

## Satcom & Antenna Technologies Division



### Overview

The CPI Satcom & Antenna Technologies Inc. (CPI SAT) 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)

### BENEFITS:

- Lightweight
- Designed for worldwide transmit and receive

### APPLICATIONS:

- Superior stiffness and high performance under wind loading conditions

## 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°	
Stow 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)	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	80 mph (128 km/h) any position 120 mph (192 km/h) at stow	80 mph (128 km/h) any position 120 mph (192 km/h) at stow
Temperature Range		
Operational	-22° to +130° F (-30° to +55° C)	
Survival	-40° to +158° F (-40° to +70° C)	
Rain (operational)	Up to 4 in/h (10 cm/h)	
Rain (survival)	Up to 6 in/h (15 cm/h)	
Relative Humidity	0% to 100% with condensation	
Solar Radiation	360 BTU/h/ft <sup>2</sup> (1000 Kcal/h/m <sup>2</sup> )	
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 and/or heavily industrialized areas.		

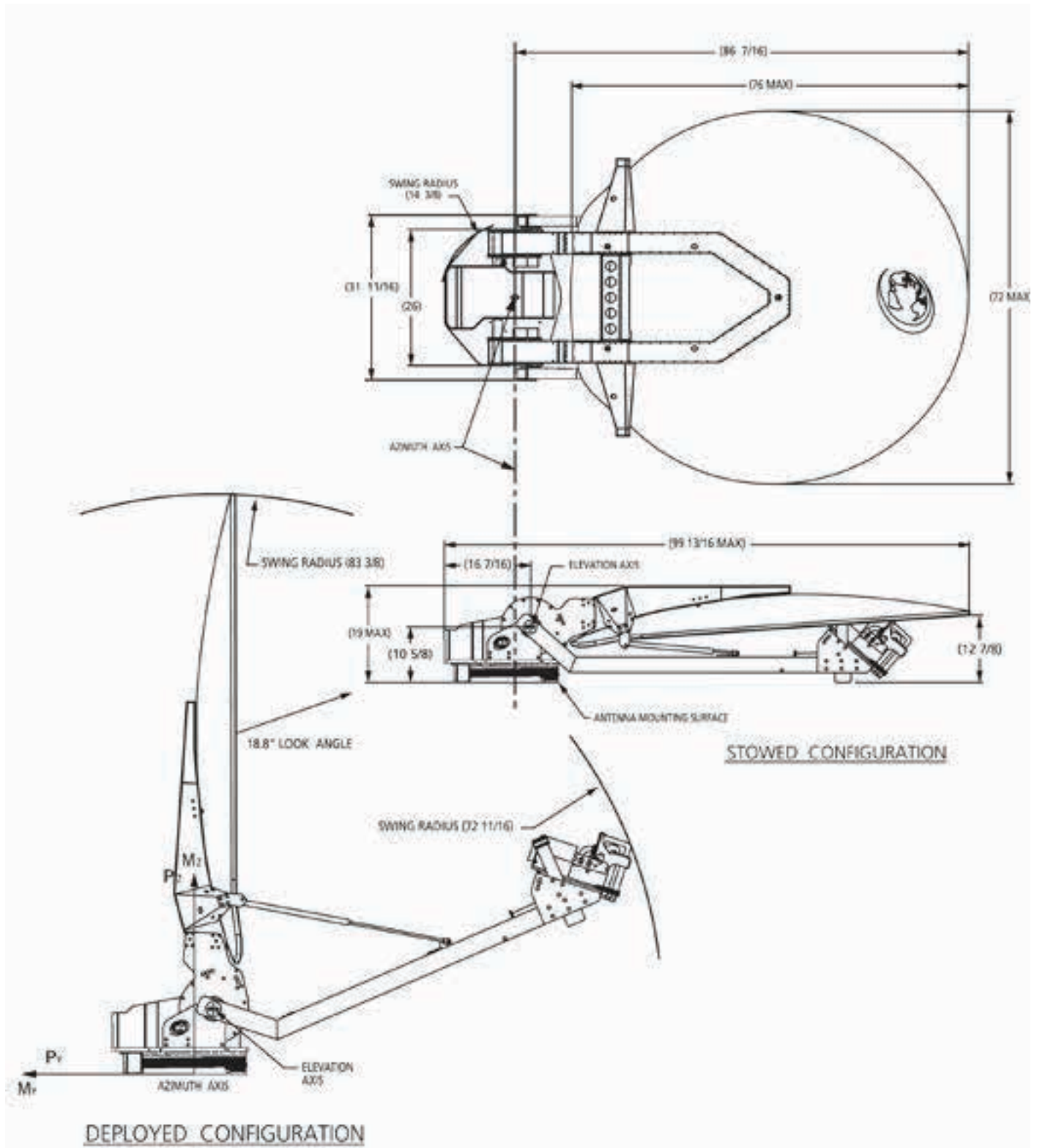
## Technical Specifications

Electrical	X-Band Circular Polarized		Ka-Band Circular Polarized		C-Band 2-Port Circular Polarized	
	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	7.250- 7.750	7.900- 8.400	19.200- 21.200	29.000- 31.000	3.400- 4.200	5.850- 6.725
Antenna Gain at Midband, dBi	41.00	41.75	49.85	53.10	35.35	39.60
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)	1.43:1 (15 dB)	1.33:1 (17.0 dB)
Pattern Beamwidth (in deg at mid-band) -3 dB	1.53	1.39	0.58	0.41	2.91	1.77
Sidelobe Performance	Meets ITU-RS-580				29 - 25 log $\Theta$ , 0° - 20° 32 - 25 log $\Theta$ , 20° - 48° -10dBi, 48° - 140° 0dBi, 140° - 180°	
Antenna Noise Temperature						
5° Elevation	47 K		190 K		64 K	
10° Elevation	35 K		154 K		58 K	
20° Elevation	31 K		128 K		54 K	
