

C240M Mobile Antenna

Satcom & Antenna Technologies Division



The CPI Satcom & Antenna Technologies Inc. (CPI SAT) lightweight 2.4-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 reflector surface provide exceptionally low sidelobe and cross-polarization performance well within 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
 - 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
 - Precision alignment

OPTIONS

- Finishes
 - Standard color Ford Polar White
 - Options Green Fed Std 595 34094 or Desert Sand Fed Std 595 33303
 - please specify at order
- 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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Technical Specifications

Mechanical	
Antenna Diameter	2.4 meter (94.5 in)
Antenna Type	Single Offset
Reflector Construction	Carbon fiber, single or 3 segment
Mount Type	Elevation over Azimuth
Antenna Travel	
Azimuth	±150° continuous standard, ±180° available for additional cost
Elevation	0° to 90° of reflector boresight
Polarization	±90°
Stow Height	24 in (61 cm)
Antenna Weight	560 lbs (254 kg) without feed
Integration	150 lbs (68 kg) feed boom mounted 300 lbs (136 kg) positioner mounted

Environmental		
Wind Loading ¹	Ka-Band	Ku-Band
Pointing Loss 2 dB Rx Pk	30 mph (48 km/h) gusting to 45 mph (72 km/h)	45 mph (72 km/h) gusting to 60 mph (97 km/h)
Drive	45 mph (72 km/h) gusting to 60 mph (97 km/h)	60 mph (97 km/h) gusting to 75 mph (121 km/h)
Survival	75 mph (121 km/h) any position Up to 90 mph (145 km/h) at stow	75 mph (121 km/h) any position Up to 90 mph (145 km/h) at stow
Temperature		
Operational	-22° to +130° F (-30° to +55° C)	
Survival	-40° to +158° F (-40° to +70° C)	
Rain		
Operational	4 in/h (10 cm/h)	
Survival	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) on all surfaces	
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 Depending on vehicle capabilities.

