  | 1.5                             | 1.5                             |
|                                       | Avg. power capacity (W)   | 25                              | 25                              |
|                                       | Co-polarization isolation between ports (dB)                        | ≥ 20                            | ≥ 20                            |
|                                       | Cross-polarization isolation between ports (dB)                     | ≥ 23                            | ≥ 23                            |

| Beamforming Electrical Properties |                       |  |             |             |
|-----------------------------------|-----------------------|--|-------------|-------------|
| Radiation parameters              | Frequency range (MHz) |  | 2300 - 2690 | 3300 - 3800 |
|                                   | Single column beam    | Horizontal 3dB beam width (°)                                  | 90          | 75          |
|                                   |                       | Gain (dBi)   | 16          | 16.5        |
|                                   |                       | Vertical 3dB beam width (°)                                    | 5.8         | 5.2         |
|                                   |                       | Cross polar ratio (0°) (dB)                                    | ≥ 19        | ≥ 17        |
|                                   |                       | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        | ≥ 15        |
|                                   |                       | Front to back ratio (dB)                                       | ≥ 25        | ≥ 25        |
|                                   | 65° Broadcast beam    | Horizontal 3dB beam width (°)                                  | 65          | 65          |
|                                   |                       | Gain (dBi)   | 17.5        | 17.5        |
|                                   |                       | Gain roll-off at sector edge (dB)                              | 12          | 12          |
|                                   |                       | Vertical 3dB beam width (°)                                    | 5.8         | 5.2         |
|                                   |                       | Cross polar ratio (0°) (dB)                                    | 17          | 19          |
|                                   |                       | Front to back ratio (dB)                                       | ≥ 28        | ≥ 25        |
|                                   | Service beam          | 0° direct beam gain (dBi)                                      | 21.5        | 21          |
|                                   |                       | 0° direction beam horizontal 3dB beam width (°)                | 23          | 24          |
|                                   |                       | 0° direction beam horizontal side lobe suppression (dB)        | 12          | 12          |
|                                   |                       | 0° direction beam cross polar ratio (0°) (dB)                  | 22          | 19          |
|                                   |                       | 0° direction beam front to back ratio (dB)                     | ≥ 30        | ≥ 30        |

**Soft Split Electrical Properties**

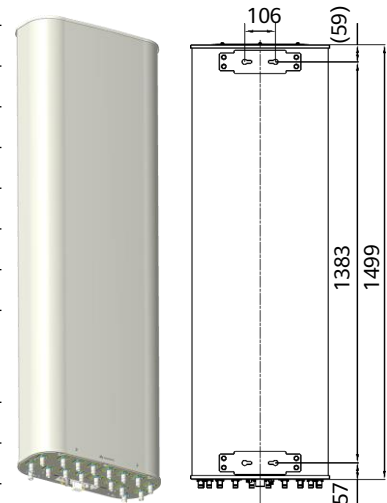
|  |                       |                               |             |
|--|-----------------------|-------------------------------|-------------|
| Radiation parameters   | Frequency range (MHz) |                               | 2300 - 2690 |
|  | Multi-beam            | Horizontal 3dB beam width (°) | 28          |
|  |                       | Gain (dBi)                    | 20.5        |
|  |                       | Vertical 3dB beam width (°)   | 5.8         |
|  |                       | Front to back ratio (dB)      | ≥ 30        |
| Side lobe suppression for first side lobe above main beam (dB) | ≥ 15                  |                               |             |

Notes:

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

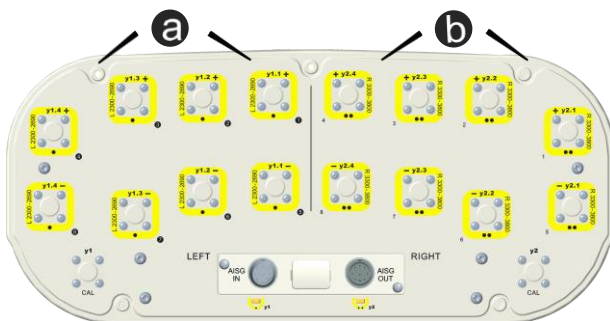
**Mechanical Properties**

|                                     |  |
|-------------------------------------|--|
| Distance between columns (mm)       | 43 / 62  |
| Antenna dimensions (H x W x D) (mm) | 1499 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 1870 x 535 x 285   |
| Antenna weight (kg)                 | 31.5   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 49.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 440 (at 150 km/h)<br>Lateral: 265 (at 150 km/h)<br>Maximum: 585 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 18 x N Female  |
| Connector position                  | Bottom   |



**Accessories**

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 16° | 3.1 kg | 1 (Separate packing) |



RET S/N:

**a** HWMxxx...y1

**b** HWMxxx...y2

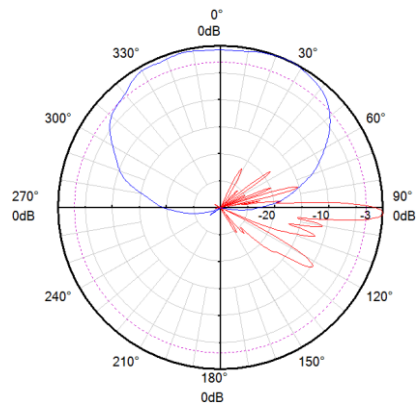
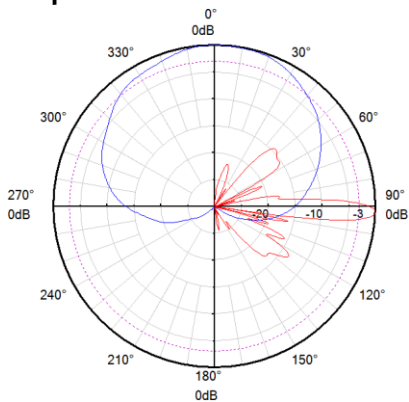
y - Yellow

RAE S/N:

**a** HWXxxx...y1

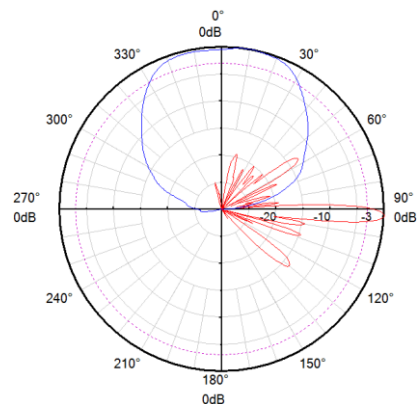
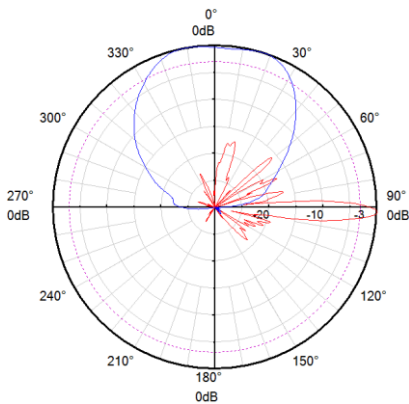
**b** HWXxxx...y2

**Pattern sample for reference**



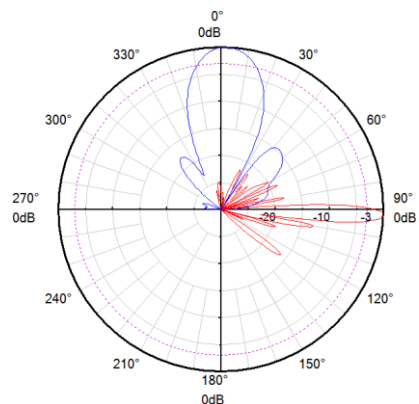
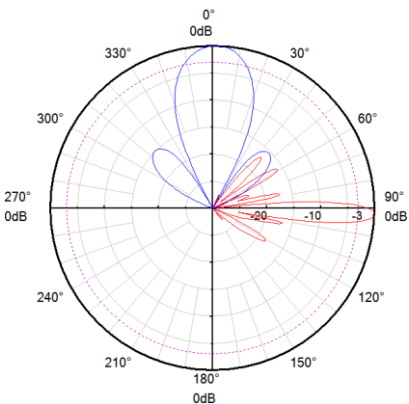
**Single column (2300 – 2690 MHz)**

**Single column (3300 – 3800 MHz)**



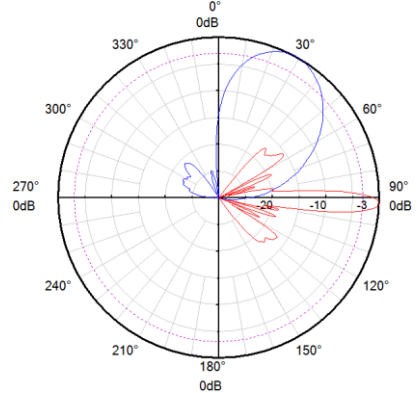
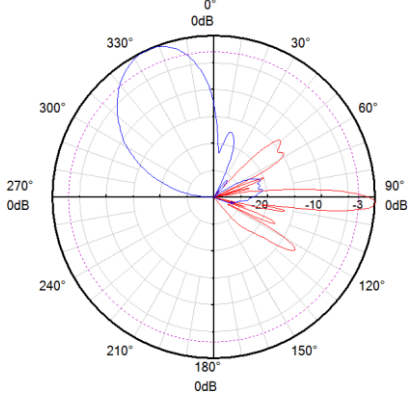
**65° Broadcast (2300 – 2690 MHz)**

**65° Broadcast (3300 – 3800 MHz)**



**Service 0° (2300 – 2690 MHz)**

**Service 0° (3300 – 3800 MHz)**



**Multi-Beam-30° (2300 – 2690 MHz)**

**Multi-Beam+30° (2300 – 2690 MHz)**

## Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |          |         |     |             |    |           |     |
|----------------------------------|--|----------|---------|-----|-------------|----|-----------|-----|
| RET type                         | Integrated RET   |          |         |     |             |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |          |         |     |             |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |          |         |     |             |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |          |         |     |             |    |           |     |
| Adjustment time (full range) (s) | Typ. 30  |          |         |     |             |    |           |     |
| Connectors                       | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |          |         |     |             |    |           |     |
| Pin assignment according AISG    | 1  | 2        | 3       | 4   | 5           | 6  | 7         | 8   |
|                                  | DC   | n/c      | RS-485B | n/c | RS-485A     | DC | DC return | n/c |
| Lightning protection (kA)        | 5 (8/20 $\mu$ s)   |          |         |     |             |    |           |     |
| RAE Properties                   |  |          |         |     |             |    |           |     |
| RAE type                         | Integrated RAE   |          |         |     |             |    |           |     |
| RAE protocols                    | AISG-ES-RAE V2.1.0   |          |         |     |             |    |           |     |
| EasyBeam Properties              |  |          |         |     |             |    |           |     |
| Frequency range (MHz)            | 2300 - 2690  |          |         |     | 3300 - 3800 |    |           |     |
| Electrical downtilt (°)          | 2 - 12   |          |         |     | 2 - 12      |    |           |     |
| Broadcast beam                   | Horizontal 3dB beam width (°)  | 30       | 65      | 90  | 30          | 65 | 90        |     |
|                                  | Electrical azimuth (°)   | -15..+15 |         | 0   | -15..+15    |    | 0         |     |
|                                  | Electrical azimuth step(°)   | 1        |         | /   | 1           |    | /         |     |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

## Antenna Specifications

| General Electrical Properties         |   |                                   |                                   |
|---------------------------------------|---|-----------------------------------|-----------------------------------|
| General parameters                    | Frequency range (MHz)   | 2300 - 2690                       | 3300 - 3800                       |
|                                       | Polarization  | +45° , -45°                       | +45° , -45°                       |
|                                       | Electrical downtilt (°)   | 2 - 12, continuously adjustable   | 2 - 12, continuously adjustable   |
|                                       | Electrical downtilt tolerance (°)                                   | ±1                                | ±1                                |
|                                       | Max. power per input (W)  | 40 (at 50°C ambient temperature)* | 40 (at 50°C ambient temperature)* |
|                                       | Impedance (Ω)   | 50                                | 50                                |
|                                       | Grounding   | DC Ground                         | DC Ground                         |
| Calibration and electrical parameters | Coupling factor between calibration port and each antenna port (dB) | -26 ±2                            | -26 ±2                            |
|                                       | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.7                               | 0.9                               |
|                                       | Max. phase tolerance from calibration port to input ports (°)       | 5                                 | 7                                 |
|                                       | Ports VSWR  | 1.5                               | 1.5                               |
|                                       | Co-polarization isolation between ports (dB)                        | ≥ 20                              | ≥ 20                              |
|                                       | Cross-polarization isolation between ports (dB)                     | ≥ 23                              | ≥ 23                              |

\* Total power : 640W (at 50°C ambient temperature)

| TDD LTE Electrical Properties |                       |  |             |             |
|-------------------------------|-----------------------|--|-------------|-------------|
| Radiation parameters          | Frequency range (MHz) |  | 2300 - 2690 | 3300 - 3800 |
|                               | Single column beam    | Gain (dBi)   | 16          | 16.5        |
|                               |                       | Horizontal 3dB beam width (°)                                  | 90          | 75          |
|                               |                       | Front to back ratio (dB)                                       | ≥ 25        | ≥ 25        |
|                               |                       | Cross polar ratio (0°) (dB)                                    | ≥ 19        | ≥ 17        |
|                               |                       | Vertical 3dB beam width (°)                                    | 5.8         | 5.2         |
|                               |                       | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        | ≥ 15        |
|                               | 65° Broadcast beam    | Gain (dBi)   | 17.5        | 17.5        |
|                               |                       | Horizontal 3dB beam width (°)                                  | 65          | 65          |
|                               |                       | Front to back ratio (dB)                                       | ≥ 28        | ≥ 25        |
|                               |                       | Cross polar ratio (0°) (dB)                                    | ≥ 17        | ≥ 19        |
|                               |                       | Vertical 3dB beam width (°)                                    | 5.8         | 5.2         |
|                               | Service beam          | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15        | ≥ 15        |
|                               |                       | 0° direct beam gain (dBi)                                      | 21.5        | 21          |
|                               |                       | 0° direction beam horizontal 3dB beam width (°)                | 23          | 24          |
|                               |                       | 0° direction beam front to back ratio (dB)                     | ≥ 30        | ≥ 30        |
|                               | Soft split multi-beam | 0° direction beam cross polar ratio (0°) (dB)                  | ≥ 22        | ≥ 19        |
|                               |                       | Gain (dBi)   | 20.5        | /           |
|                               |                       | Horizontal 3dB beam width (°)                                  | 28          | /           |
|                               |                       | Front to back ratio (dB)                                       | ≥ 30        | /           |
|                               |                       | Cross polar ratio at boresight (dB)                            | ≥ 18        | /           |

### Notes:

65° broadcast beams and multi-beams are applicable in different scenarios. Select one of them for network coverage based on site requirements and auxiliary equipment conditions.

**5G NR Electrical Properties**

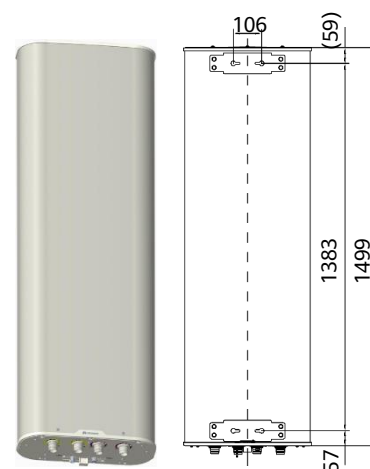
| Frequency range (MHz) |   | 2300 - 2690  | 3300 - 3800 |      |
|-----------------------|---|--|-------------|------|
| Radiation parameters  | Single column beam                                    | Gain (dBi)   | /           | 16.5 |
|                       |   | Horizontal 3dB beam width (°)                                  | /           | 75   |
|                       |   | Front to back ratio (dB)                                       | /           | ≥ 25 |
|                       |   | Cross polar ratio (0°) (dB)                                    | /           | 17   |
|                       |   | Vertical 3dB beam width (°)                                    | /           | 5.2  |
|                       |   | Side lobe suppression for first side lobe above main beam (dB) | /           | ≥ 15 |
|                       | NR Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Gain (dBi)   | /           | 20.7 |
|                       |   | Horizontal 3dB beam width (°)                                  | /           | 65   |
|                       |   | Front to back ratio (dB)                                       | /           | ≥ 25 |
|                       |   | Vertical 3dB beam width (°)                                    | /           | 5.2  |
|                       |   | Side lobe suppression for first side lobe above main beam (dB) | /           | ≥ 15 |
|                       | NR Service beam                                       | 0°direct beam gain (dBi)                                       | /           | 21   |
|                       |   | 0°direction beam horizontal 3dB beam width (°)                 | /           | 24   |
|                       |   | 0°direction beam front to back ratio (dB)                      | /           | ≥ 30 |
|                       |   | 0°direction beam cross polar ratio (0°) (dB)                   | /           | 19   |

Notes:

1. The 5G NR broadcast beam is the envelope of SSB(synchronization signal block) sweeping beams and the gain is the maximum gain of SSB sweeping beams.
2. Downlink broadcast beam gain values and pattern files can only be used for broadcast channel coverage prediction.
3. Downlink and uplink budgets need to be calculated based on the gain of single column beam and the correct Tx/Rx number.

**Mechanical Properties**

|                                     |  |
|-------------------------------------|--|
| Distance between columns (mm)       | 43 / 62  |
| Antenna dimensions (H x W x D) (mm) | 1499 x 469 x 206   |
| Packing dimensions (H x W x D) (mm) | 1870 x 535 x 285   |
| Antenna weight (kg)                 | 31.5   |
| Clamps weight (kg)                  | 5.8 (2 units)  |
| Antenna packing weight (kg)         | 49.0 (Included clamps)   |
| Mast diameter supported (mm)        | 50 - 115   |
| Radome material                     | Fiberglass   |
| Radome colour                       | Light grey   |
| Operational temperature (°C)        | -40 .. +65   |
| Wind load (N)                       | Frontal: 440 (at 150 km/h)<br>Lateral: 265 (at 150 km/h)<br>Maximum: 585 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200  |
| Survival wind speed (km/h)          | 250  |
| Connector                           | 2 x MQ4 Male + 2 x MQ5 Male  |
| Connector position                  | Bottom   |



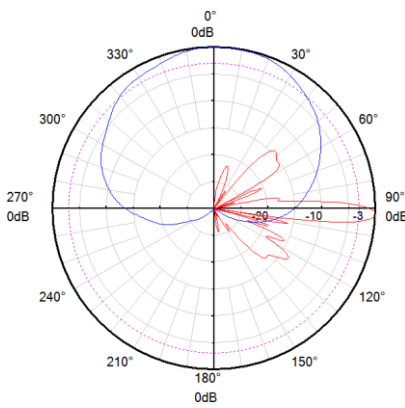
NR/TTD & Others

**Accessories**

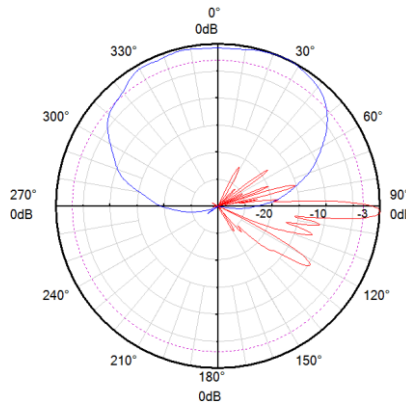
| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0F01 | Mechanical downtilt: 0 - 16° | 3.1 kg | 1 (Separate packing) |



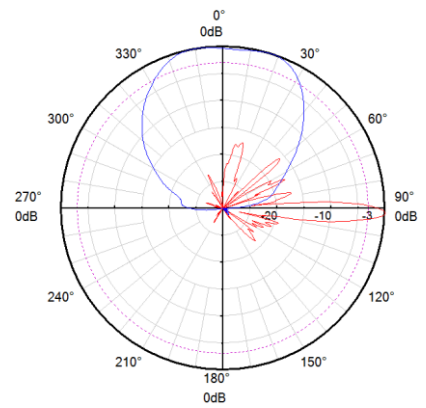
Pattern sample for reference



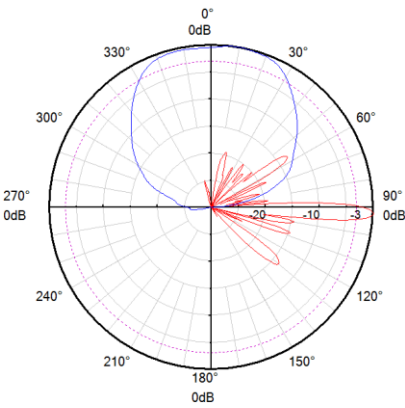
**Single column  
(2300 - 2690 MHz)**



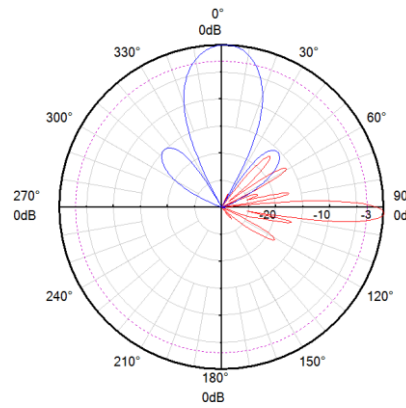
**Single column  
(3300 - 3800 MHz)**



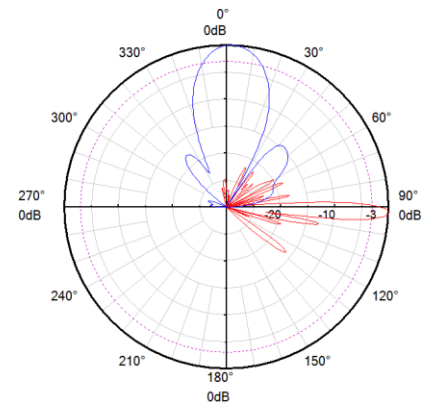
**65° Broadcast  
(2300 - 2690 MHz)**



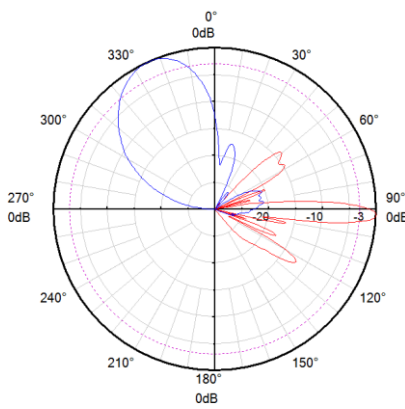
**65° Broadcast  
(3300 - 3800 MHz)**



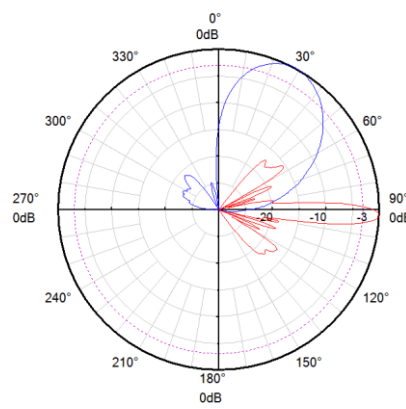
**Service 0°  
(2300 - 2690 MHz)**



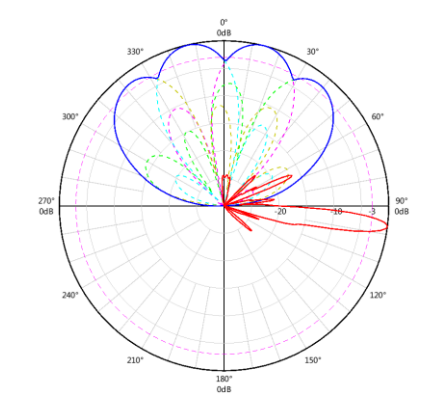
**Service 0°  
(3300 - 3800 MHz)**



**Multi-Beam-30°  
(2300 - 2690 MHz)**



**Multi-Beam+30°  
(2300 - 2690 MHz)**



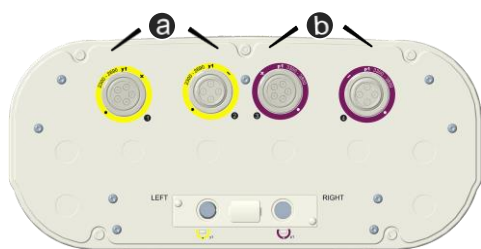
**5G NR Broadcast**

### Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |          |         |     |             |    |           |     |
|----------------------------------|--|----------|---------|-----|-------------|----|-----------|-----|
| RET type                         | Integrated RET   |          |         |     |             |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |          |         |     |             |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |          |         |     |             |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |          |         |     |             |    |           |     |
| Adjustment time (full range) (s) | Typ. 30  |          |         |     |             |    |           |     |
| Connectors                       | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |          |         |     |             |    |           |     |
| Pin assignment according AISG    | 1  | 2        | 3       | 4   | 5           | 6  | 7         | 8   |
|                                  | DC   | n/c      | RS-485B | n/c | RS-485A     | DC | DC return | n/c |
| Lightning protection (kA)        | 5 (8/20 μs)  |          |         |     |             |    |           |     |
| RAE Properties                   |  |          |         |     |             |    |           |     |
| RAE type                         | Integrated RAE   |          |         |     |             |    |           |     |
| RAE protocols                    | AISG-ES-RAE V2.1.0   |          |         |     |             |    |           |     |
| EasyBeam Properties              |  |          |         |     |             |    |           |     |
| Frequency range (MHz)            | 2300 - 2690  |          |         |     | 3300 - 3800 |    |           |     |
| Electrical downtilt (°)          | 2 - 12   |          |         |     | 2 - 12      |    |           |     |
| Broadcast beam                   | Horizontal 3dB beam width (°)  | 30       | 65      | 90  | 30          | 65 | 90        |     |
|                                  | Electrical azimuth (°)   | -15..+15 |         | 0   | -15..+15    |    | 0         |     |
|                                  | Electrical azimuth step(°)   | 1        |         | /   | 1           |    | /         |     |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**RET S/N:**

**a** HWMxxx...y1

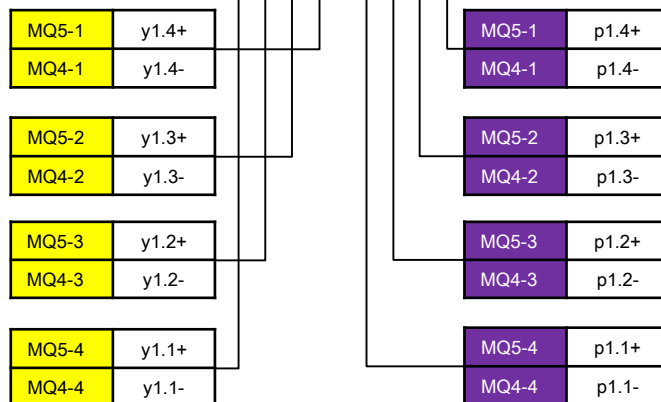
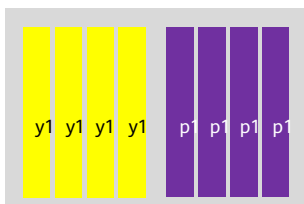
**b** HWMxxx...p1

**RAE S/N:**

**a** HWXxxx....y1

**b** HWXxxx....p1

y - Yellow  
p - Purple



NR/TDD & Others

**Preliminary**

| General Electrical Properties |                                   |   |                  |                  |             |
|-------------------------------|-----------------------------------|---|------------------|------------------|-------------|
| General<br>parameter<br>s     | Frequency range (MHz)             | 2545 - 2645 (y1)                                      | 3400 - 3600 (p1) | 3600 - 5000 (p2) |             |
|                               |                                   |   |                  | 3600 - 4100      | 4500 - 5000 |
|                               | Polarization                      | +45° , -45°   |                  |                  |             |
|                               | Electrical downtilt (°)           | 5 - 15, continuously adjustable, each band separately |                  |                  |             |
|                               | Electrical downtilt tolerance (°) | ±1  | ±1               | ±1               | ±1          |
|                               | Avg. power capacity (W)*          | 40  | 40               | 40               | 40          |
|                               | Impedance (Ω)                     | 50  |                  |                  |             |
| Grounding                     | DC Ground                         |   |                  |                  |             |

| TDD LTE Electrical Properties |                          |  |                  |                  |                  |             |
|-------------------------------|--------------------------|--|------------------|------------------|------------------|-------------|
| Radiation<br>parameters       | Frequency range (MHz)    |  | 2545 - 2645 (y1) | 3400 - 3600 (p1) | 3600 - 5000 (p2) |             |
|                               |                          |  |                  |                  | 3600 - 4100      | 4500 - 5000 |
|                               | Single<br>column<br>beam | Gain (dBi)   | 16               | 16.3             | 16.5             | 16.8        |
|                               |                          | Horizontal 3dB beam width (°)                                  | 77               | 77               | 76               | 67          |
|                               |                          | Front to back ratio (dB)                                       | ≥ 22             | ≥ 22             | ≥ 22             | ≥ 22        |
|                               |                          | Cross polar ratio (0°) (dB)                                    | ≥ 17             | ≥ 15             | ≥ 15             | ≥ 15        |
|                               |                          | Vertical 3dB beam width (°)                                    | 6.7              | 5.4              | 5                | 4           |
|                               |                          | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15             | ≥ 15             | ≥ 15             | ≥ 15        |
|                               | 65°<br>Broadcast<br>beam | Gain (dBi)   | 16.5             | 16.7             | 16.8             | 16.7        |
|                               |                          | Horizontal 3dB beam width (°)                                  | 65               | 65               | 65               | 65          |
|                               |                          | Front to back ratio (dB)                                       | ≥ 22             | ≥ 22             | ≥ 22             | ≥ 22        |
|                               |                          | Cross polar ratio (0°) (dB)                                    | ≥ 17             | ≥ 15             | ≥ 15             | ≥ 15        |
|                               |                          | Vertical 3dB beam width (°)                                    | 6.7              | 5.4              | 5                | 4           |
|                               |                          | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15             | ≥ 15             | ≥ 15             | ≥ 15        |
|                               | Service<br>beam          | 0°direct beam gain (dBi)                                       | 21.3             | 22.3             | 22.3             | 22.6        |
|                               |                          | 0°direction beam horizontal 3dB beam width (°)                 | 19.5             | 15               | 13.5             | 11          |
|                               |                          | 0°direction beam front to back ratio (dB)                      | ≥ 25             | ≥ 25             | ≥ 25             | ≥ 25        |
|                               |                          | 0°direction beam cross polar ratio (dB)                        | ≥ 17             | ≥ 15             | ≥ 15             | ≥ 15        |

## 5G NR Electrical Properties

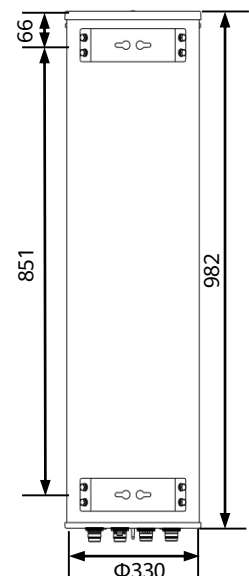
| Frequency range (MHz)                     |   | 2545 - 2645 (y1)   | 3400- 3600 (p1) | 3600 - 5000 (p2) |             |      |
|---|---|--|-----------------|------------------|-------------|------|
|   |   |  |                 | 3600 - 4100      | 4500 - 5000 |      |
| Radiation parameters                      | Single column beam                                    | Gain (dBi)   | 16              | 16.3             | 16.5        | 16.8 |
|   |   | Horizontal 3dB beam width (°)                                  | 77              | 77               | 76          | 67   |
|   |   | Front to back ratio (dB)                                       | ≥ 22            | ≥ 22             | ≥ 22        | ≥ 22 |
|   |   | Cross polar ratio (0°) (dB)                                    | ≥ 17            | ≥ 15             | ≥ 15        | ≥ 15 |
|   |   | Vertical 3dB beam width (°)                                    | 6.7             | 5.4              | 5           | 4    |
|   |   | Side lobe suppression for first side lobe above main beam (dB) | ≥ 15            | ≥ 15             | ≥ 15        | ≥ 15 |
|   | NR Broadcast beam (PBCH/PSCH/SSCH with HUAWEI gNodeB) | Gain (dBi)   | 21.1            | 22.1             | 22.1        | 22.4 |
|   |   | Horizontal 3dB beam width (°)                                  | 65              | 65               | 65          | 60   |
|   |   | Front to back ratio (dB)                                       | ≥ 22            | ≥ 22             | ≥ 22        | ≥ 22 |
|   |   | Vertical 3dB beam width (°)                                    | 6.7             | 5.4              | 5           | 4    |
|   | NR Service beam                                       | 0°direct beam gain (dBi)                                       | 21.3            | 22.3             | 22.3        | 22.6 |
|   |   | 0°direction beam horizontal 3dB beam width (°)                 | 19.5            | 15               | 13.5        | 11   |
| 0°direction beam front to back ratio (dB) |   | ≥ 25   | ≥ 25            | ≥ 25             | ≥ 25        |      |
| 0°direction beam cross polar ratio (dB)   |   | ≥ 17   | ≥ 15            | ≥ 15             | ≥ 15        |      |

## Mechanical Properties

|                                     |   |
|-------------------------------------|---|
| Distance between TDD columns (mm)   | 74 @2545-2645<br>74 @3400-3600<br>74 @3600-5000 |
| Antenna dimensions (H x W x D) (mm) | Φ330 x 982                                      |
| Packing dimensions (H x W x D) (mm) | 1320 x 475 x 465                                |
| Antenna weight (kg)                 | 22.4  |
| Antenna packing weight (kg)         | 30.5 (Included clamps)                          |
| Mast diameter supported (mm)        | 50 - 115  |
| Radome material                     | GFRPP   |
| Radome colour                       | Light grey                                      |
| Operational temperature (°C)        | -40 .. +65                                      |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 3 x MQ4 Male + 3 x MQ5 Male                     |
| Connector position                  | Bottom  |

## Accessories

| Item         | Model     | Description                   | Weight  | Units per antenna                |
|--------------|-----------|-------------------------------|---------|----------------------------------|
| Downtilt kit | ASMEK0002 | Mechanical downtilt: 0 - 15 ° | 13.8 kg | 1 (With clamp, Separate packing) |

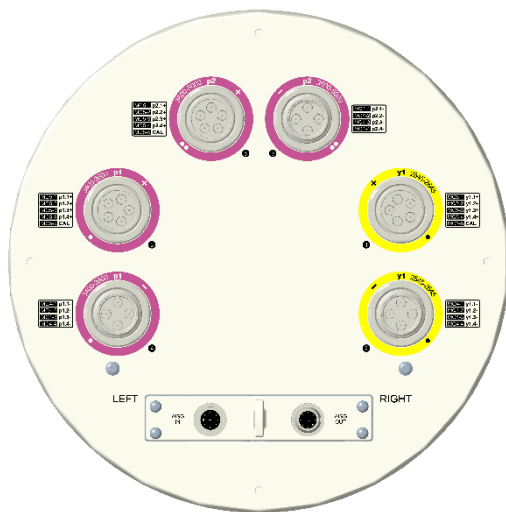


### Antenna Information Management Module (AIMM) Specifications

| RET Properties                   |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 1.5 (when the motor does not work, 12 V)<br>< 6 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |     |         |     |         |    |           |     |
| Connectors                       | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |
| RAE Properties                   |  |     |         |     |         |    |           |     |
| RAE type                         | Integrated RAE   |     |         |     |         |    |           |     |
| RAE protocols                    | AISG-ES-RAE V2.1.0   |     |         |     |         |    |           |     |

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety – Equipment installed outdoor),EN 55032 (Emission),  
EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE



**Preliminary**

With SRAN version 16.1, this antenna can be worked as adaptive scenario-based beam.  
Scenario-based beam 1 and Scenario-based beam 2 can be worked simultaneously.

**Electrical Properties-Scenario-based beam 1**

| Frequency range (MHz)  | 2300 - 2690 |             |             |             |             |             |             |             |
|--|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
|  | Sub-beam1   |             | Sub-beam2   |             | Sub-beam3   |             | Sub-beam4   |             |
|  | 2300 - 2400 | 2490 - 2690 | 2300 - 2400 | 2490 - 2690 | 2300 - 2400 | 2490 - 2690 | 2300 - 2400 | 2490 - 2690 |
| Gain (dBi)   | 20.2        | 21.2        | 22.0        | 22.4        | 22.0        | 22.4        | 20.2        | 21.2        |
| Side lobe suppression for first side lobe above main beam (dB) | > 15        | > 15        | > 15        | > 15        | > 15        | > 15        | > 15        | > 15        |
| Horizontal 3dB beam width (°)                                  | 22          | 18          | 16          | 14          | 16          | 14          | 22          | 18          |
| Vertical 3dB beam width (°)                                    | 6.3         | 5.8         | 6.3         | 5.8         | 6.3         | 5.8         | 6.3         | 5.8         |
| Horizontal beam centers (°)                                    | 45          |             | 15          |             | -15         |             | -45         |             |
| Cross polar isolation (dB)                                     | ≥ 25        |             |             |             |             |             |             |             |
| Front to back ratio total, ±30° (dB)                           | > 25        | > 25        | > 25        | > 25        | > 25        | > 25        | > 25        | > 25        |
| Cross polar ratio at boresight (dB)                            | > 15        | > 15        | > 15        | > 15        | > 15        | > 15        | > 15        | > 15        |

**Electrical Properties-Scenario-based beam 2**

| Radiation parameters   | Frequency range (MHz)                          | 2300 - 2690 |
|--|--|-------------|
|  | 65° Broadcast beam                             | Gain (dBi)  |
| Horizontal 3dB beam width (°)                                  |  | 65          |
| Front to back ratio (dB)                                       |  | ≥ 25        |
| Cross polar ratio (0°) (dB)                                    |  | ≥ 15        |
| Vertical 3dB beam width (°)                                    |  | 6.0         |
| Side lobe suppression for first side lobe above main beam (dB) |  | ≥ 15        |
| Service beam   | 0°direct beam gain (dBi)                       | 21.5        |
|  | 0°direction beam horizontal 3dB beam width (°) | 26          |
|  | 0°direction beam front to back ratio (dB)      | ≥ 30        |
|  | 0°direction beam cross polar ratio (dB)        | ≥ 19        |

**General Electrical Properties**

|                                       |   |                                   |
|---------------------------------------|---|-----------------------------------|
| General parameters                    | Frequency range (MHz)   | 2300 - 2690                       |
|                                       | Polarization  | +45° , -45°                       |
|                                       | Electrical downtilt (°)   | 2 - 12, continuously adjustable   |
|                                       | Electrical downtilt tolerance (°)                                   | ±1                                |
|                                       | Max. power per input (W)  | 50 (at 50°C ambient temperature)* |
|                                       | Impedance (Ω)   | 50                                |
|                                       | Grounding   | DC Ground                         |
| Calibration and electrical parameters | Coupling factor between calibration port and each antenna port (dB) | -26 ±2                            |
|                                       | Max. amplitude tolerance from calibration port to input ports (dB)  | 0.7                               |
|                                       | Max. phase tolerance from calibration port to input ports (°)       | 6                                 |
|                                       | Ports VSWR  | 1.5                               |

### Mechanical Properties

|                                     |                             |
|-------------------------------------|-----------------------------|
| Antenna dimensions (H x W x D) (mm) | 1509 x 499 x 206            |
| Packing dimensions (H x W x D) (mm) | 1770 x 555 x 245            |
| Antenna net weight (kg)             | 30                          |
| Clamps weight (kg)                  | 3.6 (2 units)               |
| Mast diameter supported (mm)        | 50 - 115                    |
| Operational temperature (°C)        | -40 .. +65                  |
| Max. operational wind speed (km/h)  | 200                         |
| Survival wind speed (km/h)          | 250                         |
| Connector                           | 1 x MQ4 Male + 1 x MQ5 Male |
| Connector position                  | Bottom                      |

### Accessories

| Item         | Model     | Description                  | Weight | Units per antenna    |
|--------------|-----------|------------------------------|--------|----------------------|
| Downtilt kit | ASMDT0D01 | Mechanical downtilt: 0 - 16° | 2.1 kg | 1 (Separate packing) |

### Integrated RET Specifications

#### Properties

|                                  |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Standards:** EN/IEC 60950-1(Safety), EN/IEC 60950-22(Safety - Equipment installed outdoor),EN 55032 (Emission), EN/IEC 62368-1(Safety), ETSI EN 301 489, FCC Part15, ICES-003

**Certification:** CE, FCC, IC, RCM, RoHS, REACH, WEEE

## B. Passive Antenna

### Small Antenna

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#### Small Antenna

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| Frequency Range (MHz) | 3dB Horizontal Beam Width (°) | Gain (dBi) | Electrical Downtilt (°) | Tilt Method | Connector  | Dimension(mm)  | Model        | Page       |
|-----------------------|-------------------------------|------------|-------------------------|-------------|------------|----------------|--------------|------------|
| 698-960/<br>1710-2690 | 65/65                         | 8.5/9      | 0                       | FET         | 4 x 4.3-10 | 299 x 265 x 85 | ADU450900v06 | <b>356</b> |
| 698-960/<br>1710-2690 | 65/65                         | 12/12      | 0                       | FET         | 4 x 4.3-10 | 549 x 265 x 85 | ADU451200v06 | <b>358</b> |

\*\* Preliminary Issue



### Electrical Properties

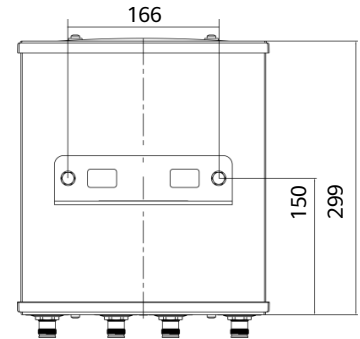
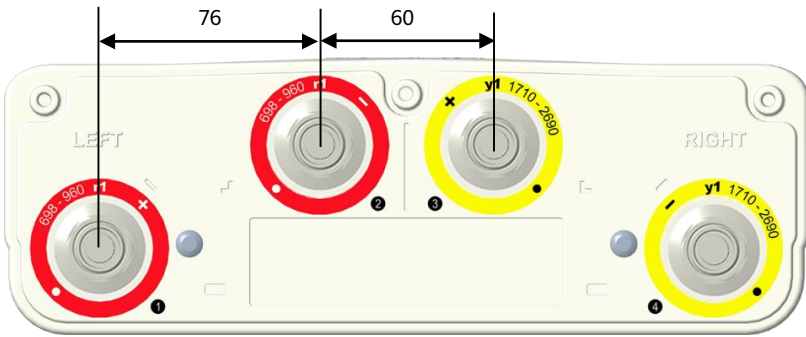
| Frequency range (MHz)          | 698 - 960                         |           | 1710 - 2690                      |             |             |
|--------------------------------|-----------------------------------|-----------|----------------------------------|-------------|-------------|
|                                | 698 - 806                         | 806 - 960 | 1710 - 2200                      | 2200 - 2490 | 2490 - 2690 |
| Polarization                   | +45°, -45°                        |           | +45°, -45°                       |             |             |
| Electrical downtilt (°)        | 0, fixed                          |           | 0, fixed                         |             |             |
| Gain (dBi)                     | 8.0 ±0.5                          | 8.0 ±0.5  | 8.5 ±0.5                         | 8.5 ±0.5    | 9.0 ±0.3    |
| Horizontal 3dB beam width (°)  | 73 ±4                             | 70 ±5     | 65 ±7                            | 69 ±7       | 61 ±6       |
| Vertical 3dB beam width (°)    | 69 ±5                             | 68 ±5     | 57 ±5                            | 56 ±6       | 52 ±5       |
| VSWR                           | < 1.9                             |           | < 1.9                            |             |             |
| Cross polar isolation (dB)     | ≥ 22                              |           | ≥ 22                             |             |             |
| Interband isolation (dB)       | ≥ 23                              |           | ≥ 23                             |             |             |
| Front to back ratio, ±30° (dB) | > 20                              | > 20      | > 20                             | > 20        | > 22        |
| Cross polar ratio (dB)         | 0°                                | > 18      | > 18                             | > 15        | > 16        |
| Max. power per input (W)       | 100 (at 50°C ambient temperature) |           | 80 (at 50°C ambient temperature) |             |             |
| Intermodulation IM3 (dBc)      | ≤ -150 (2 x 43 dBm carrier)       |           |                                  |             |             |
| Impedance (Ω)                  | 50                                |           |                                  |             |             |
| Grounding                      | DC Ground                         |           |                                  |             |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

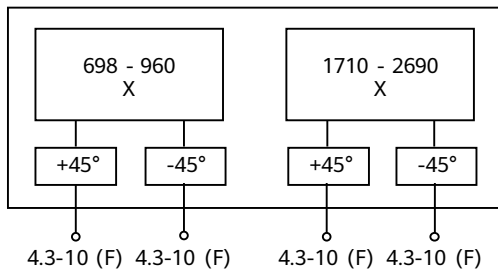
### Mechanical Properties

|                                     |                        |                  |
|-------------------------------------|------------------------|------------------|
| Antenna dimensions (H x W x D) (mm) | 299 x 265 x 85         |                  |
| Packing dimensions (H x W x D) (mm) | 755 x 345 x 230        |                  |
| Antenna weight (kg)                 | 3.5                    |                  |
| Bracket weight (kg)                 | 1.2 (1 unit)           |                  |
| Bracket angular range (°)           | Azimuth                | ±30              |
|                                     | Mechanical downtilt    | ±15              |
| Antenna packing weight (kg)         | 6.5 (Included bracket) |                  |
| Mast diameter supported (mm)        | Cement or metal pole   | Φ100 - 360       |
|                                     | Wooden pole            | Φ200 - 420       |
| Radome material                     | Fiberglass             |                  |
| Radome colour                       | Light grey             |                  |
| Operational temperature (°C)        | -55.. +70              |                  |
| Wind load (N)                       | Frontal:               | 70 (at 150 km/h) |
|                                     | Lateral:               | 20 (at 150 km/h) |
|                                     | Maximum:               | 80 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200                    |                  |
| Survival wind speed (km/h)          | 250                    |                  |
| Connector                           | 4 x 4.3-10 Female      |                  |
| Connector position                  | Bottom                 |                  |

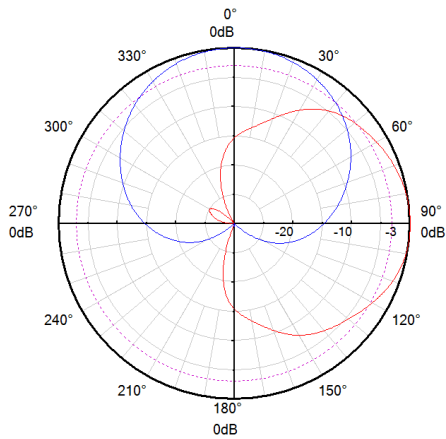




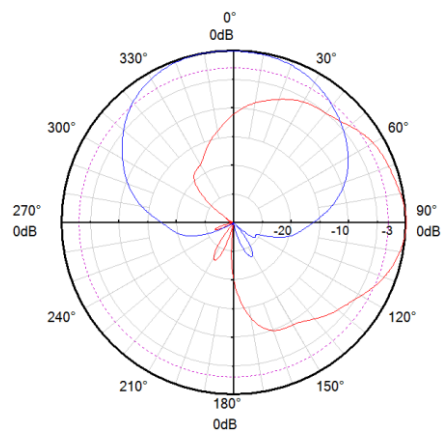
Unit: mm



**Pattern sample for reference**



**698 - 960 MHz**



**1710 - 2690 MHz**

NR/TDD & Others

### Electrical Properties

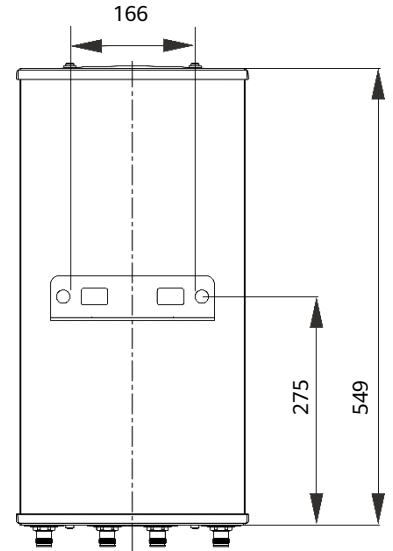
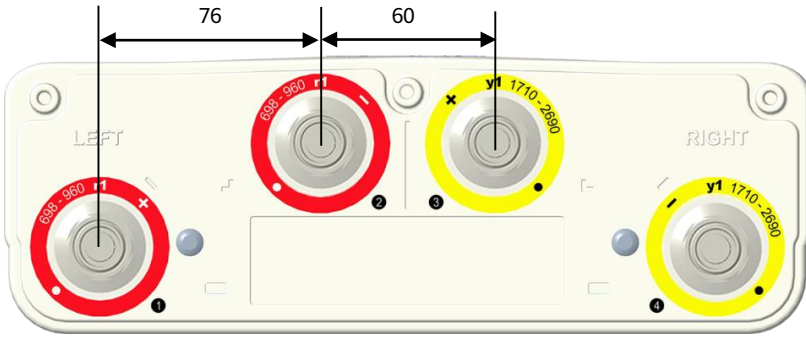
| Frequency range (MHz)          | 698 - 960                         |           | 1710 - 2690                      |             |
|--------------------------------|-----------------------------------|-----------|----------------------------------|-------------|
|                                | 698 - 806                         | 806 - 960 | 1710 - 2200                      | 2300 - 2690 |
| Polarization                   | +45°, -45°                        |           | +45°, -45°                       |             |
| Electrical downtilt (°)        | 0, fixed                          |           | 0, fixed                         |             |
| Gain (dBi)                     | 10.5 ±0.5                         | 11 ±0.5   | 11 ±0.5                          | 11.5 ±0.5   |
| Horizontal 3dB beam width (°)  | 73 ±4                             | 68 ±4     | 68 ±5                            | 61 ±6       |
| Vertical 3dB beam width (°)    | 40 ±4                             | 35 ±4     | 30 ±4                            | 24 ±4       |
| VSWR                           | < 1.8                             |           | < 1.8                            |             |
| Cross polar isolation (dB)     | ≥ 22                              |           | ≥ 22                             |             |
| Interband isolation (dB)       | ≥ 23                              |           | ≥ 23                             |             |
| Front to back ratio, ±30° (dB) | > 22                              | > 24      | > 24                             | > 23        |
| Cross polar ratio (dB)         | 0°                                | > 18      | > 16                             | > 16        |
| Max. power per input (W)       | 100 (at 50°C ambient temperature) |           | 80 (at 50°C ambient temperature) |             |
| Intermodulation IM3 (dBc)      | ≤ -150 (2 x 43 dBm carrier)       |           |                                  |             |
| Impedance (Ω)                  | 50                                |           |                                  |             |
| Grounding                      | DC Ground                         |           |                                  |             |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

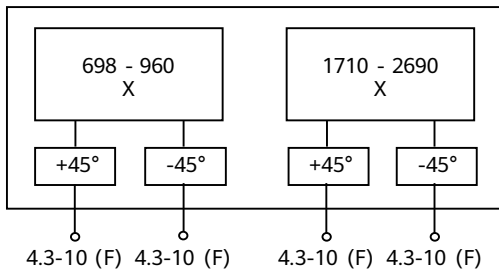
### Mechanical Properties

|                                     |                        |                   |
|-------------------------------------|------------------------|-------------------|
| Antenna dimensions (H x W x D) (mm) | 549 x 265 x 85         |                   |
| Packing dimensions (H x W x D) (mm) | 755 x 345 x 230        |                   |
| Antenna weight (kg)                 | 4.7                    |                   |
| Bracket weight (kg)                 | 1.2 (1 unit)           |                   |
| Bracket angular range (°)           | Azimuth                | ±30               |
|                                     | Mechanical downtilt    | ±15               |
| Antenna packing weight (kg)         | 7.7 (Included bracket) |                   |
| Mast diameter supported (mm)        | Cement or metal pole   | Φ100 - 360        |
|                                     | Wooden pole            | Φ200 - 420        |
| Radome material                     | Fiberglass             |                   |
| Radome colour                       | Light grey             |                   |
| Operational temperature (°C)        | -55.. +70              |                   |
| Wind load (N)                       | Frontal:               | 130 (at 150 km/h) |
|                                     | Lateral:               | 35 (at 150 km/h)  |
|                                     | Maximum:               | 150 (at 150 km/h) |
| Max. operational wind speed (km/h)  | 200                    |                   |
| Survival wind speed (km/h)          | 250                    |                   |
| Connector                           | 4 x 4.3-10 Female      |                   |
| Connector position                  | Bottom                 |                   |

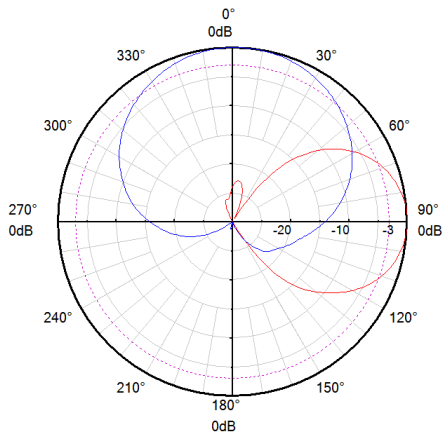




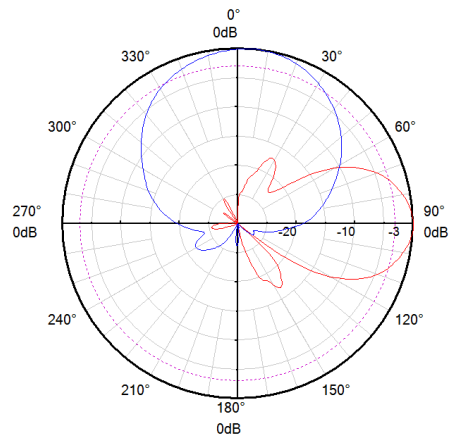
Unit: mm



Pattern sample for reference



698 - 960 MHz



1710 - 2690 MHz

NR/TDD & Others



## C. Passive Antenna

### Cluster Antenna

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#### Cluster Antenna

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| Frequency Range (MHz)               | 3dB Horizontal Beam Width (°) | Gain (dBi)         | Electrical Downtilt (°) | Tilt Method | Connector          | Dimension(mm)   | Model        | Page       |
|-------------------------------------|-------------------------------|--------------------|-------------------------|-------------|--------------------|---|--------------|------------|
| 1710-2690/<br>1710-2690             | 65/65                         | 14/14              | 2-12/2-12               | EasyRET2.0  | 3 x 4 x 4.3-<br>10 | 1310 x $\Phi$ 160<br>1595 x $\Phi$ 160 (With<br>Maintenance<br>Cabinet) | ADU4514S0v06 | <b>359</b> |
| 698-960/<br>1710-2690/<br>1710-2690 | 65/65/65                      | 14.5/17.5/1<br>7.5 | 0-10/0-<br>10/0-10      | EasyRET2.0  | 3 x 6 x 4.3-<br>10 | 1360 x $\Phi$ 450<br>1595 x $\Phi$ 450 (With<br>Maintenance<br>Cabinet) | ATR4518S2v06 | <b>361</b> |

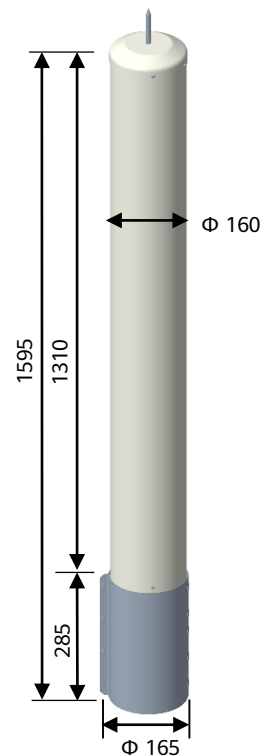
\*\* Preliminary Issue

## Antenna Specifications

| Electrical Properties  |                                   |             |             |             |           |
|--|-----------------------------------|-------------|-------------|-------------|-----------|
| Frequency range (MHz)  | 2 x (1710 - 2690)                 |             |             |             |           |
|  | 1710 - 1990                       | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |
| Polarization   | +45°, -45°                        |             |             |             |           |
| Electrical downtilt (°)  | 2 - 12, continuously adjustable   |             |             |             |           |
| Gain (dBi)   | at mid Tilt                       | 13.8        | 13.9        | 14.0        | 14.1      |
|  | over all Tilts                    | 13.7 ±0.5   | 13.8 ±0.5   | 13.9 ±0.5   | 14.0 ±0.5 |
| Side lobe suppression for first side lobe above main beam (dB) | > 16                              | > 16        | > 16        | > 16        |           |
| Horizontal 3dB beam width (°)                                  | 70 ±2                             | 70 ±3       | 69 ±4       | 68 ±6       |           |
| Vertical 3dB beam width (°)                                    | 16.8 ±1.5                         | 15.5 ±1.2   | 13.2 ±0.8   | 12.0 ±0.6   |           |
| VSWR   | < 1.5                             |             |             |             |           |
| Cross polar isolation (dB)                                     | ≥ 26                              |             |             |             |           |
| Interband isolation (dB)                                       | ≥ 28                              |             |             |             |           |
| Front to back ratio, ±30° (dB)                                 | > 25                              | > 25        | > 25        | > 25        |           |
| Cross polar ratio (dB)   | 0°                                | > 18        | > 18        | > 17        |           |
| Max. power per input (W)                                       | 250 (at 50°C ambient temperature) |             |             |             |           |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)       |             |             |             |           |
| Impedance (Ω)  | 50                                |             |             |             |           |
| Grounding  | DC Ground                         |             |             |             |           |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

| Mechanical Properties               |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 1310 x Φ160<br>1595 x Φ160 (With Maintenance Cabinet) |
| Packing dimensions (H x W x D) (mm) | 1755 x 265 x 270                                      |
| Antenna weight (kg)                 | 17.5  |
| Antenna packing weight (kg)         | 20.5  |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | 218 (at 150 km/h)                                     |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 3 x 4 x 4.3-10 Female                                 |
| Connector position                  | Bottom  |

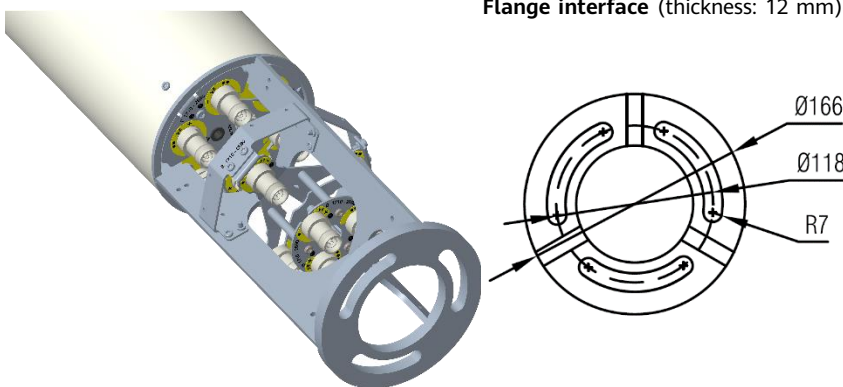


**Integrated RET Specifications**

| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 5 (motor activated, 12V)<br>< 1.5 (stand by, 12V)  |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | < 120 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 5 (8/20 μs Differential mode)<br>8 (8/20 μs Common mode)                                       |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Certification:** RoHS, WEEE



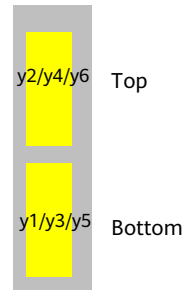
Flange interface (thickness: 12 mm)

**Integrated RET S/N:**

HWxxxx.....y1/y2

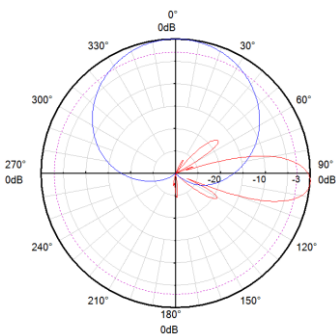
HWxxxx.....y3/y4

HWxxxx.....y5/y6



y - Yellow

**Pattern sample for reference**



1710 - 2690 MHz

NR/TDD & Others



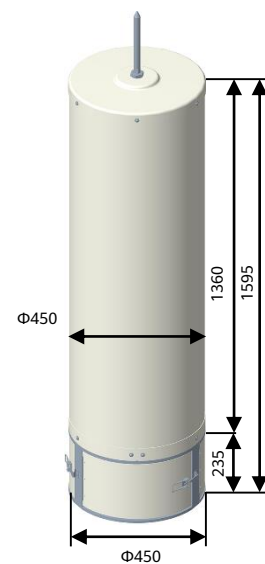
## Antenna Specifications

| Electrical Properties  |                                   |           |           |           |   |             |             |             |           |  |
|--|-----------------------------------|-----------|-----------|-----------|---|-------------|-------------|-------------|-----------|--|
| Frequency range (MHz)  | 698 - 960                         |           |           |           | 2 x (1710 - 2690)                                     |             |             |             |           |  |
|  | 698 - 803                         | 790 - 862 | 824 - 894 | 880 - 960 | 1710 - 1990   | 1920 - 2200 | 2200 - 2490 | 2490 - 2690 |           |  |
| Polarization   | +45°, -45°                        |           |           |           |   |             |             |             |           |  |
| Electrical downtilt (°)  | 0 - 10, continuously adjustable   |           |           |           | 0 - 10, continuously adjustable, each band separately |             |             |             |           |  |
| Gain (dBi)   | at mid Tilt                       | 13.3      | 13.7      | 13.8      | 14.3  | 16.6        | 16.9        | 17.2        | 17.5      |  |
|  | over all Tilts                    | 13.2 ±0.5 | 13.6 ±0.5 | 13.7 ±0.5 | 14.2 ±0.5   | 16.5±0.5    | 16.8±0.5    | 17.1± 0.5   | 17.4 ±0.5 |  |
| Side lobe suppression for first side lobe above main beam (dB) | > 15                              | > 15      | > 15      | > 15      | > 16  | > 16        | > 16        | > 16        |           |  |
| Horizontal 3dB beam width (°)                                  | 72±5                              | 70±5      | 69±5      | 68±5      | 66 ±5.0   | 64 ±5.0     | 65 ±5.0     | 65 ±5.0     |           |  |
| Vertical 3dB beam width (°)                                    | 16.5±1.0                          | 15±0.8    | 14.5±0.8  | 13.5±0.6  | 8.0 ±0.5  | 7.4±0.5     | 6.6 ±0.5    | 6.0 ±0.5    |           |  |
| VSWR   | < 1.5                             |           |           |           |   |             |             |             |           |  |
| Cross polar isolation (dB)                                     | ≥ 25                              |           |           |           |   |             |             |             |           |  |
| Interband isolation (dB)                                       | ≥ 28                              |           |           |           |   |             |             |             |           |  |
| Front to back ratio, ±30° (dB)                                 | > 24                              | > 24      | > 24      | > 24      | > 26  | > 26        | > 26        | > 26        |           |  |
| Cross polar ratio (dB)   | 0°                                | > 17      | > 17      | > 17      | > 17  | > 17        | > 17        | > 17        |           |  |
| Max. power per input (W)                                       | 500 (at 50°C ambient temperature) |           |           |           | 250 (at 50°C ambient temperature)                     |             |             |             |           |  |
| Intermodulation IM3 (dBc)                                      | ≤ -150 (2 x 43 dBm carrier)       |           |           |           |   |             |             |             |           |  |
| Impedance (Ω)  | 50                                |           |           |           |   |             |             |             |           |  |
| Grounding  | DC Ground                         |           |           |           |   |             |             |             |           |  |

1. Values based on NGMN recommendations on Base Station Antenna Standards (BASTA).
2. Electrical datasheet in XML format is available.

## Mechanical Properties

|                                     |   |
|-------------------------------------|---|
| Antenna dimensions (H x W x D) (mm) | 1360 x Φ450<br>1595 x Φ450 (With Maintenance Cabinet) |
| Packing dimensions (H x W x D) (mm) | 1810 x 580 x 700                                      |
| Antenna weight (kg)                 | 85  |
| Antenna packing weight (kg)         | 120   |
| Radome material                     | Fiberglass  |
| Radome colour                       | Light grey  |
| Operational temperature (°C)        | -40 .. +65  |
| Wind load (N)                       | 610 (at 150 km/h)                                     |
| Max. operational wind speed (km/h)  | 200   |
| Survival wind speed (km/h)          | 250   |
| Connector                           | 3 x 6 x 4.3-10 Female                                 |
| Connector position                  | Bottom  |

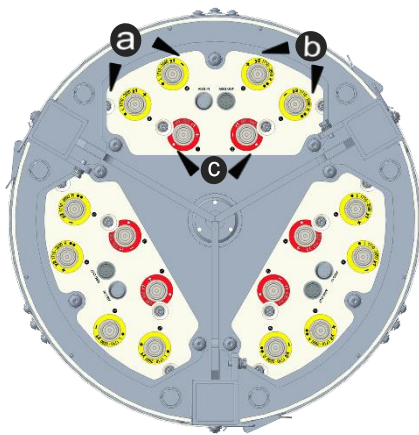


### Integrated RET Specifications

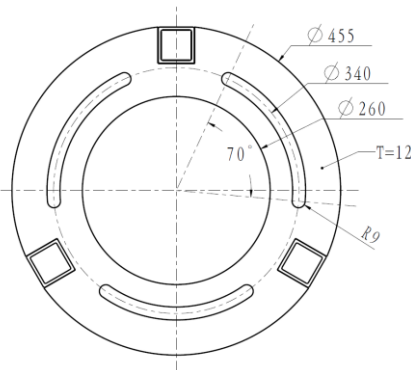
| Properties                       |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols*                   | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 5 (motor activated, 12V)<br>< 1.5 (stand by, 12V)  |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | < 120 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| RET connector                    | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Lightning protection (kA)        | 5 (8/20 $\mu$ s Differential mode)<br>8 (8/20 $\mu$ s Common mode)                             |     |         |     |         |    |           |     |

\* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before system installation.