40° Elevation	26 K		103 K		55 K	
Power Handling Capability		2 kW CW		250 W CW		1 kW CW
Cross Polarization On Axis	30	30	24.8	24.8	15.5	17.7
Port to Port Isolation (minimum)						
Rx/Tx (Rx frequency)	0 dB	-110 dB	0 dB	-70.0 dB	0 dB	-55dB
Tx/Rx (Tx frequency)	-110 dB	0 dB	-75.0 dB	0 dB	-75 dB	0 dB
Feed Insertion Loss	0.80 dB	0.70 dB	0.45 dB	0.35 dB	0.30 dB	0.20dB

## Technical Specifications

Electrical	Ku-Band 2-Port Linear Cross Pol Compensated Linear Polarized		Ku-Band 2-Port Linear Non-Cross Pol Compensated Linear Polarized		Extended C-Band 2-Port Linear	
	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	10.700- 12.750	13.750- 14.500	10.700- 12.750	13.750- 14.500	3.400- 4.200	5.850- 6.725
Antenna Gain at Midband, dBi	45.1	46.7	45.35	46.75	35.60	39.75
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)
Beamwidth (in deg at mid- band) -3 dB	1.02	0.81	0.98	0.83	2.88	1.73
Sidelobe Performance	Meets Eutelsat, FCC 25.209 or ITU-RS-580				29 - 25 log $\theta$ , 0° - 20° 32 - 25 log $\theta$ , 20° - 48° -10dBi, 48° - 140° 0dBi, 140° - 180°	
Antenna Noise Temperature						
5° Elevation	75 K		73K		48K	
10° Elevation	54 K		53 K		40 K	
20° Elevation	43 K		44 K		38 K	
40° Elevation	40 K		42 K		40 K	
Power Handling Capability		1 kW CW		1 kW CW		1kW CW
Cross Polarization On Axis	-35	-35	-35	-35	-35	-35
Within 1.0 dB BW		-30		-27		-30
Port to Port Isolation (minimum)						
Rx/Tx (Rx frequency)	0 dB	-30 dB	0 dB	-30 dB	0 dB	-30 dB
Tx/Rx (Tx frequency)	-85 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB
Feed Insertion Loss	0.50 dB	0.35 dB	0.50 dB	0.30 dB	0.20 dB	0.20 dB

# CPI 1.8 Meter Mobile Antenna: Model C180M



Contact us at [CustomerCareSAT@cpii.com](mailto:CustomerCareSAT@cpii.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.

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