

Model C140M Antenna

Mobile Antennas



The Strength to Perform

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. 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.

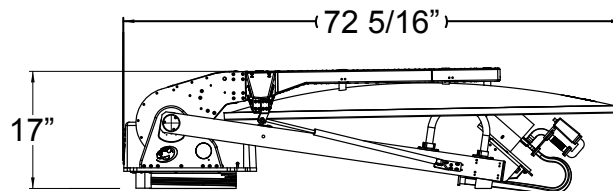
The complete antenna system can be interfaced with most lightweight vehicle structures for the purpose of mobile SNG applications.

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



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Technical Specifications

Electrical	Ku-Band 2-Port X-pol Compensated		Ku-Band 2-Port Non-Compensated		Ka-Band 2-Port Linear Polarized (non-tracking)	
	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
Antenna Gain at Midband, dBi	42.80	44.50	42.90	44.30	46.50	50.10
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)
Beamwidth (in degrees at midband)						
-3 dB	1.23	1.03	1.17	1.00	0.79	0.52
Sidelobe Performance	Meets Eutelsat, FCC 25.209 or ITU-RS-580		Meets FCC 25.209 or ITU-RS-580		Meets ITU-RS-580	
Antenna Noise Temperature						
5° Elevation	72 K		71 K		121 K	
10° Elevation	58 K		57 K		86 K	
20° Elevation	51 K		50 K		67 K	
40° Elevation	50 K		48 K		57 K	
Power Handling (total)		1 kW CW		1 kW CW		50 W CW
Cross Polarization Isolation (minimum)						
On Axis	35 dB	35 dB	30 dB	30 dB	30 dB	30 dB
Within 1.0 dB Beamwidth	27 dB	35 dB	27 dB	27 dB	25 dB	25 dB
Port to Port Isolation (minimum)						
Rx/Tx (Rx frequency)	0 dB	-30 dB	0 dB	-30 dB	0 dB	-85 dB
Tx/Rx (Tx frequency)	-85 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB
RF Specification	975-4593		975-3975		975-4240	

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	±200° continuous
Stow Height	17 in (43 cm)
Antenna Weight	145 lbs. (66 kg)
Integration Capability	80 lbs. (36 kg) on feed boom, axis crossover for rack mounting

Environmental	
Wind Performance (depends on vehicle and controller capabilities)	
Pointing Loss 2 dB Rx PK at Ku-Band	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 Up to 112 mph (180 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)

GENERAL DYNAMICS SATCOM Technologies

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