Model 3.8m Dual Offset Antenna

Satcom Antennas

The Strength to Perform

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

Designed for 1.5 to 31 GHz operation, meeting FCC 25.209 regulations in Ku-band and beyond the main beam at C band

Feed boom supports 300 lbs. (136 kg) of equipment

Galvanized steel EL over AZ pedestal with jackscrews or struts

Standard: Survives 125 mph (200 km/h) winds in any position; 130 mph (209 km/h) at preferential stow orientation
Optional: HWA survives 150 mph (240 km/h) winds in stow orientation (true zenith)

Description

The General Dynamics SATCOM Technologies 3.8-meter antenna delivers exceptional performance for transmit/receive and receive only applications in L through Ka-band frequencies. This antenna offers a dual offset reflector design that incorporates precision-formed panels, contoured radials and a machined hub assembly. The state-of-the-art design provides exceptional performance for low cross-polarization levels and excellent sidelobe patterns. The rugged feed boom can support up to 300 lbs. (136 kg) of integration equipment. The reflector is supported by a galvanized steel fixed or motorizable 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 using concrete foundations, load-frames or non-penetrating mounts. The electrical performance is compliant with FCC 25.209 regulations and ITU-RS-580 sidelobe specifications. Type Approved configurations are available for Intelsat (F1, E2), Eutelsat (L, M), Asiasat, Europe Star and Singapore Telecom.

Options

- L, S, C, X, Ku, DBS and Ka-band feed configurations
- C/Ku receive only feed systems
- Specialized feed systems (e.g., extended, multi-band)
- Antenna control system with tracking
- Reflector and feed deicing systems
- Integrated transmit cross-axis kits
- Integrated LNA or LNB systems
- HPAs, converters and M&C systems
- Fixed or motorizable pedestals
- Non-penetrating and load frame mounts
- Packing for sea and air transport
- Turnkey installation and testing
- High wind antenna (HWA) option for 150 mph (240 kmh) wind survival

Upgrades

- Low operating temperatures
- High power configurations
- Special upgrades may be available upon request – call for details

GENERAL DYNAMICS
SATCOM Technologies

Technical Specifications

Model 3.8m Dual Offset Antenna

Electrical [1]	C-Band 2-Port Circular Polarized		X-Band 2-Port Circular Polarized		Ku-Band 2-Port Linear Polarized [5]		DBS-Band 2-Port Linear Polarized		Ka-Band 4-port Circular Polarized	
	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	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	17.700- 21.200	27.500- 31.000
Antenna Gain, Midband dBi [2]	42.00	45.90	47.30	47.70	51.10	52.40	51.40	54.60	54.90	57.80
VSWR	1.50:1	1.30:1	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	1.35°	0.87°	0.72°	0.69°	0.47°	0.41°	0.45°	0.31°	.028°	0.20°
-15 dB, at midband	2.84°	1.83°	1.51°	1.45°	0.99°	0.86°	0.94°	0.65°	0.59°	0.42°
Antenna Noise Temperature										
5° Elevation	49 K		63 K		75 K		68 K		206 K	
10° Elevation	40 K		52 K		61 K		52 K		163 K	
20° Elevation	35 K		46 K		51 K		43 K		129 K	
40° Elevation	33 K		44 K		47 K		39 K		103 K	
Typical G/T (dB/K) [3]										
4.000 GHz, 30 K LNA	23.8									
7.500 GHz, 50 K LNA			27.5							
11.725 GHz, 70 K LNA					29.9		30.9			
19.450 GHz, 120 K LNA									30.9	
19.450 GHz, 200 K LNA									29.7	
Axial Ratio	1.58 dB	0.75 dB	1.49	1.49					0.50	0.50
Power Handling (total)		1 kW CW		5 kW CW		2 kW CW		2 kW CW		1 kW CW
Cross Polarization Isolation										
On Axis	20.8 dB	27.3 dB	21.3 dB	21.3 dB	35.0 dB	35.0 dB	35.0 dB	35.0 dB	30.8 dB	30.8 dB
Within 1.0 dB beamwidth	20.8 dB	27.3 dB	21.3 dB	21.3 dB	35.0 dB	35.0 dB	35.0 dB	30.0 dB	30.8 dB	30.8 dB
Port to Port Isolation										
Rx/Tx (Rx frequency)	0 dB	-85 dB	0 dB	-110 dB	0 dB	-30 dB	0 dB	-75 dB	0 dB	-85 dB
Tx/Rx (Tx frequency)	-120 dB	0 dB	-110 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB
Sidelobe Performance	Meets ITU-RS-580, FCC [4]				Meets ITU-RS-580, FCC		Meets ITU-RS-580			
RF Specification	975-1744		975-2192		975-2936		975-2091		975-4953	

(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 main beam in C-band. (5) Also available in extended frequency bands.

Mechanical/Environmental [6]	Fixed Post Mount Pedestal (PM)	V-frame Pedestal (VX)
Antenna Size	3.8 meters (12.5 feet)	
Antenna Type	Dual offset reflector design	
Reflector Construction	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 struts	Motorized jack screws
Azimuth Travel	360° coarse, 40° fine adjustment	190° (2 continuous 120° segments)
Elevation Travel	0 to 90° continuous	0 to 90° continuous
Foundation (L x W x D)	13.5 x 13.5 x 1.5 ft (4.1 x 4.1 x 0.46 m)	11.5 x 11.5 x 1.5 ft (3.5 x 3.5 x 0.46 m)
Concrete	10.1 yds^3 (7.74 m^3)	7.4 yds^3 (5.66 m^3)
Reinforcing Steel	1,294 lbs. (587 kg)	685 lbs. (311 kg)
Shipping Containers	One 20 ft standard (2 units in 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; 130 mph (209 km/h) at preferential stow orientation	
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	

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