

7.3 Meter Cassegrain Antenna

Satcom & Antenna Technologies Division



Overview

The CPI Satcom & Antenna Technologies Inc. (CPI SAT) 7.3-meter antenna delivers exceptional performance for transmit/ receive and receive only applications for L through DBSband frequencies. This antenna offers a reflector design that incorporates precision-formed panels, contoured radials and a machined hub assembly. It features an innovative Cassegrain feed and subreflector design which results in high gain, low noise temperature, high antenna efficiency and excellent rejection of noise and microwave interference. A large center hub provides spacious accommodation for equipment mounting. The 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 FCC and ITU-RS-580 sidelobe specifications and Intelsat (F3, E3) and Eutelsat (L, S1) requirements. All configurations meet CPI SAT own type-approved quality assurance and performance guarantee.

FEATURES

- Bolt-together, all-aluminum reflector with self-aligning, fully interchangeable components
- Designed for 1.5 to 18 GHz operation, meeting FCC 25.209 and ITU-RS-580 regulations
- Galvanized steel elevation-over-azimuth pedestal with jackscrews
- Survives 125 mph winds in any position

OPTIONS

- L, S, C, X, Ku and DBS-band feeds
- C/Ku receive only feed systems
- Specialized feed systems (e.g. extended, multi-band)
- 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

- Extended azimuth travel
- Low operating temperatures
- High power configurations

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		Ext. C-Band 4-Port Linear Polarized		Ku-Band 4-Port Linear Polarized		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	3.400 - 4.200	5.850 - 6.725	10.700 - 12.750	13.750 - 14.500	10.700 - 12.750	17.300 - 18.400
Antenna Gain, Midband dB _i ⁽²⁾	48.10	51.70	48.10	51.80	48.00	51.80	56.50	58.10	56.90	59.60
VSWR	1.25:1	1.25:1	1.25:1	1.25:1	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1	1.30:1
Pattern Beamwidth ⁽²⁾										
-3 dB, at midband	0.67°	0.45°	0.67°	0.44°	0.67°	0.43°	0.23°	0.20°	0.23°	0.17°
-15 dB, at midband	1.41°	0.94°	1.41°	0.92°	1.41°	0.90°	0.48°	0.42°	0.48°	0.36°
Antenna Noise Temperature (K)										
5° Elevation	52		49		53		87		75	
10° Elevation	43		40		44		73		60	
20° Elevation	37		35		39		65		51	
40° Elevation	35		33		37		61		47	
Typical G/T (dB/K) ⁽³⁾										
4.000 GHz, 30 K LNA	29.8		30.0		29.6					
11.725 GHz, 70 K LNA							35.2		36.1	
Axial Ratio (dB)	0.50	0.50								
Power Handling (total)		10 kW CW		10 kW CW		10 kW CW		2 kW CW		2 kW CW
Cross Polarization Isolation (dB)										
On Axis	30.8	30.8	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
Within a 1.0 dB beamwidth	30.8	30.8	30.0	30.0	30.0	30.0	35.0	35.0	35.0	30.0
Port to Port Isolation (dB)										
Rx/Tx (Rx frequency)	0	-70	0	-50	0	-70	0	-70	0	-75
Tx/Rx (Tx frequency)	-85	0	-85	0	-85	0	-85	0	-85	0
Sidelobe Performance	Meets ITU-RS-580, FCC									
RF Specification	975-3475		975-3478		975-3480		975-3484		975-3486	

(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.

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Mechanical Environment ⁽⁴⁾	Kingpost Pedestal (KX120)	Kingpost Pedestal (KX200)
Antenna Diameter	7.3 meters (24 feet)	
Antenna Type	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	Manual jack screws	Manual jack screws
Azimuth Travel	120° continuous	200° (2 segments @ 120°)
Elevation Travel	0 to 90° continuous	0 to 90° continuous
Foundation (L x W x D)	16.5 x 16.5 x 2 ft (5.0 x 5.0 x 0.61 m)	
Concrete	20.2 yds ³ (15.5 m ³)	
Reinforcing Steel	1,980 lbs. (900 kg)	
Shipping Containers	One 40 ft standard	
Operational Wind Loading	45 mph (72 km/h) gusting to 60 mph (97 km/h)	
Survival Wind Loading	125 mph (200 km/h) @ 58° F (15° C), any position	
Operational Temperature	+5° to +122° F (-15° to +50° C)	
Survival Temperature	-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/m ²)	
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	

(4) 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.



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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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