

Model C180M Mobile Antenna

Mobile Antennas



The Strength to Perform

Description

The VertexRSI lightweight 1.8-meter mobile antenna is designed for quad-band transmit and receive operation worldwide. This transportable antenna consists of a single-piece carbon fiber composite reflector mounted on a cable drive elevation-over-azimuth positioner. This results in a low-weight antenna with superior stiffness and high performance under wind loading conditions.

The state-of-the-art design provides exceptionally low sidelobe and cross-polarization performance, well within INTELSAT and EUTELSAT requirements.

The complete antenna system can be interfaced with most lightweight vehicle structures for the purpose of mobile SNG applications.

Features

- Aluminum/Carbon fiber construction
 - Lightweight
 - Precise surface
 - High stiffness
 - Robust design for vehicle mounting
- High performance
 - Low sidelobes, high EIRP capability
 - Compliant under operational wind conditions
- Stow/deployment
 - Low profile
 - Stow position on vehicle
 - Precision alignment
- INTELSAT and EUTELSAT compliant

Options

- GPS or jog controller
- Boom-mounted and saddlebags electronics integration kits
- Transmit waveguide run(s)
- Anti-icing



GENERAL DYNAMICS
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Technical Specifications

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Electrical	Ku-Band 2-Port Linear Polarized (X-Pol Compensated)		Ku-Band 4-Port Linear Polarized (X-Pol Compensated)		C-Band 2-Port Linear/Circular Polarized		C-Band 2-Port Linear Polarized		X-Band 2-Port Circular Polarized	
	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	10.950-12.750	14.000-14.500	10.950-12.750	14.000-14.500	3.625-4.200	5.850-6.425	3.400-4.200	5.725-6.725	7.250-7.750	7.900-8.400
Antenna Gain at Midband, dBi	44.90	46.60	44.70	45.90	35.20	39.00	35.50	39.10	41.00	41.70
VSWR	1.35:1 (16.5 dB)	1.30:1 (17.7 dB)	1.35:1 (16.5 dB)	1.30:1 (17.7 dB)	1.30:1 (17.7 dB)	1.30:1 (17.7 dB)	1.30:1 (17.7 dB)	1.30:1 (17.7 dB)	1.30:1 (17.7 dB)	1.30:1 (17.7 dB)
Beamwidth (in degrees at midband)										
-3 dB	0.95	0.79	0.93	0.83	2.91	1.90	2.86	1.89	1.49	1.37
-15 dB	1.99	1.66	1.95	1.74	6.11	3.99	6.01	3.97	3.13	2.88
Sidelobe Performance	Meets Eutelsat, FCC 25.209 or ITU-RS-580		Meets Eutelsat, FCC 25.209 or ITU-RS-580		Meets ITU-RS-580 beyond mainbeam		Meets ITU-RS-580 beyond mainbeam		DSCS compliant	
Antenna Noise Temperature										
5° Elevation	69 K		87 K		69 K		59 K		67 K	
10° Elevation	57 K		75 K		55 K		45 K		56 K	
20° Elevation	50 K		69 K		50 K		40 K		52 K	
40° Elevation	49 K		68 K		51 K		41 K		53 K	
Power Handling (total)	2 kW CW		2 kW CW		1 kW CW		5 kW CW		2 kW CW	
Cross Polarization Isolation (minimum)										
On Axis (LP mode)	35.0 dB	35.0 dB	35.0 dB	35.0 dB	30.0 dB	30.0 dB	30.0 dB	30.0 dB		
Within 1.0 dB BW (LP mode)	27.0 dB	35.0 dB	27.0 dB	35.0 dB	26.0 dB	26.0 dB	26.0 dB	26.0 dB		
On Axis (CP mode)					15.3 dB*	17.5 dB*			21.3 dB	21.3 dB
Within 1.0 dB BW (CP mode)					15.3 dB*	17.5 dB*			21.3 dB	21.3 dB
Port to Port Isolation (minimum)										
Rx/Tx (Rx frequency)	0 dB	-30 dB	0 dB	-70 dB	0 dB	-30 dB	0 dB	-30 dB	0 dB	-110 dB
Tx/Rx (Tx frequency)	-85 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB	-110 dB	0 dB
Rx/Rx, Tx/Tx (same band)			30 dB	30 dB						
RF Specification	975-2797		975-2789		975-3124		975-2848		975-1579	

Mechanical	
Antenna	Diameter: 1.8 meters (5.9 ft); Type: single offset
Reflector Construction	Carbon fiber with white paint on surface
Mount Type	Elevation over azimuth
Travel	Elevation: 5° to 90° of reflector boresight; Azimuth: ±180° continuous
Stow Height	19 in (483 mm)
Antenna Weight	Ku-band = 260 lbs. (118 kg); C-band = 275 lbs. (125 kg); X-band = 275 lbs. (125 kg)
Feed	Multiband interchangeable

Environmental	
Wind Performance (depending on vehicle capabilities)	
Operational	30 mph (48 km/h) gusting to 45 mph (72 km/h)
Drive	45 mph (72 km/h) gusting to 60 mph (97 km/h)
Survival	80 mph (128 km/h) any position, 120 mph (192 km/h) at stow
Pointing Loss (Operational Winds)	1.0 dB peak (Ku-Band Rx), performance dependent on controller capability
Temperature Range	Operational: +5° to +122° F (-15° to +50° C); Survival: -22° to +140° F (-30° to +60° C)
Rain	Up to 4 in/h (10 cm/h)
Relative Humidity	0% to 100% with condensation
Solar Radiation	360 BTU/h/ft ² (1000 Kcal/h/m ²)
Radial Ice (survival)	1 in (2.5 cm)
Shock and vibration tolerant to conditions encountered during shipment by airplane, ship or truck. Atmospheric tolerant to conditions encountered in coastal regions and/or heavily industrialized areas.	

* Improved axial ratios available as an option.

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