

C125M Mobile Antenna

Satcom & Antenna Technologies Division



Overview

The CPI Satcom & Antenna Technologies Inc. (CPI SAT) lightweight 1.25 meter mobile antenna is a compact design for worldwide transmit and receive operation in Ku, Ka and X-bands. 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, meeting 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 composite construction
- Lightweight
- Precision 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 and precision alignment

OPTIONS:

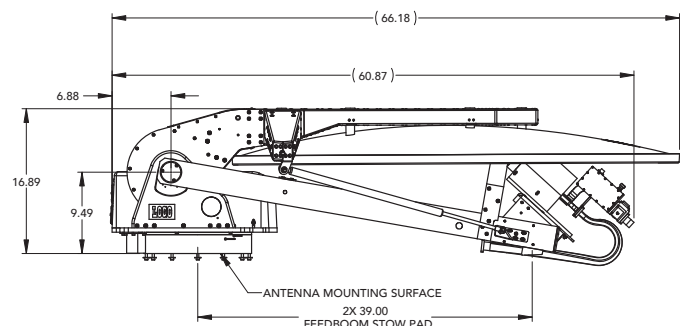
- Lightweight
- Tx waveguide run

BENEFITS:

- Lightweight
- Designed for worldwide transmit and receive

APPLICATIONS:

- Superior stiffness and high performance under wind loading conditions



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Specifications

| MECHANICAL ⁽¹⁾ | | |
|---------------------------|----------------------|---|
| Antenna Diameter | | 1.25 meters (4.1 ft) |
| Antenna Type | | Single offset |
| Reflector Construction | | Carbon fiber with white paint on surface (other colors available) |
| Mount Type | | Elevation over Azimuth |
| Antenna Travel | Azimuth Elevation | ±200° continuous 5° to 90° reflector boresight |
| Stow Height | | 16.5 in (42 cm) |
| Antenna Weight | | 140 lbs. (63.5 kg) |
| Integration | | 80 lbs. (36 kg) on feed boom, axis crossover for rack mounting |

| ENVIRONMENTAL ⁽¹⁾ | | |
|---|-------------------------|---|
| Wind Performance ⁽²⁾ Pointing Loss of 0.8 dB Drive Survival | | 30 mph (48 km/h) gusting to 50 mph 80 km/h 50 mph (80 km/h) gusting to 65 mph (105 km/h) 80 mph (128 km/h) any position 112 mph (180 km/h) at stow |
| Temperature | Operational Survival | -5° to +130° F (-20° to +55° C) -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/ft ² (1000 Kcal/h/m) ² |
| Radial Ice (survival) | | 1 in (2.5 cm) |
| Tolerances | | Shock and vibration tolerant to conditions encountered during shipment by airplane, ship or truck. Atmospheric tolerant to conditions encountered in coastal and/or heavily industrialized areas |

⁽¹⁾ Some specifications may vary based on the combination of equipment, options and/or upgrades ordered. ⁽²⁾ Depending on vehicle capabilities.

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Specifications

| ELECTRICAL ⁽¹⁾ | Ku-Band 2-Port Linear Cross-Pol Compensated Linear Polarized | | Ku-Band 2-Port Non-Cross Pol Compensated Linear Polarized | |
|---|--|------------------|---|------------------|
| | Receive | Transmit | Receive | Transmit |
| Frequency (GHz) | 10.70-12.75 | 13.75 - 14.50 | 10.70 -12.75 | 13.75 -14.50 |
| Antenna Gain (Midband, dBi) | 41.95 | 43.40 | 41.85 | 43.45 |
| VSWR | 1.43:1 (15.0 dB) | 1.33:1 (17.0 dB) | 1.43:1 (15.0 dB) | 1.33:1 (17.0 dB) |
| Pattern Beamwidth (in degrees at midband) -3 dB beamwidth | 1.44 | 1.21 | 1.29 | 1.17 |
| Sidelobe Performance | Meets Eutelsat, FCC 25.209 or ITU-RS-580 | | | |
| Antenna Noise Temperature | | | | |
| 5° Elevation | 61 K | | 61 K | |
| 10° Elevation | 54 K | | 56 K | |
| 20° Elevation | 57 K | | 56 K | |
| 40° Elevation | 54 K | | 51 K | |
| Total Power Handling Capability | 1kW CW | | 1kW CW | |
| Cross Polarization | | | | |
| On Axis | -35 dB | -35 dB | -35 dB | -35 dB |
| Within 1.0 dB BW | -28 dB | -30 dB | -27 dB | -27 dB |
| Port-to-Port Isolation | | | | |
| Rx/Tx (Rx frequency) | 0 dB | -35 dB | 0 dB | -30 dB |
| Tx/Rx (Tx frequency) | -85 dB | 0 dB | -85 dB | 0 dB |
| Feed Insertion Loss | 0.50 dB | 0.35 dB | 0.50 dB | 0.30 dB |

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Specifications

| ELECTRICAL ⁽¹⁾ | X-Band Circular Polarized | | Ka-Band Mil/Com Circular Polarized | |
|---|------------------------------|------------------|---------------------------------------|------------------|
| | Receive | Transmit | Receive | Transmit |
| Frequency (GHz) | 7.25 - 7.75 | 7.90 - 8.40 | 19.2 - 21.2 | 29.0 - 31.0 |
| Antenna Gain, Midband, dBi) | 37.7 | 38.5 | 46.8 | 50.1 |
| VSWR | 1.33:1 (17.0 dB) | 1.33:1 (17.0 dB) | 1.33:1 (17.0 dB) | 1.33:1 (17.0 dB) |
| Pattern Beamwidth (in degrees at midband) -3 dB beamwidth | 2.14 | 1.95 | 0.81 | 0.55 |
| Sidelobe Performance | Meets ITU-RS-580 | | | |
| Antenna Noise Temperature | | | | |
| 5° Elevation | 39 K | | 91 K | |
| 10° Elevation | 35 K | | 86 K | |
| 20° Elevation | 33 K | | 81 K | |
| 40° Elevation | 34 K | | 86 K | |
| Total Power Handling | 2 kW CW | | 250 W CW | |
| Cross Polarization | | | | |
| On Axis | 35 dB | 35 dB | 35 dB | 35 dB |
| Port-to-Port Isolation | | | | |
| Rx/Tx (Rx frequency) | 0 dB | -110 dB | 0 dB | -70 dB |
| Tx/Rx (Tx frequency) | -110 dB | 0 dB | -75 dB | 0 dB |
| Feed Insertion Loss | 0.80 dB | 0.70 dB | 0.45 dB | 0.35 dB |

⁽¹⁾ Some specifications may vary based on the combination of equipment, options and/or upgrades ordered.

Contact us at CustomerCareSAT@cpil.com or call us at +1 770-689-2040

The data should be used for basic information only.

Formal, controlled specifications may be obtained from CPI for use in equipment design.



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For more detailed information, please refer to the corresponding CPI technical description if one has been published, or contact CPI. Specifications may change without notice as a result of additional data or product refinement. Please contact CPI before using this information for system design. © 2022 Communications & Power Industries LLC. Company proprietary; use and reproduction is strictly prohibited without written authorization from CPI.

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