

## 5988308NG

8-Band, 16-Port, 65°, XPOL, Panel Antenna, Variable Tilt, 1997 mm

- Oct band antenna, dual polarisation, 16 connectors
- Independent, continuously adjustable tilt on each band 2-12° / 2-12° / 2-12° / 2-12° / 2-12° / 2-12° / 2-12° / 2-12°
- RET version, 3GPP/AISG2.0 with eight integrated RCUs

### ACCESS PORT DESCRIPTION (CONNECTORS)

The antenna has 16 colour-coded connectors located at the bottom face.

Frequency Designation	R1	R2	Y1	Y2	Y3	Y4	Y5	Y6
Frequency Range (MHz)	694-960	694-960	1710-2690	1710-2690	1710-2690	1710-2690	1710-2690	1710-2690
Polarisation	Xpol	Xpol	Xpol	Xpol	Xpol	Xpol	Xpol	Xpol
Horizontal Beamwidth	65°	65°	65°	65°	65°	65°	65°	65°
Electrical Downtilt Range	2-12°	2-12°	2-12°	2-12°	2-12°	2-12°	2-12°	2-12°
Connector Type	(2x) 4.3-10 Female	(2x) 4.3-10 Female	(2x) 4.3-10 Female	(2x) 4.3-10 Female	(2x) 4.3-10 Female	(2x) 4.3-10 Female	(2x) 4.3-10 Female	(2x) 4.3-10 Female

### ELECTRICAL CHARACTERISTICS

		R1		
Frequency Bands		694-960 MHz		
		694-824 MHz	806-896 MHz	880-960 MHz
Gain	at Mid Tilt	14.6 dBi	15.3 dBi	16.0 dBi
	Over All Tilts	14.4 ± 0.6 dBi	15.1 ± 0.6 dBi	15.7 ± 0.6 dBi
Input Impedance		50Ω		
VSWR		< 1.5		
Polarisation		±45°		
Horizontal Beamwidth (-3 dB)		67° ± 5.4°	63° ± 5.6°	59° ± 4.6°
Vertical Beamwidth (-3 dB)		11.5° ± 0.9°	10.5° ± 0.6°	9.5° ± 0.7°
Electrical Downtilt Range		2-12°		
Cross-Polar Isolation		> 26 dB		
Port-to-Port Isolation		> 28 dB (R1, R2//Y1, Y2, Y3, Y4, Y5, Y6); > 26 dB (R1//R2)		
Upper Sidelobe Suppression	Typical	> 15 dB	> 16 dB	> 16 dB
	Peak to 20°	> 15 dB	> 15 dB	> 15 dB
Front-to-Back Ratio (@ 180° ± 30°)		> 23 dB	> 24 dB	> 25 dB
Cross Polar Ratio	Main Direction (0°)	> 18 dB	> 18 dB	> 18 dB
	Sector Edges (±60°)	> 9 dB	> 7 dB	> 6 dB
Maximum Average Power Per Port (at 50° C ambient temperature)		350 W		
Intermodulation 3rd Order, 2 x 43 dBm carrier		< -150 dBc		

Standard values based on NGMN-P-BASTA version 10.0 recommendation.



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VSWR		< 1.5		
Polarisation		±45°		
Horizontal Beamwidth (-3 dB)		67° ± 5.4°	63° ± 5.6°	59° ± 4.6°
Vertical Beamwidth (-3 dB)		11.5° ± 0.9°	10.5° ± 0.6°	9.5° ± 0.7°
Electrical Downtilt Range		2-12°		
Cross-Polar Isolation		> 26 dB		
Port-to-Port Isolation		> 28 dB (R1, R2//Y1, Y2, Y3, Y4, Y5, Y6); > 26 dB (R1//R2)		
Upper Sidelobe Suppression	Typical	> 15 dB	> 16 dB	> 16 dB
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Maximum Average Power Per Port (at 50° C ambient temperature)		350 W		
Intermodulation 3rd Order, 2 x 43 dBm carrier		< -150 dBc		