**Certification:** RoHS, WEEE



Flange interface (thickness: 12 mm)



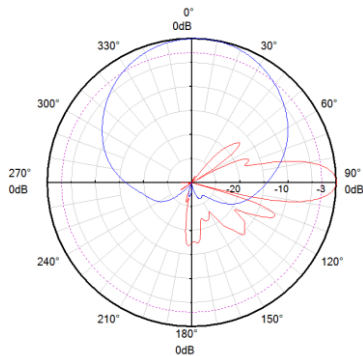
### Integrated RET S/N:

- a** HWxxxx....Ly1
- b** HWxxxx...Ry2
- c** HWxxxx.....r1

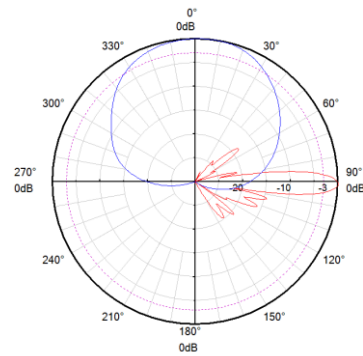
r - Red  
L - Left array

y - Yellow  
R - Right array

### Pattern sample for reference



698 - 960 MHz



1710 - 2690 MHz



## C. Digital Antenna System

### C-1. RET System

#### C - 1 - 1. Remote Control Unit (RCU)

| Antenna and RCU configuration list  |           |   |   |                |                            |            |
|-------------------------------------|-----------|---|---|----------------|----------------------------|------------|
| Antenna and AIMM configuration list |           |   |   |                |                            |            |
| Input voltage range (V)             | AISG type | Adjustment time (full range) (min)                        | Calibration time (min)                              | Dimension (mm) | Model                      | Page       |
| DC 10 - 30                          | AISG 2.0  | Typ.<0.58<br>(typically,<br>depending on<br>antenna type) | < 3<br>(typically,<br>depending on<br>antenna type) | 180 x 65 x 54  | ARCU02004v01<br>(AISG 2.0) | <b>363</b> |

#### C-1-2. Antenna Information Management Module (AIMM)

| Input voltage range (V) | AISG type | Adjustment time (full range) (min) | Dimension (mm)   | Model           | Page       |
|-------------------------|-----------|------------------------------------|------------------|-----------------|------------|
| DC 10 - 30              | AISG 2.0  | Typ. < 0.5                         | 197 x 82 x 30    | AIMM20S11v01    | <b>364</b> |
| DC 10 - 30              | AISG 2.0  | Typ. < 0.5                         | 197 x 107 x 30   | AIMM20D11v01    | <b>365</b> |
| DC 10 - 30              | AISG 2.0  | Typ. < 0.67                        | 203 x 153 x 30   | AIMM20M11v01    | <b>366</b> |
| DC 10 - 30              | AISG 2.0  | Typ. < 0.67                        | 203 x 153 x 30   | AIMM20M11S0v01  | <b>367</b> |
| DC 10 - 30              | AISG 2.0  | Typ. < 0.67                        | 203 x 153 x 30   | AIMM20M22v01    | <b>368</b> |
| DC 10 - 30              | AISG 2.0  | Typ. < 0.67                        | 203 x 153 x 30   | AIMM20M22S0v01  | <b>369</b> |
| DC 10 - 30              | AISG 2.0  | Typ. < 0.67                        | 203 x 153 x 30   | AIMM20M11BTv02  | <b>370</b> |
| DC 10 - 30              | AISG 2.0  | Typ. < 0.67                        | 203 x 153 x 30   | AIMM20M22BTv01  | <b>371</b> |
| DC 10 - 30              | AISG 2.0  | Typ. < 0.5                         | 170 x 136 x 27   | AIMM21S11EBv01  | <b>372</b> |
| DC 10 - 30              | AISG 2.0  | Typ. < 0.5                         | 189 x 146 x 31.5 | AIMM21S11EBAv01 | <b>373</b> |
| DC 10 - 30              | AISG 2.0  | Typ. < 0.5                         | 189 x 146 x 31.5 | AIMM21D11EBAv01 | <b>374</b> |

#### C-1-3. Smart Bias Tee (SBT)

| Frequency Range (MHz) | AISG type | Insertion loss (dB)                       | Dimension (mm) | Connector | Model        | Page       |
|-----------------------|-----------|---|----------------|-----------|--------------|------------|
| 690-2700              | AISG 2.0  | $\leq 0.1$<br>(690-960/1710-<br>2690 MHz) | 75 x 137 x 45  | 4.3-10    | ASBT00001v06 | <b>375</b> |
| 690-2700              | AISG 2.0  | $\leq 0.15$<br>(960-1710 MHz)             | 75 x 137 x 45  | 4.3-10    | ASBT00002v06 | <b>375</b> |

## C-1-5. AISG Connecting Cables

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| Model  | Page       |
|--|------------|
| AISG Connecting Cables For Remote Electrical Tilt (RET) System | <b>378</b> |
| AISG Connecting Cables For Huawei RRU RET_Port                 | <b>379</b> |

## C-2. Intelligent Management

### C - 2 - 1. Antenna Information Sensor Unit (AISU)

---

| Input voltage range (V) | AISG type          | Protection class | Dimension (mm) | Model        | Page       |
|-------------------------|--------------------|------------------|----------------|--------------|------------|
| DC 10 - 30              | AISG-ES-RAE V2.1.0 | IP65             | 37 x 325 x 129 | AISU00001v01 | <b>380</b> |

## Feature Description

- RCU (Remote Control Unit) drives the phase shifter in antenna through mechanical interface to change the electrical downtilt.
- RCU is suitable for daisy chain solution.

|                                  |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| Input voltage range (V)          | DC 10 - 30   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 35 (depending on antenna type)  |     |         |     |         |    |           |     |
| Calibration time (min)           | < 3 (typically, depending on antenna type)   |     |         |     |         |    |           |     |
| Connectors                       | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male // Daisy chain out: Female  |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Housing material                 | Profile: Aluminium coated // Cover: Aluminium die cast coated  |     |         |     |         |    |           |     |
| Color                            | RAL 7035   |     |         |     |         |    |           |     |
| Weight (g)                       | 440  |     |         |     |         |    |           |     |
| Operating temperature range (°C) | -40 ... +65  |     |         |     |         |    |           |     |
| Protection class                 | IP24   |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 2.5 (10/350 $\mu$ s)<br>10 (8/20 $\mu$ s)  |     |         |     |         |    |           |     |
| Dimensions (L x W x H) (mm)      | 180 x 65 x 54  |     |         |     |         |    |           |     |
| Packing size (L x W x H) (mm)    | 268 x 105 x 95   |     |         |     |         |    |           |     |

Standards: EN/IEC 60950-1(Safety)  
 EN/IEC 60950-22(Safety – Equipment installed outdoor)  
 EN 55032(Emission)  
 EN/IEC 62368-1(Safety)  
 ETSI EN 301 489  
 FCC Part 15  
 ICES-003

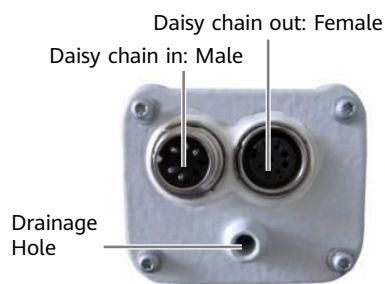
Certification: CE, FCC, IC, RCM, RoHS, REACH, WEEE

### Please note:

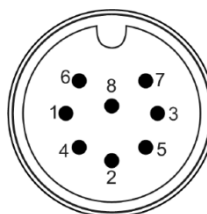
Before the installation, check whether the RCU and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.



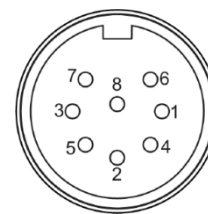
Appearance



Bottom view of RCU



Male



Female

**Feature Description**

- The antenna information management module (AIMM) supports remote electrical tilt (RET) function and manages antenna information.

|                                  |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| Protocol                         | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30  |     |         |     |         |    |           |     |
| Connectors                       | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male // Daisy chain out: Female  |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Operating temperature range (°C) | -40 to +65   |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |
| Weight (g)                       | 350  |     |         |     |         |    |           |     |
| Packing Weight (g)               | 448  |     |         |     |         |    |           |     |
| Dimensions (L x W x H) (mm)      | 197 x 82 x 30  |     |         |     |         |    |           |     |
| Packing size (L x W x H) (mm)    | 250 x 118 x 40   |     |         |     |         |    |           |     |

Standards: EN/IEC 60950-1(Safety)  
 EN/IEC 60950-22(Safety – Equipment installed outdoor)  
 EN 55032(Emission)  
 EN/IEC 62368-1(Safety)  
 ETSI EN 301 489  
 FCC Part 15  
 ICES-003

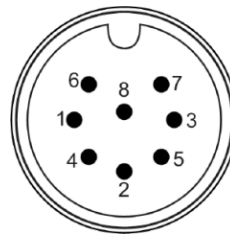
Certification: CE, FCC, IC, RCM, RoHS, REACH, WEEE

**Please note:**  
 Before the installation, check whether the AIMM and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.

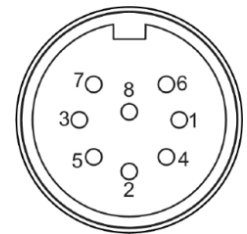


Daisy chain in: Male    Daisy chain out: Female

**Appearance**



**Male**



**Female**

**Feature Description**

- The antenna information management module (AIMM) supports remote electrical tilt (RET) function and manages antenna information.

|                                  |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| Protocol                         | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30  |     |         |     |         |    |           |     |
| Connectors                       | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male // Daisy chain out: Female  |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Operating temperature range (°C) | -40 ... +65  |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |
| Weight (g)                       | 500  |     |         |     |         |    |           |     |
| Packing weight (g)               | 598  |     |         |     |         |    |           |     |
| Dimensions (L x W x H) (mm)      | 203 x 107 x 30   |     |         |     |         |    |           |     |
| Packing size (L x W x H) (mm)    | 250 x 118 x 40   |     |         |     |         |    |           |     |

Standards: EN/IEC 60950-1(Safety)  
 EN/IEC 60950-22(Safety - Equipment installed outdoor)  
 EN 55032(Emission)  
 EN/IEC 62368-1(Safety)  
 ETSI EN 301 489  
 FCC Part 15  
 ICES-003

Certification: CE, FCC, IC, RCM, RoHS, REACH, WEEE

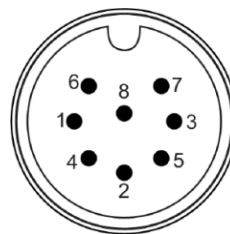
**Please note:**

Before the installation, check whether the AIMM and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.

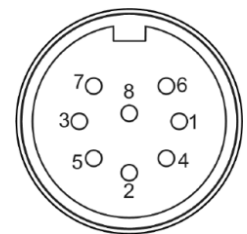


Daisy chain in: Male Daisy chain out: Female

**Appearance**



**Male**



**Female**



**Feature Description**

- The antenna information management module (AIMM) supports remote electrical tilt (RET) function and manages antenna information.

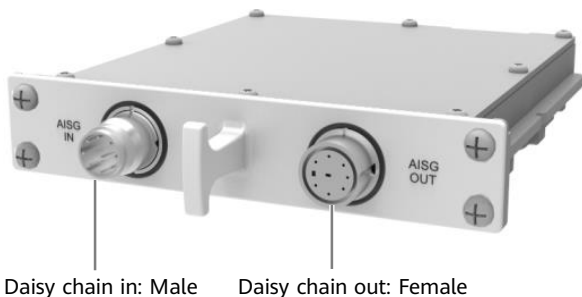
|                                  |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| Protocol                         | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |     |         |     |         |    |           |     |
| Connectors                       | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male // Daisy chain out: Female  |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Operating temperature range (°C) | -40 to +65   |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |
| Weight (g)                       | 610  |     |         |     |         |    |           |     |
| Packing weight (g)               | 723  |     |         |     |         |    |           |     |
| Dimensions (L x W x H) (mm)      | 203 x 153 x 30   |     |         |     |         |    |           |     |
| Packing size (L x W x H) (mm)    | 245 x 163 x 37   |     |         |     |         |    |           |     |

Standards: EN/IEC 60950-1(Safety)  
 EN/IEC 60950-22(Safety – Equipment installed outdoor)  
 EN 55032(Emission)  
 EN/IEC 62368-1(Safety)  
 ETSI EN 301 489  
 FCC Part 15  
 ICES-003

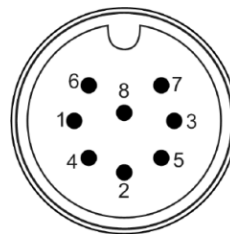
Certification: CE, FCC, IC, RCM, RoHS, REACH, WEEE

**Please note:**

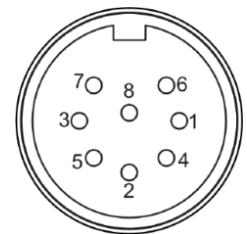
1. Before the installation, check whether the AIMM and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.
2. For Multi-RET requirements, please contact the technical support personnel of Huawei.



**Appearance**



**Male**



**Female**

**Feature Description**

- The antenna information management module (AIMM) supports remote electrical tilt (RET) function and manages antenna information.

|                                  |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| Protocol                         | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |     |         |     |         |    |           |     |
| Connectors                       | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male // Daisy chain out: Female  |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Operating temperature range (°C) | -40 ... +65  |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |
| Weight (g)                       | 570  |     |         |     |         |    |           |     |
| Packing weight (g)               | 683  |     |         |     |         |    |           |     |
| Dimensions (L x W x H) (mm)      | 203 x 153 x 30   |     |         |     |         |    |           |     |
| Packing size (L x W x H) (mm)    | 245 x 163 x 37   |     |         |     |         |    |           |     |

Standards: EN/IEC 60950-1(Safety)  
 EN/IEC 60950-22(Safety – Equipment installed outdoor)  
 EN 55032(Emission)  
 EN/IEC 62368-1(Safety)  
 ETSI EN 301 489  
 FCC Part 15  
 ICES-003

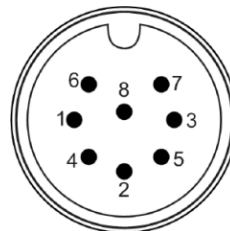
Certification: CE, FCC, IC, RCM, RoHS, REACH, WEEE

**Please note:**  
 Before the installation, check whether the AIMM and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.

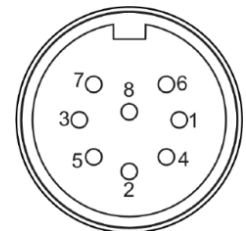


Daisy chain in: Male    Daisy chain out: Female

**Appearance**



**Male**



**Female**

## Feature Description

- The antenna information management module (AIMM) supports remote electrical tilt (RET) function and manages antenna information.

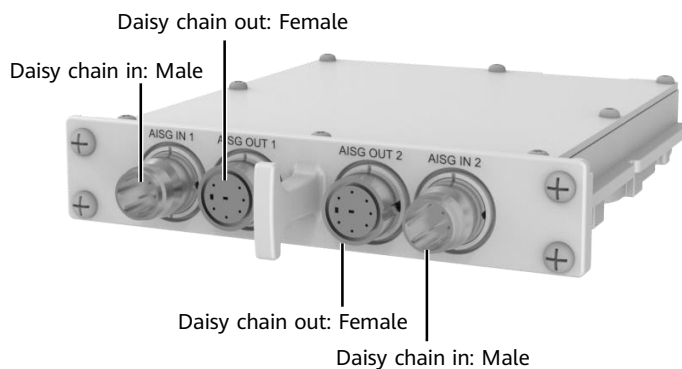
|                                  |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| Protocol                         | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |     |         |     |         |    |           |     |
| Connectors                       | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male // Daisy chain out: Female  |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Operating temperature range (°C) | -40 to +65   |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |
| Weight (g)                       | 670  |     |         |     |         |    |           |     |
| Packing weight (g)               | 783  |     |         |     |         |    |           |     |
| Dimensions (L x W x H) (mm)      | 203 x 153 x 30   |     |         |     |         |    |           |     |
| Packing size (L x W x H) (mm)    | 245 x 163 x 37   |     |         |     |         |    |           |     |

Standards: EN/IEC 60950-1(Safety)  
EN/IEC 60950-22(Safety – Equipment installed outdoor)  
EN 55032(Emission)  
EN/IEC 62368-1(Safety)  
ETSI EN 301 489  
FCC Part 15  
ICES-003

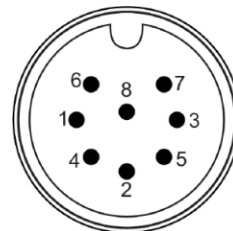
Certification: CE, FCC, IC, RCM, RoHS, REACH, WEEE

### Please note:

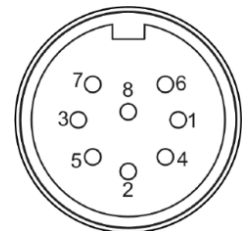
- Before the installation, check whether the AIMM and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.
- For Multi-RET requirements, please contact the technical support personnel of Huawei.



Appearance



Male



Female

**Feature Description**

- The antenna information management module (AIMM) supports remote electrical tilt (RET) function and manages antenna information.

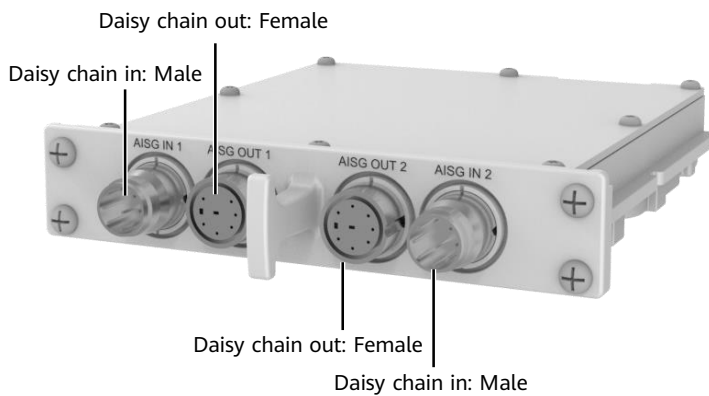
|                                  |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| Protocol                         | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 0.5 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |     |         |     |         |    |           |     |
| Connectors                       | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male // Daisy chain out: Female  |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Operating temperature range (°C) | -40 to +65   |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |
| Weight (g)                       | 580  |     |         |     |         |    |           |     |
| Packing weight (g)               | 693  |     |         |     |         |    |           |     |
| Dimensions (L x W x H) (mm)      | 203 x 153 x 30   |     |         |     |         |    |           |     |
| Packing size (L x W x H) (mm)    | 245 x 163 x 37   |     |         |     |         |    |           |     |

Standards: EN/IEC 60950-1(Safety)  
 EN/IEC 60950-22(Safety – Equipment installed outdoor)  
 EN 55032(Emission)  
 EN/IEC 62368-1(Safety)  
 ETSI EN 301 489  
 FCC Part 15  
 ICES-003

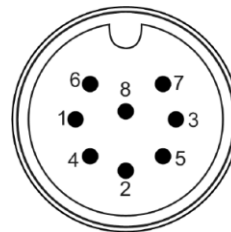
Certification: CE, FCC, IC, RCM, RoHS, REACH, WEEE

**Please note:**

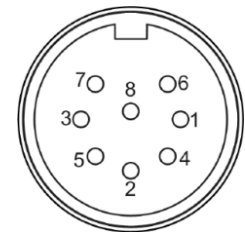
- Before the installation, check whether the AIMM and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.
- Support Single-RET mode and Multi-RET mode, the default mode is Single-RET.



**Appearance**



**Male**



**Female**

**Feature Description**

- The antenna information management module (AIMM) supports remote electrical tilt (RET) function and manages antenna information.

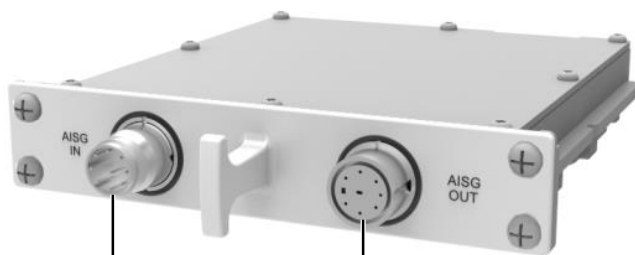
|                                  |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| Protocol                         | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 1.5 (when the motor does not work, 12 V)<br>< 6 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |     |         |     |         |    |           |     |
| Connectors                       | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male // Daisy chain out: Female  |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Operating temperature range (°C) | -40 ... +65  |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |
| Weight (g)                       | 610  |     |         |     |         |    |           |     |
| Packing weight (g)               | 723  |     |         |     |         |    |           |     |
| Dimensions (L x W x H) (mm)      | 203 x 153 x 30   |     |         |     |         |    |           |     |
| Packing size (L x W x H) (mm)    | 245 x 163 x 37   |     |         |     |         |    |           |     |

Standards: EN/IEC 60950-1(Safety)  
 EN/IEC 60950-22(Safety – Equipment installed outdoor)  
 EN 55032(Emission)  
 EN/IEC 62368-1(Safety)  
 ETSI EN 301 489  
 FCC Part 15  
 ICES-003

Certification: CE, FCC, IC, RCM, RoHS, REACH, WEEE

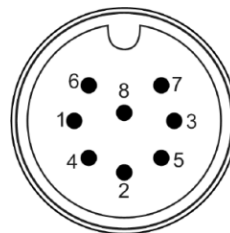
**Please note:**

Before the installation, check whether the AIMM and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.

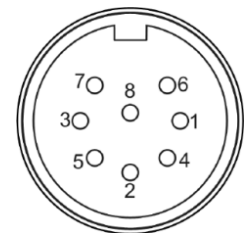


Daisy chain in: Male      Daisy chain out: Female

**Appearance**



**Male**



**Female**

**Feature Description**

- The antenna information management module (AIMM) supports remote electrical tilt (RET) function and manages antenna information.

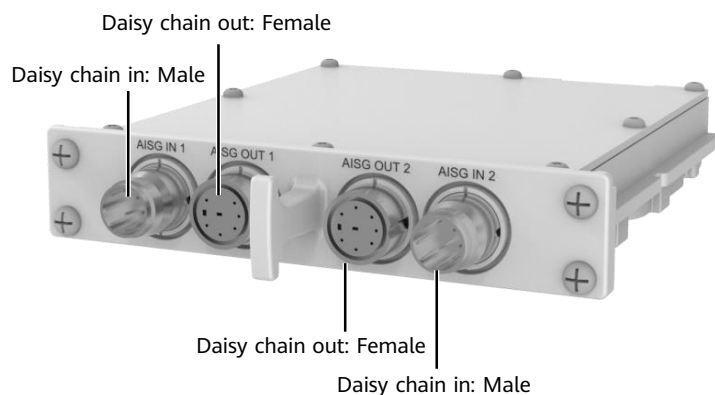
|                                  |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| Protocol                         | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 4.5 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 40  |     |         |     |         |    |           |     |
| Connectors                       | 4 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male // Daisy chain out: Female  |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Operating temperature range (°C) | -40 ... +65  |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 2.5 (10/350 μs)<br>10 (8/20 μs)  |     |         |     |         |    |           |     |
| Weight (g)                       | 670  |     |         |     |         |    |           |     |
| Packing weight (g)               | 783  |     |         |     |         |    |           |     |
| Dimensions (L x W x H) (mm)      | 203 x 153 x 30   |     |         |     |         |    |           |     |
| Packing size (L x W x H) (mm)    | 245 x 163 x 37   |     |         |     |         |    |           |     |

Standards: EN/IEC 60950-1(Safety)  
 EN/IEC 60950-22(Safety – Equipment installed outdoor)  
 EN 55032(Emission)  
 EN/IEC 62368-1(Safety)  
 ETSI EN 301 489  
 FCC Part 15  
 ICES-003

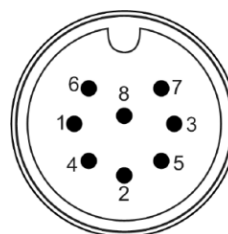
Certification: CE, FCC, IC, RCM, RoHS, REACH, WEEE

**Please note:**

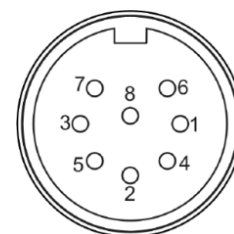
Before the installation, check whether the AIMM and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.



**Appearance**



**Male**



**Female**

**Feature Description**

- The antenna information management module (AIMM) supports remote electrical tilt (RET) function, remote azimuth adjustment, horizontal 3dB beam width adjustment and manages antenna information.

| RET Properties                   |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30  |     |         |     |         |    |           |     |
| Connectors                       | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Operating temperature (°C)       | -40 ... +65  |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 10 (8/20 μs)   |     |         |     |         |    |           |     |

| RAE Properties |                    |
|----------------|--------------------|
| RAE type       | Integrated RAE     |
| RAE protocols  | AISG-ES-RAE V2.1.0 |

| EasyBeam Properties                       |  |
|---|--|
| For details , see the antenna datasheet . |  |

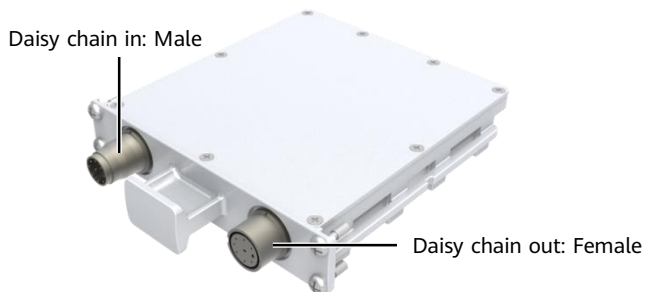
| Mechanical Properties         |                |
|-------------------------------|----------------|
| Weight (g)                    | 500            |
| Packing weight (g)            | 598            |
| Dimensions (L x W x H) (mm)   | 170 x 136 x 27 |
| Packing size (L x W x H) (mm) | 200 x 148 x 35 |

Standards: EN/IEC 60950-1(Safety)  
 EN/IEC 60950-22(Safety – Equipment installed outdoor)  
 EN 55032(Emission)  
 EN/IEC 62368-1(Safety)  
 ETSI EN 301 489  
 FCC Part 15  
 ICES-003

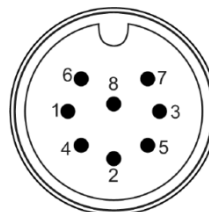
Certification: CE, FCC, IC, RCM, RoHS, REACH, WEEE

**Please note:**

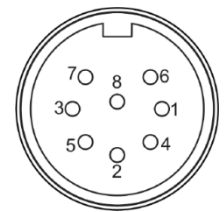
- Before the installation, check whether the AIMM and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.
- Before using this product, ensure that the base station supports the AISG-ES-RAE V2.1.0. If the base station does not support the AISG-ES-RAE V2.1.0, the RAE function cannot be used.



Appearance



Male



Female

**Feature Description**

- The antenna information management module (AIMM) supports remote electrical tilt (RET) function, remote azimuth adjustment, horizontal 3dB beam width adjustment and manages antenna information.

| RET Properties                   |  |     |         |     |         |    |           |     |
|----------------------------------|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                         | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols                    | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)          | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)            | < 1 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s) | Typ. 30  |     |         |     |         |    |           |     |
| Connectors                       | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG    | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|                                  | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Operating temperature (°C)       | -40 to +65   |     |         |     |         |    |           |     |
| Lightning protection (kA)        | 5 (8/20 μs)  |     |         |     |         |    |           |     |

| RAE Properties |                    |
|----------------|--------------------|
| RAE type       | Integrated RAE     |
| RAE protocols  | AISG-ES-RAE V2.1.0 |

| EasyBeam Properties                       |  |
|---|--|
| For details , see the antenna datasheet . |  |

| Mechanical Properties         |                  |
|-------------------------------|------------------|
| Weight (g)                    | 550              |
| Packing weight (g)            | 663              |
| Dimensions (L x W x H) (mm)   | 189 x 146 x 31.5 |
| Packing size (L x W x H) (mm) | 245 x 163 x 37   |

- Standards: EN/IEC 60950-1(Safety)  
 EN/IEC 60950-22(Safety – Equipment installed outdoor)  
 EN 55032(Emission)  
 EN/IEC 62368-1(Safety)  
 ETSI EN 301 489  
 FCC Part 15  
 ICES-003

Certification: CE, FCC, IC, RCM, RoHS, REACH, WEEE

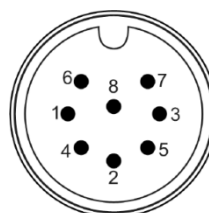
**Please note:**

- Before the installation, check whether the AIMM and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.
- Before using this product, ensure that the base station supports the AISG-ES-RAE V2.1.0. If the base station does not support the AISG-ES-RAE V2.1.0, the RAE function cannot be used.

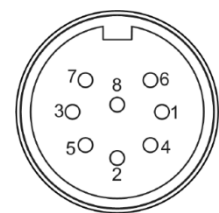


Daisy chain in: Male      Daisy chain out: Female

**Appearance**



**Male**



**Female**



**Feature Description**

- The antenna information management module (AIMM) supports remote electrical tilt (RET) function, remote azimuth adjustment, horizontal 3dB beam width adjustment and manages antenna information.

| RET Properties                            |  |     |         |     |         |    |           |     |
|---|--|-----|---------|-----|---------|----|-----------|-----|
| RET type                                  | Integrated RET   |     |         |     |         |    |           |     |
| RET protocols                             | AISG 2.0 / 3GPP  |     |         |     |         |    |           |     |
| Input voltage range (V)                   | 10 - 30 DC   |     |         |     |         |    |           |     |
| Power consumption (W)                     | < 1 (when the motor does not work, 12 V)<br>< 3 (when the motor is working, 12 V)<br>< 10 (when the motor is starting up or shutting down, 12 V) |     |         |     |         |    |           |     |
| Adjustment time (full range) (s)          | Typ. 30  |     |         |     |         |    |           |     |
| Connectors                                | 2 x 8 pin connector according to IEC 60130-9<br>Daisy chain in: Male / Daisy chain out: Female   |     |         |     |         |    |           |     |
| Pin assignment according AISG             | 1  | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|   | DC   | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Operating temperature (°C)                | -40 to +65   |     |         |     |         |    |           |     |
| Lightning protection (kA)                 | 5 (8/20 μs)  |     |         |     |         |    |           |     |
| RAE Properties                            |  |     |         |     |         |    |           |     |
| RAE type                                  | Integrated RAE   |     |         |     |         |    |           |     |
| RAE protocols                             | AISG-ES-RAE V2.1.0   |     |         |     |         |    |           |     |
| EasyBeam Properties                       |  |     |         |     |         |    |           |     |
| For details , see the antenna datasheet . |  |     |         |     |         |    |           |     |
| Mechanical Properties                     |  |     |         |     |         |    |           |     |
| Weight (g)                                | 600  |     |         |     |         |    |           |     |
| Packing weight (g)                        | 713  |     |         |     |         |    |           |     |
| Dimensions (L x W x H) (mm)               | 189 x 146 x 31.5   |     |         |     |         |    |           |     |
| Packing size (L x W x H) (mm)             | 245 x 163 x 37   |     |         |     |         |    |           |     |

Standards: EN/IEC 60950-1(Safety)  
 EN/IEC 60950-22(Safety – Equipment installed outdoor)  
 EN 55032(Emission)  
 EN/IEC 62368-1(Safety)  
 ETSI EN 301 489  
 FCC Part 15  
 ICES-003

Certification: CE, FCC, IC, RCM, RoHS, REACH, WEEE

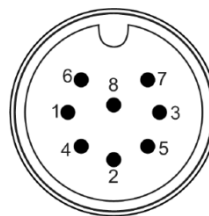
**Please note:**

- Before the installation, check whether the AIMM and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.
- Before using this product, ensure that the base station supports the AISG-ES-RAE V2.1.0. If the base station does not support the AISG-ES-RAE V2.1.0, the RAE function cannot be used.

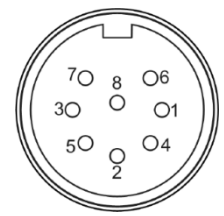


Daisy chain in: Male      Daisy chain out: Female

**Appearance**



**Male**



**Female**

## Features

- Convert signals between OOK and RS485.
- Low passive intermodulation products, low insertion loss and high power capacity.
- Ultra wide band design for various communication system.
- Small volume, light weight.
- Support AISG 2.0 protocol.

**SBT = Smart Bias Tee**

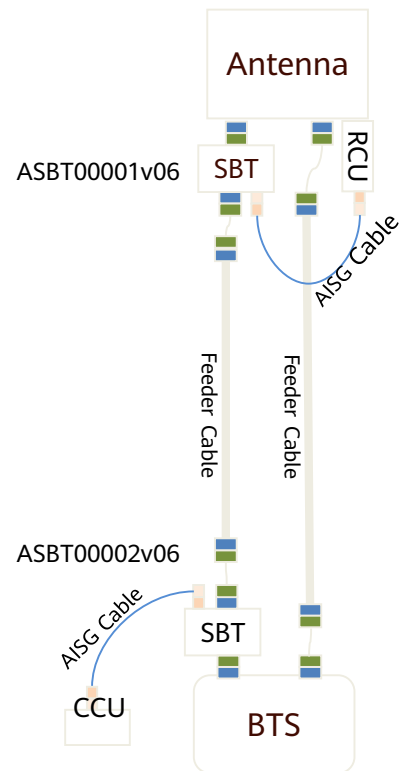
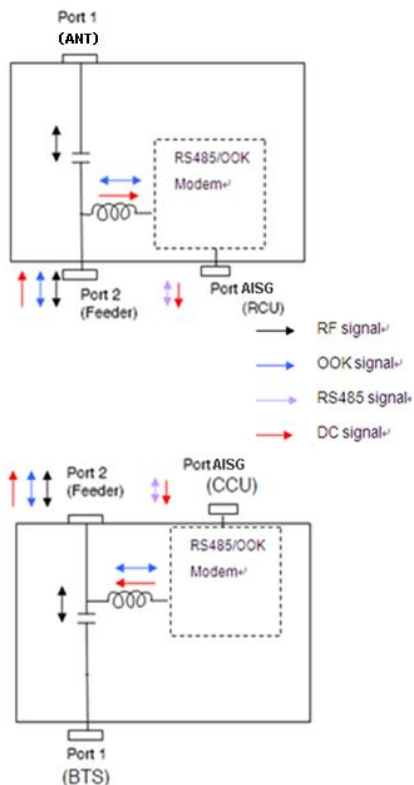
**RCU = Remote Control Unit** for remote electrical control of antenna tilt

**BTS = Base Transceiver Station**

**AISG= Antenna Interface Standards Group**



## Block Diagram



SBT-690-2700-001 Model: ASBT00001v06

SBT-690-2700-002 Model: ASBT00002v06



| Model                      | ASBT00001v06                  | ASBT00002v06                |
|----------------------------|-------------------------------|-----------------------------|
| Port 1 (Connector type)    | Antenna (4.3-10 Male)         | BTS (4.3-10 Male)           |
| Port 2 (Connector type)    | Feeder (4.3-10 Female)        | Feeder (4.3-10 Female)      |
| Port AISG (Connector type) | AISG (8-pin Connector Female) | AISG (8-pin Connector Male) |

### Electrical Properties

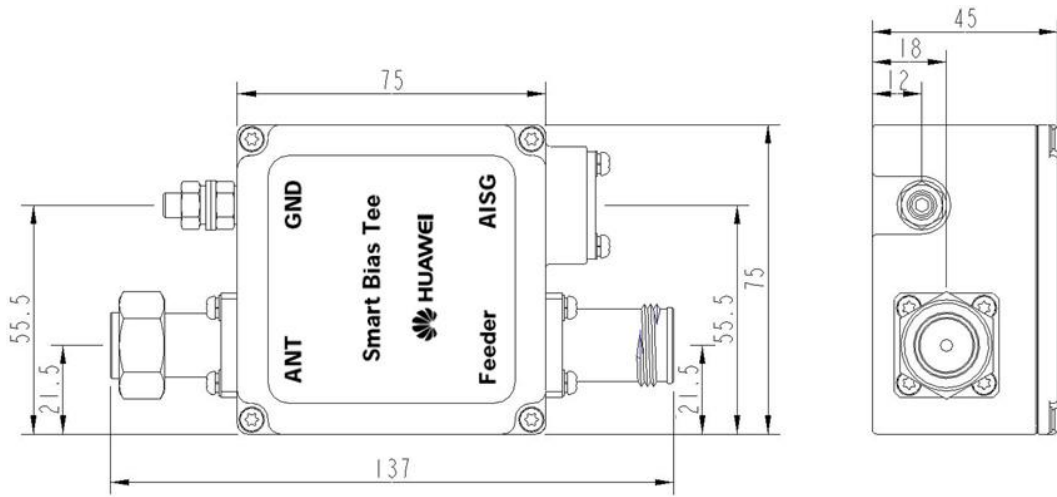
|                                |                                |   |
|--------------------------------|--------------------------------|---|
| Frequency range (MHz)          |                                | 690 - 2700  |
| Insertion loss (dB)            | Port 1 ↔ Port 2                | ≤ 0.1 (690 - 960 MHz // 1710 - 2690 MHz)<br>≤ 0.15 (960 - 1710 MHz)                     |
| Isolation for DC signal (dB)   | Port 1 ↔ Port 2                | ≥ 70  |
|                                | Port 1 ↔ Port AISG             |   |
| VSWR                           | Port 1 and Port 2              | ≤ 1.15 (690 - 960 MHz // 1710 - 2690 MHz)<br>≤ 1.2 (960 - 1710 MHz)                     |
| Input power (W)                | Port 1 and Port 2<br>Port AISG | Avg. ≥ 500 (690 - 960 MHz) // Avg. ≥ 250 (1710 - 2690 MHz)<br>< 2.5 A (+8 ... +30 V DC) |
| DC supply voltage (V)          |                                | +8 ... +30  |
| RF impedance (Ω)               |                                | 50  |
| Intermodulation products (dBc) |                                | < -160 (3rd order, 2 x 43 dBm)  |
| Power consumption (W)          |                                | Typ. 0.6  |
| Modem carrier frequency (MHz)  |                                | 2.176   |

### Environmental Specification

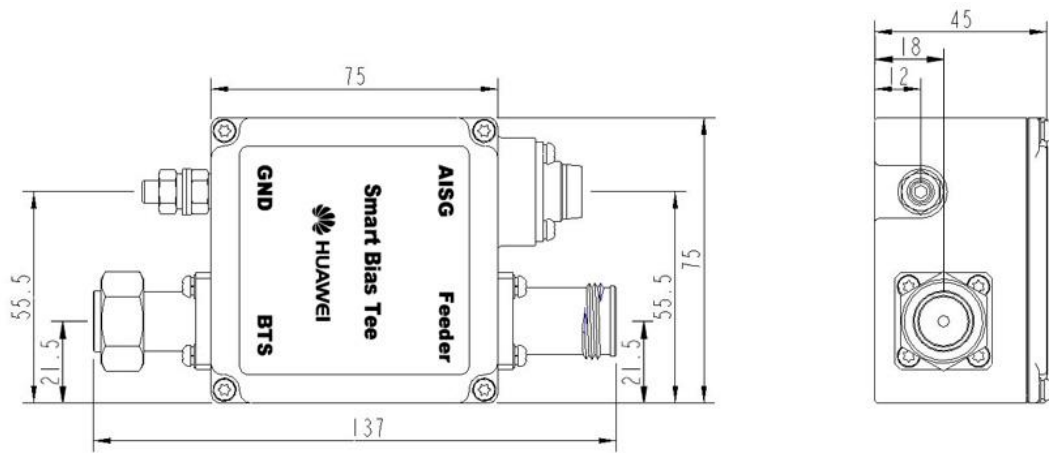
|                            |  |                   |
|----------------------------|--|-------------------|
| Operating temperature (°C) |  | -40 ... +70       |
| Application scene          |  | Indoor // outdoor |
| IP rating                  |  | IP67              |
| Lightning protection (kA)  |  | 3 (10/350 us)     |

### Mechanical Specification

|                                     |  |                                 |
|-------------------------------------|--|---------------------------------|
| SBT Dimensions (W x H x D) (mm)     |  | 75 x 137 x 45 (with connectors) |
| Packing dimensions (W x H x D) (mm) |  | 78 x 185 x 58                   |
| SBT net Weight (kg)                 |  | < 0.75                          |
| Packing weight (kg)                 |  | < 0.80                          |



ASBT00001v06

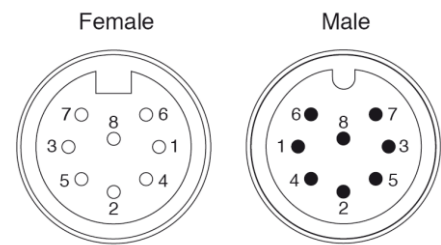


ASBT00002v06

Unit: mm

| Technical Specification |   |
|-------------------------|---|
| Connectors              | 2 x 8 pin connector according to IEC 60130-9<br>Female / Male                 |
| Cable                   | 2 x 0.25 mm <sup>2</sup> + 4 x 0.75 mm <sup>2</sup> cable according to UL2464 |
| Rate current            | 4 A   |
| Protection Class        | IP67 (Coupled)  |
| Temperature Range       | -40 ~ 80 °C   |
| Color                   | Black   |
| Single Bend radius      | 60 mm Min.  |
| Multiple Bend radius    | 120 mm Min.   |
| Application scene       | Indoor // Outdoor   |

| Pin Number | Signal           |
|------------|------------------|
| 1          | +12 V DC Nominal |
| 2          | N/C              |
| 3          | RS485 B          |
| 4          | N/C              |
| 5          | RS485 A          |
| 6          | 10 V - 30 V DC   |
| 7          | DC Return        |
| 8          | N/C              |



Unit: mm

### Cable series

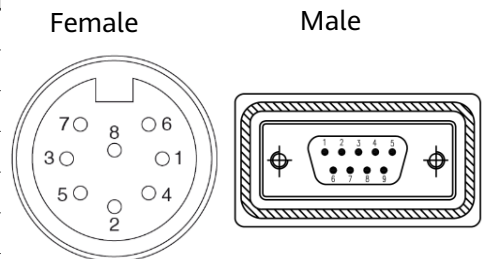
| Length | BOM Code | Model      |
|--------|----------|------------|
| 0.5 m  | 04045920 | AAISGCBL0  |
| 2 m    | 04045921 | AAISGCBL2  |
| 5 m    | 04050228 | AAISGCBL5  |
| 10 m   | 04050184 | AAISGCBL10 |
| 15 m   | 04045922 | ACOAISG01  |
| 30 m   | 04050230 | AAISGCL00  |
| 50 m   | 04050231 |            |
| 60 m   | 04050182 |            |
| 70 m   | 04050232 |            |



### Technical Specification

|  |  |
|--|--|
| Connector 1 (to be connected to RET module)            | 8 pin connector according to IEC 60130-9<br>Female |
| Connector 2 (to be connected to Huawei RRU "RET_port") | 9 pin DB9 connector, water-proofed<br>Male         |
| Cable  | 4 Pair x 24 AWG                                    |
| Rate current   | 4 A  |
| Protection Class                                       | IP67 (when coupled on RRU and RET)                 |
| Temperature Range                                      | -40 ~ 80 °C  |
| Color  | Black  |
| Single Bend radius                                     | 60 mm Min.   |
| Multiple Bend radius                                   | 120 mm Min.  |
| Application scene                                      | Indoor or Outdoor                                  |

| Pin Number | Signal           |                  |
|------------|------------------|------------------|
|            | Female           | Male             |
| 1          | +12 V DC nominal | +12 V DC nominal |
| 2          | N/C              | N/C              |
| 3          | RS485 B          | RS485 B          |
| 4          | RS485 GND        | RS485 GND        |
| 5          | RS485 A          | RS485 A          |
| 6          | +12 V DC nominal | N/C              |
| 7          | DC Return        | N/C              |
| 8          | N/C              | N/C              |
| 9          | /                | DC Return        |



### Cable series

| Length | BOM Code     | Model     |
|--------|--------------|-----------|
| 3 m    | 04070193     | CSST00101 |
| 5 m    | 04070097     | ACOAISG02 |
| 10m    | 04070097-002 | AISGCC10M |
| 20m    | 04070097-003 | AISGCC20M |



## Antenna Information Sensor Unit

Model: AISU00001v01



The antenna information sensor unit (AISU) is one kind of device that measures engineering parameters of antennas, including azimuths, mechanical tilts, longitude, latitude, and altitude. It is installed at the top of the antenna to perform GPS-based direction measurement.

The AISU belongs to the SAA solution. The SAA solution enables users to remotely manage engineering parameters of antennas in batches in real time using the NMS.

|   |   |     |         |     |         |    |           |     |
|---|---|-----|---------|-----|---------|----|-----------|-----|
| Azimuth Precision (°) <sup>*1</sup>                                 | ±2  |     |         |     |         |    |           |     |
| Mechanical Tilt Precision (°) <sup>*2</sup>                         | ±0.5  |     |         |     |         |    |           |     |
| Horizontal Positioning Precision (m) <sup>*1</sup>                  | < 6   |     |         |     |         |    |           |     |
| Vertical Positioning Precision (m) <sup>*1</sup>                    | < 3   |     |         |     |         |    |           |     |
| Protocol Compliance   | AISG-ES-RAE V2.1.0  |     |         |     |         |    |           |     |
| Input Voltage Range (V)   | 10 to 30 (DC)   |     |         |     |         |    |           |     |
| Power Consumption (W)   | < 2.5 (@ 12 V)  |     |         |     |         |    |           |     |
| Connector   | 8-pin male connectors compliant with the IEC 60130-9 standard             |     |         |     |         |    |           |     |
| Connector Pin   | 1   | 2   | 3       | 4   | 5       | 6  | 7         | 8   |
|   | DC  | n/c | RS-485B | n/c | RS-485A | DC | DC return | n/c |
| Device Weight (kg)  | 0.85  |     |         |     |         |    |           |     |
| Packing Weight (kg)   | 1.9   |     |         |     |         |    |           |     |
| Operating Temperature (°C)  | -40 to +65  |     |         |     |         |    |           |     |
| Surge Protection Specifications (kA)                                | 5 (8/20 μs)   |     |         |     |         |    |           |     |
| Ingress Protection Rating   | IP65  |     |         |     |         |    |           |     |
| Device Dimensions (H x W x D) (mm)                                  | 37 x 325 x 129 (including connectors and not including mounting brackets) |     |         |     |         |    |           |     |
| Packing Dimensions (H x W x D) (mm)                                 | 100 x 470 x 187.5   |     |         |     |         |    |           |     |
| Antenna widths supported by the mounting bracket (mm) <sup>*3</sup> | 160 - 499   |     |         |     |         |    |           |     |

\*1. Indicates that the item is affected by the multipath environment, number of visible satellites, satellite geometric distribution, ionospheric activeness, and SBAS using and observation time.

\*2. Within ±30°.

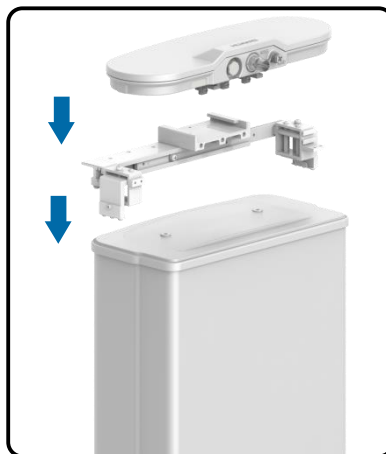
\*3. Installation on antennas outside this range is forbidden.



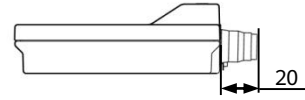
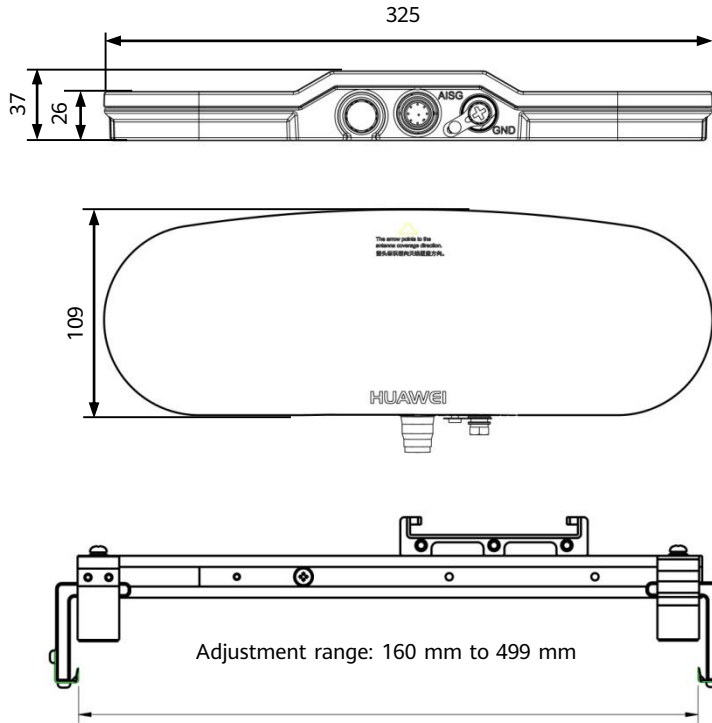
AISU

### WARNING

The AISU is installed at the top of the antenna, as shown in the right figure. For details about the installation method, see the installation guide delivered in the package box. Any incorrect installation method may cause accidents or even injuries.



**AISU Dimensions**

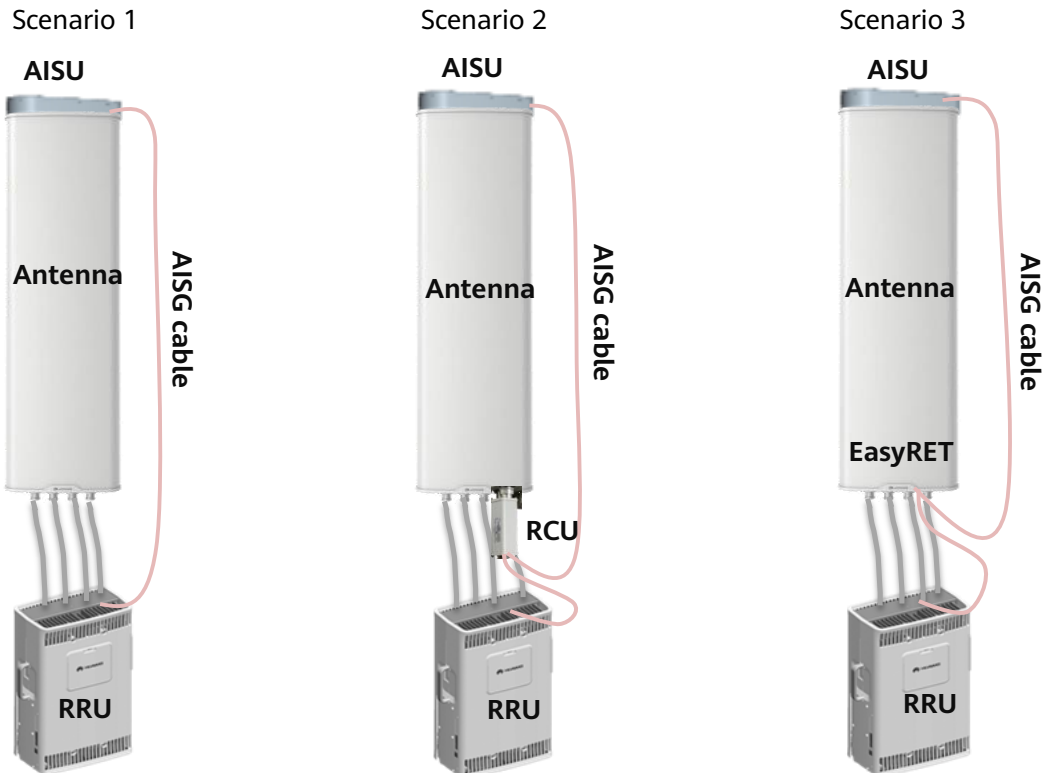


Unit: mm

**⚠ WARNING**

Installation on antennas outside this range is forbidden.

**Typical connections between the AISU, RET, BTS, and antenna**







## D. Antenna Line Product

### D-1. TMA

| Description   | Frequency Range (MHz)  | AISG type | Gain(dB)    | Connector  | Dimension (mm)   | Model        | Page       |
|---|--|-----------|-------------|------------|------------------|--------------|------------|
| 700M  | RX:703-748MHz<br>TX:758-803MHz   | AISG v2.0 | 12 ±1       | 4 x 4.3-10 | 215 x 290 x 130  | ATA702000v06 | <b>382</b> |
| DD800M  | RX:832-862MHz<br>TX:791-821MHz   | AISG v2.0 | 12±1        | 4 x 4.3-10 | 170 x 230 x 120  | ATA802001v06 | <b>385</b> |
| E900M   | RX:880-915MHz<br>TX:925-960MHz   | AISG v2.0 | 12±1        | 4 x 4.3-10 | 170 x 230 x 120  | ATA902007v06 | <b>388</b> |
| 1800M   | RX:1710-1785 MHz<br>TX:1805-1880 MHz   | AISG v2.0 | 12±1        | 4 x 4.3-10 | 203 x 269 x 56   | ATA182003v06 | <b>391</b> |
| 2100M   | RX:1920-1980MHz<br>TX:2110-2170MHz   | AISG v2.0 | 12±1        | 4 x 4.3-10 | 170 x 225 x 54.5 | ATA212007v06 | <b>394</b> |
| 2600M   | RX:2500-2570MHz<br>TX:2620-2690MHz   | AISG v2.0 | 12 ±1       | 4 x 4.3-10 | 160 x 210 x 54.5 | ATA262000v06 | <b>397</b> |
| Dual Band 800M & 900M (2input4output)               | RX:832-862MHz/880-915MHz<br>TX:791-821/925-960MHz                                  | AISG v2.0 | 12 ±1       | 6 x 4.3-10 | 247 x 342 x 132  | ATADU2024v06 | <b>400</b> |
| Dual Band 1800M & 2100M (2input2output)             | RX:1710-1785/1920-1980MHz<br>TX:1805-1880/2110-2170MHz                             | AISG v2.0 | 12±1        | 4 x 4.3-10 | 203 x 233 x 96   | ATADU2017v06 | <b>403</b> |
| Dual Band 1800M & 2100M (2input4output)             | RX:1710-1785/1920-1980MHz<br>TX:1805-1880/2110-2170MHz                             | AISG v2.0 | 12±1        | 6 x 4.3-10 | 196 x 280 x 110  | ATADU2023v06 | <b>406</b> |
| Dual Band (1800M & 2100M) & 2600M (2input4output)   | RX:1710-1785&1920-1980/<br>2500-2570MHz<br>TX:1805-1880&2110-2170/<br>2620-2690MHz | AISG v2.0 | 12±1        | 6 x 4.3-10 | 252 x 236 x 95   | ATADU2015v06 | <b>409</b> |
| Dual Band 700M & 800M & 900M (2input2output)        | RX:703-748/832-915MHz<br>TX:758-821/925-960MHz                                     | AISG v2.0 | 12±1        | 4 x 4.3-10 | 256 x 296 x 126  | ATADU2016v06 | <b>412</b> |
| Triple Band (1800M & 2100M) & 2600M (2input2output) | RX:1710-1785&1920-1980/<br>2500-2570MHz<br>TX:1805-1880&2110-2170/<br>2620-2690MHz | AISG v2.0 | 12(Nominal) | 4 x 4.3-10 | 295 x 250 x 95   | ATATR2002v06 | <b>415</b> |
| Dual Band 1800&2100-Bypass 617-960/1427-1520        | RX:1710-1785&1920-1980/<br>TX:1805-1880&2110-2170/<br>Bypass:617-960/1427-1520     | AISG v2.0 | 12 ±1       | 8 x 4.3-10 | 270 x 240 x 96   | ATADU2022v06 | <b>418</b> |
| Dual Band 1800&2100-Bypass 617-960/1427-1520        | RX:1710-1785&1920-1980/<br>TX:1805-1880&2110-2170/<br>Bypass:617-960/1427-1520     | AISG v2.0 | 12 ±1       | 8 x 4.3-10 | 270 x 240 x 96   | ATADU2022v07 | <b>421</b> |

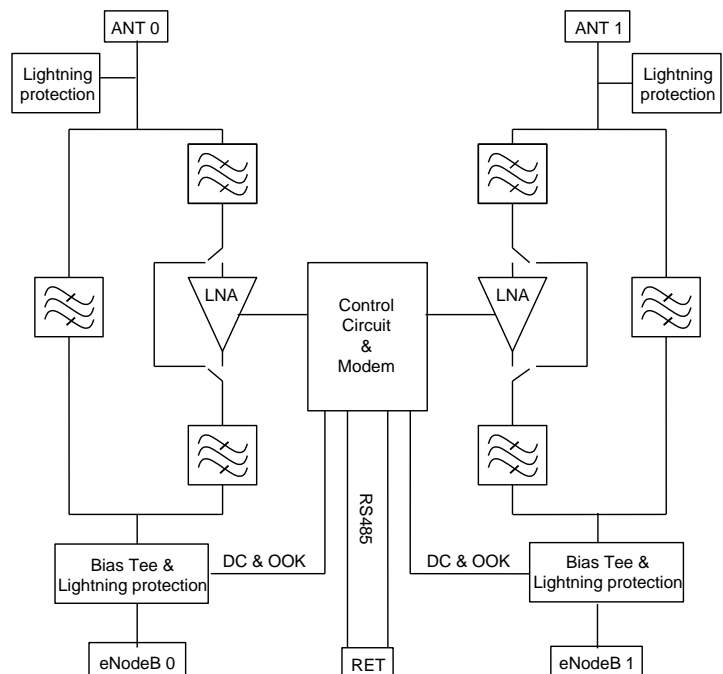
## Product Description

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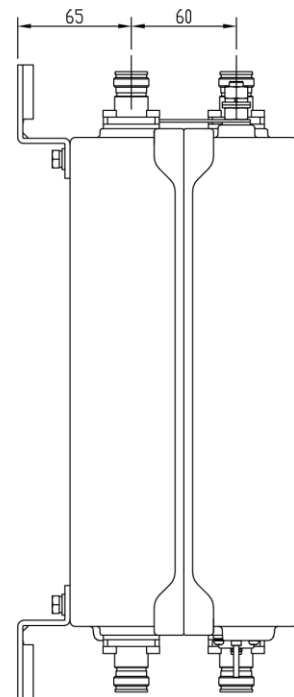
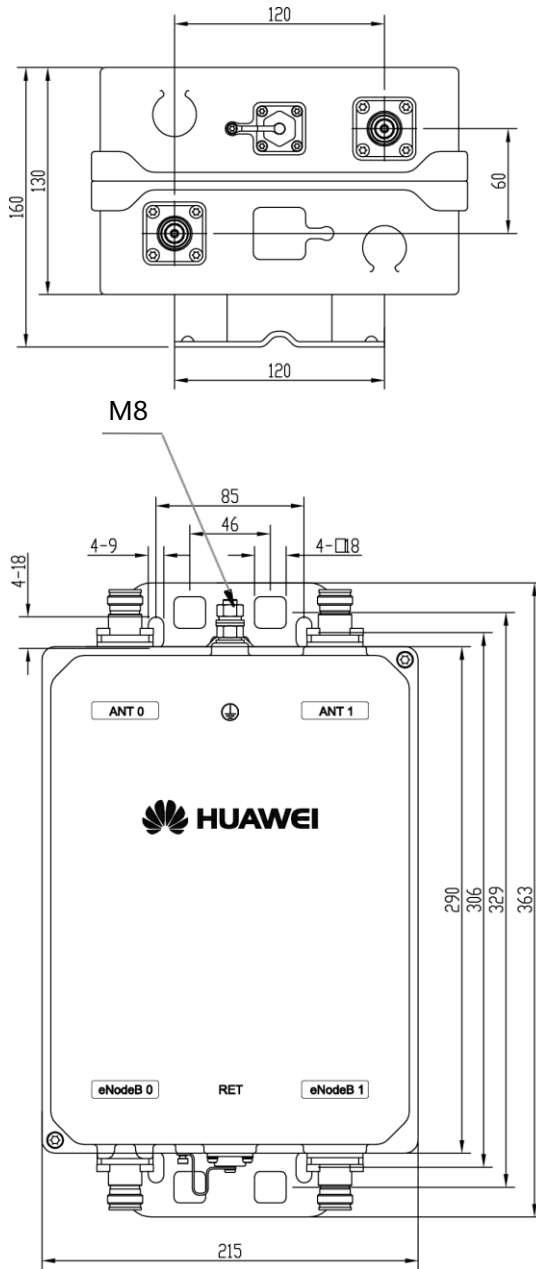
## Features

- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.
- Support default 12dB fixed gain.

## Appearance and Block Diagram



| Tx Specifications                            |   |          |
|--|---|----------|
| Frequency range (MHz)                        | 758 - 803   |          |
| Bandwidth (MHz)                              | 45  |          |
| Insertion loss (dB)                          | Avg. < 0.45   |          |
| Return loss (dB)                             | ≥ 18  |          |
| Input power (W)                              | < 160 (+52 dBm) CW<br>< 2000 (+63 dBm) peak   |          |
| Intermodulation products in Rx band (dBc)    | ≤ -160 (2 TX carriers at +43 dBm)   |          |
| Rx Specifications                            |   |          |
| Frequency range (MHz)                        | 703 - 748   |          |
| Bandwidth (MHz)                              | 45  |          |
| Return loss (dB)                             | ≥ 18 (DC ON)<br>≥ 13 (DC OFF)   |          |
| Insertion loss in by-pass mode (dB)          | ≤ 3.5 (DC OFF)  |          |
| Gain (dB)                                    | 12 ± 1  |          |
| Noise figure (dB)                            | Avg. < 1.5 (12 dB Gain, +22 ... +28 °C)   |          |
| Output 1dB compression (dBm)                 | ≥ 8 (12 dB Gain)  |          |
| OIP3 (dBm)                                   | ≥ 20 (12 dB Gain)   |          |
| Electrical Specifications                    |   |          |
| AISG Mode (Total ports)                      |   |          |
| DC supply voltage (V)                        | 9 - 30  |          |
| Operating current per TMA (mA) (without RET) | @12 V   | Max. 192 |
|  | @17 V   | Max. 139 |
|  | @30 V   | Max. 95  |
| Alarm management                             | AISG  |          |
| Power consumption (W)                        | < 3.5   |          |
| Environmental Specification                  |   |          |
| Operating temperature range (°C)             | -40 ... +65   |          |
| IP rating                                    | IP67  |          |
| MTBF (hours)                                 | > 1,000,000   |          |
| EMC  | EN 301 489-1 , EN 301 489-50  |          |
| Lightning protection (kA)                    | 10 (8/20 us)  |          |
| Mechanical Specification                     |   |          |
| DTMA dimensions (W x H x D) (mm)             | 215 x 290 x 130 (without connectors, without brackets)  |          |
| Packing dimensions (W x H x D) (mm)          | 290 x 500 x 265   |          |
| DTMA weight (kg)                             | ≤ 8.5 (with brackets)   |          |
| Packing weight (kg)                          | ≤ 9.5   |          |
| DTMA Volume (L)                              | Approx. 9.0   |          |
| AISG connector                               | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |          |
| Mounting                                     | Wall mounting: with 4 screws (max. 8 mm diameter)<br>Mast mounting  |          |
| Mast diameter (mm)                           | 40 - 135  |          |
| Connector                                    | 4 x 4.3-10 Female   |          |



Unit : mm

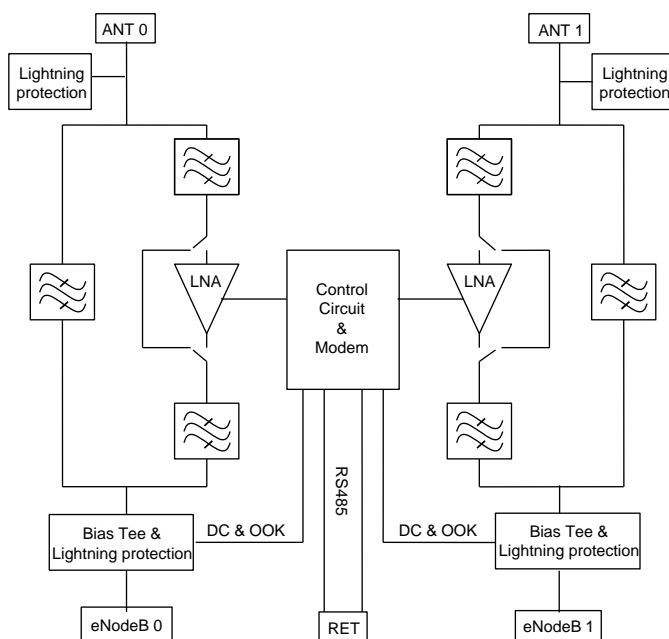
## Product Description

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## Features

- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.
- Support default 12dB fixed gain.

