

1.2M Ka-Band Antenna

Series 3122

Technical Specifications

Electrical		Ka-Band - Circular	Ka-Band - Circular	Ka-Band - Linear
Antenna Size		1.2 M	1.2 M	1.2 M
Operating Frequency (GHz)	Receive	20.20 - 21.20 GHz	18.30 - 21.20 GHz	18.70 - 21.20 GHz
	Transmit	30.00 - 31.00 GHz	29.20 - 31.00 GHz	27.00 - 31.00 GHz
Midband (± 0.5 dB)	Receive	46.30 dBi	45.80 dBi	46.10 dBi
	Transmit	49.50 dBi	49.40 dBi	49.20 dBi
VSWR		1.25:1 max	1.3:1 max	Rx: 1.5:1 max Tx: 1.3:1 max
Pattern Beamwidth (in degrees at midband)	-3 dB	Rx: 0.83° Tx: 0.56°	Rx: 0.85° Tx: 0.57°	Rx: 0.84° Tx: 0.54°
	-15 dB	Rx: 1.86° Tx: 1.26°	Rx: 1.90° Tx: 1.28°	Rx: 1.88° Tx: 1.30°
Sidelobe Envelope, Co-Pol (dBi)				
100 λ / D $< \theta \leq 20^\circ$		29 - 25 Log θ dBi	29 - 25 Log θ dBi	29 - 25 Log θ dBi
20° $< \theta \leq 26.3^\circ$		-3.5 dBi	-3.5 dBi	-3.5 dBi
26.3° $< \theta \leq 48^\circ$		32 - 25 Log θ dBi	32 - 25 Log θ dBi	32 - 25 Log θ dBi
$\theta > 48^\circ$		-10 dBi (averaged)	-10 dBi (averaged)	-10 dBi (averaged)
Antenna Noise Temperature				
5° Elevation		178 K	178 K	181 K
10° Elevation		137 K	137 K	140 K
20° Elevation		107 K	107 K	110 K
40° Elevation		89 K	89 K	92 K
Power Handling		100 W	100 W	100 W
Cross Polarization Isolation				
On Axis		17.70 dB	Rx: 17.70 dB Tx: 21.30 dB	Rx: 30.00 dB Tx: 35.00 dB
Within 1.0 dB Beamwidth		17.70 dB	Rx: 17.70 dB Tx: 21.30 dB	26.00 dB
Output Waveguide Interface Flange		Rx: WR42 Tx: WR28	Rx: WR42 Tx: WR28	RRx: WR42 Tx: WR28
Maximum Feed Support Weight		8 lbs. (3.5 kg.)	8 lbs. (3.5 kg.)	8 lbs. (3.5 kg.)

Mechanical	
Reflector Material	Glass Fiber Reinforced Polyester SMC, Ka-Band Formulation
Antenna Optics	1-piece Offset, Prime Focus
Mast Pipe Size	2.5" SCH 40 Pipe (2.88" OD) 73.2 mm
Elevation Adjustment Range	5° to 90°, Continuous Fine Adjustment
Azimuth Adjustment Range	$\pm 10^\circ$ Fine Adjustment, 360° Continuous
Shipping Specifications	80 lbs. (36 kg.)

Environmental Performance	
Wind Loading	Operational Survival
	45 mph (72 km/h) *0.5 dB Loss @ 14.25 125 mph (201 km/h)
Temperature (operational)	- 40° to 140°F (- 40° to 60°C)
Rain (operational)	½" / hr
Ice (operational)	-----
Atmospheric Conditions	Salt, Pollutants and Contaminants as Encountered in Coastal and Industrial Areas
Solar Radiation	360 BTU/h/ft ²

GENERAL DYNAMICS SATCOM Technologies

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