



CATALOGUE 2026

Antenna Solutions

- Cable free & cable less technology
- Filtering and decoupling technology
- Metamaterial boundary design



CATALOGUE
2026

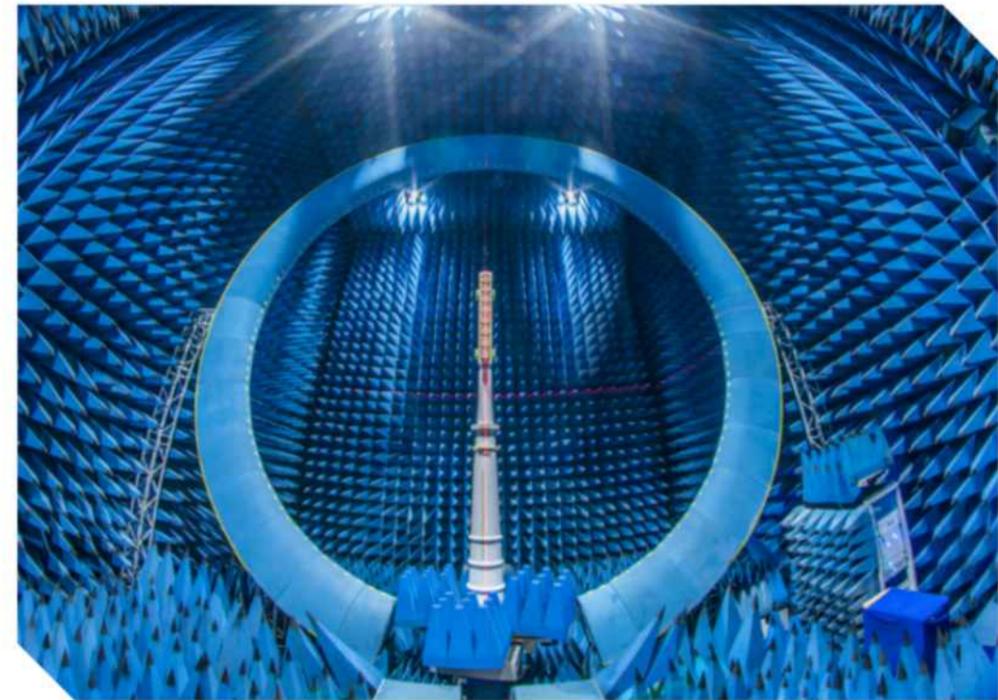


Indoor near field antenna measurement chamber

Fiberhome has Satimo's advanced 128 probe indoor test near field, which can measure the 3D pattern of the antenna.

Chamber size: 10×10×10m

Frequency range: 400MHz~6000MHz



at Wuhan, China

Indoor far field antenna measurement chamber

Chamber size: 45×20×20m

Frequency range: 300MHz~6000MHz



at Wuhan, China

CONTENTS

Multi-Band							
4 Ports							
Frequency(MHz)	HPBW(°)	Gain(dBi)	Tilt(°)	Height(mm)	Connector Type	Model	Page
1710-2690	65	18.1	2-12	1300	4.3-10	2H	01
1710-2690	65	18.1	2-12				
1710-2690	65	20.6	2-12	1995	4.3-10	2H	03
1710-2690	65	20.6	2-12				
8 Ports							
Frequency(MHz)	HPBW(°)	Gain(dBi)	Tilt(°)	Height(mm)	Connector Type	Model	Page
1710-2690	65	18.1	2-12	1410	4.3-10	4H	05
1710-2690	65	18.1	2-12				
1710-2690	65	18.1	2-12				
1710-2690	65	18.1	2-12				
694-960	65	15.5	2-14	1495	4.3-10	2L2H	07
694-960	65	15.5	2-14				
1695-2690	65	18.2	2-12				
1695-2690	65	18.2	2-12				
690-960	65	16.5	2-12	1997	4.3-10	2L2H	09
690-960	65	16.5	2-12				
1695-2690	65	18.2	2-12				
1695-2690	65	18.2	2-12				
690-960	65	17.0	2-12	2497	4.3-10	2L2H	11
690-960	65	17.0	2-12				
1695-2690	65	18.2	2-12				
1695-2690	65	18.2	2-12				
10 Ports							
Frequency(MHz)	HPBW(°)	Gain(dBi)	Tilt(°)	Height(mm)	Connector Type	Model	Page
694-960	65	14.7	2-16	1497	4.3-10	1L4H	13
1695-2690	65	18.1	2-12				
1695-2690	65	18.1	2-12				
1695-2690	65	18.1	2-12				
1695-2690	65	18.1	2-12				
694-960	65	16.0	2-12	1995	4.3-10	1L4H	15
1695-2690	65	16.6	2-12				
1695-2690	65	16.6	2-12				
1695-2690	65	16.4	2-12				
1695-2690	65	16.4	2-12				
698-960	65	16.8	1-10	2697	4.3-10	1L4H	17
1695-2690	65	17.7	2-12				
1695-2690	65	17.7	2-12				
1695-2690	65	17.6	2-12				
1695-2690	65	17.6	2-12				

12 Ports							
Frequency(MHz)	HPBW(°)	Gain(dBi)	Tilt(°)	Height(mm)	Connector Type	Model	Page
690-960	65	15.1	2-16	1485	4.3-10	2L4H	19
690-960	65	15.1	2-16				
1710-2690	65	18.2	2-12				
1710-2690	65	18.2	2-12				
1710-2690	65	18.2	2-12				
690-960	65	16.4	2-12	1985	4.3-10	2L4H	21
690-960	65	16.4	2-12				
1710-2690	65	18.4	2-12				
1710-2690	65	18.4	2-12				
1710-2690	65	18.4	2-12				
690-960	65	16.4	2-12	1985	4.3-10	2L4H	23
690-960	65	16.4	2-12				
1710-2690	65	18.4	2-12				
1427-2690	65	18.4	2-12				
1427-2690	65	18.4	2-12				
690-960	65	16.6	2-12	2750	4.3-10	2L4H	25
690-960	65	16.6	2-12				
1695-2690	65	18.2	2-12				
1695-2690	65	18.2	2-12				
1695-2690	65	17.2	2-12				
1695-2690	65	17.2	2-12				
16 Ports							
Frequency(MHz)	HPBW(°)	Gain(dBi)	Tilt(°)	Height(mm)	Connector Type	Model	Page
690-960	65	17.1	2-12	2750	4.3-10	2L6H	27
690-960	65	17.1	2-12				
1695-2690	65	17.8	2-12				
1695-2690	65	17.8	2-12				
1695-2690	65	17.8	2-12				
1695-2690	65	17.4	2-12				
1695-2690	65	17.4	2-12				
1695-2690	65	17.4	2-12				
FDD+NR/TDD							
8 Ports							
Frequency(MHz)	HPBW(°)	Gain(dBi)	Tilt(°)	Height(mm)	Connector Type	Model	Page
2300-2690	90	17.0	2-12	1500	MQ4+MQ5	8T8R	29
2300-2690	90	17.8	2-12	1380	MQ4+MQ5	8T8R	31
3300-3800	70	16.5	2-12	998	4.3-10	8T8R	33
3300-3800	70	16.8	2-12	998	MQ4+MQ5	8T8R	35

12 Ports							
Beamforming Ports with Cluster Jumpers MQ4/MQ5							
Frequency(MHz)	HPBW(°)	Gain(dBi)	Tilt(°)	Height(mm)	Connector Type	Model	Page
690-960	65	15.9	2-12	2100	4.3-10	2L+8T8R (support TDD Beamforming)	37
690-960	65	15.9	2-12				
2300-2690	90	15.1	2-12				
2300-2690	90	15.1	2-12				
2300-2690	90	15.1	2-12				
690-960	65	17.1	2-12	2560	7/16	2L+8T8R (support TDD Beamforming)	39
690-960	65	17.1	2-12				
2300-2690	90	15.3	2-12				
2300-2690	90	15.3	2-12				
2300-2690	90	15.3	2-12				
690-960	65	14.6	2-12	1485	4.3-10 MQ4+MQ5	2L+8T8R (support TDD Beamforming)	41
690-960	65	14.6	2-12				
3300-4200	75	16	2-12				
3300-4200	75	16	2-12				
3300-4200	75	16	2-12				
690-960	65	15.4	2-12	1985	4.3-10 MQ4+MQ5	2L+8T8R (support TDD Beamforming)	44
690-960	65	15.4	2-12				
3300-4200	75	16	2-12				
3300-4200	75	16	2-12				
3300-4200	75	16	2-12				
3300-4200	75	16	2-12				
16 Ports							
Beamforming Ports with Cluster Jumpers MQ4/MQ5							
Frequency(MHz)	HPBW(°)	Gain(dBi)	Tilt(°)	Height(mm)	Connector Type	Model	Page
690-960	65	16.4	2-12	2300	4.3-10 MQ4+MQ5	2L2H+8T8R (support FDD Beamforming)	47
690-960	65	16.4	2-12				
1710-2690	65	18.4	2-12				
1710-2690	65	18.4	2-12				
1710-2690	95	15.7	2-12				
1710-2690	95	15.7	2-12				
1710-2690	95	15.7	2-12				
1710-2690	95	15.7	2-12				

20 Ports							
Beamforming Ports with Cluster Jumpers MQ4/MQ5							
Frequency(MHz)	HPBW(°)	Gain(dBi)	Tilt(°)	Height(mm)	Connector Type	Model	Page
690-960	65	16.4	2-12	2095	4.3-10 MQ4+MQ5	2L4H+8T8R (support TDD Beamforming)	49
690-960	65	16.4	2-12				
1710-2690	65	18.4	2-12				
1710-2690	65	18.4	2-12				
1710-2690	65	18.4	2-12				
1710-2690	65	18.4	2-12				
2300-2690	90	14.0	2-12				
2300-2690	90	14.0	2-12				
2300-2690	90	14.0	2-12				
2300-2690	90	14.0	2-12				
690-960	65	16.4	2-12	2095	4.3-10 MQ4+MQ5	2L4H+8T8R (support TDD Beamforming)	51
690-960	65	16.4	2-12				
1710-2690	65	18.4	2-12				
1710-2690	65	18.4	2-12				
1710-2690	65	18.4	2-12				
1710-2690	65	18.4	2-12				
3300-3800	70	15.0	2-12				
3300-3800	70	15.0	2-12				
3300-3800	70	15.0	2-12				
3300-3800	70	15.0	2-12				
690-960	65	16.4	2-12	2095	4.3-10 MQ4+MQ5	2L4H+8T8R (support TDD Beamforming)	53
690-960	65	16.4	2-12				
1710-2690	65	18.4	2-12				
1710-2690	65	18.4	2-12				
1710-2690	65	18.4	2-12				
1710-2690	65	18.4	2-12				
2300-3800	90	15.0	2-12				
2300-3800	90	15.0	2-12				
2300-3800	90	15.0	2-12				
2300-3800	90	15.0	2-12				
690-960	65	15.4	2-12	2100	4.3-10 MQ4+MQ5	2L+2×8T8R (support FDD+TDD Beamforming)	56
690-960	65	15.4	2-12				
1710-2170	90	15.0	2-12				
1710-2170	90	15.0	2-12				
1710-2170	90	15.0	2-12				
2300-2690	90	16.0	2-12				
2300-2690	90	16.0	2-12				
2300-2690	90	16.0	2-12				
2300-2690	90	16.0	2-12				
2300-2690	90	16.0	2-12				

28 Ports							
Beamforming Ports with Cluster Jumpers MQ4/MQ5							
Frequency(MHz)	HPBW(°)	Gain(dBi)	Tilt(°)	Height(mm)	Connector Type	Model	Page
690-960	65	15.6	2-12	2600	4.3-10 MQ4+MQ5	2L4H+2×8T8R (support TDD Beamforming)	59
690-960	65	15.6	2-12				
1710-2690	65	18.3	2-12				
1710-2690	65	18.3	2-12				
1710-2690	65	18.3	2-12				
1710-2690	65	18.3	2-12				
2300-2690	90	15.3	2-12				
2300-2690	90	15.3	2-12				
2300-2690	90	15.3	2-12				
2300-2690	90	15.3	2-12				
3300-3800	75	16	2-12				
3300-3800	75	16	2-12				
3300-3800	75	16	2-12				
3300-3800	75	16	2-12				
Multi-Beam							
Twin beam							
Frequency(MHz)	HPBW(°)	Gain(dBi)	Tilt(°)	Height(mm)	Connector Type	Model	Page
698-960	33	17.8	0-10	2000	4.3-10	2L Twin Beam	62
698-960	33	17.8	0-10	1400	4.3-10	2H Twin Beam	64
1710-2690	32	20	2-12				
1710-2690	32	20	2-12				
1695-2690	32	19.1	2-12	2200	4.3-10	4H Twin Beam	66
1695-2690	32	19.1	2-12				
1695-2690	32	18.3	2-12				
1695-2690	32	18.3	2-12				
1695-2690	32	18.3	2-12				
698-960	65	15.6	2-12	2695	4.3-10	2L4H Multibeam	68
698-960	65	15.6	2-12				
1710-2690	32	18.7	2-12				
1710-2690	32	18.7	2-12				
1710-2690	32	18.5	2-12				
1710-2690	32	18.5	2-12				
1710-2690	32	18.5	2-12				
Tri beam							
Frequency(MHz)	HPBW(°)	Gain(dBi)	Tilt(°)	Height(mm)	Connector Type	Model	Page
1710-2690	18	19.8	2-12	1200	4.3-10	Triple Beam	70
1710-2690	18	21.1	2-12				
1710-2690	18	19.8	2-12				
Penta beam							
1710-2690	12	19.8	6.0 Fixed	761	4.3-10	Penta Beam	72
1710-2690	12	20.9	6.0 Fixed				
1710-2690	12	20.9	6.0 Fixed				
1710-2690	12	21.0	6.0 Fixed				
1710-2690	12	20.0	6.0 Fixed				

4-Ports 2H Antenna

2×1710-2690 MHz

2×65° 2×18.1 dBi **1.3m**

E-Tilt: 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)	2 × (1710-2690) (Y1, Y2)				
	1710-1880	1920-2170	2300-2400	2500-2690	
Polarization	±45°				
Electrical Downtilt (°)	2-12, continuously adjustable				
Gain (dBi)	at mid tilt	16.9	17.1	17.5	18.1
	Over all tilts	16.8±0.6	17.0±0.6	17.4±0.6	18.0±0.7
Side lobe suppression for first side lobe above main beam (dB)	>16	>16	>16	>16	
Horizontal 3dB Beam Width (°)	68±6	63±6	58±5	53±6	
Vertical 3dB Beam Width (°)	8.1±0.8	7.1±0.8	6.1±0.5	5.6±0.5	
Cross-Polar Ratio, 0° (dB)	>17	>16	>16	>16	
Front to Back Ratio, ±30° (dB)	>25	>25	>25	>25	

VSWR	≤1.5
Intermodulation IM3 (dBc)	≤-153 (2 × 43 dBm carrier)
Cross Polar Isolation (dB)	≥27
Interband isolation (dB)	≥27
Max. power per port (W)	250
Impedance (Ω)	50
Grounding	DC Grounding

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	4 × 4.3-10 Female, Bottom
Antenna dimensions (H × W × D) (mm)	1300 × 265 × 150
Packing dimensions (H × W × D) (mm)	1568 × 355 × 280
Antenna weight (kg)	14.4
Clamps weight (kg)	2.9
Diameter of installation pole (mm)	φ50-φ125
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +65
Wind load at 42m/s (N)	468/ 262/ 575 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:

Configuration Types:

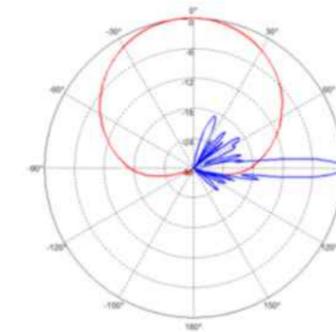


Y1/ Y2: 1710-2690 MHz;



RET S/N:
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;

Pattern sample for reference:



1710-2690 MHz

4-Ports 2H Antenna

2×1710-2690 MHz

2×65° 2×20.6 dBi **1.995m**

E-Tilt: 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)	2 × (1710-2690) (Y1, Y2)				
	1710-1880	1920-2170	2300-2400	2500-2690	
Polarization	±45°				
Electrical Downtilt (°)	2-12, continuously adjustable				
Gain (dBi)	at mid tilt	18.9	19.4	19.5	20.6
	Over all tilts	18.8±0.8	19.3±0.8	19.4±0.8	20.5±0.8
Side lobe suppression for first side lobe above main beam (dB)	>16	>16	>16	>16	
Horizontal 3dB Beam Width (°)	70±5	72±5	66±5	61±5	
Vertical 3dB Beam Width (°)	5.3±0.5	4.7±0.5	4.2±0.5	3.8±0.5	
Cross-Polar Ratio, 0° (dB)	>18	>18	>18	>18	
Front to Back Ratio, ±30° (dB)	>25	>25	>25	>25	

VSWR	≤1.5
Intermodulation IM3 (dBc)	≤-153 (2 × 43 dBm carrier)
Cross Polar Isolation (dB)	≥28
Interband isolation (dB)	≥28
Max. power per port (W)	250
Impedance (Ω)	50
Grounding	DC Grounding

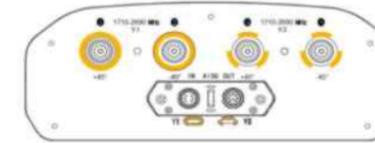
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	4 × 4.3-10 Female, Bottom
Antenna dimensions (H × W × D) (mm)	1995 × 295 × 115
Packing dimensions (H × W × D) (mm)	2210 × 385 × 220
Antenna weight (kg)	16.4
Clamps weight (kg)	8
Diameter of installation pole (mm)	φ50-φ115
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +65
Wind load at 42m/s (N)	834/ 305/ 1004 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:



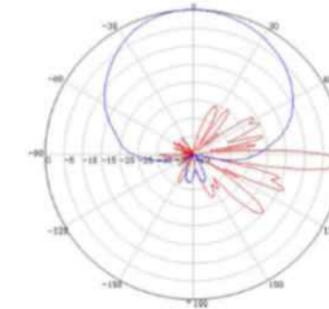
Y1/ Y2: 1710-2690 MHz;

Configuration Types:



RET S/N:
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;

Pattern sample for reference:



1710-2690 MHz

8-Ports 4H Antenna

4×1710-2690 MHz

4×65° 4×18.1 dBi **1.41m**

E-Tilt: 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)	4 × (1710-2690) (Y1, Y2, Y3, Y4)				
	1710-1880	1920-2170	2300-2490	2500-2690	
Polarization	±45°				
Electrical Downtilt (°)	2-12, continuously adjustable				
Gain (dBi)	at mid tilt	17.2	17.8	17.9	18.1
	Over all tilts	17.1±0.7	17.7±0.6	17.8±0.6	18.0±0.7
Side lobe suppression for first side lobe above main beam (dB)	>16	>16	>16	>16	
Horizontal 3dB Beam Width (°)	70±5	64±5	63±5	60±6	
Vertical 3dB Beam Width (°)	7.5±0.5	6.8±0.5	5.9±0.5	5.3±0.5	
Cross-Polar Ratio, 0° (dB)	>18	>18	>18	>18	
Front to Back Ratio, ±30° (dB)	>25	>25	>25	>25	
VSWR	≤1.5				
Intermodulation IM3 (dBc)	≤-153 (2 × 43 dBm carrier)				
Cross Polar Isolation (dB)	≥25				
Interband isolation (dB)	≥25				
Max. power per port (W)	250				
Impedance (Ω)	50				
Grounding	DC Grounding				

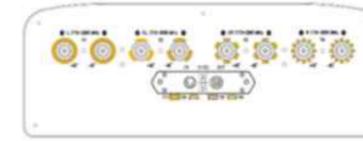
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	8 × 4.3-10 Female, Bottom
Antenna dimensions (H × W × D) (mm)	1410 × 480 × 175
Packing dimensions (H × W × D) (mm)	1625 × 550 × 255
Antenna weight (kg)	21.5
Clamps weight (kg)	5.5
Diameter of installation pole (mm)	φ50-φ114
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +65
Wind load at 42m/s (N)	891/ 291/ 1003 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:



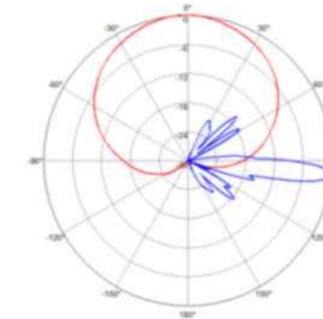
Y1/ Y2/ Y3/ Y4: 1710-2690 MHz;

Configuration Types:



RET S/N:
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;
HXxxx-Y3-xx.....;
HXxxx-Y4-xx.....;

Pattern sample for reference:



1710-2690 MHz

8-Ports 2L2H Antenna

2×694-960 MHz/ 2×1695-2690 MHz

4×65° 2×15.5 dBi/ 2×18.2 dBi **1.495m**

E-Tilt: 2-14/ 2-14/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)		2 × (694-960) (R1, R2)		
		694-803	790-894	880-960
Polarization		±45°		
Electrical Downtilt (°)		2-14, continuously adjustable		
Gain (dBi)	at mid tilt	14.5	15.0	15.5
	Over all tilts	14.1±0.5	14.8±0.5	15.3±0.5
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>16
Horizontal 3dB Beam Width (°)		67±5	66±5	64±5
Vertical 3dB Beam Width (°)		15±1.5	13.8±1.2	12.5±1.0
Cross-Polar Ratio, 0° (dB)		>18	>18	>18
Front to Back Ratio, ±30° (dB)		>22	>22	>22

