Model 7.3m Cassegrain Antenna

Satcom Antennas

The Strength to Perform

Bolt-together, all-aluminum reflector with self-aligning, fully interchangeable components

Designed for 1.5 to 18 GHz operation, meeting FCC 25.209 and ITU-RS-580 regulations

Galvanized steel elevation-over-azimuth pedestal with jackscrews

Survives 125 mph winds in any position

Description

The General Dynamics SATCOM Technologies 7.3-meter antenna delivers exceptional performance for transmit/receive and receive only applications for L through DBS-band frequencies. This antenna offers a reflector design that incorporates precision-formed panels, contoured radials and a machined hub assembly. It features an innovative Cassegrain feed and subreflector design which results in high gain, low noise temperature, high antenna efficiency and excellent rejection of noise and microwave interference. A large center hub provides spacious accommodation for equipment mounting. The reflector is supported by a galvanized kingpost pedestal that provides the required stiffness for pointing and tracking accuracy. The pedestals are designed for full orbital arc coverage and are readily adaptable to ground or rooftop installations. The electrical performance is compliant with FCC and ITU-RS-580 sidelobe specifications and Intelsat (F3, E3) and Eutelsat (L, S1) requirements. All configurations meet SATCOM Technologies' own type-approved quality assurance and performance guarantee.

Options

- L, S, C, X, Ku and DBS-band feeds
- C/Ku receive only feed systems
- Specialized feed systems (e.g. extended, multi-band)
- Antenna control system with tracking
- Reflector and feed deicing systems
- Environmental hub configurations
- Integrated transmit cross axis kits
- Integrated LNA or LNB systems
- HPAs, converters and M&C systems
- Load frame mounts
- Packing for sea and air transport
- Turnkey installation and testing

Upgrades

- Extended azimuth travel
- Low operating temperatures
- High power configurations

GENERAL DYNAMICS
SATCOM Technologies

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Technical Specifications

Electrical [1]	C-Band 4-Port Circular Polarized		C-Band 4-Port Linear Polarized		Ext. C-Band 4-Port Linear Polarized		Ku-Band 4-Port Linear Polarized		DBS-Band 4-Port Linear Polarized	
	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	3.625 - 4.200	5.850 - 6.425	3.625 - 4.200	5.850 - 6.425	3.400 - 4.200	5.850 - 6.725	10.700 - 12.750	13.750 - 14.500	10.700 - 12.750	17.300 - 18.400
Antenna Gain, Midband dBi [2]	48.10	51.70	48.10	51.80	48.00	51.80	56.50	58.10	56.90	59.60
VSWR	1.25:1	1.25:1	1.25:1	1.25:1	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1
Pattern Beamwidth [2]										
-3 dB, at midband	0.67°	0.45°	0.67°	0.44°	0.67°	0.43°	0.23°	0.20°	0.23°	0.17°
-15 dB, at midband	1.41°	0.94°	1.41°	0.92°	1.41°	0.90°	0.48°	0.42°	0.48°	0.36°
Antenna Noise Temperature										
5° Elevation	52 K		49 K		53 K		87 K		75 K	
10° Elevation	43 K		40 K		44 K		73 K		60 K	
20° Elevation	37 K		35 K		39 K		65 K		51 K	
40° Elevation	35 K		33 K		37 K		61 K		47 K	
Typical G/T (dB/K) [3]										
4.000 GHz, 30 K LNA	29.8		30.0		29.6					
11.725 GHz, 70 K LNA							35.2		36.1	
Axial Ratio	0.50 dB	0.50 dB								
Power Handling (total)		10 kW CW		10 kW CW		10 kW CW		2 kW CW		2 kW CW
Cross Polarization Isolation										
On Axis	30.8 dB	30.8 dB	35.0 dB	35.0 dB	35.0 dB	35.0 dB	35.0 dB	35.0 dB	35.0 dB	35.0 dB
Within 1.0 dB beamwidth	30.8 dB	30.8 dB	30.0 dB	30.0 dB	30.0 dB	30.0 dB	35.0 dB	35.0 dB	35.0 dB	30.0 dB
Port to Port Isolation										
Rx/Tx (Rx frequency)	0 dB	-70 dB	0 dB	-50 dB	0 dB	-70 dB	0 dB	-70 dB	0 dB	-75 dB
Tx/Rx (Tx frequency)	-85 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB
Sidelobe Performance	Meets ITU-RS-580, FCC									
RF Specification	975-3475		975-3478		975-3480		975-3484		975-3486	

(1) All values are at rear feed flange. (2) C-band Rx values are at 4 GHz. (3) Typical G/T at 20° elevation with clear horizon using single bolt-on LNA to feed.

Mechanical/Environmental [4]	Kingpost Pedestal (KX120)	Kingpost Pedestal (KX200)
Antenna Diameter	7.3 meters (24 feet)	
Antenna Type	Cassegrain design	
Reflector Construction	20 precision-formed aluminum panels with heat-diffusing white paint Cleaned and brightened aluminum back-up structure	
Hub Dimensions	60 in (152 cm) OD, 36 in (91 cm) depth	
Mount Configuration	Elevation over azimuth pedestal, constructed of galvanized A36 steel	
Drive Type	Manual jack screws	
Azimuth Travel	120° continuous	200° (2 segments @ 120°)
Elevation Travel	0 to 90° continuous	0 to 90° continuous
Foundation (L x W x D)	16.5 x 16.5 x 2 ft (5.0 x 5.0 x 0.61 m)	
Concrete	20.2 yds³ (15.5 m³)	
Reinforcing Steel	1,980 lbs. (900 kg)	
Shipping Containers	One 40 ft standard	
Operational Wind Loading	45 mph (72 km/h) gusting to 60 mph (97 km/h)	
Survival Wind Loading	125 mph (200 km/h) @ 58° F (15° C), any position	
Operational Temperature	+5° to +122° F (-15° to +50° C)	
Survival Temperature	-22° to +140° F (-30° to +60° C), low temperature options available	
Rain	Up to 4 in/h (10 cm/h)	
Relative Humidity	0 to 100% with condensation	
Solar Radiation	360 BTU/h/ft² (1,000 Kcal/h/m²)	
Ice (survival)	1 in (2.5 cm) on all surfaces or 1/2 in (1.3 cm) on all surfaces with 80 mph (130 km/h) wind gusts	
Atmospheric Conditions	As encountered in coastal regions and/or heavily industrialized areas	
Shock and Vibration	As encountered during shipment by airplane, ship or truck	

(4) Some specifications may vary based on the combination of equipment, options and/or upgrades ordered.

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