

Huawei Antenna & Antenna Line Products Catalogue 2014





Huawei Network Antenna, Strengthening MBB Network Performance

In 2004, Huawei acquired base station antenna BU from HUBER+SUHNER, a Switzerland company. The first ten years of Huawei antenna started from that high point. In the ten years, Huawei antenna experienced a rapid development. Now Huawei boasts 5 R & D centers (Munich/Germany, Ottawa/Canada, New Jersey/USA, Shenzhen/China, Xi'an/China) globally, and a total of more than 200 patents, as well as taken part in more than 50 standard organizations. Being equipped with automated antenna production line and strict quality management process, Huawei

provides full series LTE antenna with industry-leading designs for global customer.



Huawei Antenna Vision

To focus on customers' challenges and needs in MBB Era by providing best network antenna solutions based on deep insight into network.



Focusing on customers' challenges and requirements, Huawei antenna adopts 3S(Single, Synergy, Soft) strategy and quality control system to boost LTE deployment and strengthen the network performance.

Single — One deployment for TCO saving

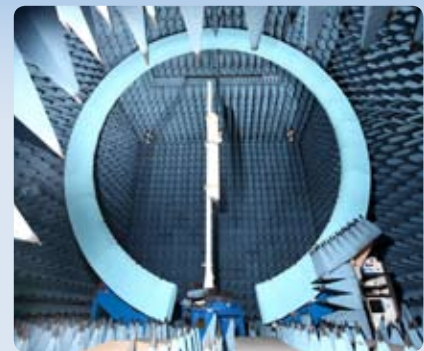
- Full Series – Huawei offers more than 100 types of LTE antennas that support multi-band and ultra-broadband.
- EasyRET – Plug and play RET antenna solution improves commission efficiency by 50% and reliability 3 times than traditional external RET solution.
- Slim Design – Creative dipole reuse technology allows antenna using one column to support dual band, reducing width by 50%.
- High Order MIMO – Multi-band and ultra-broadband antenna can support higher order and flexible MIMO up to 8T8R with small size.
- Side-by-Side – An innovative dipole array design enables Huawei antennas a better MIMO performance.

Synergy — Better Network Performance

- Synergy Design – Huawei is the vendor to adopt a synergy design process to improve overall network performance by optimizing the antenna pattern design.
- SG128 Lab – SG128 Lab is a industry-leading spherical near-field antenna testing system, the system can support high precision 3D pattern, which is the basis for synergy design.

Soft — AAU for Soft Capacity

- Passive-to-Active – Huawei is the vendor to provide network antennas and base stations that support passive to active antenna development.
- High capacity – Active Antenna Unit can provide high capacity solution by smart antenna technologies.



Huawei's SG128 spherical near field testing lab

- Frequency range: 0.4 GHz-6 GHz
- Size: 10m x 10m x 10m
- High performance ultra-broadband dual-polarization probes
- Five-axis turret with 0.01 degree precision
- Albatross high performance shielded room from Germany
- AEMI absorbing materials from the US
- Infrared laser for antenna positioning
- Advanced temperature control system



High Quality Ensure Long-term Reliability

Huawei antenna boasts E2E quality control process from raw materials, manufacturing processes to testing. Huawei antennas select material based on application scenario to ensure long-term reliability. In addition to strict material selection, Huawei also adopts detailed reliability design such as RCU self-lock gear.

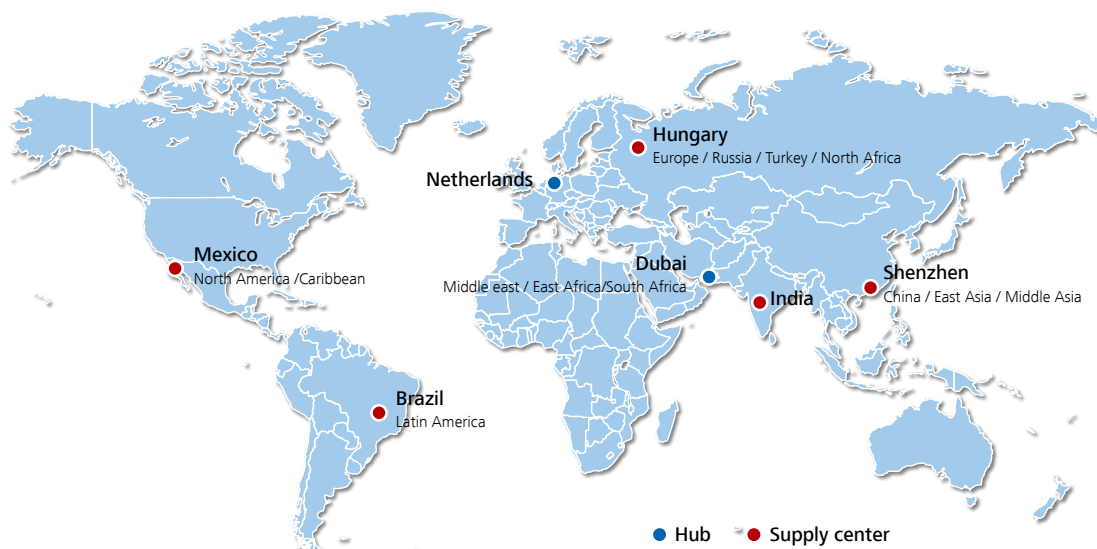
During validation process, besides international standard, Huawei unique acceleration life test is used to find the earlier failure points in design including dual 85 test (85°C and humidity 85% for 1000h), extreme drop, highly accelerated aging etc.

Key components (such as phase shifter) adopt automatic process to eliminate human skill difference such as automatic soldering robot, automatic screwing machine and so on, which ensures products consistency and high production capacity.



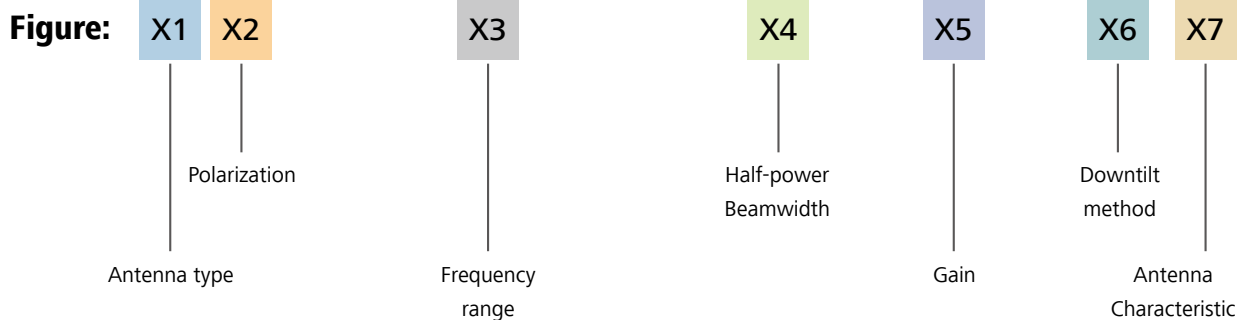
Global Logistics Center Guarantee Fast Delivery

5 regional supply centers (Shenzhen, India, Hungary, Brazil and Mexico) and 2 hubs (Dubai, Netherlands) to ensure the fast delivery for global customer.



Antenna Type Naming Rule

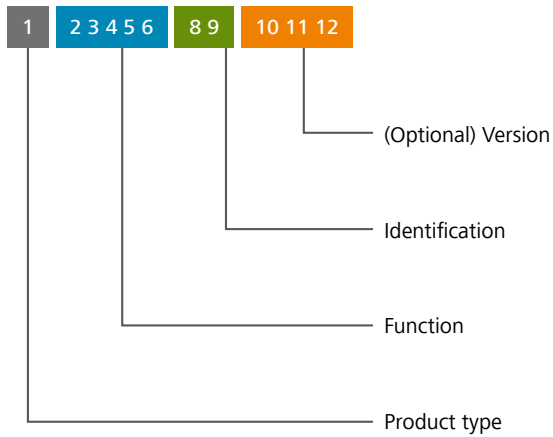
Example: **D** **XXX**-698-960/1710-2690/1710-2690-**65/65/65**-**17i/17.5i/17.5i**-**M/M/M**-**B**/**R**



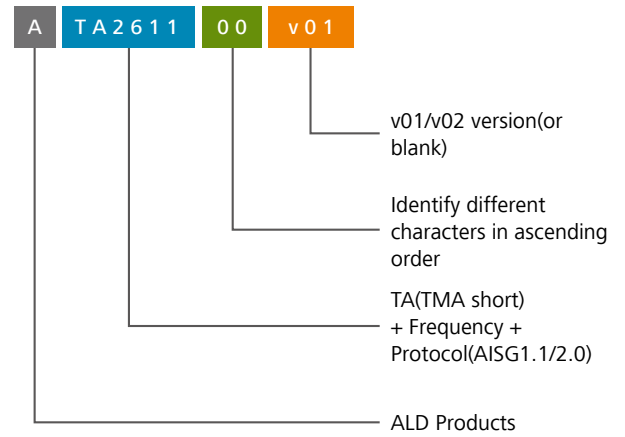
X1	D	Directional
	O	Omni-directional
	C	Cluster
	I	Indoor
	S	Smart Beam
	M	Multi Beam
X2	X	X Polarization
	V	Vertical Polarization
	H	Horizontal Polarization
	C	Circular Polarization
X3	Number	Frequency Bandwidth
X4	Number	Half-power beam Width
X5	Number	Gain(dBi)
X6	Number + Letter	0F: Fixed downtilt
	Number	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
	F	RCU Factory Pre-commissioning

Product Model Naming Rule

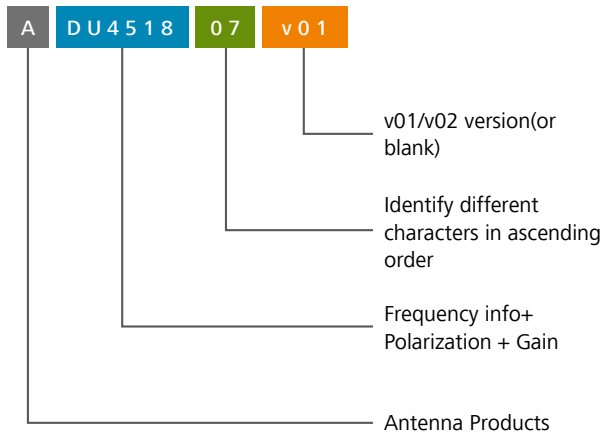
Figure:



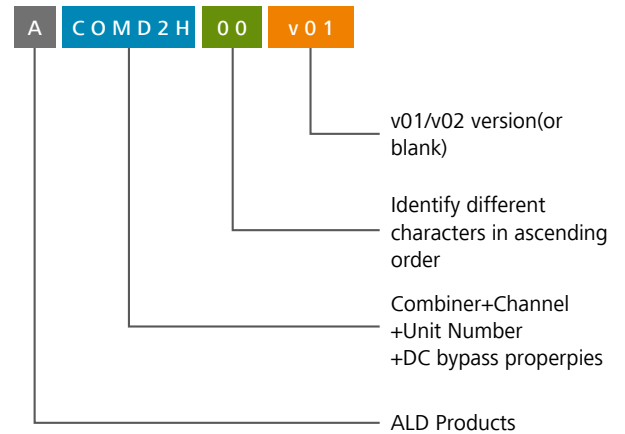
TMA Example: ATA261100



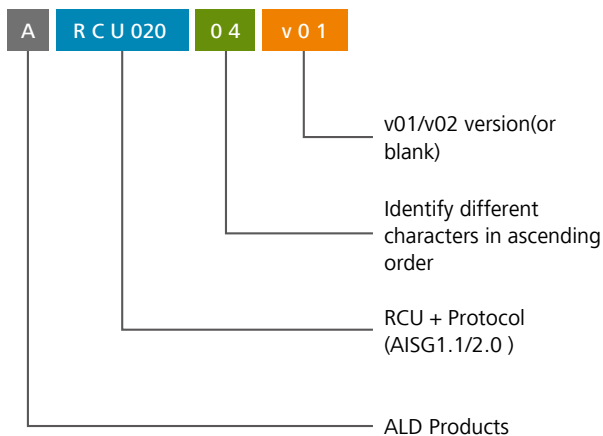
Antenna Example: ADU451807v01



Combiner Example: ACOMD2H00



RCU Example: ARCU02004



Notes:

- 45: single-band 450–470 MHz antennas
- 79: single-band 790–960 MHz antennas
- 90: single-band 806–960 MHz antennas
- 19: single-band 1710–2200 MHz or 1710–2170 MHz antennas
- 25: single-band 2300–2700 MHz antennas
- 26: single-band 1710–2690 MHz antennas
- DU: dual-band antennas
- TR: tri-band antennas
- QU: quad-band antennas
- PE: penta-band antennas
- 80: TMAs working at 800 MHz
- 90: TMAs working at 900 MHz
- 18: TMAs working at 1800 MHz
- 21: TMAs working at 2100 MHz
- 26: TMAs working at 2600 MHz
- DU: dual-band TMAs

AISG Color Coding Standard

AISG Color Coding for Connectors on Base Station Antennas

Upper Band Edge Range	Assigned Color Code	Base Color Tag
700MHz to 1000MHz	RAL 3020	r
1001MHz to 1700MHz	RAL 6029	g
1701MHz to 2300MHz	RAL 5015	b
2301MHz to 4000MHz	RAL 1023	y
One Color making Different Pattern on Dual-band or Multi-band		

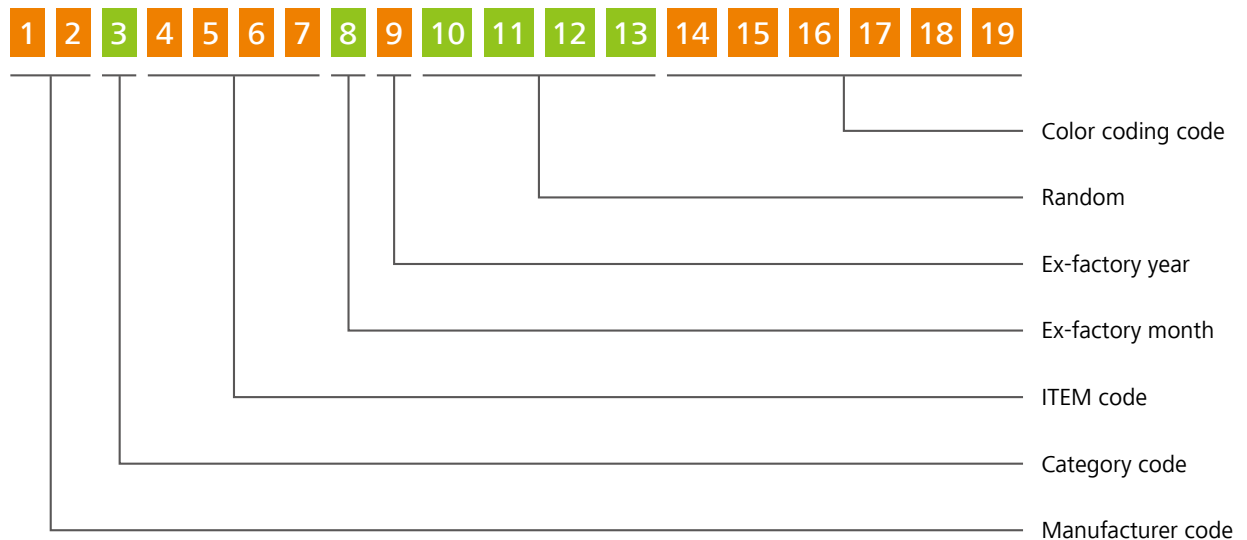


r,g,b,y

Dual-band Antenna	 <p>800/900MHz EasyRET</p>  <p>800/2100MHz EasyRET</p>
Tri-band Antenna	 <p>1800MHz/2/2.6GHz EasyRET</p>  <p>1800MHz/2/2.6GHz MET</p>
Quad-band Antenna	 <p>800/1800MHz/2/2.6GHz EasyRET</p>
Penta-band Antenna	 <p>800/900/1800MHz/2/2.6GHz EasyRET</p>

AISG Color Coding Standard

The SN of a integrated RCU contains 19 digits:



- The first two digits indicate the manufacturer code, fixed as **HW**.
- The third digit indicates integrated RCUs, fixed as **M**.
- The fourth to seventh digits indicate the ITEM code of the antenna.
Obtain the last four digits of the ITEM code by default. For example, if the ITEM code is 27010994, obtain 0994.
- The eighth digit indicates the ex-factory year.
 - For example, take 4 for the year of 2004. Starting from 2010, take the 26 English letters to represent the year in sequence. **A** indicates 2010, **B** indicates 2011, and so on.
- The ninth digit indicates the ex-factory month.
The value is a hexadecimal digit. For example, take 1 for January, and A for October.
- The tenth to thirteenth digits are obtained at random.
- The fourteenth to nineteenth digits indicate color-coding information.

Use the last or last several digits to show the band features and position of the antenna port. Fill other digits that are not used with a random code.

A. Antenna

A - 01. Single-band Antenna

A - 02. Dual-band Antenna

A - 03. Triple-band Antenna

A - 04. Quad-band Antenna

A - 05. Penta-band Antenna

A - 06. Hexa-band Antenna

A - 07. TDD Antenna

A - 08. Dual-Beam Antenna

A - 09. Cluster Antenna

A - 10. Tri-sector Bracket

B. TMA&Combiner

B - 01. TMA

B - 02. Combiner

C. RET system

RCU/BT/SBT/AISG cable/PCU

D. Installation Guide

Installation Guide (MET Antenna/RET Antenna/FET Antenna
/Cluster Antenna/TDD Smart Antenna/AIMM)

A - 01. Single-band Antenna

Frequency Range (MHz)	Polarization	3dB Horizontal beam width (°)	Gain (dBi)	Electrical downtilt (°)	Tilt Method	Connector	Dimension (mm)	Model	Page
790-960	x	65	15	0-14	MET	2 x 7/16 DIN-F	1356 x 259 x 135	A79451500v01	1
790-960	x	65	15	0-14	EasyRET	2 x 7/16 DIN-F	1356 x 259 x 135	**A794515R0	3
790-960	x	65	16.5	0-12	MET	2 x 7/16 DIN-F	1936 x 259 x 135	A79451600v02	4
790-960	x	65	16.5	0-12	EasyRET	2 x 7/16 DIN-F	1936 x 259 x 135	**A794516R0	6
790-960	x	65	17.5	0-10	MET	2 x 7/16 DIN-F	2535 x 259 x 135	A79451700v02	7
790-960	x	65	17.5	0-10	EasyRET	2 x 7/16 DIN-F	2535 x 259 x 135	**A794517R0	9
790-960	x	90	15	0-12	MET	2 x 7/16 DIN-F	1936 x 259 x 135	**A79451503	10
790-960	x	90	17	0-10	MET	2 x 7/16 DIN-F	2535 x 259 x 135	**A79451702	11
690-960	x	65	16.5	0-12	MET	2 x 7/16 DIN-F	1936 x 259 x 135	**A70451600	12
690-960	x	65	17.5	0-10	MET	2 x 7/16 DIN-F	2535 x 259 x 135	**A70451700	13
690-960	x	65	16.5	0-12	EasyRET	2 x 7/16 DIN-F	1936 x 259 x 135	**A704516R0	14
690-960	x	65	17.5	0-10	EasyRET	2 x 7/16 DIN-F	2535 x 259 x 135	**A704517R0	15
1710-2170	x	90	17	2-10	MET	2 x 7/16 DIN-F	1306 x 155 x 79	A19451703	16
1710-2170	x	33	21	2-10	MET	2 x 7/16 DIN-F	1318 x 289 x 85	A19452101	17
1710-2200	x	65	15.5	0-12	MET	2 x 7/16 DIN-F	702 x 155 x 89	A19451505	18
1710-2200	x	65	18	0-10	MET	2 x 7/16 DIN-F	1311 x 155 x 89	A19451811	20
1710-2200	x	65	18	0-10	EasyRET	2 x 7/16 DIN-F	1315 x 155 x 89	A194518R0	22
1710-2200	x	65	19.5	0-6	MET	2 x 7/16 DIN-F	1954 x 155 x 89	A19451902	24
1710-2690	x	65	16	0-14	MET	2 x 7/16 DIN-F	841 x 155 x 109	A26451500	26

** Preliminary Issue

A - 01. Single-band Antenna

Frequency Range (MHz)	Polarization	3dB Horizontal beam width (°)	Gain (dBi)	Electrical downtilt (°)	Tilt Method	Connector	Dimension (mm)	Model	Page
1710-2690	x	65	18	0-12	MET	2 x 7/16 DIN-F	1365 x 155 x 109	A26451800v01	28
1710-2690	x	65	18	0-12	EasyRET	2 x 7/16 DIN-F	1365 x 155 x 109	A264518R0	30
1710-2690	x	65	19.5	0-6	MET	2 x 7/16 DIN-F	1932 x 155 x 89	A26451900	32
450-470	v	360	9	0	FET	1 x 7/16 DIN-F	Φ52 x 3316	A45VP0900	34
450-470	x	65	15	0	FET	2 x 7/16 DIN-F	2042 x 486 x 98	A45451500	35
790-960	x	65	17	0	FET	2 x 7/16 DIN-F	1936 x 260 x 135	A90451702v01	36
790-960	x	65	17	3	FET	2 x 7/16 DIN-F	1936 x 260 x 135	A90451705v01	38
790-960	x	65	17	6	FET	2 x 7/16 DIN-F	1936 x 260 x 135	A90451709	40
790-960	x	65	18	0	FET	2 x 7/16 DIN-F	2535 x 259 x 135	A90451802v01	42
790-960	x	65	18	3	FET	2 x 7/16 DIN-F	2535 x 259 x 135	A90451805v01	44
1710-2170	x	90	17	0	FET	2 x 7/16 DIN-F	1306 x 155 x 79	A19451704	46
1710-2170	x	90	17	3	FET	2 x 7/16 DIN-F	1306 x 155 x 79	A19451705	48
1710-2170	x	33	21	0	FET	2 x 7/16 DIN-F	1318 x 289 x 85	A19452102	50
1710-2170	x	65	21	0	FET	2 x 7/16 DIN-F	2170 x 155 x 79	A19452100	51
1710-2170	x	65	21	2	FET	2 x 7/16 DIN-F	2170 x 155 x 79	A19452103	52
1710-2200	x	65	15.5	3	FET	2 x 7/16 DIN-F	702 x 155 x 89	A19451601	53
1710-2200	x	65	15.5	6	FET	2 x 7/16 DIN-F	702 x 155 x 89	A19451602	55
1710-2200	x	65	18	0	FET	2 x 7/16 DIN-F	1311 x 155 x 89	A19451800v01	57
1710-2200	x	65	18	3	FET	2 x 7/16 DIN-F	1311 x 155 x 89	A19451810v01	59
1710-2200	x	65	18	6	FET	2 x 7/16 DIN-F	1311 x 155 x 89	A19451802v01	61

DX-790-960-65-15i-M

Model: A79451500v01



A - 01

Electrical Properties

Frequency range (MHz)	790 - 960								
	790 - 862			824 - 894			880 - 960		
Polarization	+45°, -45°								
Electrical downtilt (°)	0 - 14, continuously adjustable								
Gain (dBi)	0°	7°	14°	0°	7°	14°	0°	7°	14°
	14.6	14.6	14.5	14.9	14.8	14.7	15.3	15.1	14.8
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	7°	14°	0°	7°	14°	0°	7°	14°
	18	18	16	19	17	16	18	17	15
Horizontal 3dB beam width (°)	68			67			65		
Vertical 3dB beam width (°)	16.0			15.3			14.5		
VSWR	< 1.5								
Isolation between ports (dB)	≥ 30								
Front to back ratio, copolar (dB)	Typ. 28								
Cross polar ratio (dB)	0°	Typ. 25							
	± 60°	≥ 10							
Max. power per input (W)	500 (at 50°C ambient temperature)								
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)								
Squint (°)	Avg. 1.5								
Tracking (dB)	Avg. 1.0 (within 10dB HBW)								
Impedance (Ω)	50								
Grounding	DC Ground								

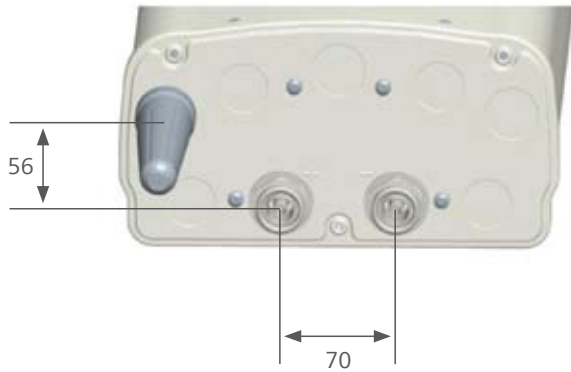
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1356 x 259 x 135
Antenna weight (kg)	11.2
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 440 (at 150 km/h) Lateral: 230 (at 150 km/h) Rear side: 585 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

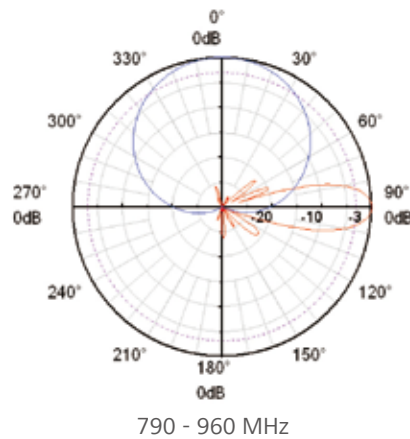
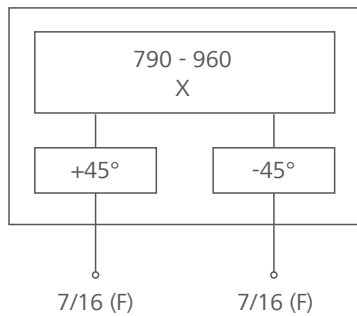
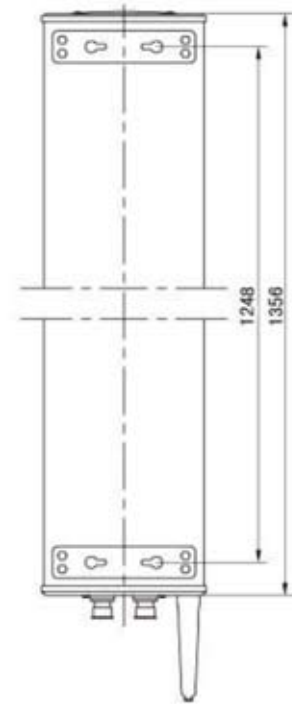


DX-790-960-65-15i-M

Model: A79451500v01



Unit: mm



NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

Preliminary Issue

Electrical Properties	
Frequency range (MHz)	790 - 960
Electrical downtilt (°)	0 - 14
Gain (dBi)	15.3
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	17
Horizontal 3dB beam width (°)	65
Vertical 3dB beam width (°)	15.3
VSWR	< 1.5
Front to back ratio, copolar (dB)	Typ. 28
Cross polar ratio (dB)	0°
	± 60°
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1356 x 259 x 135
Antenna net weight (kg)	11.2
Mechanical downtilt (°)	0 - 16
Connector	2 x 7/16 DIN Female
RET type	Integrated RET
RET protocols*	AISG 2.0 / 3GPP

DX-790-960-65-16.5i-M

Model: A79451600v02



Electrical Properties

Frequency range (MHz)	790 - 960								
	790 - 862			824 - 894			880 - 960		
Polarization	+45°, -45°								
Electrical downtilt (°)	0 - 12, continuously adjustable								
Gain (dBi)	0°	6°	12°	0°	6°	12°	0°	6°	12°
	16.2	16.3	16.0	16.3	16.5	16.3	16.6	16.8	16.4
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	6°	12°	0°	6°	12°	0°	6°	12°
	17	19	20	17	19	20	18	20	17
Horizontal 3dB beam width (°)	69			68			65		
Vertical 3dB beam width (°)	10.1			9.8			9.2		
VSWR	< 1.5								
Isolation between ports (dB)	≥ 30								
Front to back ratio, copolar (dB)	Typ. 28								
Cross polar ratio (dB)	0°	Typ. 25							
	± 60°	≥ 10							
Max. power per input (W)	500 (at 50°C ambient temperature)								
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)								
Squint (°)	Avg. 1.5								
Tracking (dB)	Avg. 1.0 (within 10dB HBW)								
Impedance (Ω)	50								
Grounding	DC Ground								

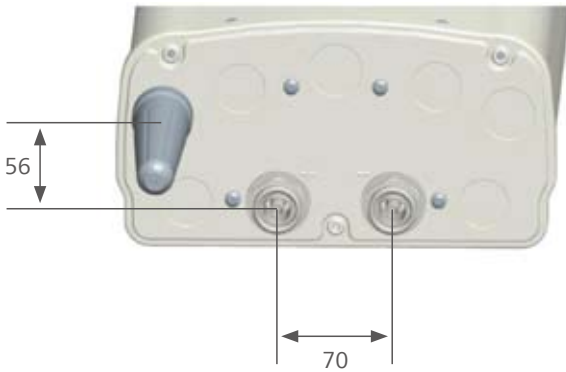
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1936 x 259 x 135
Antenna net weight (kg)	12.5
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 665 (at 150 km/h) Lateral: 345 (at 150 km/h) Rear side: 880 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

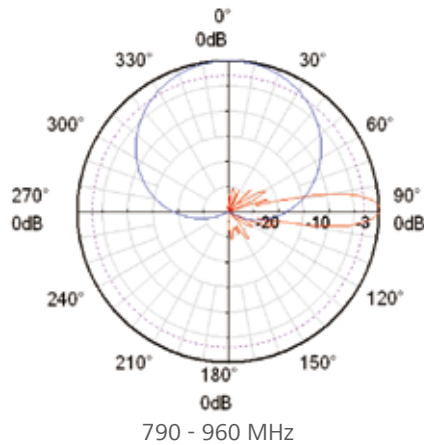
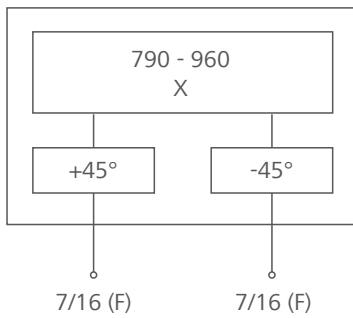
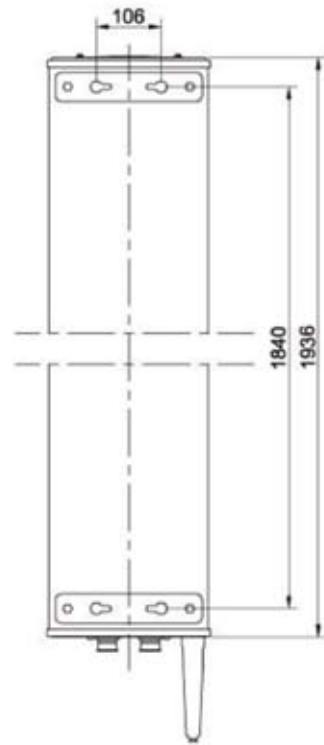


DX-790-960-65-16.5i-M

Model: A79451600v02



Unit: mm



NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

Preliminary Issue

Electrical Properties		
Frequency range (MHz)	790 - 960	
Electrical downtilt (°)	0 - 12	
Gain (dBi)	16.5	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	18	
Horizontal 3dB beam width (°)	65	
Vertical 3dB beam width (°)	9.8	
VSWR	< 1.5	
Front to back ratio, copolar (dB)	Typ. 28	
Cross polar ratio (dB)	0°	Typ. 25
	± 60°	≥ 10
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)	

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1936 x 259 x 135
Antenna net weight (kg)	12.5
Mechanical downtilt (°)	0 - 12
Connector	2 x 7/16 DIN Female
RET type	Integrated RET
RET protocols	AISG 2.0 / 3GPP

Electrical Properties

Frequency range (MHz)	790 - 960								
	790 - 862			824 - 894			880 - 960		
Polarization	+45°, -45°								
Electrical downtilt (°)	0 - 10, continuously adjustable								
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°
	17.0	17.1	16.7	17.1	17.3	17.0	17.3	17.6	17.1
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°
	20	18	18	20	20	18	20	18	18
Horizontal 3dB beam width (°)	69			68			65		
Vertical 3dB beam width (°)	8.3			7.9			7.3		
VSWR	< 1.5								
Isolation between ports (dB)	≥ 30								
Front to back ratio, copolar (dB)	Typ. 30								
Cross polar ratio (dB)	0°	Typ. 25							
	± 60°	≥ 10							
Max. power per input (W)	500 (at 50°C ambient temperature)								
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)								
Squint (°)	Avg. 1.0								
Tracking (dB)	Avg. 1.0 (within 10dB HBW)								
Impedance (Ω)	50								
Grounding	DC Ground								

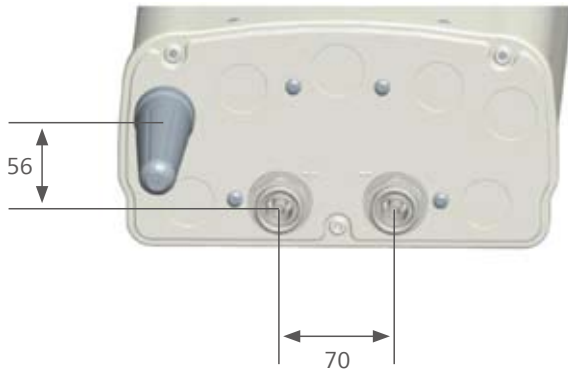
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	2535 x 259 x 135
Antenna net weight (kg)	15.6
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 910 (at 150 km/h) Lateral: 470 (at 150 km/h) Rear side: 1200 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

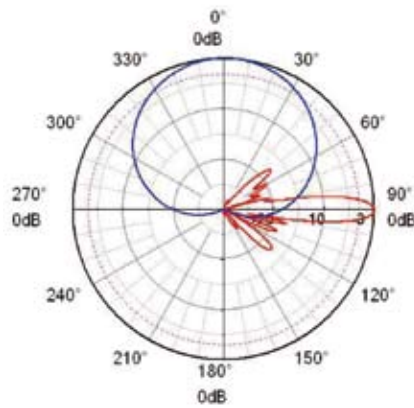
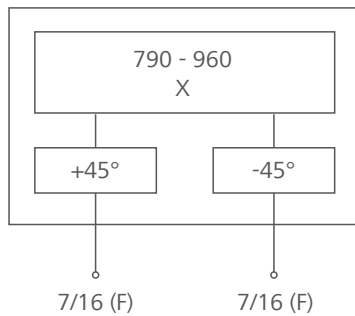
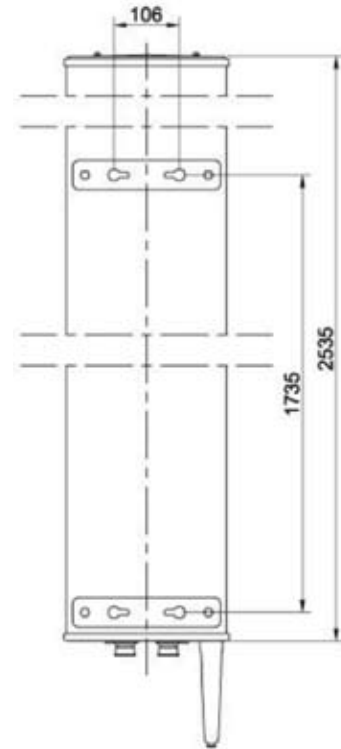


DX-790-960-65-17.5i-M

Model: A79451700v02



Unit: mm



790 - 960 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

Preliminary Issue

Electrical Properties	
Frequency range (MHz)	790 - 960
Electrical downtilt (°)	0 - 10
Gain (dBi)	17.6
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	18
Horizontal 3dB beam width (°)	65
Vertical 3dB beam width (°)	7.9
VSWR	< 1.5
Front to back ratio, copolar (dB)	Typ. 30
Cross polar ratio (dB)	0°
	± 60°
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2535 x 259 x 135
Antenna net weight (kg)	15.6
Mechanical downtilt (°)	0 - 12
Connector	2 x 7/16 DIN Female
RET type	Integrated RET
RET protocols	AISG 2.0 / 3GPP

Preliminary Issue

Electrical Properties									
Frequency range (MHz)	790 - 960								
	790 - 862			824 - 894			880 - 960		
Polarization	+45°, -45°								
Electrical downtilt (°)	0 - 12, continuously adjustable								
Gain (dBi)	0°	6°	12°	0°	6°	12°	0°	6°	12°
	14.9	15.0	14.5	15.0	15.1	14.5	14.9	15.2	14.6
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	6°	12°	0°	6°	12°	0°	6°	12°
	17	16	15	17	16	15	17	16	15
Horizontal 3dB beam width (°)	86			85			84		
Vertical 3dB beam width (°)	10.5			10.1			9.5		
VSWR	< 1.5								
Isolation between ports (dB)	≥ 30								
Front to back ratio, copolar (dB)	Typ. 26								
Cross polar ratio (dB)	0°	Typ. 17							
	± 60°	Typ. 10							
Max. power per input (W)	500 (at 50 °C ambient temperature)								
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)								
Squint (°)	Avg. 2.0								
Tracking (dB)	Avg. 2.0 (within 10dB HBW)								
Impedance (Ω)	50								
Grounding	DC Ground								

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1936 x 259 x 135
Antenna net weight (kg)	12.5
Bracket weight (kg)	4.6
Mechanical downtilt (°)	0 - 12
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 665 (at 150 km/h) Lateral: 345 (at 150 km/h) Rear side: 880 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

Preliminary Issue

Electrical Properties									
Frequency range (MHz)	790 - 960								
	790 - 862			824 - 894			880 - 960		
Polarization	+45°, -45°								
Electrical downtilt (°)	0 - 10, continuously adjustable								
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°
	16.1	16.2	15.9	16.3	16.4	16.1	16.4	16.5	16.2
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°
	18	18	18	18	18	18	18	18	18
Horizontal 3dB beam width (°)	86			85			84		
Vertical 3dB beam width (°)	8.3			7.9			7.4		
VSWR	< 1.5								
Isolation between ports (dB)	≥ 30								
Front to back ratio, copolar (dB)	Typ. 27								
Cross polar ratio (dB)	0°	Typ. 20							
	± 60°	≥ 10							
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								

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2535 x 259 x 135
Antenna net weight (kg)	15
Bracket weight (kg)	4.6
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 910 (at 150 km/h) Lateral: 470 (at 150 km/h) Rear side: 1200 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

Preliminary Issue

Electrical Properties												
Frequency range (MHz)	690 - 960											
	690 - 806			790 - 862			824 - 894			880 - 960		
Polarization	+45°, -45°											
Electrical downtilt (°)	0 - 12, continuously adjustable											
Gain (dBi)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	15.5	15.6	15.3	16.0	16.1	15.8	16.3	16.4	16.0	16.4	16.6	16.1
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	17	16	15	17	16	15	17	16	15	17	16	15
Horizontal 3dB beam width (°)	68			67			65			63		
Vertical 3dB beam width (°)	11.5			10.5			10.1			9.5		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 27											
Cross polar ratio (dB)	0°			Typ. 20								
	± 60°			Typ. 10								
Max. power per input (W)	500 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Typ. 2.0											
Tracking (dB)	Typ. 2.0 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1936 x 259 x 135
Antenna net weight (kg)	14.5
Bracket weight (kg)	4.6
Mechanical downtilt (°)	0 - 12
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 665 (at 150 km/h) Lateral: 345 (at 150 km/h) Rear side: 880 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

Preliminary Issue

Electrical Properties												
Frequency range (MHz)	690 - 960											
	690 - 806			790 - 862			824 - 894			880 - 960		
Polarization	+45°, -45°											
Electrical downtilt (°)	0 - 10, continuously adjustable											
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	16.3	16.4	16.0	16.8	16.9	16.5	17.1	17.2	16.8	17.1	17.4	16.9
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	17	16	15	17	16	15	17	16	15	17	16	15
Horizontal 3dB beam width (°)	68			67			65			63		
Vertical 3dB beam width (°)	9.0			8.3			7.9			7.3		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 28											
Cross polar ratio (dB)	0°											
	± 60°											
Max. power per input (W)	500 (at 50°C ambient temperature)											
Intermodulation IM3 (dBC)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Typ. 2.0											
Tracking (dB)	Typ. 2.0 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2535 x 259 x 135
Antenna net weight (kg)	17.5
Bracket weight (kg)	5.6
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 910 (at 150 km/h) Lateral: 470 (at 150 km/h) Rear side: 1200 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

Preliminary Issue

Electrical Properties		
Frequency range (MHz)	690 - 960	
Electrical downtilt (°)	0 - 12	
Gain (dBi)	16.5	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	17	
Horizontal 3dB beam width (°)	67	
Vertical 3dB beam width (°)	10.1	
VSWR	< 1.5	
Front to back ratio, copolar (dB)	Typ. 28	
Cross polar ratio (dB)	0°	Typ. 20
	± 60°	≥ 10
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)	

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1936 x 259 x 135
Antenna net weight (kg)	12.5
Mechanical downtilt (°)	0 - 12
Connector	2 x 7/16 DIN Female
RET type	Integrated RET
RET protocols	AISG 2.0 / 3GPP

Preliminary Issue

Electrical Properties	
Frequency range (MHz)	690 - 960
Electrical downtilt (°)	0 - 10
Gain (dBi)	17.5
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	17
Horizontal 3dB beam width (°)	67
Vertical 3dB beam width (°)	8.3
VSWR	< 1.5
Front to back ratio, copolar (dB)	Typ. 30
Cross polar ratio (dB)	0°
	± 60°
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2535 x 259 x 135
Antenna net weight (kg)	15.6
Mechanical downtilt (°)	0 - 12
Connector	2 x 7/16 DIN Female
RET type	Integrated RET
RET protocols	AISG 2.0 / 3GPP

DX-1710-2170-90-17i-M

Model: A19451703

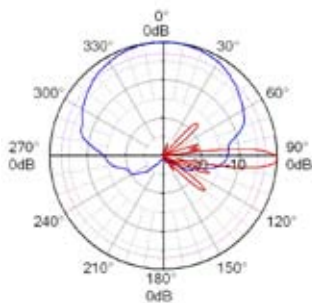
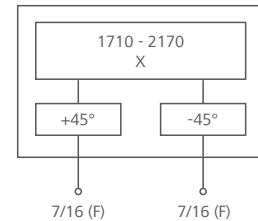


Electrical Properties

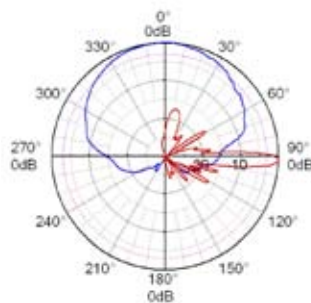
Frequency range (MHz)		1710 - 1880	1850 - 1990	1920 - 2170						
Polarization		+45°, -45°								
VSWR		≤ 1.4								
Gain	(°)	2	6	10	2	6	10	2	6	10
	(dBi)	16.3	16.5	16.2	16.5	16.7	16.4	16.7	17.0	16.5
Side lobe suppression for first side lobe above horizon	(°)	2	6	10	2	6	10	2	6	10
	(dBi)	18	17	16	18	17	16	18	17	16
Horizontal 3dB beam width (°)		84		88	86					
Vertical 3dB beam width (°)		7.5		6.5	6.0					
Isolation between ports (dB)		≥30								
Front to back ratio, copolar (dB)		≥ 25								
Cross polar ratio (dB)	0°	≥18								
	± 60°	≥10								
Electrical downtilt (°)		2 - 10								
Intermodulation IM3 (dBc)		≤-150 (2 x 43 dBm carrier)								
Max. CW input power (W)		300								
Impedance (Ω)		50								
Grounding		DC Ground								

Mechanical Properties

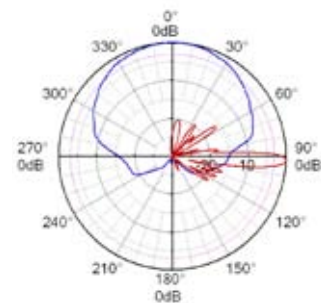
Dimensions (H x W x D) (mm)	1306 x 155 x 79
Net weight (kg)	6.5
Bracket weight (kg)	3.0
Mechanical downtilt (°)	0 - 16
Mast diameter (mm)	50 - 115
Radomematerial	Fiberglass
Operating temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 150 (v=150 km/h) Lateral: 110 (v=150 km/h) Rear side: 225 (v=150 km/h)
Max. wind velocity (km/h)	200
Connector	2 x 7/16 DIN Female



1710 - 1880 MHz



1850 - 1990 MHz



1920 - 2170 MHz

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

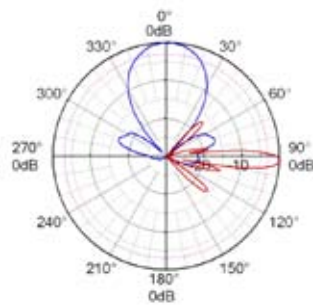
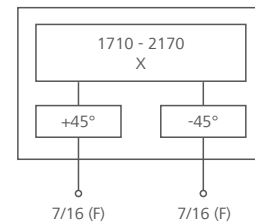
www.huawei.com

Electrical Properties

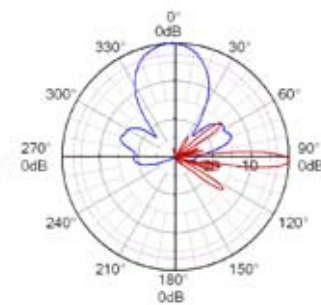
Frequency range (MHz)		1710 - 1880	1850 - 1990	1920 - 2170						
Polarization		+45°, -45°								
VSWR		≤ 1.45								
Gain	(°)	2	6	10	2	6	10	2	6	10
	(dBi)	20.0	20.1	20.1	20.3	20.5	20.1	20.7	20.5	19.8
Side lobe suppression for first side lobe above horizon	(°)	2	6	10	2	6	10	2	6	10
	(dBi)	18	17	16	18	17	16	18	17	16
Horizontal 3dB beam width (°)		35		33	31					
Vertical 3dB beam width (°)		7.2		6.6	6.2					
Isolation between ports (dB)		≥30								
Front to back ratio, copolar (dB)		Typ. 28								
Cross polar ratio (dB)		Typ. 20								
Electrical downtilt (°)		0 - 10								
Intermodulation IM3 (dBc)		≤-150 (2 x 43 dBm carrier)								
Max. CW input power (W)		300								
Impedance (Ω)		50								
Grounding		DC Ground								

Mechanical Properties

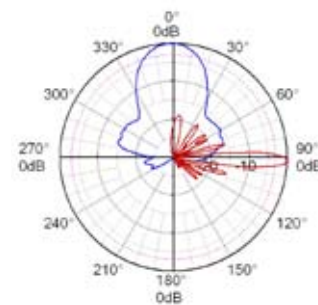
Dimensions (H x W x D) (mm)	1318 x 289 x 85
Net weight (kg)	11.4
Bracket weight (kg)	4.6
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radomematerial	Fiberglass
Operating temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 285 (v=150 km/h) Lateral: 120 (v=150 km/h) Rear side: 425 (v=150 km/h)
Max. wind velocity (km/h)	200
Connector	2 x 7/16 DIN Female



1710 - 1880 MHz



1850 - 1990 MHz



1920 - 2170 MHz

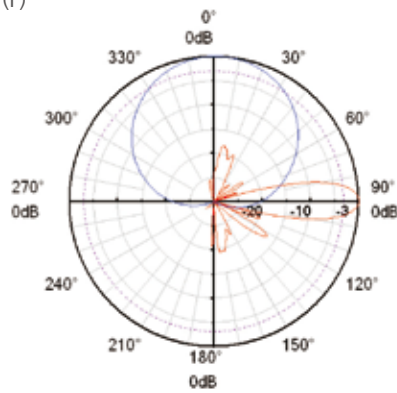
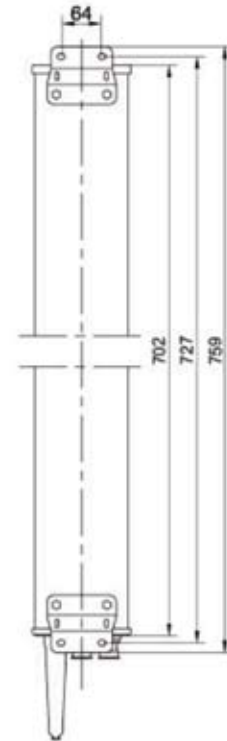
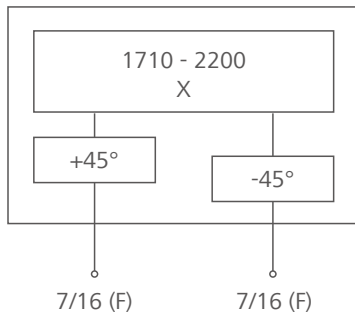
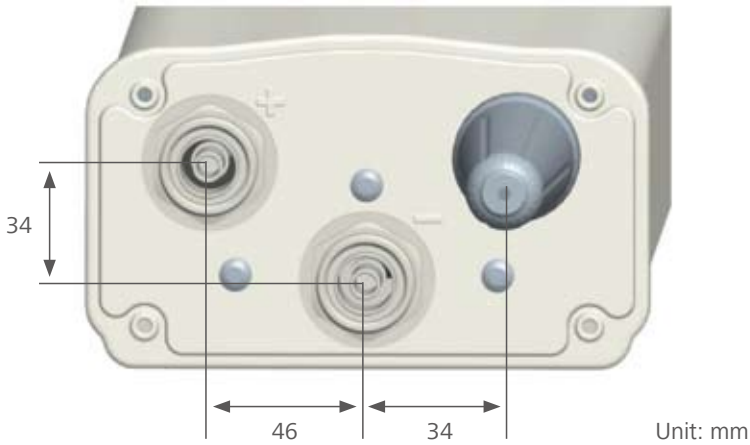
Electrical Properties

Frequency range (MHz)	1710 - 2200											
	1710 - 1880			1850 - 1990			1920 - 2170			2170 - 2200		
Polarization	+45°, -45°											
Electrical downtilt (°)	0 - 12, continuously adjustable											
Gain (dBi)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	15.4	15.4	15.1	15.6	15.5	15.1	15.8	15.7	15.4	15.8	15.7	15.3
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	20	17	15	20	18	15	20	18	17	16	15	15
Horizontal 3dB beam width (°)	67			64			61			60		
Vertical 3dB beam width (°)	13.9			13.0			12.6			11.5		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 29											
Cross polar ratio (dB)	0°	Typ. 22										
	± 60°	Typ. 10										
Max. power per input (W)	300 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Avg. 1.5											
Tracking (dB)	Avg. 1.5 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

Mechanical Properties

Antenna dimensions (H x W x D) (mm)	702 x 155 x 89
Antenna net weight (kg)	4.3
Mast diameter supported (mm)	38 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 150 (at 150 km/h) Lateral: 75 (at 150 km/h) Rear side: 175 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom





1710 - 2200 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

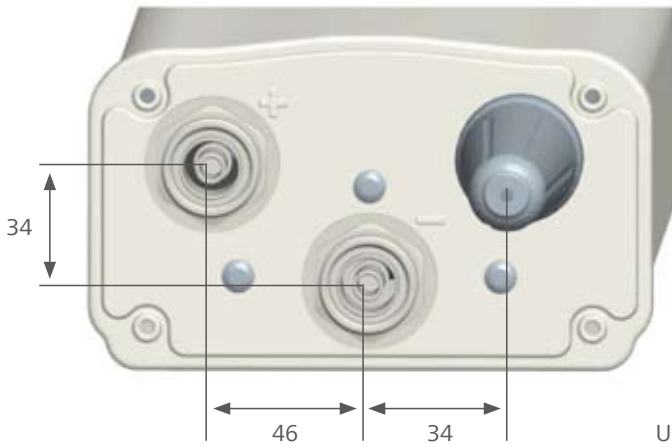
Electrical Properties

Frequency range (MHz)	1710 - 2200											
	1710 - 1880			1850 - 1990			1920 - 2170			2170 - 2200		
Polarization	+45°, -45°											
Electrical downtilt (°)	0 - 10, continuously adjustable											
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	17.2	17.6	17.4	17.7	18.0	17.7	18.0	18.1	17.9	18.0	18.2	17.9
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	20	16	18	20	20	18	18	17	16	18	18	16
Horizontal 3dB beam width (°)	67			64			61			60		
Vertical 3dB beam width (°)	7.5			7.0			6.7			6.2		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 30											
Cross polar ratio (dB)	0°	Typ. 22										
	± 60°	≥ 10										
Max. power per input (W)	300 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Avg. 1.2											
Tracking (dB)	Avg. 1.2 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

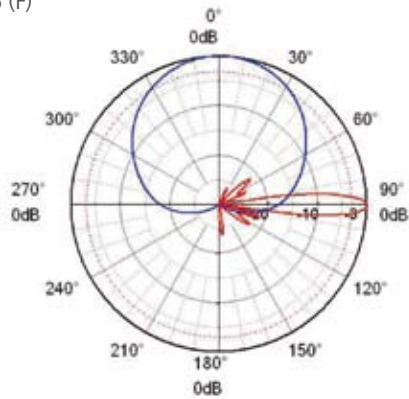
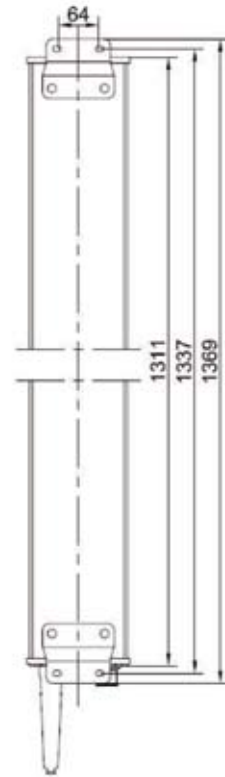
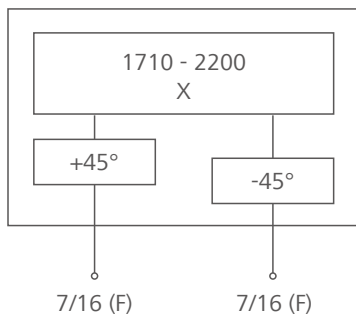
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1311 x 155 x 89
Antenna net weight (kg)	6.2
Mast diameter supported (mm)	38 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 315 (at 150 km/h) Lateral: 155 (at 150 km/h) Rear side: 360 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom





Unit: mm



1710 - 2200 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

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)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	17.2	17.6	17.4	17.7	18.0	17.7	18.0	18.1	17.9	18.0	18.2	17.9
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	20	16	18	20	20	18	18	17	16	18	18	16
Horizontal 3dB beam width (°)	67			64			61			60		
Vertical 3dB beam width (°)	7.5			7.0			6.7			6.2		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 30											
Cross polar ratio (dB)	0°											
	± 60°											
Max. power per input (W)	300 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Avg. 1.2											
Tracking (dB)	Avg. 1.2 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1311 x 155 x 89
Antenna weight (kg)	6.7
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 315 (at 150 km/h) Lateral: 155 (at 150 km/h) Rear side: 360 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom



Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 37 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (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.

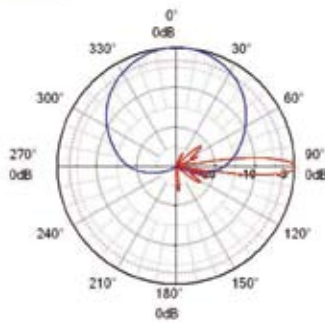
Standards: EN 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE



Integrated RCU S/N: **a** HWMxxx...b

b - Blue



1710 - 2200 MHz

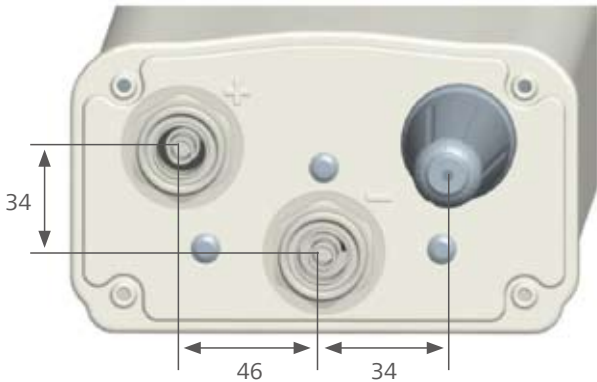
Electrical Properties

Frequency range (MHz)	1710 - 2200											
	1710 - 1880			1850 - 1990			1920 - 2170			2170 - 2200		
Polarization	+45°, -45°											
Electrical downtilt (°)	0 - 6, continuously adjustable											
Gain (dBi)	0°	3°	6°	0°	3°	6°	0°	3°	6°	0°	3°	6°
	18.6	18.7	18.5	19.0	19.1	18.9	19.2	19.4	19.1	19.4	19.5	18.8
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	3°	6°	0°	3°	6°	0°	3°	6°	0°	3°	6°
	20	17	16	20	17	16	20	18	17	20	18	17
Horizontal 3dB beam width (°)	67			64			62			60		
Vertical 3dB beam width (°)	5.0			4.7			4.5			4.1		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 32											
Cross polar ratio (dB)	0°	Typ. 25										
	± 60°	Typ. 10										
Max. power per input (W)	300 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Avg. 1.5											
Tracking (dB)	Avg. 1.0 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

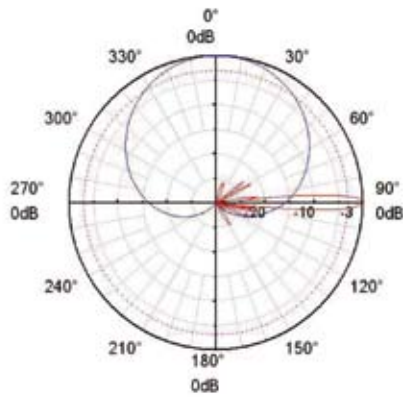
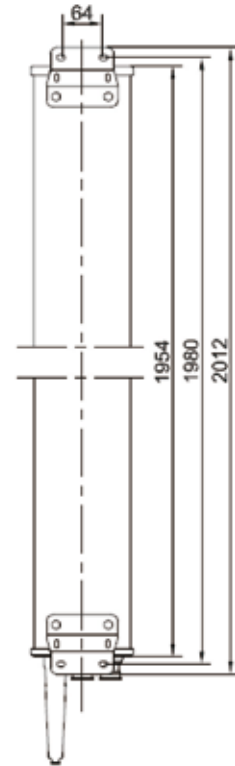
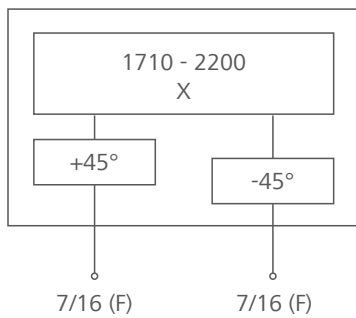
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1954 x 155 x 89
Antenna weight (kg)	8.4
Mast diameter supported (mm)	38 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 505 (at 150 km/h) Lateral: 250 (at 150 km/h) Rear side: 575 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom





Unit: mm



1710 - 2200 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

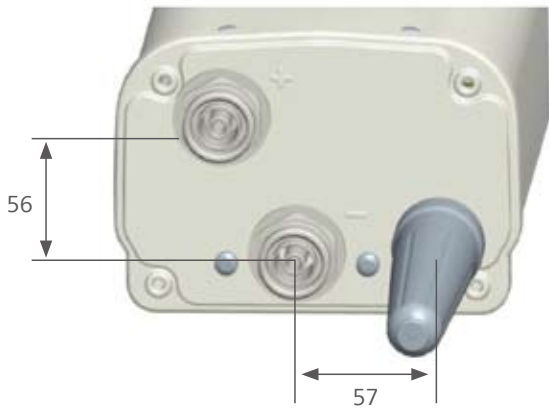
Electrical Properties

Frequency range (MHz)	1710 - 2690											
	1710 - 1990			1920 - 2200			2200 - 2490			2490 - 2690		
Polarization	+45°, -45°											
Electrical downtilt (°)	0 - 14, continuously adjustable											
Gain (dBi)	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	7°	14°
	15.3	15.2	15.0	16.2	16.0	15.4	16.7	16.3	15.5	16.5	16.1	15.3
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	7°	14°
	18	18	16	18	18	17	17	17	16	17	17	16
	17	17	16	17	17	16	16	16	15	16	15	15
Horizontal 3dB beam width (°)	67			64			60			60		
Vertical 3dB beam width (°)	12.0			11.0			9.6			8.6		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 28											
Front to back ratio, copolar (dB)	Typ. 27											
Cross polar ratio (dB)	0°	Typ. 20										
	± 60°	Typ. 10										
Max. power per input (W)	250 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Typ. 3.0											
Tracking (dB)	Typ. 3.0 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

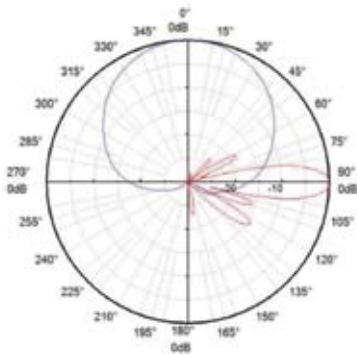
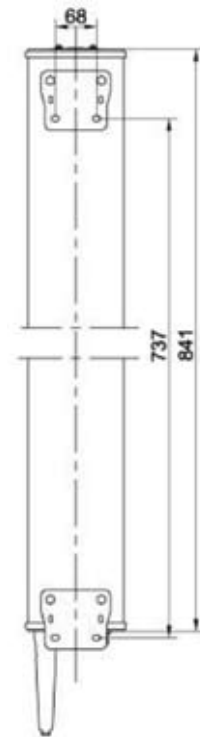
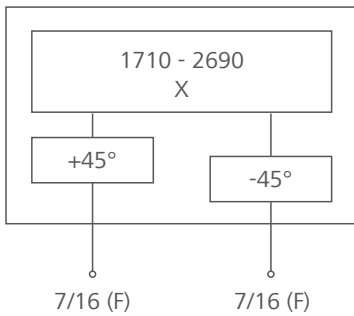
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	841 x 155 x 109
Antenna weight (kg)	5.3
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 120 (at 150 km/h) Lateral: 110 (at 150 km/h) Rear side: 215 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

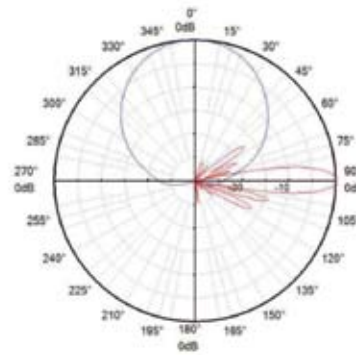




Unit: mm



1710 - 2200 MHz



2200 - 2690 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

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)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	17.4	17.4	17.2	18.0	18.1	17.6	18.5	18.7	18.0	18.5	18.8	18.2
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	18	18	17	18	18	17	18	18	17	18	18	17
	15	16	15	15	16	15	16	16	15	16	16	15
Horizontal 3dB beam width (°)	67			64			60			60		
Vertical 3dB beam width (°)	6.6			6.0			5.4			4.9		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 28											
Cross polar ratio (dB)	0°			Typ. 20								
	± 60°			Typ. 10								
Max. power per input (W)	250 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Typ. 3.0											
Tracking (dB)	Typ. 2.0 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

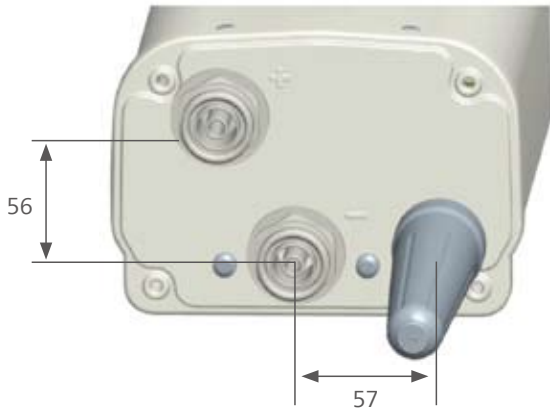
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1365 x 155 x 109
Antenna weight (kg)	6.7
Mast diameter supported (mm)	38 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 215 (at 150 km/h) Lateral: 200 (at 150 km/h) Rear side: 370 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

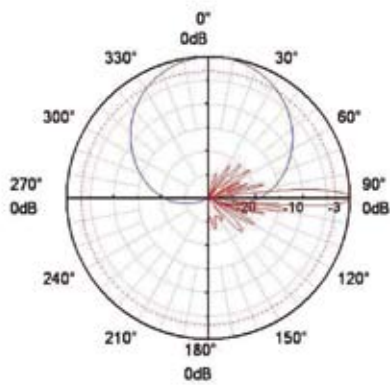
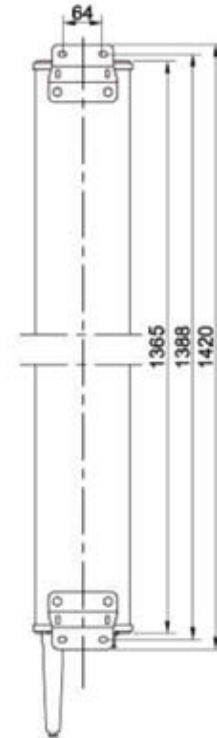
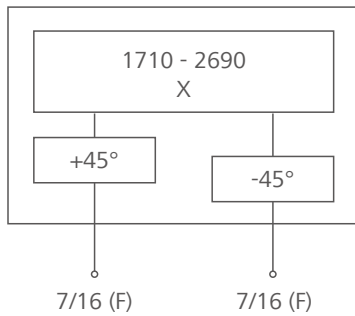


DX-1710-2690-65-18i-M

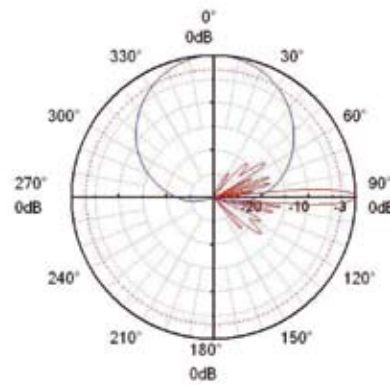
Model: A26451800v01



Unit: mm



1710 - 2200 MHz



2200 - 2690 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

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)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	17.4	17.4	17.2	18.0	18.1	17.6	18.5	18.7	18.0	18.5	18.8	18.2
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	18	18	17	18	18	17	18	18	17	18	18	17
	15	16	15	15	16	15	16	16	15	16	16	15
Horizontal 3dB beam width (°)	67			64			60			60		
Vertical 3dB beam width (°)	6.6			6.0			5.4			4.9		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 28											
Cross polar ratio (dB)	0°	Typ. 20										
	± 60°	Typ. 10										
Max. power per input (W)	250 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Typ. 3.0											
Tracking (dB)	Typ. 2.0 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1365 x 155 x 109
Antenna weight (kg)	7.4
Mast diameter supported (mm)	38 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 215 (at 150 km/h) Lateral: 200 (at 150 km/h) Rear side: 370 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom



Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 55 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (10/350 μ s)							
	10 (8/20 μ 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.

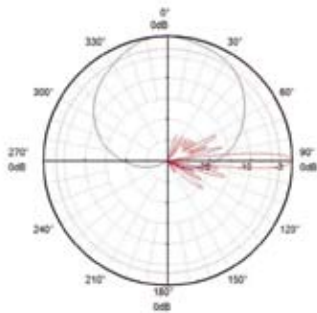
Standards: EN 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE

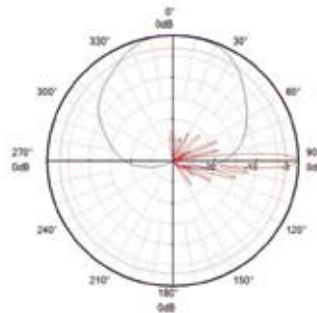


Integrated RCU S/N: **a** HWMxxx...y

y – Yellow



1710 - 2200 MHz



2200 - 2690 MHz

Electrical Properties

Frequency range (MHz)	1710 - 2690											
	1710 - 1990			1920 - 2200			2200 - 2490			2490 - 2690		
Polarization	+45° , -45°											
Electrical downtilt (°)	0 - 6 , continuously adjustable											
Gain (dBi)	0°	3°	6°	0°	3°	6°	0°	3°	6°	0°	3°	6°
	18.0	18.2	18.1	18.3	18.6	18.5	18.7	19.1	19.0	19.0	19.4	19.1
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	3°	6°	0°	3°	6°	0°	3°	6°	0°	3°	6°
	18	18	15	19	18	16	18	18	18	17	17	16
Horizontal 3dB beam width (°)	69			65			62			60		
Vertical 3dB beam width (°)	4.9			4.5			4.1			3.7		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 27											
Cross polar ratio (dB)	0°	Typ. 20										
	± 60°	Typ. 10										
Max. power per input (W)	250 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Typ. 4											
Tracking (dB)	Avg. 2 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1932 x 155 x 89
Antenna net weight (kg)	9.0
Bracket weight (kg)	2.6
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 490 (at 150 km/h) Lateral: 240 (at 150 km/h) Rear side: 560 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female (Long neck)
Connector position	Bottom

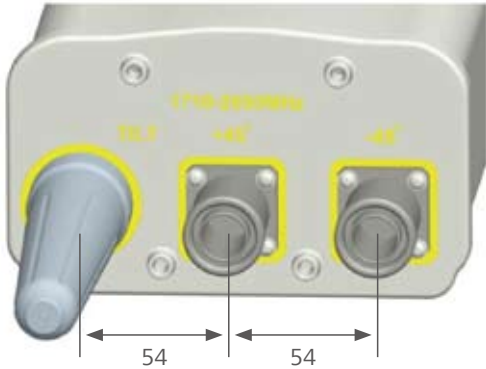


DX-1710-2690-65-19.5i-M

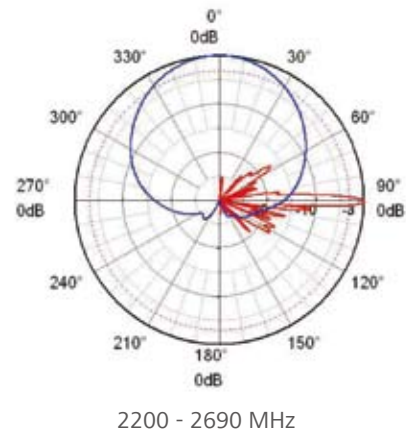
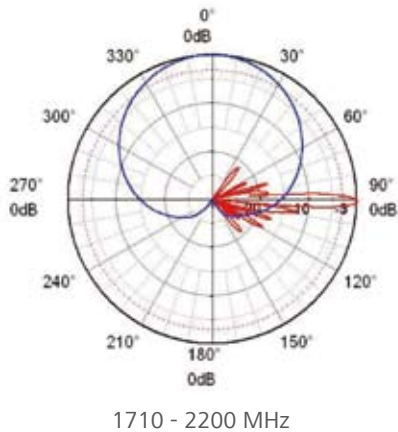
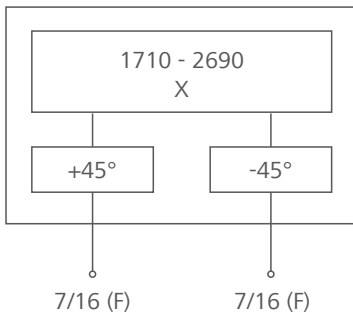
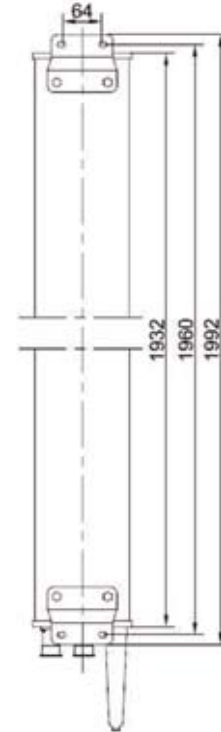
Model: A26451900



A - 01



Unit: mm



NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

OV-450-470-360-9i-0F

Model: A45VP0900

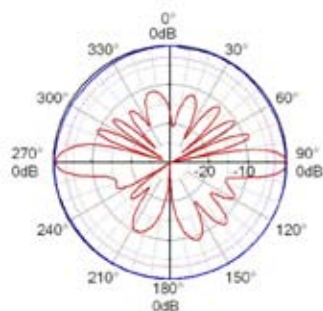


Electrical Properties

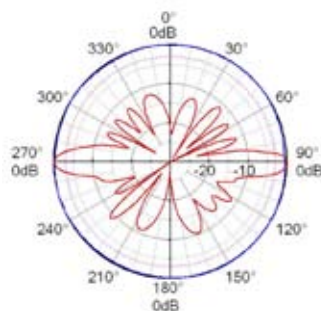
Frequency range (MHz)	450 - 470
Polarization	Vertical
VSWR	≤1.4
Gain (dBi)	9.0
Horizontal 3dB beam width (°)	360
Vertical 3dB beam width (°)	11
Antenna pattern roundness (dB)	± 1
Electrical downtilt(°)	0
Intermodulation IM3 (dBc)	≤-150
Max. CW input power (W)	150
Impedance (Ω)	50
Grounding	DC Ground

Mechanical Properties

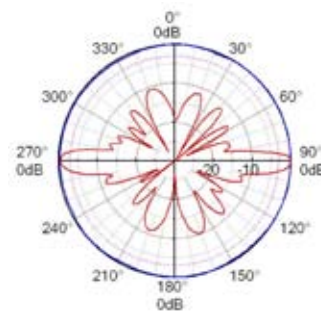
Dimensions (mm)	Φ52 x 3316
Net weight (kg)	5.0
Bracket weight (kg)	2.0
Mast diameter (mm)	50 - 85
Radome material	Fiberglass
Operating temperature (°C)	-55 - +65
Max. wind velocity (km/h)	200
Connector	1 x 7/16 DIN Female



450 - 460 MHz



455 - 465 MHz



460 - 470 MHz

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

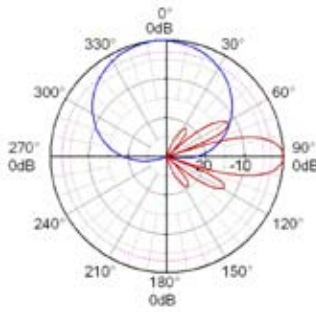
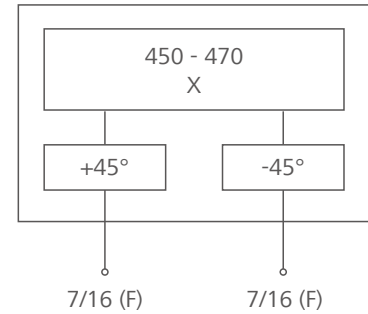
HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

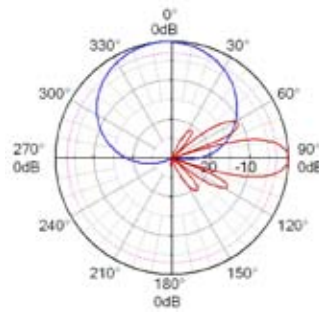
www.huawei.com

Electrical Properties	
Frequency range (MHz)	450 - 470
Polarization	+45°, -45°
VSWR	≤1.5
Gain (dBi)	15
Horizontal 3dB beam width (°)	65
Vertical 3dB beam width (°)	16
Isolation between ports (dB)	≥ 30
Front to back ratio, copolar (dB)	≥ 25
Cross polar ratio (dB)	≥ 15
Electrical downtilt (°)	0
Intermodulation IM5 (dBc)	≤-160 (2 x 43 dBm carrier)
Max. CW input power (W)	500
Impedance (Ω)	50
Grounding	DC Ground

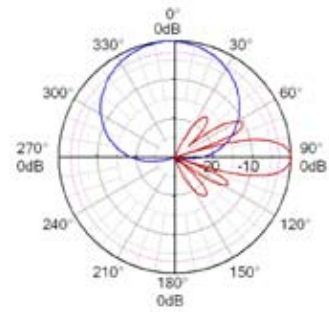
Mechanical Properties	
Dimensions (H x W x D) (mm)	2042 x 486 x 98
Net weight (kg)	28.3
Bracket weight (kg)	6.5
Mechanical downtilt (°)	0 - 16
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Operating temperature (°C)	-55 - +65
Wind load (N)	Frontal: 740 (v=150 km/h) Lateral: 220 (v=150 km/h) Rear side: 1100 (v=150 km/h)
Max. wind velocity (km/h)	200
Connector	2 x 7/16 DIN Female



450 - 460 MHz



455 - 465 MHz



460 - 470 MHz

Electrical Properties

		790 - 960		
Frequency range (MHz)		790 - 862	824 - 894	880 - 960
Polarization		+45°, -45°		
Electrical downtilt (°)		0, Fixed		
Gain (dBi)		16.5	16.7	17.1
Side lobe suppression for first side lobe above main beam (Typ.) (dB)		20	20	20
Horizontal 3dB beam width (°)		67	65	63
Vertical 3dB beam width (°)		9.8	9.4	8.9
VSWR		< 1.4		
Isolation between ports (dB)		≥ 30		
Front to back ratio, copolar (dB)		Typ. 32		
Cross polar ratio (dB)	0°	Typ. 25		
	± 60°	≥ 10		
Max. power per input (W)		500		
Intermodulation IM3 (dBc)		≤ -153 (2 x 43 dBm carrier)		
Squint (°)		Avg. 0.6		
Tracking (dB)		Avg. 0.6 (within 10dB HBW)		
Impedance (Ω)		50		
Grounding		DC Ground		

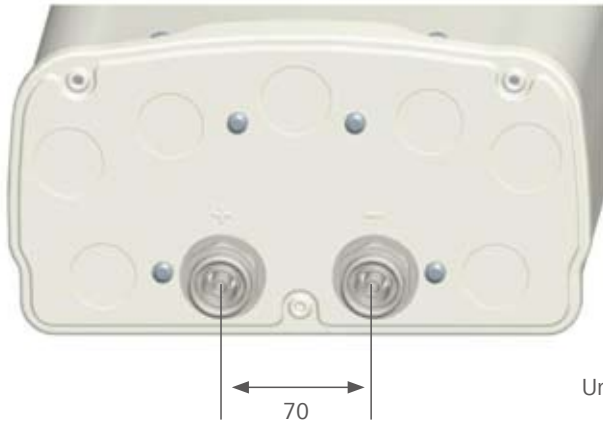
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1936 x 260 x 135
Antenna weight (kg)	12.9
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 665 (at 150 km/h) Lateral: 345 (at 150 km/h) Rear side: 880 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

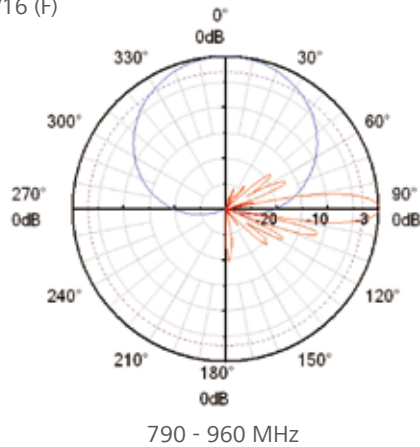
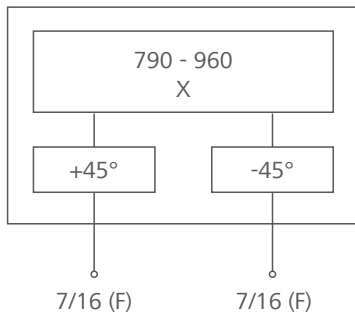
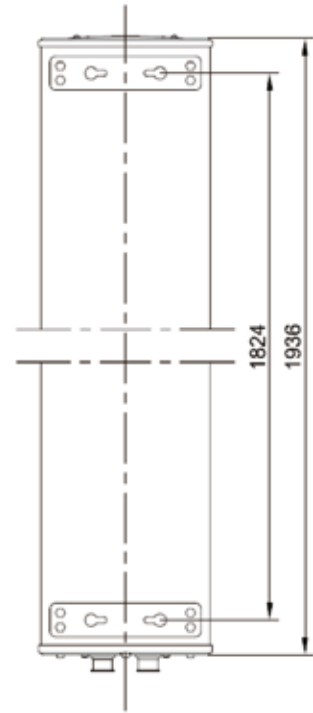


DX-790-960-65-17i-0F

Model: A90451702v01



Unit: mm



NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

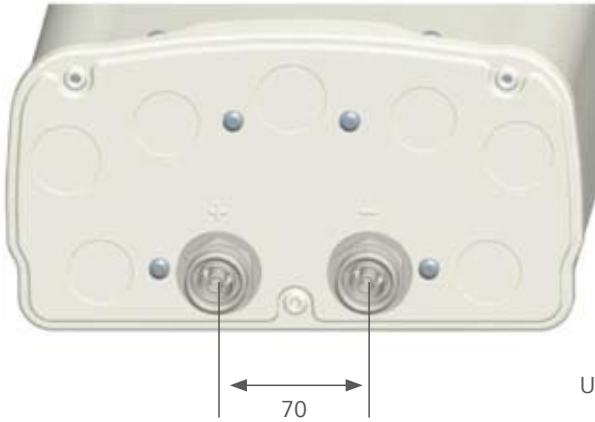
Electrical Properties

Frequency range (MHz)	790 - 960		
	790 - 862	824 - 894	880 - 960
Polarization	+45°, -45°		
Electrical downtilt (°)	3, Fixed		
Gain (dBi)	16.5	16.7	17.1
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	19	19	19
Horizontal 3dB beam width (°)	67	65	63
Vertical 3dB beam width (°)	9.8	9.4	8.9
VSWR	< 1.4		
Isolation between ports (dB)	≥ 30		
Front to back ratio, copolar (dB)	Typ. 32		
Cross polar ratio (dB)	0°	Typ. 25	
	± 60°	≥ 10	
Max. power per input (W)	500		
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)		
Squint (°)	Avg. 0.6		
Tracking (dB)	Avg. 0.6 (within 10dB HBW)		
Impedance (Ω)	50		
Grounding	DC Ground		

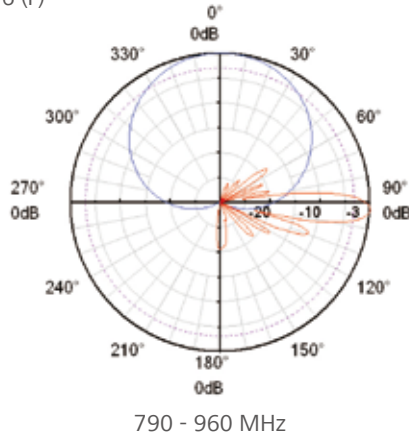
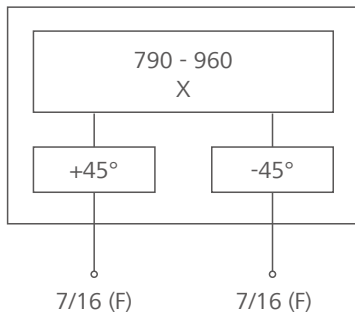
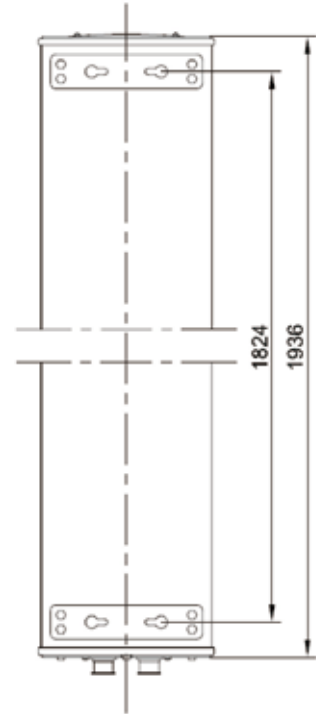
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1936 x 260 x 135
Antenna weight (kg)	12.9
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 665 (at 150 km/h) Lateral: 345 (at 150 km/h) Rear side: 880 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom





Unit: mm



NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Electrical Properties

Frequency range (MHz)	790 - 960		
	790 - 862	824 - 894	880 - 960
Polarization	+45°, -45°		
Electrical downtilt (°)	6, Fixed		
Gain (dBi)	16.5	16.7	17.1
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	19	19	18
Horizontal 3dB beam width (°)	67	65	63
Vertical 3dB beam width (°)	9.8	9.4	8.9
VSWR	< 1.4		
Isolation between ports (dB)	≥ 30		
Front to back ratio, copolar (dB)	Typ. 30		
Cross polar ratio (dB)	0°	Typ. 25	
	± 60°	≥ 10	
Max. power per input (W)	500		
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)		
Max. power per input (W)	Avg. 0.6		
Intermodulation IM3 (dBc)	Avg. 0.8 (within 10dB HBW)		
Impedance (Ω)	50		
Grounding	DC Ground		

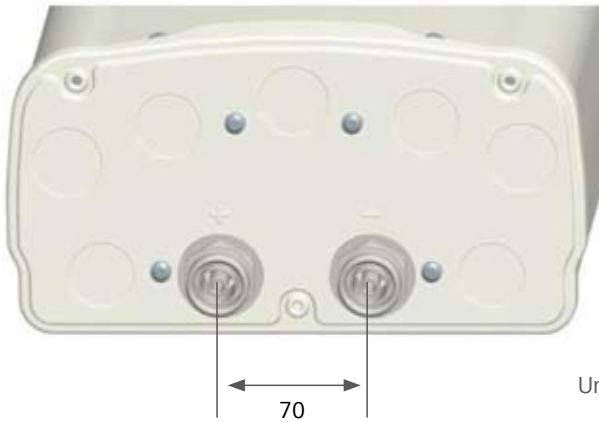
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1936 x 260 x 135
Antenna weight (kg)	12.9
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 665 (at 150 km/h) Lateral: 345 (at 150 km/h) Rear side: 880 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

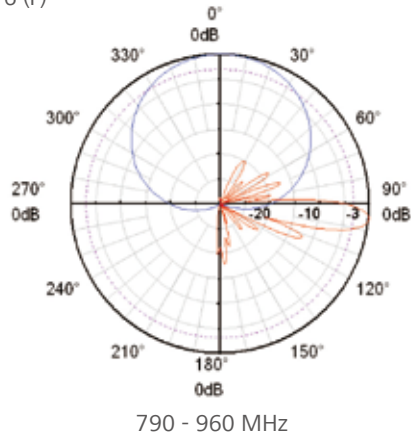
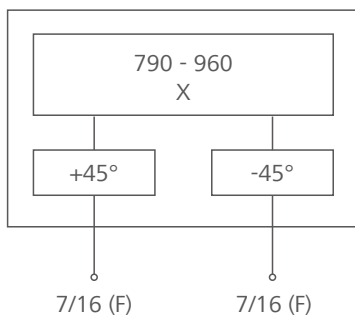
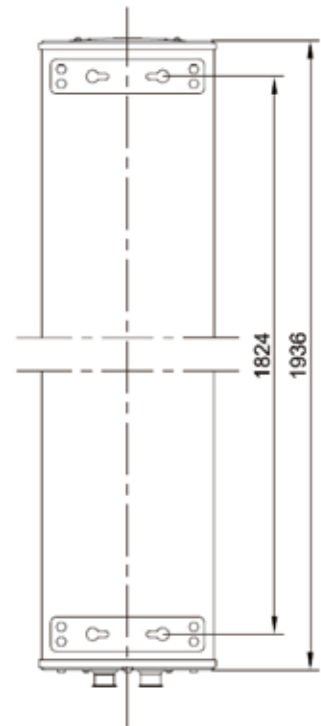


DX-790-960-65-17i-6F

Model: A90451709



Unit: mm



NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

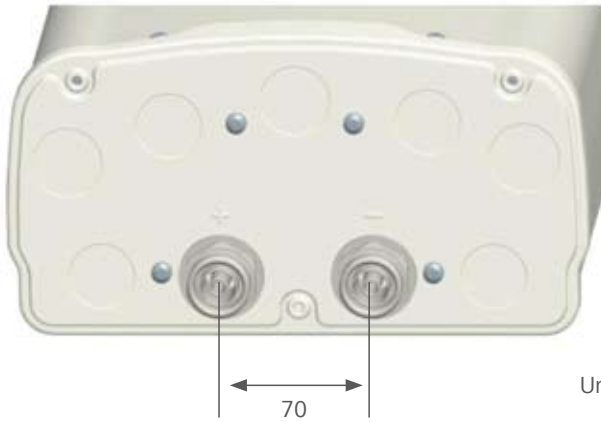
Electrical Properties

		790 - 960		
Frequency range (MHz)		790 - 862	824 - 894	880 - 960
Polarization		+45°, -45°		
Electrical downtilt (°)		0, Fixed		
Gain (dBi)		17.5	17.7	18.0
Side lobe suppression for first side lobe above main beam (Typ.) (dB)		21	21	21
Horizontal 3dB beam width (°)		67	65	63
Vertical 3dB beam width (°)		7.8	7.5	7.1
VSWR		< 1.4		
Isolation between ports (dB)		≥ 30		
Front to back ratio, copolar (dB)		Typ. 32		
Cross polar ratio (dB)	0°	Typ. 25		
	± 60°	≥ 10		
Max. power per input (W)		500		
Intermodulation IM3 (dBc)		≤ -153 (2 x 43 dBm carrier)		
Squint (°)		Avg. 0.5		
Tracking (dB)		Avg. 0.5 (within 10dB HBW)		
Impedance (Ω)		50		
Grounding		DC Ground		

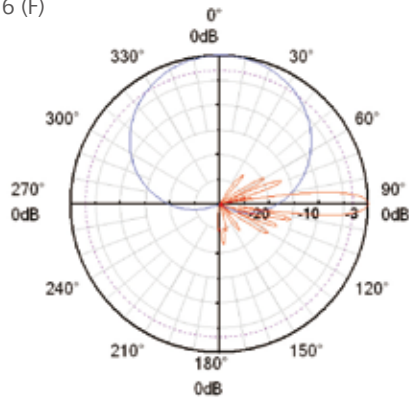
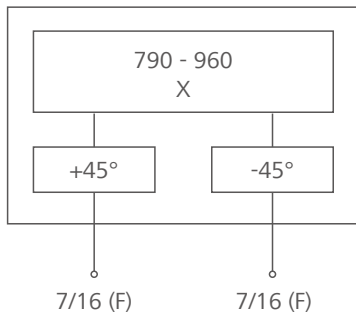
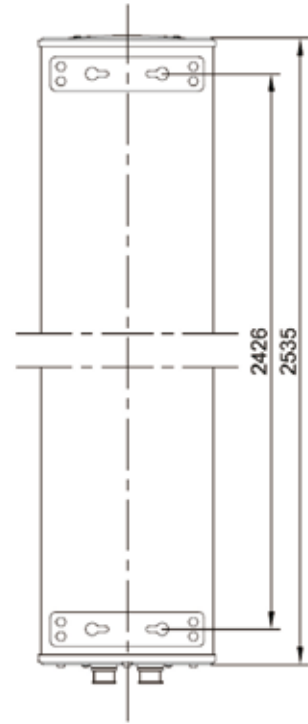
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	2535 x 259 x 135
Antenna weight (kg)	16.3
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 910 (at 150 km/h) Lateral: 470 (at 150 km/h) Rear side: 1200 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom





Unit: mm



790 - 960 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Electrical Properties

Frequency range (MHz)	790 - 960		
	790 - 862	824 - 894	880 - 960
Polarization	+45°, -45°		
Electrical downtilt (°)	3, Fixed		
Gain (dBi)	17.5	17.7	18.0
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	20	20	20
Horizontal 3dB beam width (°)	67	65	63
Vertical 3dB beam width (°)	7.8	7.5	7.1
VSWR	< 1.4		
Isolation between ports (dB)	≥ 30		
Front to back ratio, copolar (dB)	Typ. 32		
Cross polar ratio (dB)	0°	Typ. 25	
	± 60°	≥ 10	
Max. power per input (W)	500		
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)		
Squint (°)	Avg. 0.5		
Tracking (dB)	Avg. 0.5 (within 10dB HBW)		
Impedance (Ω)	50		
Grounding	DC Ground		

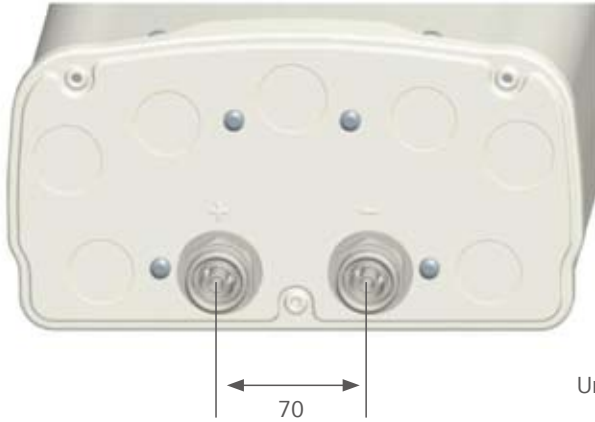
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	2535 x 259 x 135
Antenna weight (kg)	16.3
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 910 (at 150 km/h) Lateral: 470 (at 150 km/h) Rear side: 1200 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

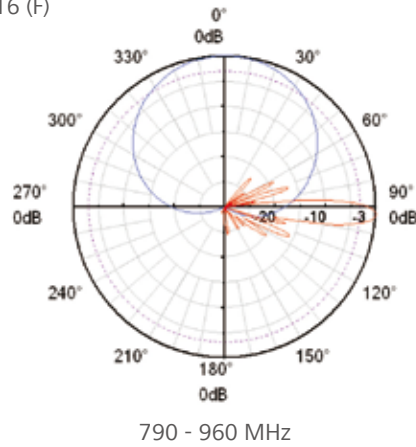
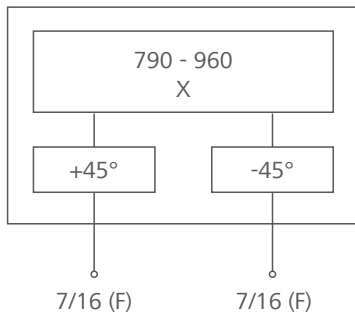
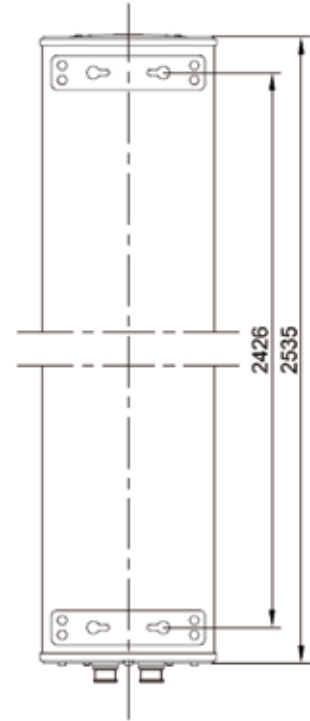


DX-790-960-65-18i-3F

Model: A90451805v01



Unit: mm



NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

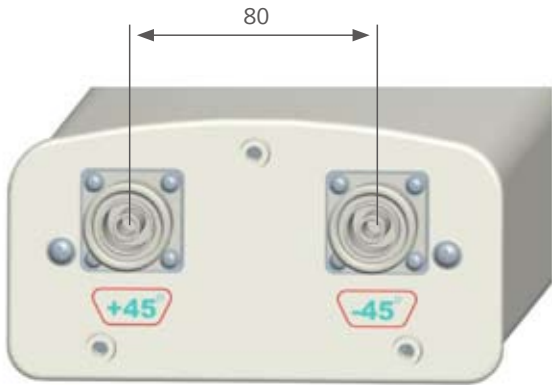
Electrical Properties

Frequency range (MHz)	1710 - 2170		
	1710 - 1880	1850 - 1990	1920 - 2170
Polarization	+45°, -45°		
Electrical downtilt (°)	0, Fixed		
Gain (dBi)	16.5	16.7	17.1
Side lobe suppression for first side lobe above horizon (dB)	18	20	20
Horizontal 3dB beam width (°)	86	85	84
Vertical 3dB beam width (°)	7.0	6.7	6.4
VSWR	< 1.4		
Isolation between ports (dB)	≥ 30		
Front to back ratio, copolar (dB)	≥ 25		
Cross polar ratio (dB)	0°	Typ. 20	
	± 60°	≥ 10	
Max. power per input (W)	300 (at 50°C ambient temperature)		
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)		
Squint (°)	Avg. 2.0		
Tracking (dB)	Avg. 0.8 (within 10dB HBW)		
Impedance (Ω)	50		
Grounding	DC Ground		

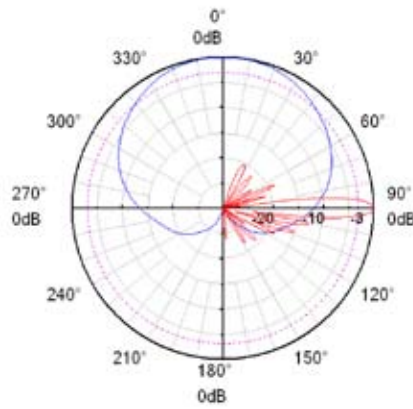
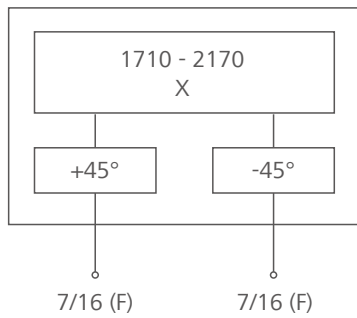
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1306 x 155 x 79
Antenna net weight (kg)	5.4
Bracket weight (kg)	3.0
Mechanical downtilt (°)	0 - 16
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 290 (at 150 km/h) Lateral: 115 (at 150 km/h) Rear side: 335 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom





Unit: mm



1710 - 2170 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

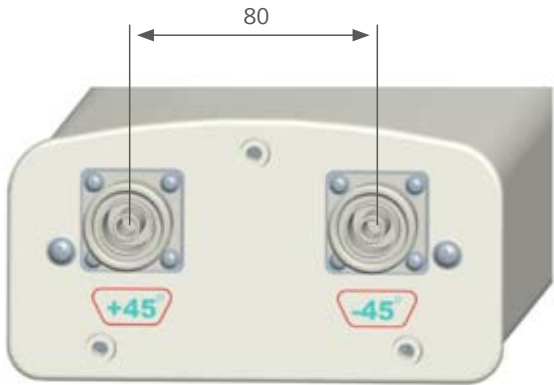
Electrical Properties

Frequency range (MHz)	1710 - 2170		
	1710 - 1880	1850 - 1990	1920 - 2170
Polarization	+45°, -45°		
Electrical downtilt (°)	3, Fixed		
Gain (dBi)	16.5	16.7	17.0
Side lobe suppression for first side lobe above horizon (dB)	18	20	20
Horizontal 3dB beam width (°)	86	85	84
Vertical 3dB beam width (°)	7.0	6.7	6.4
VSWR	< 1.4		
Isolation between ports (dB)	≥ 30		
Front to back ratio, copolar (dB)	≥ 25		
Cross polar ratio (dB)	0°	Typ. 20	
	± 60°	≥ 10	
Max. power per input (W)	300 (at 50°C ambient temperature)		
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)		
Squint (°)	Avg. 2.0		
Tracking (dB)	Avg. 1.0 (within 10dB HBW)		
Impedance (Ω)	50		
Grounding	DC Ground		

