

1.8M Series 3180 Ka-Band Antenna

PARAMETERS

Electrical Performance	Ka-Band Circular	Ka-Band Circular	Ka-Band Linear
Antenna Size	1.8m	1.8m	1.8m
Frequency (GHz)	Rx: 20.2 – 21.2 GHz Tx: 30 – 31 GHz	Rx: 19.4 – 21.2 Tx: 29.2 – 31	Rx: 18.7 – 21.2 GHz Tx: 27 – 31 GHz
Antenna Gain at Midband (\pm .5dB)	Rx: 49.4 dB Tx: 52.6 dB	Rx: 49.2 dBi Tx: 52.4 dBi	Rx: 49.2 dBi Tx: 52.4 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: 0.56° Tx: 0.38°	Rx: 0.57° Tx: 0.39°	Rx: 0.58° Tx: 0.40°
-15 dB	Rx: 1.26° Tx: 0.86°	Rx: 1.28° Tx: 0.87°	Rx: 1.31° Tx: 0.88°
Sidelobe Performance			
Mainbeam $< \theta < 7^\circ$	29 - 25 Log θ dBi	29 - 25 Log θ dBi	29 - 25 Log θ dBi
$7^\circ < \theta < 9.2^\circ$	+8 dBi	+8 dBi	+8 dBi
$9.2^\circ < \theta < 48^\circ$	32 – 35 Log θ dBi	32 – 35 Log θ dBi	32 – 35 Log θ dBi
$48^\circ < \theta < 180^\circ$	-10 dBi	-10 dBi	-10 dBi
Antenna Noise Temperature			
5° Elevation	162 K	162 K	165 K
10° Elevation	131 K	131 K	134 K
20° Elevation	108 K	108 K	111 K
40° Elevation	94 K	94 K	97 K
Power Handling	100 W	100 W	100 W
Cross Polarization Isolation			
On Axis	24.8 dB	Rx: 17.7 dB Tx: 21.3 dB	Rx: 30 dB Tx: 35 dB
Within 1.0 dB Beamwidth	24.8 dB	Rx: 17.7 dB Tx: 21.3 dB	26 dB
Output Waveguide Interface Flange	Rx: WR42 Tx: WR28	Rx: WR42 Tx: WR28	Rx: WR42 Tx: WR28
RF Specification			
Mechanical Performance			
Reflector Material	Glass Fiber Reinforced Polyester SMC, Ka-Band Formulation		
Antenna Optics	Prime Focus, Offset Feed		
Mast Pipe Size	5" SCH 40 Pipe (5.56" OD) 14.1 CM		
Elevation Adjustment Range	5° to 90°, Continuous Fine Adjustment		
Azimuth Adjustment Range	360° Continuous coarse, \pm 15 Fine Adjustment		
Shipping Specifications			
Approximate Net Weight	245 pounds (111 kg.)		
Approximate Packaged Weight	295 pounds (134 kg.)		
Environmental Performance			
Wind Loading			
Operational	50 mph (80 km/h)		
Survival	125 mph (201 km/h)		
Temperature Range (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		
Relative Humidity	0 to 100% (Condensing)		
Solar Radiation	360 BTU/h/ft ²		

GENERAL DYNAMICS

SATCOM Technologies

1500 Prodelin Drive • Newton, North Carolina 28658 USA • Telephone: +1-828-464-4141 • Fax: +1-828-466-0860

E-mail: prodelin@gdsatcom.com • Web Site: www.gdsatcom.com

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