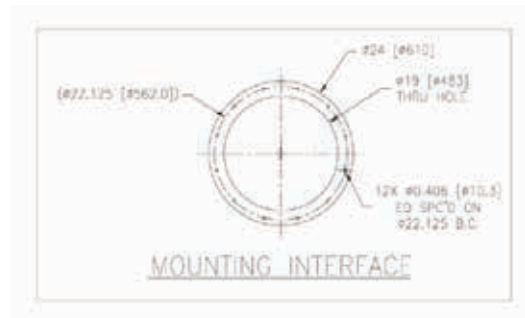
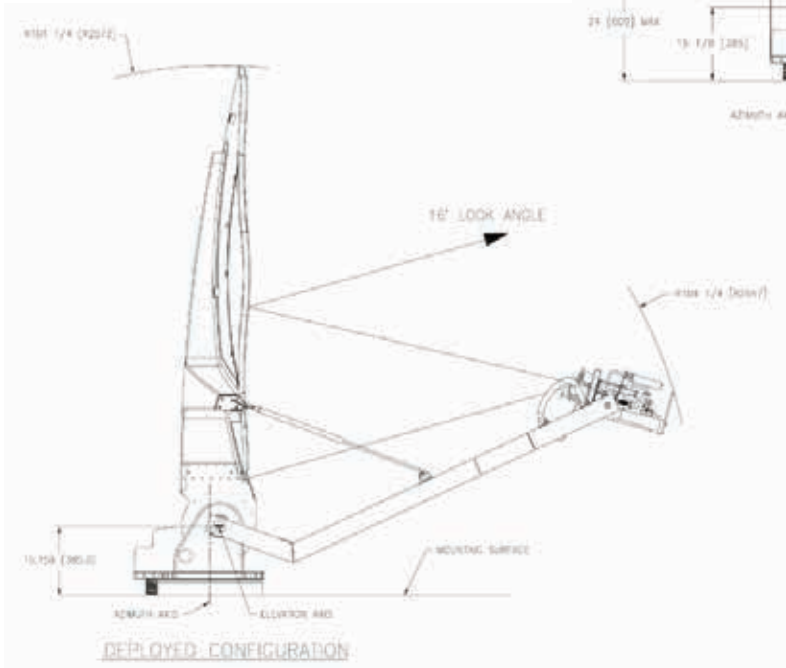
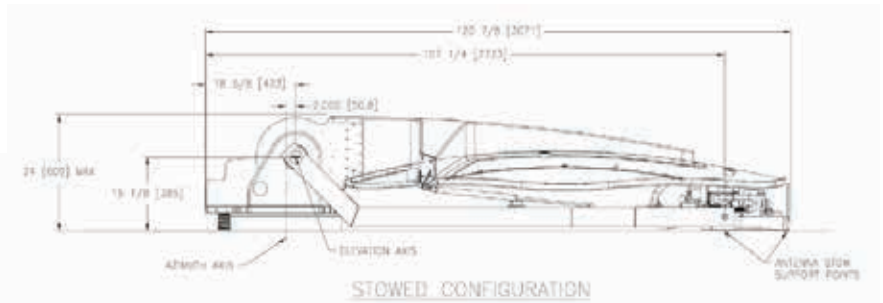
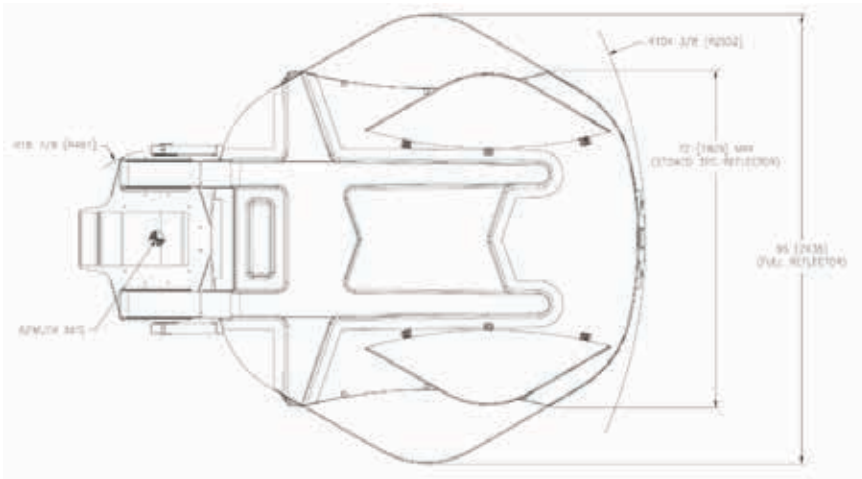
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Electrical	C-Band Circular Polarized		X-Band Circular Polarized		Ka-Band Circular Polarized	
	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	3.400 - 4.200	5.850 - 6.725	7.250 - 7.750	7.900 - 8.400	19.200 - 21.200	29.000 - 31.000
Antenna Gain at Midband, dBi	38.00	42.10	43.00	43.80	52.30	55.75
VSWR	1.43:1 (15.0dB)	1.33:1 (17.0 dB)	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	2.21	1.34	1.17	1.07	0.43	0.28
Sidelobe Performance	29 - 25 log , 0°-20° 32 - 25 log , 20°- 48° -10dBi, 48° - 140° 0dBi, 140° - 180°		Meets ITU-RS-580			
Antenna Noise Temperature						
5° Elevation	70 K		33 K		106 K	
10° Elevation	62 K		26 K		85 K	
20° Elevation	52 K		24 K		74 K	
40° Elevation	52 K		23 K		74 K	
Total Power Handling Capability	1kW CW		2 kW CW		250 W CW	
Cross Polarization						
On Axis	15.5	17.7	30	30	24.8	24.8
Within 1.0 dB BW						
Port-to-Port Isolation						
Rx/Tx (Rx frequency)	0 dB	-55 dB	0 dB	-110 dB	0 dB	-70 dB
Tx/Rx (Tx frequency)	-75 dB	0 dB	-110 dB	0 dB	-75 dB	0 dB
Feed Insertion Loss	0.30 dB	0.20 dB	0.80 dB	0.70 dB	0.45 dB	0.35dB

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Electrical	C-Band Extended 2-Port Linear		Ku-Band 2-Port XPC Linear Polarized		Ku-Band 2-Port Linear Polarized	
	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	3.400 - 4.200	5.850 - 6.725	10.700 - 12.750	13.750 - 14.500	10.700 - 12.750	13.750- 14.500
Antenna Gain at Midband, dBi	38.05	42.25	47.60	49.30	47.65	49.10
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)	1.43:1 (15.0 dB)	1.33:1 (17.0 dB)
Pattern Beamwidth (in degrees at midband)						
-3 dB Beamwidth	2.24	1.35	0.76	0.62	0.74	0.63
Sidelobe Performance	29 - 25 log , 0°-20° 32 - 25 log , 20°- 48° -10dBi, 48° - 140° 0dBi, 140° - 180°		Meet Eutelsat.FCC 25.209 or ITU-RS-580			
Antenna Noise Temperature						
5° Elevation	47 K		63 K		67 K	
10° Elevation	42 K		46 K		50K	
20° Elevation	43 K		42 K		52 K	
40° Elevation	42 K		35 K		44 K	
Total Power Handling Capability	1 kW CW		1 kW CW		1 kW CW	
Cross Polarization						
On Axis	-35	-35	-30	-35	-35	-35
Within 1.0 dB BW		-30		-30		-27
Port-to-Port Isolation						
Rx/Tx (Rx frequency)	0 dB	-55 dB	0 dB	-35 dB	0 dB	-30 dB
Tx/Rx (Tx frequency)	-80 dB	0 dB	-80 dB	0 dB	-85 dB	0 dB
Feed Insertion Loss	0.20 dB	0.20 dB	0.50 dB	0.35 dB	0.50 dB	0.30 dB

CPI C240M Mobile Antenna



Contact us at CustomerCareSAT@cpil.com or
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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.

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