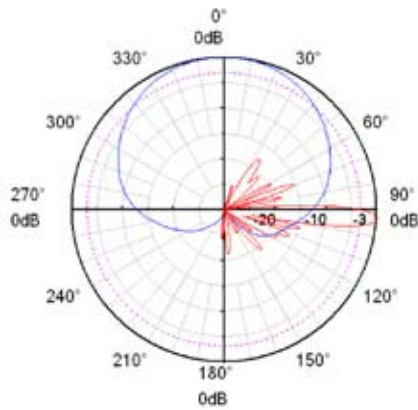
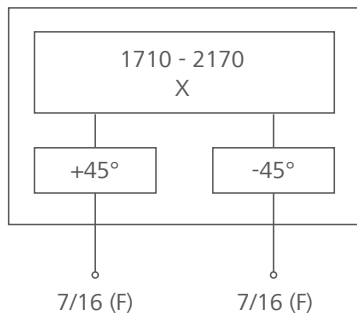
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1306 x 155 x 79
Antenna net weight (kg)	5.4
Bracket weight (kg)	3.0
Mechanical downtilt (°)	0 - 16
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 290 (at 150 km/h) Lateral: 115 (at 150 km/h) Rear side: 335 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom





Unit: mm



1710 - 2170 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

DX-1710-2170-33-21i-0F

Model: A19452102



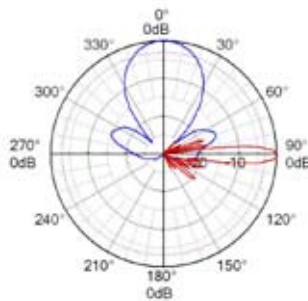
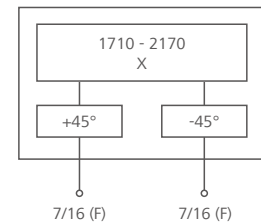
Electrical Properties

Frequency range (MHz)	1710 - 1880	1850 - 1990	1920 - 2170
Polarization	+45°, -45°		
VSWR	≤1.45		
Gain (dBi)	20.3	20.7	20.9
Side lobe suppression for first side lobe above horizon (dB)	18	18	18
Horizontal 3dB beam width (°)	35	33	31
Vertical 3dB beam width (°)	7.2	6.6	6.2
Isolation between ports (dB)	≥30		
Front to back ratio, copolar (dB)	Typ. 28		
Cross polar ratio (dB)	Typ. 20		
Electrical downtilt (°)	0		
Intermodulation IM3 (dBc)	≤-150 (2 x 43 dBm carrier)		
Max. CW input power (W)	300		
Impedance (Ω)	50		
Grounding	DC Ground		

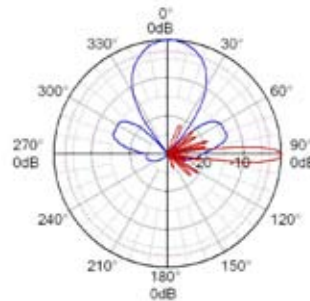


Mechanical Properties

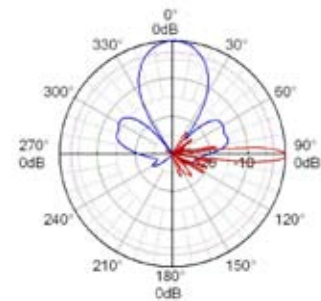
Dimensions (H x W x D) (mm)	1318 x 289 x 85
Net weight (kg)	10.4
Bracket weight (kg)	4.6
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radomematerial	Fiberglass
Operating temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 285 (v=150 km/h) Lateral: 120 (v=150 km/h) Rear side: 425 (v=150 km/h)
Max. wind velocity (km/h)	200
Connector	2 x 7/16 DIN Female



1710 - 1880 MHz



1850 - 1990 MHz



1920 - 2170 MHz

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

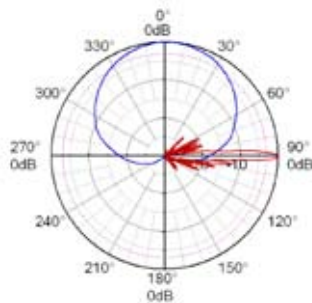
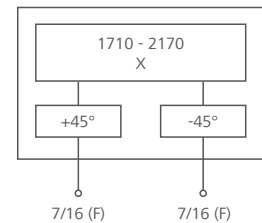
www.huawei.com

Electrical Properties

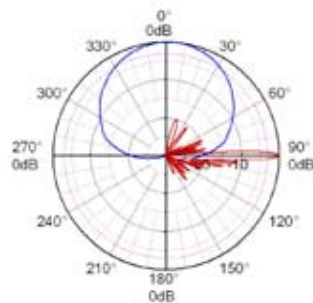
Frequency range (MHz)	1710 - 1880	1850 - 1990	1920 - 2170
Polarization	+45°, -45°		
VSWR	≤ 1.45		
Gain (dBi)	20.0	20.5	20.8
Side lobe suppression for first side lobe above horizon (dB)	18	18	18
Horizontal 3dB beam width (°)	66	63	60
Vertical 3dB beam width (°)	4.2	3.7	3.3
First null_fill below main beam (dB)	20		
Isolation between ports (dB)	≥ 30		
Front to back ratio, copolar (dB)	≥ 30		
Cross polar ratio (dB)	0°	≥ 17	
	± 60°	≥ 10	
Electrical downtilt (°)	0		
Intermodulation IM3 (dBc)	≤ -150 (2 x 43 dBm carrier)		
Max. CW input power (W)	300		
Impedance (Ω)	50		
Grounding	DC Ground		

Mechanical Properties

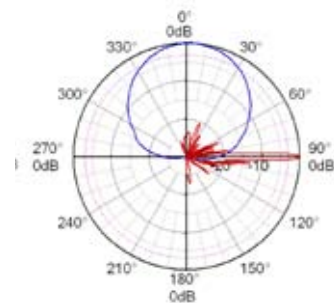
Dimensions (H x W x D) (mm)	2170 x 155 x 79
Net weight (kg)	9.1
Bracket weight (kg)	3
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radomematerial	Fiberglass
Operating temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 250 (v=150 km/h) Lateral: 185 (v=150 km/h) Rear side: 375 (v=150 km/h)
Max. wind velocity (km/h)	200
Connector	2 x 7/16 DIN Female



1710 - 1880 MHz



1850 - 1990 MHz



1920 - 2170 MHz

DX-1710-2170-65-21i-2F

Model: A19452103

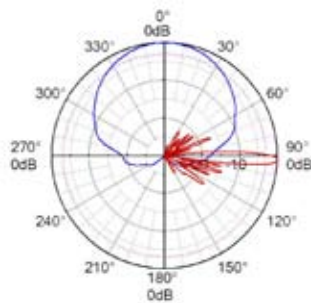
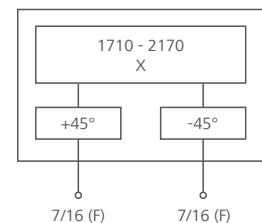


Electrical Properties

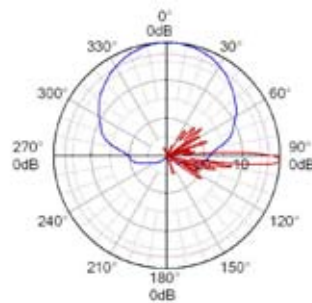
Frequency range (MHz)	1710 - 1880	1850 - 1990	1920 - 2170
Polarization	+45°, -45°		
VSWR	≤1.45		
Gain (dBi)	20.0	20.5	20.8
Side lobe suppression for first side lobe above horizon (dB)	16	16	16
Horizontal 3dB beam width (°)	66	63	60
Vertical 3dB beam width (°)	4.5	4.0	3.6
First null_fill below main beam (dB)	20		
Isolation between ports (dB)	≥ 30		
Front to back ratio, copolar (dB)	≥ 30		
Cross polar ratio (dB)	0°	≥ 17	
	± 60°	≥ 10	
Electrical downtilt (°)	2		
Intermodulation IM3 (dBc)	≤-150 (2 x 43 dBm carrier)		
Max. CW input power (W)	300		
Impedance (Ω)	50		
Grounding	DC Ground		

Mechanical Properties

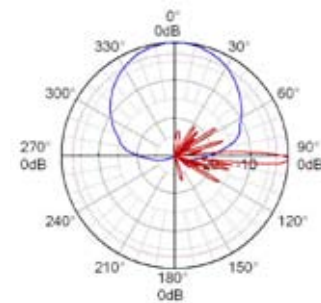
Dimensions (H x W x D) (mm)	2170 x 155 x 79
Net weight (kg)	9.1
Bracket weight (kg)	3
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radomematerial	Fiberglass
Operating temperature (°C)	-55 .. +65
Wind load (N)	Frontal:250 (v=150 km/h) Lateral: 185 (v=150 km/h) Rear side: 375 (v=150 km/h)
Max. wind velocity (km/h)	200
Connector	2 x 7/16 DIN Female



1710 - 1880 MHz



1850 - 1990 MHz



1920 - 2170 MHz

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

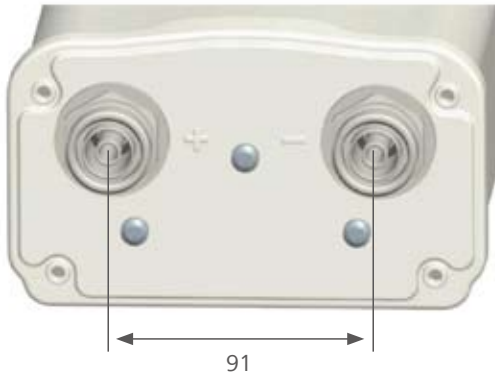
Electrical Properties

Frequency range (MHz)	1710 - 2200			
	1710 - 1880	1850 - 1990	1920 - 2170	2170 - 2200
Polarization	+45°, -45°			
Electrical downtilt (°)	3, Fixed			
Gain (dBi)	15.3	15.7	16.2	16.0
Side lobe suppression for first side lobe above horizon (dB)	18	20	20	20
Horizontal 3dB beam width (°)	67	64	61	60
Vertical 3dB beam width (°)	13.3	12.5	11.8	11.3
VSWR	< 1.4			
Isolation between ports (dB)	≥ 30			
Front to back ratio, copolar (dB)	Typ. 30			
Cross polar ratio (dB)	0°	Typ. 22		
	± 60°	Typ. 10		
Max. power per input (W)	300 (at 50 °C ambient temperature)			
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)			
Squint (°)	Avg. 1.5			
Tracking (dB)	Avg. 1.7 (within 10dB HBW)			
Impedance (Ω)	50			
Grounding	DC Ground			

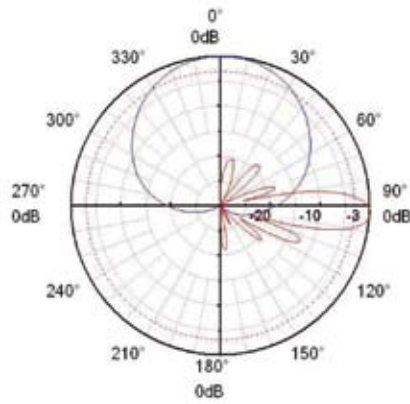
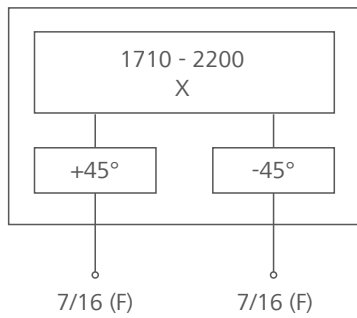
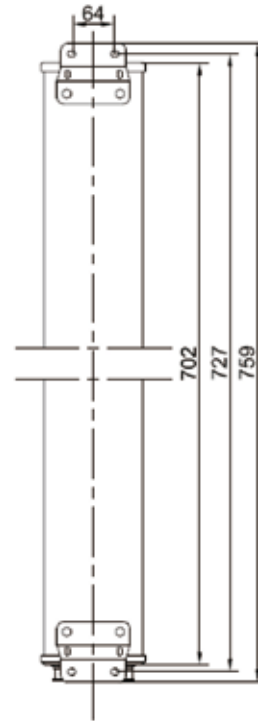
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	702 x 155 x 89
Antenna weight (kg)	3.6
Mast diameter supported (mm)	38 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 150 (at 150 km/h) Lateral: 75 (at 150 km/h) Rear side: 175 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom





Unit: mm



1710 - 2200 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

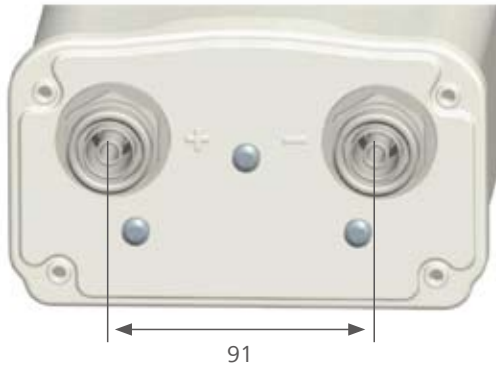
Electrical Properties

Frequency range (MHz)	1710 - 2200			
	1710 - 1880	1850 - 1990	1920 - 2170	2170 - 2200
Polarization	+45°, -45°			
Electrical downtilt (°)	6, Fixed			
Gain (dBi)	15.2	15.6	16.1	16.0
Side lobe suppression for first side lobe above horizon (dB)	18	20	20	20
Horizontal 3dB beam width (°)	67	64	61	60
Vertical 3dB beam width (°)	13.3	12.5	11.8	11.3
VSWR	< 1.4			
Isolation between ports (dB)	≥ 30			
Front to back ratio, copolar (dB)	Typ. 30			
Cross polar ratio (dB)	0°	Typ. 22		
	± 60°	Typ. 10		
Max. power per input (W)	300 (at 50 °C ambient temperature)			
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)			
Squint (°)	Avg. 1.8			
Tracking (dB)	Avg. 2.0 (within 10dB HBW)			
Impedance (Ω)	50			
Grounding	DC Ground			

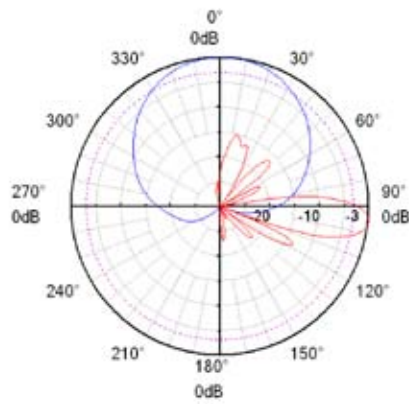
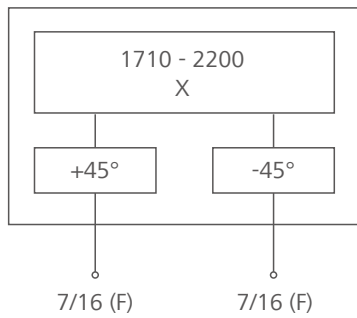
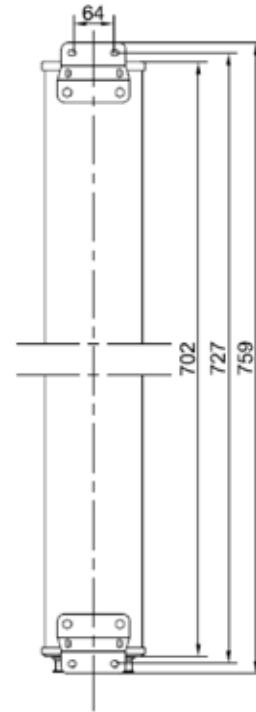
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	702 x 155 x 89
Antenna weight (kg)	3.6
Mast diameter supported (mm)	38 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 150 (at 150 km/h) Lateral: 75 (at 150 km/h) Rear side: 175 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom





Unit: mm



1710 - 2200 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Electrical Properties

Frequency range (MHz)	1710 - 2200			
	1710 - 1880	1850 - 1990	1920 - 2170	2170 - 2200
Polarization	+45°, -45°			
Electrical downtilt (°)	0, Fixed			
Gain (dBi)	17.6	18.0	18.3	18.3
Side lobe suppression for first side lobe above horizon (dB)	18	19	19	19
Horizontal 3dB beam width (°)	67	64	62	60
Vertical 3dB beam width (°)	7.0	6.7	6.4	6.0
VSWR	< 1.4			
Isolation between ports (dB)	≥ 30			
Front to back ratio, copolar (dB)	Typ. 30			
Cross polar ratio (dB)	0°	Typ. 22		
	± 60°	Typ. 10		
Max. power per input (W)	300 (at 50°C ambient temperature)			
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)			
Max. power per input (W)	Avg. 1.2			
Intermodulation IM3 (dBc)	Avg. 1.2 (within 10dB HBW)			
Impedance (Ω)	50			
Grounding	DC Ground			

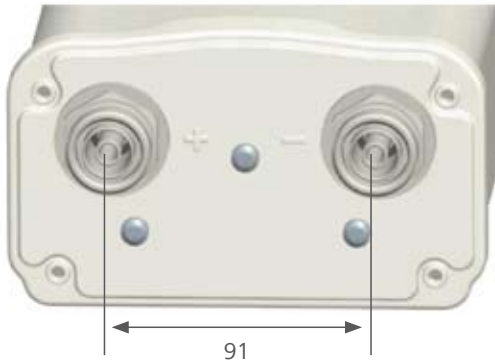
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1311 x 155 x 89
Antenna weight (kg)	5.5
Mast diameter supported (mm)	38 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 315 (at 150 km/h) Lateral: 155 (at 150 km/h) Rear side: 360 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

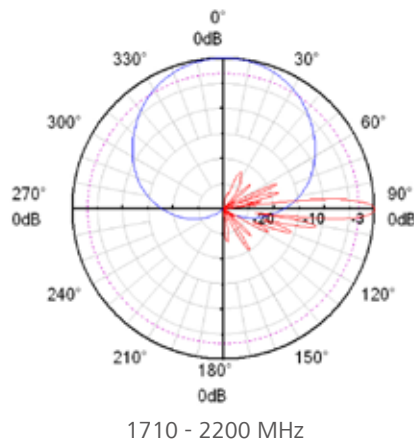
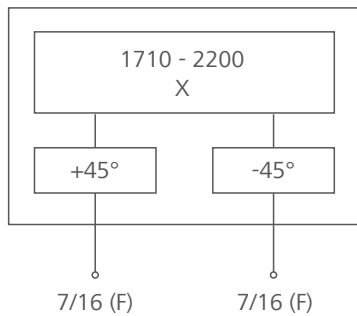
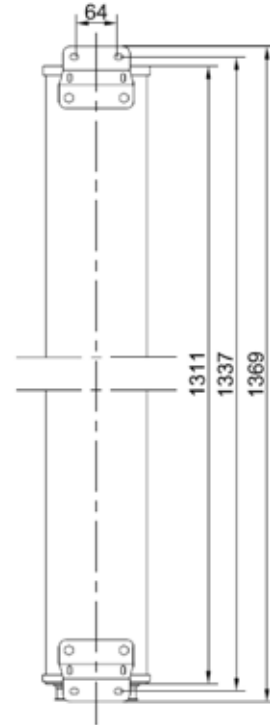


DX-1710-2200-65-18i-0F

Model: A19451800v01



Unit: mm



NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

Electrical Properties

Frequency range (MHz)	1710 - 2200			
	1710 - 1880	1850 - 1990	1920 - 2170	2170 - 2200
Polarization	+45°, -45°			
Electrical downtilt (°)	3, Fixed			
Gain (dBi)	17.7	18.1	18.4	18.2
Side lobe suppression for first side lobe above horizon (dB)	19	19	19	19
Horizontal 3dB beam width (°)	67	64	62	60
Vertical 3dB beam width (°)	7.0	6.7	6.4	6.0
VSWR	< 1.4			
Isolation between ports (dB)	≥ 30			
Front to back ratio, copolar (dB)	Typ. 30			
Cross polar ratio (dB)	0°	Typ. 22		
	± 60°	Typ. 10		
Max. power per input (W)	300 (at 50°C ambient temperature)			
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)			
Max. power per input (W)	Avg. 1.2			
Intermodulation IM3 (dBc)	Avg. 1.5 (within 10dB HBW)			
Impedance (Ω)	50			
Grounding	DC Ground			

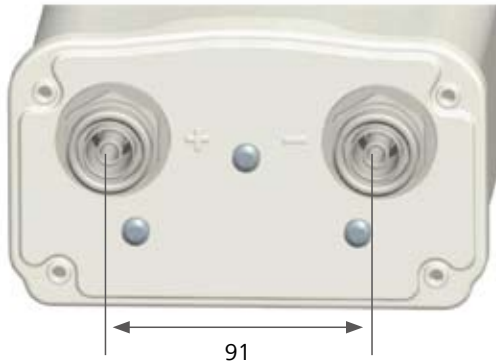
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1311 x 155 x 89
Antenna weight (kg)	5.5
Mast diameter supported (mm)	38 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 315 (at 150 km/h) Lateral: 155 (at 150 km/h) Rear side: 360 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

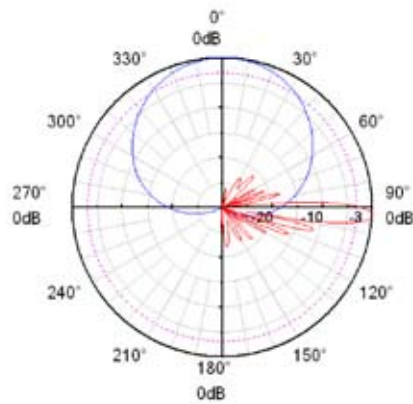
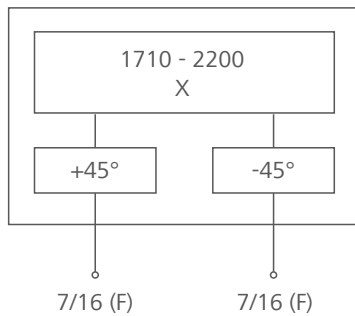
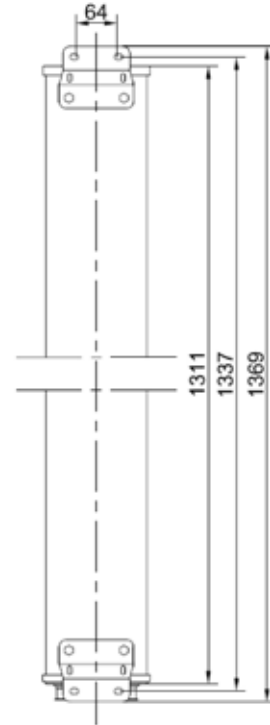


DX-1710-2200-65-18i-3F

Model: A19451810v01



Unit: mm



1710 - 2200 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

Electrical Properties

Frequency range (MHz)	1710 - 2200			
	1710 - 1880	1850 - 1990	1920 - 2170	2170 - 2200
Polarization	+45°, -45°			
Electrical downtilt (°)	6, Fixed			
Gain (dBi)	17.7	18.1	18.4	18.2
Side lobe suppression for first side lobe above horizon (dB)	18	20	20	20
Horizontal 3dB beam width (°)	67	64	62	60
Vertical 3dB beam width (°)	7.0	6.7	6.4	6.0
VSWR	< 1.4			
Isolation between ports (dB)	≥ 30			
Front to back ratio, copolar (dB)	Typ. 30			
Cross polar ratio (dB)	0°	Typ. 22		
	± 60°	Typ. 10		
Max. power per input (W)	300 (at 50°C ambient temperature)			
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)			
Max. power per input (W)	Avg. 1.5			
Intermodulation IM3 (dBc)	Avg. 2.0 (within 10dB HBW)			
Impedance (Ω)	50			
Grounding	DC Ground			

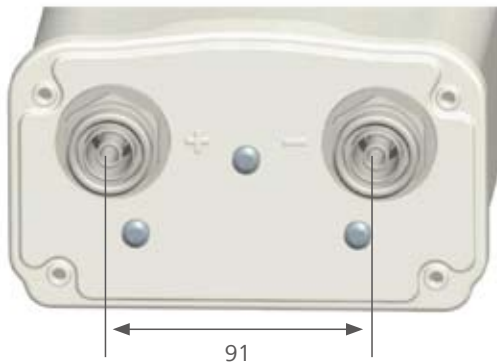
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1311 x 155 x 89
Antenna weight (kg)	5.5
Mast diameter supported (mm)	38 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 315 (at 150 km/h) Lateral: 155 (at 150 km/h) Rear side: 360 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom

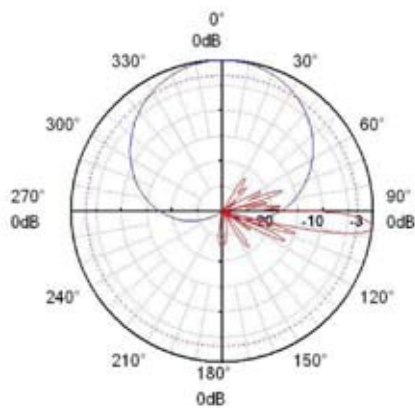
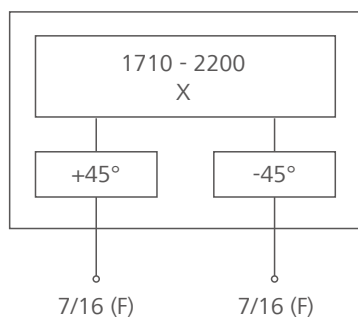


DX-1710-2200-65-18i-6F

Model: A19451802v01



Unit: mm



1710 - 2200 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

A - 02. Dual-band Antenna

Frequency Range (MHz)	Polarization	3dB Horizontal beam width (°)	Gain (dBi)	Electrical downtilt (°)	Tilt Method	Connector	Dimension (mm)	Model	Page
790-862/ 880-960	xx	65/65	14.5/15	0-14/0-14	EasyRET	4 x 7/16 DIN-F	1539 x 349 x 166	ADU4515R0	65
790-862/ 880-960	xx	65/65	16/16.5	0-12/0-12	EasyRET	4 x 7/16 DIN-F	1999 x 259 x 135	ADU4516R0	67
790-862/ 880-960	xx	65/65	17/17.5	0-10/0-10	EasyRET	4 x 7/16 DIN-F	2538 x 259 x 135	ADU4517R0	69
790-960/ 1710-2180	xx	65/65	15/17.5	0-14/0-10	MET	4 x 7/16 DIN-F	1360 x 259 x 135	ADU451503	71
790-960/ 1710-2180	xx	65/65	16.5/18.5	0-12/0-8	MET	4 x 7/16 DIN-F	1936 x 259 x 135	ADU451602v01	73
790-960/ 1710-2180	xx	65/65	16.5/18.5	0-12/0-8	EasyRET	4 x 7/16 DIN-F	1936 x 259 x 135	ADU4518R3	75
790-960/ 1710-2180	xx	65/65	17.5/18.5	0-10/0-8	MET	4 x 7/16 DIN-F	2535 x 259 x 135	ADU451807v01	77
790-960/ 1710-2180	xx	65/65	17.5/18.5	0-10/0-8	EasyRET	4 x 7/16 DIN-F	2535 x 259 x 135	ADU4518R0	79
790-960/ 1710-2180	xx	65/65	15/17.5	0-14/0-10	MET+ Combiner	2 x 7/16 DIN-F	1360 x 259 x 135	ADU4517C0	81
790-960/ 1710-2180	xx	65/65	16.5/18.5	0-12/0-8	MET+ Combiner	2 x 7/16 DIN-F	1936 x 259 x 135	ADU4518C1	83
790-960/ 1710-2180	xx	65/65	17.5/18.5	0-10/0-8	MET+ Combiner	2 x 7/16 DIN-F	2535 x 259 x 135	ADU4518C0	85
790-960/ 1710-2180	xx	65/65	17.5/18	0-10/0-10	MET	4 x 7/16 DIN-F	2535 x 259 x 135	**ADU451720	87
790-960/ 1710-2690	xx	65/65	15/17.5	0-14/0-10	MET	4 x 7/16 DIN-F	1496 x 298 x 150	ADU451716	89
790-960/ 1710-2690	xx	65/65	16/18.5	0-10/0-8	MET	4 x 7/16 DIN-F	2020 x 298 x 150	ADU451604	91

** Preliminary Issue

A - 02. Dual-band Antenna

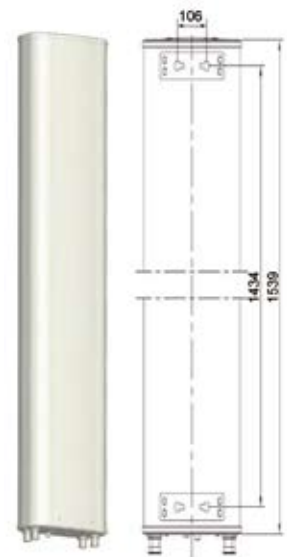
Frequency Range (MHz)	Polarization	3dB Horizontal beam width (°)	Gain (dBi)	Electrical downtilt (°)	Tilt Method	Connector	Dimension (mm)	Model	Page
790-960/ 1710-2690	xx	65/65	17/18.5	0-10/0-8	MET	4 x 7/16 DIN-F	2520 x 298 x 150	ADU451712	93
690-960/ 1710-2690	xx	65/65	16/18	0-10/0-10	MET	4 x 7/16 DIN-F	2020 x 298 x 150	**ADU451826	95
690-960/ 1710-2690	xx	65/65	17/18	0-10/0-10	MET	4 x 7/16 DIN-F	2590 x 298 x 150	**ADU451827	96
690-960/ 1710-2690	xx	65/65	16/18	0-10/0-10	EasyRET	4 x 7/16 DIN-F	1999 x 298 x 150	**ADU4518R7	97
690-960/ 1710-2690	xx	65/65	17/18	0-10/0-10	EasyRET	4 x 7/16 DIN-F	2590 x 298 x 150	**ADU4518R8	98
1710-2200/ 1710-2200	xx	65/65	15.5/15.5	0-12/0-12	MET	4 x 7/16 DIN-F	701 x 323 x 89	**ADU451611	99
1710-2200/ 1710-2200	xx	65/65	18/18	0-10/0-10	MET	4 x 7/16 DIN-F	1311 x 323 x 89	ADU451819	100
1710-2200/ 1710-2200	xx	65/65	18/18	0-10/0-10	EasyRET	4 x 7/16 DIN-F	1311 x 323 x 89	ADU4518R1	102
1710-2200/ 1710-2200	xx	65/65	19.5/19.5	0-6/0-6	MET	4 x 7/16 DIN-F	1954 x 323 x 89	ADU451902	104
1710-2170/ 2490-2690	xx	65/65	18/18	0-12/0-12	EasyRET	4 x 7/16 DIN-F	1490 x 155 x 109	ADU4518R5	106
1710-2690/ 1710-2690	xx	65/65	16/16	0-14/0-14	MET	4 x 7/16 DIN-F	790 x 299 x 109	**ADU451507	108
1710-2690/ 1710-2690	xx	65/65	18/18	0-12/0-12	MET	4 x 7/16 DIN-F	1365 x 299 x 109	ADU451816v01	109
1710-2690/ 1710-2690	xx	65/65	18/18	0-12/0-12	EasyRET	4 x 7/16 DIN-F	1365 x 299 x 109	ADU4518R6	111
1710-2690/ 1710-2690	xx	65/65	19.5/19.5	0-6/0-6	MET	4 x 7/16 DIN-F	1930 x 299 x 89	ADU451901	113

** Preliminary Issue

Antenna Specifications

Electrical Properties						
Frequency range (MHz)	790 - 862			880 - 960		
Polarization	+45°, -45°					
Electrical downtilt (°)	0 - 14, continuously adjustable					
Gain (dBi)	0°	7°	14°	0°	7°	14°
	14.4	14.4	14.2	15.0	15.0	14.7
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	7°	14°	0°	7°	14°
	18	18	16	18	17	15
	16	16	15	16	15	15
Horizontal 3dB beam width (°)	63			60		
Vertical 3dB beam width (°)	15.3			13.9		
VSWR	< 1.5					
Isolation between ports (dB)	Intra-system: ≥ 30					
	Inter-system (790 - 862 // 880 - 960 MHz): ≥ 30					
Front to back ratio, copolar (dB)	Typ. 28			Typ. 28		
Cross polar ratio (dB)	0°	Typ. 25			Typ. 23	
	± 60°	> 10			> 10	
Max. power per input (W)	400 (at 50°C ambient temperature)					
Total power (W)	640 (at 50°C ambient temperature)					
Intermodulation IM3 (dBc)	≤ -150 (2 x 43 dBm carrier)					
Squint (°)	Typ. 2.0					
Tracking (dB)	Avg. 1.0 (within 10dB HBW)					
Impedance (Ω)	50					
Grounding	DC Ground					

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1539 x 349 x 166
Antenna weight (kg)	21.5
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 525 (at 150 km/h) Lateral: 170 (at 150 km/h) Rear side: 545 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom



Integrated RCU Specifications

Properties								
RET type	Integrated RET							
RET protocols*	AISG 2.0/3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 39 (typically, depending on antenna type)							
RET connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

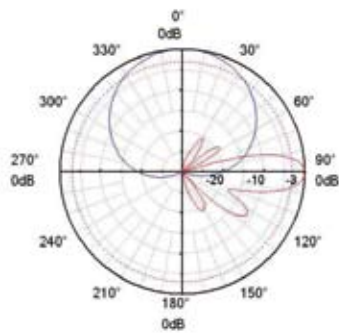
Certification: CE, FCC, RoHS, WEEE



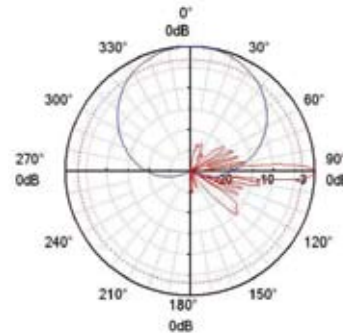
Integrated RCU S/N: **a** HWMxxx...r

b HWMxxx...rr

r - Red



790 - 862 MHz

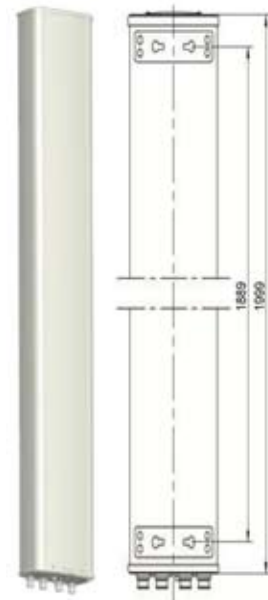


880 - 960 MHz

Antenna Specifications

Electrical Properties						
Frequency range (MHz)	790 - 862			880 - 960		
Polarization	+45°, -45°					
Electrical downtilt (°)	0 - 12, continuously adjustable					
Gain (dBi)	0°	6°	12°	0°	6°	12°
	15.6	16.0	15.7	16.3	16.8	16.3
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	6°	12°	0°	6°	12°
	20	20	17	20	20	17
	16	16	15	16	15	15
Horizontal 3dB beam width (°)	69			65		
Vertical 3dB beam width (°)	10.5			9.4		
VSWR	< 1.5					
Isolation between ports (dB)	Intra-system: ≥ 30					
	Inter-system (790 - 862 // 880 - 960 MHz): ≥ 30					
Front to back ratio, copolar (dB)	> 25			Typ. 28		
Cross polar ratio (dB)	0°	Typ. 23			Typ. 25	
	±60°	≥ 10			≥ 10	
Max. power per input (W)	500 (at 50°C ambient temperature)					
Intermodulation IM3 (dBc)	≤ -150 (2 x 43 dBm carrier)					
Squint (°)	Typ. 2.0					
Tracking (dB)	Avg. 1.0 (within 10dB HBW)					
Impedance (Ω)	50					
Grounding	DC Ground					

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1999 x 259 x 135
Antenna weight (kg)	21.5
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 685 (at 150 km/h) Lateral: 360 (at 150 km/h) Rear side: 910 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom



Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (min)	< 37 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

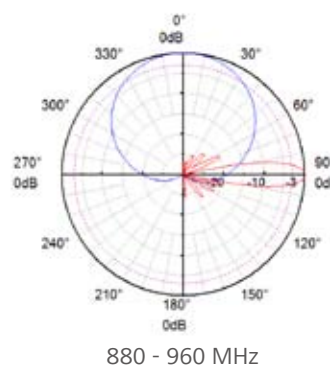
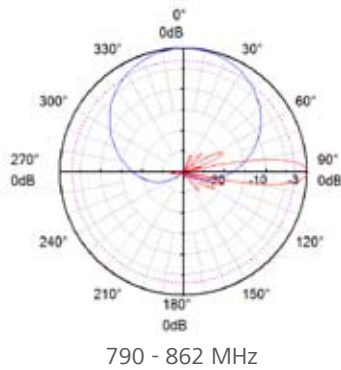
Certification: CE, FCC, RoHS, WEEE



Integrated RCU S/N: **a** HWMxxx...r

b HWMxxx...rr

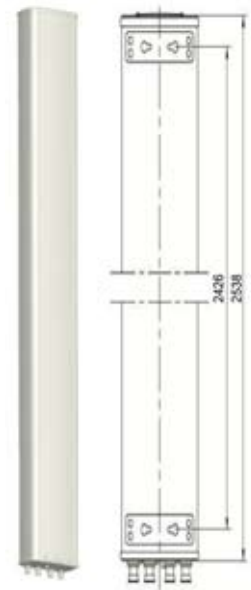
r - Red



Antenna Specifications

Electrical Properties						
Frequency range (MHz)	790 - 862			880 - 960		
Polarization	+45°, -45°					
Electrical downtilt (°)	0 - 10, continuously adjustable					
Gain (dBi)	0°	5°	10°	0°	5°	10°
	16.4	16.8	16.4	17.1	17.5	17.2
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	5°	10°	0°	5°	10°
	18	18	17	18	18	18
	16	16	15	16	16	16
Horizontal 3dB beam width (°)	68			65		
Vertical 3dB beam width (°)	8.3			7.2		
VSWR	< 1.5					
Isolation between ports (dB)	Intra-system: ≥ 30					
	Inter-system (790 - 862 // 880 - 960 MHz): ≥ 30					
Front to back ratio, copolar (dB)	Typ. 28			Typ. 30		
Cross polar ratio (dB)	0°	Typ. 23			Typ. 25	
	± 60°	≥ 10			≥ 10	
Max. power per input (W)	500 (at 50°C ambient temperature)					
Intermodulation IM3 (dBc)	≤ -150 (2 x 43 dBm carrier)					
Squint (°)	Typ. 1.5					
Tracking (dB)	Avg. 1.0 (within 10dB HBW)					
Impedance (Ω)	50					
Grounding	DC Ground					

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2538 x 259 x 135
Antenna weight (kg)	25.5
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) Lateral: 470 (at 150 km/h) Rear side: 1200 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom



Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (min)	< 37 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

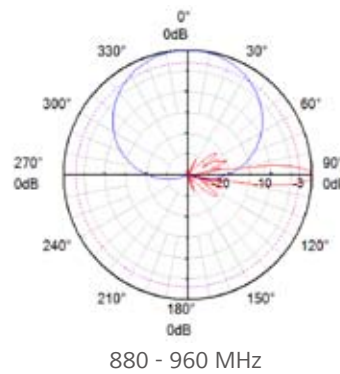
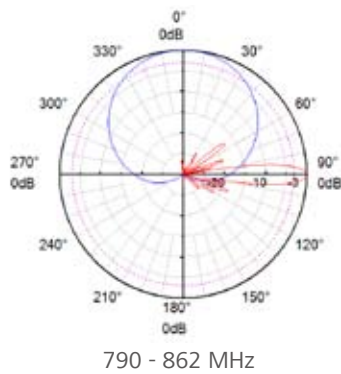
Certification: CE, FCC, RoHS, WEEE



Integrated RCU S/N: **a** HWMxxx...r

b HWMxxx...rr

r - Red



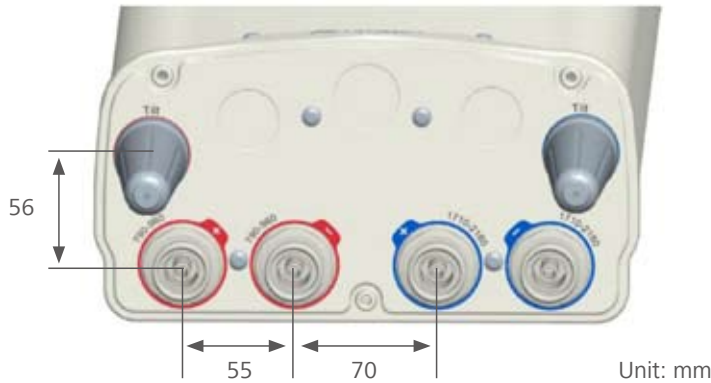
Electrical Properties																		
Frequency range (MHz)	790 - 960									1710 - 2180								
	790 - 862			824 - 894			880 - 960			1710 - 1880		1850 - 1990			1920 - 2180			
Polarization	+45°, -45°																	
Electrical downtilt (°)	0 - 14, continuously adjustable									0 - 10, continuously adjustable								
Gain (dBi)	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	14.6	14.5	14.3	15.0	14.7	14.5	15.1	15.0	14.5	16.7	16.8	16.6	17.0	17.3	16.6	17.5	17.6	16.7
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	18	18	17	18	18	17	17	15	15	19	17	17	19	16	17	19	16	17
Horizontal 3dB beam width (°)	69			66			64			65		63			60			
Vertical 3dB beam width (°)	15.7			15.0			14.0			7.5		7.1			6.6			
VSWR	< 1.5																	
Isolation between ports (dB)	Intra-system: ≥ 30 Inter-system (790 - 960 // 1710 - 2180 MHz): ≥ 40																	
Front to back ratio, copolar (dB)	Typ. 28									Typ. 28								
Cross polar ratio (dB)	0°			Typ. 25									Typ. 20					
	± 60°			Typ. 10									Typ. 10					
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)																	
Squint (°)	Avg. 2.0																	
Tracking (dB)	Avg. 2.0 (within 10dB HBW)																	
Impedance (Ω)	50																	
Grounding	DC Ground																	

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1360 x 259 x 135
Antenna weight (kg)	13.7
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 440 (at 150 km/h) Lateral: 230 (at 150 km/h) Rear side: 585 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom

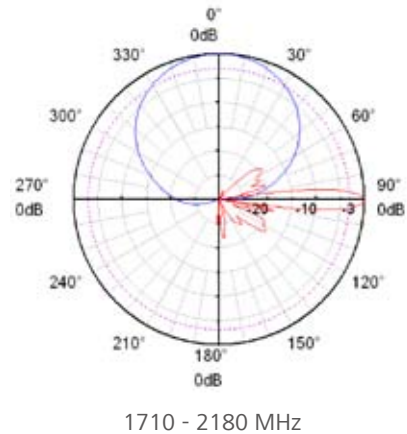
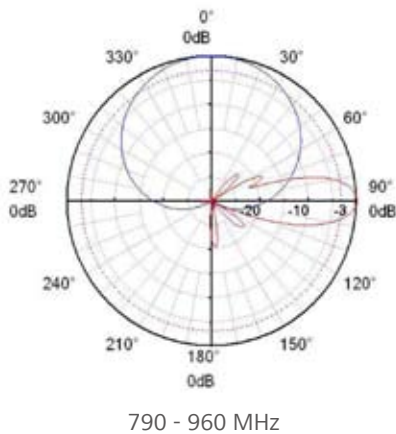
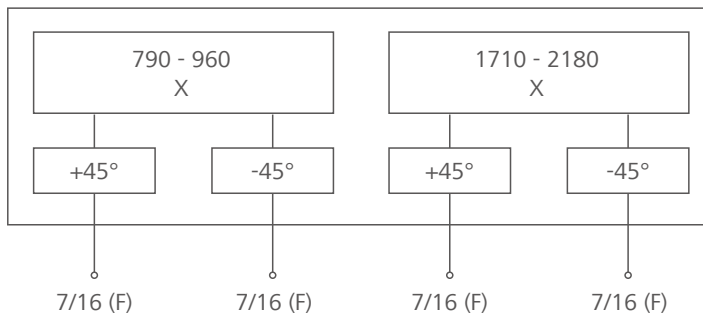
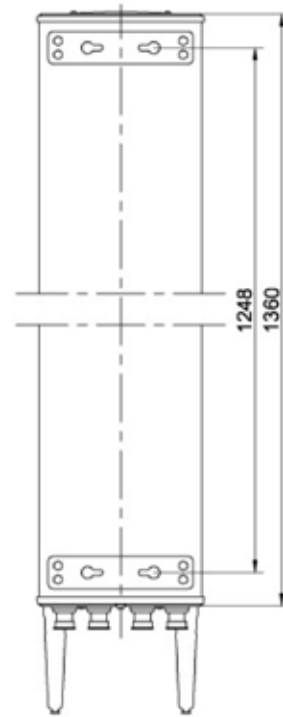


DXX-790-960/1710-2180-65/65-15i/17.5i-M/M

Model: ADU451503



Unit: mm



NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

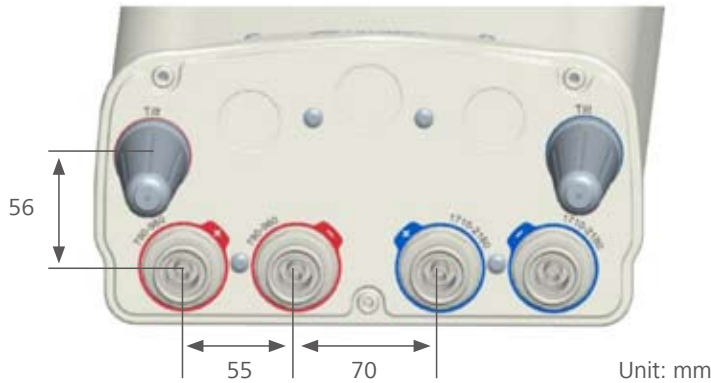
Electrical Properties																		
Frequency range (MHz)	790 - 960									1710 - 2180								
	790 - 862			824 - 894			880 - 960			1710 - 1880		1850 - 1990			1920 - 2180			
Polarization	+45°, -45°																	
Electrical downtilt (°)	0 - 12, continuously adjustable									0 - 8, continuously adjustable								
Gain (dBi)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	4°	8°	0°	4°	8°	0°	4°	8°
	15.7	15.7	15.3	16.0	16.0	15.5	16.2	16.0	15.6	18.0	18.5	18.3	18.2	18.7	18.3	18.3	18.7	18.3
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	4°	8°	0°	4°	8°	0°	4°	8°
	20	17	15	20	18	15	17	18	15	20	18	18	18	17	15	18	15	15
Horizontal 3dB beam width (°)	69			66			64			65		63			60			
Vertical 3dB beam width (°)	10.6			10.2			9.5			5.2		5.0			4.7			
VSWR	< 1.5																	
Isolation between ports (dB)	Intra-system: ≥ 30 Inter-system (790 - 960 // 1710 - 2180 MHz): ≥ 40																	
Front to back ratio, copolar (dB)	Typ. 28									Typ. 30								
Cross polar ratio (dB)	0°			Typ. 25									Typ. 20					
	± 60°			Typ. 10									Typ. 10					
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)																	
Squint (°)	Avg. 2.5																	
Tracking (dB)	Avg. 2.0 (within 10dB HBW)																	
Impedance (Ω)	50																	
Grounding	DC Ground																	

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1936 x 259 x 135
Antenna weight (kg)	17.3
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 665 (at 150 km/h) Lateral: 345 (at 150 km/h) Rear side: 880 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom

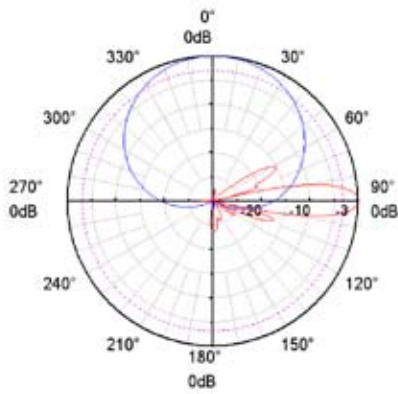
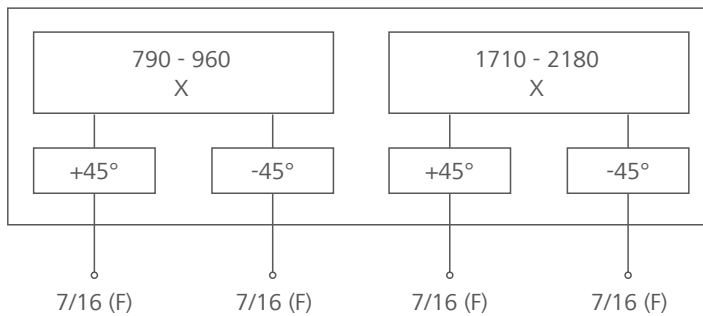
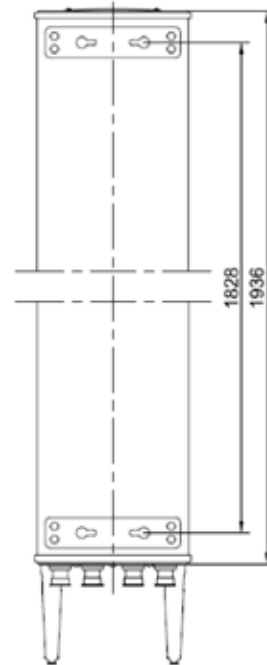


DXX-790-960/1710-2180-65/65-16.5i/18.5i-M/M

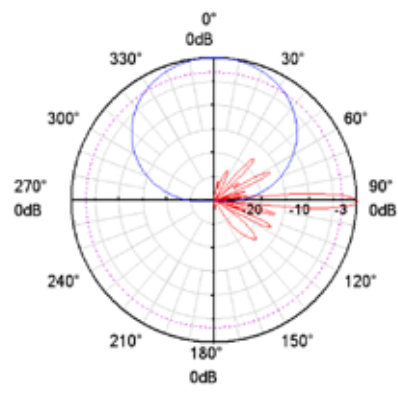
Model: ADU451602v01



Unit: mm



790 - 960 MHz



1710 - 2180 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

Antenna Specifications

Electrical Properties																			
Frequency range (MHz)	790 - 960									1710 - 2180									
	790 - 862			824 - 894			880 - 960			1710 - 1880			1850 - 1990			1920 - 2180			
Polarization	+45°, -45°																		
Electrical downtilt (°)	0 - 12, continuously adjustable									0 - 8, continuously adjustable									
Gain (dBi)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	4°	8°	0°	4°	8°	0°	4°	8°	
	15.7	15.7	15.3	16.0	16.0	15.5	16.2	16.0	15.6	18.0	18.5	18.3	18.2	18.7	18.3	18.3	18.7	18.3	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	4°	8°	0°	4°	8°	0°	4°	8°	
	20	17	15	20	18	15	17	18	15	20	18	18	18	17	15	18	15	15	
Horizontal 3dB beam width (°)	69			66			64			65			63			60			
Vertical 3dB beam width (°)	10.6			10.2			9.5			5.2			5.0			4.7			
VSWR	< 1.5																		
Isolation between ports (dB)	Intra-system: ≥ 30																		
	Inter-system (790 - 960 // 1710 - 2180 MHz): ≥ 40																		
Front to back ratio, copolar (dB)	Typ. 28									Typ. 30									
Cross polar ratio (dB)	0°	Typ. 25									Typ. 20								
	± 60°	Typ. 10									Typ. 10								
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)																		
Squint (°)	Avg. 2.5																		
Tracking (dB)	Avg. 2.0 (within 10dB HBW)																		
Impedance (Ω)	50																		
Grounding	DC Ground																		

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1936 x 259 x 135
Antenna weight (kg)	18.3
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 665 (at 150 km/h) Lateral: 345 (at 150 km/h) Rear side: 880 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom



Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (min)	< 37 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE

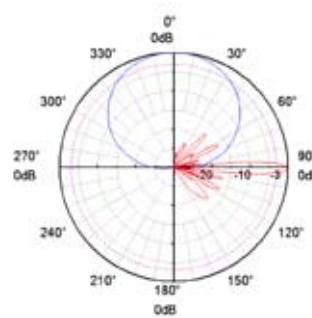


Integrated RCU S/N: **a** HWMxxx...r
b HWMxxx...b

r - Red b - Blue



790 - 960 MHz

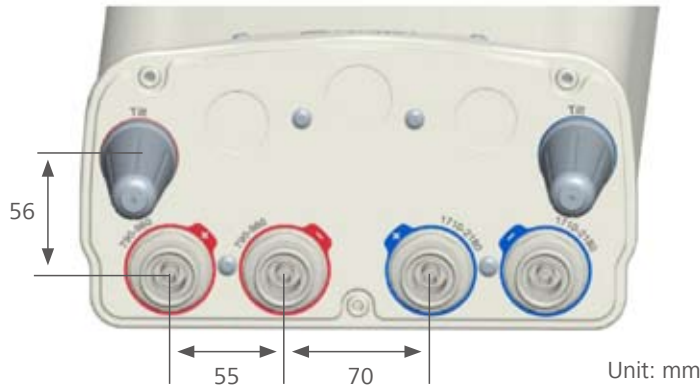


1710 - 2180 MHz

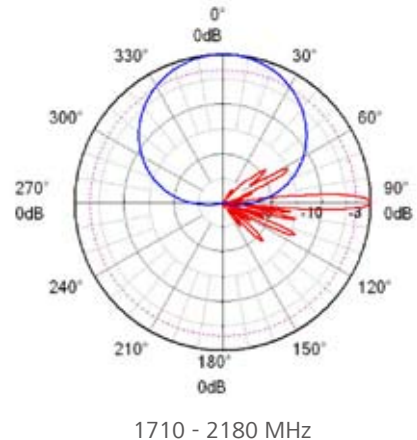
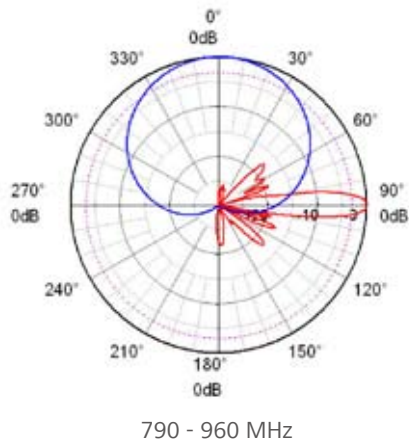
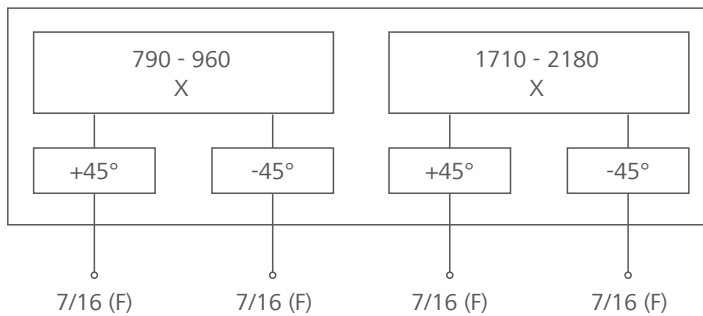
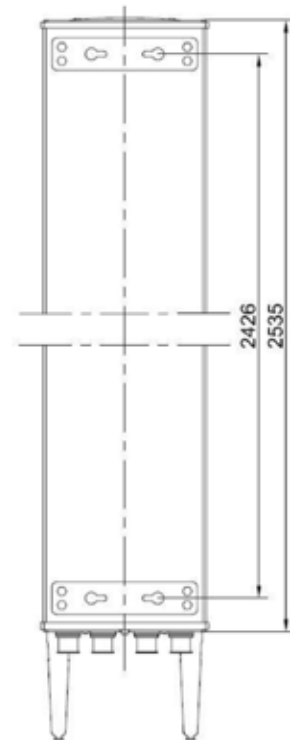
Electrical Properties																		
Frequency range (MHz)	790 - 960									1710 - 2180								
	790 - 862			824 - 894			880 - 960			1710 - 1880		1850 - 1990			1920 - 2180			
Polarization	+45°, -45°																	
Electrical downtilt (°)	0 - 10, continuously adjustable									0 - 8, continuously adjustable								
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	4°	8°	0°	4°	8°	0°	4°	8°
	16.6	16.7	16.5	16.9	17.0	16.8	17.0	17.2	16.9	18.1	18.4	18.0	18.3	18.6	18.2	18.3	18.6	18.0
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	4°	8°	0°	4°	8°	0°	4°	8°
	19	19	18	19	19	18	19	18	17	18	16	18	20	16	18	20	16	18
Horizontal 3dB beam width (°)	69			66			65			64		62			60			
Vertical 3dB beam width (°)	8.4			8.0			7.5			5.2		4.9			4.6			
VSWR	< 1.5																	
Isolation between ports (dB)	Intra-system: ≥ 30 Inter-system: ≥ 40																	
Front to back ratio, copolar (dB)	Typ. 28									Typ. 29								
Cross polar ratio (dB)	0°			Typ. 30									Typ. 20					
	± 60°			Typ. 10									Typ. 10					
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)																	
Squint (°)	Avg. 2.5																	
Tracking (dB)	Avg. 1.0 (within 10dB HBW)																	
Impedance (Ω)	50																	
Grounding	DC Ground																	

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2535 x 259 x 135
Antenna weight (kg)	21
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 910 (at 150 km/h) Lateral: 470 (at 150 km/h) Rear side: 1200 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom





Unit: mm



NOTE

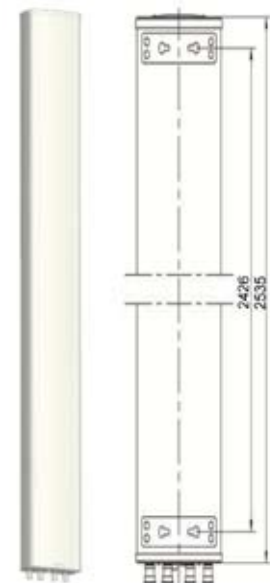
Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Antenna Specifications

Electrical Properties																			
Frequency range (MHz)	790 - 960									1710 - 2180									
	790 - 862			824 - 894			880 - 960			1710 - 1880			1850 - 1990			1920 - 2180			
Polarization	+45°, -45°																		
Electrical downtilt (°)	0 - 10, continuously adjustable									0 - 8, continuously adjustable									
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	4°	8°	0°	4°	8°	0°	4°	8°	
	16.6	16.7	16.5	16.9	17.0	16.8	17.0	17.2	16.9	18.1	18.4	18.0	18.3	18.6	18.2	18.3	18.6	18.0	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	4°	8°	0°	4°	8°	0°	4°	8°	
	19	19	18	19	19	18	19	18	17	18	16	18	20	16	18	20	16	18	
Horizontal 3dB beam width (°)	69			66			65			64			62			60			
Vertical 3dB beam width (°)	8.4			8.0			7.5			5.2			4.9			4.6			
VSWR	< 1.5																		
Isolation between ports (dB)	Intra-system: ≥ 30																		
	Inter-system (790 - 960 // 1710 - 2180 MHz): ≥ 40																		
Front to back ratio, copolar (dB)	Typ. 28									Typ. 29									
Cross polar ratio (dB)	0°	Typ. 30									Typ. 20								
	± 60°	Typ. 10									Typ. 10								
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)																		
Squint (°)	Avg. 2.5																		
Tracking (dB)	Avg. 1.0 (within 10dB HBW)																		
Impedance (Ω)	50																		
Grounding	DC Ground																		

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2535 x 259 x 135
Antenna weight (kg)	22.2
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) Lateral: 470 (at 150 km/h) Rear side: 1200 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom



DXX-790-960/1710-2180-65/65-17.5i/18.5i-M/M-R

EasyRET Dual-Band Antenna with 2 Integrated RCUs - 2.6m

Model: ADU4518R0



Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (min)	< 37 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (10/350 μ s) 10 (8/20 μ 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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

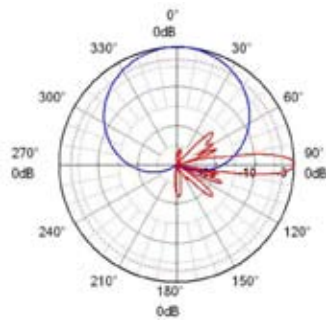
Certification: CE, FCC, RoHS, WEEE



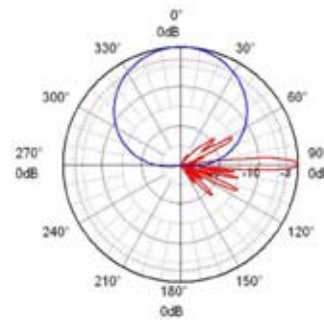
Integrated RCU S/N: **a** HWMxxx...r

b HWMxxx...b

r - Red b - Blue



790 - 960 MHz



1710 - 2180 MHz

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

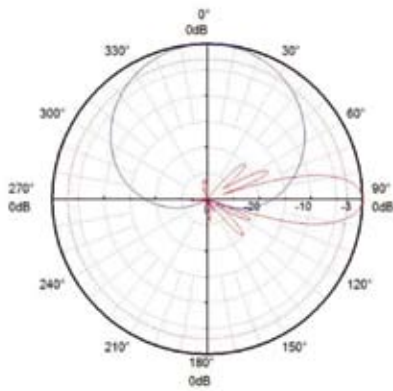
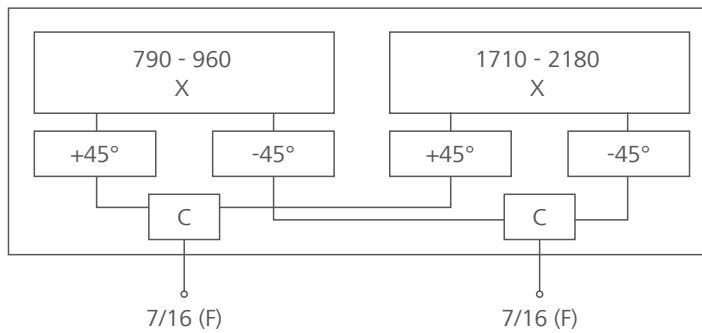
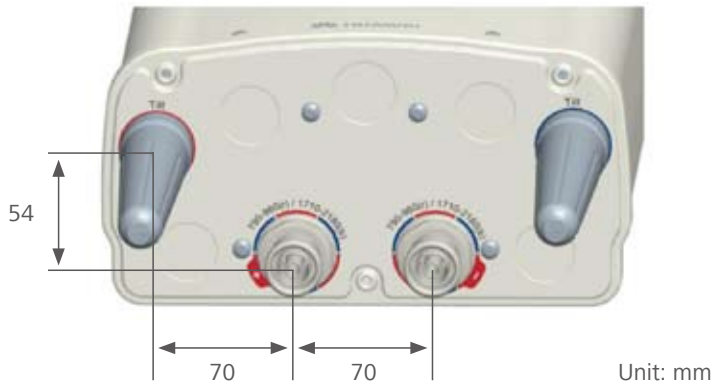
Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

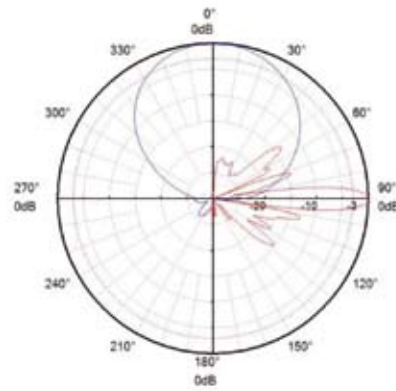
Electrical Properties																			
Frequency range (MHz)	790 - 960									1710 - 2180									
	790 - 862			824 - 894			880 - 960			1710 - 1880			1850 - 1990			1920 - 2180			
Polarization	+45°, -45°																		
Electrical downtilt (°)	0 - 14 , continuously adjustable									0 - 10 , continuously adjustable									
Gain (dBi)	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	14.6	14.5	14.3	15.0	14.7	14.5	15.1	15.0	14.5	16.7	16.8	16.6	17.0	17.3	16.6	17.5	17.6	16.7	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	18	18	17	18	18	17	17	15	15	19	17	17	19	16	17	19	16	17	
Horizontal 3dB beam width (°)	69			66			64			65			63			60			
Vertical 3dB beam width (°)	15.7			15.0			14.0			7.5			7.1			6.6			
VSWR	< 1.5																		
Isolation between ports (dB)	Intra-system: ≥ 30																		
Front to back ratio, copolar (dB)	Typ. 28									Typ. 28									
Cross polar ratio (dB)	0°	Typ. 25									Typ. 20								
	± 60°	Typ. 10									Typ. 10								
Max. power per input (W)	250 (at 50°C ambient temperature)									200 (at 50°C ambient temperature)									
Total power per combined input (W)	400 (at 50°C ambient temperature)																		
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)																		
Squint (°)	Avg. 2.0																		
Tracking (dB)	Avg. 2.0 (within 10dB HBW)																		
Impedance (Ω)	50																		
Grounding	DC Ground																		

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1360 x 259 x 135
Antenna weight (kg)	13.7
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 440 (at 150 km/h) Lateral: 230 (at 150 km/h) Rear side: 585 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom





790 - 960 MHz



1710 - 2180 MHz

NOTE

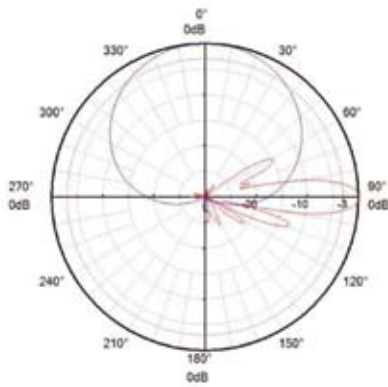
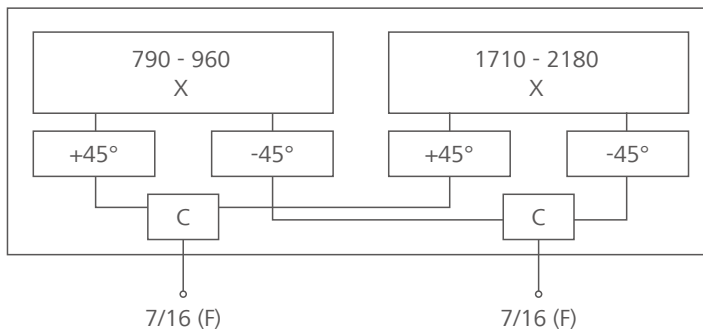
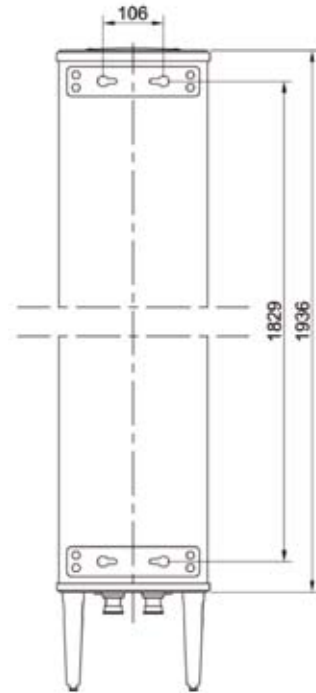
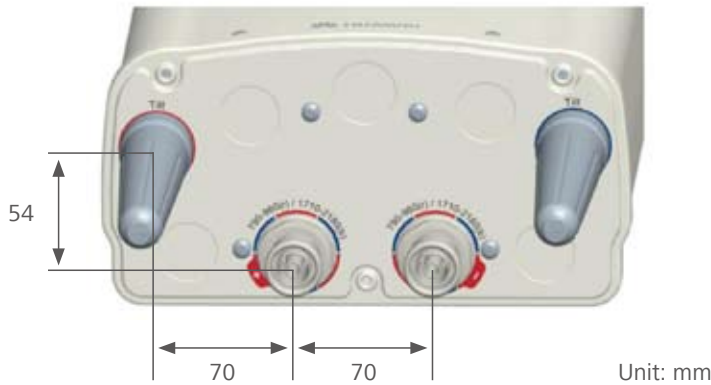
Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

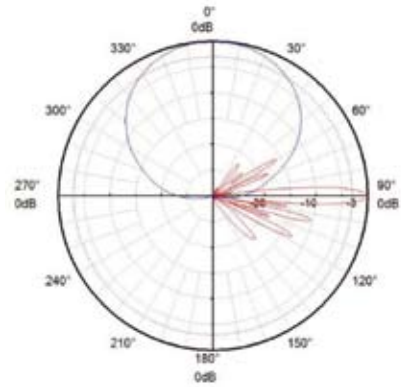
Electrical Properties																			
Frequency range (MHz)	790 - 960									1710 - 2180									
	790 - 862			824 - 894			880 - 960			1710 - 1880			1850 - 1990			1920 - 2180			
Polarization	+45°, -45°																		
Electrical downtilt (°)	0 - 12 , continuously adjustable									0 - 8 , continuously adjustable									
Gain (dBi)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	4°	8°	0°	4°	8°	0°	4°	8°	
	15.7	15.7	15.3	16.0	16.0	15.5	16.2	16.0	15.6	18.0	18.5	18.3	18.2	18.7	18.3	18.3	18.7	18.3	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	4°	8°	0°	4°	8°	0°	4°	8°	
	20	17	15	20	18	15	17	18	15	20	18	18	18	17	15	18	15	15	
Horizontal 3dB beam width (°)	69			66			64			65			63			60			
Vertical 3dB beam width (°)	10.6			10.2			9.5			5.2			5.0			4.7			
VSWR	< 1.5																		
Isolation between ports (dB)	Intra-system: ≥ 30																		
Front to back ratio, copolar (dB)	Typ. 28									Typ. 30									
Cross polar ratio (dB)	0°	Typ. 25									Typ. 20								
	± 60°	Typ. 10									Typ. 10								
Max. power per input (W)	250 (at 50°C ambient temperature)									200 (at 50°C ambient temperature)									
Total power per combined input (W)	400 (at 50°C ambient temperature)																		
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)																		
Squint (°)	Avg. 2.5																		
Tracking (dB)	Avg. 2.0 (within 10dB HBW)																		
Impedance (Ω)	50																		
Grounding	DC Ground																		

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1936 x 259 x 135
Antenna weight (kg)	17.3
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 665 (at 150 km/h) Lateral: 345 (at 150 km/h) Rear side: 880 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom





790 - 960 MHz



1710 - 2180 MHz

NOTE

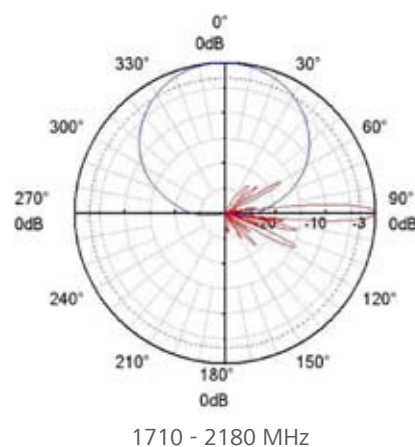
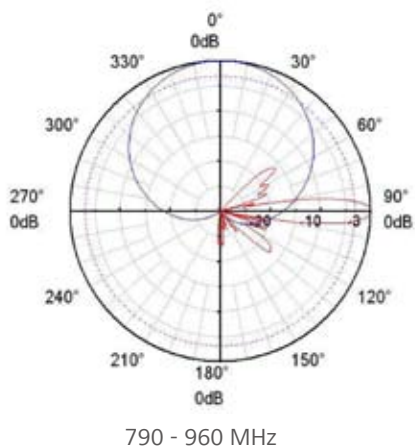
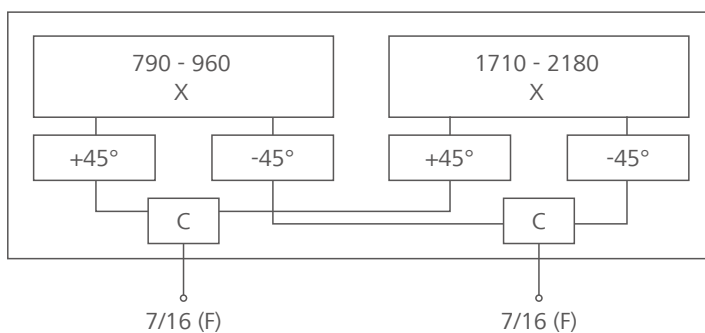
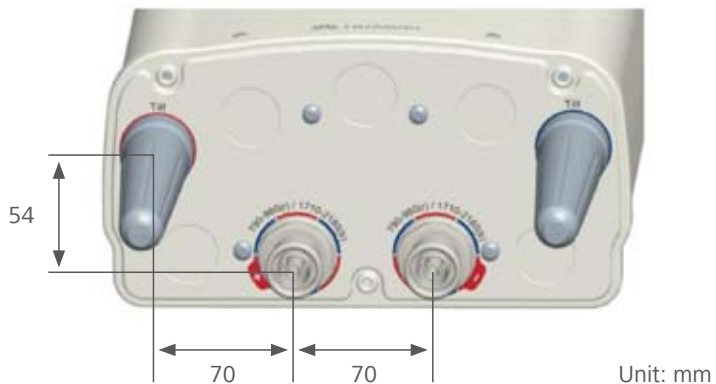
Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Electrical Properties																		
Frequency range (MHz)	790 - 960									1710 - 2180								
	790 - 862			824 - 894			880 - 960			1710 - 1880		1850 - 1990			1920 - 2180			
Polarization	+45°, -45°																	
Electrical downtilt (°)	0 - 10, continuously adjustable									0 - 8, continuously adjustable								
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	4°	8°	0°	4°	8°	0°	4°	8°
	16.6	16.7	16.5	16.9	17.0	16.8	17.0	17.2	16.9	18.1	18.4	18.0	18.3	18.6	18.2	18.3	18.6	18.0
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	4°	8°	0°	4°	8°	0°	4°	8°
	19	19	18	19	19	18	19	18	17	18	16	18	20	16	18	20	16	18
Horizontal 3dB beam width (°)	69			66			65			64		62			60			
Vertical 3dB beam width (°)	8.4			8.0			7.5			5.2		4.9			4.6			
VSWR	< 1.5																	
Isolation between ports (dB)	Intra-system: ≥ 30																	
Front to back ratio, copolar (dB)	Typ. 28									Typ. 29								
Cross polar ratio (dB)	0°	Typ. 30									Typ. 20							
	± 60°	Typ. 10									Typ. 10							
Max. power per input (W)	250 (at 50°C ambient temperature)									200 (at 50°C ambient temperature)								
Total power per combined input (W)	450 (at 50°C ambient temperature)																	
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)																	
Squint (°)	Avg. 2.5																	
Tracking (dB)	Avg. 1.0 (within 10dB HBW)																	
Impedance (Ω)	50																	
Grounding	DC Ground																	

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2535 x 259 x 135
Antenna weight (kg)	20.8
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 910 (at 150 km/h) Lateral: 470 (at 150 km/h) Rear side: 1200 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	2 x 7/16 DIN Female
Connector position	Bottom





NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

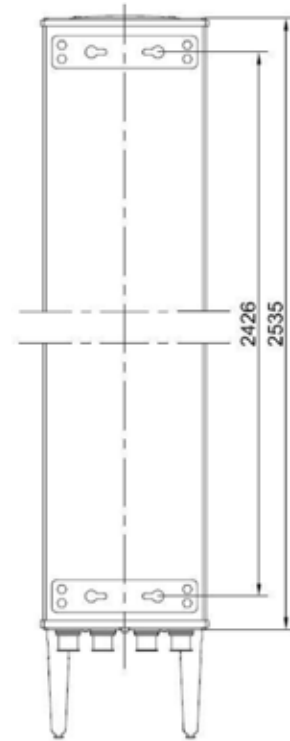
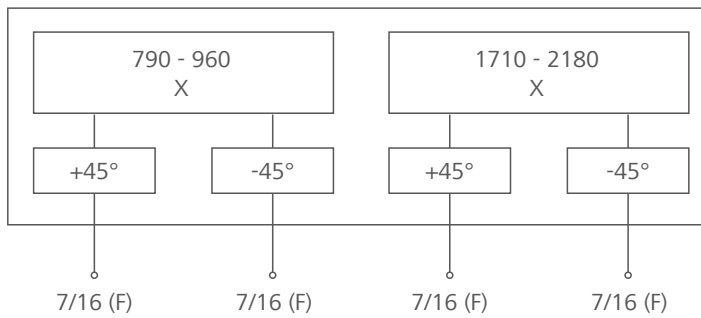
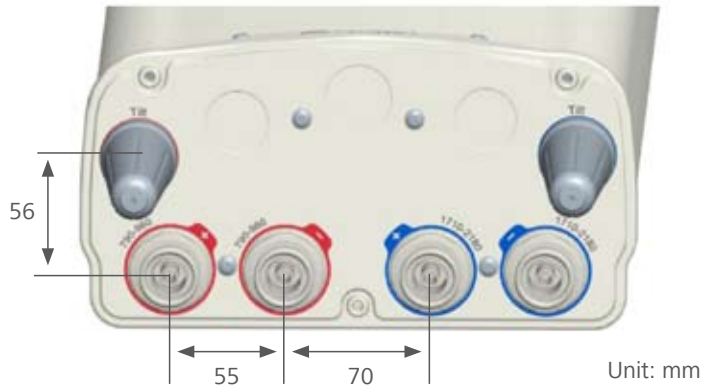
Preliminary Issue

Electrical Properties																		
Frequency range (MHz)	790 - 960									1710 - 2180								
	790 - 862			824 - 894			880 - 960			1710 - 1880		1850 - 1990		1920 - 2180				
Polarization	+45°, -45°																	
Electrical downtilt (°)	0 - 10, continuously adjustable									0 - 10, continuously adjustable								
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	16.6	16.7	16.5	16.9	17.0	16.8	17.0	17.2	16.9	17.3	17.6	17.3	17.3	17.7	17.4	17.6	18.0	17.5
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	18	18	17	18	18	17	18	18	17	17	16	16	17	16	16	17	16	16
Horizontal 3dB beam width (°)	69			66			65			64		62		60				
Vertical 3dB beam width (°)	8.4			8.0			7.5			7.0		6.5		6.1				
VSWR	< 1.5																	
Isolation between ports (dB)	Intra-system: ≥ 30 Inter-system: ≥ 40																	
Front to back ratio, copolar (dB)	Typ. 28									Typ. 29								
Cross polar ratio (dB)	0°	Typ. 20									Typ. 20							
	± 60°	Typ. 10									Typ. 10							
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)																	
Squint (°)	Avg. 2.5																	
Tracking (dB)	Avg. 1.0 (within 10dB HBW)																	
Impedance (Ω)	50																	
Grounding	DC Ground																	

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2535 x 259 x 135
Antenna net weight (kg)	21
Bracket weight (kg)	5.6
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 910 (at 150 km/h) Lateral: 470 (at 150 km/h) Rear side: 1200 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom



Preliminary Issue



NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

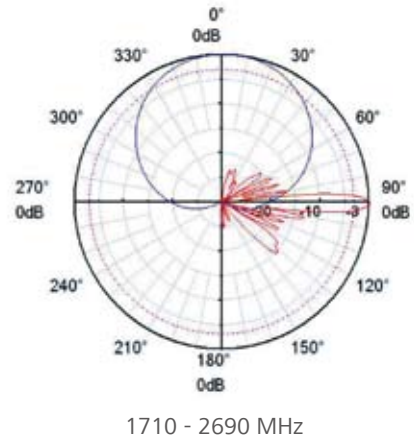
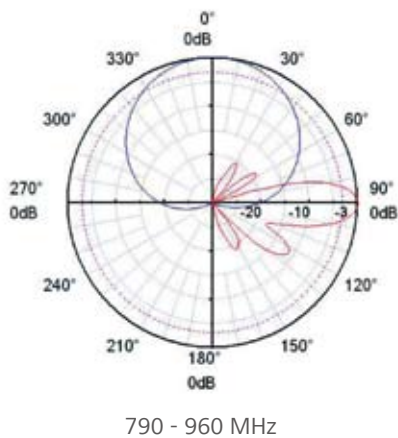
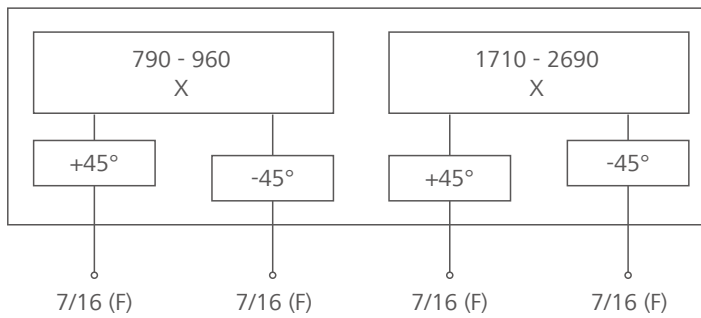
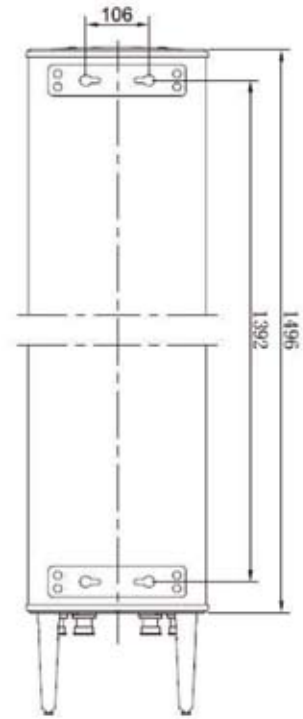
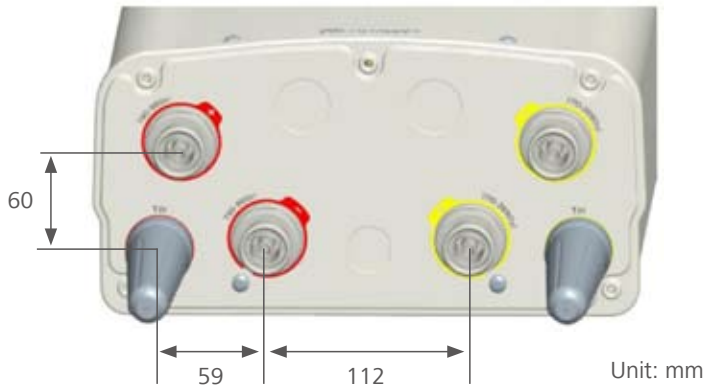
Electrical Properties																						
Frequency range (MHz)	790 - 960									1710 - 2690												
	790 - 862			824 - 894			880 - 960			1710 - 1990			1920 - 2200			2200 - 2490			2490 - 2690			
Polarization	+45°, -45°																					
Electrical downtilt (°)	0 - 14, continuously adjustable									0 - 10, continuously adjustable												
Gain (dBi)	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	14.5	14.5	14.1	14.7	14.1	14.4	15.1	14.8	14.4	17.2	17.3	16.8	17.8	17.9	17.2	17.9	17.9	17.2	17.7	17.5	16.9	
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	15	15	16	15	15	16	15	15	15	15	16	17	16	16	15	15	17	15	15	15	15	
	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
Horizontal 3dB beam width (°)	66			64			62			63			62			60			60			
Vertical 3dB beam width (°)	14.4			13.9			13.0			6.3			5.7			5.1			4.8			
VSWR	< 1.5																					
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																					
Front to back ratio, copolar (dB)	Typ. 28									Typ. 28												
Cross polar ratio (dB)	0°	Typ. 18									Typ. 18											
	± 60°	Typ. 10									Typ. 10											
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																					

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1496 x 298 x 150
Antenna weight (kg)	17.0
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 375 (at 150 km/h) Lateral: 170 (at 150 km/h) Rear side: 595 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom



DXX-790-960/1710-2690-65/65-15i/17.5-M/M

Model: ADU451716



NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

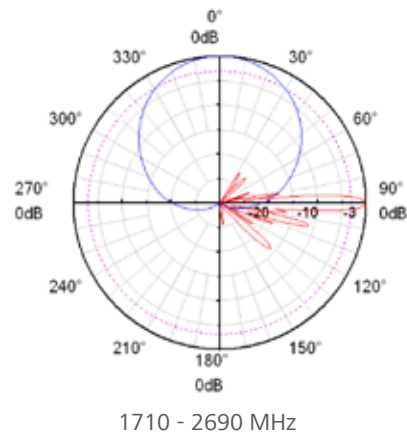
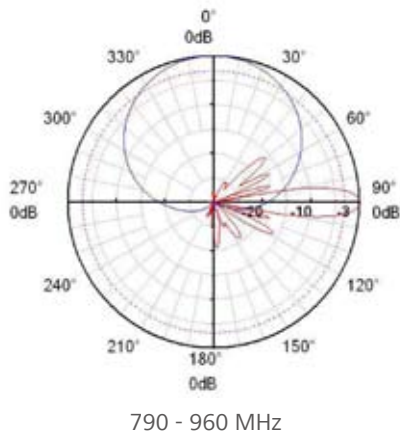
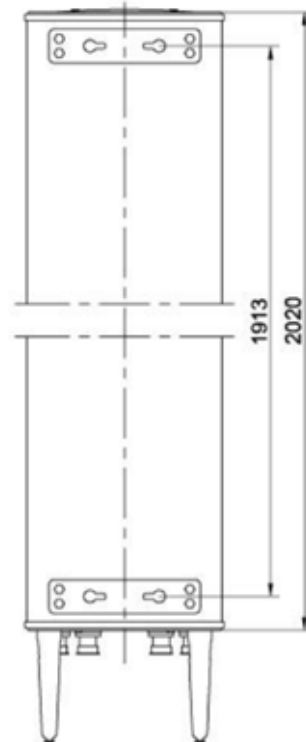
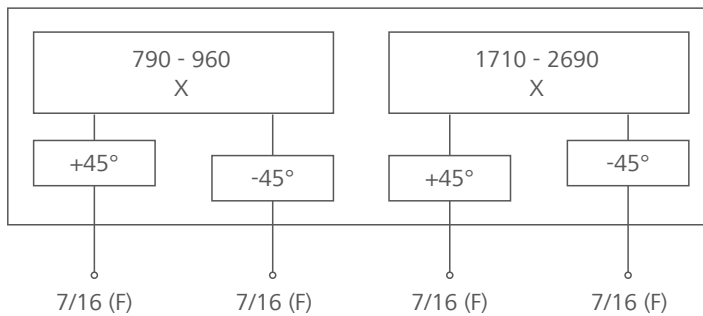
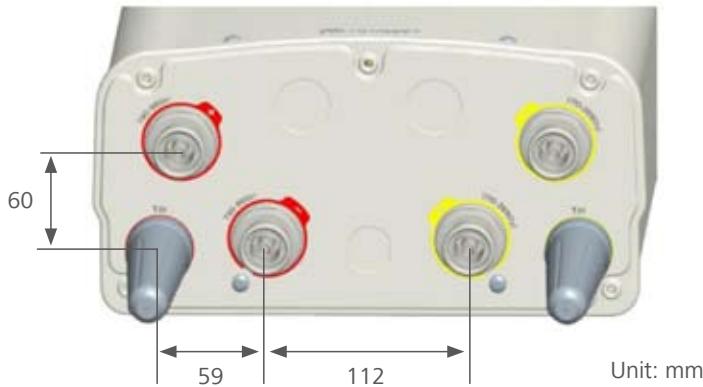
Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

Electrical Properties																					
Frequency range (MHz)	790 - 960									1710 - 2690											
	790 - 862			824 - 894			880 - 960			1710 - 1990		1920 - 2200		2200 - 2490		2490 - 2690					
Polarization	+45°, -45°																				
Electrical downtilt (°)	0 - 10, continuously adjustable									0 - 8, continuously adjustable											
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	4°	8°	0°	4°	8°	0°	4°	8°	0°	4°	8°
	16.0	16.0	15.5	16.1	16.1	15.6	16.2	16.2	15.7	18.0	18.1	18.0	18.4	18.5	18.2	18.0	18.1	18.0	18.4	18.5	18.2
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	4°	8°	0°	4°	8°	0°	4°	8°	0°	4°	8°
	18	18	18	18	18	18	18	18	18	18	18	17	18	17	17	18	17	17	18	18	17
	16	16	15	16	16	15	16	16	15	15	16	15	15	16	15	15	16	15	15	15	15
Horizontal 3dB beam width (°)	66			64			63			61		60		60		61					
Vertical 3dB beam width (°)	9.8			9.5			8.9			5.3		4.9		4.4		3.9					
VSWR	< 1.5																				
Isolation between ports (dB)	Intra-system: ≥ 30									Intra-system: ≥ 28											
	Inter-system (790 - 960 // 1710 - 2690 MHz): ≥ 30																				
Front to back ratio, copolar (dB)	Typ. 28									Typ. 30											
Cross polar ratio (dB)	0°	Typ. 20									Typ. 20						Typ. 20				
	± 60°	Typ. 10									Typ. 10						Typ. 8				
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)																				
Squint (°)	Typ. 2.5																				
Tracking (dB)	Avg. 1.5 (within 10dB HBW)																				
Impedance (Ω)	50																				
Grounding	DC Ground																				

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2020 x 298 x 150
Antenna weight (kg)	21.2
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 825 (at 150 km/h) Lateral: 355 (at 150 km/h) Rear side: 990 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom





NOTE

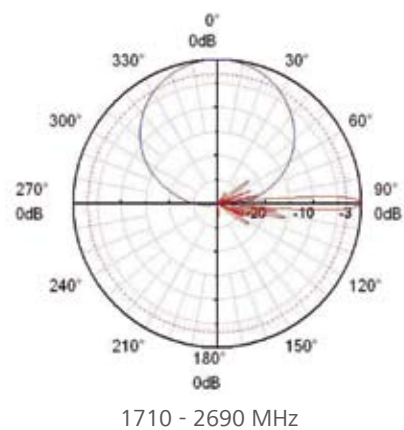
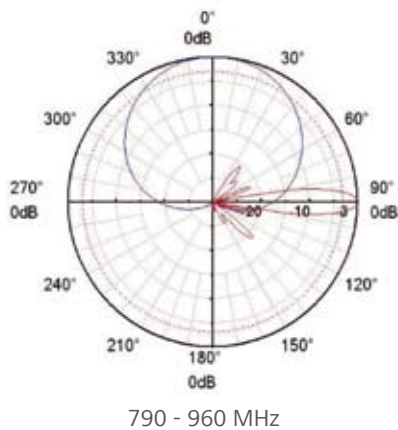
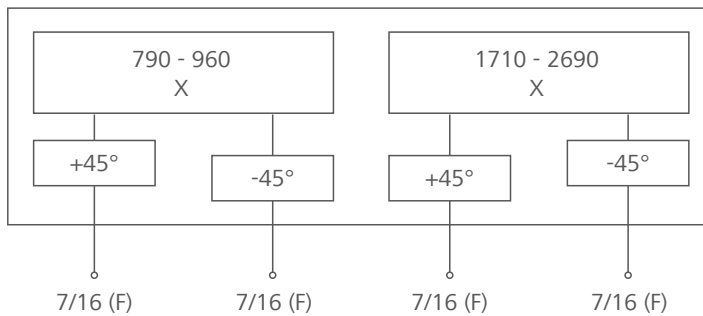
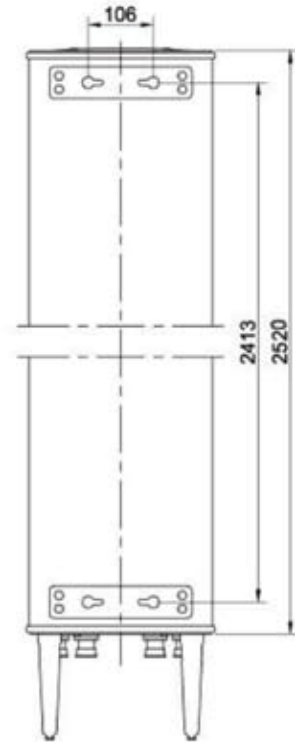
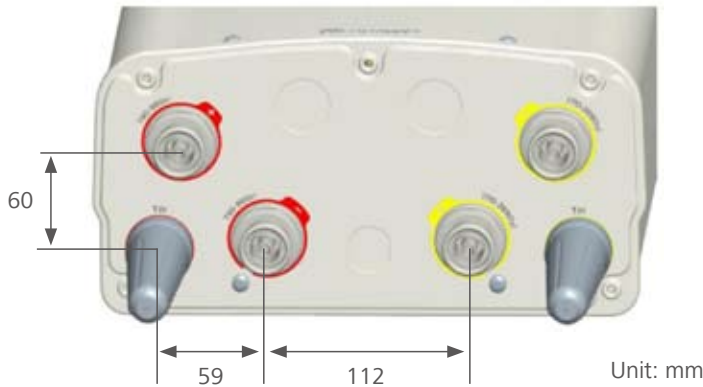
Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Electrical Properties																					
Frequency range (MHz)	790 - 960									1710 - 2690											
	790 - 862			824 - 894			880 - 960			1710 - 1990		1920 - 2200		2200 - 2490		2490 - 2690					
Polarization	+45°, -45°																				
Electrical downtilt (°)	0 - 10, continuously adjustable									0 - 8, continuously adjustable											
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	4°	8°	0°	4°	8°	0°	4°	8°	0°	4°	8°
	16.6	16.7	16.2	16.8	17.0	16.6	16.8	17.2	17.1	18.0	18.1	18.0	18.4	18.5	18.2	18.0	18.1	18.0	18.4	18.5	18.2
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	4°	8°	0°	4°	8°	0°	4°	8°	0°	4°	8°
	18	18	18	18	18	18	18	18	18	18	18	17	18	17	17	18	17	17	18	18	17
	16	16	15	16	16	15	16	16	15	15	16	15	16	15	15	16	15	15	15	15	15
Horizontal 3dB beam width (°)	67			65			64			61		60		60		61					
Vertical 3dB beam width (°)	8.5			8.2			7.7			5.3		4.9		4.4		3.9					
VSWR	< 1.5																				
Isolation between ports (dB)	Intra-system: ≥ 30									Intra-system: ≥ 28											
	Inter-system (790 - 960 // 1710 - 2690 MHz): ≥ 30																				
Front to back ratio, copolar (dB)	Typ. 28									Typ. 30											
Cross polar ratio (dB)	0°	Typ. 20									Typ. 20						Typ. 20				
	± 60°	Typ. 10									Typ. 10						Typ. 8				
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)																				
Squint (°)	Typ. 2.5																				
Tracking (dB)	Avg. 1.5 (within 10dB HBW)																				
Impedance (Ω)	50																				
Grounding	DC Ground																				

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2520 x 298 x 150
Antenna weight (kg)	24.5
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 1060 (at 150 km/h) Lateral: 455 (at 150 km/h) Rear side: 1265 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom





NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Preliminary Issue

Electrical Properties																					
Frequency range (MHz)	690 - 960									1710 - 2690											
	690 - 806			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											
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	15.5	15.5	15.0	15.9	15.9	15.5	16.0	16.0	15.5	17.3	17.1	17.0	17.5	17.5	17.3	17.8	17.8	17.4	17.6	18.0	17.5
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	17	17	16	17	17	16	17	17	16	17	16	15	17	16	15	17	16	15	17	16	15
Horizontal 3dB beam width (°)	68			64			63			65			62			60		60			
Vertical 3dB beam width (°)	10.4			9.5			8.9			5.8			5.4			4.8		4.3			
VSWR	< 1.5																				
Isolation between ports (dB)	Intra-system: ≥ 28									Intra-system: ≥ 28											
	Inter-system (690 - 960 // 1710 - 2690 MHz): ≥ 30																				
Front to back ratio, copolar (dB)	Typ. 27									Typ. 30											
Cross polar ratio (dB)	0°	Typ. 18									Typ. 18									Typ. 18	
	± 60°	Typ. 10									Typ. 10									Typ. 8	
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																				

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2020 x 298 x 150
Antenna net weight (kg)	21.2
Bracket weight (kg)	5.6
Mechanical downtilt (°)	0 - 12
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 825 (at 150 km/h) Lateral: 355 (at 150 km/h) Rear side: 990 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom



Preliminary Issue

Electrical Properties																						
Frequency range (MHz)	690 - 960									1710 - 2690												
	690 - 806			790 - 894			880 - 960			1710 - 1880			1850 - 1990			1920 - 2200			2300 - 2690			
Polarization	+45°, -45°																					
Electrical downtilt (°)	0 - 10, continuously adjustable									0 - 10, continuously adjustable												
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	16.2	16.3	16.0	16.7	16.8	16.4	16.9	17.0	16.6	17.0	17.2	16.8	17.4	17.6	17.3	17.8	18.0	17.5	17.7	17.8	17.2	
Side lobe suppression (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
-for first side lobe above main beam	17	16	16	17	16	16	17	16	16	18	18	17	17	17	16	17	17	16	16	16	15	
-within 0° - 15° sector above horizon	16	16	15	16	16	15	15	15	15	15	16	15	15	16	15	15	16	15	15	15	15	
Horizontal 3dB beam width (°)	66			63			60			67			64			60			61			
Vertical 3dB beam width (°)	8.2			7.5			7.0			5.9			5.7			5.2			4.2			
VSWR	< 1.5																					
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system (690 - 960 // 1710 - 2690 MHz): ≥ 30																					
Front to back ratio, copolar (dB)	Typ. 27									Typ. 28												
Cross polar ratio (dB)	0°	Typ. 18									Typ. 18											
	± 60°	Typ. 10									Typ. 10											
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																					

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2590 x 298 x 150
Antenna net weight (kg)	25
Bracket weight (kg)	5.6
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 1072 (at 150 km/h) Lateral: 435 (at 150 km/h) Rear side: 1280 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom





Preliminary Issue

Electrical Properties		
Frequency range (MHz)	690 - 960	1710 - 2690
Electrical downtilt (°)	0 - 10	0 - 10
Gain (dBi)	16	18
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	16	16
Horizontal 3dB beam width (°)	65	65
Vertical 3dB beam width (°)	9.8	5.5
VSWR	< 1.5	
Front to back ratio, copolar (dB)	Typ. 27	Typ. 28
Cross polar ratio (dB)	0°	Typ. 18
	± 60°	Typ. 10
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)	

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1999 x 298 x 150
Antenna net weight (kg)	23
Mechanical downtilt (°)	0 - 12
Connector	4 x 7/16 DIN Female
RET type	Integrated RET
RET protocols	AISG 2.0 / 3GPP



Preliminary Issue

Electrical Properties		
Frequency range (MHz)	690 - 960	1710 - 2690
Electrical downtilt (°)	0 - 10	0 - 10
Gain (dBi)	17	18
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	15	16
Horizontal 3dB beam width (°)	65	65
Vertical 3dB beam width (°)	8.5	5.5
VSWR	< 1.5	
Front to back ratio, copolar (dB)	Typ. 27	Typ. 28
Cross polar ratio (dB)	0°	Typ. 18
	± 60°	Typ. 10
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)	