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ELECTRICAL CHARACTERISTICS		Y1				
Frequency Bands		1710-2690 MHz				
		1710-1880 MHz	1850-1990 MHz	1920-2170 MHz	2300-2400 MHz	2500-2690 MHz
Gain	at Mid Tilt	15.3 dBi	15.6 dBi	15.9 dBi	16.2 dBi	16.2 dBi
	Over All Tilts	15.1 ± 0.6 dBi	15.4 ± 0.5 dBi	15.7 ± 0.6 dBi	16.0 ± 0.5 dBi	16.0 ± 0.6 dBi
Input Impedance		50Ω				
VSWR		< 1.5				
Polarisation		±45°				
Horizontal Beamwidth (-3 dB)		67° ± 6.5°	65° ± 6.5°	67° ± 6.5°	60° ± 5.5°	60° ± 6.2°
Vertical Beamwidth (-3 dB)		10.5° ± 1.1°	9.6° ± 0.7°	9.0° ± 0.9°	8.4° ± 0.5°	7.6° ± 0.6°
Electrical Downtilt Range		2-12°				
Cross-Polar Isolation		> 26 dB				
Port-to-Port Isolation		> 28 dB				
Upper Sidelobe Suppression	Typical	> 16 dB	> 16 dB	> 16 dB	> 15 dB	> 15 dB
	Peak to 20°	> 15 dB	> 15 dB	> 15 dB	> 14 dB	> 14 dB
Front-to-Back Ratio (@ 180° ± 30°)		> 25 dB	> 25 dB	> 25 dB	> 26 dB	> 26 dB
Cross Polar Ratio	Main Direction (0°)	> 17 dB	> 18 dB	> 18 dB	> 17 dB	> 17 dB
	Sector Edges (±60°)	> 9 dB	> 9 dB	> 9 dB	> 7 dB	> 5 dB
Maximum Average Power Per Port (at 50° C ambient temperature)		250 W				
Intermodulation 3rd Order, 2 x 43 dBm carrier		< -150 dBc				

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ELECTRICAL CHARACTERISTICS		Y2				
Frequency Bands		1710-2690 MHz				
		1710-1880 MHz	1850-1990 MHz	1920-2170 MHz	2300-2400 MHz	2500-2690 MHz
Gain	at Mid Tilt	15.0 dBi	15.3 dBi	15.6 dBi	15.9 dBi	15.9 dBi
	Over All Tilts	14.8 ± 0.6 dBi	15.1 ± 0.5 dBi	15.4 ± 0.6 dBi	15.7 ± 0.5 dBi	15.7 ± 0.5 dBi
Input Impedance		50Ω				
VSWR		< 1.5				
Polarisation		±45°				
Horizontal Beamwidth (-3 dB)		67° ± 6.5°	65° ± 6.5°	67° ± 6.5°	60° ± 5.5°	60° ± 6.2°
Vertical Beamwidth (-3 dB)		10.3° ± 1.1°	9.4° ± 0.7°	8.8° ± 0.9°	8.2° ± 0.5°	7.3° ± 0.6°
Electrical Downtilt Range		2-12°				
Cross-Polar Isolation		> 26 dB				
Port-to-Port Isolation		> 28 dB				
Upper Sidelobe Suppression	Typical	> 16 dB	> 16 dB	> 16 dB	> 15 dB	> 15 dB
	Peak to 20°	> 15 dB	> 15 dB	> 15 dB	> 14 dB	> 14 dB
Front-to-Back Ratio (@ 180° ± 30°)		≥ 25 dB	≥ 25 dB	> 25 dB	≥ 26 dB	≥ 26 dB
Cross Polar Ratio	Main Direction (0°)	> 17 dB	> 18 dB	> 18 dB	> 17 dB	> 17 dB
	Sector Edges (±60°)	> 9 dB	> 9 dB	> 9 dB	> 7 dB	> 5 dB
Maximum Average Power Per Port (at 50° C ambient temperature)		250 W				
Intermodulation 3rd Order, 2 x 43 dBm carrier		< -153 dBc				

Standard values based on NGMN-P-BASTA version 10.0 recommendation.