Frequency Range (MHz)		2 × (1695-2690) (Y1, Y2)			
		1695-1990	1920-2200	2300-2490	2500-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, continuously adjustable			
Gain (dBi)	at mid tilt	17.0	17.4	17.7	18.2
	Over all tilts	16.9±0.5	17.3±0.5	17.6±0.5	18.1±0.5
Side lobe suppression for first side lobe above main beam (dB)		>17	>17	>17	>17
Horizontal 3dB Beam Width (°)		68±5	64±5	63±5	60±5
Vertical 3dB Beam Width (°)		7.0±0.6	6.2±0.6	5.6±0.6	5.2±0.6
Cross-Polar Ratio, 0° (dB)		>18	>18	>17	>18
Front to Back Ratio, ±30° (dB)		>25	>25	>25	>25

VSWR	≤1.5
Intermodulation IM3 (dBc)	≤-153 (2 × 43 dBm carrier)
Cross Polar Isolation (dB)	≥25
Interband isolation (dB)	≥25
Max. power per port (W)	250
Impedance (Ω)	50
Grounding	DC Grounding

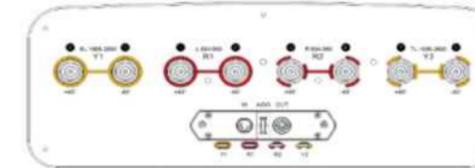
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	8 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	1495 × 446 × 165
Packing dimensions (H x W x D) (mm)	1710 × 535 × 270
Antenna weight (kg)	21.8
Clamps weight (kg)	4.8
Diameter of installation pole (mm)	φ50-φ115
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +65
Wind load at 42m/s (N)	922/ 180/ 973 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

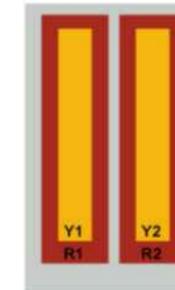
Layout and Pattern

Connector Position:



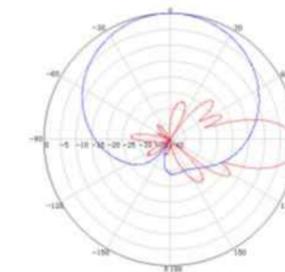
R1/ R2: 694-960 MHz;
Y1/ Y2: 1695-2690 MHz;

Configuration Types:

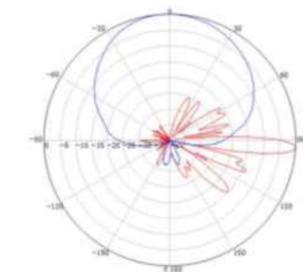


RET S/N:
HXxxx-R1-xx.....;
HXxxx-R2-xx.....;
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;

Pattern sample for reference:



R1/ R2: 694-960 MHz



Y1/ Y2: 1695-2690 MHz

8-Ports 2L2H Antenna

2×690-960 MHz/ 2×1695-2690 MHz

4×65° 2×16.5 dBi/ 2×18.2 dBi **1.997m**

E-Tilt: 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)		2 × (690-960) (R1, R2)		
		690-806	790-894	880-960
Polarization		±45°		
Electrical Downtilt (°)		2-12, continuously adjustable		
Gain (dBi)	at mid tilt	15.5	16.0	16.5
	Over all tilts	15.4±0.9	15.9±0.9	16.4±0.9
Side lobe suppression for first side lobe above main beam (dB)		>18	>18	>18
Horizontal 3dB Beam Width (°)		66±3	61±3	58±3
Vertical 3dB Beam Width (°)		10.0±1.1	9.8±0.9	9.2±0.9
Cross-Polar Ratio, 0° (dB)		>17	>18	>17
Front to Back Ratio, ±30° (dB)		>30	>30	>30

Frequency Range (MHz)		2 × (1695-2690) (Y1, Y2)			
		1695-1990	1920-2200	2300-2490	2500-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, continuously adjustable			
Gain (dBi)	at mid tilt	17.0	17.5	18.0	18.2
	Over all tilts	17.1±0.9	17.7±0.9	17.2±0.9	18.1±0.9
Side lobe suppression for first side lobe above main beam (dB)		>18	>18	>18	>18
Horizontal 3dB Beam Width (°)		70±3	63±3	60±3	60±3
Vertical 3dB Beam Width (°)		7.4±1	6.5±1	6.2±1	6.0±1
Cross-Polar Ratio, 0° (dB)		>16	>17	>18	>18
Front to Back Ratio, ±30° (dB)		>30	>30	>30	>30

VSWR	≤1.5
Intermodulation IM3 (dBc)	≤-153 (2 × 43 dBm carrier)
Cross Polar Isolation (dB)	≥28
Interband isolation (dB)	≥28
Max. power per port (W)	250
Impedance (Ω)	50
Grounding	DC Grounding

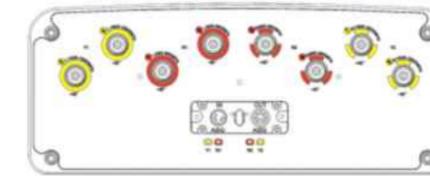
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	8 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	1997 × 467 × 167
Packing dimensions (H x W x D) (mm)	2197 × 542 × 277
Antenna weight (kg)	32
Clamps weight (kg)	5.5
Diameter of installation pole (mm)	φ50-φ115
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +65
Wind load at 42m/s (N)	860/ 965/ 380 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:



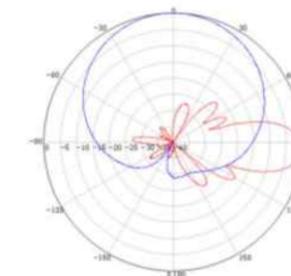
R1/ R2: 690-960 MHz;
Y1/ Y2: 1695-2690 MHz;

Configuration Types:

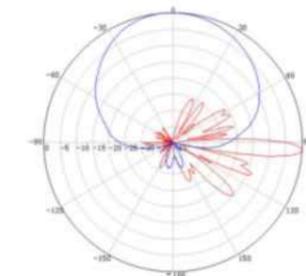


RET S/N:
HXxxx-R1-xx.....;
HXxxx-R2-xx.....;
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;

Pattern sample for reference:



R1/ R2: 690-960 MHz



Y1/ Y2: 1695-2690 MHz

8-Ports 2L2H Antenna

2×690-960/ 2×1695-2690 MHz

2×65°/ 2×65° 2×17.0 dBi/ 2×18.2 dBi **2.497m**

E-Tilt: 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)		2 × (690-960) (R1, R2)		
		690-806	790-894	880-960
Polarization		±45°		
Electrical Downtilt (°)		2-12, continuously adjustable		
Gain (dBi)	at mid tilt	16.1	16.8	17.0
	Over all tilts	16.0±0.9	16.7±0.7	16.9±0.7
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>16
Horizontal 3dB Beam Width (°)		65±6.5	58±3.2	56±5.5
Vertical 3dB Beam Width (°)		8.8±0.8	7.9±0.5	7.2±0.7
Front to Back Ratio, ±30° (dB)		>23	>24	>25
Cross-Polar Ratio, 0° (dB)		>17	>18	>17

Frequency Range (MHz)		2 × (1695-2690) (Y1, Y2)			
		1695-1880	1920-2170	2300-2490	2490-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, continuously adjustable			
Gain (dBi)	at mid tilt	17.3	17.5	18.0	18.2
	Over all tilts	17.1±0.5	17.5±0.5	17.8±0.9	18.1±0.8
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>14	>15
Horizontal 3dB Beam Width (°)		69±6.5	61±6.5	60±7.5	58±7.0
Vertical 3dB Beam Width (°)		6.8±0.5	6.0±0.5	5.2±0.5	4.8±0.6
Front to Back Ratio, ±30° (dB)		>25	>25	>25	>26
Cross-Polar Ratio, 0° (dB)		>16	>17	>18	>17

VSWR	≤1.5
Cross Polar Isolation (dB)	≥26
Interband isolation (dB)	≥28
Intermodulation IM3 (dBc)	≤-153 (2 × 43 dBm carrier)
Max. power per port (W)	200
Impedance (Ω)	50
Grounding	DC Grounding

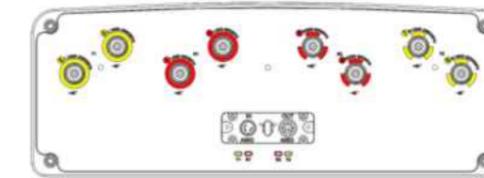
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	8 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	2497 × 467 × 167
Packing dimensions (H x W x D) (mm)	2697 × 542 × 292
Antenna weight (kg)	35.5
Clamps weight (kg)	9
Diameter of installation pole (mm)	φ50-φ115
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +65
Wind load at 42m/s (N)	1080/ 475/ 1205 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:



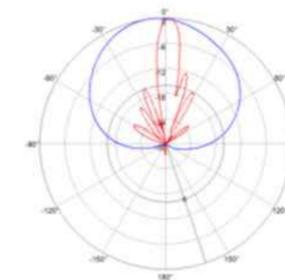
R1/ R1: 690-960 MHz;
Y1/ Y2: 1695-2690 MHz;

Configuration Types:

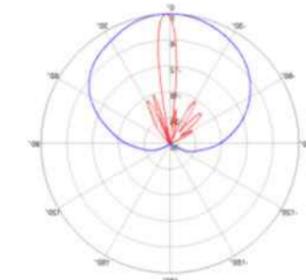


RET S/N:
HXxxx-R1-xx.....;
HXxxx-R2-xx.....;
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;

Pattern sample for reference:



R1/ R2: 690-960 MHz



Y1/ Y2: 1695-2690 MHz

10-Ports 1L4H Antenna

1×694-960/ 4×1695-2690 MHz

1×65°/ 4×65° 1×14.7 dBi/ 4×18.1 dBi **1.497m**

E-Tilt: 2-16/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)		694-960 (R1)			
		694-806	790-862	880-960	
Polarization		±45°			
Electrical Downtilt (°)		2-16, continuously adjustable			
Gain (dBi)	at mid tilt	14.4	14.6	14.7	
	Over all tilts	14.3±0.7	14.6±0.7	14.6±0.5	
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>16	
Horizontal 3dB Beam Width (°)		60±5	62±5	60±5	
Vertical 3dB Beam Width (°)		15.0±0.8	14.1±0.8	13.1±0.8	
Cross-Polar Ratio, 0° (dB)		>18	>18	>18	
Front to Back Ratio, ±30° (dB)		>24	>24	>24	
Frequency Range (MHz)		4 × (1695-2690) (Y1, Y2, Y3, Y4)			
		1695-1880	1920-2170	2300-2490	2490-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, Independently continuously Adjustable			
Gain (dBi)	at mid tilt	16.7	17.6	17.9	18.1
	Over all tilts	16.6±0.8	17.5±0.9	17.8±0.9	18.0±0.9
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>16	>16
Horizontal 3dB Beam Width (°)		69±8	64±7	61±7	60±7
Vertical 3dB Beam Width (°)		6.8±0.7	6.0±0.7	5.5±0.6	4.8±0.7
Cross-Polar Ratio, 0° (dB)		>18	>18	>18	>18
Front to Back Ratio, ±30° (dB)		>25	>25	>25	>25
VSWR		≤1.5			
Intermodulation IM3 (dBc)		≤-153 (2 × 43 dBm carrier)			
Cross Polar Isolation (dB)		≥26			
Interband isolation (dB)		≥26			
Max. power per port (W)		250			
Impedance (Ω)		50			
Grounding		DC Grounding			

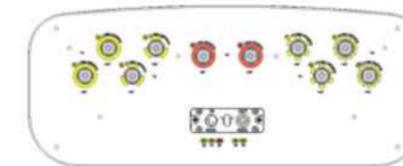
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	10 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	1497 × 497 × 197
Packing dimensions (H x W x D) (mm)	1717 × 572 × 272
Antenna weight (kg)	20.5
Clamps weight (kg)	4.0
Diameter of installation pole (mm)	φ50-φ125
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +60
Wind load at 42m/s (N)	390/ 360/ 490 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:



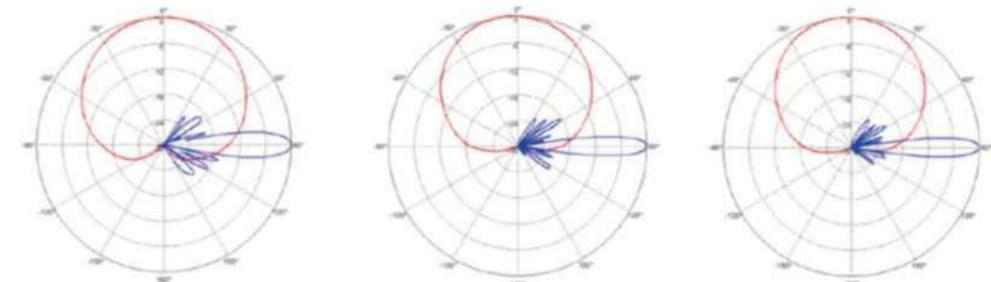
R1: 694-960 MHz;
Y1/ Y2/ Y3/ Y4: 1695-2690 MHz;

Configuration Types:



RET S/N:
HXxxx-R1-xx.....;
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;
HXxxx-Y3-xx.....;
HXxxx-Y4-xx.....;

Pattern sample for reference:



R1: 694-960 MHz

Y1/ Y2/ Y3/ Y4: 1695-2690 MHz

10-Ports 1L4H Antenna

1×694-960/ 4×1695-2690 MHz

1×65°/ 4×65° 1×16.0 dBi/ 2×16.6 dBi/ 2×16.4 dBi **1.995m**

E-Tilt: 2-12/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications				
Frequency Range (MHz)		694-960 (R1)		
		694-806	790-862	880-960
Polarization		±45°		
Electrical Downtilt (°)		2-12, Independently continuously adjustable		
Gain (dBi)	at mid tilt	15.4	15.8	16.0
	Over all tilts	15.3±0.7	15.7±1.0	15.9±0.5
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>16
Horizontal 3dB Beam Width (°)		68±4	68±6	65±5
Vertical 3dB Beam Width (°)		11.2±0.8	10.0±0.9	9.3±0.8
Cross-Polar Ratio, 0° (dB)		>18	>18	>18
Front to Back Ratio, ±30° (dB)		>25	>25	>25
Frequency Range (MHz)		2 x (1695-2690) (Y1, Y3)		
		1695-1990	1920-2200	2300-2400
Polarization		±45°		
Electrical Downtilt (°)		2-12, Independently continuously adjustable		
Gain (dBi)	at mid tilt	15.9	16.1	16.4
	Over all tilts	15.8±0.7	16.0±0.7	16.3±0.6
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>17
Horizontal 3dB Beam Width (°)		67±6	70±5	69±5
Vertical 3dB Beam Width (°)		9.7±0.9	9.0±0.9	7.8±0.6
Cross-Polar Ratio, 0° (dB)		>18	>18	>18
Front to Back Ratio, ±30° (dB)		>25	>25	>25
Frequency Range (MHz)		2 x (1695-2690) (Y2, Y4)		
		1695-1990	1920-2200	2300-2400
Polarization		±45°		
Electrical Downtilt (°)		2-12, Independently continuously adjustable		
Gain (dBi)	at mid tilt	15.5	15.9	16.1
	Over all tilts	15.4±0.6	15.8±0.7	16.0±0.7
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>17
Horizontal 3dB Beam Width (°)		67±8	72±6	69±5
Vertical 3dB Beam Width (°)		9.7±0.8	8.9±0.9	7.9±0.6
Cross-Polar Ratio, 0° (dB)		>18	>18	>18
Front to Back Ratio, ±30° (dB)		>25	>25	>25

VSWR	≤1.5
Intermodulation IM3 (dBc)	≤-153 (2 × 43 dBm carrier)
Cross Polar Isolation (dB)	≥26
Interband isolation (dB)	≥26
Max. power per port (W)	300 (R1), 250 (Y1-Y4)
Impedance (Ω)	50
Grounding	DC Grounding

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications	
RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	10 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	1995 × 350 × 200
Packing dimensions (H x W x D) (mm)	2210 × 420 × 280
Antenna weight (kg)	24.5
Clamps weight (kg)	4.0
Diameter of installation pole (mm)	φ50-φ114
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +60
Wind load at 42m/s (N)	900/ 316/ 870 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

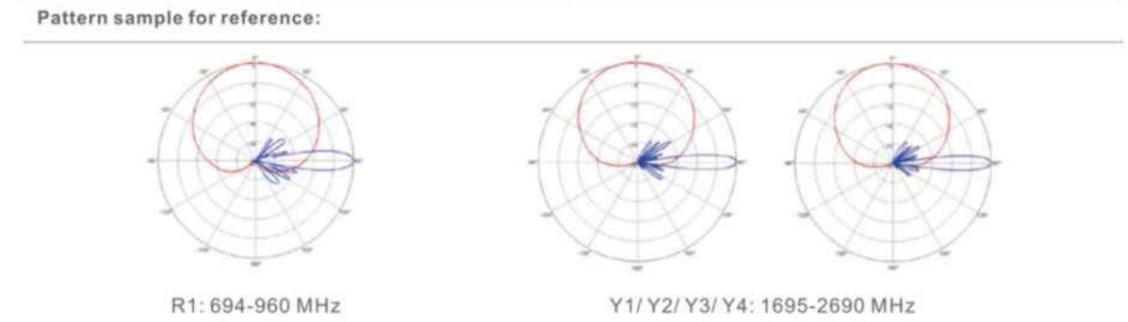
Layout and Pattern

Connector Position:

R1: 694-960 MHz;
Y1/ Y2/ Y3/ Y4: 1695-2690 MHz;

Configuration Types:

RET S/N:
HXxxx-R1-xx.....;
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;
HXxxx-Y3-xx.....;
HXxxx-Y4-xx.....;



10-Ports 1L4H Antenna

1×698-960/ 4×1695-2690 MHz

1×65°/ 4×65° 1×16.8 dBi/ 2×17.6 dBi/ 2×17.7 dBi **2.697m**

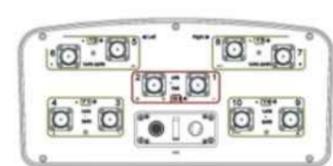
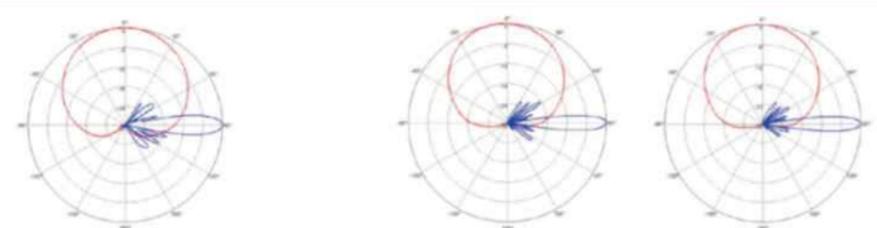
E-Tilt: 1-10/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications					
Frequency Range (MHz)		698-960 (R1)			
		698-806	790-862	824-894	880-960
Polarization		±45°			
Electrical Downtilt (°)		1-10, Independently continuously adjustable			
Gain (dBi)	at mid tilt	15.8	16.2	16.5	16.8
	Over all tilts	16.0±0.5	16.1±0.8	16.4±0.7	16.7±0.6
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>16	>16
Horizontal 3dB Beam Width (°)		72±5	71±5	70±5	67±5
Vertical 3dB Beam Width (°)		9.1±0.7	8.3±0.5	8.1±0.5	7.5±0.6
Cross-Polar Ratio, 0° (dB)		>20	>19	>19	>18
Front to Back Ratio, ±30° (dB)		>25	>25	>25	>25
Frequency Range (MHz)		2 x (1695-2690) (Y2, Y4)			
		1695-1990	1920-2200	2200-2490	2490-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, Independently continuously adjustable			
Gain (dBi)	at mid tilt	16.6	16.9	17.1	17.6
	Over all tilts	16.5±0.7	16.8±0.6	17.0±0.6	17.5±0.9
Side lobe suppression for first side lobe above main beam (dB)		>16	>17	>16	>16
Horizontal 3dB Beam Width (°)		61±6	60±5	60±5	61±5
Vertical 3dB Beam Width (°)		7.6±0.6	6.9±0.5	6.1±0.5	5.7±0.5
Cross-Polar Ratio, 0° (dB)		>17	>17	>17	>17
Front to Back Ratio, ±30° (dB)		>24	>24	>24	>24
Frequency Range (MHz)		2 x (1695-2690) (Y1, Y3)			
		1695-1990	1920-2200	2200-2490	2490-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, Independently continuously adjustable			
Gain (dBi)	at mid tilt	16.7	17.1	17.2	17.7
	Over all tilts	16.6±0.7	17.0±0.6	17.1±0.6	17.6±0.9
Side lobe suppression for first side lobe above main beam (dB)		>16	>17	>17	>16
Horizontal 3dB Beam Width (°)		62±5	60±5	60±5	61±5
Vertical 3dB Beam Width (°)		7.6±0.7	6.9±0.6	6.2±0.5	5.7±0.5
Cross-Polar Ratio, 0° (dB)		>17	>17	>17	>17
Front to Back Ratio, ±30° (dB)		>24	>24	>24	>24

VSWR	≤1.5
Intermodulation IM3 (dBc)	≤-153 (2 x 43 dBm carrier)
Cross Polar Isolation (dB)	≥28
Interband isolation (dB)	≥28
Max. power per port (W)	300 (R1), 250 (Y1-Y4)
Impedance (Ω)	50
Grounding	DC Grounding

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications	
RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	10 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	2697 × 353 × 164
Packing dimensions (H x W x D) (mm)	2987 × 377 × 195
Antenna weight (kg)	37.8
Clamps weight (kg)	10
Diameter of installation pole (mm)	φ110-φ220
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +60
Wind load at 42m/s (N)	1322/ 431/ 1446 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern	
<p>Connector Position:</p>  <p>R1: 698-960 MHz; Y1/ Y2/ Y3/ Y4: 1695-2690 MHz;</p>	<p>Configuration Types:</p>  <p>RET S/N: HXxxx-R1-xx.....; HXxxx-Y1-xx.....; HXxxx-Y2-xx.....; HXxxx-Y3-xx.....; HXxxx-Y4-xx.....;</p>
<p>Pattern sample for reference:</p>  <p>R1: 698-960 MHz Y1/ Y2/ Y3/ Y4: 1695-2690 MHz</p>	