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2590 x 298 x 150
Antenna net weight (kg)	26
Mechanical downtilt (°)	0 - 8
Connector	4 x 7/16 DIN Female
RET type	Integrated RET
RET protocols	AISG 2.0 / 3GPP

Preliminary Issue

Electrical Properties												
Frequency range (MHz)	2 x (1710 - 2200)											
	1710 - 1880			1850 - 1990			1920 - 2170			2170 - 2200		
Polarization	+45°, -45°											
Electrical downtilt (°)	0 - 12, continuously adjustable											
Gain (dBi)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	15.2	15.2	15.0	15.4	15.3	15.0	15.5	15.4	15.2	15.5	15.4	15.0
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	17	16	15	17	16	15	17	16	15	16	15	15
Horizontal 3dB beam width (°)	67			64			61			60		
Vertical 3dB beam width (°)	13.9			13.0			12.6			11.5		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 28											
Cross polar ratio (dB)	0°	Typ. 22										
	± 60°	Typ. 10										
Max. power per input (W)	300 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -150 (2 x 43 dBm carrier)											
Squint (°)	Avg.2.0											
Tracking (dB)	Avg.2.0 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	701 x 323 x 89
Antenna net weight (kg)	9
Bracket weight (kg)	4.6
Mechanical downtilt (°)	0 - 20
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 285 (at 150 km/h) Lateral: 50 (at 150 km/h) Rear side: 320 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom

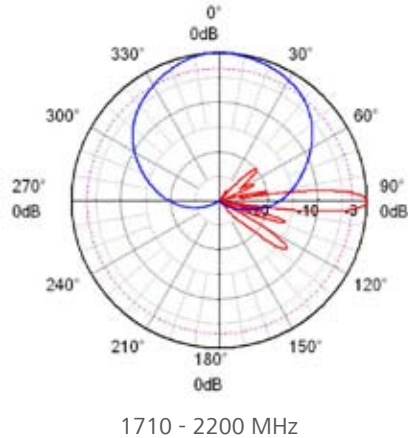
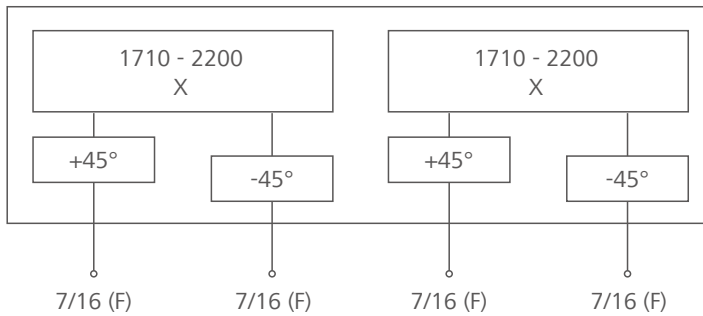
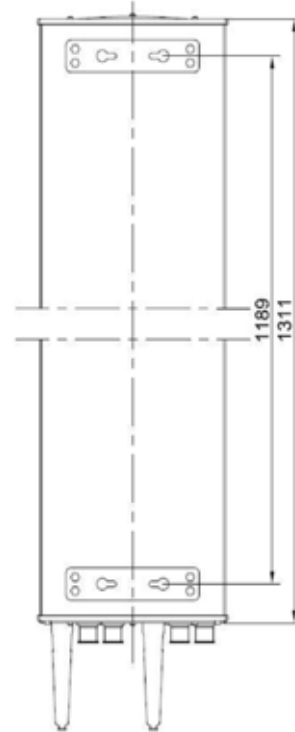
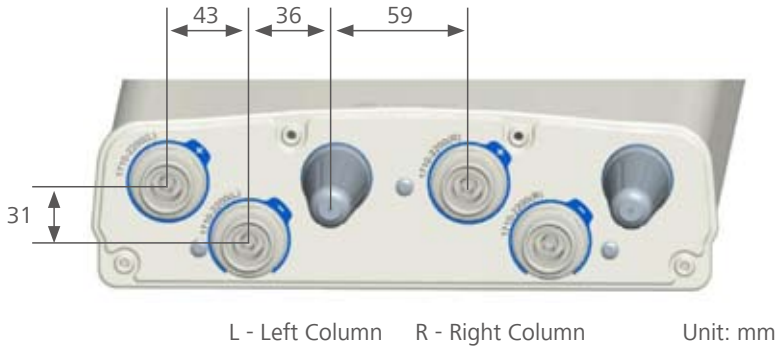
Electrical Properties

Frequency range (MHz)	2 x (1710 - 2200)											
	1710 - 1880			1850 - 1990			1920 - 2170			2170 - 2200		
Polarization	+45°, -45°											
Electrical downtilt (°)	0 - 10, continuously adjustable											
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	17.0	17.4	17.1	17.3	17.7	17.4	17.6	18.0	17.4	17.5	18.0	17.4
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	18	17	17	19	18	18	19	18	17	19	18	17
Horizontal 3dB beam width (°)	67			64			61			60		
Vertical 3dB beam width (°)	7.5			7.0			6.6			6.2		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 28											
Cross polar ratio (dB)	0°	Typ. 22										
	± 60°	Typ. 10										
Max. power per input (W)	300 (at 50 °C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Avg. 2											
Tracking (dB)	Avg. 1.5 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1311 x 323 x 89
Antenna weight (kg)	12.8
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 565 (at 150 km/h) Lateral: 105 (at 150 km/h) Rear side: 640 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom





NOTE

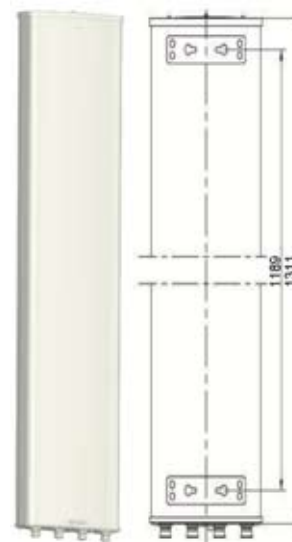
Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

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											
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	17.0	17.4	17.1	17.3	17.7	17.4	17.6	18.0	17.4	17.5	18.0	17.4
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	18	17	17	19	18	18	19	18	17	19	18	17
Horizontal 3dB beam width (°)	67			64			61			60		
Vertical 3dB beam width (°)	7.5			7.0			6.6			6.2		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 28											
Cross polar ratio (dB)	0°	Typ. 22										
	± 60°	Typ. 10										
Max. power per input (W)	300 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Avg. 2.0											
Tracking (dB)	Avg. 1.5 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1311 x 323 x 89
Antenna weight (kg)	13.6
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 565 (at 150 km/h) Lateral: 105 (at 150 km/h) Rear side: 640 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom



Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (min)	< 37 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

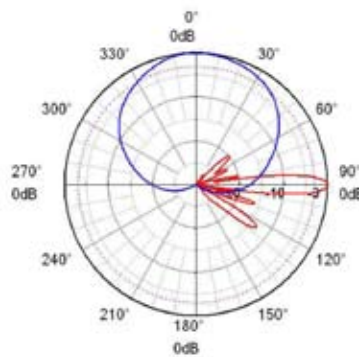
Certification: CE, FCC, RoHS, WEEE



Integrated RCU S/N: **a** HWMxxx...b

b HWMxxx...bb

b - Blue



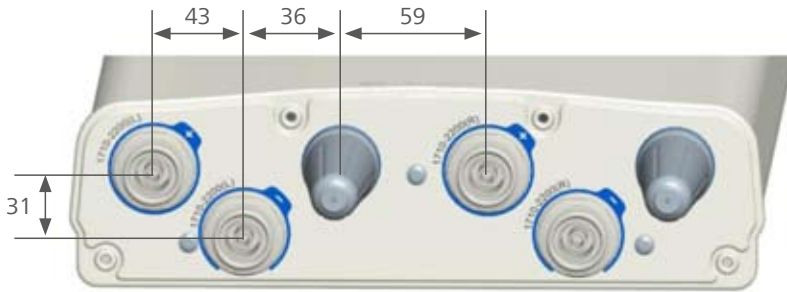
Electrical Properties

Frequency range (MHz)	2 x (1710 - 2200)											
	1710 - 1880			1850 - 1990			1920 - 2170			2170 - 2200		
Polarization	+45°, -45°											
Electrical downtilt (°)	0 - 6, continuously adjustable											
Gain (dBi)	0°	3°	6°	0°	3°	6°	0°	3°	6°	0°	3°	6°
	18.5	18.7	18.6	18.9	19.1	18.8	19.1	19.4	18.9	19.1	19.3	18.8
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	3°	6°	0°	3°	6°	0°	3°	6°	0°	3°	6°
	20	17	16	20	17	17	20	18	17	20	18	17
Horizontal 3dB beam width (°)	67			65			62			60		
Vertical 3dB beam width (°)	5.0			4.7			4.5			4.1		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 28											
Cross polar ratio (dB)	0°											
	± 60°											
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											

Mechanical Properties

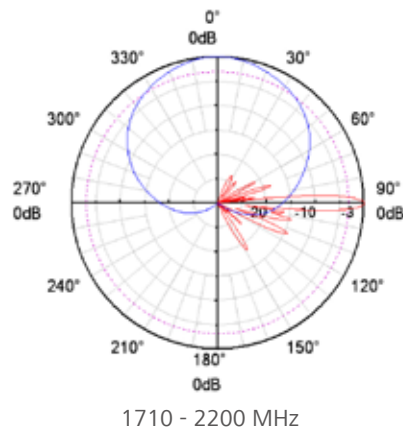
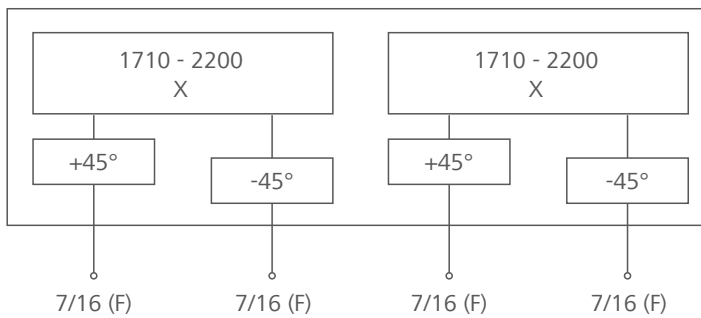
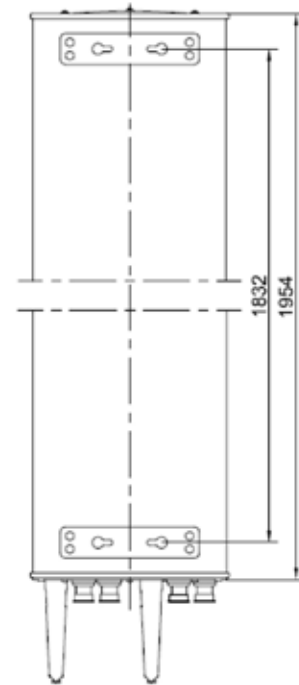
Antenna dimensions (H x W x D) (mm)	1954 x 323 x 89
Antenna weight (kg)	17.3
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 890 (at 150 km/h) Lateral: 170 (at 150 km/h) Rear side: 1000 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom





L - Left Column R - Right Column

Unit: mm



NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Antenna Specifications

Electrical Properties									
Frequency range (MHz)	1710 - 2170						2490 - 2690		
	1710 - 1990			1920 - 2170					
Polarization	+45°, -45°								
Electrical downtilt (°)	0 - 12, continuously adjustable								
Gain (dBi)	0°	6°	12°	0°	6°	12°	0°	6°	12°
	17.2	17.5	17.1	17.4	17.7	17.3	18.1	18.3	17.8
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	6°	12°	0°	6°	12°	0°	6°	12°
	17	17	16	17	16	16	17	18	18
	16	15	16	17	15	15	17	15	15
Horizontal 3dB beam width (°)	67			63			60		
Vertical 3dB beam width (°)	6.4			5.9			4.6		
VSWR	< 1.5								
Isolation between ports (dB)	Intra-system: ≥ 30 Inter-system: ≥ 30								
Front to back ratio, copolar (dB)	Typ. 28								
Cross polar ratio (dB)	0°	Typ. 20							
	± 60°	Typ. 10							
Max. power per input (W)	250 (at 50°C ambient temperature)								
Total power (W)	400 (at 50°C ambient temperature)								
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)								
Squint (°)	Typ. 3.0								
Tracking (dB)	Typ. 2.0 (within 10dB HBW)								
Impedance (Ω)	50								
Grounding	DC Ground								

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1490 x 155 x 109
Antenna weight (kg)	9.8
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 230 (at 150 km/h) Lateral: 220 (at 150 km/h) Rear side: 405 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom



Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (min)	< 50 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (10/350 μ s) 10 (8/20 μ 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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE

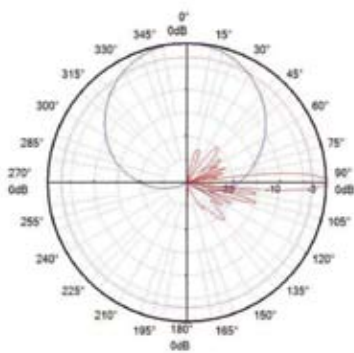


Integrated RCU S/N: **a** HWMxxx...b

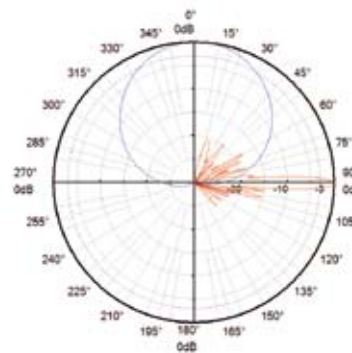
b HWMxxx...y

b - Blue

y - Yellow



1710 - 2200 MHz



1710 - 2200 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 - 14, continuously adjustable											
Gain (dBi)	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	7°	14°
	14.8	14.8	14.3	15.1	15.3	14.8	15.5	15.7	15.2	15.5	15.7	15.2
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	7°	14°
	16	15	15	16	15	15	16	15	15	16	15	15
Horizontal 3dB beam width (°)	67			65			63			60		
Vertical 3dB beam width (°)	12			11			10			9		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 28											
Cross polar ratio (dB)	0°			Typ. 20								
	± 60°			Typ. 10								
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											

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	790 x 299 x 109
Antenna net weight (kg)	8.5
Bracket weight (kg)	3.7
Mechanical downtilt (°)	0 - 16
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 320 (at 150 km/h) Lateral: 60 (at 150 km/h) Rear side: 365 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom

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											
Gain (dBi)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	17.4	17.5	17.3	17.7	17.9	17.5	18.0	18.2	17.6	18.2	18.2	17.8
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	18	17	16	18	17	16	18	17	16	18	17	16
	15	16	16	16	17	16	18	16	16	16	17	16
Horizontal 3dB beam width (°)	66			64			62			60		
Vertical 3dB beam width (°)	6.5			6.0			5.3			4.8		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 28											
Cross polar ratio (dB)	0°											
	± 60°											
Max. power per input (W)	250 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Typ. 5.0											
Tracking (dB)	Typ. 3.0 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

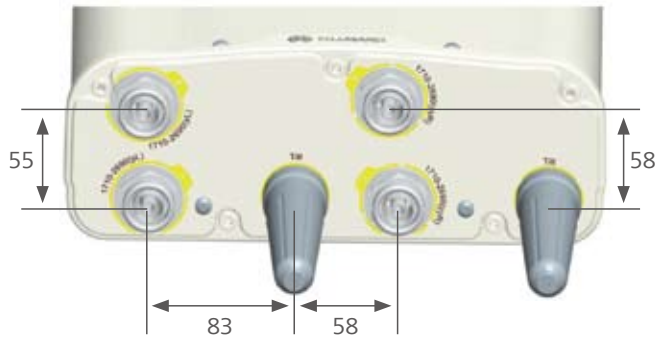
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1365 x 299 x 109
Antenna weight (kg)	12.6
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 490 (at 150 km/h) Lateral: 100 (at 150 km/h) Rear side: 565 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom

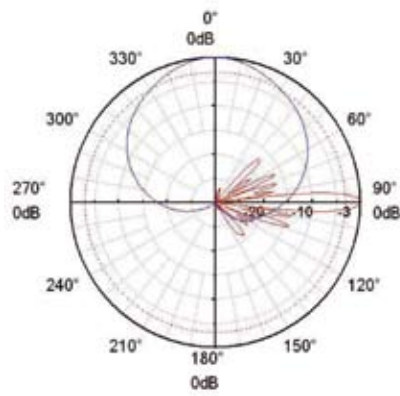
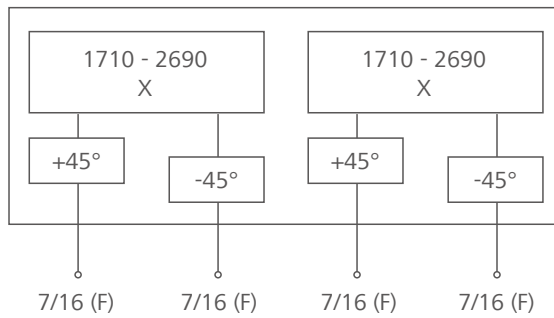
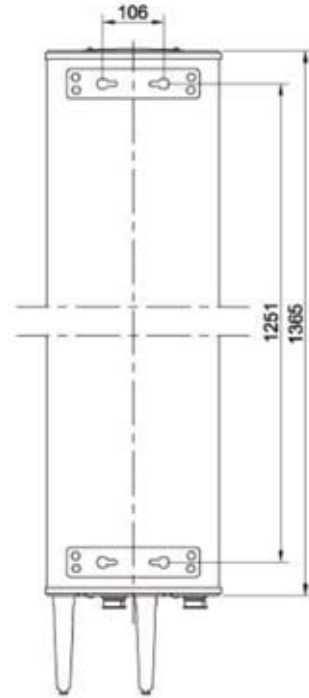


DXX-1710-2690/1710-2690-65/65-18i/18i-M/M

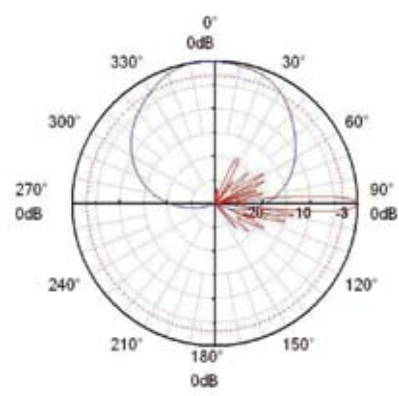
Model: ADU451816v01



Unit: mm



1710 - 2200 MHz



2200 - 2690 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

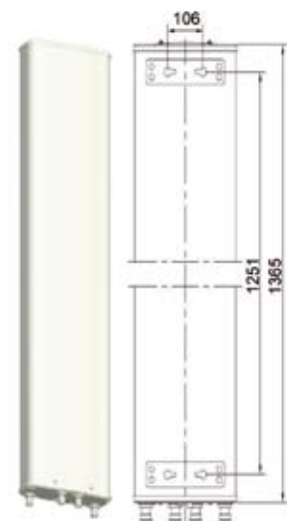
Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

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											
Gain (dBi)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	17.4	17.5	17.3	17.7	17.9	17.5	18.0	18.2	17.6	18.2	18.2	17.8
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	18	17	16	18	17	16	18	17	16	18	17	16
Horizontal 3dB beam width (°)	66			64			62			60		
Vertical 3dB beam width (°)	6.5			6.0			5.3			4.8		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 28											
Cross polar ratio (dB)	0°	Typ. 20										
	± 60°	Typ. 10										
Max. power per input (W)	250 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Typ. 5.0											
Tracking (dB)	Typ. 3.0 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1365 x 299 x 109
Antenna weight (kg)	13.6
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 490 (at 150 km/h) Lateral: 100 (at 150 km/h) Rear side: 560 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom



Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (min)	< 55 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

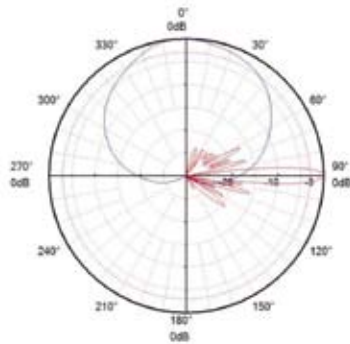
Certification: CE, FCC, RoHS, WEEE



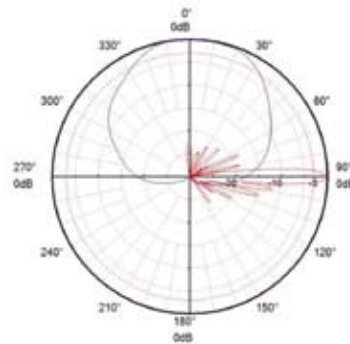
Integrated RCU S/N: **a** HWMxxx...yL

b HWMxxx...yyR

y – Yellow L - Left array R - Right array



1710 - 2200 MHz



2200- 2690 MHz

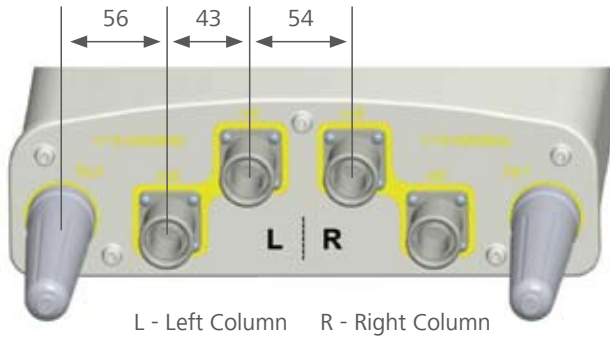
Electrical Properties

Frequency range (MHz)	2 x (1710 - 2690)											
	1710 - 1990			1920 - 2200			2200 - 2490			2490 - 2690		
Polarization	+45°, -45°											
Electrical downtilt (°)	0 - 6, continuously adjustable											
Gain (dBi)	0°	3°	6°	0°	3°	6°	0°	3°	6°	0°	3°	6°
	18.1	18.3	18.2	18.4	18.6	18.5	18.9	19.2	19.1	19.2	19.4	19.0
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	3°	6°	0°	3°	6°	0°	3°	6°	0°	3°	6°
	20	20	16	20	20	17	18	18	18	17	17	18
Horizontal 3dB beam width (°)	69			67			65			60		
Vertical 3dB beam width (°)	4.9			4.5			4.1			3.7		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 27											
Cross polar ratio (dB)	0°	Typ. 20										
	± 60°	Typ. 10										
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											

Mechanical Properties

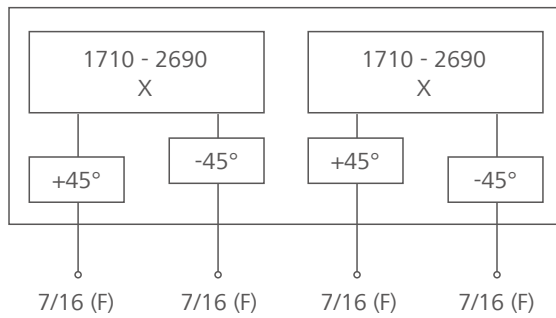
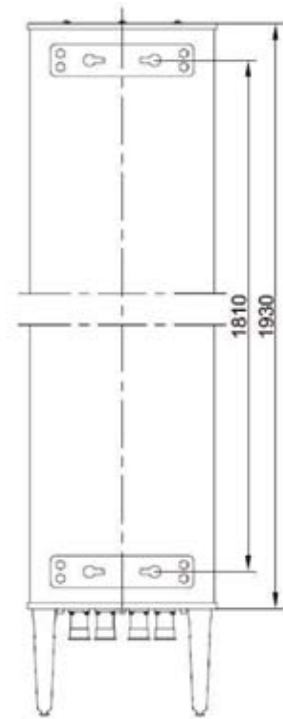
Antenna dimensions (H x W x D) (mm)	1930 x 299 x 89
Antenna net weight (kg)	17.5
Bracket weight (kg)	4.6
Mechanical downtilt (°)	0 - 12
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 765 (at 150 km/h) Lateral: 150 (at 150 km/h) Rear side: 890 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female (Long neck)
Connector position	Bottom



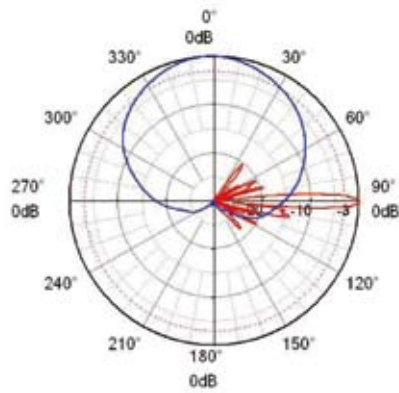


L - Left Column R - Right Column

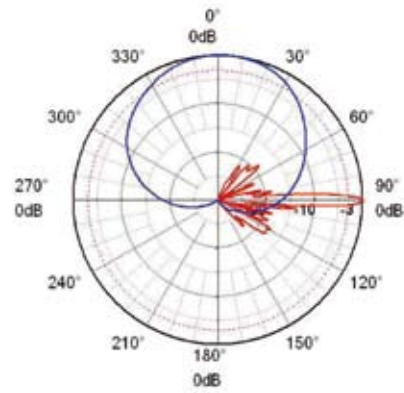
Unit: mm



7/16 (F) 7/16 (F) 7/16 (F) 7/16 (F)



1710 - 2200 MHz



2200 - 2690 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

A - 03. Triple-band Antenna

Frequency Range (MHz)	Polarization	3dB Horizontal beam width (°)	Gain (dBi)	Electrical downtilt (°)	Tilt Method	Connector	Dimension (mm)	Model	Page
790-862/ 880-960/ 1710-2690	xxx	65/65/65	15.5/16/18	0-10/ 0-10/0-10	EasyRET	6 x 7/16 DIN-F	2065 x 298 x 148	**ATR4518R2	117
790-960/ 1710-2180/ 1710-2180	xxx	65/65/65	15/15/15	0-14/ 0-14/0-14	MET	6 x 7/16 DIN-F	1454 x 259 x 135	ATR451500	119
790-960/ 1710-2180/ 1710-2180	xxx	65/65/65	16.5/ 16.5/16.5	0-12/ 0-12/0-12	MET	6 x 7/16 DIN-F	2098 x 259 x 135	ATR451602v01	121
790-960/ 1710-2180/ 1710-2180	xxx	65/65/65	16.5/ 16.5/16.5	0-12/ 0-12/0-12	EasyRET	6 x 7/16 DIN-F	2098 x 259 x 135	ATR4516R0	123
790-960/ 1710-2180/ 1710-2180	xxx	65/65/65	15/ 17.5/17.5	0-14/ 0-10/0-10	MET	6 x 7/16 DIN-F	1498 x 349 x 166	**ATR451715	125
790-960/ 1710-2180/ 1710-2180	xxx	65/65/65	17.5/ 17.5/17.5	0-10/ 0-10/0-10	MET	6 x 7/16 DIN-F	2680 x 259 x 135	ATR451704v01	126
790-960/ 1710-2180/ 1710-2180	xxx	65/65/65	17.5/ 17.5/17.5	0-10/ 0-10/0-10	EasyRET	6 x 7/16 DIN-F	2680 x 259 x 135	ATR4517R0	128
790-960/ 1710-2690/ 1710-2690	xxx	65/65/65	15/ 17.5/17.5	0-14/ 0-10/0-10	EasyRET	6 x 7/16 DIN-F	1450 x 349 x 166	**ATR4517R1	130
790-960/ 1710-2690/ 1710-2690	xxx	65/65/65	16/18/18	0-10/ 0-10/0-10	EasyRET	6 x 7/16 DIN-F	1999 x 349 x 166	ATR4518R4	132
790-960/ 1710-2690/ 1710-2690	xxx	65/65/65	17/18/18	0-10/ 0-10/0-10	EasyRET	6 x 7/16 DIN-F	2528 x 349 x 166	ATR4518R7	134
790-960/ 1710-2690/ 1710-2690	xxx	65/65/65	15/17.5/17.5	0-14/ 0-10/0-10	MET	6 x 7/16 DIN-F	1536 x 349 x 166	ATR451709	136

** Preliminary Issue

A - 03. Triple-band Antenna

Frequency Range (MHz)	Polarization	3dB Horizontal beam width (°)	Gain (dBi)	Electrical downtilt (°)	Tilt Method	Connector	Dimension (mm)	Model	Page
790-960/ 1710-2690/ 1710-2690	xxx	65/65/65	16/18/18	0-10/ 0-10/0-10	MET	6 x 7/16 DIN-F	1999 x 349 x 166	ATR451606	138
790-960/ 1710-2690/ 1710-2690	xxx	65/65/65	17/18/18	0-10/ 0-10/0-10	MET	6 x 7/16 DIN-F	2528 x 349 x 166	ATR451607	140
690-960/ 1710-2690/ 1710-2690	xxx	65/65/65	16/18/18	0-10/ 0-10/0-10	MET	6 x 7/16 DIN-F	2020 x 349 x 166	**ATR451805	142
690-960/ 1710-2690/ 1710-2690	xxx	65/65/65	17/18/18	0-10/ 0-10/0-10	MET	6 x 7/16 DIN-F	2688 x 349 x 166	**ATR451804	143
690-960/ 1710-2690/ 1710-2690	xxx	65/65/65	16/18/18	0-10/ 0-10/0-10	EasyRET	6 x 7/16 DIN-F	2020 x 349 x 166	**ATR4518R6	144
690-960/ 1710-2690/ 1710-2690	xxx	65/65/65	17/18/18	0-10/ 0-10/0-10	EasyRET	6 x 7/16 DIN-F	2688 x 349 x 166	**ATR4518R11	146
1710-2690/ 1710-2170/ 2490-2690	xxx	65/65/65	18/18/18	0-12/ 0-12/0-12	EasyRET	6 x 7/16 DIN-F	1445 x 299 x 109	ATR4518R3	148
1710-2690/ 1710-2690/ 1710-2690	xxx	65/65/65	18/18/18	0-12/ 0-12/0-12	MET	6 x 7/16 DIN-F	1445 x 449 x 115	ATR451714	150

** Preliminary Issue



Preliminary Issue

Antenna Specifications

A - 03

Electrical Properties																	
Frequency range (MHz)	790 - 862			880 - 960			1710 - 2690										
							1710 - 1990		1920 - 2170			2490 - 2690					
Polarization	+45° , -45°																
Electrical downtilt (°)	0 - 10 , continuously adjustable						0 - 10 , continuously adjustable										
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°		
	15.1	15.3	15.0	15.6	15.7	15.4	17.2	17.4	17.1	17.8	18.0	17.5	17.7	17.8	17.2		
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°		
	17	16	16	17	16	16	17	17	16	17	17	16	16	16	15		
Horizontal 3dB beam width (°)	68			64			65		62			60					
Vertical 3dB beam width (°)	10.2			9.7			5.7		5.2			4.2					
VSWR	< 1.5																
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																
Front to back ratio, copolar (dB)	Typ. 28						Typ. 28										
Cross polar ratio (dB)	0°	Typ. 18						Typ. 17									
	± 60°	Typ. 10						Typ. 10									
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																

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2065 x 298 x 148
Antenna net weight (kg)	30.5
Bracket weight (kg)	4.6
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 565 (at 150 km/h) Lateral: 255 (at 150 km/h) Rear side: 890 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom



Preliminary Issue

Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (min)	< 50 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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 in/out	DC return	n/c
Lightning protection (kA)	AISG interface (each pin) 3 (10/350 μ s) 10 (8/20 μ 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.

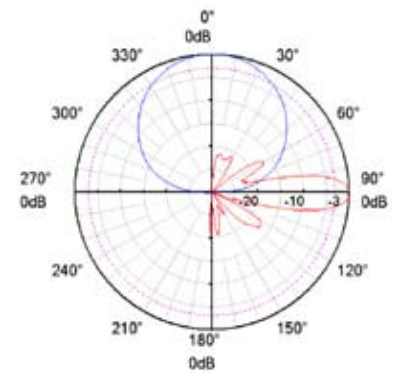
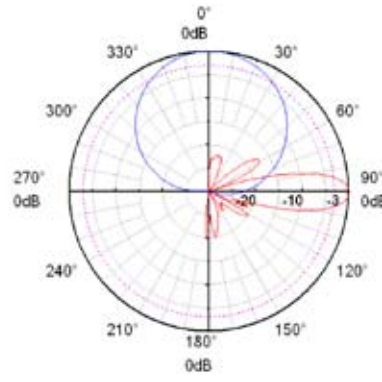
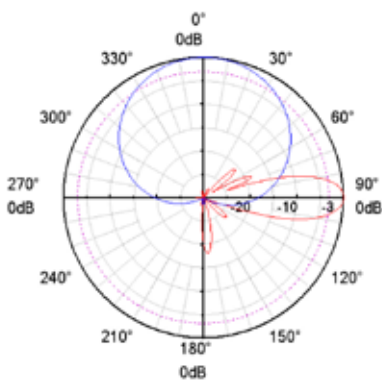
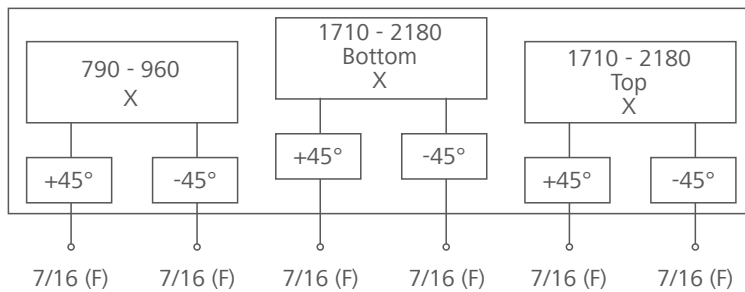
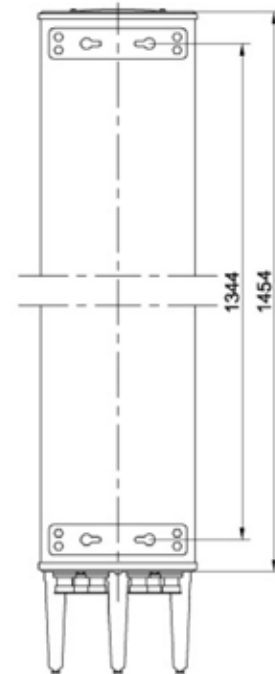
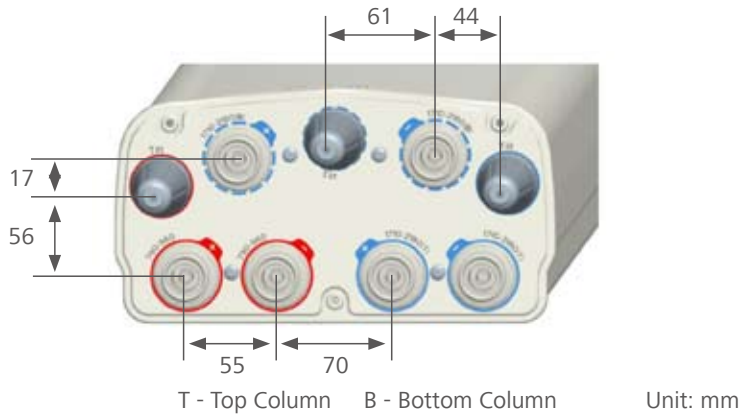
Standards: EN 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE

Electrical Properties																			
Frequency range (MHz)	790 - 960									2 x (1710 - 2180)									
	790 - 862			824 - 894			880 - 960			1710 - 1880			1850 - 1990			1920 - 2180			
Polarization	+45° , -45°																		
Electrical downtilt (°)	0 - 14, continuously adjustable									0 - 14, continuously adjustable									
Gain (dBi)		0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	7°	14°
		14.7	14.8	14.5	15.0	14.8	14.7	15.0	14.8	14.6									
	Bottom										14.6	14.5	14.3	15.0	14.9	14.5	15.3	15.2	14.7
Top										14.5	14.5	14.0	14.9	14.7	14.1	15.1	15.0	14.3	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	7°	14°	
	18	18	15	18	18	17	15	15	15	16	15	15	16	16	15	16	16	15	
Horizontal 3dB beam width (°)	69			68			67			63			61			60			
Vertical 3dB beam width (°)	15.5			14.8			13.8			13.6			12.8			12.1			
VSWR	< 1.5																		
Isolation between ports (dB)	Intra-system: ≥ 30 Inter-system (790 - 960 // 1710 - 2180 MHz): ≥ 40 Inter-system (1710 - 2180 // 1710 - 2180 MHz): ≥ 30																		
Front to back ratio, copolar (dB)	Typ. 28									Typ. 28									
Cross polar ratio (dB)	0°									Typ. 20									
	± 60°									Typ. 10									
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)																		
Squint (°)	Avg. 2.5																		
Tracking (dB)	Avg. 2.5 (within 10dB HBW)																		
Impedance (Ω)	50																		
Grounding	DC Ground																		

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1454 x 259 x 135
Antenna weight (kg)	15.1
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 480 (at 150 km/h) Lateral: 250 (at 150 km/h) Rear side: 635 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom





NOTE

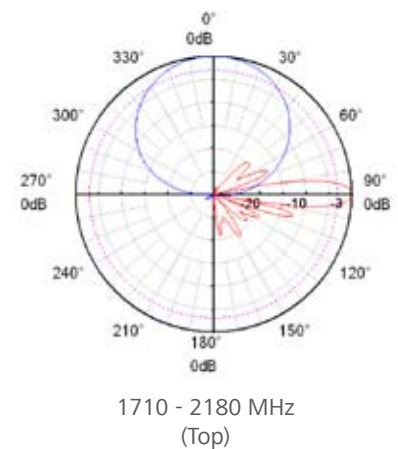
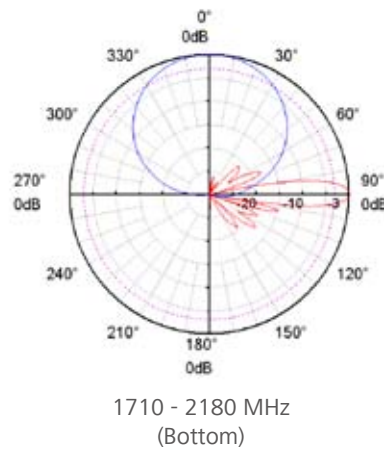
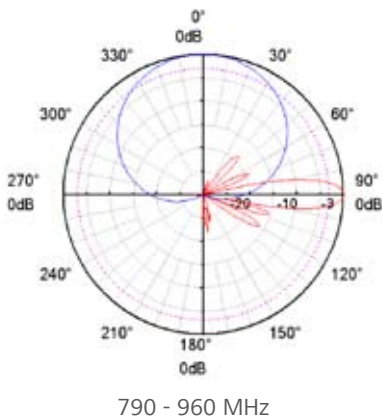
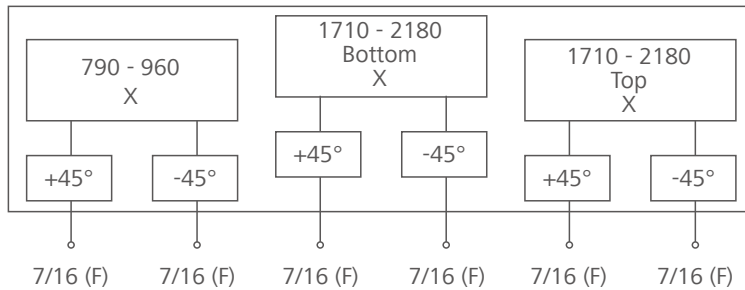
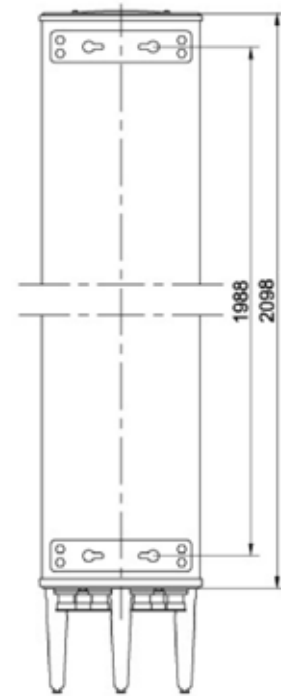
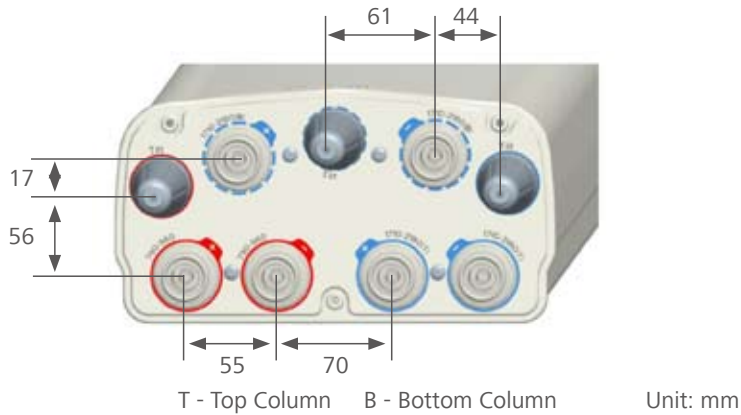
Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Electrical Properties																			
Frequency range (MHz)	790 - 960									2 x (1710 - 2180)									
	790 - 862			824 - 894			880 - 960			1710 - 1880			1850 - 1990			1920 - 2180			
Polarization	+45°, -45°																		
Electrical downtilt (°)	0 - 12, continuously adjustable									0 - 12, continuously adjustable									
Gain (dBi)		0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
		16.2	16.0	15.5	16.3	16.3	15.6	16.5	16.2	15.6									
	Bottom										15.9	16.0	15.6	16.2	16.4	15.8	16.3	16.5	16.0
Top										16.0	16.2	15.6	16.3	16.4	15.7	16.3	16.5	15.7	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	
	18	17	15	19	18	16	19	18	15	17	17	15	18	18	15	17	17	15	
Horizontal 3dB beam width (°)	69			66			65			64			62			60			
Vertical 3dB beam width (°)	10.7			10.1			9.4			Bottom: 9.6 Top: 8.5			Bottom: 8.9 Top: 8.0			Bottom: 8.3 Top: 7.5			
VSWR	< 1.5																		
Isolation between ports (dB)	Intra-system: ≥ 30																		
	Inter-system (790 - 960 // 1710 - 2180 MHz): ≥ 40																		
	Inter-system (1710 - 2180 // 1710 - 2180 MHz): ≥ 35																		
Front to back ratio, copolar (dB)	Typ. 28									Typ. 29									
Cross polar ratio (dB)	0°	Typ. 26									Typ. 20								
	± 60°	Typ. 10									Typ. 10								
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)																		
Squint (°)	Avg. 2.5																		
Tracking (dB)	Avg. 2.5 (within 10dB HBW)																		
Impedance (Ω)	50																		
Grounding	DC Ground																		

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2098 x 259 x 135
Antenna weight (kg)	19.4
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 730 (at 150 km/h) Lateral: 380 (at 150 km/h) Rear side: 965 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom





NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

DXXX-790-960/1710-2180/1710-2180-65/65/65-16.5i/16.5i/16.5i-M/M/M-R

EasyRET Tri-Band Antenna with 3 Integrated RCUs - 2.0m

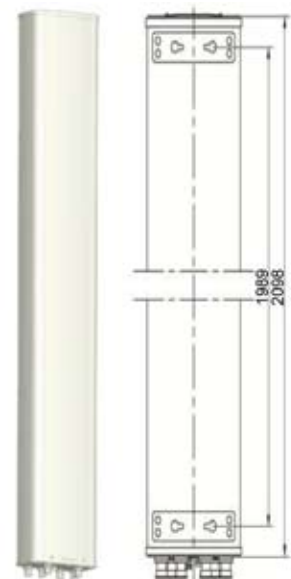
Model: ATR4516R0



Antenna Specifications

Electrical Properties																			
Frequency range (MHz)	790 - 960									2 x (1710 - 2180)									
	790 - 862			824 - 894			880 - 960			1710 - 1880		1850 - 1990		1920 - 2180					
Polarization	+45°, -45°																		
Electrical downtilt (°)	0 - 12, continuously adjustable									0 - 12, continuously adjustable									
Gain (dBi)		0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
		16.2	16.0	15.5	16.3	16.3	15.6	16.5	16.2	15.6									
	Bottom										15.9	16.0	15.6	16.2	16.4	15.8	16.3	16.5	16.0
Top										16.0	16.2	15.6	16.3	16.4	15.7	16.3	16.5	15.7	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	
	18	17	15	19	18	16	19	18	15	17	17	15	18	18	15	17	17	15	
Horizontal 3dB beam width (°)	69			66			65			64		62		60					
Vertical 3dB beam width (°)	10.7			10.1			9.4			Bottom: 9.6 Top: 8.5		Bottom: 8.9 Top: 8.0		Bottom: 8.3 Top: 7.5					
VSWR	< 1.5																		
Isolation between ports (dB)	Intra-system: ≥ 30 Inter-system (790 - 960 // 1710 - 2180 MHz): ≥ 40 Inter-system (1710 - 2180 // 1710 - 2180 MHz): ≥ 35																		
Front to back ratio, copolar (dB)	Typ. 28									Typ. 29									
Cross polar ratio (dB)	0°	Typ. 26									Typ. 20								
	±60°	Typ. 10									Typ. 10								
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)																		
Squint (°)	Avg. 2.5																		
Tracking (dB)	Avg. 2.5 (within 10dB HBW)																		
Impedance (Ω)	50																		
Grounding	DC Ground																		

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2098 x 259 x 135
Antenna weight (kg)	20.7
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) Lateral: 380 (at 150 km/h) Rear side: 965 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom



DXXX-790-960/1710-2180/1710-2180-65/65/65-16.5i/16.5i/16.5i-M/M/M-R

EasyRET Tri-Band Antenna with 3 Integrated RCUs - 2.0m

Model: ATR4516R0



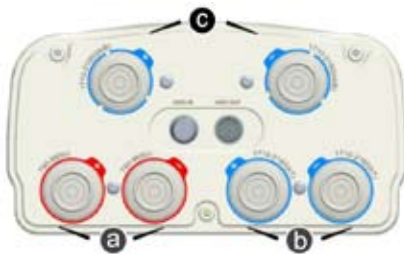
Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (min)	< 37 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (10/350 μ s) 10 (8/20 μ 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.

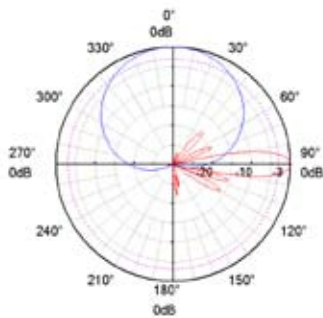
Standards: EN 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE

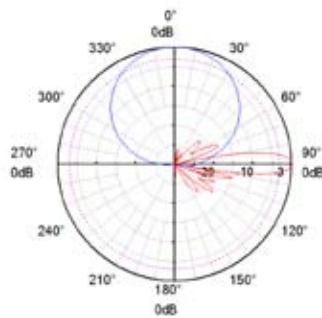


Integrated RCU S/N: **a** HWMxxx...r
b HWMxxx...bT
c HWMxxx...bbB

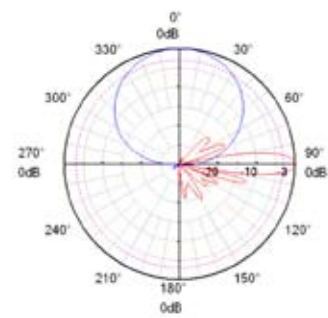
r - Red b - Blue
T - Top array B - Bottom array



790 - 960 MHz



1710 - 2180 MHz (Bottom)



1710 - 2180 MHz (Top)

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

Preliminary Issue

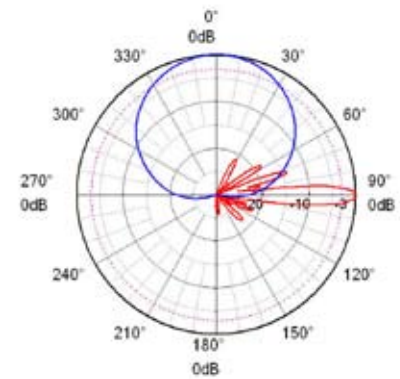
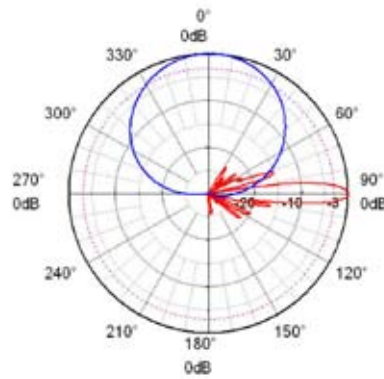
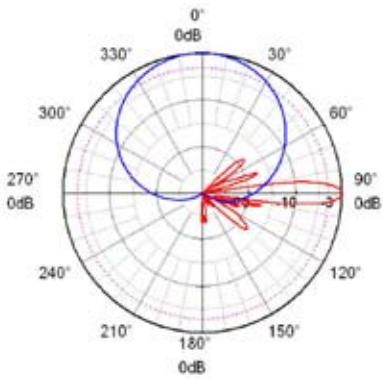
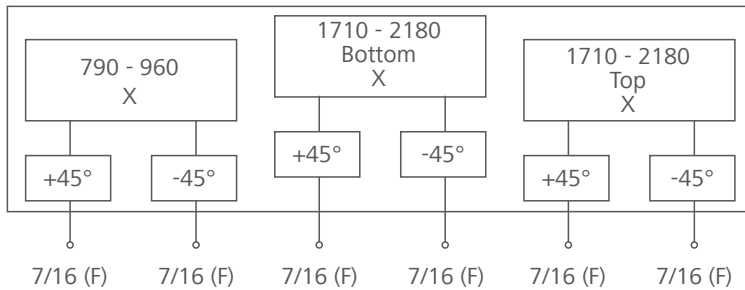
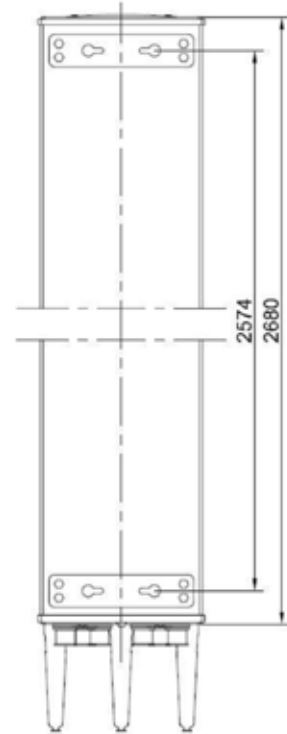
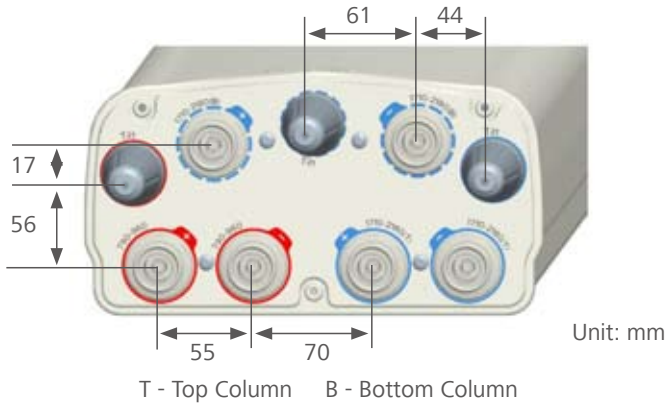
Electrical Properties		
Frequency range (MHz)	790 - 960	2 x (1710 - 2180)
Electrical downtilt (°)	0 - 14	0 - 10
Gain (dBi)	15	17.5
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	15	16
Horizontal 3dB beam width (°)	65	65
Vertical 3dB beam width (°)	15	7.5
VSWR	< 1.5	
Front to back ratio, copolar (dB)	Typ. 27	Typ. 28
Cross polar ratio (dB)	0°	Typ. 18
	± 60°	Typ. 10
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)	

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1498 x 349 x 166
Antenna net weight (kg)	18.9
Mechanical downtilt (°)	0 - 16
Connector	6 x 7/16 DIN Female

Electrical Properties																			
Frequency range (MHz)	790 - 960									2 x (1710 - 2180)									
	790 - 862			824 - 894			880 - 960			1710 - 1880			1850 - 1990			1920 - 2180			
Polarization	+45°, -45°																		
Electrical downtilt (°)	0 - 10, continuously adjustable									0 - 10, continuously adjustable									
Gain (dBi)		0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
		16.7	16.8	16.6	16.9	17.1	16.7	17.1	17.3	17.0									
	Bottom										17.0	17.1	16.6	17.6	17.6	16.8	17.4	17.6	17.0
Top										16.8	17.1	16.7	17.1	17.3	16.8	16.9	17.3	16.9	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	19	16	19	19	17	19	19	17	18	15	20	20	15	15	16	18	17	15	
Horizontal 3dB beam width (°)	69			66			65			63			62			60			
Vertical 3dB beam width (°)	8.4			8.0			7.5			Bottom: 7.5 Top: 7.0			Bottom: 7.0 Top: 6.5			Bottom: 6.6 Top: 6.1			
VSWR	< 1.5																		
Isolation between ports (dB)	Intra-system: ≥ 30 Inter-system (790 - 960 // 1710 - 2180 MHz): ≥ 40 Inter-system (1710 - 2180 // 1710 - 2180 MHz): ≥ 40																		
Front to back ratio, copolar (dB)	Typ. 28									Typ. 29									
Cross polar ratio (dB)	0°									Typ. 20									
	± 60°									Typ. 10									
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)																		
Squint (°)	Avg. 2.5																		
Tracking (dB)	Avg. 1.0 (within 10dB HBW)																		
Impedance (Ω)	50																		
Grounding	DC Ground																		

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2680 x 259 x 135
Antenna weight (kg)	23
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 970 (at 150 km/h) Lateral: 500 (at 150 km/h) Rear side: 1285 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom





NOTE

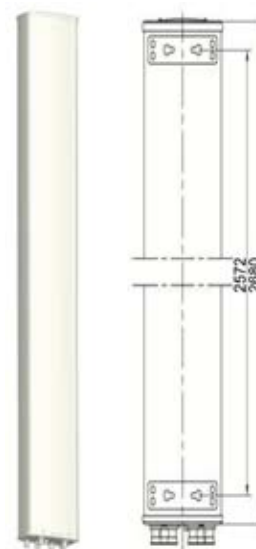
Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Antenna Specifications

Electrical Properties																			
Frequency range (MHz)	790 - 960									2 x (1710 - 2180)									
	790 - 862			824 - 894			880 - 960			1710 - 1880			1850 - 1990			1920 - 2180			
Polarization	+45°, -45°																		
Electrical downtilt (°)	0 - 10, continuously adjustable									0 - 10, continuously adjustable									
Gain (dBi)		0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
		16.7	16.8	16.6	16.9	17.1	16.7	17.1	17.3	17.0									
	Bottom										17.0	17.1	16.6	17.6	17.6	16.8	17.4	17.6	17.0
Top										16.8	17.1	16.7	17.1	17.3	16.8	16.9	17.3	16.9	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	19	16	19	19	17	19	19	17	18	15	20	20	15	15	16	18	17	15	
Horizontal 3dB beam width (°)	69			66			65			63			62			60			
Vertical 3dB beam width (°)	8.4			8.0			7.5			Bottom: 7.5 Top: 7.0			Bottom: 7.0 Top: 6.5			Bottom: 6.6 Top: 6.1			
VSWR	< 1.5																		
Isolation between ports (dB)	Intra-system: ≥ 30 Inter-system (790 - 960 // 1710 - 2180 MHz): ≥ 40 Inter-system (1710 - 2180 // 1710 - 2180 MHz): ≥ 40																		
Front to back ratio, copolar (dB)	Typ. 28									Typ. 29									
Cross polar ratio (dB)	0°	Typ. 28									Typ. 20								
	± 60°	Typ. 10									Typ. 10								
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)																		
Squint (°)	Avg. 2.5																		
Tracking (dB)	Avg. 1.0 (within 10dB HBW)																		
Impedance (Ω)	50																		
Grounding	DC Ground																		

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2680 x 259 x 135
Antenna weight (kg)	24.6
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 970 (at 150 km/h) Lateral: 500 (at 150 km/h) Rear side: 1285 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom



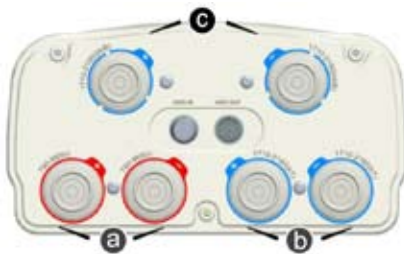
Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 37 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (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.

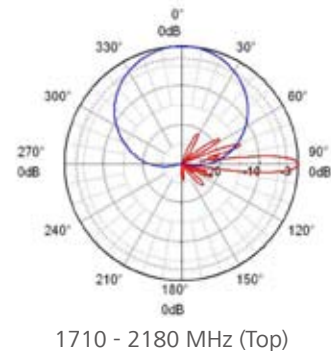
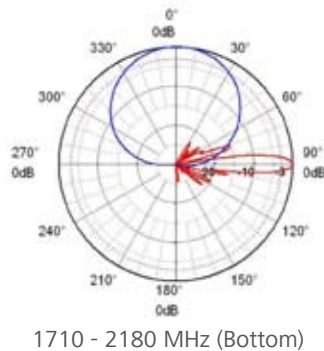
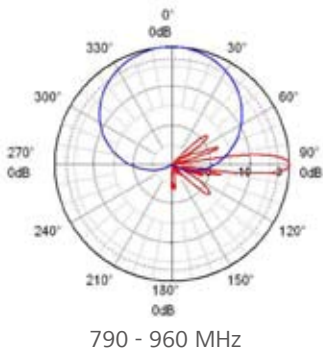
Standards: EN 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE



Integrated RCU S/N: **a** HWMxxx.....r
b HWMxxx.....bT
c HWMxxx.....bbB

r - Red b - Blue
T - Top array B - Bottom array





Preliminary Issue

Antenna Specifications

Electrical Properties																			
Frequency range (MHz)	790 - 960									2 x (1710 - 2690)									
	790 - 862			824 - 894			880 - 960			1710 - 1990			1920 - 2170			2490 - 2690			
Polarization	+45° , -45°																		
Electrical downtilt (°)	0 - 14 , continuously adjustable									0 - 10 , continuously adjustable									
Gain (dBi)	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	14.5	14.3	14	14.7	14.5	14.1	15.0	14.9	14.4	16.6	16.8	16.2	16.9	17.0	16.2	17.0	17.2	16.5	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	16	15	15	16	15	15	16	15	15	16	16	15	16	16	15	16	16	15	
Horizontal 3dB beam width (°)	69			66			64			66			63			60			
Vertical 3dB beam width (°)	16.6			15.5			14.4			6.8			6.4			5.9			
VSWR	< 1.5																		
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																		
Front to back ratio, copolar (dB)	Typ. 28									Typ. 28									
Cross polar ratio (dB)	0°																		
	Typ. 18									Typ. 17									
Max. power per input (W)	± 60°																		
	Typ. 10									Typ. 10									
Intermodulation IM3 (dBc)	500 (at 50°C ambient temperature)																		
Impedance (Ω)	250 (at 50°C ambient temperature)																		
Grounding	≤ -153 (2 x 43 dBm carrier)																		
	50																		
	DC Ground																		

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1450 x 349 x 166
Antenna net weight (kg)	25
Bracket weight (kg)	4.6
Mechanical downtilt (°)	0 - 12
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 495 (at 150 km/h) Lateral: 160 (at 150 km/h) Rear side: 525 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom



Preliminary Issue

Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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 in/out	DC return	n/c
Lightning protection (kA)	AISG interface (each pin) 3 (10/350 μ s) 10 (8/20 μ 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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

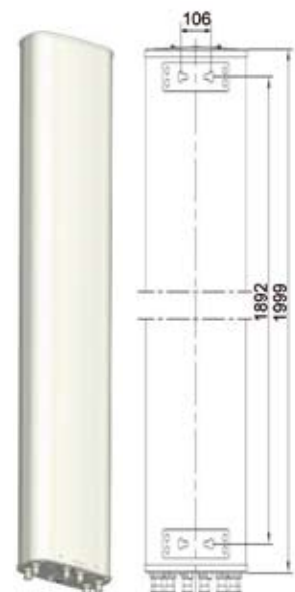
Certification: CE, FCC, RoHS, WEEE

A - 03

Antenna Specifications

Electrical Properties																					
Frequency range (MHz)	790 - 960									2 x (1710 - 2690)											
	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											
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	15.7	15.9	15.6	16.0	16.1	15.6	16.1	16.3	15.8	17.5	17.3	17.0	17.8	17.8	17.3	18.0	18.0	17.6	17.8	18.2	17.7
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	18	18	18	18	18	18	18	18	18	16	16	17	17	17	17	17	18	18	17	18	18
	17	17	16	17	17	16	17	17	17	15	15	15	16	16	16	16	16	16	15	15	15
Horizontal 3dB beam width (°)	65			64			62			65			62			60			60		
Vertical 3dB beam width (°)	10.1			9.8			9.3			5.8			5.4			4.8			4.3		
VSWR	< 1.5																				
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																				
Front to back ratio, copolar (dB)	Typ. 28																				
Cross polar ratio (dB)	0°	Typ. 18																			
	± 60°	Typ. 10																			
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																				

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1999 x 349 x 166
Antenna weight (kg)	25
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 705 (at 150 km/h) Lateral: 230 (at 150 km/h) Rear side: 730 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom



Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (10/350 μ s) 10 (8/20 μ 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.

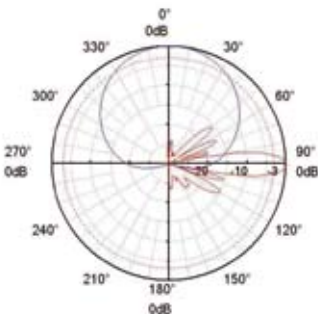
Standards: EN 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE

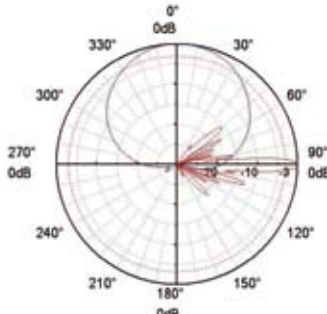


Integrated RCU S/N: **a** HWMxxx.....r
b HWMxxx.....yL
c HWMxxx.....yyR

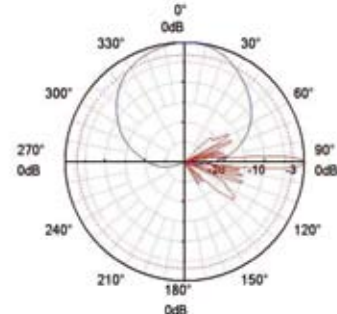
r - Red
y - Yellow
L - Left array
R - Right array



790 - 960 MHz



1710 - 2690 MHz (Left)



1710 - 2690 MHz (Right)

Antenna Specifications

Electrical Properties																																							
Frequency range (MHz)	790 - 960									2 x (1710 - 2690)																													
	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																													
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	16.5	16.8	16.6	16.8	17.0	16.9	17.2	17.3	17.1	17.5	17.3	17.0	17.8	17.8	17.3	18.0	18.0	17.6	18.0	18.2	17.7	17.5	17.3	17.0	17.8	17.8	17.3	18.0	18.0	17.6	18.0	18.2	17.7						
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	18	18	18	18	18	18	18	18	18	16	16	17	17	17	17	17	17	17	17	17	18	18	17	18	18	17	18	18	17	18	18								
	17	17	16	17	17	16	17	17	17	15	15	15	16	16	16	16	16	16	16	16	16	16	16	15	15	15	15	15	15	15	15	15							
Horizontal 3dB beam width (°)	65			64			62			65				62				60				60																	
Vertical 3dB beam width (°)	8.6			8.2			7.6			5.8				5.4				4.8				4.3																	
VSWR	< 1.5																																						
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																																						
Front to back ratio, copolar (dB)	Typ. 28									Typ. 28																													
Cross polar ratio (dB)	0°	Typ. 18									Typ. 18																												
	± 60°	Typ. 10									Typ. 10																												
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																																						

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2528 x 349 x 166
Antenna weight (kg)	29.5
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 920 (at 150 km/h) Lateral: 305 (at 150 km/h) Rear side: 955 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom



Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (10/350 μ s) 10 (8/20 μ 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.

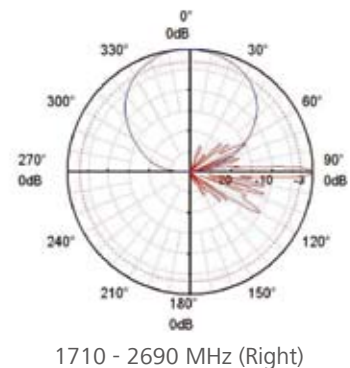
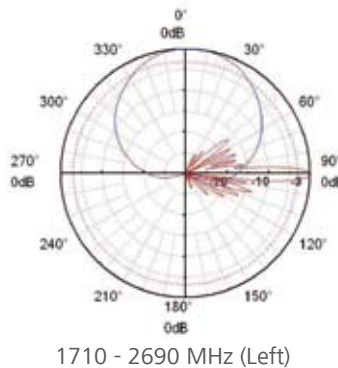
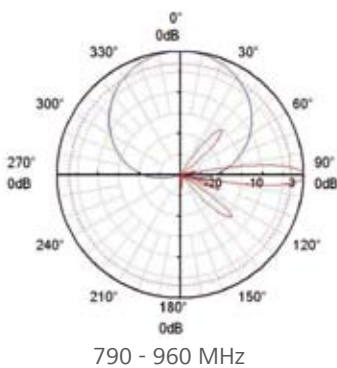
Standards: EN 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE



Integrated RCU S/N: **a** HWMxxx.....r
b HWMxxx.....yL
c HWMxxx.....yyR

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



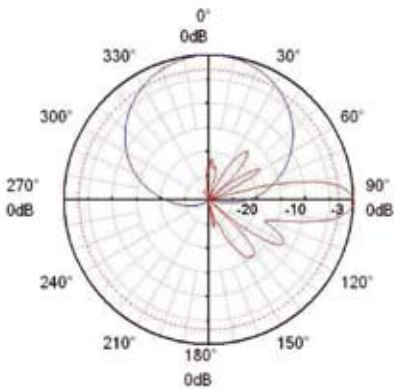
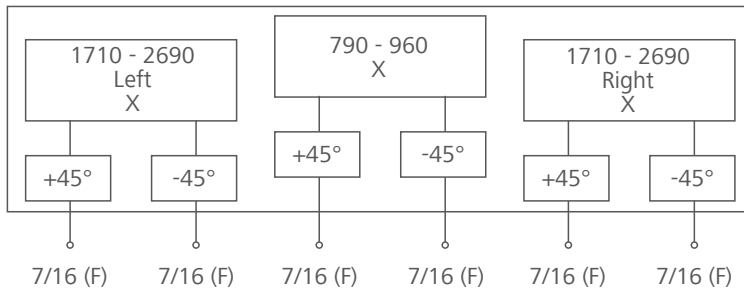
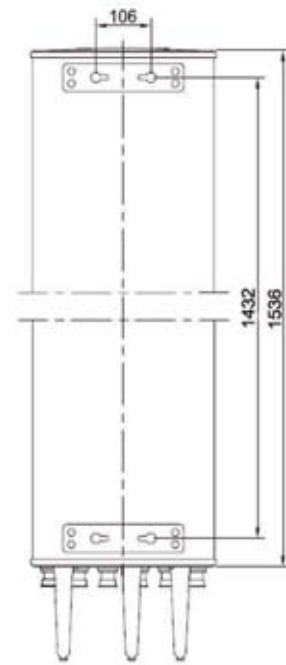
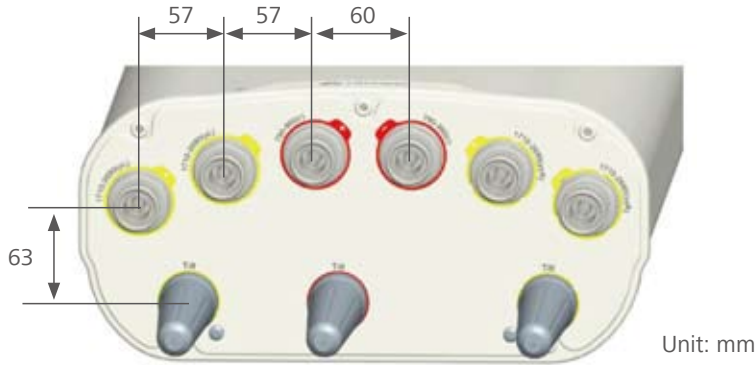
Electrical Properties

Frequency range (MHz)	790 - 960									2 x (1710 - 2690)																	
	790 - 862			824 - 894			880 - 960			1710 - 1990				1920 - 2200				2200 - 2490				2490 - 2690					
Polarization	+45°, -45°																										
Electrical downtilt (°)	0 - 14 , continuously adjustable									0 - 10 , continuously adjustable																	
Gain (dBi)	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	14.4	14.3	14.0	14.7	14.5	14.0	15.0	14.7	14.0	17.3	17.2	16.8	17.5	17.8	17.0	17.6	18.0	17.5	17.7	17.9	17.2						
Side lobe suppression (Typ.) (dB)	0°	7°	14°	0°	7°	14°	0°	7°	14°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	-for first side lobe above main beam																										
	-within 0° - 15° sector above horizon																										
Horizontal 3dB beam width (°)	66			64			62			63				62				60				60					
Vertical 3dB beam width (°)	14.2			13.8			13.0			6.4				5.7				5.1				4.6					
VSWR	< 1.5																										
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																										
Front to back ratio, copolar (dB)	Typ. 27									Typ. 28																	
Cross polar ratio (dB)	0°	Typ. 20									Typ. 20																
	± 60°	Typ. 10									Typ. 10																
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																										

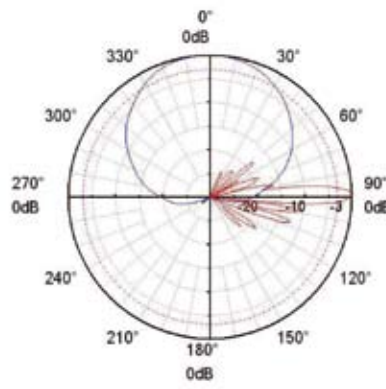
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1536 x 349 x 166
Antenna weight (kg)	19.9
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 525 (at 150 km/h) Lateral: 170 (at 150 km/h) Rear side: 545 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom

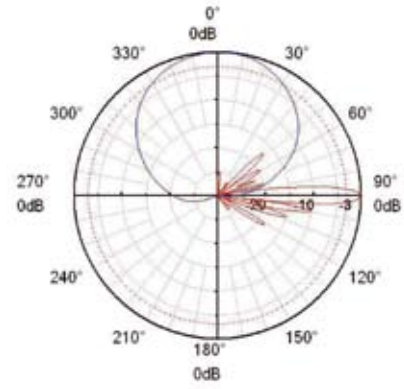




790 - 960 MHz



1710 - 2690 MHz
(Left)



1710 - 2690 MHz
(Right)

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

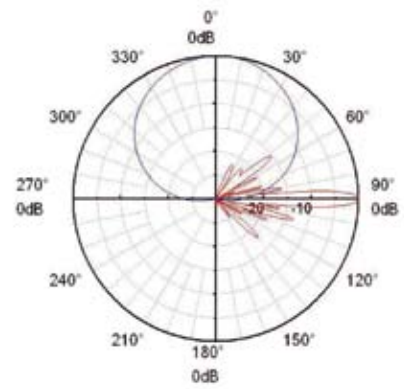
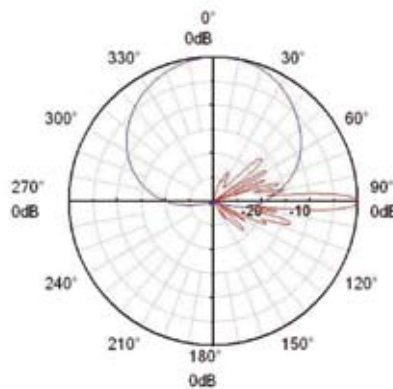
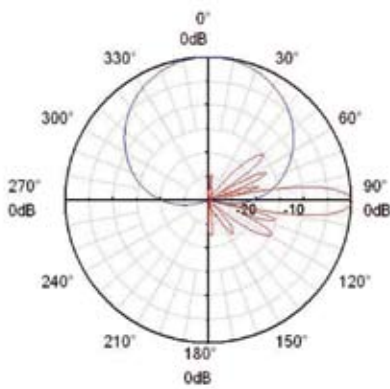
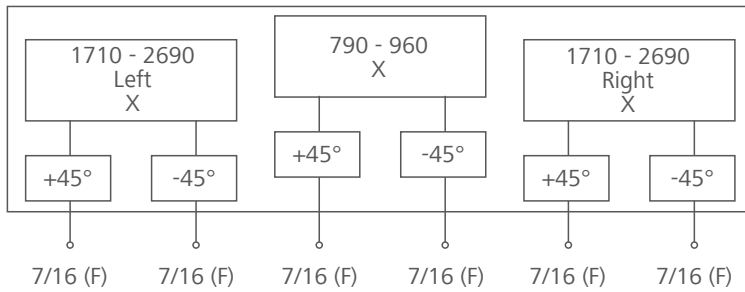
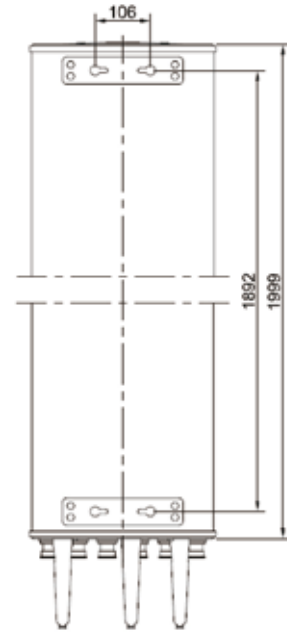
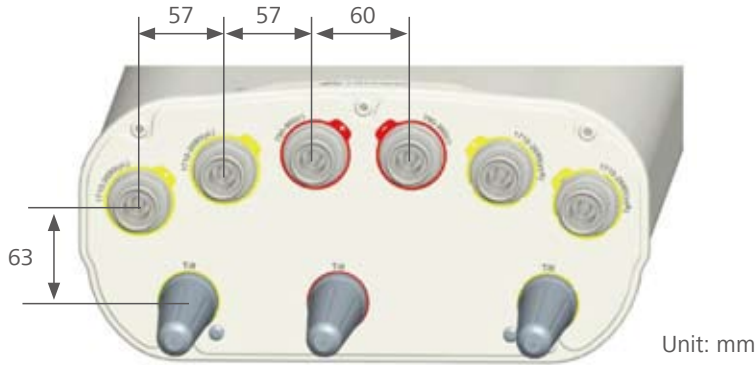
Electrical Properties

Frequency range (MHz)	790 - 960									2 x (1710 - 2690)											
	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											
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	15.7	15.9	15.6	16.0	16.1	15.6	16.1	16.3	15.8	17.5	17.3	17.0	17.8	17.8	17.3	18.0	18.0	17.6	17.8	18.2	17.7
Side lobe suppression (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	-for first side lobe above main beam	18	18	18	18	18	18	18	18	16	16	17	17	17	17	17	18	18	17	18	18
	-within 0° - 15° sector above horizon	17	17	16	17	17	16	17	17	17	15	15	15	16	16	16	16	16	16	15	15
Horizontal 3dB beam width (°)	65			64			62			65			62			60			60		
Vertical 3dB beam width (°)	10.1			9.8			9.3			5.8			5.4			4.8			4.3		
VSWR	< 1.5																				
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																				
Front to back ratio, copolar (dB)	Typ. 28																				
Cross polar ratio (dB)	0°	Typ. 18																			
	± 60°	Typ. 10																			
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																				

Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1999 x 349 x 166
Antenna weight (kg)	24.5
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 705 (at 150 km/h) Lateral: 230 (at 150 km/h) Rear side: 730 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom





NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

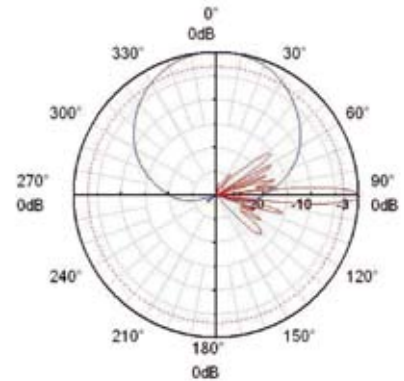
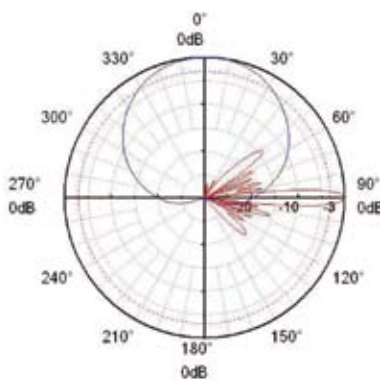
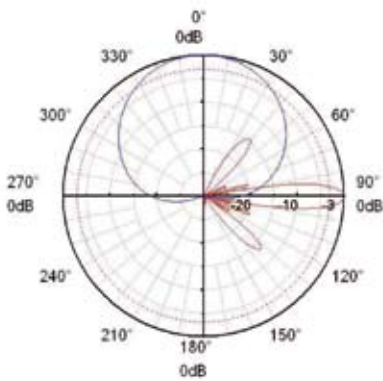
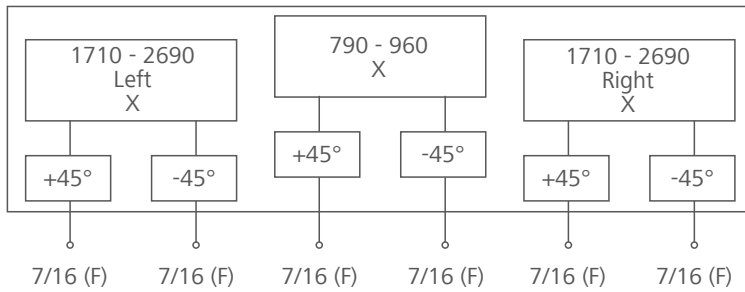
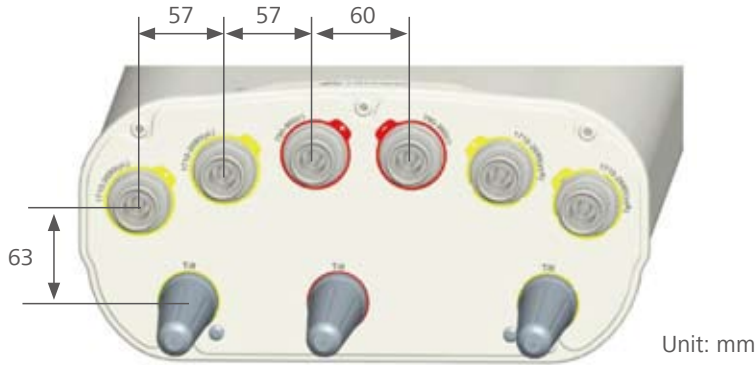
Electrical Properties

Frequency range (MHz)	790 - 960									2 x (1710 - 2690)												
	790 - 862			824 - 894			880 - 960			1710 - 1990			1920 - 2200			2200 - 2490			2490 - 2690			
Polarization	+45°, -45°																					
Electrical downtilt (°)	0 - 10, continuously adjustable																					
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	16.5	16.8	16.6	16.8	17.0	16.9	17.2	17.3	17.1	17.5	17.3	17.0	17.8	17.8	17.3	18.0	18.0	17.6	18.0	18.2	17.7	
Side lobe suppression (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	-for first side lobe above main beam																					
	-within 0° - 15° sector above horizon																					
Horizontal 3dB beam width (°)	65			64			62			65			62			60			60			
Vertical 3dB beam width (°)	8.6			8.2			7.6			5.8			5.4			4.8			4.3			
VSWR	< 1.5																					
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																					
Front to back ratio, copolar (dB)	Typ. 28									Typ. 28												
Cross polar ratio (dB)	0°	Typ. 18									Typ. 18											
	± 60°	Typ. 10									Typ. 10											
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																					

Mechanical Properties

Antenna dimensions (H x W x D) (mm)	2528 x 349 x 166
Antenna weight (kg)	28.5
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 920 (at 150 km/h) Lateral: 305 (at 150 km/h) Rear side: 955 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom





NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.



Preliminary Issue

Electrical Properties		
Frequency range (MHz)	698 - 960	2 x (1710 - 2690)
Electrical downtilt (°)	0 - 10	0 - 10
Gain (dBi)	16	18
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	16	15
Horizontal 3dB beam width (°)	65	63
Vertical 3dB beam width (°)	10	6.5
VSWR	< 1.5	
Front to back ratio, copolar (dB)	Typ. 27	Typ. 28
Cross polar ratio (dB)	0°	Typ. 20
	± 60°	Typ. 8
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)	

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2020 x 349 x 166
Antenna net weight (kg)	29
Mechanical downtilt (°)	0 - 8
Connector	6 x 7/16 DIN Female

Preliminary Issue

A - 03

Electrical Properties																								
Frequency range (MHz)	698 - 960												2 x (1710 - 2690)											
	698 - 820			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											
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°			
	16.0	16.2	16.0	16.3	16.5	16.1	16.5	16.7	16.5	16.7	17.0	16.6	17	17.1	16.9	17.2	17.3	17	17.0	17.1	17	17.3	17.6	17.3
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	18	17	16	18	18	17	18	17	17	18	16	16	17	17	16	17	17	16	18	17	15	16	16	15
Horizontal 3dB beam width (°)	67			66			65			62			63			62			61			60		
Vertical 3dB beam width (°)	8.8			8.5			8.0			7.4			7.4			6.8			6.0			5.5		
VSWR	< 1.5																							
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																							
Front to back ratio, copolar (dB)	Typ. 27												Typ. 28											
Cross polar ratio (dB)	0°												Typ. 17											
	± 60°												Typ. 8											
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																							

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2688 x 349 x 166
Antenna net weight (kg)	32
Bracket weight (kg)	5.6
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 990 (at 150 km/h) Lateral: 325 (at 150 km/h) Rear side: 1030 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom



Preliminary Issue

Antenna Specifications

Electrical Properties																						
Frequency range (MHz)	698 - 960									2 x (1710 - 2690)												
	698 - 806			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												
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	15.2	15.4	15.2	15.6	15.8	15.4	15.8	16.2	15.8	17.2	17.1	16.7	17.4	17.6	16.9	17.4	17.7	17.4	17.4	17.8	17.4	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	18	17	16	18	18	17	18	16	16	17	17	16	17	17	16	17	17	15	16	16	15	
Horizontal 3dB beam width (°)	67			65			62			63			62			60			60			
Vertical 3dB beam width (°)	10.5			9.8			9.3			6.4			5.7			5.1			4.6			
VSWR	< 1.5																					
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																					
Front to back ratio, copolar (dB)	Typ. 27									Typ. 28												
Cross polar ratio (dB)	0°	Typ. 18									Typ. 17											
	± 60°	Typ. 8									Typ. 8											
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																					

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2020 x 349 x 166
Antenna net weight (kg)	25
Bracket weight (kg)	5.6
Mechanical downtilt (°)	0 - 12
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 705 (at 150 km/h) Lateral: 230 (at 150 km/h) Rear side: 730 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom



Preliminary Issue

Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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 in/out	DC return	n/c
Lightning protection (kA)	AISG interface (each pin) 3 (10/350 μ s) 10 (8/20 μ 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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE

A - 03



Preliminary Issue

Antenna Specifications

Electrical Properties																								
Frequency range (MHz)	698 - 960												2 x (1710 - 2690)											
	698 - 820			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											
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	16.0	16.2	16.0	16.3	16.5	16.1	16.5	16.7	16.5	16.7	17.0	16.6	17	17.1	16.9	17.2	17.3	17	17.0	17.1	17	17.3	17.6	17.3
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	18	17	16	18	18	17	18	17	17	18	16	16	17	17	16	17	17	16	18	17	15	16	16	15
Horizontal 3dB beam width (°)	67			66			65			62			63			62			61			60		
Vertical 3dB beam width (°)	8.8			8.5			8.0			7.4			7.4			6.8			6.0			5.5		
VSWR	< 1.5																							
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																							
Front to back ratio, copolar (dB)	Typ. 27												Typ. 28											
Cross polar ratio (dB)	0°												Typ. 17											
	± 60°												Typ. 8											
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																							

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2688 x 349 x 166
Antenna net weight (kg)	32
Bracket weight (kg)	5.6
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 990 (at 150 km/h) Lateral: 325 (at 150 km/h) Rear side: 1030 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom



Preliminary Issue

Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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 in/out	DC return	n/c
Lightning protection (kA)	AISG interface (each pin) 3 (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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

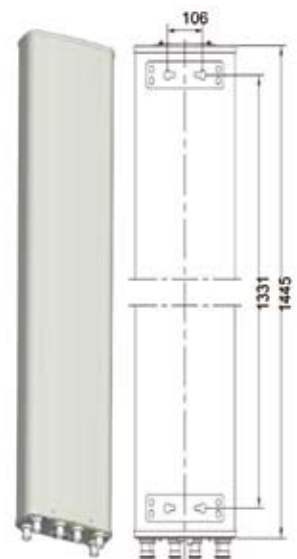
Certification: CE, FCC, RoHS, WEEE

A - 03

Antenna Specifications

Electrical Properties																					
Frequency range (MHz)	1710 - 2690												1710 - 2170						2490 - 2690		
	1710 - 1990			1920 - 2200			2200 - 2490			2490 - 2690			1710 - 1990			1920 - 2170					
Polarization	+45° , -45°																				
Electrical downtilt (°)	0 - 12 , continuously adjustable																				
Gain (dBi)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	17.4	17.5	17.3	17.7	17.9	17.5	18.0	18.2	17.6	18.2	18.2	17.8	17.3	17.5	17.3	17.6	17.8	17.5	18.1	18.2	17.8
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	18	17	16	18	17	16	18	17	16	18	17	16	17	17	18	18	18	18	17	18	18
	15	16	16	16	17	16	18	16	16	16	17	16	15	16	16	16	17	16	16	17	16
Horizontal 3dB beam width (°)	66			64			62			60			66			64			60		
Vertical 3dB beam width (°)	6.5			6.0			5.3			4.8			6.4			5.9			4.6		
VSWR	< 1.5																				
Isolation between ports (dB)	Intra-system: ≥ 30 Inter-system: ≥ 30																				
Front to back ratio, copolar (dB)	Typ. 28																				
Cross polar ratio (dB)	0°	Typ. 18																			
	± 60°	Typ. 10																			
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																				

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1445 x 299 x 109
Antenna weight (kg)	16.2
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 520 (at 150 km/h) Lateral: 105 (at 150 km/h) Rear side: 600 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom



Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	3 (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.

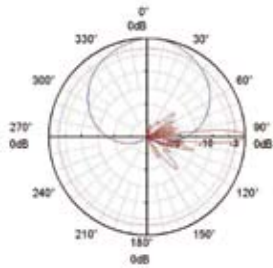
Standards: EN 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE

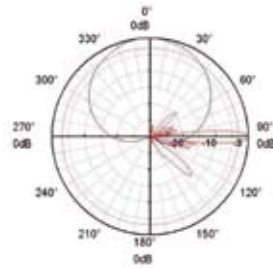


Integrated RCU S/N: **a** HWMxxx.....bL
b HWMxxx.....yL
c HWMxxx.....yyR

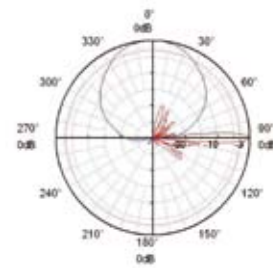
b - Blue
y - Yellow
L - Left array
R - Right array



1710 - 2690 MHz



1710 - 2170 MHz



2490 - 2690 MHz

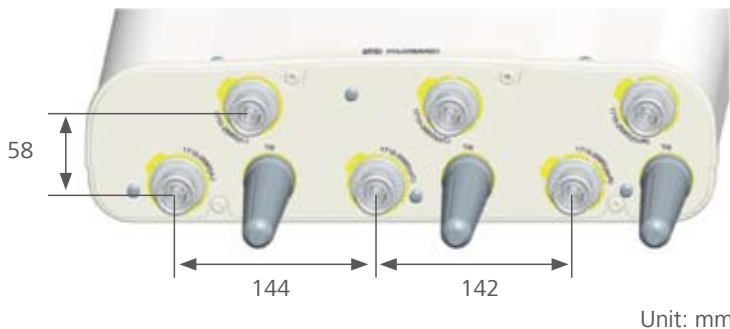
Electrical Properties

Frequency range (MHz)	3 x (1710 - 2690)											
	1710 - 1990			1920 - 2200			2200 - 2490			2490 - 2690		
Polarization	+45°, -45°											
Electrical downtilt (°)	0 - 12, continuously adjustable											
Gain (dBi)	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	17.4	17.7	17.3	17.5	17.9	17.6	17.8	18.2	17.8	18.1	18.4	18.1
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	6°	12°	0°	6°	12°	0°	6°	12°	0°	6°	12°
	18	18	15	18	17	15	17	17	15	17	16	15
	17	17	15	17	16	15	17	17	15	16	15	15
Horizontal 3dB beam width (°)	62			65			62			60		
Vertical 3dB beam width (°)	6.5			6.0			5.3			4.8		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 28											
Cross polar ratio (dB)	0°			Typ. 20								
	± 60°			Typ. 10								
Max. power per input (W)	250 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Typ. 5.0											
Tracking (dB)	Typ. 3.0 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

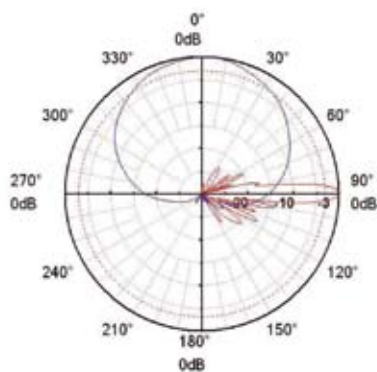
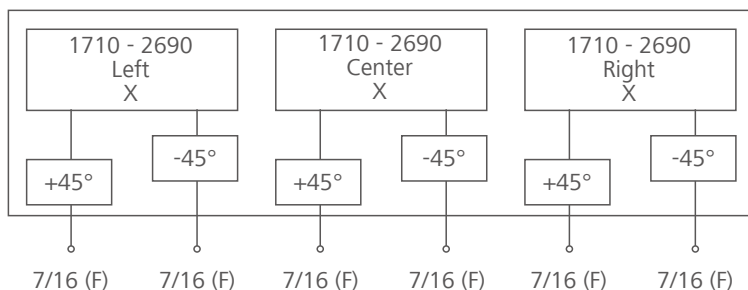
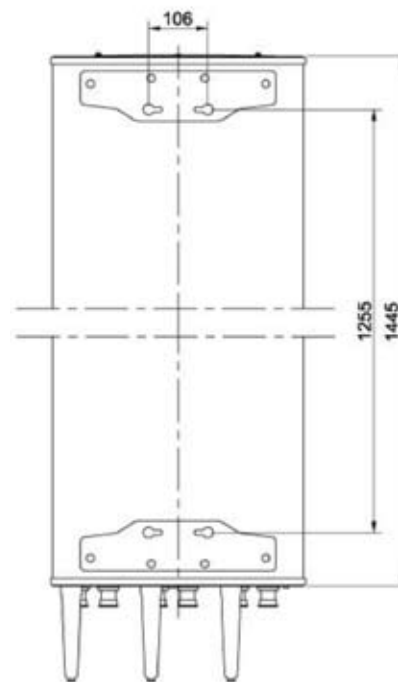
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1445 x 449 x 115
Antenna weight (kg)	21.3
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 745 (at 150 km/h) Lateral: 85 (at 150 km/h) Rear side: 835 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	6 x 7/16 DIN Female
Connector position	Bottom

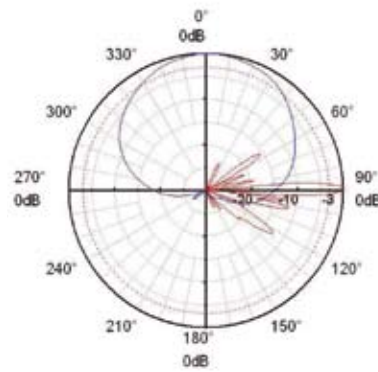




Unit: mm



1710 - 2200 MHz



2200 - 2690 MHz

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

A - 04. Quad-band Antenna

Frequency Range (MHz)	Polarization	3dB Horizontal beam width (°)	Gain (dBi)	Electrical downtilt (°)	Tilt Method	Connector	Dimension (mm)	Model	Page
790-862/ 880-960/ 1710-2690/ 1710-2690	xxxx	65/65/65/65	16.5/17/18/18	0-10/0-10/ 0-10/0-10	EasyRET	8 x 7/16 DIN-F	2528 x 349 x 166	**AQU4518R4	154
790-960/ 1710-2690/ 1710-2170/ 2490-2690	xxxx	65/65/65/65	15/17.5/ 17.5/17.5	0-14/0-10/ 0-10/0-10	EasyRET	8 x 7/16 DIN-F	1499 x 349 x 166	AQU4518R7	156
790-960/ 1710-2690/ 1710-2170/ 2490-2690	xxxx	65/65/65/65	16/18/18/18	0-12/ 0-12/0-12	EasyRET	8 x 7/16 DIN-F	1999 x 349 x 166	AQU4518R0	159
790-960/ 1710-2690/ 1710-2170/ 2490-2690	xxxx	65/65/65/65	17/18/18/18	0-12/ 0-12/0-12	EasyRET	8 x 7/16 DIN-F	2528 x 349 x 166	AQU4518R1	162
698-960/ 1710-2690/ 1710-2690/ 1710-2690	xxxx	65/65/65/65	17/18/18/17.5	0-14/ 0-10/0-10	EasyRET	8 x 7/16 DIN-F	2688 x 349 x 166	AQU4518R9	165
1710-2170/ 1710-2170/ 2496-2690/ 2496-2690	xxxx	65/65/65/65	18/18/18/18	0-12/ 0-12/0-12	EasyRET	8 x 7/16 DIN-F	1500 x 299 x 109	**AQU4518R8	167

** Preliminary Issue

Preliminary Issue

Antenna Specifications

Electrical Properties																		
Frequency range (MHz)	790 - 862			880 - 960			2 x (1710 - 2690)											
							1710 - 1990			1920 - 2200			2200 - 2490			2490 - 2690		
Polarization	+45° , -45°																	
Electrical downtilt (°)	0 - 10, continuously adjustable						0 - 10, continuously adjustable											
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	16.1	16.2	16.0	16.5	16.7	16.4	17.5	17.3	17.0	17.8	17.8	17.3	18.0	18.0	17.6	18.0	18.2	17.7
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	18	18	17	18	18	17	16	16	17	17	17	17	17	18	18	17	18	18
Horizontal 3dB beam width (°)	65			62			65			62			60			60		
Vertical 3dB beam width (°)	8.6			7.6			5.8			5.4			4.8			4.3		
VSWR	< 1.5																	
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																	
Front to back ratio, copolar (dB)	Typ. 28						Typ. 28											
Cross polar ratio (dB)	0°						Typ. 18											
	± 60°						Typ. 10											
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																	

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2528 x 349 x 166
Antenna net weight (kg)	34.5
Bracket weight (kg)	5.6
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 950 (at 150 km/h) Lateral: 315 (at 150 km/h) Rear side: 985 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	8 x 7/16 DIN Female
Connector position	Bottom

Preliminary Issue

Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	4 x 8 pin connector according to IEC 60130-9 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 in/out	DC return	n/c
Lightning protection (kA)	3 (10/350 μ s) 10 (8/20 μ 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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE

 **NOTE**

Before the installation, check whether the antenna and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.

