Model 4.8m Ka-Band Antenna

SATCOM Cassegrain Antennas - The Strength to Perform

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
## Technical Specifications

### Electrical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Receive</th>
<th>Transmit</th>
<th>Receive</th>
<th>Transmit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency (GHz)</td>
<td>17.70 - 27.50</td>
<td>27.50 -</td>
<td>17.70 - 27.50</td>
<td>27.50 -</td>
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<tr>
<td>Antenna Gain, Midband dBi</td>
<td>57.10</td>
<td>60.20</td>
<td>57.00</td>
<td>60.10</td>
</tr>
<tr>
<td>VSWR</td>
<td>1.30:1</td>
<td>1.30:1</td>
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</tr>
<tr>
<td>Pattern Beamwidth</td>
<td>0.21° - 0.15°</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Antenna Noise Temperature (K)</td>
<td>207</td>
<td>203</td>
<td>133</td>
<td>131</td>
</tr>
<tr>
<td>Typical G/T (dB/K)</td>
<td>33.1</td>
<td>33.0</td>
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### Mechanical Environment

- **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
- **Azimuth Travel**: 360° coarse, 40° fine adjustment
- **Elevation Travel**: Manual strut or jack screw 120° 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**: 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 (97 km/h) km/h
- **Survival Wind Loading**: 125 mph (200 km/h) @ 58° F (15° C) 16.5 x 16.5 x 2.5 ft (5.0 x 5.0 x 0.76 m) 25.5 yds² (19.5 m²) 1,680 lbs. (762 kg)
- **At Zenith**: 125 mph (200 km/h) @ 58° F (15° C) 210 mph (338 km/h) @ 58° F (15° C)
- **Operational Temperature**: +5° to +122° F (-15° to +50° C) -22° to +140° F (-30° to +60° C), low temperature options available
- **Survival Temperature**: +5° to +122° F (-15° to +50° C) -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 95% 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

### RF Specification

- **975-3056**
- **975-4488**

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