



Product Specifications

SL-HA-1L4M4H-2P609016-8P172717-8T8R333817-E12-V01

698-960/4*1695-2690/4*3300-3800MHz

65/65/65/65/65/90/90/90/90deg 16/17/17/17/17/17/17/17/17/17dB XXXXXXXXXpol 18-port antenna

Integrated and replaceable RCU, each band individually adjustable

10x4.3-10(F)+MQ4+MQ5 connectors @bottom

Antenna Specifications

Electrical Properties		
Frequency Range(MHz)	R1: 698-960	
	698-890	890-960
Gain Overall Tilts (dBi)	15.0±0.6	15.5±0.6
Polarization	+45°/-45°	
Horizontal -3dB Beamwidth(°)	69±5	65±5
Vertical -3dB Beamwidth(°)	10.5±0.7	8.0±0.5
Electrical Downtilt(°)	0-10, continuously adjustable	
First Upper Side Lobe Suppression (Typ.)(dB)	≥16	≥16
Cross Polar Ratio (0°)(dB)	≥15.0	≥15.0
Cross Polar Ratio (±60°)(dB)	≥8.0	≥7.0
Front to Back Ratio, ±30°(dB)	>25	>25
VSWR	<1.5	
Cross-polar Isolation (dB)	≥25	
Inter-band Isolation (dB)	≥25	
PIM3 (2×43 dBm carrier)(dBc)	≤-153	
Impedance(Ω)	50	
Grounding	DC Ground	
Max Input Power per Port (W)	250W	

Electrical Properties			
Frequency Range(MHz)	Y1,Y2,Y3,Y4: 1695-2690		
	1695-1920	1920-2200	2300-2690
Gain Overall Tilts (dBi)	16.1±0.5	16.5±0.5	16.9±0.5
Polarization	+45°/-45°		
Horizontal -3dB Beamwidth(°)	65±6	63±5	56±5
Vertical -3dB Beamwidth(°)	6.8±0.5	6.1±0.5	5±0.5
Electrical Downtilt(°)	0-12, continuously adjustable		



Product Specifications

First Upper Side Lobe Suppression (Typ.)(dB)	≥ 16	≥ 16	≥ 16
Cross Polar Ratio (0°)(dB)	≥ 15.0	≥ 15.0	≥ 15.0
Cross Polar Ratio ($\pm 60^\circ$)(dB)	≥ 8.0	≥ 7.0	≥ 6.0
Front to Back Ratio, $\pm 30^\circ$ (dB)	> 25	> 25	> 25
VSWR	< 1.5		
Cross-polar Isolation (dB)	≥ 25		
Inter-band Isolation (dB)	≥ 25		
PIM3 (2×43 dBm carrier)(dBc)	≤ -153		
Impedance(Ω)	50		
Grounding	DC Ground		
Max Input Power per Port (W)	200W		

General Electrical Properties

		3300-3600	3600-3800
General parameters	Frequency range (MHz)	3300-3600	3600-3800
	Polarization	$+45^\circ, -45^\circ$	
	Electrical downtilt ($^\circ$)	0-12, continuously adjustable	
	Grounding	DC Ground	
Calibration and electrical parameters	Coupling factor between calibration port and each RF port (dB)	-26 ± 2	
	Max. amplitude tolerance from calibration port to RF ports (dB)	≤ 0.7	
	Max. phase tolerance from calibration port to RF ports ($^\circ$)	≤ 8	
	VSWR	≤ 1.5	
	Power Consumption, idle state, maximum (W)	1	
	Power Consumption, normal conditions, maximum(W)	50	
	Co-polarization isolation between ports (dB) (0-2 $^\circ$)	≥ 19	
	Co-polarization isolation between ports (dB) (2-12 $^\circ$)	≥ 23	
	Cross-polarization isolation between ports (dB) (0-2 $^\circ$)	≥ 23	
	Cross-polarization isolation between ports (dB) (2-12 $^\circ$)	≥ 28	
	Max Input Power per Port (W)	50W	
PIM3 (2×43 dBm carrier)(dBc)	≤ -120		

Beamforming Electrical Properties

		3300-3600	3600-3800	
Radiation parameters	Frequency range (MHz)	3300-3600	3600-3800	
	Single column beam	Horizontal 3dB beam width ($^\circ$)	70 ± 15	70 ± 15
		Gain Overall Tilts(dBi)	15.9 ± 1	16.1 ± 1
		Vertical 3dB beam width ($^\circ$)	5 ± 0.7	
		Cross polar ratio (0 $^\circ$) (dB)	≥ 18	
		1st upper side lobe suppression above main beam (dB)	≥ 16	
		Front to back ratio (dB)	≥ 23	