A - 04

Antenna Specifications

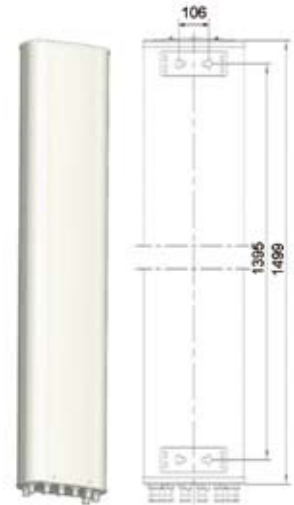
Electrical Properties									
Frequency range (MHz)	790 - 960 (r)								
	790 - 862			824 - 894			880 - 960		
Polarization	+45°, -45°								
Electrical downtilt (°)	0 - 14, continuously adjustable								
Gain (dBi)	0°	7°	14°	0°	7°	14°	0°	7°	14°
	14.4	14.3	14.0	14.7	14.5	14.0	15.0	14.7	14.0
Side lobe suppression (Typ.) (dB)	0°	7°	14°	0°	7°	14°	0°	7°	14°
	-for first side lobe above main beam			18			17		
-within 0° - 15° sector above horizon			16			15			16
Horizontal 3dB beam width (°)	65			64			62		
Vertical 3dB beam width (°)	15.5			15			14.0		
VSWR	< 1.5								
Isolation between ports (dB)	≥ 28								
Front to back ratio, copolar (dB)	Typ. 27								
Cross polar ratio (dB) 0°	Typ. 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)	1710 - 2690 (yyR)												1710 - 2170 (bL)				2490 - 2690 (yL)					
	1710 - 1990			1920 - 2200			2200 - 2490			2490 - 2690			1710 - 1990		1920 - 2170							
Polarization	+45°, -45°																					
Electrical downtilt (°)	0 - 10, continuously adjustable																					
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	17.3	17.2	16.8	17.5	17.8	17.0	17.6	18.0	17.5	17.7	17.9	17.2	17.2	17.1	16.8	17.3	17.5	17.0	17.5	17.3	17.0	
Side lobe suppression (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	-for first side lobe above main beam			15			16			16			15			16			16			16
-within 0° - 15° sector above horizon			14			15			14			15			14			15			14	
Horizontal 3dB beam width (°)	63			62			60			60			63			62			60			
Vertical 3dB beam width (°)	6.2			5.8			5.2			4.7			6.2			5.8			4.7			
VSWR	< 1.5																					
Isolation between ports (dB)	Intra-system: ≥ 28																					
	Inter-system: ≥ 30																					
Front to back ratio, copolar (dB)	Typ. 28						Typ. 28						Typ. 28				Typ. 27					
Cross polar ratio (dB) 0°	Typ. 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																					

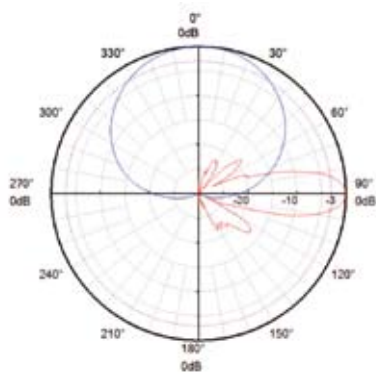
* Total power : 1000 W (at 50°C ambient temperature)

Mechanical Properties

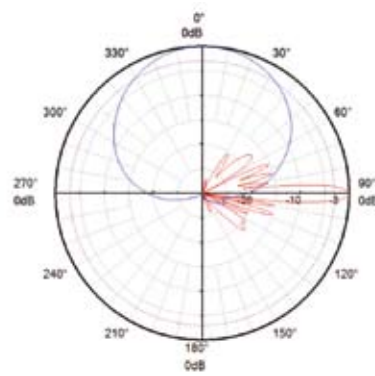
Antenna dimensions (H x W x D) (mm)	1499 x 349 x 166
Antenna net weight (kg)	23.2
Bracket weight (kg)	2.9
Mechanical downtilt (°)	0 - 16
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 505 (at 150 km/h) Lateral: 165 (at 150 km/h) Rear side: 540 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	8 x 7/16 DIN Female
Connector position	Bottom



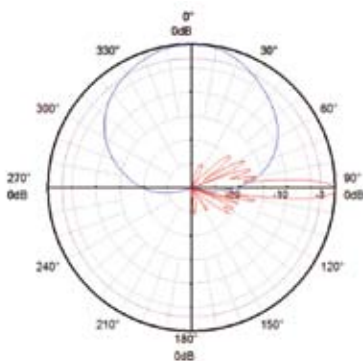
A - 04



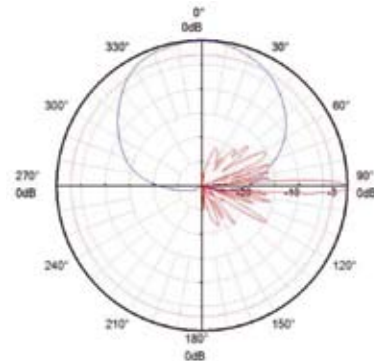
790 - 960 MHz



1710 - 2690 MHz



1710 - 2170 MHz



2490 - 2690 MHz

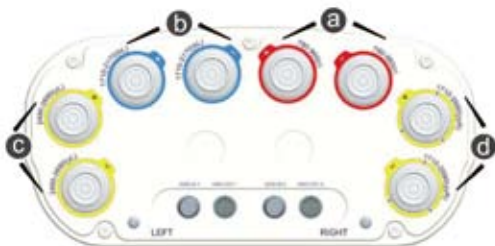
Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	4 x 8 pin connector according to IEC 60130-9 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 in/out	DC return	n/c
Lightning protection (kA)	3 (10/350 μ s) 10 (8/20 μ s)							

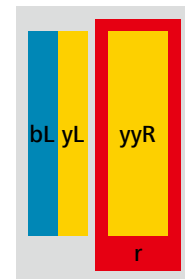
* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before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

Standards: EN 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE



Integrated RCU S/N: **a** HWMxxx.....r
b HWMxxx.....bL
c HWMxxx.....yL
d HWMxxx.....yyR
r - Red b - Blue y - Yellow
L - Left array R - Right array



NOTE

Before the installation, check whether the antenna and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.

Antenna Specifications

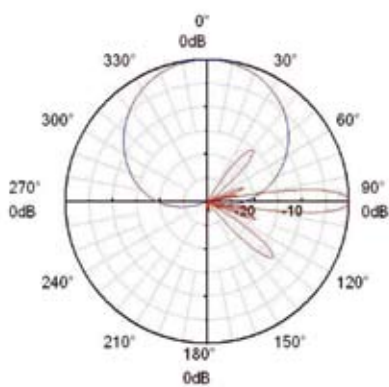
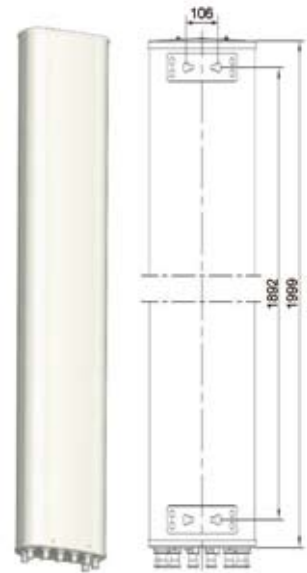
Electrical Properties									
Frequency range (MHz)	790 - 960 (r)								
	790 - 862			824 - 894			880 - 960		
Polarization	+45°, -45°								
Electrical downtilt (°)	0 - 10, continuously adjustable								
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°
	15.7	15.9	15.6	16.0	16.1	15.6	16.1	16.3	15.8
Side lobe suppression (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°
	-for first side lobe above main beam								
	-within 0° - 15° sector above horizon								
Horizontal 3dB beam width (°)	65			64			62		
Vertical 3dB beam width (°)	10.1			9.8			9.3		
VSWR	< 1.5								
Isolation between ports (dB)	≥ 28								
Front to back ratio, copolar (dB)	Typ. 28								
Cross polar ratio (dB)	0°								
	± 60°								
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 - 2690 (yyR)										1710 - 2170 (bL)					2490 - 2690 (yL)						
	1710 - 1990		1920 - 2200		2200 - 2490		2490 - 2690		1710 - 1990		1920 - 2170											
Polarization	+45°, -45°																					
Electrical downtilt (°)	0 - 10, continuously adjustable																					
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	17.5	17.3	17.0	17.8	17.8	17.3	18.0	18.0	17.6	17.8	18.2	17.7	17.0	17.2	17.0	17.4	17.7	17.0	17.7	17.7	17.2	
Side lobe suppression (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	-for first side lobe above main beam																					
	-within 0° - 15° sector above horizon																					
Horizontal 3dB beam width (°)	65		62		60		60		65		62		60									
Vertical 3dB beam width (°)	5.8		5.4		4.8		4.3		5.8		5.4		4.3									
VSWR	< 1.5																					
Isolation between ports (dB)	Intra-system: ≥ 28																					
	Inter-system: ≥ 30																					
Front to back ratio, copolar (dB)	Typ. 28																					
Cross polar ratio (dB)	0°																					
	± 60°																					
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																					

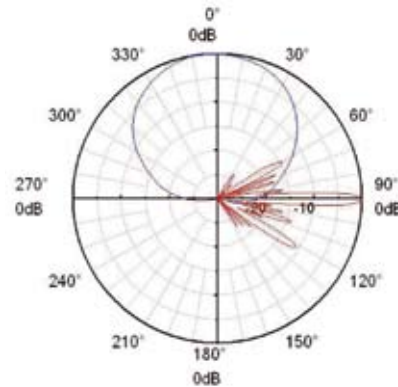
* Total power: 800 W (at 50°C ambient temperature)

Mechanical Properties

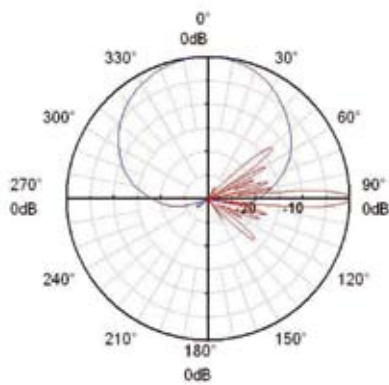
Antenna dimensions (H x W x D) (mm)	1999 x 349 x 166
Antenna weight (kg)	28.0
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 705 (at 150 km/h) Lateral: 230 (at 150 km/h) Rear side: 730 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	8 x 7/16 DIN Female
Connector position	Bottom



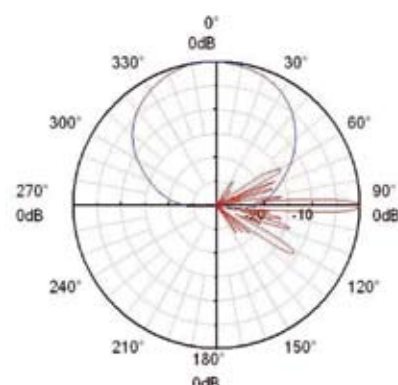
790 - 960 MHz



1710 - 2690 MHz



1710 - 2170 MHz



2490 - 2690 MHz

Integrated RCU Specifications

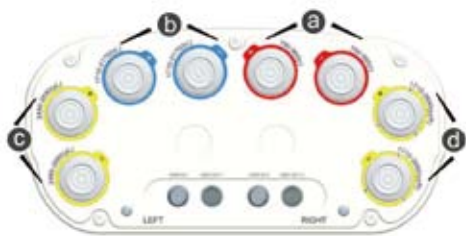
Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	4 x 8 pin connector according to IEC 60130-9 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)	3 (10/350 μ s) 10 (8/20 μ 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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

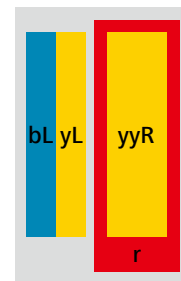
Certification: CE, FCC, RoHS, WEEE

A - 04



Integrated RCU S/N: **a** HWMxxx.....r
b HWMxxx.....bL
c HWMxxx.....yL
d HWMxxx.....yyR

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



NOTE

Before the installation, check whether the antenna and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.



Antenna Specifications

Electrical Properties									
Frequency range (MHz)	790 - 960 (r)								
	790 - 862			824 - 894			880 - 960		
Polarization	+45°, -45°								
Electrical downtilt (°)	0 - 10, continuously adjustable								
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°
	16.5	16.8	16.6	16.8	17.0	16.9	17.2	17.3	17.1
Side lobe suppression (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°
	-for first side lobe above main beam								
	-within 0° - 15° sector above horizon								
Horizontal 3dB beam width (°)	65			64			62		
Vertical 3dB beam width (°)	8.6			8.2			7.6		
VSWR	< 1.5								
Isolation between ports (dB)	≥ 28								
Front to back ratio, copolar (dB)	Typ. 28								
Cross polar ratio (dB)	0°	Typ. 18							
	± 60°	Typ. 10							
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 - 2690 (yyR)										1710 - 2170 (bL)					2490 - 2690 (yL)							
	1710 - 1990			1920 - 2200			2200 - 2490			2490 - 2690				1710 - 1990		1920 - 2170							
Polarization	+45°, -45°																						
Electrical downtilt (°)	0 - 10, continuously adjustable																						
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°		
	17.5	17.3	17.0	17.8	17.8	17.3	18.0	18.0	17.6	18.0	18.2	17.7	17.0	17.2	17.0	17.4	17.7	17.0	17.7	17.7	17.2		
Side lobe suppression (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°		
	-for first side lobe above main beam																						
	-within 0° - 15° sector above horizon																						
Horizontal 3dB beam width (°)	65			62			60			60				65		62			60				
Vertical 3dB beam width (°)	5.8			5.4			4.8			4.3				5.8		5.4			4.3				
VSWR	< 1.5																						
Isolation between ports (dB)	Intra-system: ≥ 28																						
	Inter-system: ≥ 30																						
Front to back ratio, copolar (dB)	Typ. 28																						
Cross polar ratio (dB)	0°	Typ. 18																					
	± 60°	Typ. 10																					
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																						

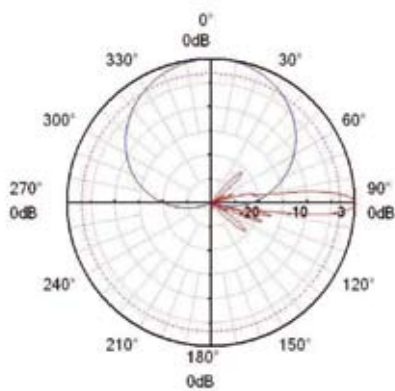
* Total power : 1000 W (at 50°C ambient temperature)

Mechanical Properties

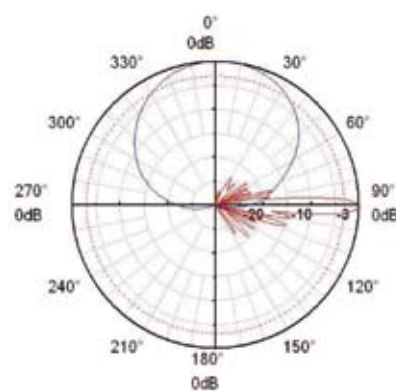
Antenna dimensions (H x W x D) (mm)	2528 x 349 x 166
Antenna weight (kg)	32.0
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 920 (at 150 km/h) Lateral: 305 (at 150 km/h) Rear side: 955 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	8 x 7/16 DIN Female
Connector position	Bottom



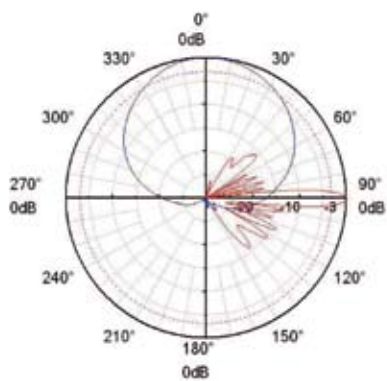
A - 04



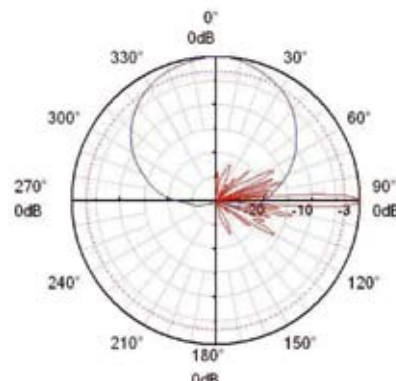
790 - 960 MHz



1710 - 2690 MHz



1710 - 2170 MHz



2490 - 2690 MHz

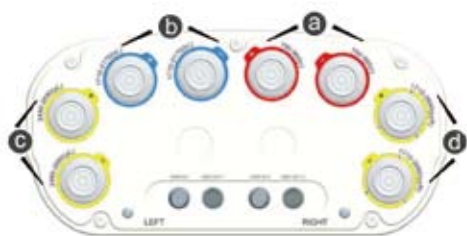
Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	4 x 8 pin connector according to IEC 60130-9 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)	3 (10/350 μ s) 10 (8/20 μ s)							

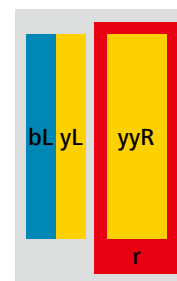
* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before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

Standards: EN 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE



Integrated RCU S/N: **a** HWMxxx.....r
b HWMxxx.....bL
c HWMxxx.....yL
d HWMxxx.....yyR
r - Red b - Blue y - Yellow
L - Left array R - Right array



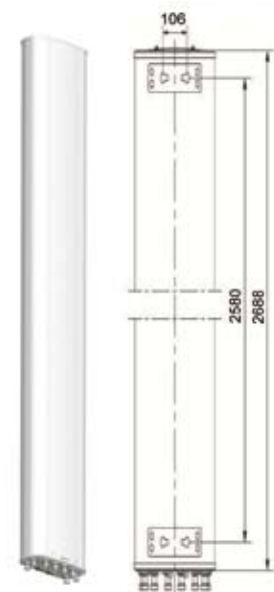
NOTE

Before the installation, check whether the antenna and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.

Antenna Specifications

Electrical Properties																									
Frequency range (MHz)		698 - 960												3 x (1710 - 2690)											
		698 - 820			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											
Gain (dBi)		0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	Bottom	16.0	16.2	16.0	16.3	16.5	16.1	16.5	16.7	16.5	16.7	16.5	16.7	17.0	16.6										
	Top																								
Side lobe suppression for first side lobe above main beam (Typ.) (dB)		0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
		18	17	16	18	18	17	18	17	17	18	16	16	17	17	16	17	17	16	18	17	15	16	16	15
Horizontal 3dB beam width (°)		67			66			65			62			63			62			61			60		
Vertical 3dB beam width (°)		8.8			8.5			8.0			7.4			7.4			6.8			6.0			5.5		
VSWR		< 1.5																							
Isolation between ports (dB)		Intra-system: ≥ 28 Inter-system: ≥ 30																							
Front to back ratio, copolar (dB)		Typ. 27												Typ. 28											
Cross polar ratio (dB) 0°		Typ. 20												Typ. 17											
Max. power per input (W)		500 (at 50°C ambient temperature)												250 (at 50°C ambient temperature)											
Total power per combined input (W)		1200 (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)	2688 x 349 x 166
Antenna weight (kg)	33.5
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 705 (at 150 km/h) Lateral: 230 (at 150 km/h) Rear side: 730 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	8 x 7/16 DIN Female
Connector position	Bottom



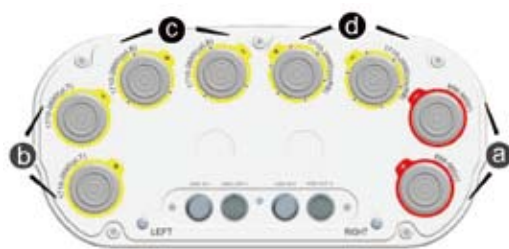
Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	4 x 8 pin connector according to IEC 60130-9 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 in/out	DC return	n/c
Lightning protection (kA)	3 (10/350 μ s)							
	10 (8/20 μ s)							

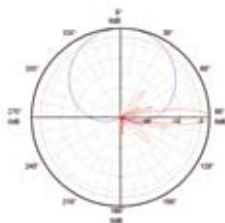
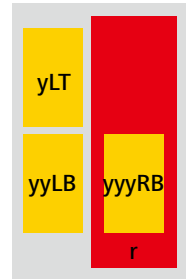
* Please confirm the AISG protocol of primary station is compatible with RET antenna protocol interface. The protocol of RET antenna software interface is switchable between AISG 2.0/3GPP and AISG 1.1 with a vendor defined command. For more details about protocol switching function, contact Huawei before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

Standards: EN 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

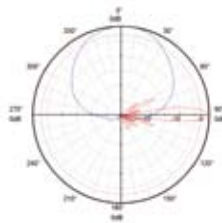
Certification: CE, FCC, RoHS, WEEE



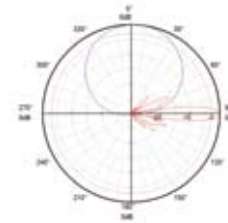
Integrated RCU S/N: **a** HWMxxx.....r r - Red
b HWMxxx.....yLT y - Yellow
c HWMxxx.....yyLB L - Left array
d HWMxxx.....yyRB R - Right array
 T - Top array
 B - Bottom array



698 - 960 MHz



1710 - 2690 MHz (Bottom)



1710 - 2690 MHz (Top)

NOTE

Before the installation, check whether the antenna and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.

Preliminary Issue

Antenna Specifications

Electrical Properties												
Frequency range (MHz)	2 x (1710 - 2170)									2 x (2490 - 2690)		
	1710 - 1880			1850 - 1990			1920 - 2170					
Polarization	+45°, -45°											
Electrical downtilt (°)	0 - 10, continuously adjustable									0 - 10, continuously adjustable		
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	17.3	17.2	17.1	17.5	17.3	17.2	17.8	17.6	17.5	18.0	17.8	17.3
Side lobe suppression (Typ.) (dB) -for first side lobe above main beam -within 0° - 15° sector above horizon	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	18	17	16	18	17	16	18	17	16	18	17	16
	16	16	15	16	16	15	16	16	15	15	16	15
Horizontal 3dB beam width (°)	66			64			62			60		
Vertical 3dB beam width (°)	6.0			5.6			5.2			4.2		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 28											
Cross polar ratio (dB)	0°											
	± 60°											
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											

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1500 x 299 x 109
Antenna net weight (kg)	30
Bracket weight (kg)	4.6
Mechanical downtilt (°)	0 - 16
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 540 (at 150 km/h) Lateral: 110 (at 150 km/h) Rear side: 620 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	8 x 7/16 DIN Female
Connector position	Bottom



Preliminary Issue

Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	4 x 8 pin connector according to IEC 60130-9 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 in/out	DC return	n/c
Lightning protection (kA)	AISG interface (each pin) 3 (10/350 μ s) 10 (8/20 μ 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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE

NOTE

Before the installation, check whether the antenna and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.

A - 05. Penta-band Antenna

Frequency Range (MHz)	Polarization	3dB Horizontal beam width (°)	Gain (dBi)	Electrical downtilt (°)	Tilt Method	Connector	Dimension (mm)	Model	Page
790-862/ 880-960/ 1710-2690/ 1710-2170/ 2490-2690	xxxxx	65/65/ 65/65/65	16.5/17/ 18/18/18	0-10/0-10/ 0-10/0-10/ 0-10	EasyRET	10 x 7/16 DIN-F	2528 x 349 x 166	**APE4518R1	170
698-960/ 1710-2690/ 1710-2690/ 1710-2690/ 1710-2690	xxxxx	65/65/ 65/65/65	17/18/18/ 17.5/17.5	0-10/0-10/ 0-10/0-10/ 0-10	EasyRET	10 x 7/16 DIN-F	2688 x 349 x 166	APE4517R0	172

** Preliminary Issue

A - 06. Hexa-band Antenna

Frequency Range (MHz)	Polarization	3dB Horizontal beam width (°)	Gain (dBi)	Electrical downtilt (°)	Tilt Method	Connector	Dimension (mm)	Model	Page
790-960/ 790-960/ 1710-2690/ 1710-2690/ 1710-2180/ 1710-2180	xxxxxxx	65/65/65/ 65/65/65	17.5/17/17.5/ 17.5/18/18	0-10/0-10/ 0-10/0-10/ 0-10/0-10	MET	12 x 7/16 DIN-F	2680 x 590 x 170	**ASI451800	174

** Preliminary Issue



Preliminary Issue

Antenna Specifications

Electrical Properties						
Frequency range (MHz)	790 - 862			880 - 960		
Polarization	+45° , -45°					
Electrical downtilt (°)	0 - 10 , continuously adjustable					
Gain (dBi)	0°	5°	10°	0°	5°	10°
	16.1	16.2	16.0	16.5	16.7	16.4
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°
	18	18	17	18	18	17
Horizontal 3dB beam width (°)	65			62		
Vertical 3dB beam width (°)	8.6			7.6		
VSWR	< 1.5					
Isolation between ports (dB)	≥ 28					
Front to back ratio, copolar (dB)	Typ. 28					
Cross polar ratio (dB)	0°	Typ. 18				
	± 60°	Typ. 10				
Max. power per input (W)	500 (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)	1710 - 2690										1710 - 2170						2490 - 2690				
	1710 - 1990	1920 - 2200	2200 - 2490	2490 - 2690	1710 - 1990	1920 - 2170															
Polarization	+45° , -45°																				
Electrical downtilt (°)	0 - 10 , continuously adjustable																				
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	17.5	17.3	17.0	17.8	17.8	17.3	18.0	18.0	17.6	18.0	18.2	17.7	17.0	17.2	17.0	17.4	17.7	17.0	17.7	17.7	17.2
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
	16	16	17	17	17	17	17	18	18	17	18	18	15	17	16	15	17	17	17	17	15
Horizontal 3dB beam width (°)	65			62			60			60			65			62			60		
Vertical 3dB beam width (°)	5.8			5.4			4.8			4.3			5.8			5.4			4.3		
VSWR	< 1.5																				
Isolation between ports (dB)	Intra-system: ≥ 28																				
	Inter-system: ≥ 30																				
Front to back ratio, copolar (dB)	Typ. 28																				
Cross polar ratio (dB)	0°	Typ. 18																			
	± 60°	Typ. 10																			
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 : 1000 W (at 50°C ambient temperature)

Preliminary Issue

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2528 x 349 x 166
Antenna net weight (kg)	40.8
Bracket weight (kg)	3.9
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 920 (at 150 km/h) Lateral: 305 (at 150 km/h) Rear side: 955 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	10 x 7/16 DIN Female
Connector position	Bottom

Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	4 x 8 pin connector according to IEC 60130-9 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 in/out	DC return	n/c
Lightning protection (kA)	3 (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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE

Antenna Specifications

Electrical Properties																									
Frequency range (MHz)		698 - 960										4 x (1710 - 2690)													
		698 - 820		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													
Gain (dBi)		0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
		16.0	16.2	16.0	16.3	16.5	16.1	16.5	16.7	16.5	16.7	17.0	16.6												
	Bottom														17.0	17.1	16.9	17.2	17.3	17.0	17.0	17.1	17.0	17.3	17.6
	Top													16.7	16.8	16.6	17.0	17.1	16.7	16.9	16.8	16.6	16.8	17.3	17.1
Side lobe suppression for first side lobe above main beam (Typ.) (dB)		0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°
		18	17	16	18	18	17	18	17	17	18	16	16	17	17	16	17	17	16	18	17	15	16	16	15
Horizontal 3dB beam width (°)		67		66		65		62		63			62			61			60						
Vertical 3dB beam width (°)		8.8		8.5		8.0		7.4		7.4			6.8			6.0			5.5						
VSWR		< 1.5																							
Isolation between ports (dB)		Intra-system: ≥ 28 Inter-system: ≥ 30																							
Front to back ratio, copolar (dB)		Typ. 27										Typ. 28													
Cross polar ratio (dB) 0°		Typ. 20										Typ. 17													
Max. power per input (W)		500 (at 50°C ambient temperature)										250 (at 50°C ambient temperature)													
Total power per combined input (W)		1200 (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)	2688 x 349 x 166
Antenna weight (kg)	36.5
Mast diameter supported (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 990 (at 150 km/h) Lateral: 325 (at 150 km/h) Rear side: 1030 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	10 x 7/16 DIN Female
Connector position	Bottom



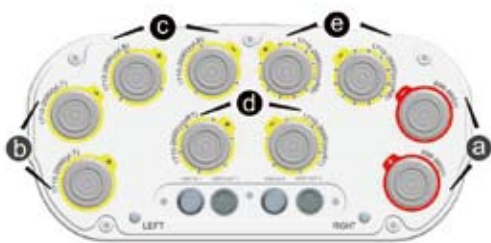
Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	4 x 8 pin connector according to IEC 60130-9 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 in/out	DC return	n/c
Lightning protection (kA)	3 (10/350 μ s) 10 (8/20 μ 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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

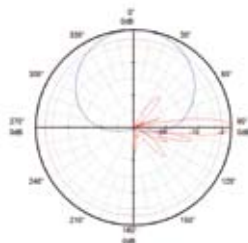
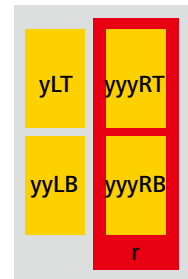
Certification: CE, FCC, RoHS, WEEE



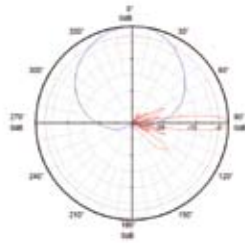
Integrated RCU S/N:

- a** HWMxxx.....r
- b** HWMxxx.....yLT
- c** HWMxxx.....yyLB
- d** HWMxxx.....yyyRT
- e** HWMxxx.....yyyyRB

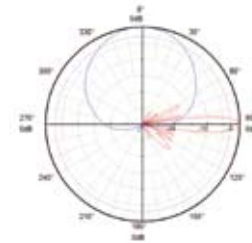
- r - Red
- y - Yellow
- L - Left array
- R - Right array
- T - Top array
- B - Bottom array



698 - 960 MHz



1710 - 2690 MHz (Bottom)



1710 - 2690 MHz (Top)

NOTE

Before the installation, check whether the antenna and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.

Preliminary Issue

Electrical Properties										
Frequency range (MHz)	2 x (790 - 960)									
	790 - 862			824 - 894			880 - 960			
Polarization	+45°, -45°									
Electrical downtilt (°)	0 - 10, continuously adjustable									
Gain (dBi)	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	16.5	16.8	16.6	16.8	17.0	16.7	17.1	17.3	17.0	
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	
	18	17	16	18	17	16	18	17	16	
Horizontal 3dB beam width (°)	65			64			62			
Vertical 3dB beam width (°)	8.5			8.1			7.5			
VSWR	< 1.5									
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30									
Front to back ratio, copolar (dB)	Typ. 28									
Cross polar ratio (dB)	0°	Typ. 20								
	± 60°	Typ. 10								
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 (1710 - 2180)									2 x (1710 - 2690)													
	1710 - 1880			1850 - 1990			1920 - 2180			1710 - 1990			1920 - 2200			2200 - 2490			2490 - 2690				
Polarization	+45°, -45°																						
Electrical downtilt (°)	0 - 10, continuously adjustable									0 - 10, continuously adjustable													
Gain (dBi)		0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	
											17.5	17.3	17.0	17.8	17.8	17.3	18.0	18.0	17.6	18.0	18.2	17.7	
	Bottom	17.0	17.1	16.6	17.6	17.6	16.8	17.4	17.6	17.0													
Top	16.8	17.1	16.7	17.1	17.3	16.8	16.9	17.3	16.9														
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°	0°	5°	10°		
	18	17	16	16	15	15	16	15	15	16	17	17	17	17	17	17	18	17	16	16	15		
Horizontal 3dB beam width (°)	63			62			60			65			62			60			60				
Vertical 3dB beam width (°)	Bot:7.5 Top:7.0			Bot:7.0 Top:6.5			Bot:6.6 Top:6.1			5.8			5.4			4.8			4.3				
VSWR	< 1.5																						
Isolation between ports (dB)	Intra-system: ≥ 28 Inter-system: ≥ 30																						
Front to back ratio, copolar (dB)	Typ. 28									Typ. 28													
Cross polar ratio (dB)	0°	Typ.20									Typ. 18												
	± 60°	Typ.10									Typ. 10												
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)																						
Impedance (Ω)	50																						
Grounding	DC Ground																						

Preliminary Issue

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	2680 x 590 x 170
Antenna net weight (kg)	57
Bracket weight (kg)	8
Mechanical downtilt (°)	0 - 8
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	- 55 ... +65
Wind load (N)	Frontal: 1650 (at 150 km/h) Lateral: 500 (at 150 km/h) Rear side: 1700 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	12 x 7/16 DIN Female
Connector position	Bottom

A - 07. TDD Antenna

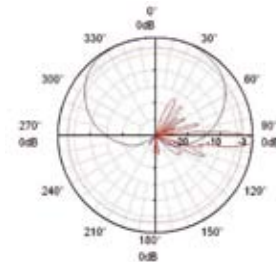
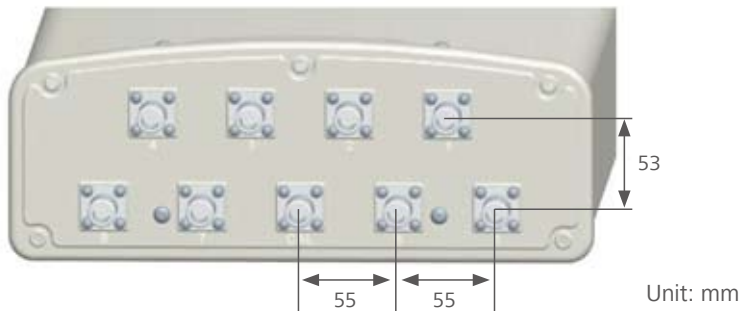
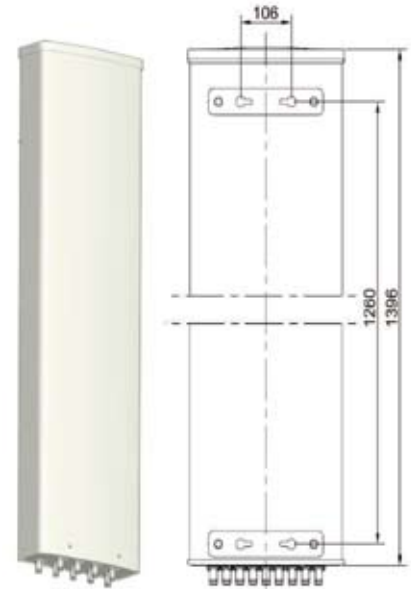
Frequency Range (MHz)	Polarization	3dB Horizontal beam width (°)	Gain (dBi)	Electrical downtilt (°)	Tilt Method	Connector	Dimension (mm)	Model	Page
1880-1920/ 2010-2025/ 2500-2690	x	100/90/65	14/15/16.5	3	FET	9 x N Female	1396 x 319 x 116	ATD451601	178
1880-1920/ 2010-2025/ 2500-2690	x	100/90/65	14/15/16.5	6	FET	9 x N Female	1396 x 319 x 116	ATD451602	180
1880-1920/ 2010-2025/ 2500-2690	x	100/90/65	14/15/16.5	9	FET	9 x N Female	1396 x 319 x 116	ATD451603	182
1880-2025/ 2500-2690	xx	90/65	14.5/16	3	FET +Combiner	4 x Cluster Male	1396 x 319 x 116	ATD4516C1	184
1880-2025/ 2500-2690	xx	90/65	14.5/16	6	FET +Combiner	4 x Cluster Male	1396 x 319 x 116	ATD4516C2	186
1880-2025/ 2500-2690	xx	90/65	14.5/16	9	FET +Combiner	4 x Cluster Male	1396 x 319 x 116	ATD4516C3	188
1880-2025/ 2555-2635	xx	90/65	14.5/15.8	2-12	MET	4 x Cluster Male	1396 x 319 x 116	ATD451604	190
1880-2025/ 2555-2635	xx	90/65	14.5/15.8	2-12	EasyRET	4 x Cluster Male	1396 x 319 x 116	ATD4516R0	192
2300-2700	x	60	18	2-10	MET	2 x N Female	1060 x 155 x 79	A25451804	195
2300-2700/ 2300-2700	xx	65/65	18/18	2-10	MET	4 x N Female	1060 x 289 x 85	A25451803	196

Electrical Properties

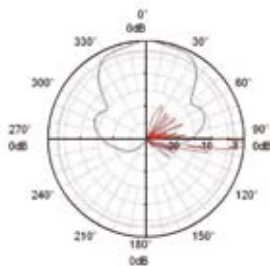
		1880 - 1920 (F)	2010 - 2025 (A)	2500 - 2690 (D)	
General parameters	Frequency range (MHz)	1880 - 1920 (F)	2010 - 2025 (A)	2500 - 2690 (D)	
	Polarization	+45° , -45°			
	Electrical downtilt (°)	3			
	Electrical downtilt tolerance (°)	± 1			
	Grounding	DC Ground			
Calibration and electrical parameters	Coupling factor between calibration port and each other port (dB)	-26 ± 2			
	Max. amplitude tolerance from calibration port to other ports (dB)	< 0.7			
	Max. phase tolerance from calibration port to other ports (°)	< 5			
	Ports VSWR	< 1.5			
	Avg. power capacity each port (W)	25			
	Co-polarization isolation between ports (dB)	≥ 25			
	Cross-polarization isolation between ports (dB)	≥ 28			
Radiation parameters	Single column beam	Horizontal 3dB beam width (°)	100 ± 15	90 ± 15	65 ± 15
		Gain (dBi)	≥ 14.0	≥ 15.0	≥ 16.5
		Vertical 3dB beam width (°)	/	/	≥ 5
		Cross polar ratio (0°) (dB)	≥ 20		
		Cross polar ratio (± 60°) (dB)	≥ 10		
		Front to back ratio (dB)	≥ 25	≥ 25	≥ 27
		Vertical side lobe suppression above main beam (dB)	/	/	≤ -16
	Broadcast beam	Horizontal 3dB beam width (°)	65 ± 5		
		Gain (dBi)	≥ 14	≥ 15	≥ 16
		Gain roll-off at sector edge (dB)	12 ± 2		
		Vertical 3dB beam width (°)	≥ 7.0	≥ 6.5	≥ 5.0
		Cross polar ratio (0°) (dB)	≥ 22		
		Cross polar ratio (± 60°) (dB)	≥ 10		
		Front to back ratio (dB)	≥ 28		
	Vertical side lobe suppression above main beam (dB)	≤ -16			
	Service beam	0° direction beam gain (dBi)	≥ 20	≥ 21	≥ 22
		0° direction beam horizontal 3dB beam width (°)	≤ 27	≤ 26	≤ 20
		0° direction beam horizontal side lobe suppression (dB)	≤ -12		
		± 60° direction beam gain (dBi)	≥ 18	≥ 18	≥ 19.5
		± 60° direction beam horizontal 3dB beam width (°)	≤ 32	≤ 32	≤ 23
		± 60° direction beam horizontal side lobe suppression (dB)	≤ -5	≤ -5	≤ 0
0° direction beam cross polar ratio (0°) (dB)		≥ 22			
0° direction beam front to back ratio (dB)	≥ 30				

Mechanical Properties

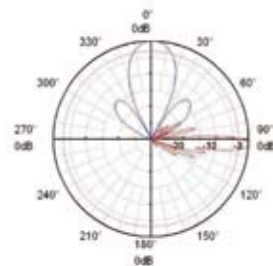
Distance between columns (mm)	75
Antenna dimensions (H x W x D) (mm)	1396 x 319 x 116
Antenna net weight (kg)	13.1
Bracket weight (kg)	3.2
Mechanical downtilt (°)	-5 .. 10
Mast diameter (mm)	50 - 115
Radome material	UPVC
Radome colour	Light grey
Operational temperature (°C)	-45.. +65
Wind load (N)	Frontal: 620 (at 150 km/h) Lateral: 160 (at 150 km/h) Rear side: 680 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	9 x N Female
Connector position	Bottom



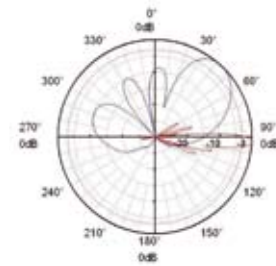
Single column



65° Broadcast



Service 0°



Service 60°

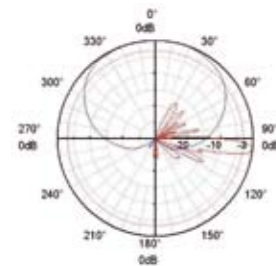
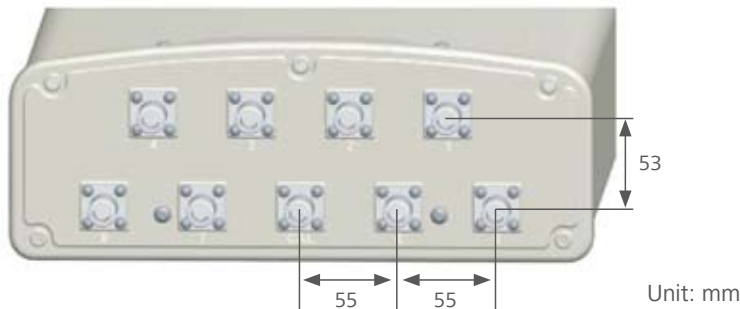
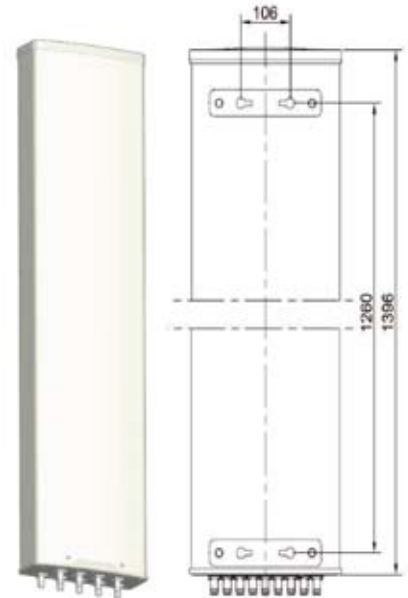
A - 07

Electrical Properties

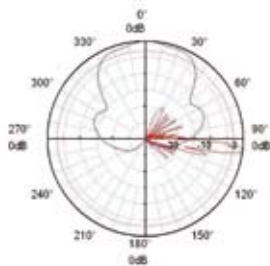
		1880 - 1920 (F)	2010 - 2025 (A)	2500 - 2690 (D)	
General parameters	Frequency range (MHz)	1880 - 1920 (F)	2010 - 2025 (A)	2500 - 2690 (D)	
	Polarization	+45° , -45°			
	Electrical downtilt (°)	6			
	Electrical downtilt tolerance (°)	± 1			
	Grounding	DC Ground			
Calibration and electrical parameters	Coupling factor between calibration port and each other port (dB)	-26 ± 2			
	Max. amplitude tolerance from calibration port to other ports (dB)	< 0.7			
	Max. phase tolerance from calibration port to other ports (°)	< 5			
	Ports VSWR	< 1.5			
	Avg. power capacity each port (W)	25			
	Co-polarization isolation between ports (dB)	≥ 28			
	Cross-polarization isolation between ports (dB)	≥ 30			
Radiation parameters	Single column beam	Horizontal 3dB beam width (°)	100 ± 15	90 ± 15	65 ± 15
		Gain (dBi)	≥ 14.0	≥ 15.0	≥ 16.5
		Vertical 3dB beam width (°)	/	/	≥ 5
		Cross polar ratio (0°) (dB)	≥ 20		
		Cross polar ratio (± 60°) (dB)	≥ 10		
		Front to back ratio (dB)	≥ 25	≥ 25	≥ 27
		Vertical side lobe suppression above main beam (dB)	/	/	≤ -16
	65° Broadcast beam	Horizontal 3dB beam width (°)	65 ± 5		
		Gain (dBi)	≥ 14	≥ 15	≥ 16
		Gain roll-off at sector edge (dB)	12 ± 2		
		Vertical 3dB beam width (°)	≥ 7.0	≥ 6.5	≥ 5.0
		Cross polar ratio (0°) (dB)	≥ 22		
		Cross polar ratio (± 60°) (dB)	≥ 10		
		Front to back ratio (dB)	≥ 28		
	Vertical side lobe suppression above main beam (dB)	≤ -16			
	Service beam	0° direction beam gain (dBi)	≥ 20	≥ 21	≥ 22
		0° direction beam horizontal 3dB beam width (°)	≤ 27	≤ 26	≤ 20
		0° direction beam horizontal side lobe suppression (dB)	≤ -12		
		± 60° direction beam gain (dBi)	≥ 18	≥ 18	≥ 19.5
		± 60° direction beam horizontal 3dB beam width (°)	≤ 32	≤ 32	≤ 23
		± 60° direction beam horizontal side lobe suppression (dB)	≤ -5	≤ -5	≤ 0
0° direction beam cross polar ratio (0°) (dB)		≥ 22			
0° direction beam front to back ratio (dB)		≥ 30			

Mechanical Properties

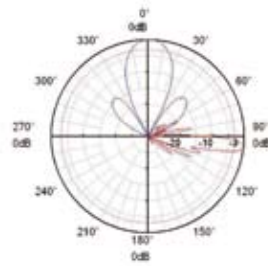
Distance between columns (mm)	75
Antenna dimensions (H x W x D) (mm)	1396 x 319 x 116
Antenna net weight (kg)	13.1
Bracket weight (kg)	3.2
Mechanical downtilt (°)	-5 .. 10
Mast diameter (mm)	50 - 115
Radome material	UPVC
Radome colour	Light grey
Operational temperature (°C)	-45.. +65
Wind load (N)	Frontal: 620 (at 150 km/h) Lateral: 160 (at 150 km/h) Rear side: 680 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	9 x N Female
Connector position	Bottom



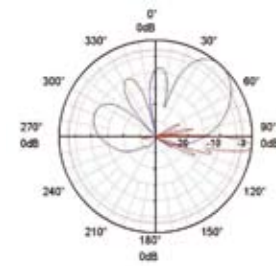
Single column



65° Broadcast



Service 0°



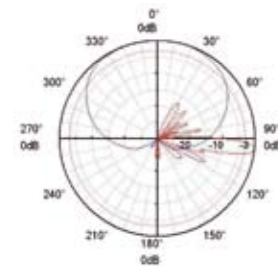
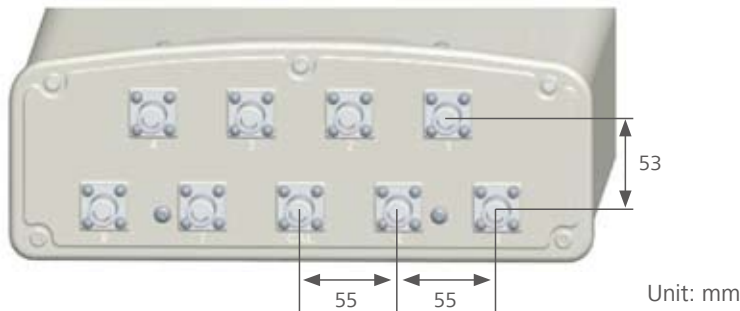
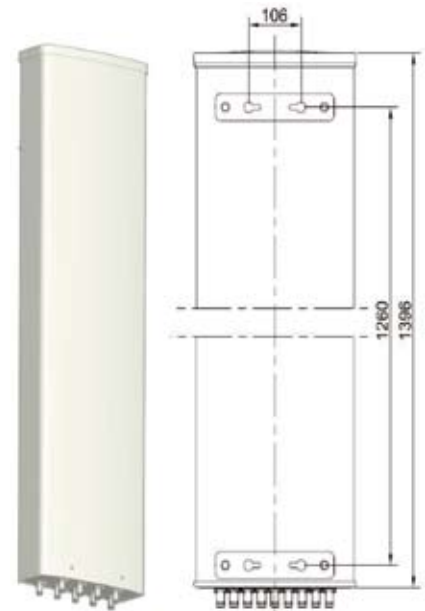
Service 60°

A - 07

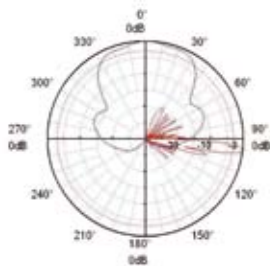
Electrical Properties						
General parameters	Frequency range (MHz)		1880 - 1920 (F)	2010 - 2025 (A)	2500 - 2690 (D)	
	Polarization		+45° , -45°			
	Electrical downtilt (°)		9			
	Electrical downtilt tolerance (°)		± 1			
	Grounding		DC Ground			
Calibration and electrical parameters	Coupling factor between calibration port and each other port (dB)		-26 ± 2			
	Max. amplitude tolerance from calibration port to other ports (dB)		< 0.7			
	Max. phase tolerance from calibration port to other ports (°)		< 5			
	Ports VSWR		< 1.5			
	Avg. power capacity each port (W)		25			
	Co-polarization isolation between ports (dB)		≥ 28			
	Cross-polarization isolation between ports (dB)		≥ 30			
Radiation parameters	Single column beam	Horizontal 3dB beam width (°)		100 ± 15	90 ± 15	65 ± 15
		Gain (dBi)		≥ 14.0	≥ 15.0	≥ 16.5
		Vertical 3dB beam width (°)		/	/	≥ 5
		Cross polar ratio (0°) (dB)		≥ 20		
		Cross polar ratio (± 60°) (dB)		≥ 10		
		Front to back ratio (dB)		≥ 25	≥ 25	≥ 27
		Vertical side lobe suppression above main beam (dB)		/	/	≤ -16
	65° Broadcast beam	Horizontal 3dB beam width (°)		65 ± 5		
		Gain (dBi)		≥ 14	≥ 15	≥ 16
		Gain roll-off at sector edge (dB)		12 ± 2		
		Vertical 3dB beam width (°)		≥ 7.0	≥ 6.5	≥ 5.0
		Cross polar ratio (0°) (dB)		≥ 22		
		Cross polar ratio (± 60°) (dB)		≥ 10		
		Front to back ratio (dB)		≥ 28		
	Vertical side lobe suppression above main beam (dB)		≤ -16			
	Service beam	0° direction beam gain (dBi)		≥ 20	≥ 21	≥ 22
		0° direction beam horizontal 3dB beam width (°)		≤ 27	≤ 26	≤ 20
		0° direction beam horizontal side lobe suppression (dB)		≤ -12		
		± 60° direction beam gain (dBi)		≥ 18	≥ 18	≥ 19.5
		± 60° direction beam horizontal 3dB beam width (°)		≤ 32	≤ 32	≤ 23
		± 60° direction beam horizontal side lobe suppression (dB)		≤ -5	≤ -5	≤ 0
		0° direction beam cross polar ratio (0°) (dB)		≥ 22		
		0° direction beam front to back ratio (dB)		≥ 30		

Mechanical Properties

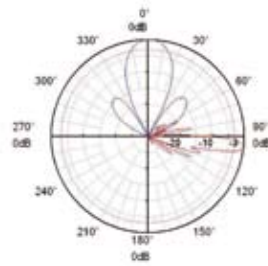
Distance between columns (mm)	75
Antenna dimensions (H x W x D) (mm)	1396 x 319 x 116
Antenna net weight (kg)	13.1
Bracket weight (kg)	3.2
Mechanical downtilt (°)	-5 .. 10
Mast diameter (mm)	50 - 115
Radome material	UPVC
Radome colour	Light grey
Operational temperature (°C)	-45.. +65
Wind load (N)	Frontal: 620 (at 150 km/h) Lateral: 160 (at 150 km/h) Rear side: 680 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	9 x N Female
Connector position	Bottom



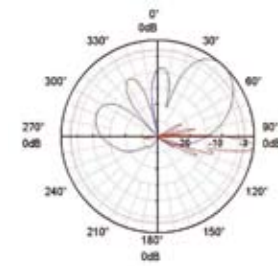
Single column



65° Broadcast



Service 0°



Service 60°

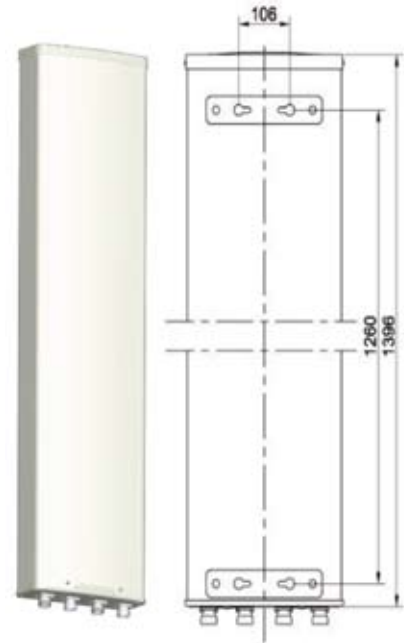
A - 07



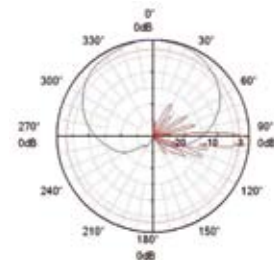
Electrical Properties					
General parameters	Frequency range (MHz)	1880 - 1920 (F)	2010 - 2025 (A)	2500 - 2690 (D)	
	Polarization	+45° , -45°			
	Electrical downtilt (°)	3			
	Electrical downtilt tolerance (°)	± 1			
	Grounding	DC Ground			
Calibration and electrical parameters	Coupling factor between calibration port and each other port (dB)	-26 ± 2			
	Max. amplitude tolerance from calibration port to other ports (dB)	< 0.7			
	Max. phase tolerance from calibration port to other ports (°)	< 5			
	Ports VSWR	< 1.5			
	Avg. power capacity each port (W)	25			
	Co-polarization isolation between ports (dB)	≥ 25			
	Cross-polarization isolation between ports (dB)	≥ 28			
	Integrated combiner isolation between FAVD bands (dB)	≥ 30			
Radiation parameters	Single column beam	Horizontal 3dB beam width (°)	100 ± 15	90 ± 15	65 ± 15
		Gain (dBi)	≥ 13.5	≥ 14.5	≥ 16.0
		Vertical 3dB beam width (°)	/	/	≥ 5
		Cross polar ratio (0°) (dB)	≥ 20		
		Cross polar ratio (± 60°) (dB)	≥ 10		
		Front to back ratio (dB)	≥ 25	≥ 25	≥ 27
		Vertical side lobe suppression above main beam (dB)	/	/	≤ -16
	65° Broadcast beam	Horizontal 3dB beam width (°)	65 ± 5		
		Gain (dBi)	≥ 13.5	≥ 14.5	≥ 15.5
		Gain roll-off at sector edge (dB)	12 ± 2		
		Vertical 3dB beam width (°)	≥ 7.0	≥ 6.5	≥ 5.0
		Cross polar ratio (0°) (dB)	≥ 22		
		Cross polar ratio (± 60°) (dB)	≥ 10		
		Front to back ratio (dB)	≥ 28		
		Vertical side lobe suppression above main beam (dB)	≤ -16		
	Service beam	0° direction beam gain (dBi)	≥ 19.5	≥ 20.5	≥ 21.5
		0° direction beam horizontal 3dB beam width (°)	≤ 27	≤ 26	≤ 20
		0° direction beam horizontal side lobe suppression (dB)	≤ -12		
		± 60° direction beam gain (dBi)	≥ 18	≥ 18	≥ 19.5
		± 60° direction beam horizontal 3dB beam width (°)	≤ 32	≤ 32	≤ 23
		± 60° direction beam horizontal side lobe suppression (dB)	≤ -5	≤ -5	≤ 0
		0° direction beam cross polar ratio (0°) (dB)	≥ 22		
		0° direction beam front to back ratio (dB)	≥ 30		

Mechanical Properties

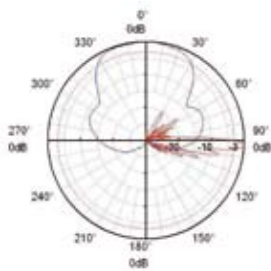
Distance between columns (mm)	75
Antenna dimensions (H x W x D) (mm)	1396 x 319 x 116
Antenna net weight (kg)	13.7
Bracket weight (kg)	3.2
Mechanical downtilt (°)	-5 .. 10
Mast diameter (mm)	50 - 115
Radome material	UPVC
Radome colour	Light grey
Operational temperature (°C)	-45.. +65
Wind load (N)	Frontal: 620 (at 150 km/h) Lateral: 160 (at 150 km/h) Rear side: 680 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x Cluster Male
Connector position	Bottom



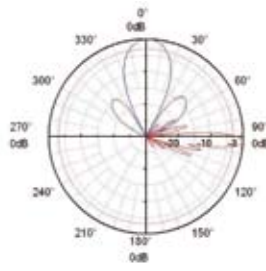
Unit: mm



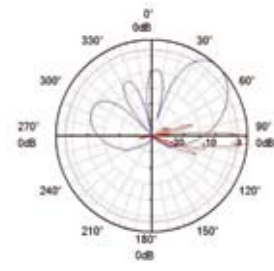
Single column



65° Broadcast



Service 0°



Service 60°

A - 07

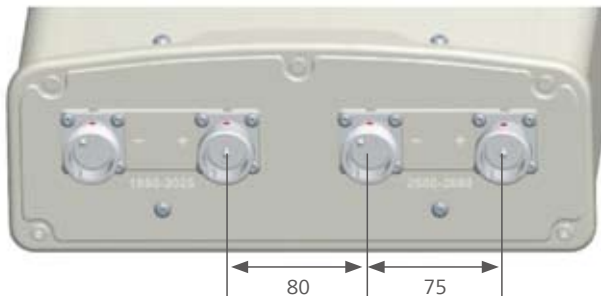
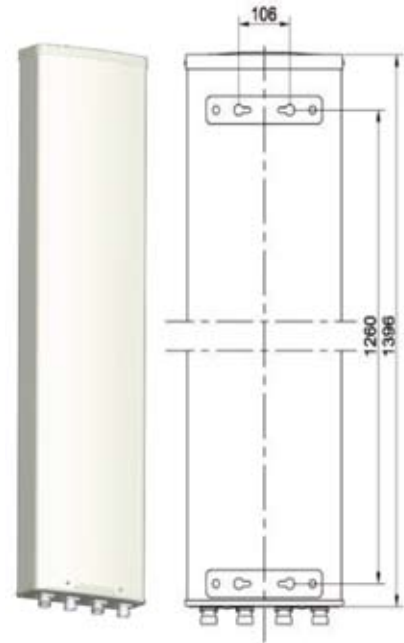


Electrical Properties

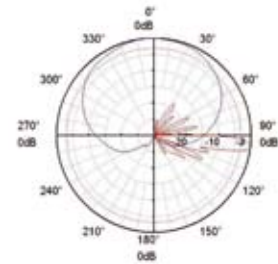
		1880 - 1920 (F)	2010 - 2025 (A)	2500 - 2690 (D)	
General parameters	Frequency range (MHz)	1880 - 1920 (F)	2010 - 2025 (A)	2500 - 2690 (D)	
	Polarization	+45° , -45°			
	Electrical downtilt (°)	6			
	Electrical downtilt tolerance (°)	± 1			
	Grounding	DC Ground			
Calibration and electrical parameters	Coupling factor between calibration port and each other port (dB)	-26 ± 2			
	Max. amplitude tolerance from calibration port to other ports (dB)	< 0.7			
	Max. phase tolerance from calibration port to other ports (°)	< 5			
	Ports VSWR	< 1.5			
	Avg. power capacity each port (W)	25			
	Co-polarization isolation between ports (dB)	≥ 25			
	Cross-polarization isolation between ports (dB)	≥ 28			
	Integrated combiner isolation between FAVD bands (dB)	≥ 30			
Radiation parameters	Single column beam	Horizontal 3dB beam width (°)	100 ± 15	90 ± 15	65 ± 15
		Gain (dBi)	≥ 13.5	≥ 14.5	≥ 16.0
		Vertical 3dB beam width (°)	/	/	≥ 5
		Cross polar ratio (0°) (dB)	≥ 20		
		Cross polar ratio (± 60°) (dB)	≥ 10		
		Front to back ratio (dB)	≥ 25	≥ 25	≥ 27
		Vertical side lobe suppression above main beam (dB)	/	/	≤ -16
	65° Broadcast beam	Horizontal 3dB beam width (°)	65 ± 5		
		Gain (dBi)	≥ 13.5	≥ 14.5	≥ 15.5
		Gain roll-off at sector edge (dB)	12 ± 2		
		Vertical 3dB beam width (°)	≥ 7.0	≥ 6.5	≥ 5.0
		Cross polar ratio (0°) (dB)	≥ 22		
		Cross polar ratio (± 60°) (dB)	≥ 10		
		Front to back ratio (dB)	≥ 28		
		Vertical side lobe suppression above main beam (dB)	≤ -16		
	Service beam	0° direction beam gain (dBi)	≥ 19.5	≥ 20.5	≥ 21.5
		0° direction beam horizontal 3dB beam width (°)	≤ 27	≤ 26	≤ 20
		0° direction beam horizontal side lobe suppression (dB)	≤ -12		
		± 60° direction beam gain (dBi)	≥ 18	≥ 18	≥ 19.5
		± 60° direction beam horizontal 3dB beam width (°)	≤ 32	≤ 32	≤ 23
		± 60° direction beam horizontal side lobe suppression (dB)	≤ -5	≤ -5	≤ 0
		0° direction beam cross polar ratio (0°) (dB)	≥ 22		
		0° direction beam front to back ratio (dB)	≥ 30		

Mechanical Properties

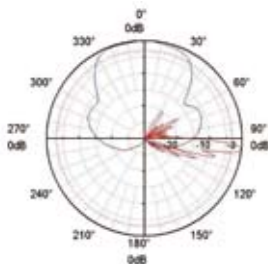
Distance between columns (mm)	75
Antenna dimensions (H x W x D) (mm)	1396 x 319 x 116
Antenna net weight (kg)	13.7
Bracket weight (kg)	3.2
Mechanical downtilt (°)	-5 .. 10
Mast diameter (mm)	50 - 115
Radome material	UPVC
Radome colour	Light grey
Operational temperature (°C)	-45.. +65
Wind load (N)	Frontal: 620 (at 150 km/h) Lateral: 160 (at 150 km/h) Rear side: 680 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x Cluster Male
Connector position	Bottom



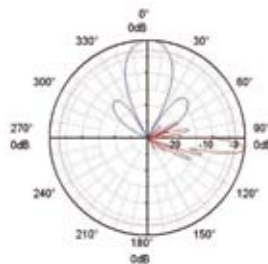
Unit: mm



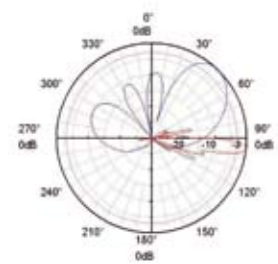
Single column



65° Broadcast



Service 0°



Service 60°

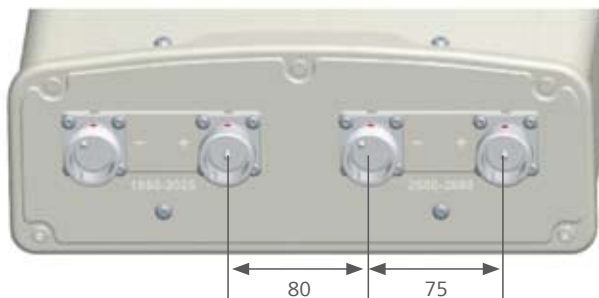
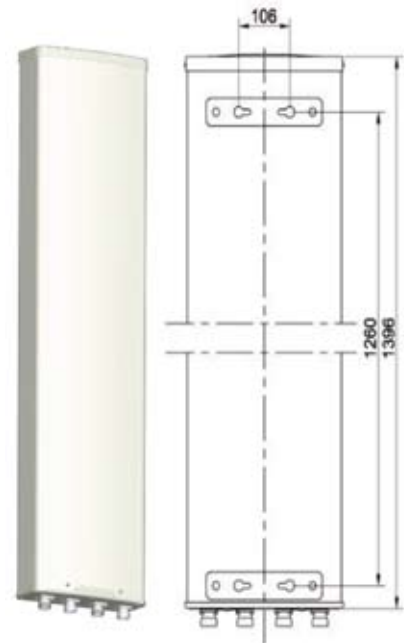
A - 07



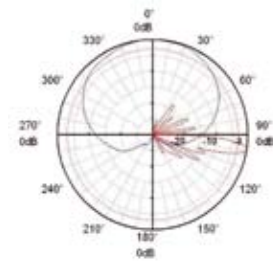
Electrical Properties					
General parameters	Frequency range (MHz)	1880 - 1920 (F)	2010 - 2025 (A)	2500 - 2690 (D)	
	Polarization	+45° , -45°			
	Electrical downtilt (°)	9			
	Electrical downtilt tolerance (°)	± 1			
	Grounding	DC Ground			
Calibration and electrical parameters	Coupling factor between calibration port and each other port (dB)	-26 ± 2			
	Max. amplitude tolerance from calibration port to other ports (dB)	< 0.7			
	Max. phase tolerance from calibration port to other ports (°)	< 5			
	Ports VSWR	< 1.5			
	Avg. power capacity each port (W)	25			
	Co-polarization isolation between ports (dB)	≥ 25			
	Cross-polarization isolation between ports (dB)	≥ 28			
	Integrated combiner isolation between FAVD bands (dB)	≥ 30			
Radiation parameters	Single column beam	Horizontal 3dB beam width (°)	100 ± 15	90 ± 15	65 ± 15
		Gain (dBi)	≥ 13.5	≥ 14.5	≥ 16.0
		Vertical 3dB beam width (°)	/	/	≥ 5
		Cross polar ratio (0°) (dB)	≥ 20		
		Cross polar ratio (± 60°) (dB)	≥ 10		
		Front to back ratio (dB)	≥ 25	≥ 25	≥ 27
		Vertical side lobe suppression above main beam (dB)	/	/	≤ -16
	65° Broadcast beam	Horizontal 3dB beam width (°)	65 ± 5		
		Gain (dBi)	≥ 13.5	≥ 14.5	≥ 15.5
		Gain roll-off at sector edge (dB)	12 ± 2		
		Vertical 3dB beam width (°)	≥ 7.0	≥ 6.5	≥ 5.0
		Cross polar ratio (0°) (dB)	≥ 22		
		Cross polar ratio (± 60°) (dB)	≥ 10		
		Front to back ratio (dB)	≥ 28		
		Vertical side lobe suppression above main beam (dB)	≤ -16		
	Service beam	0° direction beam gain (dBi)	≥ 19.5	≥ 20.5	≥ 21.5
		0° direction beam horizontal 3dB beam width (°)	≤ 27	≤ 26	≤ 20
		0° direction beam horizontal side lobe suppression (dB)	≤ -12		
		± 60° direction beam gain (dBi)	≥ 18	≥ 18	≥ 19.5
		± 60° direction beam horizontal 3dB beam width (°)	≤ 32	≤ 32	≤ 23
		± 60° direction beam horizontal side lobe suppression (dB)	≤ -5	≤ -5	≤ 0
		0° direction beam cross polar ratio (0°) (dB)	≥ 22		
		0° direction beam front to back ratio (dB)	≥ 30		

Mechanical Properties

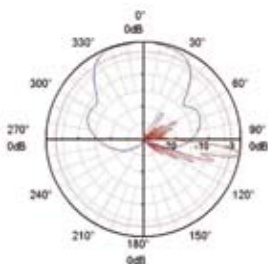
Distance between columns (mm)	75
Antenna dimensions (H x W x D) (mm)	1396 x 319 x 116
Antenna net weight (kg)	13.7
Bracket weight (kg)	3.2
Mechanical downtilt (°)	-5 .. 10
Mast diameter (mm)	50 - 115
Radome material	UPVC
Radome colour	Light grey
Operational temperature (°C)	-45.. +65
Wind load (N)	Frontal: 620 (at 150 km/h) Lateral: 160 (at 150 km/h) Rear side: 680 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x Cluster Male
Connector position	Bottom



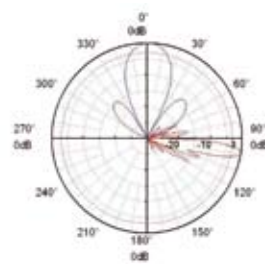
Unit: mm



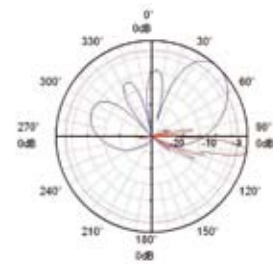
Single column



65° Broadcast



Service 0°



Service 60°

A - 07

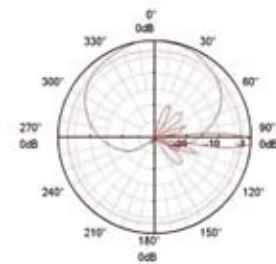
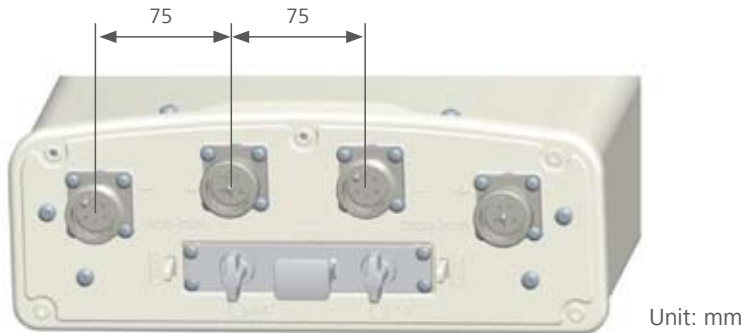
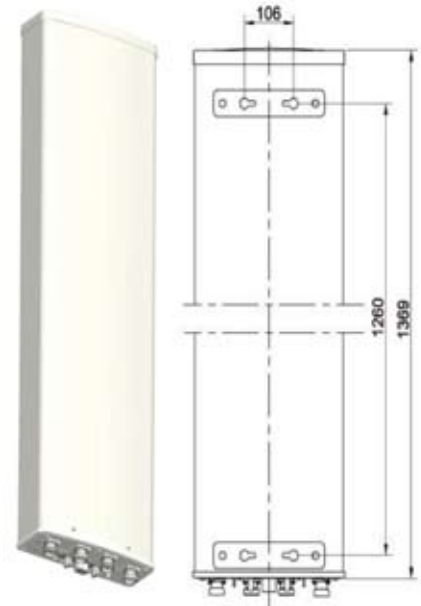


Electrical Properties

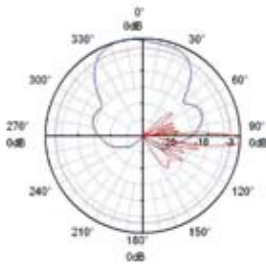
		1880 - 1920 (F)	2010 - 2025 (A)	2555 - 2635 (D)	
General parameters	Frequency range (MHz)	1880 - 1920 (F)	2010 - 2025 (A)	2555 - 2635 (D)	
	Polarization	+45° , -45°			
	Electrical downtilt (°)	2 - 12, continuously adjustable			
	Electrical downtilt tolerance (°)	± 1			
Calibration and electrical parameters	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			
	Avg. power capacity (W)	≥ 25			
	Co-polarization isolation between ports (dB)	≥ 20 @ 2° Electrical downtilt; ≥ 25 @ 3° - 6° Electrical downtilt; ≥ 28 @ 7° - 12° Electrical downtilt			
	Cross-polarization isolation between ports (dB)	≥ 25 @ 2° Electrical downtilt; ≥ 28 @ 3° - 6° Electrical downtilt; ≥ 30 @ 7° - 12° Electrical downtilt			
Integrated combiner isolation between F/A/D bands (dB)		≥ 30			
Radiation parameters	Single column beam	Horizontal 3dB beam width (°)	100 ± 15	90 ± 15	65 ± 15
		Gain (dBi)	≥ 14.0	≥ 14.5	≥ 15.8
		Vertical 3dB beam width (°)	/	/	≥ 5
		Cross polar ratio (0°) (dB)	≥ 18		
		Cross polar ratio (± 60°) (dB)	≥ 10 @ 2° - 7° Electrical downtilt; ≥ 8 @ 8° - 12° Electrical downtilt		
		Front to back ratio (dB)	≥ 25		
		Vertical side lobe suppression above main beam (dB)	/	/	≤ -15
	65° Broadcast beam	Horizontal 3dB beam width (°)	65 ± 5		
		Gain (dBi)	≥ 14.0	≥ 14.5	≥ 15.3
		Gain roll-off at sector edge (dB)	12 ± 2		
		Vertical 3dB beam width (°)	≥ 7.0	≥ 6.5	≥ 5.0
		Cross polar ratio (0°) (dB)	≥ 22		
		Cross polar ratio (± 60°) (dB)	≥ 10 @ 2° - 7° Electrical downtilt; ≥ 8 @ 8° - 12° Electrical downtilt		
		Front to back ratio (dB)	≥ 28		
	Vertical side lobe suppression above main beam (dB)	≤ -15			
	Service beam	0° direction beam gain (dBi)	≥ 20.0	≥ 20.5	≥ 21.2
		0° direction beam horizontal 3dB beam width (°)	≤ 27	≤ 26	≤ 20
		0° direction beam horizontal side lobe suppression (dB)	≤ -12		
		± 60° direction beam gain (dBi)	≥ 17.5	≥ 17.5	≥ 18
		± 60° direction beam horizontal 3dB beam width (°)	≤ 32	≤ 32	≤ 23
		± 60° direction beam horizontal side lobe suppression (dB)	≤ -5	≤ -5	≤ 0
0° direction beam cross polar ratio (0°) (dB)		≥ 22			
0° direction beam front to back ratio (dB)	≥ 30				

Mechanical Properties

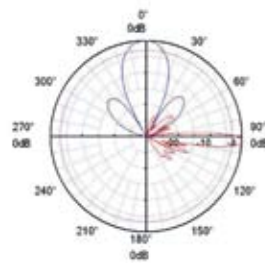
Distance between columns (mm)	75
Antenna dimensions (H x W x D) (mm)	1396 x 319 x 116
Antenna net weight (kg)	19.0
Bracket weight (kg)	4.6
Mechanical downtilt (°)	0 - 16
Mast diameter (mm)	50 - 115
Radome material	UPVC
Radome colour	Light grey
Operational temperature (°C)	-40.. +65
Wind load (N)	Frontal: 620 (at 150 km/h) Lateral: 160 (at 150 km/h) Rear side: 680 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x Cluster Male
Connector position	Bottom



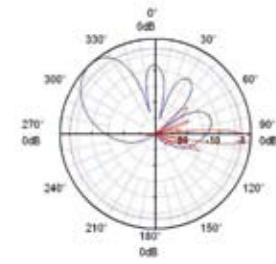
Single column



65° Broadcast



Service 0°



Service 60°

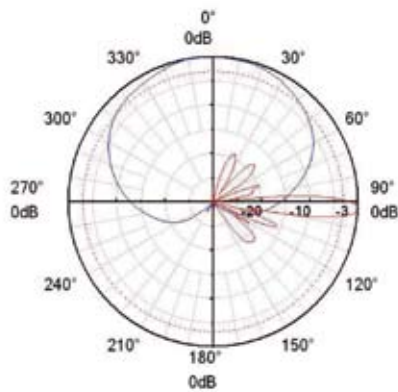
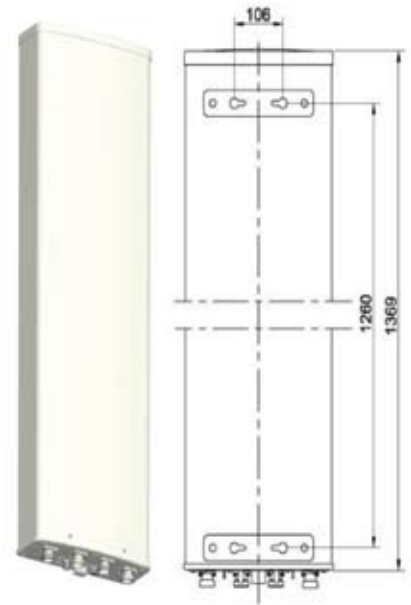
A - 07

Antenna Specifications

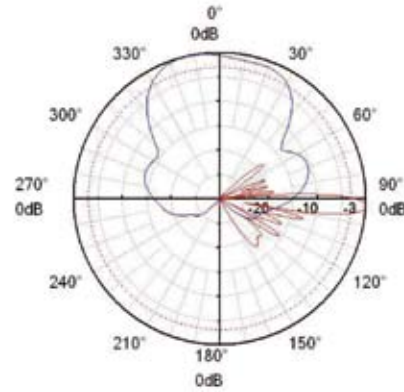
Electrical Properties					
General parameters	Frequency range (MHz)	1880 - 1920 (F)	2010 - 2025 (A)	2555 - 2635 (D)	
	Polarization	+45° , -45°			
	Electrical downtilt (°)	2 - 12, continuously adjustable			
	Electrical downtilt tolerance (°)	± 1			
Calibration and electrical parameters	Coupling factor 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			
	Avg. power capacity (W)	≥ 25			
	Co-polarization isolation between ports (dB)	≥ 20 @ 2° Electrical downtilt ; ≥ 25 @ 3° - 6° Electrical downtilt; ≥ 28 @ 7° - 12° Electrical downtilt			
	Cross-polarization isolation between ports (dB)	≥ 25 @ 2° Electrical downtilt; ≥ 28 @ 3° - 6° Electrical downtilt; ≥ 30 @ 7° - 12° Electrical downtilt			
Integrated combiner isolation between FA/D bands (dB)	≥ 30				
Radiation parameters	Single column beam	Horizontal 3dB beam width (°)	100 ± 15	90 ± 15	65 ± 15
		Gain (dBi)	≥ 14.0	≥ 14.5	≥ 15.8
		Vertical 3dB beam width (°)	/	/	≥ 5
		Cross polar ratio (0°) (dB)	≥ 18		
		Cross polar ratio (± 60°) (dB)	≥ 10 @ 2° - 7° Electrical downtilt; ≥ 8 @ 8° - 12° Electrical downtilt		
		Front to back ratio (dB)	≥ 25		
		Vertical side lobe suppression above main beam (dB)	/	/	≤ -15
	65° Broadcast beam	Horizontal 3dB beam width (°)	65 ± 5		
		Gain (dBi)	≥ 14.0	≥ 14.5	≥ 15.3
		Gain roll-off at sector edge (dB)	12 ± 2		
		Vertical 3dB beam width (°)	≥ 7.0	≥ 6.5	≥ 5.0
		Cross polar ratio (0°) (dB)	≥ 22		
		Cross polar ratio (± 60°) (dB)	≥ 10 @ 2° - 7° Electrical downtilt; ≥ 8 @ 8° - 12° Electrical downtilt		
		Front to back ratio (dB)	≥ 28		
	Vertical side lobe suppression above main beam (dB)	≤ -15			
	Service beam	0° direction beam gain (dBi)	≥ 20.0	≥ 20.5	≥ 21.2
		0° direction beam horizontal 3dB beam width (°)	≤ 27	≤ 26	≤ 20
		0° direction beam horizontal side lobe suppression (dB)	≤ -12		
		± 60° direction beam gain (dBi)	≥ 17.5	≥ 17.5	≥ 18
		± 60° direction beam horizontal 3dB beam width (°)	≤ 32	≤ 32	≤ 23
		± 60° direction beam horizontal side lobe suppression (dB)	≤ -5	≤ -5	≤ 0
		0° direction beam cross polar ratio (0°) (dB)	≥ 22		
	0° direction beam front to back ratio (dB)	≥ 30			

Mechanical Properties

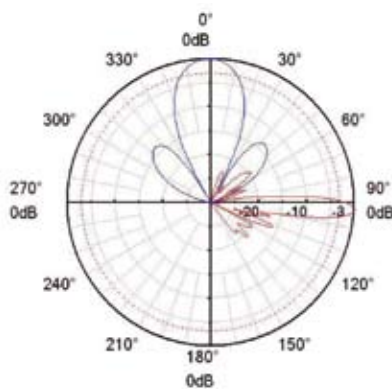
Distance between columns (mm)	75
Antenna dimensions (H x W x D) (mm)	1396 x 319 x 116
Antenna net weight (kg)	20.0
Bracket weight (kg)	4.6
Mechanical downtilt (°)	0 - 16
Mast diameter (mm)	50 - 115
Radome material	UPVC
Radome colour	Light grey
Operational temperature (°C)	-40.. +65
Wind load (N)	Frontal: 620 (at 150 km/h) Lateral: 160 (at 150 km/h) Rear side: 680 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x Cluster Male
Connector position	Bottom



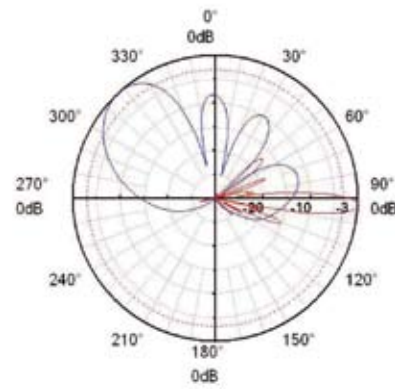
Single column



65° Broadcast



Service 0°



Service 60°

AIMM Specifications

RET Properties								
RET Type	Integrated RET							
RET Protocols	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 2 (stand by)							
Adjustment time (full range) (s)	Typ. < 55							
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 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)	3 (10/350 μ s) 10 (8/20 μ s)							

RAE Properties	
RAE type	Integrated RAE, manages antenna information
RAE protocols	AISG-ES-RAE V2.1.0

Standards: EN 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE



RET SN: **a** HWMxxx.....b
b HWMxxx.....y
 RAE SN: **a** HWXxxx.....b
b HWXxxx.....y
 r - Red y - Yellow

NOTE

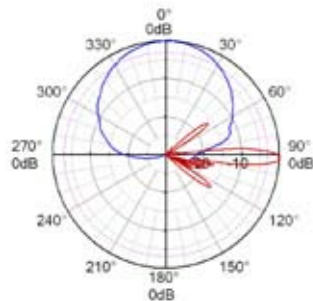
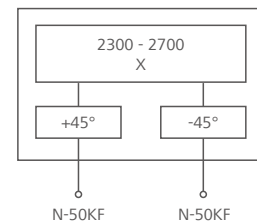
Before the installation, check whether the antenna and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.

Electrical Properties

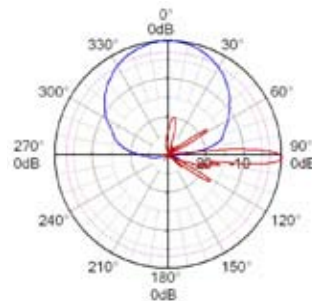
Frequency range (MHz)	2300 - 2500			2500 - 2700			
Polarization	+45°, -45°						
VSWR	≤1.45						
Gain	(°)	2	6	10	2	6	10
	(dBi)	17.0	17.3	17.0	17.3	17.6	17.1
Side lobe suppression for first side lobe above horizon	(°)	2	6	10	2	6	10
	(dB)Typ.	18	17	16	18	17	16
Horizontal 3dB beam width (°)	64			60			
Vertical 3dB beam width (°)	7.0			6.5			
Isolation between ports (dB)	≥30						
Front to back ratio, copolar (dB)	Typ. 30						
Cross polar ratio (dB)	15						
Electrical downtilt (°)	2 - 10						
Max. CW input power (W)	250						
Impedance (Ω)	50						
Grounding	DC Ground						

Mechanical Properties

Dimensions (H x W x D) (mm)	1060 x 155 x 79
Net weight (kg)	6
Bracket weight (kg)	2.7
Mechanical downtilt (°)	0 - 16
Mast diameter (mm)	50 - 115
Radomematerial	Fiberglass
Operating temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 120 (v=150 km/h) Lateral: 90 (v=150 km/h) Rear side: 180 (v=150 km/h)
Max. wind velocity (km/h)	200
Connector	2 x N-50KF



2300 - 2500 MHz



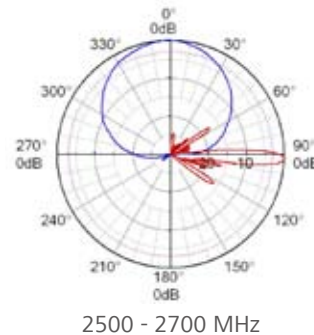
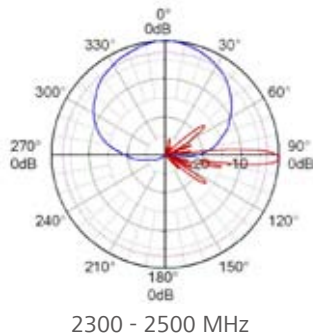
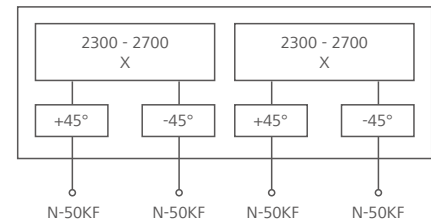
2500 - 2700 MHz

Electrical Properties

Frequency range (MHz)	2300 - 2500			2500 - 2700			
Polarization	+45°, -45°						
VSWR	≤1.45						
Gain	(°)	2	6	10	2	6	10
	(dBi)	17.0	17.3	17.0	17.3	17.6	17.1
Side lobe suppression for first side lobe above horizon	(°)	2	6	10	2	6	10
	(dB)Typ.	18	17	16	18	17	16
Horizontal 3dB beam width (°)	65			65			
Vertical 3dB beam width (°)	7.0			6.5			
Isolation between ports (dB)	≥30						
Front to back ratio, copolar (dB)	Typ. 28						
Cross polar ratio (dB)	15						
Electrical downtilt (°)	2 - 10						
Max. CW input power (W)	250						
Impedance (Ω)	50						
Grounding	DC Ground						

Mechanical Properties

Dimensions (H x W x D) (mm)	1060 x 289 x 85
Net weight (kg)	11
Bracket weight (kg)	4.5
Mechanical downtilt (°)	0 - 16
Mast diameter (mm)	50 - 115
Radomematerial	Fiberglass
Operating temperature (°C)	-55 .. +65
Wind load (N)	Frontal: 230 (v=150 km/h) Lateral: 100 (v=150 km/h) Rear side: 340 (v=150 km/h)
Max. wind velocity (km/h)	200
Connector	4 x N-50KF



A - 08. Dual-Beam Antenna

Frequency Range (MHz)	Polarization	3dB Horizontal beam width (°)	Gain (dBi)	Electrical downtilt (°)	Tilt Method	Connector	Dimension (mm)	Model	Page
1710-2690	x	33	20.5	2-12	EasyRET	4 x 7/16 DIN-F	1500 x 349 x 166	**AMB4520R0	198

** Preliminary Issue

A - 09. Cluster Antenna

Frequency Range (MHz)	Polarization	3dB Horizontal beam width (°)	Gain (dBi)	Electrical downtilt (°)	Tilt Method	Connector	Dimension (mm)	Model	Page
1710-2690	x	65	18	2-12	MET	3 x 2 x 7/16 DIN-F	1793 x Φ 230 & Φ 250	A264518S0	200

A - 10. Tri-sector Bracket

Bracket type	Antenna Width Required	Weight (Kg)	Model	Page
TSC-S (3 Sector Clamp-Small)	<280mm	5.8	ASMC00001	202
TSC-M (3 Sector Clamp-Medium)	<380mm	6.3	ASMC00002	
TSC-L (3 Sector Clamp-Large)	<400mm	6.6	ASMC00003	

Preliminary Issue

Antenna Specifications

Electrical Properties												
Frequency range (MHz)	1710 - 2690											
	1710 - 1880			1850 - 1990			1920 - 2170			2490 - 2690		
Polarization	+45°, -45°											
Electrical downtilt (°)	2 - 12, continuously adjustable											
Gain (dBi)	2°	7°	12°	2°	7°	12°	2°	7°	12°	2°	7°	12°
	19.5	19.7	19.6	19.7	20.0	19.6	19.9	20.2	20.1	20.4	20.6	20.4
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	2°	7°	12°	2°	7°	12°	2°	7°	12°	2°	7°	12°
	18	17	16	18	17	16	18	17	17	18	17	17
Horizontal 3dB beam width (°)	33			31			29			25		
Vertical 3dB beam width (°)	6.9			6.6			5.3			4.8		
VSWR	< 1.5											
Gain Roll-off at boresite (dB)	Avg. -10											
Horizontal Side lobe suppression (dB)	18											
Isolation between ports (dB)	≥ 28											
Front to back ratio, copolar (dB)	Typ. 30											
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											

Mechanical Properties	
Antenna dimensions (H x W x D) (mm)	1500 x 349 x 166
Antenna net weight (kg)	16
Bracket weight (kg)	4.6
Mechanical downtilt (°)	0 - 16
Mast diameter (mm)	50 - 115
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-40 .. +65
Wind load (N)	Frontal: 525 (at 150 km/h) Lateral: 170 (at 150 km/h) Rear side: 545 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	4 x 7/16 DIN Female
Connector position	Bottom

Preliminary Issue

Integrated RCU Specifications

Properties								
RET Type	Integrated RET							
RET Protocols*	AISG 2.0 / 3GPP							
Input voltage range (V)	10 - 30 DC							
Power consumption (W)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (s)	< 50 (typically, depending on antenna type)							
RET Connector	2 x 8 pin connector according to IEC 60130-9 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)	AISG interface 3 (10/350 μ s) 10 (8/20 μ 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 60950-1 (Safety), EN 55022 (Emission), EN 55024 (Immunity), ETSI EN300386 (1.4.1), FCC part15

Certification: CE, FCC, RoHS, WEEE

 **NOTE**

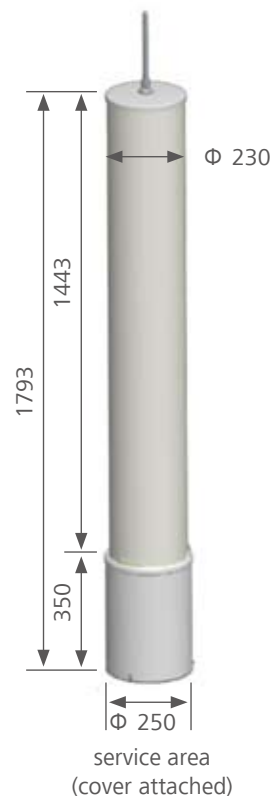
Before the installation, check whether the antenna and base station support the same AISG protocol. If not, contact the technical support personnel of Huawei.

Electrical Properties

Frequency range (MHz)	1710 - 2690											
	1710 - 1990			1920 - 2200			2200 - 2490			2490 - 2690		
Polarization	+45°, -45°											
Electrical downtilt (°)	2 - 12, continuously adjustable											
Gain (dBi)	2°	6°	12°	2°	6°	12°	2°	6°	12°	2°	6°	12°
	17.2	17.3	16.8	17.7	17.8	17.5	18.2	18.3	17.5	18.5	18.3	17.2
Side lobe suppression for first side lobe above main beam (Typ.) (dB)	2°	6°	12°	2°	6°	12°	2°	6°	12°	2°	6°	12°
	17	17	15	16	16	15	19	18	16	19	18	16
Horizontal 3dB beam width (°)	69			65			62			60		
Vertical 3dB beam width (°)	6.7			6.1			5.5			4.9		
VSWR	< 1.5											
Isolation between ports (dB)	≥ 30											
Front to back ratio, copolar (dB)	Typ. 30											
Cross polar ratio (dB)	0°											
	± 60°											
Max. power per input (W)	250 (at 50°C ambient temperature)											
Intermodulation IM3 (dBc)	≤ -153 (2 x 43 dBm carrier)											
Squint (°)	Typ. 3.0											
Tracking (dB)	Typ. 2.0 (within 10dB HBW)											
Impedance (Ω)	50											
Grounding	DC Ground											

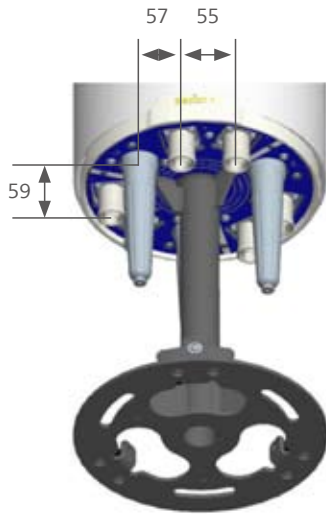
Mechanical Properties

Antenna dimensions (H x W x D) (mm)	1793 x Φ 230 and Φ 250
Antenna net weight (kg)	26.2
Radome material	Fiberglass
Radome colour	Light grey
Operational temperature (°C)	-55 .. +65
Wind load (N)	310 (at 150 km/h)
Max. operational wind speed (km/h)	150
Survival wind speed (km/h)	200
Connector	3 x 2 x 7/16 DIN Female
Connector position	Bottom - inside service area
Relative directions of internal antennas (sector axis)	0° , 120° , 240°
Mechanical interface	Flange connection 3 x M10 bolt at a graduated diameter of 257 mm

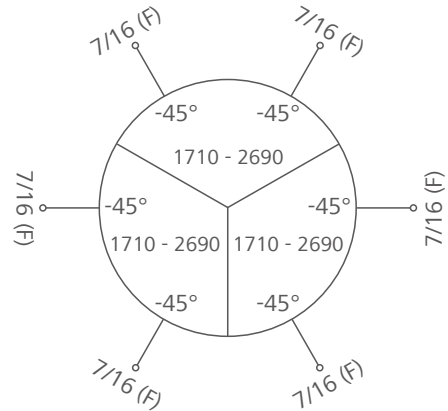


Accessories (only Huawei product applies, order separately if required)

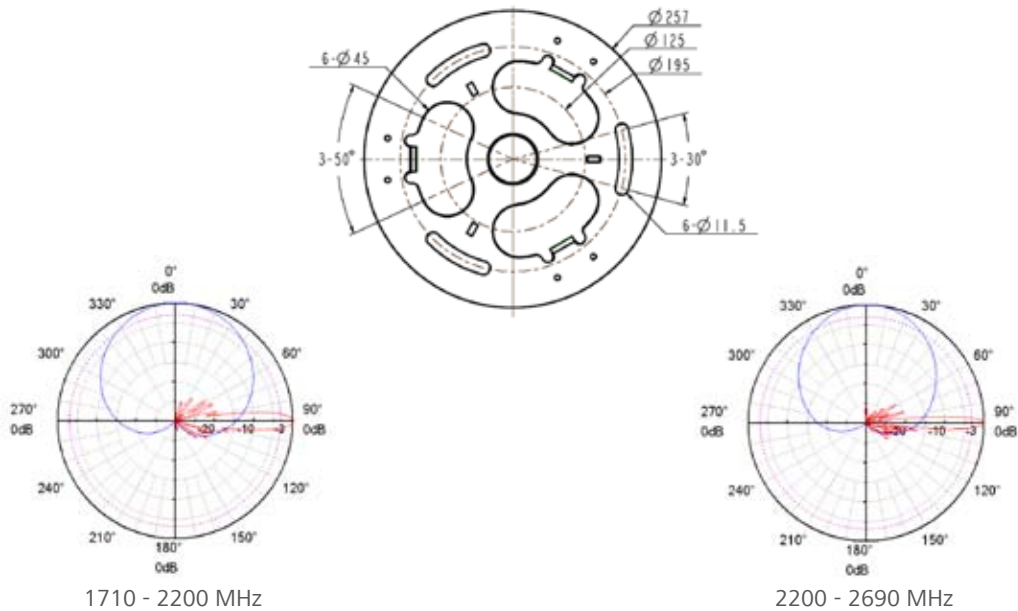
SBT	ASBT00001
RCU	ARCU01109 (AISG 1.1)
	ARCU02004 (AISG 2.0)



Unit: mm



Flange interface (thickness: 5 mm):



NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of an antenna. These facts must be considered during the site planning process.

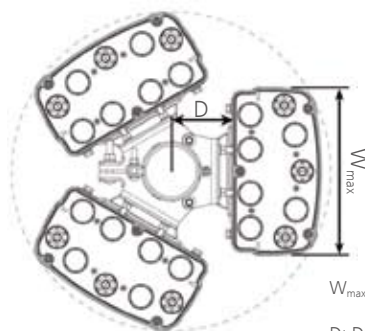
The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

3 Sector Clamp Kit Mounting Hardware

Model: ASMC00001 ASMC00002 ASMC00003

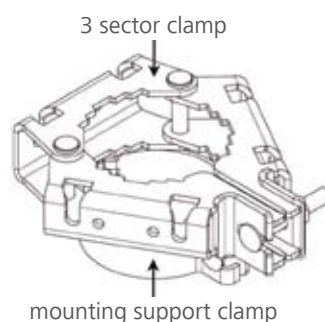
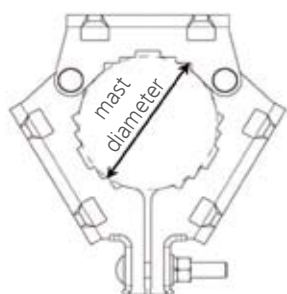


- Suitable for all antennas with an antenna housing width less than 400 mm.
- Adjustment is available together with standard bracket within antenna package.
- Support the third party customized camouflage cover.



W_{max} : Maximum width of antenna

D : Distance between mast center and back of antenna



Specifications

Model	ASMC00001	ASMC00002	ASMC00003
Angle between antennas (°)	120	120	120
Mast diameter (mm)	88.9	114.3	139.7
W_{max} (mm)	280	380	400
D (mm)	100	113	128
Number of pieces	2 x 3 sector clamp 2 x mounting support clamp 6 x connecting plate	2 x 3 sector clamp 2 x mounting support clamp 6 x connecting plate	2 x 3 sector clamp 2 x mounting support clamp 6 x connecting plate
Weight (approx.) (kg)	5.8	6.3	6.6
Max. operational wind speed (km/h)	150	150	150
Material	3 sector clamp	Hot-dip galvanized steel	Hot-dip galvanized steel
	Mounting support clamp		
	Connecting plate		
	Screws	Stainless steel	Stainless steel
	Nuts		

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

B - 01. TMA

Description	Frequency Range (MHz)	AISG type	Gain (dB)	Dimension (mm)	Model	Page
DD800M 8-16dB	RX : 832-862MHz TX : 791-821MHz	AISG 2.0	8-16 (0.5 dB Step)	190 x 240 x 120	ATA802000	204
E900M SUBBAND 8-16dB	RX : 880-905MHz TX : 925-950MHz	AISG 2.0	8-16 (0.5 dB Step)	198 x 308 x 70.5	ATA902002	207
E900M 8-16dB	RX : 880-915MHz TX : 925-960MHz	AISG 2.0	8-16 (0.5 dB Step)	248 x 324 x 75.5	ATA902001	210
P900M 12dB 8-16dB	RX: 890-915 MHz TX: 935-960 MHz	AISG 2.0	8-16 (0.5 dB Step)	198 x 308 x 70.5	ATA902003	213
1800M 12dB	RX: 1710-1785 MHz TX: 1805-1880 MHz	AISG 2.0	12	160 x 220 x 100	ATA182001	216
2100M 12dB	RX : 1920-1980MHz TX : 2110-2170MHz	AISG 2.0	12	160 x 205 x 54.5	ATA212001	219
2600M 12dB	RX : 2500-2570MHz TX : 2620-2690MHz	AISG 2.0	12	160 x 210 x 54.5	ATA262000	222
Dual Band 1800M & 2100M 12dB (2in2out)	RX: 1710-1785/1920-1980MHz TX: 1805-1880/2110-2170MHz	AISG 2.0	12	196 x 280 x 110	ATADU2002	225
Dual Band 1800M & 2100M 12dB (2in4out)	RX: 1710-1785/1920-1980MHz TX: 1805-1880/2110-2170MHz	AISG 2.0	12	196 x 280 x 110	ATADU2003	228
Dual Band DD800M & E900M 12dB (2in2out)	RX: 832-862/880-905MHz TX: 791-821/925-950MHz	AISG 2.0	12	247 x 342 x 132	ATADU2001	231
Dual Band DD800M & E900M 12dB (2in4out)	RX: 832-862/880-905MHz TX: 791-821/925-950MHz	AISG 2.0	12	247 x 342 x 132	ATADU2005	234

DD800M 8-16dB

Model: ATA802000



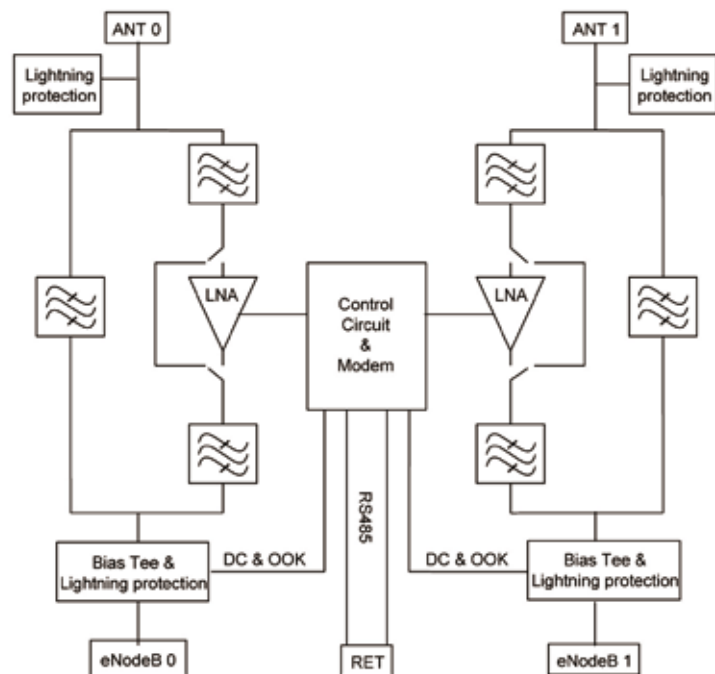
Product Description

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 sensibility of the BTS system. It enhances the uplink coverage and improves uplink and downlink imbalance of the base station. It effectively reduces the transmitting power of cellphones, improves voice and data communication quality.