## Appearance and Block Diagram



**Tx Specifications**

|   |   |
|---|---|
| Frequency range (MHz)                     | 791 - 821                                   |
| Bandwidth (MHz)                           | 30  |
| Insertion loss (dB)                       | Avg. < 0.4                                  |
| Return loss (dB)                          | ≥ 18  |
| Input power (W)                           | < 160 (+52 dBm) CW<br>< 2000 (+63 dBm) peak |
| Intermodulation products in Rx band (dBc) | ≤ -160 (2 TX carriers at +43 dBm)           |

**Rx Specifications**

|                                     |   |
|-------------------------------------|---|
| Frequency range (MHz)               | 832 - 862                               |
| Bandwidth (MHz)                     | 30                                      |
| Return loss (dB)                    | ≥ 18 (DC ON)<br>≥ 13 (DC OFF)           |
| Insertion loss in by-pass mode (dB) | Avg. ≤ 2 (DC OFF)                       |
| Gain (dB)                           | 12 ± 1                                  |
| Noise figure (dB)                   | Avg. < 1.3 (12 dB Gain, +22 ... +28 °C) |
| Output 1dB compression (dBm)        | ≥ 12 (12 dB Gain)                       |
| OIP3 (dBm)                          | ≥ 27 (12 dB Gain)                       |

**Electrical Specifications**

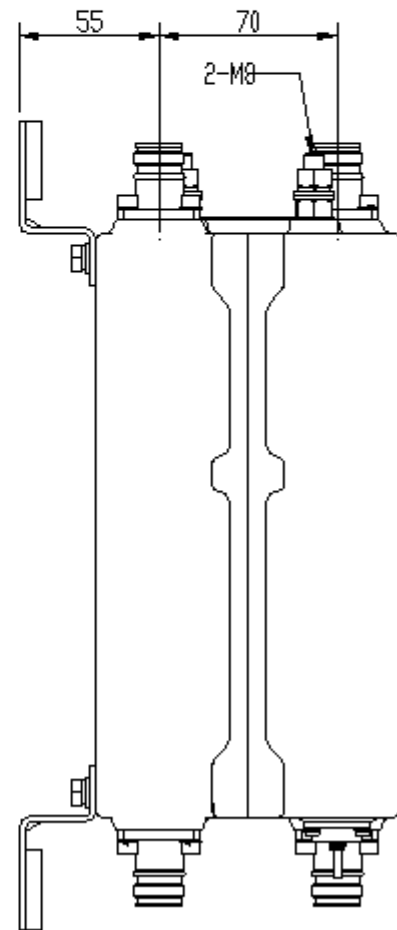
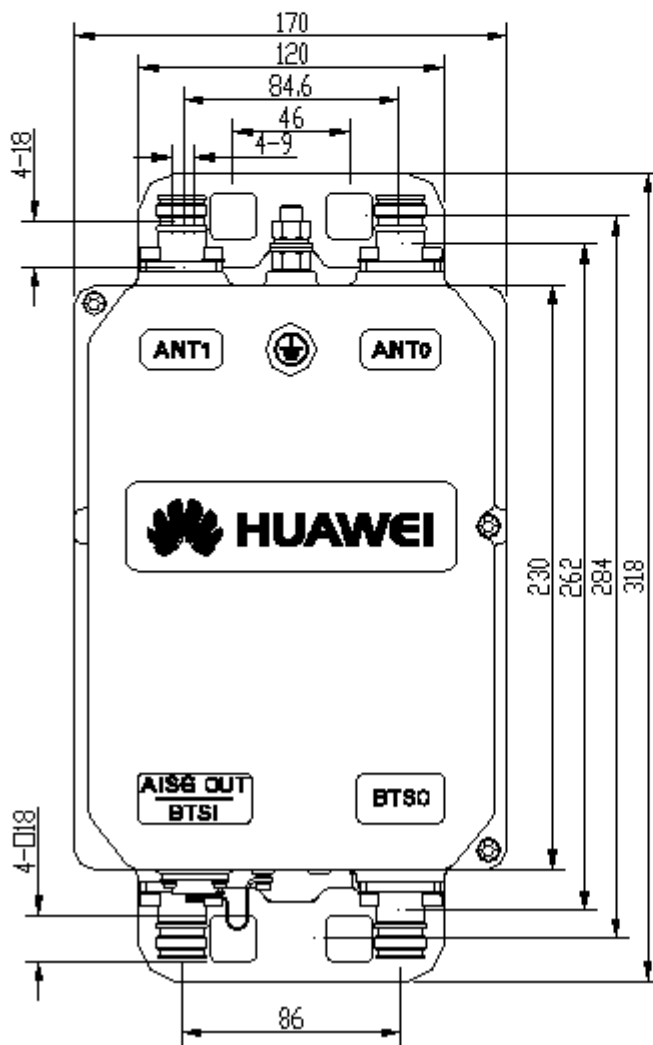
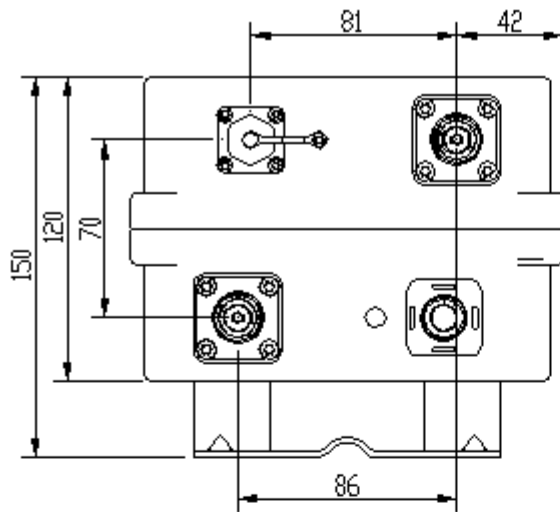
|   |       |                       |
|---|-------|-----------------------|
|   |       | AISG Mode (BTS0,BTS1) |
| DC supply voltage (V)                           |       | 9 - 30                |
| Operating current per TMA (mA)<br>(without RET) | @12 V | Max. 210              |
|   | @17 V | Max. 160              |
|   | @30V  | Max. 95               |
| Power consumption (W)                           |       | < 3                   |

**Environmental Specification**

|                                  |                             |
|----------------------------------|-----------------------------|
| Operating temperature range (°C) | -40 ... +65                 |
| IP rating                        | IP67                        |
| MTBF (hours)                     | > 1,000,000                 |
| EMC                              | EN 301 489-1, EN 301 489-50 |
| Lightning protection (kA)        | 10 (8/20 us)                |

**Mechanical Specification**

|                                     |   |
|-------------------------------------|---|
| DTMA dimensions (W x H x D) (mm)    | 170 x 230 x 120(without connectors, without brackets)   |
| Packing dimensions (W x H x D) (mm) | 240 x 405 x 210   |
| DTMA weight (kg)                    | ≤ 6.5 (with brackets)   |
| Packing weight (kg)                 | ≤ 7.5   |
| DTMA Volume (L)                     | < 4.7   |
| AISG connector                      | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |
| Mounting                            | Wall mounting: with 4 screws (max. 8 mm diameter)<br>Pole mounting  |
| Mast diameter (mm)                  | 40 - 135  |
| Connector                           | 4 x 4.3-10 Female   |



Unit : mm



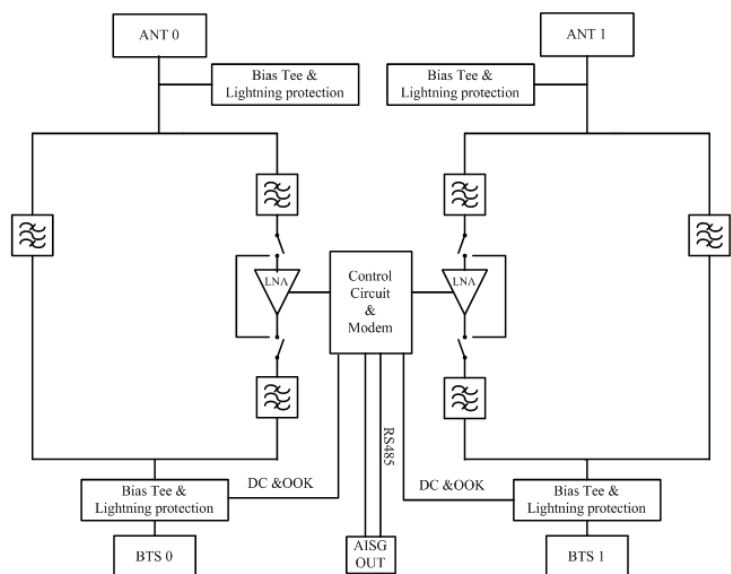
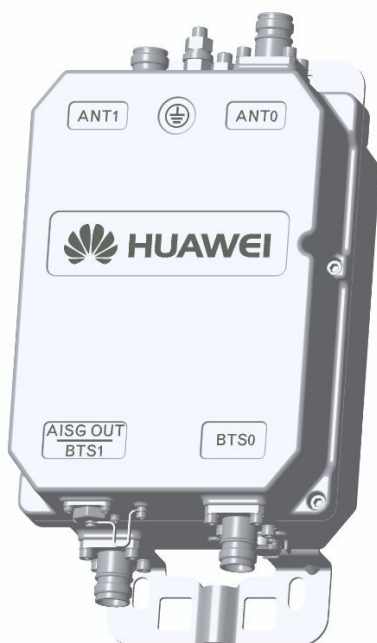
## Product Description

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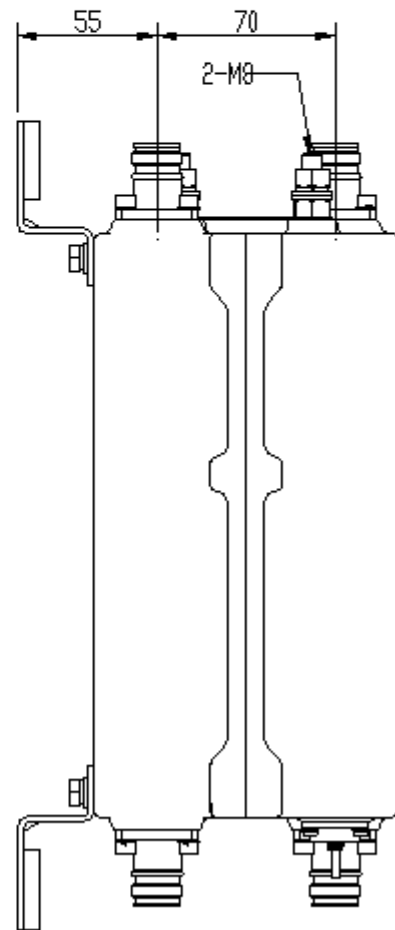
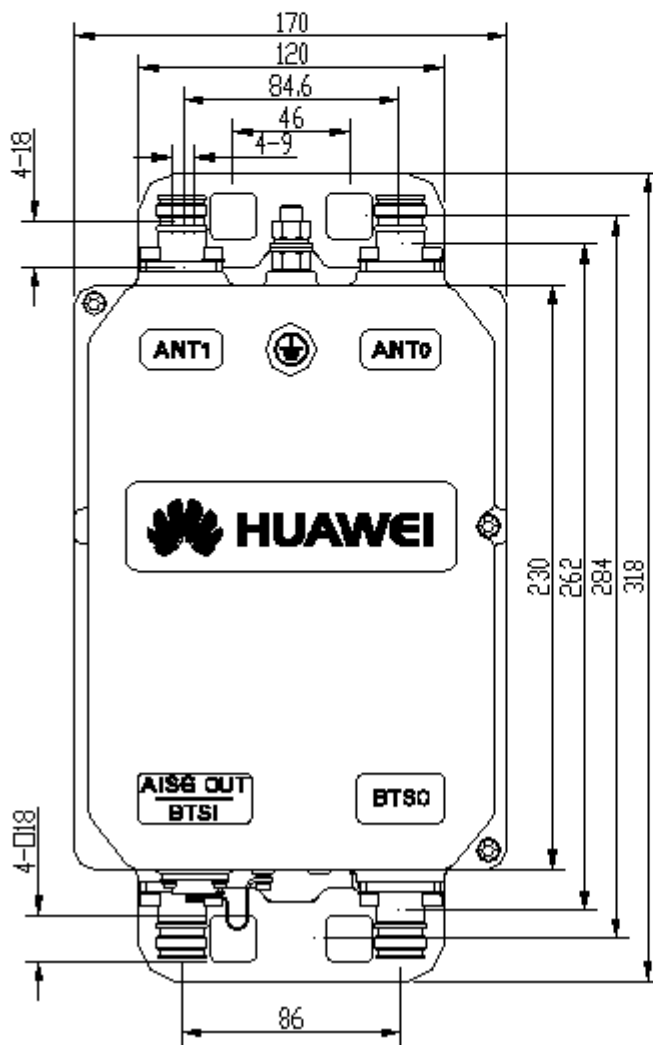
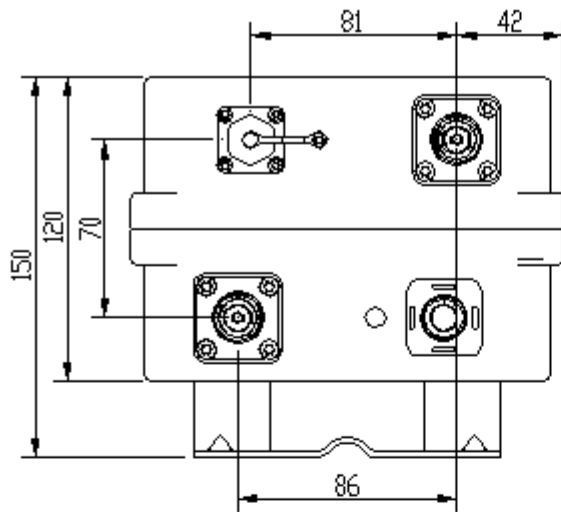
## Features

- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.
- Support default 12dB fixed gain.

## Appearance and Block Diagram



| Tx Specifications                               |   |          |
|---|---|----------|
| Frequency range (MHz)                           | 925 - 960   |          |
| Bandwidth (MHz)                                 | 35  |          |
| Insertion loss (dB)                             | Avg. < 0.4  |          |
| Return loss (dB)                                | ≥ 18  |          |
| Input power (W)                                 | < 160 (+52 dBm) CW<br>< 2000 (+63 dBm) peak   |          |
| Intermodulation products in Rx band (dBc)       | ≤ -160 (2 TX carriers at +43 dBm)   |          |
| Rx Specifications                               |   |          |
| Frequency range (MHz)                           | 880 - 915   |          |
| Bandwidth (MHz)                                 | 35  |          |
| Return loss (dB)                                | ≥ 18 (DC ON)<br>≥ 13 (DC OFF)   |          |
| Insertion loss in by-pass mode (dB)             | Avg. ≤ 2.0 (DC OFF)   |          |
| Gain (dB)                                       | 12 ± 1  |          |
| Noise figure (dB)                               | Avg. < 1.3 (12 dB Gain, +22 ... +28 °C)   |          |
| Output 1dB compression (dBm)                    | ≥ 12 (12 dB Gain)   |          |
| OIP3 (dBm)                                      | ≥ 27 (12 dB Gain)   |          |
| Electrical Specifications                       |   |          |
| AISG Mode (BTS0,BTS1)                           |   |          |
| DC supply voltage (V)                           | 9 - 30  |          |
| Operating current per TMA (mA)<br>(without RET) | @12 V   | Max. 210 |
|   | @17 V   | Max. 160 |
|   | @30 V   | Max. 95  |
| Power consumption (W)                           | < 3   |          |
| Environmental Specification                     |   |          |
| Operating temperature range (°C)                | -40 ... +65   |          |
| IP rating                                       | IP67  |          |
| MTBF (hours)                                    | > 1,000,000   |          |
| EMC   | EN 301 489-1, EN 301 489-50   |          |
| Lightning protection (kA)                       | 10 (8/20 us)  |          |
| Mechanical Specification                        |   |          |
| DTMA dimensions (W x H x D) (mm)                | 170 x 230 x 120 (without connectors, without brackets)  |          |
| Packing dimensions (W x H x D) (mm)             | 240 x 405 x 210   |          |
| DTMA weight (kg)                                | ≤ 6.5 (with brackets)   |          |
| Packing weight (kg)                             | ≤ 7.5   |          |
| DTMA Volume (L)                                 | Approx. 4.7   |          |
| AISG connector                                  | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |          |
| Mounting  | Wall mounting: with 4 screws (max. 8 mm diameter)<br>Pole mounting  |          |
| Mast diameter (mm)                              | 40 - 135  |          |
| Connector                                       | 4 x 4.3-10 Female   |          |



Unit : mm

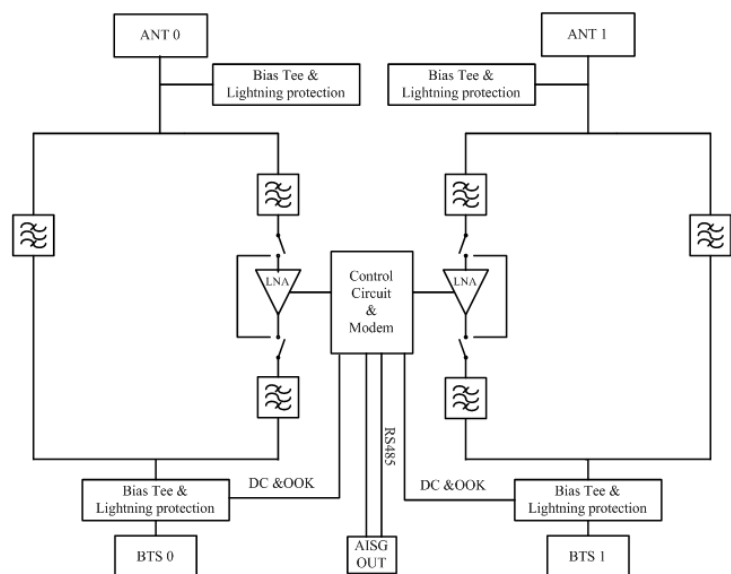
## Product Description

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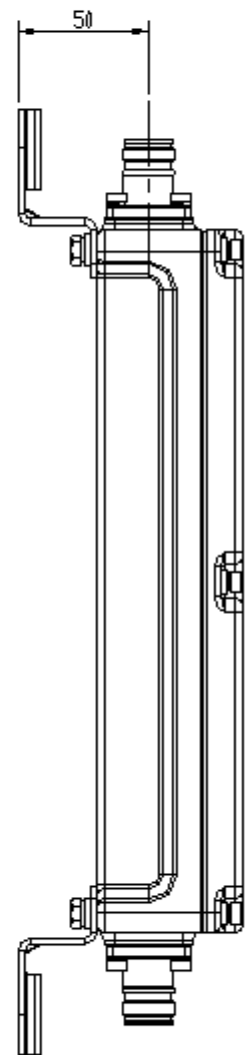
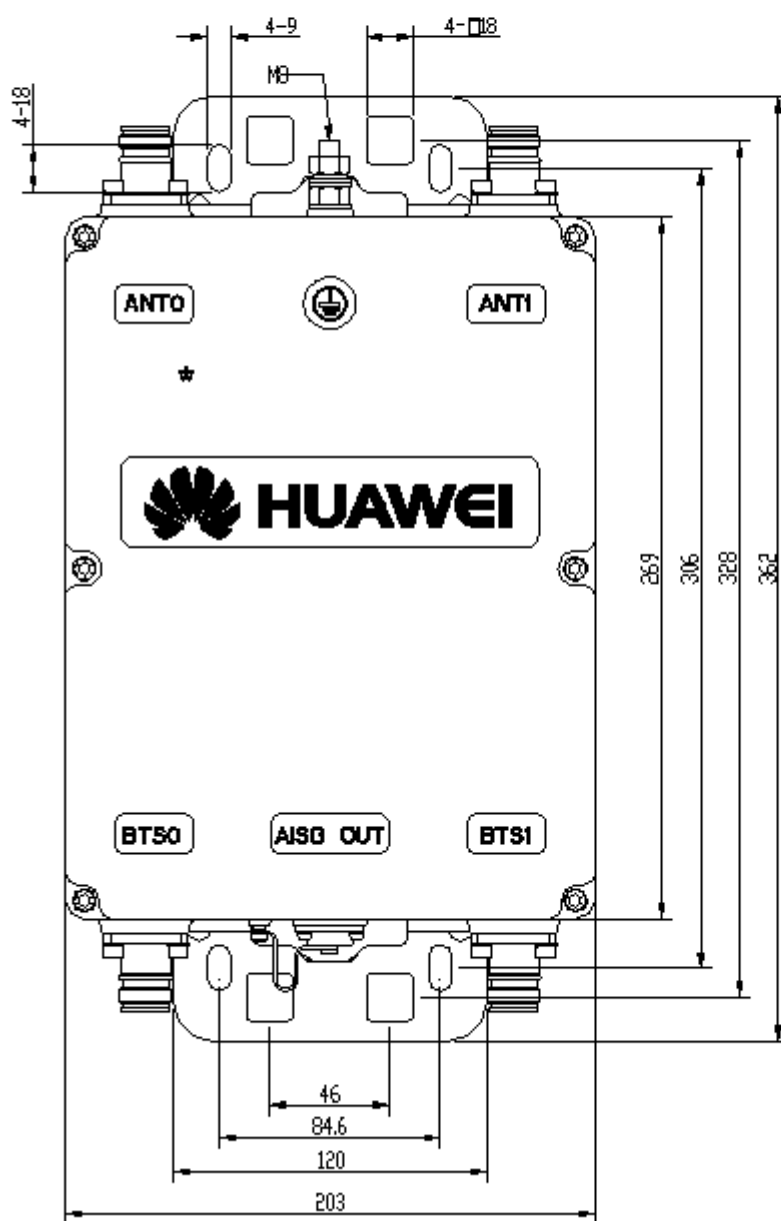
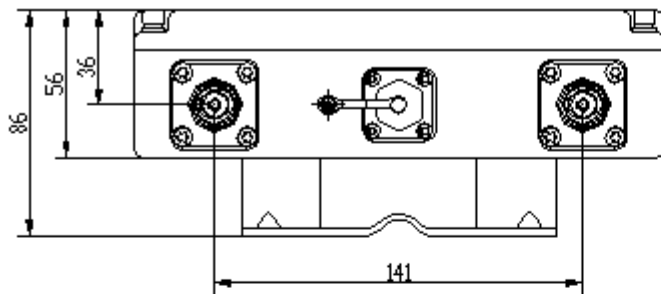
## Features

- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.
- Support default 12dB fixed gain.

## Appearance and Block Diagram



| Tx Specifications                            |   |          |
|--|---|----------|
| Frequency range (MHz)                        | 1805 - 1880   |          |
| Bandwidth (MHz)                              | 75  |          |
| Insertion loss (dB)                          | Avg. < 0.4  |          |
| Return loss (dB)                             | ≥ 18  |          |
| Input power (W)                              | < 160 (+52 dBm) CW<br>< 2000 (+63 dBm) peak   |          |
| Intermodulation products in Rx band (dBc)    | ≤ -160 (2 TX carriers at +43 dBm)   |          |
| Rx Specifications                            |   |          |
| Frequency range (MHz)                        | 1710 - 1785   |          |
| Bandwidth (MHz)                              | 75  |          |
| Return loss (dB)                             | ≥ 18 (DC ON)<br>≥ 13 (DC OFF)   |          |
| Insertion loss in by-pass mode (dB)          | Avg. ≤ 2 (DC OFF)   |          |
| Gain (dB)                                    | 12 ± 1  |          |
| Noise figure (dB)                            | Avg. < 1.4 (+22 ... +28 °C)   |          |
| Output 1dB compression (dBm)                 | ≥ 12  |          |
| OIP3 (dBm)                                   | ≥ 27  |          |
| Electrical Specifications                    |   |          |
| AISG Mode (BTS0,BTS1)                        |   |          |
| DC supply voltage (V)                        | 9 - 30  |          |
| Operating current per TMA (mA) (without RET) | @12 V   | Max. 210 |
|  | @17 V   | Max. 160 |
|  | @30 V   | Max. 95  |
| Power consumption (W)                        | < 3   |          |
| Environmental Specification                  |   |          |
| Operating temperature range (°C)             | -40 ... +65   |          |
| IP rating                                    | IP67  |          |
| MTBF (hours)                                 | > 1,000,000   |          |
| EMC  | EN 301 489-1, EN 301 489-50   |          |
| Lightning protection (kA)                    | 10 (8/20 us)  |          |
| Mechanical Specification                     |   |          |
| DTMA dimensions (W x H x D) (mm)             | 203 x 269 x 56<br>(without connectors, without brackets)  |          |
| Packing dimensions (W x H x D) (mm)          | 460 x 260 x 165   |          |
| DTMA weight (kg)                             | ≤ 4.9 (with brackets)   |          |
| Packing weight (kg)                          | ≤ 5.9   |          |
| DTMA Volume (L)                              | < 3.1   |          |
| AISG connector                               | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |          |
| Mounting                                     | Wall mounting: with 4 screws (max. 8 mm diameter)<br>pole mounting  |          |
| Mast diameter (mm)                           | 40 - 135  |          |
| Connector                                    | 4 x 4.3-10 Female   |          |



Unit : mm

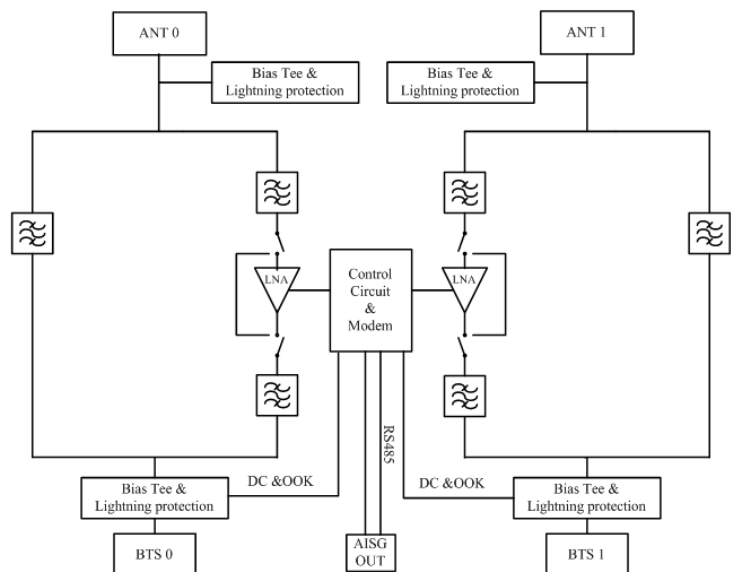
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## Features

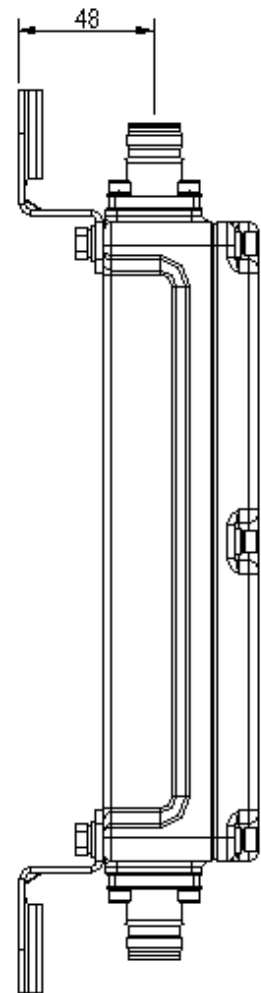
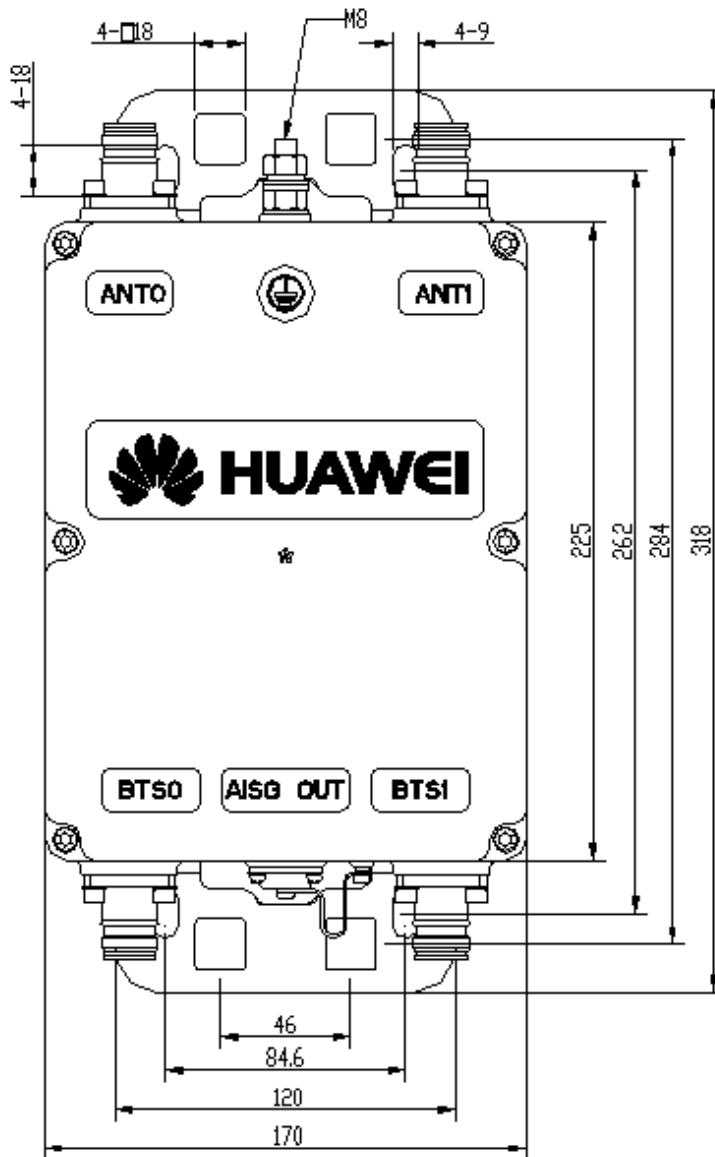
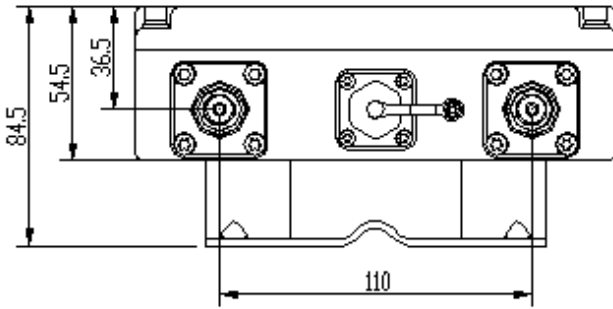
- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.
- Support default 12dB fixed gain.

## Appearance and Block Diagram



| Tx Specifications                            |   |          |
|--|---|----------|
| Frequency range (MHz)                        | 2110 - 2170   |          |
| Bandwidth (MHz)                              | 60  |          |
| Insertion loss (dB)                          | Avg. < 0.25   |          |
| Return loss (dB)                             | ≥ 18  |          |
| Input power (W)                              | < 160 (+52 dBm) CW<br>< 2000 (+63 dBm) peak   |          |
| Intermodulation products in Rx band (dBc)    | ≤ -165 (2 TX carriers at +43 dBm)   |          |
| Rx Specifications                            |   |          |
| Frequency range (MHz)                        | 1920 - 1980   |          |
| Bandwidth (MHz)                              | 60  |          |
| Return loss (dB)                             | ≥ 18 (DC ON)<br>≥ 13 (DC OFF)   |          |
| Insertion loss in by-pass mode (dB)          | Avg. ≤ 2 (DC OFF)   |          |
| Gain (dB)                                    | 12 ± 1  |          |
| Noise figure (dB)                            | Avg. < 1.2 (+22 ... +28 °C)   |          |
| Output 1dB compression (dBm)                 | ≥ 12  |          |
| OIP3 (dBm)                                   | ≥ 27  |          |
| Electrical Specifications                    |   |          |
| AISG Mode (BTS0,BTS1)                        |   |          |
| DC supply voltage (V)                        | 9 - 30  |          |
| Operating current per TMA (mA) (without RET) | @12 V   | Max. 210 |
|  | @17 V   | Max. 160 |
|  | @30 V   | Max. 95  |
| Power consumption (W)                        | < 3   |          |
| Environmental Specification                  |   |          |
| Operating temperature range (°C)             | -40 ... +65   |          |
| IP rating                                    | IP67  |          |
| MTBF (hours)                                 | > 1,000,000   |          |
| EMC  | EN 301 489-1, EN 301 489-50   |          |
| Lightning protection (kA)                    | 10 (8/20 us)  |          |
| Mechanical Specification                     |   |          |
| DTMA dimensions (W x H x D) (mm)             | 170 x 225 x 54.5 (without connectors, without brackets)   |          |
| Packing dimensions (W x H x D) (mm)          | 400 x 220 x 150   |          |
| DTMA weight (kg)                             | ≤ 3.8 (with brackets)   |          |
| Packing weight (kg)                          | ≤ 4.5   |          |
| DTMA Volume (L)                              | < 2.1   |          |
| AISG connector                               | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |          |
| Mounting                                     | Wall mounting: with 4 screws (max. 8 mm diameter)<br>Pole mounting  |          |
| Mast diameter (mm)                           | 40 - 135  |          |
| Connector                                    | 4 x 4.3-10 Female   |          |





Unit : mm

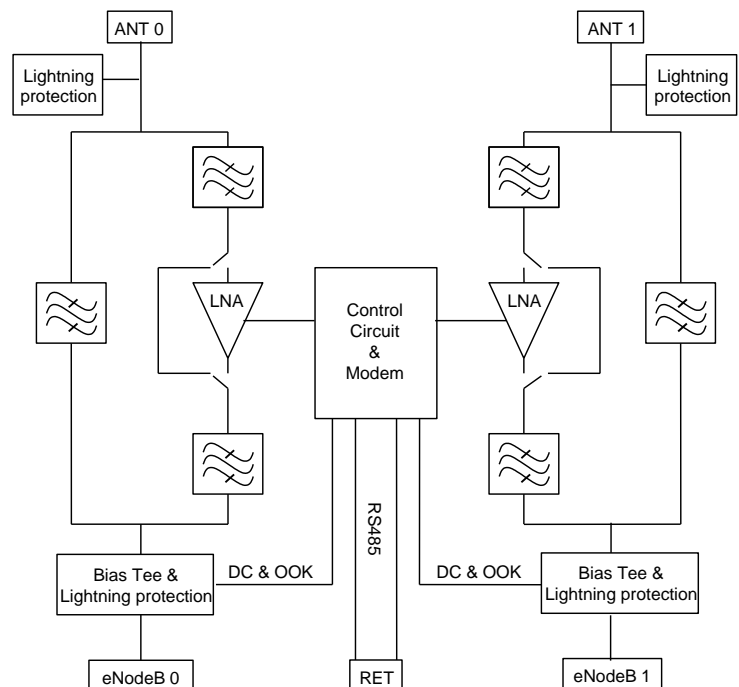
## Product Description

The dual tower mounted amplifier (DTMA) is a low-noise amplifier installed near the antenna. It helps to improve the signal-to-noise ratio and enhance the receiving sensitivity of the BTS system. It enhances the uplink coverage and reduces uplink and downlink imbalance of the base station. It effectively reduces the transmitting power used by cellphones and improves voice and data communication quality.

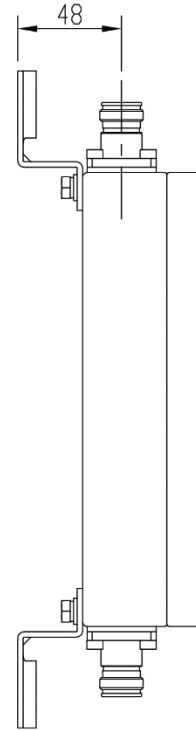
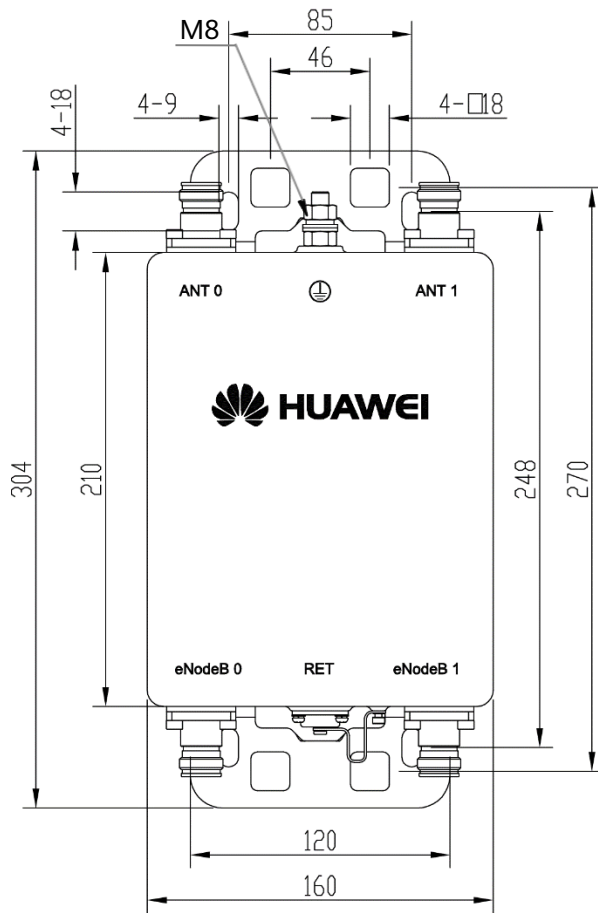
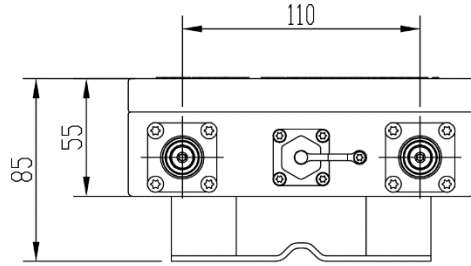
## Features

- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.
- Support default 12dB fixed gain.

## Appearance and Block Diagram



| Tx Specifications                            |   |          |
|--|---|----------|
| Frequency range (MHz)                        | 2620 - 2690   |          |
| Bandwidth (MHz)                              | 70  |          |
| Insertion loss (dB)                          | Avg. < 0.4  |          |
| Return loss (dB)                             | ≥ 18  |          |
| Input power (W)                              | < 160 (+52 dBm) CW<br>< 2000 (+63 dBm) peak   |          |
| Intermodulation products in Rx band (dBc)    | ≤ -160 (2 TX carriers at +43 dBm)   |          |
| Rx Specifications                            |   |          |
| Frequency range (MHz)                        | 2500 - 2570   |          |
| Bandwidth (MHz)                              | 70  |          |
| Return loss (dB)                             | ≥ 18 (DC ON)<br>≥ 13 (DC OFF)   |          |
| Insertion loss in by-pass mode (dB)          | ≤ 3.0 (DC OFF)  |          |
| Gain (dB)                                    | 12 ± 1  |          |
| Noise figure (dB)                            | Avg. < 1.3 (+22 ... +28 °C)   |          |
| Output 1dB compression (dBm)                 | ≥ 12  |          |
| OIP3 (dBm)                                   | ≥ 24  |          |
| Electrical Specifications                    |   |          |
| AISG Mode (BTS ports)                        |   |          |
| DC supply voltage (V)                        | 9 - 30  |          |
| Operating current per TMA (mA) (without RET) | @12 V   | Max. 192 |
|  | @17 V   | Max. 139 |
|  | @30 V   | Max. 95  |
| Alarm management                             | AISG  |          |
| Power consumption (W)                        | < 3.5   |          |
| Environmental Specification                  |   |          |
| Operating temperature range (°C)             | -40 ... +65   |          |
| IP rating                                    | IP67  |          |
| MTBF (hours)                                 | > 1,000,000   |          |
| EMC  | EN 301 489-1 , EN 301 489-50  |          |
| Lightning protection (kA)                    | 10 (8/20 us)  |          |
| Mechanical Specification                     |   |          |
| DTMA dimensions (W x H x D) (mm)             | 160 x 210 x 54.5 (without connectors, without brackets)   |          |
| Packing dimensions (W x H x D) (mm)          | 205 x 380 x 130   |          |
| DTMA weight (kg)                             | ≤ 3.1 (with brackets)   |          |
| Packing weight (kg)                          | ≤ 4.0   |          |
| DTMA Volume (L)                              | Approx. 1.8   |          |
| AISG connector                               | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |          |
| Mounting                                     | Wall mounting: with 4 screws (max. 8 mm diameter)<br>Mast mounting  |          |
| Mast diameter (mm)                           | 40 - 135  |          |
| Connector                                    | 4 x 4.3-10 Female   |          |



Unit : mm

Unit : mm

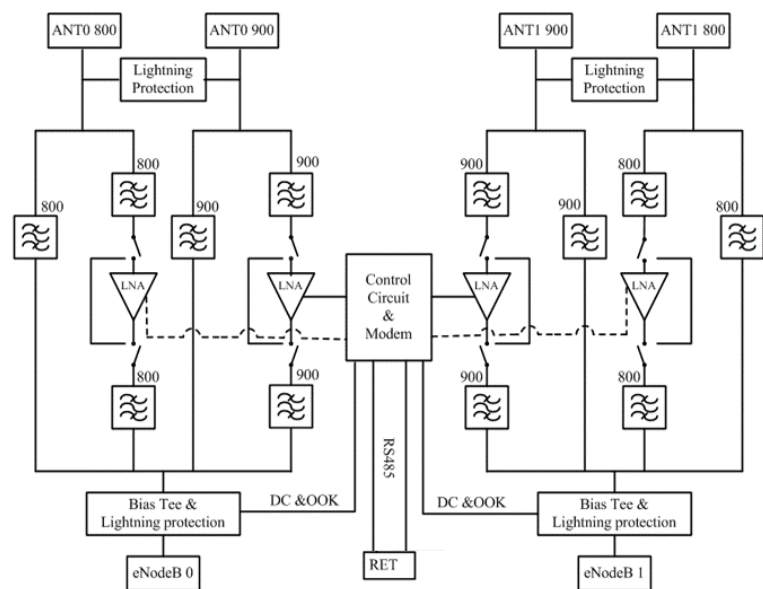
## Product Description

The multiband tower mounted amplifier (MTMA) is a low-noise amplifier installed near the antenna to satisfy the co-location purposes. It helps to improve the signal-to-noise ratio and enhance the receiving sensitivity of the BTS system. It enhances the uplink coverage and reduces uplink and downlink imbalance of the base station. It effectively reduces the transmitting power used by cellphones and improves voice and data communication quality. When scanning the AISG ALD, the TMA is responding to the AISG controller with two individual serial numbers (unique IDs) with each their two subunits (two subunits per frequency band).

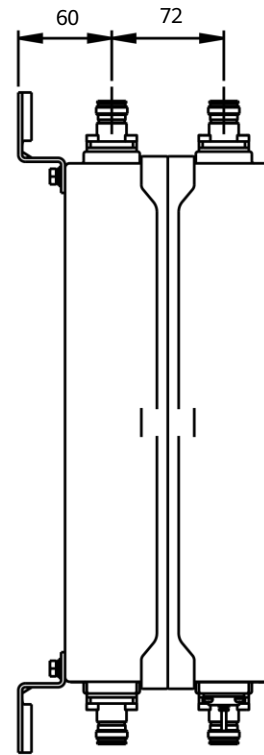
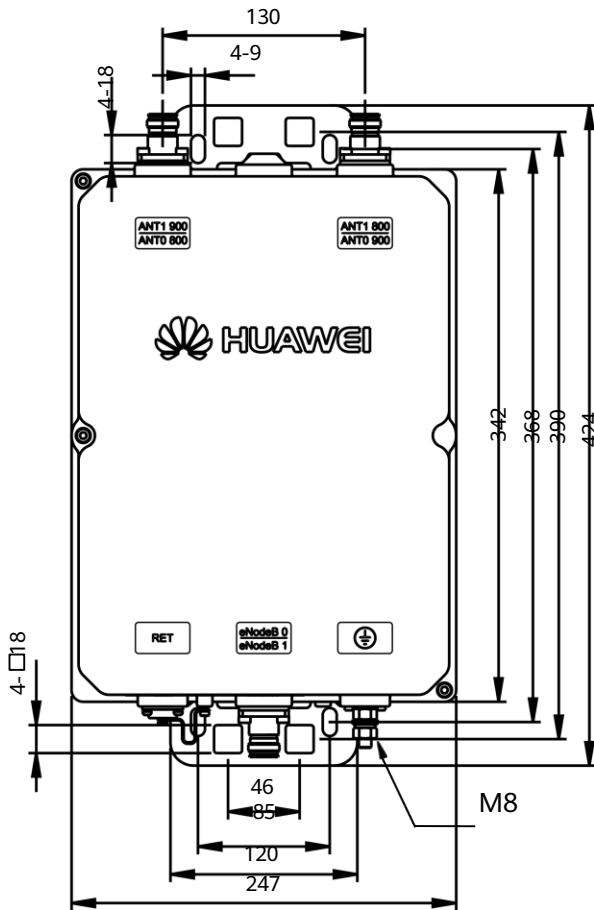
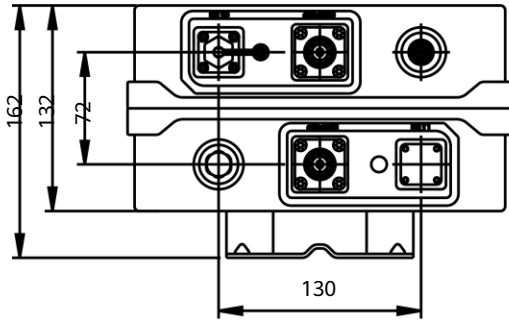
## Features

- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.
- Support default 12dB fixed gain.

## Appearance and Block Diagram



| Tx Specifications                            |   |          |
|--|---|----------|
| Frequency range (MHz)                        | 2620 - 2690   |          |
| Bandwidth (MHz)                              | 70  |          |
| Insertion loss (dB)                          | Avg. < 0.4  |          |
| Return loss (dB)                             | ≥ 18  |          |
| Input power (W)                              | < 160 (+52 dBm) CW<br>< 2000 (+63 dBm) peak   |          |
| Intermodulation products in Rx band (dBc)    | ≤ -160 (2 TX carriers at +43 dBm)   |          |
| Rx Specifications                            |   |          |
| Frequency range (MHz)                        | 2500 - 2570   |          |
| Bandwidth (MHz)                              | 70  |          |
| Return loss (dB)                             | ≥ 18 (DC ON)<br>≥ 13 (DC OFF)   |          |
| Insertion loss in by-pass mode (dB)          | ≤ 3.0 (DC OFF)  |          |
| Gain (dB)                                    | 12 ± 1  |          |
| Noise figure (dB)                            | Avg. < 1.3 (+22 ... +28 °C)   |          |
| Output 1dB compression (dBm)                 | ≥ 12  |          |
| OIP3 (dBm)                                   | ≥ 24  |          |
| Electrical Specifications                    |   |          |
| AISG Mode (BTS ports)                        |   |          |
| DC supply voltage (V)                        | 9 - 30  |          |
| Operating current per TMA (mA) (without RET) | @12 V   | Max. 192 |
|  | @17 V   | Max. 139 |
|  | @30 V   | Max. 95  |
| Alarm management                             | AISG  |          |
| Power consumption (W)                        | < 3.5   |          |
| Environmental Specification                  |   |          |
| Operating temperature range (°C)             | -40 ... +65   |          |
| IP rating                                    | IP67  |          |
| MTBF (hours)                                 | > 1,000,000   |          |
| EMC  | EN 301 489-1 , EN 301 489-50  |          |
| Lightning protection (kA)                    | 10 (8/20 us)  |          |
| Mechanical Specification                     |   |          |
| DTMA dimensions (W x H x D) (mm)             | 160 x 210 x 54.5 (without connectors, without brackets)   |          |
| Packing dimensions (W x H x D) (mm)          | 205 x 380 x 130   |          |
| DTMA weight (kg)                             | ≤ 3.1 (with brackets)   |          |
| Packing weight (kg)                          | ≤ 4.0   |          |
| DTMA Volume (L)                              | Approx. 1.8   |          |
| AISG connector                               | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |          |
| Mounting                                     | Wall mounting: with 4 screws (max. 8 mm diameter)<br>Mast mounting  |          |
| Mast diameter (mm)                           | 40 - 135  |          |
| Connector                                    | 4 x 4.3-10 Female   |          |



Unit : mm

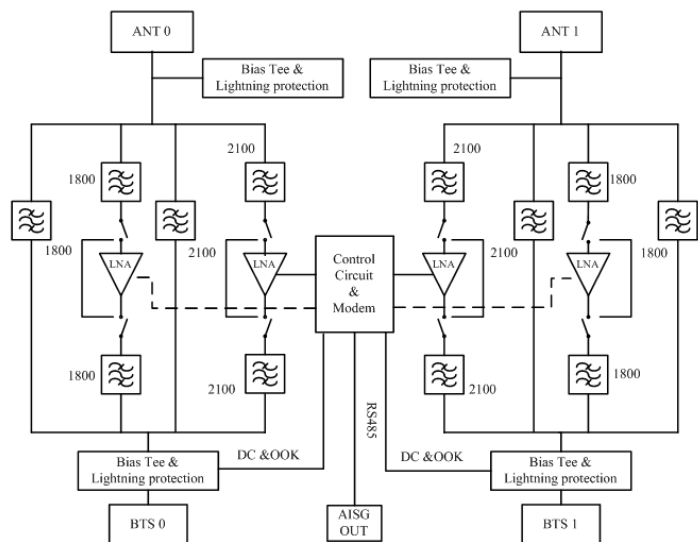
## Product Description

The multiband tower mounted amplifier (MTMA) is a low-noise amplifier installed near the antenna to satisfy the co-location purposes. It helps to improve the signal-to-noise ratio and enhance the receiving sensitivity of the BTS system. It enhances the uplink coverage and reduces uplink and downlink imbalance of the base station. It effectively reduces the transmitting power used by cellphones and improves voice and data communication quality.

## Features

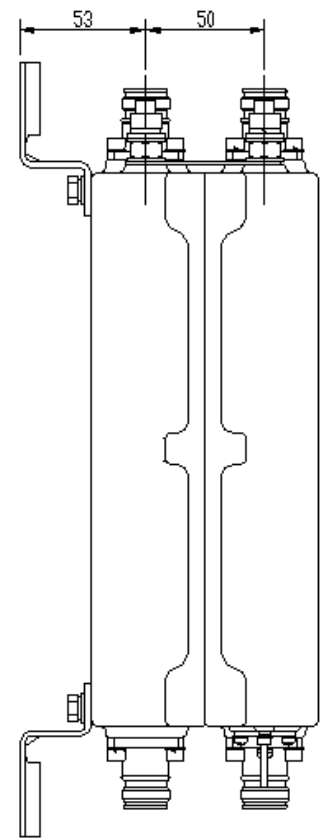
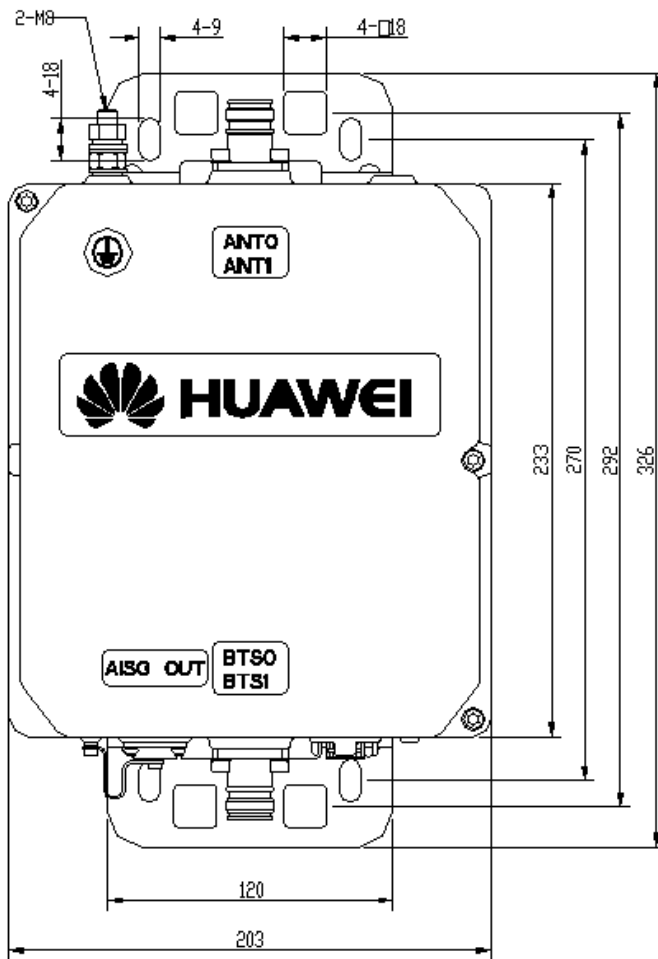
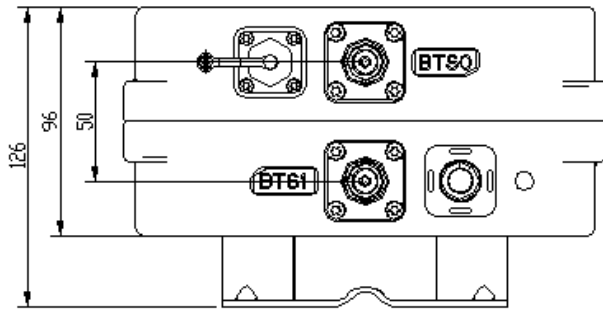
- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Designed for co-location purposes.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.

## Appearance and Block Diagram





| Tx Specifications                            |   |   |
|--|---|---|
| Frequency range (MHz)                        | 1805- 1880  | 2110 - 2170                                 |
| Bandwidth (MHz)                              | 75  | 60  |
| Insertion loss (dB)                          | Typ. < 0.4  | Typ. < 0.3                                  |
| Return loss (dB)                             | ≥ 18  |   |
| Input power (W)                              | < 200 (+53 dBm) CW<br>< 2000 (+63 dBm) peak   | < 200 (+53 dBm) CW<br>< 2000 (+63 dBm) peak |
| Intermodulation products in Rx band (dBc)    | ≤ -160 (3rd order; with 2 x 43 dBm)   | ≤ -160 (3rd order; with 2 x 43 dBm)         |
| Rx Specifications                            |   |   |
| Frequency range (MHz)                        | 1710 - 1785   | 1920-1980                                   |
| Bandwidth (MHz)                              | 75  | 60  |
| Return loss (dB)                             | ≥ 18 (DC ON)<br>≥ 13 (DC OFF)   |   |
| Insertion loss in by-pass mode (dB)          | Avg. ≤ 2 (DC OFF)   |   |
| Gain (dB)                                    | 12 ± 1  |   |
| Noise figure (dB)                            | Typ. < 1.4  | Typ. < 1.4                                  |
| Output 1dB compression (dBm)                 | ≥ 12  |   |
| OIP3 (dBm)                                   | ≥ 27  |   |
| Electrical Specifications                    |   |   |
| AISG Mode (BTS0,BTS1)                        |   |   |
| DC supply voltage (V)                        | 9 - 30  |   |
| Operating current per TMA (mA) (without RET) | @12 V   | Max. 310                                    |
|  | @17 V   | Max. 220                                    |
|  | @30 V   | Max. 130                                    |
| Power consumption (W)                        | < 4   |   |
| Environmental Specification                  |   |   |
| Operating temperature range (°C)             | -40 ... +65   |   |
| IP rating                                    | IP67  |   |
| MTBF (hours)                                 | > 1,000,000   |   |
| EMC  | EN 301 489-1, EN 301 489-50   |   |
| Lightning protection (kA)                    | 10 (8/20 us)  |   |
| Mechanical Specification                     |   |   |
| MTMA dimensions (W x H x D) (mm)             | 203 x 233 x 96<br>(without connectors, without brackets)  |   |
| Packing dimensions (W x H x D) (mm)          | 495 x 315 x 250   |   |
| MTMA weight (kg)                             | ≤ 6.4 (with brackets)   |   |
| Packing weight (kg)                          | ≤ 7.4   |   |
| MTMA Volume (L)                              | < 4.6   |   |
| AISG connector                               | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |   |
| Mounting                                     | Wall mounting: with 4 screws (max. 8 mm diameter)<br>Pole mounting  |   |
| Pole diameter (mm)                           | 40 - 135  |   |
| Connector                                    | 4 x 4.3-10 Female ( Two ports are BTS and two ports are ANT)  |   |



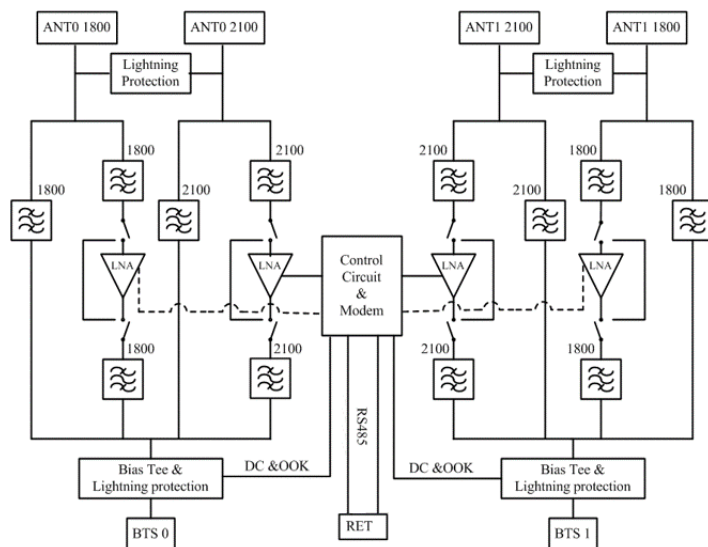
## Product Description

The multiband tower mounted amplifier (MTMA) is a low-noise amplifier installed near the antenna to satisfy the co-location purposes. It helps to improve the signal-to-noise ratio and enhance the receiving sensitivity of the BTS system. It enhances the uplink coverage and reduces uplink and downlink imbalance of the base station. It effectively reduces the transmitting power used by cellphones and improves voice and data communication quality. When scanning the AISG ALD, the TMA is responding to the AISG controller with two individual serial numbers (unique IDs) with each their two subunits (two subunits per frequency band).

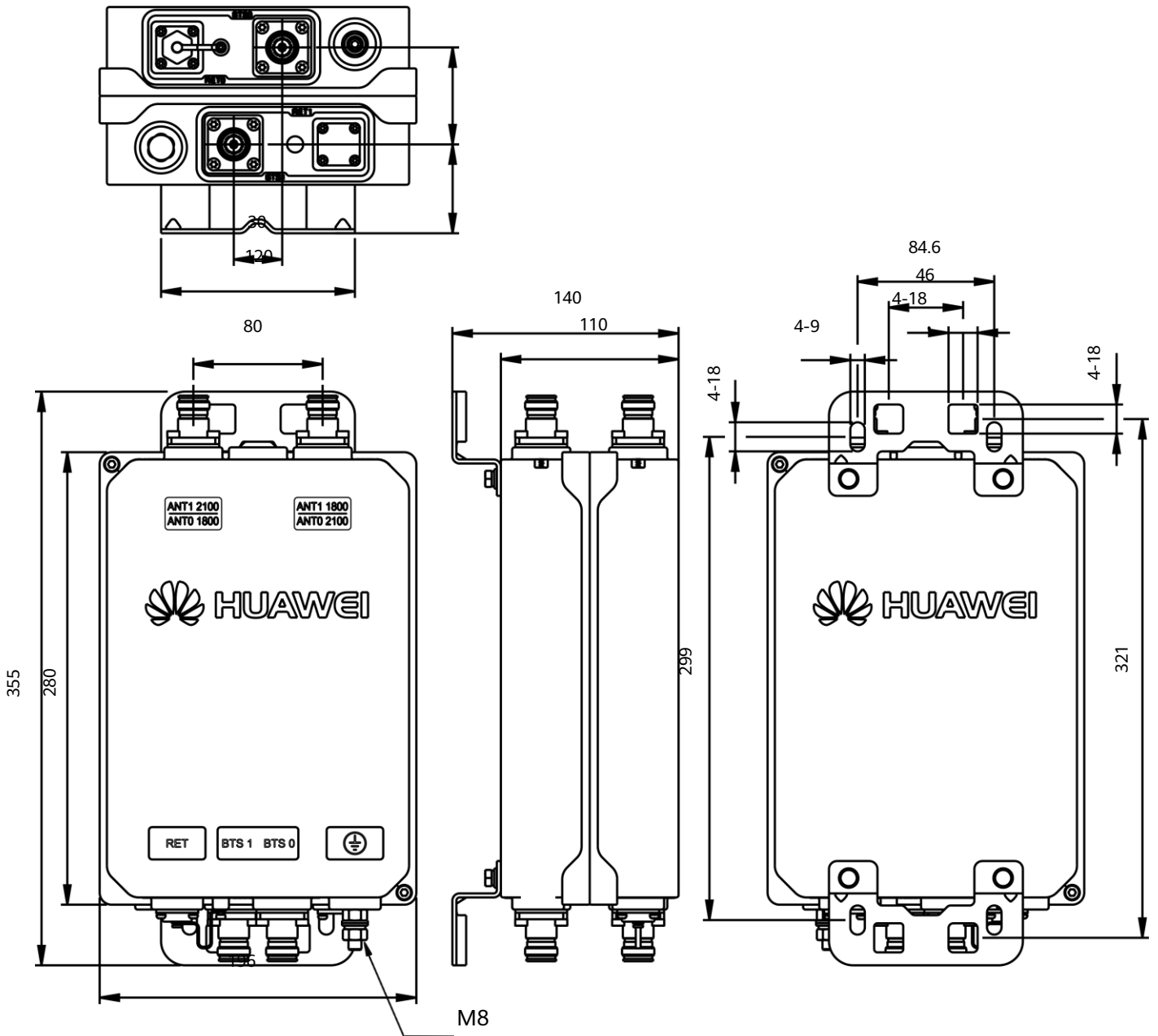
## Features

- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Designed for co-location purposes.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.

## Appearance and Block Diagram



| Tx Specifications                            |   |                                     |
|--|---|-------------------------------------|
| Frequency range (MHz)                        | 1805 - 1880   | 2110 - 2170                         |
| Bandwidth (MHz)                              | 75  | 60                                  |
| Insertion loss (dB)                          | Typ. < 0.45   | Typ. < 0.35                         |
| Return loss (dB)                             | ≥ 18  |                                     |
| Input power (W)                              | < 160 (+52 dBm) CW<br>< 2000 (+63 dBm) peak   |                                     |
| Intermodulation products in Rx band (dBc)    | ≤ -153 (3rd order; with 2 x 43 dBm)   | ≤ -165 (7th order; with 2 x 43 dBm) |
| Rx Specifications                            |   |                                     |
| Frequency range (MHz)                        | 1710 - 1785   | 1920 - 1980                         |
| Bandwidth (MHz)                              | 75  | 60                                  |
| Return loss (dB)                             | ≥ 18 (DC ON)<br>≥ 14 (DC OFF)   |                                     |
| Insertion loss in by-pass mode (dB)          | Typ. < 3.0  |                                     |
| Gain (dB)                                    | 12 ± 1  |                                     |
| Noise figure (dB)                            | Typ. < 1.2  | Typ. < 1.2                          |
| Output 1dB compression (dBm)                 | ≥ 12  |                                     |
| OIP3 (dBm)                                   | ≥ 24  |                                     |
| Electrical Specifications                    |   |                                     |
| DC supply voltage (V)                        | 9 - 30  |                                     |
| Operating current per TMA (mA) (without RET) | @12 V   | Max. 416                            |
|  | @17 V   | Max. 294                            |
|  | @30 V   | Max. 166                            |
| Alarm management                             | AISG  |                                     |
| Power consumption (W)                        | < 5.0   |                                     |
| Environmental Specification                  |   |                                     |
| Operating temperature range (°C)             | -40 ... +65   |                                     |
| IP rating                                    | IP67  |                                     |
| MTBF (hours)                                 | > 1,000,000   |                                     |
| EMC  | EN 301 489-1 , EN 301 489-50  |                                     |
| Lightning protection (kA)                    | 10 (8/20 us)  |                                     |
| Mechanical Specification                     |   |                                     |
| MTMA dimensions (W x H x D) (mm)             | 196 x 280 x 110<br>(without connectors, without brackets)   |                                     |
| Packing dimensions (W x H x D) (mm)          | 245 x 475 x 220   |                                     |
| MTMA weight (kg)                             | ≤ 7.3 (with brackets)   |                                     |
| Packing weight (kg)                          | ≤ 8.5   |                                     |
| MTMA Volume (L)                              | Approx. 5.9   |                                     |
| AISG connector                               | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |                                     |
| Mounting                                     | Wall mounting: with 4 screws (max. 8 mm diameter)<br>Mast mounting  |                                     |
| Mast diameter (mm)                           | 40 - 135  |                                     |
| Connector                                    | 6 x 4.3-10 Female ( Two ports are BTS and four ports are ANT)   |                                     |



Unit : mm

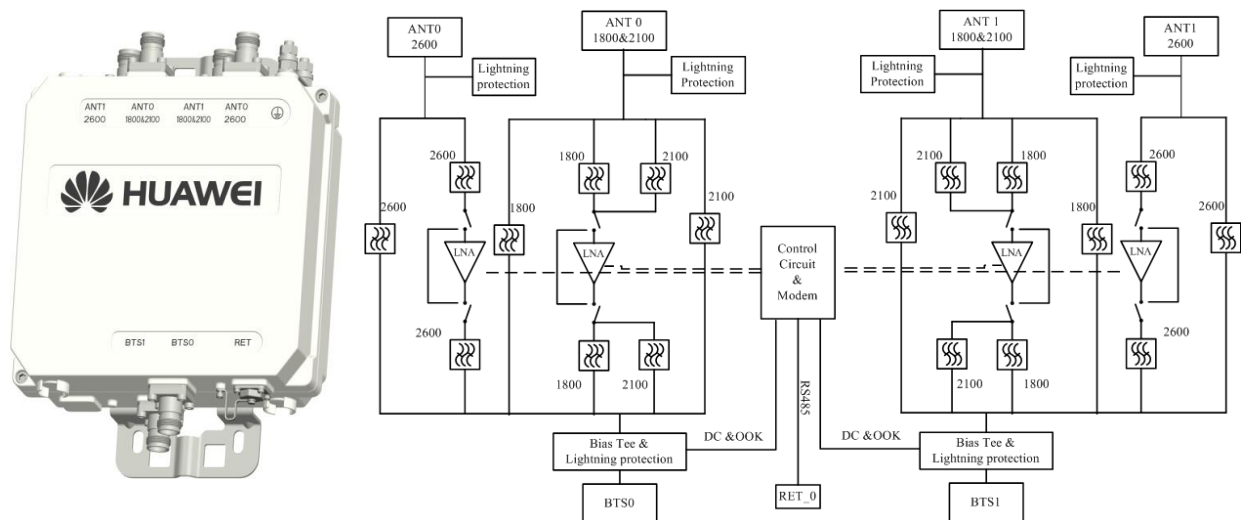
## Product Description

The multiband tower mounted amplifier (MTMA) is a low-noise amplifier installed near the antenna to satisfy the co-location purposes. It helps to improve the signal-to-noise ratio and enhance the receiving sensitivity of the BTS system. It enhances the uplink coverage and reduces uplink and downlink imbalance of the base station. It effectively reduces the transmitting power used by cellphones and improves voice and data communication quality. When scanning the AISG ALD, the MTMA can be operated from one primary controller, either on BTS0 or BTS1 port. When scanning the AISG ALD, the TMA is responding to the AISG controller with two individual serial numbers (unique IDs) with each their two subunits (two subunits per frequency band).

## Features

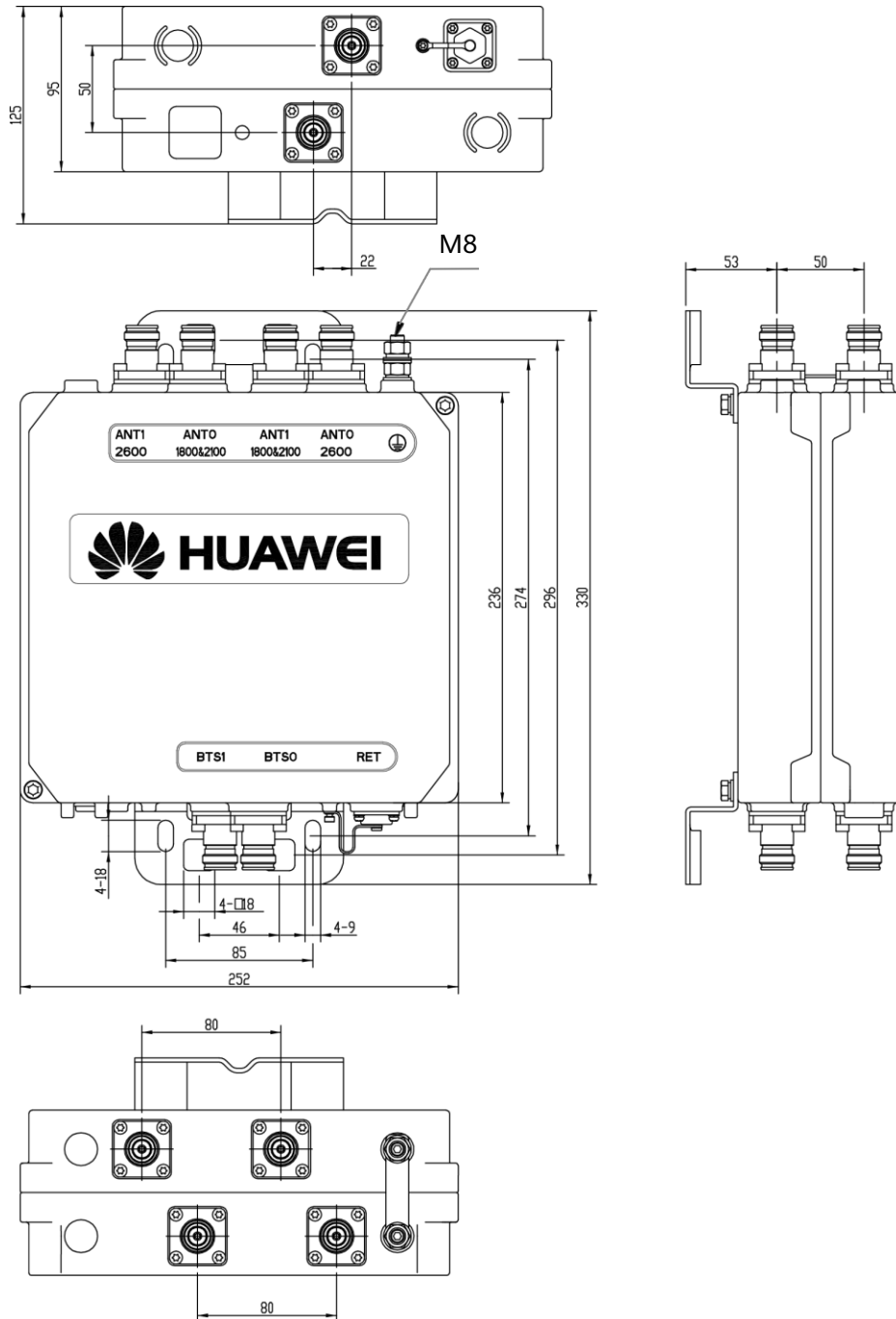
- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Designed for co-location purposes.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.