Product Specifications

	65° Broadcast beam	Horizontal 3dB beam width (°)	>65	
		Gain Overall Tilts (dBi)	16.9±0.3	17.1±0.5
		Vertical 3dB beam width (°)	5±0.7	
		Front to back ratio (dB)	≥23	
		1st upper side lobe suppression above main beam (dB)	≥16	
	Service beam	0° direction beam gain (dB)	21.7±0.5	
		0° direction beam horizontal 3dB beam width (°)	>26	
		0° direction beam vertical 3dB beam width (°)	5±0.7	
		30° direction beam gain (dB)	20.8±0.5	
		30° direction beam horizontal 3dB beam width (°)	>28	
		30° direction beam vertical 3dB beam width (°)	5±0.7	
		1st upper side lobe suppression above main beam (dB)	≥16	
		Front to back ratio (dB)	≥23	

Values based on NGMN-N-P-BASTA V11.1

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Certifications



Mechanical Properties

Radome Material	Fiberglass
Radome Colour	Light Grey
Connector Type	19x4.3-10(F)
Antenna Dimension (H×W×D)(mm)	2000×499×205
Packing Size (H×W×D)(mm)	2300×535×230
Antenna Net Weight(kg)	38
Installation Kit Weight(kg)	5.6(2 units)



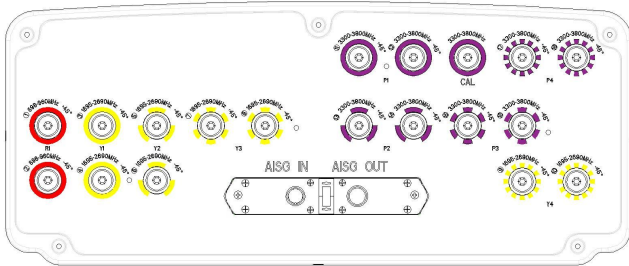
Product Specifications

Shipping Weight(kg)	50
Mechanical Downtilt(°)	0-12
Mast Diameter Supported(mm)	50-114
Pole Length(mm)	>1800
Operating Temperature(°C)	-40-+65
Wind Load (at 150 km/h)	1408/578/1549 N (Frontal/Lateral/Rear side)
Maximum Wind Speed (km/h)	200

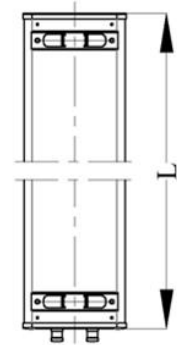
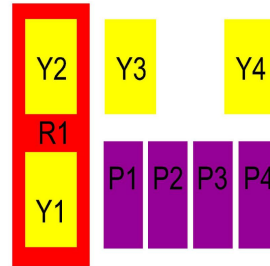
RET Properties

Power Supply	10-30V dc
Power Consumption	≤2W (Idle), ≤10W (in Motion)
Hardware Interface	RS 485A/B(pin5, pin3); power supply(pin1, pin6); DC return(pin 7); according to AISG 2.0/3GPP
Logical Interface	HEX Coded Commands Based on HDLC Protocol
Protocol Supported	AISG 2.0/3GPP
Adjustment Time (Full Range)	<90s(typical, depending on model)
Adjustment Cycles	>20000
Torque Max.	≥160 mN.m
Lightning Protection Rate	IEC 61000-4-5 Current Pulse Profile, 8/20 μs Min. @8kA±5 Repetitions
Connectors	2 Circle Connector According to IEC 60130-9 and AISG. Daisy Chain In: Male, Daisy Chain Out: Female

Antenna Ports



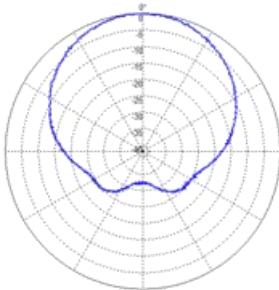
Array Layout



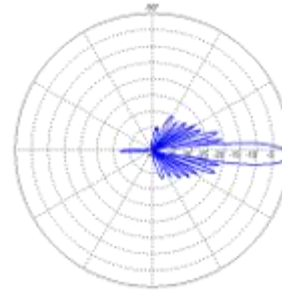
Reference Radiation Patterns

698-960MHz(65deg)

Horizontal Pattern

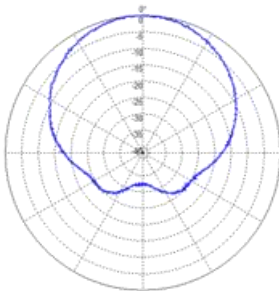


Vertical Pattern

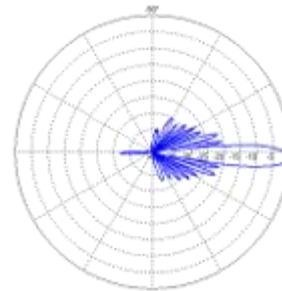


1695-2690MHz(65deg)

Horizontal Pattern



Vertical Pattern



3300-3800MHz(8T8R)