ELECTRICAL CHARACTERISTICS		Y3				
Frequency Bands		1710-2690 MHz				
		1710-1880 MHz	1850-1990 MHz	1920-2170 MHz	2300-2400 MHz	2500-2690 MHz
Gain	at Mid Tilt	15.3 dBi	15.6 dBi	15.9 dBi	16.2 dBi	16.2 dBi
	Over All Tilts	15.1 ± 0.6 dBi	15.4 ± 0.5 dBi	15.7 ± 0.6 dBi	16.0 ± 0.5 dBi	16.0 ± 0.6 dBi
Input Impedance		50Ω				
VSWR		< 1.5				
Polarisation		±45°				
Horizontal Beamwidth (-3 dB)		67° ± 6.5°	65° ± 6.5°	67° ± 6.5°	60° ± 5.5°	60° ± 6.2°
Vertical Beamwidth (-3 dB)		10.5° ± 1.1°	9.6° ± 0.7°	9.0° ± 0.9°	8.4° ± 0.5°	7.6° ± 0.6°
Electrical Downtilt Range		2-12°				
Cross-Polar Isolation		> 26 dB				
Port-to-Port Isolation		> 28 dB				
Upper Sidelobe Suppression	Typical	> 16 dB	> 16 dB	> 16 dB	> 15 dB	> 15 dB
	Peak to 20°	> 15 dB	> 15 dB	> 15 dB	> 14 dB	> 14 dB
Front-to-Back Ratio (@ 180° ± 30°)		> 25 dB	> 25 dB	> 25 dB	> 26 dB	> 26 dB
Cross Polar Ratio	Main Direction (0°)	> 17 dB	> 18 dB	> 18 dB	> 17 dB	> 17 dB
	Sector Edges (±60°)	> 9 dB	> 9 dB	> 9 dB	> 7 dB	> 5 dB
Maximum Average Power Per Port (at 50° C ambient temperature)		250 W				
Intermodulation 3rd Order, 2 x 43 dBm carrier		< -150 dBc				

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ELECTRICAL CHARACTERISTICS		Y4				
Frequency Bands		1710-2690 MHz				
		1710-1880 MHz	1850-1990 MHz	1920-2170 MHz	2300-2400 MHz	2500-2690 MHz
Gain	at Mid Tilt	15.0 dBi	15.3 dBi	15.6 dBi	15.9 dBi	15.9 dBi
	Over All Tilts	14.8 ± 0.6 dBi	15.1 ± 0.5 dBi	15.4 ± 0.6 dBi	15.7 ± 0.5 dBi	15.7 ± 0.5 dBi
Input Impedance		50Ω				
VSWR		< 1.5				
Polarisation		±45°				
Horizontal Beamwidth (-3 dB)		67° ± 6.5°	65° ± 6.5°	67° ± 6.5°	60° ± 5.5°	60° ± 6.2°
Vertical Beamwidth (-3 dB)		10.3° ± 1.1°	9.4° ± 0.7°	8.8° ± 0.9°	8.2° ± 0.5°	7.3° ± 0.6°
Electrical Downtilt Range		2-12°				
Cross-Polar Isolation		> 26 dB				
Port-to-Port Isolation		> 28 dB				
Upper Sidelobe Suppression	Typical	> 16 dB	> 16 dB	> 16 dB	> 15 dB	> 15 dB
	Peak to 20°	> 15 dB	> 15 dB	> 15 dB	> 14 dB	> 14 dB
Front-to-Back Ratio (@ 180° ± 30°)		≥ 25 dB	≥ 25 dB	> 25 dB	≥ 26 dB	≥ 26 dB
Cross Polar Ratio	Main Direction (0°)	> 17 dB	> 18 dB	> 18 dB	> 17 dB	> 17 dB
	Sector Edges (±60°)	> 9 dB	> 9 dB	> 9 dB	> 7 dB	> 5 dB
Maximum Average Power Per Port (at 50° C ambient temperature)		250 W				
Intermodulation 3rd Order, 2 x 43 dBm carrier		< -153 dBc				