Features

- High linearity and low noise performance.
- Balanced LNA design and power failure bypass for high reliability.
- Light weight and compact design.
- Variable gain: 8 - 16 dB, default gain: 12 dB.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.

Appearance and Block Diagram



DD800M 8-16dB

Model: ATA802000



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 < 2000 (+63 dBm) peak
Intermodulation products in Rx band (dBm)	≤ -117 (2 TX carriers at +43 dBm)

Rx Specifications

Frequency range (MHz)	832 - 862
Bandwidth (MHz)	30
Return loss(dB)	≥ 18 (DC ON) ≥ 13 (DC OFF)
Insertion loss in by-pass mode (dB)	≤ 3 (DC OFF)
Gain (dB)	8 - 16 (0.5 dB Step, Default gain: 12 dB)
Noise figure** (dB)	Avg. < 1.4 (12 dB Gain, +22 ... +28 °C)
Output 1dB compression (dBm)	≥ 8 (12 dB Gain)
OIP3 (dBm)	≥ 20 (12 dB Gain)

Electrical properties

	CWA Mode	AISG Mode
DC supply voltage (V)	8.5 - 15	9 - 30
Operating current per TMA (mA) (without RET)	40 - 110	40 - 370
Alarm management (mA)	150 - 210	AISG
Power consumption (W)	< 3.5	

Environmental Specifications

Operating temperature range (°C)	-40 .. +65
IP rating	IP67
MTBF (hours)	> 1,000,000
EMC	ETS 300 342-3
Lightning protection (kA)	10 (8/20 us)

Mechanical Specifications

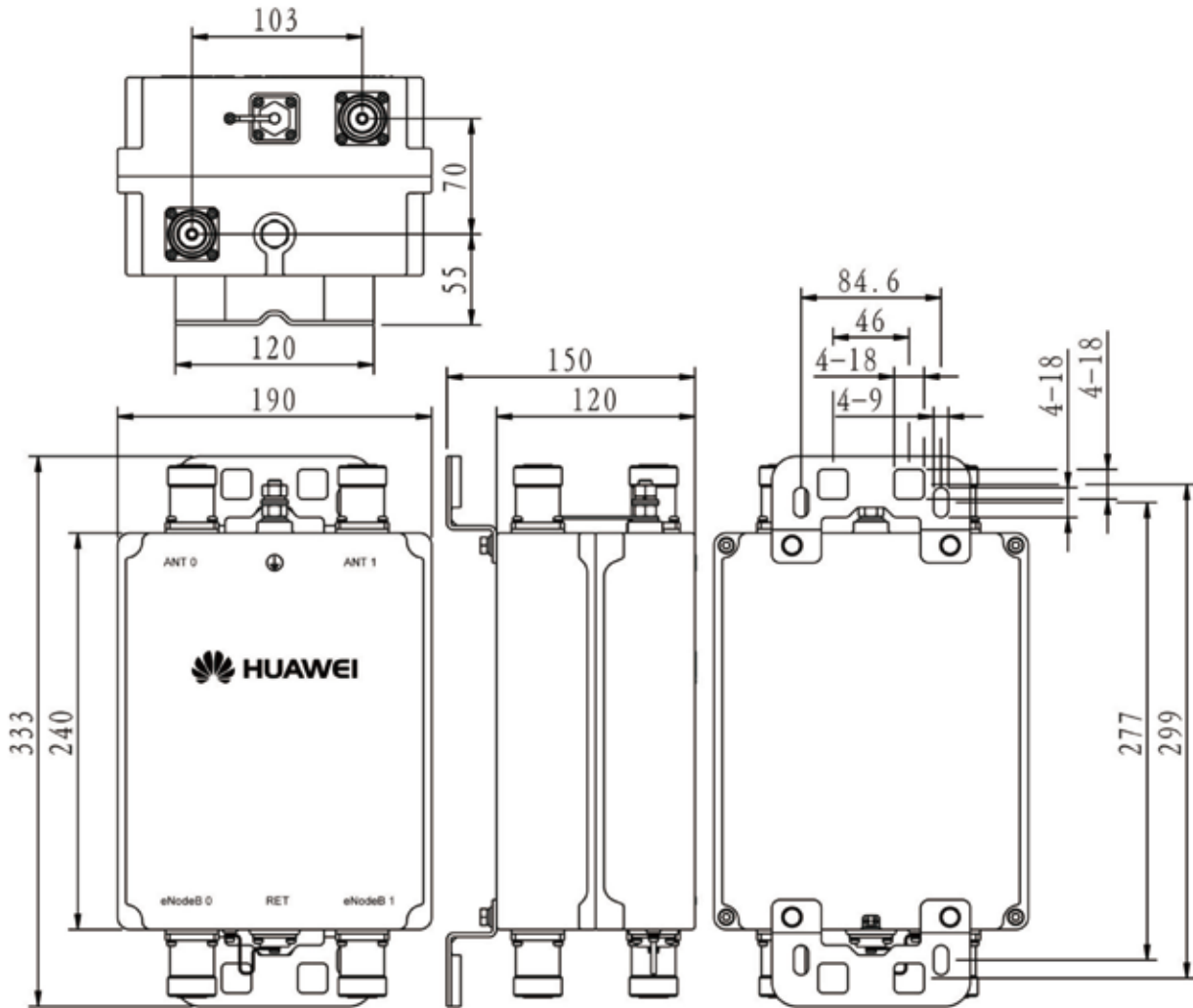
DTMA dimensions (W x H x D) (mm)	190 x 240 x 120 (without connectors, without brackets)
DTMA weight (kg)	≤ 6.1 (with brackets)
DTMA Volume (L)	Approx. 5.5
AISG connector	8-pin female, IEC 60130-9 (pin1 & pin6: 8.5V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected)
Mounting	Wall mounting: with 4 screws (max. 8 mm diameter) Mast mounting
Mast diameter (mm)	Default: 30 - 125 // Optional: 40 - 140
Connector	4 x 7/16 DIN Female (Long neck)

$$\text{*Insertion loss: } \overline{IL} = \frac{IL_{791\text{MHz}} + 2 \times IL_{806\text{MHz}} + IL_{821\text{MHz}}}{4}$$

$$\text{**Noise figure: } \overline{NF} = \frac{NF_{832\text{MHz}} + 2 \times NF_{847\text{MHz}} + NF_{862\text{MHz}}}{4}$$

DD800M 8-16dB

Model: ATA802000



Unit: mm

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

E900M SUBBAND 8-16dB

Model: ATA902002



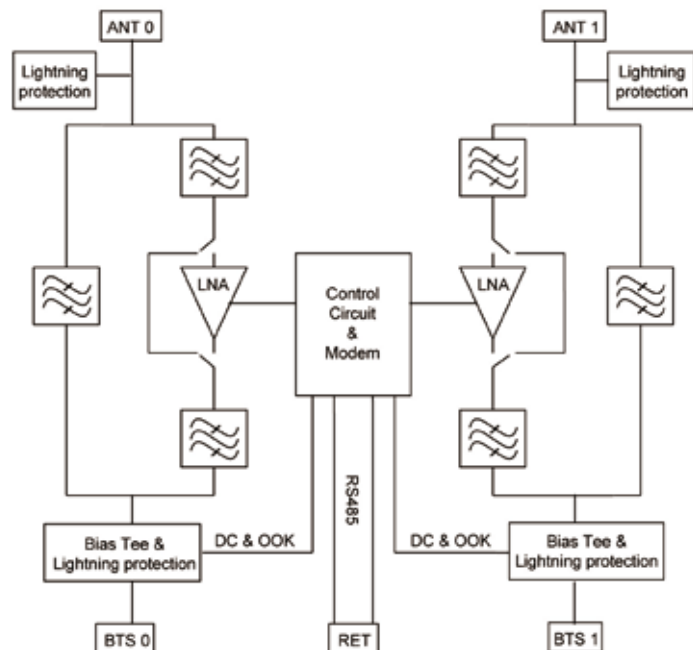
Product Description

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 sensibility of the BTS. It enhances the uplink coverage and improves uplink and downlink imbalance of the BTS. It effectively reduces the transmitting power of cellphones, improves voice and data communication quality.

Features

- High linearity and low noise performance.
- Balanced LNA design and power failure bypass for high reliability.
- Light weight and compact design.
- Variable gain: 8 - 16 dB, default gain: 12 dB.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.

Appearance and Block Diagram



E900M SUBBAND 8-16dB

Model: ATA902002



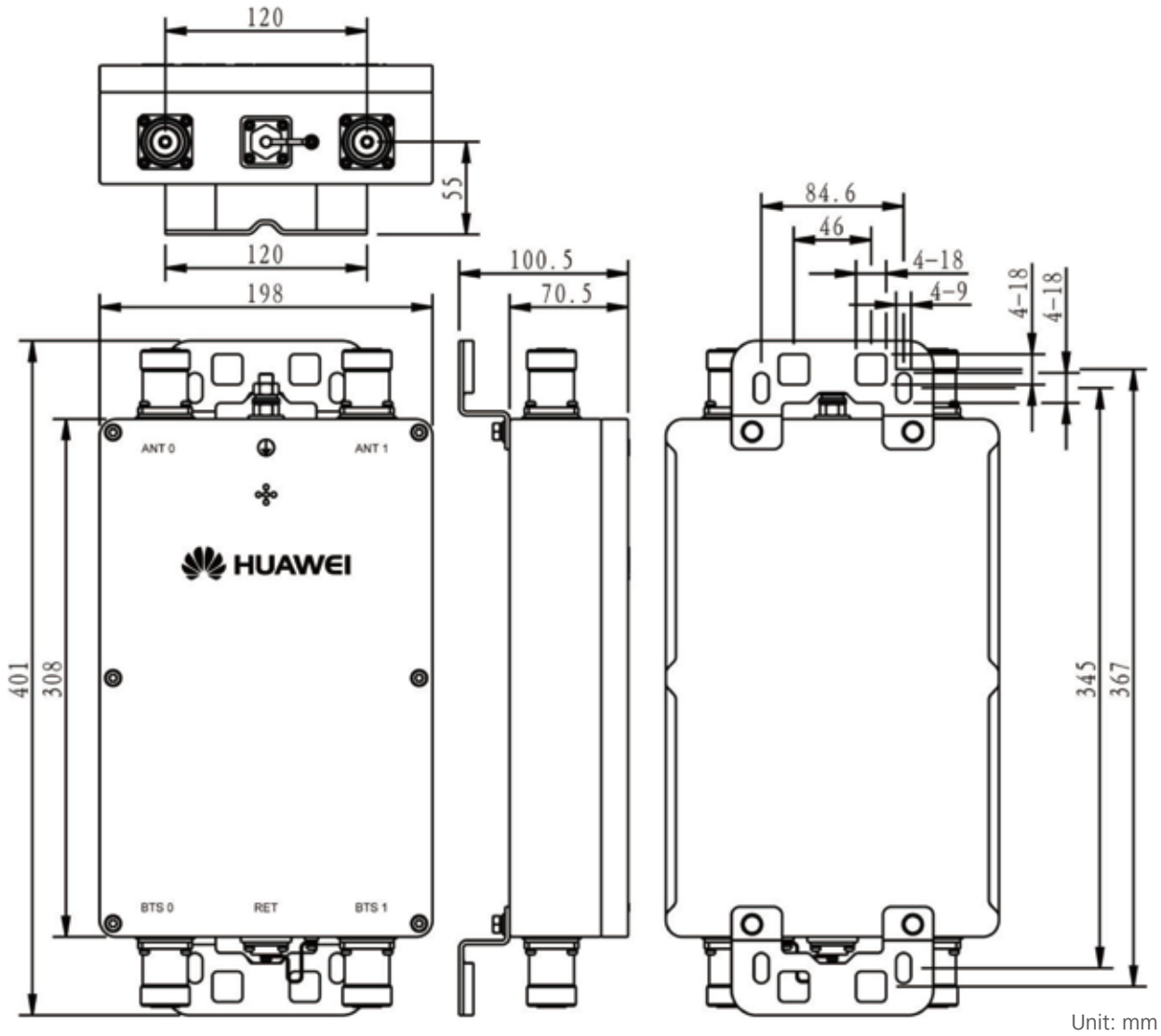
Tx Specifications		
Frequency range (MHz)	925 - 950	
Bandwidth (MHz)	25	
Insertion loss* (dB)	Avg. < 0.4	
Return loss (dB)	≥ 18	
Input power (W)	< 160 (+52 dBm) CW < 2000 (+63 dBm) peak	
Intermodulation products in Rx band (dBm)	≤ -117 (2 TX carriers at +43 dBm)	
Rx Specifications		
Frequency range (MHz)	880 - 905	
Bandwidth (MHz)	25	
Return loss(dB)	≥ 18 (DC ON) ≥ 13 (DC OFF)	
Insertion loss in by-pass mode (dB)	≤ 3.0 (DC OFF)	
Gain (dB)	8 - 16 (0.5 dB Step, Default gain: 12 dB)	
Noise figure** (dB)	Avg. < 1.4 (12 dB Gain, +22 ... +28 °C)	
Output 1dB compression (dBm)	≥ 8 (12 dB Gain)	
OIP3 (dBm)	≥ 20 (12 dB Gain)	
Electrical properties		
	CWA Mode	AISG Mode
DC supply voltage (V)	8.5 - 15	9 - 30
Operating current per TMA (mA) (without RET)	40 - 110	40 - 370
Alarm management (mA)	150 - 210	AISG
Power consumption (W)	< 3.5	
Environmental Specifications		
Operating temperature range (°C)	-40 .. +65	
IP rating	IP67	
MTBF (hours)	> 1,000,000	
EMC	ETS 300 342-3	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
DTMA dimensions (W x H x D) (mm)	198 x 308 x 70.5 (without connectors, without brackets)	
DTMA weight (kg)	≤ 5.5 (with brackets)	
DTMA Volume (L)	Approx. 4.3	
AISG connector	8-pin female, IEC 60130-9 (pin1 & pin6: 8.5V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected)	
Mounting	Wall mounting: with 4 screws (max. 8 mm diameter) Mast mounting	
Mast diameter (mm)	Default: 30 - 125 // Optional: 40 - 140	
Connector	4 x 7/16 DIN Female (Long neck)	

$$*Insertion loss: \bar{IL} = \frac{IL_{925MHz} + 2 \times IL_{937.5MHz} + IL_{950MHz}}{4}$$

$$**Noise figure: \bar{NF} = \frac{NF_{880MHz} + 2 \times NF_{892.5MHz} + NF_{905MHz}}{4}$$

E900M SUBBAND 8-16dB

Model: ATA902002



B-01

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

E900M 8-16dB

Model: ATA902001



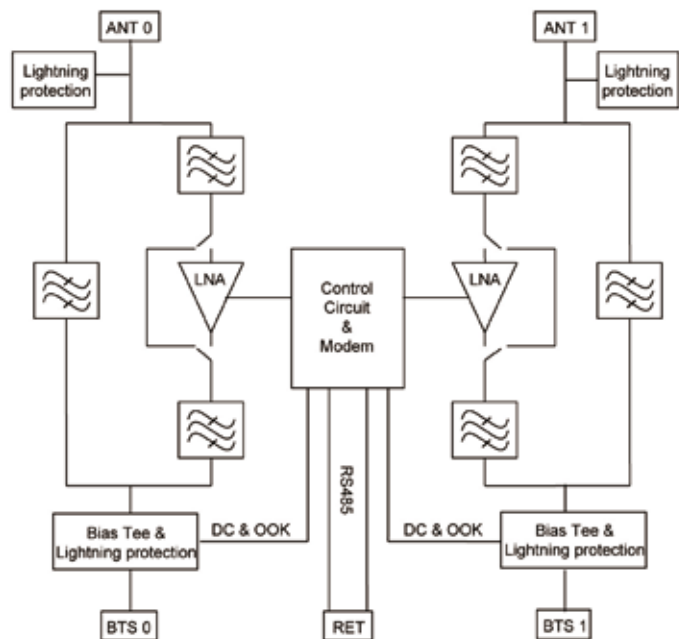
Product Description

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 sensibility of the BTS system. It enhances the uplink coverage and improves uplink and downlink imbalance of the base station. It effectively reduces the transmitting power of cellphones, improves voice and data communication quality.

Features

- High linearity and low noise performance.
- Balanced LNA design and power failure bypass for high reliability.
- Light weight and compact design.
- Variable gain: 8 - 16 dB, default gain: 12 dB.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.

Appearance and Block Diagram



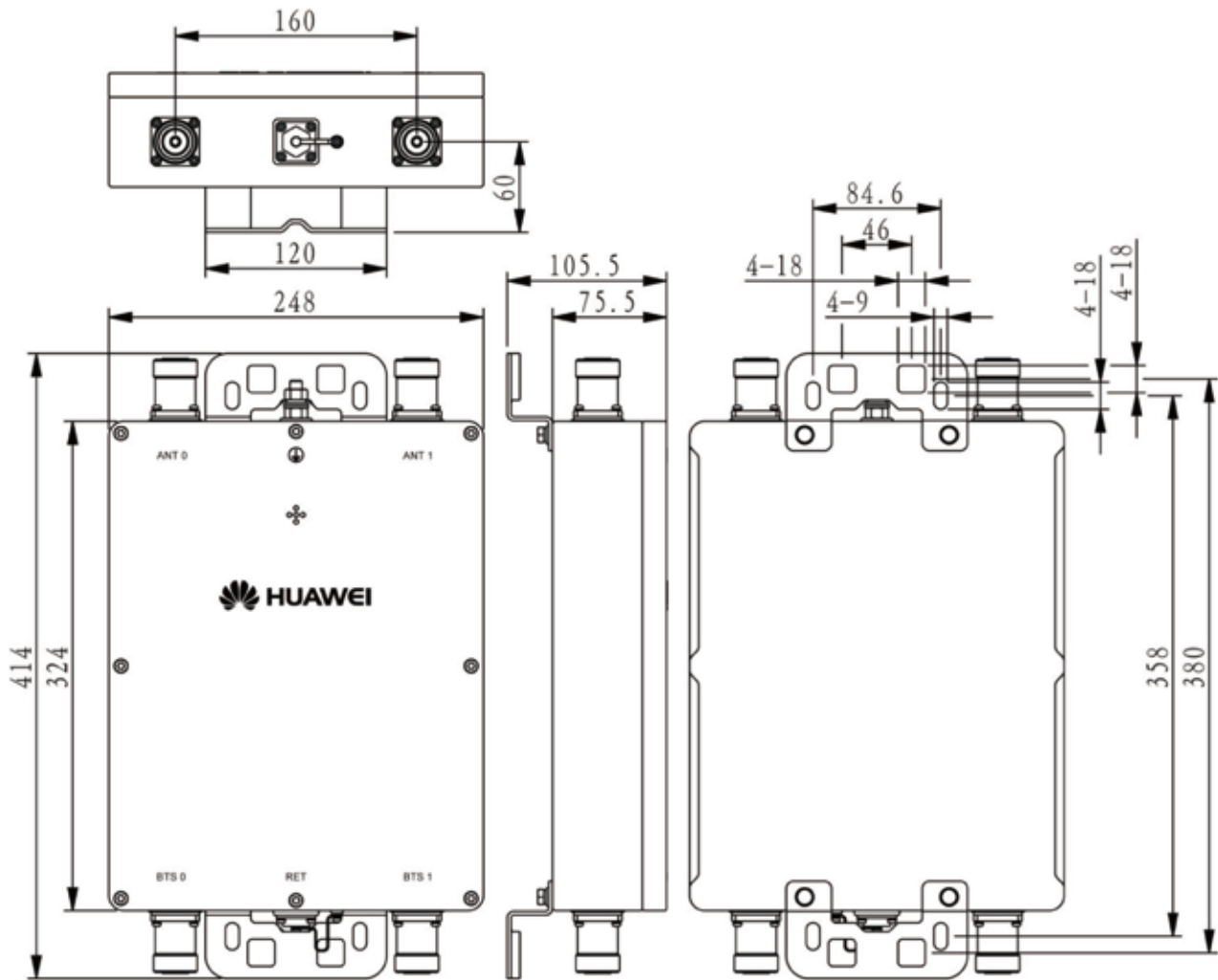
Tx Specifications		
Frequency range (MHz)	925 - 960	
Bandwidth (MHz)	35	
Insertion loss* (dB)	Avg. < 0.4	
Return loss (dB)	≥ 18	
Input power (W)	< 160 (+52 dBm) CW < 2000 (+63 dBm) peak	
Intermodulation products in Rx band (dBm)	≤ -117 (2 TX carriers at +43 dBm)	
Rx Specifications		
Frequency range (MHz)	880 - 915	
Bandwidth (MHz)	35	
Return loss(dB)	≥ 18 (DC ON) ≥ 13 (DC OFF)	
Insertion loss in by-pass mode (dB)	≤ 3.0 (DC OFF)	
Gain (dB)	8 - 16 (0.5 dB Step, Default gain: 12 dB)	
Noise figure** (dB)	Avg. < 1.4 (12 dB Gain, +22 ... +28 °C)	
Output 1dB compression (dBm)	≥ 8 (12 dB Gain)	
OIP3 (dBm)	≥ 20 (12 dB Gain)	
Electrical properties		
	CWA Mode	AISG Mode
DC supply voltage (V)	8.5 - 15	9 - 30
Operating current per TMA (mA) (without RET)	40 - 110	40 - 370
Alarm management (mA)	150 - 210	AISG
Power consumption (W)	< 3.5	
Environmental Specifications		
Operating temperature range (°C)	-40 .. +65	
IP rating	IP67	
MTBF (hours)	> 1,000,000	
EMC	ETS 300 342-3	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
DTMA dimensions (W x H x D) (mm)	248 x 324 x 75.5 (without connectors, without brackets)	
DTMA weight (kg)	≤ 6.5 (with brackets)	
DTMA Volume (L)	Approx. 6.1	
AISG connector	8-pin female, IEC 60130-9 (pin1 & pin6: 8.5V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected)	
Mounting	Wall mounting: with 4 screws (max. 8 mm diameter) Mast mounting	
Mast diameter (mm)	Default: 30 - 125 // Optional: 40 - 140	
Connector	4 x 7/16 DIN Female (Long neck)	

$$*Insertion loss: \bar{IL} = \frac{IL_{925MHz} + 2 \times IL_{942.5MHz} + IL_{960MHz}}{4}$$

$$**Noise figure: \bar{NF} = \frac{NF_{880MHz} + 2 \times NF_{897.5MHz} + NF_{915MHz}}{4}$$

E900M 8-16dB

Model: ATA902001



Unit: mm

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

P900M 8-16dB

Model: ATA902003



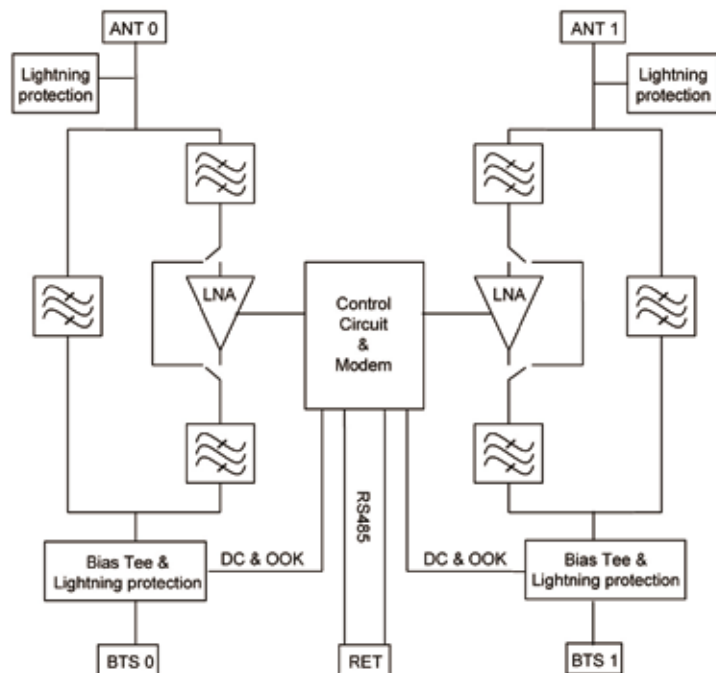
Product Description

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 sensibility of the BTS system. It enhances the uplink coverage and improves uplink and downlink imbalance of the base station. It effectively reduces the transmitting power of cellphones, improves voice and data communication quality.

Features

- High linearity and low noise performance.
- Balanced LNA design and power failure bypass for high reliability.
- Light weight and compact design.
- Variable gain: 8 - 16 dB, default gain: 12 dB.
- 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)	935 - 960
Bandwidth (MHz)	25
Insertion loss* (dB)	Avg. < 0.4
Return loss (dB)	≥ 18
Input power (W)	< 160 (+52 dBm) CW < 2000 (+63 dBm) peak
Intermodulation products in Rx band (dBm)	≤ -117 (2 TX carriers at +43 dBm)

Rx Specifications

Frequency range (MHz)	890 - 915
Bandwidth (MHz)	25
Return loss(dB)	≥ 18 (DC ON) ≥ 13 (DC OFF)
Insertion loss in by-pass mode (dB)	≤ 3.0 (DC OFF)
Gain (dB)	8 - 16 (0.5 dB Step, Default gain: 12 dB)
Noise figure** (dB)	Avg. < 1.4 (12 dB Gain, +22 ... +28 °C)
Output 1dB compression (dBm)	≥ 8 (12 dB Gain)
OIP3 (dBm)	≥ 20 (12 dB Gain)

Electrical properties

	CWA Mode	AISG Mode
DC supply voltage (V)	8.5 - 15	9 - 30
Operating current per TMA (mA) (without RET)	40 - 110	40 - 370
Alarm management (mA)	150 - 210	AISG
Power consumption (W)	< 3.5	

Environmental Specifications

Operating temperature range (°C)	-40 .. +65
IP rating	IP67
MTBF (hours)	> 1,000,000
EMC	ETS 300 342-3
Lightning protection (kA)	10 (8/20 us)

Mechanical Specifications

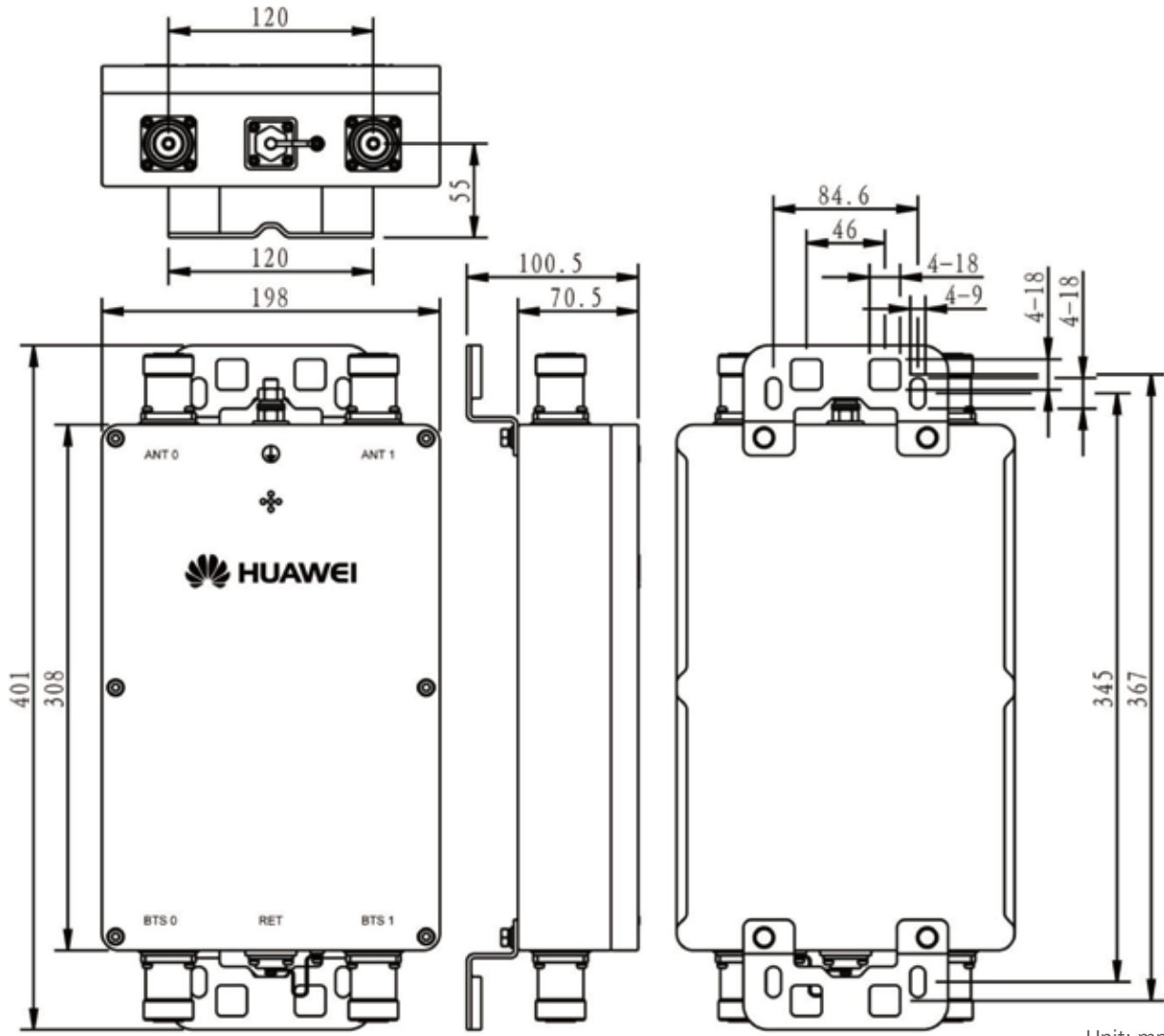
DTMA dimensions (W x H x D) (mm)	198 x 308 x 70.5 (without connectors, without brackets)
DTMA weight (kg)	≤ 5.5 (with brackets)
DTMA Volume (L)	Approx. 4.3
AISG connector	8-pin female, IEC 60130-9 (pin1 & pin6: 8.5V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected)
Mounting	Wall mounting: with 4 screws (max. 8 mm diameter) Mast mounting
Mast diameter (mm)	Default: 30 - 125 // Optional: 40 - 140
Connector	4 x 7/16 DIN Female (Long neck)

$$*Insertion loss: \overline{IL} = \frac{IL_{935MHz} + 2 \times IL_{947.5MHz} + IL_{960MHz}}{4}$$

$$**Noise figure: \overline{NF} = \frac{NF_{890MHz} + 2 \times NF_{902.5MHz} + NF_{915MHz}}{4}$$

P900M 8-16dB

Model: ATA902003



Unit: mm

B-01

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

1800M 12dB

Model: ATA182001



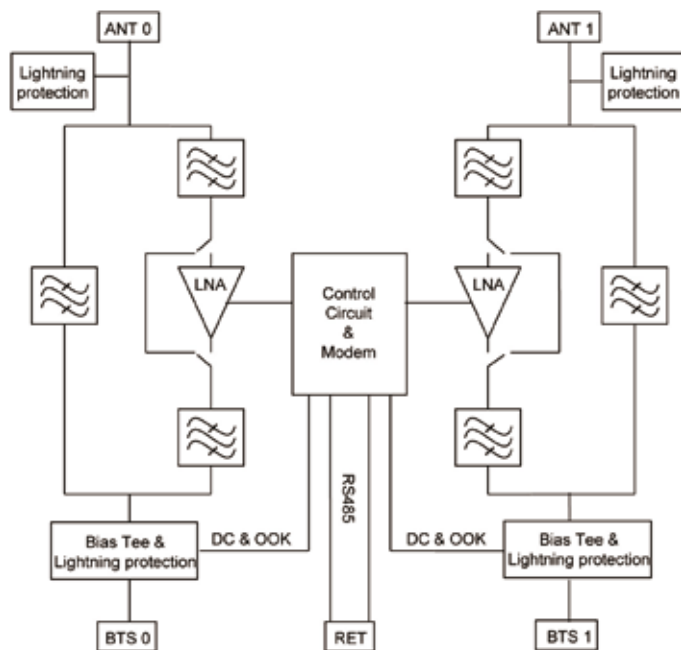
Product Description

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 sensibility of the BTS system. It enhances the uplink coverage and improves uplink and downlink imbalance of the base station. It effectively reduces the transmitting power of cellphones, 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.

Appearance and Block Diagram



1800M 12dB

Model: ATA182001



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 < 2000 (+63 dBm) peak
Intermodulation products in Rx band (dBm)	≤ -117 (2 TX carriers at +43 dBm)

Rx Specifications

Frequency range (MHz)	1710 - 1785
Bandwidth (MHz)	75
Return loss(dB)	≥ 18 (DC ON) ≥ 13 (DC OFF)
Insertion loss in by-pass mode (dB)	≤ 3.0 (DC OFF)
Gain (dB)	12
Noise figure** (dB)	Avg. < 1.4 (+22 ... +28 °C)
Output 1dB compression (dBm)	≥ 12
OIP3 (dBm)	≥ 24

Electrical properties

	CWA Mode	AISG Mode
DC supply voltage (V)	8.5 - 15	9 - 30
Operating current per TMA (mA) (without RET)	40 - 120	40 - 370
Alarm management (mA)	150 - 210	AISG
Power consumption (W)	< 3.5	

Environmental Specifications

Operating temperature range (°C)	-40 .. +65
IP rating	IP67
MTBF (hours)	> 1,000,000
EMC	ETS 300 342-3
Lightning protection (kA)	10 (8/20 us)

Mechanical Specifications

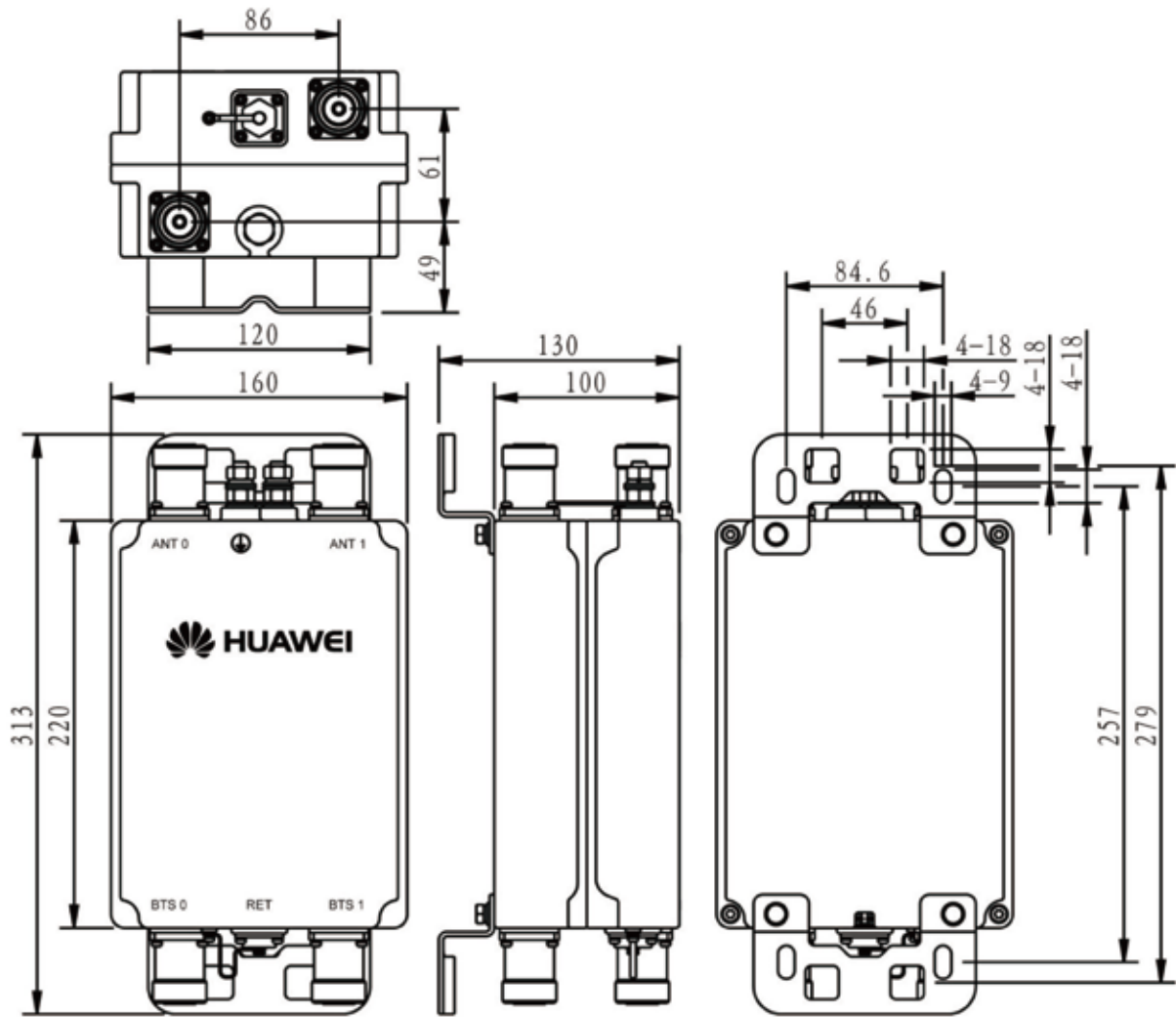
DTMA dimensions (W x H x D) (mm)	160 x 220 x 100 (without connectors, without brackets)
DTMA weight (kg)	≤ 5.1 (with brackets)
DTMA Volume (L)	Approx. 3.5
AISG connector	8-pin female, IEC 60130-9 (pin1 & pin6: 8.5V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected)
Mounting	Wall mounting: with 4 screws (max. 8 mm diameter) Mast mounting
Mast diameter (mm)	Default: 30 - 125 // Optional: 40 - 140
Connector	4 x 7/16 DIN Female (Long neck)

$$*Insertion loss: \bar{IL} = \frac{IL_{1805MHz} + 2 \times IL_{1842.5MHz} + IL_{1880MHz}}{4}$$

$$**Noise figure: \bar{NF} = \frac{NF_{1710MHz} + 2 \times NF_{1747.5MHz} + NF_{1785MHz}}{4}$$

1800M 12dB

Model: ATA182001



Unit: mm

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

2100M 12dB

Model: ATA212001



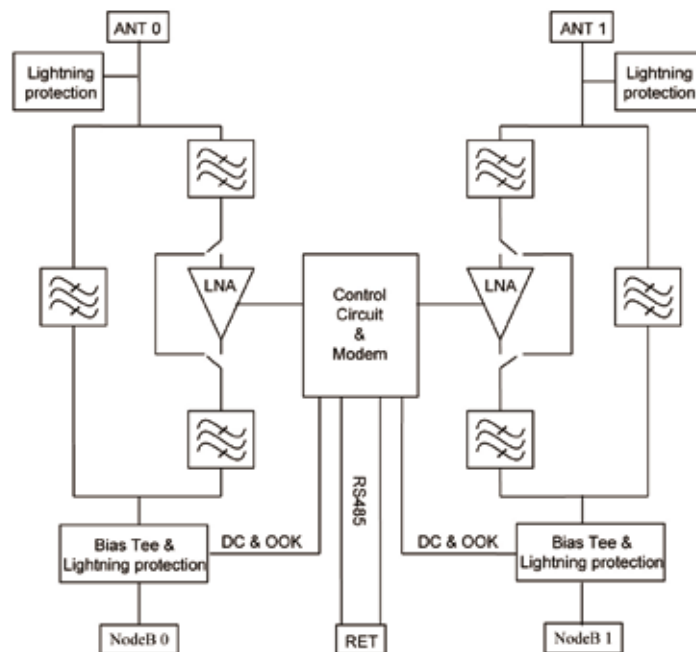
Product Description

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 sensibility of the BTS system. It enhances the uplink coverage and improves uplink and downlink imbalance of the base station. It effectively reduces the transmitting power of cellphones, 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.

Appearance and Block Diagram



2100M 12dB

Model: ATA212001



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 < 2000 (+63 dBm) peak
Intermodulation products in Rx band (dBm)	≤ -122 (2 TX carriers at +43 dBm)

Rx Specifications

Frequency range (MHz)	1920 - 1980
Bandwidth (MHz)	60
Return loss(dB)	≥ 18 (DC ON) ≥ 15 (DC OFF)
Insertion loss in by-pass mode (dB)	≤ 3.0 (DC OFF)
Gain (dB)	12 ± 1
Noise figure** (dB)	Avg. < 1.2 (+22 ... +28 °C)
Output 1dB compression (dBm)	≥ 12
OIP3 (dBm)	≥ 24

Electrical properties

	CWA Mode	AISG Mode
DC supply voltage (V)	8.5 - 15	9 - 30
Operating current per TMA (mA) (without RET)	40 - 120	40 - 370
Alarm management (mA)	150 - 210	AISG
Power consumption (W)	< 3.5	

Environmental Specifications

Operating temperature range (°C)	-40 .. +65
IP rating	IP67
MTBF (hours)	> 1,000,000
EMC	ETS 300 342-3
Lightning protection (kA)	10 (8/20 us)

Mechanical Specifications

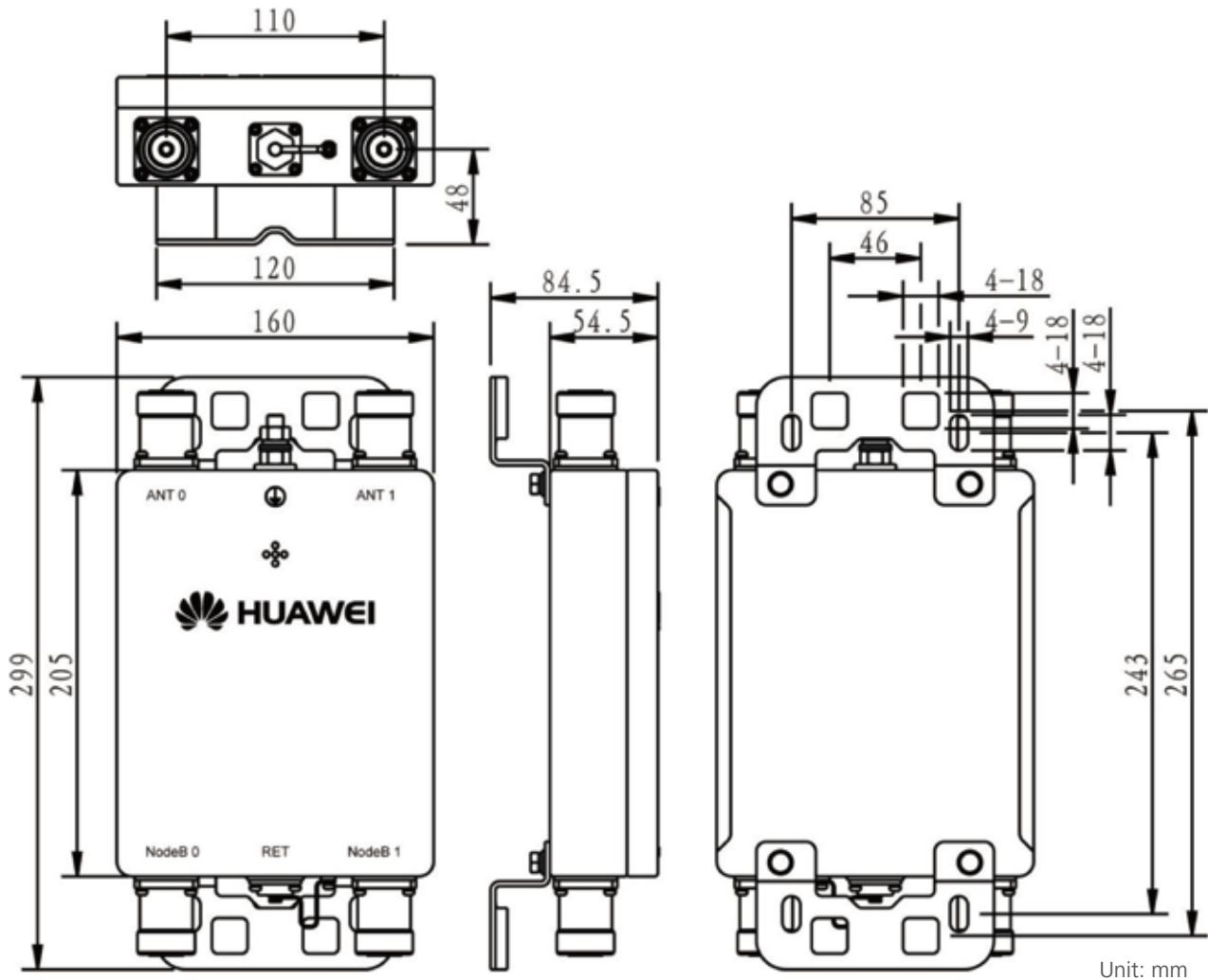
DTMA dimensions (W x H x D) (mm)	160 x 205 x 54.5 (without connectors, without brackets)
DTMA weight (kg)	≤ 3.3 (with brackets)
DTMA Volume (L)	Approx. 1.8
AISG connector	8-pin female, IEC 60130-9 (pin1 & pin6: 8.5V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected)
Mounting	Wall mounting: with 4 screws (max. 8 mm diameter) Mast mounting
Mast diameter (mm)	Default: 30 - 125 // Optional: 40 - 140
Connector	4 x 7/16 DIN Female (Long neck)

$$* \text{Insertion loss: } \overline{IL} = \frac{IL_{2110\text{MHz}} + 2 \times IL_{2140\text{MHz}} + IL_{2170\text{MHz}}}{4}$$

$$** \text{Noise figure: } \overline{NF} = \frac{NF_{1920\text{MHz}} + 2 \times NF_{1950\text{MHz}} + NF_{1980\text{MHz}}}{4}$$

2100M 12dB

Model: ATA212001



B-01

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

2600M 12dB

Model: ATA262000



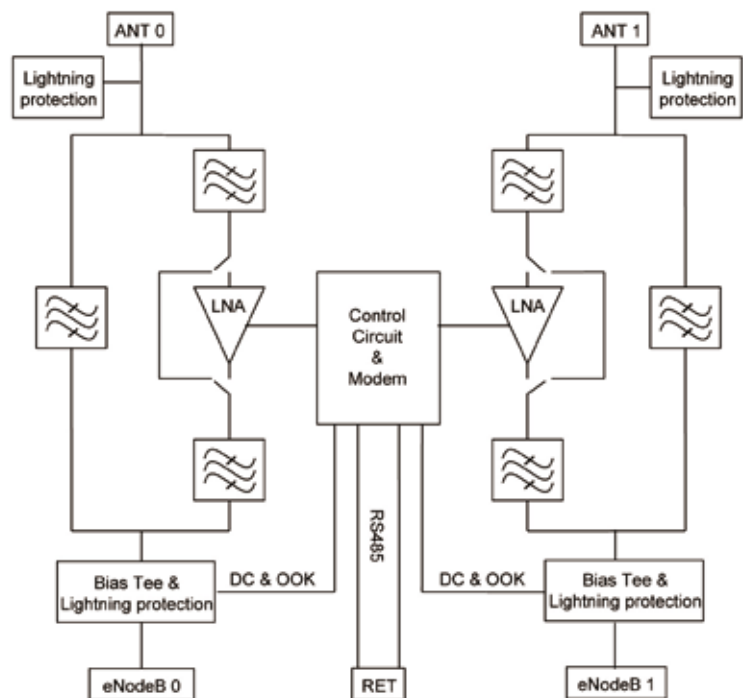
Product Description

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 sensibility of the BTS system. It enhances the uplink coverage and improves uplink and downlink imbalance of the base station. It effectively reduces the transmitting power of cellphones, 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.

Appearance and Block Diagram



2600M 12dB

Model: ATA262000



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 < 2000 (+63 dBm) peak
Intermodulation products in Rx band (dBm)	≤ -117 (2 TX carriers at +43 dBm)

Rx Specifications

Frequency range (MHz)	2500 - 2570
Bandwidth (MHz)	70
Return loss(dB)	≥ 18 (DC ON) ≥ 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 properties

	CWA Mode	AISG Mode
DC supply voltage (V)	8.5 - 15	9 - 30
Operating current per TMA (mA) (without RET)	40 - 120	40 - 370
Alarm management (mA)	150 - 210	AISG
Power consumption (W)	< 3.5	

Environmental Specifications

Operating temperature range (°C)	-40 .. +65
IP rating	IP67
MTBF (hours)	> 1,000,000
EMC	ETS 300 342-3
Lightning protection (kA)	10 (8/20 us)

Mechanical Specifications

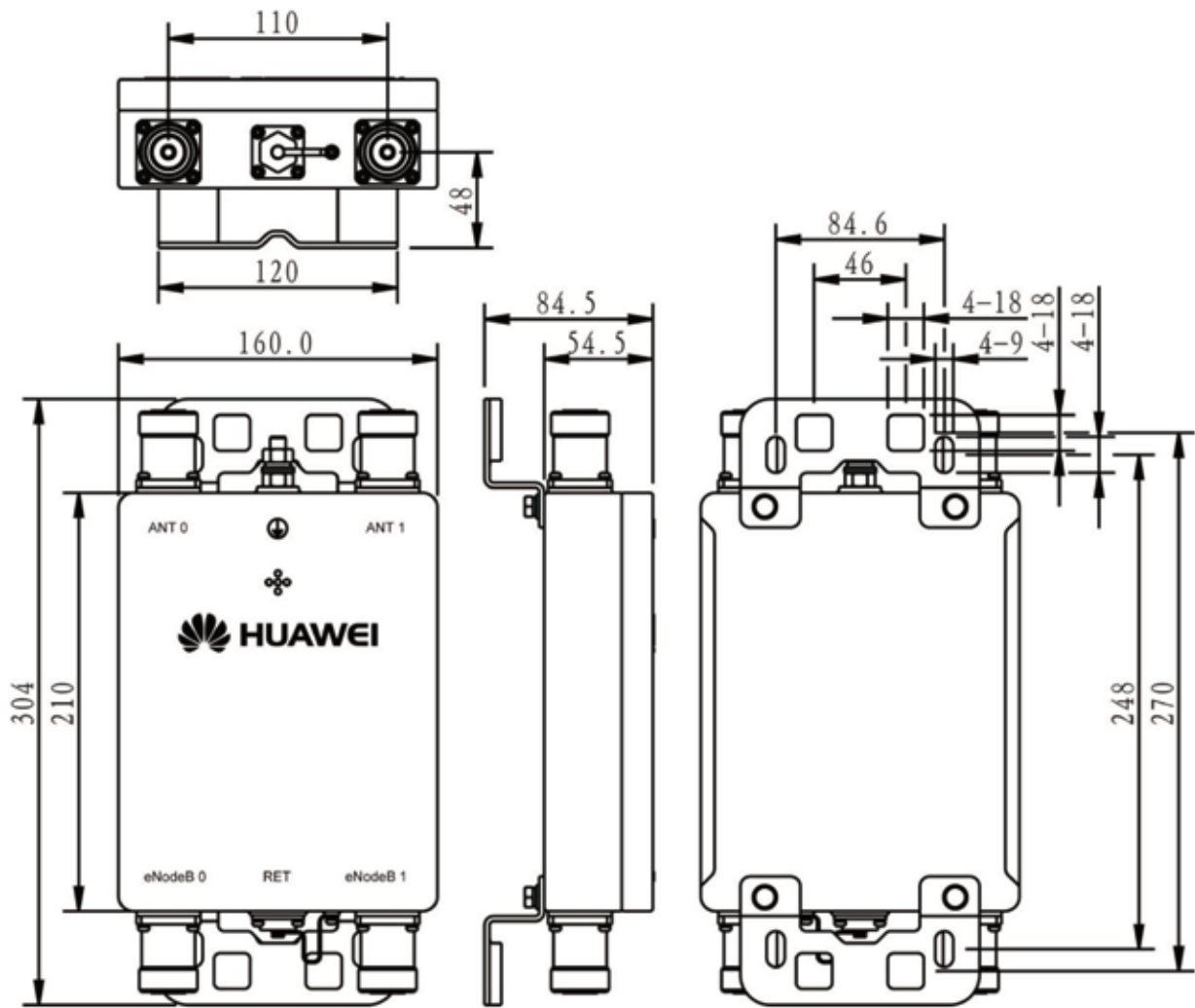
DTMA dimensions (W x H x D) (mm)	160 x 210 x 54.5 (without connectors, without brackets)
DTMA weight (kg)	≤ 3.1 (with brackets)
DTMA Volume (L)	Approx. 1.8
AISG connector	8-pin female, IEC 60130-9 (pin1 & pin6: 8.5V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected)
Mounting	Wall mounting: with 4 screws (max. 8 mm diameter) Mast mounting
Mast diameter (mm)	Default: 30 - 125 // Optional: 40 - 140
Connector	4 x 7/16 DIN Female (Long neck)

$$\text{*Insertion loss: } \overline{IL} = \frac{IL_{2620\text{MHz}} + 2 \times IL_{2655\text{MHz}} + IL_{2690\text{MHz}}}{4}$$

$$\text{**Noise figure: } \overline{NF} = \frac{NF_{2500\text{MHz}} + 2 \times NF_{2535\text{MHz}} + NF_{2570\text{MHz}}}{4}$$

2600M 12dB

Model: ATA262000



Unit: mm

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

Dual Band 1800M & 2100M 12dB (2in2out)

Model: ATADU2002



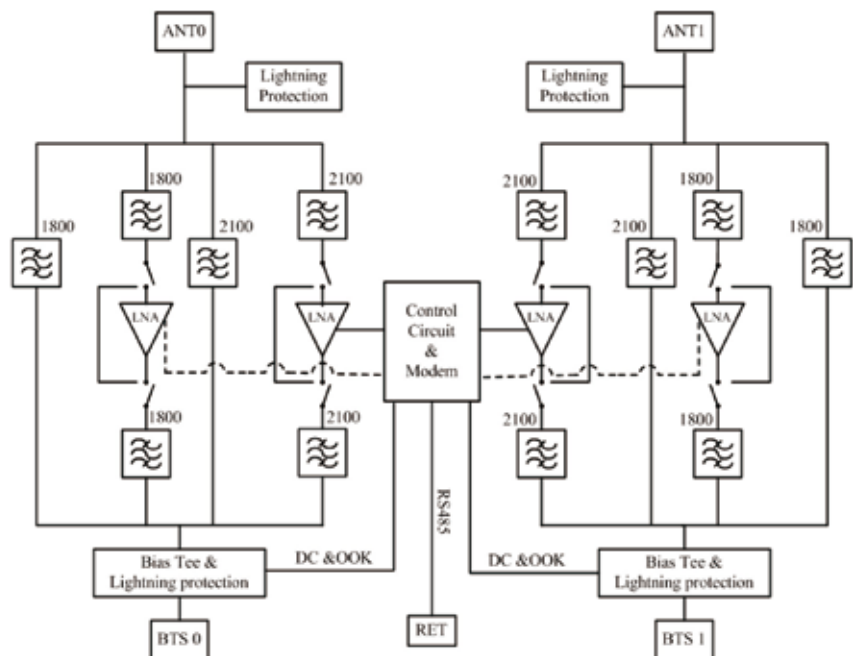
Product Description

The multiband tower mounted amplifier (MTMA) is a low-noise amplifier installed near the antenna to satisfy the co-siting purposes. It helps to improve the signal-to-noise ratio and enhance the receiving sensibility of the BTS system. It enhances the uplink coverage and improves uplink and downlink imbalance of the base station. It effectively reduces the transmitting power of cellphones, improves voice and data communication quality.

Features

- High linearity and low noise performance.
- Balanced LNA design and power failure bypass for high reliability.
- Light weight and compact design.
- Designed for co-siting purposes.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.

Appearance and Block Diagram



B - 01

Dual Band 1800M & 2100M 12dB (2in2out)

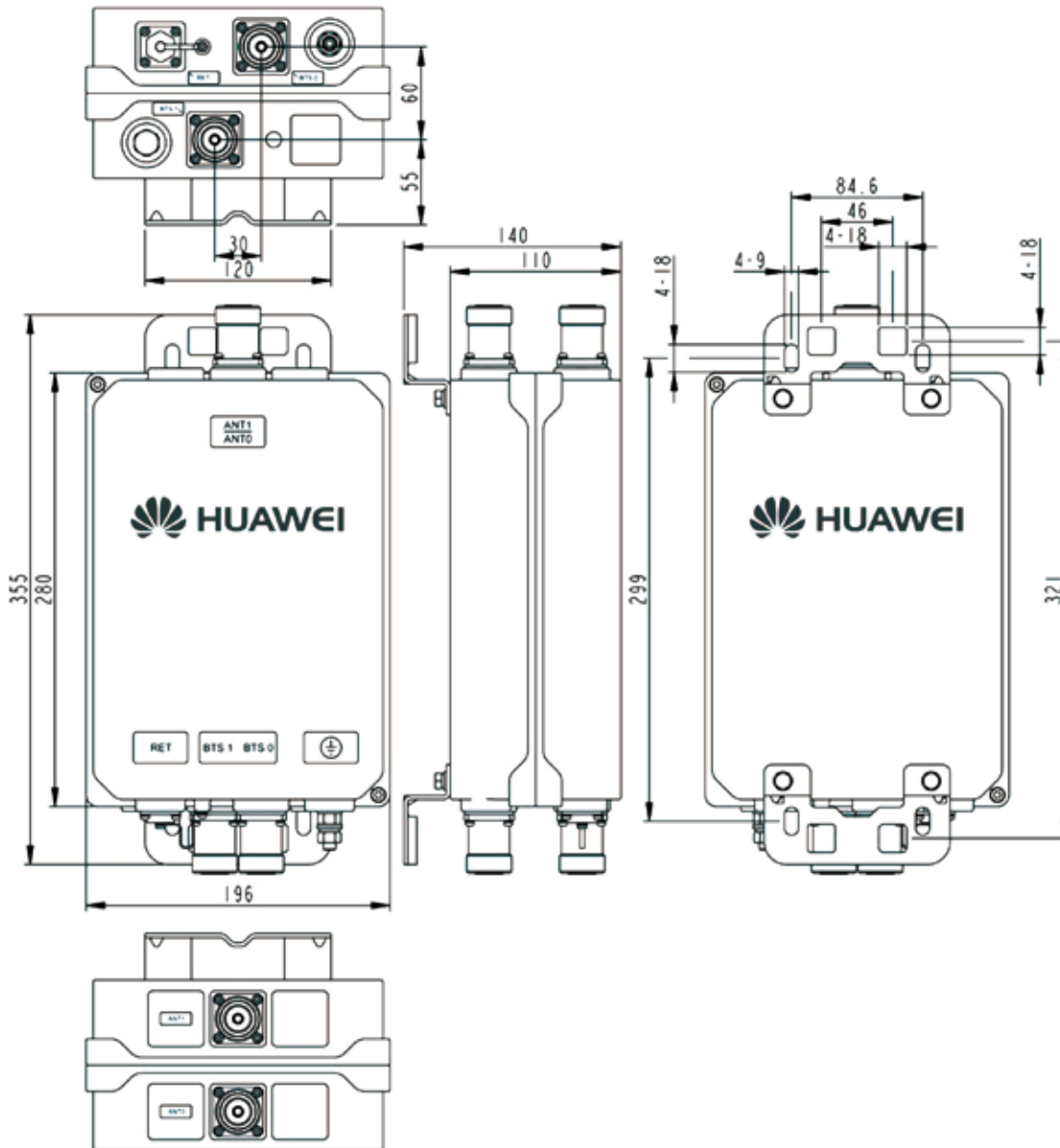
Model: ATADU2002



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 < 2000 (+63 dBm) peak	
Intermodulation products in Rx band (dBm)	≤ -110 (3rd order; with 2 x 43 dBm)	≤ -122 (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) ≥ 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)	40 - 370	
Alarm management	AISG	
Power consumption (W)	< 3.0	
Environmental Specifications		
Operating temperature range (°C)	-40 ... +65	
IP rating	IP67	
MTBF (hours)	> 1,000,000	
EMC	ETS 300 342-3	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
MTMA dimensions (W x H x D) (mm)	196 x 280 x 110 (without connectors, without brackets)	
MTMA weight (kg)	≤ 7.0 (with brackets)	
MTMA Volume (L)	Approx. 5.9	
AISG connector	8-pin female, IEC 60130-9 (pin1 & pin6: 8.5V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected)	
Mounting	Wall mounting: with 4 screws (max. 8 mm diameter) Mast mounting	
Mast diameter (mm)	Default: 30 - 125 // Optional: 40 - 140	
Connector	4 x 7/16 DIN Female	

Dual Band 1800M & 2100M 12dB (2in2out)

Model: ATADU2002



Unit: mm

B-01

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

Dual Band 1800M & 2100M 12dB (2in4out)

Model: ATADU2003



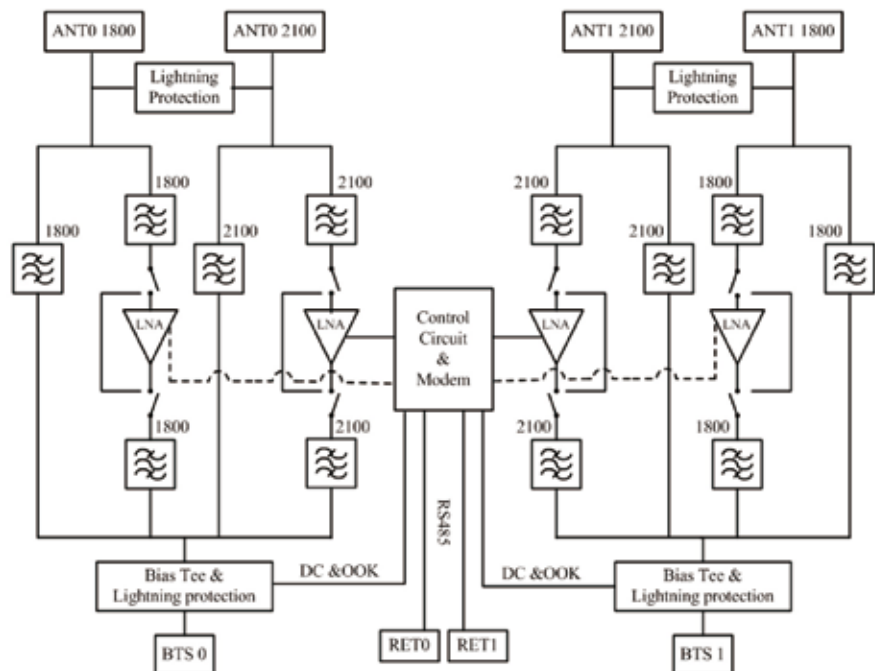
Product Description

The multiband tower mounted amplifier (MTMA) is a low-noise amplifier installed near the antenna to satisfy the co-siting purposes. It helps to improve the signal-to-noise ratio and enhance the receiving sensibility of the BTS system. It enhances the uplink coverage and improves uplink and downlink imbalance of the base station. It effectively reduces the transmitting power of cellphones, improves voice and data communication quality.

Features

- High linearity and low noise performance.
- Balanced LNA design and power failure bypass for high reliability.
- Light weight and compact design.
- Designed for co-siting purposes.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.

Appearance and Block Diagram



Dual Band 1800M & 2100M 12dB (2in4out)

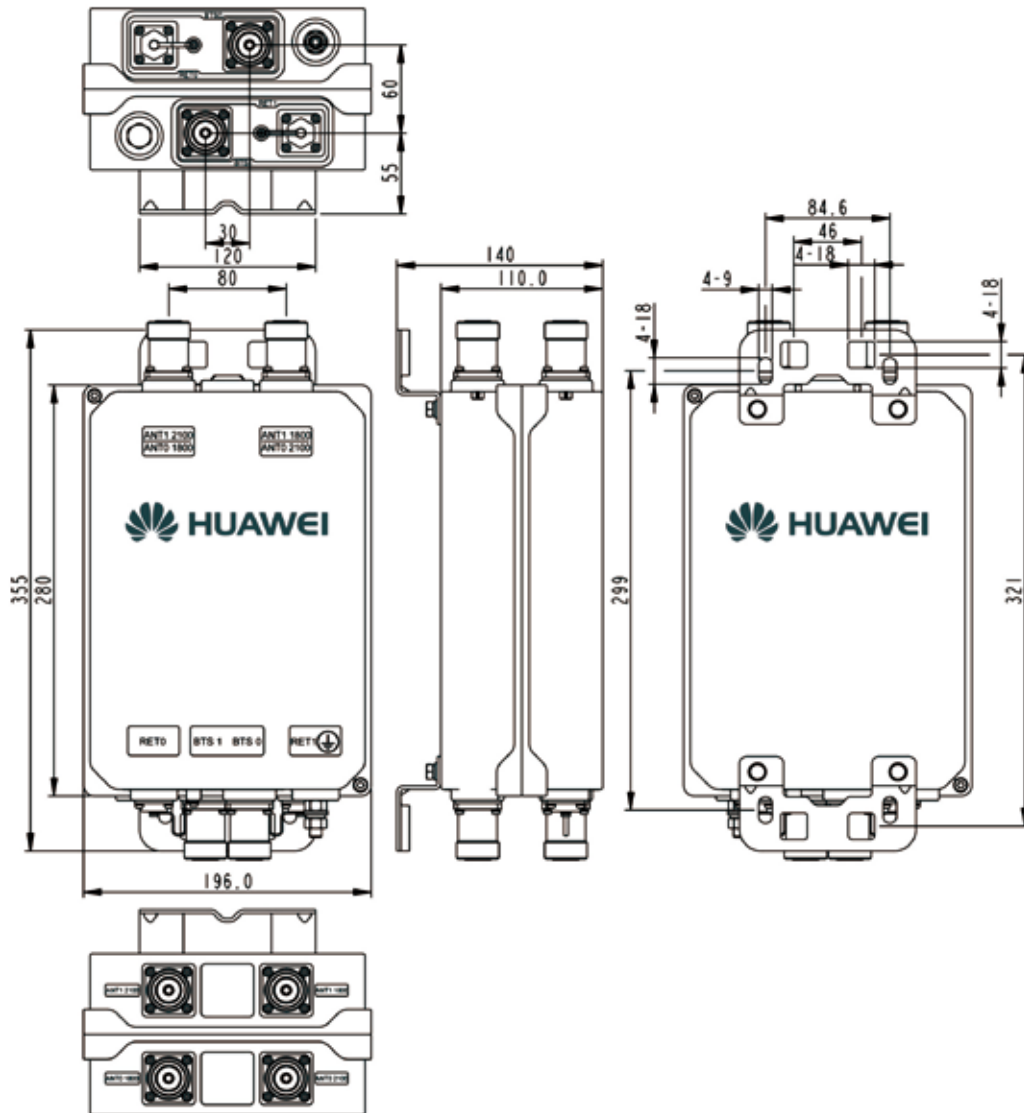
Model: ATADU2003



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 < 2000 (+63 dBm) peak	
Intermodulation products in Rx band (dBm)	≤ -110 (3rd order; with 2 x 43 dBm)	≤ -122 (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) ≥ 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)	40 - 370	
Alarm management	AISG	
Power consumption (W)	< 3.0	
Environmental Specifications		
Operating temperature range (°C)	-40 ... +65	
IP rating	IP67	
MTBF (hours)	> 1,000,000	
EMC	ETS 300 342-3	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
MTMA dimensions (W x H x D) (mm)	196 x 280 x 110 (without connectors, without brackets)	
MTMA weight (kg)	≤ 7.3 (with brackets)	
MTMA Volume (L)	Approx. 5.9	
AISG connector	8-pin female, IEC 60130-9 (pin1 & pin6: 8.5V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected)	
Mounting	Wall mounting: with 4 screws (max. 8 mm diameter) Mast mounting	
Mast diameter (mm)	Default: 30 - 125 // Optional: 40 - 140	
Connector	6 x 7/16 DIN Female	

Dual Band 1800M & 2100M 12dB (2in4out)

Model: ATADU2003



Unit: mm

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

Dual Band DD800M & E900M 12dB (2in2out)

Model: ATADU2001



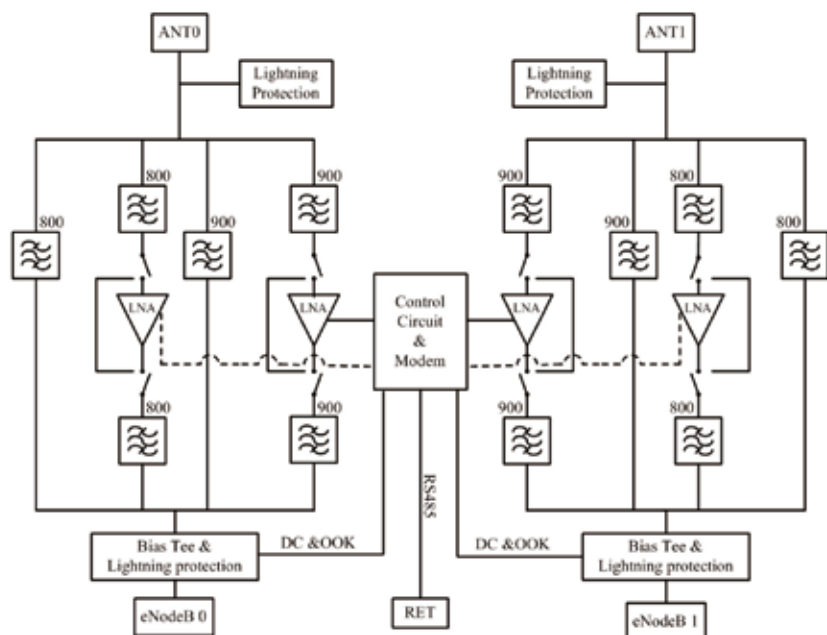
Product Description

The multiband tower mounted amplifier (MTMA) is a low-noise amplifier installed near the antenna to satisfy the co-siting purposes. It helps to improve the signal-to-noise ratio and enhance the receiving sensibility of the BTS system. It enhances the uplink coverage and improves uplink and downlink imbalance of the base station. It effectively reduces the transmitting power of cellphones, improves voice and data communication quality.

Features

- High linearity and low noise performance.
- Balanced LNA design and power failure bypass for high reliability.
- Light weight and compact design.
- Designed for co-siting purposes.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.

Appearance and Block Diagram



B - 01

Dual Band DD800M & E900M 12dB (2in2out)

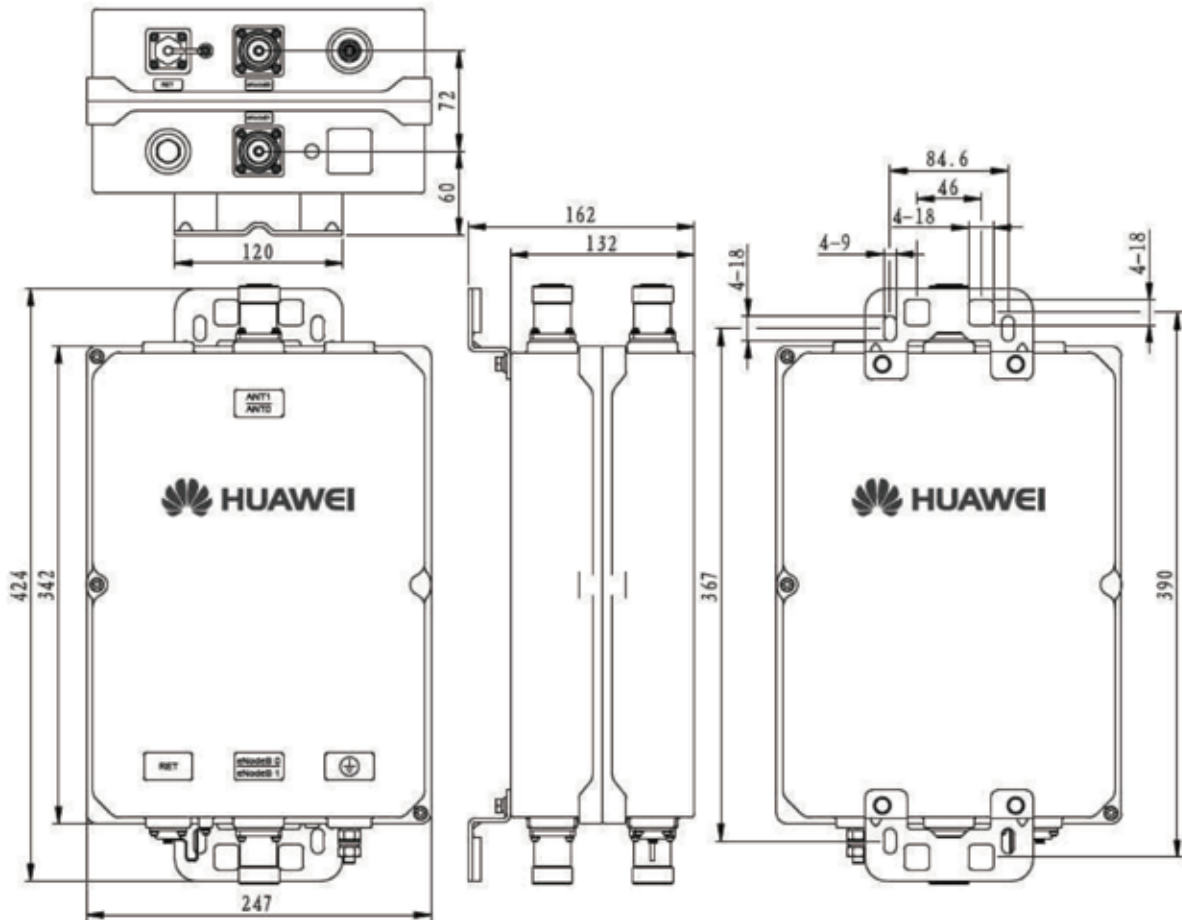
Model: ATADU2001



Tx Specifications		
Frequency range (MHz)	791 - 821	925 - 960
Bandwidth (MHz)	30	35
Insertion loss (dB)	Typ. < 0.4	
Return loss (dB)	≥ 18	
Input power (W)	< 160 (+52 dBm) CW < 2000 (+63 dBm) peak	
Intermodulation products in Rx band (dBm)	≤ -110 (3rd order; with 2 x 43 dBm)	
Rx Specifications		
Frequency range (MHz)	832 - 862	880 - 915
Bandwidth (MHz)	30	35
Return loss (dB)	≥ 18 (DC ON) ≥ 14 (DC OFF)	
Insertion loss in by-pass mode (dB)	Typ. < 3.0	
Gain (dB)	12 ± 1	
Noise figure (dB)	Typ. < 1.3	
Output 1dB compression (dBm)	≥ 12	
OIP3 (dBm)	≥ 24	
Electrical Specifications		
DC supply voltage (V)	9 - 30	
Operating current per TMA (mA) (without RET)	40 - 370	
Alarm management	AISG	
Power consumption (W)	< 3.0	
Environmental Specifications		
Operating temperature range (°C)	-40 ... +65	
IP rating	IP67	
MTBF (hours)	> 1,000,000	
EMC	ETS 300 342-3	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
MTMA dimensions (W x H x D) (mm)	247 x 342 x 132 (without connectors, without brackets)	
MTMA weight (kg)	≤ 10.5 (with brackets)	
MTMA Volume (L)	Approx. 10.8	
AISG connector	8-pin female, IEC 60130-9 (pin1 & pin6: 8.5V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected)	
Mounting	Wall mounting: with 4 screws (max. 8 mm diameter) Mast mounting	
Mast diameter (mm)	Default: 30 - 125 // Optional: 40 - 140	
Connector	4 x 7/16 DIN Female	

Dual Band DD800M & E900M 12dB (2in2out)

Model: ATADU2001



Unit: mm

B - 01

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

Dual Band DD800M & E900M 12dB (2in4out)

Model: ATADU2005



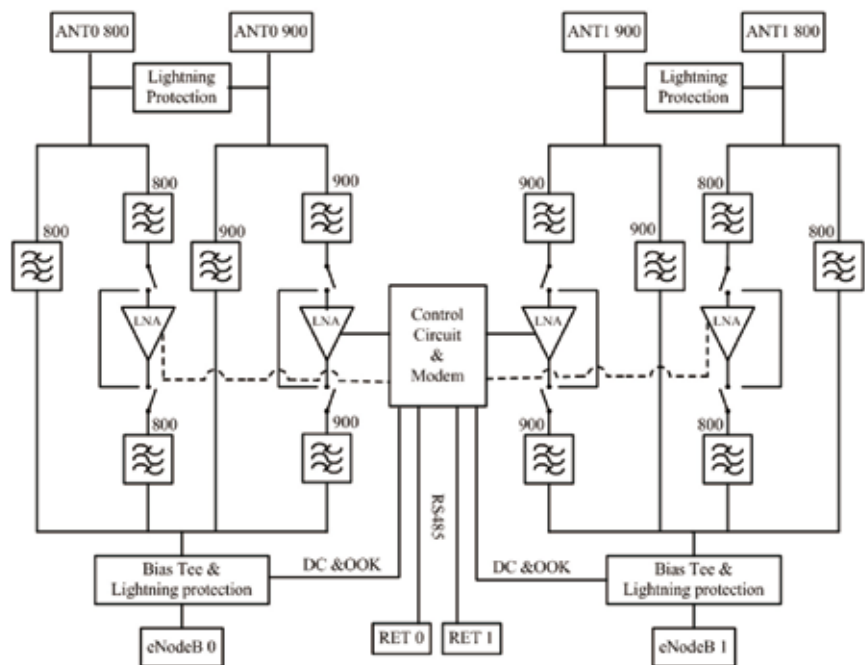
Product Description

The multiband tower mounted amplifier (MTMA) is a low-noise amplifier installed near the antenna to satisfy the co-siting purposes. It helps to improve the signal-to-noise ratio and enhance the receiving sensibility of the BTS system. It enhances the uplink coverage and improves uplink and downlink imbalance of the base station. It effectively reduces the transmitting power of cellphones, improves voice and data communication quality.

Features

- High linearity and low noise performance.
- Balanced LNA design and power failure bypass for high reliability.
- Light weight and compact design.
- Designed for co-siting purposes.
- Wall mounting and mast mounting.
- Built-in lightning protection up to 10 kA.
- Support AISG 2.0 protocol.

Appearance and Block Diagram



Dual Band DD800M & E900M 12dB (2in4out)

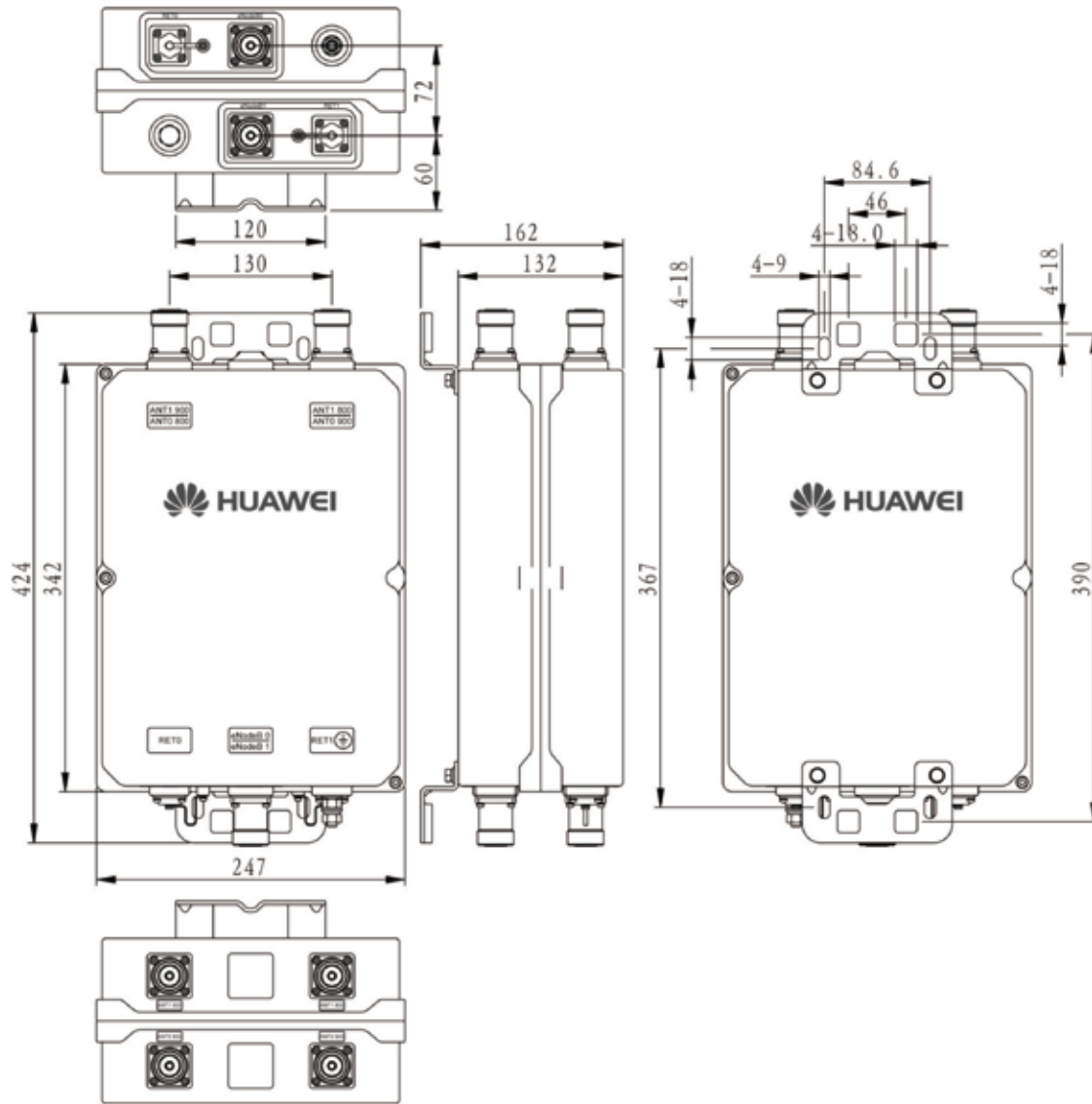
Model: ATADU2005



Tx Specifications		
Frequency range (MHz)	791 - 821	925 - 960
Bandwidth (MHz)	30	35
Insertion loss (dB)	Typ. < 0.4	
Return loss (dB)	≥ 18	
Input power (W)	< 160 (+52 dBm) CW < 2000 (+63 dBm) peak	
Intermodulation products in Rx band (dBm)	≤ -110 (3rd order; with 2 x 43 dBm)	
Rx Specifications		
Frequency range (MHz)	832 - 862	880 - 915
Bandwidth (MHz)	30	35
Return loss (dB)	≥ 18 (DC ON) ≥ 14 (DC OFF)	
Insertion loss in by-pass mode (dB)	Typ. < 3.0	
Gain (dB)	12 ± 1	
Noise figure (dB)	Typ. < 1.3	
Output 1dB compression (dBm)	≥ 12	
OIP3 (dBm)	≥ 24	
Electrical Specifications		
DC supply voltage (V)	9 - 30	
Operating current per TMA (mA) (without RET)	40 - 370	
Alarm management	AISG	
Power consumption (W)	< 3.0	
Environmental Specifications		
Operating temperature range (°C)	-40 ... +65	
IP rating	IP67	
MTBF (hours)	> 1,000,000	
EMC	ETS 300 342-3	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
MTMA dimensions (W x H x D) (mm)	247 x 342 x 132 (without connectors, without brackets)	
MTMA weight (kg)	≤ 10.5 (with brackets)	
MTMA Volume (L)	Approx. 10.8	
AISG connector	8-pin female, IEC 60130-9 (pin1 & pin6: 8.5V - 30V DC, pin3: RS485B, pin5: RS485A, pin7: DC return, other pins: not connected)	
Mounting	Wall mounting: with 4 screws (max. 8 mm diameter) Mast mounting	
Mast diameter (mm)	Default: 30 - 125 // Optional: 40 - 140	
Connector	6 x 7/16 DIN Female	

Dual Band DD800M & E900M 12dB (2in4out)

Model: ATADU2005



Unit: mm

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

B - 02. Combiner

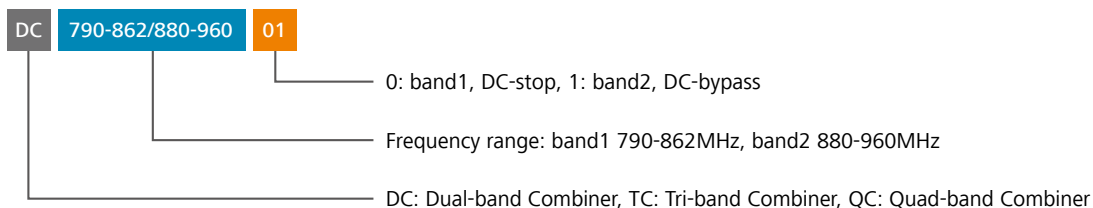
Catagery	Pass Band (MHz)	Max. Input power (W)	DC-Bypass	Intermodulation (dBm)	Dimension (mm)	Model	Page
Dual-band Combiner	Band 1: 790 - 862	200	880~960MHz DC-bypass	< -110	Double Unit: 180 x 210 x 107	ACOMD2H09	239
	Band 2: 880 - 960						
	Band 1: 790 - 862	200	All DC-bypass	< -110	Double Unit: 180 x 210 x 107	**ACOMD2H18	242
	Band 2: 880 - 960						
	Band 1: 698 - 960	300	1710~2200MHz DC-bypass	< -110	Double Unit: 130 x 190 x 105	ACOMD2H11	245
	Band 2: 1710 - 2200						
	Band 1: 698 - 960	300	All DC-bypass	< -110	Double Unit: 130 x 190 x 105	**ACOMD2H19	248
	Band 2: 1710 - 2200						
	Band 1: 698 - 960	300	All DC-bypass	< -110	Double Unit: 130 x 190 x 105	**ACOMD2H20	251
	Band 2: 2490 - 2700						
	Band 1: 698 - 960	300	1710~2700MHz DC-bypass	< -110	Double Unit: 130 x 190 x 105	**ACOMD2H00	254
	Band 2: 1710 - 2700						
	Band 1: 698 - 960	300	All DC-bypass	< -110	Double Unit: 130 x 190 x 105	**ACOMD2H22	257
	Band 2: 1710 - 2700						
	Band 1: 790 - 1880	300	All DC-bypass	< -110	Double Unit: 190 x 154 x 105	** ACOMD2H21	260
	Band 2: 1920 - 2200						
	Band 1: 1710 - 1880	300	1920~2200MHz DC-bypass	< -110	Double Unit: 160 x 154 x 103	ACOMD2H06	263
	Band 2: 1920 - 2200						
	Band 1: 1710 - 1880	300	All DC-bypass	< -110	Double Unit: 160 x 154 x 103	ACOMD2H08	263
	Band 2: 1920 - 2200						
Band 1: 1710 - 2200	300	1710~2200MHz DC-bypass	< -110	Double Unit: 126 x 102 x 103	ACOMD2L04	266	
Band 2: 2490 - 2700							
Band 1: 1710 - 2200	300	All DC-bypass	< -110	Double Unit: 126 x 102 x 103	**ACOMD2H16	269	
Band 2: 2490 - 2700							

B - 02. Combiner

Catagery	Pass Band (MHz)	Max. Input power (W)	DC-Bypass	Intermodulation (dBm)	Dimension (mm)	Model	Page			
Tri-band Combiner	Band 1: 790 – 960	300	1920~2200MHz DC-bypass	< -110	Double Unit: 190 x 154 x 105	ACOMT2H01	272			
	Band 2: 1710 - 1880									
	Band 3: 1920 - 2200									
	Tri-band Combiner	Band 1: 790 – 960	300	1710~1880MHz DC-bypass 1920~2200MHz DC-bypass	< -110	Double Unit: 190 x 154 x 105	ACOMT2H03	272		
		Band 2: 1710 - 1880								
		Band 3: 1920 - 2200								
		Tri-band Combiner	Band 1: 790 – 960	300	All DC-bypass	< -110	Double Unit: 190 x 154 x 105	**ACOMT2H08	275	
			Band 2: 1710 - 1880							
			Band 3: 1920 - 2200							
			Tri-band Combiner	Band 1: 790 - 960	300	All DC-bypass	< -110	Double Unit: 215 x 200 x 105	**ACOMT2H09	278
				Band 2: 1710 - 2200						
				Band 3: 2490 - 2700						
Quad-band Combiner				Band 1: 790 - 960	300	1920~2200MHz DC-bypass	< -110	Double Unit: 215 x 200 x 105	**ACOMQ2M00	281
				Band 2: 1710 -1880						
				Band 3: 1920 - 2200						
	Band 4: 2490 - 2700									
	Quad-band Combiner			Band 1: 790 - 960	300	All DC-bypass	< -110	Double Unit: 215 x 200 x 105	**ACOMQ2H00	284
				Band 2: 1710 -1880						
		Band 3: 1920 - 2200								
		Band 4: 2490 - 2700								
DC-STOP	Band: 698 - 2700	500		DC-stop	< -117	Unit: 39 x 151 x 45	ADCSTOP00	287		

** Preliminary Issue

Combiner Description Example: DC-790-862/880-960-01

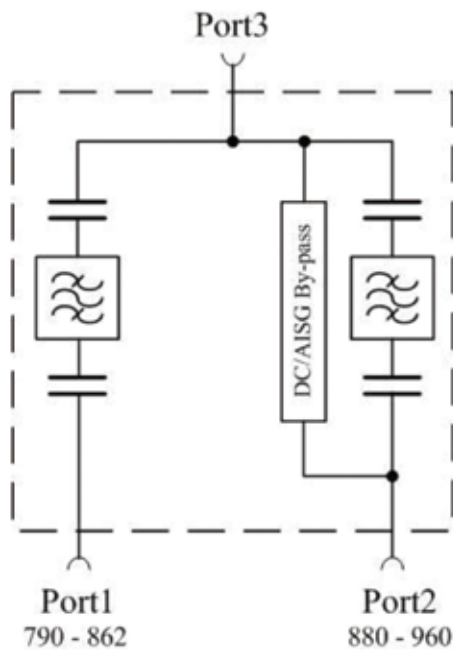


Product Description

- 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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



ACOMD2H09

Electrical Properties

Model		ACOMD2H09
Pass band (MHz)	Band 1	790 - 862
	Band 2	880 - 960
Insertion loss* (dB)	Port 1 ↔ Port 3	< 0.3 (790 MHz - 862 MHz)
	Port 2 ↔ Port 3	< 0.25 (880 MHz - 960 MHz)
DC/AISG transparency	Port 1 ↔ Port 3	Stop
	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 (dBm)		< -110 (3rd order; with 2 x 43 dBm)

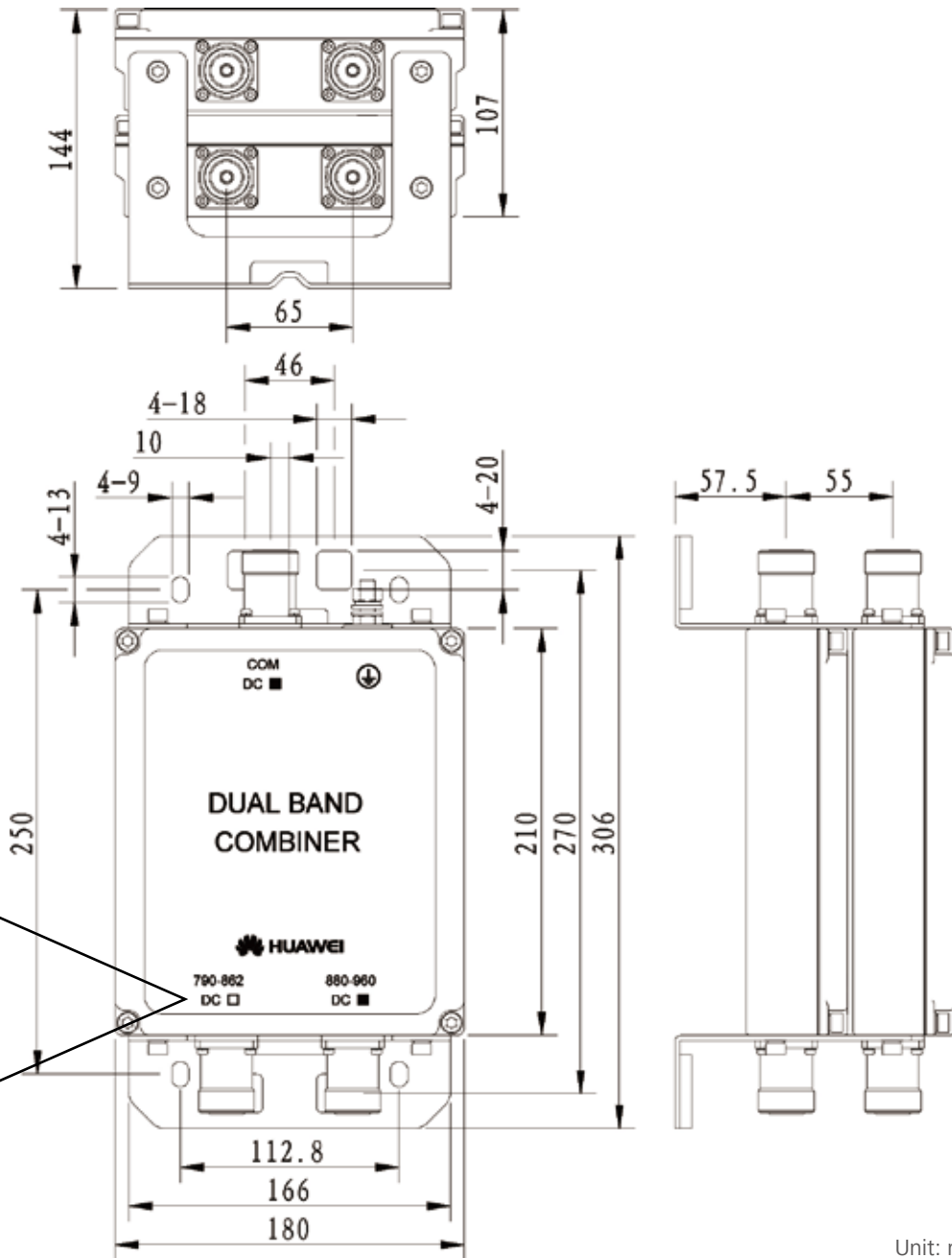
Environmental Specifications

Operating temperature (°C)		-40 .. +65
Application scene		Indoor // Outdoor
IP rating		IP67
Lightning protection (kA)		10 (8/20 us)

Mechanical Specifications

Combiner dimensions (W x H x D) (mm)		Double Unit: 180 x 210 x 107 (without connectors, without mounting brackets)
Combiner weight (kg)		Double Unit: ≤ 6.8
Mounting		Wall mounting // Mast mounting
Mast diameter (mm)		Default: 40 - 135
Connector		7/16 DIN Female (Long neck)

*Insertion loss: $\bar{IL} = \frac{IL_{Min.Frequency} + 2 \times IL_{Mid.Frequency} + IL_{Max.Frequency}}{4}$



DC ■

If the sign as shown above, it indicates this pass band is DC by-pass.

DC □

If the sign as shown above, it indicates this pass band is DC stop.

