Model C180M Mobile Antenna

Description
The General Dynamics SATCOM Technologies lightweight 1.8-meter mobile antenna is designed for quad-band transmit and receive operation worldwide. 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
- Lightweight
- Precise surface
- High stiffness
- Robust design for vehicle mounting
- High performance
  - Low sidelobes, high EIRP capability
  - Compliant under operational wind conditions
- Stow/deployment
  - Low profile
  - Stow position on vehicle
  - Precision alignment
- INTELSAT and EUTELSAT compliant

Options
- Finishes
  - Standard Ford Polar White
  - Option Green Fed Std 595 34094 or Desert Sand Fed Std 595 33303 - please specify at order
- Boom-mounted or saddlebags electronics integration kits
- Transmit waveguide run(s)
**Technical Specifications**

### Mechanical
- **Antenna:** Diameter: 1.8 meters (5.9 ft); Type: single offset
- **Reflector Construction:** Carbon fiber
- **Mount Type:** Elevation over azimuth
- **Antenna Travel:**
  - **Elevation:** 5° to 90° of reflector boresight
  - **Azimuth:** ±180° continuous
  - **Polarization:** ≤90°
- **Slow Height:** 19 in (48.3 cm)
- **Antenna Weight:** 260 lbs. (109 kg)
- **Integration Capacity:** 100 lbs. (45 kg) on feed boom, axis crossover for rack mounting

### Environmental
- **Wind Performance (depends on vehicle and controller capabilities):**
  - **Pointing Loss 2 dB Rx Pk:**
    - Ka-Band: 30 mph (48 km/h) gusting to 45 mph (72 km/h)
    - Ku-Band: 45 mph (72 km/h) gusting to 60 mph (97 km/h)
- **Drive:**
  - Ka-Band: 45 mph (72 km/h) gusting to 60 mph (97 km/h)
  - Ku-Band: 60 mph (97 km/h) gusting to 75 mph (121 km/h)
- **Survival:**
  - Ka-Band: 80 mph (128 km/h) any position
  - Ku-Band: 80 mph (128 km/h) any position
- **Temperature Range:**
  - **Operational:** -22° to +130° F (-30° to +55° C)
  - **Survival:** -40° to +158° F (-40° to +70° C)
- **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)

### Electrical

<table>
<thead>
<tr>
<th>Antenna</th>
<th>C-Band 2-Port Linear Polarized</th>
<th>C-Band 2-Port Circular Polarized</th>
<th>X-Band 2-Port Linear Polarized</th>
<th>Ku-Band 2-Port Linear Polarized (X-Pol Compensated)</th>
<th>Ka-Band 4-Port Circular Polarized</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency (GHz):</strong></td>
<td><strong>Receive</strong></td>
<td><strong>Transmit</strong></td>
<td><strong>Receive</strong></td>
<td><strong>Transmit</strong></td>
<td><strong>Receive</strong></td>
</tr>
</tbody>
</table>

- **Antenna Gain at Midband:**
  - Ka-Band: 35.20 dBi
  - Ku-Band: 39.00 dBi
  - C-Band: 35.50 dBi
  - X-Band: 39.10 dBi
  - VSWR: 1.30:1 (17.7 dB)
  - **Sidelobe Performance:**
    - Ka-Band: 32-29 log Θ
    - Ku-Band: 24-25 log (Az plane)
  - **Antenna Noise Temperature:**
    - Ka-Band: 69 K
    - Ku-Band: 59 K
  - **Power Handling:**
    - Ka-Band: 1 kW CW
    - Ku-Band: 5 kW CW
  - **Cross Polarization Isolation:**
    - Ka-Band: 30.0 dB
    - Ku-Band: 30.0 dB
  - **Port to Port Isolation:**
    - Ka-Band: 0 dB
    - Ku-Band: -30 dB

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- **Electrical:**
  - **Receieve:**
    - 3.625-4.200 GHz: 35.20 dBi
    - 5.725-6.425 GHz: 39.00 dBi
    - 7.250-7.750 GHz: 35.50 dBi
    - 10.700-12.750 GHz: 39.10 dBi
    - 17.725-18.725 GHz: 41.00 dBi
    - 31.000-31.500 GHz: 44.80 dBi
  - **Transmit:**
    - 3.625-4.200 GHz: 35.20 dBi
    - 5.725-6.425 GHz: 39.00 dBi
    - 7.250-7.750 GHz: 35.50 dBi
    - 10.700-12.750 GHz: 39.10 dBi
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- **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.**