

Model 6.3m Compact Cassegrain Antenna

Satcom Antennas



The Strength to Perform

'Type-Approved' bolt-together, all-aluminum reflector with self-aligning, fully interchangeable components

Designed for 3.4 to 31 GHz operation, meeting FCC 25.209 regulation at Ku-band

Galvanized steel elevation over azimuth pedestal with jackscrews

Survives 125 mph winds in any position

Description

The General Dynamics SATCOM Technologies 6.3-meter antenna delivers exceptional performance for transmit/receive and receive only applications for C through Ka-band frequencies. This antenna offers a deep dish reflector that incorporates precision-formed panels, contoured radials and a machined hub assembly. It features an innovative Compact Cassegrain feed and subreflector design which results in high gain, low noise temperature, high antenna efficiency and excellent rejection of noise and microwave interference. 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 25.209 and ITU-RS-580 sidelobe specifications. Type Approved configurations are available for Intelsat (F2, E2), Asiasat, Hispasat or Singapore Telecom. All configurations meet SATCOM Technologies' own type-approved quality assurance and performance guarantee.

Options

- C, X, Ku and DBS-band feed configurations
- C/Ku receive only feed systems
- Specialized feed systems (e.g., extended, multi-band)
- CP/LP manual or remote switchable feeds
- 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

- X-band low PIM reflector/feed configurations
- Extended azimuth travel
- High wind configuration
- Low operating temperatures
- High power configurations
- High stiffness configuration for Ka-band operation

Technical Specifications

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Electrical ⁽¹⁾	C-Band 4-Port Circular Polarized		C-Band 4-Port Linear Polarized ⁽⁵⁾		X-Band 2-Port Circular Polarized		Ku-Band 4-Port Linear Polarized ⁽⁵⁾		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	7.250 - 7.750	7.900 - 8.400	10.700 - 12.750	13.750 - 14.500	10.700 - 12.750	17.300 - 18.400
Antenna Gain, Midband dBi ⁽²⁾	46.54	50.70	46.30	50.20	52.00	52.60	55.70	57.50	55.40	59.40
VSWR	1.25:1	1.25:1	1.25:1	1.25:1	1.25:1	1.25:1	1.30:1	1.30:1	1.30:1	1.30:1
Pattern Beamwidth ⁽²⁾										
-3 dB, at midband	0.81°	0.50°	0.82°	0.52°	0.41°	0.38°	0.26°	0.22°	0.28°	0.17°
-15 dB, at midband	1.70°	1.05°	1.72°	1.09°	0.86°	0.80°	0.55°	0.46°	0.59°	0.36°
Antenna Noise Temperature										
5° Elevation	49 K		51 K		63 K		87 K		78 K	
10° Elevation	40 K		42 K		53 K		74 K		64 K	
20° Elevation	34 K		37 K		46 K		66 K		55 K	
40° Elevation	32 K		34 K		43 K		61 K		50 K	
Typical G/T (dB/K) ⁽³⁾	28.4 (4.000 GHz, 30 K LNA)		28.1 (4.000 GHz, 30 K LNA)		32.4 (7.500 GHz, 45 K LNA)		34.4 (11.725 GHz, 70 K LNA)		34.4 (11.725 GHz, 70 K LNA)	
Axial Ratio	0.51 dB	0.51 dB			1.50 dB	1.50 dB				
Power Handling (total)	10 kW CW		10 kW CW		5 kW CW		2 kW CW		2 kW CW	
Cross Polarization Isolation										
On Axis	30.7 dB	30.7 dB	35.0 dB	35.0 dB	21.3 dB	21.3 dB	35.0 dB	35.0 dB	35.0 dB	35.0 dB
Within 1.0 dB beamwidth	30.7 dB	30.7 dB	35.0 dB	30.0 dB	21.3 dB	21.3 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	-110 dB	0 dB	-50 dB	0 dB	-75 dB
Tx/Rx (Tx frequency)	-85 dB	0 dB	-85 dB	0 dB	-110 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB
Sidelobe Performance	ITU-RS-580, FCC ⁽⁴⁾				ITU-RS-580		ITU-RS-580, FCC		ITU-RS-580	
RF Specification	975-2121		975-2354		975-2342		975-3143		975-2682	

(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.

(4) Meets FCC 25.209 beyond the first sidelobe in C-band. (5) Also available in extended frequency bands.

Mechanical/Environmental ⁽⁶⁾	Kingpost Pedestal (KX120)	Kingpost Pedestal (KX200)	High Wind Kingpost Pedestal (KX-HW)
Antenna Diameter	6.3 meters (20.83 feet)		
Antenna Type	Compact 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	Manual jack screws	Manual jack screws
Azimuth Travel	120° continuous	200° (2 segments @ 120°)	200° (2 segments @ 120°)
Elevation Travel	0 to 90° continuous	0 to 90° continuous	0 to 90° continuous
Foundation (L x W x D)	17 x 17 x 1.5 ft (5.2 x 5.2 x 0.46 m)		16.5 x 16.5 x 2.5 ft (5.0 x 5.0 x 0.61 m)
Concrete	16.1 yds ³ (12.7 m ³)		20.2 yds ³ (15.5 m ³)
Reinforcing Steel	2,785 lbs. (1,263 kg)		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)		Up to 62 mph (100 km/h)
Survival Wind Loading			
Any Position	125 mph (200 km/h) @ 58° F (15° C)		125 mph (200 km/h) @ 58° F (15° C)
At Zenith	n/a		180 mph (290 km/h) @ 58° F (15° C)
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/ft ² (1,000 Kcal/h/m ²)		
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		

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

GENERAL DYNAMICS

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