4.8 Meter Cassegrain Antenna

Satcom & Antenna Technologies Division

Overview

The CPI Satcom & Antenna Technologies Inc. (CPI SAT) 4.8 meter antenna delivers exceptional performance for transmit/receive and receive only applications for C through Ku-Band frequencies. This antenna offers a deep dish reflector that incorporates precision-formed panels, contoured radials and hub assembly. It features an innovative feed and subreflector design which results in high gain, low noise temperature, high antenna efficiency and excellent rejection of noise and microwave interference.

The aluminum reflector is supported by a galvanized pedestal that provides the required stiffness for pointing and tracking accuracy. The pedestals are designed for full orbital arc coverage and are readily adaptable to ground or rooftop installations. The electrical performance is compliant with ITU and FCC sidelobe specifications. Type approved configurations are available for Intelsat (F1, E2), Eutelsat (L), Asiasat, Hispasat, EuropeStar or Singapore Telecom. All configurations meet CPI Satcom & Antenna Technologies Inc. (CPI SAT) own type-approved quality assurance and performance guarantee.

FEATURES:

- 'Type-Approved' bolt-together
- 3.4 to 18.4 GHz operation, meeting ITU and FCC
- Aluminum reflector, galvanized pedestal
- 125 mph (200 km/h) wind survival

OPTIONS:

- C, X, Ku, DBS and Ka-Band feed configurations
- C/Ku receive-only feed systems
- Specialized feed systems (e.g., extended, multi-band)
- Improved feed cross-pol performance
- Fixed or motorizable pedestal mounts
- Antenna control system with tracking
- Reflector and feed deicing systems
- Environmental hub configurations
- Integrated transmit cross-axis kits
- Integrated LNA or LNB systems
- HPAs, converters and M&C systems
- Non-penetrating and load frame mounts
- Packing for sea and air transport
- Turnkey installation and testing

UPGRADES:

- X-Band low PIM reflector/feed configurations
- Extended azimuth travel
- High wind configuration
- Low operating temperatures
- High power configurations
- Ka-Band (see separate datasheet)

BENEFITS:

- High antenna efficiency
- Excellent rejection of noise and microwave interference

APPLICATIONS:

- Communications, Data Transfer, Broadcast

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Specifications

ELECTRICAL [1]	C-Band 2 Port Circular Polarized Receive	C-Band 2 Port Circular Polarized Transmit	C-Band 4 Port Circular Polarized [4] Receive	C-Band 4 Port Circular Polarized [4] Transmit	X-Band 2 Port Circular Polarized Receive	X-Band 2 Port Circular Polarized Transmit	Ku-Band 4 Port Linear Polarized [4] Receive	Ku-Band 4 Port Linear Polarized [4] Transmit	DBS-Band 4 Port Linear Polarized Receive	DBS-Band 4 Port Linear Polarized Transmit
Frequency (GHz)	3.625-4.200	5.850 - 6.425	3.625-4.200	5.850 - 6.425	7.250 - 7.750	7.900 - 8.400	10.950 - 12.750	13.750 - 14.500	10.700 - 12.750	17.300 - 18.400
Antenna Gain, Midband dBi [2]	44.16	48.10	44.00	47.90	49.50	50.10	53.50	55.20	53.10	56.90
VSWR	1.55:1	1.30:1	1.25:1	1.25:1	1.25:1	1.25:1	1.30:1	1.30:1	1.30:1	1.30:1
Pattern Beamwidth [2]										
-3 dB, at midband	1.04°	0.67°	1.08°	0.69°	0.55°	0.52°	0.34°	0.28°	0.36°	0.23°
Antenna Noise Temperature (K)										
5° Elevation	60 K		54 K		61 K		80 K		73 K	
10° Elevation	57 K		44 K		51 K		67 K		59 K	
20° Elevation	47 K		39 K		45 K		58 K		50 K	
40° Elevation	43 K		37 K		42 K		53 K		44 K	
Typical G/T (dB/K) [3]	25.3 (4.000 GHz, 30 K LNA)		25.6 (4.000 GHz, 30 K LNA)		30.0 (7.500 GHz, 45 K LNA)		32.4 (11.850 GHz, 70 K LNA)		32.3 (11.725 GHz, 70 K LNA)	
Axial Ratio	1.80 dB	0.75 dB	0.50 dB	0.50 dB	1.50 dB	1.50 dB				
Power Handling (total)		5 kW CW		5 kW CW		5 kW CW		2 kW CW		2 kW CW
Cross Polarization Isolation (dB)										
On Axis	19.7 dB	27.3 dB	30.8 dB	30.8 dB	21.3 dB	21.3 dB	35.0 dB	35.0 dB	35.0 dB	35.0 dB
Within a 1.0 dB Beamwidth	19.7 dB	27.3 dB	30.8 dB	30.8 dB	21.3 dB	21.3 dB	35.0 dB	35.0 dB	35.0 dB	30.0 dB
Port-to-Port Isolation (dB)										
Rx/Tx (Rx frequency)	0 dB	-60 dB	0 dB	-85 dB	0 dB	-110 dB	0 dB	-50 dB	0 dB	-75 dB
Tx/Rx (Tx frequency)	-100 dB	0 dB	-85 dB	0 dB	-110 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB
Sidelobe Performance	Meets ITU-RS-580						Meets ITU-RS-580, FCC			
RF Specification	975-2635		975-4289		975-2427		975-2114		975-2446	