12-Ports 2L4H Antenna

2×690-960 MHz/ 4×1710-2690 MHz

6x 65° 2x15.1 dBi/ 4x18.2 dBi **1.485m**

E-Tilt: 2-16/ 2-16/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)		2 × (690-960) (R1, R2)			
		690-792	792-880	880-960	
Polarization		±45°			
Electrical Downtilt (°)		2-16, continuously adjustable			
Gain (dBi)	at mid tilt	14.2	14.5	15.1	
	Over all tilts	14.1±0.6	14.4±0.6	15.0±0.6	
Side lobe suppression for first side lobe above main beam (dB)		>13	>13	>12	
Horizontal 3dB Beam Width (°)		68±6	65±6	65±6	
Vertical 3dB Beam Width (°)		16.5±1.2	14.8±1.3	13.4±1.4	
Cross-Polar Ratio, 0° (dB)		>22	>20	>20	
Front to Back Ratio, ±30° (dB)		>22	>23	>25	
Frequency Range (MHz)		4 × (1710-2690) (Y1, Y2, Y3, Y4)			
		1710-1880	1880-2170	2300-2490	2500-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, continuously adjustable			
Gain (dBi)	at mid tilt	17.1	17.6	18.0	18.2
	Over all tilts	17.0±0.6	17.5±0.6	17.9±0.6	18.1±0.6
Side lobe suppression for first side lobe above main beam (dB)		>16			
Horizontal 3dB Beam Width (°)		69±5	66±6	62±6	58±5
Vertical 3dB Beam Width (°)		7.4±0.5	6.7±0.6	5.6±0.5	5.2±0.4
Cross-Polar Ratio, 0° (dB)		>18	>20	>20	>23
Front to Back Ratio, ±30° (dB)		>24	>29	>26	>26
VSWR		≤1.5			
Intermodulation IM3 (dBc)		≤-153 (2 × 43 dBm carrier)			
Cross Polar Isolation (dB)		≥25			
Interband isolation (dB)		≥25			
Max. power per port (W)		250 (R1, R2); 200 (Y1, Y2, Y3, Y4)			
Impedance (Ω)		50			
Grounding		DC Grounding			

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

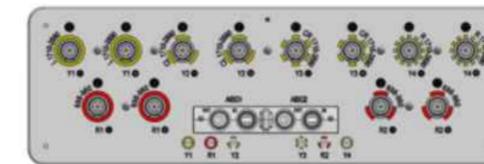
Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (2 in 2 out)	4 × 8 pin (in: Male; out: Female)
Connector	12 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	1485 × 500 × 160
Packing dimensions (H x W x D) (mm)	1760 × 615 × 290
Antenna weight (kg)	29
Clamps weight (kg)	6.8
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +60
Wind load at 42m/s (N)	1076/ 278/ 1076 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

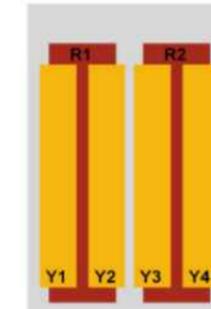
Layout and Pattern

Connector Position:

Configuration Types:

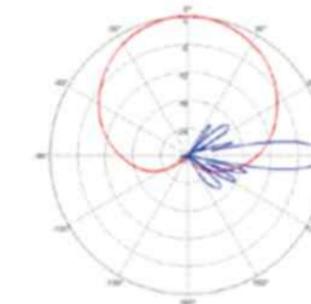


R1/ R2: 690-960 MHz;
Y1/ Y2/ Y3/ Y4: 1710-2690 MHz;

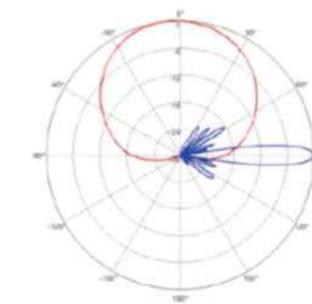


RET S/N :
HXxxx-R1-xx..... ;
HXxxx-R2-xx..... ;
HXxxx-Y1-xx..... ;
HXxxx-Y2-xx..... ;
HXxxx-Y3-xx..... ;
HXxxx-Y4-xx..... ;

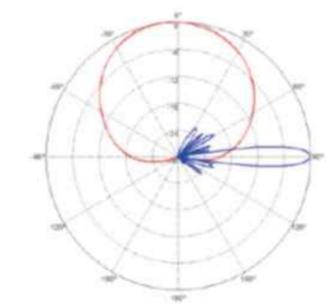
Pattern sample for reference:



R1/ R2: 690-960 MHz



Y1/ Y4: 1710-2690 MHz



Y2/ Y3: 1710-2690 MHz

12-Ports 2L4H Antenna

2×690-960 MHz/ 4×1710-2690 MHz

6×65° 2×16.4 dBi/ 4×18.4 dBi **1.985m**

E-Tilt: 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)		2 × (690-960) (R1, R2)			
		690-792	792-880	880-960	
Polarization		±45°			
Electrical Downtilt (°)		2-12, continuously adjustable			
Gain (dBi)	at mid tilt	15.4	15.9	16.4	
	Over all tilts	15.3±0.9	15.8±0.9	16.3±0.9	
Side lobe suppression for first side lobe above main beam (dB)		>15	>15	>16	
Horizontal 3dB Beam Width (°)		65±5	62±4	63±6	
Vertical 3dB Beam Width (°)		11.1±0.9	10±0.9	8.9±0.5	
Cross-Polar Ratio, 0° (dB)		>20	>21	>21	
Front to Back Ratio, ±30° (dB)		>21	>22	>24	
Frequency Range (MHz)		4 × (1710-2690) (Y1, Y2, Y3, Y4)			
		1710-1880	1880-2170	2300-2490	2500-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, continuously adjustable			
Gain (dBi)	at mid tilt	17.1	17.5	17.9	18.4
	Over all tilts	16.9±0.5	17.4±0.5	17.7±0.5	18.3±0.5
Side lobe suppression for first side lobe above main beam (dB)		>14	>14	>14	>13
Horizontal 3dB Beam Width (°)		69±6	65±4	62±6	57±5
Vertical 3dB Beam Width (°)		7.3±0.5	6.5±0.5	5.5±0.5	5.1±0.3
Cross-Polar Ratio, 0° (dB)		>18	>21	>21	>21
Front to Back Ratio, ±30° (dB)		>22	>25	>24	>24
VSWR		≤1.5			
Intermodulation IM3 (dBc)		≤-153 (2 × 43 dBm carrier)			
Cross Polar Isolation (dB)		≥25			
Interband isolation (dB)		≥25			
Max. power per port (W)		250 (R1, R2); 200 (Y1, Y2, Y3, Y4)			
Impedance (Ω)		50			
Grounding		DC Grounding			

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

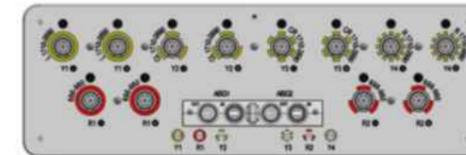
Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (2 in 2 out)	4 × 8 pin (in: Male; out: Female)
Connector	12 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	1985 × 500 × 160
Packing dimensions (H x W x D) (mm)	2260 × 615 × 290
Antenna weight (kg)	33.8
Clamps weight (kg)	6.8
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +65
Wind load at 42m/s (N)	1480/ 364/ 1480 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:

Configuration Types:

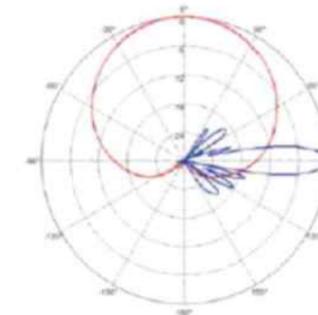


R1/ R2: 690-960 MHz;
Y1/ Y2/ Y3/ Y4: 1710-2690 MHz;

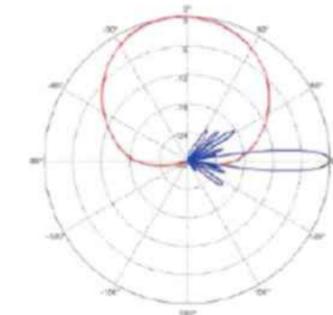


RET S/N :
HXxxx-R1-xx..... ;
HXxxx-R2-xx..... ;
HXxxx-Y1-xx..... ;
HXxxx-Y2-xx..... ;
HXxxx-Y3-xx..... ;
HXxxx-Y4-xx..... ;

Pattern sample for reference:



R1/ R2: 690-960 MHz



Y1/ Y2/ Y3/ Y4: 1695-2690 MHz

12-Ports 2L4H Antenna

2×690-960/ 2×1710-2690/ 2×1427-2690 MHz
 2×65°/ 2×65°/ 2×65° 2×16.4/ 2×18.4/ 2×18.4 dBi **1.985m**
 E-Tilt: 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)		2 × (690-960) (R1, R2)			
		690-792	792-880	880-960	
Polarization		±45°			
Electrical Downtilt (°)		2-12, Independently continuously adjustable			
Gain (dBi)	at mid tilt	15.4	15.9	16.4	
	Over all tilts	15.3±0.9	15.8±0.9	16.3±0.9	
Side lobe suppression for first side lobe above main beam (dB)		>15	>15	>16	
Horizontal 3dB Beam Width (°)		65±5	62±4	63±6	
Vertical 3dB Beam Width (°)		11.1±0.9	10±0.9	8.9±0.5	
Cross-Polar Ratio, 0° (dB)		>20	>21	>21	
Front to Back Ratio, ±30° (dB)		>21	>22	>24	
Frequency Range (MHz)		2 × (1710-2690) (Y1, Y4)			
		1710-1880	1920-2170	2200-2500	2500-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, Independently continuously adjustable			
Gain (dBi)	at mid tilt	17.1	17.5	17.9	18.4
	Over all tilts	16.9±0.5	17.4±0.5	17.7±0.5	18.3±0.5
Side lobe suppression for first side lobe above main beam (dB)		>17	>17	>17	>15
Horizontal 3dB Beam Width (°)		69±6	65±4	62±6	57±5
Vertical 3dB Beam Width (°)		7.3±0.5	6.5±0.5	5.5±0.5	5.1±0.3
Cross-Polar Ratio, 0° (dB)		>18	>21	>21	>21
Front to Back Ratio, ±30° (dB)		>22	>25	>24	>24
Frequency Range (MHz)		2 × (1427-2690) (Y2, Y3)			
		1427-1518	1710-1880	1920-2170	2200-2500 2500-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, Independently continuously adjustable			
Gain (dBi)	at mid tilt	15.6	17.1	17.5	17.9 18.4
	Over all tilts	15.5±0.7	16.9±0.5	17.4±0.5	17.7±0.5 18.3±0.5
Side lobe suppression for first side lobe above main beam (dB)		>15	>16	>16	>15 >15
Horizontal 3dB Beam Width (°)		85±6	69±6	65±4	62±6 57±5
Vertical 3dB Beam Width (°)		8.5±0.6	7.3±0.5	6.5±0.5	5.5±0.5 5.1±0.3
Cross-Polar Ratio, 0° (dB)		>17	>18	>21	>21 >21
Front to Back Ratio, ±30° (dB)		>23	>22	>25	>24 >24
VSWR		≤1.5			
Intermodulation IM3 (dBc)		≤-150 (2 × 43 dBm carrier)			
Cross Polar Isolation (dB)		≥25 (R1, R2); ≥27 (Y1, Y4); ≥25 (Y2, Y3)			
Interband Isolation (dB)		≥ 25			
Max. power per port (W)		250 (R1, R2); 200 (Y1, Y2, Y3, Y4)			
Impedance (Ω)		50			
Grounding		DC Grounding			

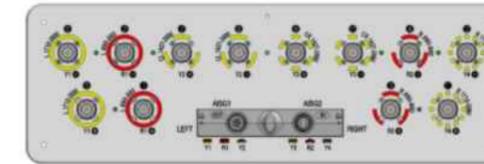
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (2 in 2 out)	4 × 8 pin (in: Male; out: Female)
Connector	12 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	1985 × 500 × 160
Packing dimensions (H x W x D) (mm)	2260 × 615 × 290
Antenna weight (kg)	35.3
Clamps weight (kg)	6.8
Diameter of installation pole (mm)	φ50-φ125
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +70
Wind load at 42m/s (N)	1481/ 364/ 1481 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:



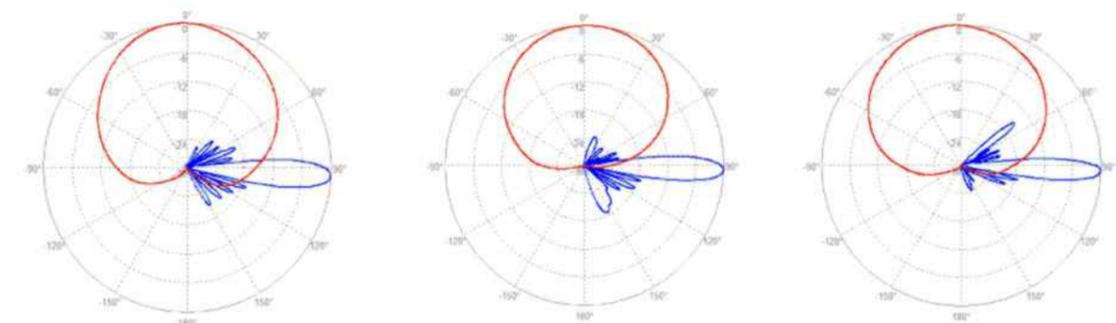
R1/ R2: 690-960 MHz;
 Y1/ Y4: 1710-2690 MHz;
 Y2/ Y3: 1427-2690 MHz;

Configuration Types:



RET S/N :
 HXxxx-R1-xx.....;
 HXxxx-R2-xx.....;
 HXxxx-Y1-xx.....;
 HXxxx-Y2-xx.....;
 HXxxx-Y3-xx.....;
 HXxxx-Y4-xx.....;

Pattern sample for reference:



R1/ R2: 690-960 MHz

Y1/ Y4: 1710-2690 MHz

Y2/ Y3: 1427-2690 MHz

12-Ports 2L4H Antenna

2×690-960/ 4×1695-2690 MHz

2×65°/ 4×65° 2×16.6 dBi/ 2×18.2 dBi/ 2×17.8 dBi **2.75m**

E-Tilt: 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)		2 × (690-960) (R1, R2)				
		690-806	806-880	880-960		
Polarization		±45°				
Electrical Downtilt (°)		2-12, Independently continuously adjustable				
Gain (dBi)	at mid tilt	15.6	16.2	16.6		
	Over all tilts	15.5±0.7	16.1±0.7	16.5±0.6		
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>16		
Horizontal 3dB Beam Width (°)		63±6	60±5	56±5		
Vertical 3dB Beam Width (°)		8.4±0.7	7.8±0.6	7.4±0.5		
Cross-Polar Ratio, 0° (dB)		>17	>17	>17		
Front to Back Ratio, ±30° (dB)		>25	>25	>25		
Frequency Range (MHz)		2 × (1695-2690) (Y1, Y3)				
		1695-1880	1850-1990	1920-2170	2300-2400	2490-2690
Polarization		±45°				
Electrical Downtilt (°)		2-12, Independently continuously adjustable				
Gain (dBi)	at mid tilt	16.6	17.2	17.4	17.8	18.2
	Over all tilts	16.5±0.9	17.1±0.7	17.3±0.8	17.7±0.6	18.1±0.8
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>16	>16	>16
Horizontal 3dB Beam Width (°)		69±9	62±5	63±6	57±5	57±6
Vertical 3dB Beam Width (°)		6.8±0.7	6.4±0.5	6.1±0.6	5.4±0.5	4.9±0.5
Cross-Polar Ratio, 0° (dB)		>16	>16	>17	>18	>17
Front to Back Ratio, ±30° (dB)		>25	>25	>25	>25	>25
Frequency Range (MHz)		2 × (1695-2690) (Y2, Y4)				
		1695-1880	1850-1990	1920-2170	2300-2400	2490-2690
Polarization		±45°				
Electrical Downtilt (°)		2-12, Independently continuously adjustable				
Gain (dBi)	at mid tilt	16.2	16.8	17.0	17.3	17.8
	Over all tilts	16.1±0.7	16.7±0.8	16.9±0.8	17.2±0.7	17.7±0.9
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>16	>16	>16
Horizontal 3dB Beam Width (°)		68±8	62±5	63±5	55±5	57±9
Vertical 3dB Beam Width (°)		6.8±0.6	6.5±0.5	6.2±0.6	5.4±0.5	5.0±0.5
Cross-Polar Ratio, 0° (dB)		>16	>16	>17	>16	>17
Front to Back Ratio, ±30° (dB)		>25	>25	>25	>26	>26
VSWR		≤1.5				
Intermodulation IM3 (dBc)		≤-153 (2 x 43 dBm carrier)				
Cross Polar Isolation (dB)		≥26				
Interband Isolation (dB)		≥26 (R1, R2), ≥28 (R1, Y1, Y2, Y3, Y4)				
Max. power per port (W)		250 (R1, R2) 200 (Y1, Y2, Y3, Y4)				
Impedance (Ω)		50				
Grounding		DC Grounding				

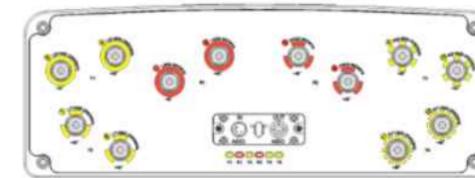
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	12 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	2750 × 467 × 167
Packing dimensions (H x W x D) (mm)	2870 × 542 × 292
Antenna weight (kg)	40
Clamps weight (kg)	5.5
Diameter of installation pole (mm)	φ50-φ125
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +65
Wind load at 42m/s (N)	1185/ 525/ 1325 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:



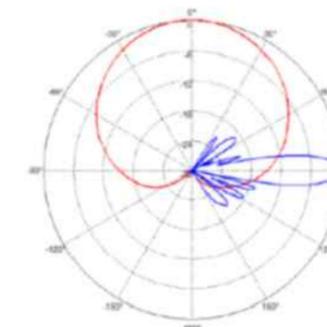
R1/ R2: 690-960 MHz;
Y1/ Y2/ Y3/ Y4: 1695-2690 MHz;

Configuration Types:

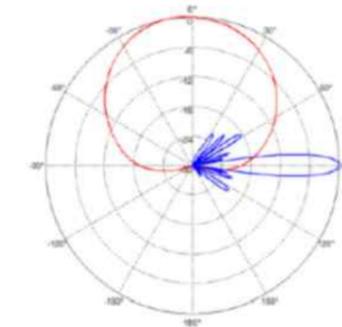


RET S/N :
HXxxx-R1-xx.....;
HXxxx-R2-xx.....;
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;
HXxxx-Y3-xx.....;
HXxxx-Y4-xx.....;

Pattern sample for reference:



R1/ R2: 690-960 MHz



Y1/ Y2/ Y3/ Y4: 1695-2690 MHz

16-Ports 2L6H Antenna

2×690-960/ 6×1695-2690 MHz

65°/ 65°/ 65°/ 65° 17.1/ 17.1/ 17.8/ 17.4 dBi **2.75m**

E-Tilt: 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications					
Frequency Range (MHz)		2 × (690-960) (R1, R2)			
		690-824	806-896	880-960	
Polarization		±45°			
Electrical Downtilt (°)		2-12, continuously adjustable			
Gain (dBi)	at mid tilt	16.2	16.5	17.1	
	Over all tilts	16.1±0.9	16.4±0.9	17.0±0.6	
Side lobe suppression for first side lobe above main beam (dB)		>15	>15	>16	
Horizontal 3dB Beam Width (°)		66±6.5	62±5.5	61±5.5	
Vertical 3dB Beam Width (°)		8.5±0.7	7.7±0.7	7.1±0.7	
Front to Back Ratio, ±30° (dB)		>22	>24	>25	
Cross-Polar Ratio, 0° (dB)		>17	>17	>18	
Frequency Range (MHz)		3 × (1695-2690) (Y1, Y3, Y5)			
		1695-1880	1850-1990	1920-2170	2300-2400 2490-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, continuously adjustable			
Gain (dBi)	at mid tilt	17.1	17.2	17.2	17.5 17.8
	Over all tilts	16.9±0.5	17.1±0.5	17.2±0.8	17.5±0.9 17.7±1.0
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>16	>14 >14
Horizontal 3dB Beam Width (°)		63±8.5	62±6.5	60±8.0	56±7.0 56±6.5
Vertical 3dB Beam Width (°)		7.1±0.8	6.4±0.6	6.1±0.7	5.3±0.5 4.8±0.6
Front to Back Ratio, ±30° (dB)		>25	>25	>25	>26 >26
Cross-Polar Ratio, 0° (dB)		>16	>16	>17	>17 >17
Frequency Range (MHz)		3 × (1695-2690) (Y2, Y4, Y6)			
		1695-1880	1850-1990	1920-2170	2300-2400 2490-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, continuously adjustable			
Gain (dBi)	at mid tilt	16.6	16.9	16.9	17.3 17.4
	Over all tilts	16.5±0.8	16.9±0.7	16.8±0.8	17.1±0.9 17.3±1.0
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>16	>14 >14
Horizontal 3dB Beam Width (°)		63±8.5	64±6.5	61±8.0	57±7.0 56±6.5
Vertical 3dB Beam Width (°)		7.1±0.8	6.4±0.6	6.1±0.7	5.3±0.5 4.8±0.6
Front to Back Ratio, ±30° (dB)		>25	>25	>25	>26 >26
Cross-Polar Ratio, 0° (dB)		>16	>16	>17	>17 >17
VSWR		≤1.5			
Cross Polar Isolation (dB)		≥26			
Interband isolation (dB)		≥26			
Intermodulation IM3 (dBc)		≤-153 (2 × 43 dBm carrier)			
Max. power per port (W)		200			
Impedance (Ω)		50			
Grounding		DC Grounding			