## Appearance and Block Diagram





| Tx Specifications                            |   |  |
|--|---|--|
| Frequency range (MHz)                        | 1805 - 1880&2110 - 2170   | 2620 - 2690                                |
| Bandwidth (MHz)                              | 75&60   | 70   |
| Insertion loss (dB)                          | Typ. < 0.4&Typ. < 0.25  | Typ. < 0.35                                |
| Return loss (dB)                             | ≥ 18  |  |
| Input power (W)                              | < 160 (+52 dBm) CW<br>< 2000 (+63 dBm) peak   |  |
| Intermodulation products in Rx band (dBc)    | ≤ -160 (3rd order; with 2 x 43 dBm) @1800M<br>≤ -165 (7th order; with 2 x 43 dBm) @2100M                              | ≤ -160 (3rd order; with 2 x 43 dBm) @2600M |
| Rx Specifications                            |   |  |
| Frequency range (MHz)                        | 1710 - 1785&1920 - 1980   | 2500 - 2570                                |
| Bandwidth (MHz)                              | 75&60   | 70   |
| Return loss (dB)                             | ≥ 18 (DC ON)<br>≥ 13 (DC OFF)   |  |
| Insertion loss in by-pass mode (dB)          | Typ. < 2.5  |  |
| Gain (dB)                                    | 12 ± 1  |  |
| Noise figure (dB)                            | Typ. < 1.4 &Typ. < 1.4  | Typ. < 1.5                                 |
| Output 1dB compression (dBm)                 | ≥ 12  |  |
| OIP3 (dBm)                                   | ≥ 27  |  |
| Electrical Specifications                    |   |  |
| DC supply voltage (V)                        | 9 - 30  |  |
| Operating current per TMA (mA) (without RET) | @12 V   | Max. 250                                   |
|  | @17 V   | Max. 176                                   |
|  | @30 V   | Max. 100                                   |
| Alarm management                             | AISG2.0   |  |
| Power consumption (W)                        | < 3.0   |  |
| Environmental Specification                  |   |  |
| Operating temperature range (°C)             | -40 ... +65   |  |
| IP rating                                    | IP67  |  |
| MTBF (hours)                                 | > 1,000,000   |  |
| EMC  | EN 301 489-1 , EN 301 489-50  |  |
| Lightning protection (kA)                    | 10 (8/20 us)  |  |
| Mechanical Specification                     |   |  |
| MTMA dimensions (WxHxD) (mm)                 | 252 x 236 x 95<br>(without connectors, without brackets)  |  |
| Packing dimensions (WxHxD) (mm)              | 405 x 305 x 210   |  |
| MTMA weight (kg)                             | 8.0   |  |
| Packing weight (kg)                          | 9.5   |  |
| MTMA Volume (L)                              | < 5.8   |  |
| AISG connector                               | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |  |
| Mounting                                     | Wall mounting: with 4 screws (max. 8 mm diameter)<br>Mast mounting  |  |
| Mast diameter (mm)                           | 40 - 135  |  |
| Connector                                    | 6 x 4.3-10 Female ( Two ports are BTS and four ports are ANT)   |  |



Unit : mm



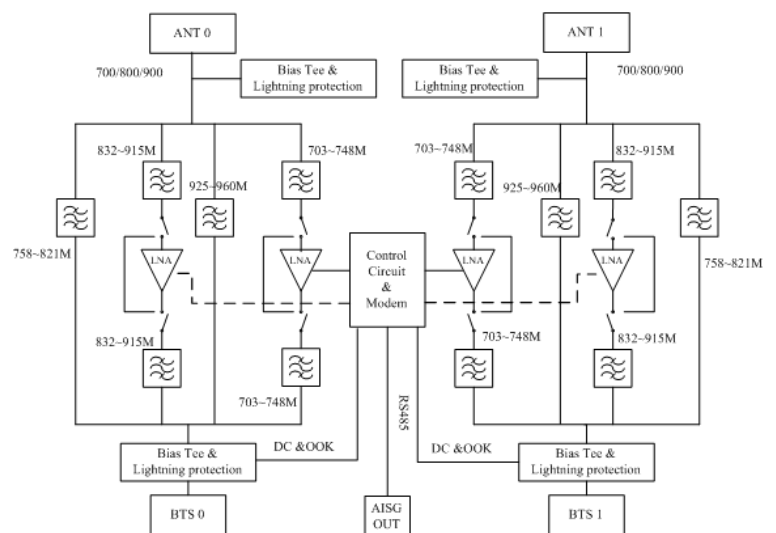
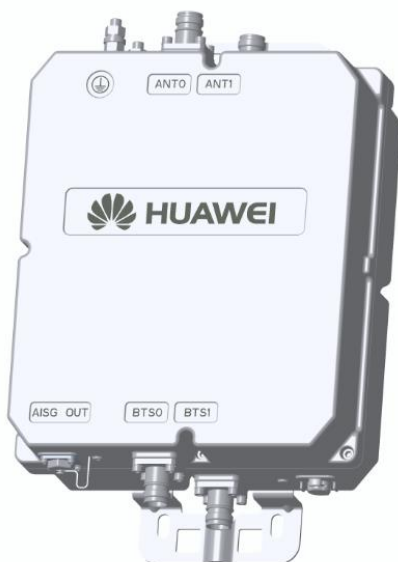
## Product Description

The multiband tower mounted amplifier (MTMA) is a low-noise amplifier installed near the antenna to satisfy the co-location purposes. It helps to improve the signal-to-noise ratio and enhance the receiving sensitivity of the BTS system. It enhances the uplink coverage and reduces uplink and downlink imbalance of the base station. It effectively reduces the transmitting power used by cellphones and improves voice and data communication quality.

## Features

- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Designed for co-location purposes.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.

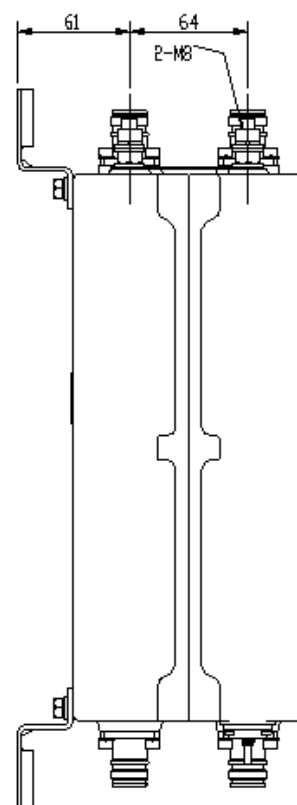
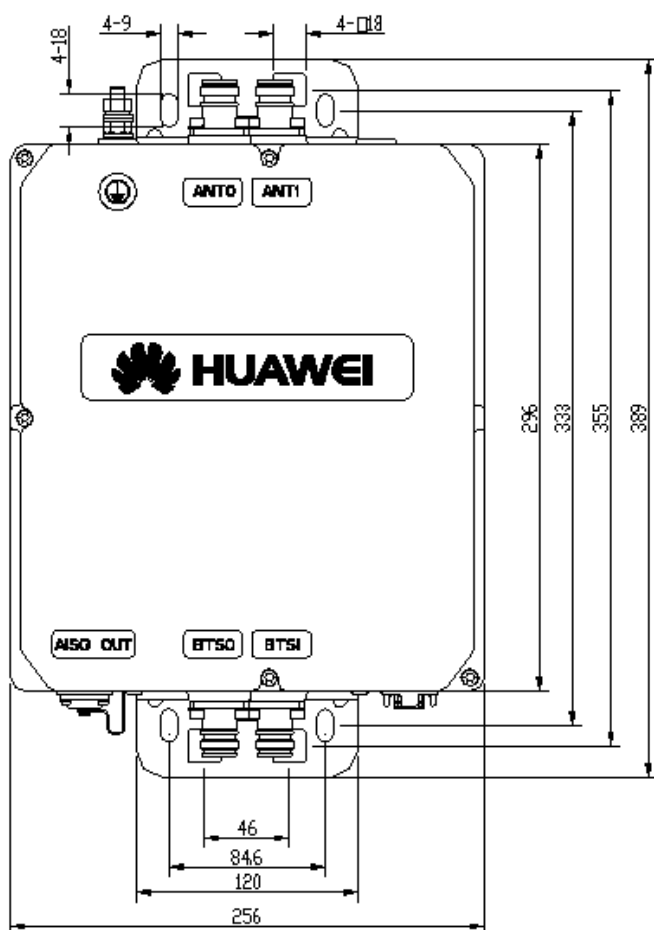
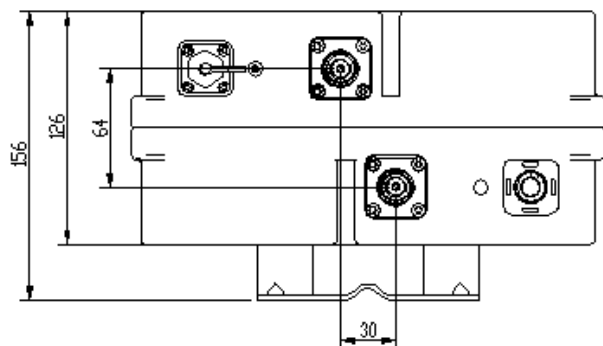
## Appearance and Block Diagram





| Tx Specifications                            |   |   |
|--|---|---|
| Frequency range (MHz)                        | 758 - 821   | 925 - 960                                   |
| Bandwidth (MHz)                              | 63  | 35  |
| Insertion loss (dB)                          | Typ. < 0.4  | Typ. < 0.4                                  |
| Return loss (dB)                             | ≥ 18  |   |
| Input power (W)                              | < 200 (+53 dBm) CW<br>< 2000 (+63 dBm) peak   | < 200 (+53 dBm) CW<br>< 2000 (+63 dBm) peak |
| Intermodulation products in Rx band (dBc)    | ≤ -160 (3rd order; with 2 x 43 dBm)   | ≤ -160 (3rd order; with 2 x 43 dBm)         |
| Rx Specifications                            |   |   |
| Frequency range (MHz)                        | 703 - 748   | 832 - 915                                   |
| Bandwidth (MHz)                              | 45  | 83  |
| Return loss (dB)                             | ≥ 18 (DC ON)<br>≥ 13 (DC OFF)   |   |
| Insertion loss in by-pass mode (dB)          | Avg. ≤ 2 (DC OFF)   |   |
| Gain (dB)                                    | 12 ± 1  |   |
| Noise figure (dB)                            | Typ. < 1.3  | Typ. < 1.3                                  |
| Output 1dB compression (dBm)                 | ≥ 12  |   |
| OIP3 (dBm)                                   | ≥ 27  |   |
| Electrical Specifications                    |   |   |
| AISG Mode (BTS0,BTS1)                        |   |   |
| DC supply voltage (V)                        | 9 - 30  |   |
| Operating current per TMA (mA) (without RET) | @12 V   | Max. 310                                    |
|  | @17 V   | Max. 220                                    |
|  | @30 V   | Max. 130                                    |
| Power consumption (W)                        | < 4   |   |
| Environmental Specification                  |   |   |
| Operating temperature range (°C)             | -40 ... +65   |   |
| IP rating                                    | IP67  |   |
| MTBF (hours)                                 | > 1,000,000   |   |
| EMC  | EN 301 489-1, EN 301 489-50   |   |
| Lightning protection (kA)                    | 10 (8/20 us)  |   |
| Mechanical Specification                     |   |   |
| MTMA dimensions (W x H x D) (mm)             | 256 x 296 x 126<br>(without connectors, without brackets)   |   |
| Packing dimensions (W x H x D) (mm)          | 315 x 495 x 250   |   |
| MTMA weight (kg)                             | ≤ 12 (with brackets)  |   |
| Packing weight (kg)                          | ≤ 13  |   |
| MTMA Volume (L)                              | < 10  |   |
| AISG connector                               | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |   |
| Mounting                                     | Wall mounting: with 4 screws (max. 8 mm diameter)<br>Pole mounting  |   |
| Mast diameter (mm)                           | 40 - 135  |   |
| Connector                                    | 4 x 4.3-10 Female ( Two ports are BTS and two ports are ANT)  |   |

TMA



Unit : mm

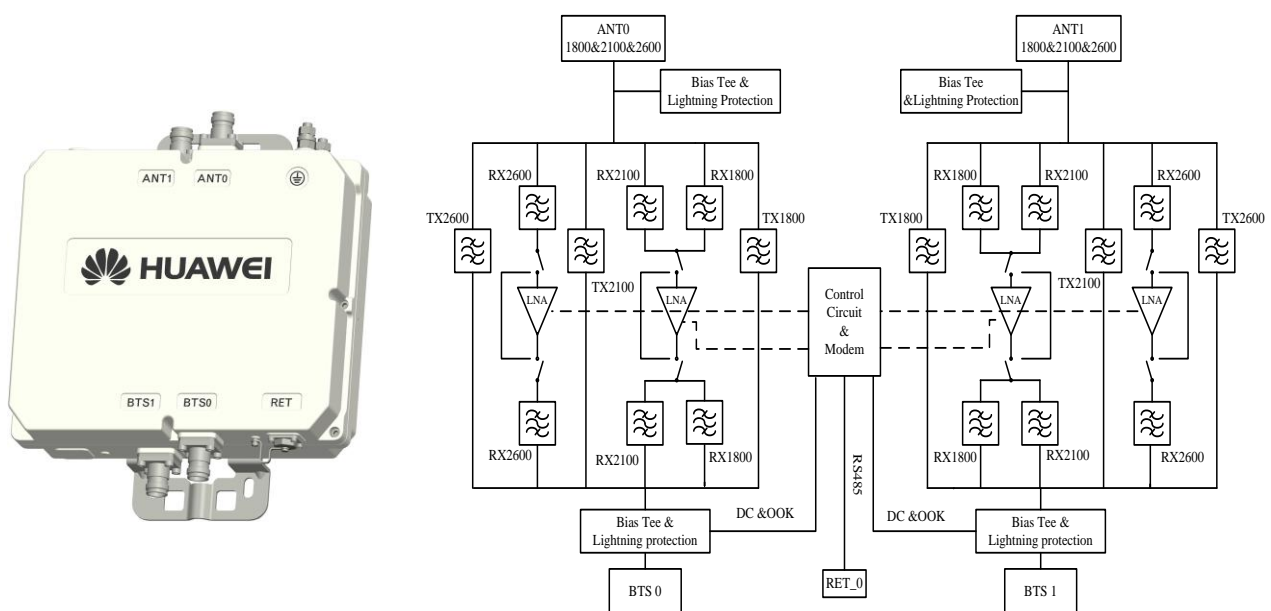
## Product Description

The multiband tower mounted amplifier (MTMA) is a low-noise amplifier installed near the antenna to satisfy the co-location purposes. It helps to improve the signal-to-noise ratio and enhance the receiving sensitivity of the BTS system. It enhances the uplink coverage and reduces uplink and downlink imbalance of the base station. It effectively reduces the transmitting power used by cellphones and improves voice and data communication quality. When scanning the AISG ALD, the MTMA can be operated from one primary controller, either on BTS0 or BTS1 port. When scanning the AISG ALD, the TMA is responding to the AISG controller with two individual serial numbers (unique IDs) with each their two subunits (two subunits per frequency band).

## Features

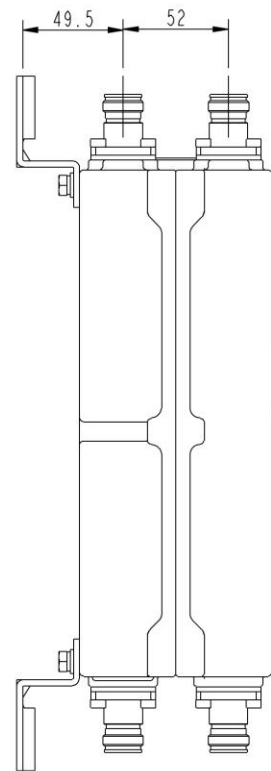
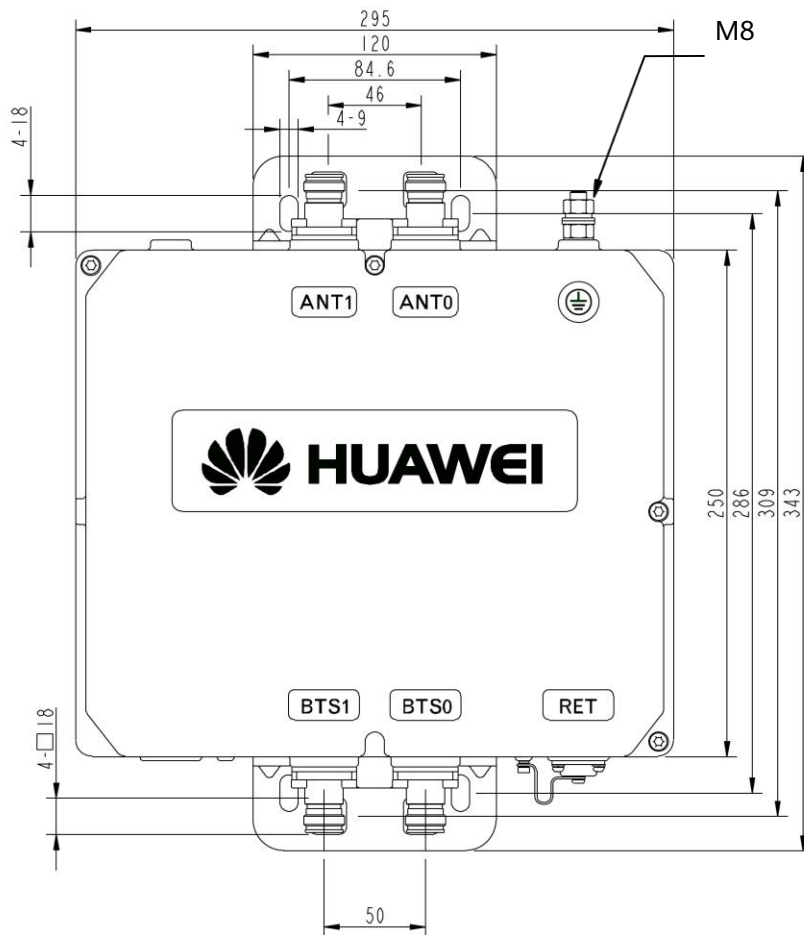
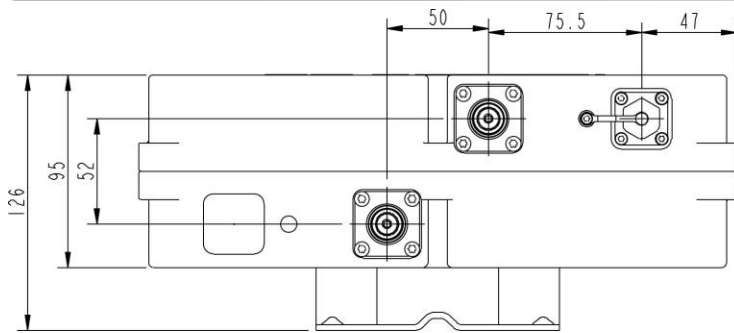
- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Designed for co-location purposes.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.

## Appearance and Block Diagram





| Tx Specifications                            |   |  |  |
|--|---|--|--|
| Frequency range (MHz)                        | 1805 - 1880   | 2110 - 2170                                | 2620 - 2690                                |
| Bandwidth (MHz)                              | 75  | 60   | 70   |
| Insertion loss (dB)                          | Typ. < 0.4  | Typ. < 0.25                                | Typ. < 0.35                                |
| Return loss (dB)                             | ≥ 18  |  |  |
| Input power (W)                              | < 160 (+52 dBm) CW<br>< 2000 (+63 dBm) peak   |  |  |
| Intermodulation products in Rx band (dBc)    | ≤ -160 (3rd order; with 2 x 43 dBm) @1800M  | ≤ -165 (7th order; with 2 x 43 dBm) @2100M | ≤ -160 (3rd order; with 2 x 43 dBm) @2600M |
| Rx Specifications                            |   |  |  |
| Frequency range (MHz)                        | 1710 - 1785   | 1920 - 1980                                | 2500 - 2570                                |
| Bandwidth (MHz)                              | 75  | 60   | 70   |
| Return loss (dB)                             | ≥ 18 (DC ON)<br>≥ 13 (DC OFF)   |  |  |
| Insertion loss in by-pass mode (dB)          | Typ. < 2.0  | Typ. < 2.0                                 | Typ. < 2.0                                 |
| Gain (dB)                                    | 12 ( nominal )  |  |  |
| Noise figure (dB)                            | Typ. <1.4   | Typ. <1.4                                  | Typ. < 1.4                                 |
| Output 1dB compression (dBm)                 | ≥ 12  |  |  |
| OIP3 (dBm)                                   | ≥ 27  |  |  |
| Electrical Specifications                    |   |  |  |
| DC supply voltage (V)                        | 9 - 30  |  |  |
| Operating current per TMA (mA) (without RET) | @12 V   | Max. 250                                   |  |
|  | @17 V   | Max. 176                                   |  |
|  | @30 V   | Max. 100                                   |  |
| Alarm management                             | AISG2.0   |  |  |
| Power consumption (W)                        | < 3.0   |  |  |
| Environmental Specification                  |   |  |  |
| Operating temperature range (°C)             | -40 ... +65   |  |  |
| IP rating                                    | IP67  |  |  |
| MTBF (hours)                                 | > 1,000,000   |  |  |
| EMC  | EN 301 489-1 , EN 301 489-50  |  |  |
| Lightning protection (kA)                    | 10 (8/20 us)  |  |  |
| Mechanical Specification                     |   |  |  |
| MTMA dimensions (W x H x D) (mm)             | 295 x 250 x 95<br>(without connectors, without brackets)  |  |  |
| Packing dimensions (W x H x D) (mm)          | 440 x 360 x 220   |  |  |
| MTMA weight (kg)                             | 9.5   |  |  |
| Packing weight (kg)                          | 10.5  |  |  |
| MTMA Volume (L)                              | < 7   |  |  |
| AISG connector                               | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |  |  |
| Mounting                                     | Wall mounting: with 4 screws (max. 8 mm diameter)<br>Mast mounting  |  |  |
| Mast diameter (mm)                           | 40 - 135  |  |  |
| Connector                                    | 4 x 4.3-10 Female ( Two ports are BTS and two ports are ANT)  |  |  |



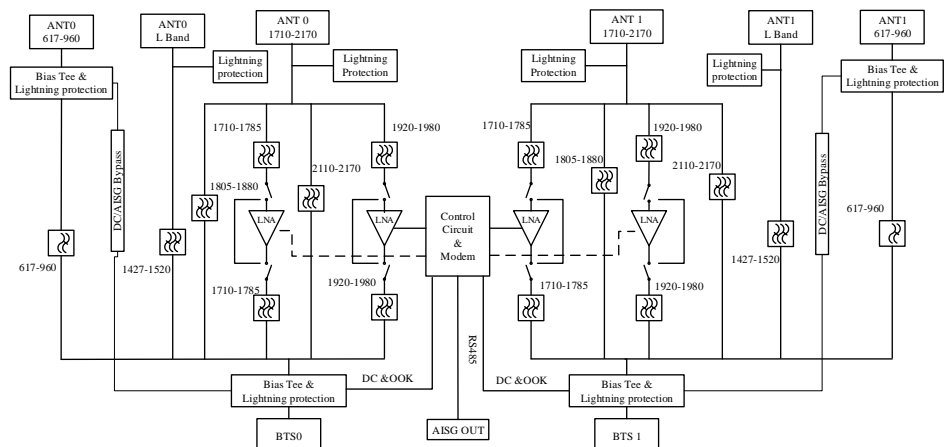
## Product Description

The multiband tower mounted amplifier (MTMA) is a low-noise amplifier installed near the antenna to satisfy the co-location purposes. It helps to improve the signal-to-noise ratio and enhance the receiving sensitivity of the BTS system. It enhances the uplink coverage and reduces uplink and downlink imbalance of the base station. It effectively reduces the transmitting power used by cellphones and improves voice and data communication quality. At the same time it provides bypass function for other frequency bands

## Features

- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Designed for co-location purposes.
- Wall mounting and Pole mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.
- Provide bypass function for other frequency bands

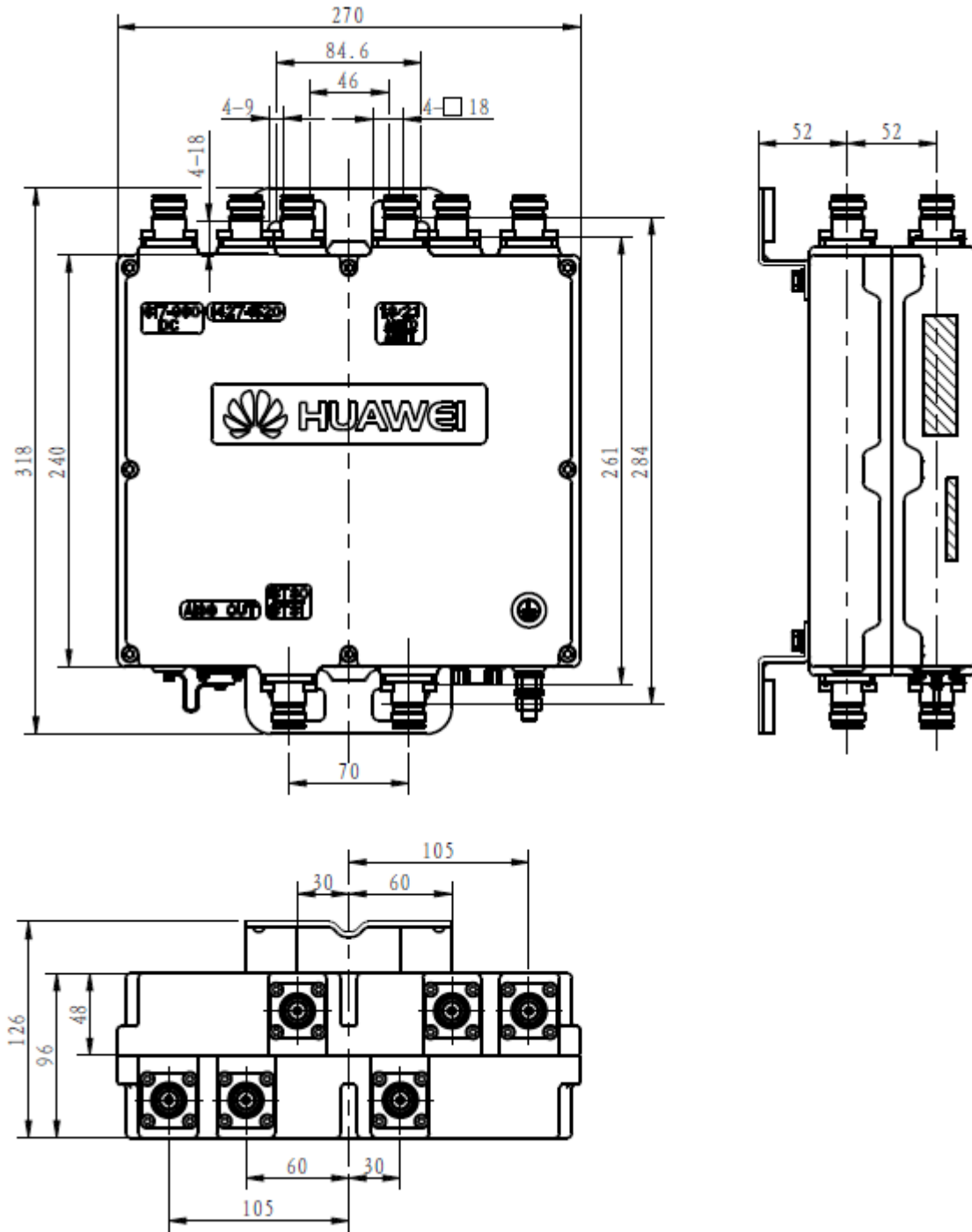
## Appearance and Block Diagram





| Tx Specifications                               |   |                                     |
|---|---|-------------------------------------|
| Frequency range (MHz)                           | 1805- 1880  | 2110 - 2170                         |
| Bandwidth (MHz)                                 | 75  | 60                                  |
| Insertion loss (dB)                             | Typ. < 0.4  | Typ. < 0.3                          |
| Return loss (dB)                                | ≥ 18  |                                     |
| Input power (W)                                 | < 200   | < 200                               |
| Intermodulation products in Rx band (dBc)       | ≤ -160 (3rd order; with 2 x 43 dBm)   | ≤ -160 (7rd order; with 2 x 43 dBm) |
| Rx Specifications                               |   |                                     |
| Frequency range (MHz)                           | 1710 - 1785   | 1920-1980                           |
| Bandwidth (MHz)                                 | 75  | 60                                  |
| Return loss (dB)                                | ≥ 18 (DC ON)<br>≥ 13 (DC OFF)   |                                     |
| Insertion loss in by-pass mode (dB)             | Avg. ≤ 2 (DC OFF)   |                                     |
| Gain (dB)                                       | 12 ± 1  |                                     |
| Noise figure (dB)                               | Typ. < 1.4  | Typ. < 1.4                          |
| Output 1dB compression (dBm)                    | ≥ 12  |                                     |
| OIP3 (dBm)                                      | ≥ 27  |                                     |
| Bypass Bands Specifications                     |   |                                     |
| Frequency range (MHz)                           | 617-960   | 1427-1520                           |
| Insertion loss (dB)                             | Typ. < 0.15   | Typ. < 0.20                         |
| Return loss (dB)                                | ≥ 18  |                                     |
| Input power (W)                                 | < 200   |                                     |
| Intermodulation products in Rx band (dBc)       | ≤ -160 (3rd order; with 2 x 43 dBm)   |                                     |
| DC/AISG transparency                            | By- pass (max. 2500 mA)   | Stop                                |
| Electrical Specifications                       |   |                                     |
| AISG Mode (BTS0,BTS1)                           |   |                                     |
| DC supply voltage (V)                           | 9 - 30  |                                     |
| Operating current per TMA (mA)<br>(without RET) | @12 V   | Max. 310                            |
|   | @17 V   | Max. 220                            |
|   | @30 V   | Max. 130                            |
| Power consumption (W)                           | < 4   |                                     |
| Environmental Specification                     |   |                                     |
| Operating temperature range (°C)                | -40 ... +65   |                                     |
| IP rating                                       | IP67  |                                     |
| MTBF (hours)                                    | > 1,000,000   |                                     |
| EMC   | EN 301 489-1, EN 301 489-50   |                                     |
| Lightning protection (kA)                       | 10 (8/20 us)  |                                     |
| Mechanical Specification                        |   |                                     |
| MTMA dimensions (W x H x D) (mm)                | 270×240×96<br>(without connectors, without brackets)  |                                     |
| Packing dimensions (W x H x D) (mm)             | 440×360×220   |                                     |
| MTMA weight (kg)                                | < 10 (with brackets)  |                                     |
| Packing weight (kg)                             | < 11.5  |                                     |
| MTMA Volume (L)                                 | < 6.2   |                                     |
| AISG connector                                  | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |                                     |
| Mounting  | Wall mounting: with 4 screws (max. 8 mm diameter)<br>Pole mounting  |                                     |
| Pole diameter (mm)                              | 40 - 135  |                                     |
| Connector                                       | 8 x 4.3-10 Female ( 2 ports are BTS and 6 ports are ANT)  |                                     |





Unit : mm

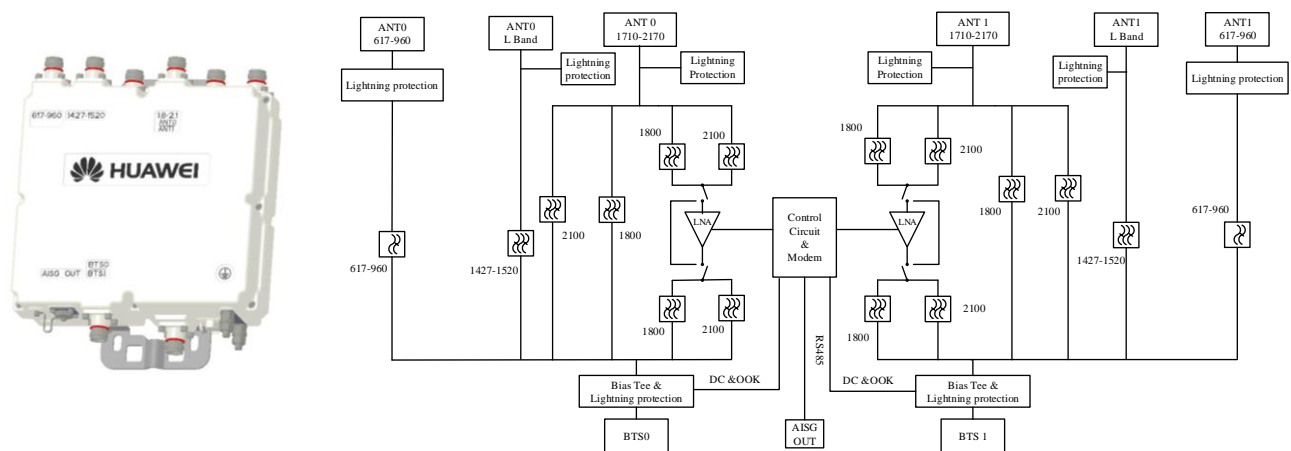
## Product Description

The multiband tower mounted amplifier (MTMA) is a low-noise amplifier installed near the antenna to satisfy the co-location purposes. It helps to improve the signal-to-noise ratio and enhance the receiving sensitivity of the BTS system. It enhances the uplink coverage and reduces uplink and downlink imbalance of the base station. It effectively reduces the transmitting power used by cellphones and improves voice and data communication quality. At the same time it provides bypass function for other frequency bands.

## Features

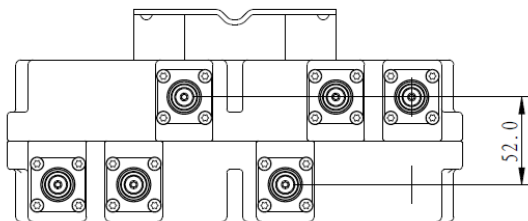
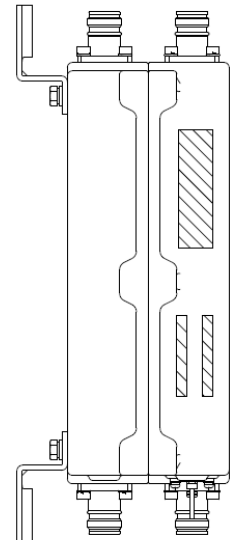
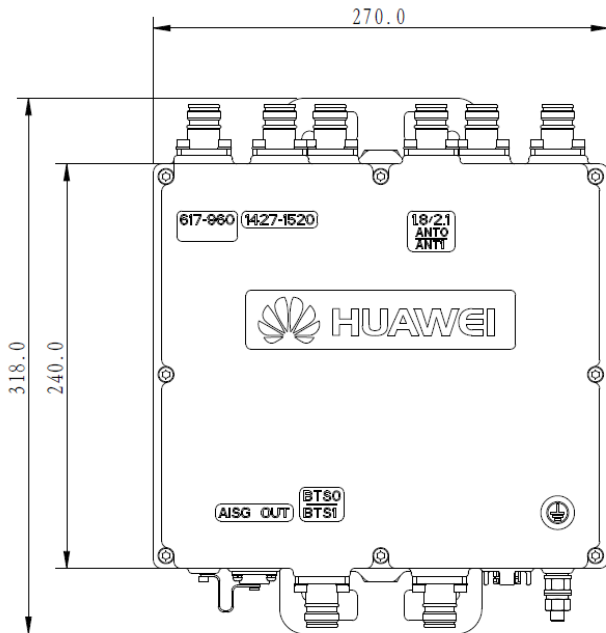
- High linearity and low noise performance.
- Power failure bypass for high reliability.
- Light weight and compact design.
- Designed for co-location purposes.
- Wall mounting and Pole mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.
- Provide bypass function for other frequency bands

## Appearance and Block Diagram





| Tx Specifications                               |   |                                     |
|---|---|-------------------------------------|
| Frequency range (MHz)                           | 1805 - 1880   | 2110 - 2170                         |
| Bandwidth (MHz)                                 | 75  | 60                                  |
| Insertion loss * (dB)                           | Typ. < 0.4  | Typ. < 0.3                          |
| Return loss (dB)                                | ≥ 18  |                                     |
| Input power (W)                                 | < 200   |                                     |
| Intermodulation products in Rx band (dBc)       | ≤ -160 (3rd order; with 2 x 43 dBm)   | ≤ -160 (7th order; with 2 x 43 dBm) |
| Rx Specifications                               |   |                                     |
| Frequency range (MHz)                           | 1710 - 1785   | 1920 - 1980                         |
| Bandwidth (MHz)                                 | 75  | 60                                  |
| Return loss (dB)                                | ≥ 18 (DC ON)<br>≥ 13 (DC OFF)   |                                     |
| Insertion loss in by-pass mode* (dB)            | Avg. ≤ 2 (DC OFF)   |                                     |
| Gain (dB)                                       | 12 ± 1  |                                     |
| Noise figure **(dB)                             | Typ. < 1.4  | Typ. < 1.4                          |
| Output 1dB compression (dBm)                    | ≥ 12  |                                     |
| OIP3 (dBm)                                      | ≥ 27  |                                     |
| Bypass Bands Specifications                     |   |                                     |
| Frequency range (MHz)                           | 617 - 960   | 1427 - 1520                         |
| Insertion loss * (dB)                           | Typ. < 0.15   | Typ. < 0.20                         |
| Return loss (dB)                                | ≥ 18  |                                     |
| Input power (W)                                 | < 200   |                                     |
| Intermodulation products in Rx band (dBc)       | ≤ -160 (3rd order; with 2 x 43 dBm)   |                                     |
| DC/AISG transparency                            | Stop  | Stop                                |
| Electrical Specifications                       |   |                                     |
|   |   | AISG Mode (BTS0, BTS1)              |
| DC supply voltage (V)                           | 9 - 30  |                                     |
| Operating current per TMA (mA)<br>(without RET) | @12 V   | Max. 310                            |
|   | @17 V   | Max. 220                            |
|   | @30 V   | Max. 130                            |
| Power consumption (W)                           | < 4   |                                     |
| Environmental Specification                     |   |                                     |
| Operating temperature range (°C)                | -40 ... +65   |                                     |
| IP rating                                       | IP67  |                                     |
| MTBF (hours)                                    | > 1,000,000   |                                     |
| EMC   | EN 301 489-1, EN 301 489-50   |                                     |
| Lightning protection (kA)                       | 10 (8/20 us)  |                                     |
| Mechanical Specification                        |   |                                     |
| MTMA dimensions (W x H x D) (mm)                | 270 x 240 x 96<br>(without connectors, without brackets)  |                                     |
| Packing dimensions (W x H x D) (mm)             | 440 x 360 x 220   |                                     |
| MTMA weight (kg)                                | < 12 (with brackets)  |                                     |
| Packing weight (kg)                             | < 13.5  |                                     |
| MTMA Volume (L)                                 | < 6.2   |                                     |
| AISG connector                                  | 8-pin female, IEC 60130-9 (pin6: 9V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected) |                                     |
| Mounting  | Wall mounting: with 4 screws (max. 8 mm diameter)<br>Pole mounting  |                                     |
| Pole diameter (mm)                              | 40 - 135  |                                     |
| Connector                                       | 8 x 4.3-10 Female ( 2 ports are BTS and 6 ports are ANT)  |                                     |





## D-2. Combiner

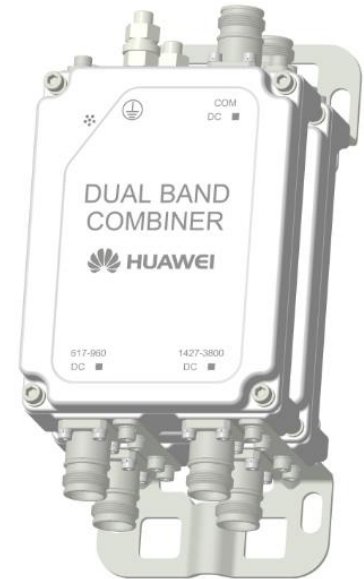
| Category                                | Pass Band(MHz)                                    | Max. Input power(W)    | DC-Bypass              | Intermodulation (dBm)          | Dimension (mm)                  | Model        | Page       |
|---|---|------------------------|------------------------|--------------------------------|---------------------------------|--------------|------------|
| Dual-band Combiner                      | Band 1: 617-960/<br>Band 2: 1427-3800             | 200                    | All DC-bypass          | < -117                         | Double Unit:<br>112 x 148 x 95  | ACOMD2A14v06 | <b>425</b> |
|   | Band 1: 690-862/<br>Band 2: 880-960               | 200                    | Smart DC-Bypass        | < -117                         | Double Unit:<br>103 x 196 x 143 | ACOMD2S05v06 | <b>427</b> |
|   | Band 1: 690-862/<br>Band 2: 880-960               | 200                    | 690-862MHz DC-Bypass   | < -117                         | Double Unit:<br>101 x 194 x 128 | ACOMD2L11v06 | <b>430</b> |
|   | Band 1: 690-862/<br>Band 2: 880-960               | 200                    | 880~960MHz DC-bypass   | < -117                         | Double Unit:<br>101 x 194 x 128 | ACOMD2H25v06 | <b>430</b> |
|   | Band 1: 690-862/<br>Band 2: 880-960               | 200                    | All DC-bypass          | < -117                         | Double Unit:<br>101 x 194 x 128 | ACOMD2A07v06 | <b>430</b> |
|   | Band 1: 690-803/<br>Band 2: 824-960               | 300                    | 690~803MHz DC-bypass   | < -112                         | Double Unit:<br>200 x 230 x 107 | ACOMD2L08v06 | <b>433</b> |
|   | Band 1 : 698-960/<br>Band 2: 1710-2200            | 300                    | 1710~2200MHz DC-bypass | < -110                         | Double Unit:<br>130 x 190 x 105 | ACOMD2H11v06 | <b>436</b> |
|   | Band 1: 698-960 /<br>Band 2: 1710-2200            | 300                    | All DC-bypass          | < -110                         | Double Unit:<br>130 x 190 x 105 | ACOMD2H19v06 | <b>436</b> |
|   | Band 1: 698-960 /<br>Band 2: 1710-2700            | 300                    | 1710~2700MHz DC-bypass | < -110                         | Double Unit:<br>130 x 190 x 105 | ACOMD2H00v06 | <b>439</b> |
|   | Band 1: 698-960/<br>Band 2: 1710-2700             | 300                    | All DC-bypass          | < -110                         | Double Unit:<br>130 x 190 x 105 | ACOMD2H22v06 | <b>439</b> |
|   | Band 1: 1427-1520/<br>Band 2: 1690-2690           | 200                    | All DC-bypass          | < -117                         | Double Unit:<br>160 x 145 x 103 | ACOMD2A05v06 | <b>442</b> |
|   | Band 1: 1427-1880 /<br>Band 2: 1920-2200          | 200                    | Smart DC-bypass        | < -117                         | Double Unit:<br>131 x 120 x 109 | ACOMD2S02v06 | <b>445</b> |
|   | Band 1: 1427-1880 /<br>Band 2: 1920-2200          | 200                    | 1920~2200MHz DC-bypass | < -117                         | Double Unit:<br>131 x 120 x 94  | ACOMD2H26v06 | <b>448</b> |
|   | Band 1: 1427-1880 /<br>Band 2: 1920-2200          | 200                    | 1427~1880MHz DC-bypass | < -117                         | Double Unit:<br>131 x 120 x 94  | ACOMD2L12v06 | <b>448</b> |
|   | Band 1: 1427-1880 /<br>Band 2: 1920-2200          | 200                    | All DC-bypass          | < -117                         | Double Unit:<br>131 x 120 x 94  | ACOMD2A06v06 | <b>448</b> |
|   | Band 1: 1710-1755&2110-2155/<br>Band 2: 1850-1995 | 300                    | All DC-bypass          | < -110                         | Double Unit:<br>185 x 180 x 103 | ACOMD2A00v06 | <b>451</b> |
|   | Band 1: 1427-2200/<br>Band 2: 2300-2690           | 200                    | 1427~2200MHz DC-bypass | < -117                         | Double Unit:<br>122 x 125 x 98  | ACOMD2L13v06 | <b>457</b> |
|   | Band 1: 1427-2200/<br>Band 2: 2300-2690           | 200                    | Smart DC-bypass        | < -117                         | Double Unit:<br>122 x 125 x 111 | ACOMD2S03v06 | <b>454</b> |
| Band 1: 1427-2200/<br>Band 2: 2300-2690 | 200   | 2300-2690MHz DC-bypass | < -117                 | Double Unit:<br>122 x 125 x 98 | ACOMD2H27v06                    | <b>457</b>   |            |

| Category           | Pass Band(MHz)  | Max. Input power(W) | DC-Bypass  | Intermodulation (dBm) | Dimension (mm)                  | Model        | Page       |
|--------------------|---|---------------------|--|-----------------------|---------------------------------|--------------|------------|
| Dual-band Combiner | Band 1: 1427-2200/<br>Band 2: 2300-2690   | 200                 | All DC-bypass                                    | < -117                | Double Unit:<br>122 x 125 x 98  | ACOMD2A08v06 | <b>457</b> |
| Tri-band Combiner  | Band 1: 617-960/<br>Band 2: 1427-1520/<br>Band 3: 1690-2690                       | 200                 | 1690~2690 MHz DC-bypass                          | < -117                | Double Unit:<br>160 x 145 x 103 | ACOMT2H10v06 | <b>460</b> |
|                    | Band 1: 617-960/<br>Band 2: 1427-1520/<br>Band 3: 1690-2690                       | 200                 | All DC-bypass                                    | < -117                | Double Unit:<br>160 x 145 x 103 | ACOMT2A09v06 | <b>460</b> |
|                    | Band 1: 690-960/<br>Band 2: 1710-1880/<br>Band 3: 1920-2200                       | 300                 | All DC-bypass                                    | < -110                | Double Unit:<br>190 x 154 x 105 | ACOMT2A03v06 | <b>463</b> |
|                    | Band 1: 690-960/<br>Band 2: 1710-2200/<br>Band 3: 2300-2690                       | 300                 | All DC-bypass                                    | < -110                | Double Unit:<br>196 x 190 x 112 | ACOMT2A04v06 | <b>466</b> |
|                    | Band 1: 790-862/<br>Band 2: 880-960/<br>Band 3: 1710-2700                         | 300                 | All DC-bypass                                    | < -110                | Double Unit:<br>220 x 210 x 115 | ACOMT2A02v06 | <b>469</b> |
|                    | Band 1: 790-960/<br>Band 2: 1710-1880/<br>Band 3: 1920-2200                       | 300                 | 1920~2200MHz DC-bypass                           | < -110                | Double Unit:<br>190 x 154 x 105 | ACOMT2H01v06 | <b>472</b> |
|                    | Band 1: 790-960/<br>Band 2: 1710-1880/<br>Band 3: 1920-2200                       | 300                 | 1710~1880MHz DC-bypass<br>1920~2200MHz DC-bypass | < -110                | Double Unit:<br>190 x 154 x 105 | ACOMT2H03v06 | <b>472</b> |
|                    | Band 1: 790-960/<br>Band 2: 1710-1880/<br>Band 3: 1920-2200                       | 300                 | ALL DC-bypass                                    | < -110                | Double Unit:<br>190 x 154 x 105 | ACOMT2H08v06 | <b>472</b> |
|                    | Band 1: 1710-1880/<br>Band 2: 1920-2200/<br>Band 3: 2300-2690                     | 300                 | 1920~2200MHz DC-bypass                           | < -110                | Double Unit:<br>165 x 180 x 105 | ACOMT2M02v06 | <b>475</b> |
|                    | Band 1: 690-960/<br>Band 2: 1710-2200/<br>Band 3: 2300-2690                       | 300                 | All DC-bypass                                    | < -110                | Double Unit:<br>165 x 180 x 105 | ACOMT2A07v06 | <b>475</b> |
| Quad-band Combiner | Band 1: 690-960/<br>Band 2: 1710-1880/<br>Band 3: 1920-2200/<br>Band 4: 2300-2690 | 300                 | 1920~2200MHz DC-bypass                           | < -110                | Double Unit:<br>230 x 220 x 112 | ACOMQ2M01v06 | <b>478</b> |
|                    | Band 1: 690-960/<br>Band 2: 1710-1880/<br>Band 3: 1920-2200/<br>Band 4: 2300-2690 | 300                 | All DC-bypass                                    | < -110                | Double Unit:<br>230 x 220 x 112 | ACOMQ2A01v06 | <b>478</b> |
| DC-STOP            | Band: 690-2700  | 500                 | DC-Stop  | < -117                | 32 x 70.3 x 37                  | ADCSTOP00v06 | <b>481</b> |

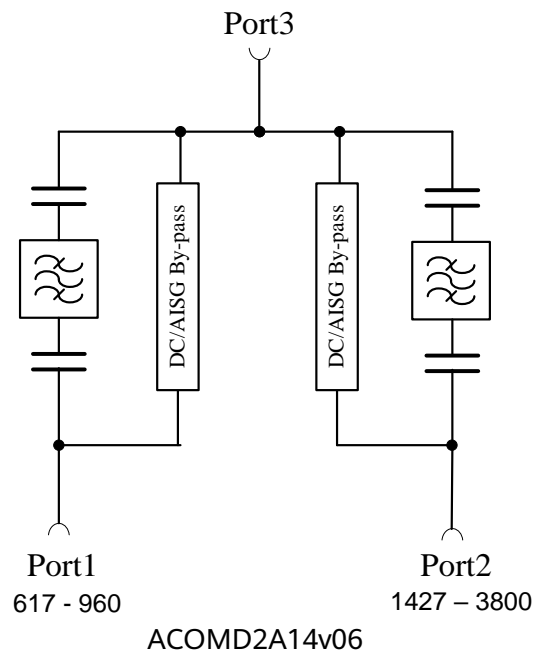
*\*\* Preliminary Issue*

## Product Description

- Built-in lightning protection up to 10 kA.
- Designed for co-antenna purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.
- Environment IP67

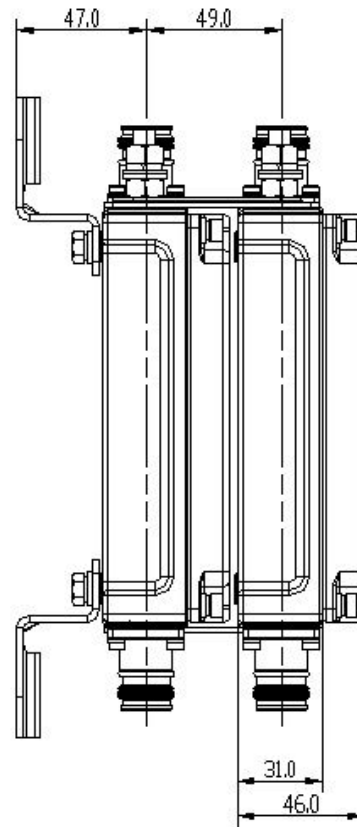
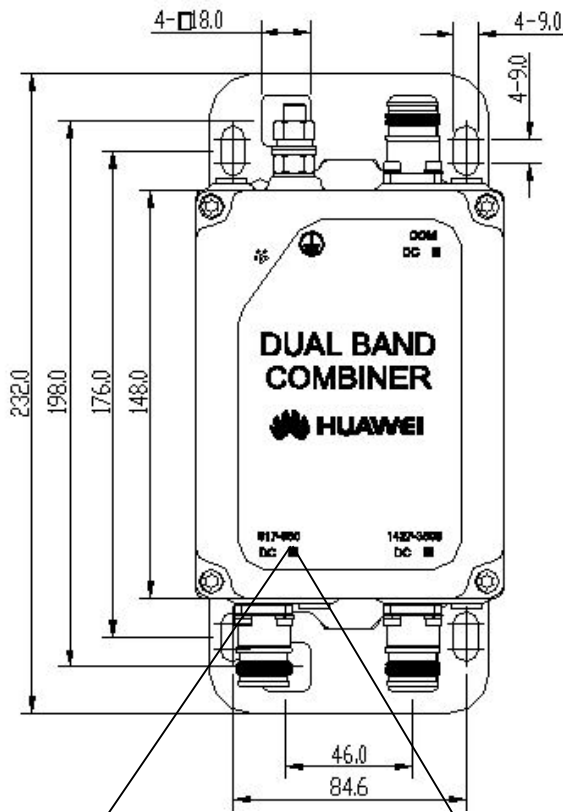
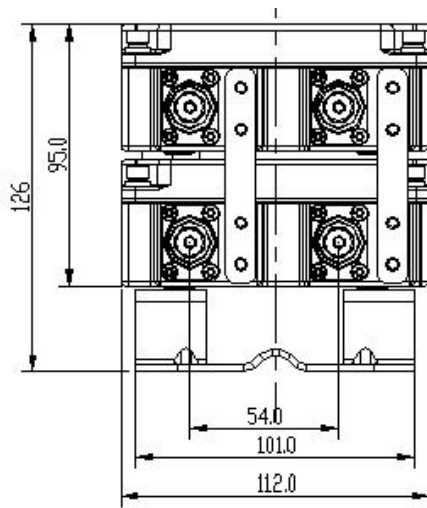


## Block Diagram





| Electrical Properties                |  |                        |
|--------------------------------------|--|------------------------|
| Model                                | ACOMD2A14v06   |                        |
| Pass band (MHz)                      | Band1  | 617-960                |
|                                      | Band2  | 1427-3800              |
| Insertion loss (dB)                  | Port 1 ↔ Port 3  | <0.15                  |
|                                      | Port 2 ↔ Port 3  | <0.20                  |
| DC/AISG transparency                 | Port 1 ↔ Port 3  | By-pass (max. 2500 mA) |
|                                      | Port 2 ↔ Port 3  | By-pass (max. 2500 mA) |
| Isolation(dB)                        | Port 1 ↔ Port 2  | >50                    |
| VSWR                                 | < 1.28   |                        |
| Input power (W)                      | Port 1, Port 2   | < 200                  |
| Intermodulation products (dBc)       | < -160 (3rd order; with 2 x 43 dBm)  |                        |
| Environmental Specification          |  |                        |
| Operating temperature (°C)           | -40 ... +65  |                        |
| Application scene                    | Indoor // Outdoor  |                        |
| IP rating                            | IP67   |                        |
| Lightning protection (kA)            | 10 (8/20 us)   |                        |
| Mechanical Specification             |  |                        |
| Combiner dimensions (W x H x D) (mm) | Double Unit: 112 x 148 x 95<br>(without connectors, without mounting brackets) |                        |
| Packing dimensions (W x H x D) (mm)  | 330 x 245x 220   |                        |
| Combiner weight (kg)                 | Double Unit: ≤ 3   |                        |
| Packing weight (kg)                  | ≤ 4  |                        |
| Mounting                             | Wall mounting // Mast mounting   |                        |
| Mast diameter (mm)                   | Default: 40 - 135  |                        |
| Connector                            | 4.3-10 Female  |                        |



If the sign as shown above, it indicates this pass band is DC stop.

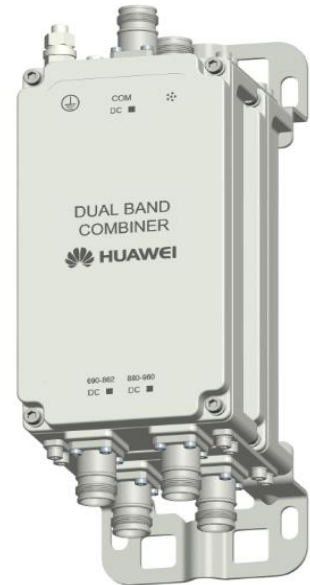


If the sign as shown above, it indicates this pass band is DC pass.

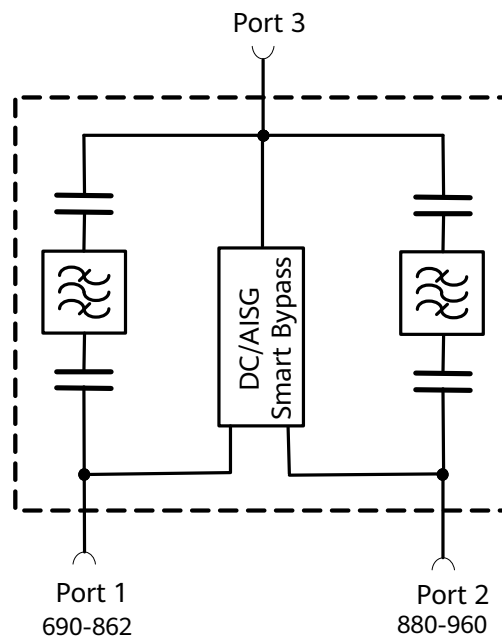
Unit : mm

## Product Description

- Smartly select the DC/AISG channel, and the combiner module or the demultiplexing module is the same module;
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna;
- Support for customer-defined configuration with handheld terminal;
- Designed for co-location purposes;
- Feeder sharing available;
- Built-in lightning protection up to 10 kA;
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



## Block Diagram



ACOMD2S05v06

### Electrical Properties

|                                |                                     |                             |
|--------------------------------|-------------------------------------|-----------------------------|
| Model                          | ACOMD2S05v06                        |                             |
| Pass band (MHz)                | Band 1                              | 690 - 862                   |
|                                | Band 2                              | 880- 960                    |
| Insertion loss (dB)            | Port 1 ↔ Port 3                     | < 0.2 (690 MHz - 862 MHz)   |
|                                | Port 2 ↔ Port 3                     | < 0.25 (880 MHz - 960 MHz)  |
| DC/AISG transparency           | Port 1 ↔ Port 3                     | Smart bypass (max. 2000 mA) |
|                                | Port 2 ↔ Port 3                     | Smart bypass (max. 2000 mA) |
| Isolation (dB)                 | > 50                                |                             |
| VSWR                           | < 1.28                              |                             |
| Input power (W)                | Port 1, Port 2                      | < 200                       |
| Intermodulation products (dBc) | < -160 (3rd order; with 2 x 43 dBm) |                             |

### Environmental Specification

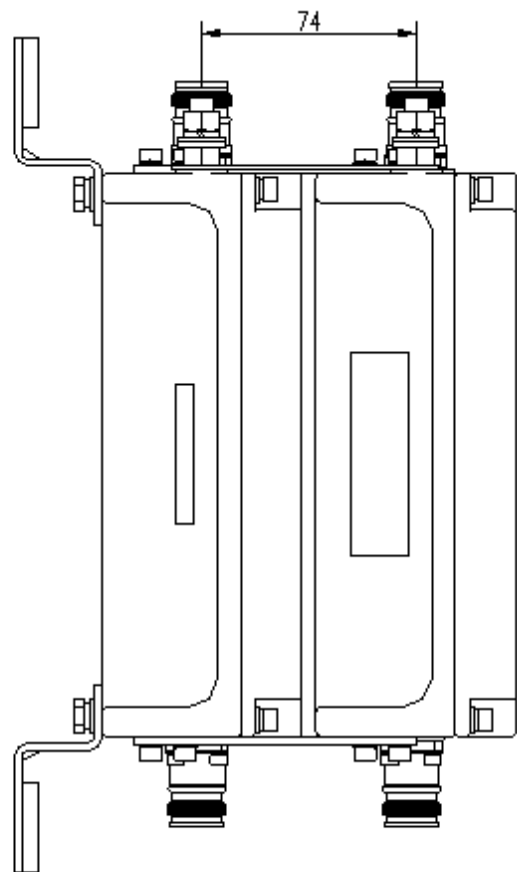
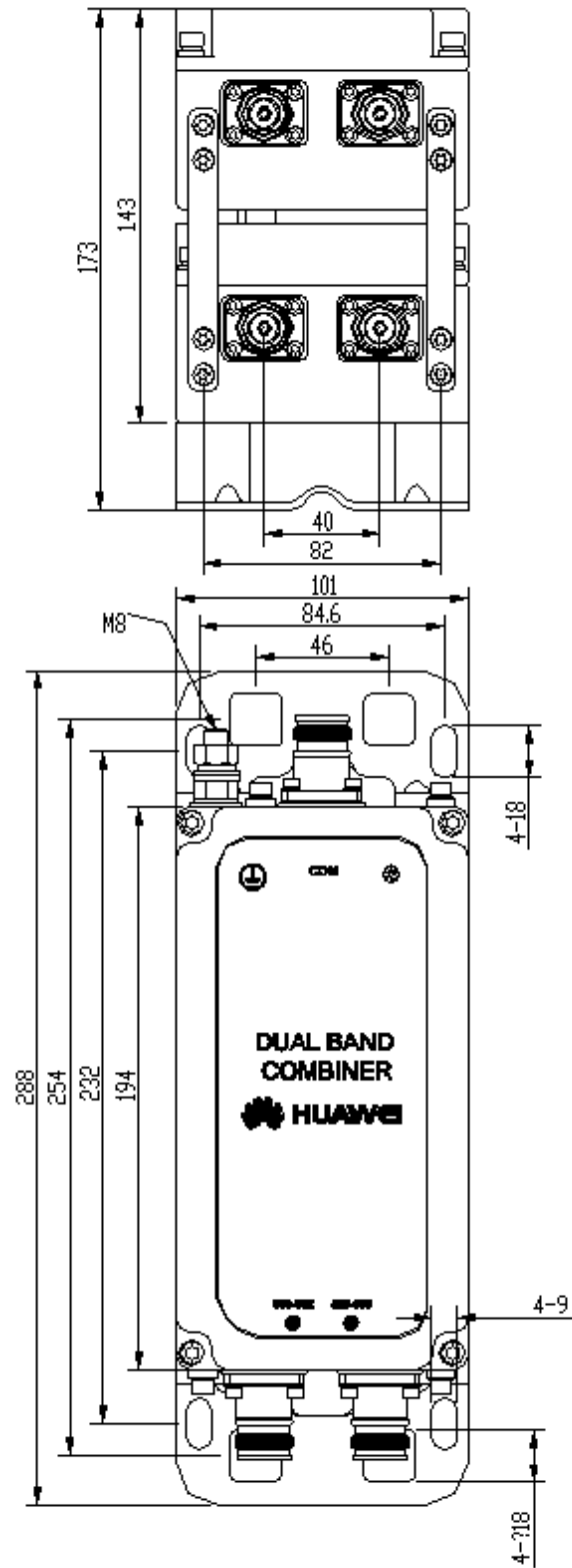
|                            |                              |  |
|----------------------------|------------------------------|--|
| Operating temperature (°C) | -40 ... +65                  |  |
| Application scene          | Indoor // Outdoor            |  |
| IP rating                  | IP67                         |  |
| EMC                        | EN 55032:2015, EN 55035:2017 |  |
| Lightning protection (kA)  | 10 (8/20 us)                 |  |

### Mechanical Specification

|                                      |   |  |
|--------------------------------------|---|--|
| Combiner dimensions (W x H x D) (mm) | Double Unit: 101 x 194 x 143<br>(without connectors, without mounting brackets) |  |
| Packing dimensions (W x H x D) (mm)  | 380 x 160 x 240   |  |
| Combiner weight (kg)                 | Double Unit: ≤ 5.5  |  |
| Packing weight (kg)                  | ≤ 6   |  |
| Mounting                             | Wall mounting // Pole mounting  |  |
| Mast diameter (mm)                   | 40 - 135  |  |
| Connector                            | 4.3-10 Female   |  |

### Function Specification

|                      |   |  |
|----------------------|---|--|
| Mode choice          | Combine and split mode automatically selected |  |
| Smart DC/AISG bypass | DC/AISG input channel automatically selected  |  |
| Load detection       | Output load automatically detected            |  |



Unit : mm

DC-690-862/880-960-11 Model: ACOMD2A07v06

DC-690-862/880-960-10 Model: ACOMD2L11v06

DC-690-862/880-960-01 Model: ACOMD2H25v06

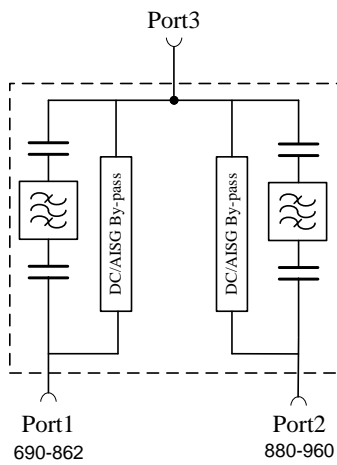


## Product Description

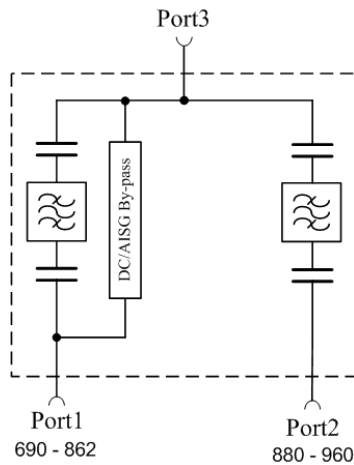
- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



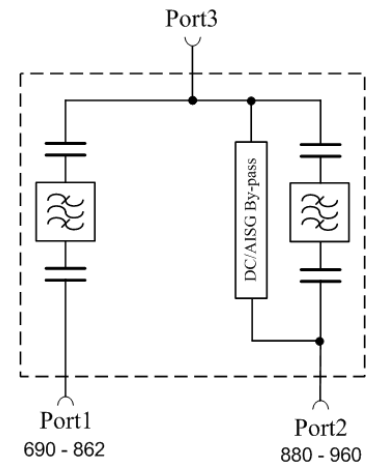
## Block Diagram



ACOMD2A07v06



ACOMD2L11v06



ACOMD2H25v06

DC-690-862/880-960-11 Model: ACOMD2A07v06

DC-690-862/880-960-10 Model: ACOMD2L11v06

DC-690-862/880-960-01 Model: ACOMD2H25v06



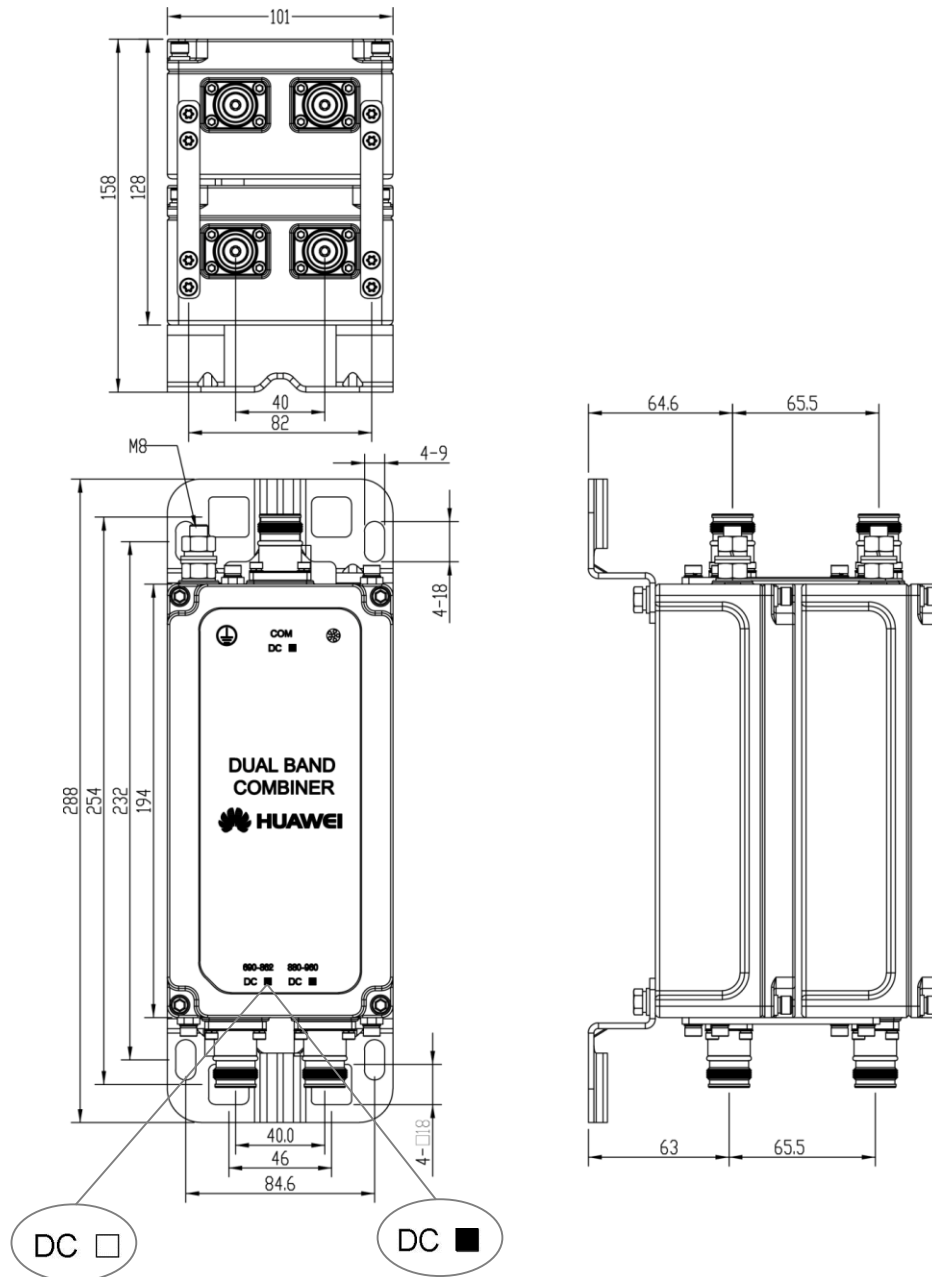
### Electrical Properties

| Model                                |                 | ACOMD2A07v06  | ACOMD2L11v06            | ACOMD2H25v06            |
|--------------------------------------|-----------------|---|-------------------------|-------------------------|
| Pass band (MHz)                      | Band 1          | 690 - 862   |                         |                         |
|                                      | Band 2          | 880 - 960   |                         |                         |
| Insertion loss (dB)                  | Port 1 ↔ Port 3 | < 0.2 (690 MHz - 862 MHz)   |                         |                         |
|                                      | Port 2 ↔ Port 3 | < 0.25 (880 MHz - 960 MHz)  |                         |                         |
| DC/AISG transparency                 | Port 1 ↔ Port 3 | By- pass (max. 2500 mA)   | By- pass (max. 2500 mA) | stop                    |
|                                      | Port 2 ↔ Port 3 | By- pass (max. 2500 mA)   | stop                    | By- pass (max. 2500 mA) |
| Isolation (dB)                       |                 | > 50  |                         |                         |
| VSWR                                 |                 | < 1.28  |                         |                         |
| Input power (W)                      | Port 1, Port 2  | < 200   |                         |                         |
| Intermodulation products (dBc)       |                 | < -160 (3rd order; with 2 x 43 dBm)   |                         |                         |
|                                      |                 |   |                         |                         |
| Operating temperature (°C)           |                 | -40 ... +65   |                         |                         |
| Application scene                    |                 | Indoor // Outdoor   |                         |                         |
| IP rating                            |                 | IP67  |                         |                         |
| Lightning protection (kA)            |                 | 10 (8/20 us)  |                         |                         |
| <b>Mechanical Specification</b>      |                 |   |                         |                         |
| Combiner dimensions (W x H x D) (mm) |                 | Double Unit: 101 x 194 x 128<br>(without connectors, without mounting brackets) |                         |                         |
| Packing dimensions (W x H x D) (mm)  |                 | 380 x 160 x 240   |                         |                         |
| Combiner weight (kg)                 |                 | Double Unit: ≤ 5.5  |                         |                         |
| Packing weight (kg)                  |                 | ≤ 6.5   |                         |                         |
| Mounting                             |                 | Wall mounting // Pole mounting  |                         |                         |
| Mast diameter (mm)                   |                 | 40 - 135  |                         |                         |
| Connector                            |                 | 4.3-10 Female   |                         |                         |

DC-690-862/880-960-11 Model: ACOMD2A07v06

DC-690-862/880-960-10 Model: ACOMD2L11v06

DC-690-862/880-960-01 Model: ACOMD2H25v06



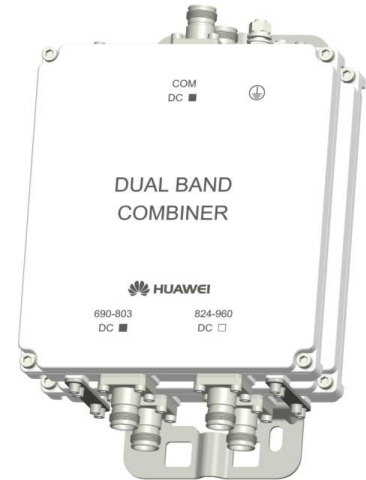
If the sign as shown above, it indicates this pass band is DC stop.