[1] All values are at rear feed flange. [2] C-Band Rx values are at 4 GHz. [3] Typical G/T at 20° elevation with clear horizon using single bolt-on LNA feed.
[4]) Also available in extended frequency bands.

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Specifications

MECHANICAL/ENVIRONMENTAL [5]	Fixed Post Mount Pedestal (PM)	Motorizable Kingpost Pedestal (KP)	Motorizable High Wind Kingpost Pedestal (KP-HW)
Antenna Diameter	4.8 meters (15.83 feet)		
Antenna Type	Compact cassegrain design		
Reflector Construction	16 precision-formed aluminum panels with heat-diffusing white paint Cleaned and brightened aluminum back-up structure		
Hub Dimensions	48 in (122 cm) OD, 29 in (74 cm) depth		
Mount Configuration	Elevation over azimuth pedestal, constructed of galvanized steel		
Drive Type Azimuth Travel Elevation Travel	Manual struts 360° coarse, 40° fine adjustment 0 to 90° continuoust	Manual strut or jack screw 120° continuous 0 to 90° continuous	Manual jack screws 120° continuous 0 to 90° continuous
Foundation (L x W x D) Concrete Reinforcing Steel	12.5 x 12.5 x 1.5 ft (3.8 x 3.8 x 0.38 m) 8.7 yds³ (6.65 m³) 1,125 lbs. (510 kg)		16.5 x 16.5 x 2.5 ft (5.0 x 5.0 x 0.76 m) 25.5 yds³ (19.5 m³) 1,680 lbs. (762 kg)
Shipping Containers	One 20 ft standard container	One 40 ft HC container	One 20 ft standard container
Wind Loading Operational Survival (any Position) Survival (at Zenith)	45 mph (72 km/h) gusting to 60 mph (97 km/h) 125 mph (200 km/h) @ 58° F (15° C) N/A		Up to 62 mph (100 km/h) 180 mph (290 km/h) @ 58° F (15° C) 210 mph (338 km/h) @ 58° F (15° C)
Temperature Operational Survival	+5° to +122°F (-15° to +50° C) -22° to +140°F (-30° to +60° C), low temperature options available		
Rain	Up to 4 in/h (10 cm/h)		
Relative Humidity	0 to 100% with condensation		
Solar Radiation	360 BTU/h/ft ² (1,000 Kcal/h/m²)		
Ice	1 in (2.5 cm) on all surfaces or 1/2 in (1.3 cm) on all surfaces with 80 mph (130 km/h) wind gusts		
Atmospheric Conditions Survival	As encountered in coastal regions and/or heavily industrialized areas		
Shock and Vibration	As encountered during shipment by airplane, ship or truck		

[5] **Some specifications may vary based on the combination of equipment, options and/or upgrades ordered.**

Contact us at 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.

Communications & Power Industries

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