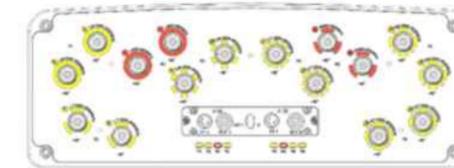
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out/ 2 in 2 out)	2 × 8 pin/ 4 × 8 pin (in: Male; out: Female)
Connector	16 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	2750 × 467 × 167
Packing dimensions (H x W x D) (mm)	2930 × 542 × 277
Antenna weight (kg)	45
Clamps weight (kg)	9
Diameter of installation pole (mm)	φ50-φ125
Tilt Bracket (°)	0-10
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +60
Wind load at 42m/s (N)	1185/ 525/ 1325 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

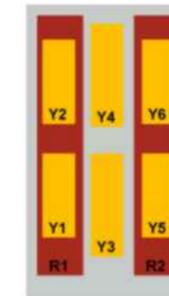
Layout and Pattern

Connector Position:



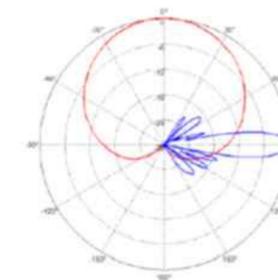
R1/ R2: 690-960 MHz;
Y1/ Y2/ Y3/ Y4/ Y5/ Y6: 1695-2690 MHz;

Configuration Types:

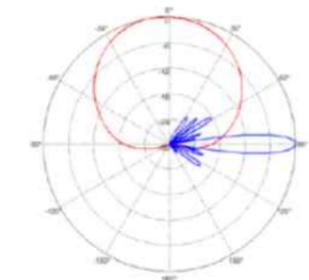


RET S/N:
HXxxx-R1-xx.....;
HXxxx-R2-xx.....;
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;
HXxxx-Y3-xx.....;
HXxxx-Y4-xx.....;
HXxxx-Y5-xx.....;
HXxxx-Y6-xx.....;

Pattern sample for reference:



690-960 MHz



1695-2690 MHz

8-Ports TDD Smart Antenna

2300-2690 MHz 90° 17.0 dBi 1.5m
E-Tilt: 2-12, Integrated RCU

General Electrical Properties

General parameters	Frequency Range (MHz)	2300-2400	2490-2690
	Polarization	±45°	
	Electrical Downtilt (°)	2-12, continuously adjustable	
	Electrical downtilt tolerance (°)	±1	
	Max. power per port (W)	60 (at 50°C ambient temperature)	
	Impedance (Ω)	50	
Calibration and electrical parameters	Grounding	DC Grounding	
	Coupling factor between calibration port and each antenna port (dB)	-26±2	
	Max. amplitude tolerance from calibration port to input ports (dB)	0.9	
	Max. phase tolerance from calibration port to input ports (°)	7	
	VSWR	≤1.5	
	Co-polarization isolation between ports (dB)	2°~6°≥20; 7°~12°≥28	
	Cross-polarization isolation between ports (dB)	2°~6°≥25; 7°~12°≥28	

TDD LTE Electrical Specifications

Radiation parameters	Single column beam	Frequency Range (MHz)	2300-2400	2490-2690
		Gain (dBi)	16.2±0.5	17.0±0.5
	Horizontal 3dB Beam Width (°)	90±10	70±10	
	Front to Back Ratio (dB)	>25	>25	
	Cross-Polar Ratio, 0° (dB)	>18	>18	
	Vertical 3dB Beam Width (°)	6.0±0.5	5.3±0.6	
	Side lobe suppression for first side lobe above main beam (dB)	>16	>16	
	65° Broadcast beam	Gain (dBi)	16.5±0.8	17.5±0.8
		Horizontal 3dB Beam Width (°)	65±7	65±7
		Front to Back Ratio (dB)	>25	>24
		Vertical 3dB Beam Width (°)	5.9±0.5	5.2±0.5
		Side lobe suppression for first side lobe above main beam (dB)	>16	>16
	Service beam	0° direction Beam Gain (dBi)	21.4±1	21.7±1
		0° direction Beam Horizontal 3dB Beam Width (°)	24	23
		0° direction Beam horizontal side lobe suppression (dB)	>16	>16
		0° direction Beam Front to Back Ratio, ±30° (dB)	>28	>28
		0° direction Beam Cross-Polar Ratio, 0° (dB)	>20	>20

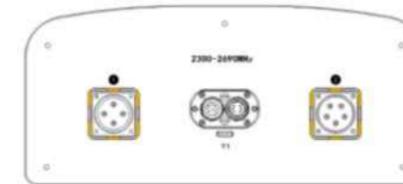
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	1 × MQ4 Male+1 × MQ5 Male (Bottom)
Antenna dimensions (H x W x D) (mm)	1500 × 320 × 140
Packing dimensions (H x W x D) (mm)	1715 × 390 × 220
Antenna weight (kg)	14.6
Clamps weight (kg)	5.5
Diameter of installation pole (mm)	φ50-φ110
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +60
Wind load at 42m/s (N)	598/ 236/ 738 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:



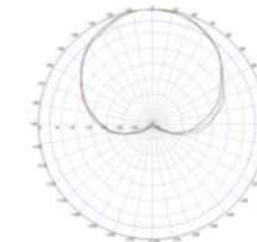
Y1: 2300-2690 MHz;

Configuration Types:

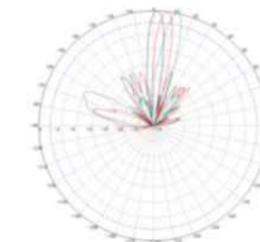


RET S/N:
HXxxx-Y1-xx.....;

Pattern sample for reference:



2300-2690 MHz (Horizontal)



2300-2690 MHz (Vertical)

8-Ports TDD Smart Antenna

2300-2690 MHz 90° 17.8 dBi 1.38m

E-Tilt: 2-12, Integrated RCU

General Electrical Properties

General parameters	Frequency Range (MHz)	2300-2400	2490-2690
	Polarization	±45°	
Electrical Downtilt (°)	2-12, continuously adjustable		
Max. power per port (W)	60 (at 50°C ambient temperature)		
Impedance (Ω)	50		
Grounding	DC Grounding		
Calibration and electrical parameters	Coupling factor between calibration port and each antenna port (dB)	-26±2	
	Max. amplitude tolerance from calibration port to input ports (dB)	0.9	
	Max. phase tolerance from calibration port to input ports (°)	7	
	VSWR	≤1.5	
	Co-polarization isolation between ports (dB)	2°~6°≥20; 7°~12°≥28	
Cross-polarization isolation between ports (dB)	2°~6°≥25; 7°~12°≥28		

TDD LTE Electrical Specifications

Radiation parameters	Frequency Range (MHz)	2300-2400	2490-2690
	Single column beam	Gain (dBi)	17±0.8
Horizontal 3dB Beam Width (°)		84±10	73±5
Front to Back Ratio (dB)		>25	>25
Cross-Polar Ratio, 0° (dB)		>18	>18
Vertical 3dB Beam Width (°)		6.2±0.5	5.7±0.5
Side lobe suppression for first side lobe above main beam (dB)		>16	>16
65° Broadcast beam	Gain (dBi)	17.0±0.6	17.8±0.9
	Horizontal 3dB Beam Width (°)	56±13	54±14
	Front to Back Ratio (dB)	>25	>25
	Vertical 3dB Beam Width (°)	6.2±0.5	5.7±0.6
	Cross-Polar Ratio, 0° (dB)	>18	>18
	Side lobe suppression for first side lobe above main beam (dB)	>16	>16
Service beam	0° direction Beam Gain (dBi)	21±0.5	21.5±0.8
	0° direction Beam Horizontal 3dB Beam Width (°)	22	20
	0° direction Beam horizontal side lobe suppression (dB)	>15	>15
	0° direction Beam Front to Back Ratio, ±30° (dB)	>30	>30
	0° direction Beam Cross-Polar Ratio, 0° (dB)	>20	>20

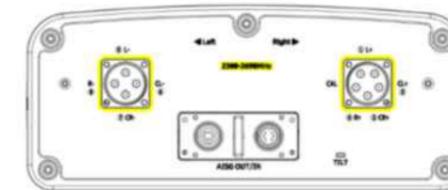
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	1 × MQ4 Male+1 × MQ5 Male (Bottom)
Antenna dimensions (H x W x D) (mm)	1380 × 318 × 129
Packing dimensions (H x W x D) (mm)	1465 × 410 × 295
Antenna weight (kg)	16.5
Clamps weight (kg)	5.5
Diameter of installation pole (mm)	φ55-φ115
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +65
Wind load at 42m/s (N)	609/ 173/ 666 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:



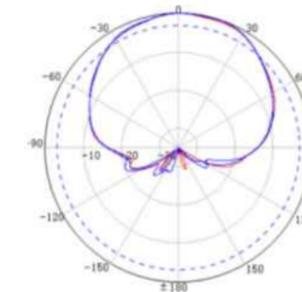
Y1: 2300-2690 MHz;

Configuration Types:

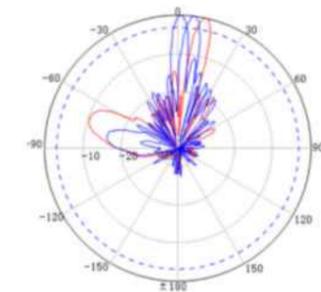


RET S/N:
HXxxx-Y1-xx.....;

Pattern sample for reference:



2300-2690 MHz (Horizontal)



2300-2690 MHz (Vertical)

8-Ports TDD Smart Antenna

3300-3800 MHz 70° 16 dBi 0.998m

E-Tilt: 2-12, Integrated RCU

General Electrical Properties

General parameters	Frequency Range (MHz)	3300-3800
	Polarization	±45°
	Electrical Downtilt (°)	2-12, continuously adjustable
	Max. power per port (W)	50 (at 50°C ambient temperature)
	Impedance (Ω)	50
	Grounding	DC Grounding
Calibration and electrical parameters	Coupling factor between calibration port and each antenna port (dB)	-26±2
	Max. amplitude tolerance from calibration port to input ports (dB)	0.9
	Max. phase tolerance from calibration port to input ports (°)	7
	VSWR	≤1.5
	Co-polarization isolation between ports (dB)	2°~6°≥20; 7°~12°≥25
	Cross-polarization isolation between ports (dB)	2°~6°≥20; 7°~12°≥25

TDD LTE Electrical Specifications

Radiation parameters	Single column beam	Frequency Range (MHz)	3300-3800
		Gain (dBi)	16.0±1.0
		Horizontal 3dB Beam Width (°)	70±10
		Front to Back Ratio (dB)	>22
		Cross-Polar Ratio, 0° (dB)	>18
		Vertical 3dB Beam Width (°)	6.0±0.5
	Side lobe suppression for first side lobe above main beam (dB)	>15	
	65° Broadcast beam	Gain (dBi)	16.5±1.0
		Horizontal 3dB Beam Width (°)	65±10
		Front to Back Ratio (dB)	>21
		Vertical 3dB Beam Width (°)	6.0±0.8
	Side lobe suppression for first side lobe above main beam (dB)	>15	
	Service beam	0° direction Beam Gain (dBi)	21±0.8
		0° direction Beam Horizontal 3dB Beam Width (°)	26
		0° direction Beam horizontal side lobe suppression (dB)	>16
		0° direction Beam Front to Back Ratio, ±30° (dB)	>30
		0° direction Beam Cross-Polar Ratio, 0° (dB)	>19

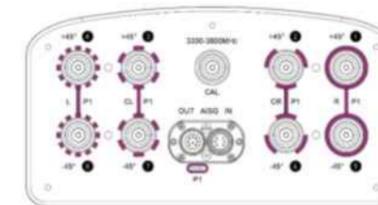
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	8 × 4.3-10 Female+Cal; 1 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	998 × 270 × 140
Packing dimensions (H x W x D) (mm)	1213 × 360 × 245
Antenna weight (kg)	11.2
Clamps weight (kg)	5.5
Diameter of installation pole (mm)	φ55-φ115
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +70
Wind load at 42m/s (N)	238/ 98/ 342 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:



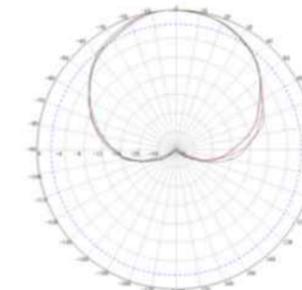
P1: 3300-3800 MHz;

Configuration Types:

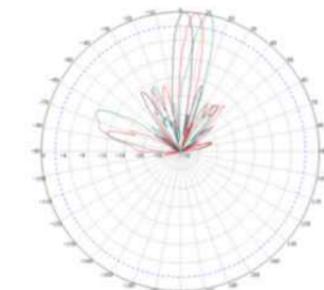


RET S/N:
HXxxx-P1-xx.....;

Pattern sample for reference:



3300-3800 MHz (Horizontal)



3300-3800 MHz (Vertical)

8-Ports TDD Smart Antenna

3300-3800 MHz 70° 16.8 dBi 0.998m

E-Tilt: 2-12, Integrated RCU

General Electrical Properties

General parameters	Frequency Range (MHz)	3300-3800
	Polarization	±45°
	Electrical Downtilt (°)	2-12, continuously adjustable
	Max. power per port (W)	50 (at 50°C ambient temperature)
	Impedance (Ω)	50
	Grounding	DC Grounding
Calibration and electrical parameters	Coupling factor between calibration port and each antenna port (dB)	-26±2
	Max. amplitude tolerance from calibration port to input ports (dB)	0.9
	Max. phase tolerance from calibration port to input ports (°)	7
	VSWR	≤1.5
	Co-polarization isolation between ports (dB)	2°~6°≥20; 7°~12°≥25
	Cross-polarization isolation between ports (dB)	2°~6°≥20; 7°~12°≥25

TDD LTE Electrical Specifications

Radiation parameters	Single column beam	Frequency Range (MHz)	3300-3800
		Gain (dBi)	16.8±1.0
		Horizontal 3dB Beam Width (°)	68±10
		Front to Back Ratio (dB)	>22
		Cross-Polar Ratio, 0° (dB)	>18
		Vertical 3dB Beam Width (°)	6.0±0.5
	Side lobe suppression for first side lobe above main beam (dB)	>16	
	65° Broadcast beam	Gain (dBi)	16.8±1.0
		Horizontal 3dB Beam Width (°)	65±10
		Vertical 3dB Beam Width (°)	6.0±0.8
	Side lobe suppression for first side lobe above main beam (dB)	>16	
	Service beam	0° direction Beam Gain (dBi)	21±0.8
		0° direction Beam Horizontal 3dB Beam Width (°)	26
		0° direction Beam horizontal side lobe suppression (dB)	>16
		0° direction Beam Front to Back Ratio, ±30° (dB)	>30
		0° direction Beam Cross-Polar Ratio, 0° (dB)	>19

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 x 8 pin (in: Male; out: Female)
Connector	1 x MQ4 Male+1 x MQ5 Male, Bottom
Antenna dimensions (H x W x D) (mm)	998 x 295 x 145
Packing dimensions (H x W x D) (mm)	1298 x 410 x 275
Antenna weight (kg)	13.5
Clamps weight (kg)	5.7
Diameter of installation pole (mm)	φ55-φ115
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +60
Wind load at 42m/s (N)	336/ 99/ 227 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:



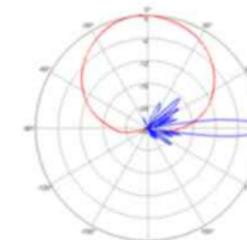
P1: 3300-3800 MHz;

Configuration Types:



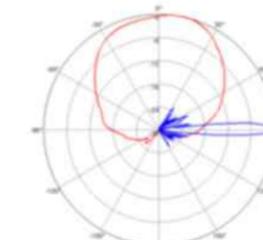
RET S/N:
HXxxx-P1-xx.....;

Pattern sample for reference:



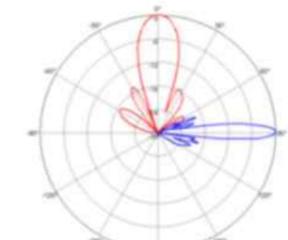
Single column

3300-3800 MHz



65° Broadcast

3300-3800 MHz



Service 0°

3300-3800 MHz

FDD+TDD Hybrid Antenna

12-Ports 2L+8T8R Antenna

2×690–960/ 4×2300–2690 MHz
 2×65°/ 4×90° 2×15.9/ 4×15.1 dBi **2.1m**
 E-Tilt: 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications (FDD)

Frequency Range (MHz)	690–960 (R1, R2)	
	690-880	894-960
Polarization	±45°	
Electrical Downtilt (°)	2-12	
Gain (dBi)	at mid tilt	15.4
	Over all tilts	15.3±0.8
Side lobe suppression for first side lobe above main beam (dB)		>16
		>16
Horizontal 3dB Beam Width (°)	65±5	59±5
Vertical 3dB Beam Width (°)	9.7±0.8	8.3±0.8
Cross-Polar Ratio, 0° (dB)	≥15	≥15
Front to Back Ratio, ±30° (dB)	≥20	≥20
VSWR	≤1.5	
Intermodulation IM3 (dBc)	≤-153 (2 x 43 dBm carrier)	
Isolation (dB)	≥24	
Max. power per port (W)	500	
Impedance (Ω)	50	
Grounding	DC Grounding	

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

General Electrical Properties

General parameters	Frequency Range (MHz)	2300-2690 (Y1)		
	Polarization	±45°		
	Electrical Downtilt (°)	2-12, continuously adjustable		
	Max. power per port (W)	50		
	Impedance (Ω)	50		
	Grounding	DC Grounding		
Calibration and electrical parameters	Coupling factor between calibration port and each antenna port (dB)	-26±2		
	Max. amplitude tolerance from calibration port to input ports (dB)	0.9		
	Max. phase tolerance from calibration port to input ports (°)	7		
	VSWR	≤1.5		
	Co-polarization isolation between ports (dB)	2°	≥20	
		3°~6°	≥22	
		7°~12°	≥22	
	Cross-polarization isolation between ports (dB)	2°	≥22	
		3°~6°	≥22	
		7°~12°	≥22	

TDD LTE Electrical Specifications

Radiation parameters	Frequency Range (MHz)	2300-2690 (Y1)
	Single column beam	Gain (dBi)
Horizontal 3dB beam width (°)		90±15
Front to Back Ratio (dB)		>23
Cross-Polar Ratio, 0° (dB)		>18
Vertical 3dB beam width (°)		6.5±0.8
Side lobe suppression for first side lobe above main beam (dB)		>16
65° Broadcast beam	Gain (dBi)	15.8±1
	Horizontal 3dB Beam Width (°)	65±15
	Front to Back Ratio (dB)	>26
	Vertical 3dB Beam Width (°)	6.5±0.8
Service beam	Side lobe suppression for first side lobe above main beam (dB)	>16
	0° direction Beam Gain (dBi)	19.5±1
	0° direction Beam Horizontal 3dB Beam Width (°)	28
	0° direction Beam horizontal side lobe suppression (dB)	>16
	0° direction Beam Front to Back Ratio, ±30° (dB)	>28
0° direction Beam Cross-Polar Ratio, 0° (dB)	>18	

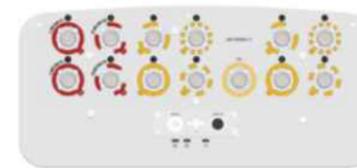
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 x 8 pin (in: Male; out: Female)
Connector	12 x 4.3-10 Female+Cal: 1 x 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	2100 x 448 x 200
Packing dimensions (H x W x D) (mm)	2355 x 535 x 290
Antenna weight (kg)	40
Clamps weight (kg)	5.9
Diameter of installation pole (mm)	φ50-φ115
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +60
Wind load at 42m/s (N)	1212/ 290/ 1310 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

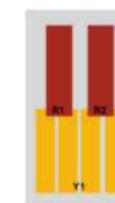
Layout and Pattern

Connector Position:



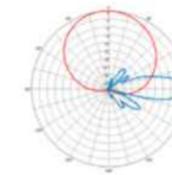
R1/ R2: 690-960 MHz;
 Y1: 2300-2690 MHz;

Configuration Types:

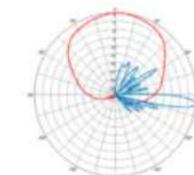


RET S/N :
 HXxxx-R1-xx.....;
 HXxxx-R2-xx.....;
 HXxxx-Y1-xx.....;

Pattern sample for reference:



690-960 MHz
 Horizontal & Vertical



2300-2690 MHz
 Horizontal & Vertical

FDD+TDD Hybrid Antenna

12-Ports 2L+8T8R Antenna

2×690-960/ 4×2300-2690 MHz
 2×65°/ 4×90° 2×17.1/ 4×15.3 dBi **2.56m**
 E-Tilt: 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)	2 × (690-960) (R1, R2)			
	690-803	791-862	880-960	
Polarization	±45°			
Electrical Downtilt (°)	2-12, Independently continuously adjustable			
Gain (dBi)	at mid tilt	16.1	16.7	17.1
	Over all tilts	16.0±0.7	16.6±0.7	17.0±0.6
Side lobe suppression for first side lobe above main beam (dB)	>15	>15	>15	
Horizontal 3dB Beam Width (°)	66±7	61±6	61±6	
Vertical 3dB Beam Width (°)	8.8±0.8	8.1±0.5	7.2±0.6	
Cross-Polar Ratio, 0° (dB)	>18	>18	>18	
Front to Back Ratio, ±30° (dB)	>21	>21	>21	
VSWR	≤1.5			
Intermodulation IM3 (dBc)	≤-153 (2 x 43 dBm carrier)			
Cross Polar Isolation (dB)	≥25 (R1, R2);			
Interband Isolation (dB)	≥25			
Max. power per port (W)	250 (R1, R2); 200 (Y1, Y2, Y3, Y4)			
Impedance (Ω)	50			
Grounding	DC Grounding			