If the sign as shown above, it indicates this pass band is DC pass.

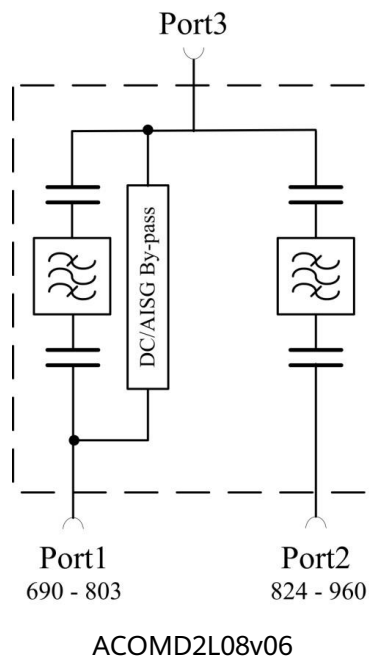


## Product Description

- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



## Block Diagram



### Electrical Properties

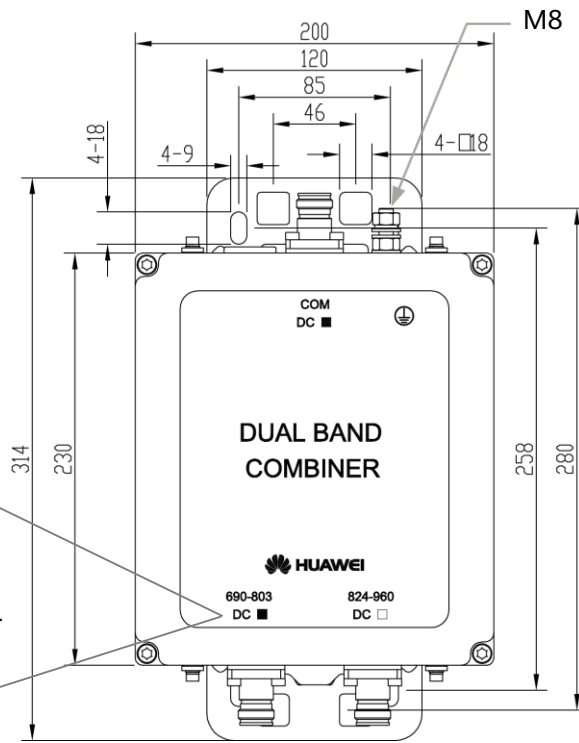
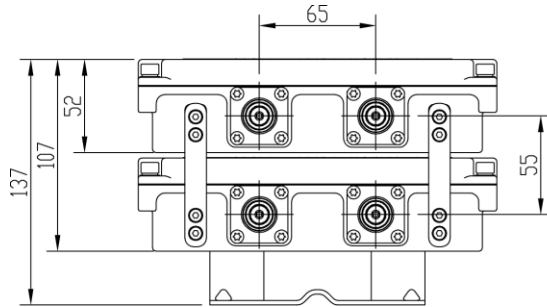
|                                |                   |                                     |
|--------------------------------|-------------------|-------------------------------------|
| Model                          |                   | ACOMD2L08v06                        |
| Pass band (MHz)                | Band 1            | 690 - 803                           |
|                                | Band 2            | 824 - 960                           |
| Insertion loss *(dB)           | Port 1 ← → Port 3 | < 0.45 (690 MHz - 803 MHz)          |
|                                | Port 2 ← → Port 3 | < 0.45 (824 MHz - 960 MHz)          |
| DC/AISG transparency           | Port 1 ← → Port 3 | By-pass (max. 2500 mA)              |
|                                | Port 2 ← → Port 3 | Stop                                |
| Isolation (dB)                 |                   | > 49.0                              |
| VSWR                           |                   | < 1.22                              |
| Input power (W)                | Port 1, Port 2    | < 300                               |
| Intermodulation products (dBc) |                   | < -155 (3rd order; with 2 x 43 dBm) |

### Environmental Specification

|                            |                   |
|----------------------------|-------------------|
| Operating temperature (°C) | -40 ... +65       |
| Application scene          | Indoor // Outdoor |
| IP rating                  | IP67              |
| Lightning protection (kA)  | 10 (8/20 us)      |

### Mechanical Specification

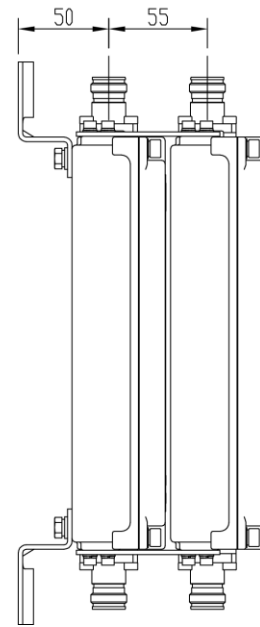
|                                      |   |
|--------------------------------------|---|
| Combiner dimensions (W x H x D) (mm) | Double Unit: 200 x 230 x 107<br>(without connectors, without mounting brackets) |
| Packing dimensions (W x H x D) (mm)  | 335 x 405 x 265   |
| Combiner weight (kg)                 | Double Unit: ≤ 7.9  |
| Packing weight (kg)                  | ≤ 9.4   |
| Mounting                             | Wall mounting // Mast mounting  |
| Mast diameter (mm)                   | 40 - 135  |
| Connector                            | 4.3-10 Female   |



If the sign as shown above, it indicates this pass band is DC by-pass.



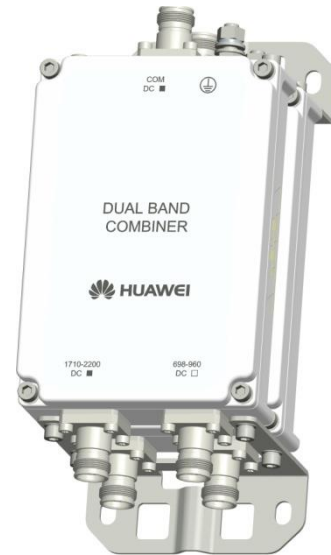
If the sign as shown above, it indicates this pass band is DC stop.



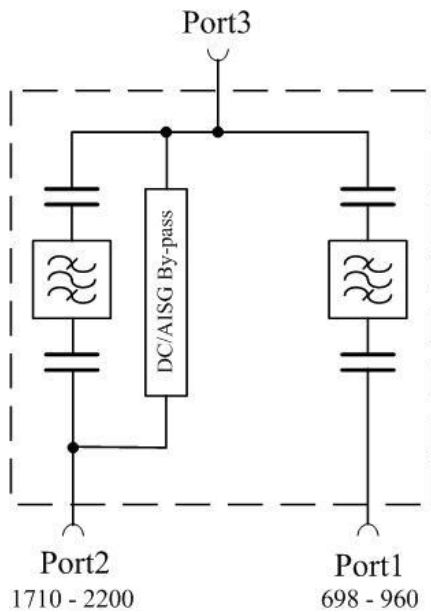
Unit : mm

## Product Description

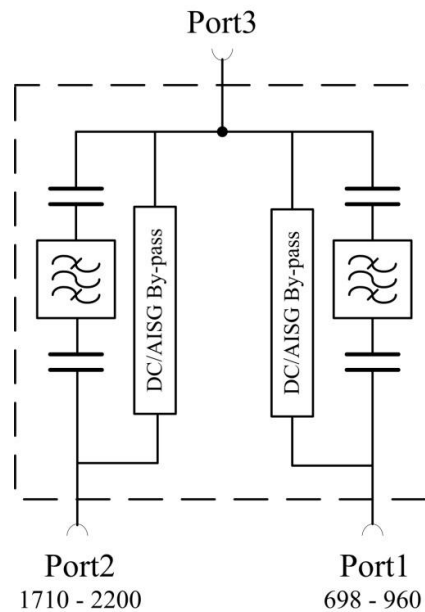
- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



## Block Diagram



ACOMD2H11v06



ACOMD2H19v06

DC-698-960/1710-2200-01

Model: ACOMD2H11v06

DC-698-960/1710-2200-11

Model: ACOMD2H19v06



### Electrical Properties

|                                |                                     |                              |                        |
|--------------------------------|-------------------------------------|------------------------------|------------------------|
| Model                          | ACOMD2H11v06                        |                              |                        |
| Pass band (MHz)                | Band 1                              | 698 - 960                    |                        |
|                                | Band 2                              | 1710 - 2200                  |                        |
| Insertion loss (dB)            | Port 1 ↔ Port 3                     | < 0.15 (698 MHz - 960 MHz)   |                        |
|                                | Port 2 ↔ Port 3                     | < 0.15 (1710 MHz - 2200 MHz) |                        |
| DC/AISG transparency           | Port 1 ↔ Port 3                     | Stop                         | By-pass (max. 2500 mA) |
|                                | Port 2 ↔ Port 3                     | By-pass (max. 2500 mA)       | By-pass (max. 2500 mA) |
| Isolation (dB)                 | > 40                                |                              |                        |
| VSWR                           | < 1.28                              |                              |                        |
| Input power (W)                | Port 1, Port 2                      | < 300                        |                        |
| Intermodulation products (dBc) | < -153 (3rd order; with 2 x 43 dBm) |                              |                        |

### Environmental Specification

|                            |                   |
|----------------------------|-------------------|
| Operating temperature (°C) | -40 ... +65       |
| Application scene          | Indoor // Outdoor |
| IP rating                  | IP67              |
| Lightning protection (kA)  | 10 (8/20 us)      |

### Mechanical Specification

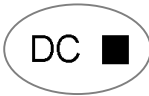
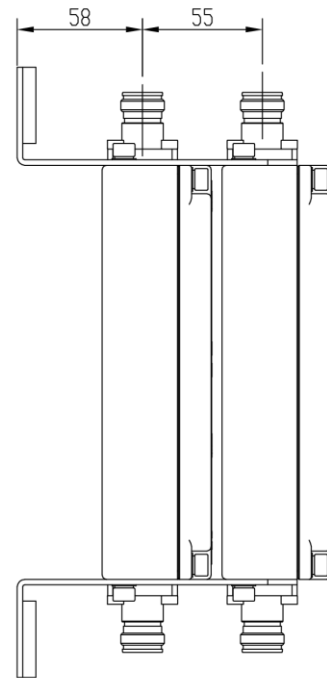
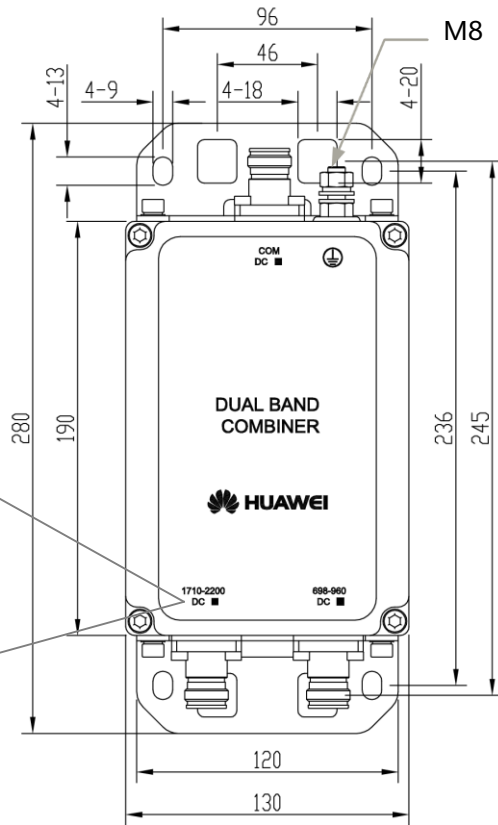
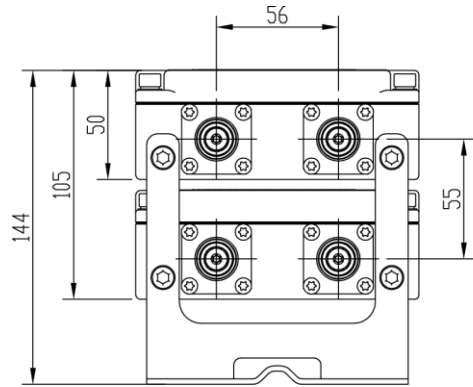
|                                      |   |
|--------------------------------------|---|
| Combiner dimensions (W x H x D) (mm) | Double Unit: 130 x 190 x 105<br>(without connectors, without mounting brackets) |
| Packing dimensions (W x H x D) (mm)  | 175 x 355 x 220   |
| Combiner weight (kg)                 | Double Unit: ≤ 5.6  |
| Packing weight (kg)                  | ≤ 6.2   |
| Mounting                             | Wall mounting // Mast mounting  |
| Mast diameter (mm)                   | 40 - 135  |
| Connector                            | 4.3-10 Female   |

DC-698-960/1710-2200-01

Model: ACOMD2H11v06

DC-698-960/1710-2200-11

Model: ACOMD2H19v06



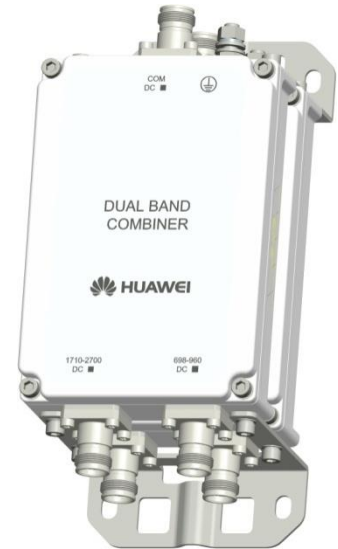
If the sign as shown above, it indicates this pass band is DC by-pass.



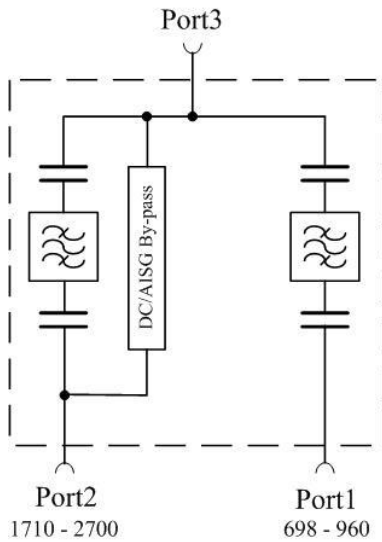
If the sign as shown above, it indicates this pass band is DC stop.

## Product Description

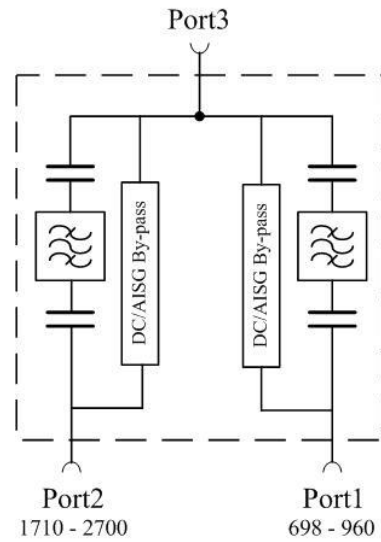
- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



## Block Diagram



ACOMD2H00v06



ACOMD2H22v06

### Electrical Properties

| Model                          |                 | ACOMD2H00v06                        | ACOMD2H22v06           |
|--------------------------------|-----------------|-------------------------------------|------------------------|
| Pass band (MHz)                | Band 1          | 698 - 960                           |                        |
|                                | Band 2          | 1710 - 2700                         |                        |
| Insertion loss (dB)            | Port 1 ↔ Port 3 | < 0.15 (698 MHz - 960 MHz)          |                        |
|                                | Port 2 ↔ Port 3 | < 0.15 (1710 MHz - 2700 MHz)        |                        |
| DC/AISG transparency           | Port 1 ↔ Port 3 | Stop                                | By-pass (max. 2500 mA) |
|                                | Port 2 ↔ Port 3 | By-pass (max. 2500 mA)              | By-pass (max. 2500 mA) |
| Isolation (dB)                 |                 | > 40                                |                        |
| VSWR                           |                 | < 1.28                              |                        |
| Input power (W)                | Port 1, Port 2  | < 300                               |                        |
| Intermodulation products (dBc) |                 | < -153 (3rd order; with 2 x 43 dBm) |                        |

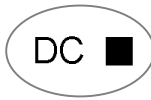
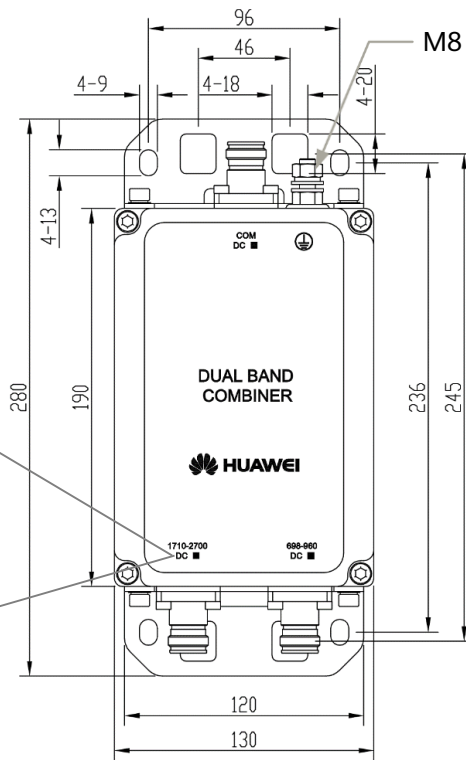
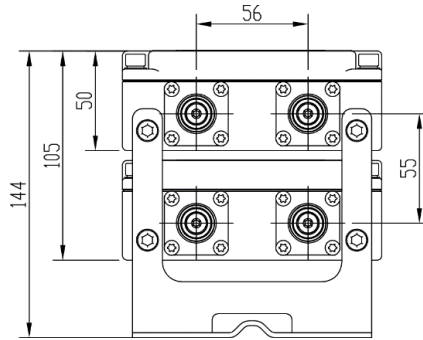
### Environmental Specification

|                            |                   |
|----------------------------|-------------------|
| Operating temperature (°C) | -40 ... +65       |
| Application scene          | Indoor // Outdoor |
| IP rating                  | IP67              |
| Lightning protection (kA)  | 10 (8/20 us)      |

### Mechanical Specification

|                                      |   |
|--------------------------------------|---|
| Combiner dimensions (W x H x D) (mm) | Double Unit: 130 x 190 x 105<br>(without connectors, without mounting brackets) |
| Packing dimensions (W x H x D) (mm)  | 175 x 355 x 220   |
| Combiner weight (kg)                 | Double Unit: ≤ 4.2  |
| Packing weight (kg)                  | ≤ 4.7   |
| Mounting                             | Wall mounting // Mast mounting  |
| Mast diameter (mm)                   | 40 - 135  |
| Connector                            | 4.3-10 Female   |

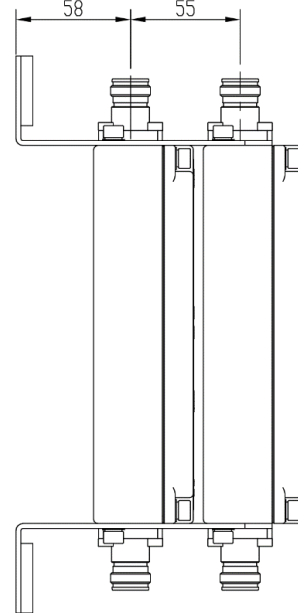




If the sign as shown above, it indicates this pass band is DC by-pass.



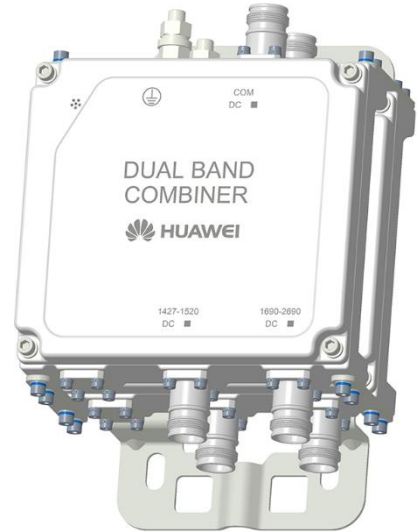
If the sign as shown above, it indicates this pass band is DC stop.



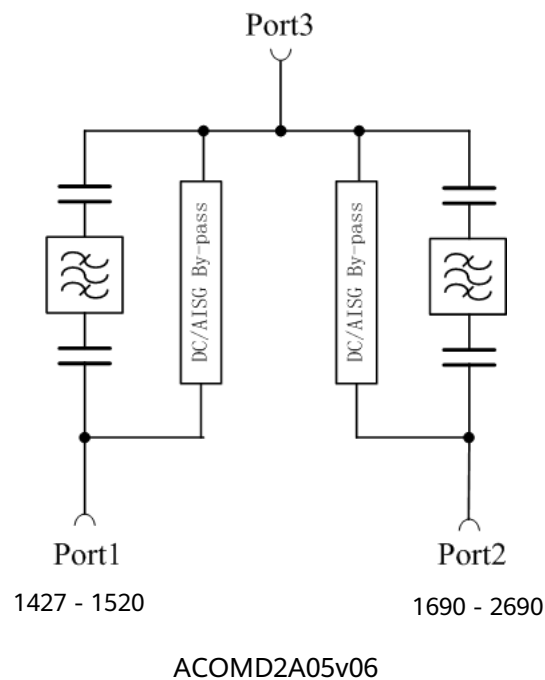
Unit : mm

## Product Description

- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



## Block Diagram



### Electrical Properties

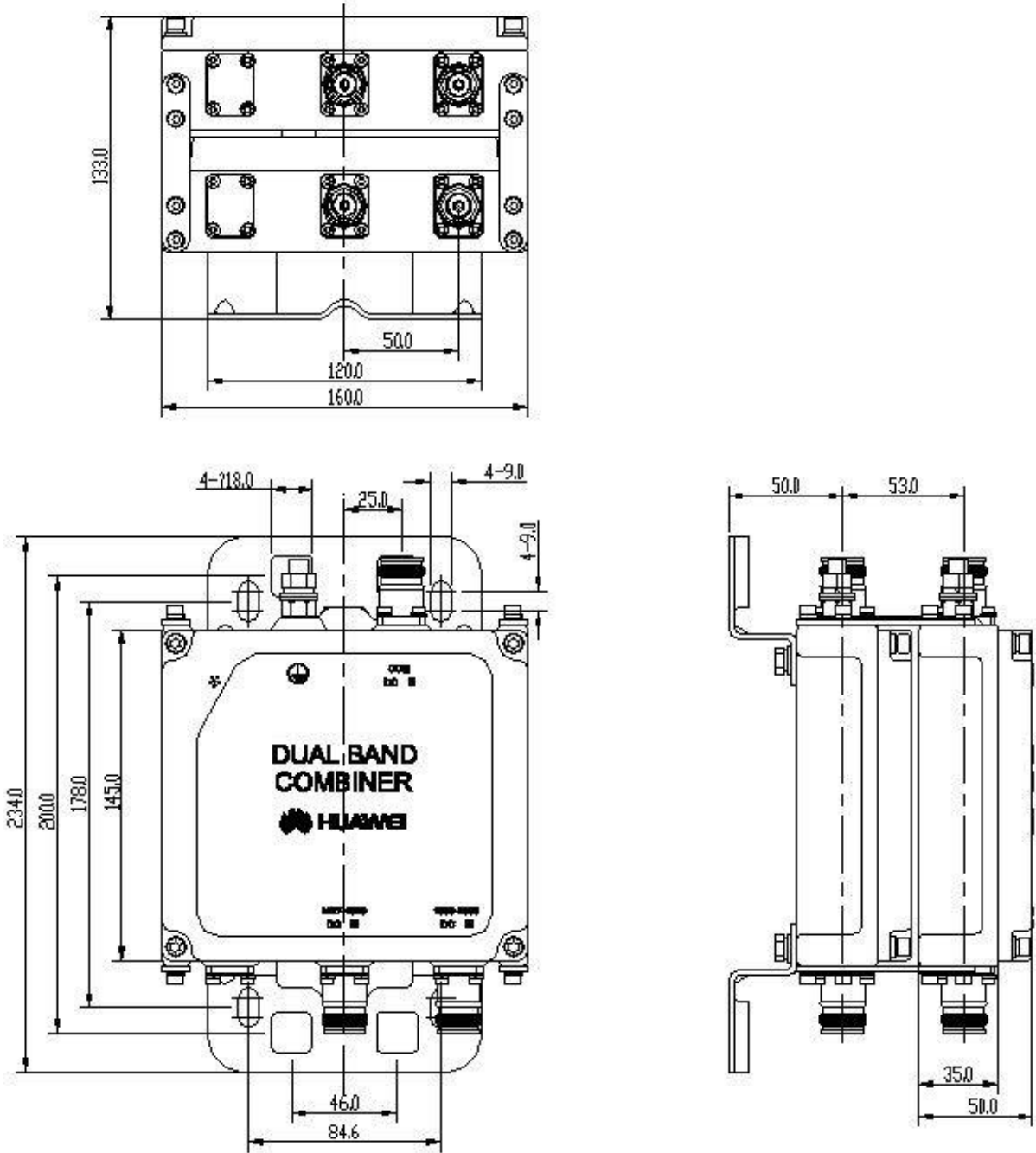
|                                |                 |                                     |
|--------------------------------|-----------------|-------------------------------------|
| Model                          |                 | ACOMD2A05v06                        |
| Pass band (MHz)                | Band 1          | 1427 - 1520                         |
|                                | Band 2          | 1690 - 2690                         |
| Insertion loss (dB)            | Port 1 ↔ Port 3 | < 0.20 (1427 MHz - 1520 MHz)        |
|                                | Port 2 ↔ Port 3 | < 0.15 (1690 MHz - 2690 MHz)        |
| DC/AISG transparency           | Port 1 ↔ Port 3 | By-pass (max. 2500 mA)              |
|                                | Port 2 ↔ Port 3 | By-pass (max. 2500 mA)              |
| Isolation (dB)                 |                 | > 50                                |
| VSWR                           |                 | < 1.28                              |
| Input power (W)                | Port 1, Port 2  | < 200                               |
| Intermodulation products (dBc) |                 | < -160 (3rd order; with 2 x 43 dBm) |

### Environmental Specification

|                            |                   |
|----------------------------|-------------------|
| Operating temperature (°C) | -40 ... +65       |
| Application scene          | Indoor // Outdoor |
| IP rating                  | IP67              |
| Lightning protection (kA)  | 10 (8/20 us)      |

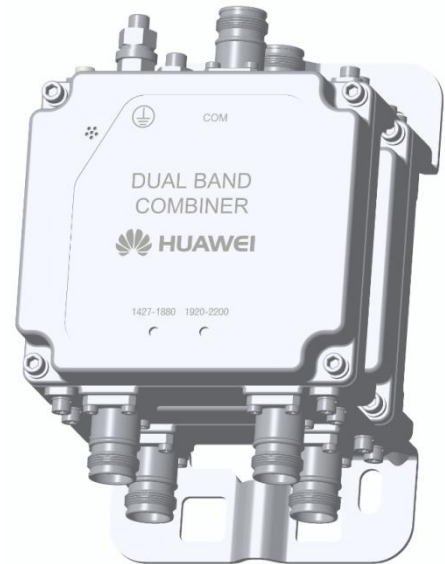
### Mechanical Specification

|                                      |   |
|--------------------------------------|---|
| Combiner dimensions (W x H x D) (mm) | Double Unit: 160 x 145 x 103<br>(without connectors, without mounting brackets) |
| Packing dimensions (W x H x D) (mm)  | 330 x 245 x 220   |
| Combiner weight (kg)                 | Double Unit: ≤ 5 (with brackets)  |
| Packing weight (kg)                  | ≤ 6   |
| Mounting                             | Wall mounting // Mast mounting  |
| Pole diameter (mm)                   | 40 - 135  |
| Connector                            | 4.3-10 Female   |

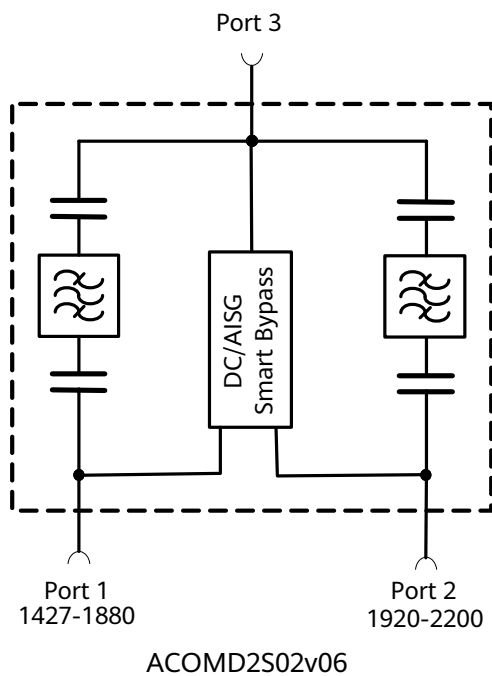


## Product Description

- Built-in lightning protection up to 10 kA;
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna;
- Automatically recognizes the port DC / AISG, and the combiner module or the demultiplexing module is the same module;
- Support for customer-defined configuration with handheld terminal;
- Designed for co-location purposes;
- Feeder sharing available;
- Suitable for indoor or outdoor applications.



## Block Diagram



### Electrical Properties

|                                |                                     |                             |
|--------------------------------|-------------------------------------|-----------------------------|
| Model                          | ACOMD2S02v06                        |                             |
| Pass band (MHz)                | Band 1                              | 1427 - 1880                 |
|                                | Band 2                              | 1920 - 2200                 |
| Insertion loss (dB)            | Port 1 ↔ Port 3                     | < 0.15                      |
|                                | Port 2 ↔ Port 3                     | < 0.15                      |
| DC/AISG transparency           | Port 1 ↔ Port 3                     | Smart-bypass (max. 2000 mA) |
|                                | Port 2 ↔ Port 3                     | Smart-bypass (max. 2000 mA) |
| Isolation (dB)                 | Port 1 ↔ Port 2                     | > 50                        |
| VSWR                           | < 1.28                              |                             |
| Input power (W)                | Port 1, Port 2                      | < 200                       |
| Intermodulation products (dBc) | < -160 (3rd order; with 2 x 43 dBm) |                             |

### Environmental Specification

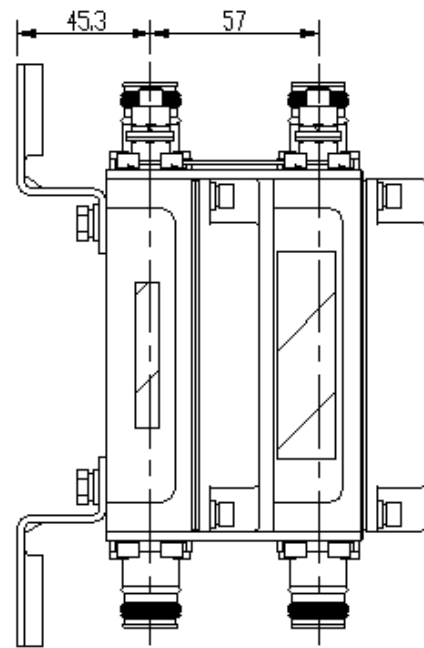
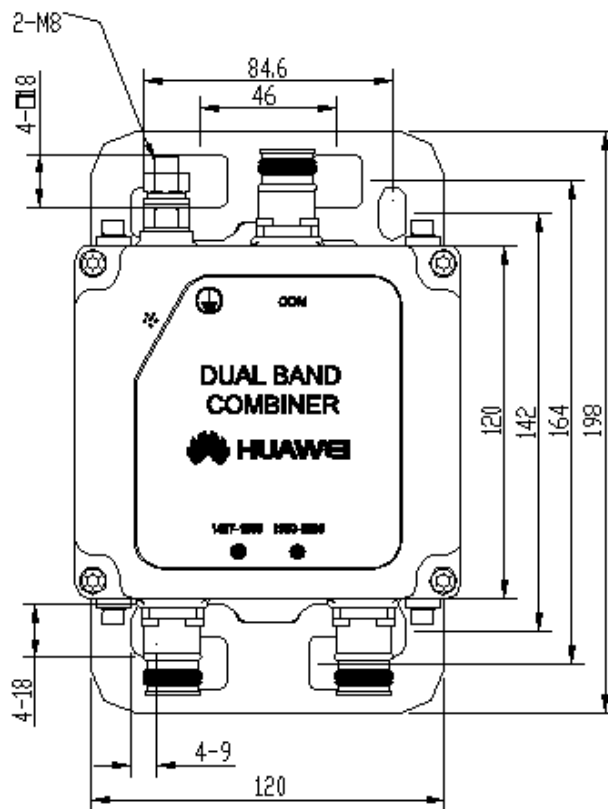
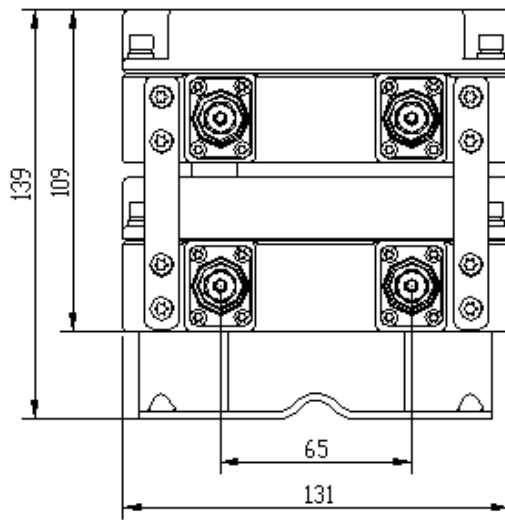
|                            |                              |
|----------------------------|------------------------------|
| Operating temperature (°C) | -40 ... +65                  |
| Application scene          | Indoor // Outdoor            |
| IP rating                  | IP67                         |
| EMC                        | EN 55032:2015, EN 55035:2017 |
| Lightning protection (kA)  | 10 (8/20 us)                 |

### Mechanical Specification

|                                      |   |
|--------------------------------------|---|
| Combiner dimensions (W x H x D) (mm) | Double Unit: 131 x 120 x 109<br>(without connectors, without mounting brackets) |
| Packing dimensions (W x H x D) (mm)  | 185 x 280 x 195   |
| Combiner weight (kg)                 | Double Unit: ≤ 3.6  |
| Packing weight (kg)                  | ≤ 4.8   |
| Mounting                             | Wall mounting // Pole mounting  |
| Mast diameter (mm)                   | 40 - 135  |
| Connector                            | 4.3-10 Female   |

### Function Specification

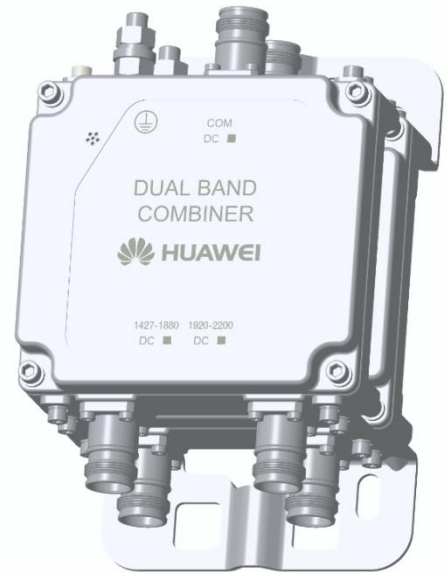
|                      |   |
|----------------------|---|
| Mode choice          | Combine and split mode automatically selected |
| Smart DC/AISG bypass | DC/AISG input channel automatically selected  |
| Load detection       | Output load automatically detected            |



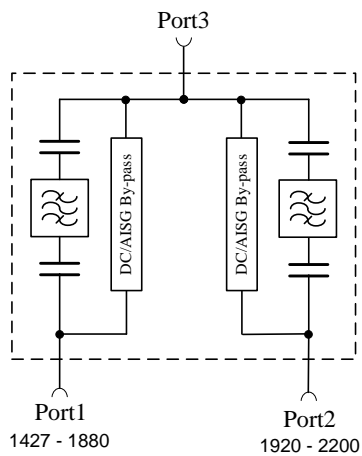
Unit : mm

## Product Description

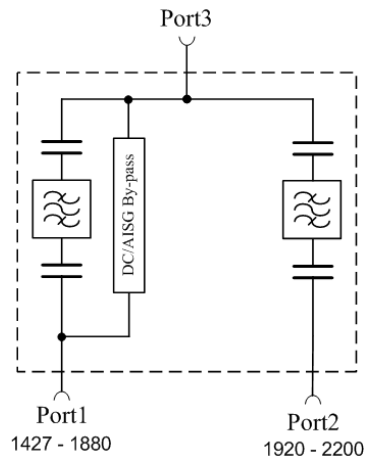
- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



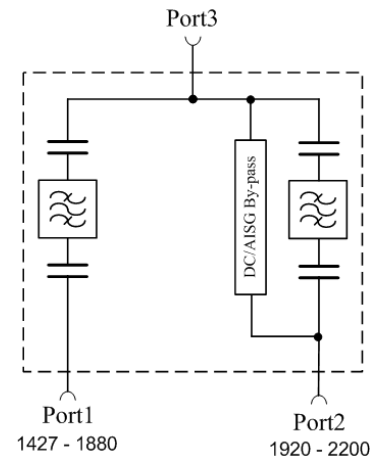
## Block Diagram



ACOMD2A06v06



ACOMD2L12v06



ACOMD2H26v06



DC-1427-1880/1920-2200-11 Model: ACOMD2A06v06

DC-1427-1880/1920-2200-10 Model: ACOMD2L12v06

DC-1427-1880/1920-2200-01 Model: ACOMD2H26v06

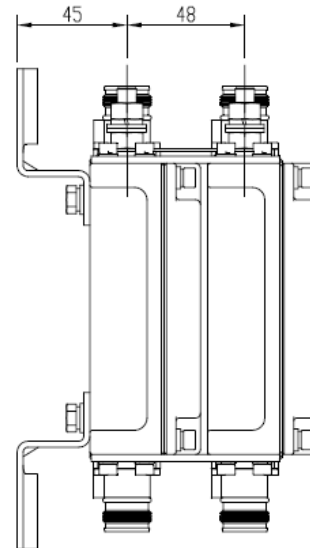
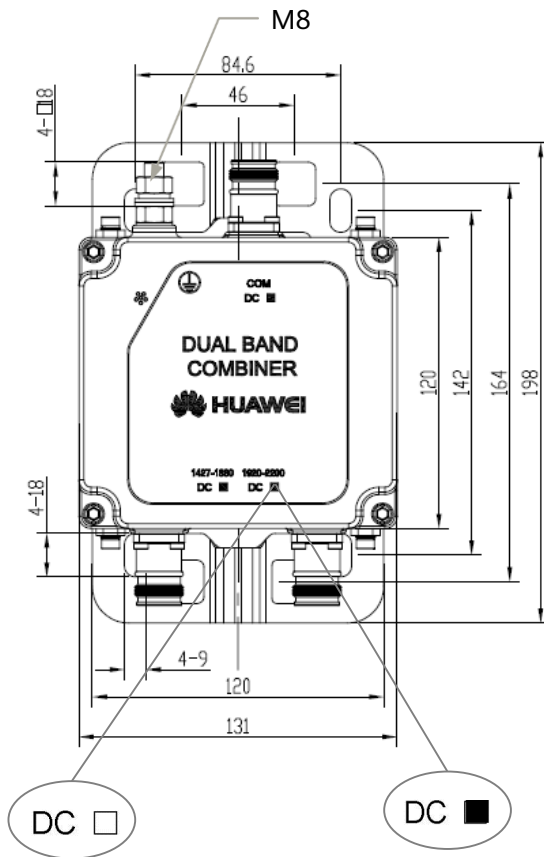
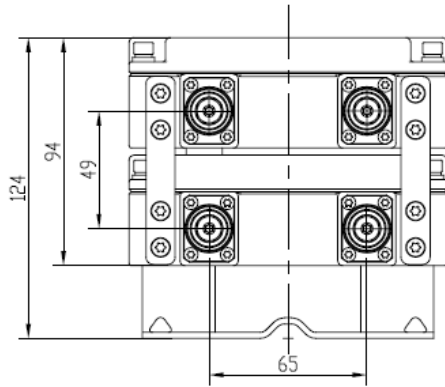


| Electrical Properties                |  |                              |                         |                         |
|--------------------------------------|--|------------------------------|-------------------------|-------------------------|
| Model                                |  | ACOMD2A06v06                 | ACOMD2L12v06            | ACOMD2H26v06            |
| Pass band (MHz)                      | Band 1   | 1427 - 1880                  |                         |                         |
|                                      | Band 2   | 1920 - 2200                  |                         |                         |
| Insertion loss (dB)                  | Port 1 ↔ Port 3  | < 0.15 (1427 MHz - 1880 MHz) |                         |                         |
|                                      | Port 2 ↔ Port 3  | < 0.15 (1920 MHz - 2200 MHz) |                         |                         |
| DC/AISG transparency                 | Port 1 ↔ Port 3  | By- pass (max. 2500 mA)      | By- pass (max. 2500 mA) | stop                    |
|                                      | Port 2 ↔ Port 3  | By- pass (max. 2500 mA)      | stop                    | By- pass (max. 2500 mA) |
| Isolation (dB)                       | > 50   |                              |                         |                         |
| VSWR                                 | < 1.28   |                              |                         |                         |
| Input power (W)                      | Port 1, Port 2   | < 200                        |                         |                         |
| Intermodulation products (dBc)       | < -160 (3rd order; with 2 x 43 dBm)  |                              |                         |                         |
| Environmental Specification          |  |                              |                         |                         |
| Operating temperature (°C)           | -40 ... +65  |                              |                         |                         |
| Application scene                    | Indoor // Outdoor  |                              |                         |                         |
| IP rating                            | IP67   |                              |                         |                         |
| Lightning protection (kA)            | 10 (8/20 us)   |                              |                         |                         |
| Mechanical Specification             |  |                              |                         |                         |
| Combiner dimensions (W x H x D) (mm) | Double Unit: 131 x 120 x 94<br>(without connectors, without mounting brackets) |                              |                         |                         |
| Packing dimensions (W x H x D) (mm)  | 280 x 185 x 195  |                              |                         |                         |
| Combiner weight (kg)                 | Double Unit: ≤ 3.5   |                              |                         |                         |
| Packing weight (kg)                  | ≤ 4.5  |                              |                         |                         |
| Mounting                             | Wall mounting // Mast mounting   |                              |                         |                         |
| Mast diameter (mm)                   | 40 - 135   |                              |                         |                         |
| Connector                            | 4.3-10 Female  |                              |                         |                         |

DC-1427-1880/1920-2200-11 Model: ACOMD2A06v06

DC-1427-1880/1920-2200-10 Model: ACOMD2L12v06

DC-1427-1880/1920-2200-01 Model: ACOMD2H26v06

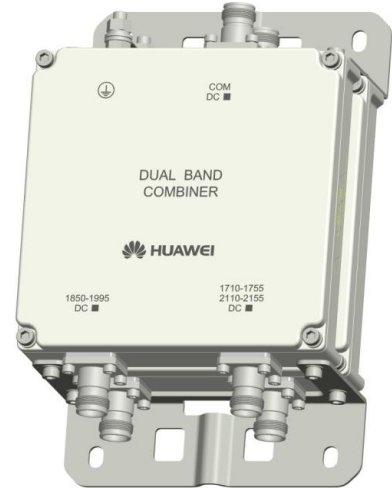


If the sign as shown above, it indicates this pass band is DC stop.

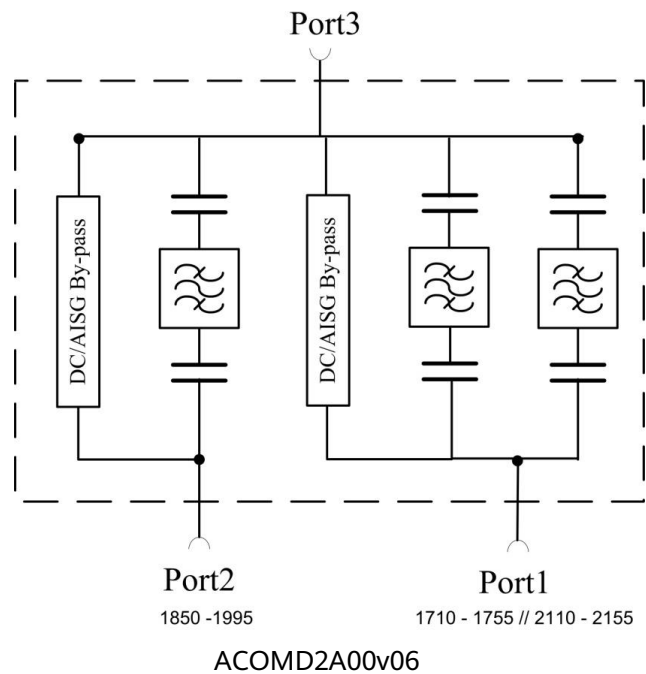
If the sign as shown above, it indicates this pass band is DC pass.

## Product Description

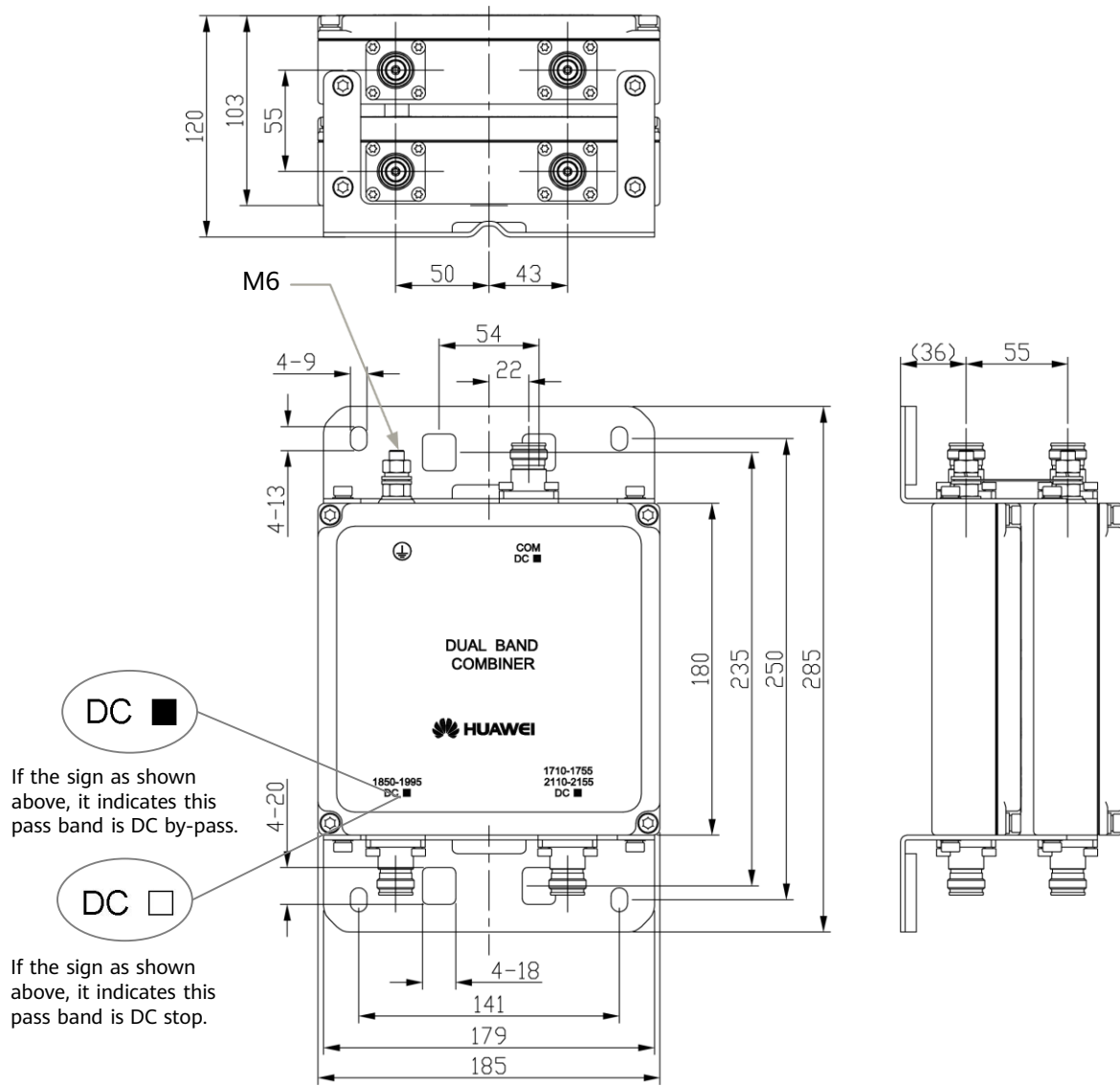
- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



## Block Diagram



| Electrical Properties                |   |   |
|--------------------------------------|---|---|
| Model                                | ACOMD2A00v06  |   |
| Pass band (MHz)                      | Band 1 (AWS)  | 1710 - 1755 & 2110 - 2155                         |
|                                      | Band 2 (PCS)  | 1850 - 1995                                       |
| Insertion loss (dB)                  | Port 1 ← → Port 3   | < 0.3 (1710 MHz - 1755 MHz & 2110 MHz - 2155 MHz) |
|                                      | Port 2 ← → Port 3   | < 0.3 (1850 MHz - 1995 MHz)                       |
| DC/AISG transparency                 | Port 1 ← → Port 3   | By - pass (max. 2500 mA)                          |
|                                      | Port 2 ← → Port 3   | By - pass (max. 2500 mA)                          |
| Isolation (dB)                       | > 35  |   |
| VSWR                                 | < 1.25  |   |
| Input power (W)                      | Port 1, Port 2  | < 300   |
| Intermodulation products (dBc)       | < -153 (3rd order; with 2 x 43 dBm)   |   |
| Environmental Specification          |   |   |
| Operating temperature (°C)           | -40 ... +65   |   |
| Application scene                    | Indoor // Outdoor   |   |
| IP rating                            | IP67  |   |
| Lightning protection (kA)            | 10 (8/20 us)  |   |
| Mechanical Specification             |   |   |
| Combiner dimensions (W x H x D) (mm) | Double Unit: 185 x 180 x 103<br>(without connectors, without mounting brackets) |   |
| Packing dimensions (W x H x D) (mm)  | 260 x 380 x 215   |   |
| Combiner weight (kg)                 | Double Unit: ≤ 6.8  |   |
| Packing weight (kg)                  | ≤ 7.7   |   |
| Mounting                             | Wall mounting // Mast mounting  |   |
| Mast diameter (mm)                   | 40 - 135  |   |
| Connector                            | 4.3-10 Female   |   |

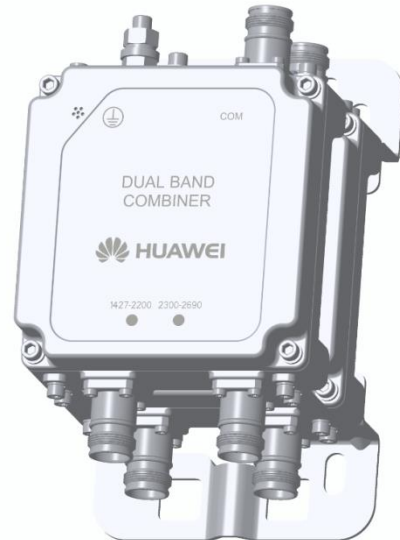


Unit : mm

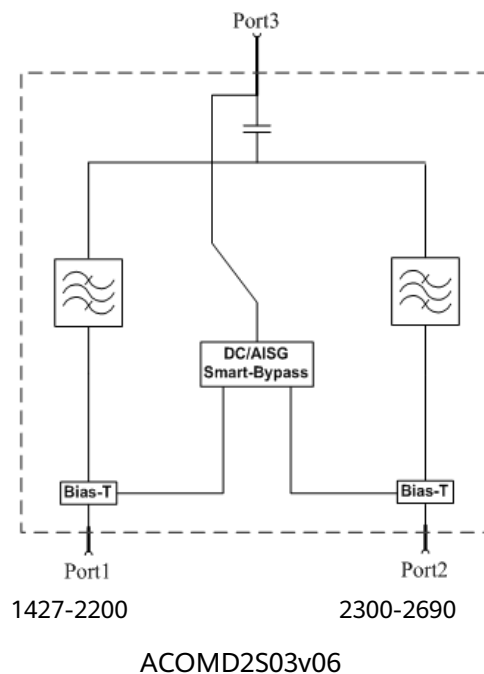
Unit : mm

## Product Description

- Built-in lightning protection up to 10 kA;
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna;
- Automatically recognizes the port DC / AISG, and the combiner module or the demultiplexing module is the same module;
- Support for customer-defined configuration with handheld terminal;
- Designed for co-location purposes;
- Feeder sharing available;
- Suitable for indoor or outdoor applications.



## Block Diagram



### Electrical Properties

|                                |                 |                                     |
|--------------------------------|-----------------|-------------------------------------|
| Model                          |                 | ACOMD2S03v06                        |
| Pass band (MHz)                | Band 1          | 1427 - 2200                         |
|                                | Band 2          | 2300 - 2690                         |
| Insertion loss (dB)            | Port 1 ↔ Port 3 | < 0.15 (1427 - 2200)                |
|                                | Port 2 ↔ Port 3 | < 0.15 (2300 - 2690)                |
| DC/AISG transparency           | Port 1 ↔ Port 3 | Smart-bypass (max. 2000 mA)         |
|                                | Port 2 ↔ Port 3 | Smart-bypass (max. 2000 mA)         |
| Isolation (dB)                 | Port 1 ↔ Port 2 | > 50                                |
| VSWR                           |                 | < 1.28                              |
| Input power (W)                | Port 1, Port 2  | < 200                               |
| Intermodulation products (dBc) |                 | < -160 (3rd order; with 2 x 43 dBm) |

### Environmental Specification

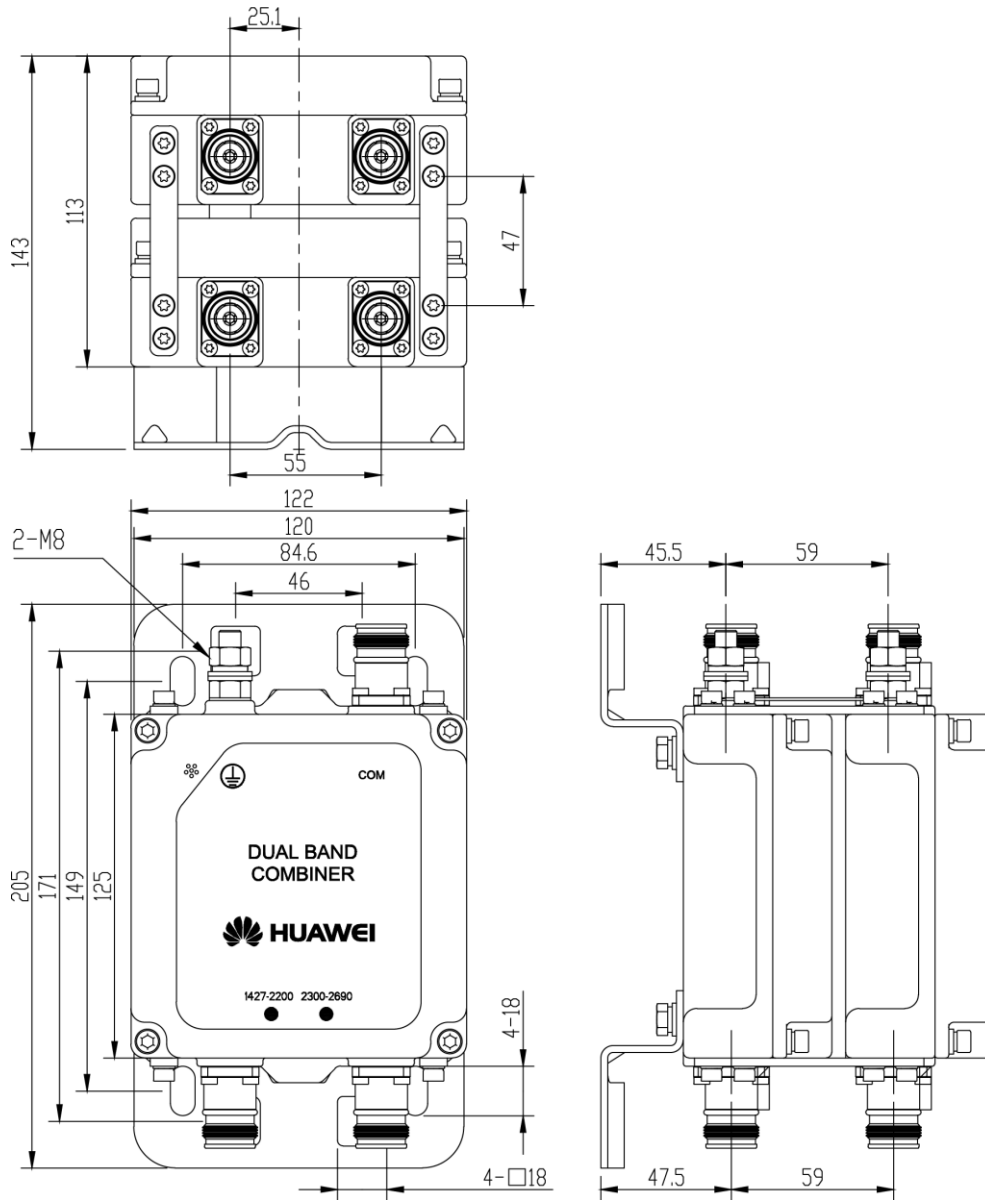
|                            |                              |
|----------------------------|------------------------------|
| Operating temperature (°C) | -40 ... +65                  |
| Application scene          | Indoor // Outdoor            |
| IP rating                  | IP67                         |
| EMC                        | EN 55032:2015, EN 55035:2017 |
| Lightning protection (kA)  | 10 (8/20 us)                 |

### Mechanical Specification

|  |   |
|--|---|
| Combiner dimensions (W x H x D) (mm)       | Double Unit: 122 x 125 x 111<br>(without connectors, without mounting brackets) |
| Packing <b>dimensions</b> (W x H x D) (mm) | 185 x 280 x 195   |
| Combiner weight (kg)                       | Double Unit: ≤ 3.5  |
| Packing weight (kg)                        | ≤ 4.8   |
| Mounting                                   | Wall mounting // Mast mounting  |
| Mast diameter (mm)                         | 40 - 135  |
| Connector                                  | 4.3-10 Female   |

### Function Specification

|                      |   |
|----------------------|---|
| Mode choice          | Combine and split mode automatically selected |
| Smart DC/AISG bypass | DC/AISG input channel automatically selected  |
| Load detection       | Output load automatically detected            |





DC-1427-2200/2300-2690-11 Model: ACOMD2A08v06

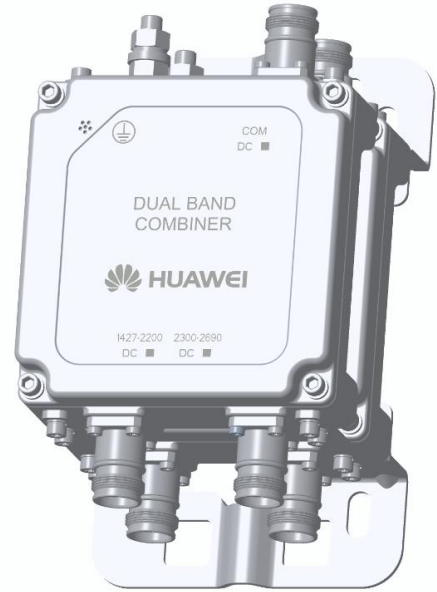
DC-1427-2200/2300-2690-10 Model: ACOMD2L13v06

DC-1427-2200/2300-2690-01 Model: ACOMD2H27v06

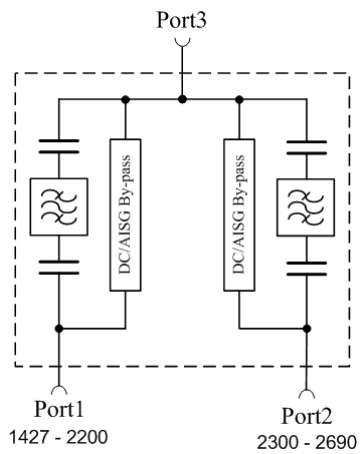


## Product Description

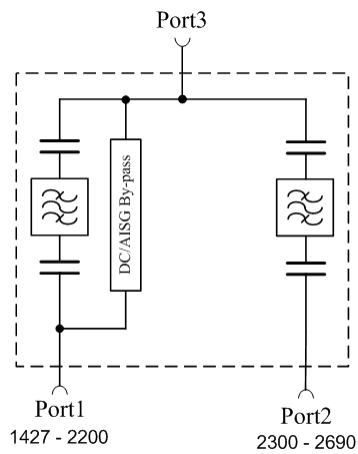
- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



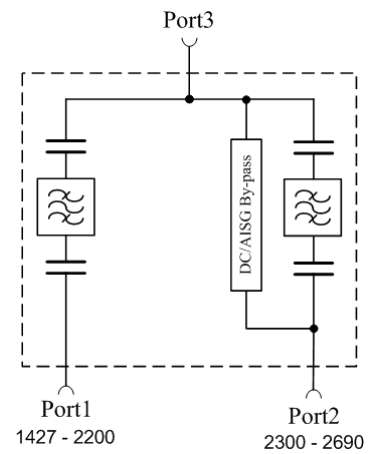
## Block Diagram



ACOMD2A08v06



ACOMD2L13v06



ACOMD2H27v06

DC-1427-2200/2300-2690-11 Model: ACOMD2A08v06

DC-1427-2200/2300-2690-10 Model: ACOMD2L13v06

DC-1427-2200/2300-2690-01 Model: ACOMD2H27v06

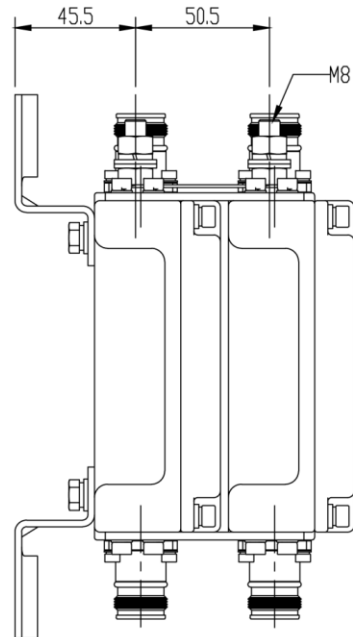
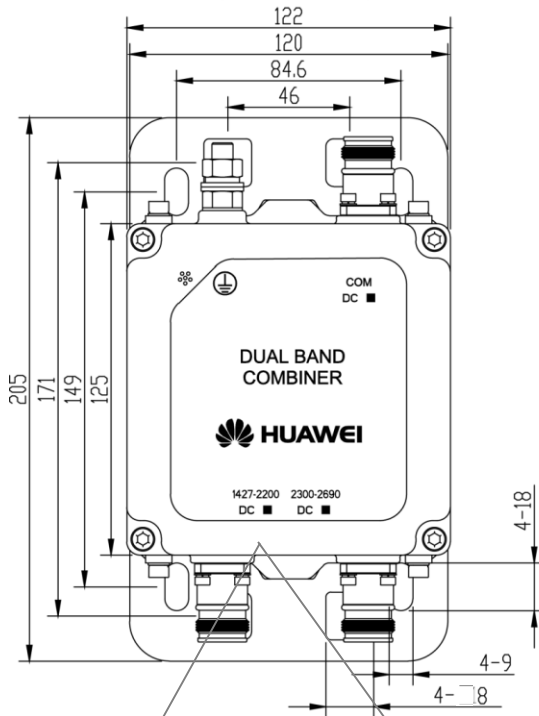
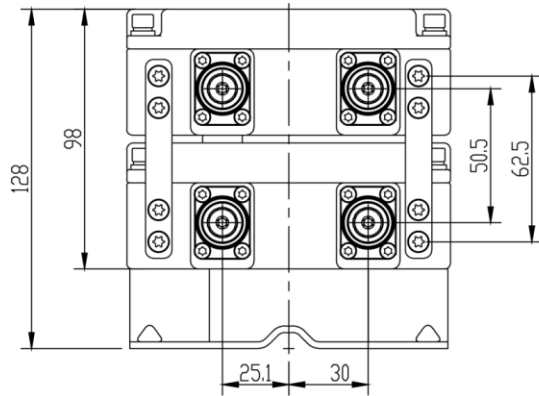


| Electrical Properties                |                 |  |                         |                         |  |
|--------------------------------------|-----------------|--|-------------------------|-------------------------|--|
| Model                                |                 | ACOMD2A08v06   | ACOMD2L13v06            | ACOMD2H27v06            |  |
| Pass band (MHz)                      | Band 1          | 1427 - 2200  |                         |                         |  |
|                                      | Band 2          | 2300 - 2690  |                         |                         |  |
| Insertion loss (dB)                  | Port 1 ↔ Port 3 | < 0.15 (1427 MHz - 1880 MHz)   |                         |                         |  |
|                                      | Port 2 ↔ Port 3 | < 0.15 (1920 MHz - 2200 MHz)   |                         |                         |  |
| DC/AISG transparency                 | Port 1 ↔ Port 3 | By- pass (max. 2500 mA)  | By- pass (max. 2500 mA) | stop                    |  |
|                                      | Port 2 ↔ Port 3 | By- pass (max. 2500 mA)  | stop                    | By- pass (max. 2500 mA) |  |
| Isolation (dB)                       |                 | > 50   |                         |                         |  |
| VSWR                                 |                 | < 1.28   |                         |                         |  |
| Input power (W)                      | Port 1, Port 2  | < 200  |                         |                         |  |
| Intermodulation products (dBc)       |                 | < -160 (3rd order; with 2 x 43 dBm)  |                         |                         |  |
| Environmental Specification          |                 |  |                         |                         |  |
| Operating temperature (°C)           |                 | -40 ... +65  |                         |                         |  |
| Application scene                    |                 | Indoor // Outdoor  |                         |                         |  |
| IP rating                            |                 | IP67   |                         |                         |  |
| Lightning protection (kA)            |                 | 10 (8/20 us)   |                         |                         |  |
| Mechanical Specification             |                 |  |                         |                         |  |
| Combiner dimensions (W x H x D) (mm) |                 | Double Unit: 122 x 125 x 98<br>(without connectors, without mounting brackets) |                         |                         |  |
| Packing dimensions (W x H x D) (mm)  |                 | 280 x 185 x 195  |                         |                         |  |
| Combiner weight (kg)                 |                 | Double Unit: ≤ 3.5   |                         |                         |  |
| Packing weight (kg)                  |                 | ≤ 4.5  |                         |                         |  |
| Mounting                             |                 | Wall mounting // Mast mounting   |                         |                         |  |
| Mast diameter (mm)                   |                 | 40 - 135   |                         |                         |  |
| Connector                            |                 | 4.3-10 Female  |                         |                         |  |

DC-1427-2200/2300-2690-11 Model: ACOMD2A08v06

DC-1427-2200/2300-2690-10 Model: ACOMD2L13v06

DC-1427-2200/2300-2690-01 Model: ACOMD2H27v06



If the sign as shown above, it indicates this pass band is DC stop.