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ELECTRICAL CHARACTERISTICS		Y5				
Frequency Bands		1710-2690 MHz				
		1710-1880 MHz	1850-1990 MHz	1920-2170 MHz	2300-2400 MHz	2500-2690 MHz
Gain	at Mid Tilt	15.3 dBi	15.6 dBi	15.9 dBi	16.2 dBi	16.2 dBi
	Over All Tilts	15.1 ± 0.6 dBi	15.4 ± 0.5 dBi	15.7 ± 0.6 dBi	16.0 ± 0.5 dBi	16.0 ± 0.6 dBi
Input Impedance		50Ω				
VSWR		< 1.5				
Polarisation		±45°				
Horizontal Beamwidth (-3 dB)		67° ± 6.5°	65° ± 6.5°	67° ± 6.5°	60° ± 5.5°	60° ± 6.2°
Vertical Beamwidth (-3 dB)		10.5° ± 1.1°	9.6° ± 0.7°	9.0° ± 0.9°	8.4° ± 0.5°	7.6° ± 0.6°
Electrical Downtilt Range		2-12°				
Cross-Polar Isolation		> 26 dB				
Port-to-Port Isolation		> 28 dB				
Upper Sidelobe Suppression	Typical	> 16 dB	> 16 dB	> 16 dB	> 15 dB	> 15 dB
	Peak to 20°	> 15 dB	> 15 dB	> 15 dB	> 14 dB	> 14 dB
Front-to-Back Ratio (@ 180° ± 30°)		> 25 dB	> 25 dB	> 25 dB	> 26 dB	> 26 dB
Cross Polar Ratio	Main Direction (0°)	> 17 dB	> 18 dB	> 18 dB	> 17 dB	> 17 dB
	Sector Edges (±60°)	> 9 dB	> 9 dB	> 9 dB	> 7 dB	> 5 dB
Maximum Average Power Per Port (at 50° C ambient temperature)		250 W				
Intermodulation 3rd Order, 2 x 43 dBm carrier		< -150 dBc				

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ELECTRICAL CHARACTERISTICS		Y6				
Frequency Bands		1710-2690 MHz				
		1710-1880 MHz	1850-1990 MHz	1920-2170 MHz	2300-2400 MHz	2500-2690 MHz
Gain	at Mid Tilt	15.0 dBi	15.3 dBi	15.6 dBi	15.9 dBi	15.9 dBi
	Over All Tilts	14.8 ± 0.6 dBi	15.1 ± 0.5 dBi	15.4 ± 0.6 dBi	15.7 ± 0.5 dBi	15.7 ± 0.5 dBi
Input Impedance		50Ω				
VSWR		< 1.5				
Polarisation		±45°				
Horizontal Beamwidth (-3 dB)		67° ± 6.5°	65° ± 6.5°	67° ± 6.5°	60° ± 5.5°	60° ± 6.2°
Vertical Beamwidth (-3 dB)		10.3° ± 1.1°	9.4° ± 0.7°	8.8° ± 0.9°	8.2° ± 0.5°	7.3° ± 0.6°
Electrical Downtilt Range		2-12°				
Cross-Polar Isolation		> 26 dB				
Port-to-Port Isolation		> 28 dB				
Upper Sidelobe Suppression	Typical	> 16 dB	> 16 dB	> 16 dB	> 15 dB	> 15 dB
	Peak to 20°	> 15 dB	> 15 dB	> 15 dB	> 14 dB	> 14 dB
Front-to-Back Ratio (@ 180° ± 30°)		≥ 25 dB	≥ 25 dB	> 25 dB	≥ 26 dB	≥ 26 dB
Cross Polar Ratio	Main Direction (0°)	> 17 dB	> 18 dB	> 18 dB	> 17 dB	> 17 dB
	Sector Edges (±60°)	> 9 dB	> 9 dB	> 9 dB	> 7 dB	> 5 dB
Maximum Average Power Per Port (at 50° C ambient temperature)		250 W				
Intermodulation 3rd Order, 2 x 43 dBm carrier		< -153 dBc				