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

General Electrical Properties

General parameters	Frequency Range (MHz)	2300-2690 (Y1)
	Polarization	±45°
	Electrical Downtilt (°)	2-12, continuously adjustable
	Electrical Downtilt tolerance (°)	±1
	Max. power per port (W)	75 (at 50°C ambient temperature)
	Impedance (Ω)	50
	Grounding	DC Grounding
Calibration and electrical parameters	Coupling factor between calibration port and each antenna port (dB)	-26±2
	Max. amplitude tolerance from calibration port to input ports (dB)	0.9
	Max. phase tolerance from calibration port to input ports (°)	7
	VSWR	≤1.5
	Co-polarization isolation between ports (dB)	≥20
Cross-polarization isolation between ports (dB)	≥25	

TDD LTE Electrical Specifications

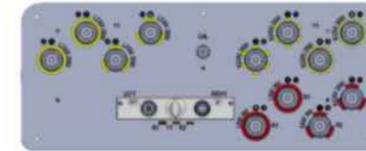
Radiation parameters	Frequency Range (MHz)	2300-2690(Y1)
	Single column beam	Gain (dBi)
Horizontal 3dB Beam Width (°)		95±15
Front to Back Ratio, ±30° (dB)		>23
Cross-Polar Ratio, 0° (dB)		>18
Vertical 3dB Beam Width (°)		5.7±0.7
65° Broadcast beam	Gain (dBi)	16.4±1.4
	Horizontal 3dB Beam Width (°)	68±13
	Front to Back Ratio, ±30° (dB)	>23
	Vertical 3dB Beam Width (°)	5.6±0.6
Service beam	Side lobe suppression for first side lobe above main beam (dB)	>16
	0° direction Beam Gain (dBi)	19.7±1.0
	0° direction Beam Horizontal 3dB Beam Width(°)	27
	0° direction Beam horizontal side lobe suppression (dB)	>16
	0° direction Beam Front to Back Ratio, ±30° (dB)	>25
0° direction Beam Cross-Polar Ratio, 0° (dB)	>18	

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	12 × 7/ 16 Female, Cal: 1 × N Female, Bottom
Antenna dimensions (H x W x D) (mm)	2560 × 469 × 185
Packing dimensions (H x W x D) (mm)	2850 × 535 × 247
Antenna weight (kg)	40
Clamps weight (kg)	6.3
Diameter of installation pole (mm)	φ50-φ110
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +70
Wind load at 42m/s (N)	1440/ 521/ 1528 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

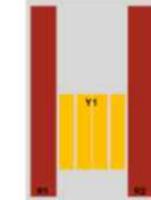
Layout and Pattern

Connector Position:



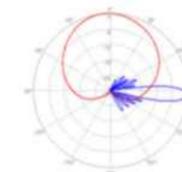
R1/ R2: 690-960 MHz;
 Y1: 2300-2690 MHz;

Configuration Types:

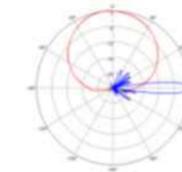


RET S/N :
 HXxxx-R1-xx.....;
 HXxxx-R2-xx.....;
 HXxxx-Y1-xx.....;

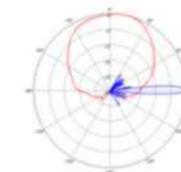
Pattern sample for reference:



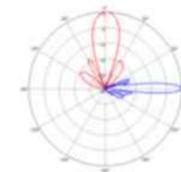
R1/ R2: 690-960 MHz



Single column
 Y1: 2300-2690 MHz



65° Broadcast
 Y1: 2300-2690 MHz



Service 0°
 Y1: 2300-2690 MHz

FDD+TDD Hybrid Antenna

12-Ports 2L+8T8R Antenna

2×690-960/ 4×3300-4200 MHz

2×65°/ 4×75° 2×14.6/ 4×16 dBi 1.485m

E-Tilt: 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)	2 × (690-960) (R1, R2)			
	690-803	791-862	880-960	
Polarization	±45°			
Electrical Downtilt (°)	2-12, Independently continuously adjustable			
Gain (dBi)	at mid tilt	13.8	14.2	14.6
	Over all tilts	13.7±0.5	14.1±0.5	14.5±0.5
Side lobe suppression for first side lobe above main beam (dB)	>16	>16	>16	
Horizontal 3dB Beam Width (°)	67±5	65±5	63±5	
Vertical 3dB Beam Width (°)	15.0±1.0	13.8±1.0	12.4±0.8	
Cross-Polar Ratio, 0° (dB)	>18	>18	>18	
Front to Back Ratio, ±30° (dB)	>22	>22	>22	
VSWR	≤1.5			
Intermodulation IM3 (dBc)	≤-153 (2 x 43 dBm carrier)			
Cross Polar Isolation (dB)	≥25			
Interband isolation (dB)	≥25 (R1, R2)			
Max. power per port (W)	250			
Impedance (Ω)	50			
Grounding	DC Grounding			

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

General Electrical Properties

General parameters	Frequency Range (MHz)	3300-4200 (P1)	
		3300-3800	3800-4200
Polarization		±45°	
Electrical Downtilt (°)		2-12, continuously adjustable	
Electrical downtilt tolerance (°)		±1	
Max. power per port (W)		50 (at 50°C ambient temperature)	
Impedance (Ω)		50	
Grounding		DC Grounding	
Calibration and electrical parameters	Coupling factor between calibration port and each antenna port (dB)	-26±2	-26±2
	Max. amplitude tolerance from calibration port to input ports (dB)	0.8	0.9
	Max. phase tolerance from calibration port to input ports (°)	7	7
	VSWR	≤1.5	≤1.5
	Co-polarization isolation between ports (dB)	≥20	≥20
Cross-polarization isolation between ports (dB)	≥24	≥24	

TDD LTE Electrical Specifications

Radiation parameters	Frequency Range (MHz)	3300-4200 (P1)	
		3300-3800	3800-4200
Single column beam	Gain (dBi)	15.5±0.7	16±0.6
	Horizontal 3dB Beam Width (°)	85±15	75±15
	Front to Back Ratio (dB)	>24	>23
	Cross-Polar Ratio, 0° (dB)	>18	>18
	Vertical 3dB Beam Width (°)	6.0±0.6	5.5±0.7
65° Broadcast beam	Side lobe suppression for first side lobe above main beam (dB)	>16	>16
	Gain (dBi)	16.8±0.8	17.2±0.8
	Horizontal 3dB Beam Width (°)	65	65
	Front to Back Ratio (dB)	>25	>25
	Vertical 3dB Beam Width (°)	6.0±0.6	5.5±0.7
Service beam	Side lobe suppression for first side lobe above main beam (dB)	>16	>16
	0° direction Beam Gain (dBi)	20.6±0.6	21.2±0.6
	0° direction Beam Horizontal 3dB Beam Width (°)	25	23
	0° direction Beam horizontal side lobe suppression (dB)	>30	>30
	0° direction Beam Front to Back Ratio, ±30° (dB)	>18	>18

5G NR Electrical Specifications

Radiation parameters	Frequency Range (MHz)	3300-4200 (P1)	
		3300-3800	3800-4200
Single column beam	Gain (dBi)	15.5±0.7	16±0.6
	Horizontal 3dB Beam Width (°)	85±15	75±15
	Front to Back Ratio (dB)	>24	>23
	Cross-Polar Ratio, 0° (dB)	>18	>18
	Vertical 3dB Beam Width (°)	6.0±0.6	5.5±0.7
NR Broadcast beam	Side lobe suppression for first side lobe above main beam (dB)	>16	>16
	Gain (dBi)	19.2±0.8	19.7±0.8
	Horizontal 3dB Beam Width (°)	65	65
	Front to Back Ratio (dB)	>25	>25
	Vertical 3dB Beam Width (°)	6.0±0.6	5.5±0.7
NR Service beam	Side lobe suppression for first side lobe above main beam (dB)	>16	>16
	0° direction Beam Gain (dBi)	20.6±0.6	21.2±0.6
	0° direction Beam Horizontal 3dB Beam Width (°)	25	23
	0° direction Beam Front to Back Ratio, ±30° (dB)	>30	>30
	0° direction Beam Cross-Polar Ratio, 0° (dB)	>18	>18

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 x 8 pin (in: Male; out: Female)
Connector	4 x 4.3-10 Female, 1 x (MQ4+MQ5) Male, Bottom
Antenna dimensions (H x W x D) (mm)	1485 x 500 x 160
Packing dimensions (H x W x D) (mm)	1785 x 615 x 290
Antenna weight (kg)	26
Clamps weight (kg)	6
Diameter of installation pole (mm)	φ50-φ110
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +70
Wind load at 42m/s (N)	1097/ 278/ 1097 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

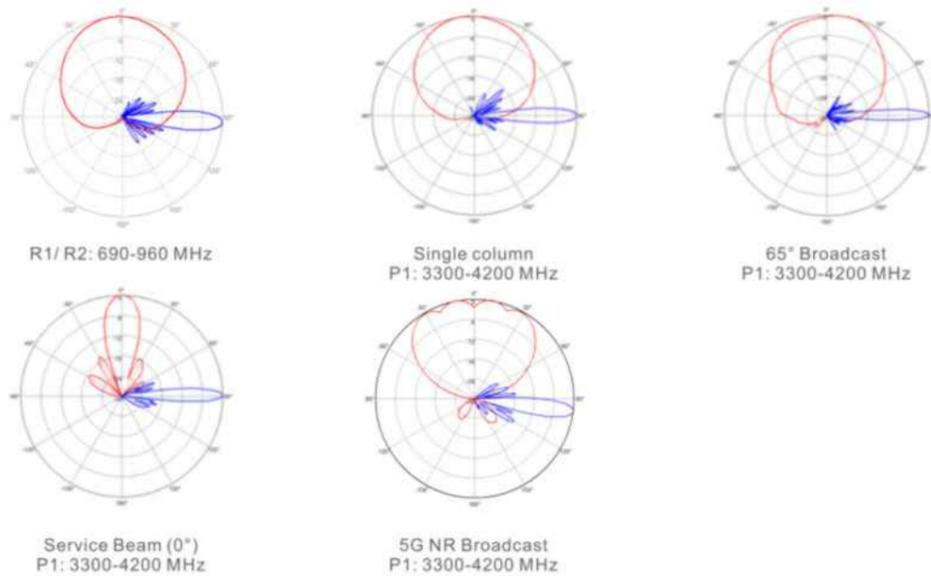
Connector Position:

R1/ R2: 690-960 MHz;
P1: 3300-4200 MHz;

Configuration Types:

RET S/N :
HXxxx-R1-xx.....;
HXxxx-R2-xx.....;
HXxxx-P1-xx.....;

Pattern sample for reference:



FDD+TDD Hybrid Antenna 12-Ports 2L+8T8R Antenna

2x690-960/ 4x3300-4200 MHz
2x65°/ 4x75° 2x15.4/ 4x16 dBi **1.985m**
E-Tilt: 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)	2 x (690-803) (R1, R2)			
	690-803	791-862	880-960	
Polarization	±45°			
Electrical Downtilt (°)	2-12, Independently continuously adjustable			
Gain (dBi)	at mid tilt	14.8	15.2	15.4
	Over all tilts	14.7±0.7	15.1±0.7	15.3±0.7
Side lobe suppression for first side lobe above main beam (dB)	>17	>17	>17	
Horizontal 3dB Beam Width (°)	67±5	65±5	63±5	
Vertical 3dB Beam Width (°)	11.2±1	10.2±0.8	9.1±0.8	
Cross-Polar Ratio, 0° (dB)	>18	>18	>18	
Front to Back Ratio, ±30° (dB)	>22	>22	>22	
VSWR	≤1.5			
Intermodulation IM3 (dBc)	≤-153 (2 x 43 dBm carrier)			
Cross Polar Isolation (dB)	≥25			
Interband isolation (dB)	≥25 (R1, R2)			
Max. power per port (W)	250			
Impedance (Ω)	50			
Grounding	DC Grounding			

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

General Electrical Properties

General parameters	Frequency Range (MHz)	3300-4200 (P1)	
		3300-3800	3800-4200
	Polarization	±45°	
	Electrical Downtilt (°)	2-12, continuously adjustable	
	Electrical downtilt tolerance (°)	±1	
	Max. power per port (W)	50 (at 50°C ambient temperature)	
	Impedance (Ω)	50	
	Grounding	DC Grounding	
Calibration and electrical parameters	Coupling factor between calibration port and each antenna port (dB)	-26±2	-26±2
	Max. amplitude tolerance from calibration port to input ports (dB)	0.8	0.9
	Max. phase tolerance from calibration port to input ports (°)	7	7
	VSWR	≤1.5	≤1.5
	Co-polarization isolation between ports (dB)	≥20	≥20
	Cross-polarization isolation between ports (dB)	≥24	≥24

TDD LTE Electrical Specifications

Frequency Range (MHz)		3300-4200 (P1)		
		3300-3800	3800-4200	
Radiation parameters	Single column beam	Gain (dBi)	15.5±0.7	16±0.6
		Horizontal 3dB Beam Width (°)	85±15	75±15
		Front to Back Ratio (dB)	>24	>23
		Cross-Polar Ratio, 0° (dB)	>16	>15
		Vertical 3dB Beam Width (°)	6.0±0.6	5.5±0.7
		Side lobe suppression for first side lobe above main beam (dB)	>16	>16
	65° Broadcast beam	Gain (dBi)	16.8±0.8	17.2±0.8
		Horizontal 3dB Beam Width (°)	65	65
		Front to Back Ratio (dB)	>25	>25
		Vertical 3dB Beam Width (°)	6.0±0.6	5.5±0.7
	Service beam	0° direction Beam Gain (dBi)	20.6±0.6	21.2±0.6
		0° direction Beam Horizontal 3dB Beam Width (°)	25	23
0° direction Beam Front to Back Ratio, ±30° (dB)		>30	>30	
0° direction Beam Cross-Polar Ratio, 0° (dB)		>18	>18	

5G NR Electrical Specifications

Frequency Range (MHz)		3300-4200 (P1)		
		3300-3800	3800-4200	
Radiation parameters	Single column beam	Gain (dBi)	15.5±0.7	16±0.6
		Horizontal 3dB Beam Width (°)	85±15	75±15
		Front to Back Ratio (dB)	>24	>23
		Cross-Polar Ratio, 0° (dB)	>16	>15
		Vertical 3dB Beam Width (°)	6.0±0.6	5.5±0.7
		Side lobe suppression for first side lobe above main beam (dB)	>16	>16
	NR Broadcast beam	Gain (dBi)	19.2±0.8	19.7±0.8
		Horizontal 3dB Beam Width (°)	65	65
		Front to Back Ratio (dB)	>25	>25
		Vertical 3dB Beam Width (°)	6.0±0.6	5.5±0.7
	NR Service beam	0° direction Beam Gain (dBi)	20.6±0.6	21.2±0.6
		0° direction Beam Horizontal 3dB Beam Width (°)	25	23
0° direction Beam Front to Back Ratio, ±30° (dB)		>30	>30	
0° direction Beam Cross-Polar Ratio, 0° (dB)		>18	>18	

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	4 × 4.3-10 Female, 1 × (MQ4+MQ5) Male, Bottom
Antenna dimensions (H x W x D) (mm)	1985 × 500 × 160
Packing dimensions (H x W x D) (mm)	2285 × 615 × 290
Antenna weight (kg)	32
Clamps weight (kg)	6
Diameter of installation pole (mm)	φ50-φ110
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +70
Wind load at 42m/s (N)	1158/ 371/ 1158 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

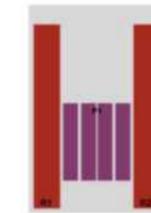
Layout and Pattern

Connector Position:



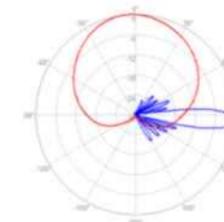
R1/ R2: 690-960 MHz;
P1: 3300-4200 MHz;

Configuration Types:

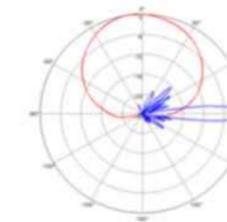


RET S/N :
HXxxx-R1-xx.....;
HXxxx-R2-xx.....;
HXxxx-P1-xx.....;

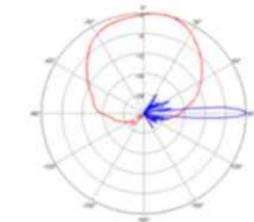
Pattern sample for reference:



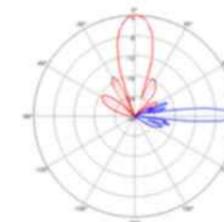
R1/ R2: 690-960 MHz



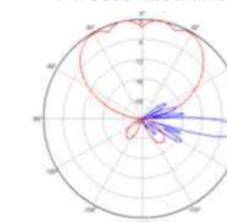
Single column
P1: 3300-4200 MHz



65° Broadcast
P1: 3300-4200 MHz



Service Beam (0°)
P1: 3300-4200 MHz



5G NR Broadcast
P1: 3300-4200 MHz

16-Ports 2L2H+8T8R FDD beamforming Antenna

FDD beamforming side by side solution

2×690-960/ 2×1710-2690/ 4×1710-2690 MHz

2×65°/ 2×65°/ 4×95° 2×16/ 2×18/ 4×16 dBi **2.3m**

E-Tilt: 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)		2 × (690-960) (R1, R2)		
		698-803	803-880	880-960
Polarization		±45°		
Electrical Downtilt (°)		2-12, Independently continuously adjustable		
Gain (dBi)	at mid tilt	15.7	16.1	16.4
	Over all tilts	15.6±0.9	16.0±0.7	16.3±0.8
Side lobe suppression for first side lobe above main beam (dB)		>15	>15	>15
Horizontal 3dB Beam Width (°)		65±7	61±7	58±7
Vertical 3dB Beam Width (°)		10.3±0.8	9.2±0.7	8.4±0.7
Cross-Polar Ratio, 0° (dB)		>18	>18	>18
Front to Back Ratio, ±30° (dB)		>21	>22	>22
Frequency Range (MHz)		2 × (1710-2690) (Y1, Y6)		
		1710-1880	1880-2200	2496-2690
Polarization		±45°		
Electrical Downtilt (°)		2-12, Independently continuously adjustable		
Gain (dBi)	at mid tilt	16.7	17.3	18.4
	Over all tilts	16.5±0.6	17.2±0.7	18.3±0.7
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>15
Horizontal 3dB Beam Width (°)		69±7	67±6	58±5
Vertical 3dB Beam Width (°)		6.9±0.6	6.2±0.7	4.7±0.4
Cross-Polar Ratio, 0° (dB)		>17	>21	>21
Front to Back Ratio, ±30° (dB)		>25	>28	>26
VSWR		≤1.5		
Intermodulation IM3 (dBc)		≤-153 (2 × 43 dBm carrier)		
Cross Polar Isolation (dB)		≥25 (R1, R2); ≥27 (Y1, Y6);		
Interband Isolation (dB)		≥25		
Max. power per port (W)		250 (R1, R2); 200 (Y1, Y6)		
Impedance (Ω)		50		
Grounding		DC Grounding		

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

General Electrical Properties

Frequency Range (MHz)		4 × (1710-2690) (Y2, Y3, Y4, Y5)	
		1710-2200	2496-2690
Polarization		±45°	
Electrical Downtilt (°)		2-12, continuously adjustable	
Electrical downtilt tolerance (°)		±1	
Max. power per port (W)		50 (at 50°C ambient temperature)	
Impedance (Ω)		50	
Grounding		DC Grounding	
General parameters	Coupling factor between calibration port and each antenna port (dB)	-26±2	
	Max. amplitude tolerance from calibration port to input ports (dB)	0.9	
	Max. phase tolerance from calibration port to input ports (°)	7	
	VSWR	≤1.5	
	Co-polarization isolation between ports (dB)	≥20	
Calibration and electrical parameters	Co-polarization isolation between ports (dB)	≥20	
	Cross-polarization isolation between ports (dB)	≥23	

FDD LTE Electrical Specifications

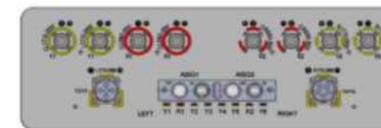
Frequency Range (MHz)		4 × (1710-2690) (Y2, Y3, Y4, Y5)		
		1710-2200	2496-2690	
Radiation parameters	Single column beam	Gain (dBi)	15.0±0.6	15.7±0.6
		Horizontal 3dB Beam Width (°)	95±10	85±10
		Front to Back Ratio (dB)	>25	>25
		Cross-Polar Ratio, 0° (dB)	>17	>17
		Vertical 3dB Beam Width (°)	8.8±0.5	6.6±0.5
		Side lobe suppression for first side lobe above main beam (dB)	>16	>16
NR Broadcast beam	Gain (dBi)	20.2±0.6	20.6±0.6	
	Horizontal 3dB Beam Width (°), Typical	65	65	
	Front to Back Ratio (dB)	>25	>25	
	Vertical 3dB Beam Width (°)	8.8±0.6	6.6±0.7	
Service beam	Gain (dBi)	20.2±0.6	20.6±0.6	
	Horizontal 3dB Beam Width (°)	26	24	
	Front to Back Ratio (dB)	>30	>30	
	Cross-Polar Ratio, 0° (dB)	>20	>20	
	Beam Isolation (dB)	>20	>20	

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (2 in 2 out)	4 × 8 pin (in: Male; out: Female)
Connector	8 × 4.3-10 Female, 1 × (MQ4+MQ5), Bottom
Antenna dimensions (H x W x D) (mm)	2300 × 500 × 160
Packing dimensions (H x W x D) (mm)	2600 × 615 × 290
Antenna weight (kg)	40.1
Clamps weight (kg)	6.8
Diameter of installation pole (mm)	φ50-φ125
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +60
Wind load at 42m/s (N)	1392/ 422/ 1392 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

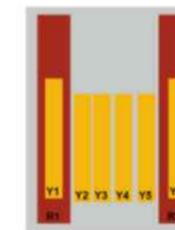
Layout and Pattern

Connector Position:



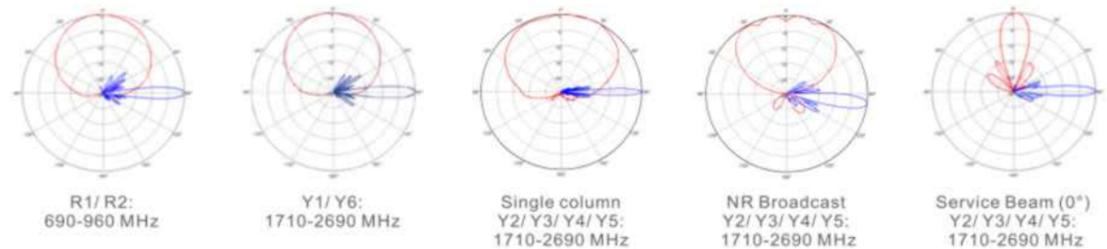
R1/ R2: 690-960 MHz;
 Y1/ Y6: 1710-2690 MHz;
 Y2/ Y3/ Y4/ Y5: 1710-2690 MHz;
 FDD BF PORTS with Cluster Jumpers MQ4/MQ5;

Configuration Types:



RET S/N :
 HXxxx-R1-xx.....
 HXxxx-R2-xx.....
 HXxxx-Y1-xx.....
 HXxxx-Y2-xx.....
 HXxxx-Y3-xx.....
 HXxxx-Y4-xx.....
 HXxxx-Y5-xx.....
 HXxxx-Y6-xx.....