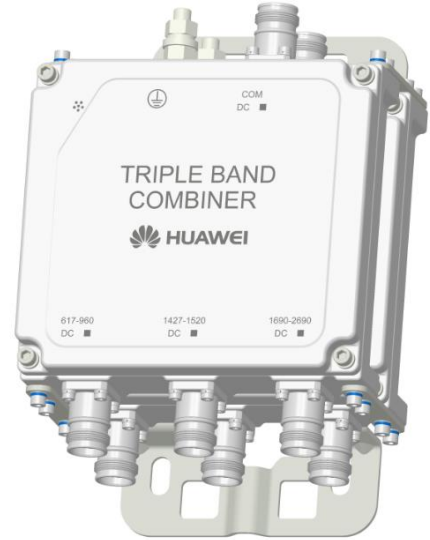


If the sign as shown above, it indicates this pass band is DC pass.

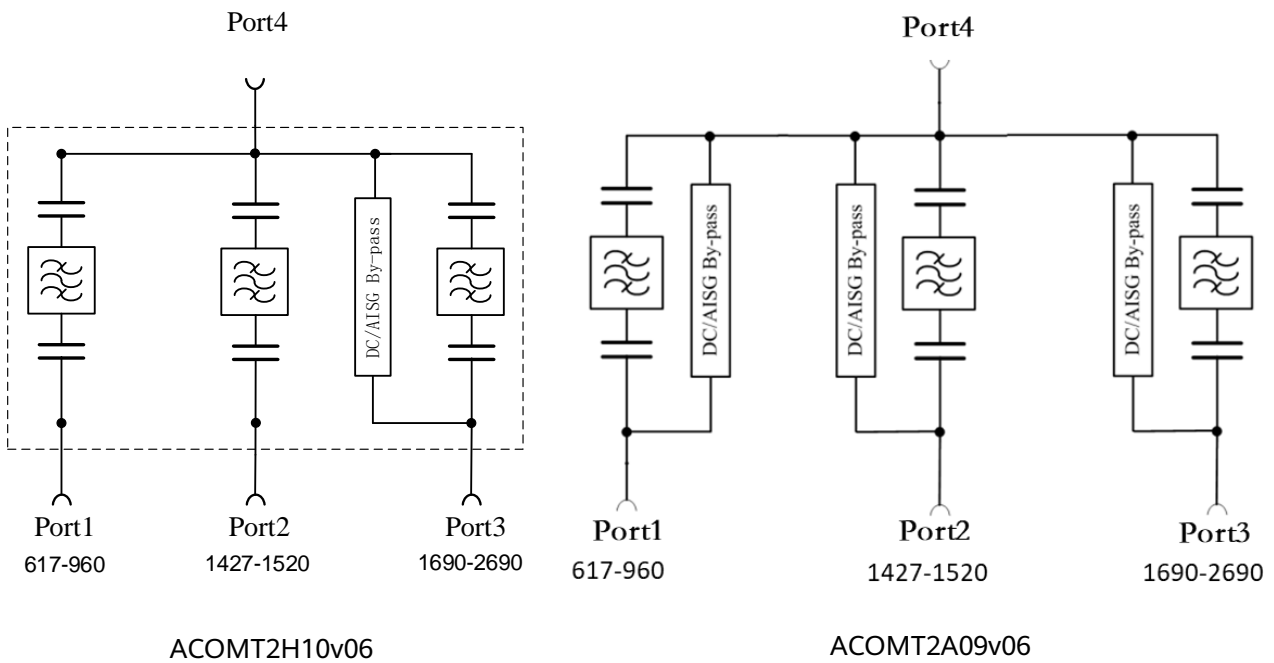
Unit : mm

## Product Description

- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



## Block Diagram



TC-617-960/1427-1520/1690-2690-001

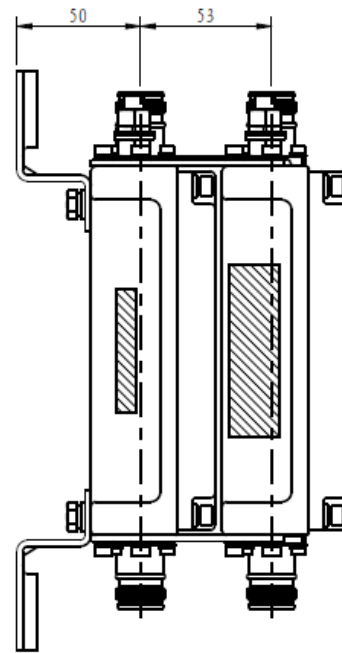
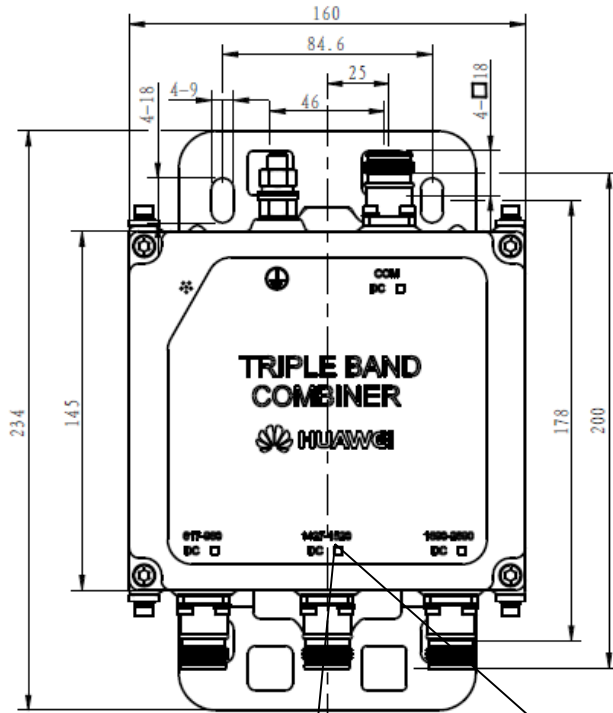
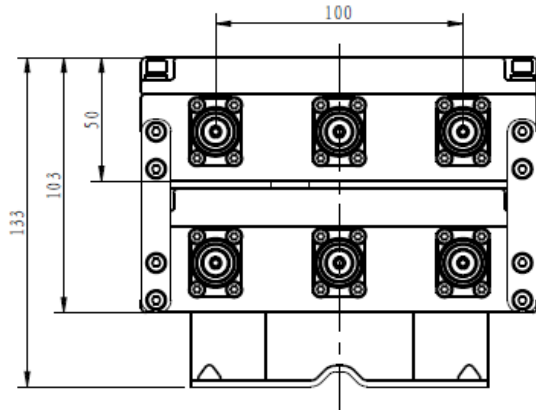
Model: ACOMT2H10v06

TC-617-960/1427-1520/1690-2690-111

Model: ACOMT2A09v06



| Electrical Properties                |                        |   |                        |
|--------------------------------------|------------------------|---|------------------------|
| Model                                |                        | ACOMT2H10v06  | ACOMT2A09v06           |
| Pass band (MHz)                      | Band 1                 | 617 - 960   |                        |
|                                      | Band 2                 | 1427 - 1520   |                        |
|                                      | Band 3                 | 1690 - 2690   |                        |
| Insertion loss (dB)                  | Port 1 ↔ Port 4        | < 0.15 (617 MHz - 960 MHz)  |                        |
|                                      | Port 2 ↔ Port 4        | < 0.20 (1427 MHz - 1520 MHz)  |                        |
|                                      | Port 3 ↔ Port 4        | < 0.15 (1690 MHz - 2690 MHz)  |                        |
| DC/AISG transparency                 | Port 1 ↔ Port 4        | Stop  | By-pass (max. 2500 mA) |
|                                      | Port 2 ↔ Port 4        | Stop  | By-pass (max. 2500 mA) |
|                                      | Port 3 ↔ Port 4        | By-pass (max. 2500 mA)  | By-pass (max. 2500 mA) |
| Isolation (dB)                       |                        | > 50  |                        |
| VSWR                                 |                        | < 1.28  |                        |
| Input power (W)                      | Port 1, Port 2, Port 3 | < 200   |                        |
| Intermodulation products (dBc)       |                        | < -160 (3rd order; with 2 x 43 dBm, no requirement for Band 2)                  |                        |
| Environmental Specification          |                        |   |                        |
| Operating temperature (°C)           |                        | -40 ... +65   |                        |
| Application scene                    |                        | Indoor // Outdoor   |                        |
| IP rating                            |                        | IP67  |                        |
| Lightning protection (kA)            |                        | 10 (8/20 us)  |                        |
| Mechanical Specification             |                        |   |                        |
| Combiner dimensions (W x H x D) (mm) |                        | Double Unit: 160 x 145 x 103<br>(without connectors, without mounting brackets) |                        |
| Packing dimensions (W x H x D) (mm)  |                        | 330 x 245 x 220   |                        |
| Combiner weight (kg)                 |                        | Double Unit: ≤ 5 (with brackets)  |                        |
| Packing weight (kg)                  |                        | ≤ 6   |                        |
| Mounting                             |                        | Wall mounting // Mast mounting  |                        |
| Mast diameter (mm)                   |                        | 40 - 135  |                        |
| Connector                            |                        | 4.3-10 Female   |                        |



If the sign as shown above, it indicates this pass band is DC stop.



If the sign as shown above, it indicates this pass band is DC pass.

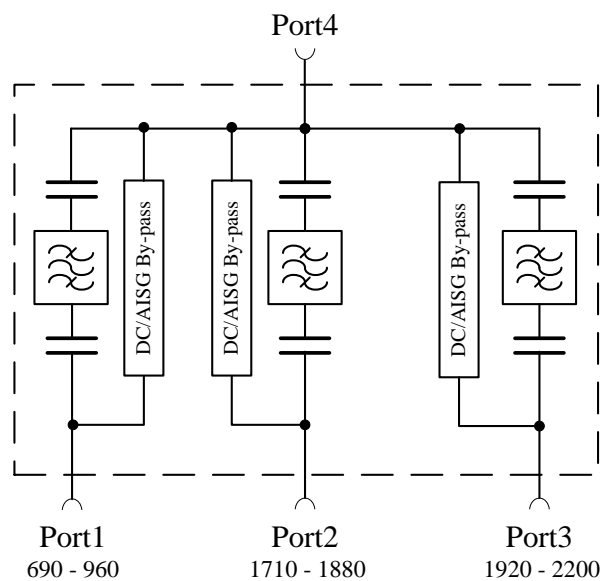


## Product Description

- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



## Block Diagram



ACOMT2A03v06

### Electrical Properties

|                                |                       |                                     |
|--------------------------------|-----------------------|-------------------------------------|
| Model                          |                       | ACOMT2A03v06                        |
| Pass band (MHz)                | Band 1                | 690 - 960                           |
|                                | Band 2                | 1710 - 1880                         |
|                                | Band 3                | 1920 - 2200                         |
| Insertion loss (dB)            | Port 1 ↔ Port 4       | < 0.15 (690 MHz - 960 MHz)          |
|                                | Port 2 ↔ Port 4       | < 0.25 (1710 MHz - 1880 MHz)        |
|                                | Port 3 ↔ Port 4       | < 0.25 (1920 MHz - 2200 MHz)        |
| DC/AISG transparency           | Port 1 ↔ Port 4       | By-pass (max. 2500 mA)              |
|                                | Port 2 ↔ Port 4       | By-pass (max. 2500 mA)              |
|                                | Port 3 ↔ Port 4       | By-pass (max. 2500 mA)              |
| Isolation (dB)                 |                       | > 45                                |
| VSWR                           |                       | < 1.28                              |
| Input power (W)                | Port 1, Port 2, Port3 | < 300                               |
| Intermodulation products (dBc) |                       | < -153 (3rd order; with 2 x 43 dBm) |

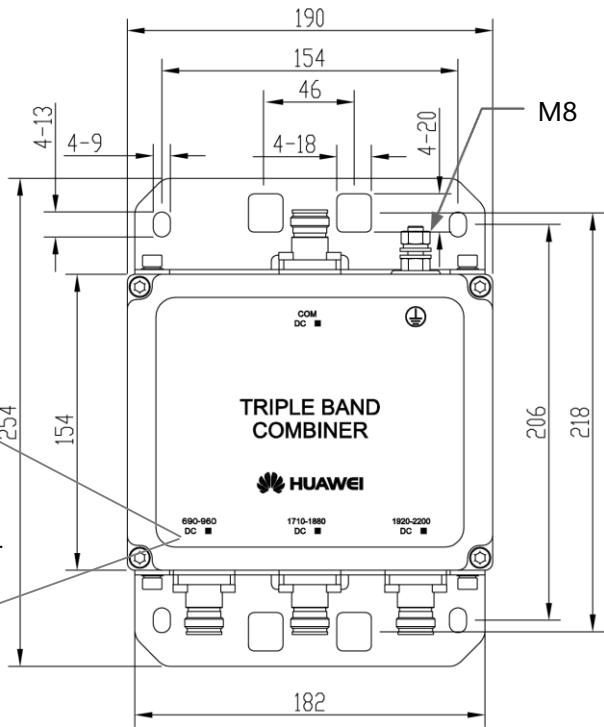
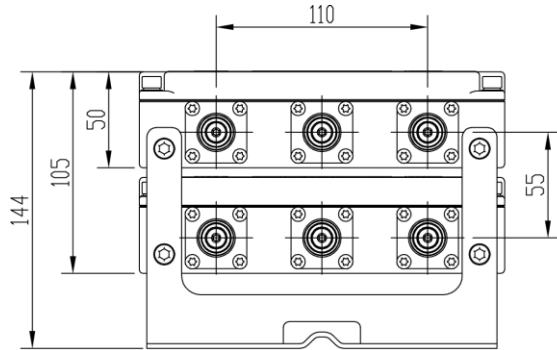
### Environmental Specification

|                            |                   |
|----------------------------|-------------------|
| Operating temperature (°C) | -40 ... +65       |
| Application scene          | Indoor // Outdoor |
| IP rating                  | IP67              |
| Lightning protection (kA)  | 10 (8/20 us)      |

### Mechanical Specification

|                                      |   |
|--------------------------------------|---|
| Combiner dimensions (W x H x D) (mm) | Double Unit: 190 x 154 x 105<br>(without connectors, without mounting brackets) |
| Packing dimensions (W x H x D) (mm)  | 245 x 330 x 220   |
| Combiner weight (kg)                 | Double Unit: ≤ 7.0  |
| Packing weight (kg)                  | ≤ 7.9   |
| Mounting                             | Wall mounting // Mast mounting  |
| Mast diameter (mm)                   | 40 - 135  |
| Connector                            | 4.3-10 Female   |

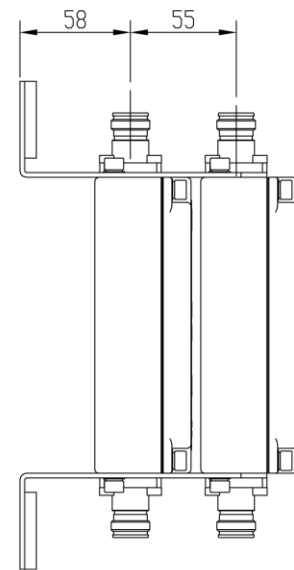




If the sign as shown above, it indicates this pass band is DC by-pass.



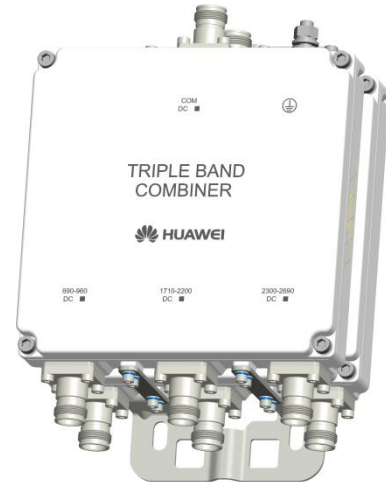
If the sign as shown above, it indicates this pass band is DC stop.



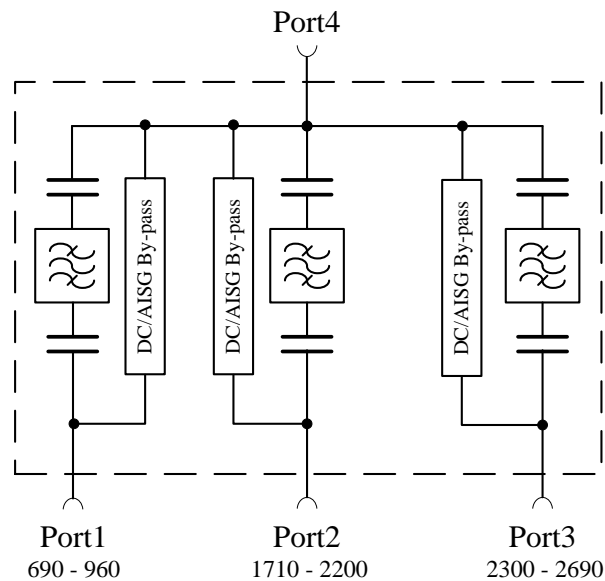
Unit : mm

## Product Description

- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.

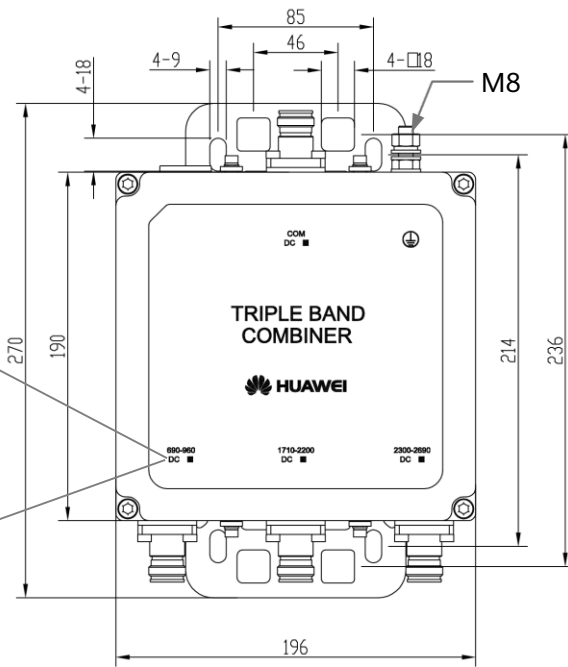
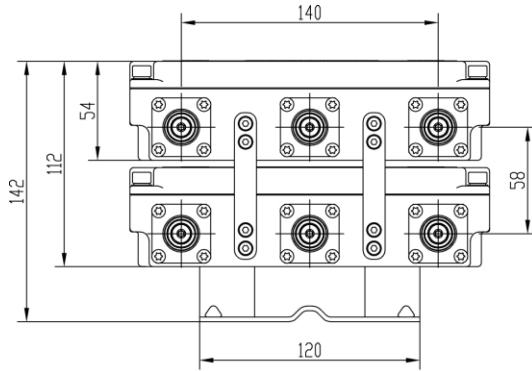


## Block Diagram



ACOMT2A04v06

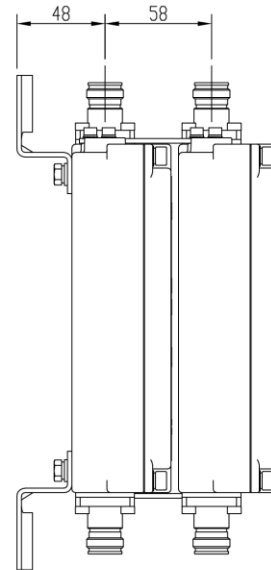
| Electrical Properties                |   |                             |
|--------------------------------------|---|-----------------------------|
| Model                                | ACOMT2A04v06  |                             |
| Pass band (MHz)                      | Band 1  | 690 - 960                   |
|                                      | Band 2  | 1710 - 2200                 |
|                                      | Band 3  | 2300 - 2690                 |
| Insertion loss (dB)                  | Port 1 ↔ Port 4   | < 0.15 (690 MHz - 960 MHz)  |
|                                      | Port 2 ↔ Port 4   | < 0.2 (1710 MHz - 2200 MHz) |
|                                      | Port 3 ↔ Port 4   | < 0.2 (2300 MHz - 2690 MHz) |
| DC/AISG transparency                 | Port 1 ↔ Port 4   | By-pass (max. 2500 mA)      |
|                                      | Port 2 ↔ Port 4   | By-pass (max. 2500 mA)      |
|                                      | Port 3 ↔ Port 4   | By-pass (max. 2500 mA)      |
| Isolation (dB)                       | > 45  |                             |
| VSWR                                 | < 1.28  |                             |
| Input power (W)                      | Port 1, Port 2, Port3   | < 300                       |
| Intermodulation products (dBc)       | < -153 (3rd order; with 2 x 43 dBm)   |                             |
| Environmental Specification          |   |                             |
| Operating temperature (°C)           | -40 ... +65   |                             |
| Application scene                    | Indoor // Outdoor   |                             |
| IP rating                            | IP67  |                             |
| Lightning protection (kA)            | 10 (8/20 us)  |                             |
| Mechanical Specification             |   |                             |
| Combiner dimensions (W x H x D) (mm) | Double Unit: 196 x 190 x 112<br>(without connectors, without mounting brackets) |                             |
| Packing dimensions (W x H x D) (mm)  | 335 x 405 x 265   |                             |
| Combiner weight (kg)                 | Double Unit: ≤ 7.0  |                             |
| Packing weight (kg)                  | ≤ 7.9   |                             |
| Mounting                             | Wall mounting // Mast mounting  |                             |
| Mast diameter (mm)                   | 40 - 135  |                             |
| Connector                            | 4.3-10 Female   |                             |



If the sign as shown above, it indicates this pass band is DC by-pass.

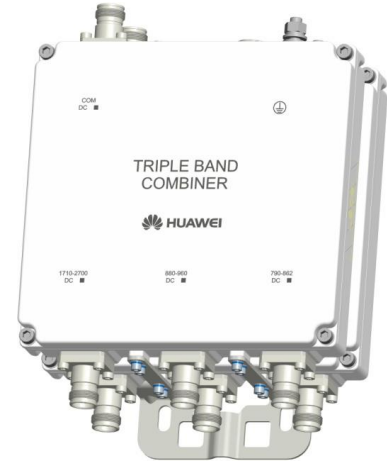


If the sign as shown above, it indicates this pass band is DC stop.

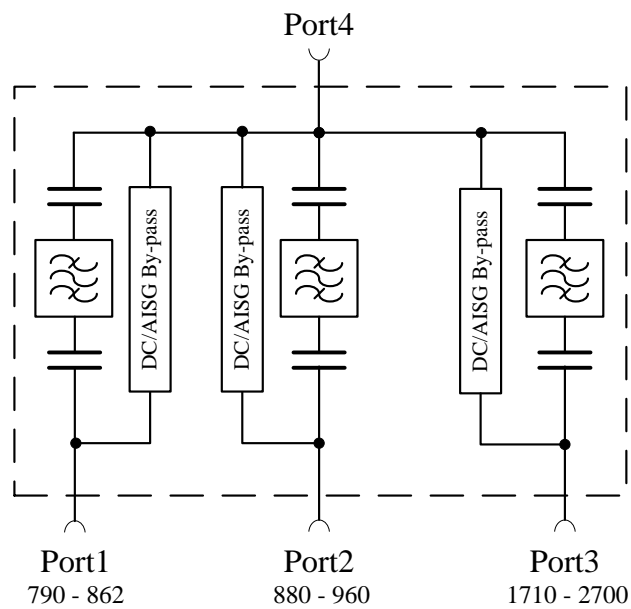


## Product Description

- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



## Block Diagram



ACOMT2A02v06

### Electrical Properties

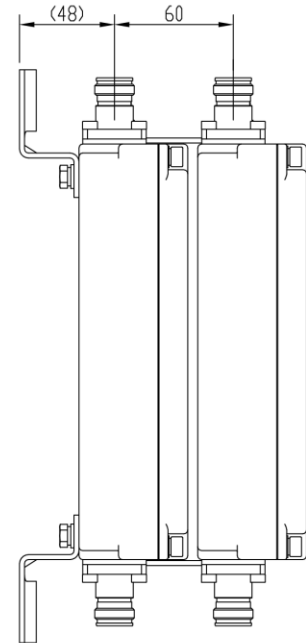
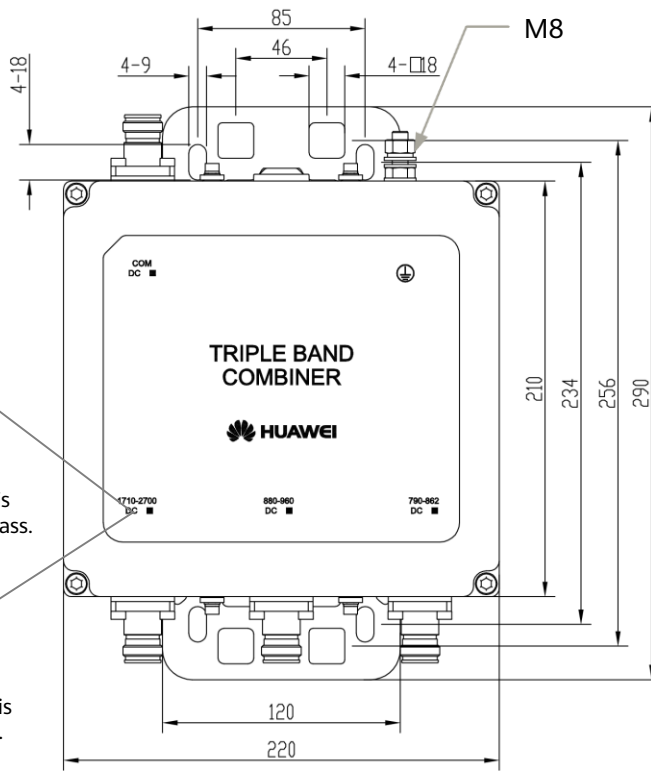
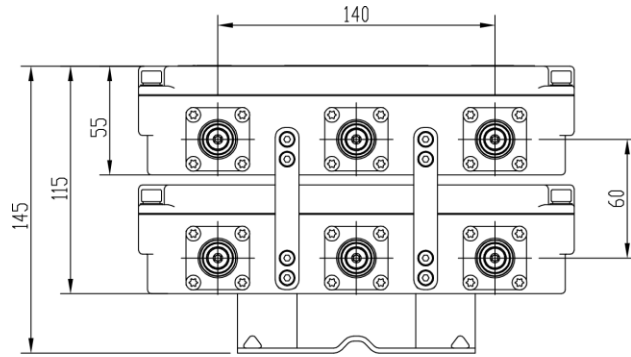
|                                |                       |                                     |
|--------------------------------|-----------------------|-------------------------------------|
| Model                          |                       | ACOMT2A02v06                        |
| Pass band (MHz)                | Band 1                | 790 - 862                           |
|                                | Band 2                | 880 - 960                           |
|                                | Band 3                | 1710 - 2700                         |
| Insertion loss (dB)            | Port 1 ↔ Port 4       | < 0.3 (790 MHz - 862 MHz)           |
|                                | Port 2 ↔ Port 4       | < 0.3 (880 MHz - 960 MHz)           |
|                                | Port 3 ↔ Port 4       | < 0.15 (1710 MHz - 2700 MHz)        |
| DC/AISG transparency           | Port 1 ↔ Port 4       | By-pass (max. 2500 mA)              |
|                                | Port 2 ↔ Port 4       | By-pass (max. 2500 mA)              |
|                                | Port 3 ↔ Port 4       | By-pass (max. 2500 mA)              |
| Isolation (dB)                 | Port 1 ↔ Port 2       | > 47                                |
|                                | Port 2 ↔ Port 3       | > 50                                |
|                                | Port 1 ↔ Port 3       | > 50                                |
| VSWR                           |                       | < 1.28                              |
| Input power (W)                | Port 1, Port 2, Port3 | < 300                               |
| Intermodulation products (dBc) |                       | < -153 (3rd order; with 2 x 43 dBm) |

### Environmental Specification

|                            |                   |
|----------------------------|-------------------|
| Operating temperature (°C) | -40 ... +65       |
| Application scene          | Indoor // outdoor |
| IP rating                  | IP67              |
| Lightning protection (kA)  | 10 (8/20 us)      |

### Mechanical Specification

|                                     |   |
|-------------------------------------|---|
| Dimensions (W x H x D) (mm)         | Double Unit: 220 x 210 x 115<br>(without connectors, without mounting brackets) |
| Packing dimensions (W x H x D) (mm) | 335 x 405 x 265   |
| Combiner weight (kg)                | Double Unit: ≤ 7.5  |
| Packing weight (kg)                 | ≤ 8.4   |
| Mounting                            | Wall mounting // Mast mounting  |
| Mast diameter (mm)                  | 40 - 135  |
| Connector                           | 4.3-10 Female   |



If the sign as shown above, it indicates this pass band is DC by-pass.



If the sign as shown above, it indicates this pass band is DC stop.

Unit : mm

TC-790-960/1710-1880/1920-2200-001 Model: ACOMT2H01v06

TC-790-960/1710-1880/1920-2200-011 Model: ACOMT2H03v06

TC-790-960/1710-1880/1920-2200-111 Model: ACOMT2H08v06

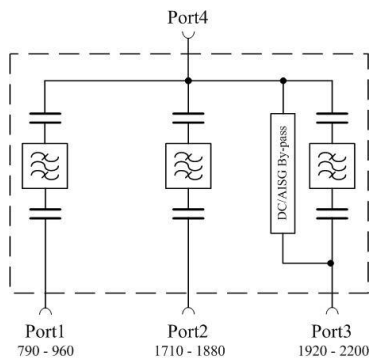


## Product Description

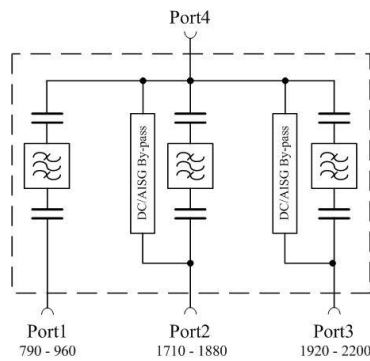
- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



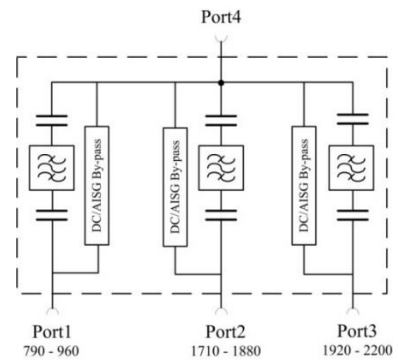
## Block Diagram



ACOMT2H01v06



ACOMT2H03v06



ACOMT2H08v06



TC-790-960/1710-1880/1920-2200-001 Model: ACOMT2H01v06

TC-790-960/1710-1880/1920-2200-011 Model: ACOMT2H03v06

TC-790-960/1710-1880/1920-2200-111 Model: ACOMT2H08v06

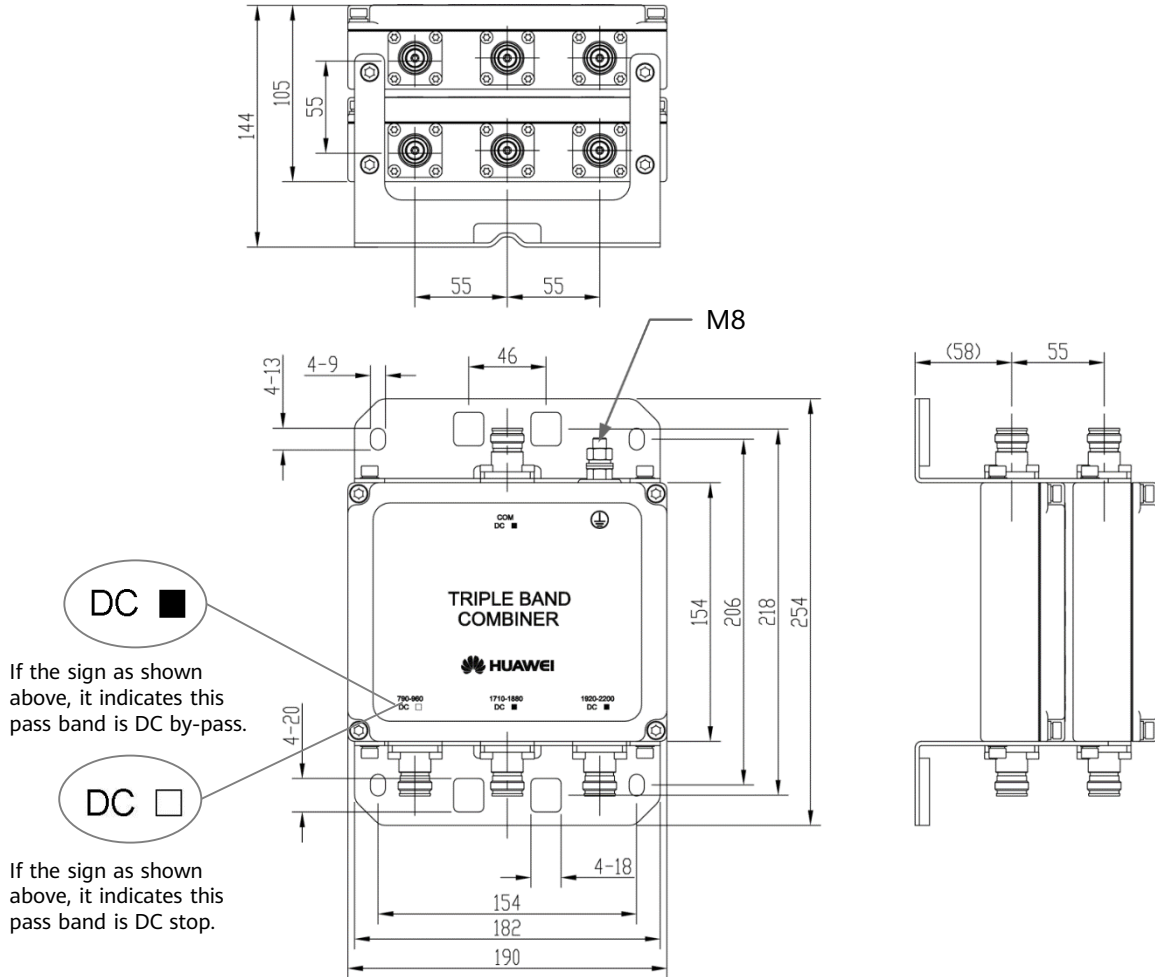


| Electrical Properties                |                       |   |                        |                        |
|--------------------------------------|-----------------------|---|------------------------|------------------------|
| Model                                |                       | ACOMT2H01v06  | ACOMT2H03v06           | ACOMT2H08v06           |
| Pass band (MHz)                      | Band 1                | 790 - 960   |                        |                        |
|                                      | Band 2                | 1710 - 1880   |                        |                        |
|                                      | Band 3                | 1920 - 2200   |                        |                        |
| Insertion loss (dB)                  | Port 1 ↔ Port 4       | < 0.15 (790 MHz - 960 MHz)  |                        |                        |
|                                      | Port 2 ↔ Port 4       | < 0.25 (1710 MHz - 1880 MHz)  |                        |                        |
|                                      | Port 3 ↔ Port 4       | < 0.25 (1920 MHz - 2200 MHz)  |                        |                        |
| DC/AISG transparency                 | Port 1 ↔ Port 4       | Stop  | Stop                   | By-pass (max. 2500 mA) |
|                                      | Port 2 ↔ Port 4       | Stop  | By-pass (max. 2500 mA) | By-pass (max. 2500 mA) |
|                                      | Port 3 ↔ Port 4       | By-pass (max. 2500 mA)  | By-pass (max. 2500 mA) | By-pass (max. 2500 mA) |
| Isolation (dB)                       |                       | > 45  |                        |                        |
| VSWR                                 |                       | < 1.28  |                        |                        |
| Input power (W)                      | Port 1, Port 2, Port3 | < 300   |                        |                        |
| Intermodulation products (dBc)       |                       | < -153 (3rd order; with 2 x 43 dBm)   |                        |                        |
| Environmental Specification          |                       |   |                        |                        |
| Operating temperature (°C)           |                       | -40 ... +65   |                        |                        |
| Application scene                    |                       | Indoor // Outdoor   |                        |                        |
| IP rating                            |                       | IP67  |                        |                        |
| Lightning protection (kA)            |                       | 10 (8/20 us)  |                        |                        |
| Mechanical Specification             |                       |   |                        |                        |
| Combiner dimensions (W x H x D) (mm) |                       | Double Unit: 190 x 154 x 105<br>(without connectors, without mounting brackets) |                        |                        |
| Packing dimensions (W x H x D) (mm)  |                       | 245 x 330 x 220   |                        |                        |
| Combiner weight (kg)                 |                       | Double Unit: ≤ 5.6  |                        |                        |
| Packing weight (kg)                  |                       | ≤ 6.2   |                        |                        |
| Mounting                             |                       | Wall mounting // Mast mounting  |                        |                        |
| Mast diameter (mm)                   |                       | 40 - 135  |                        |                        |
| Connector                            |                       | 4.3-10 Female   |                        |                        |

TC-790-960/1710-1880/1920-2200-001 Model: ACOMT2H01v06

TC-790-960/1710-1880/1920-2200-011 Model: ACOMT2H03v06

TC-790-960/1710-1880/1920-2200-111 Model: ACOMT2H08v06

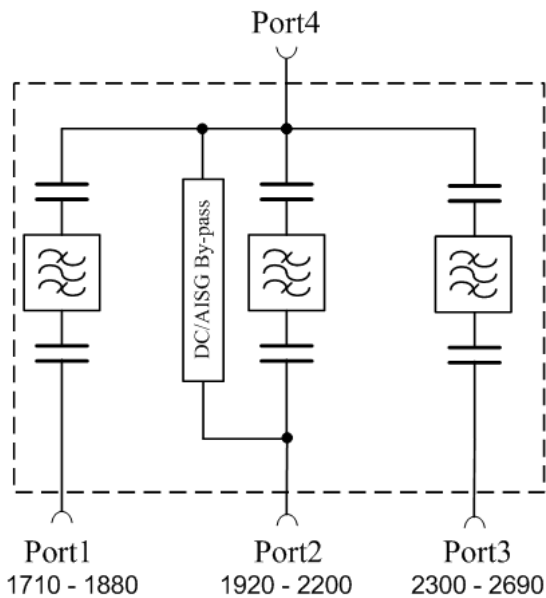


## Product Description

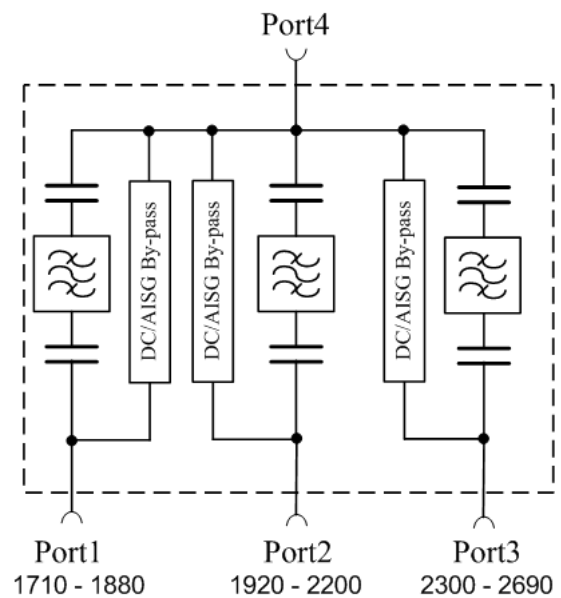
- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



## Block Diagram

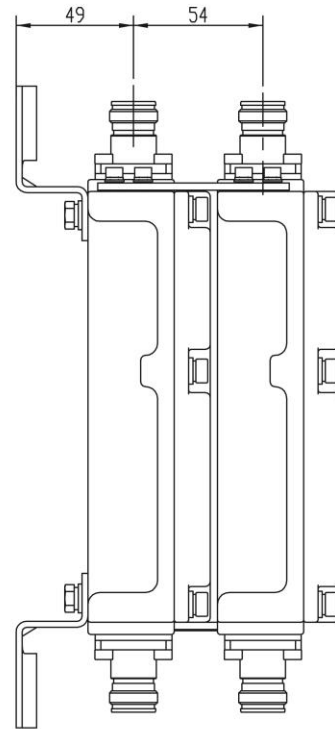
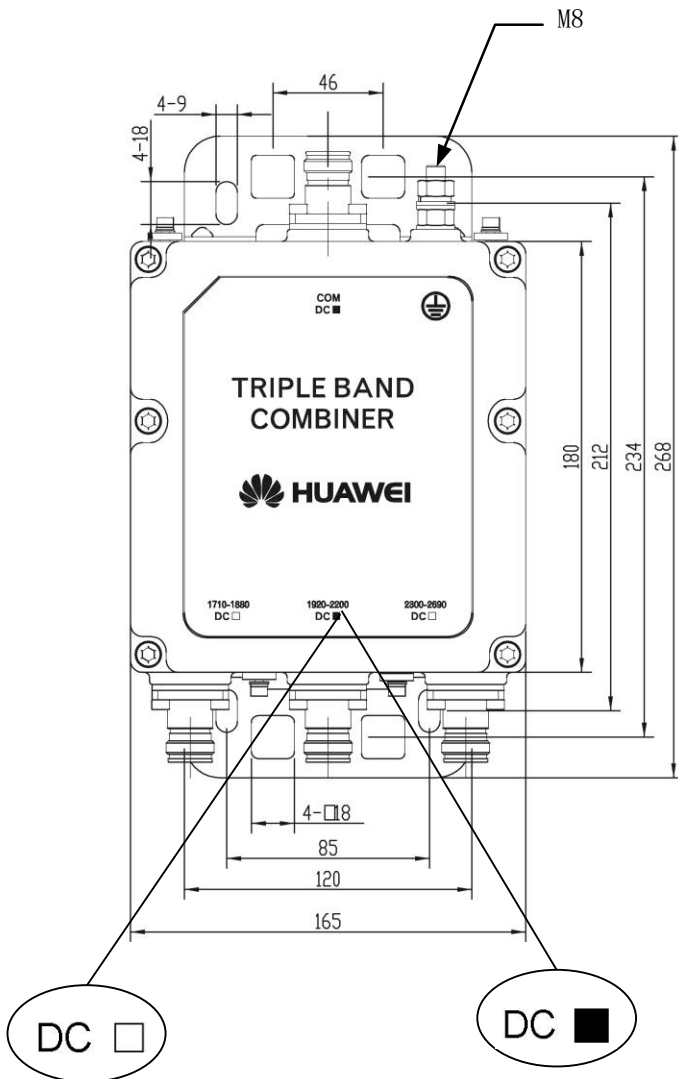
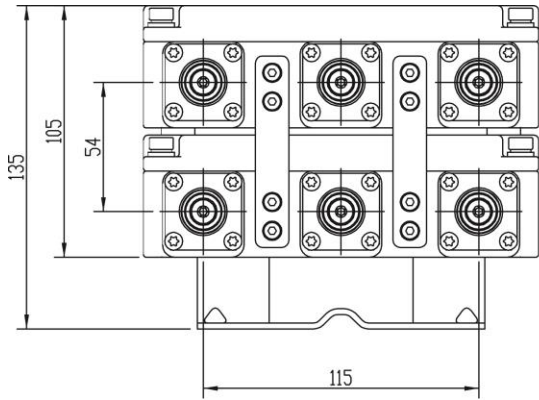


ACOMT2M02v06



ACOMT2A07v06

| Electrical Properties                |                        |   |                        |
|--------------------------------------|------------------------|---|------------------------|
| Model                                |                        | ACOMT2M02v06  | ACOMT2A07v06           |
| Pass band (MHz)                      | Band 1                 | 1710 - 1880   |                        |
|                                      | Band 2                 | 1920 - 2200   |                        |
|                                      | Band 3                 | 2300 - 2690   |                        |
| Insertion loss (dB)                  | Port 1 ↔ Port 4        | < 0.2 (1710 MHz - 1880 MHz)   |                        |
|                                      | Port 2 ↔ Port 4        | < 0.2 (1920 MHz - 2200 MHz)   |                        |
|                                      | Port 3 ↔ Port 4        | < 0.15 (2300 MHz - 2690 MHz)  |                        |
| DC/AISG transparency                 | Port 1 ↔ Port 4        | Stop  | By-pass (max. 2500 mA) |
|                                      | Port 2 ↔ Port 4        | By-pass (max. 2500 mA)  | By-pass (max. 2500 mA) |
|                                      | Port 3 ↔ Port 4        | Stop  | By-pass (max. 2500 mA) |
| Isolation (dB)                       |                        | > 50  |                        |
| VSWR                                 |                        | < 1.28  |                        |
| Input power (W)                      | Port 1, Port 2, Port 3 | < 300   |                        |
| Intermodulation products (dBc)       |                        | < -160 (3rd order; with 2 x 43 dBm)   |                        |
| Environmental Specification          |                        |   |                        |
| Operating temperature (°C)           |                        | -40 ... +65   |                        |
| Application scene                    |                        | Indoor // Outdoor   |                        |
| IP rating                            |                        | IP67  |                        |
| Lightning protection (kA)            |                        | 10 (8/20 us)  |                        |
| Mechanical Specification             |                        |   |                        |
| Combiner dimensions (W x H x D) (mm) |                        | Double Unit: 165 x 180 x 105<br>(without connectors, without mounting brackets) |                        |
| Packing dimensions (W x H x D) (mm)  |                        | 225 x 380 x 220   |                        |
| Combiner weight (kg)                 |                        | Double Unit: ≤ 5  |                        |
| Packing weight (kg)                  |                        | ≤ 6   |                        |
| Mounting                             |                        | Wall mounting // Mast mounting  |                        |
| Mast diameter (mm)                   |                        | 40 - 135  |                        |
| Connector                            |                        | 4.3-10 Female   |                        |



If the sign as shown above, it indicates this pass band is DC stop.

If the sign as shown above, it indicates this pass band is DC pass.

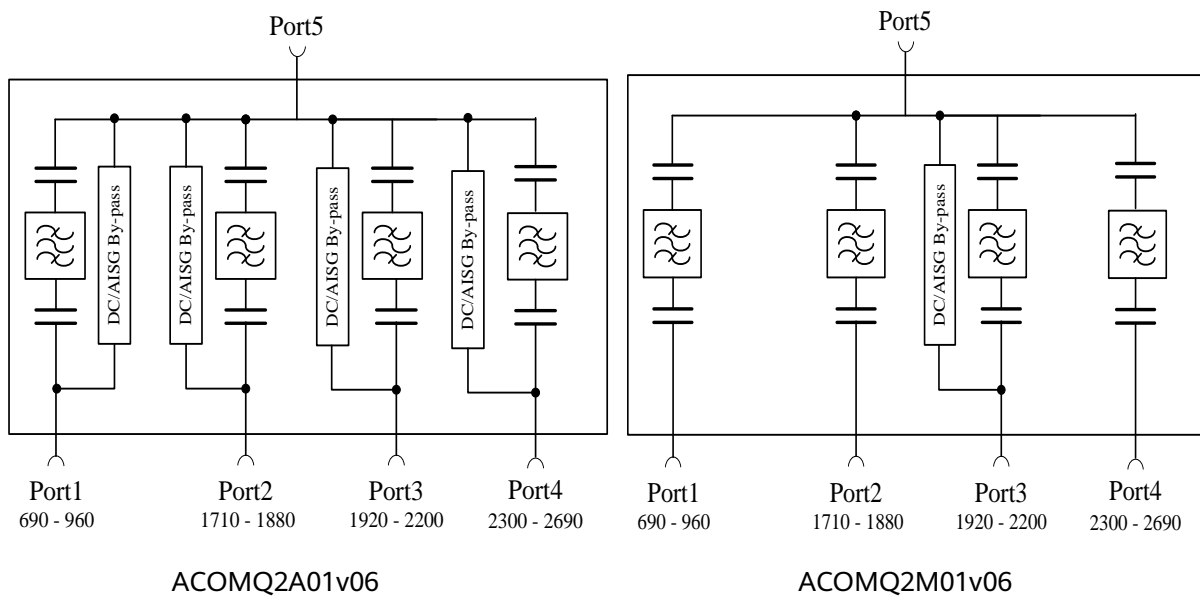
Unit : mm

## Product Description

- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-location purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.

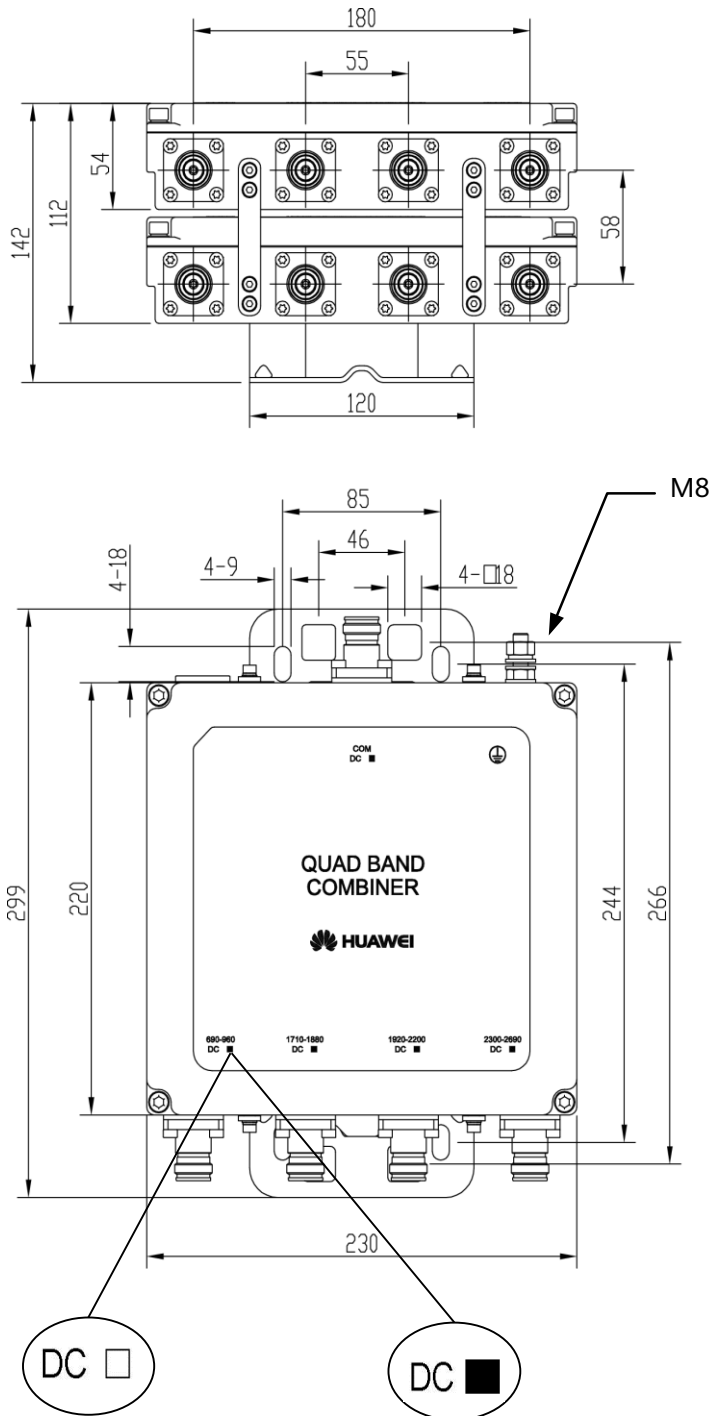


## Block Diagram





| Electrical Properties                |                        |   |                        |
|--------------------------------------|------------------------|---|------------------------|
| Model                                |                        | ACOMQ2A01v06  | ACOMQ2M01v06           |
| Pass band (MHz)                      | Band 1                 | 690 - 960   |                        |
|                                      | Band 2                 | 1710 - 1880   |                        |
|                                      | Band 3                 | 1920 - 2200   |                        |
|                                      | Band 4                 | 2300 - 2690   |                        |
| Insertion loss (dB)                  | Port 1 ↔ Port 5        | < 0.15 (690 MHz - 960 MHz)  |                        |
|                                      | Port 2 ↔ Port 5        | < 0.25 (1710 MHz - 1880 MHz)  |                        |
|                                      | Port 3 ↔ Port 5        | < 0.25 (1920 MHz - 2200 MHz)  |                        |
|                                      | Port 4 ↔ Port 5        | < 0.20 (2300 MHz - 2690 MHz)  |                        |
| DC/AISG transparency                 | Port 1 ↔ Port 5        | By-pass (max. 2500 mA)  | Stop                   |
|                                      | Port 2 ↔ Port 5        | By-pass (max. 2500 mA)  | Stop                   |
|                                      | Port 3 ↔ Port 5        | By-pass (max. 2500 mA)  | By-pass (max. 2500 mA) |
|                                      | Port 4 ↔ Port 5        | By-pass (max. 2500 mA)  | Stop                   |
| Isolation (dB)                       |                        | > 45  |                        |
| VSWR                                 |                        | < 1.28  |                        |
| Input power (W)                      | Port 1, Port 2, Port 3 | < 300   |                        |
| Intermodulation products (dBc)       |                        | < -153 (3rd order; with 2 x 43 dBm)   |                        |
| Environmental Specification          |                        |   |                        |
| Operating temperature (°C)           |                        | -40 ... +65   |                        |
| Application scene                    |                        | Indoor // Outdoor   |                        |
| IP rating                            |                        | IP67  |                        |
| Lightning protection (kA)            |                        | 10 (8/20 us)  |                        |
| Mechanical Specification             |                        |   |                        |
| Combiner dimensions (W x H x D) (mm) |                        | Double Unit: 230 x 220 x 112<br>(without connectors, without mounting brackets) |                        |
| Packing dimensions (W x H x D) (mm)  |                        | 335 x 405 x 265   |                        |
| Combiner weight (kg)                 |                        | Double Unit: ≤ 9  |                        |
| Packing weight (kg)                  |                        | ≤ 10  |                        |
| Mounting                             |                        | Wall mounting // Mast mounting  |                        |
| Mast diameter (mm)                   |                        | 40 - 135  |                        |
| Connector                            |                        | 4.3-10 Female   |                        |



If the sign as shown above, it indicates this pass band is DC stop.

If the sign as shown above, it indicates this pass band is DC pass.

Unit : mm

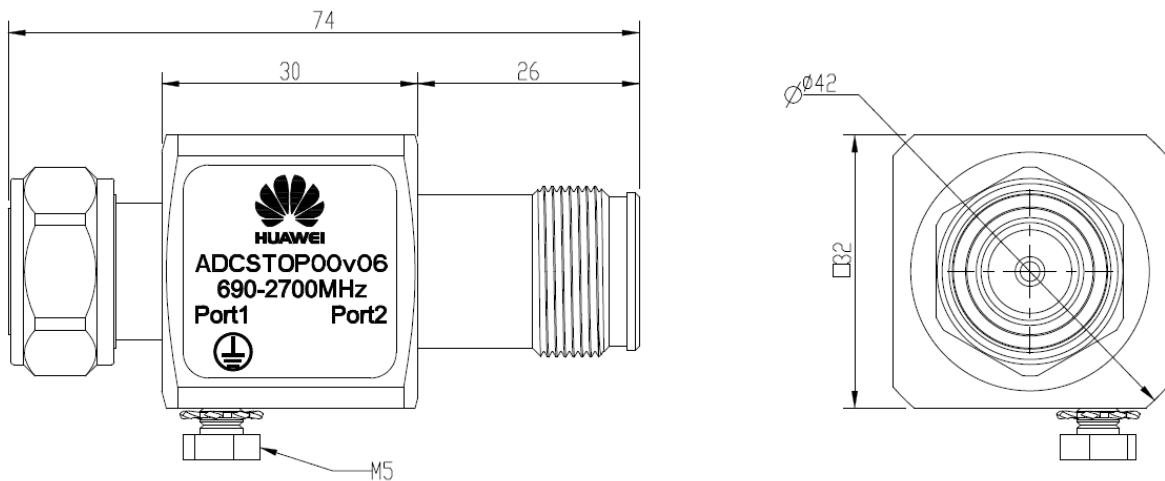


## Features

- Used to isolate DC voltage from port 1 to port 2.
- Low passive intermodulation products, low insertion loss and high power capacity.
- Ultra wide band design for various communication system.
- Small volume, light weight.



## Dimension figure



Unit : mm

### Electrical Properties

|                                |                               |   |
|--------------------------------|-------------------------------|---|
| Model                          | ADCSTOP00v06                  |   |
| Frequency range (MHz)          | 690 - 2700                    |   |
| Insertion loss *(dB)           | Port 1 ↔ Port 2               | $\leq 0.1$ (690 - 960 MHz // 1710 - 2700 MHz)<br>$\leq 0.15$ (960 - 1710 MHz) |
| Isolation for DC signal (dB)   | Port 1 ↔ Port 2               | $\geq 70$   |
| VSWR                           | Port 1, Port 2                | $\leq 1.15$ (690 - 960 MHz // 1710 - 2700 MHz)<br>$\leq 1.2$ (960 - 1710 MHz) |
| Input power (W)                | Port 1, Port 2                | Avg. $\geq 500$ (690 - 2700 MHz)  |
| RF Impedance ( $\Omega$ )      | 50                            |   |
| Intermodulation products (dBc) | $< -160$ (2 x 43 dBm carrier) |   |

### Environmental Specification

|  |                   |  |
|--|-------------------|--|
| Operating temperature ( $^{\circ}\text{C}$ ) | -40 ... +70       |  |
| Application scene                            | Indoor or outdoor |  |
| IP rating                                    | IP66              |  |
| Lightning protection ** (kA)                 | 3 (10/350 us)     |  |

### Mechanical Specification

|                                     |  |               |
|-------------------------------------|--|---------------|
| Dimensions (W x H x D) (mm)         | 32 x 70.3 x 37<br>(with connectors and ground screw) |               |
| Packing dimensions (W x H x D) (mm) | 50 x 82 x 50   |               |
| Net weight (kg)                     | $< 0.32$   |               |
| Packing weight (kg)                 | $< 0.45$   |               |
| Connectors                          | Port 1   | 4.3-10 Male   |
|                                     | Port 2   | 4.3-10 Female |



## E. Bracket & Installation Guide

### E-1. Bracket

#### E - 1 - 1. Tri-sector Bracket

| Bracket Type                        | Maximum Width of Antenna (mm) | Weight (Kg) | Dimension (mm)    | Model     | Page       |
|-------------------------------------|-------------------------------|-------------|-------------------|-----------|------------|
| TSC-S (3 Sector Clamp-Small)        | <280                          | 5.8         | 88.9mm (3.5inch)  | ASMC00001 | <b>483</b> |
| TSC-M (3 Sector Clamp-Medium)       | <380                          | 6.3         | 114.3mm (4.5inch) | ASMC00002 | <b>483</b> |
| TSC-L (3 Sector Clamp-Large)        | <400                          | 6.6         | 139.7mm (5.5inch) | ASMC00003 | <b>483</b> |
| TSC-XL (3 Sector Clamp-Extra Large) | <500                          | 15.8        | 114.3mm (4.5inch) | ASMC00004 | <b>484</b> |
| TSC-XL (3 Sector Clamp-Extra Large) | <500                          | 16.3        | 139.7mm (5.5inch) | ASMC00005 | <b>484</b> |

#### E - 1 - 2. Downtilt Kit

| Bracket Type                                | Antenna bases distance (m) | Weight(Kg) | Packing dimensions (H x W x D) (mm) | Model     | Page       |
|---|----------------------------|------------|-------------------------------------|-----------|------------|
| Downtilt Kit-A(Wind load Category "Light")  | 0.7/1.4/2.0                | 0.6        | 260 x 98 x 50                       | ASMDT0A01 | <b>485</b> |
| Downtilt Kit-B(Wind load Category "Medium") | 0.8/1.4/2.0                | 1.3        | 315 x 160 x 105                     | ASMDT0B01 | <b>486</b> |
| Downtilt Kit-C(Wind load Category "Medium") | 1.4/2.0/2.6                | 2.1        | 330 x 160 x 135                     | ASMDT0C01 | <b>487</b> |
| Downtilt Kit-D(Wind load Category "Heavy")  | 1.4/2.0/2.6                | 2.1        | 330 x 170 x 135                     | ASMDT0D01 | <b>488</b> |
| Downtilt Kit-F(Wind load Category "Heavy")  | 1.4/2.0/2.6                | 3.1        | 360 x 170 x 120                     | ASMDT0F01 | <b>489</b> |
| Downtilt Kit-G(Wind load Category "Heavy")  | 1.4/2.0/2.6                | 4.6        | 385 x 240 x 135                     | ASMDT0G01 | <b>490</b> |

#### E - 1 - 3. Clamps Kit

| Bracket Type | Mast diameter supported (mm)                                    | Weight(Kg) | Model     | Page       |
|--------------|---|------------|-----------|------------|
| Clamps Kit-A | 38-115  | 2.0        | ASMC00012 | <b>491</b> |
| Clamps Kit-B | 50-115  | 3.0        | ASMC00013 | <b>492</b> |
| Clamps Kit-C | 50-115  | 3.0        | ASMC00014 | <b>493</b> |
| Clamps Kit-D | 50-115  | 3.6        | ASMC00015 | <b>494</b> |
| Clamps Kit-E | Cement or metal pole:<br>100 - 360<br>Wooden pole:<br>200 - 420 | 1.2        | ASMC00017 | <b>495</b> |
| Clamps Kit-F | 50-115mm  | 5.8        | ASMC00008 | <b>496</b> |
| Clamps Kit-G | 75-115  | 10.8       | ASMC00016 | <b>497</b> |

## E. Bracket & Installation Guide

### E-1. Bracket

#### E - 1 - 4. Special Installation Kit

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| Bracket Type                              | Mast diameter supported (mm) | Weight(Kg) | Packing dimensions (H x W x D) (mm) | Model     | Page       |
|---|------------------------------|------------|-------------------------------------|-----------|------------|
| Extension Clamps Kit-B for Panel Antennas | 110 - 180                    | 4.0        | 255 x 165 x 120                     | ASMC00006 | <b>498</b> |
| Extension Clamps Kit-D for Panel Antennas | 175-380                      | 8.4        | 495 x 315 x 140                     | ASMC00009 | <b>499</b> |

| Bracket Type        | Antenna Width Required | Weight(Kg) | Azimuth adjustment range (°) | Model     | Page       |
|---------------------|------------------------|------------|------------------------------|-----------|------------|
| Wall-mounting Kit-A | <400mm                 | 4.3        | ±30                          | ASMWM0001 | <b>500</b> |

### E-2. Installation Guide

---

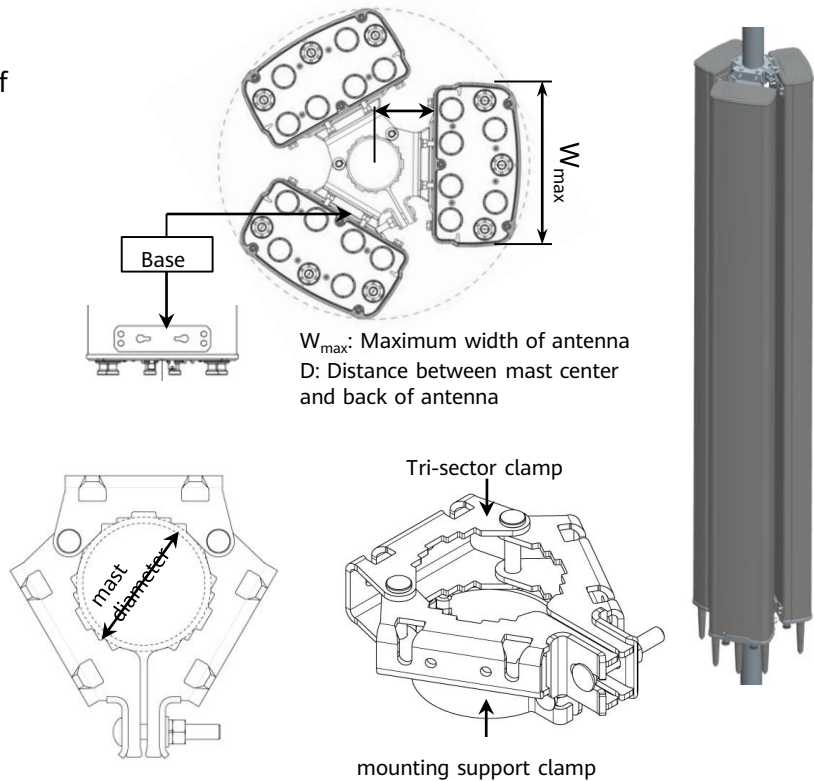
| Bracket Type   | Page       |
|--|------------|
| Antenna Installation Guide (with Type A Brackets)            | <b>501</b> |
| Antenna Installation Guide (with Type B and Type C Brackets) | <b>504</b> |
| Antenna Installation Guide (with Type D Brackets)            | <b>507</b> |
| Antenna Installation Guide (with Type F Brackets)            | <b>510</b> |
| Antenna Installation Guide (with Type G Brackets)            | <b>513</b> |

# Tri-sector Clamps

Model: ASMC00001 ASMC00002 ASMC00003



- Suitable for antennas whose widths are less than 400 mm and bases are installed at both ends of the antennas.
- Adjustment is available together with standard bracket within antenna package.
- Support the third party customized camouflage cover.
- Not support antennas with brackets of model F or above.