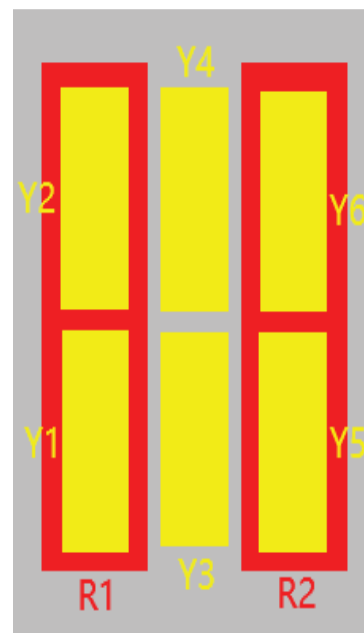
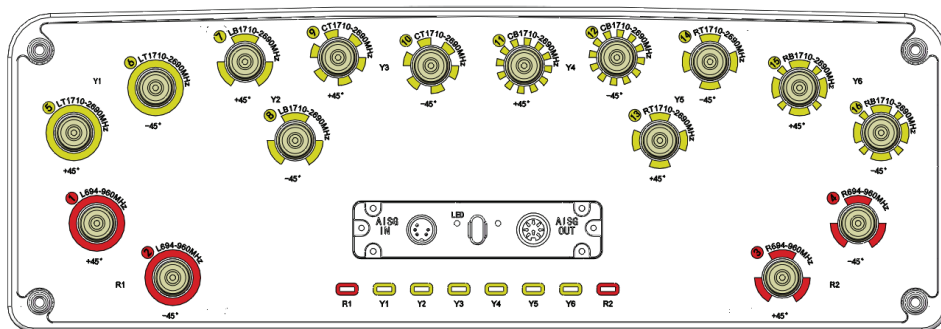
Standard values based on NGMN-P-BASTA version 10.0 recommendation.

INTEGRATED RET PROPERTIES	
Protocol	Compliant with 3GPP/AISGv2.0
Power Supply	10-30VDC
Adjustment Time (Full Range)	≤ 90 sec (typical, depending on antenna type)
Power Consumption	< 2 W (Idle); < 10 W (In Motion)
Accuracy	≤ 0.5°
Hardware Interface	RS485 and Power
Safety Standard	Compliant to EN 60950/UL 60950/ RoHS, CE
Adjustment Cycles	> 20,000
Torque Max	≥ 160 mN.m
Remote Control	Can manage from OMC, BTS/NodeB
Lightning Protection Rating	IEC 61000-4-5 Current Pulse Profile, 8/20 μs 10 Repetitions Min. @ 8 kA
Connectors	(2x) 8-Pin Circle Connector According to IEC 60130-9 and AISG Daisy Chain In: Male; Daisy Chain Out: Female Pin3: RS485+; Pin5: RS485-; Pin6: 10-30V; Pin7: GND

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ARRAY LAYOUT	ARRAY	FREQUENCY	CONNECTOR	CONNECTOR TYPE
	R1	694-960	1-2	4.3-10 Female
	R2	694-960	3-4	4.3-10 Female
	Y1	1710-2690	5-6	4.3-10 Female
	Y2	1710-2690	7-8	4.3-10 Female
	Y3	1710-2690	9-10	4.3-10 Female
	Y4	1710-2690	11-12	4.3-10 Female
	Y5	1710-2690	13-14	4.3-10 Female
Y6	1710-2690	15-16	4.3-10 Female	

Diagram shown at right depicts the view from the front of the antenna. The illustration is not shown to scale.

### ENVIRONMENTAL CHARACTERISTICS

Lightning Protection	DC Ground
Operating Temperature Range	-40° to +70° C

### MECHANICAL CHARACTERISTICS

Dimensions (Height x Width x Depth)	1997 x 497 x 197 mm (78.6 x 19.6 x 7.8 in)	
Weight (excluding mounting accessory)	40 kg (88.2 lbs)	
Weight with mounting accessory	44.5 kg (98.1 lbs)	
Radome Material	Fiberglass	
Maximum Wind Speed	240 km/h (149.1 mph)	
Wind Load at 150 km/h	Front	915 N (205.7 lbf)
	Rear	1025 N (230.4 lbf)
	Lateral	390 N (87.6 lbf)

### PACKAGING

Carton Box  
2.197 x 0.592 x 0.317 m  
(86.5 x 23.3 x 12.5 in)

### MOUNTING KIT OPTIONS

MOUNTING KIT OPTIONS	POLE DIAMETER	MECHANICAL TILT
All mounting bracket kits are ordered separately unless otherwise indicated.		
Mounting and Downtilt Bracket Kit (Included)	Ø50-Ø125 mm (Ø2.0-Ø4.9 mm)	0-12°

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