Unit: mm

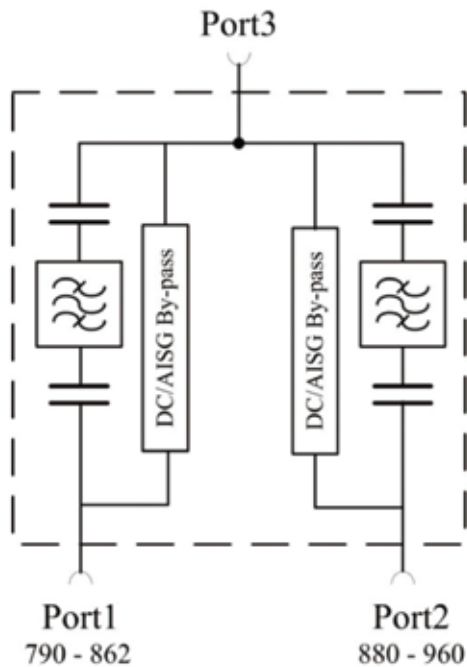
Preliminary Issue

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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



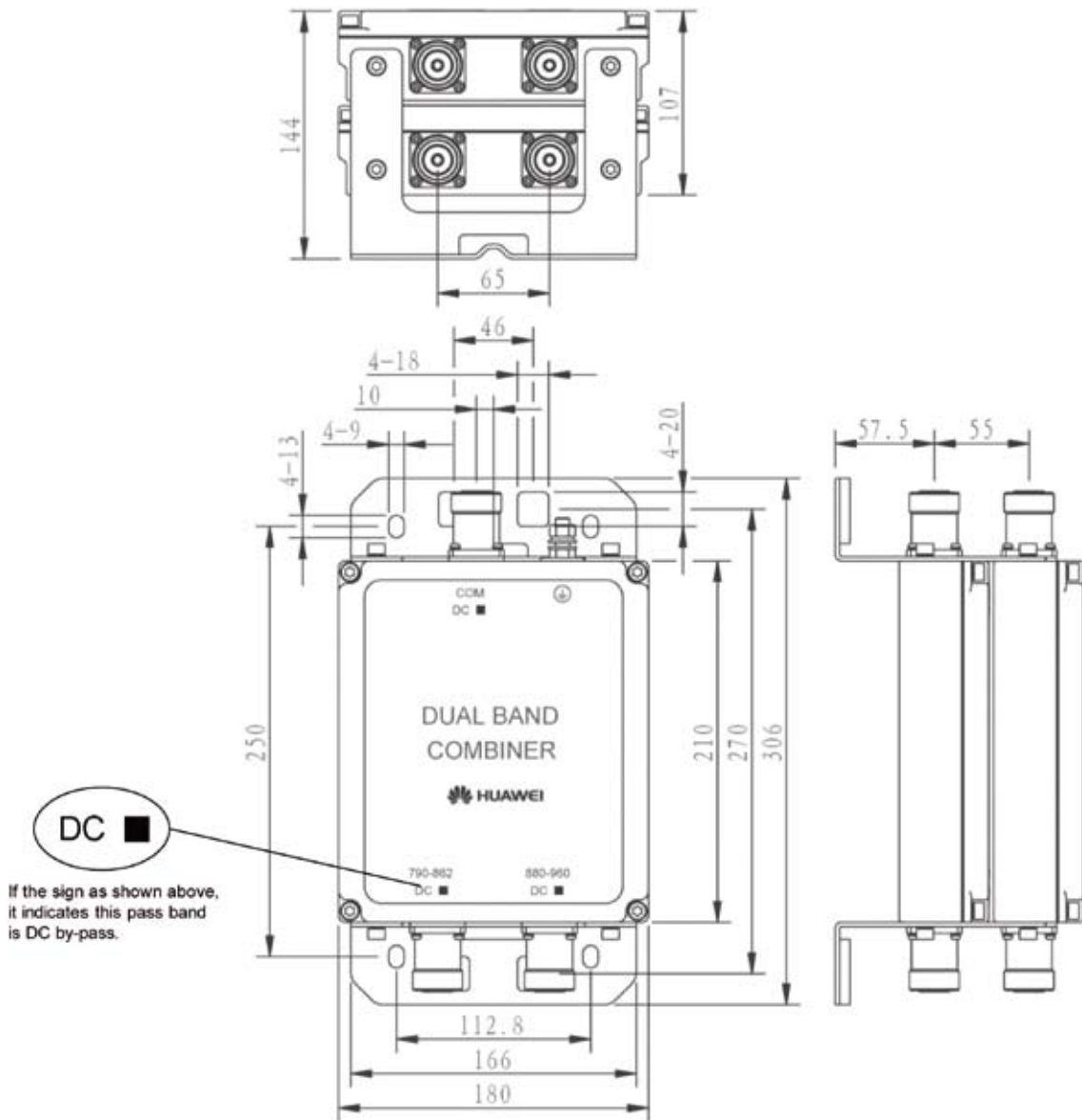
ACOMD2H18

Preliminary Issue

Electrical Properties		
Model	ACOMD2H18	
Pass band (MHz)	Band 1	790 - 862
	Band 2	880 - 960
Insertion loss* (dB)	Port 1 ↔ Port 3	< 0.3 (790 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)
	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 (dBm)	< -110 (3rd order; with 2 x 43 dBm)	
Environmental Specifications		
Operating temperature (°C)	-40 .. +65	
Application scene	Indoor // Outdoor	
IP rating	IP67	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
Combiner dimensions (W x H x D) (mm)	Double Unit: 180 x 210 x 107 (without connectors, without mounting brackets)	
Combiner weight (kg)	Double Unit: ≤ 6.8	
Mounting	Wall mounting // Mast mounting	
Mast diameter (mm)	Default: 40 - 135	
Connector	7/16 DIN Female (Long neck)	

$$*Insertion loss: \bar{IL} = \frac{IL_{Min.Frequency} + 2 \times IL_{Mid.Frequency} + IL_{Max.Frequency}}{4}$$

Preliminary Issue



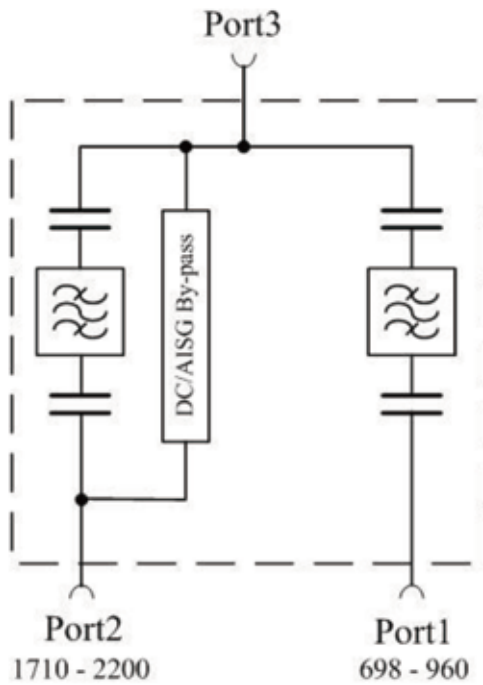
Unit: mm

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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



ACOMD2H11

Electrical Properties

Model		ACOMD2H11
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
	Port 2 ↔ Port 3	By-pass (max. 2500 mA)
Isolation (dB)		> 40
VSWR		< 1.28
Input power (W)	Port 1, Port 2	< 300
Intermodulation products (dBm)		< -110 (3rd order; with 2 x 43 dBm)

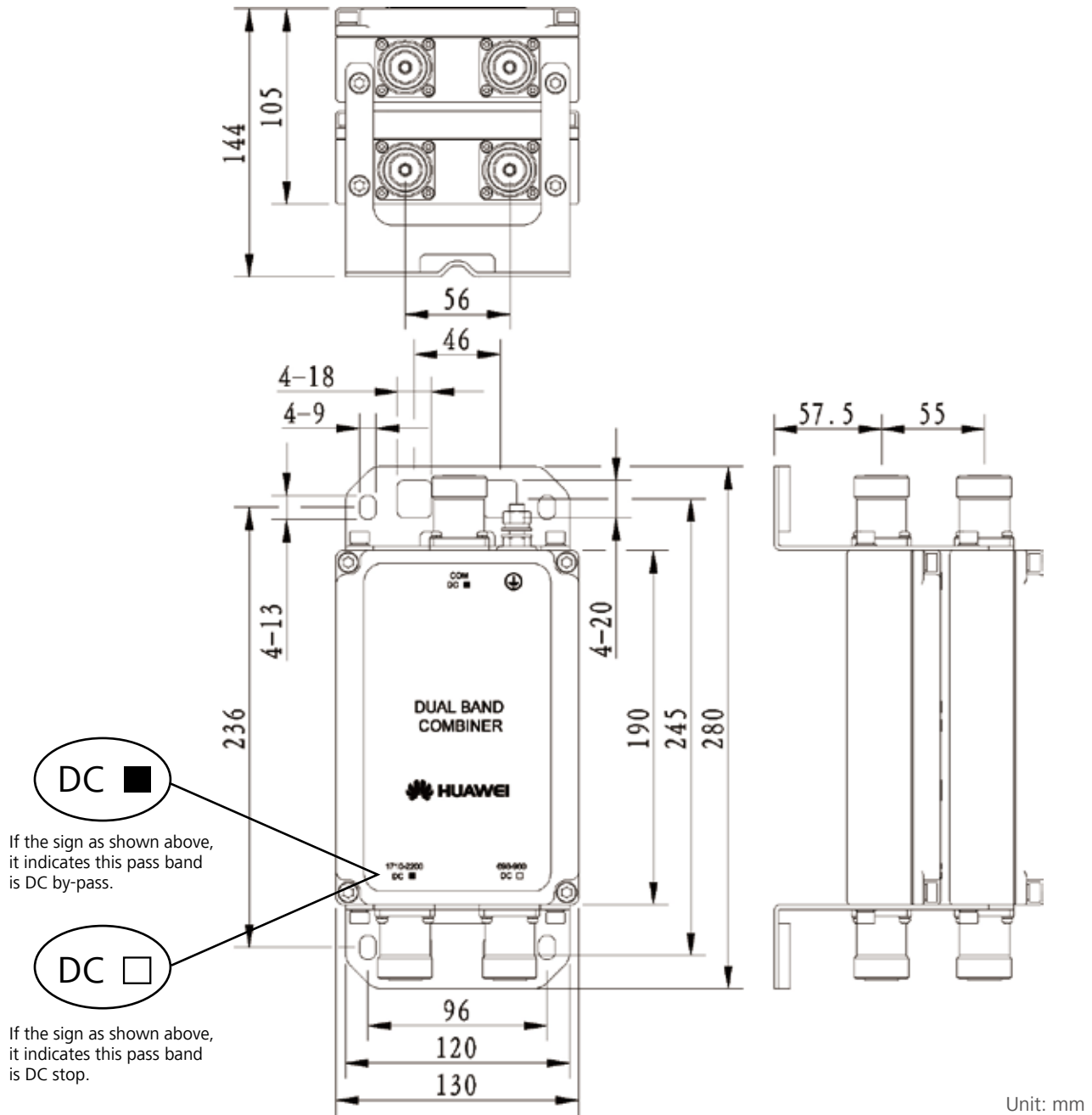
Environmental Specifications

Operating temperature (°C)		-40 .. +65
Application scene		Indoor // Outdoor
IP rating		IP67
Lightning protection (kA)		10 (8/20 us)

Mechanical Specifications

Combiner dimensions (W x H x D) (mm)		Double Unit: 130 x 190 x 105 (without connectors, without mounting brackets)
Combiner weight (kg)		Double Unit: ≤ 4.3
Mounting		Wall mounting // Mast mounting
Mast diameter (mm)		Default: 40 - 135
Connector		7/16 DIN Female (Long neck)

*Insertion loss: $\bar{IL} = \frac{IL_{\text{Min.Frequency}} + 2 \times IL_{\text{Mid.Frequency}} + IL_{\text{Max.Frequency}}}{4}$



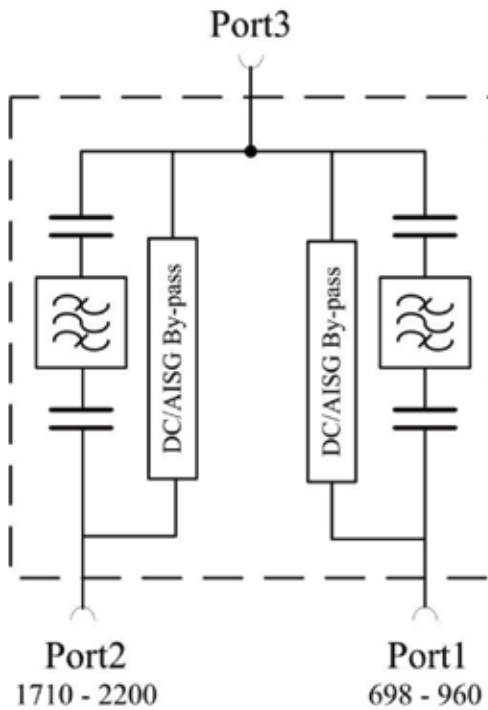
Preliminary Issue

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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



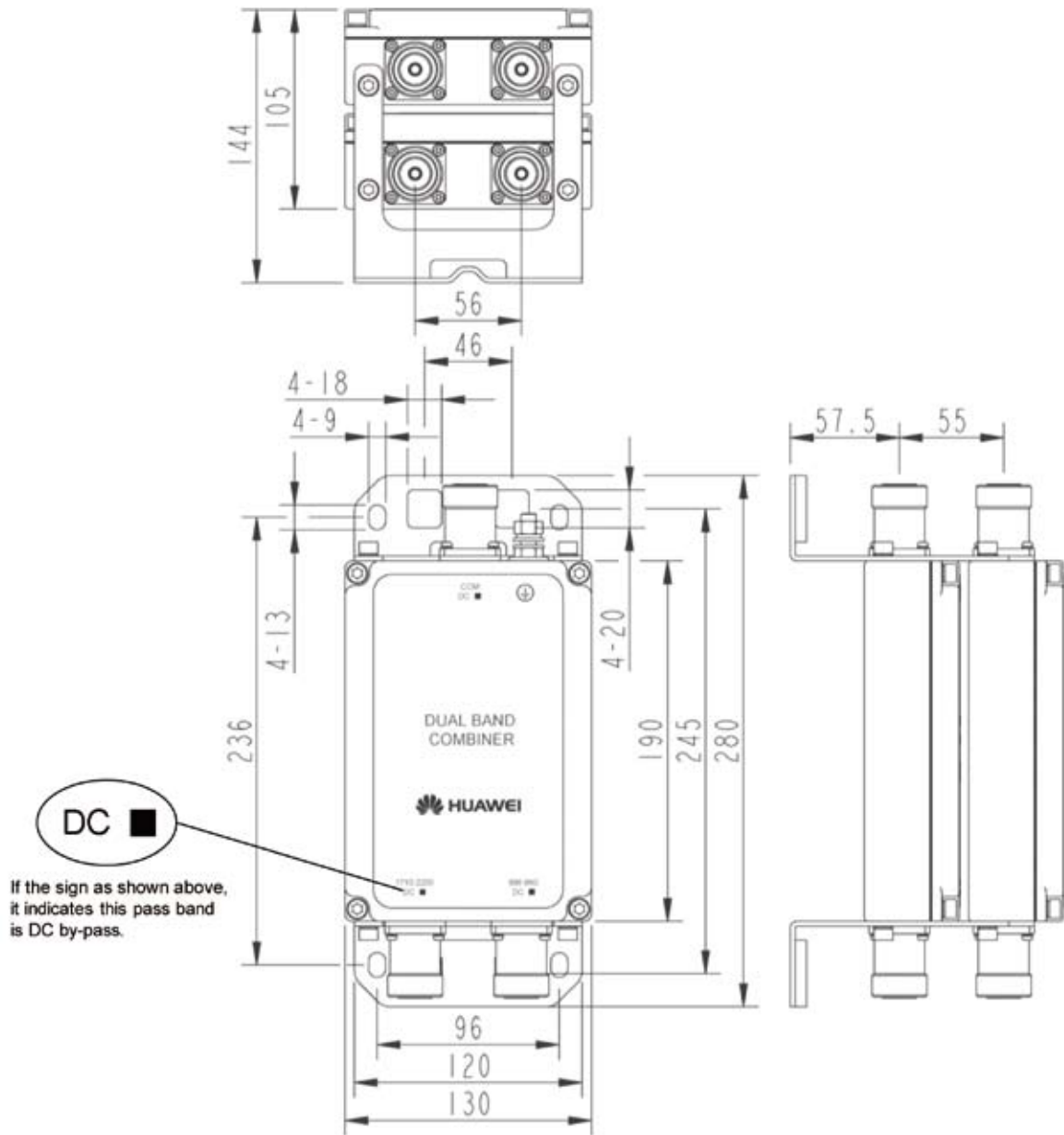
ACOMD2H19

Preliminary Issue

Electrical Properties		
Model	ACOMD2H19	
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	By-pass (max. 2500 mA)
	Port 2 ↔ Port 3	By-pass (max. 2500 mA)
Isolation (dB)	> 40	
VSWR	< 1.28	
Input power (W)	Port 1, Port 2	< 300
Intermodulation products (dBm)	< -110 (3rd order; with 2 x 43 dBm)	
Environmental Specifications		
Operating temperature (°C)	-40 .. +65	
Application scene	Indoor // Outdoor	
IP rating	IP67	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
Combiner dimensions (W x H x D) (mm)	Double Unit: 130 x 190 x 105 (without connectors, without mounting brackets)	
Combiner weight (kg)	Double Unit: ≤ 4.3	
Mounting	Wall mounting // Mast mounting	
Mast diameter (mm)	Default: 40 - 135	
Connector	7/16 DIN Female (Long neck)	

*Insertion loss: $\bar{IL} = \frac{IL_{\text{Min.Frequency}} + 2 \times IL_{\text{Mid.Frequency}} + IL_{\text{Max.Frequency}}}{4}$

Preliminary Issue



Unit: mm

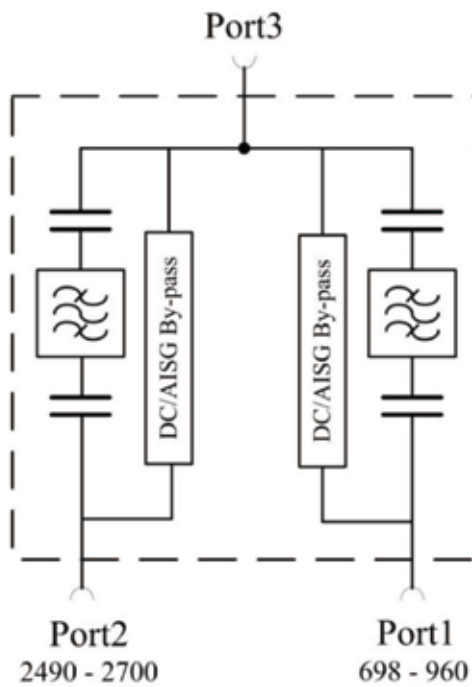
Preliminary Issue

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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



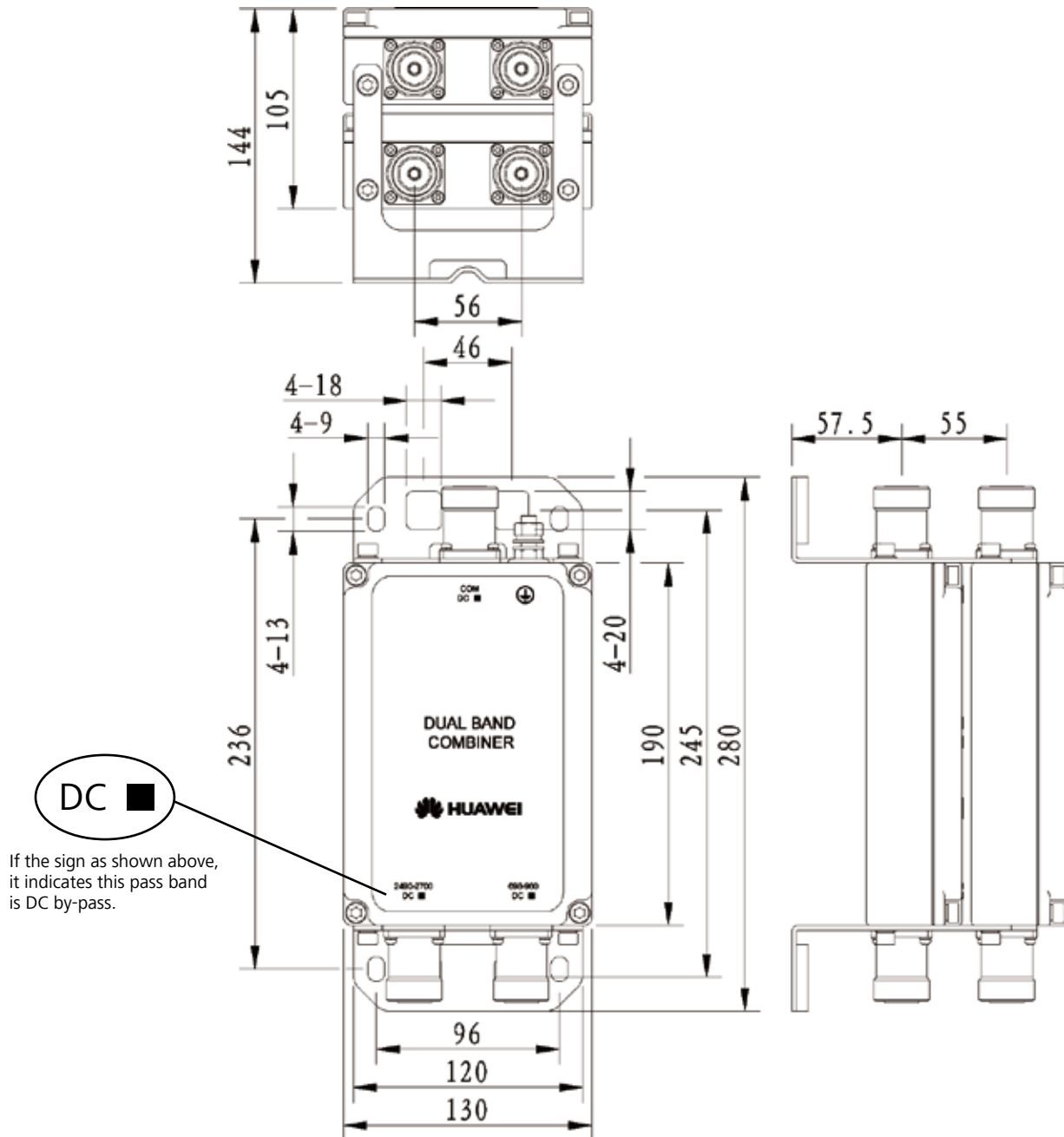
ACOMD2H20

Preliminary Issue

Electrical Properties		
Model	ACOMD2H20	
Pass band (MHz)	Band 1	698 - 960
	Band 2	2490 - 2700
Insertion loss* (dB)	Port 1 ↔ Port 3	< 0.15 (698 MHz - 960 MHz)
	Port 2 ↔ Port 3	< 0.15 (2490 MHz - 2700 MHz)
DC/AISG transparency	Port 1 ↔ Port 3	By-pass (max. 2500 mA)
	Port 2 ↔ Port 3	By-pass (max. 2500 mA)
Isolation (dB)	> 45	
VSWR	< 1.28	
Input power (W)	Port 1, Port 2	< 300
Intermodulation products (dBm)	< -110 (3rd order; with 2 x 43 dBm)	
Environmental Specifications		
Operating temperature (°C)	-40 .. +65	
Application scene	Indoor // Outdoor	
IP rating	IP67	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
Combiner dimensions (W x H x D) (mm)	Double Unit: 130 x 190 x 105 (without connectors, without mounting brackets)	
Combiner weight (kg)	Double Unit: ≤ 4.3	
Mounting	Wall mounting // Mast mounting	
Mast diameter (mm)	Default: 40 - 135	
Connector	7/16 DIN Female (Long neck)	

*Insertion loss: $\bar{IL} = \frac{IL_{\text{Min.Frequency}} + 2 \times IL_{\text{Mid.Frequency}} + IL_{\text{Max.Frequency}}}{4}$

Preliminary Issue



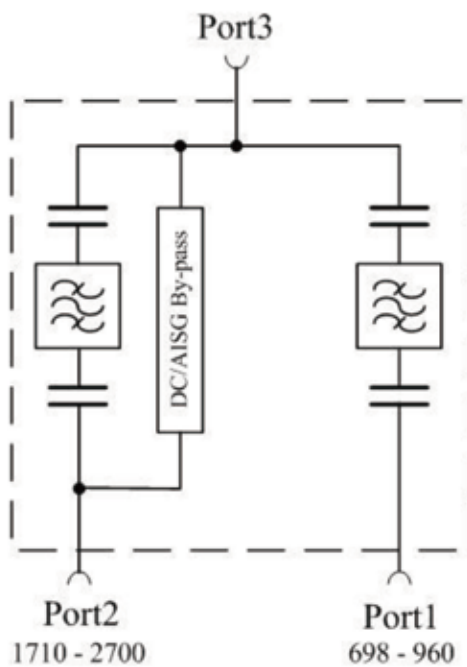
Preliminary Issue

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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



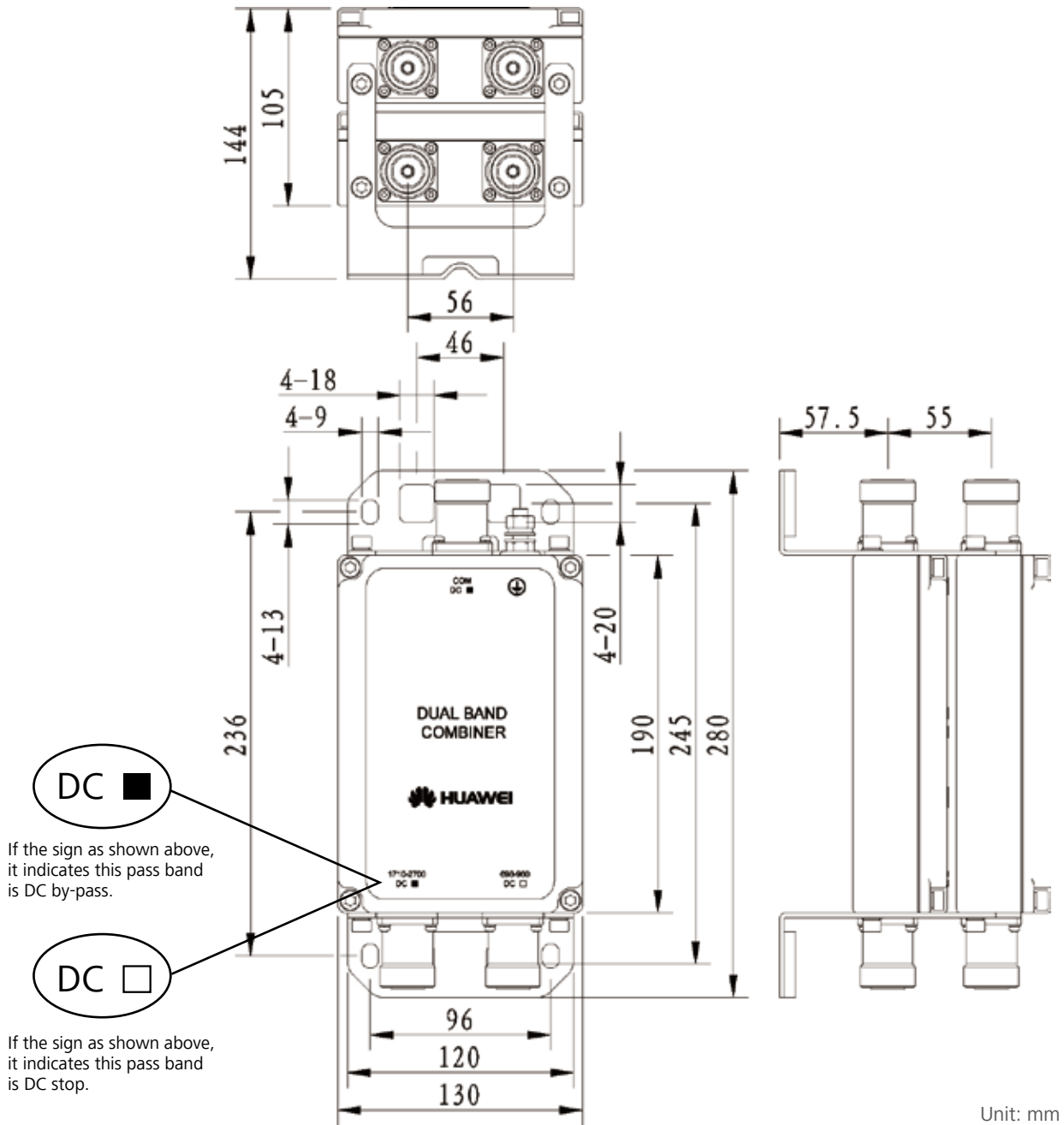
ACOMD2H00

Preliminary Issue

Electrical Properties		
Model	ACOMD2H00	
Pass band (MHz)	Band 1	698 - 960
	Band 2	1710 - 2700
Insertion loss* (dB)	Port 1 ↔ Port 3	< 0.2 (698 MHz - 960 MHz)
	Port 2 ↔ Port 3	< 0.25 (1710 MHz - 2700 MHz)
DC/AISG transparency	Port 1 ↔ Port 3	Stop
	Port 2 ↔ Port 3	By-pass (max. 2500 mA)
Isolation (dB)	> 40	
VSWR	< 1.28	
Input power (W)	Port 1, Port 2	< 300
Intermodulation products (dBm)	< -110 (3rd order; with 2 x 43 dBm)	
Environmental Specifications		
Operating temperature (°C)	-40 .. +65	
Application scene	Indoor // Outdoor	
IP rating	IP67	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
Combiner dimensions (W x H x D) (mm)	Double Unit: 130 x 190 x 105 (without connectors, without mounting brackets)	
Combiner weight (kg)	Double Unit: ≤ 4.3	
Mounting	Wall mounting // Mast mounting	
Mast diameter (mm)	Default: 40 - 135	
Connector	7/16 DIN Female (Long neck)	

*Insertion loss: $\bar{IL} = \frac{IL_{\text{Min.Frequency}} + 2 \times IL_{\text{Mid.Frequency}} + IL_{\text{Max.Frequency}}}{4}$

Preliminary Issue



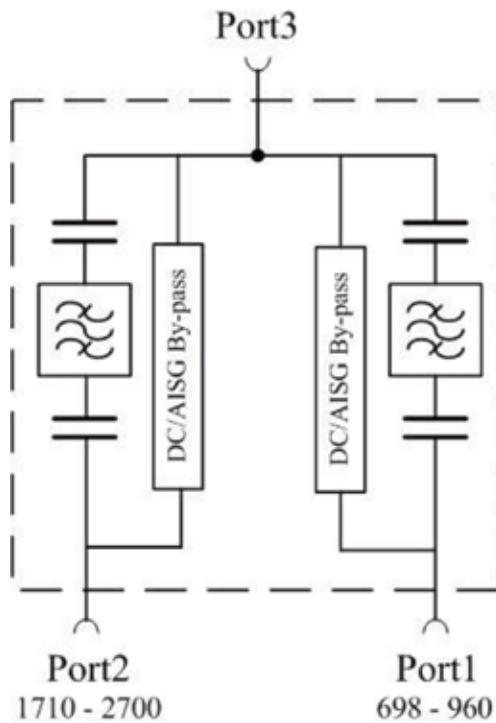
Preliminary Issue

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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



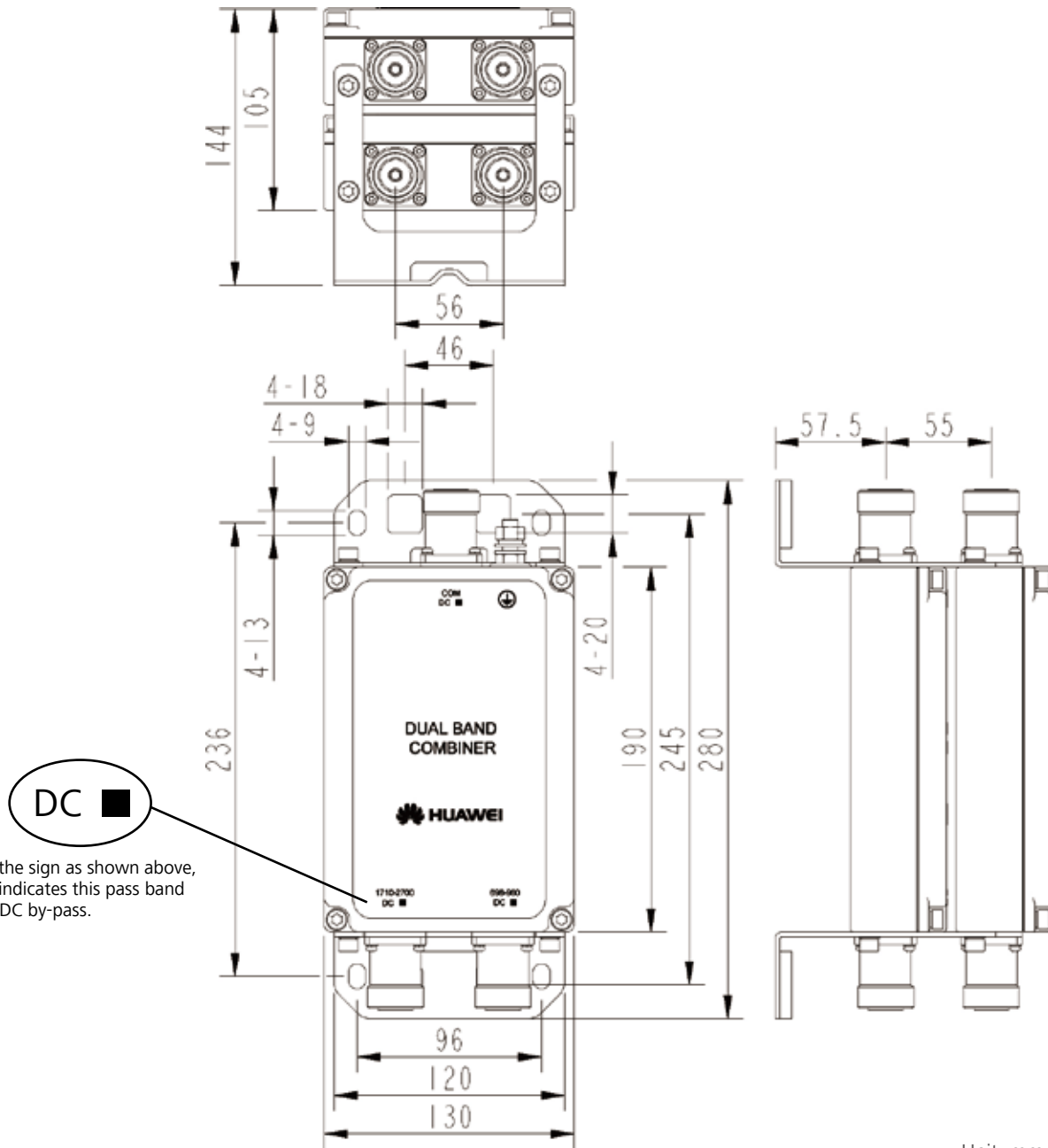
ACOMD2H22

Preliminary Issue

Electrical Properties		
Model	ACOMD2H22	
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	By-pass (max. 2500 mA)
	Port 2 ↔ Port 3	By-pass (max. 2500 mA)
Isolation (dB)	> 40	
VSWR	< 1.28	
Input power (W)	Port 1, Port 2	< 300
Intermodulation products (dBm)	< -110 (3rd order; with 2 x 43 dBm)	
Environmental Specifications		
Operating temperature (°C)	-40 ... +65	
Application scene	Indoor // Outdoor	
IP rating	IP67	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
Combiner dimensions (W x H x D) (mm)	Double Unit: 130 x 190 x 105 (without connectors, without mounting brackets)	
Combiner weight (kg)	Double Unit: ≤ 4.3	
Mounting	Wall mounting // Mast mounting	
Mast diameter (mm)	Default: 40 - 135	
Connector	7/16 DIN Female	

$$*\text{Insertion loss: } \bar{IL} = \frac{IL_{\text{Min.Frequency}} + 2 \times IL_{\text{Mid.Frequency}} + IL_{\text{Max.Frequency}}}{4}$$

Preliminary Issue



Unit: mm

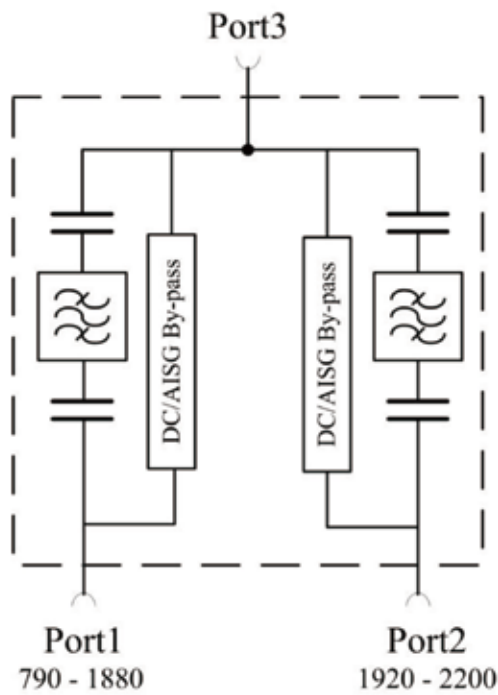
Preliminary Issue

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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



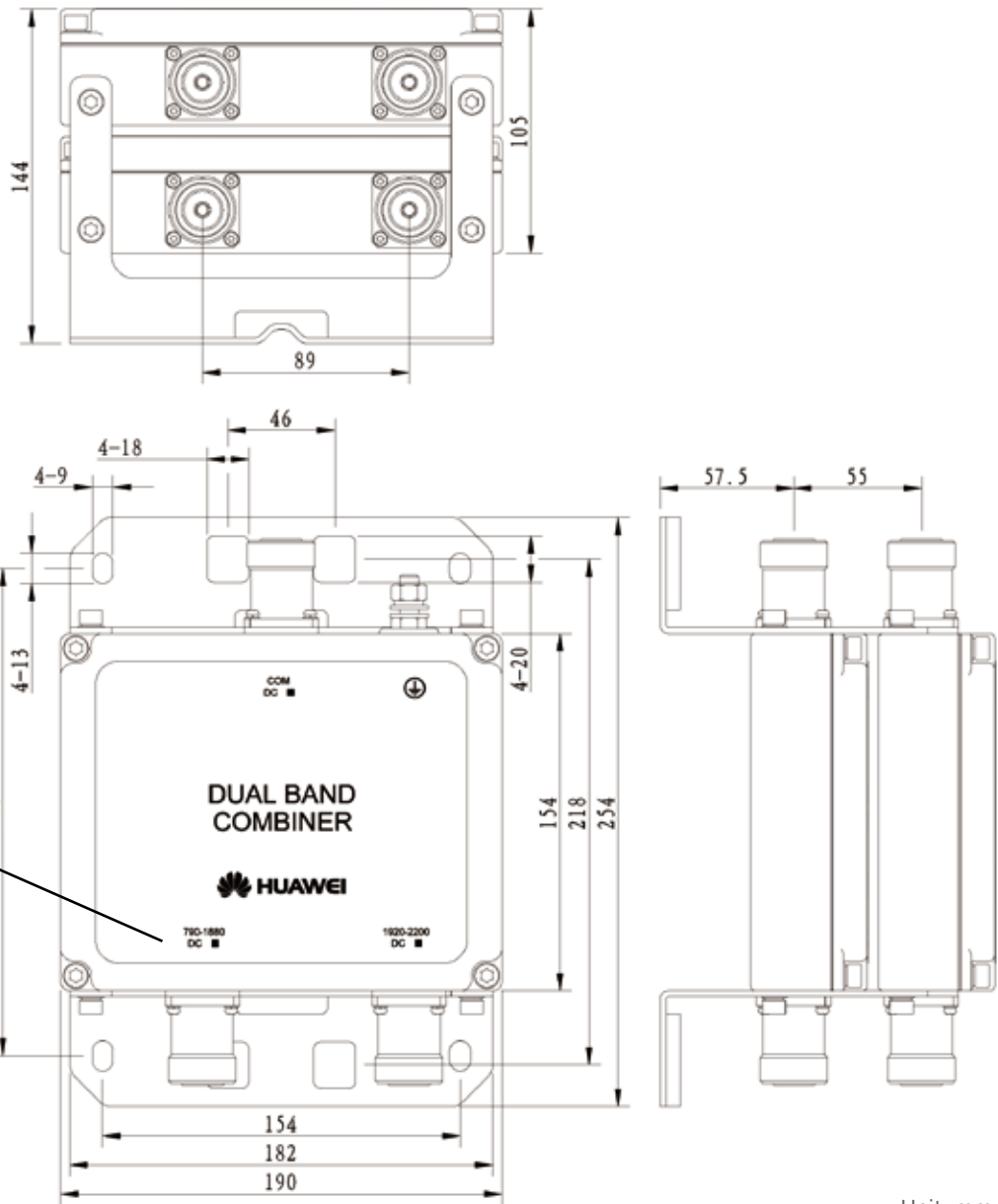
ACOMD2H21

Preliminary Issue

Electrical Properties		
Model	ACOMD2H21	
Pass band (MHz)	Band 1	790 - 1880
	Band 2	1920 - 2200
Insertion loss* (dB)	Port 1 ↔ Port 3	< 0.15 (790 MHz - 960 MHz)
		< 0.25 (1710 MHz - 1880 MHz)
	Port 2 ↔ Port 3	< 0.25 (1920 MHz - 2200 MHz)
DC/AISG transparency	Port 1 ↔ Port 3	By-pass (max. 2500 mA)
	Port 2 ↔ Port 3	By-pass (max. 2500 mA)
Isolation (dB)	> 45	
VSWR	< 1.28	
Input power (W)	Port 1, Port 2	< 300
Intermodulation products (dBm)	< -110 (3rd order; with 2 x 43 dBm)	
Environmental Specifications		
Operating temperature (°C)	-40 .. +65	
Application scene	Indoor // Outdoor	
IP rating	IP67	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
Combiner dimensions (W x H x D) (mm)	Double Unit: 190 x 154 x 105 (without connectors, without mounting brackets)	
Combiner weight (kg)	Double Unit: ≤ 5.5	
Mounting	Wall mounting // Mast mounting	
Mast diameter (mm)	Default: 40 - 135	
Connector	7/16 DIN Female (Long neck)	

*Insertion loss: $\bar{IL} = \frac{IL_{\text{Min.Frequency}} + 2 \times IL_{\text{Mid.Frequency}} + IL_{\text{Max.Frequency}}}{4}$

Preliminary Issue



DC ■

If the sign as shown above, it indicates this pass band is DC by-pass.

Unit: mm

DC-1710-1880/1920-2200-01

Model: ACOMD2H06

DC-1710-1880/1920-2200-11

Model: ACOMD2H08

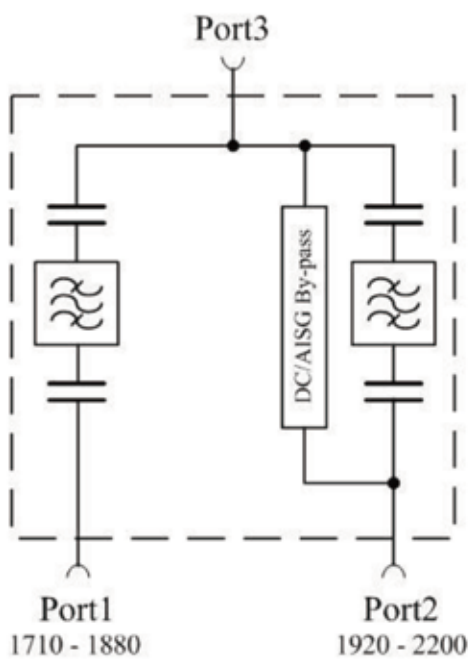


Product Description

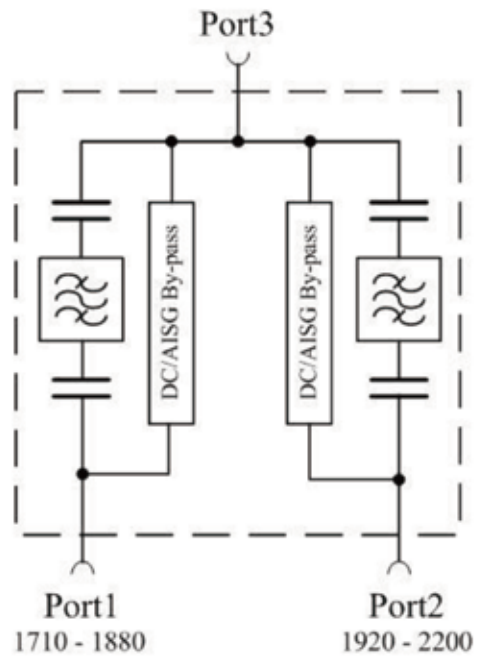
- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



ACOMD2H06



ACOMD2H08

DC-1710-1880/1920-2200-01

Model: ACOMD2H06

DC-1710-1880/1920-2200-11

Model: ACOMD2H08



Electrical Properties

Model		ACOMD2H06	ACOMD2H08
Pass band (MHz)	Band 1	1710 - 1880	
	Band 2	1920 - 2200	
Insertion loss* (dB)	Port 1 ↔ Port 3	< 0.25 (1710 MHz - 1880 MHz)	
	Port 2 ↔ Port 3	< 0.25 (1920 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)		> 45	
VSWR		< 1.28	
Input power (W)	Port 1, Port 2	< 300	
Intermodulation products (dBm)		< -110 (3rd order; with 2 x 43 dBm)	

Environmental Specifications

Operating temperature (°C)	-40 .. +65
Application scene	Indoor // Outdoor
IP rating	IP67
Lightning protection (kA)	10 (8/20 us)

Mechanical Specifications

Combiner dimensions (W x H x D) (mm)	Double Unit: 160 x 154 x 103 (without connectors, without mounting brackets)
Combiner weight (kg)	Double Unit: ≤ 4.8
Mounting	Wall mounting // Mast mounting
Mast diameter (mm)	Default: 40 - 135
Connector	7/16 DIN Female (Long neck)

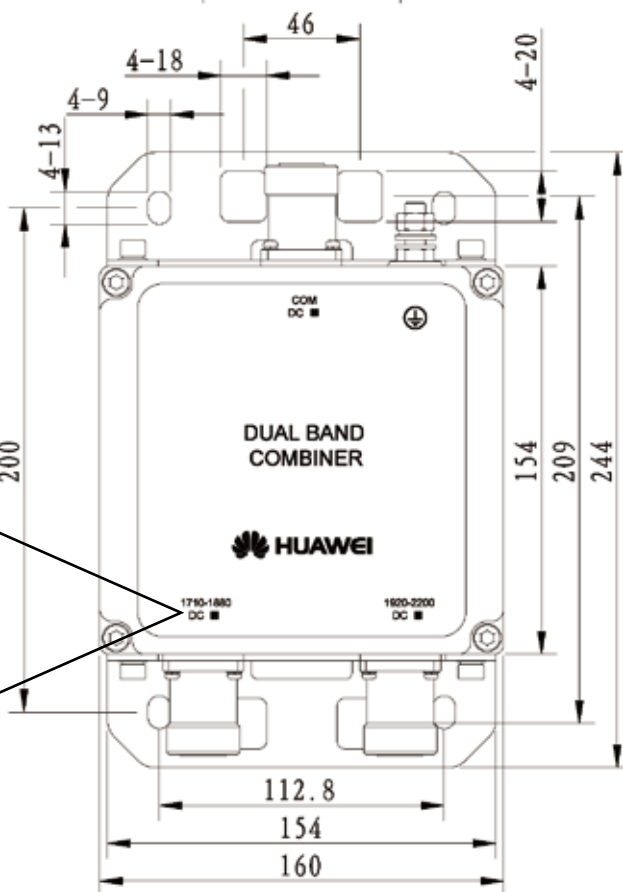
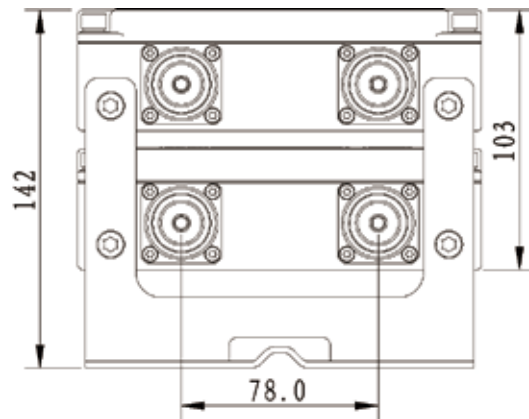
*Insertion loss: $\bar{IL} = \frac{IL_{\text{Min.Frequency}} + 2 \times IL_{\text{Mid.Frequency}} + IL_{\text{Max.Frequency}}}{4}$

DC-1710-1880/1920-2200-01

Model: ACOMD2H06

DC-1710-1880/1920-2200-11

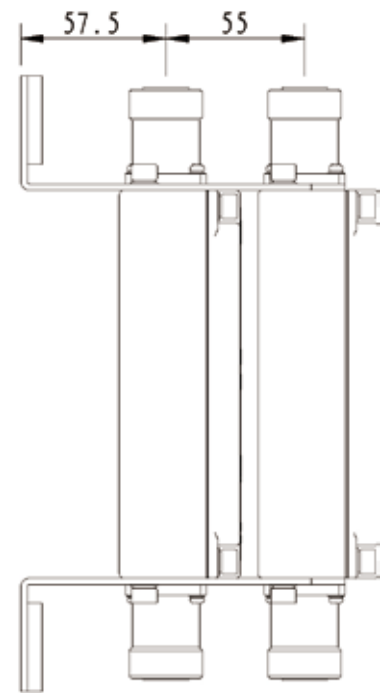
Model: ACOMD2H08



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

B - 02

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

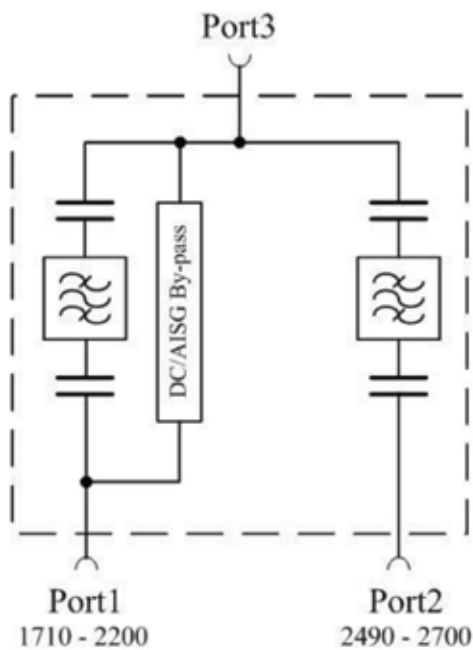
www.huawei.com

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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



ACOMD2L04

Electrical Properties

Model	ACOMD2L04	
Pass band (MHz)	Band 1	1710 - 2200
	Band 2	2490 - 2700
Insertion loss* (dB)	Port 1 ↔ Port 3	< 0.15 (1710 MHz - 2200 MHz)
	Port 2 ↔ Port 3	< 0.15 (2490 MHz - 2700 MHz)
DC/AISG transparency	Port 1 ↔ Port 3	By-pass (max. 2500 mA)
	Port 2 ↔ Port 3	Stop
Isolation (dB)	> 45	
VSWR	< 1.28	
Input power (W)	Port 1, Port 2	< 300
Intermodulation products (dBm)	< -110 (3rd order; with 2 x 43 dBm)	

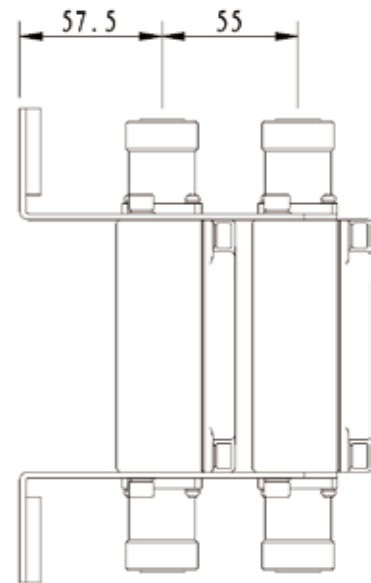
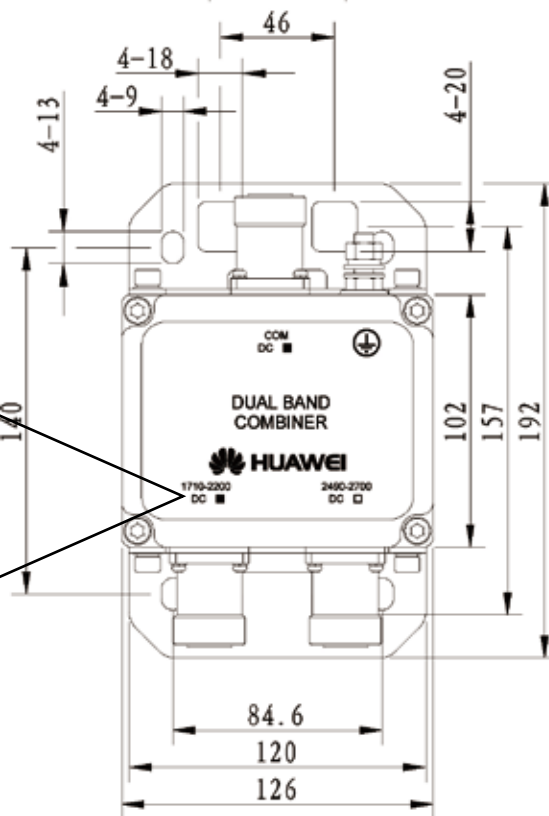
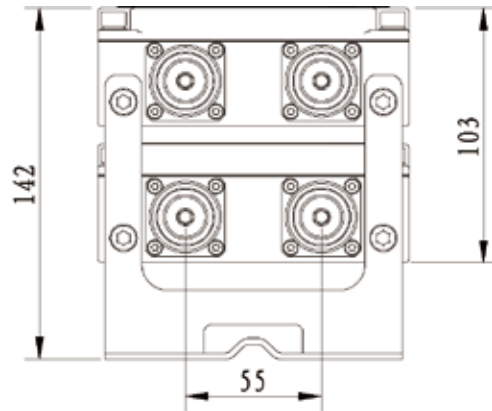
Environmental Specifications

Operating temperature (°C)	-40 .. +65
Application scene	Indoor // Outdoor
IP rating	IP67
Lightning protection (kA)	10 (8/20 us)

Mechanical Specifications

Combiner dimensions (W x H x D) (mm)	Double Unit: 126 x 102 x 103 (without connectors, without mounting brackets)
Combiner weight (kg)	Double Unit: ≤ 3.2
Mounting	Wall mounting // Mast mounting
Mast diameter (mm)	Default: 40 - 135
Connector	7/16 DIN Female (Long neck)

*Insertion loss: $\bar{IL} = \frac{IL_{Min.Frequency} + 2 \times IL_{Mid.Frequency} + IL_{Max.Frequency}}{4}$



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

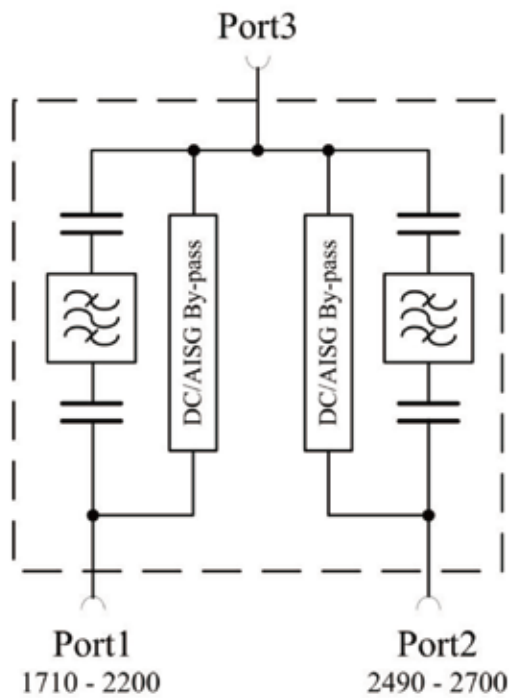
Preliminary Issue

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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



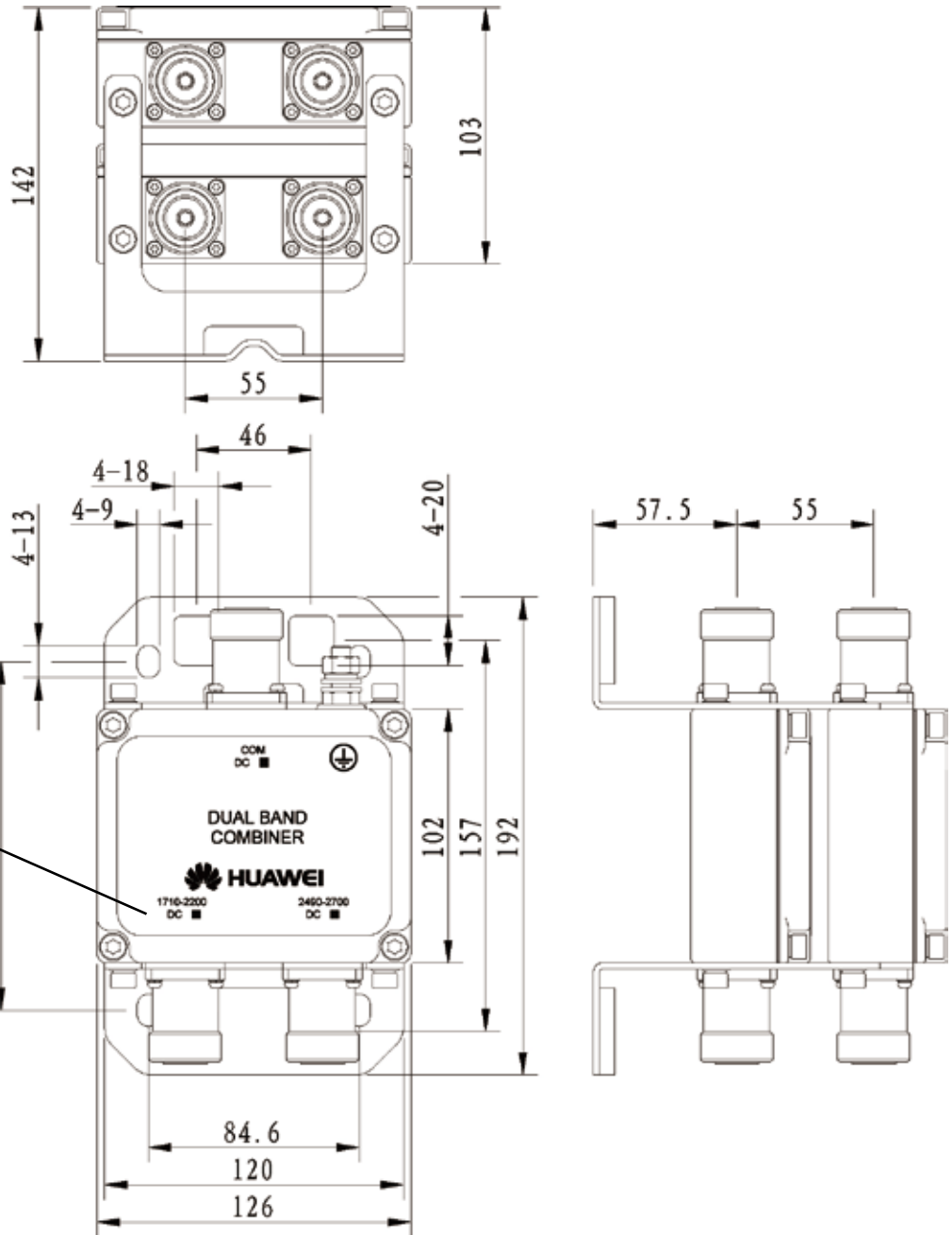
ACOMD2H16

Preliminary Issue

Electrical Properties		
Model	ACOMD2H16	
Pass band (MHz)	Band 1	1710 - 2200
	Band 2	2490 - 2700
Insertion loss* (dB)	Port 1 ↔ Port 3	< 0.15 (1710 MHz - 2200 MHz)
	Port 2 ↔ Port 3	< 0.15 (2490 MHz - 2700 MHz)
DC/AISG transparency	Port 1 ↔ Port 3	By-pass (max. 2500 mA)
	Port 2 ↔ Port 3	By-pass (max. 2500 mA)
Isolation (dB)	> 45	
VSWR	< 1.28	
Input power (W)	Port 1, Port 2	< 300
Intermodulation products (dBm)	< -110 (3rd order; with 2 x 43 dBm)	
Environmental Specifications		
Operating temperature (°C)	-40 .. +65	
Application scene	Indoor // Outdoor	
IP rating	IP67	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
Combiner dimensions (W x H x D) (mm)	Double Unit: 126 x 102 x 103 (without connectors, without mounting brackets)	
Combiner weight (kg)	Double Unit: ≤ 3.2	
Mounting	Wall mounting // Mast mounting	
Mast diameter (mm)	Default: 40 - 135	
Connector	7/16 DIN Female (Long neck)	

*Insertion loss: $\bar{IL} = \frac{IL_{\text{Min.Frequency}} + 2 \times IL_{\text{Mid.Frequency}} + IL_{\text{Max.Frequency}}}{4}$

Preliminary Issue



Unit: mm

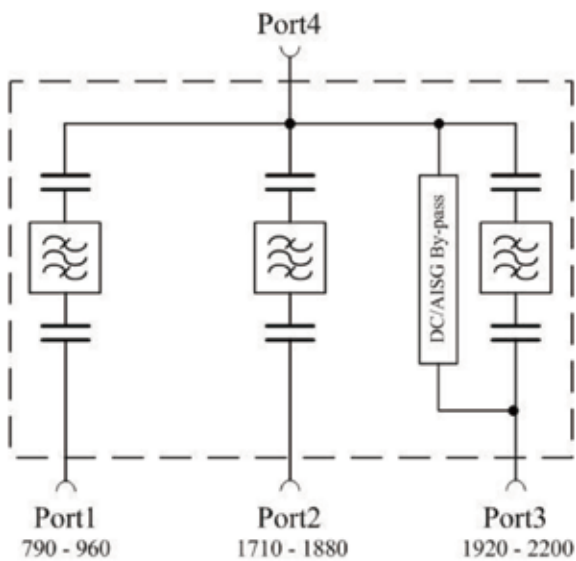
B - 02

Product Description

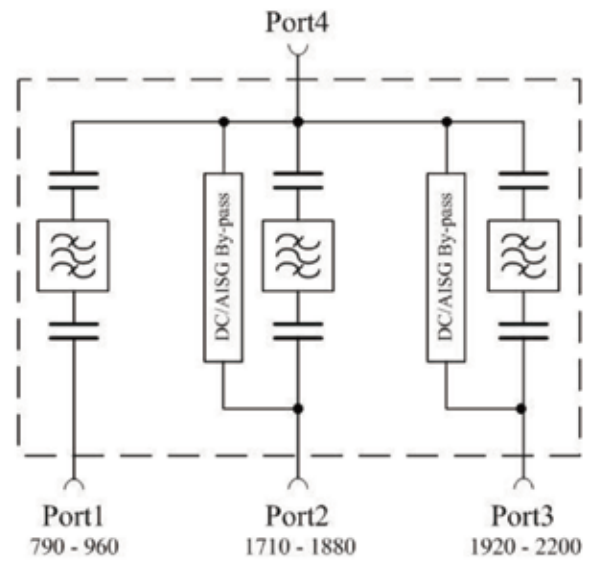
- Built-in lightning protection up to 10 kA.
- Can be used as a combiner near the BTS or in a reciprocal function near the antenna.
- Designed for co-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



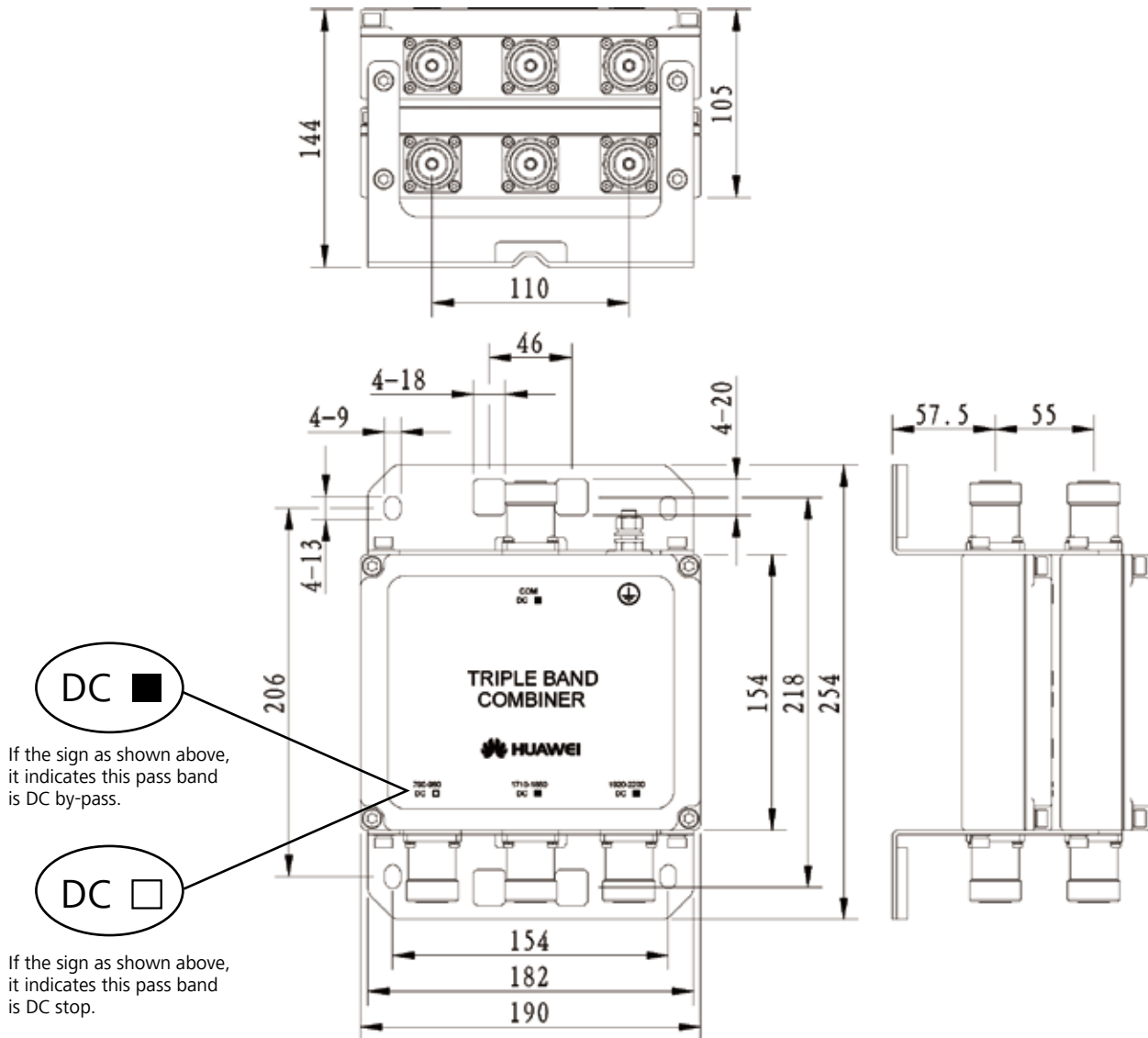
ACOMT2H01



ACOMT2H03

Electrical Properties			
Model		ACOMT2H01	ACOMT2H03
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
	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)		> 45	
VSWR		< 1.28	
Input power (W)	Port 1, Port 2, Port3	< 300	
Intermodulation products (dBm)		< -110 (3rd order; with 2 x 43 dBm)	
Environmental Specifications			
Operating temperature (°C)		-40 .. +65	
Application scene		Indoor // Outdoor	
IP rating		IP67	
Lightning protection (kA)		10 (8/20 us)	
Mechanical Specifications			
Combiner dimensions (W x H x D) (mm)		Double Unit: 190 x 154 x 105 (without connectors, without mounting brackets)	
Combiner weight (kg)		Double Unit: ≤ 6.3	
Mounting		Wall mounting // Mast mounting	
Mast diameter (mm)		Default: 40 - 135	
Connector		7/16 DIN Female (Long neck)	

$$*Insertion\ loss:\ \bar{IL} = \frac{IL_{Min.Frequency} + 2 \times IL_{Mid.Frequency} + IL_{Max.Frequency}}{4}$$



Unit: mm

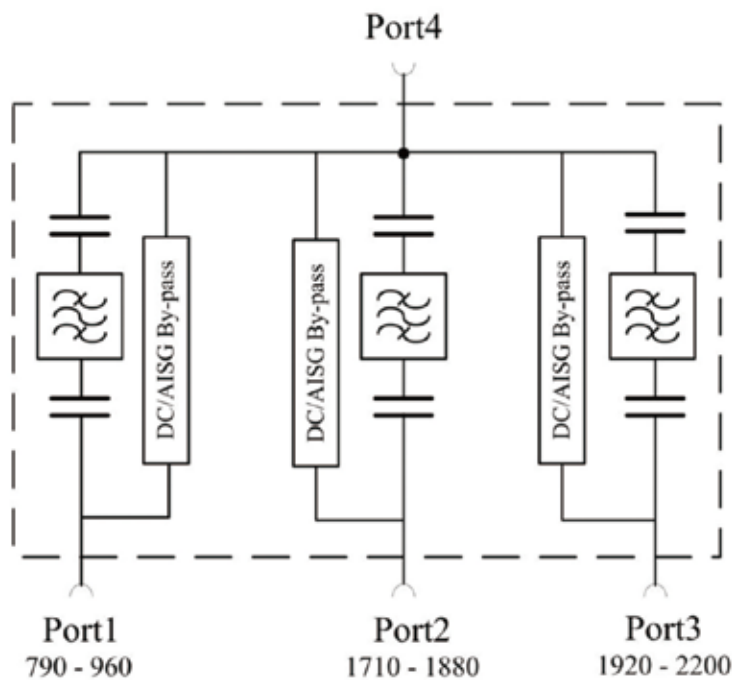
Preliminary Issue

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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



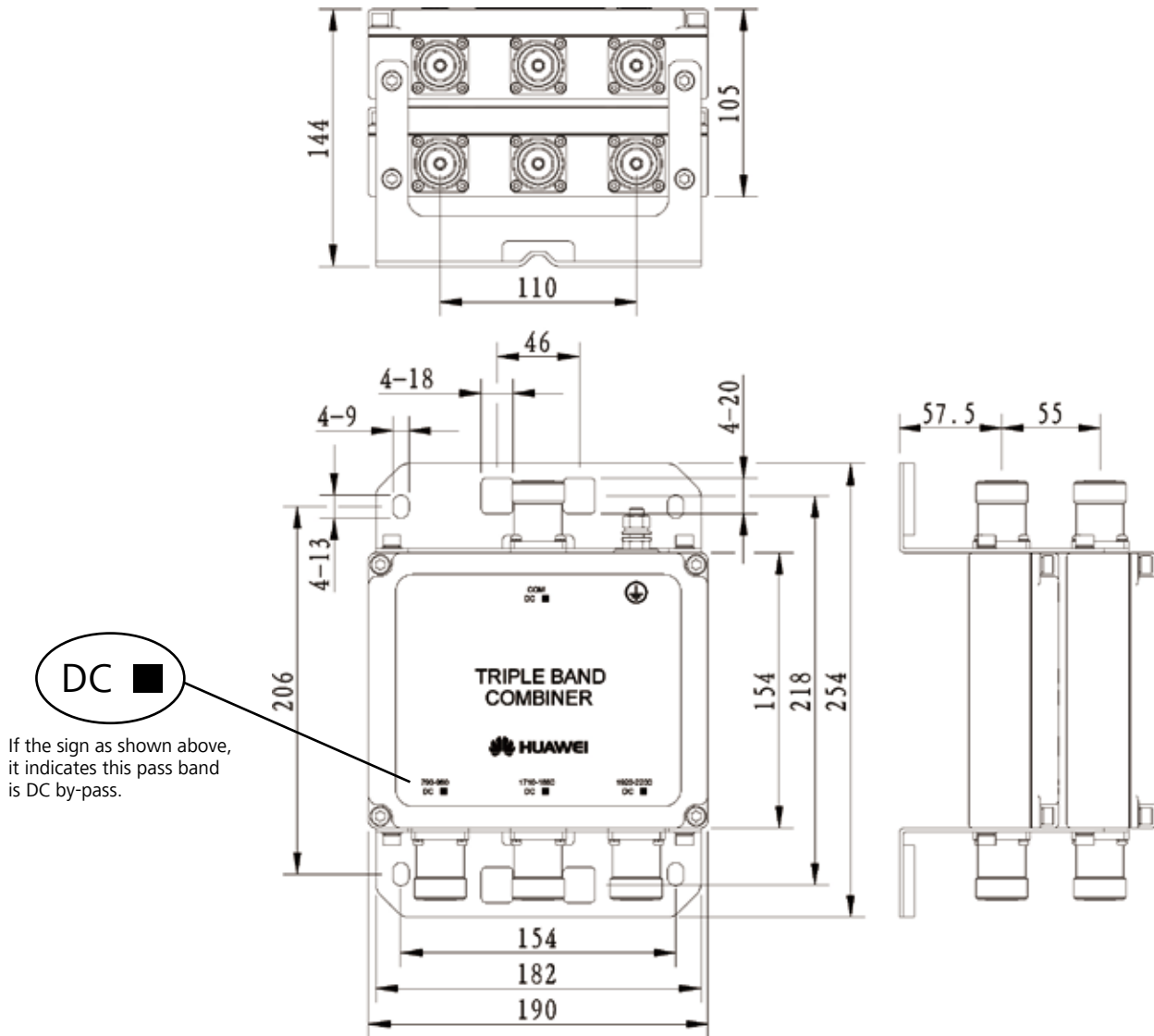
ACOMT2H08

Preliminary Issue

Electrical Properties		
Model	ACOMT2H08	
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	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 (dBm)	< -110 (3rd order; with 2 x 43 dBm)	
Environmental Specifications		
Operating temperature (°C)	-40 ... +65	
Application scene	Indoor // Outdoor	
IP rating	IP67	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
Combiner dimensions (W x H x D) (mm)	Double Unit: 190 x 154 x 105 (without connectors, without mounting brackets)	
Combiner weight (kg)	Double Unit: ≤ 6.3	
Mounting	Wall mounting // Mast mounting	
Mast diameter (mm)	Default: 40 - 135	
Connector	7/16 DIN Female (Long neck)	

*Insertion loss: $\bar{IL} = \frac{IL_{\text{Min.Frequency}} + 2 \times IL_{\text{Mid.Frequency}} + IL_{\text{Max.Frequency}}}{4}$

Preliminary Issue



Unit: mm

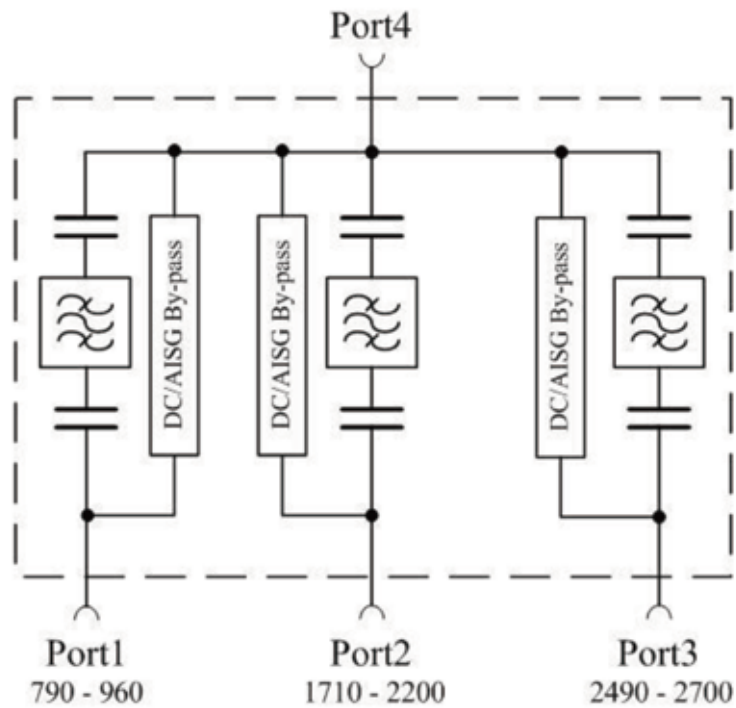
Preliminary Issue

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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



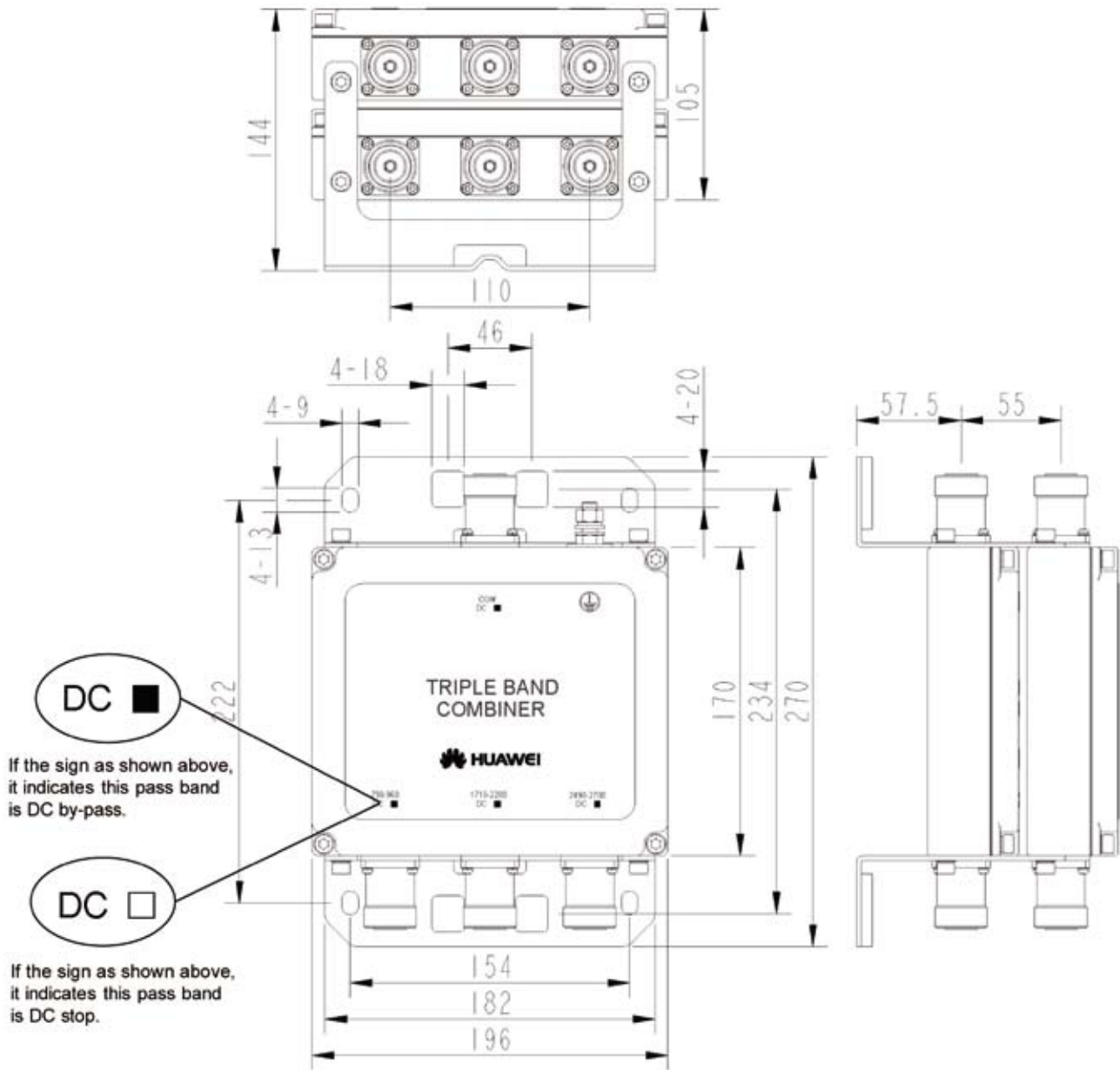
ACOMT2M09

Preliminary Issue

Electrical Properties		
Model	ACOMT2M09	
Pass band (MHz)	Band 1	790 - 960
	Band 2	1710 - 2200
	Band 3	2490 - 2700
Insertion loss* (dB)	Port 1 ↔ Port 4	< 0.15 (790 MHz - 960 MHz)
	Port 2 ↔ Port 4	< 0.25 (1710 MHz - 2200 MHz)
	Port 3 ↔ Port 4	< 0.2 (2490 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)	> 45	
VSWR	< 1.28	
Input power (W)	Port 1, Port 2, Port3	< 300
Intermodulation products (dBm)	< -110 (3rd order; with 2 x 43 dBm)	
Environmental Specifications		
Operating temperature (°C)	-40 ... +65	
Application scene	Indoor // Outdoor	
IP rating	IP67	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
Combiner dimensions (W x H x D) (mm)	Double Unit: 215 x 200 x 105 (without connectors, without mounting brackets)	
Combiner weight (kg)	Double Unit: ≤ 7.3	
Mounting	Wall mounting // Mast mounting	
Mast diameter (mm)	Default: 40 - 135	
Connector	7/16 DIN Female (Long neck)	

*Insertion loss: $\bar{IL} = \frac{IL_{Min.Frequency} + 2 \times IL_{Mid.Frequency} + IL_{Max.Frequency}}{4}$

Preliminary Issue



Unit: mm

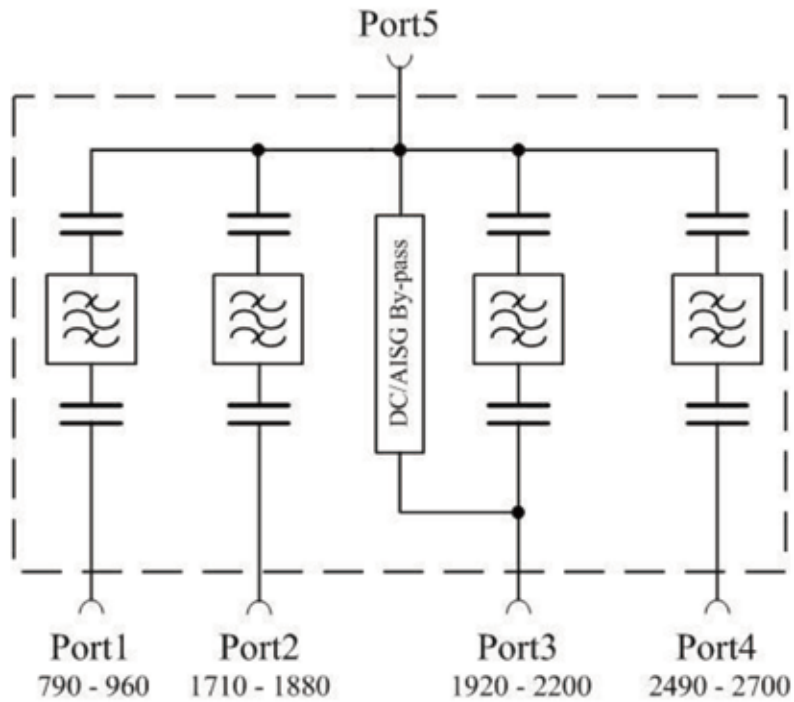
Preliminary Issue

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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



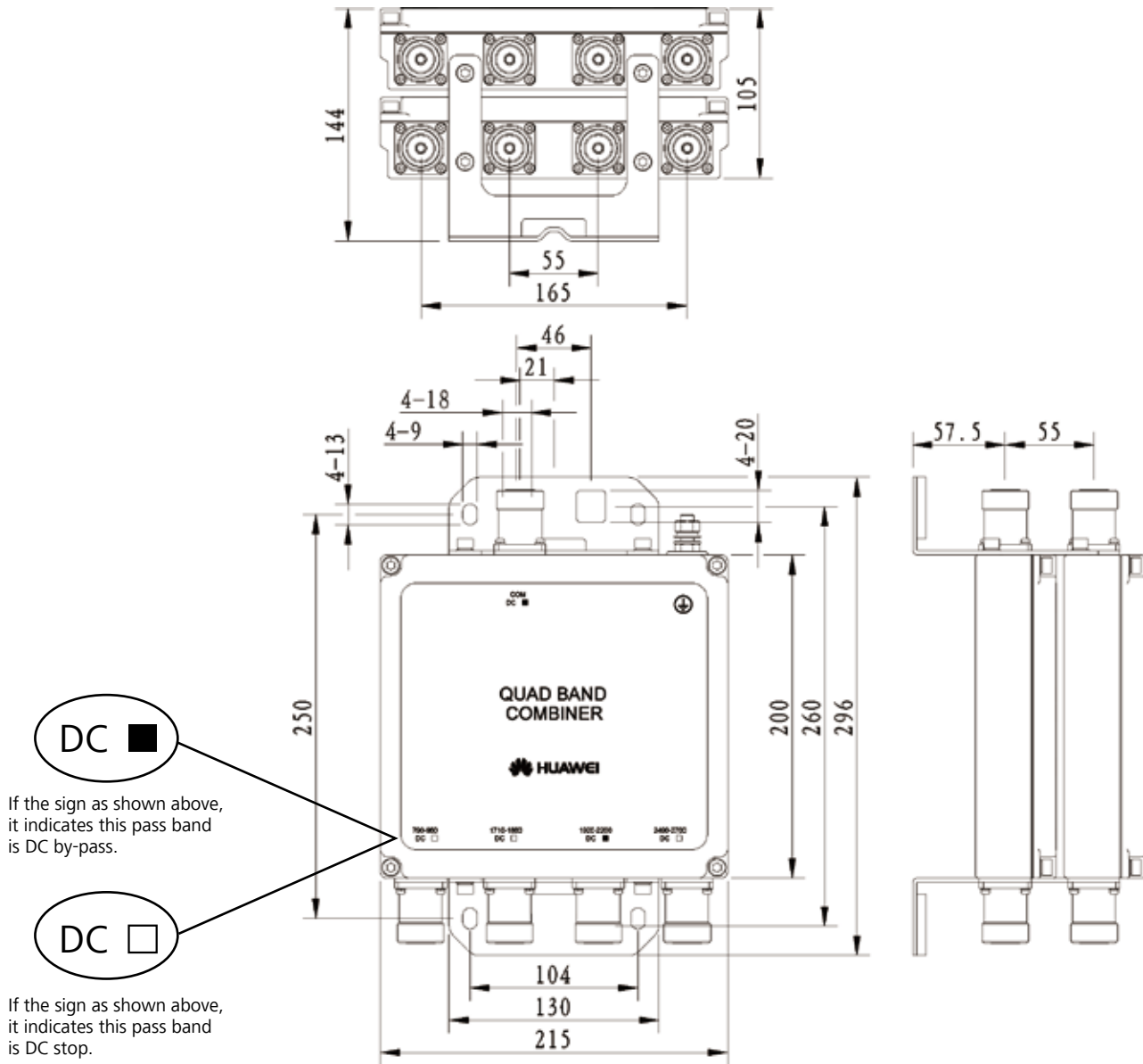
ACOMQ2M00

Preliminary Issue

Electrical Properties		
Model	ACOMQ2M00	
Pass band (MHz)	Band 1	790 - 960
	Band 2	1710 - 1880
	Band 3	1920 - 2200
	Band 4	2490 - 2700
Insertion loss* (dB)	Port 1 ↔ Port 5	< 0.15 (790 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	< 0.2 (2490 MHz - 2700 MHz)
DC/AISG transparency	Port 1 ↔ Port 5	Stop
	Port 2 ↔ Port 5	Stop
	Port 3 ↔ Port 5	By- pass (max. 2500 mA)
	Port 4 ↔ Port 5	Stop
Isolation (dB)	> 45	
VSWR	< 1.28	
Input power (W)	Port 1, Port 2 Port 3, Port 4	< 300
Intermodulation products (dBm)	< -110 (3rd order; with 2 x 43 dBm)	
Environmental Specifications		
Operating temperature (°C)	-40 .. +65	
Application scene	Indoor // Outdoor	
IP rating	IP67	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
Combiner dimensions (W x H x D) (mm)	Double Unit: 215 x 200 x 105 (without connectors, without mounting brackets)	
Combiner weight (kg)	Double Unit: ≤ 7.5	
Mounting	Wall mounting // Mast mounting	
Mast diameter (mm)	Default: 40 - 135	
Connector	7/16 DIN Female (Long neck)	

*Insertion loss: $\bar{IL} = \frac{IL_{Min.Frequency} + 2 \times IL_{Mid.Frequency} + IL_{Max.Frequency}}{4}$

Preliminary Issue



Unit: mm

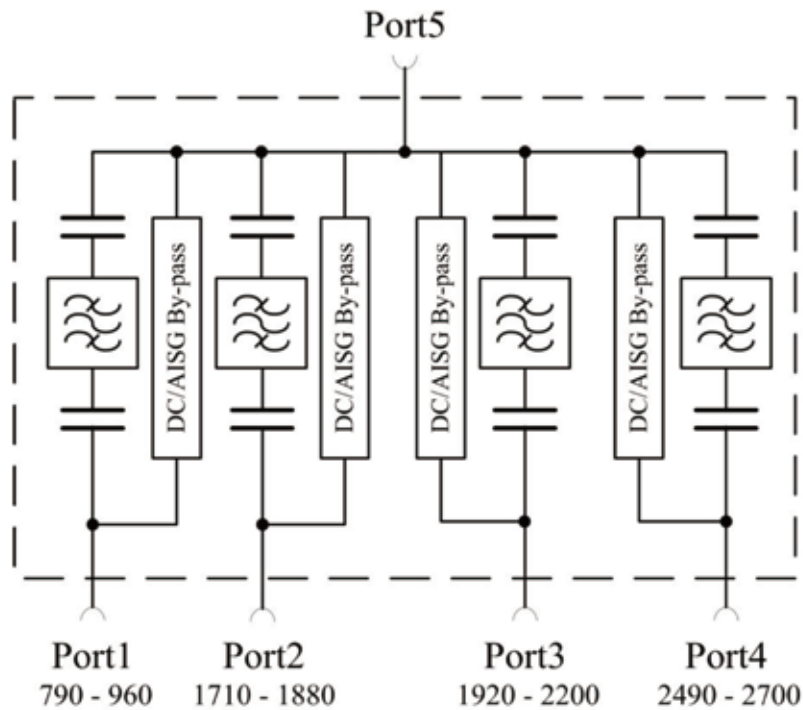
Preliminary Issue

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-siting purposes.
- Feeder sharing available.
- Suitable for indoor or outdoor applications.
- Wall or mast mounting.



Block Diagram



ACOMQ2H00

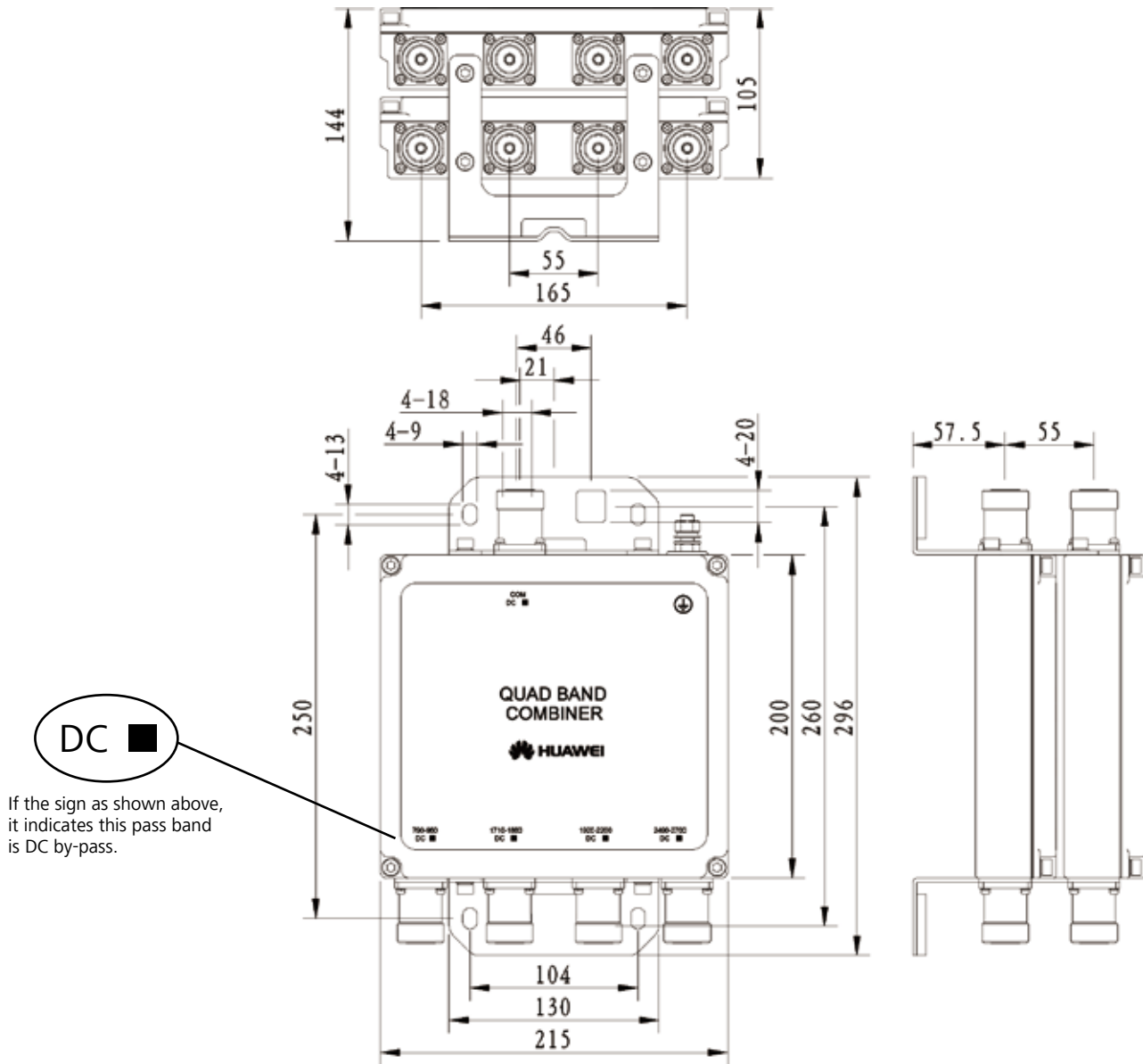


Preliminary Issue

Electrical Properties		
Model	ACOMQ2H00	
Pass band (MHz)	Band 1	790 - 960
	Band 2	1710 - 1880
	Band 3	1920 - 2200
	Band 4	2490 - 2700
Insertion loss* (dB)	Port 1 ↔ Port 5	< 0.15 (790 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	< 0.2 (2490 MHz - 2700 MHz)
DC/AISG transparency	Port 1 ↔ Port 5	By- pass (max. 2500 mA)
	Port 2 ↔ Port 5	By- pass (max. 2500 mA)
	Port 3 ↔ Port 5	By- pass (max. 2500 mA)
	Port 4 ↔ Port 5	By- pass (max. 2500 mA)
Isolation (dB)	> 45	
VSWR	< 1.28	
Input power (W)	Port 1, Port 2 Port 3, Port 4	< 300
Intermodulation products (dBm)	< -110 (3rd order; with 2 x 43 dBm)	
Environmental Specifications		
Operating temperature (°C)	-40 ... +65	
Application scene	Indoor // Outdoor	
IP rating	IP67	
Lightning protection (kA)	10 (8/20 us)	
Mechanical Specifications		
Combiner dimensions (W x H x D) (mm)	Double Unit: 215 x 200 x 105 (without connectors, without mounting brackets)	
Combiner weight (kg)	Double Unit: ≤ 7.5	
Mounting	Wall mounting // Mast mounting	
Mast diameter (mm)	Default: 40 - 135	
Connector	7/16 DIN Female (Long neck)	

*Insertion loss: $\bar{IL} = \frac{IL_{Min.Frequency} + 2 \times IL_{Mid.Frequency} + IL_{Max.Frequency}}{4}$

Preliminary Issue



Unit: mm

DC-STOP 690-2700

Model: ADCSTOP00



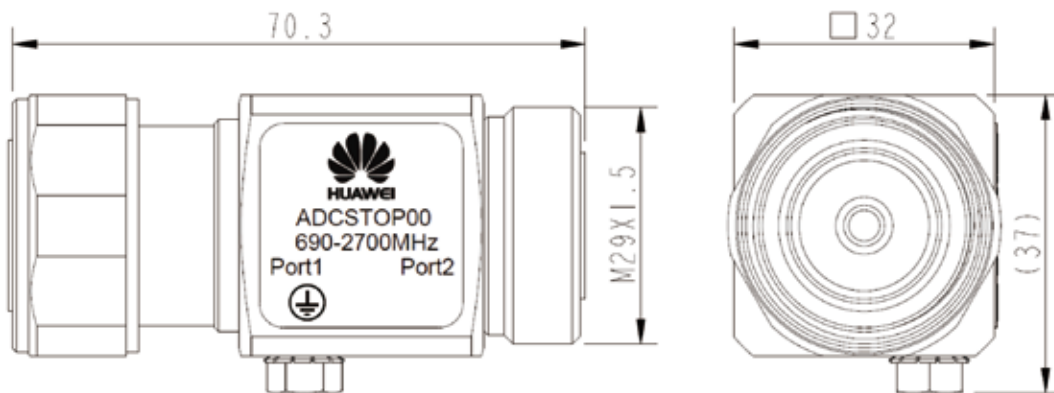
Preliminary Issue

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



ACOMQ2M00

DC-STOP 690-2700

Model: ADCSTOP00



Preliminary Issue

Electrical Properties		
Model		ADCSTOP00
Frequency range (MHz)		698 - 2690
Insertion loss (dB)	Port 1 ↔ Port 2	≤ 0.1 (698 - 960 MHz // 1710 - 2690 MHz) ≤ 0.15 (960 - 1710 MHz)
Isolation for DC signal (dB)	Port 1 ↔ Port 2	≥ 70
VSWR	Port 1 and Port 2	≤ 1.15 (698 - 960 MHz // 1710 - 2690 MHz) ≤ 1.2 (960 - 1710 MHz)
Input power (W)	Port 1 and Port 2	Avg. ≥ 500 (698 - 2690 MHz)
RF Impedance (Ω)		50
Intermodulation products (dBc)		< -160 (2 x 43 dBm carrier)
Environmental Specifications		
Operating temperature (°C)		-40 ... +70
Application scene		Indoor // Outdoor
IP rating		IP66
Lightning protection (kA)		3 (10/350 us)
Mechanical Specifications		
BT Dimensions (W x H x D) (mm)		32 x 70.3 x 37 (with connectors and ground screw)
BT net Weight (kg)		< 0.32
Connectors	Port 1	7/16 DIN Male
	Port 2	7/16 DIN Female

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

C. RET system

C - 01. Remote Control Unit (RCU)

Antenna and RCU configuration list						290
Input voltage range (V)	AISG type	Adjustment time (full range) (min)	Calibration time (min)	Dimension (mm)	Model	Page
DC 10 - 30	AISG 1.1	< 2	< 4	200 x 56 x 47	ARCU01104 (AISG 1.1)	291
	AISG 2.0				ARCU02001 (AISG 2.0)	
DC 10 - 30	AISG 1.1	< 1.5 (typically, depending on antenna type)	< 3 (typically, depending on antenna type)	180 x 65 x 54	ARCU01109 (AISG 1.1)	292
	AISG 2.0				ARCU02004 (AISG 2.0)	
DC 10 - 30	AISG 2.0/ AISG-ES-RAE V2.1.0	Typ. < 0.92	Typ. < 1.84	170 x 136 x 27	AIMM02101	293

C - 02. Bias Tee (BT)

Frequency Range (MHz)	AISG type	Insertion loss (dB)	Dimension (mm)	Model	Page
690 - 2700	AISG 1.1 AISG 2.0	≤ 0.1 (690 - 960 MHz / 1710 - 2690 MHz) ≤ 0.15 (960 - 1710 MHz)	48.5 x 151 x 45	ABT000001	294

C - 03. Smart Bias Tee (SBT)

Frequency Range (MHz)	AISG type	Insertion loss (dB)	Dimension (mm)	Model	Page
690 - 2700	AISG 1.1 AISG 2.0	≤ 0.1 (690 - 960 MHz / 1710 - 2690 MHz) ≤ 0.15 (960 - 1710 MHz)	75 x 160 x 45	ASBT00001	297
				ASBT00002	

C - 04. AISG Connecting Cable

AISG Connecting Cables For Remote Electrical Tilt (RET) System					300
AISG Connecting Cables For Huawei RRU RET_Port					301

C - 05. Portable Control Unit (PCU)

Frequency Range (MHz)	AISG type	Insertion loss (dB)	Dimension (mm)	Model	Page
DC 12-15V 1.5A	AISG 1.1 AISG 2.0	Interface to RCU:RS485 / Power supply Interface to PC: USB 2.0	168 x 90 x 44	APCU00001	302

RCU	AISG 1.1	ARCU01104				
	AISG 2.0	ARCU02001				
Antenna Model	Single Band	A90451704	A19452101	A19451703	A25451803	A25451804

RCU	AISG 1.1	ARCU01109				
	AISG 2.0	ARCU02004				
Antenna Model	Single Band Antenna	A79451702	A79451500v01	A79451600v02	A79451700v02	A79451503
		A70451600	A70451700	A19451505	A19451811	A19451902
		A26451500	A26451800v01	A26451900		
	Dual-band Antenna	ADU451503	ADU451602v01	ADU451807v01	ADU4517C0	ADU4518C1
		ADU4518C0	ADU451720	ADU451716	ADU451604	ADU451712
		ADU451826	ADU451827	ADU451611	ADU451819	ADU451902
		ADU451507	ADU451816v01	ADU451901		
	Triple-band Antenna	ATR451500	ATR451602v01	ATR451715	ATR451704v01	ATR451709
		ATR451606	ATR451607	ATR451805	ATR451804	ATR451714
	Hexa-band Antenna	ASI451800				

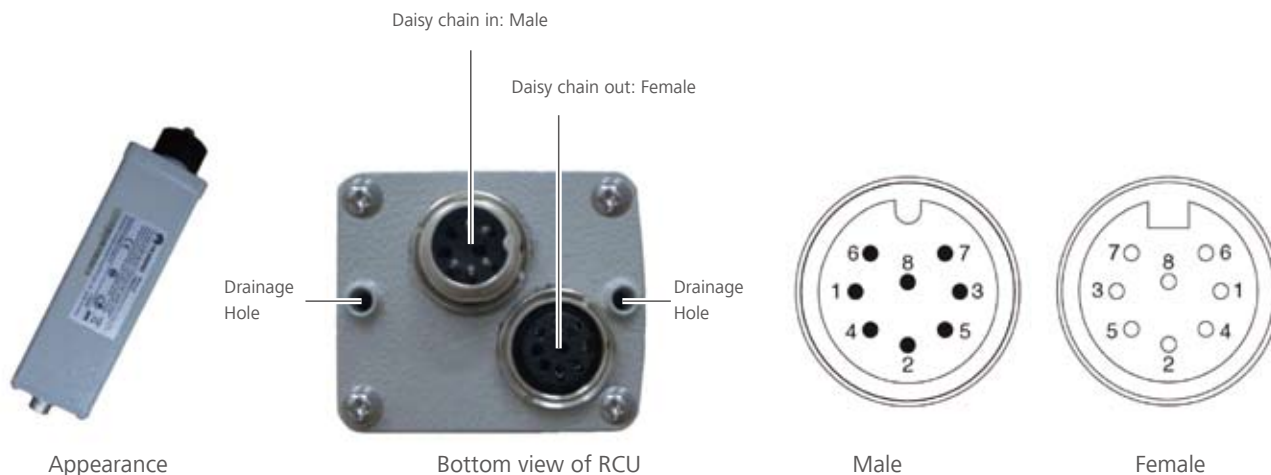
RCU

Model: ARCU01104 (AISG 1.1)
ARCU02001 (AISG 2.0)



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)	10 - 30 DC							
Current (mA)	< 600 (motor activated) < 50 (stand by)							
Adjustment time (full range) (min)	< 2							
Calibration time (min)	< 4							
Connectors	2 x 8 pin connector according to IEC 60130-9 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 in/out	DC return	n/c
Housing material	Profile: Aluminium coated / Cover: Aluminium coated							
Color	Grey							
Weight (g)	600							
Operating temperature range (°C)	-40 .. +65							
Protection class	IP24							
Dimensions (L x W x H) (mm)	200 x 56 x 47							



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.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

RCU

Model: ARCU01109 (AISG 1.1)
ARCU02004 (AISG 2.0)



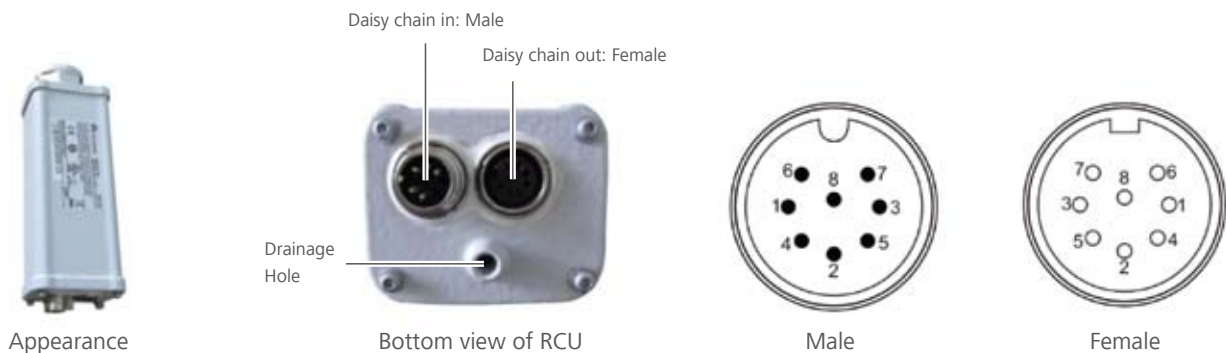
RCU (Remote Control Unit) drives the phase shifter in antenna through mechanical interface to change the electrical downtilt. RCU is suitable for daisy chain solution.