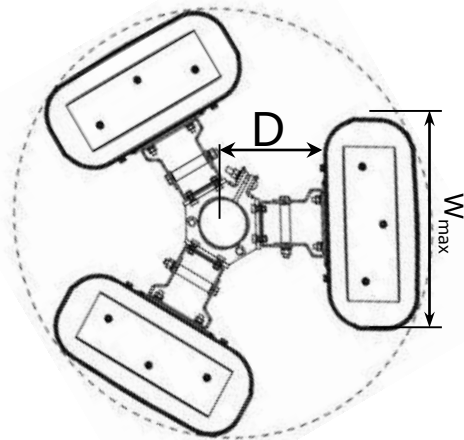
| Specifications                          |  |  |  |                          |
|---|--|--|--|--------------------------|
| Model                                   | ASMC00001  | ASMC00002  | ASMC00003  |                          |
| Angle between antennas (°)              | 120  | 120  | 120  |                          |
| Mast diameter (mm)                      | 88.9   | 114.3  | 139.7  |                          |
| *W <sub>max</sub> (mm)                  | 280  | 380  | 400  |                          |
| Maximum weight of a single antenna (kg) | 35   | 35   | 35   |                          |
| **D (mm)                                | 100  | 113  | 128  |                          |
| Number of pieces                        | 2 x 3 sector clamp<br>2 x mounting support clamp<br>6 x connecting plate | 2 x 3 sector clamp<br>2 x mounting support clamp<br>6 x connecting plate | 2 x 3 sector clamp<br>2 x mounting support clamp<br>6 x connecting plate |                          |
| Net weight (approx.) (kg)               | 5.8  | 6.3  | 6.6  |                          |
| Packing weight (kg)                     | 7.3  | 7.8  | 8.1  |                          |
| Packing dimensions (H x W x D) (mm)     | 410 x 280 x 160  | 410 x 280 x 160  | 410 x 280 x 160  |                          |
| Max. operational wind speed (km/h)      | 150  | 150  | 150  |                          |
| Material                                | 3 sector clamp   | Hot-dip galvanized steel   | Hot-dip galvanized steel   | Hot-dip galvanized steel |
|   | Mounting support clamp   |  |  |                          |
|   | Connecting plate   |  |  |                          |
|   | Screws   | Stainless steel  | Stainless steel  | Stainless steel          |
|   | Nuts   |  |  |                          |

# Extension Tri-sector Clamps

Model: ASMC00004 ASMC00005

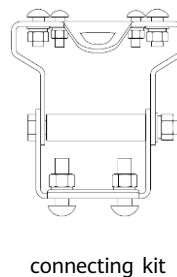
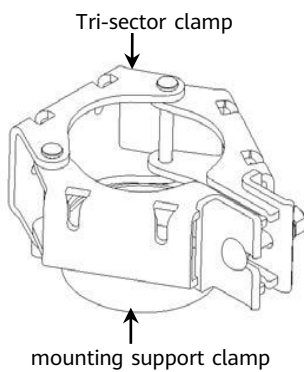
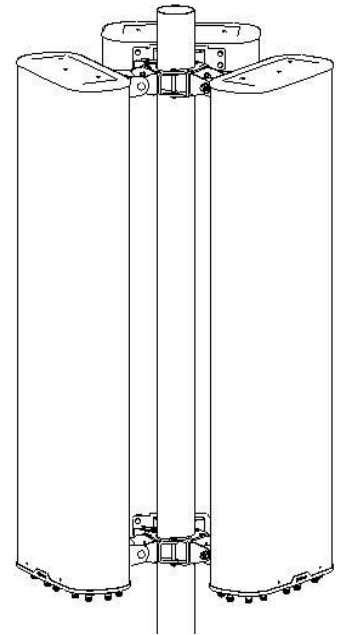
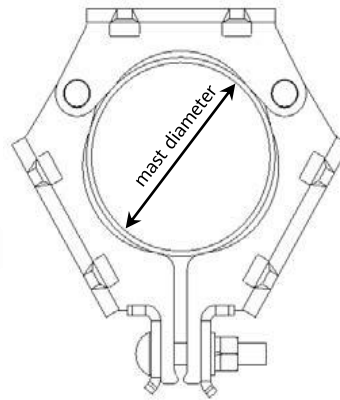


- Suitable for antennas whose widths are less than 500 mm.
- Not support mechanical downtilt.



$W_{max}$ : Maximum width of antenna

D: Distance between mast center and back of antenna



## Specifications

|   |                        | ASMC00004   | ASMC00005   |
|---|------------------------|---|---|
| Model                                   |                        | ASMC00004   | ASMC00005   |
| Angle between antennas (°)              |                        | 120   | 120   |
| Mast diameter (mm)                      |                        | 114.3   | 139.7   |
| $W_{max}$ (mm)                          |                        | 500   | 500   |
| Maximum weight of a single antenna (kg) |                        | 55  | 55  |
| D (mm)                                  |                        | 250   | 265   |
| Number of pieces                        |                        | 2 x Tri- sector clamp<br>2 x mounting support clamp<br>6 x connecting kit | 2 x Tri- sector clamp<br>2 x mounting support clamp<br>6 x connecting kit |
| Net weight (approx.) (kg)               |                        | 15.8  | 16.3  |
| Packing weight (kg)                     |                        | 16.6  | 17.1  |
| Packing dimensions (H x W x D) (mm)     |                        | 580 x 375 x 265   | 580 x 375 x 265   |
| Max. operational wind speed (km/h)      |                        | 200   | 200   |
| Material                                | 3 sector clamp         | Hot-dip galvanized steel  | Hot-dip galvanized steel  |
|   | Mounting support clamp |   |   |
|   | Connecting plate       |   |   |
|   | Screws                 | Stainless steel   | Stainless steel   |
|   | Nuts                   |   |   |

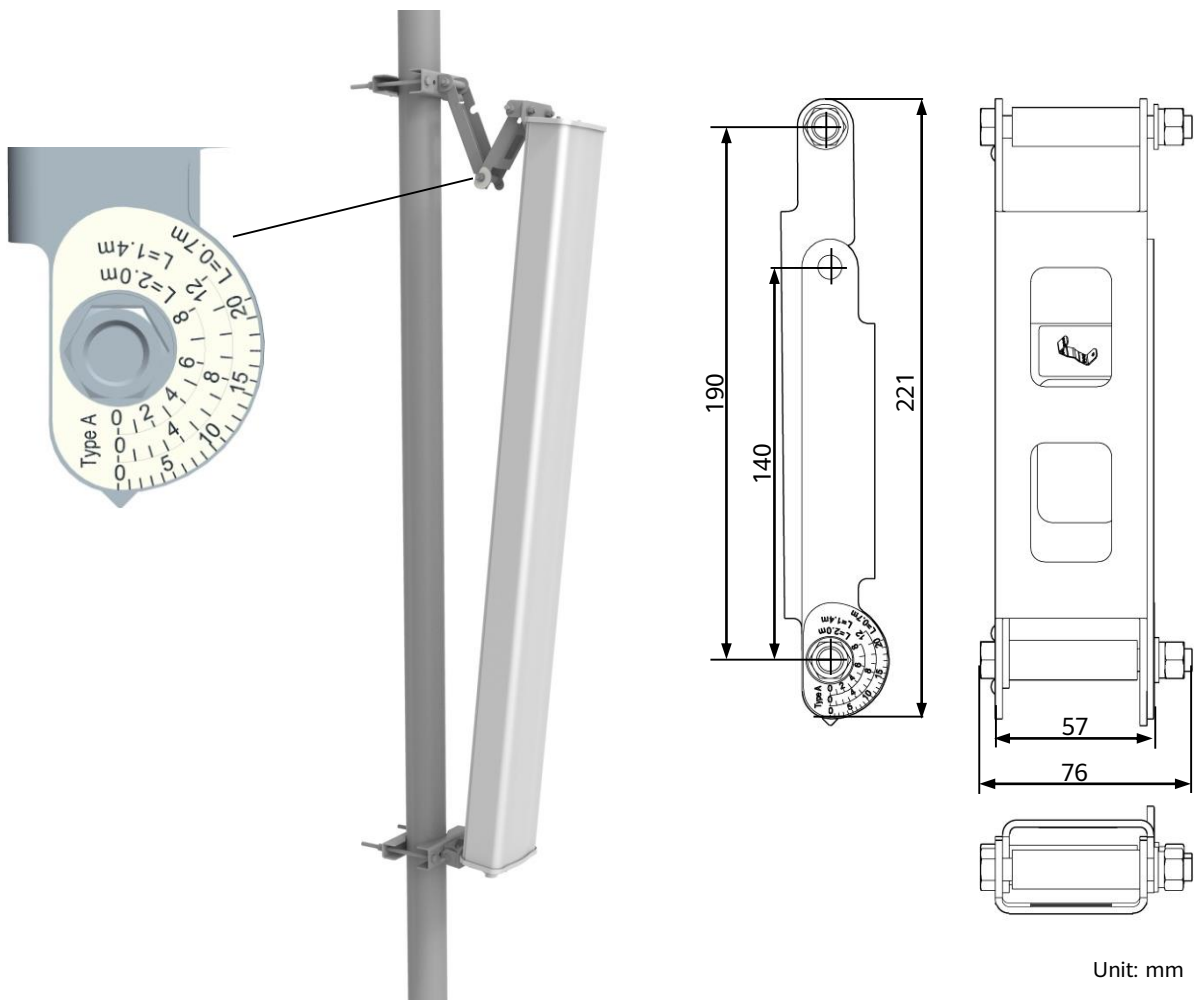
# Standard Downtilt kit-A for Panel Antennas

(Wind load Category "Light")

Model: ASMDT0A01



| Antenna bases distance (m) | Downtilt angle (°)        | Net weight (kg) | Packing weight (kg) | Packing dimensions (H x W x D) (mm) | Material  |
|----------------------------|---------------------------|-----------------|---------------------|-------------------------------------|---|
| 0.7<br>1.4<br>2.0          | 0 - 20<br>0 - 12<br>0 - 8 | 0.6             | 0.7                 | 260 x 98 x 50                       | Sheet Metal: Hot-dip galvanized steel<br>Screws / nuts / washers: Stainless steel |



**NOTE**

Downtilt kit must be combined with corresponding models of clam for antenna installation. Installation must follow the antenna installation guide within antenna package.



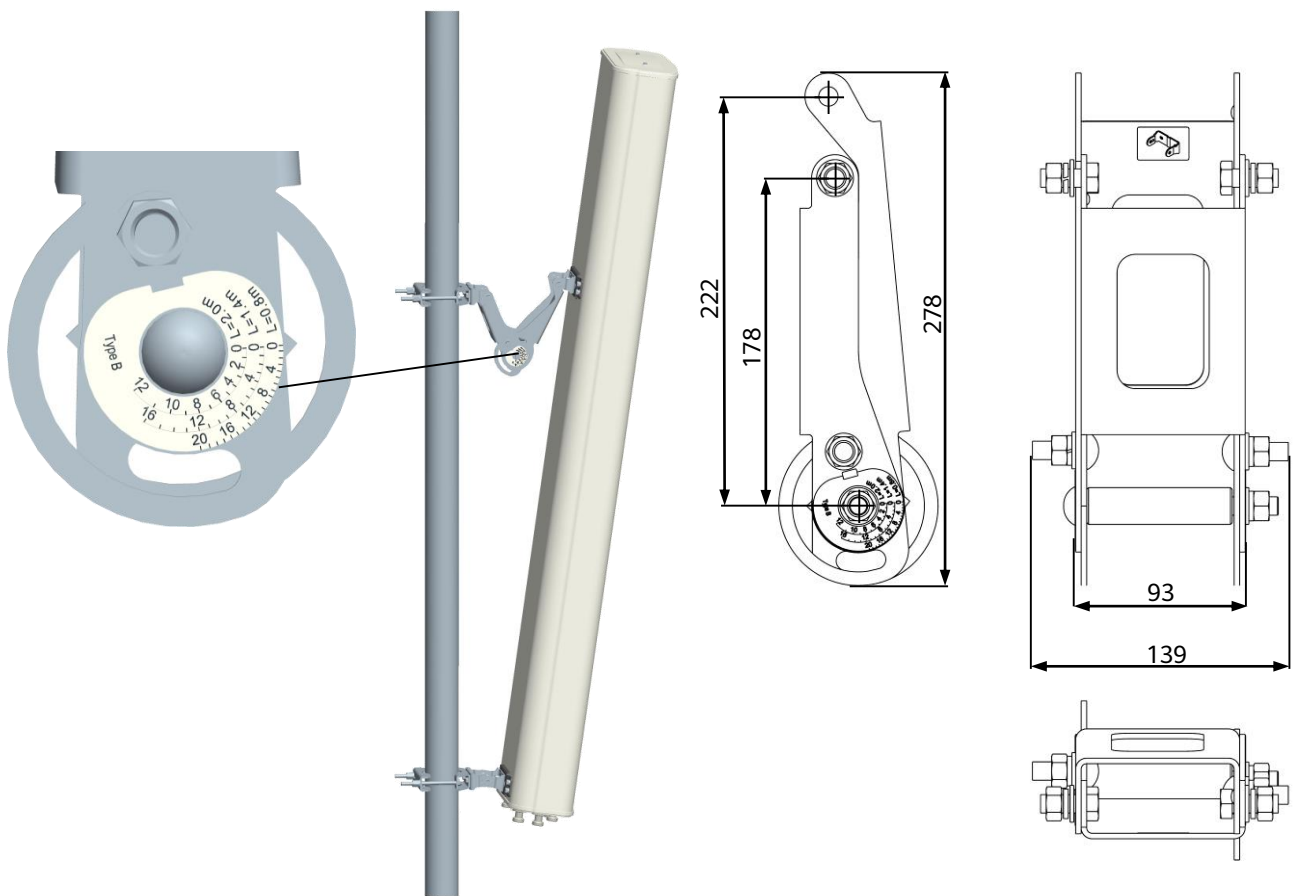
# Standard Downtilt kit-B for Panel Antennas

(Wind load Category "Medium")

Model: ASMDT0B01



| Antenna bases distance (m) | Downtilt angle (°) | Net weight (kg) | Packing weight (kg) | Packing dimensions (H x W x D) (mm) | Material  |
|----------------------------|--------------------|-----------------|---------------------|-------------------------------------|---|
| 0.8                        | 0 - 20             | 1.3             | 1.8                 | 315 x 160 x 105                     | Sheet Metal: Hot-dip galvanized steel<br>Screws / nuts / washers: Stainless steel |
| 1.4                        | 0 - 16             |                 |                     |                                     |   |
| 2.0                        | 0 - 12             |                 |                     |                                     |   |



## NOTE

Downtilt kit must be combined with corresponding models of clam for antenna installation. Installation must follow the antenna installation guide within antenna package.

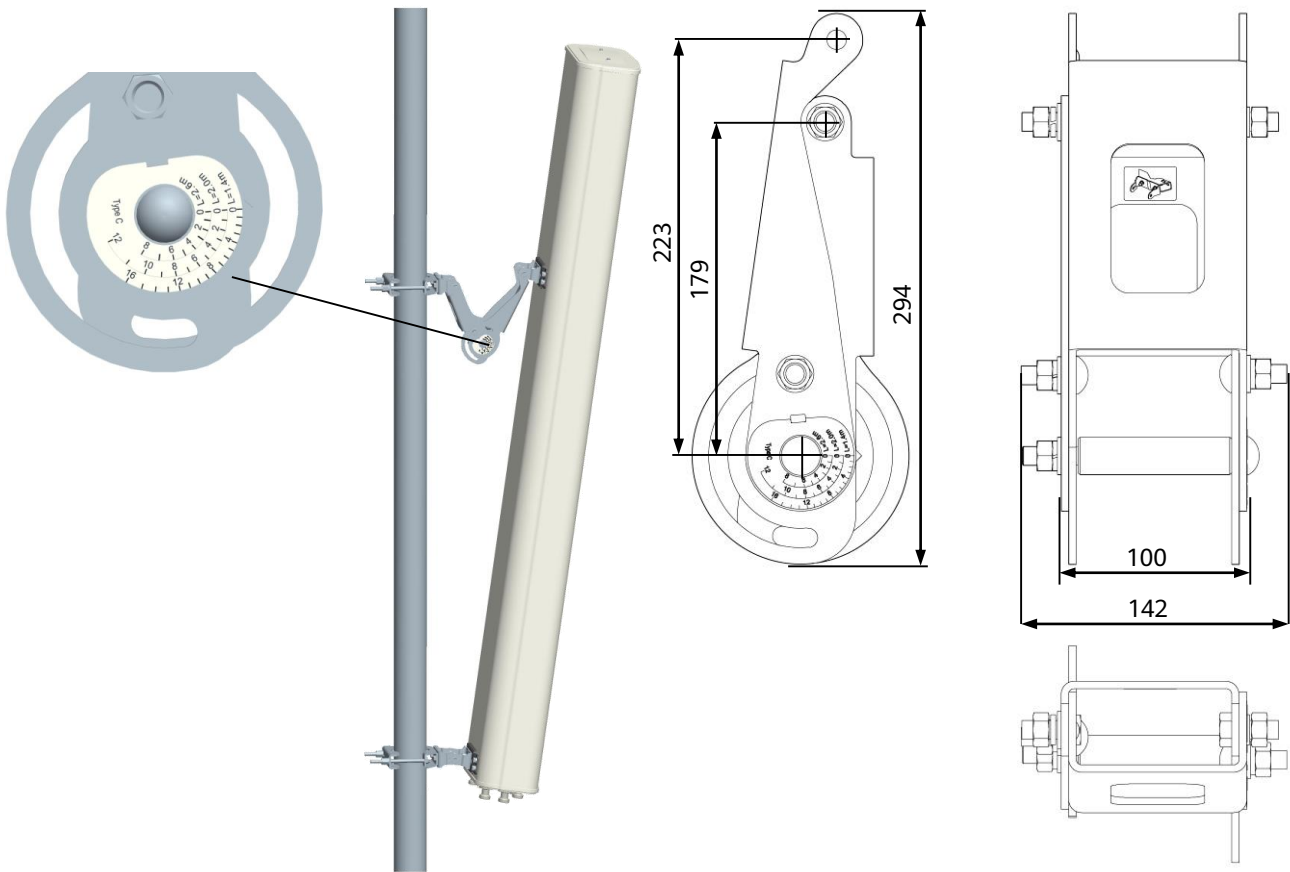
# Standard Downtilt kit-C for Panel Antennas

(Wind load Category "Medium")

Model: ASMDT0C01



| Antenna bases distance (m) | Downtilt angle (°)        | Net weight (kg) | Packing weight (kg) | Packing dimensions (H x W x D) (mm) | Material  |
|----------------------------|---------------------------|-----------------|---------------------|-------------------------------------|---|
| 1.4<br>2.0<br>2.6          | 0 - 16<br>0 - 12<br>0 - 8 | 2.1             | 2.7                 | 330 x 160 x 135                     | Sheet Metal: Hot-dip galvanized steel<br>Screws / nuts / washers: Stainless steel |



Unit: mm

## NOTE

Downtilt kit must be combined with corresponding models of clam for antenna installation. Installation must follow the antenna installation guide within antenna package.

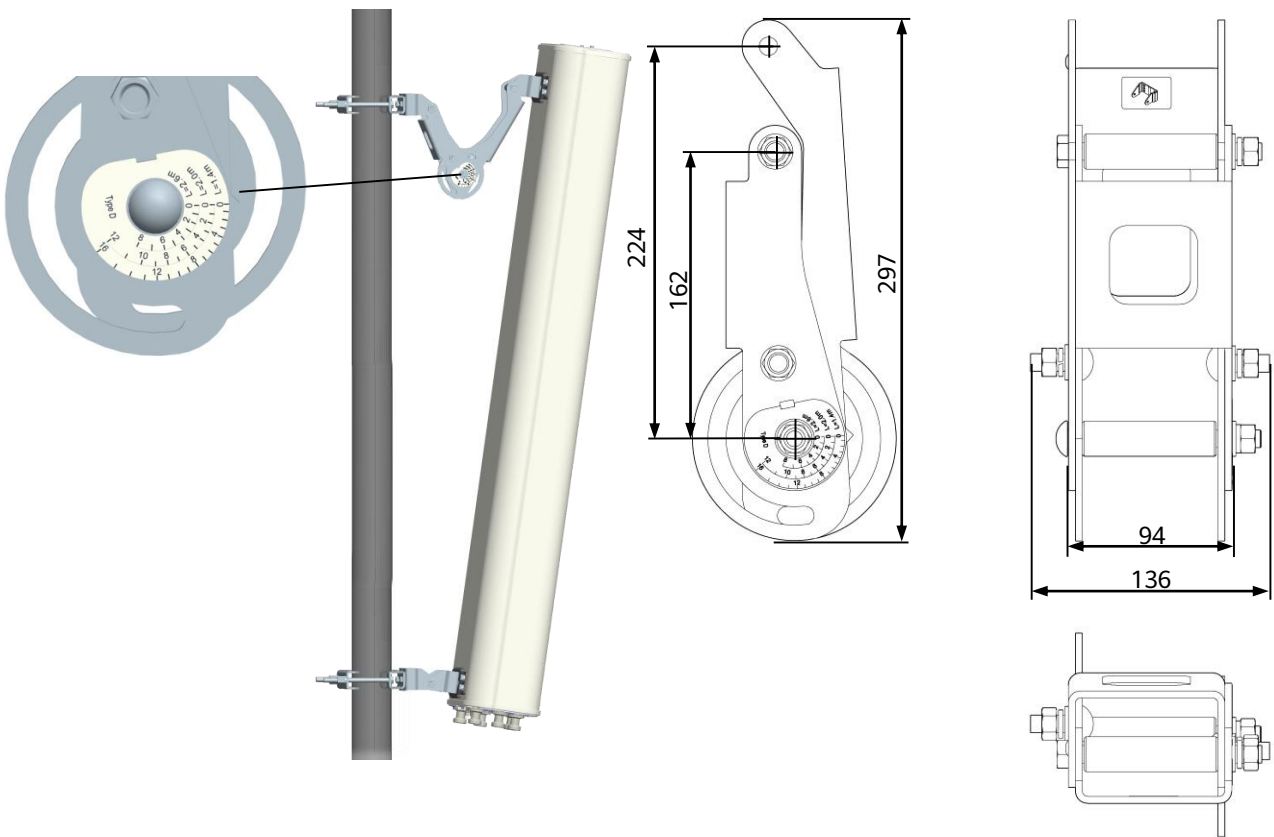
# Standard Downtilt kit-D for Panel Antennas

(Wind load Category "Heavy")

Model: ASMDT0D01



| Antenna bases distance (m) | Downtilt angle (°)        | Net weight (kg) | Packing weight (kg) | Packing dimensions (H x W x D) (mm) | Material  |
|----------------------------|---------------------------|-----------------|---------------------|-------------------------------------|---|
| 1.4<br>2.0<br>2.6          | 0 - 16<br>0 - 12<br>0 - 8 | 2.1             | 2.7                 | 330 x 170 x 135                     | Sheet Metal: Hot-dip galvanized steel<br>Screws / nuts / washers: Stainless steel |



Unit: mm

## NOTE

Downtilt kit must be combined with corresponding models of clam for antenna installation. Installation must follow the antenna installation guide within antenna package.

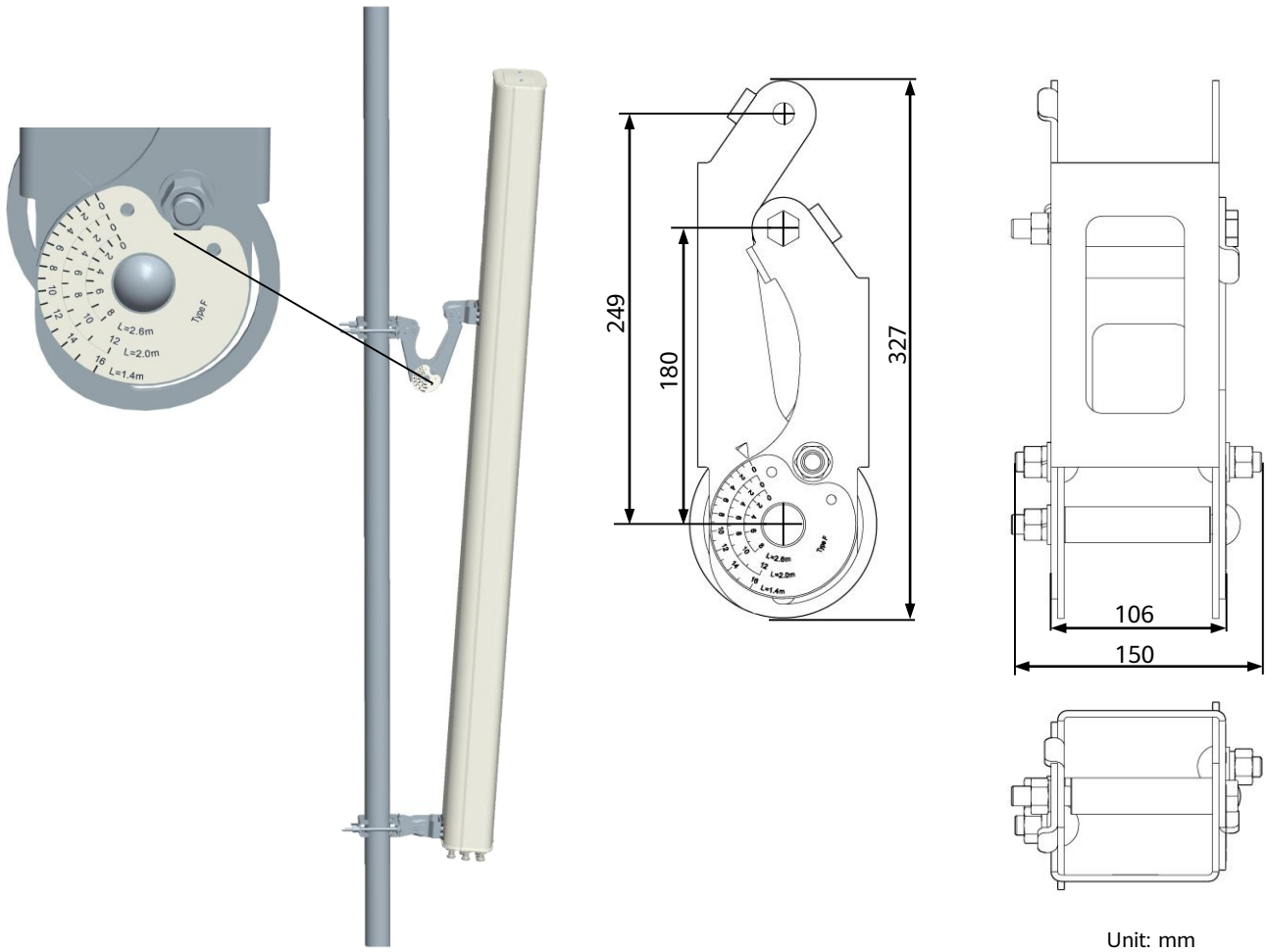
# Standard Downtilt kit-F for Panel Antennas

(Wind load Category "Heavy")

Model: ASMDT0F01



| Antenna bases distance (m) | Downtilt angle (°)        | Net weight (kg) | Packing weight (kg) | Packing dimensions (H x W x D) (mm) | Material  |
|----------------------------|---------------------------|-----------------|---------------------|-------------------------------------|---|
| 1.4<br>2.0<br>2.6          | 0 - 16<br>0 - 12<br>0 - 8 | 3.1             | 3.7                 | 360 x 170 x 120                     | Sheet Metal: Hot-dip galvanized steel<br>Screws / nuts / washers: Stainless steel |



**NOTE**

Downtilt kit must be combined with corresponding models of clam for antenna installation. Installation must follow the antenna installation guide within antenna package.

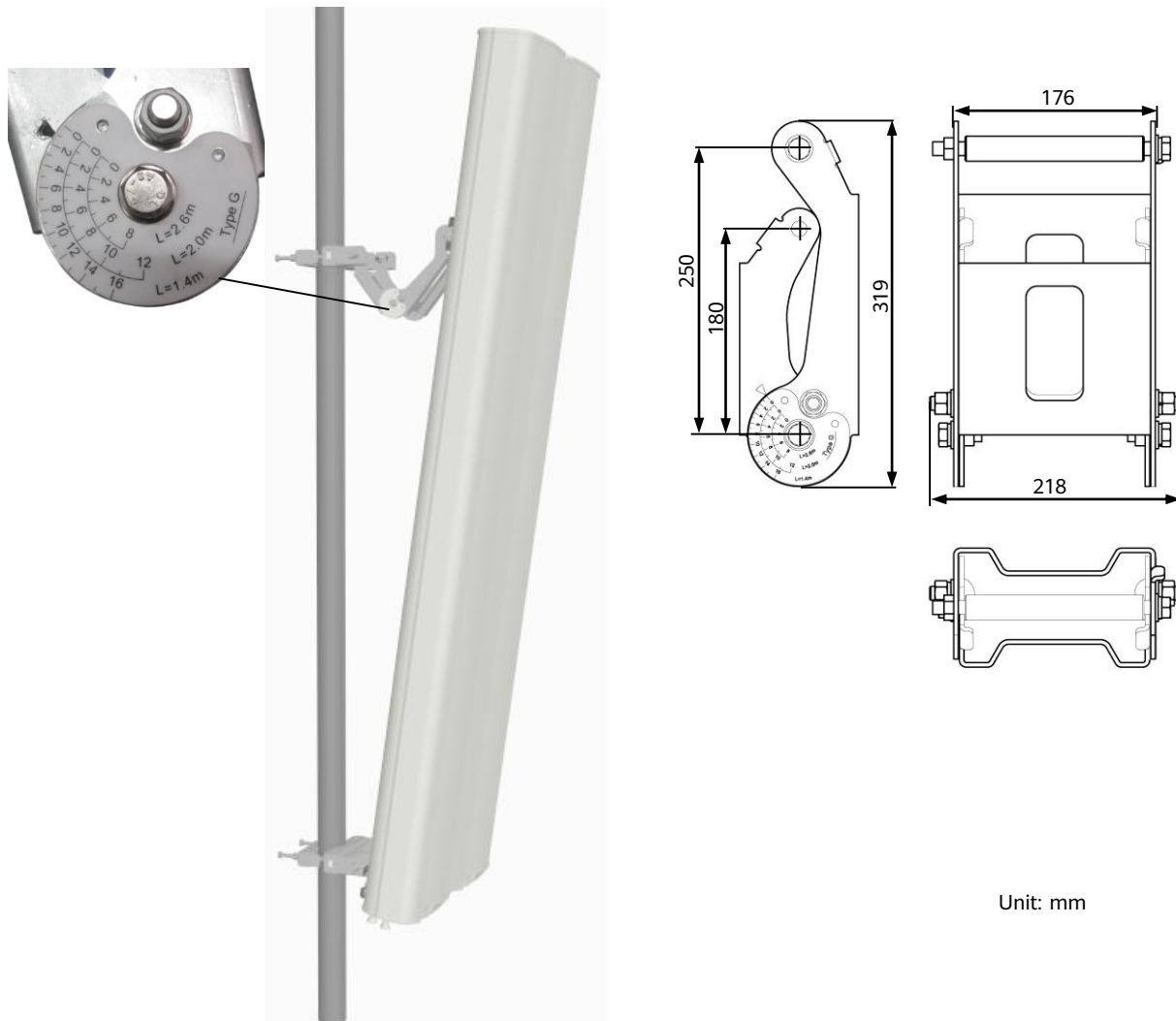
# Standard Downtilt kit-G for Panel Antennas

(Wind load Category "Heavy")

Model: ASMDT0G01



| Antenna bases distance (m) | Downtilt angle (°)        | Net weight (kg) | Packing weight (kg) | Packing dimensions (H x W x D) (mm) | Material  |
|----------------------------|---------------------------|-----------------|---------------------|-------------------------------------|---|
| 1.4<br>2.0<br>2.6          | 0 - 16<br>0 - 12<br>0 - 8 | 4.6             | 5.1                 | 385 x 240 x 135                     | Sheet Metal: Hot-dip galvanized steel<br>Screws / nuts / washers: Stainless steel |



Unit: mm

**NOTE**

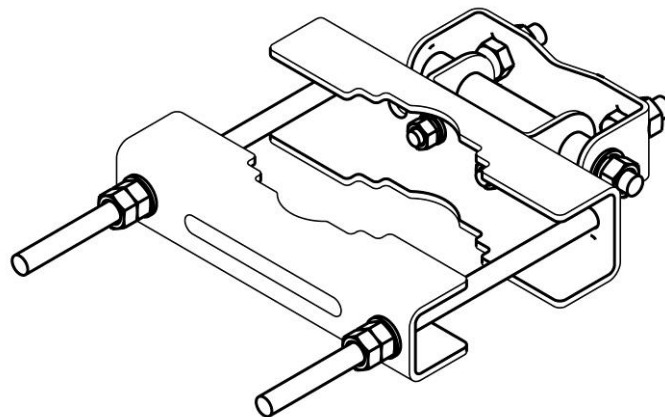
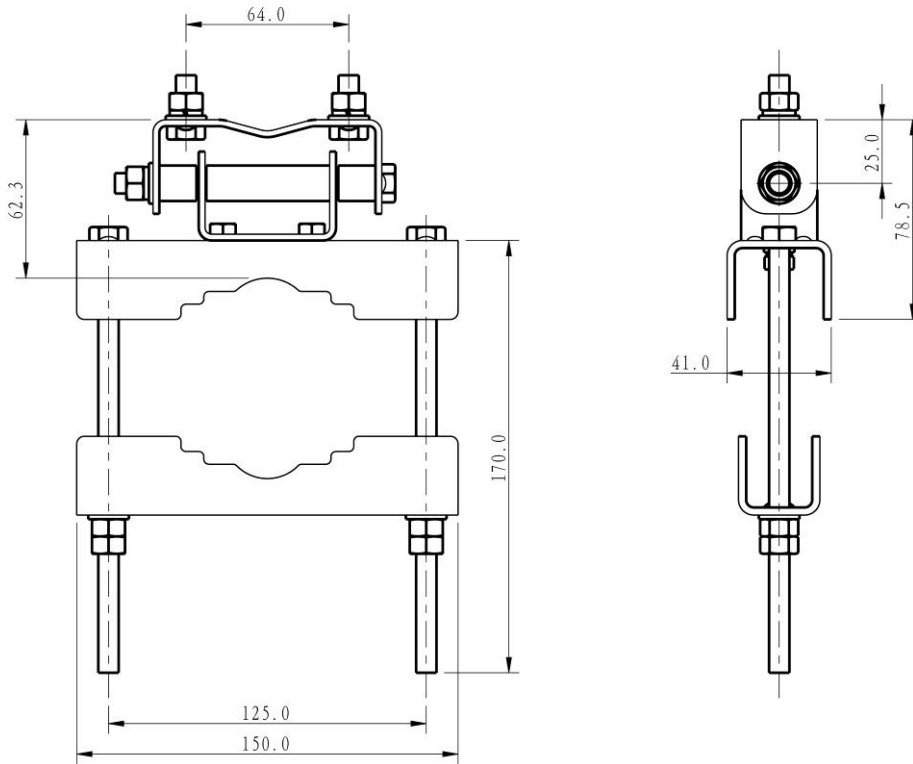
Downtilt kit must be combined with corresponding models of clam for antenna installation. Installation must follow the antenna installation guide within antenna package.

# Clamps Kit-A for Panel Antennas

Model: ASMC00012



| Type         | Number of pieces | Mast diameter supported | Weight        | Material   |
|--------------|------------------|-------------------------|---------------|--|
| Clamps Kit-A | 2 clamps         | 38 - 115 mm             | Approx 2.0 kg | All parts: Hot-dip galvanized steel<br>Bolts / nuts / washers: Stainless steel |



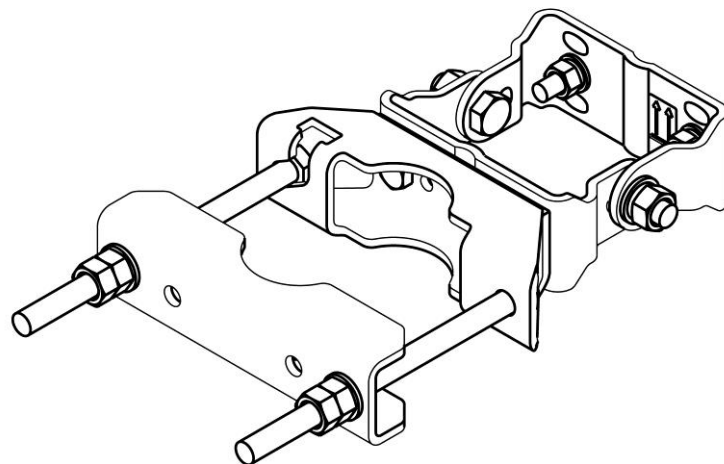
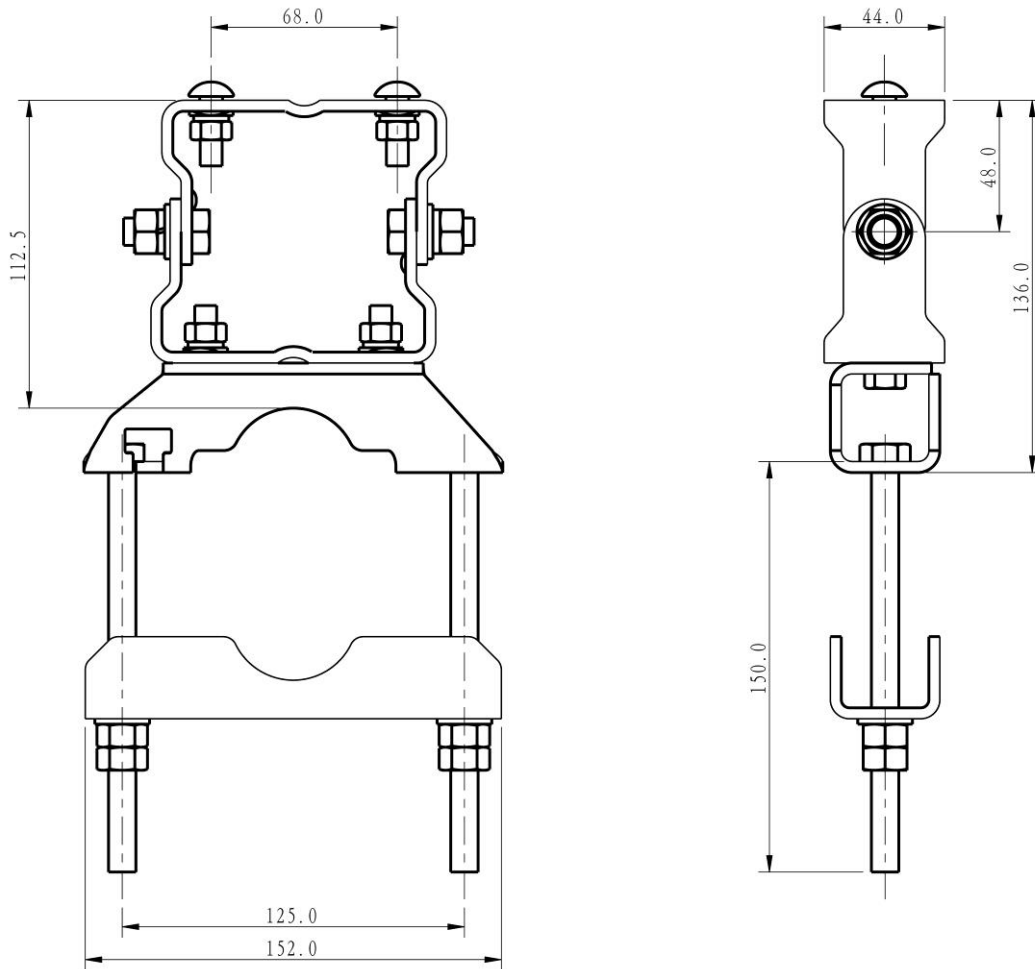
Unit: mm

# Clamps Kit-B for Panel Antennas

Model: ASMC00013



| Type         | Number of pieces | Mast diameter supported | Weight        | Material   |
|--------------|------------------|-------------------------|---------------|--|
| Clamps Kit-B | 2 clamps         | 50 - 115 mm             | Approx 3.0 kg | All parts: Hot-dip galvanized steel<br>Bolts / nuts / washers: Stainless steel |



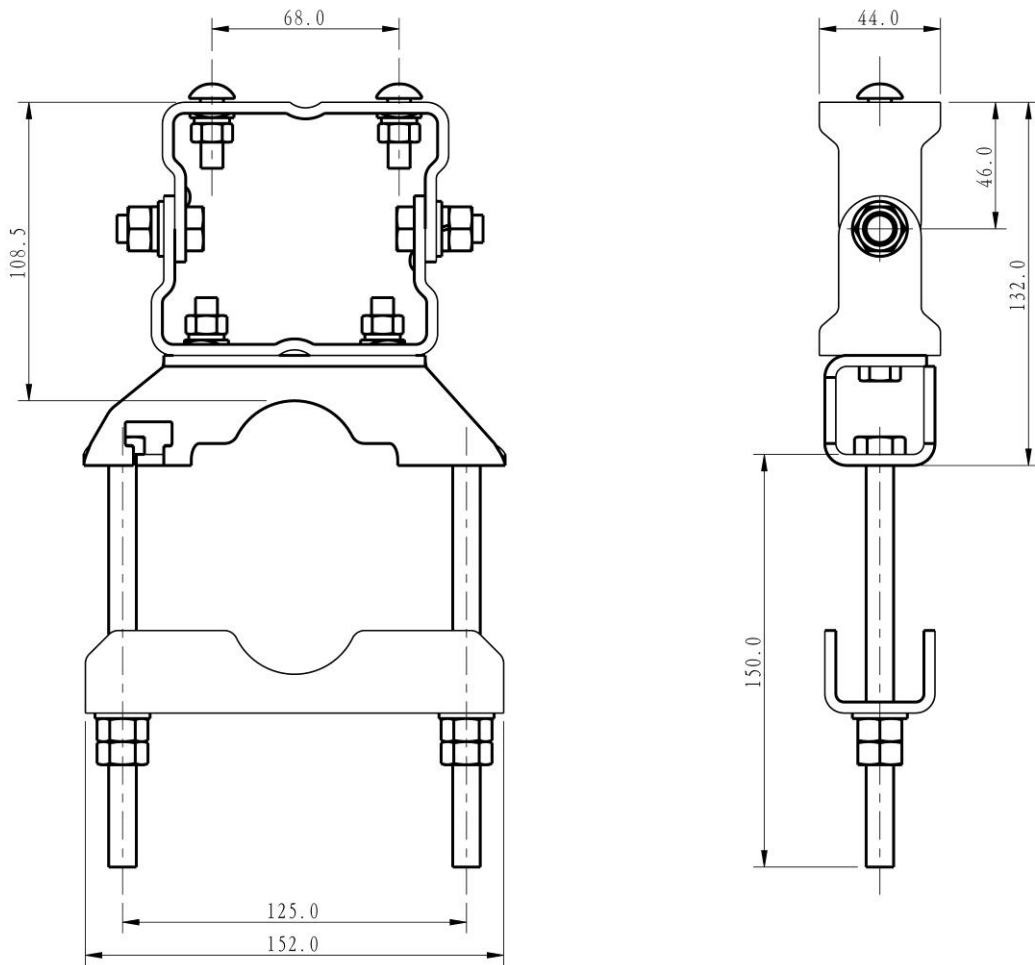
Unit: mm

# Clamps Kit-C for Panel Antennas

Model: ASMC00014



| Type         | Number of pieces | Mast diameter supported | Weight        | Material   |
|--------------|------------------|-------------------------|---------------|--|
| Clamps Kit-C | 2 clamps         | 50 - 115 mm             | Approx 3.0 kg | All parts: Hot-dip galvanized steel<br>Bolts / nuts / washers: Stainless steel |



Unit: mm

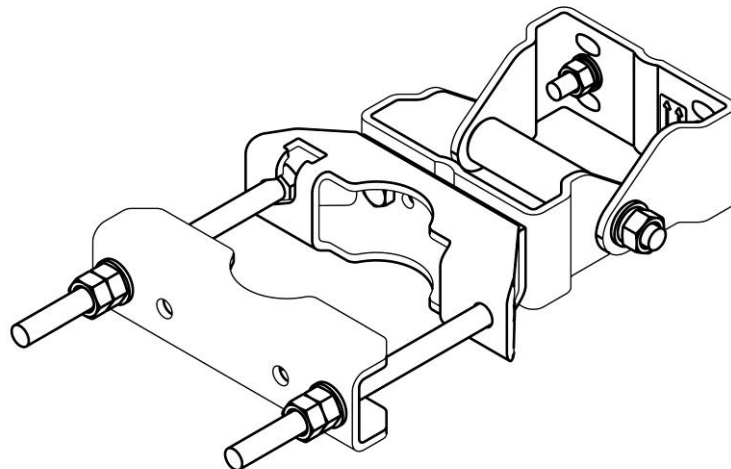
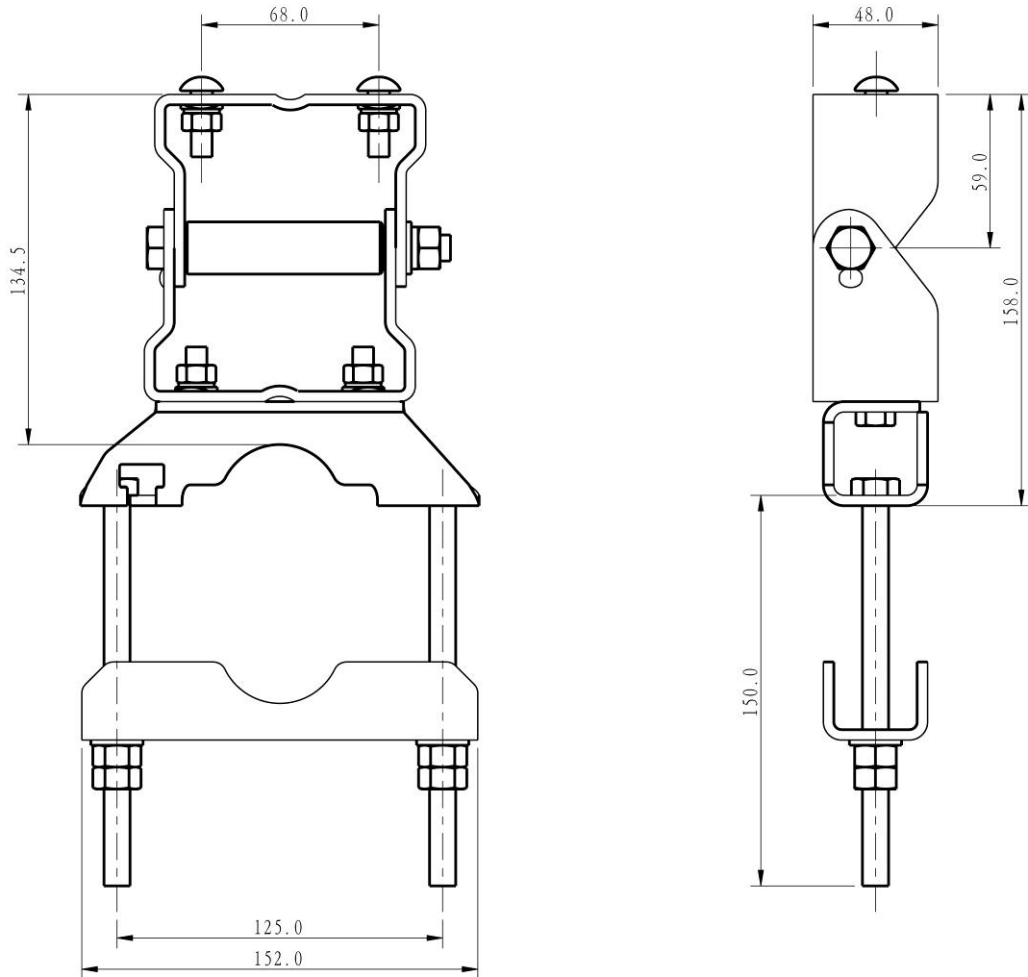


# Clamps Kit-D for Panel Antennas

Model: ASMC00015

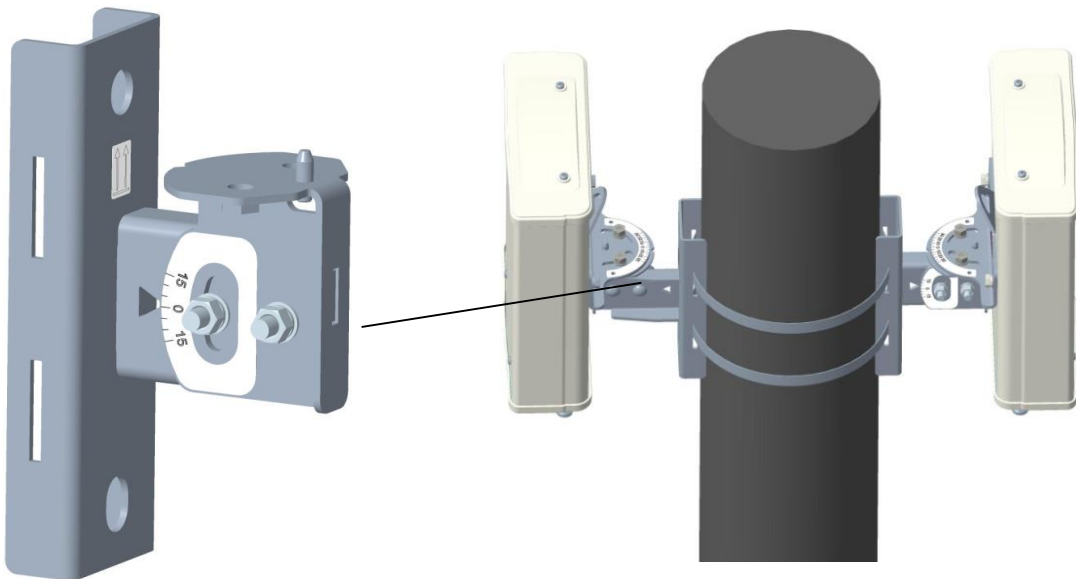
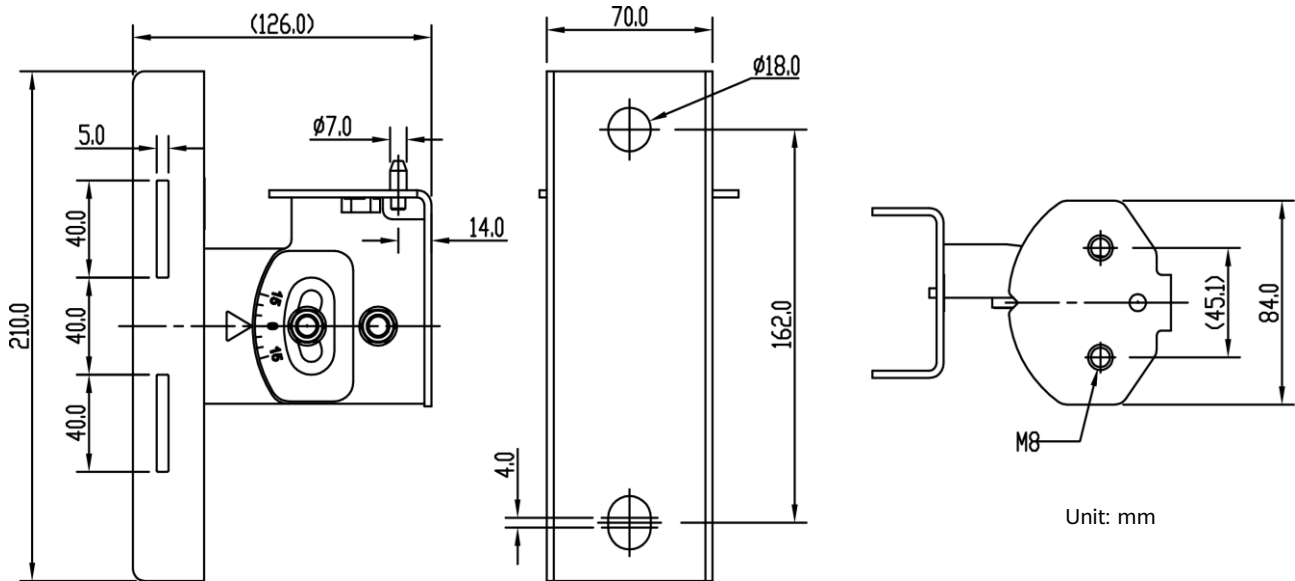


| Type         | Number of pieces | Mast diameter supported | Weight        | Material   |
|--------------|------------------|-------------------------|---------------|--|
| Clamps Kit-D | 2 clamps         | 50 - 115 mm             | Approx 3.6 kg | All parts: Hot-dip galvanized steel<br>Bolts / nuts / washers: Stainless steel |



Unit: mm

| Type    | Weight approx. | Angular range       |         | Mast diameter supported |               | Material   |
|---------|----------------|---------------------|---------|-------------------------|---------------|--|
|         |                | Mechanical downtilt | Azimuth | Cement or metal pole    | Wooden pole   |  |
| Bracket | 1.2Kg          |                     |         |                         |               | All parts:<br>Hot-dip galvanized steel<br>Bolts / nuts / washers:<br>Stainless steel |
|         |                | ±15°                | ±30°    | Φ100 - 360 mm           | Φ200 - 420 mm |  |



 NOTE

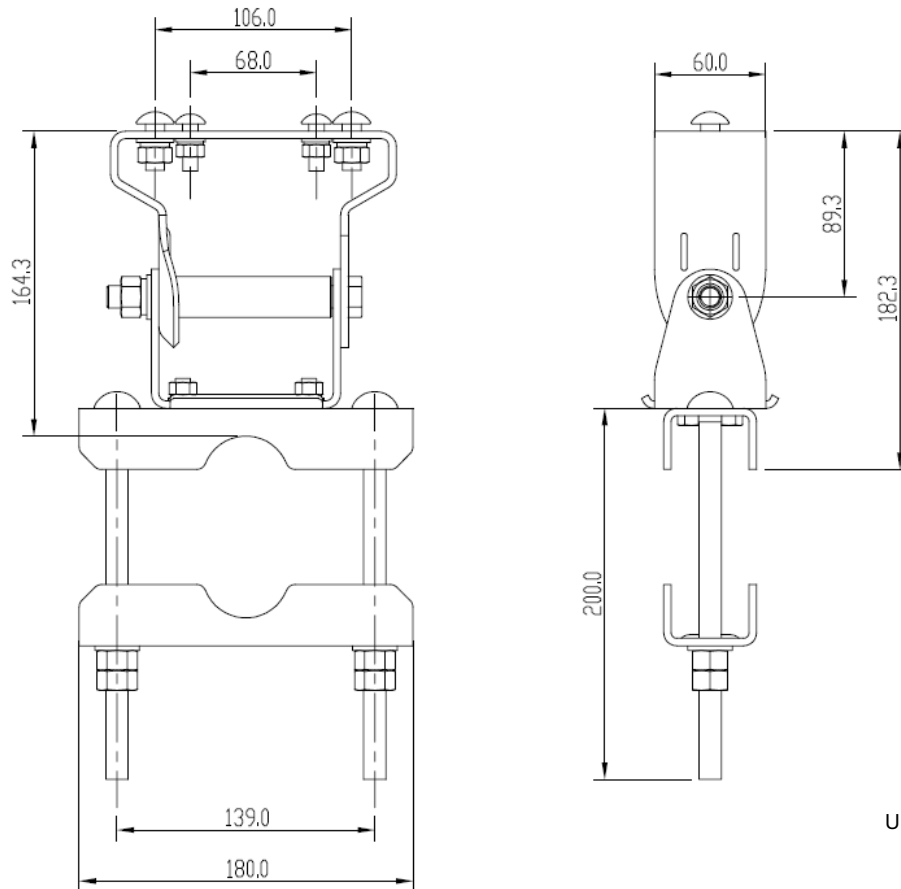
Installation must follow the antenna installation guide within antenna package.

# Clamps Kit-F for Panel Antennas

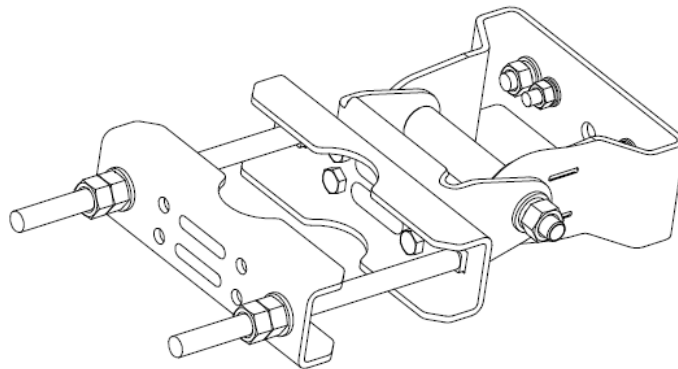
Model: ASMC00008



| Type         | Number of pieces | Mast diameter supported | Weight        | Material   |
|--------------|------------------|-------------------------|---------------|--|
| Clamps Kit-F | 2 clamps         | 50 - 115 mm             | Approx 5.8 kg | All parts: Hot-dip galvanized steel<br>Bolts / nuts / washers: Stainless steel |



Unit: mm



## NOTE

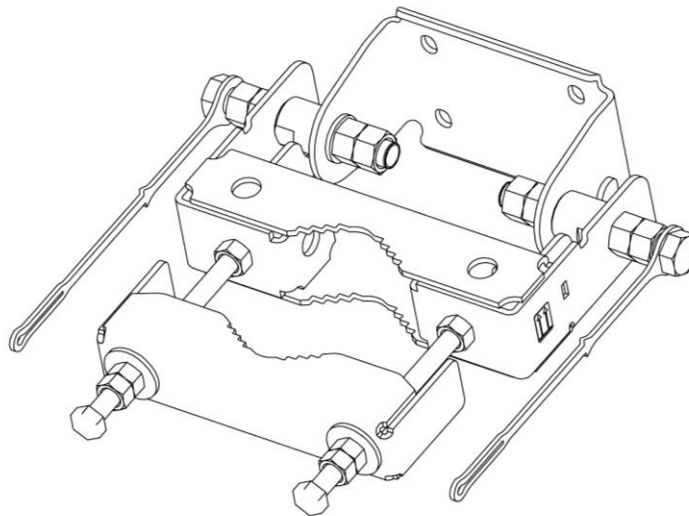
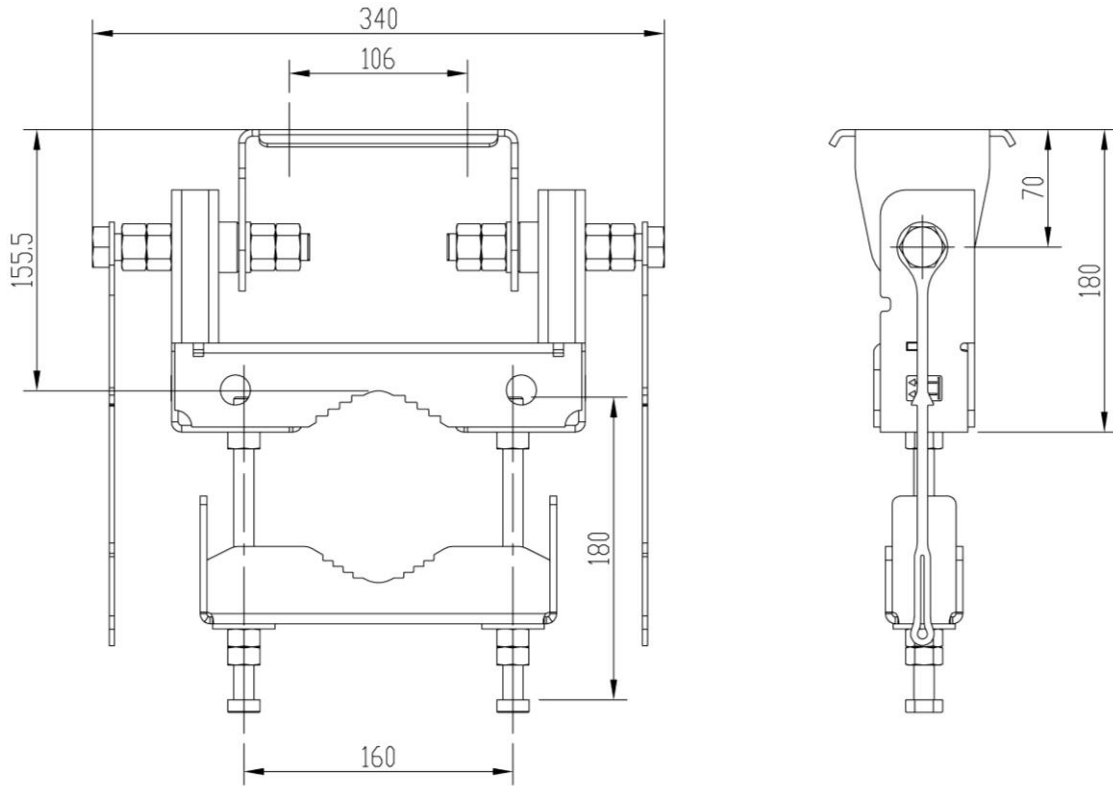
Installation must follow the antenna installation guide within antenna package.

# Clamps Kit-G for Panel Antennas

Model: ASMC00016



| Type         | Number of pieces | Mast diameter supported | Weight         | Material   |
|--------------|------------------|-------------------------|----------------|--|
| Clamps Kit-G | 2 clamps         | 75 - 115 mm             | Approx 10.8 kg | All parts: Hot-dip galvanized steel<br>Bolts / nuts / washers: Stainless steel |



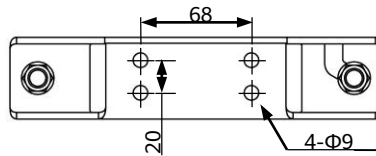
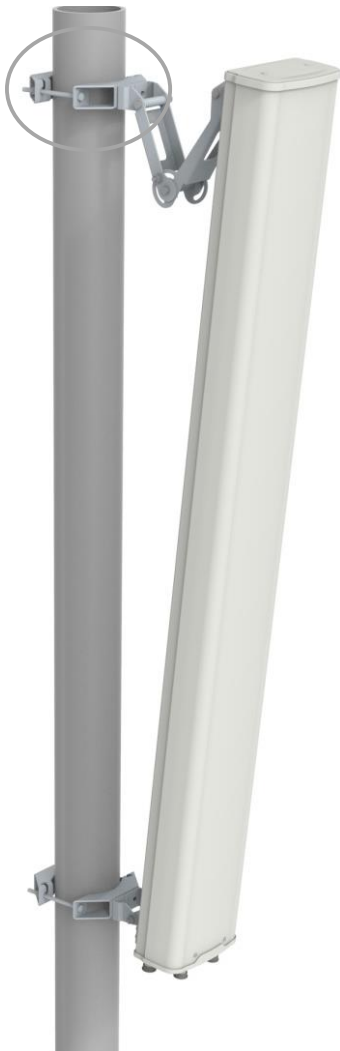
Unit: mm

# Extension Clamps Kit-B for Panel Antennas

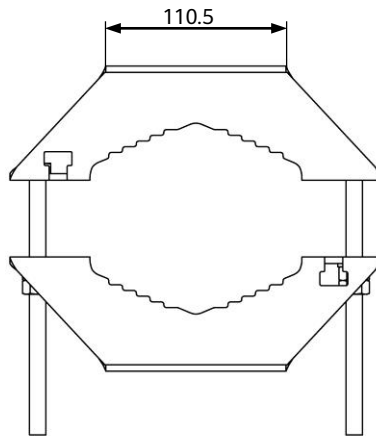
Model: ASMC00006



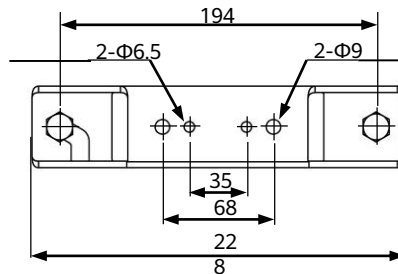
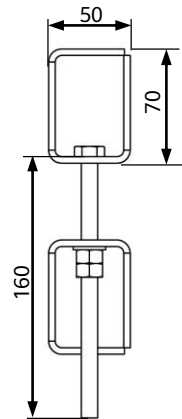
| Mast diameter supported (mm) | Net weight (kg) | Packing weight (kg) | Packing dimensions (H x W x D) (mm) | Material   |
|------------------------------|-----------------|---------------------|-------------------------------------|--|
| 110 - 180                    | 3.7             | 4.0                 | 255 x 165 x 120                     | All parts: Hot-dip galvanized steel<br>Bolts / nuts / washers: Stainless steel |



The expand interface for Clamps Kit-F



The expand interface for Clamps Kit-A



The expand interface for Clamps Kit-B, Clamps Kit-C and Clamps Kit-D

Unit: mm

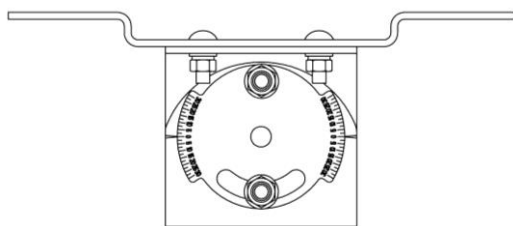
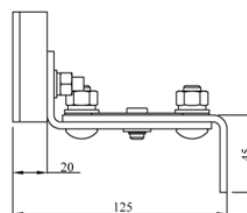
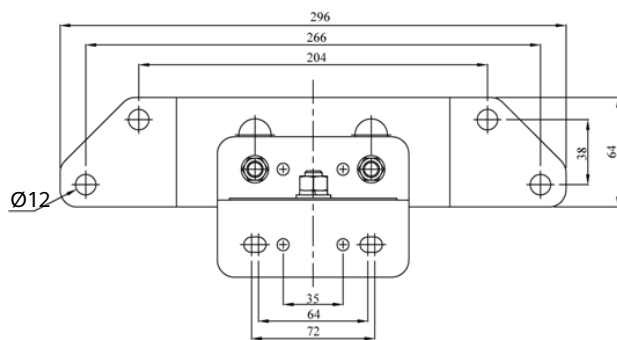
## NOTE

Clamps kit must be combined with corresponding models of clam for antenna installation. Installation must follow the antenna installation guide within antenna package.

