Model C125M Ku-Band Antenna

Mobile Antennas

Description
The General Dynamics SATCOM Technologies lightweight 1.25-meter mobile antenna is a compact design for worldwide transmit and receive operation in Ku-band. This transportable antenna consists of a single-piece carbon fiber composite reflector mounted on a cable drive elevation-over-azimuth positioner. This results in a low-weight antenna with superior stiffness and high performance under wind loading conditions.

The state-of-the-art design provides exceptionally low sidelobe and cross-polarization performance, well within INTELSAT and EUTELSAT requirements.

The complete antenna system can be interfaced with most lightweight vehicle structures for the purpose of mobile SNG applications.

Features
- Aluminum/Carbon fiber construction
  - Light weight
  - Precise surface
  - High stiffness
  - Robust design for vehicle mounting
- High performance
  - Low sidelobes, high E.I.R.P. capability
  - Compliant under operational wind conditions
- Stow/deployment
  - Low profile
  - Stow position on vehicle
  - Precision alignment
- INTELSAT and EUTELSAT compliant

Options
- GPS or jog controller
- Boom-mounted electronics integration kits
- Tx waveguide run
## Technical Specifications

### Ku-Band 2-Port Linear Polarized Cross-pol Compensated

<table>
<thead>
<tr>
<th>Electrical</th>
<th>Receive</th>
<th>Transmit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency (GHz)</td>
<td>10.700 - 12.750</td>
<td>13.750 - 14.500</td>
</tr>
<tr>
<td>Antenna Gain at Midband, dBi</td>
<td>41.70</td>
<td>43.40</td>
</tr>
<tr>
<td>VSWR</td>
<td>1.35:1 (16.5 dB)</td>
<td>1.30:1 (17.7 dB)</td>
</tr>
</tbody>
</table>

### Ku-Band 2-Port Non-Compensated

<table>
<thead>
<tr>
<th>Electrical</th>
<th>Receive</th>
<th>Transmit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency (GHz)</td>
<td>10.700 - 12.750</td>
<td>13.750 - 14.500</td>
</tr>
<tr>
<td>Antenna Gain at Midband, dBi</td>
<td>42.00</td>
<td>43.40</td>
</tr>
<tr>
<td>VSWR</td>
<td>1.30:1 (17.7 dB)</td>
<td>1.30:1 (17.7 dB)</td>
</tr>
</tbody>
</table>

### Sidelobe Performance

- Meets Eutelsat, FCC 25.209 or ITU-RS-580

### Antenna Noise Temperature

<table>
<thead>
<tr>
<th>Elevation</th>
<th>5°</th>
<th>10°</th>
<th>20°</th>
<th>40°</th>
</tr>
</thead>
<tbody>
<tr>
<td>5° Elevation</td>
<td>72 K</td>
<td>71 K</td>
<td>71 K</td>
<td>71 K</td>
</tr>
<tr>
<td>10° Elevation</td>
<td>58 K</td>
<td>56 K</td>
<td>56 K</td>
<td>56 K</td>
</tr>
<tr>
<td>20° Elevation</td>
<td>51 K</td>
<td>49 K</td>
<td>49 K</td>
<td>49 K</td>
</tr>
<tr>
<td>40° Elevation</td>
<td>50 K</td>
<td>48 K</td>
<td>48 K</td>
<td>48 K</td>
</tr>
</tbody>
</table>

### Cross Polarization Isolation (minimum)

<table>
<thead>
<tr>
<th>Port to Port Isolation (minimum)</th>
<th>Rx/Tx (Rx frequency)</th>
<th>Tx/Rx (Tx frequency)</th>
</tr>
</thead>
<tbody>
<tr>
<td>On Axis</td>
<td>35 dB</td>
<td>35 dB</td>
</tr>
<tr>
<td>Within 1.0 dB Beamwidth</td>
<td>27 dB</td>
<td>27 dB</td>
</tr>
<tr>
<td>Rx/Tx (Rx frequency)</td>
<td>0 dB</td>
<td>0 dB</td>
</tr>
<tr>
<td>Tx/Rx (Tx frequency)</td>
<td>-85 dB</td>
<td>-85 dB</td>
</tr>
</tbody>
</table>

### Power Handling (total)

- 1 kW CW
- 1 kW CW

### RF Specification

- 975-4457
- 975-4449

### Mechanical

- Antenna Diameter: 1.25 meters (4.1 ft)
- Antenna Type: Single offset
- Reflector Construction: Carbon fiber with white paint on surface
- Mount Type: Elevation over azimuth
- Antenna Travel
  - Elevation: 5° - 90° of reflector boresight
  - Azimuth: ±200° continuous
- Stow Height: 16.5 in (42 cm)
- Antenna Weight: 140 lbs. (63.5 kg)
- Integration Capability: 80 lbs. (36.3 kg) on feed boom, axis crossover for rack mounting

### Environmental

- Wind Performance (depending on vehicle capabilities)
  - Pointing Loss of 0.8 dB: 30 mph (48 km/h) gusting to 50 mph (80 km/h)
  - Drive: 50 mph (80 km/h) gusting to 65 mph (105 km/h)
  - Survival: 80 mph (128 km/h) any position
  - 112 mph (180 km/h) at stow
- Temperature Range
  - Operational: -5° to +130° F (-20° to +55° C)
  - Survival: -40° to +140° F (-40° to +60° C)
- Rain: Up to 4 in/h (10 cm/h)
- Relative Humidity: 0% to 100% with condensation
- Solar Radiation: 360 BTU/h/ft² (1000 Kcal/h/m²)
- Radial Ice (survival): 1 in (2.5 cm)
- Shock and vibration tolerant to conditions encountered during shipment by airplane, ship or truck. Atmospheric tolerant to conditions encountered in coastal regions and/or heavily industrialized areas.