

C140M Mobile Antenna

Satcom & Antenna Technologies Division



Overview

The CPI Satcom & Antenna Technologies Inc. (CPI SAT) lightweight 1.4 meter mobile antenna is designed for worldwide transmit and receive operation in C, X, Ku and Ka-Band.

This mobile antenna consists of a carbon fiber composite reflector and back beam mounted on a cable-driven, elevation-over-azimuth positioning system. This results in an antenna with superior stiffness and high performance under wind loading conditions.

The unique shape and the accurate reflectors surface provide exceptionally low sidelobe and cross-polarization performance meeting INTELSAT and EUTELSAT requirements.

The interchangeable feeds are palletized for quick, easy removal and replacement, allowing the end-user to effectively change frequency bands in the field within minutes. The complete antenna system can be interfaced with most light weight vehicle structures for the purpose of mobile 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:

- Boom-mounted electronics integration kits
- 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	1.4 meter (4.6 ft)
Antenna Type	Single offset
Reflector Construction	Carbon fiber
Mount Type	Elevation over Azimuth
Antenna Travel	±200° continuous
Azimuth Elevation	5° to 90° reflector boresight
Stow Height	17 in (43 cm)
Antenna Weight	145 lbs. (66 kg)
Integration	80 lbs. (36 kg) on feed boom, axis crossover for rack mounting

ENVIRONMENTAL ⁽¹⁾		Ku-Band
Wind Loading ⁽²⁾	Pointing Loss 2 dB Rx Pk Drive Survival	30 mph (48 km/h) gusting to 45 mph (72 km/h) 45 mph (72 km/h) gusting to 60 mph (97 km/h) 80 mph (128 km/h) any position Up to 112 mph (180 km/h) at stow
Temperature	Operational Survival	-22° to +130° F (-30° to +55° C) -40° to +158° F (-40° to +70° C)
Rain	Operational Survival	up to 4 in/h (10 cm/h) up to 6 in/h (15 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 XPC Linear Polarized		Ku-Band 2-Port NXPC 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)	43.0	44.50	42.90	44.65
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	1.29	1.08	1.24	1.04
Sidelobe Performance	Meets Eutelsat, FCC 25.209 or ITU-RS-580			
Antenna Noise Temperature				
5° Elevation	62 K		62 K	
10° Elevation	56 K		57 K	
20° Elevation	55 K		56 K	
40° Elevation	51 K		53 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	-30 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)	-80 dB	0 dB	-85 dB	0 dB

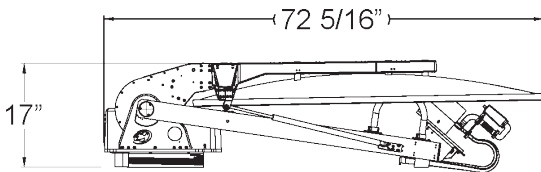
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Specifications

ELECTRICAL ⁽¹⁾	X-Band Circular Polarized		Ka-Band 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)	38.9	39.8	48.4	51.7
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	1.91	1.75	0.68	0.46
Sidelobe Performance	Meets ITU-RS-580			
Antenna Noise Temperature				
5° Elevation	42 K		186 K	
10° Elevation	34 K		136 K	
20° Elevation	33 K		119 K	
40° Elevation	34 K		110 K	
Total Power Handling Capability	2 kW CW		240 W CW	
Cross Polarization				
On Axis	35 dB	35 dB	24.8 dB	24.8 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

⁽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.



**Satcom & Antenna
Technologies Division**
1700 NE Cable Drive
Conover, NC
USA 28613

+1 770-689-2040
1 888-874-7646
(In North America)
1 619-240-8480
(Outside North America)
CustomerCareSAT@cpil.com
www.cpii.com

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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