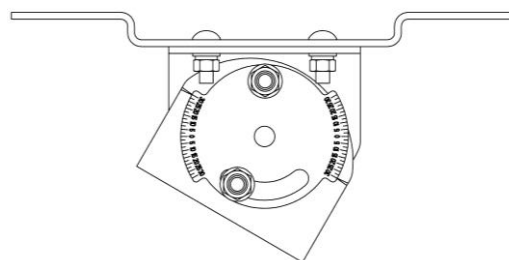


- Suitable for all panels with an antenna housing width ( $W_{max}$ ) less than 400 mm.
- Not support antennas with brackets of model F or above.

| Wall Mounting Hardware         |             |                          |
|--------------------------------|-------------|--------------------------|
| Azimuth adjustment range (°)   |             | ± 30                     |
| $W_{max}$ (mm)                 |             | 400                      |
| Maximum weight of antenna (kg) |             | 35                       |
| Number of pieces               |             | 2                        |
| Weight (kg)                    |             | 4.3                      |
| Material                       | Sheet Metal | Hot-dip galvanized steel |
|                                | Screws      | Stainless steel          |
|                                | Nuts        |                          |



Angular: 0°





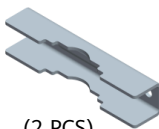
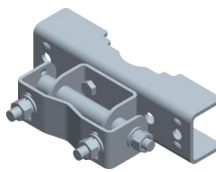
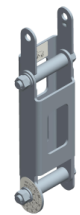


Angular: 30°

Unit: mm

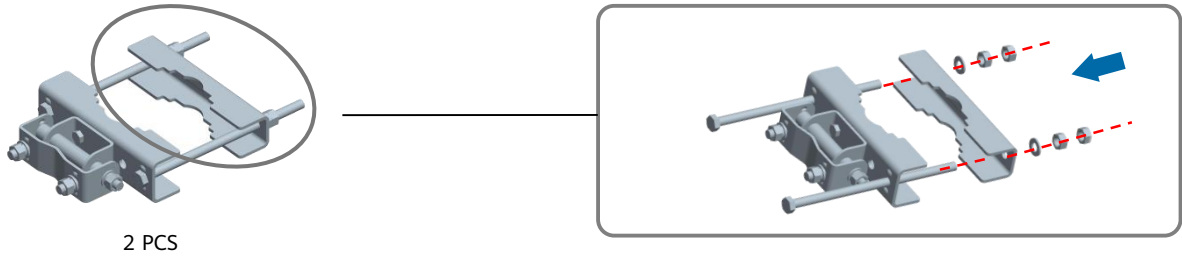
### NOTE

The expansion bolts for concrete wall mounting are provided, other wall mounting screws are not supplied, they must be chosen by installer according to the mounting condition.

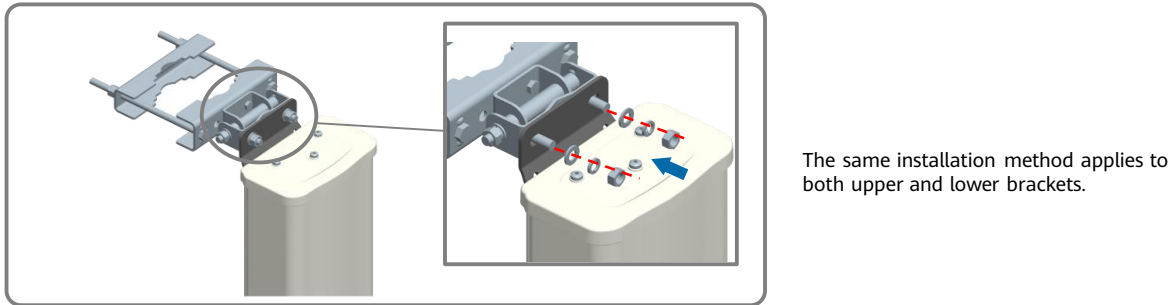
| Installation Tools   | Clamps   | Downtilt kit (Optional)  |
|--|--|--|
|  <p>Torque wrench</p>  <p>Inclinometer</p>  <p>13 mm combination wrench (2 PCS)</p> |  <p>M8<br/>(4 PCS)</p>  <p>(2 PCS)</p>  <p>(2 PCS)</p> |  <p>ASMDT0A01<br/>(1 PCS)</p> |

## Installation without Downtilt Kit

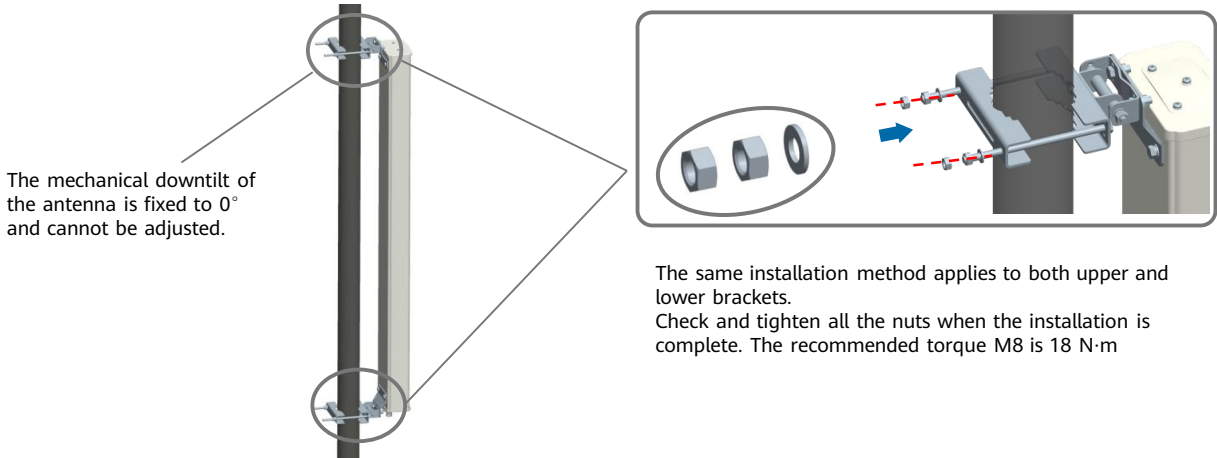
### 1 Assemble the Clamps



### 2 Install the Clamps



### 3 Install the antenna



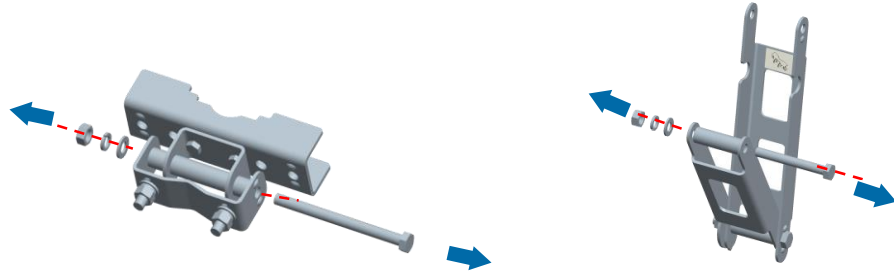


# Installation with Downtilt Kit

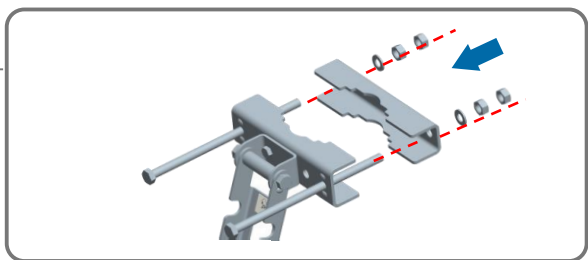
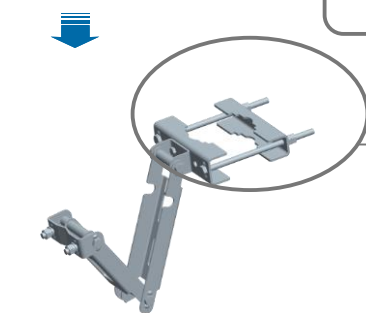
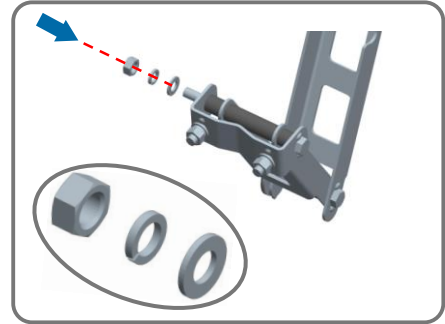
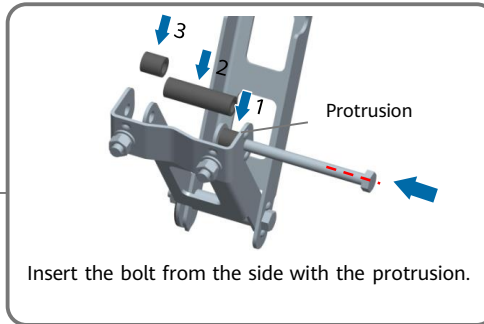
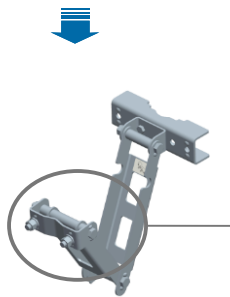
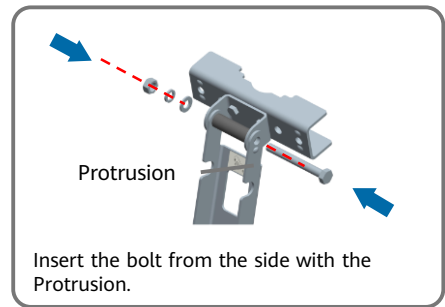
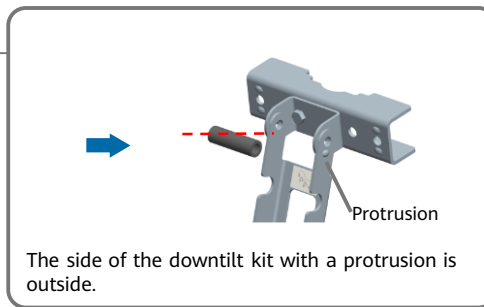
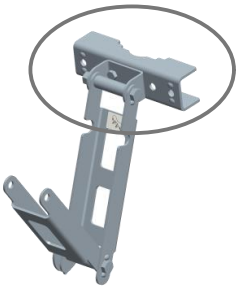
## 1 Assemble the bracket

- 1 Disassemble clamps and downtilt kit .

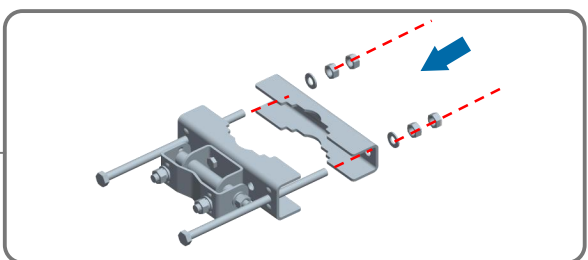
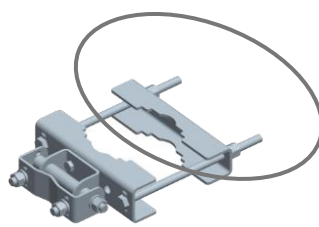
The packaging box contains two clamps. Just need disassemble one of them.



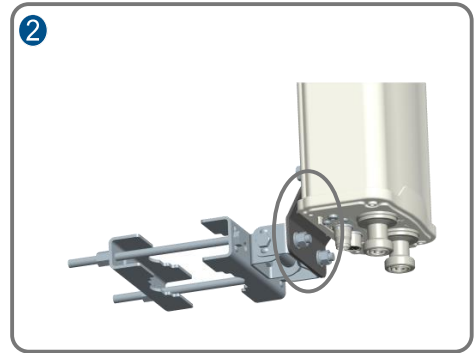
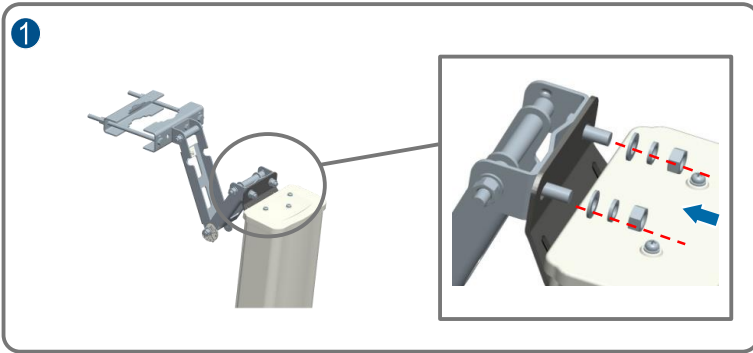
- 2 Assemble the upper bracket



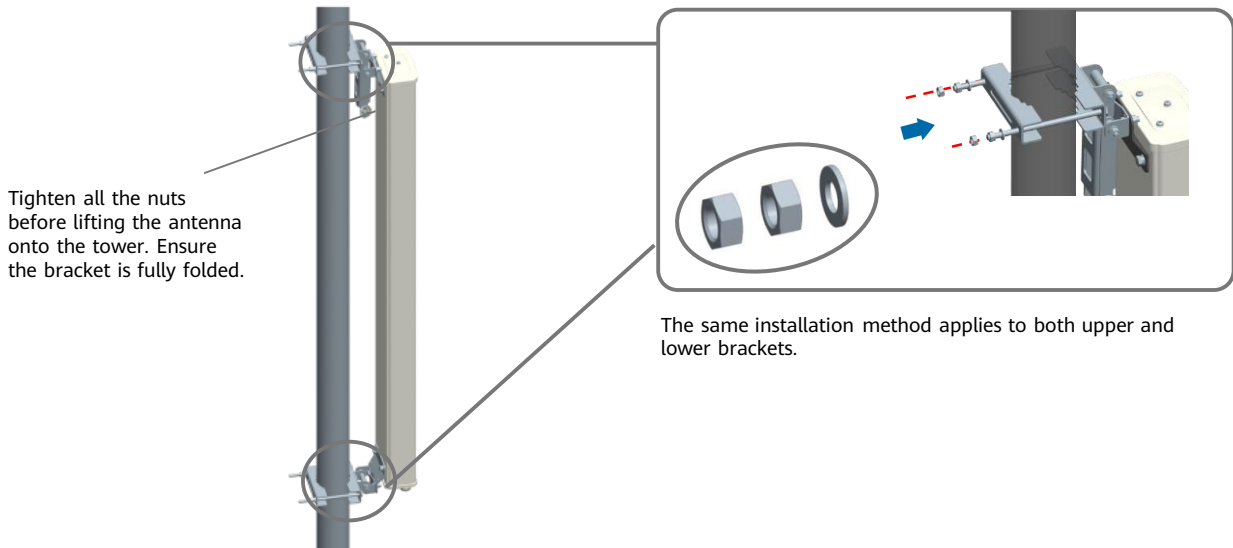
- 3 Assemble the lower bracket



## 2 Install the bracket



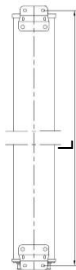
## 3 Install the antenna



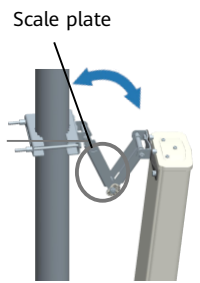
## 4 Adjust the mechanical downtilt

### Method 1: Using a scale plate

The letter "L" on the scale plate indicates the distance between antenna bases. Determine the value that is closest to the actual distance. If the distance is approximate 1.4 m, observe the readings corresponding to "L=1.4 m".



The scale plates may vary with different types of downtilt kit. The scale plate shown in the right figure is only for reference.



Example of a scale plate



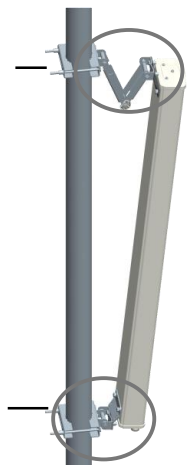
### Method 2: Using an inclinometer

Before the adjustment, adjust the inclinometer to the desired downtilt. After the adjustment, locate the bead in the middle of the inclinometer.



Tighten the upper bracket.

Tighten the lower bracket.



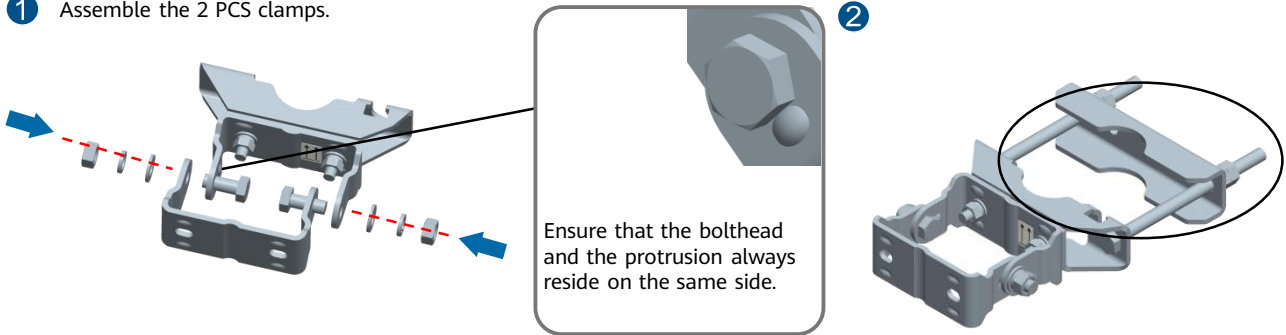
Finally, tighten all the nuts. The recommended torque M8 is 18 N·m

| Installation Tools   | Clamps   | Downtilt kit (Optional)               |
|--|--|---------------------------------------|
| <p>13 mm combination wrench (2 PCS)</p> <p>16 mm combination wrench (2 PCS)</p> <p>Torque wrench</p> <p>Inclinator</p> | <p>(2 PCS)</p> <p>(1 PCS)</p> <p>M10 (4 PCS)</p> <p>M10 (2 PCS)</p> <p>M8 (4 PCS)</p> <p>(1 PCS)</p> | <p>ASMDT0B01 or ASMDT0C01 (1 PCS)</p> |

## Installation without Downtilt Kit

### 1 Assemble the clamps

1 Assemble the 2 PCS clamps.



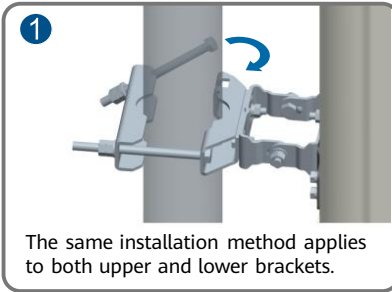
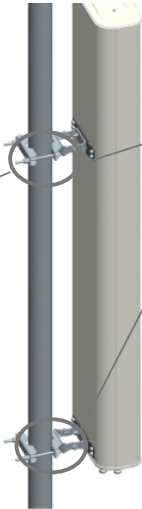
### 2 Install the clamps



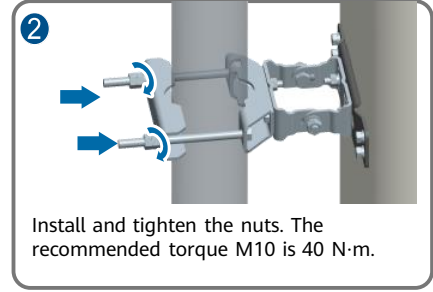
The same installation method applies to both upper and lower brackets. And tighten the nuts. The recommended torque M8 is 18 N·m.

### 3 Install the antenna

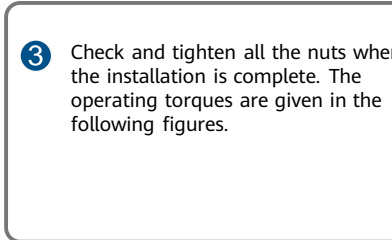
The mechanical downtilt of the antenna is fixed to 0° and cannot be adjusted.



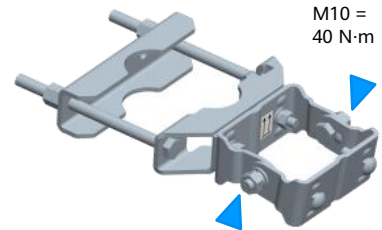
1 The same installation method applies to both upper and lower brackets.



2 Install and tighten the nuts. The recommended torque M10 is 40 N·m.



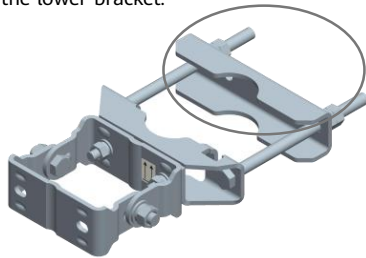
3 Check and tighten all the nuts when the installation is complete. The operating torques are given in the following figures.



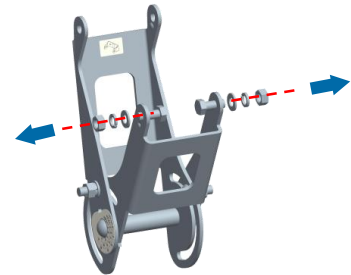
### Installation with Downtilt Kit

#### 1 Assemble the bracket

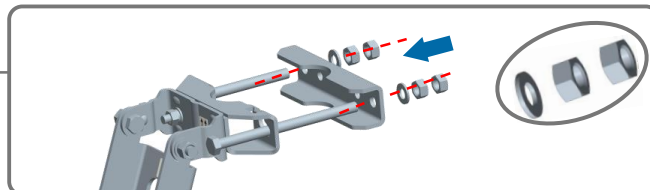
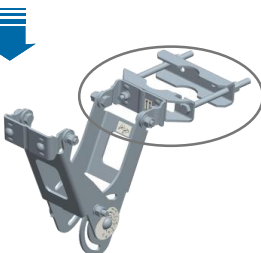
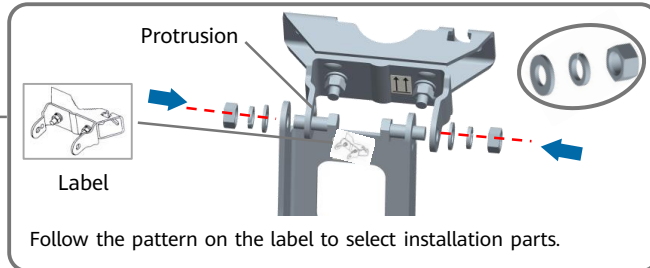
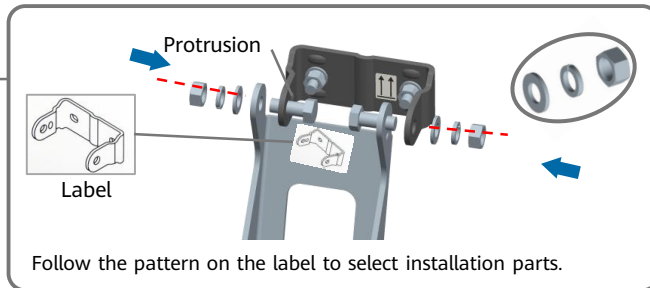
1 Assemble the lower bracket.



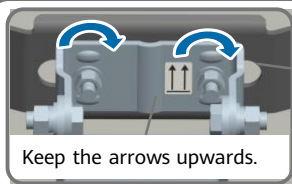
2 Disassemble the downtilt kit.



3 Assemble the upper bracket



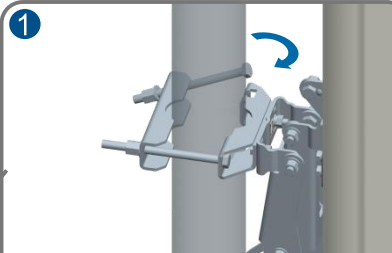
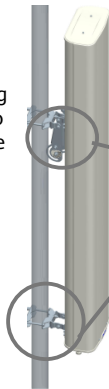
## 2 Install the bracket



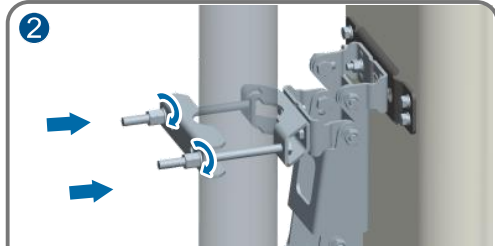
The same installation method applies to both upper and lower brackets. Tighten the nuts. The recommended torque M8 is 18 N·m.

## 3 Install the antenna

Tighten all the nuts before lifting the antenna onto the tower. Ensure the bracket is fully folded.



The same installation method applies to both upper and lower brackets.

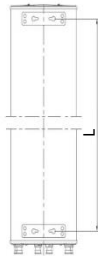


Install and tighten the nuts. The recommended torque M10 is 40 N·m.

## 4 Adjust the mechanical downtilt

### Method 1: Using a scale plate

The letter "L" on the scale plate indicates the distance between antenna bases. Determine the value that is closest to the actual distance. If the distance is approximately 1.4 m, observe the readings corresponding to "L=1.4 m".



The scale plates may vary with different types of downtilt kit. The scale plate shown in the right figure is only for reference.

Scale plate

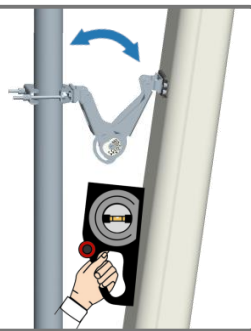


Example of a scale plate



### Method 2: Using an inclinometer

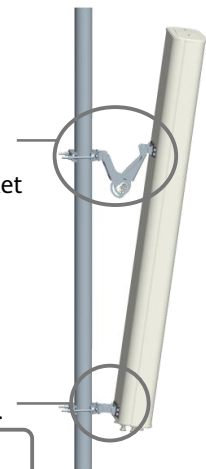
Before the adjustment, adjust the inclinometer to the desired downtilt. After the adjustment, locate the bead in the middle of the inclinometer.



Tighten the upper bracket

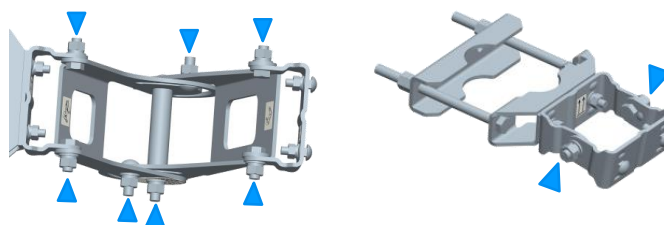


Tighten the lower bracket.



Loosen all the nuts as shown in the figure to adjust the downtilt. After the adjustment is complete, tighten all the nuts. Check the component shape and the position of screws before the adjustment. Strictly the operating torques given in the following figures must be used.

Recommended torque M10 = 40N·m

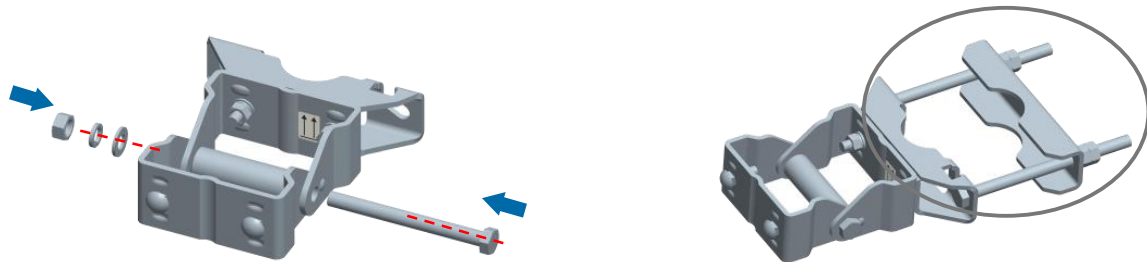


| Installation Tools   | Clamps  | Downtilt kit (Optional)  |
|--|---|--------------------------|
| <p>13 mm combination wrench (2 PCS)</p> <p>16 mm combination wrench (2 PCS)</p> <p>Torque wrench</p> <p>Inclinometer</p> | <p>(2 PCS)</p> <p>(1 PCS)</p> <p>(1 PCS)</p> <p>M10 x 150 (4 PCS)</p> <p>M10 x 110 (1 PCS)</p> <p>(1 PCS)</p> | <p>ASMDT0D01 (1 PCS)</p> |

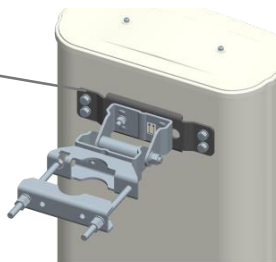
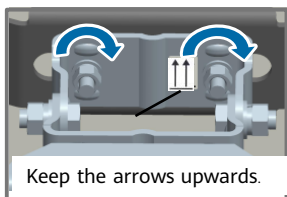
## Installation without Downtilt Kit

### 1 Assemble the clamps

Assemble 2 PCS clamps.



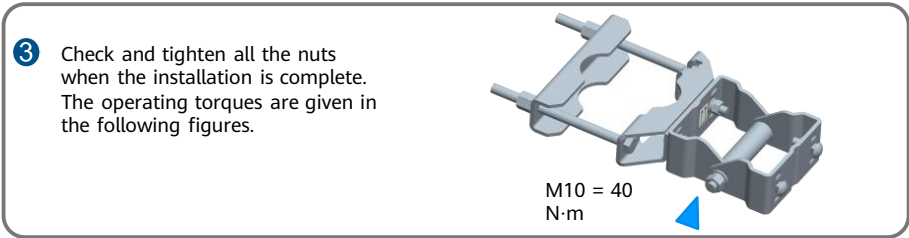
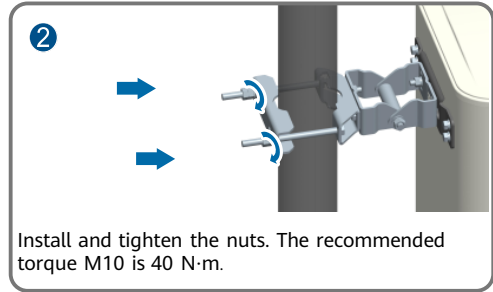
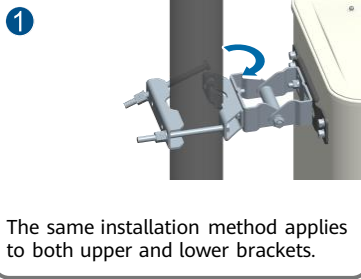
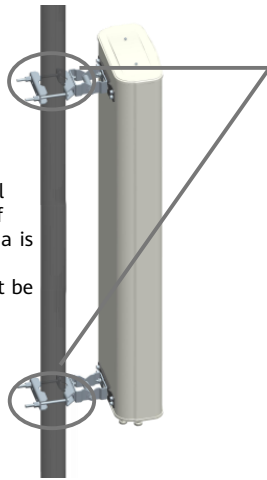
### 2 Install the clamps



The same installation method applies to both upper and lower brackets.  
Tighten the nuts. The recommended torque M8 is 18 N·m.

### 3 Install the antenna

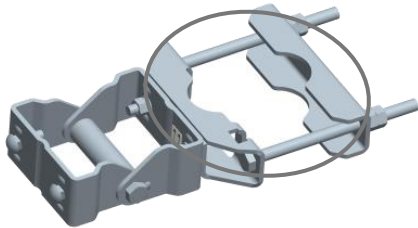
The mechanical downtilt of the antenna is fixed to 0° and cannot be adjusted.



### Installation with Downtilt Kit

#### 1 Assemble the bracket

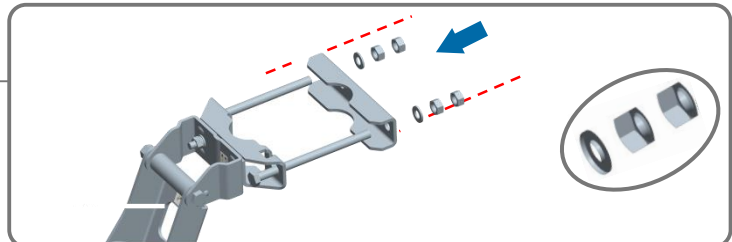
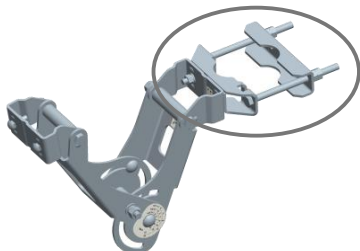
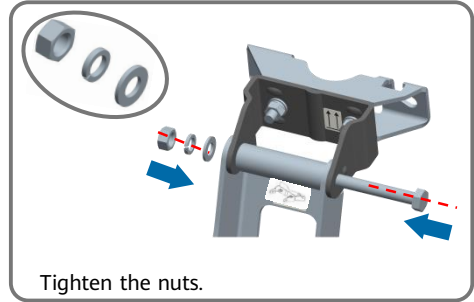
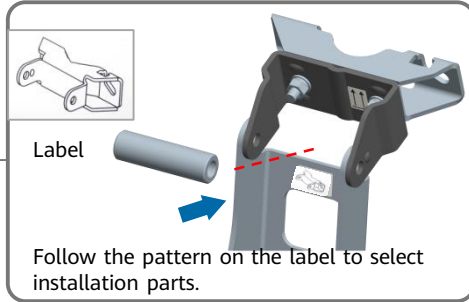
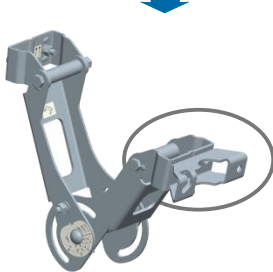
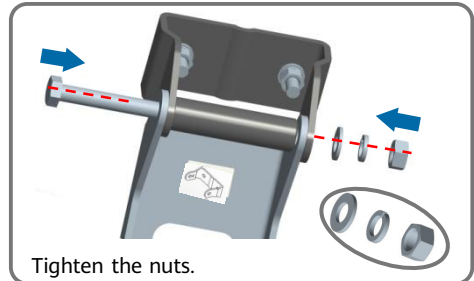
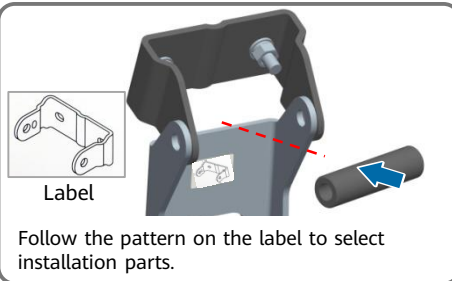
1 Assemble the lower bracket.



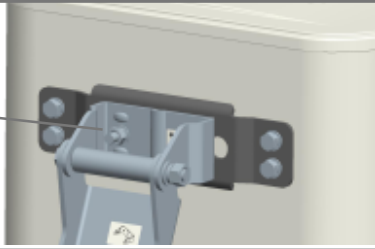
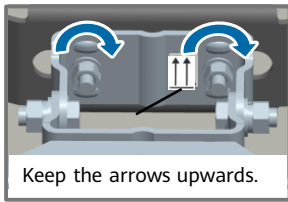
2 Disassemble the downtilt kit.



3 Assemble the upper bracket.



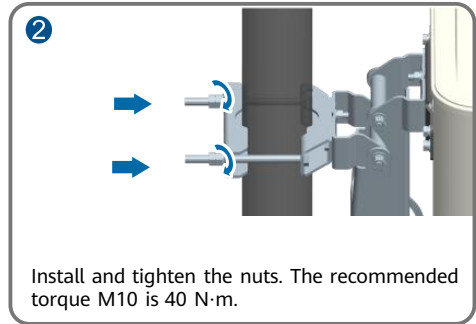
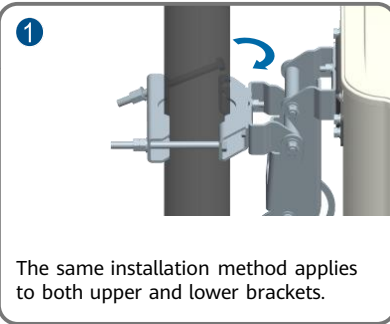
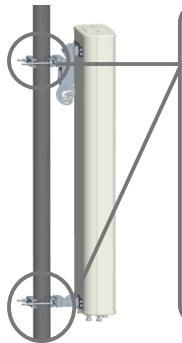
## 2 Install the bracket



The same installation method applies to both upper and lower brackets.  
Tighten the nuts. The recommended torque M8 is 18 N·m.

## 3 Install the antenna

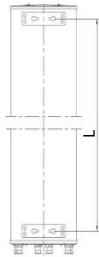
Tighten all the nuts before lifting the antenna onto the tower. Ensure the bracket is fully folded.



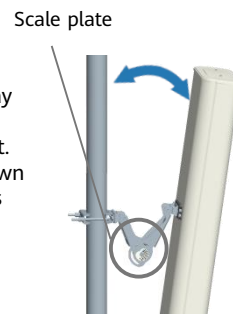
## 4 Adjust the mechanical downtilt

### Method 1: Using a scale plate

The letter "L" on the scale plate indicates the distance between antenna bases. Determine the value that is closest to the actual distance. If the distance is approximately 1.4 m, observe the readings corresponding to "L=1.4 m".



The scale plates may vary with different types of downtilt kit. The scale plate shown in the right figure is only for reference.

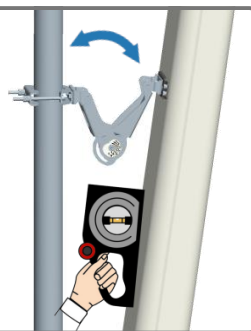


Example of a scale plate



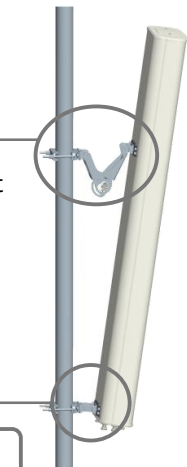
### Method 2: Using an inclinometer

Before the adjustment, adjust the inclinometer to the desired downtilt. After the adjustment, locate the bead in the middle of the inclinometer.



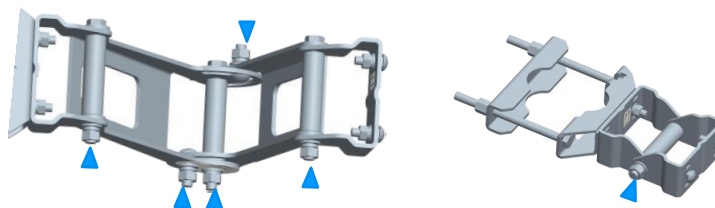
Tighten the upper bracket

Tighten the lower bracket.



Loosen all the nuts as shown in the figure to adjust the downtilt. After the adjustment is complete, tighten all the nuts. Check the component shape and the position of screws before the adjustment. Strictly the operating torques given in the following figures must be used.

Recommended torque M10 = 40N·m



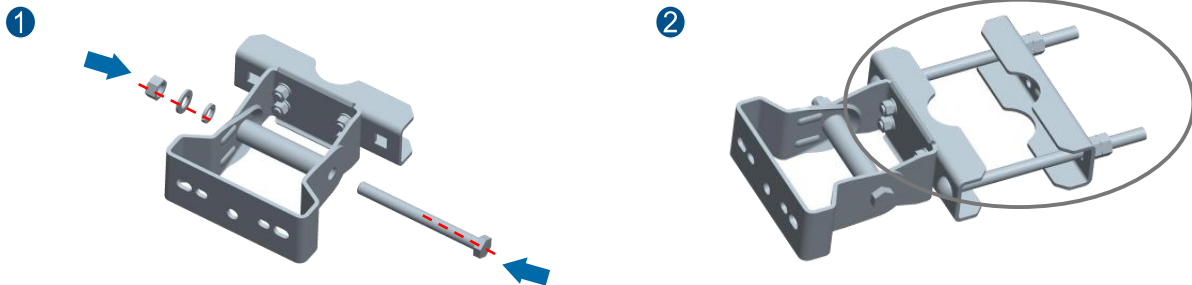


| Installation Tools   | Clamps  | Downtilt kit (Optional) |
|--|---|-------------------------|
| <p>13 mm combination wrench (2 PCS)</p> <p>16 mm combination wrench (2 PCS)</p> <p>18 mm combination wrench (2 PCS)</p> <p>Torque wrench</p> <p>Inclinator</p> | <p>(2 PCS)</p> <p>M8 (4 PCS)</p> <p>M10 (4 PCS)</p> <p>M12 (4 PCS)</p> <p>(1 PCS)</p> <p>(1 PCS)</p> <p>M10 x 110 (1 PCS)</p> | <p>ASMDT0D1 (1 PCS)</p> |

## Installation without Downtilt Kit

### 1 Assemble the clamps

Assemble two clamps.



### 2 Install the clamps

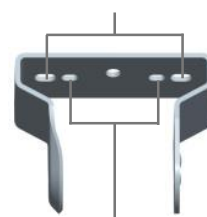


Install bolts on the antenna base. The same installation method applies to both upper and lower bases.

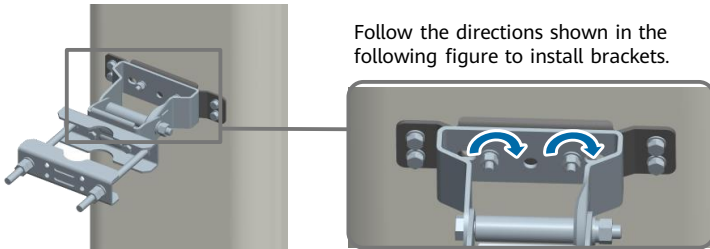


Align the bolt with the mounting hole on the clamp and determine the bolt model according to the position of the mounting hole. Replace the bolt if the bolt model is incorrect. Then, install and tighten the flat washer, spring washer and nut.

Use an M10 bolt for the M10 mounting hole. The recommended torque for M10 bolts is 30 N·m.



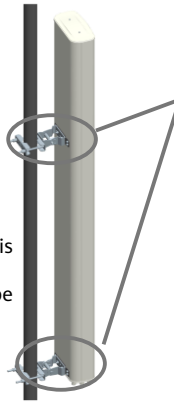
Use an M8 bolt for the M8 mounting hole. The recommended torque for M8 bolts is 18 N·m.



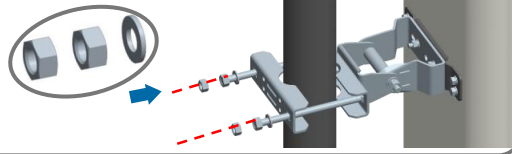
Follow the directions shown in the following figure to install brackets.

### 3 Install the antenna

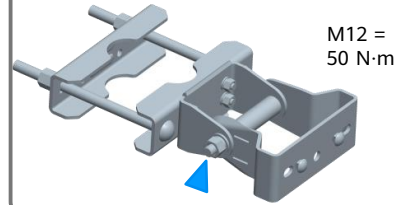
The mechanical downtilt of the antenna is fixed to 0° and cannot be adjusted.



1 The same installation method applies to both upper and lower brackets. Install and tighten the nuts. The recommended torque M12 is 50 N·m.



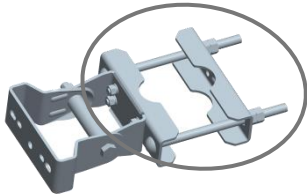
2 Check and tighten all the nuts when the installation is complete. The operating torques are given in the following figures.



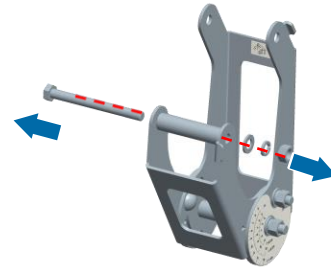
## Installation with Downtilt Kit

### 1 Assemble the bracket

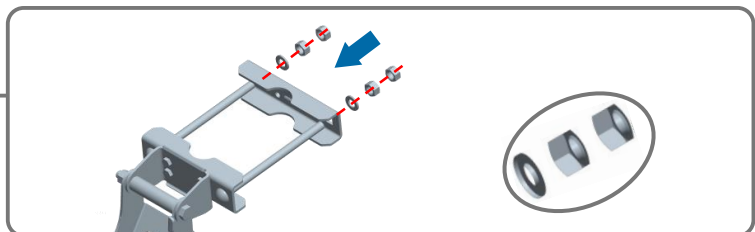
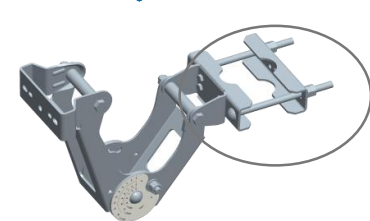
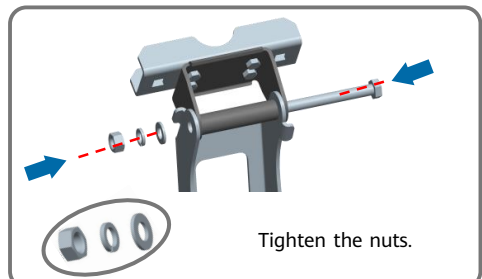
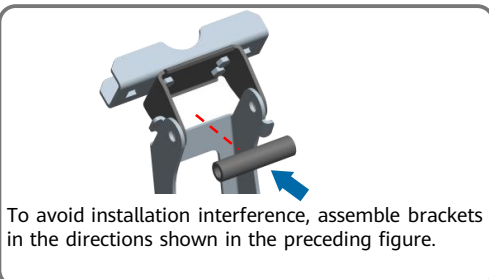
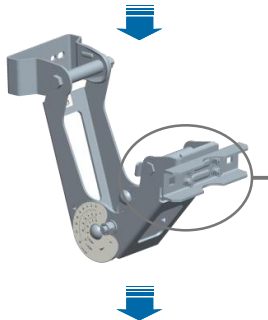
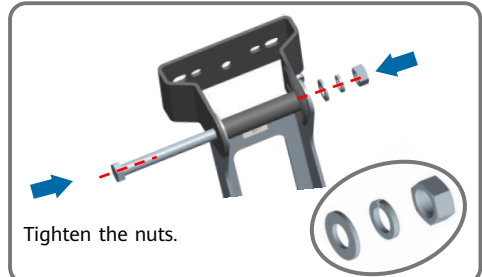
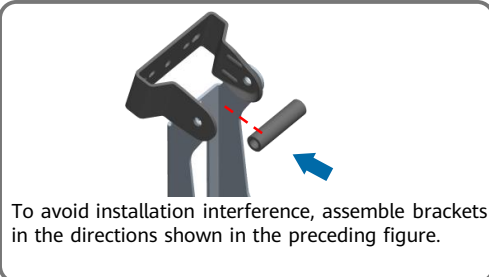
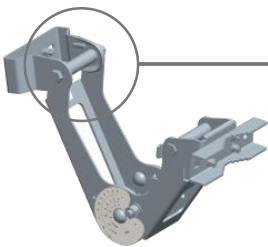
1 Assemble the lower bracket



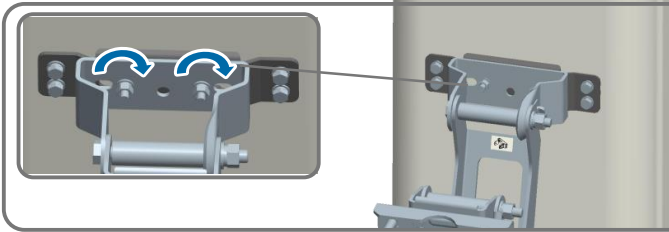
2 Disassemble the downtilt kit.



3 Assemble the upper bracket.



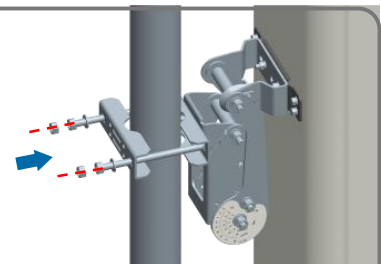
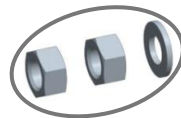
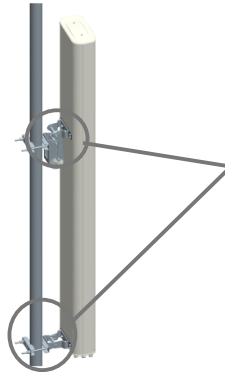
## 2 Install the bracket



For details about how to select bolts for fixing the bracket, see "Install the clamps". The same installation method applies to both upper and lower brackets.

## 3 Install the antenna

Tighten all the nuts before lifting the antenna onto the tower. Ensure the bracket is fully folded.

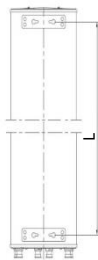


The same installation method applies to both upper and lower brackets. Install and tighten the nuts. The recommended torque M12 is 50 N·m.

## 4 Adjust the mechanical downtilt

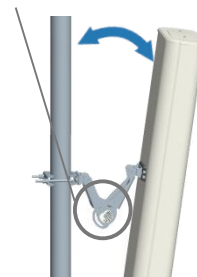
### Method 1: Using a scale plate

The letter "L" on the scale plate indicates the distance between antenna bases. Determine the value that is closest to the actual distance. If the distance is approximately 1.4 m, observe the readings corresponding to "L=1.4 m".



The scale plates may vary with different types of downtilt kit. The scale plate shown in the right figure is only for reference.

Scale plate

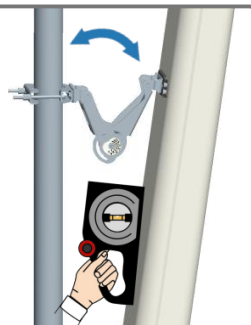


Example of a scale plate



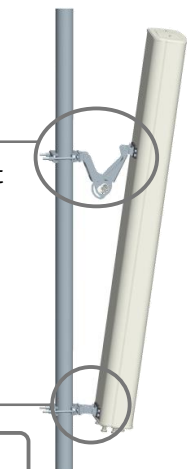
### Method 2: Using an inclinometer

Before the adjustment, adjust the inclinometer to the desired downtilt. After the adjustment, locate the bead in the middle of the inclinometer.



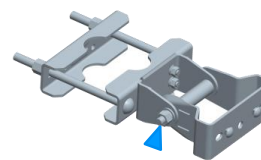
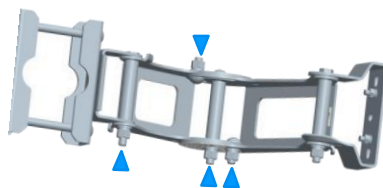
Tighten the upper bracket

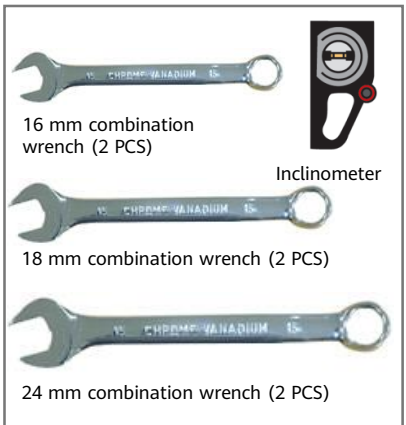
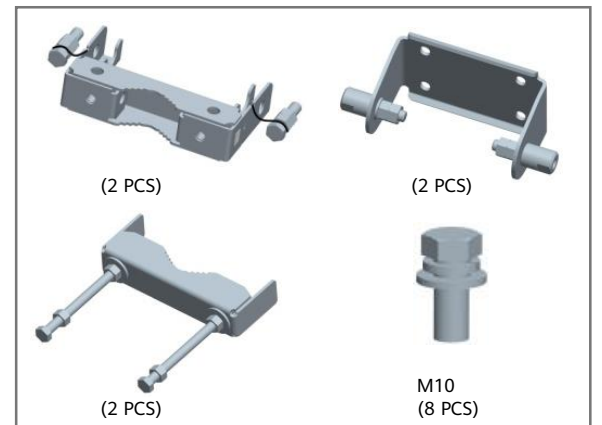
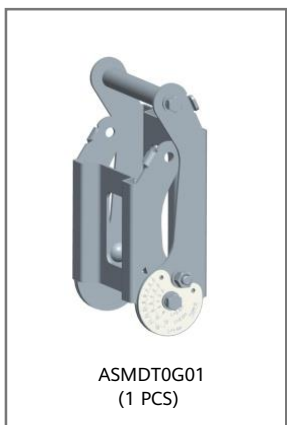
Tighten the lower bracket.



Loosen all the nuts as shown in the figure to adjust the downtilt. After the adjustment is complete, tighten all the nuts. Check the component shape and the position of screws before the adjustment. Strictly the operating torques given in the following figures must be used.

Recommended torque M12 = 50N·m

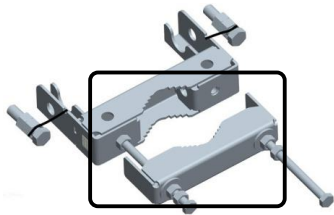


| Installation Tools  | Clamps   | Downtilt kit (Optional)  |
|---|--|--|
|  <p>16 mm combination wrench (2 PCS)</p> <p>Inclinometer</p> <p>18 mm combination wrench (2 PCS)</p> <p>24 mm combination wrench (2 PCS)</p> |  <p>(2 PCS)</p> <p>(2 PCS)</p> <p>(2 PCS)</p> <p>M10 (8 PCS)</p> |  <p>ASMDT0G01 (1 PCS)</p> |

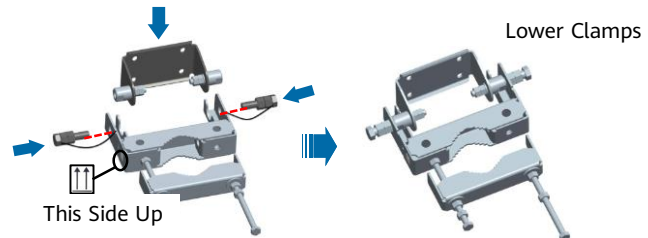
## Installation without Downtilt Kit

### 1 Assemble the clamps

Pole Clamps

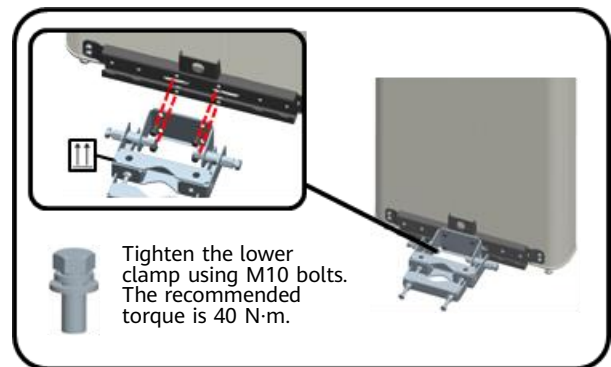
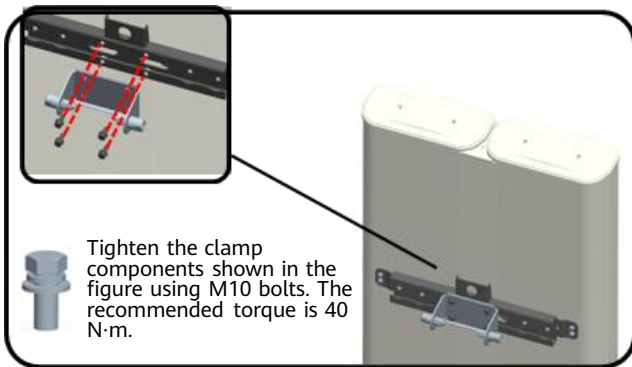


Assemble two pole clamps

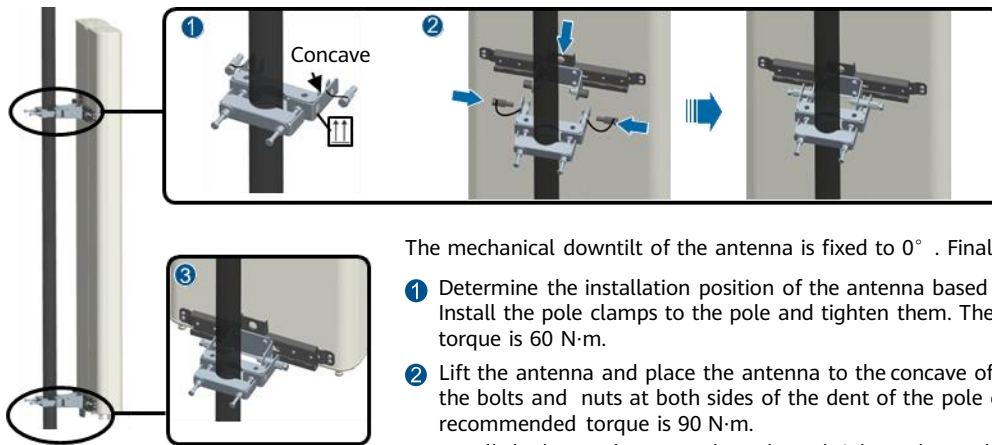


Use one pole clamp and the U-shape clamp component shown in the preceding figure to assemble one lower clamp, and partially tighten the nuts.

### 2 Install the clamps



### 3 Install the antenna



The mechanical downtilt of the antenna is fixed to 0°. Finally, tighten all the nuts.

- 1 Determine the installation position of the antenna based on site requirements. Install the pole clamps to the pole and tighten them. The M12 bolt recommended torque is 60 N·m.
- 2 Lift the antenna and place the antenna to the concave of the pole clamp. Tighten the bolts and nuts at both sides of the dent of the pole clamp. The M16 bolt recommended torque is 90 N·m.
- 3 Install the lower clamps to the pole and tighten them. The M12 bolt recommended torque is 60 N·m.

### Installation with Downtilt Kit

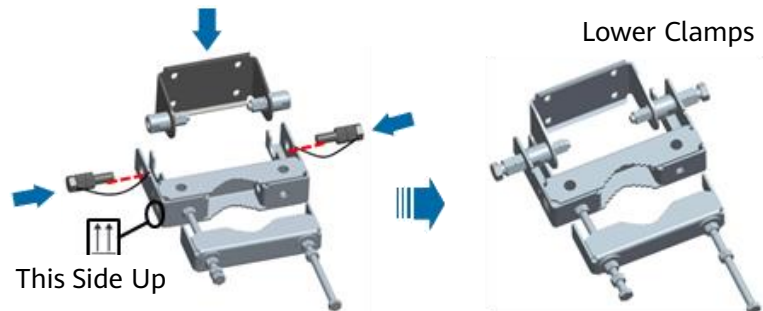
#### 1 Assemble the bracket

- 1 Assemble the lower clamps .

Pole Clamps



Assemble two pole clamps

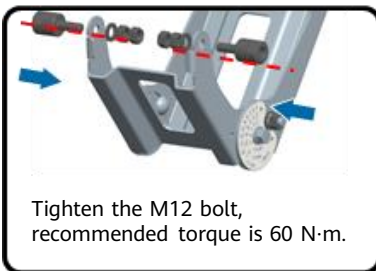


Use one pole clamp and the U-shape clamp components shown in the preceding figure to assemble one lower clamp, and partially tighten the nuts.

- 2 Disassemble the clamps and downtilt kit .



- 3 Assemble the upper bracket.



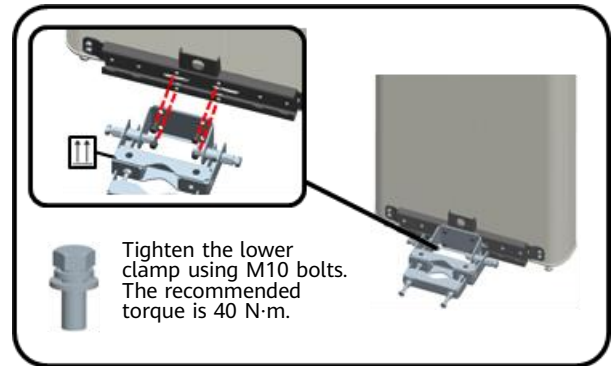
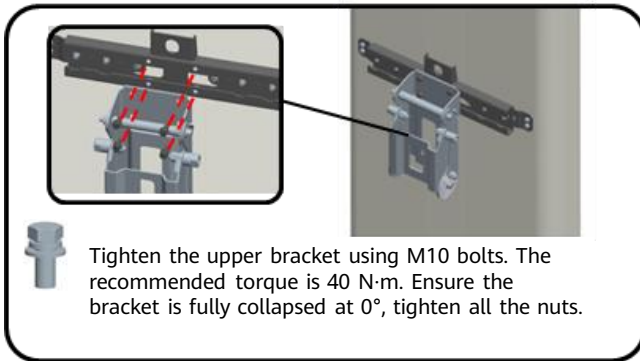
Tighten the M12 bolt, recommended torque is 60 N·m.



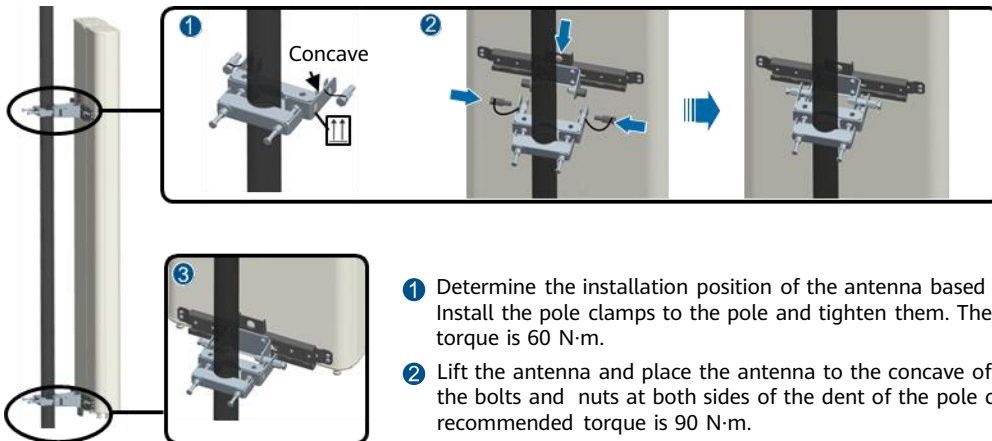
Tighten the M12 bolt, recommended torque is 60 N·m.



## 2 Install the bracket



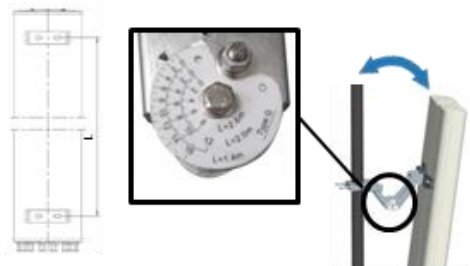
## 3 Install the antenna



## 4 Adjust the mechanical downtilt

### Method 1: Using a scale plate

The letter "L" on the scale plate indicates the distance between antenna bases. Determine the value that is closest to the actual distance. If the distance is approximately 1.4 m, observe the readings corresponding to "L=1.4 m".



Method 1 is used to roughly adjust the mechanical tilt. The reading is only for reference.

Finally, tighten all the nuts.  
Recommended torque:  
M10 = 40 N·m, M12 = 60 N·m  
M16 = 90 N·m

### Method 2: Using an inclinometer

Method 2 is used to precisely adjust the mechanical tilt.

Before the adjustment, adjust the inclinometer to the desired downtilt. After the adjustment, locate the bead in the middle of the inclinometer.



For particular installation, please contact Huawei Technologies Co., Ltd. [www.huawei.com](http://www.huawei.com)



## Huawei Antenna Test Standard

| Test Item               | Reference Standard | Operation Method         | Condition  | Duration                     | Verification Item   |
|-------------------------|--------------------|--------------------------|--|------------------------------|---|
| Low temperature         | ETSI 300 019-2-4   | IEC 60068-2-1            | -55°C  | 16h                          | Appearance inspection;<br><br>Standing wave, insulation, and intermodulation before and after the test; |
| High temperature        | ETSI 300 019-2-4   | IEC 60068-2-2            | +70°C  | 16h                          |   |
| Temperature cycle       | ETSI 300 019-2-4   | IEC 60068-2-14           | -55°C/+70°C  | 5 cycles,50h                 |   |
| Humidity                | ETSI 300 019-2-4   | IEC 60068-2-30           | +25°C/+55°C @ 95% RH   | 10 cycles, 240h              |   |
| Wind load               | ETSI 300 019-2-4   | IEC 721-3-4              | Simulated constant force of 200 km/h wind                    | 3 surfaces, 144h             |   |
| Vibration               | ETSI 300 019-2-4   | IEC 60068-2-6            | sinusoidal<br>6.15mm,10m/s <sup>2</sup> , 2-9HZ<br>9HZ-200HZ | 3 axes × 5 sweep cycles      |   |
| Transportation          | ETSI 300 019-2-4   | IEC 60068-2-64           | Truck level 3  | 3 axes, 90min                |   |
| Shock (without packing) | ETSI 300 019-2-4   | IEC 60068-2-27           | 200 m/s <sup>2</sup> , 6ms pulse width                       | 72s                          |   |
| Shock (with packing)    | ETSI 300 019-2-2   | IEC 60068-2-27           | 300 m/s <sup>2</sup> ,6ms pulse width                        | 72s                          |   |
| Drop (with packing)     | ETSI 300 019-2-2   | ISO 12048                | 3 surfaces*2/ 2 Angles/<br>4 Edges                           | 12 drops                     |   |
| Rain                    | ETSI 300 019-2-4   | IEC 60068-2-18           | 0.067m <sup>3</sup> /min, 5r/min                             | 2h                           |   |
| Wind driven rain        | GR-487-CORE        | MIL-STD-810 Method 506.3 | 150mm/h, 31m/s,<br>0.5mm-4.5mm, 45°                          | 4 surfaces, more than 120min |   |
| Salt mist (continuous)  | ETSI 300 019-2-4   | IEC 60068-2-11           | 5% NaCl mist @+40°C  | 1000h                        |   |
| Solar exposure          | ETSI 300 019-2-4   | IEC 60068-2-5            | 1120W/s <sup>2</sup> @+40°C                                  | 24h/cycle,<br>56 days        |   |
| Sand and dust           | ETSI 300 019-2-4   | IEC 60068-2-68           | <150um, 10.8.9m/s,<br>@25°C <30%                             | 12h                          |   |



## **Catalogue Issue 01/2020**

Any previous datasheet issues become invalid.

We reserve the right to make alterations in accordance with the requirements of our customers.

Huawei antenna supports NGMN recommendations on Base Station Antenna Standards (BASTA).



### **The notes of Huawei antenna followed:**

- Facilities, such as towers and poles, must bear the weight and wind load of antennas.
- Huawei's standard brackets and accessories must be used for any installation.
- The antenna working environment must meet the requirements specified in the datasheet.
- Only qualified personnel are allowed to perform installation. Installation tools and procedures must conform to requirements described in the antenna installation guide.

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