

Model C140MW High Wind Antenna

Mobile Antennas



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Description

The General Dynamics SATCOM Technologies lightweight 1.40-meter mobile antenna is a compact design for worldwide transmit and receive operation up to Ka-band with tracking. 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
 - Light weight
 - Precise surface
 - High stiffness
 - Robust design for vehicle mounting
- High performance
 - Low sidelobes, high E.I.R.P. capability
 - Compliant under operational wind conditions
- Stow/deployment
 - Low profile
 - Stow position on vehicle
 - Precision alignment

Options

- Jog controller
- Boom-mounted electronics integration kits
- Tx waveguide run

Technical Specifications

Model C140MW High Wind Antenna

Electrical	Ku-Band 2-Port X-pol Compensated		Ku-Band 2-Port Non-Compensated		Ka-Band 2-Port Linear Polarized		Ka-Band 2-Port Circular Polarized	
	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	10.700-12.750	13.750-14.500	10.700-12.750	13.750-14.500	17.700-18.800	27.500-28.600	20.200-21.200	30.000-31.000
Antenna Gain at Midband, dBi	42.80	44.50	42.90	44.30	46.50	50.10	47.40	50.70
VSWR	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	1.22	1.01	1.17	1.00	0.79	0.52	0.69	0.48
Sidelobe Performance	Meets Eutelsat, FCC 25.209, ITU-RS-580				Meets ITU-RS-580		Meets ITU-RS-580	
Antenna Noise Temperature								
5° Elevation	72 K		71 K		121 K		180 K	
10° Elevation	58 K		57 K		86 K		140 K	
20° Elevation	51 K		50 K		67 K		111 K	
40° Elevation	50 K		48 K		57 K		93 K	
Power Handling (total)	1 kW CW		1 kW CW		50 W CW		250 W CW	
CrossPolarizationIsolation(minimum)								
On Axis	35 dB	35 dB	30 dB	30 dB	30 dB	30 dB	24.8 dB	24.8 dB
Within 1.0 dB Beamwidth	27 dB	35 dB	27 dB	27 dB	25 dB	25 dB	24.8 dB	24.8 dB
Port to Port Isolation (minimum)								
Rx/Tx (Rx frequency)	0 dB	-30 dB	0 dB	-30 dB	0 dB	-85 dB	0 dB	-70 dB
Tx/Rx (Tx frequency)	-85 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB
RF Specification	975-4593		975-3975		975-4240		975-4317	

Mechanical	
Antenna Diameter	1.40 meters (4.6 ft)
Antenna Type	Single offset
Reflector Construction	Carbon fiber
Mount Type	Elevation over azimuth
Antenna Travel	
Elevation	5° - 90° of reflector boresight
Azimuth	±180° continuous
Polarization	±90°
Stow Height	19 in (48 cm)
Antenna Weight	240 lbs. (109 kg)
Integration Capability	100 lbs. (45 kg) on feed boom, axis crossover for rack mounting

Environmental		
Wind Performance (depends on vehicle and controller capabilities)	Ka-Band	Ku-Band
Pointing Loss 2 dB Rx Pk	30 mph (48 km/h) gusting to 45 mph (72 km/h)	45 mph (72 km/h) gusting to 60 mph (97 km/h)
Drive	45 mph (72 km/h) gusting to 60 mph (97 km/h)	60 mph (97 km/h) gusting to 75 mph (121 km/h)
Survival	80 mph (128 km/h) any position Up to 120 mph (192 km/h) at stow	80 mph (128 km/h) any position Up to 120 mph (192 km/h) at stow
Temperature Range		
Operational	-22° to +130° F (-30° to +55° C)	
Survival	-40° to +158° F (-40° to +70° C)	
Rain (operational)	Up to 4 in/h (10 cm/h)	
Rain (survival)	Up to 6 in/h (15 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.		