Input voltage range (V)	10 - 30 DC							
Current (mA)	< 10 (motor activated) < 0.5 (stand by)							
Adjustment time (full range) (min)	< 1.5 (typically, depending on antenna type)							
Calibration time (min)	< 3 (typically, depending on antenna type)							
Connectors	2 x 8 pin connector according to IEC 60130-9 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 in/out	DC return	n/c
Housing material	Profile: Aluminium coated / Cover: Aluminium coated							
Color	RAL 7035							
Weight (g)	600							
Operating temperature range (°C)	-40 .. +65							
Protection class	IP24							
Lightning protection (kA)	AISG interface (each pin) 3 (10/350 μ s) 10 (8/20 μ s)							
Dimensions (L x W x H) (mm)	180 x 65 x 54							

Standards: EN 60950-1 (Safety)
EN 55022 (Emission)
EN 55024 (Immunity)
ETSI EN300386 (1.4.1)
FCC part15

Certification: CE、FCC、RoHS、WEEE

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.



Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

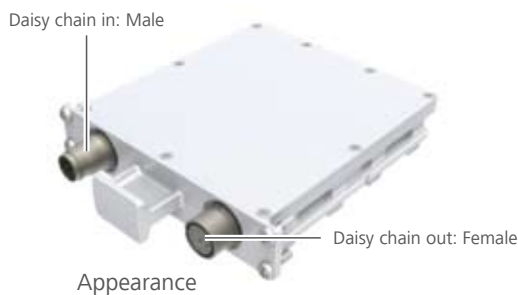
The antenna information management module (AIMM) supports the remote electrical tilt (RET) and remote antenna extension (RAE) functions. The AIMM receives control signals from the master device, drives the phase shifter in the RET antenna to adjust the electrical downtilt, and manages antenna information.

Protocol	RET: AISG 2.0 / 3GPP RAE: AISG-ES-RAE V2.1.0							
Input voltage range (V)	DC 10 - 30							
Power consumption (W)	< 10 (motor activated) < 1.5 (stand by)							
Adjustment time (full range) (s)	Typ. < 55							
Calibration time (s)	Typ. < 110							
Connectors	2 x 8 pin connector according to IEC 60130-9 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
Weight (g)	650							
Operating temperature range (°C)	-40 ... +85							
Lightning protection (kA)	3 (10/350 μs) 10 (8/20 μs)							
Dimensions (L x W x H) (mm)	170 x 136 x 27							

Standards: EN 60950-1 (Safety)
EN 55022 (Emission)
EN 55024 (Immunity)
ETSI EN300386 (1.4.1)
FCC part15
Certification: CE、FCC、RoHS、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. 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.



Features

- Used to feed DC voltage and OOK control signals into the feeder cable.
- 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 1.1 and AISG 2.0 protocol.

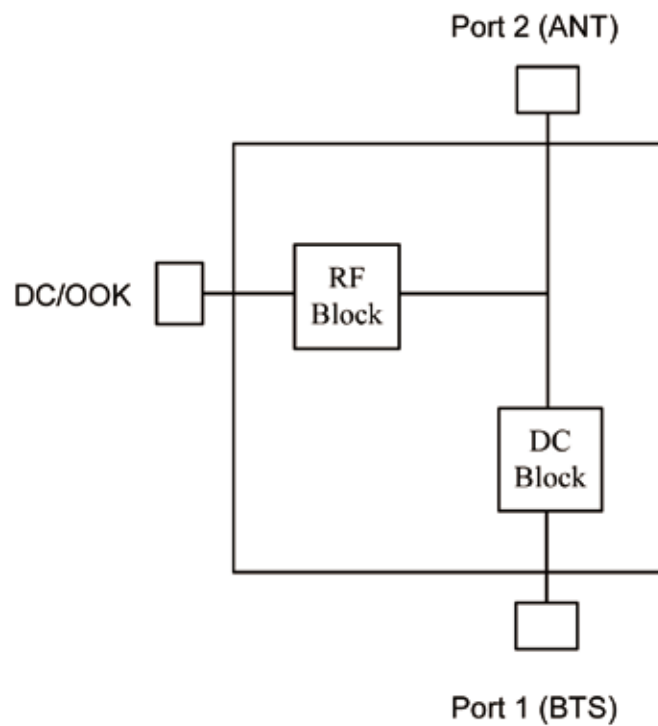


BT = Bias Tee

BTS = Base Transceiver Station

OOK = On Off Keying

Block Diagram



Electrical Properties

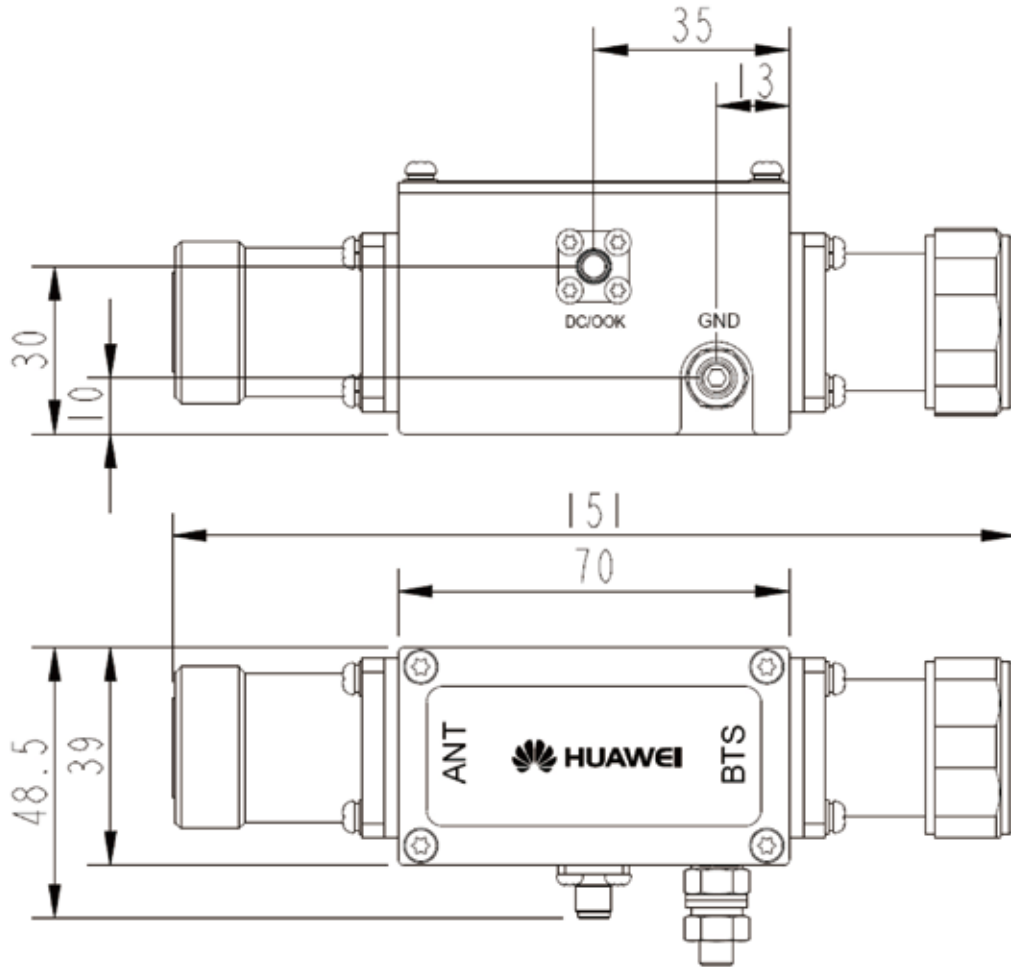
Frequency range (MHz)		690 - 2700
Insertion loss (dB)	Port 1 ↔ Port 2	≤ 0.1 (690 - 960 MHz // 1710 - 2690 MHz) ≤ 0.15 (960 - 1710 MHz)
Isolation for DC signal (dB)	Port 1 ↔ Port 2	≥ 70
	Port 1 ↔ Port DC/OOK	
VSWR	Port 1 and Port 2	≤ 1.15 (690 - 960 MHz // 1710 - 2690 MHz) ≤ 1.2 (960 - 1710 MHz)
Input power (W)	Port 1 and Port 2	Avg. ≥ 500 (690 - 960 MHz) Avg. ≥ 250 (1710 - 2690 MHz)
Input current (mA)	Port DC/OOK ↔ Port 2	≤ 2300
DC voltage reduction (V)	Port DC/OOK ↔ Port 2	≤ 1 (when the current is 2300 mA)
DC supply voltage (V)		0 .. +30
RF Impedance (Ω)		50
Intermodulation products (dBc)		< -160 (2 x 43 dBm carrier)

Environmental Specifications

Operating temperature ($^{\circ}\text{C}$)		-40 .. +70
Application scene		Indoor or outdoor
IP rating		IP66
Lightning protection (kA)		3 (10/350 us)

Mechanical Specifications

BT Dimensions (W x H x D) (mm)		48.5 x 151 x 45 (with connectors)
BT net Weight (kg)		< 0.56
Connectors	Port 1 (BTS)	7/16 DIN Male
	Port 2 (Antenna)	7/16 DIN Female
	Port DC/OOK	SMA Female



Unit: mm

SBT-690-2700-001

Model: ASBT00001

SBT-690-2700-002

Model: ASBT00002



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 1.1 and AISG 2.0 protocol.



ASBT00001



ASBT00002

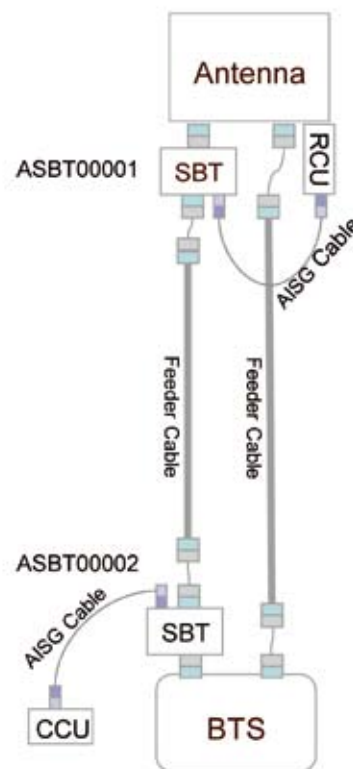
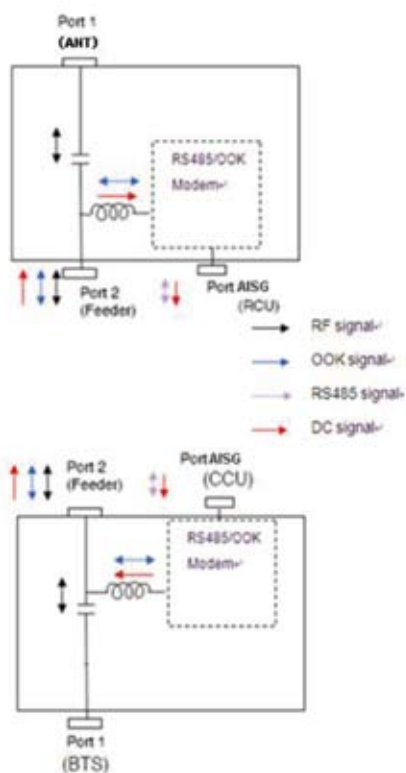
SBT = Smart Bias Tee

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: ASBT00001

SBT-690-2700-002

Model: ASBT00002



Model	ASBT00001	ASBT00002
Port 1 (Connector type)	Antenna (7 - 16 DIN Male)	BTS (7 - 16 DIN Male)
Port 2 (Connector type)	Feeder (7 - 16 DIN Female)	Feeder (7 - 16 DIN Female)
Port AISG	AISG (8-pin Connector Female)	AISG (8-pin Connector Male)

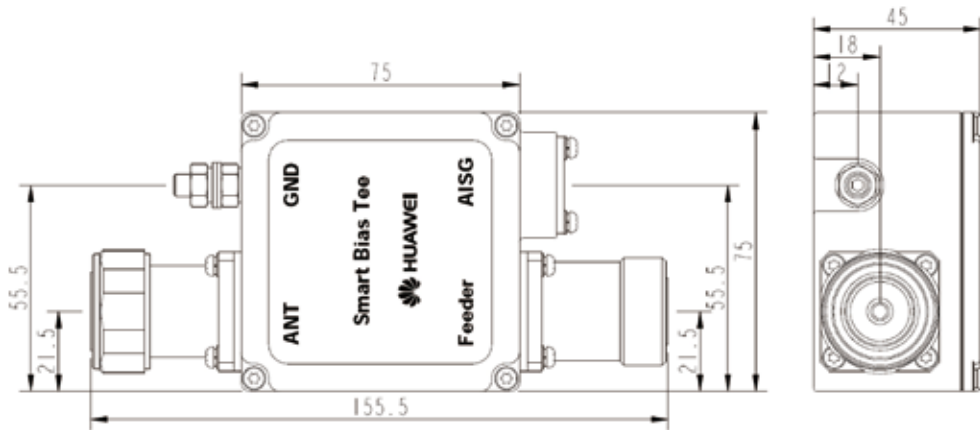
Electrical Properties		
Frequency range (MHz)		690 - 2700
Insertion loss (dB)	Port 1 ↔ Port 2	≤ 0.1 (690 - 960 MHz // 1710 - 2690 MHz) ≤ 0.15 (960 - 1710 MHz)
Isolation for DC signal (dB)	Port 1 ↔ Port 2	≥ 70
	Port 1 ↔ Port AISG	
VSWR	Port 1 and Port 2	≤ 1.15 (690 - 960 MHz // 1710 - 2690 MHz) ≤ 1.2 (960 - 1710 MHz)
Input power (W)	Port 1 and Port 2 Port AISG	Avg. ≥ 500 (690 - 960 MHz) // Avg. ≥ 250 (1710 - 2690 MHz) < 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 Specifications		
Operating temperature (°C)		-40 .. +70
Application scene		Indoor or outdoor
IP rating		IP67
Lightning protection (kA)		3 (10/350 us)
Mechanical Specifications		
BT Dimensions (W x H x D) (mm)		75 x 160 x 45 (with connectors)
SBT net Weight (kg)		< 0.75

SBT-690-2700-001

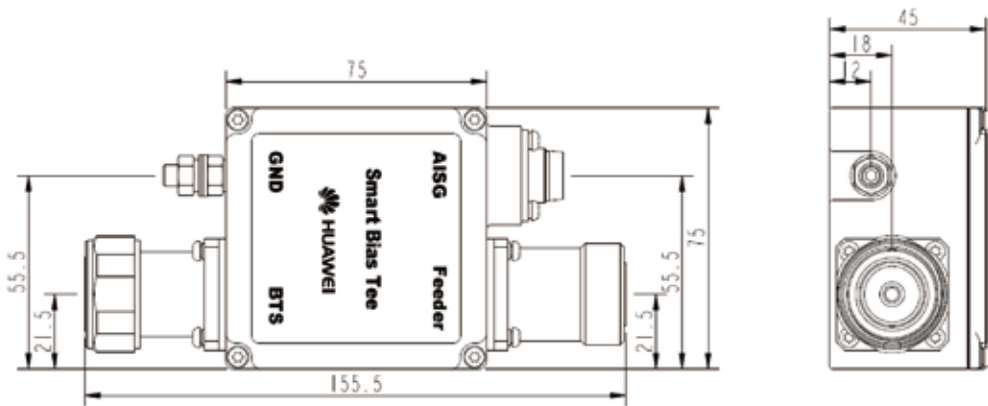
Model: ASBT00001

SBT-690-2700-002

Model: ASBT00002



ASBT00001



ASBT00002

Unit: mm

NOTE

Extraordinary operating conditions, such as heavy icing or storm wind, may result in the breakage of a SBT. These facts must be considered during the site planning process.

The installation team must be properly qualified and also be familiar with the relevant national safety regulations.

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808

www.huawei.com

AISG Connecting Cables

For Remote Electrical Tilt (RET) System



Technical Specification

Connectors	2 x 8 pin connector according to IEC 60130-9 Female / Male
Cable	2 x 0.25 mm ² + 4 x 0.75 mm ² 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	Female	Male
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		

Cable series

Length	BOM Code
0.5 m	04045920
2 m	04045921
5 m	04050228
10 m	04050184
15 m	04045922
30 m	04050230
50 m	04050231
60 m	04050182
70 m	04050232



Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

THIS DOCUMENT IS FOR INFORMATION PURPOSE ONLY, AND DOES NOT CONSTITUTE ANY KIND OF COMMITMENT.


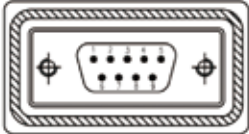
HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808


www.huawei.com

Technical Specification

Connector 1	8 pin connector according to IEC 60130-9 Female
Connector 2	9 pin DB9 connector Male
Cable	4 Pair x 24 AWG
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		Female	Male
	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	10 V - 30 V DC	N/C		
7	DC Return	N/C		
8	N/C	N/C		
9	/	DC Return		

Cable series

Length	BOM Code	
3 m	04070193	
5 m	04070097	

PCU

Model: APCU00001



PCU is a portable control unit for RCU of RET antennas. It supports AISG 1.1 and AISG 2.0 / 3GPP protocol. It is portable, lightweight and easy to use for site installation and maintenance personnel. It can be used as an adapter for USB/RS485 to connect with PC, PC software via PCU remote control RCU.

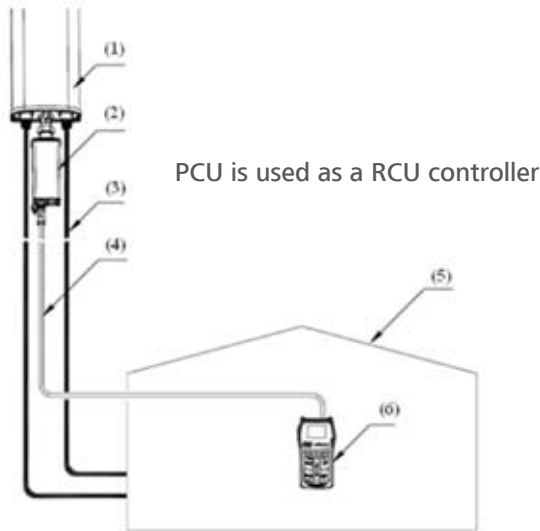


PCU = Portable Control Unit
RET = Remote Electrical Tilt
RCU = Remote Control Unit

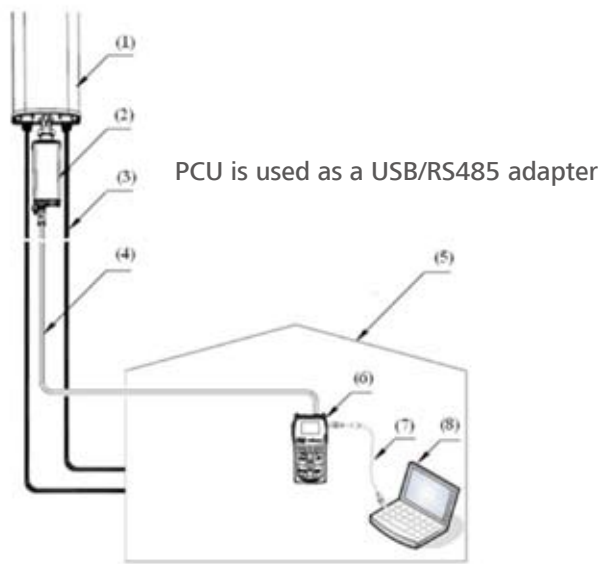
Specifications		
Connectors to RCU	1 x 8-pin female conforming to IEC 60130-9	
Input voltage	AC/DC adapter	20 V DC, 1.5 A
	Rechargeable battery	16 V DC, 1.5 A
Output voltage to RCU	8-pin female: pin1 & pin6: 20 V DC, 1.5 A with external AC/DC adapter 8-pin female: pin1 & pin6: 16 V DC, 1.5 A with inner rechargeable battery	
Rechargeable battery	Li-polymer (16 V, 2000 mAh), > 300 cycles	
External power supply	Input: 100 - 240 V AC, 0.55 A, 50 Hz - 60 Hz Output: 20 V DC, 1.5 A	
LCD	128 x 64 dot-matrix LCD, yellow-green backlight, 4 x 8 Chinese characters / 4 x 16 characters	
LED	USB	Indicating the status of USB connection
	RUN	Indicating the status of USB/RS485 communication
	Power	Indicating the status of power supply
Protocol to RCU	AISG 1.1 and AISG 2.0 / 3GPP	
Interface to PC	USB 2.0	
Max. number of RCU supported	6 pcs, depending on system configuration and length of control cable	
Max. length of control cable	50 m / 6 RCUs (in daisy chain configuration)	
Temperature range (°C)	-10 .. +55	
PCU dimensions (H x W x D) (mm)	168 x 90 x 44	
Packing dimensions (H x W x D) (mm)	340 x 275 x 75	
PCU net weight (kg)	0.45 (with inner rechargeable battery, without external power adapter)	
Packing weight (kg)	1.30	

Compliance to standards:

1. Compliant with AISG 1.1 and AISG 2.0 / 3GPP
2. EMC: Emission: Conducted emission (EN 55022, 150 kHz - 30 MHz Class B)
Immunity: Conducted susceptibility (IEC 61000-4-6, 150 kHz - 30 MHz)



- (1) RET Antenna
- (2) RCU
- (3) RF Feeder Cable
- (4) AISG Cable
- (5) Site
- (6) PCU



- (1) RET Antenna
- (2) RCU
- (3) RF Feeder Cable
- (4) AISG Cable
- (5) Site
- (6) PCU
- (7) USB Cable
- (8) PC

D. Installation Guide

D - 01. MET Antenna Installation Guide

MET Antenna Installation Guide (with Type A Brackets)	306
MET Antenna Installation Guide (with Type B and Type C Brackets)	310
MET Antenna Installation Guide (with Type D Brackets)	314

D - 02. RET Antenna Installation Guide

RET Antenna Installation Guide (with Type A Brackets)	318
RET Antenna Installation Guide (with Type B and Type C Brackets)	322
RET Antenna Installation Guide (with Type D Brackets)	326

D - 03. FET Antenna Installation Guide

FET Antenna Installation Guide (with Type A Brackets)	330
FET Antenna Installation Guide (with Type B and Type C Brackets)	334
FET Antenna Installation Guide (with Type D Brackets)	338

D - 04. Cluster Antenna Installation Guide

Tri-sector Cluster Antenna Installation Guide	342
---	------------

D - 05. TDD Smart Antenna Installation Guide

TDD FET Antenna with Uptilt-Brackets Installation Guide	347
TDD RET Antenna with H-Brackets Installation Guide	350

D - 06. AIMM Installation Guide

AIMM02101 Installation Guide	353
------------------------------	------------

MET Antenna Installation Guide (with Type A Brackets)

Type A Brackets: Light bracket



NOTE

1. Only qualified personnel are allowed to install the antenna.
2. Clamps are placed in the antenna packing case and the downtilt kit is packed independently. The external packaging case of the clamps and downtilt kit is labeled with model information, such as model A, B, C, or D. The model of the downtilt kit must be consistent with that of the clamps.
3. The antenna can be equipped with the downtilt kit or without the downtilt kit. Select an installation mode based on the site conditions.
4. Appearance of the actual antenna may differ from the pictures.
5. Protection caps of antenna ports not connecting to jumpers can not be removed. Meanwhile, waterproof measures must be taken to protect these antenna ports.

Installation Tools



13 mm combination wrench (2 PCS)



Inclinometer

Clamps



M8
(4 PCS)



(2 PCS)



(2 PCS)

Downtilt kit (Optional)



(1 PCS)

Manually adjust the electrical downtilt angle

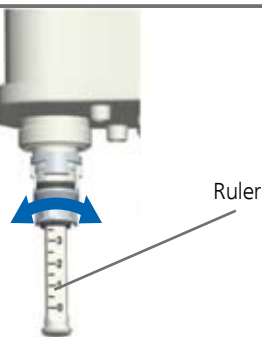
Manually adjust the electrical downtilt and ensure that the ruler can work properly before installing the antenna. Set downtilt based on the site conditions.

1



Twist off protective cover

2



Adjust angle

3



Twist on protective cover

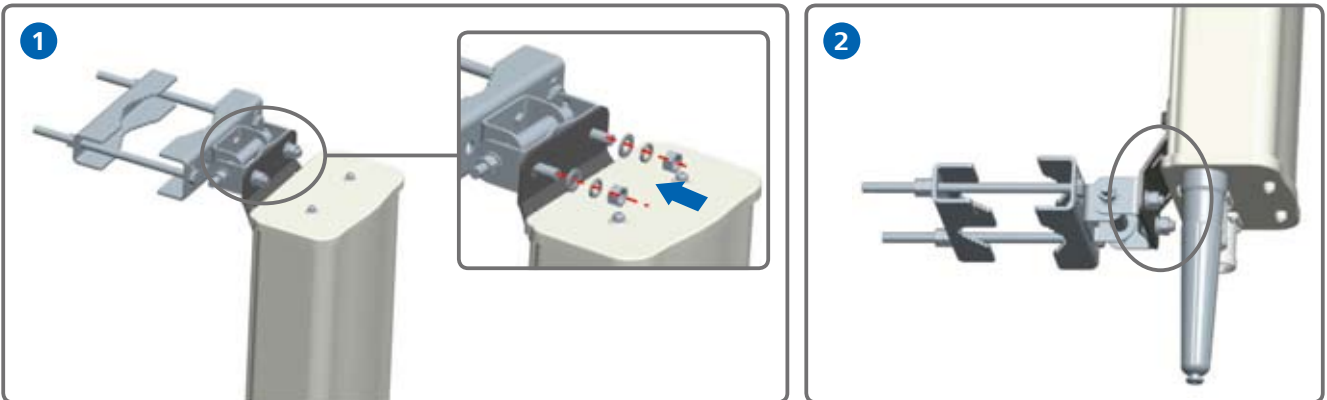
The RCU is optional. For details about how to install the RCU, see the relevant RCU Installation Guide.

Installation without Downtilt Kit

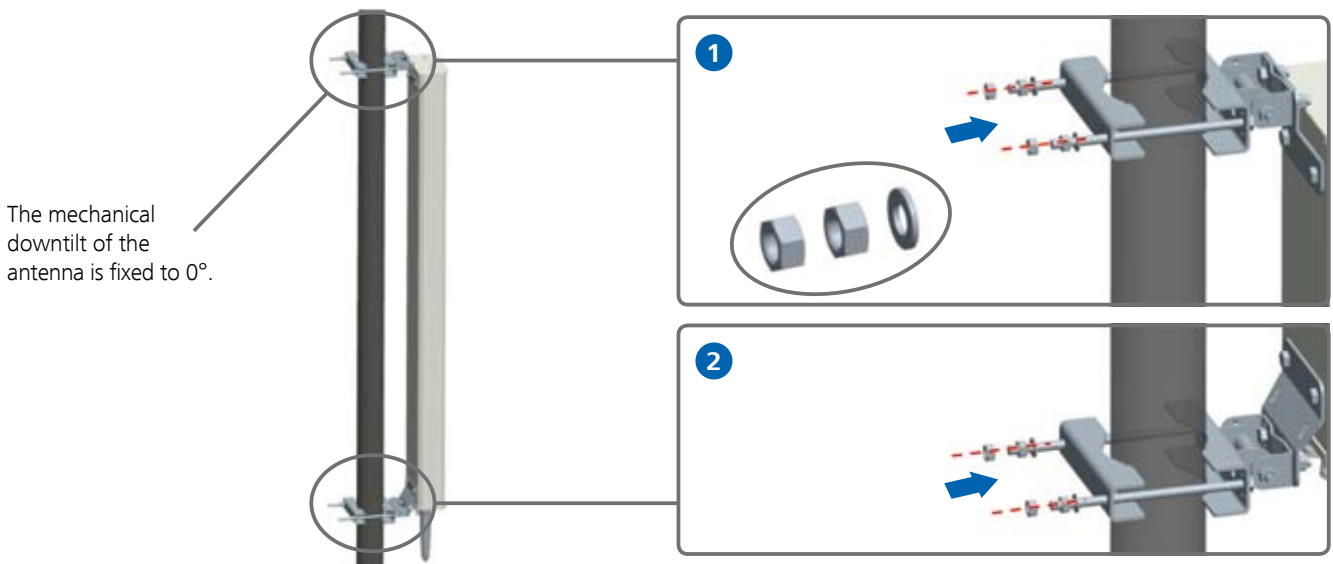
1 Assemble the Clamps



2 Install the Clamps



3 Install the antenna

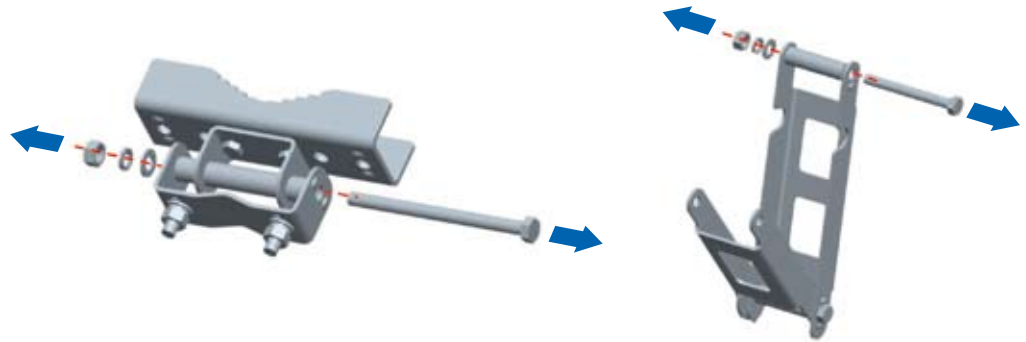


Installation with Downtilt Kit

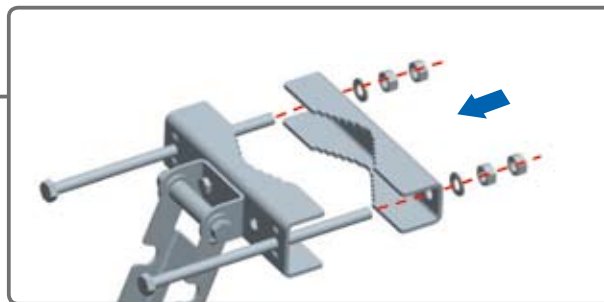
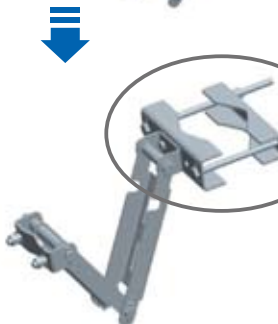
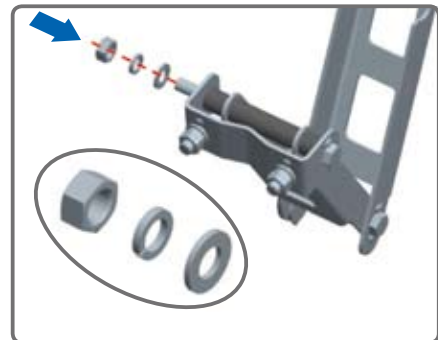
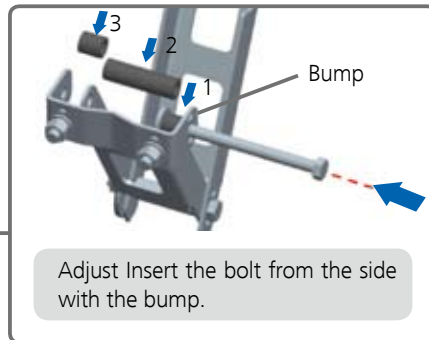
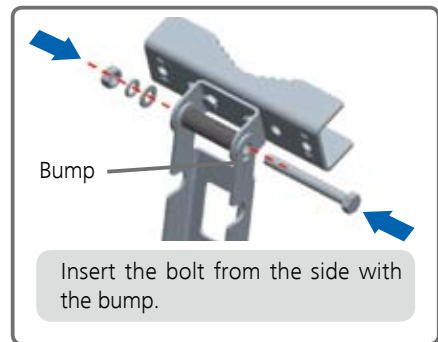
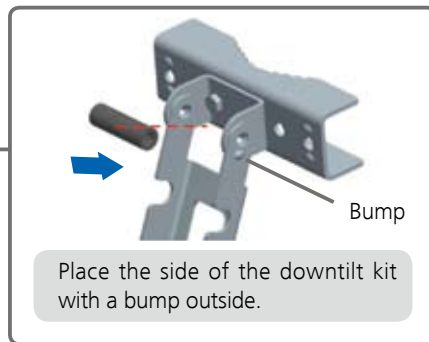
1 Assemble the bracket

1 Split bracket subassembly

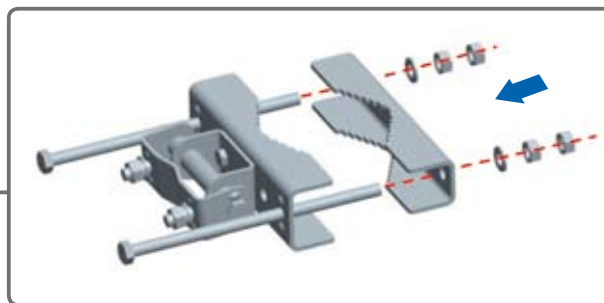
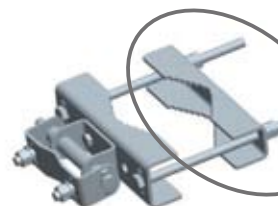
Split either of the 2 PCS of subassemblies in the packing case



2 Assemble upper bracket

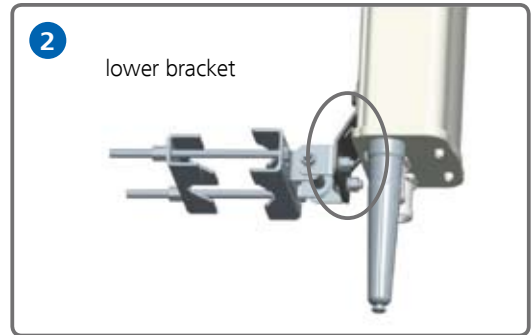
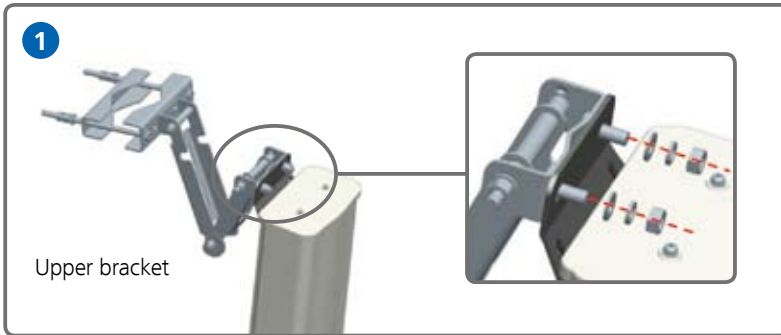


3 Assemble lower bracket

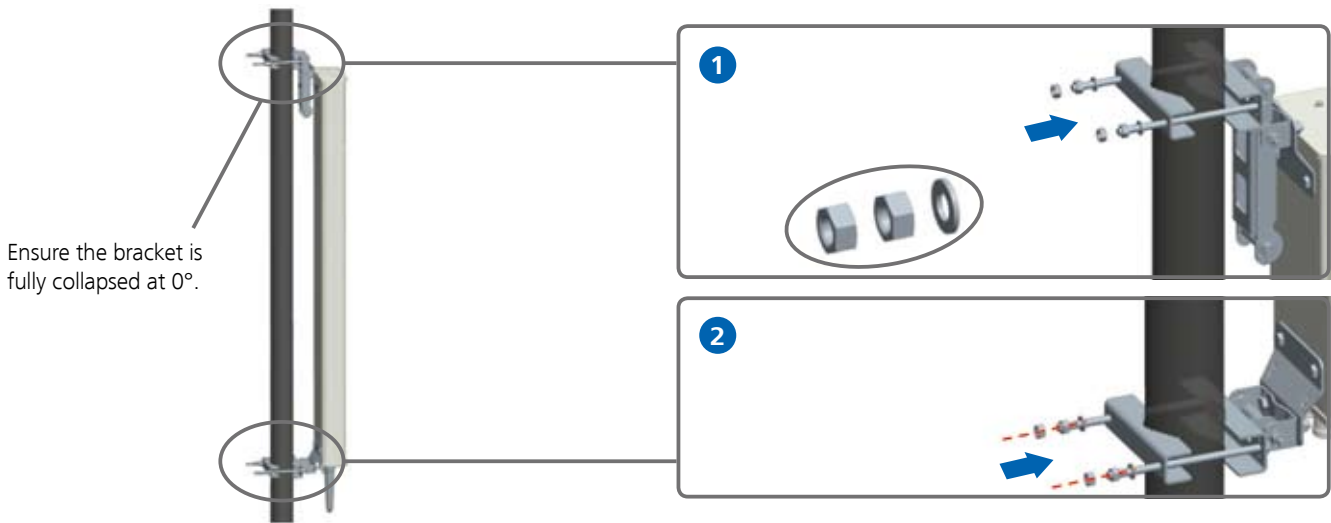


Installation with Downtilt Kit

2 Install the bracket



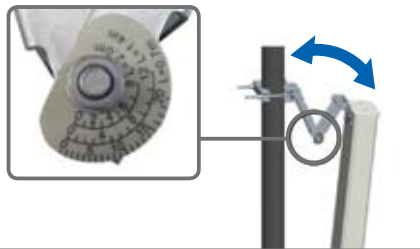
3 Install the antenna



4 Adjust the mechanical downtilt angle

Method 1: Using Scale

"L" on the scale indicates the distance between antenna bases. Observe the readings according to this distance. For example, if the distance is 0.7 m, observe the readings corresponding to "L=0.7 m" (scale range: 0° to 20°).



Finally, tighten all the nuts.

Recommended torque: M8 = 18 Nm

Method 2: Using inclinometer

Precise measurement

Before adjustment, adjust the inclinometer to the desired downtilt angle.

After adjustment, locate the bead in the inclinometer in the middle.



MET Antenna Installation Guide (with Type B and Type C Brackets)

Type B and Type C Brackets: Medium bracket



NOTE

1. Only qualified personnel are allowed to install the antenna.
2. Clamps are placed in the antenna packing case and the downtilt kit is packed independently. The external packaging case of the clamps and downtilt kit is labeled with model information, such as model A, B, C, or D. The model of the downtilt kit must be consistent with that of the clamps.
3. The antenna can be equipped with the downtilt kit or without the downtilt kit. Select an installation mode based on the site conditions.
4. Appearance of the actual antenna may differ from the pictures.
5. Waterproof and sealing protection is mandatory for temporarily unused ports and recommended for used ports.

Installation Tools



13 mm combination wrench (2 PCS)



16 mm combination wrench (2 PCS)



Inclinometer

Clamps



M10
(4 PCS)



(2 PCS)



(1 PCS)



(1 PCS)



(1 PCS)



(2 PCS)

Downtilt kit (Optional)



(1 PCS)

Manually adjust the electrical downtilt angle

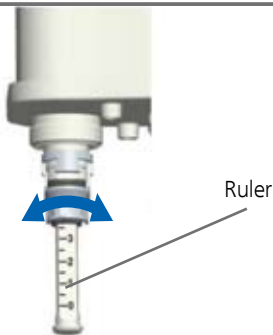
Manually adjust the electrical downtilt and ensure that the ruler can work properly before installing the antenna. Set downtilt based on the site conditions.

1



Twist off protective cover

2



Adjust angle

3



Twist on protective cover

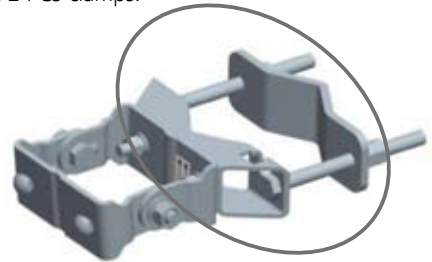
The RCU is optional. For details about how to install the RCU, see the relevant RCU Installation Guide.

Installation without Downtilt Kit

1 Assemble the clamps



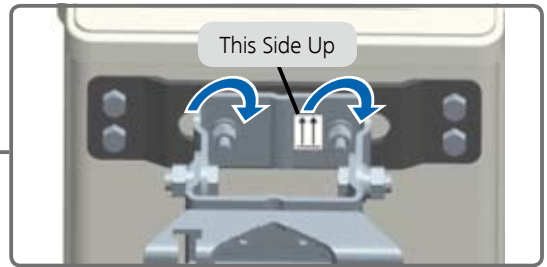
Assemble the 2 PCS clamps.



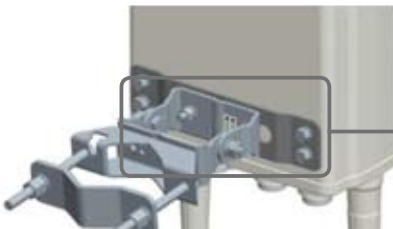
2 Install the bracket



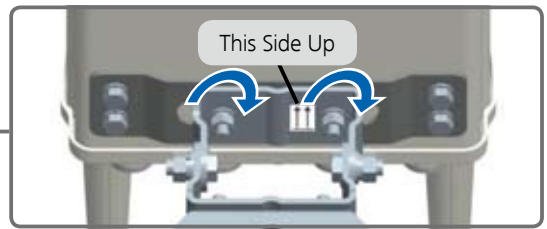
Upper bracket



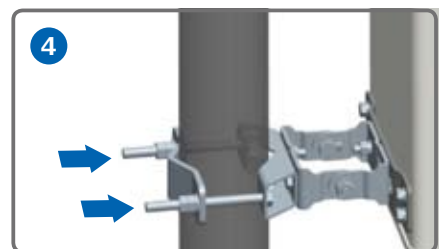
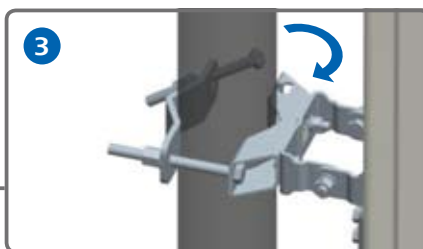
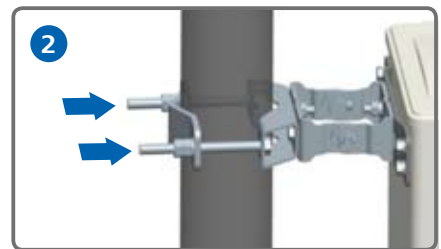
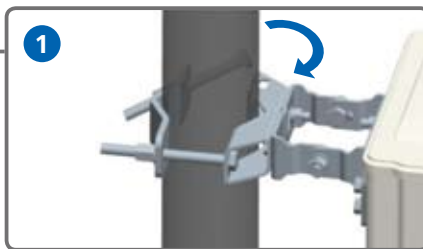
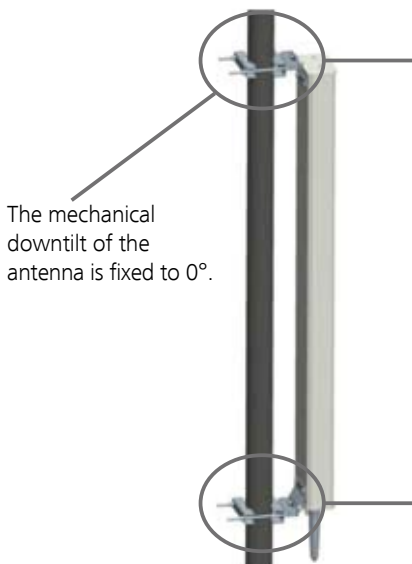
Follow the directions indicated on the label shown in the picture to install brackets.



Lower bracket



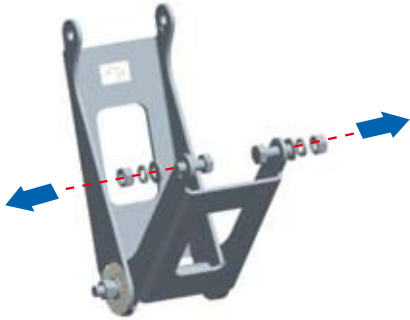
3 Install the antenna



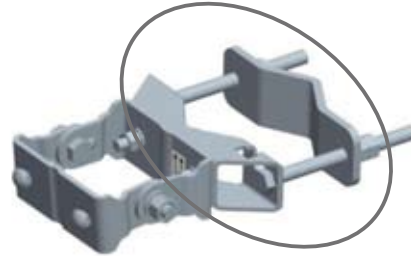
Installation with Downtilt Kit

1 Assemble the bracket

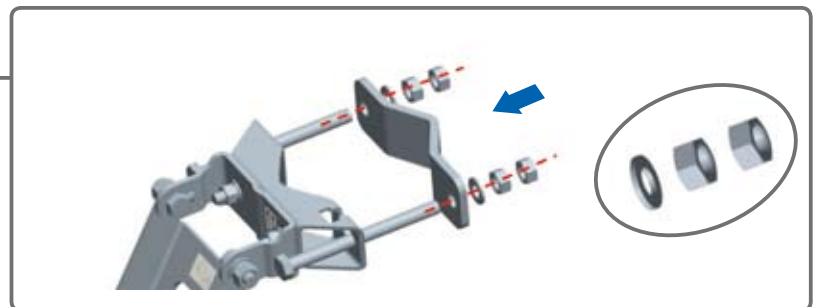
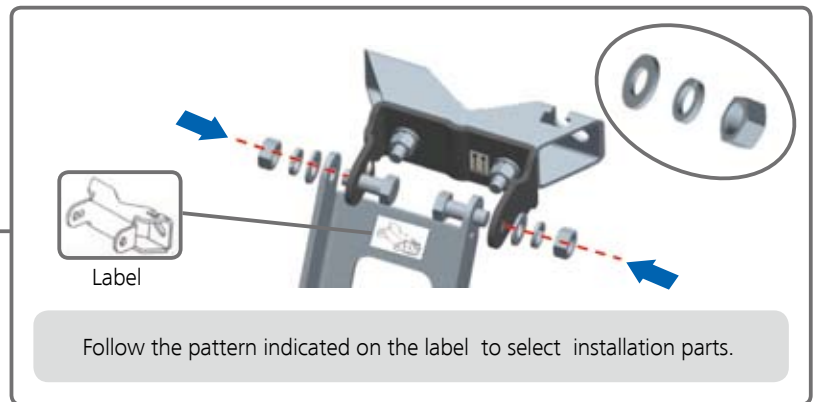
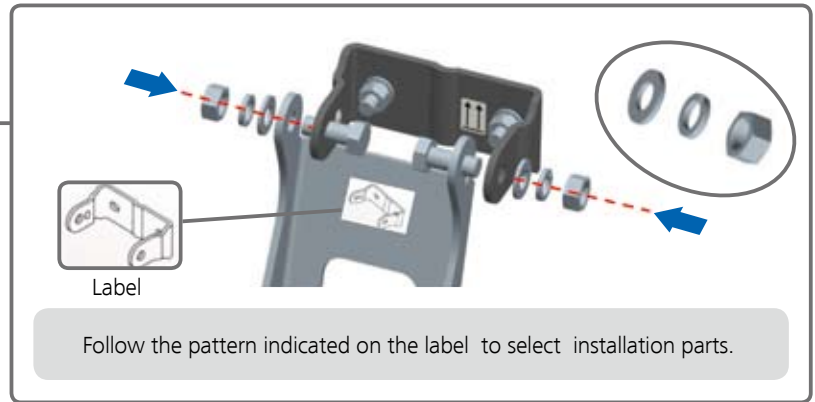
1 Split downtilt kit



2 Assemble lower bracket

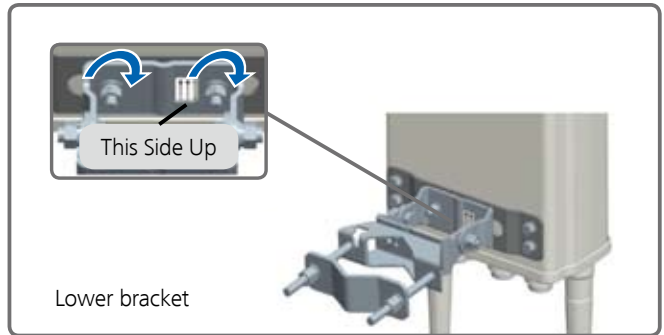
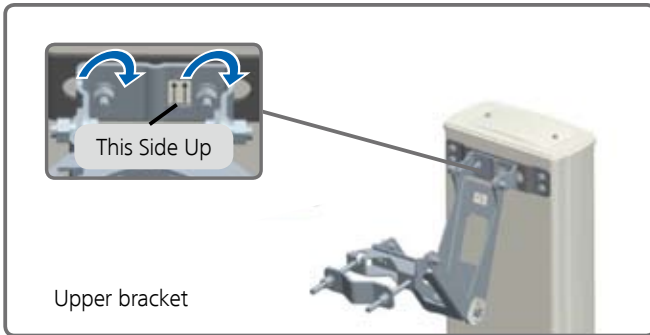


3 Assemble upper bracket

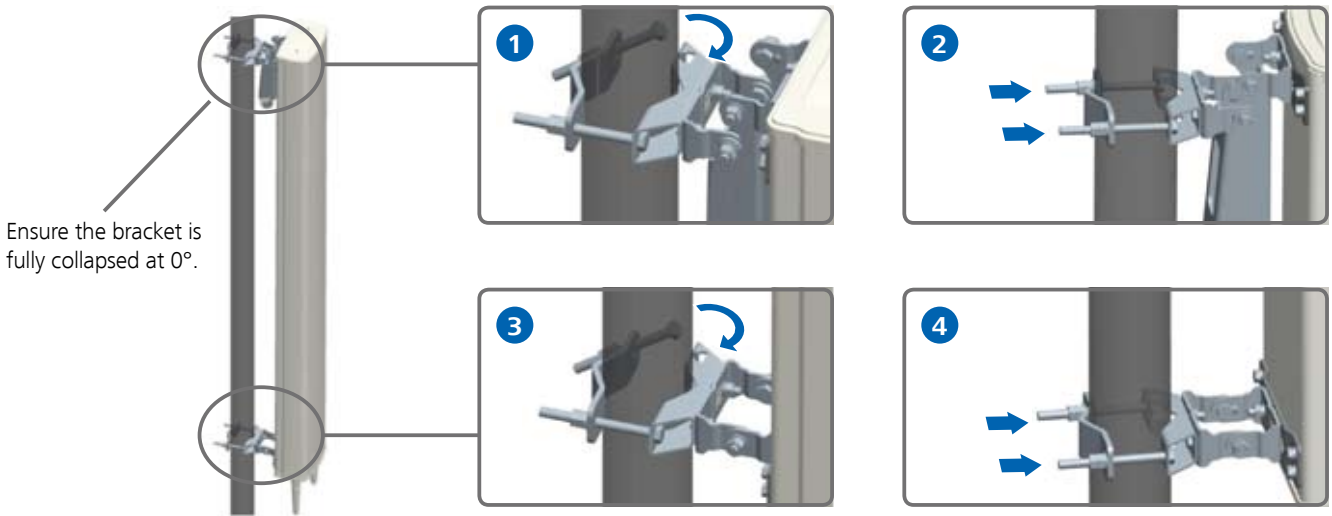


Installation with Downtilt Kit

2 Install the bracket



3 Install the antenna



4 Adjust the mechanical downtilt angle

Method 1: Using Scale

"L" on the scale indicates the distance between antenna bases. Observe the readings according to this distance. For example, if the distance is 1.4 m, observe the readings corresponding to "L=1.4 m" (scale range: 0° to 16°).

Method 2: Using inclinometer

Before adjustment, adjust the inclinometer to the desired downtilt angle.

After adjustment, locate the bead in the inclinometer in the middle.

Finally, tighten all the nuts.
Recommended torque:
M8 = 18 Nm, M10 = 30 Nm



MET Antenna Installation Guide (with Type D Brackets)

Type D Brackets: Heavy bracket



NOTE

1. Only qualified personnel are allowed to install the antenna.
2. Clamps are placed in the antenna packing case and the downtilt kit is packed independently. The external packaging case of the clamps and downtilt kit is labeled with model information, such as model A, B, C, or D. The model of the downtilt kit must be consistent with that of the clamps.
3. The antenna can be equipped with the downtilt kit or without the downtilt kit. Select an installation mode based on the site conditions.
4. Appearance of the actual antenna may differ from the pictures.
5. Waterproof and sealing protection is mandatory for temporarily unused ports and recommended for used ports.

Installation Tools



13 mm combination wrench (2 PCS)



16 mm combination wrench (2 PCS)



Inclinometer

Clamps



Downtilt kit (Optional)



(1 PCS)

Manually adjust the electrical downtilt angle

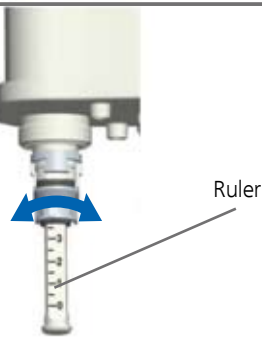
Manually adjust the electrical downtilt and ensure that the ruler can work properly before installing the antenna. Set downtilt based on the site conditions.

1



Twist off protective cover

2



Adjust angle

3



Twist on protective cover

The RCU is optional. For details about how to install the RCU, see the relevant RCU Installation Guide.

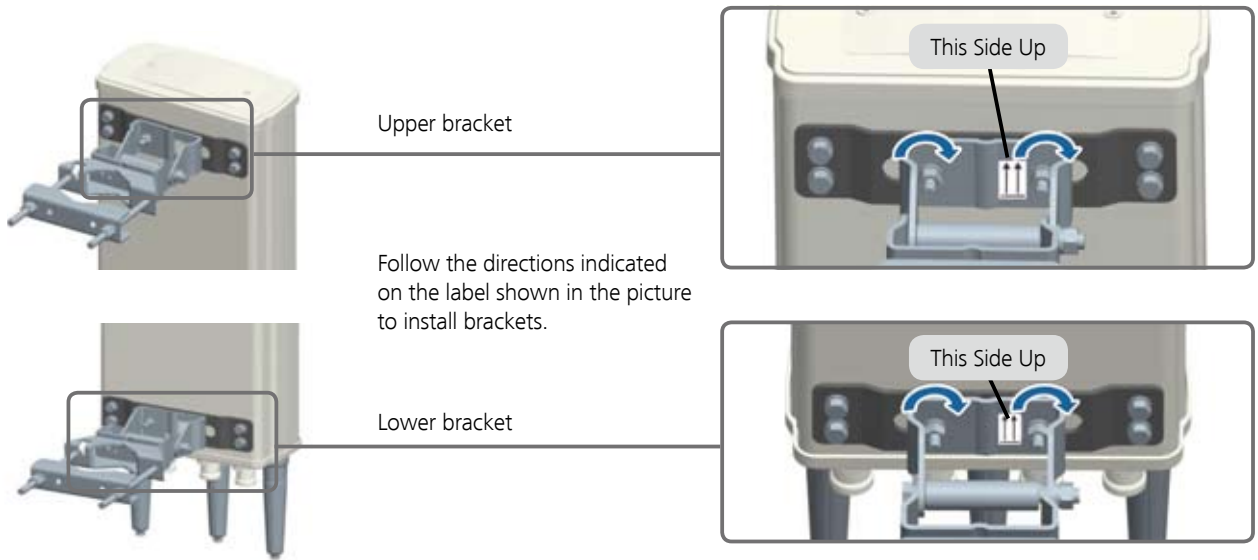
Installation without Downtilt Kit

1 Assemble the clamps

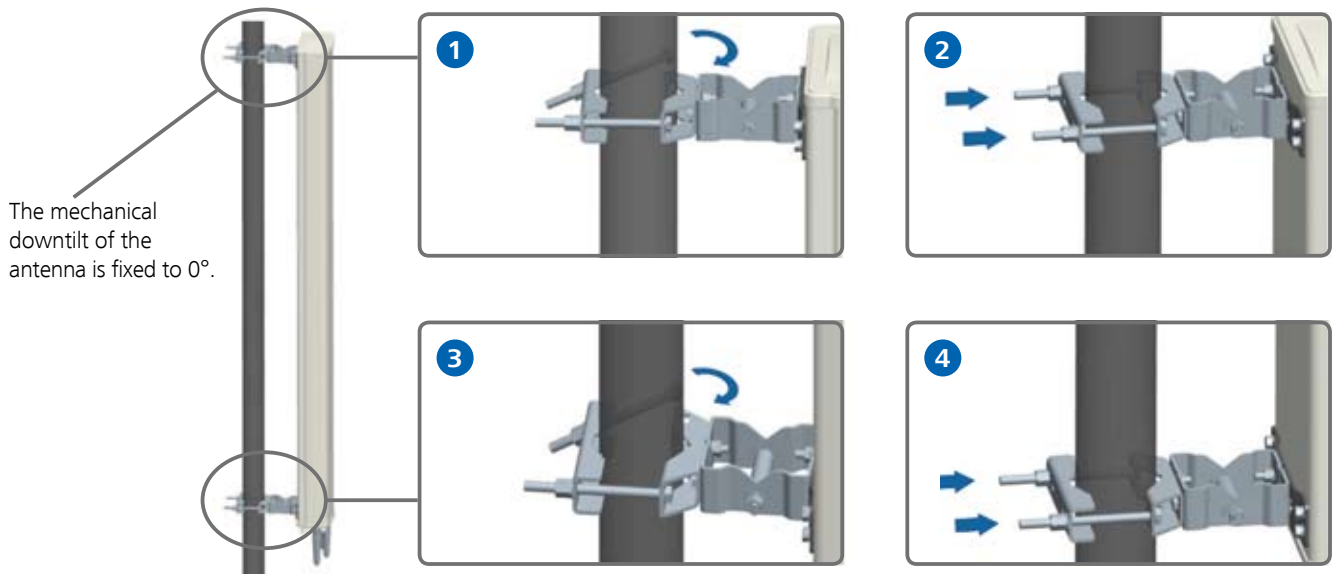
Assemble the 2 PCS clamps.



2 Install the clamps



3 Install the antenna



Installation with Downtilt Kit

1 Assemble the bracket

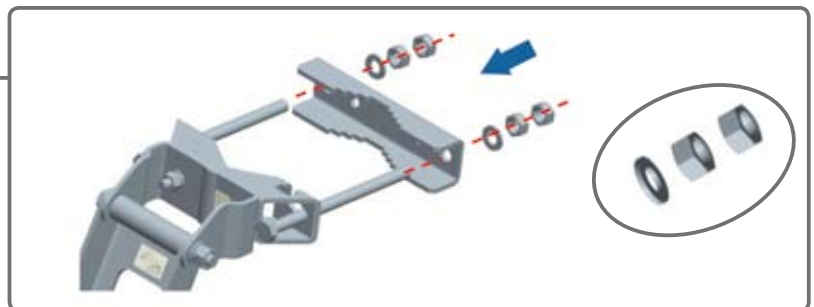
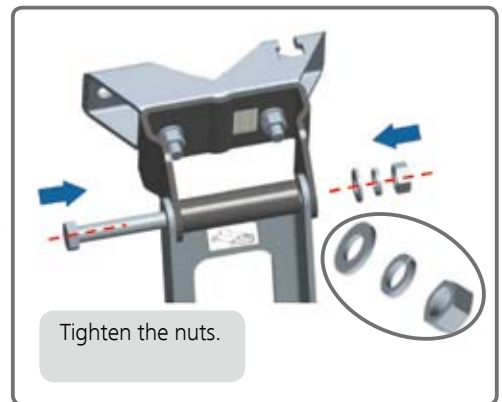
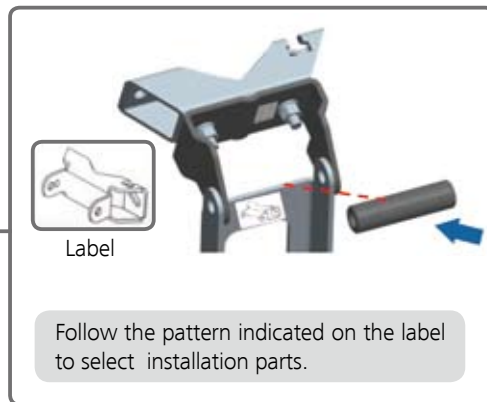
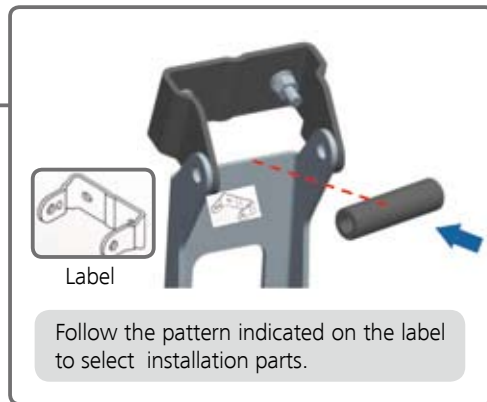
1 Split downtilt kit



2 Assemble lower bracket

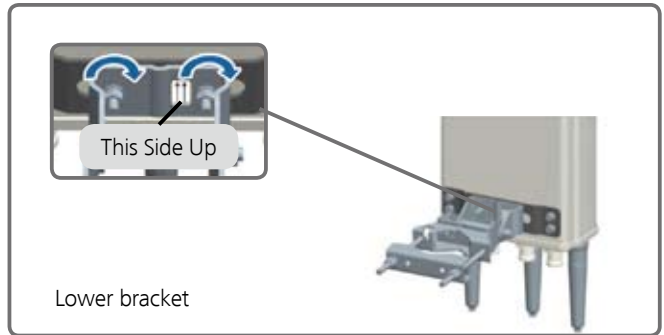
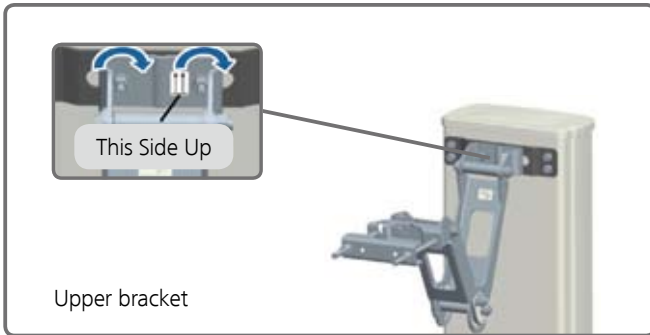


3 Assemble upper bracket

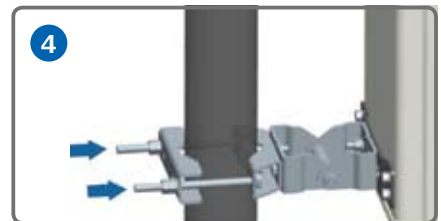
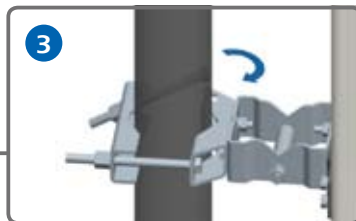
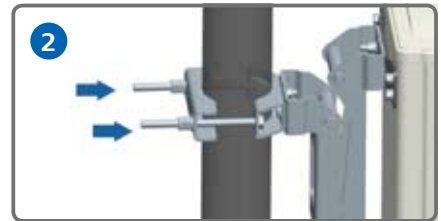
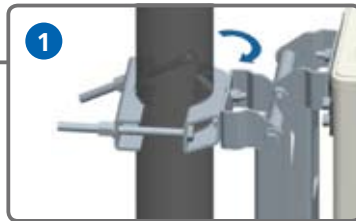
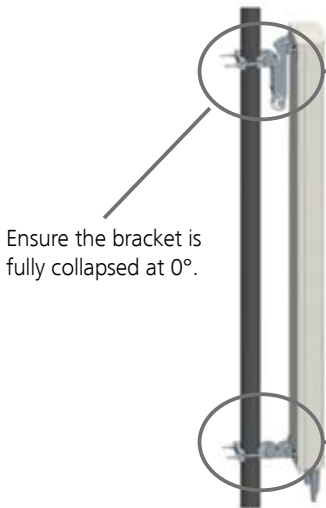


Installation with Downtilt Kit

2 Install the bracket



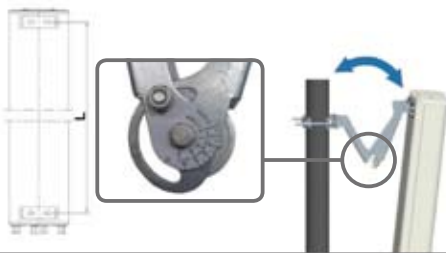
3 Install the antenna



4 Adjust the mechanical downtilt angle

Method 1: Using Scale

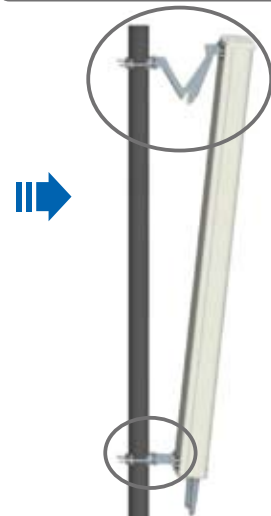
"L" on the scale indicates the distance between antenna bases. Observe the readings according to this distance. For example, if the distance is 2.0 m, observe the readings corresponding to "L=2.0 m" (scale range: 0° to 12°).



Finally, tighten all the nuts.
Recommended torque:
M8 = 18 Nm, M10 = 30 Nm

Method 2: Using inclinometer

Before adjustment, adjust the inclinometer to the desired downtilt angle.
After adjustment, locate the bead in the inclinometer in the middle.



RET Antenna Installation Guide (with Type A Brackets)

Type A Brackets: Light bracket



NOTE

- Only qualified personnel are allowed to install the antenna.
- Clamps are placed in the antenna packing case and the downtilt kit is packed independently. The external packaging case of the clamps and downtilt kit is labeled with model information, such as model A, B, C, or D. The model of the downtilt kit must be consistent with that of the clamps.
- The antenna can be equipped with the downtilt kit or without the downtilt kit. Select an installation mode based on the site conditions.
- Appearance of the actual antenna may differ from the pictures.
- Protection caps of antenna ports not connecting to jumpers can not be removed. Meanwhile, waterproof measures must be taken to protect these antenna ports.

Installation Tools



13 mm combination wrench (2 PCS)



Inclinometer

Clamps



M8
(4 PCS)



(2 PCS)



(2 PCS)

Downtilt kit (Optional)



(1 PCS)

Write Down the Information

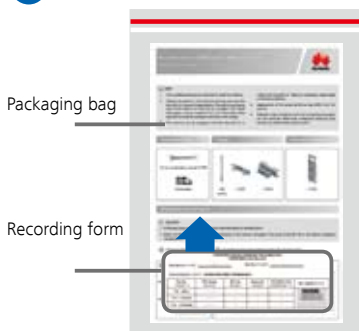
CAUTION

- In the daisy chain scenario, must write down the information in recording form.
- Before the filling, please ensure the RET SN attached to the antenna nameplate is the same as the RET SN on the antenna installation recording form.

- Taking out the recording form packaging bag.

- According to the actual situation to fill in the recording form.

1



2 Example

ATR4516R0 Antenna Installation Recording Form
ATR4516R0 天线安装记录表

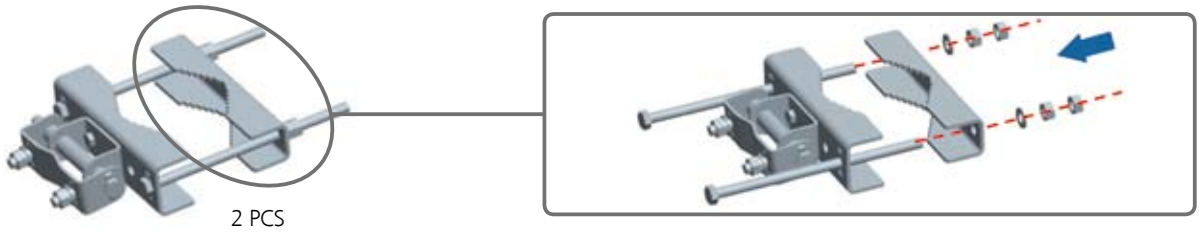
Site Name/站点名称: ABCD Site No./站点编号: 01

Antenna Model/天线型号: **ATR4517R0 (ITEM: 27010950-001)**

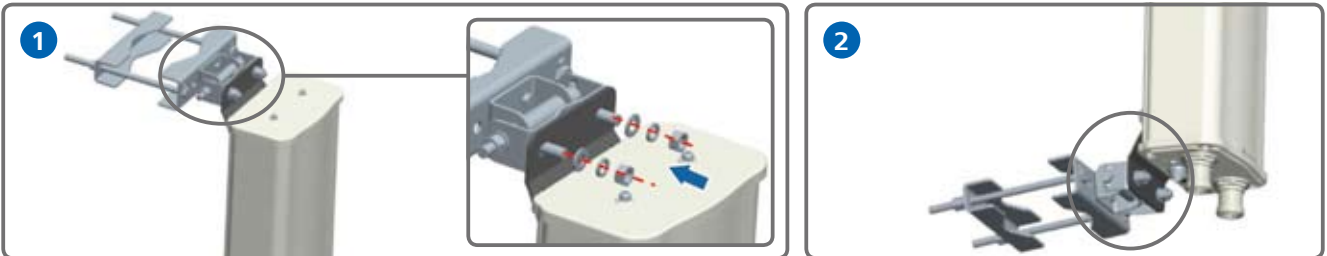
Port No. 天线端口号	BTS Name 基站名称	BTS No. 基站编号	Sector No. 扇区编号	RFU/RRU Port 射频模块端口号	RET SN/RET序列号
790 - 960(r)	TX-GSM	01	01	AB	 HWA555C9000116752 HWA555C900021852b7 HWA555C90003773a8
1710 - 2180(bT)	TX-UMTS-1	02	01	AB	
1710 - 2180(bbB)	TX-UMTS-1	02	01	CD	

Installation without Downtilt Kit

1 Assemble the Clamps

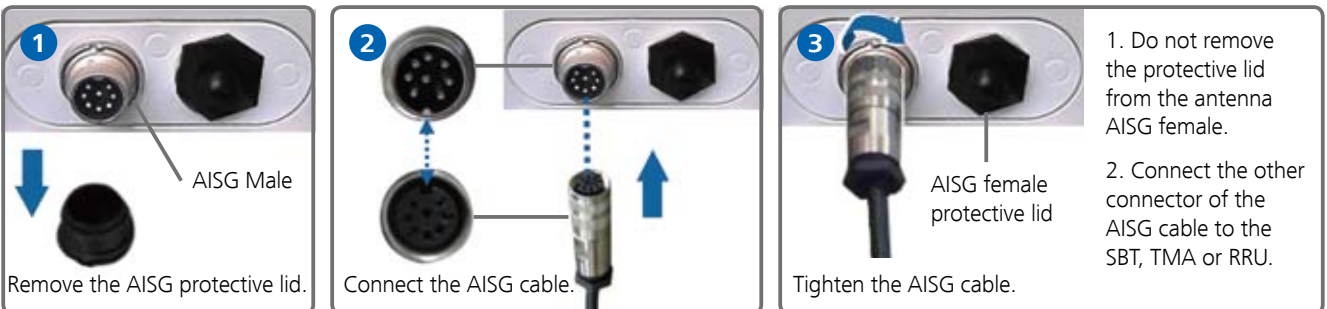


2 Install the Clamps

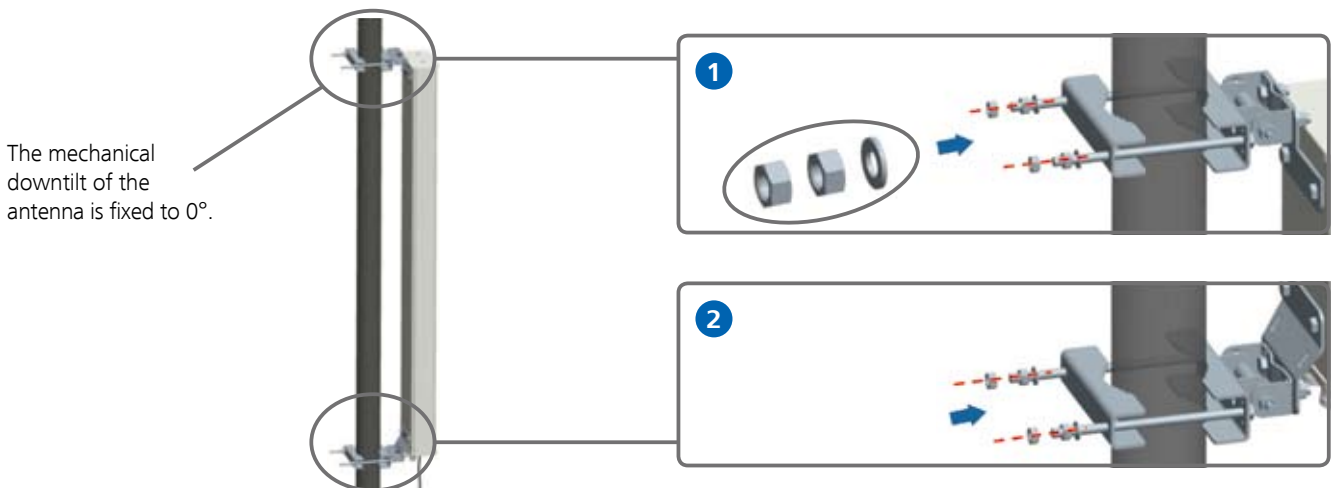


3 Connect the AISG Cable

Align the convex of the antenna AISG male connector with the concave of the AISG female connector correctly, press the connectors together, and then secure them by hand properly. For details, see step 2.



4 Install the antenna



Installation with Downtilt Kit

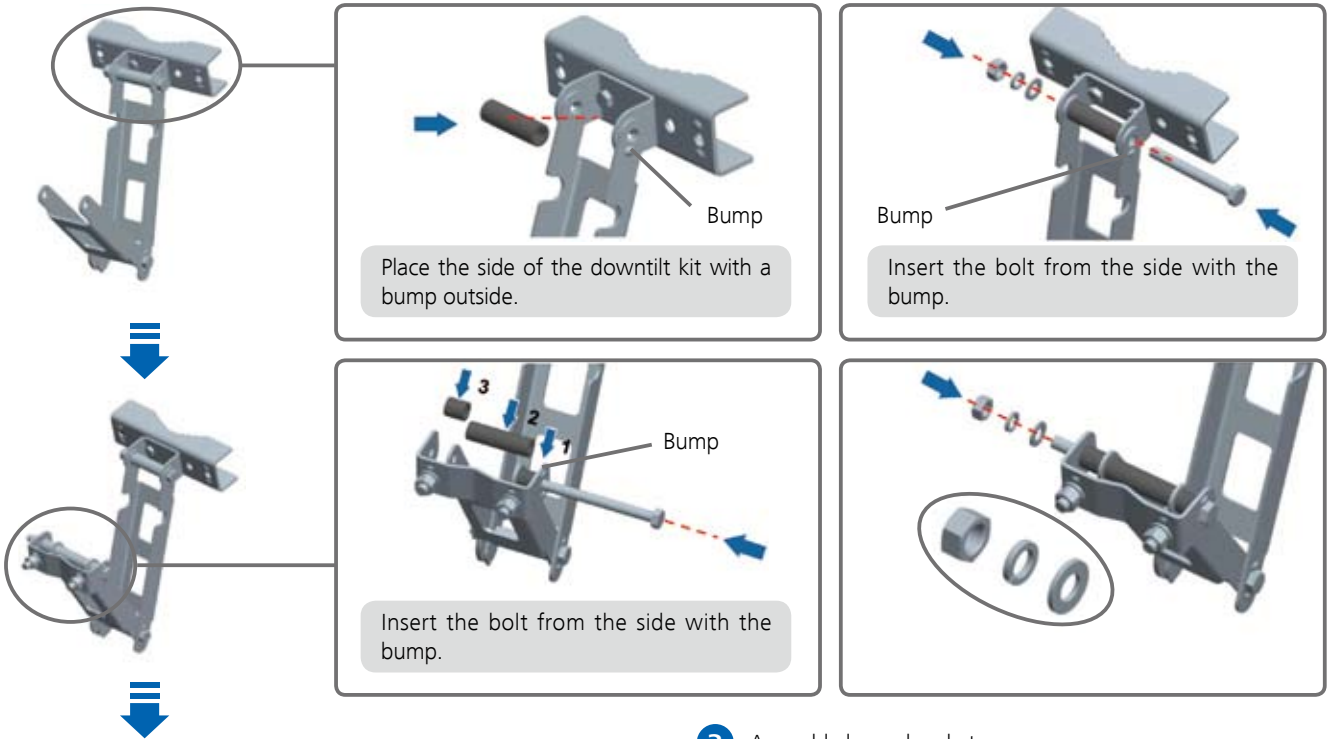
1 Assemble the bracket

1 Split bracket subassembly

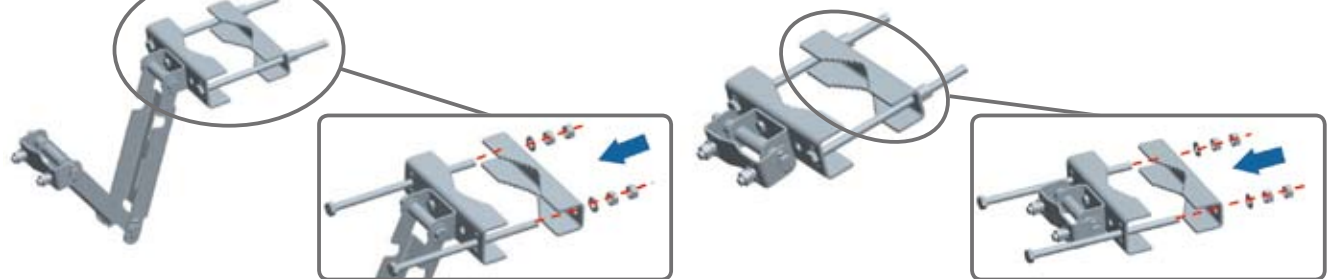
Split either of the 2 PCS of subassemblies in the packing case.



2 Assemble upper bracket



3 Assemble lower bracket



2 Install the bracket



Installation with Downtilt Kit

3 Connect the AISG Cable

Align the convex of the antenna AISG male connector with the concave of the AISG female connector correctly, press the connectors together, and then secure them by hand properly. For details, see step 2.

1 Remove the AISG protective lid.

2 Connect the AISG cable.

3 Tighten the AISG cable.

1. Do not remove the protective lid from the antenna AISG female.

2. Connect the other connector of the AISG cable to the SBT, TMA or RRU.

4 Install the antenna

Ensure the bracket is fully collapsed at 0°.

1

2

4 Adjust the mechanical downtilt angle

Method 1: Using Scale

"L" on the scale indicates the distance between antenna bases. Observe the readings according to this distance. For example, if the distance is 0.7 m, observe the readings corresponding to "L=0.7 m" (scale range: 0° to 20°).

Finally, tighten all the nuts. Recommended torque: M8 = 18 Nm

Method 2: Using inclinometer Precise measurement

Before adjustment, adjust the inclinometer to the desired downtilt angle.

After adjustment, locate the bead in the inclinometer in the middle.

RET Antenna Installation Guide (with Type B and Type C Brackets)

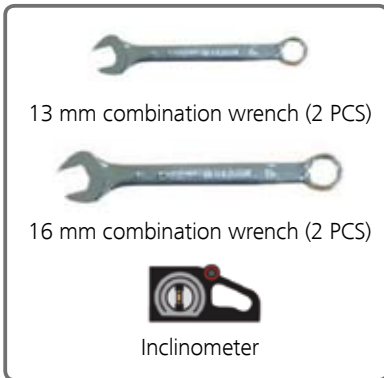
Type B and Type C Brackets: Medium bracket



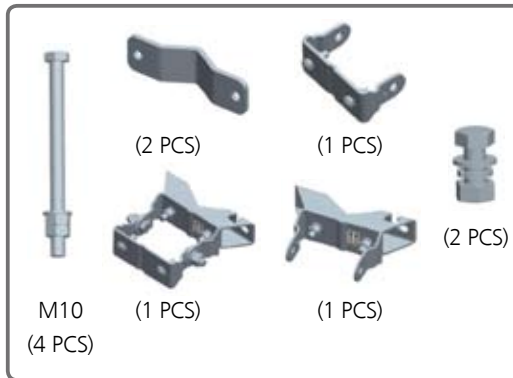
NOTE

- Only qualified personnel are allowed to install the antenna.
- Clamps are placed in the antenna packing case and the downtilt kit is packed independently. The external packaging case of the clamps and downtilt kit is labeled with model information, such as model A, B, C, or D. The model of the downtilt kit must be consistent with that of the clamps.
- The antenna can be equipped with the downtilt kit or without the downtilt kit. Select an installation mode based on the site conditions.
- Appearance of the actual antenna may differ from the pictures.
- Waterproof and sealing protection is mandatory for temporarily unused ports and recommended for used ports.

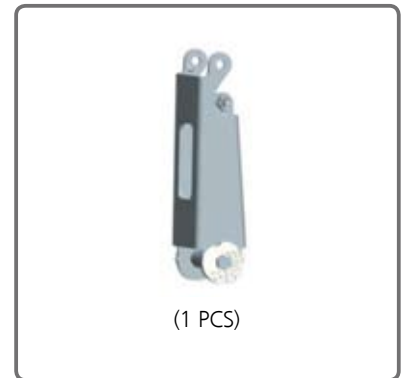
Installation Tools



Clamps



Downtilt kit (Optional)



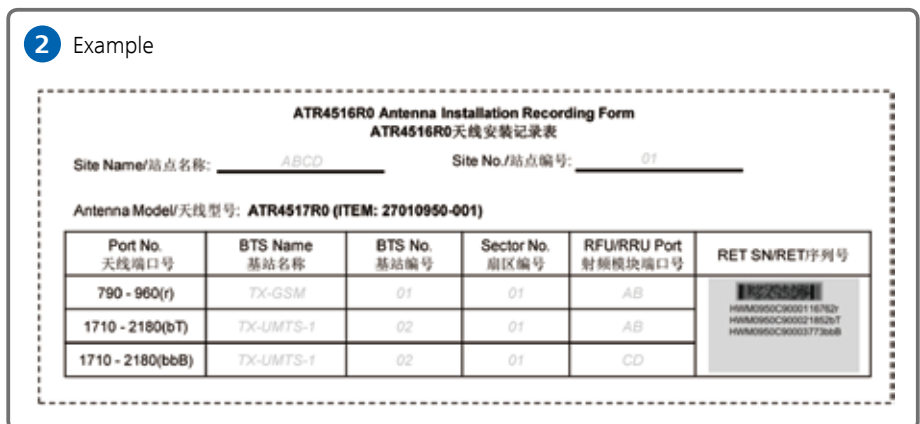
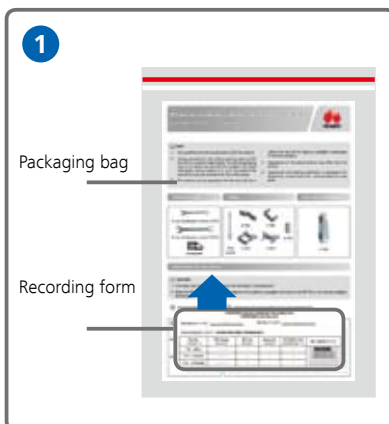
Write Down the Information

CAUTION

- In the daisy chain scenario, must write down the information in recording form.
- Before the filling, please ensure the RET SN attached to the antenna nameplate is the same as the RET SN on the antenna installation recording form.

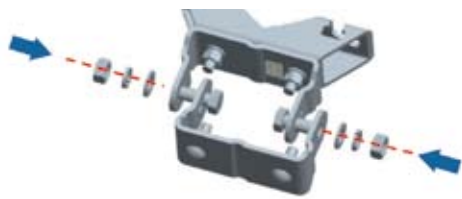
- Taking out the recording form packaging bag.

- According to the actual situation to fill in the recording form.

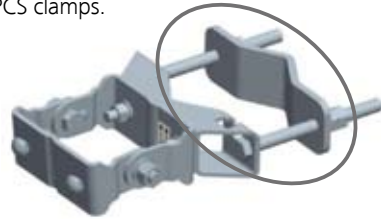


Installation without Downtilt Kit

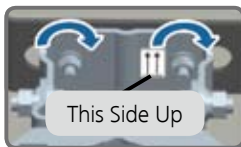
1 Assemble the clamps



Assemble the 2 PCS clamps.



2 Install the bracket



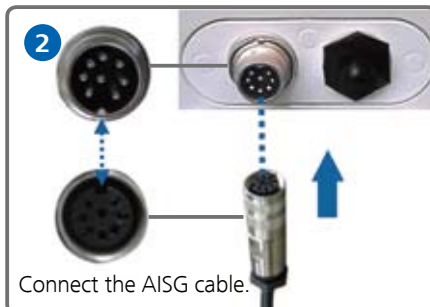
Upper bracket



Lower bracket

3 Connect the AISG Cable

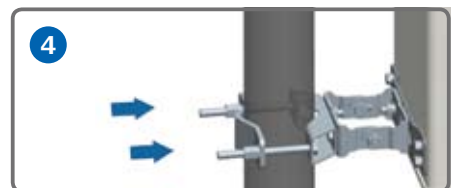
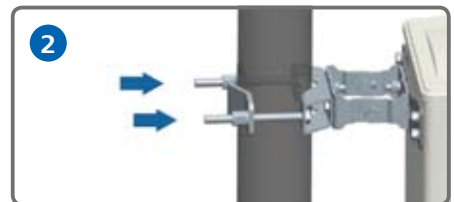
Align the convex of the antenna AISG male connector with the concave of the AISG female connector correctly, press the connectors together, and then secure them by hand properly. For details, see step 2.



1. Do not remove the protective lid from the antenna AISG female.
2. Connect the other connector of the AISG cable to the SBT, TMA or RRU.

4 Install the antenna

The mechanical downtilt of the antenna is fixed to 0°.



Installation with Downtilt Kit

1 Assemble the bracket

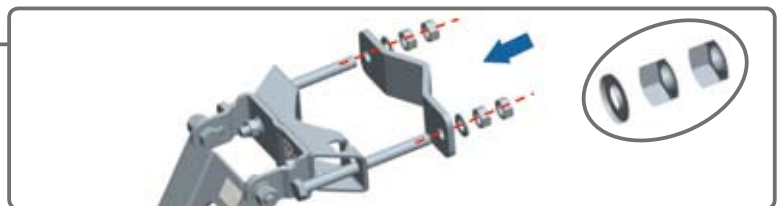
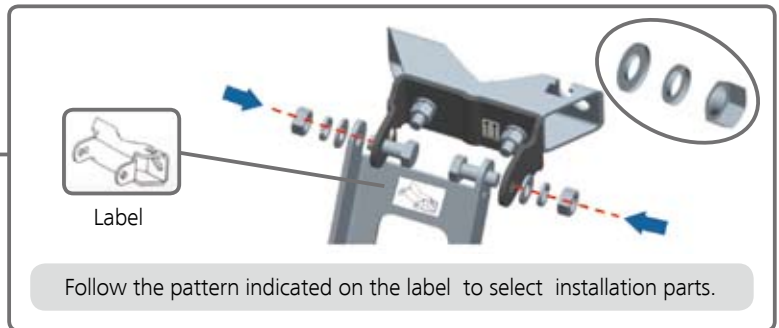
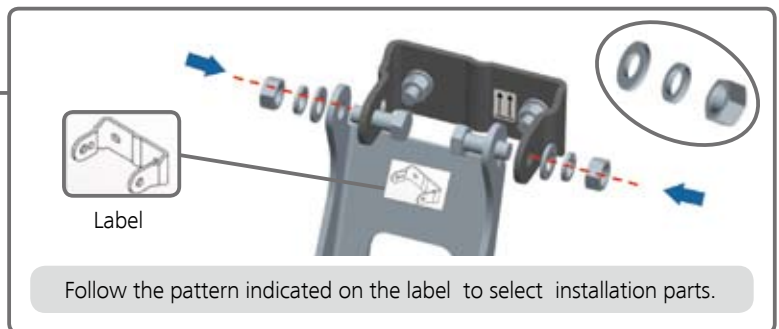
1 Split downtilt kit



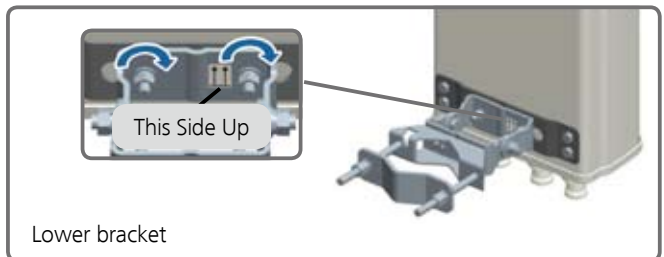
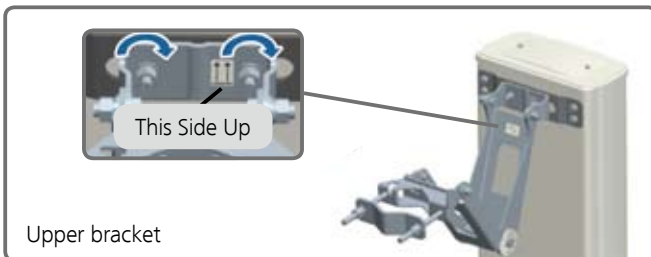
2 Assemble down bracket



3 Assemble up bracket



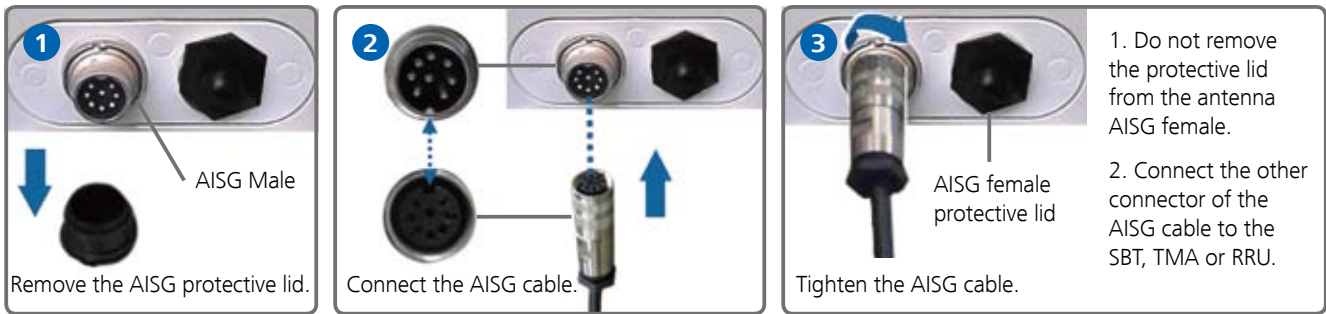
2 Install the bracket



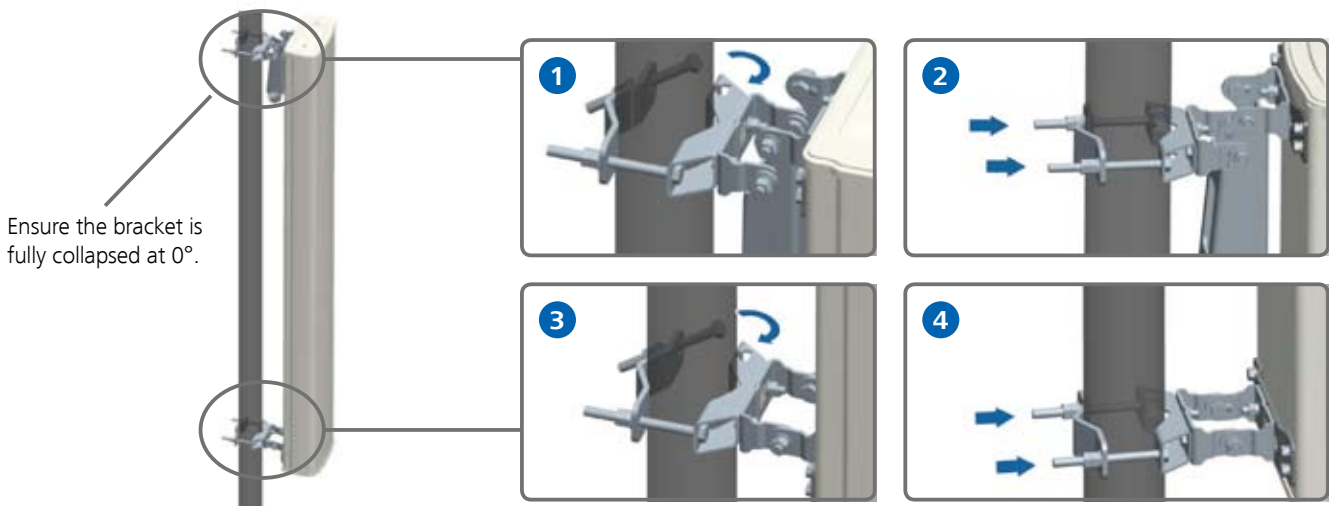
Installation with Downtilt Kit

3 Connect the AISG Cable

Align the convex of the antenna AISG male connector with the concave of the AISG female connector correctly, press the connectors together, and then secure them by hand properly. For details, see step 2.



4 Install the antenna



5 Adjust the mechanical downtilt angle

Method 1: Using Scale

"L" on the scale indicates the distance between antenna bases. Observe the readings according to this distance. For example, if the distance is 1.4 m, observe the readings corresponding to "L=1.4 m" (scale range: 0° to 16°).



Finally, tighten all the nuts.
Recommended torque:
M8 = 18 Nm, M10 = 30 Nm

Method 2: Using inclinometer

Before adjustment, adjust the inclinometer to the desired downtilt angle.
After adjustment, locate the bead in the inclinometer in the middle.



