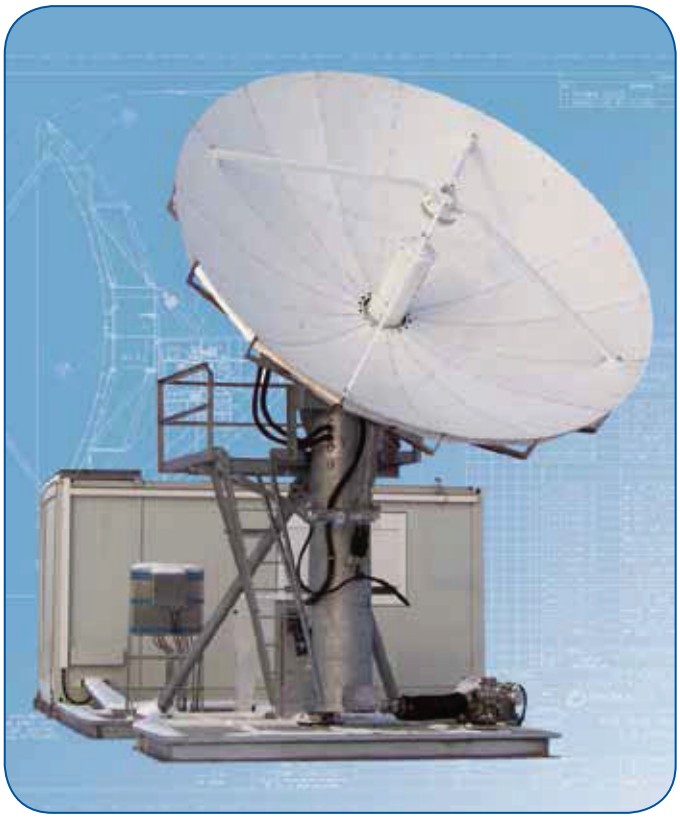
STEP ELECTRONICS
A Division of Av-Comm

GENERAL DYNAMICS
SATCOM Technologies

4.8 Meter KA-Band Antenna

SATCOM Cassgrain Antennas
The strength to Perform



High-accuracy, precision reflector

31 GHz operation, meeting ITU, EUTELSAT, WGS, FCC

Bolt-together reflector, galvanized steel pedestal

125 mph (200 km/h) wind survival

Low backlash

Feed internal pol adjustment (LP) option

High-wind option

Description

The General Dynamics SATCOM Technologies 4.8-meter antenna delivers exceptional performance for transmit/ receive for Ka-band frequencies. This antenna offers a deep dish reflector that incorporates high, precision-formed panels, and contoured radials and hub assembly. It features an innovative feed and subreflector design which results in high gain, low noise temperature, high antenna efficiency and excellent rejection of noise and microwave interference. The aluminum reflector is supported by a galvanized pedestal that provides high stiffness for Ka-band operation. The pedestal is designed for full orbital arc coverage and Is readily adaptable to ground or rooftop installations. The electrical performance is compliant with ITU, EUTELSAT, WGS, and FCC sidelobe specifications. All configurations meet SATCOM Technologies' own type-approved quality assurance and performance guarantee.

Why Ka-Band?

Ka-band spectrum provides great growth opportunity:

- Alternative to Ku and DBS with greater data throughput
- Maturing of Ka-band grade electronics and amplifiers
- Ka fillings are on the rise – expected market growth Commercial, Military, Government Ka-band sectors
- Supports WGS, Yahsat, Athena Fidus, Eutelsat KaSat, Hughes, WildBlue, and other Ka networks

Options

- Fixed or motorizable pedestal mounts
- Antenna control system with tracking
- Reflector and feed deicing systems
- Environmental hub configurations
- 1:1 and 1:2 pre-engineered amplifier integration kits
- Integrated LNA or LNB systems
- HPAs, converters and M&C systems
- Improved feed cross-pol performance
- Multi-band feeds
- Load frame or non-penetrating mounts
- Packing for sea and air transport
- Turnkey installation and testing
- High-wind configuration

Upgrades

- Extended azimuth travel
- Low operating temperatures

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TECHNICAL SPECIFICATIONS

Electrical [1]	Ka-Band-4 Port Circular Polarized		Ka-Band 4-Port Linear Polarized	
	Receive	Transmit	Receive	Transmit
Frequency (GHz)	17.70 - 12.20	27.50 - 31.00	17.70 - 21.20	27.50 - 31.00
Antenna Gain, Midband dBi	57.10	60.20	57.00	60.10
VSWR	1.30:1	1.30:1	1.30:1	1.30:1
Pattern Beamwidth				
-3 dB, at midband	0.21°	0.15°	0.21°	0.15°
Antenna Noise Temperature (K)				
5° Elevation	207		203	
10° Elevation	165		162	
20° Elevation	133		131	
40° Elevation	108		106	
Typical G/T (dB/K) [2]				
19.45 GHz, 120 K LNA)	33.1		33.0	
Axial Ratio (dB)	0.75	0.50		
Power Handling (total)		400 Watts		400 Watts
Cross Polarization Isolation (dB)				
On Axis	27.3	27.3	30.0	30.0
Within a 1.0 dB beamwidth	27.3	27.3	30.0	30.0
Port to Port Isolation (dB)				
Rx/Tx (Rx frequency)	0	-85	0	-85
Tx/Rx (Tx frequency)	-85	0	-85	0
Sidelobe Performance	ITU, EUTELSAT, WGS, FCC			
RF Specification	975-3056		975-4488	

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

Mechanical Environment [3]	Fixed Post Mount (PM) Pedestal	Motorizable Kingpost Pedestal (KP)	Motorizable High Wind Kingpost Pedestal (KP-HW)
Antenna Diameter	4.8 meters (15.83 feet)		
Antenna Type	Compact Cassegrain design		
Reflector Construction	Vigorous inspection for Ka-band rating; 16 precision-formed aluminum panels with heat-diffusing white paint; Cleaned and brightened aluminum back-up structure		
Hub Dimensions	48 in (122 cm) OD, 29 in (74 cm) depth		
Mount Configuration	Elevation over azimuth pedestal, constructed of galvanized A36 steel		
Drive Type	Manual strut	Manual strut or jack screw	Manual jack screws
Azimuth Travel	360° coarse, 40° fine adjustment	120° continuous	120° continuous
Elevation Travel	0 to 90° continuous	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)		16.5 x 16.5 x 2.5 ft (5.0 x 5.0 x 0.76 m)
Concrete	8.7 yds³ (6.65 m³)		25.5 yds³ (19.5 m³)
Reinforcing Steel	1,125 lbs. (510 kg)		1,680 lbs. (762 kg)
Shipping Containers	One 20 ft standard (4 units in one 40 ft)	One 20 ft standard (2 units in one 40 ft)	Two units in one 40 ft standard
Operational Wind Loading	45 mph (72 km/h) gusting to 60 mph (97 km/h)km/h)		Up to 62 mph (100 km/h)
Survival Wind Loading			
Any Position	125 mph (200 km/h) @ 58° F (15° C)		180 mph (290 km/h) @ 58° F (15° C)
At Zenith	n/a		210 mph (338 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/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		

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

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