Model C100M Antenna

Mobile Antennas

The Strength to Perform

Description

The General Dynamics SATCOM Technologies lightweight 1.0-meter mobile antenna is a compact design for worldwide transmit and receive operation in multiple frequency bands. 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, within ITU, EUTELSAT, and FCC 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

- GPS or jog controller
- Boom-mounted electronics integration kits
- Tx waveguide run

GENERAL DYNAMICS
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Technical Specifications

Electrical	Ku-Band 2-Port Linear Polarized		Ku-Band 2-Port X-Pol-Compensated		Ka-Band 2-Port Circular Polarized	
	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	10.700 - 12.750	13.750 - 14.500	10.700 - 12.750	13.750 - 14.500	19.700 - 21.200	29.500 - 31.000
Antenna Gain at Midband (dBi)	39.80	41.00	39.80	41.50	44.50	47.60
VSWR	1.30:1 (17.7 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)
Beamwidth (in degrees at midband)						
-3 dB	1.69	1.50	1.75	1.44	0.94	0.66
Sidelobe Performance	Meets ITU, FCC		Meets ITU, EUTELSAT, FCC		Meets ITU	
Antenna Noise Temperature (K)						
5° Elevation	74		62		183	
10° Elevation	58		46		145	
20° Elevation	51		38		116	
40° Elevation	50		37		99	
Power Handling (total)	1 kW CW		1 kW CW		500 Watts	
Cross Polarization Isolation (minimum) (dB)						
On Axis	35	35	35	35	24.8	24.8
Within 1.0 dB Beamwidth	27	27	27	35	24.8	24.8
Port to Port Isolation (minimun) (dB)						
Rx/Tx (Rx frequency)	0	-30	0	-35	0	-75
Tx/Rx (Tx frequency)	-85	0	-35	0	-85	0
RF Specification	975-3414		975-3396		975-4565	

Mechanical	
Antenna Diameter	1.0 meter (3.3 ft)
Antenna Type	Single offset
Reflector Construction	Carbon fiber with white paint on surface
Mount Type	Elevation over azimuth
Antenna Travel	
Elevation	5° - 90° of reflector boresight
Azimuth	±200° continuous
Stow Height	13.5 in (34 cm)
Antenna Weight	130 lbs. (59 kg)
Integration Capability	40 lbs. (18 kg) on feed boom, axis crossover for rack mounting

Environmental	
Wind Performance (depending on vehicle capabilities)	
Pointing Loss of 0.5 dB at Ku-band Rx peak	30 mph (48 km/h) gusting to 45 mph (72 km/h)
Drive	45 mph (72 km/h) gusting to 50 mph (97 km/h)
Survival	80 mph (128 km/h) any position
	112 mph (180 km/h) at stow
Temperature Range	
Operational	-5° to +130° F (-20° to +55° C)
Survival	-40° to +140° F (-40° 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.	

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