RET Antenna Installation Guide (with Type D Brackets)

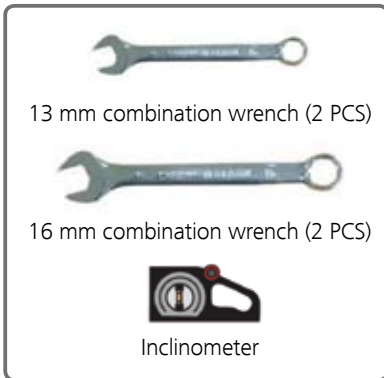
Type D Brackets: Heavy bracket



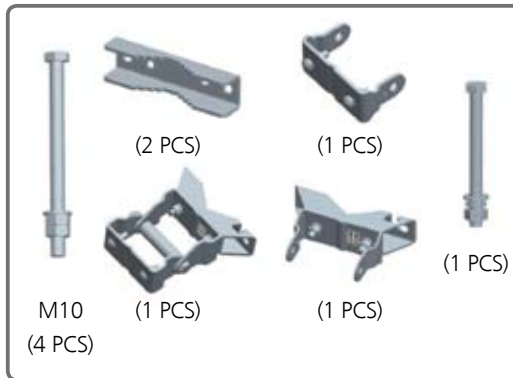
NOTE

- Only qualified personnel are allowed to install the antenna.
- Clamps are placed in the antenna packing case and the downtilt kit is packed independently. The external packaging case of the clamps and downtilt kit is labeled with model information, such as model A, B, C, or D. The model of the downtilt kit must be consistent with that of the clamps.
- The antenna can be equipped with the downtilt kit or without the downtilt kit. Select an installation mode based on the site conditions.
- Appearance of the actual antenna may differ from the pictures.
- Waterproof and sealing protection is mandatory for temporarily unused ports and recommended for used ports.

Installation Tools



Clamps



Downtilt kit (Optional)



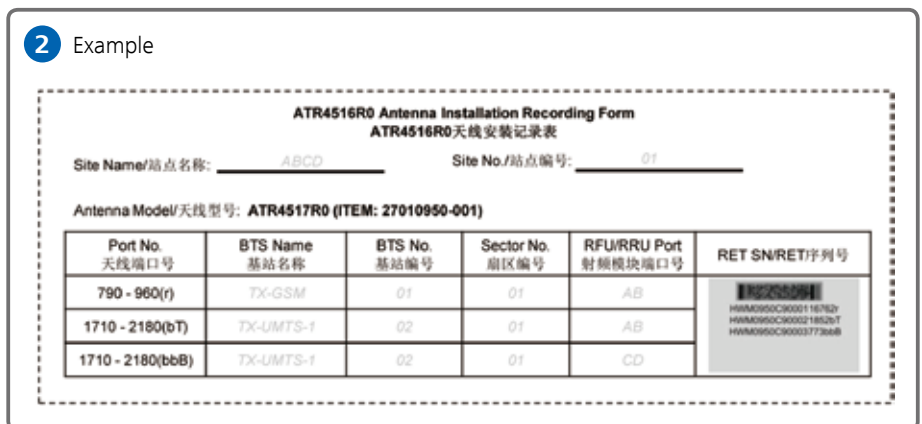
Write Down the Information

CAUTION

- In the daisy chain scenario, must write down the information in recording form.
- Before the filling, please ensure the RET SN attached to the antenna nameplate is the same as the RET SN on the antenna installation recording form.

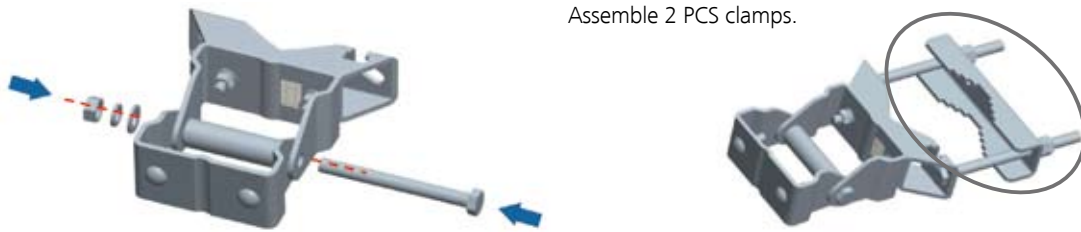
- Taking out the recording form packaging bag.

- According to the actual situation to fill in the recording form.



Installation without Downtilt Kit

1 Assemble the clamps

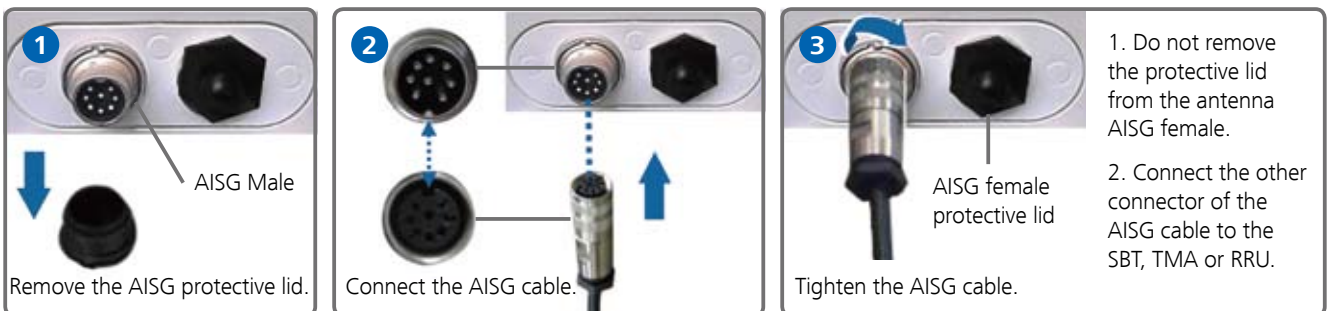


2 Install the bracket

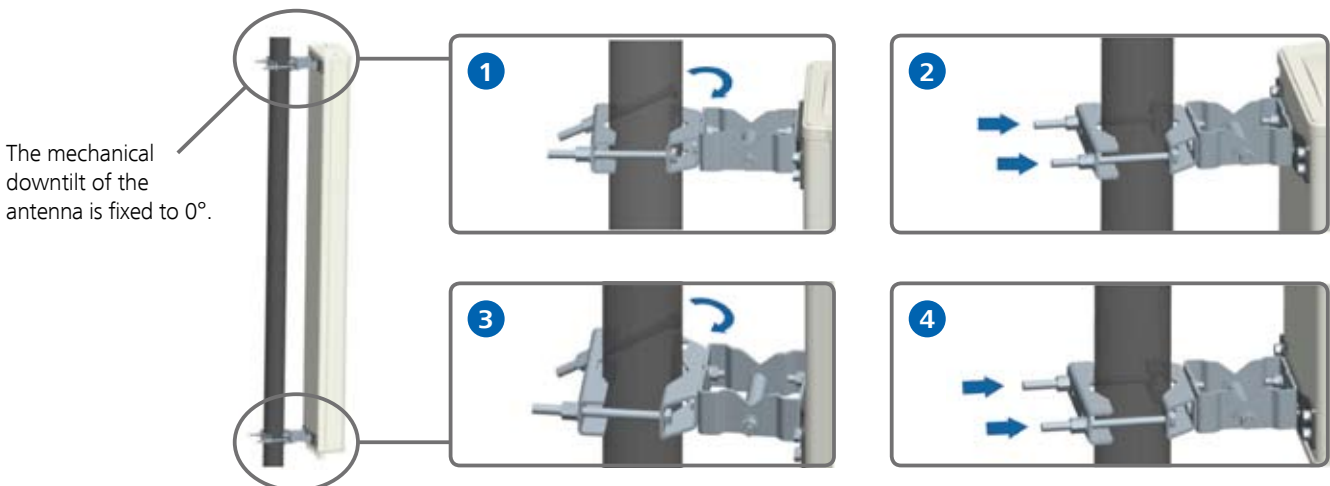


3 Connect the AISG Cable

Align the convex of the antenna AISG male connector with the concave of the AISG female connector correctly, press the connectors together, and then secure them by hand properly. For details, see step 2.



4 Install the antenna



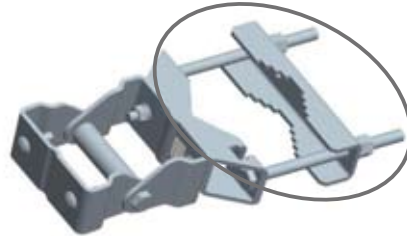
Installation with Downtilt Kit

1 Assemble the bracket

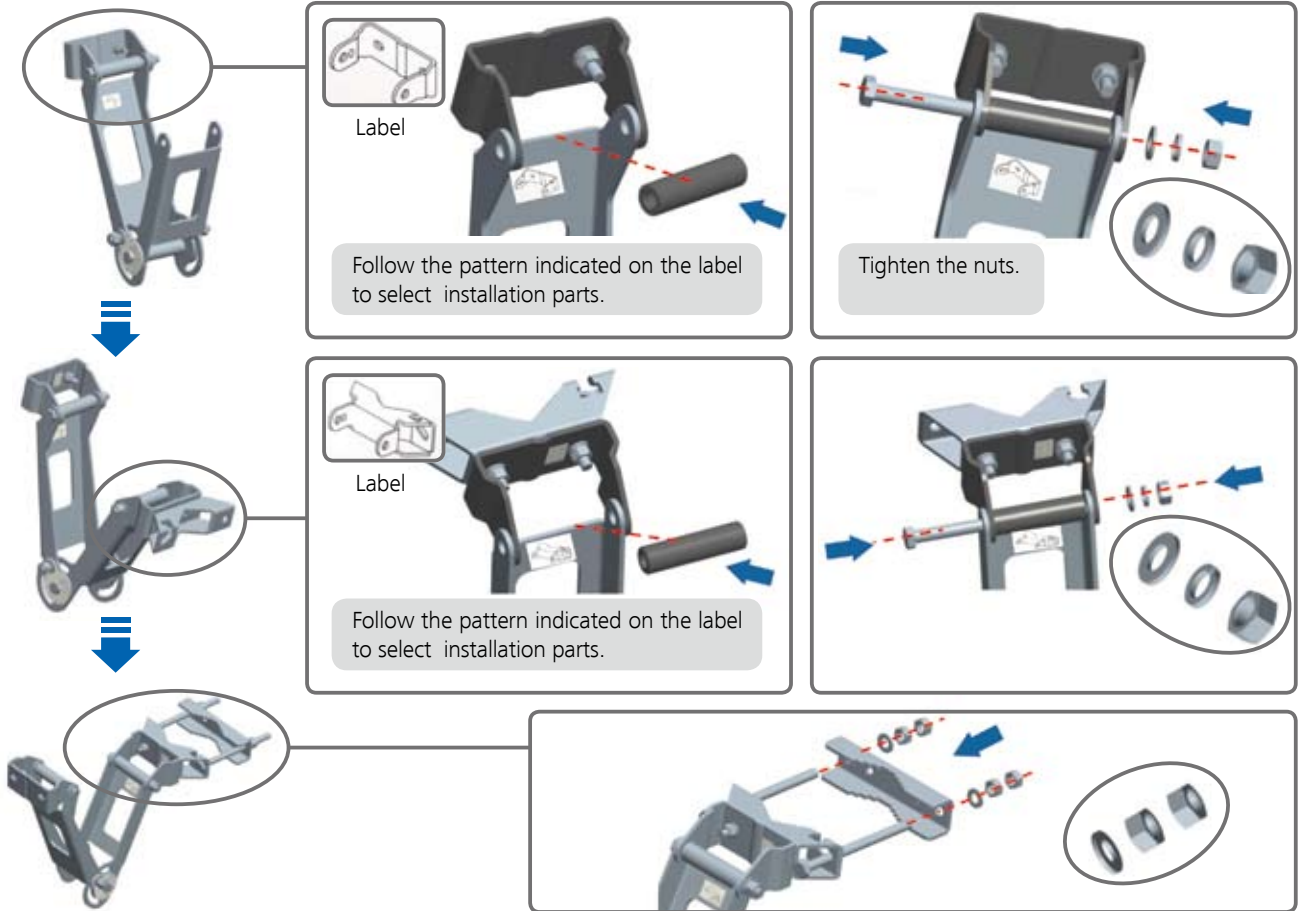
1 Split downtilt kit



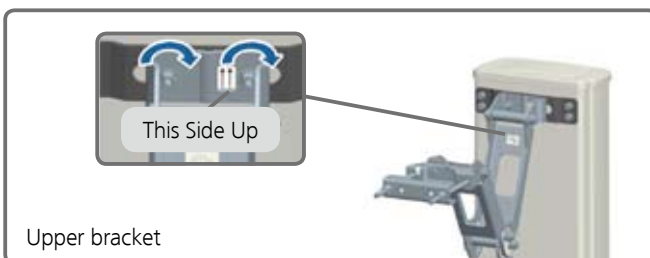
2 Assemble lower bracket



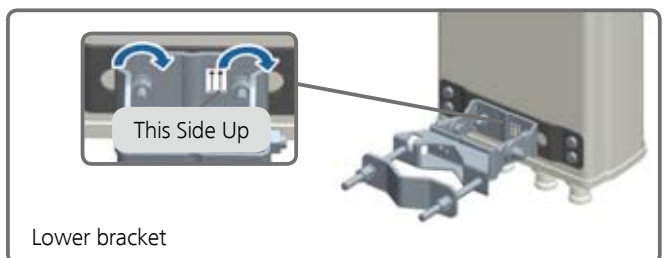
3 Assemble upper bracket



2 Install the bracket



Upper bracket



Lower bracket

Installation with Downtilt Kit

3 Connect the AISG Cable

Align the convex of the antenna AISG male connector with the concave of the AISG female connector correctly, press the connectors together, and then secure them by hand properly. For details, see step 2.

1 Remove the AISG protective lid.

2 Connect the AISG cable.

3 Tighten the AISG cable.

1. Do not remove the protective lid from the antenna AISG female.

2. Connect the other connector of the AISG cable to the SBT, TMA or RRU.

4 Install the antenna

Ensure the bracket is fully collapsed at 0°.

5 Adjust the mechanical downtilt angle

Method 1: Using Scale

"L" on the scale indicates the distance between antenna bases. Observe the readings according to this distance. For example, if the distance is 2.0 m, observe the readings corresponding to "L=2.0 m" (scale range: 0° to 12°).

Finally, tighten all the nuts.
Recommended torque:
M8 = 18 Nm, M10 = 30 Nm

Method 2: Using inclinometer

Before adjustment, adjust the inclinometer to the desired downtilt angle.

After adjustment, locate the bead in the inclinometer in the middle.

FET Antenna Installation Guide (with Type A Brackets)

Type A Brackets: Light bracket



NOTE

1. Only qualified personnel are allowed to install the antenna.
2. Clamps are placed in the antenna packing case and the downtilt kit is packed independently. The external packaging case of the clamps and downtilt kit is labeled with model information, such as model A, B, C, or D. The model of the downtilt kit must be consistent with that of the clamps.
3. The antenna can be equipped with the downtilt kit or without the downtilt kit. Select an installation mode based on the site conditions.
4. Appearance of the actual antenna may differ from the pictures.
5. Protection caps of antenna ports not connecting to jumpers can not be removed. Meanwhile, waterproof measures must be taken to protect these antenna ports.

Installation Tools



13 mm combination wrench (2 PCS)



Inclinometer

Clamps



M8
(4 PCS)



(2 PCS)



(2 PCS)

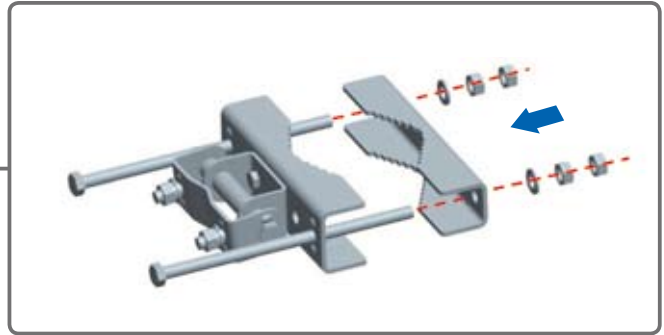
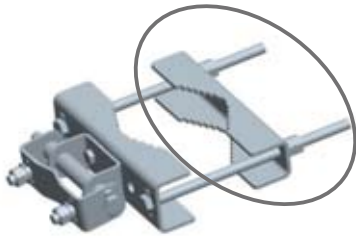
Downtilt kit (Optional)



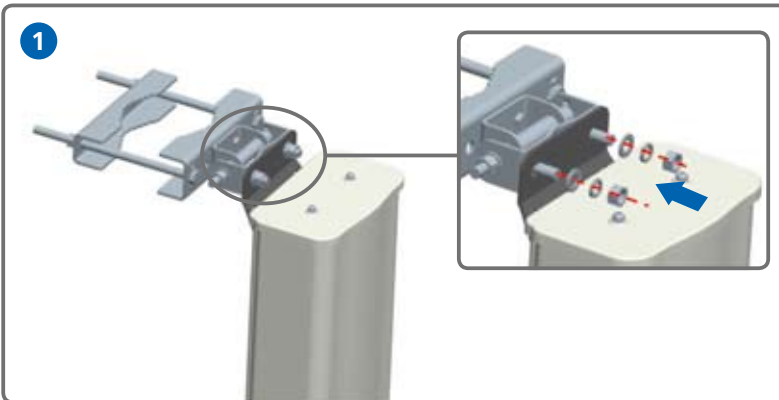
(1 PCS)

Installation without Downtilt Kit

1 Assemble the Clamps

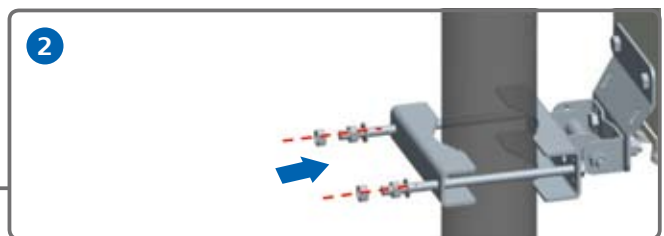
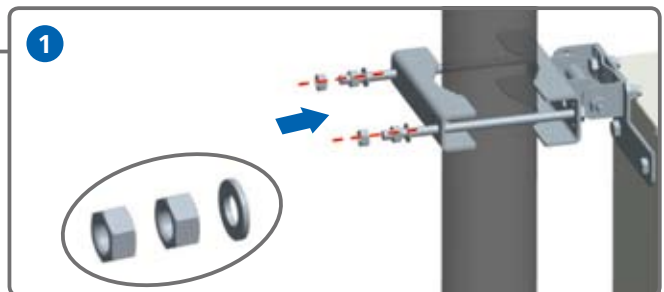


2 Install the Clamps



3 Install the antenna

The mechanical downtilt of the antenna is fixed to 0°.

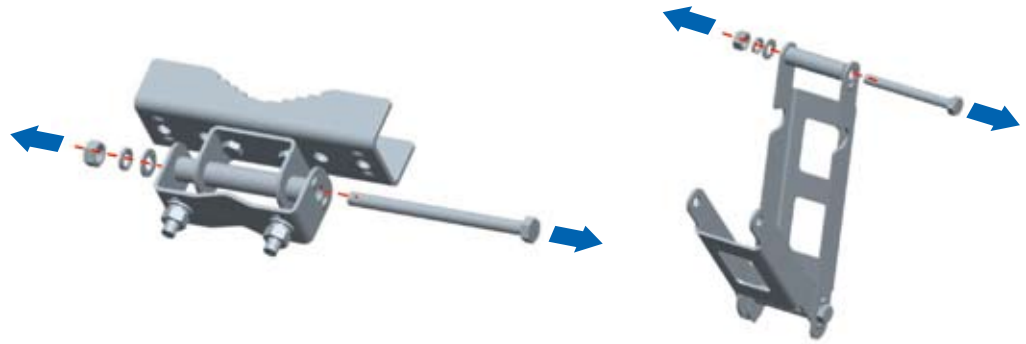


Installation with Downtilt Kit

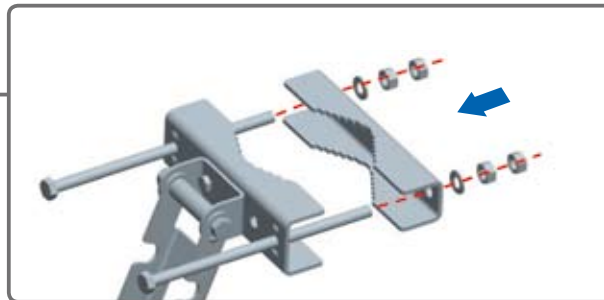
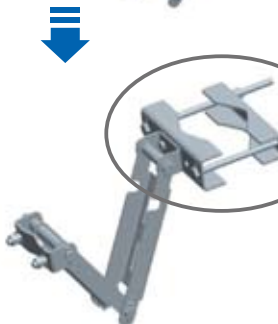
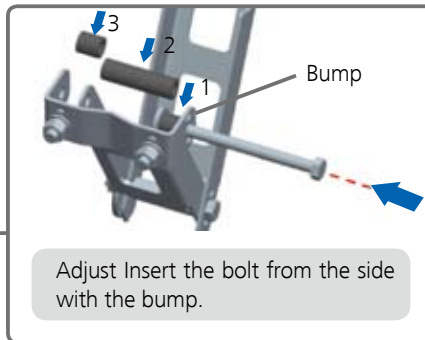
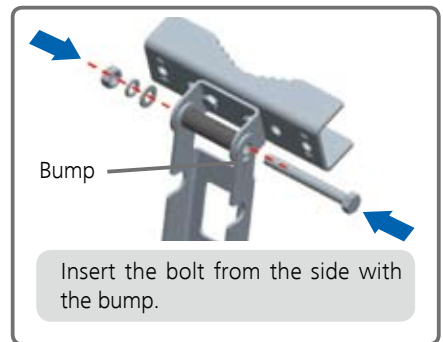
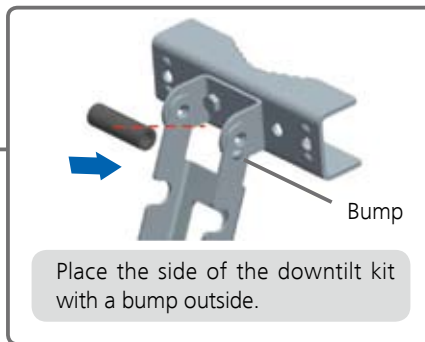
1 Assemble the bracket

1 Split bracket subassembly

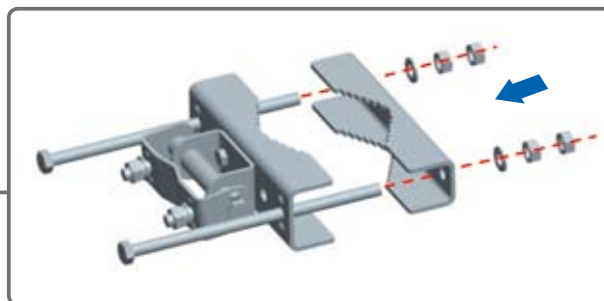
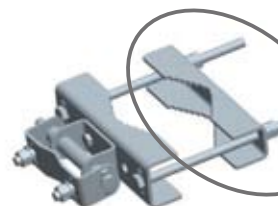
Split either of the 2 PCS of subassemblies in the packing case



2 Assemble upper bracket

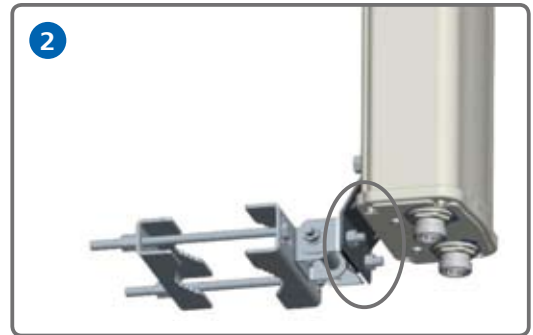
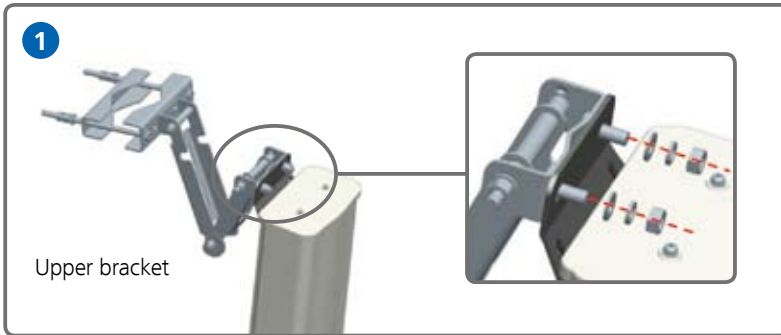


3 Assemble lower bracket

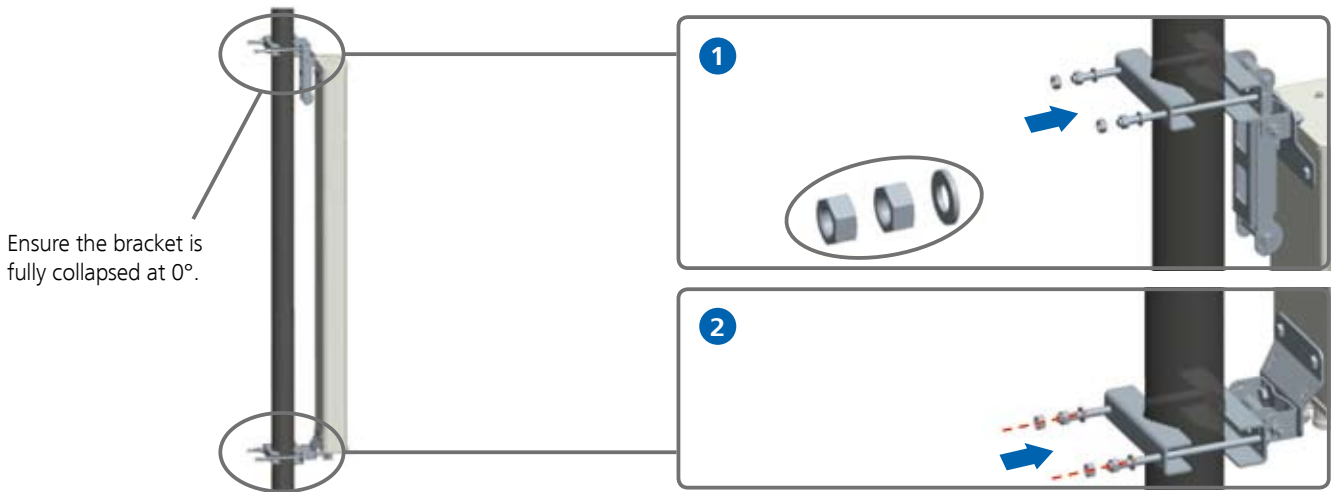


Installation with Downtilt Kit

2 Install the bracket



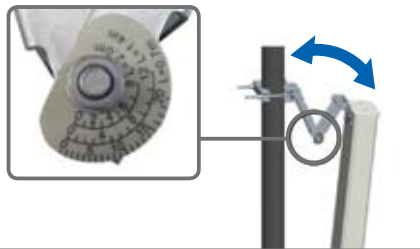
3 Install the antenna



4 Adjust the mechanical downtilt angle

Method 1: Using Scale

"L" on the scale indicates the distance between antenna bases. Observe the readings according to this distance. For example, if the distance is 0.7 m, observe the readings corresponding to "L=0.7 m" (scale range: 0° to 20°).



Finally, tighten all the nuts.

Recommended torque: M8 = 18 Nm

Method 2: Using inclinometer

Precise measurement

Before adjustment, adjust the inclinometer to the desired downtilt angle.

After adjustment, locate the bead in the inclinometer in the middle.



FET Antenna Installation Guide (with Type B and Type C Brackets)

Type B and Type C Brackets: Medium bracket



NOTE

1. Only qualified personnel are allowed to install the antenna.
2. Clamps are placed in the antenna packing case and the downtilt kit is packed independently. The external packaging case of the clamps and downtilt kit is labeled with model information, such as model A, B, C, or D. The model of the downtilt kit must be consistent with that of the clamps.
3. The antenna can be equipped with the downtilt kit or without the downtilt kit. Select an installation mode based on the site conditions.
4. Appearance of the actual antenna may differ from the pictures.
5. Waterproof and sealing protection is mandatory for temporarily unused ports and recommended for used ports.

Installation Tools



13 mm combination wrench (2 PCS)



16 mm combination wrench (2 PCS)



Inclinometer

Clamps



M10
(4 PCS)



(2 PCS)



(1 PCS)



(1 PCS)



(1 PCS)



(2 PCS)

Downtilt kit (Optional)



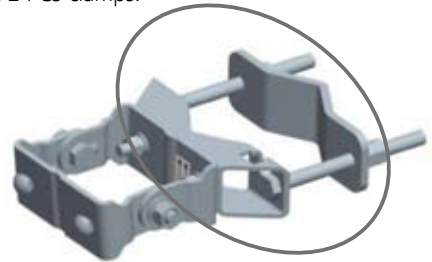
(1 PCS)

Installation without Downtilt Kit

1 Assemble the clamps



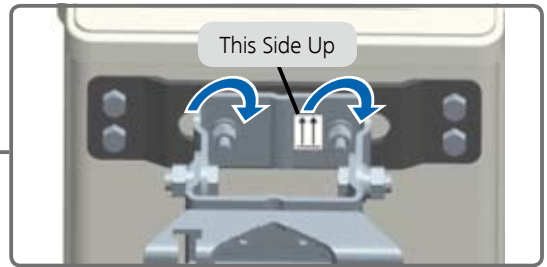
Assemble the 2 PCS clamps.



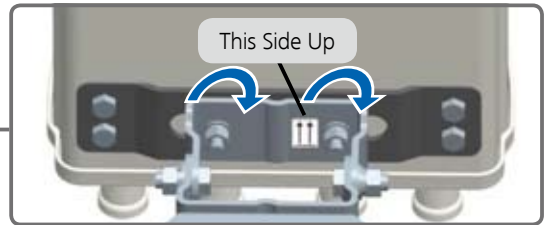
2 Install the bracket



Upper bracket



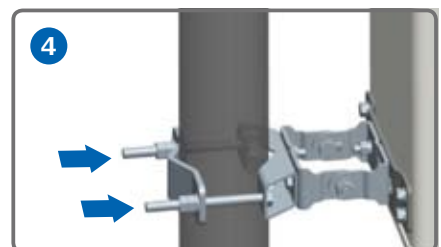
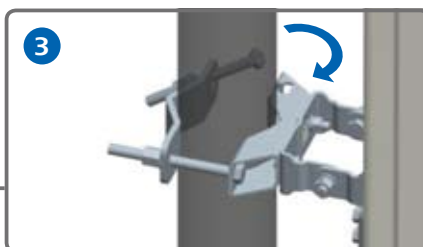
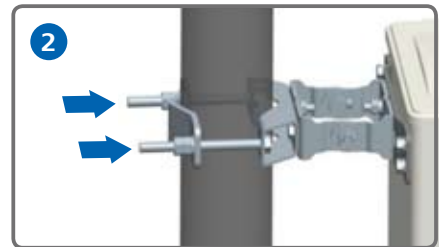
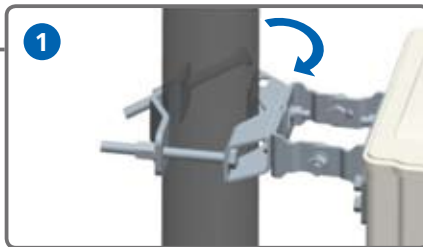
Lower bracket



Follow the directions indicated on the label shown in the picture to install brackets.

3 Install the antenna

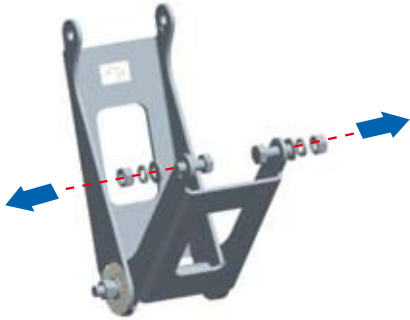
The mechanical downtilt of the antenna is fixed to 0°.



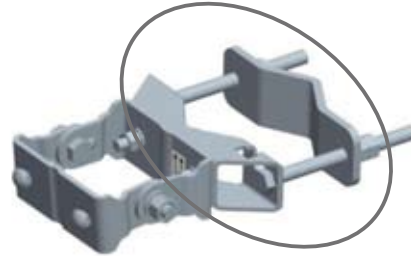
Installation with Downtilt Kit

1 Assemble the bracket

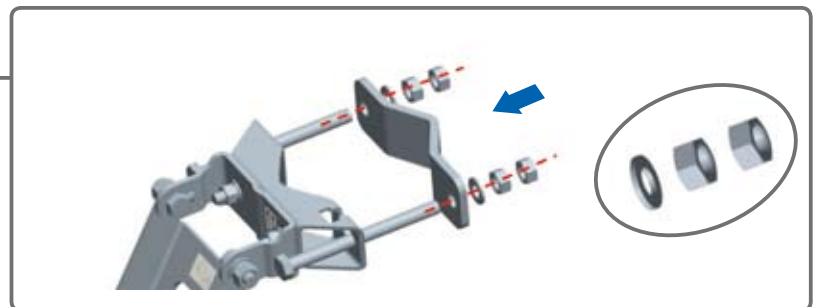
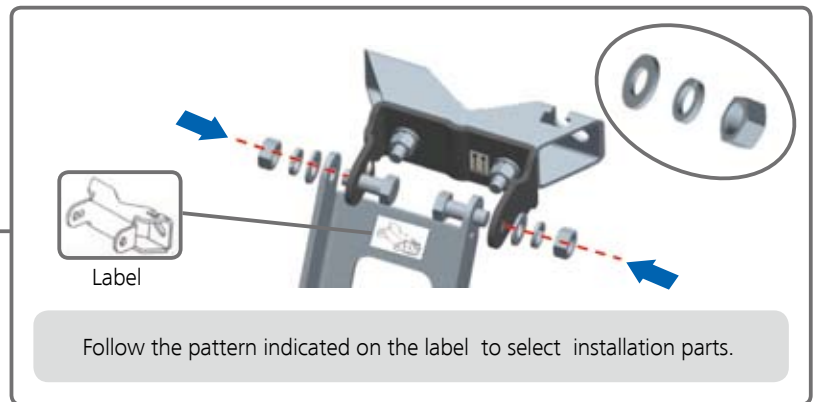
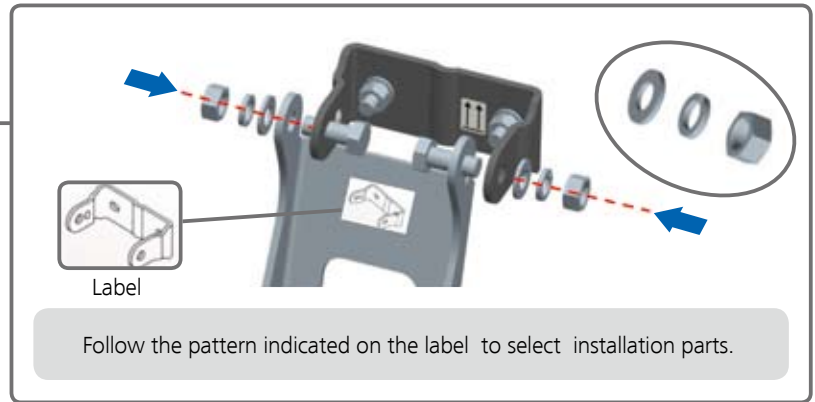
1 Split downtilt kit



2 Assemble lower bracket

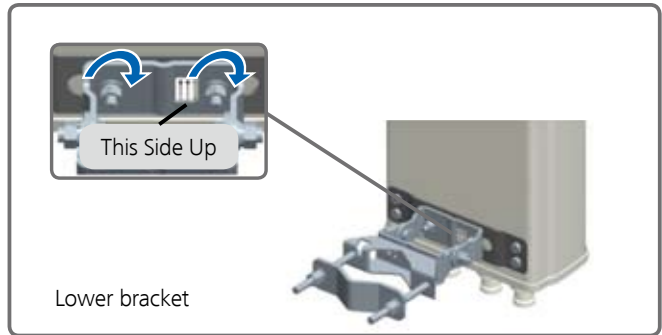
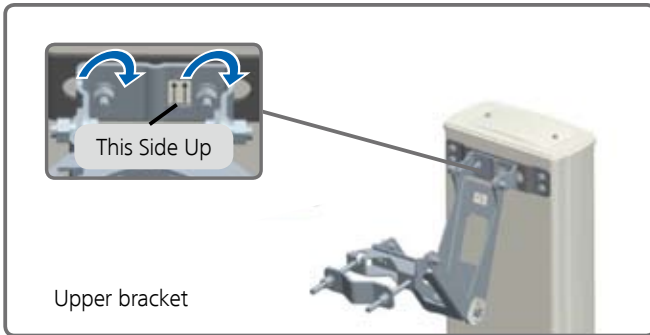


3 Assemble upper bracket

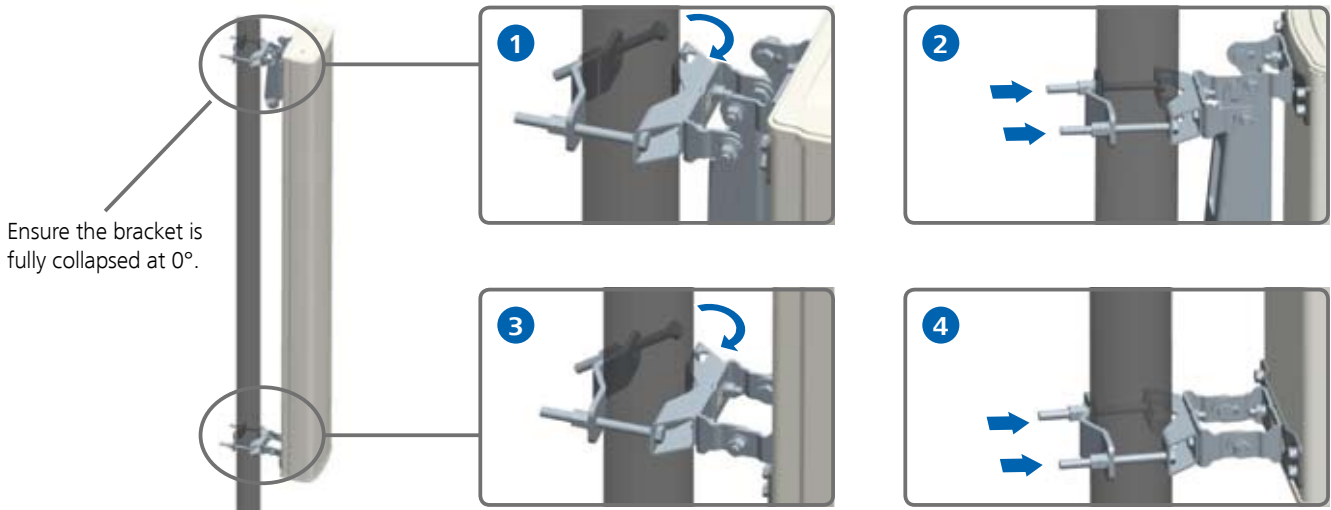


Installation with Downtilt Kit

2 Install the bracket



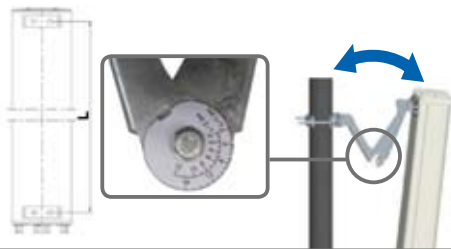
3 Install the antenna



4 Adjust the mechanical downtilt angle

Method 1: Using Scale

"L" on the scale indicates the distance between antenna bases. Observe the readings according to this distance. For example, if the distance is 1.4 m, observe the readings corresponding to "L=1.4 m" (scale range: 0° to 16°).

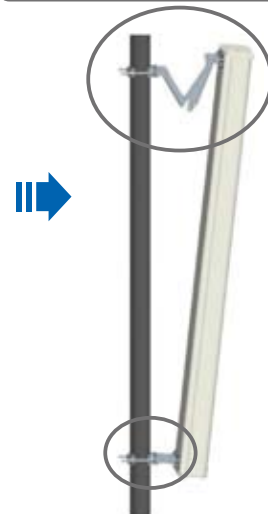
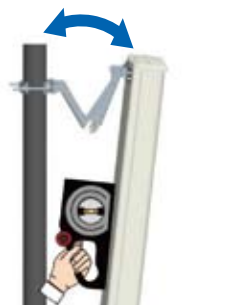


Finally, tighten all the nuts.
Recommended torque:
M8 = 18 Nm, M10 = 30 Nm

Method 2: Using inclinometer

Before adjustment, adjust the inclinometer to the desired downtilt angle.

After adjustment, locate the bead in the inclinometer in the middle.



FET Antenna Installation Guide (with Type D Brackets)

Type D Brackets: Heavy bracket



NOTE

1. Only qualified personnel are allowed to install the antenna.
2. Clamps are placed in the antenna packing case and the downtilt kit is packed independently. The external packaging case of the clamps and downtilt kit is labeled with model information, such as model A, B, C, or D. The model of the downtilt kit must be consistent with that of the clamps.
3. The antenna can be equipped with the downtilt kit or without the downtilt kit. Select an installation mode based on the site conditions.
4. Appearance of the actual antenna may differ from the pictures.
5. Waterproof and sealing protection is mandatory for temporarily unused ports and recommended for used ports.

Installation Tools



13 mm combination wrench (2 PCS)



16 mm combination wrench (2 PCS)



Inclinometer

Clamps



M10
(4 PCS)

(2 PCS)

(1 PCS)

(1 PCS)

(1 PCS)

(1 PCS)

Downtilt kit (Optional)



(1 PCS)

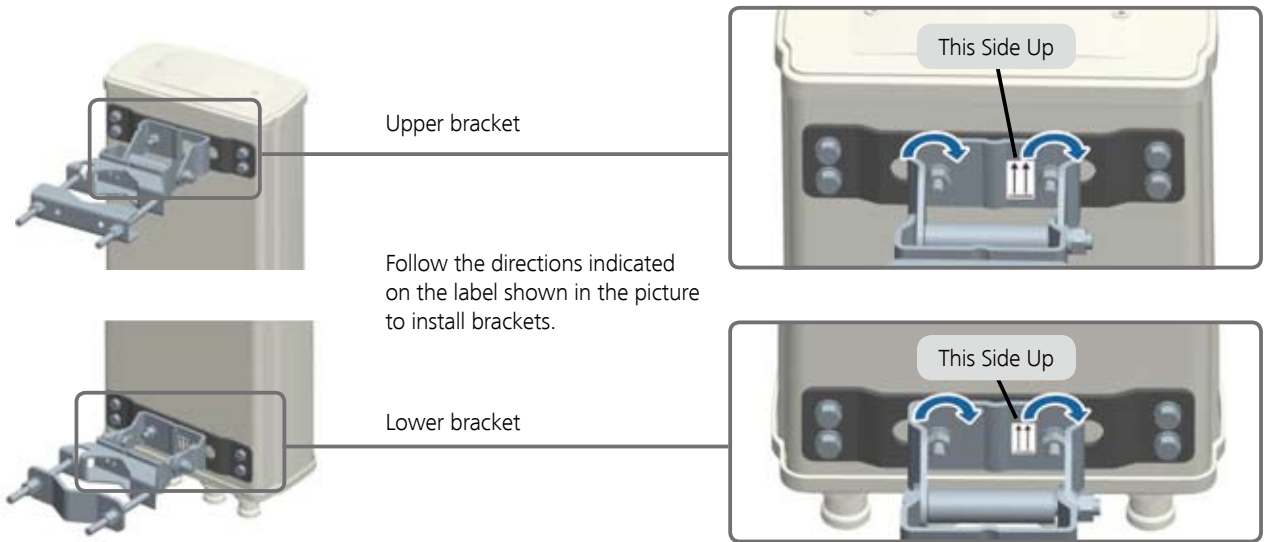
Installation without Downtilt Kit

1 Assemble the clamps

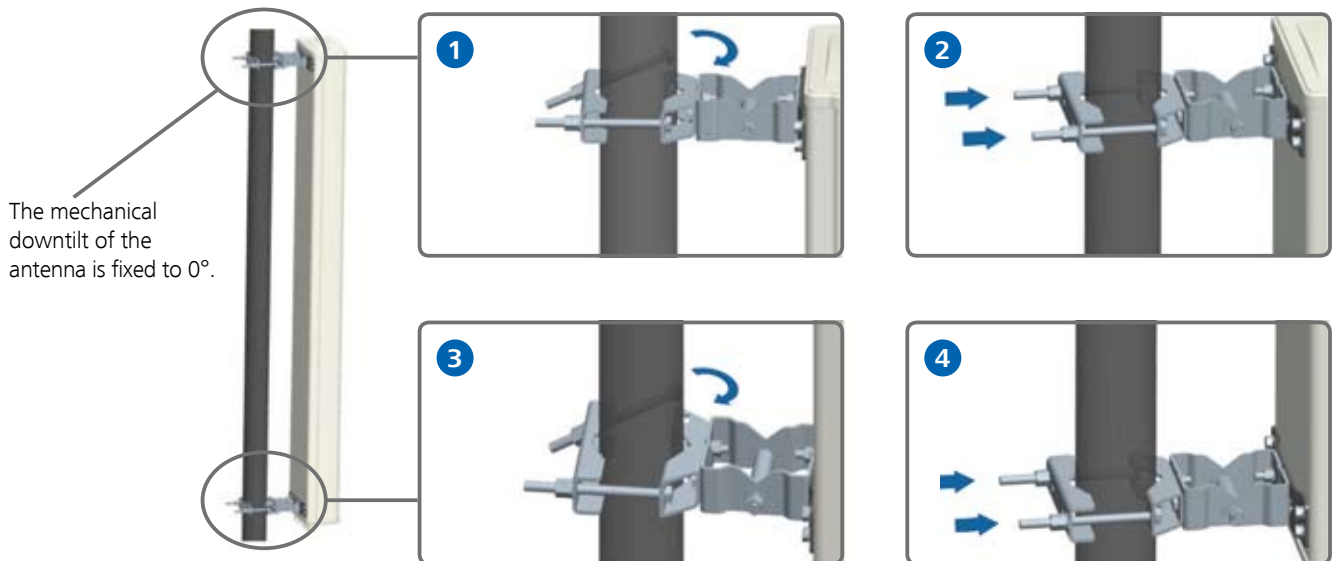
Assemble the 2 PCS clamps.



2 Install the clamps



3 Install the antenna



Installation with Downtilt Kit

1 Assemble the bracket

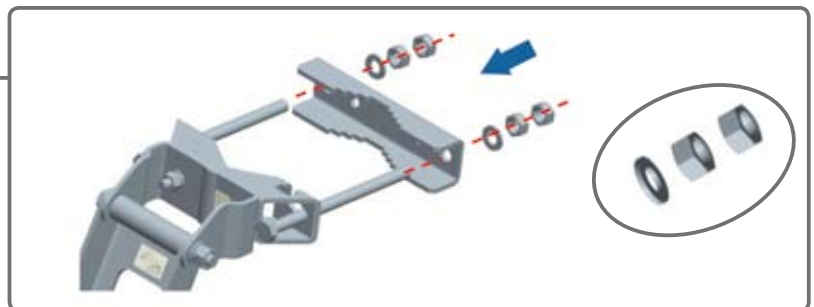
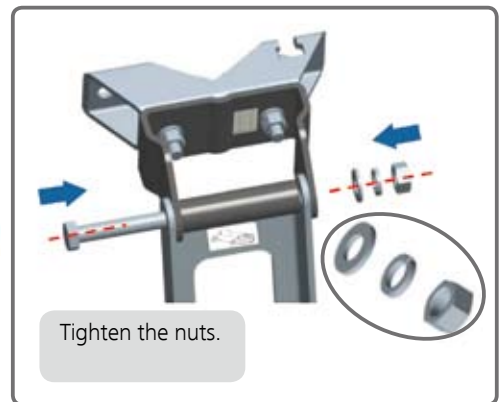
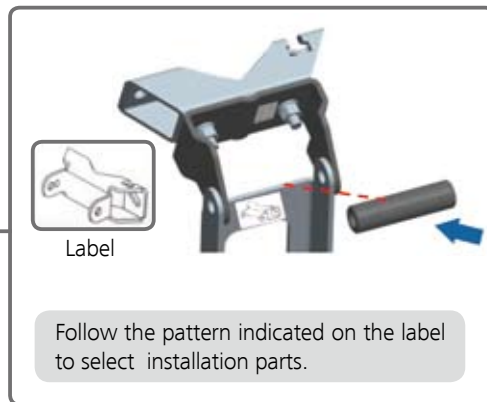
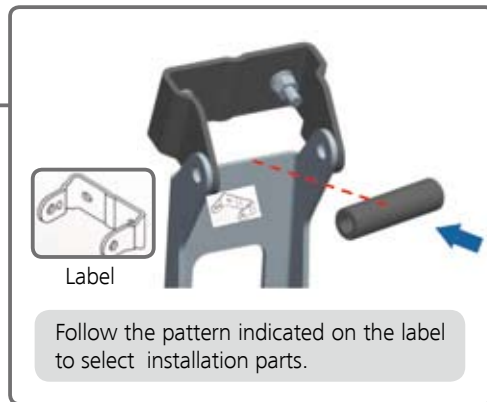
1 Split downtilt kit



2 Assemble lower bracket

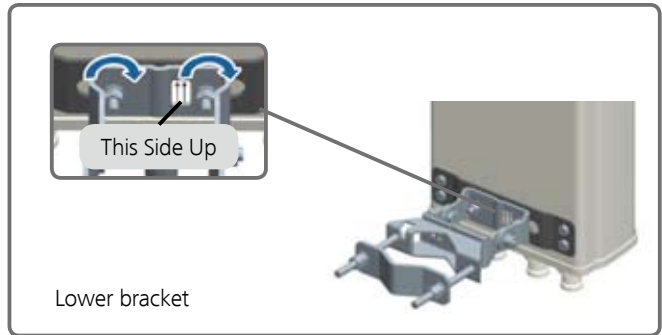
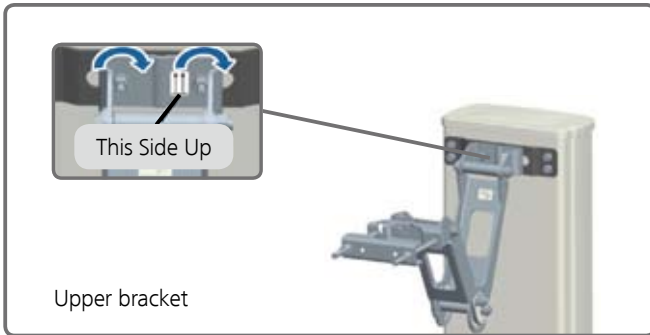


3 Assemble upper bracket

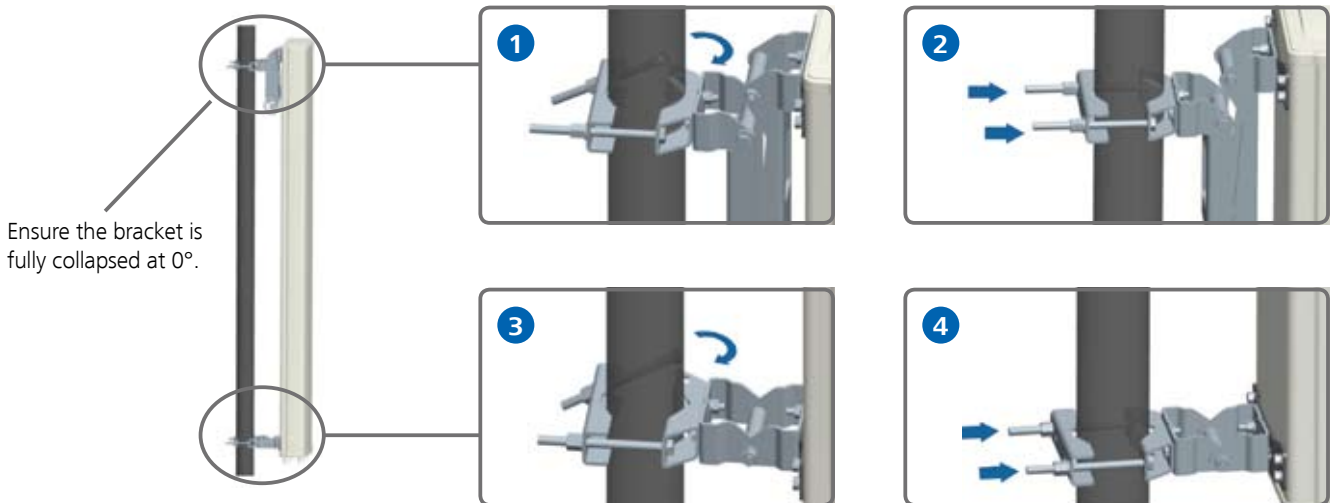


Installation with Downtilt Kit

2 Install the bracket



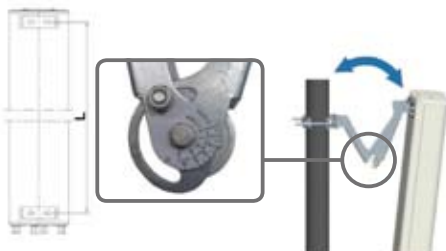
3 Install the antenna



4 Adjust the mechanical downtilt angle

Method 1: Using Scale

"L" on the scale indicates the distance between antenna bases. Observe the readings according to this distance. For example, if the distance is 2.0 m, observe the readings corresponding to "L=2.0 m" (scale range: 0° to 12°).

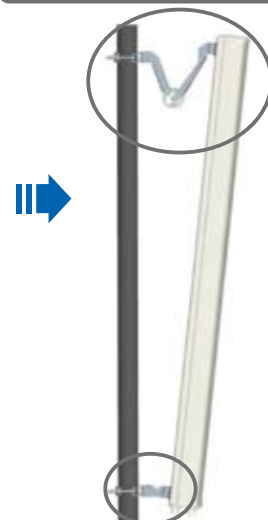


Finally, tighten all the nuts.
Recommended torque:
M8 = 18 Nm, M10 = 30 Nm

Method 2: Using inclinometer

Before adjustment, adjust the inclinometer to the desired downtilt angle.

After adjustment, locate the bead in the inclinometer in the middle.



NOTE

1. Only qualified personnel are allowed to install the antenna.
2. Appearance of the actual antenna may differ from the pictures.

Installation Tools



13 mm combination wrench (2 PCS)



300 x 36 mm Adjustable wrench



16 mm combination wrench (2 PCS)



Phillips screwdriver

Fittings



Hoisting ring

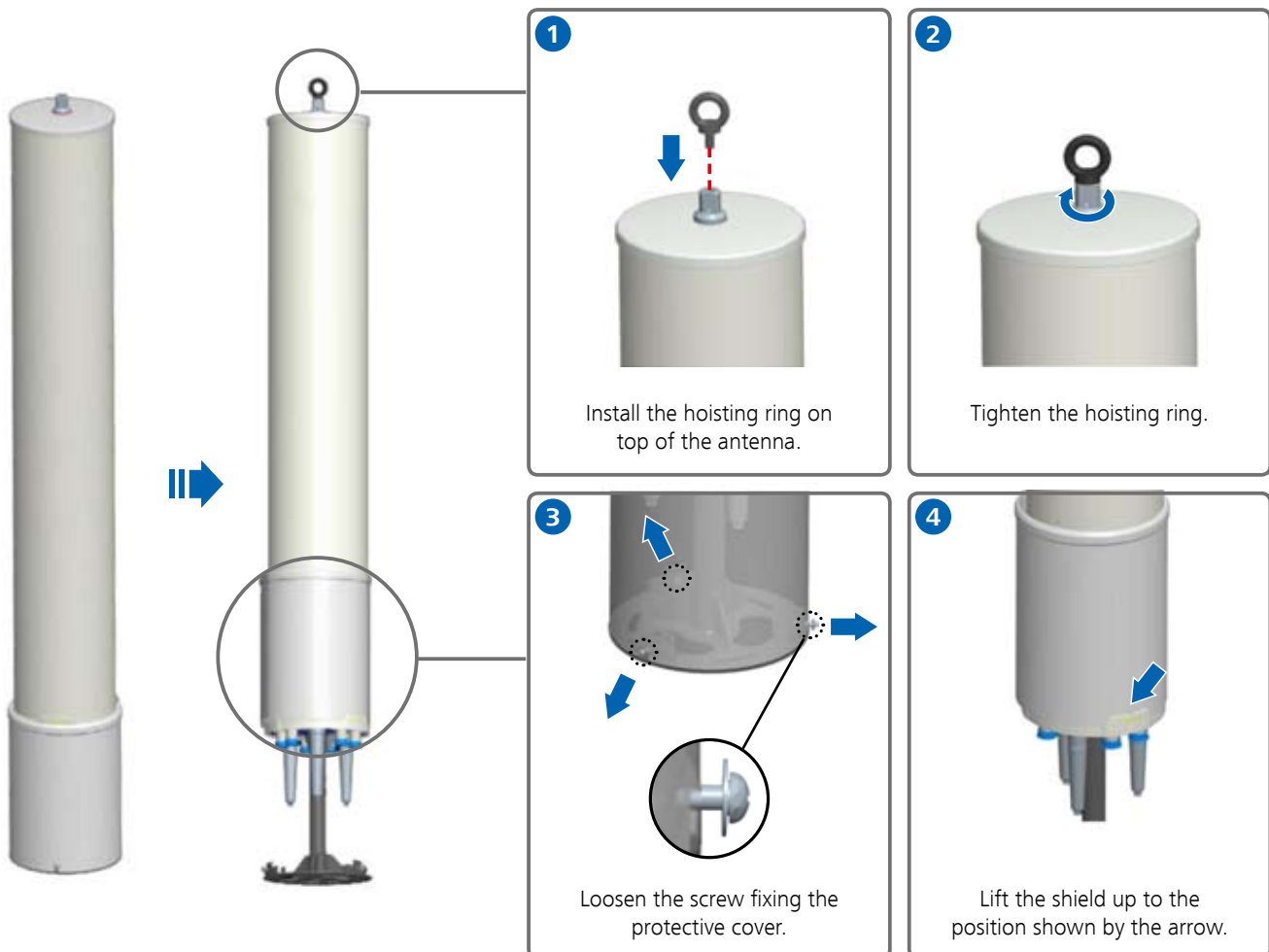


Lightning rod

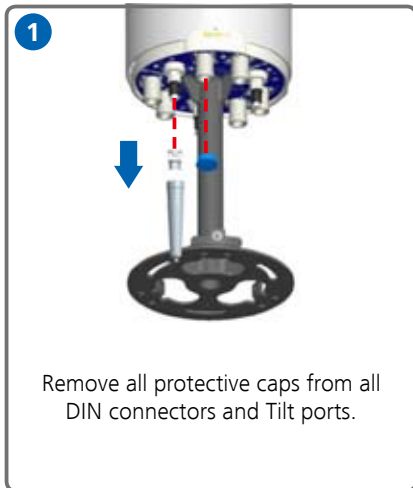


Bolt

1 Preparation before Installation



Installing a Cluster Antenna without SBT



a Non-Daisy Chain Scenario

Non-daisy chain scenario: One RCU is installed in a sector, and RCUs of three sectors are not connected with each other. Do not remove the protective cap from the female connector of the RCU. The three sectors have the same installation procedure.



b Daisy Chain Scenario

Daisy chain scenario: One RCU is installed in a sector, and RCUs of three sectors are in daisy chain. Do not remove the protective cap from the female connector on the RCU of the last sector. For details about how to connect the RCUs in daisy chain mode, see the RCU Installation Guide.



Installing a Cluster Antenna without SBT

Connect the AISG Cable

⚠ CAUTION

1. The SBT must be produced by Huawei. The SBT must be installed within the antenna radome, vertical to the internal pole inside the antenna. For details, see step 2.
2. Before installing the RCU and SBT, ensure that sufficient installation space has been reserved for them.

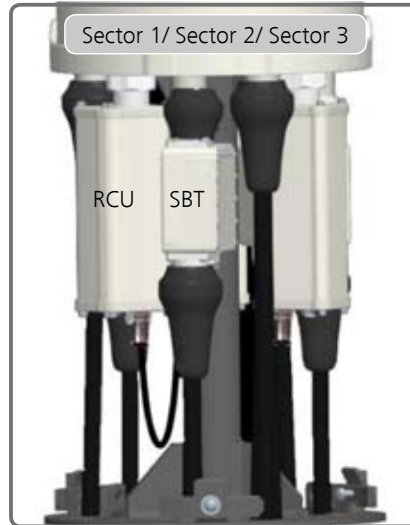
- 1 Remove all protective caps from all DIN connectors and Tilt ports.
- 2 Install the SBT. For details, see the SBT Installation Guide.
- 3 Install RF jumpers.
- 4 Install the RCU. For details, see the RCU Installation Guide.
- 5 Connect the AISG cables.



Installing a Cluster Antenna without SBT

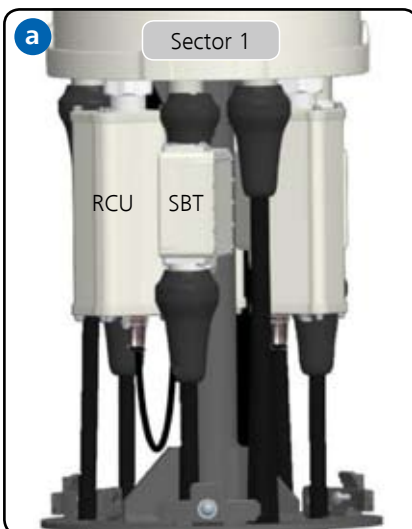
a Non-Daisy Chain Scenario

Non-daisy chain scenario: One SBT is installed in a sector, where the RCU connects to the SBT by using an AISG cable. Do not remove the protective cap from the female connector of the RCU. Three sectors have the same installation procedure.



b Daisy Chain Scenario

Daisy chain scenario: Only one SBT is installed. RCUs of 3 sectors are connected in daisy chain mode by using AISG cables. For details about how to connect the RCUs in daisy chain mode, see the RCU Installation Guide.

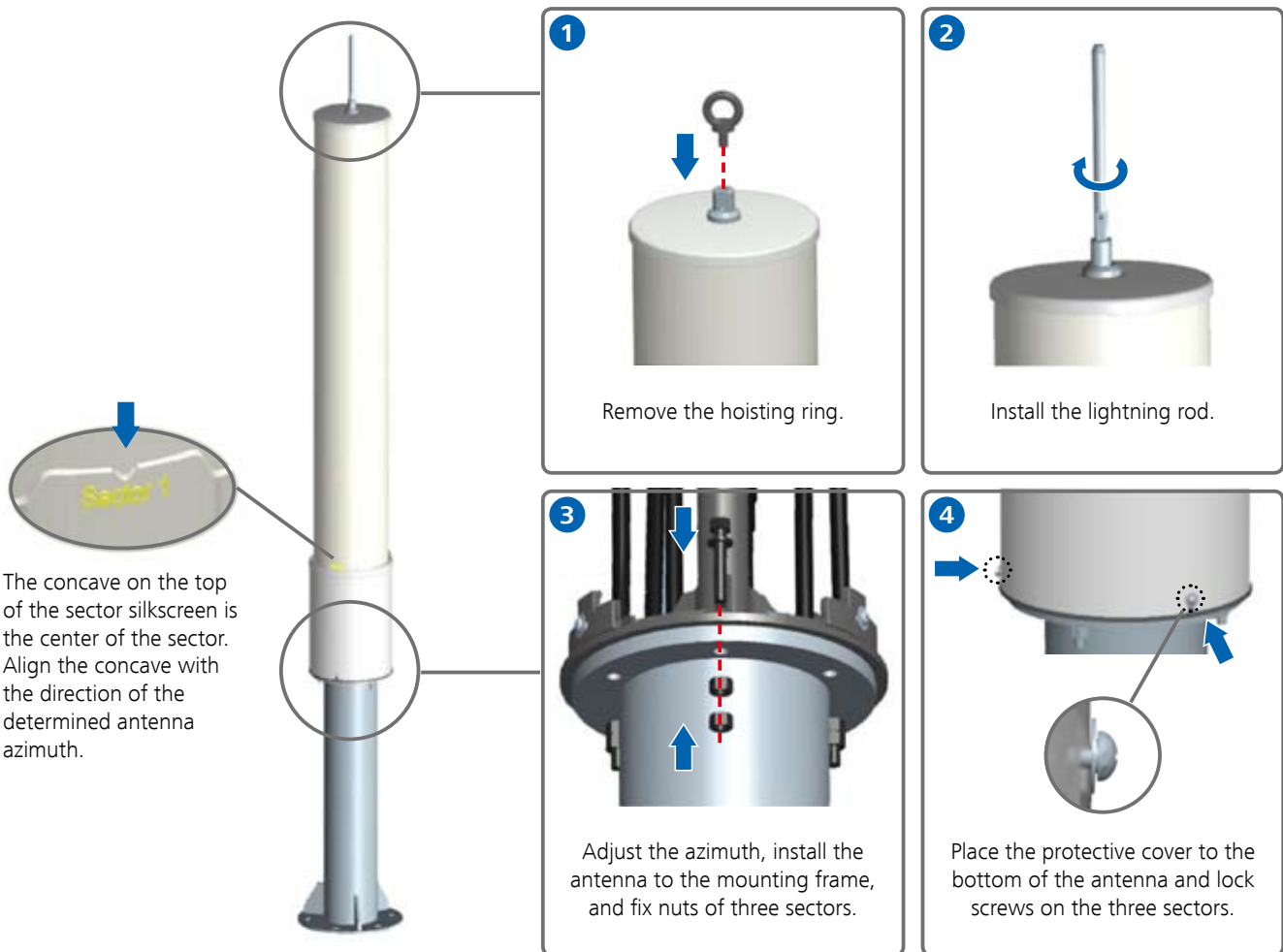


Installing a Cluster Antenna without SBT

CAUTION

Move the antenna to the mounting platform by using a hoisting ring.

Securing the Antenna



TDD FET Antenna with Uptilt-Brackets Installation Guide

TDD FET Brackets: Light bracket



NOTE

1. Only qualified personnel are allowed to install the antenna.
2. Appearance of the actual antenna may differ from the pictures.
3. Waterproof and sealing protection is mandatory for temporarily unused ports and recommended for used ports.

Installation Tools



13 mm combination wrench (2 PCS)



Inclinometer

Bracket Subassembly



(1 PCS)



(1 PCS)



(2 PCS)



M 8
(4 PCS)

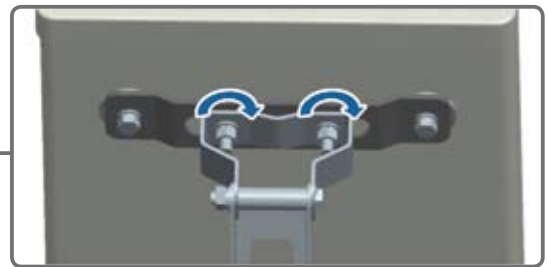
1 Assemble the bracket



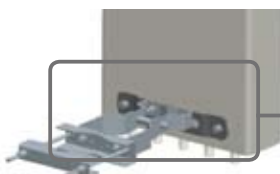
2 Install the bracket



Up bracket



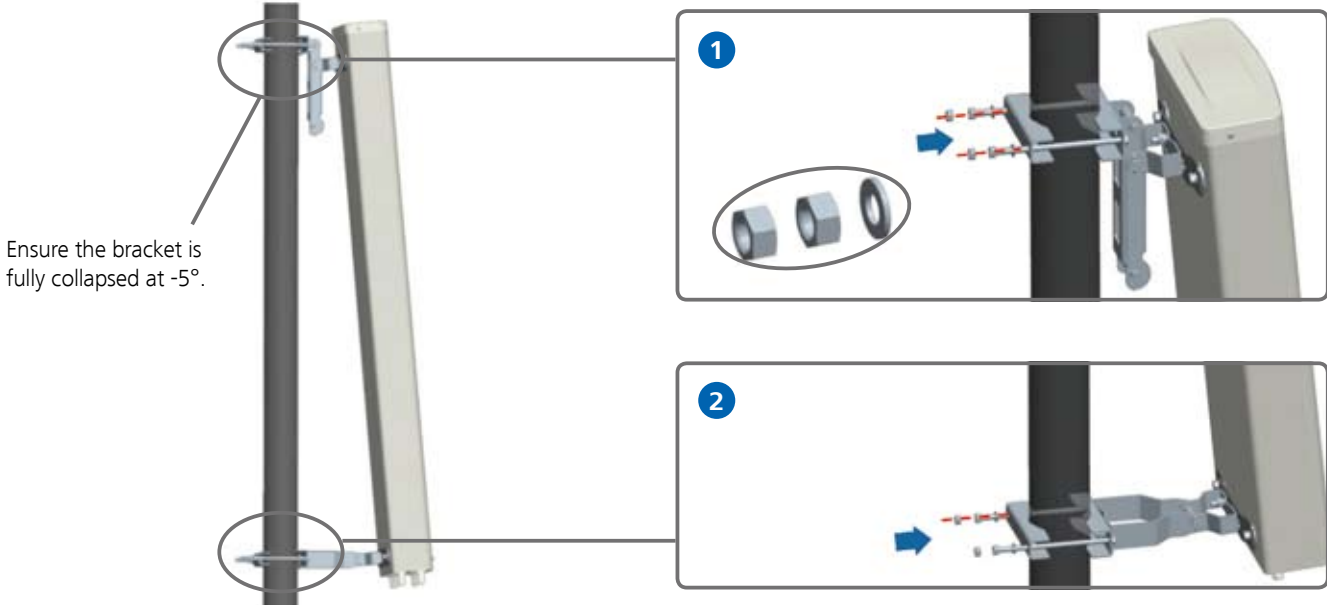
Follow the directions shown in the picture to install brackets.



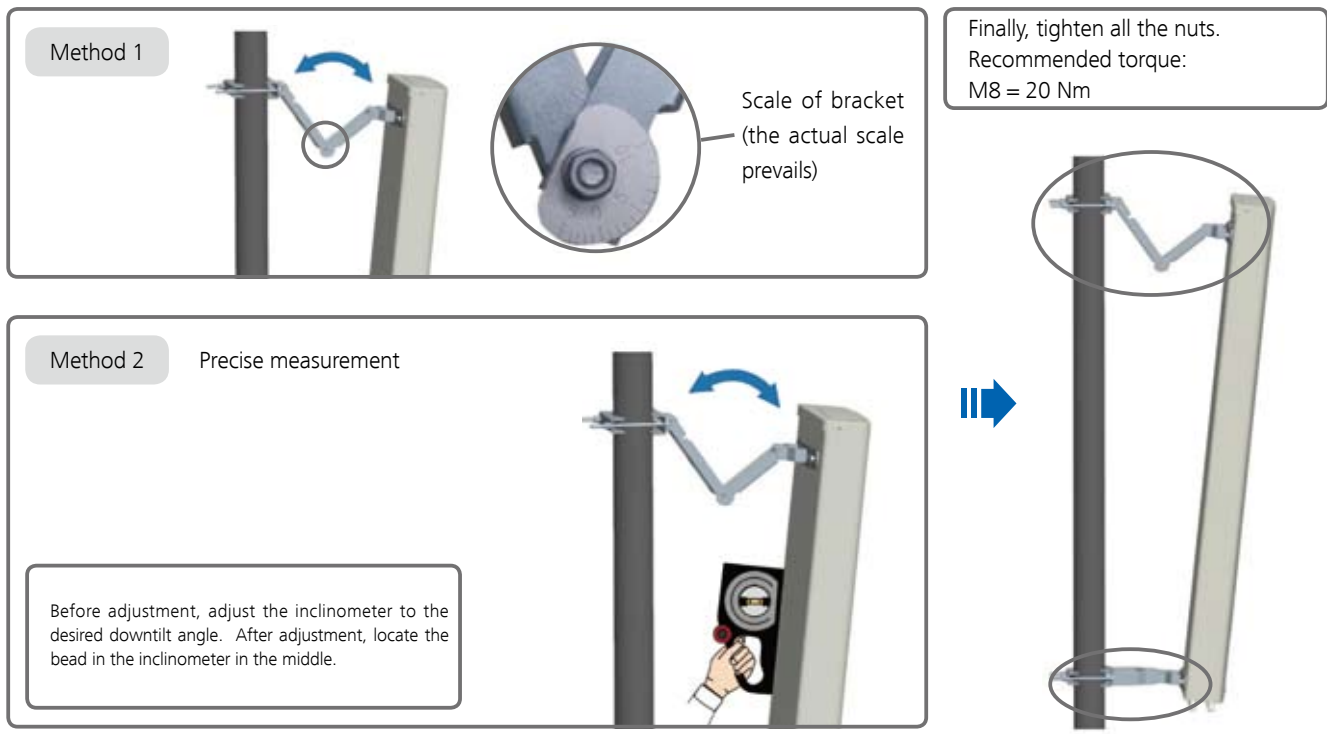
Down bracket



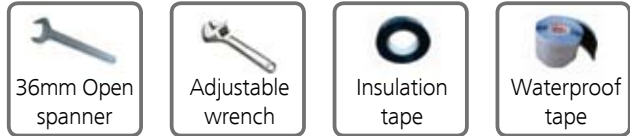
3 Install the antenna



4 Adjust the mechanical downtilt angle



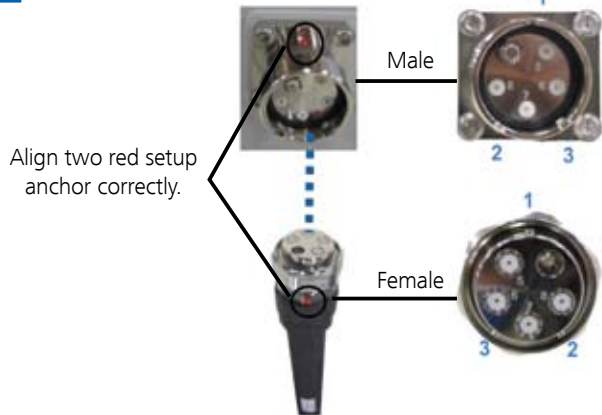
Description of Connecting the Cable



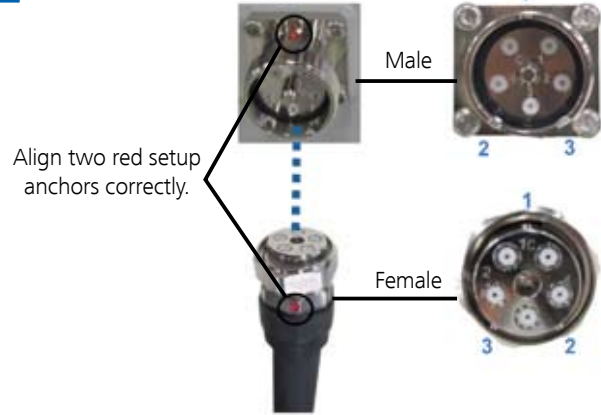
A Cluster Cable

1. There are two types of cluster connectors: 4-core and 5-core. During installation, ensure that the antenna and cluster cable have the same connectors.
2. Align three concaves of the antenna male connector with three convexes of the cable female connector correctly.

a 4-Core Cluster Cable



b 5-Core Cluster Cable



1

Re. Torque: 20 Nm

Connect two 4-core cables and two 5-core cables, and tighten the cables by using an open spanner.

2

Cable ties

Wrap tape method :
one layer Insulation tape + three layer waterproof tapes + three layer Insulation tapes

Waterproof and Sealed for Connectors.

CAUTION
The CAL port of antenna can be only connected to the CAL port of RRU, be sure to connect correctly.

B N-Jumper

1

Re. Torque: 1.1 Nm

Connect nine pieces N-jumper and tighten the jumpers by using an adjustable wrench.

2

Cable ties

Wrap tape method :
one layer Insulation tape + three layer waterproof tapes + three layer Insulation tapes

TDD RET Antenna with H-Brackets Installation Guide

TDD RET Brackets: Medium bracket



NOTE

1. Only qualified personnel are allowed to install the antenna.
2. Appearance of the actual antenna may differ from the pictures.
3. Waterproof and sealing protection is mandatory for temporarily unused ports and recommended for used ports.

Installation Tools



13 mm combination wrench (2 PCS)



16 mm combination wrench (2 PCS)



Inclinometer

Bracket Subassembly



(1 PCS)



(1 PCS)



(2 PCS)

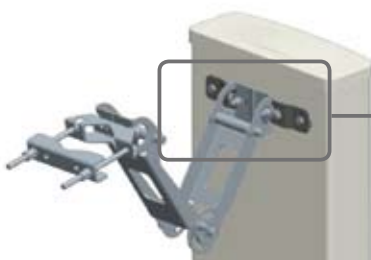


M10
(4 PCS)

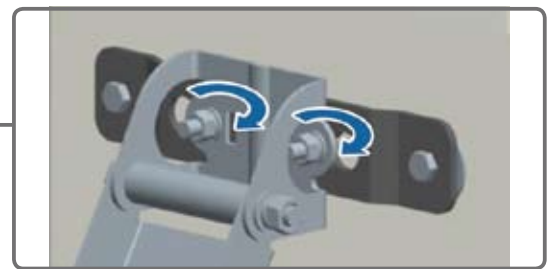
1 Assemble the bracket



2 Install the bracket



Up bracket



Follow the directions shown in the picture to install brackets.



Down bracket



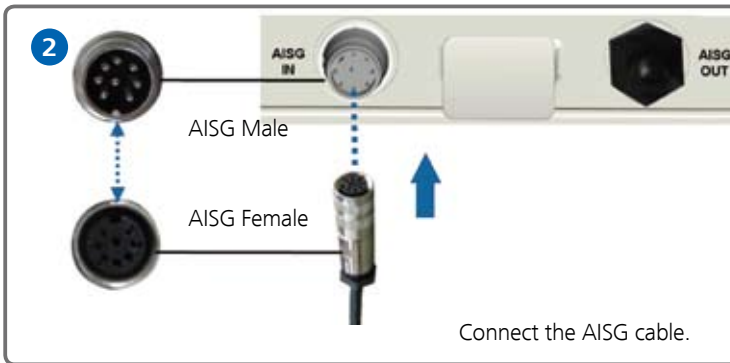
3 Connect the AISG Cable (Optional)

⚠ CAUTION

If not connect the AISG cable, do not remove the protective lids from the antenna AISG female and AISG male.



- 1 Remove the AISG protective lid.
- 2 Align the convex of the antenna AISG male connector with the concave of the AISG female connector correctly, press the connectors together, and then secure them by hand properly. For details, see step 2. Connect the other connector of the AISG cable to the SBT, TMA or RRU.
- 3 Tighten the AISG cable. Do not remove the protective lid from the antenna AISG female.



4 Write Down the Information

⚠ CAUTION

1. In the daisy chain scenario, must write down the information in recording form.
2. Before the filling, please ensure the RET SN and RAE SN attached to the antenna nameplate is the same as the RET SN and RAE SN on the antenna installation recording form.

- 1 Taking out the recording form packaging bag.

- 2 According to the actual situation to fill in the recording form.



- 2 Example

ATD4516R0 Antenna Installation Recording Form
ATD4516R0天线安装记录表

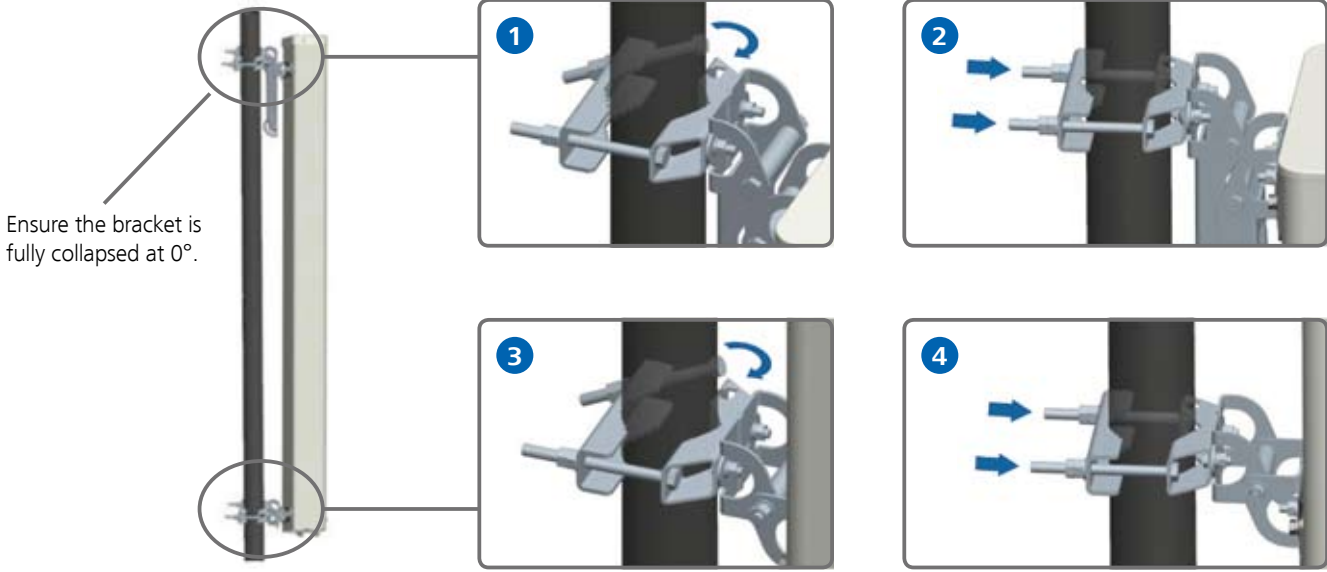
Site Name/站点名称: ABCD Site No./站点编号: 01

Antenna Model 天线型号	Port No. 天线端口号	BTS Name 基站名称	BTS No. 基站编号	Sector No. 扇区编号	Antenna No. 天线编号
ATD4516R0 (ITEM: 27011275)	1880 - 2025	LTE-1	01	01	01
	2555 - 2635	LTE-2	02	02	01

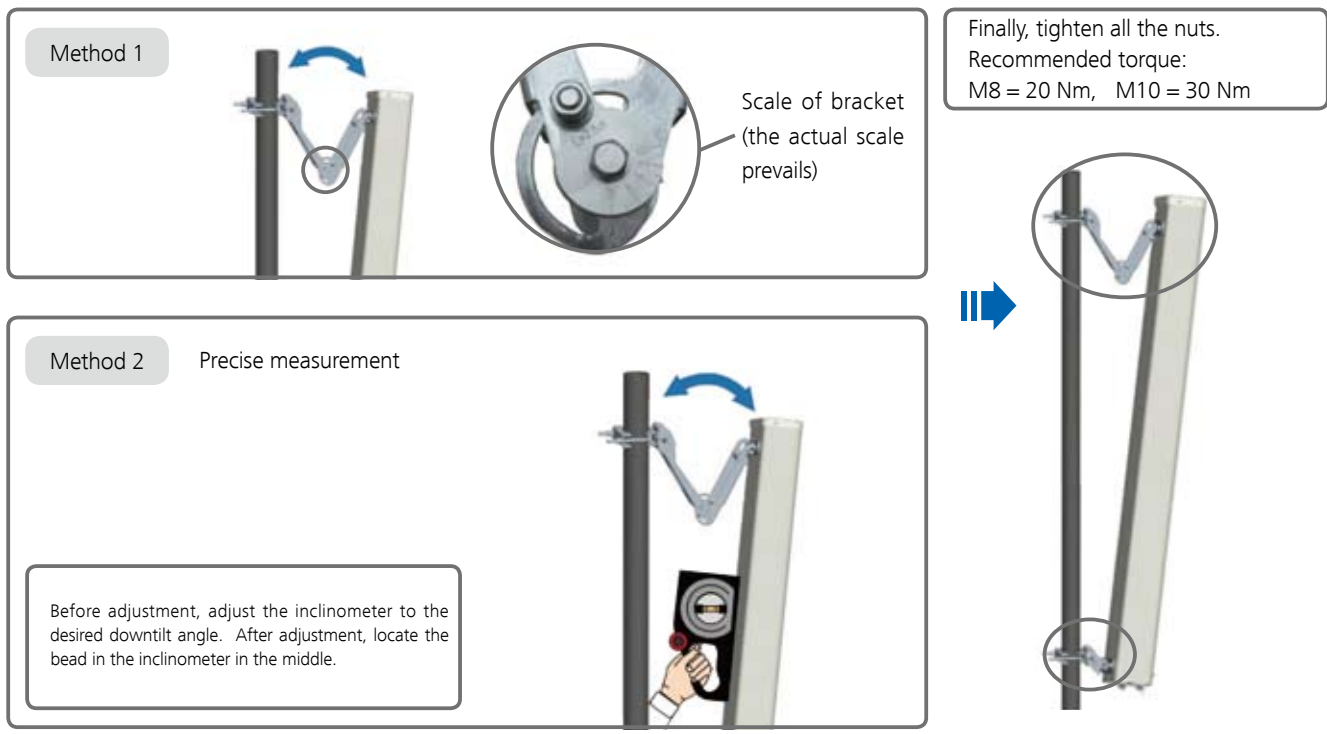
Item/项目	SN / 序列号
1880 - 2025 RET SN	
2555 - 2635 RET SN	
1880 - 2025 RAE SN	
2555 - 2635 RAE SN	

The HW codes in the SN column correspond to the ports in the Item column from top to bottom.
-“RAE”和“RET”表示天线与“基站”的接口中的每端口从上到下——R1、R2。

5 Install the antenna



6 Adjust the mechanical downtilt angle



NOTE

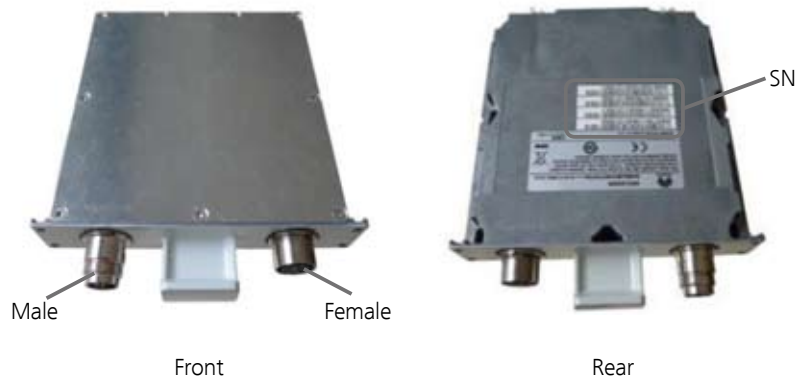
1. This document describes how to replace a MET or a faulty antenna information management module (AIMM) with an AIMM on ATD451604 as an example. All photos here are only for reference and actual specifications are subject to the physical product.
2. Only qualified personnel are allowed to install the AIMM.
3. The serial numbers (SNs) attached to the AIMM is the same with the SNs attached in the recording form of the installation guide. To avoid SN confusion, do not separate the AIMM from the installation guide.
4. Waterproof and sealing protection is mandatory for temporarily unused ports and recommended for used ports.
5. After the installation, you need to configure the AIMM. For details about how to configure the AIMM, see related configuration guides.

Installation Tools



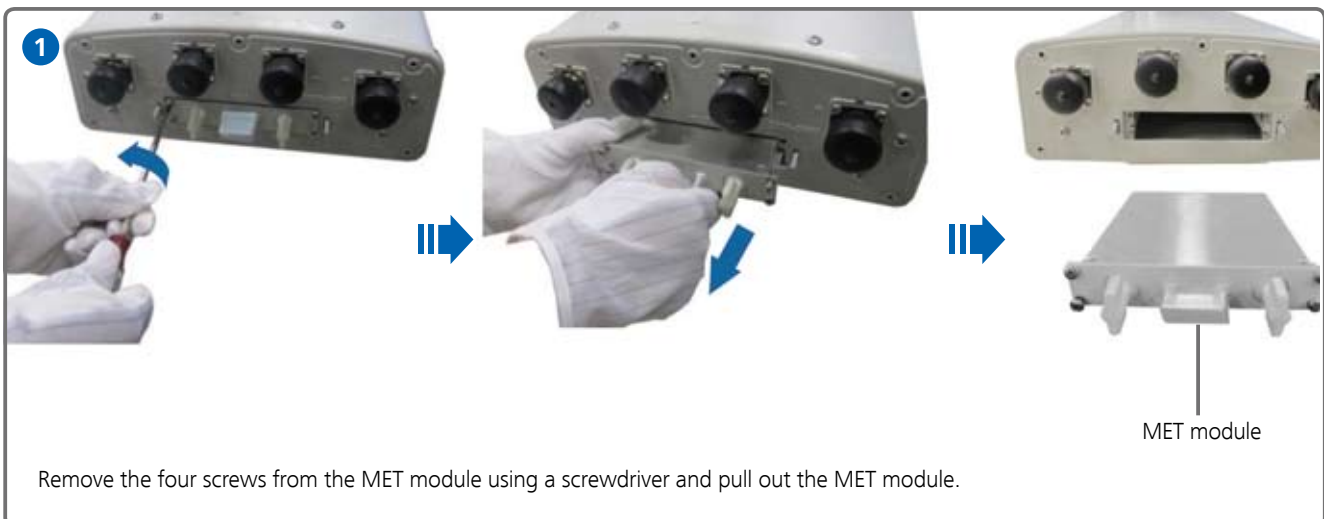
Phillips screwdriver (M3-M6)

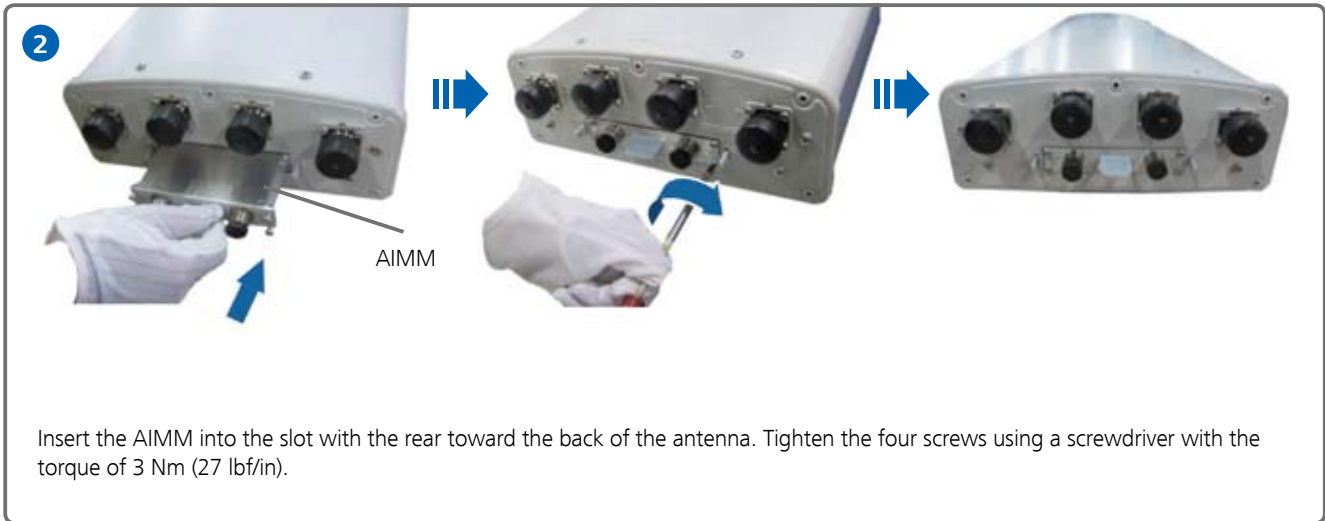
AIMM Description



Installing the AIMM

The AIMM is removed in the same way as the MET module. The following figures show how to remove the MET module.





Connecting the AISG Cable (Optional)



- NOTE**
1. Connect the AISG cable as required.
 2. Do not remove the protective lid from the unused port of the AIMM.

Cascading Scenario (Optional)

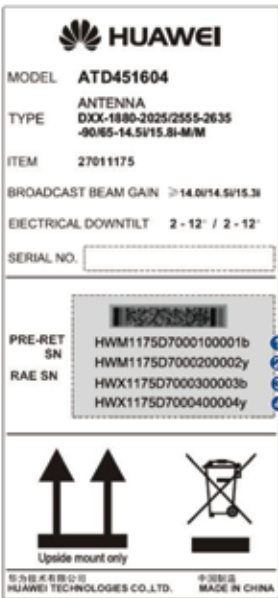


- NOTE**
1. In the cascading scenario, connect the female connector of the upper-level AIMM to the male connector of the lower-level AIMM with an AISG cable.
 2. Do not remove the protective lid from the unused port of the AIMM.

Recording the Information

1. In the cascading scenario, if you replace a MET module with an AIMM, fill in a recording form (see Appendix). According to the actual situation to fill in the recording form and provide it to the network management personnel. This recording form is used during AIMM configuration.
2. Ensure that the SN sequence of the AIMM is consistent with that of the antenna nameplate.
3. The SNs of the AIMM have been attached to the recording form before delivery, which are applicable to AIMM configuration when the antenna backplane is damaged.

Antenna Nameplate



Example

Antenna Model 天线型号	ITEM 天线编码	Band 频段	BTS Name 基站名称	BTS No. 基站编号	Sector No. 扇区编号
ATD451604	27011175	1880 - 2025	BTS1	BN01	SN01
		2555 - 2635	BTS2	BN02	SN02

SN Type 序列号类型	SN (Antenna Nameplate) 序列号(天线铭牌)	SN (AIMM) 序列号(AIMM)
PRE-RET	① HWM1175D7000100001b	-----
	② HWM1175D7000200002y	-----
RAE	③ HWX1175D7000300003b	-----
	④ HWX1175D7000400004y	-----

Appendix: Recording Form

Antenna Model 天线型号	ITEM 天线编码	Band 频段	BTS Name 基站名称	BTS No. 基站编号	Sector No. 扇区编号

SN Type 序列号类型	SN (Antenna Nameplate) 序列号(天线铭牌)	SN (AIMM) 序列号(AIMM)
PRE-RET	HWM	-----
	HWM	-----
RAE	HWX	-----
	HWX	-----

1880-2025MHz PRE-RET: HWM.....b
 2500-2690MHz PRE-RET: HWM.....y
 1880-2025MHz RAE: HWX.....b
 2500-2690MHz RAE: HWX.....y



Huawei Antenna Test Standard

Type	Reference	Method	Condition	Duration	Parameters Tested
Low Temperature Exposure	ETSI 300 019 - 2 - 4	IEC 60068 - 2 - 1	-55°C	16h	Visual/physical exam VSWR ISO and PIM (pre and post)
High Temperature Exposure	ETSI 300 019 - 2 - 4	IEC 60068 - 2 - 2	+70°C	16h	Visual/physical exam VSWR ISO and PIM (pre and post)
Temperature Cycling	ETSI 300 019 - 2 - 4	IEC 60068 - 2 - 14	-55°C/+70°C	5cycles,50h	Visual/physical exam VSWR ISO and PIM (pre and post)
Humidity	ETSI 300 019 - 2 - 4	IEC 60068 - 2 - 30	+25°C/+55°C @ 95% RH	10cycles,240h	Visual/physical exam VSWR ISO and PIM (pre and post)
Wind Loading	ETSI 300 019 - 2 - 4	IEC 721 - 3 - 4	Simulated constant force of 200 km/h wind	3surfaces,144h	Visual/physical exam VSWR ISO and PIM (pre and post)
Vibration	ETSI 300 019 - 2 - 4	IEC 60068 - 2 - 6	sinusoidal 6.15mm,10m/s ² ,2-9HZ 9HZ-200HZ	3axes × 5 sweep cycles	Visual/physical exam VSWR ISO and PIM (pre and post)
Transportation Vibration	ETSI 300 019 - 2 - 4	IEC 60068 - 2 - 64	Truck level 3	3 axes,90min	Visual/physical exam VSWR ISO and PIM (pre and post)
Shocks(without package)	ETSI 300 019 - 2 - 4	IEC 60068 - 2 - 27	300 m/s ² ,6ms pulse width	72s	Visual/physical exam VSWR ISO and PIM (pre and post)
shocks (with package)	ETSI 300 019 - 2 - 2	IEC 60068 - 2 - 27	300 m/s ² ,6ms pulse width	72s	Visual/physical exam VSWR ISO and PIM (pre and post)
Drop (with package)	ETSI 300 019 - 2 - 2	ISO 12048	6surfaces/4Angles/3Edges	13 drops	Visual/physical exam VSWR ISO and PIM (pre and post)
Rain (in water chamber)	ETSI 300 019 - 2 - 4	IEC 60068 - 2 - 18	0.067m ³ /min,5r/min	2h	Visual/physical exam VSWR ISO and PIM (pre and post)
Wind Driven Rain	GR - 487 - CORE	MIL - STD - 810 Method 506.3	150mm/h,31m/s,0.5mm-4.5mm,45°	4surfaces,more than 120min	Visual/physical exam VSWR ISO and PIM (pre and post)
Salt Fog (Continuous)	ETSI 300 019 - 2 - 4	IEC 60068 - 2 - 11	5%NaCl mist @+40°C	1000h	Visual/physical exam VSWR ISO and PIM (pre and post)
Salt Fog (Cyclic)	ETSI 300 019 - 2 - 4	IEC 60068 - 2 - 52	5%NaCl mist @+15/+40°C,93% RH	10 cycles,240h	Visual/physical exam VSWR ISO and PIM (pre and post)
Solar (UV) Exposure	ETSI 300 019 - 2 - 4	IEC 60068 - 2 - 5	1120W/s ² @+40°C	24h/cycle,56days	Visual/physical exam VSWR ISO and PIM (pre and post)
Dust and sand	ETSI 300 019 - 2 - 4	IEC 60068 - 2 - 68	150um-850um,1g/m ³ ,20m/s @+70°C,RH<30%	8h	Visual/physical exam VSWR ISO and PIM (pre and post)

Copyright © Huawei Technologies Co., Ltd. 2014. All rights reserved.

No part of this document may be reproduced or transmitted in any form or by any means without prior written consent of Huawei Technologies Co., Ltd.

Trademark Notice

 , HUAWEI, and  are trademarks or registered trademarks of Huawei Technologies Co., Ltd.

Other trademarks, product, service and company names mentioned are the property of their respective owners.

General Disclaimer

THE INFORMATION IN THIS DOCUMENT MAY CONTAIN PREDICTIVE STATEMENTS INCLUDING, WITHOUT LIMITATION, STATEMENTS REGARDING THE FUTURE FINANCIAL AND OPERATING RESULTS, FUTURE PRODUCT PORTFOLIO, NEW TECHNOLOGY, ETC. THERE ARE A NUMBER OF FACTORS THAT COULD CAUSE ACTUAL RESULTS AND DEVELOPMENTS TO DIFFER MATERIALLY FROM THOSE EXPRESSED OR IMPLIED IN THE PREDICTIVE STATEMENTS. THEREFORE, SUCH INFORMATION IS PROVIDED FOR REFERENCE PURPOSE ONLY AND CONSTITUTES NEITHER AN OFFER NOR AN ACCEPTANCE. HUAWEI MAY CHANGE THE INFORMATION AT ANY TIME WITHOUT NOTICE.

HUAWEI TECHNOLOGIES CO., LTD.

Huawei Industrial Base
Bantian Longgang
Shenzhen 518129, P.R. China
Tel: +86-755-28780808
Version No.: M3-023985-20131028-C-2.0

www.huawei.com