Pattern sample for reference:



FDD+TDD Hybrid Antenna

20-Ports 2L4H+8T8R Antenna

2×690-960/ 4×1710-2690/ 4×2300-2690 MHz

2×65°/ 4×65°/ 4×90° 2×16.4/ 4×18.4/ 4×14 dBi **2.095 m**

E-Tilt: 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)		2 × (690-960) (R1, R2)		
		690-792	792-880	880-960
Polarization		±45°		
Electrical Downtilt (°)		2-12, Independently continuously adjustable		
Gain (dBi)	at mid tilt	15.4	15.9	16.4
	Over all tilts	15.3±0.9	15.8±0.9	16.3±0.9
Side lobe suppression for first side lobe above main beam (dB)		>15	>15	>16
Horizontal 3dB Beam Width (°)		65±5	62±4	63±6
Vertical 3dB Beam Width (°)		11.1±0.9	10±0.9	8.9±0.5
Cross-Polar Ratio, 0° (dB)		>20	>21	>21
Front to Back Ratio, ±30° (dB)		>21	>22	>24
Frequency Range (MHz)		4 × (1710-2690) (Y1, Y2, Y3, Y4)		
		1710-1880	1920-2170	2200-2500
Polarization		±45°		
Electrical Downtilt (°)		2-12, Independently continuously Adjustable		
Gain (dBi)	at mid tilt	17.1	17.5	17.9
	Over all tilts	16.9±0.5	17.4±0.5	17.7±0.5
Side lobe suppression for first side lobe above main beam (dB)		>17	>17	>15
Horizontal 3dB Beam Width (°)		69±6	65±4	62±6
Vertical 3dB Beam Width (°)		7.3±0.5	6.5±0.5	5.5±0.5
Cross-Polar Ratio, 0° (dB)		>18	>21	>21
Front to Back Ratio, ±30° (dB)		>22	>25	>24
VSWR		≤1.5		
Intermodulation IM3 (dBc)		≤-150 (2 × 43 dBm carrier)		
Cross Polar Isolation (dB)		≥25 (R1, R2); ≥27 (Y1, Y2, Y3, Y4)		
Interband Isolation (dB)		≥25		
Max. power per port (W)		250 (R1, R2); 200 (Y1, Y2, Y3, Y4)		
Impedance (Ω)		50		
Grounding		DC Grounding		

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

General Electrical Properties

General parameters	Frequency Range (MHz)	2300-2690 (Y5)
	Polarization	±45°
	Electrical Downtilt (°)	2-12, continuously adjustable
	Electrical downtilt tolerance (°)	±1
	Intermodulation IM3 (dBc)	≤-140
	Max. power per port (W)	40 (at 50°C ambient temperature)
	Impedance (Ω)	50
	Grounding	DC Grounding
Calibration and electrical parameters	Coupling factor between calibration port and each antenna port (dB)	-26±2
	Max. amplitude tolerance from calibration port to input ports (dB)	0.9
	Max. phase tolerance from calibration port to input ports (°)	7
	VSWR	≤1.5
	Co-polarization isolation between ports (dB)	≥20
Cross-polarization isolation between ports (dB)	≥23	

TDD LTE Electrical Specifications

Frequency Range (MHz)		2300-2690 (Y5)
Single column beam	Gain (dBi)	14.0±0.8
	Horizontal 3dB Beam Width (°)	90
	Front to Back Ratio (dB)	>23
	Cross-Polar Ratio, 0° (dB)	>16
	Vertical 3dB Beam Width (°)	8.8±1.1
65° Broadcast beam	Gain (dBi)	14.7±1.0
	Horizontal 3dB Beam Width (°)	65
	Front to Back Ratio (dB)	>23
	Vertical 3dB Beam Width (°)	8.8±1.2
Service beam	0° direction Beam Gain (dBi)	19.1±0.8
	0° direction Beam Horizontal 3dB Beam Width (°)	28
	0° direction Beam Front to Back Ratio (dB)	>28
	0° direction Beam Cross-Polar Ratio (dB)	>19

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (2 in 2 out)	4 × 8 pin (in: Male; out: Female)
Connector	12 × 4.3-10 Female, 1 × MQ4 Male+1 × MQ5 Male Bottom
Antenna dimensions (H x W x D) (mm)	2095 × 500 × 160
Packing dimensions (H x W x D) (mm)	2395 × 615 × 290
Antenna weight (kg)	39.2
Clamps weight (kg)	6.8
Diameter of installation pole (mm)	φ50-φ125
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +70
Wind load at 42m/s (N)	1636/ 392/ 1636 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

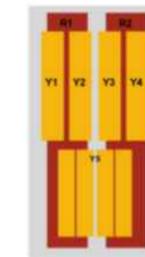
Layout and Pattern

Connector Position:



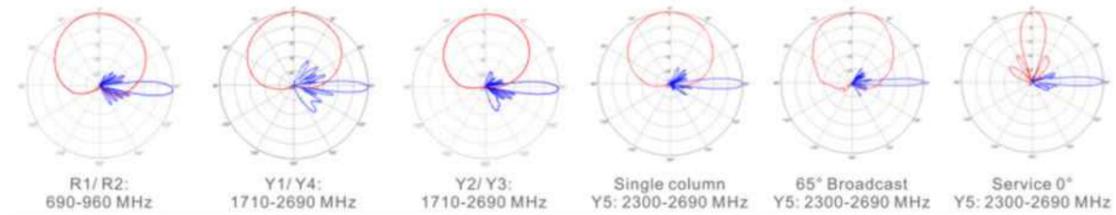
R1/ R2: 690-960 MHz;
Y1/ Y2/ Y3/ Y4: 1710-2690 MHz;
Y5: 2300-2690 MHz;

Configuration Types:



RET S/N :
HXxxx-R1-xx.....;
HXxxx-R2-xx.....;
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;
HXxxx-Y3-xx.....;
HXxxx-Y4-xx.....;
HXxxx-Y5-xx.....;

Pattern sample for reference:



FDD+TDD Hybrid Antenna

20-Ports 2L4H+8T8R Antenna

2×690-960/ 4×1710-2690/ 4×3300-3800 MHz

2×65°/ 4×65°/ 4×70° 2×16.4/ 4×18.4/ 4×15 dBi **2.095 m**

E-Tilt: 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)		2 × (690-960) (R1, R2)			
		690-792	792-880	880-960	
Polarization		±45°			
Electrical Downtilt (°)		2-12, Independently continuously adjustable			
Gain (dBi)	at mid tilt	15.4	15.9	16.4	
	Over all tilts	15.3±0.9	15.8±0.9	16.3±0.9	
Side lobe suppression for first side lobe above main beam (dB)		>15	>15	>16	
Horizontal 3dB Beam Width (°)		65±5	62±4	63±6	
Vertical 3dB Beam Width (°)		11.1±0.9	10±0.9	8.9±0.5	
Cross-Polar Ratio, 0° (dB)		>20	>21	>21	
Front to Back Ratio, ±30° (dB)		>21	>22	>24	
Frequency Range (MHz)		4 × (1710-2690) (Y1, Y2, Y3, Y4)			
		1710-1880	1920-2170	2200-2500	2500-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, Independently continuously Adjustable			
Gain (dBi)	at mid tilt	17.1	17.5	17.9	18.4
	Over all tilts	16.9±0.5	17.4±0.5	17.7±0.5	18.3±0.5
Side lobe suppression for first side lobe above main beam (dB)		>17	>17	>17	>15
Horizontal 3dB Beam Width (°)		69±6	65±4	62±6	57±5
Vertical 3dB Beam Width (°)		7.3±0.5	6.5±0.5	5.5±0.5	5.1±0.3
Cross-Polar Ratio, 0° (dB)		>18	>21	>21	>21
Front to Back Ratio, ±30° (dB)		>22	>25	>24	>24
VSWR		≤1.5			
Intermodulation IM3 (dBc)		≤-150 (2 × 43 dBm carrier)			
Cross Polar Isolation (dB)		≥25 (R1, R2); ≥27 (Y1, Y2, Y3, Y4)			
Interband Isolation (dB)		≥25			
Max. power per port (W)		250 (R1, R2); 200 (Y1, Y2, Y3, Y4)			
Impedance (Ω)		50			
Grounding		DC Grounding			

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

General Electrical Properties

Frequency Range (MHz)		3300-3800 (P1)
Polarization		±45°
Electrical Downtilt (°)		2-12, continuously adjustable
Electrical downtilt tolerance (°)		±1
Intermodulation IM3 (dBc)		≤-140
Max. power per port (W)		40 (at 50°C ambient temperature)
Impedance (Ω)		50
Grounding		DC Grounding
General parameters	Coupling factor between calibration port and each antenna port (dB)	-26±2
	Max. amplitude tolerance from calibration port to input ports (dB)	0.9
	Max. phase tolerance from calibration port to input ports (°)	7
	VSWR	≤1.5
	Co-polarization isolation between ports (dB)	≥21
	Cross-polarization isolation between ports (dB)	≥24

TDD LTE Electrical Specifications

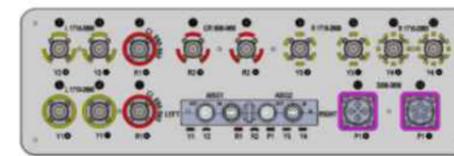
Frequency Range (MHz)		3300-3800 (P1)	
Radiation parameters	Single column beam	Gain (dBi)	15.0±1.1
		Horizontal 3dB Beam Width (°)	70
		Front to Back Ratio (dB)	>22
		Cross-Polar Ratio, 0° (dB)	>17
		Vertical 3dB Beam Width (°)	6±0.7
65° Broadcast beam	65° Broadcast beam	Gain (dBi)	15.7±1.0
		Horizontal 3dB Beam Width (°)	65
		Front to Back Ratio (dB)	>22
		Vertical 3dB Beam Width (°)	6±0.7
		Side lobe suppression for first side lobe above main beam (dB)	>15
Service beam	Service beam	0° direction Beam Gain (dBi)	20.1±1.1
		0° direction Beam Horizontal 3dB Beam Width (°)	20
		0° direction Beam Front to Back Ratio (dB)	>26
		0° direction Beam Cross-Polar Ratio (dB)	>18

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (2 in 2 out)	4 × 8 pin (in: Male; out: Female)
Connector	12 × 4.3-10 Female, 1 × MQ4 Male+1 × MQ5 Male Bottom
Antenna dimensions (H x W x D) (mm)	2095 × 500 × 160
Packing dimensions (H x W x D) (mm)	2395 × 615 × 290
Antenna weight (kg)	39.2
Clamps weight (kg)	6.8
Diameter of installation pole (mm)	φ50-φ125
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +70
Wind load at 42m/s (N)	1636/ 392/ 1636 (Frontal/ Lateral/ Rear)
Max. operational wind speed (km/h)	200

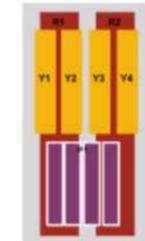
Layout and Pattern

Connector Position:



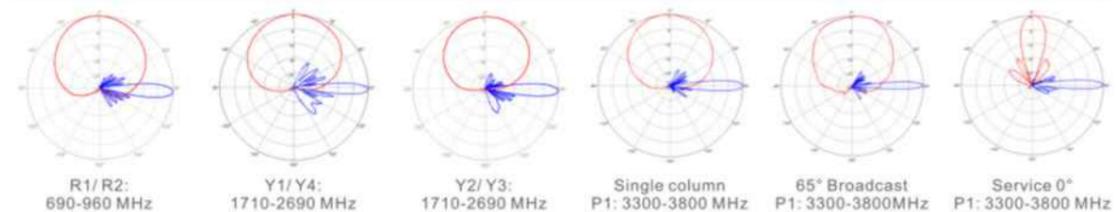
R1/ R2: 690-960 MHz;
Y1/ Y2/ Y3/ Y4: 1710-2690 MHz;
P1: 3300-3800 MHz;

Configuration Types :



RET S/N :
HXxxx-R1-xx.....;
HXxxx-R2-xx.....;
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;
HXxxx-Y3-xx.....;
HXxxx-Y4-xx.....;
HXxxx-P1-xx.....;

Pattern sample for reference:



FDD+TDD Hybrid Antenna

20-Ports 2L4H+8T8R Antenna

2×690-960/ 4×1710-2690/ 4×2300-3800 MHz

2×65°/ 4×65°/ 4×90° 2×16.4/ 4×18.4/ 4×15 dBi **2.095 m**

E-Tilt: 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)		2 × (690-960) (R1, R2)		
		690-792	792-880	880-960
Polarization		±45°		
Electrical Downtilt (°)		2-12, Independently continuously adjustable		
Gain (dBi)	at mid tilt	15.4	15.9	16.4
	Over all tilts	15.3±0.9	15.8±0.9	16.3±0.9
Side lobe suppression for first side lobe above main beam (dB)		>15	>15	>16
Horizontal 3dB Beam Width (°)		65±5	62±4	63±6
Vertical 3dB Beam Width (°)		11.1±0.9	10±0.9	8.9±0.5
Cross-Polar Ratio, 0° (dB)		>20	>21	>21
Front to Back Ratio, ±30° (dB)		>21	>22	>24

Frequency Range (MHz)		4 × (1710-2690) (Y1, Y2, Y3, Y4)			
		1710-1880	1920-2170	2200-2500	2500-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, Independently continuously Adjustable			
Gain (dBi)	at mid tilt	17.1	17.5	17.9	18.4
	Over all tilts	16.9±0.5	17.4±0.5	17.7±0.5	18.3±0.5
Side lobe suppression for first side lobe above main beam (dB)		>17	>17	>17	>15
Horizontal 3dB Beam Width (°)		69±6	65±4	62±6	57±5
Vertical 3dB Beam Width (°)		7.3±0.5	6.5±0.5	5.5±0.5	5.1±0.3
Cross-Polar Ratio, 0° (dB)		>18	>21	>21	>21
Front to Back Ratio, ±30° (dB)		>22	>25	>24	>24

VSWR	≤1.5
Intermodulation IM3 (dBc)	≤-150 (2 × 43 dBm carrier)
Cross Polar Isolation (dB)	≥25 (R1, R2); ≥27 (Y1, Y2, Y3, Y4)
Interband isolation (dB)	≥25
Max. power per port (W)	250 (R1, R2); 200 (Y1, Y2, Y3, Y4)
Impedance (Ω)	50
Grounding	DC Grounding

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

General Electrical Properties

General parameters	Frequency Range (MHz)	2300-3800 (P1)	
		2300-2690	3300-3800
Polarization		±45°	
Electrical Downtilt (°)		2-12, continuously adjustable	
Electrical downtilt tolerance (°)		±1	
Intermodulation IM3 (dBc)		≤-140	≤-140
Max. power per port (W)		40 (at 50°C ambient temperature)	
Impedance (Ω)		50	
Grounding		DC Grounding	
Calibration and electrical parameters	Coupling factor between calibration port and each antenna port (dB)	-26±2	-26±2
	Max. amplitude tolerance from calibration port to input ports (dB)	0.9	0.9
	Max. phase tolerance from calibration port to input ports (°)	7	7
	VSWR	≤1.5	≤1.5
	Co-polarization isolation between ports (dB)	≥20	≥21
	Cross-polarization isolation between ports (dB)	≥23	≥24

TDD LTE Electrical Specifications

	Frequency Range (MHz)	2300-3800 (P1)		
		2300-2690	3300-3800	
Radiation parameters	Single column beam	Gain (dBi)	14.0±0.8	15.0±1.1
		Horizontal 3dB Beam Width (°)	90	70
		Front to Back Ratio (dB)	>23	>22
		Cross-Polar Ratio, 0° (dB)	>16	>17
		Vertical 3dB Beam Width (°)	8.8±1.1	6±0.7
		Side lobe suppression for first side lobe above main beam (dB)	>15	>15
65° Broadcast beam	Gain (dBi)	14.7±1.0	15.7±1.0	
	Horizontal 3dB Beam Width (°)	65	65	
	Front to Back Ratio (dB)	>23	>22	
	Vertical 3dB Beam Width (°)	8.8±1.2	6±0.7	
Service beam	Side lobe suppression for first side lobe above main beam (dB)	>15	>15	
	0° direction Beam Gain (dBi)	19.1±0.8	20.1±1.1	
	0° direction Beam Horizontal 3dB Beam Width (°)	28	20	
	0° direction Beam Front to Back Ratio (dB)	>28	>26	
		0° direction Beam Cross-Polar Ratio (dB)	>19	>18

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (2 in 2 out)	4 × 8 pin (in: Male; out: Female)
Connector	12 × 4.3-10 Female, 1 × MQ4 Male+1 × MQ5 Male Bottom
Antenna dimensions (H x W x D) (mm)	2095 × 500 × 160
Packing dimensions (H x W x D) (mm)	2395 × 615 × 290
Antenna weight (kg)	39.2
Clamps weight (kg)	6.8
Diameter of installation pole (mm)	φ50-φ125
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +70
Wind load at 42m/s (N)	1636/ 392/ 1636 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

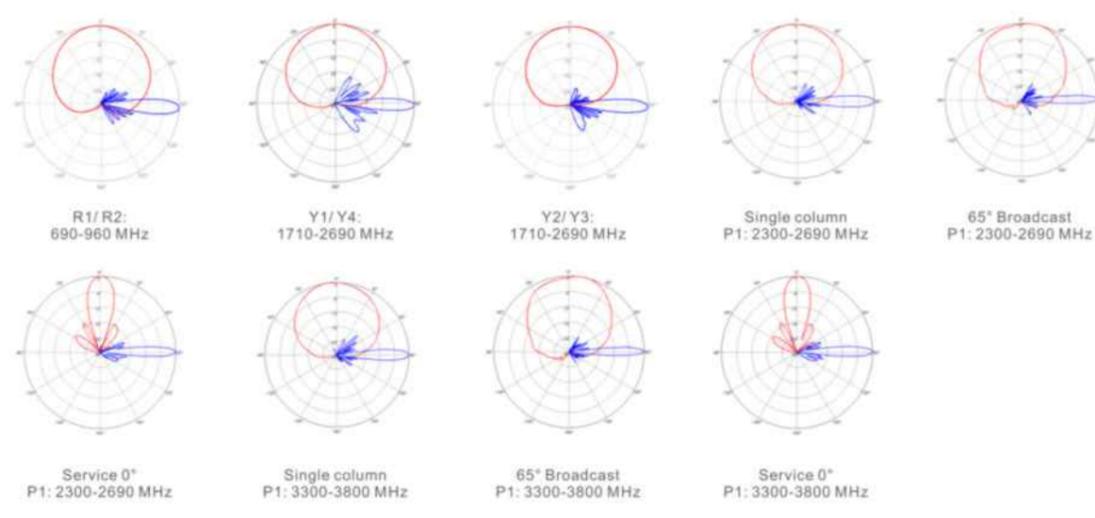
Connector Position:

R1/ R2: 690-960 MHz;
Y1/ Y2/ Y3/ Y4: 1710-2690 MHz;
P1: 2300-3800 MHz;

Configuration Types:

RET S/N :
HXxxx-R1-xx.....;
HXxxx-R2-xx.....;
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;
HXxxx-Y3-xx.....;
HXxxx-Y4-xx.....;
HXxxx-P1-xx.....;

Pattern sample for reference:



FDD+TDD Hybrid Antenna

20-Ports 2L+8T8R FDD beamforming+ 8T8R TDD Antenna

FDD beamforming side by side solution
 2×690-960/ 4×1710-2170/ 4×2300-2690 MHz
 2×65°/ 4×90°/ 4×90° 2x15/ 2x15/ 4x16 dBi **2.1m**
 E-Tilt: 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)	2 × (690-960) (R1, R2)	
		703-803
Polarization	±45°	
Electrical Downtilt (°)	2-12, Independently continuously adjustable	
Gain (dBi)	at mid tilt	14.8
	Over all tilts	14.7±0.6
Side lobe suppression for first side lobe above main beam (dB)	>15	>15
Horizontal 3dB Beam Width (°)	65±7	58±7
Vertical 3dB Beam Width (°)	11.5±0.8	9.3±0.7
Cross-Polar Ratio, 0° (dB)	>18	>18
Front to Back Ratio, ±30° (dB)	>21	>22
VSWR	≤1.5	
Intermodulation IM3 (dBc)	≤-150 (2 × 43 dBm carrier)	
Cross Polar Isolation (dB)	≥25 (R1, R2);	
Interband isolation (dB)	≥25	
Max. power per port (W)	250 (R1, R2);	
Impedance (Ω)	50	
Grounding	DC Grounding	

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

General Electrical Properties

General parameters	Frequency Range (MHz)	4 × (1710-2170) (B1, B2, B3, B4)
		1710-2170
	Polarization	±45°
	Electrical Downtilt (°)	2-12, continuously adjustable
	Electrical downtilt tolerance (°)	±1
	Max. power per port (W)	50 (at 50°C ambient temperature)
	Impedance (Ω)	50
	Grounding	DC Grounding
Calibration and electrical parameters	Coupling factor between calibration port and each antenna port (dB)	-26±2
	Max. amplitude tolerance from calibration port to input ports (dB)	0.9
	Max. phase tolerance from calibration port to input ports (°)	8
	VSWR	≤1.5
	Co-polarization isolation between ports (dB)	≥20
	Cross-polarization isolation between ports (dB)	≥23

Electrical Specifications

Radiation parameters	Single column beam	Frequency Range (MHz)	4 × (1710-2170) (B1, B2, B3, B4)
			1710-2170
		Gain (dBi)	15.0±0.6
		Horizontal 3dB Beam Width (°)	90±10
		Front to Back Ratio (dB)	>25
		Cross-Polar Ratio, 0° (dB)	>17
		Vertical 3dB Beam Width (°)	9.7±0.5
		Side lobe suppression for first side lobe above main beam (dB)	>16

Radiation parameters	NR Broadcast beam	Gain (dBi)	20.2±0.6
		Horizontal 3dB Beam Width (°)	65
		Front to Back Ratio (dB)	>25
		Vertical 3dB Beam Width (°)	9.7±0.6
		Side lobe suppression for first side lobe above main beam (dB)	>15
	Service beam	Gain (dBi)	20.2±0.6
		Horizontal 3dB Beam Width (°)	26
		Front to back ratio (dB)	>30
		Cross-Polar Ratio, 0° (dB)	>20
		Beam Isolation (dB)	>20
	Soft split multi-beam	Gain (dBi)	19.2±0.6
		Horizontal 3dB Beam Width (°)	30
Front to Back Ratio (dB)		>30	
		Cross-Polar Ratio, 0° (dB)	>20

General Electrical Properties

General parameters	Frequency Range (MHz)	2300-2690 (Y1)
	Polarization	2300-2690
	Electrical Downtilt (°)	±45°
	Electrical downtilt tolerance (°)	2-12, continuously adjustable
	Max. power per port (W)	±1
	Impedance (Ω)	50 (at 50°C ambient temperature)
	Grounding	50
Calibration and electrical parameters	Coupling factor between calibration port and each antenna port (dB)	DC Grounding
	Max. amplitude tolerance from calibration port to input ports (dB)	-26±2
	Max. phase tolerance from calibration port to input ports (°)	0.9
	VSWR	7
	Co-polarization isolation between ports (dB)	≤1.5
	Cross-polarization isolation between ports (dB)	≥20
		≥23

TDD LTE Electrical Specifications

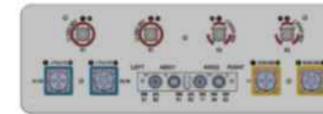
Radiation parameters	Single column beam	Frequency Range (MHz)	2300-2690
		Gain (dBi)	16.0±0.6
		Horizontal 3dB Beam Width (°)	90±10
		Front to Back Ratio (dB)	>24
		Cross-Polar Ratio, 0° (dB)	>16.0
		Vertical 3dB Beam Width (°)	6.2±0.6
	65° Broadcast beam	Gain (dBi)	17.2±0.8
		Horizontal 3dB Beam Width (°)	>16
		Front to Back Ratio (dB)	65±15
		Vertical 3dB Beam Width (°)	>25
	Service beam	0° direction Beam Gain (dBi)	6.0±0.6
		0° direction Beam Horizontal 3dB Beam Width (°)	>15
		Front to back ratio (dB)	21.0±0.6
		0° direction Beam Cross-Polar Ratio (dB)	26
	Soft split multi-beam	Gain (dBi)	>30
		Horizontal 3dB Beam Width (°)	>18
		Front to Back Ratio (dB)	19.2±0.6
		Cross-Polar Ratio, 0° (dB)	30

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (2 in 2 out)	4 × 8 pin (in: Male; out: Female)
Connector	4 × 4.3-10 Female, 2 × (MQ4+MQ5), Bottom
Passive Antenna dimensions (H x W x D) (mm)	2100 × 469 × 185
Packing dimensions (H x W x D) (mm)	2400 × 585 × 320
Antenna weight (kg)	38
Clamps weight (kg)	6.8
Diameter of installation pole (mm)	φ50-φ125
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +70
Wind load at 42m/s (N)	1186/ 461/ 1186 (Frontal/ Lateral/ Rearal)
EOS/EUL	5 / 10 years
Max. operational wind speed (km/h)	200

Layout and Pattern

Connector Position:



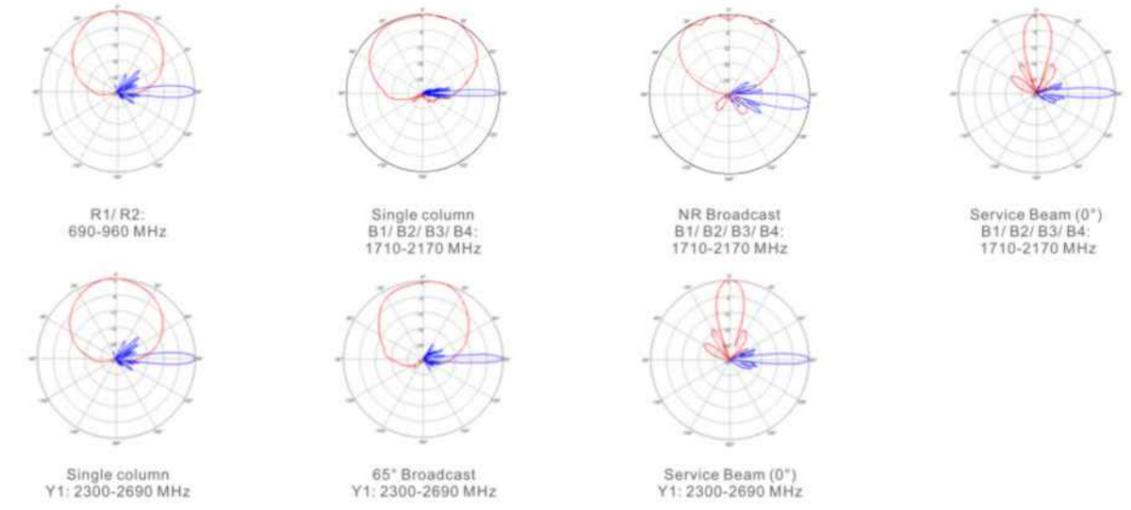
R1/ R2: 690-960 MHz;
 FDD BF PORTS with Cluster Jumpers MQ4/MQ5;
 B1/ B2/ B3/ B4: 1710-2170 MHz;
 TDD BF PORTS with Cluster Jumpers MQ4/MQ5;
 Y1: 2300-2690 MHz;

Configuration Types:



RET S/N :
 HXxxx-R1-xx.....;
 HXxxx-R2-xx.....;
 HXxxx-B1-xx.....;
 HXxxx-B2-xx.....;
 HXxxx-B3-xx.....;
 HXxxx-B4-xx.....;
 HXxxx-Y1-xx.....;

Pattern sample for reference:



FDD+TDD Hybrid Antenna

28-Ports 2L4H + 2 × 8T8R TDD Antenna

2×690-960/ 4×1710-2690/ 4×2300-2690/ 4×3300-3800 MHz

2×65°/ 4×65°/ 4×90°/ 4×75° 2×16.6/ 4×18.3/ 4×15/ 4×16.5 dBi **2.6m**

E-Tilt: 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)		2 × (690-960) (R1, R2)			
		690-792	792-880	880-960	
Polarization		±45°			
Electrical Downtilt (°)		2-12, Independently continuously adjustable			
Gain (dBi)	at mid tilt	15.9	16.2	16.6	
	Over all tilts	15.8±0.8	16.1±0.8	16.5±0.8	
Side lobe suppression for first side lobe above main beam (dB)		>15	>15	>15	
Horizontal 3dB Beam Width (°)		70±8	65±8	65±8	
Vertical 3dB Beam Width (°)		9.1±0.7	8.0±0.6	7.4±0.6	
Cross-Polar Ratio, 0° (dB)		>18	>18	>18	
Front to Back Ratio, ±30° (dB)		>21	>22	>22	
Frequency Range (MHz)		4 × (1710-2690) (Y1, Y2, Y3, Y4)			
		1710-1880	1920-2170	2200-2500	2500-2690
Polarization		±45°			
Electrical Downtilt (°)		2-12, Independently continuously adjustable			
Gain (dBi)	at mid tilt	16.6	17.1	17.6	18.3
	Over all tilts	16.5±0.8	17.0±0.8	17.5±0.8	18.2±0.9
Side lobe suppression for first side lobe above main beam (dB)		>16	>16	>16	>15
Horizontal 3dB Beam Width (°)		67±8	65±8	58±8	53±8
Vertical 3dB Beam Width (°)		7.2±0.6	6.6±0.8	5.5±0.6	5.1±0.5
Cross-Polar Ratio, 0° (dB)		>18	>18	>18	>18
Front to Back Ratio, ±30° (dB)		>22	>25	>24	>24
VSWR		≤1.5			
Intermodulation IM3 (dBc)		≤ -150 (2 x 43 dBm carrier)			
Cross Polar Isolation (dB)		≥25 (R1, R2); ≥27 (Y1, Y2, Y3, Y4);			
Interband isolation (dB)		≥25			
Max. power per port (W)		250 (R1, R2); 200 (Y1, Y2, Y3, Y4)			
Impedance (Ω)		50			
Grounding		DC Grounding			
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)					

General Electrical Properties

Frequency Range (MHz)		2300-2690 (Y5)	3300-3800 (P1)
Polarization		±45°	
Electrical Downtilt (°)		2-12, continuously adjustable	
Electrical downtilt tolerance (°)		±1	
Max. power per port (W)		50 (at 50°C ambient temperature)	
Impedance (Ω)		50	
Grounding		DC Grounding	

Calibration and electrical parameters	Coupling factor between calibration port and each antenna port (dB)	-26±2	-26±2
	Max. amplitude tolerance from calibration port to input ports (dB)	0.8	0.9
	Max. phase tolerance from calibration port to input ports (°)	6	7
	VSWR	≤1.5	≤1.5
	Co-polarization isolation between ports (dB)	≥20	≥20
	Cross-polarization isolation between ports (dB)	≥23	≥23

TDD LTE Electrical Specifications

Frequency Range (MHz)		2300-2690 (Y5)	3300-3800 (P1)
Single column beam	Gain (dBi)	15.0±1	16.5±1
	Horizontal 3dB Beam Width (°)	90±15	75±15
	Front to Back Ratio (dB)	>24	>23
	Cross-Polar Ratio, 0° (dB)	>16	>16
	Vertical 3dB Beam Width (°)	8.3±0.8	5.8±0.6
	Side lobe suppression for first side lobe above main beam (dB)	>16	>16
65° Broadcast beam	Gain (dBi)	16.0±0.8	17.0±1
	Horizontal 3dB Beam Width (°)	63±9	58±15
	Front to Back Ratio (dB)	>25	>23
	Vertical 3dB Beam Width (°)	8.4±0.8	5.9±0.6
	Side lobe suppression for first side lobe above main beam (dB)	>16	>16
Service beam	0° direction Beam Gain (dBi)	20.0±0.8	21.0±1
	0° direction Beam Horizontal 3dB Beam Width (°)	26	20
	0° direction Beam Front to Back Ratio, ±30° (dB)	>29	>28
	0° direction Beam Cross-Polar Ratio, 0° (dB)	>18	>18

5G NR Electrical Specifications

Frequency Range (MHz)		2300-2690 (Y5)	3300-3800 (P1)
Single column beam	Gain (dBi)	15.0±1	16.5±1
	Horizontal 3dB Beam Width (°)	90±15	75±15
	Front to Back Ratio (dB)	>24	>23
	Cross-Polar Ratio, 0° (dB)	>16	>12
	Vertical 3dB Beam Width (°)	8.3±0.8	5.8±0.6
	Side lobe suppression for first side lobe above main beam (dB)	>18	>18
NR Broadcast beam	Gain (dBi)	19.9±0.8	21.7±0.8
	Horizontal 3dB Beam Width (°)	65	65
	Front to Back Ratio (dB)	>25	>25
	Vertical 3dB Beam Width (°)	8.4±0.8	5.9±0.6
	Side lobe suppression for first side lobe above main beam (dB)	>16	>16
NR Service beam	0° direction Beam Gain (dBi)	20.0±0.8	21.0±1
	0° direction Beam Horizontal 3dB Beam Width (°)	26	20
	0° direction Beam Front to Back Ratio, ±30° (dB)	>29	>28
	0° direction Beam Cross-Polar Ratio, 0° (dB)	>18	>18

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (2 in 2 out)	4 × 8 pin (in: Male; out: Female)
Connector	12 × 4.3-10 Female, 2 × (MQ4+MQ5), Bottom
Antenna dimensions (H x W x D) (mm)	2600 × 495 × 185
Packing dimensions (H x W x D) (mm)	2900 × 610 × 310
Antenna weight (kg)	48.5
Clamps weight (kg)	6.8
Diameter of installation pole (mm)	φ50-φ125
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +60
Wind load at 42m/s (N)	1676/ 584/ 1671 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

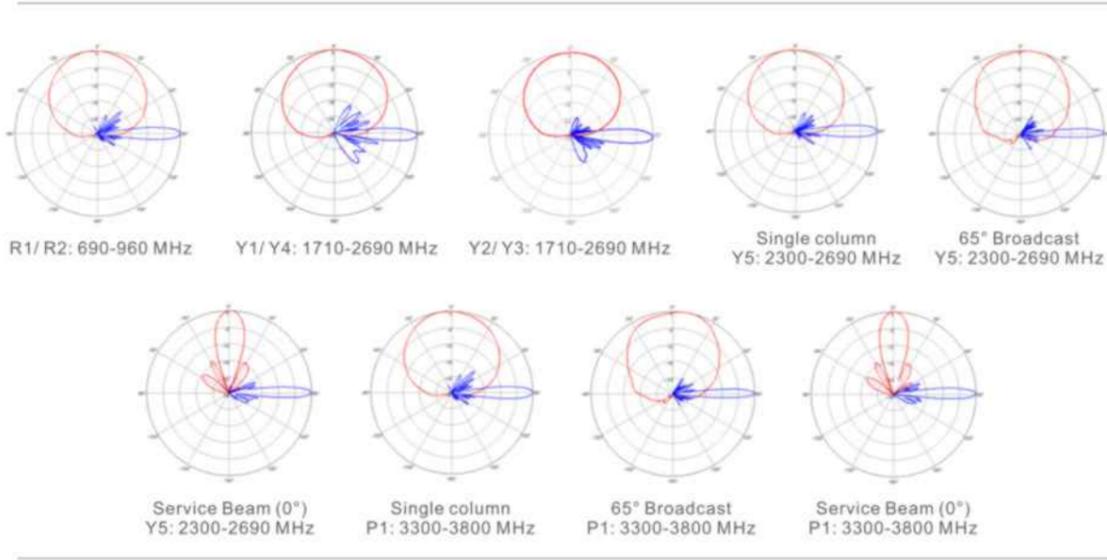
Connector Position:

R1/ R2: 690-960 MHz;
Y1/ Y2/ Y3/ Y4: 1710-2690 MHz;
Y5: 2300-2690 MHz;
P1: 3300-3800 MHz;

Configuration Types:

RET S/N :
HXxxx-R1-xx.....;
HXxxx-R2-xx.....;
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;
HXxxx-Y3-xx.....;
HXxxx-Y4-xx.....;
HXxxx-Y5-xx.....;
HXxxx-P1-xx.....;

Pattern sample for reference:



4-Ports Twin Beam Antenna

2×698-960 MHz

2×33° 2×17.8 dBi **2m**

E-Tilt: 0-10/ 0-10, Integrated RCU

Electrical Specifications

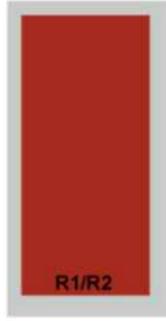
Frequency Range (MHz)	2 × (698-960) (R1, R2)			
	698-806	806-880	880-960	
Polarization	±45°			
Electrical Downtilt (°)	0-10, Independently continuously adjustable			
Gain (dBi)	at mid tilt	16.5	17.6	17.8
	Over all tilts	16.4±0.8	17.5±0.8	17.7±0.8
Side lobe suppression for first side lobe above main beam (dB)	>16	>16	>17	
Horizontal 3dB Beam Width (°)	41±2.5	38±2.0	35±2.0	
Horizontal Beam Pointing (°)	±31	±28	±26	
Vertical 3dB Beam Width (°)	11.8±1.2	10.2±0.8	9.3±0.9	
Front to Back Ratio, ±30° (dB)	>23	>26	>26	
Cross-Polar Ratio, 0° (dB)	>16	>16	>16	
VSWR	≤1.5			
Intermodulation IM3 (dBc)	≤-150 (2 x 43 dBm carrier)			
Beam to beam isolation (dB)	≥16			
Cross Polar isolation (dB)	≥25			
Interband isolation (dB)	≥25			
Max. power per port (W)	300			
Impedance (Ω)	50			
Grounding	DC Grounding			

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

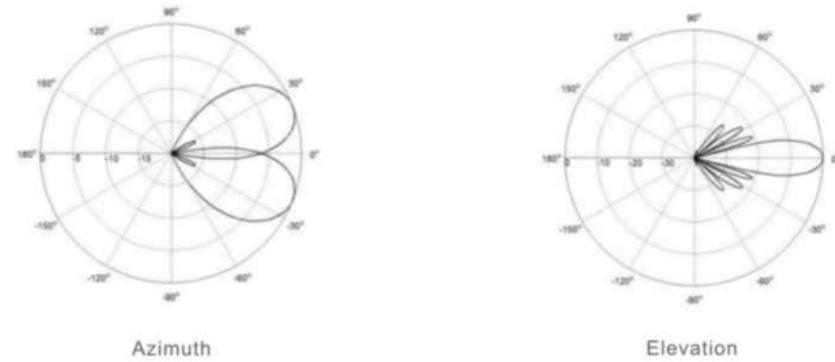
Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
Connector	4 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	2000 x 598 x 169
Packing dimensions (H x W x D) (mm)	2260 × 680 × 260
Antenna weight (kg)	30.5
Clamps weight (kg)	5.9
Diameter of installation pole (mm)	φ50-φ115
Radome material	Fiberglass
Operational temperature (°C)	-40 to +70
Wind load at 42m/s (N)	1430/ 162/ 1494 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

<p>Connector Position:</p>  <p>R1/ R2: 698-960 MHz;</p>	<p>Configuration Types:</p>  <p>RET S/N: HXxxx-R1-xx.....; HXxxx-R2-xx.....;</p>
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Pattern sample for reference:



698-960 MHz

4-Ports 2H Twin Beam Antenna

2×1710-2690 MHz

2×32° 2×20 dBi **1.4m**

E-Tilt: 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)	2 × (1710-2690) (Y1, Y2)				
	1710-1990	1920-2200	2300-2400	2490-2690	
Polarization	±45°				
Electrical Downtilt (°)	2-12, Independently continuously adjustable				
Gain (dBi)	at mid tilt	19.2	19.6	19.8	20.0
	Over all tilts	19.2±0.6	19.6±0.6	19.8±0.8	20.0±0.8
Side lobe suppression for first side lobe above main beam (dB)	>16	>16	>16	>16	
Horizontal 3dB Beam Width (°)	39±8	37±3	34±3	32±3	
Vertical 3dB Beam Width (°)	7.6±0.6	6.7±0.7	5.8±0.5	5.4±0.5	
Cross-Polar Ratio, 0° (dB)	>18	>18	>18	>18	
Front to Back Ratio, ±30° (dB)	>25	>25	>25	>25	
VSWR	≤1.5				
Intermodulation IM3 (dBc)	≤-153 (2 x 43 dBm carrier)				
Beam to Beam isolation (dB)	≥16				
Cross Polar isolation (dB)	≥28				
Inter-band isolation (dB)	≥28				
Max. power per port (W)	200				
Impedance (Ω)	50				
Grounding	DC Grounding				

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 × 8 pin (in: Male; out: Female)
Connector	4 × 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	1400 × 400 × 150
Packing dimensions (H x W x D) (mm)	1615 × 490 × 255
Antenna weight (kg)	18
Clamps weight (kg)	4.8
Diameter of installation pole (mm)	φ50-φ114
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-50 to +65
Wind load at 42m/s (N)	675/ 169/ 754 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

