6.3 Meter Cassegrain Antenna

Satcom & Antenna Technologies Division

Overview

The CPI Satcom & Antenna Technologies Inc. (CPI SAT) 6.3-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 kingpost 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 (F2, E2), Asiasat, Hispasat or Singapore Telecom. All configurations meet 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
- High-wind option

OPTIONS

- C, X, Ku, DBS and Ka-band feed configurations
- C/Ku receive-only feed systems
- Improved feed cross-pol performance
- Specialized feed systems (e.g., extended, multi-band)
- CP/LP manual or remote switchable feeds
- 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
- 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
- For 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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Technical Specifications

Electrical [1]	C-Band-4 Port Circular Polarized		C-Band 4-Port Linear Polarized[5]		X-Band 2-Port CircularPolarized		Ku-Band 4-Port Linear Polarized[5]		DBS-Band 4-Port Linear Polarized	
	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	Transmit	Receive	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	10.700 - 12.750	13.750 - 14.500	10.700 - 12.750	17.300 - 18.400
Antenna Gain, Midband dBi [2]	46.54	50.70	46.30	50.20	52.00	52.60	55.70	57.50	55.40	59.40
VSWR	1.25:1	1.25:1	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	0.81°	0.50°	0.82°	0.52°	0.41°	0.38°	0.26°	0.22°	0.28°	0.17°
Antenna Noise Temperature (K)										
5° Elevation	49		51		63		87		78	
10° Elevation	40		42		53		74		64	
20° Elevation	34		37		46		66		55	
40° Elevation	32		34		43		61		50	
Typical G/T (dB/K)[3]	28.4 (4.000 GHz, 30 K LNA)		28.1 (4.000 GHz, 30 K LNA)		32.4 (7.500 GHz, 45 K LNA)		34.4 (11.725 GHz, 70 K LNA)		34.4 (11.725 GHz, 70 K LNA)	
Axial Ratio (dB)	0.51	0.51			1.50	1.50				
Power Handling (total)		10 kW CW		10 kW CW		5 kW CW		2 kW CW		2 kW CW
Cross Polarization Isolation (dB)										
On Axis	30.7	30.7	35.0	35.0	21.3	21.3	35.0	35.0	35.0	35.0
Within a 1.0 dB beamwidth	30.7	30.7	35.0	30.0	21.3	21.3	35.0	35.0	35.0	30.0
Port to Port Isolation (dB)										
Rx/Tx (Rx frequency)	0	-70	0	-50	0	-110	0	-50	0	-75
Tx/Rx (Tx frequency)	-85	0	-85	0	-110	0	-85	0	-85	0
Sidelobe Performance	ITU-RS-580, FCC[4]				ITU-RS-580		ITU-RS-580, FCC		ITU-RS-580	
RF Specification	975-2121		975-2354		975-2342		975-3143		975-2682	

(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 to feed.
(4) Meets FCC 25.209 beyond the first sidelobe in C-band. (5) Also available in extended frequency bands.

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Mechanical Environment[6]	Kingpost Pedestal (KX120)	Kingpost Pedestal (KX200)	High Wind Kingpost Pedestal (KX-HW)
Antenna Diameter	6.3 meters (20.83 feet)		
Antenna Type	Compact Cassegrain design		
Reflector Construction	20 precision-formed aluminum panels with heat-diffusing white paint Cleaned and brightened aluminum back-up structure		
Hub Dimensions	60 in (152 cm) OD, 36 in (91 cm) depth		
Mount Configuration	Elevation over azimuth pedestal, constructed of galvanized A36 steel		
Drive Type Azimuth Travel Elevation Travel	Manual jack screws 120° continuous 0 to 90° continuous	Manual jack screws 200° (2 segments @ 120°) 0 to 90° continuous	Manual jack screws 200° (2 segments @ 120°) 0 to 90° continuous
Foundation (L x W x D) Concrete Reinforcing Steel	17 x 17 x 1.5 ft (5.2 x 5.2 x 0.46 m) 16.1 yds³ (12.7 m³) 2,785 lbs. (1,263 kg)		16.5 x 16.5 x 2.5 ft (5.0 x 5.0 x 0.61 m) 20.2 yds³ (15.5 m³) 1,980 lbs. (900 kg)
Shipping Containers	One 40 ft standard		
Operational Wind Loading Survival Wind Loading Any Position At Zenith	45 mph (72 km/h) gusting to 60 mph (97 km/h)km/h) 125 mph (200 km/h) @ 58° F (15° C) n/a		Up to 62 mph (100 km/h) 125 mph (200 km/h) @ 58° F (15° C) 186 mph (300 km/h) @ 58° F (15° C)
Operational Temperature Survival Temperature	+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/ft² (1,000 Kcal/h/m²)		
Ice (survival)	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	As encountered in coastal regions and/or heavily industrialized areas		
Shock and Vibration	As encountered during shipment by airplane, ship or truck		

(6) 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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