Model 4.7m Prime Focus Antenna

Professional Broadcast Antennas

The Strength to Perform

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

Designed for 1 to 15 GHz operation, meeting FCC 25.209 and ITU-RS-580 regulations

Galvanized steel elevation over azimuth pedestal with jackscrews or struts

Survives 125 mph winds in any position

Description

The General Dynamics SATCOM Technologies 4.7-meter antenna delivers exceptional performance for receive only and transmit/receive applications for L, C and Ku-band frequencies. This antenna offers a reflector that incorporates precision-formed panels and contoured radials that ensure ease of installation. It features a prime focus feed design which results in high gain and low noise temperature, with excellent rejection of noise and microwave interference. The reflector is supported by a galvanized 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 regulations and ITU-RS-580 sidelobe specifications. All configurations meet SATCOM Technologies' own type-approved quality assurance and performance guarantee.

Options

- L, C and Ku-band feed configurations
- C/Ku receive-only feed systems
- Fixed or motorizable pedestals
- Antenna control system with tracking
- Reflector and feed deicing systems
- Load frame or non-penetrating mounts
- Packing for sea and air transport
- Turnkey installation and testing

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Technical Specifications

Electrical [1]	C-Band 2-Port Linear Polarized Receive Only	C-Band 2-Port Circular Polarized Receive Only	C/Ku-Band 4-Port Linear Polarized Receive Only		C-Band 2-Port Transmit/Receive Linear Polarized		Ku-Band 2-Port Transmit/Receive Linear Polarized	
					Receive	Transmit	Receive	Transmit
Frequency (GHz)	3.625 - 4.200	3.625 - 4.200	3.625 - 4.200	10.950 - 12.750	3.625 - 4.200	5.850 - 6.425	10.950 - 12.750	14.000 - 14.500
Antenna Gain, Midband dBi [2]	44.30	44.20	43.80	51.7	43.50	47.00	53.1	54.4
VSWR	1.38:1	1.38:1	1.38:1	1.38:1	1.30:1	1.30:1	1.30:1	1.30:1
Pattern Beamwidth [2]								
-3 dB, at midband	1.03°	1.05°	1.09°	0.43°	1.14°	0.76°	0.37°	0.32°
-15 dB, at midband	2.16°	2.20°	2.29°	0.90°	2.39°	1.60°	0.78°	0.67°
Antenna Noise Temperature								
5° Elevation	56 K	58 K	55 K	69 K	54 K		63 K	
10° Elevation	49 K	51 K	48 K	62 K	47 K		54 K	
20° Elevation	45 K	47 K	44 K	57 K	43 K		48 K	
40° Elevation	42 K	44 K	41 K	52 K	40 K		43 K	
Typical G/T (20° El) [3]								
30 K LNA	25.5 (dB/K)	25.3 (dB/K)	24.8 (dB/K)		24.5 (dB/K)			
70 K LNA				30.7 (dB/K)			32.0 (dB/K)	
Axial Ratio		1.50 dB						
Cross Polarization Isolation								
On Axis	30.0 dB	21.3 dB	30.0 dB	25.0 dB	30.0 dB	30.0 dB	27.0 dB	27.0 dB
Within 1.0 dB beamwidth	30.0 dB	21.3 dB	30.0 dB	25.0 dB	30.0 dB	30.0 dB	27.0 dB	27.0 dB
Port to Port Isolation								
Rx to Rx (same band)	30 dB	22 dB	30 dB	30 dB	30 dB	30 dB	30 dB	30 dB
Sidelobe Performance	ITU-RS-580	ITU-RS-580	ITU-RS-580		ITU-RS-580		ITU-RS-580	
RF Specification	975-3563	975-3562	975-3564		975-3790		975-3715	

(1) All values are at rear feed flange. (2) C-band Rx values are at 4 GHz and Ku-band Rx values are at 11.85 GHz. (3) Typical G/T at 20° elevation with clear horizon using single bolt-on LNA to feed.

Mechanical/Environmental [4]	Fixed Post Mount (PM) Pedestal	Motorizable Kingpost Pedestal (KP)
Antenna Diameter	4.7 meters (15.42 feet)	
Antenna Type	Prime focus design	
Reflector Construction	10 precision-formed aluminum panels with heat-diffusing white paint Cleaned and brightened aluminum back-up structure	
Mount Configuration	Elevation over azimuth pedestal, constructed of galvanized steel	
Drive Type	Manual strut	Manual strut or jack screw
Azimuth Travel	360° coarse, 40° fine adjustment	120° continuous
Elevation Travel	0 to 90° continuous	0 to 90° continuous
Foundation (L x W x D)	12.5 x 12.5 x 1.5 ft (3.8 x 3.8 x 0.38 m)	
Concrete	8.7 yds³ (6.65 m³)	
Reinforcing Steel	1,125 lbs. (510 kg)	
Shipping Containers	5 units in one 40 ft	4 units in one 40 ft
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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655-0068E, 08/08