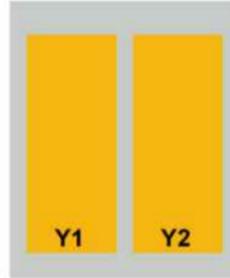
Layout and Pattern

Connector Position:



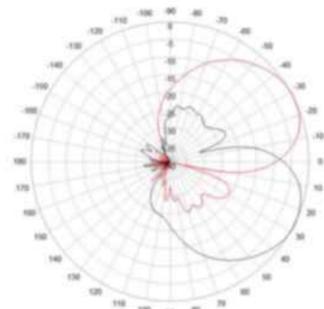
Y1/ Y2: 1710-2690 MHz;

Configuration Types:

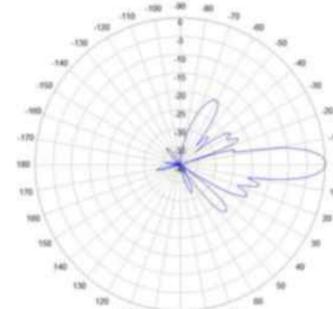


RET S/N:
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;

Pattern sample for reference:



Azimuth



Elevation

1710-2690 MHz

8-Ports 4H Twin Beam Antenna

2×1695-2690/ 2×1695-2690 MHz

2×32°/ 2×32° 2×19.1/ 2×18.3 dBi **2.2m**

E-Tilt: 2-12°/ 2-12°/ 2-12°/ 2-12°, Integrated RCU

Electrical Specifications

Frequency Range (MHz)	2 x (1695–2690) (Y1, Y3) (Dual-beam)			
	1695-1920	1920-2300	2300-2690	
Polarization	±45°			
Electrical Downtilt (°)	2-12, continuously adjustable			
Gain (dBi)	at mid tilt	18.3	18.9	19.1
	Over all tilts	18.2±0.7	18.8±0.8	19.0±1.0
Side lobe suppression for first side lobe above main beam (dB)	>16	>16	>16	
Horizontal 3dB Beam Width (°)	43±6	36±6	31±6	
Vertical 3dB Beam Width (°)	8.7±0.8	7.8±0.6	6.6±0.4	
Cross-Polar Ratio, 0° (dB)	>18	>18	>18	
Front to Back Ratio, ±30° (dB)	>23	>23	>23	

Frequency Range (MHz)	2 x (1695–2690) (Y2, Y4) (Dual-beam)			
	1695-1920	1920-2300	2300-2690	
Polarization	±45°			
Electrical Downtilt (°)	2-12, continuously adjustable			
Gain (dBi)	at mid tilt	17.6	18.2	18.3
	Over all tilts	17.5±0.7	18.1±0.8	18.2±0.9
Side lobe suppression for first side lobe above main beam (dB)	>16	>16	>16	
Horizontal 3dB Beam Width (°)	42±6	36±6	32±6	
Vertical 3dB Beam Width (°)	8.7±0.8	7.8±0.6	6.3±0.4	
Cross-Polar Ratio, 0° (dB)	>18	>18	>18	
Front to Back Ratio, ±30° (dB)	>23	>23	>23	

VSWR	≤1.5
Intermodulation IM3 (dBc)	≤-153 (2 × 43 dBm carrier)
Beam to Beam isolation (dB)	≥16
Cross Polar isolation (dB)	≥28
Interband isolation (dB)	≥28
Max. power per port (W)	200
Impedance (Ω)	50
Grounding	DC Grounding

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 x 8 pin (in: Male; out: Female)
Connector	8 x 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	2200 x 400 x 150
Packing dimensions (H x W x D) (mm)	2415 x 490 x 255
Antenna weight (kg)	29
Clamps weight (kg)	4.8
Diameter of installation pole (mm)	φ110-φ180
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-50 to +60
Wind load at 42m/s (N)	1207/ 477/ 1271 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

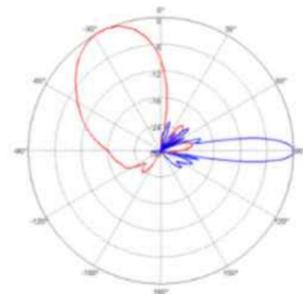
Connector Position:

Y1/ Y3: 1695-2690 MHz;
Y2/ Y4: 1695-2690 MHz;

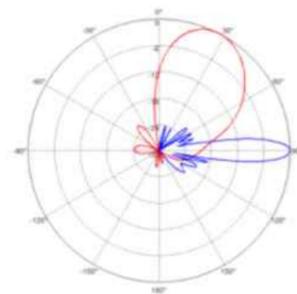
Configuration Types:

RET S/N:
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;
HXxxx-Y3-xx.....;
HXxxx-Y4-xx.....;

Pattern sample for reference:



L-beam: 1695-2690 MHz



R-beam: 1695-2690 MHz

12-Ports 2L4H Multibeam Antenna

2×698-960/ 2×1710-2690/ 2×1710-2690 MHz
 2×65°/ 2×32°/ 2×32° 2×15.6/ 2×18.7/ 2×18.5 dBi **2.695m**
 E-Tilt:2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12, Integrated RCU

Electrical Specifications

Frequency Range (MHz)	2 x (698-960) (R1, R2)			
	698-806	806-880	880-960	
Polarization	±45°			
Electrical Downtilt (°)	2-12, Independently continuously adjustable			
Gain (dBi)	at mid tilt	15.4	15.4	15.6
	Over all tilts	15.3±0.6	15.3±0.6	15.5±0.6
Side lobe suppression for first side lobe above main beam (dB)	>16	>16	>16	
Horizontal 3dB Beam Width (°)	65±5	64±5	62±7	
Vertical 3dB Beam Width (°)	8.0±0.7	7.0±0.6	6.5±0.6	
Cross-Polar Ratio, 0° (dB)	>15	>15	>15	
Front to Back Ratio, ±30° (dB)	>24	>24	>24	

Frequency Range (MHz)	2 x (1710-2690) (Y1, Y2) (Dual beam)				
	1710-1880	1880-2170	2300-2490	2490-2690	
Polarization	±45°				
Electrical Downtilt (°)	2-12, Independently continuously adjustable				
Gain (dBi)	at mid tilt	17.1	19.0	19.3	18.7
	Over all tilts	17.0±0.9	18.9±0.9	19.2±0.9	18.6±0.9
Side lobe suppression for first side lobe above main beam (dB)	>16	>16	>16	>16	
Horizontal 3dB Beam Width (°)	34±5	29±5	28±5	27±5	
Vertical 3dB Beam Width (°)	7.1±0.6	6.3±0.6	5.4±0.6	4.9±0.6	
Cross-Polar Ratio, 0° (dB)	>15	>15	>15	>15	
Front to Back Ratio, ±30° (dB)	>24	>24	>24	>24	

Frequency Range (MHz)	2 x (1710-2690) (Y3, Y4) (Dual beam)				
	1710-1880	1880-2170	2300-2490	2490-2690	
Polarization	±45°				
Electrical Downtilt (°)	2-12, Independently continuously adjustable				
Gain (dBi)	at mid tilt	16.8	19.6	19.0	18.5
	Over all tilts	16.7±0.9	18.5±0.9	18.9±0.6	18.4±0.9
Side lobe suppression for first side lobe above main beam (dB)	>16	>16	>16	>16	
Horizontal 3dB Beam Width (°)	33±5	29±5	29±5	27±5	
Vertical 3dB Beam Width (°)	7.0±0.6	6.3±0.5	5.5±0.5	4.9±0.5	
Cross-Polar Ratio, 0° (dB)	>15	>15	>15	>15	
Front to Back Ratio, ±30° (dB)	>24	>24	>24	>24	

VSWR	≤1.5
Intermodulation IM3 (dBc)	≤-150 (2 x 43 dBm carrier)
Beam to Beam isolation (dB)	≥16
Cross Polar Isolation (dB)	≥25 (R1, R2); ≥22 (Y1, Y2, Y3, Y4)
Interband isolation (dB)	≥25
Max. power per port (W)	250 (R1, R2); 200 (Y1, Y2, Y3, Y4)
Impedance (Ω)	50
Grounding	DC Grounding

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 x 8 pin (in: Male; out: Female)
Connector	12 x 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	2695 x 498 x 197
Packing dimensions (H x W x D) (mm)	2915 x 580 x 285
Antenna weight (kg)	47.5
Clamps weight (kg)	5.7
Diameter of installation pole (mm)	φ70-φ115
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +60
Wind load at 42m/s (N)	1763/ 324/ 1788 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

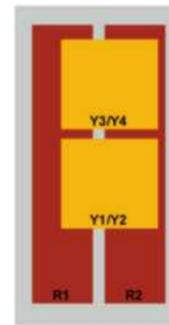
Layout and Pattern

Connector Position:



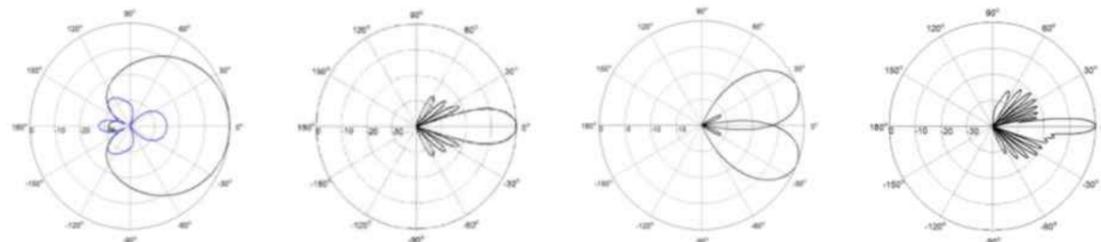
R1/ R2: 698-960 MHz;
Y1/ Y2: 1710-2690 MHz;
Y3/ Y4: 1710-2690 MHz;

Configuration Types:



RET S/N :
HXxxx-R1-xx.....;
HXxxx-R2-xx.....;
HXxxx-Y1-xx.....;
HXxxx-Y2-xx.....;
HXxxx-Y3-xx.....;
HXxxx-Y4-xx.....;

Pattern sample for reference:



Horizontal (698-960 MHz)

Vertical (698-960 MHz)

Horizontal (1710-2690 MHz, Dual beam)

Vertical (1710-2690 MHz, Dual beam)

12-Ports Triple Beam Antenna

3×2×1710-2690 MHz

18°/ 18°/ 18° 19.8/ 21.1/ 19.8 dBi **1.2m**

E-Tilt: 2-12/ 2-12/ 2-12/ 2-12/ 2-12/ 2-12

Electrical Specifications

Frequency Range (MHz)		Beam 1 (Port 1/ 2, Port 7/ 8, Left)			
		1710-2690 (Y1, Y4)			
		1710-2170	2300-2500	2500-2690	
Polarization		±45°			
Electrical Downtilt (°)		2-12, continuously adjustable			
Gain (dBi)	Bottom	at mid Tilt	18.6	19.7	19.8
		over all Tilts	18.5±0.9	19.6±0.8	19.7±0.8
Gain (dBi)	Top	at mid Tilt	18.4	19.4	19.4
		over all Tilts	18.3±0.9	19.3±0.8	19.3±0.8
Side lobe suppression for first side lobe above main beam (dB)		>15	>15	>15	
Horizontal 3dB Beam Width (°)		27±4	21±2	18±2	
Vertical 3dB Beam Width (°)		8±1.2	6.5±0.8	6.1±0.9	
Cross-Polar Ratio, 0° (dB)		>15	>15	>15	
Front to Back Ratio, ±30° (dB)		>25	>25	>25	

Frequency Range (MHz)		Beam 2 (Port 3/ 4, Port 9/ 10, Middle)			
		1710-2690 (Y2, Y5)			
		1710-2170	2300-2500	2500-2690	
Polarization		±45°			
Electrical Downtilt (°)		2-12, continuously adjustable			
Gain (dBi)	Bottom	at mid Tilt	20.4	21.0	21.1
		over all Tilts	20.3±0.7	20.9±0.8	20.9±0.9
Gain (dBi)	Top	at mid Tilt	20.1	20.7	20.6
		over all Tilts	20.0±0.7	20.6±0.7	20.5±0.9
Side lobe suppression for first side lobe above main beam (dB)		>15	>15	>15	
Horizontal 3dB Beam Width (°)		22±4	18±1.5	17±1	
Vertical 3dB Beam Width (°)		8±1.2	6.5±0.7	6.0±0.7	
Cross-Polar Ratio, 0° (dB)		>15	>15	>15	
Front to Back Ratio, ±30° (dB)		>25	>25	>25	

Frequency Range (MHz)		Beam 3 (Port 5/ 6, Port 11/ 12, Right)			
		1710-2690 (Y3, Y6)			
		1710-2170	2300-2500	2500-2690	
Polarization		±45°			
Electrical Downtilt (°)		2-12, continuously adjustable			
Gain (dBi)	Bottom	at mid Tilt	18.7	19.7	19.8
		over all Tilts	18.6±0.9	19.6±0.8	19.6±0.8
Gain (dBi)	Top	at mid Tilt	18.3	19.4	19.4
		over all Tilts	18.2±0.9	19.3±0.8	19.3±0.8
Side lobe suppression for first side lobe above main beam (dB)		>15	>15	>15	
Horizontal 3dB Beam Width (°)		27±4	20±2	18±2	
Vertical 3dB Beam Width (°)		8±1.1	6.5±0.7	6.1±0.7	
Cross-Polar Ratio, 0° (dB)		>15	>15	>15	
Front to Back Ratio, ±30° (dB)		>25	>25	>25	

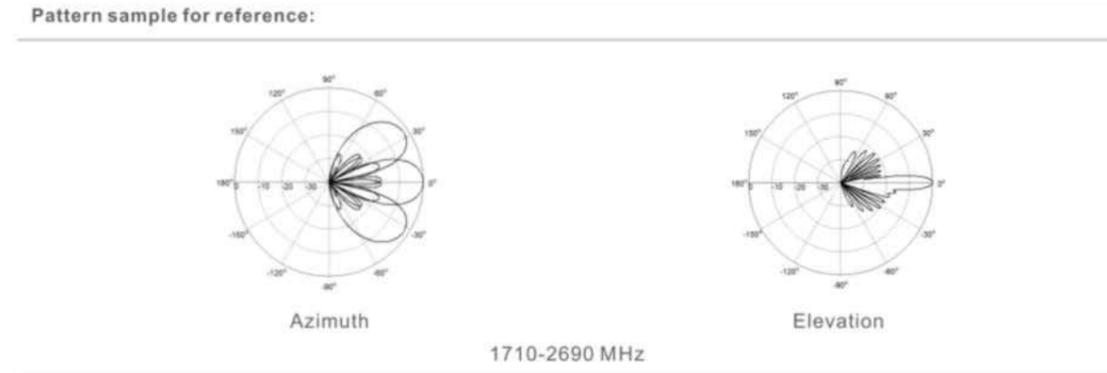
VSWR	≤1.5
Intermodulation IM3 (dBc)	≤-150 (2 x 43 dBm carrier)
Cross Polar Isolation (dB)	≥25
Beam to Beam Isolation (dB)	≥16
Max. power per port (W)	200
Impedance (Ω)	50
Grounding	DC Grounding

Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications	
RET type	Integrated RET (AISG2.0/3GPP)
AISG Connectors (1 in 1 out)	2 x 8 pin (in: Male; out: Female)
Connector	6 x 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	1200 x 448 x 200
Packing dimensions (H x W x D) (mm)	1460 x 535 x 290
Antenna weight (kg)	23
Clamps weight (kg)	5.9
Diameter of installation pole (mm)	φ50-φ115
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +70
Wind load at 42m/s (N)	677/ 162/ 733 (Frontal/ Lateral/ Rearal)
Max. operational wind speed (km/h)	200

Layout and Pattern

<p>Connector Position:</p> <p>Y1/ Y2/ Y3: 1710-2690 MHz; Y4/ Y5/ Y6: 1710-2690 MHz;</p>	<p>Configuration Types:</p> <p>RET S/N: HXxxx-Y1-xx.....; HXxxx-Y2-xx.....; HXxxx-Y3-xx.....; HXxxx-Y4-xx.....; HXxxx-Y5-xx.....; HXxxx-Y6-xx.....;</p>
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10-Ports Penta Beam Antenna

5×1710-2690 MHz 5×12° 21.0 dBi 0.76m
FET: 6°

Electrical Specifications			
Frequency Range (MHz)		Beam 1 (1710-2690) (Port1/ 2)	
		1710-1880	1920-2170 2490-2690
Electrical Downtilt (°)		6.0 Fixed	
Gain (dBi)	at mid tilt	19.5	20.5 19.8
	Over all tilts	19.3±1.2	20.1±0.5 19.5±0.8
Side lobe suppression for first side lobe above main beam (dB)		>20	>20 >20
Horizontal 3dB Beam Width (°)		12.1±2.0	11.0±1.2 9.0±0.8
Vertical 3dB Beam Width (°)		18.2±2.5	16.3±2.5 12.1±0.6
Front to Back Ratio, ±30° (dB)		>34	>32 >30
Cross-Polar Ratio, 0° (dB)		>17	>17 >17
Horizontal Beam Pointing (°)		35	32 26
Frequency Range (MHz)		Beam 2 (1710-2690) (Port3/ 4)	
		1710-1880	1920-2170 2490-2690
Electrical Downtilt (°)		6.0 Fixed	
Gain (dBi)	at mid tilt	20.5	21.0 20.9
	Over all tilts	20.2±1.2	20.8±0.8 20.8±0.8
Side lobe suppression for first side lobe above main beam (dB)		>20	>20 >20
Horizontal 3dB Beam Width (°)		11.0±1.2	10.2±1.2 8.5±0.5
Vertical 3dB Beam Width (°)		15.5±2.5	14.0±2.5 11.5±0.5
Front to Back Ratio, ±30° (dB)		>34	>32 >30
Cross-Polar Ratio, 0° (dB)		>17	>17 >17
Horizontal Beam Pointing (°)		17	15 12
Frequency Range (MHz)		Beam 3 (1710-2690) (Port5/ 6)	
		1710-1880	1920-2170 2490-2690
Electrical Downtilt (°)		6.0 Fixed	
Gain (dBi)	at mid tilt	20.5	21.0 20.9
	Over all tilts	20.2±1.2	20.7±0.8 20.7±0.8
Side lobe suppression for first side lobe above main beam (dB)		>20	>20 >20
Horizontal 3dB Beam Width (°)		10.8±1.5	9.5±1.2 8.0±0.5
Vertical 3dB Beam Width (°)		15.2±2.5	13.8±1.5 11.2±0.5
Front to Back Ratio, ±30° (dB)		>34	>32 >30
Cross-Polar Ratio, 0° (dB)		>17	>17 >17
Horizontal Beam Pointing (°)		0	0 0
Frequency Range (MHz)		Beam 4 (1710-2690) (Port7/ 8)	
		1710-1880	1920-2170 2490-2690
Electrical Downtilt (°)		6.0 Fixed	
Gain (dBi)	at mid tilt	20.5	21.2 21.0
	Over all tilts	20.2±1.2	21.0±0.8 20.9±0.8
Side lobe suppression for first side lobe above main beam (dB)		>20	>20 >20
Horizontal 3dB Beam Width (°)		10.5±1.2	9.8±1.2 8.2±0.5
Vertical 3dB Beam Width (°)		15.4±2.5	14.0±2.5 11.5±0.5
Front to Back Ratio, ±30° (dB)		>34	>32 >30
Cross-Polar Ratio, 0° (dB)		>17	>17 >17
Horizontal Beam Pointing (°)		-17	-16 -12

Frequency Range (MHz)	Beam 5 (1710-2690) (Port9/ 10)			
	1710-1880	1920-2170	2490-2690	
Electrical Downtilt (°)	6.0 Fixed			
Gain (dBi)	at mid tilt	19.5	20.3	20.0
	Over all tilts	19.2±1.2	20.0±0.8	19.8±0.8
Side lobe suppression for first side lobe above main beam (dB)	>20	>20	>20	
Horizontal 3dB Beam Width (°)	12.2±1.2	11.0±1.2	9.0±0.5	
Vertical 3dB Beam Width (°)	18.5±2.5	16.2±2.5	12.8±0.8	
Front to Back Ratio, ±30° (dB)	>34	>32	>30	
Cross-Polar Ratio, 0° (dB)	>15	>17	>15	
Horizontal Beam Pointing (°)	-36	-33	-26	
VSWR	≤1.5			
Cross Polar Isolation (dB)	≥25			
Beam to beam Isolation (dB)	≥16			
Intermodulation IM3 (dBc)	≤-150 (2 x 43 dBm carrier)			
Max. power per port (W)	200			
Impedance (Ω)	50			
Grounding	DC Grounding			

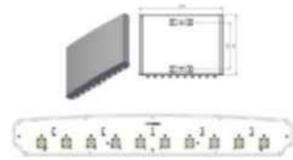
Values based on NGMN recommendations on Base Station Antenna Standards V12.0 (BASTA V12.0)

Mechanical Specifications

Connector	10 x 4.3-10 Female, Bottom
Antenna dimensions (H x W x D) (mm)	761 x 1076 x 136
Packing dimensions (H x W x D) (mm)	909 x 1199 x 237
Antenna weight (kg)	31.5
Clamps weight (kg)	5.7
Diameter of installation pole (mm)	φ70-φ115
Radome material	Fiberglass
Radome color	Light grey
Operational temperature (°C)	-40 to +60
Wind load at 42m/s (N)	1349/ 47/ 1147 (Frontal/ Lateral/ Rear)
Max. operational wind speed (km/h)	200

Layout and Pattern

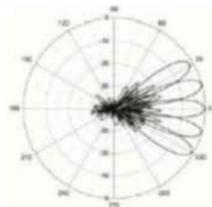
Connector Position:



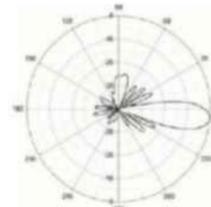
Configuration Types:



Pattern sample for reference:



Azimuth



Elevation