11.1 Meter Cassegrain Antenna

Satcom & Antenna Technologies Division

Overview

The CPI Satcom & Antenna Technologies Inc. (CPI SAT) 11.1 meter antenna delivers exceptional performance for transmit/ receive and receive only applications for L through DBS-Band frequencies. This antenna offers a reflector design that incorporates precision-formed panels, truss radials and 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 (B,C) and Eutelsat requirements.

FEATURES:

- Fully interchangeable reflector components with aluminum reflector panels and galvanized steel backup structure
- Designed for 1.5 to 18 GHz operation, meeting FCC and ITU-RS-580 requirements
- 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
- CP/LP manual or remote switchable feeds
- 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
- Packing for sea and air transport
- Turnkey installation and testing

UPGRADES:

- X-Band low PIM reflector/feed
- Extended azimuth travel, in segments and continuous
- High wind configuration
- 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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Specifications

ELECTRICAL [1]	C-Band 4 Port Linear Polarized Receive	C-Band 4 Port Linear Polarized Transmit	C-Band 4 Port Circular Polarized Receive	C-Band 4 Port Circular Polarized Transmit	Ext. C-Band 4 Port Linear Polarized Receive	Ext. C-Band 4 Port Linear Polarized Transmit	X-Band 4 Port Circular Polarized Receive	X-Band 4 Port Circular Polarized Transmit	Ext. Ku-Band 4 Port Linear Polarized Receive	Ext. Ku-Band 4 Port Linear Polarized 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	7.250 - 7.750	7.900 - 8.400	10.700 - 12.750	13.750 - 14.500
Antenna Gain, Midband dBi [2]	52.00	55.70	51.90	55.60	51.90	55.70	57.20	57.90	60.30	62.00
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	0.44°	0.28°	0.43°	0.28°	0.43°	0.28°	0.23°	0.21°	0.15°	0.13°
-15 dB, at midband	0.92°	0.59°	0.90°	0.59°	0.90°	0.59°	0.48°	0.44°	0.32°	0.27°
Antenna Noise Temperature										
5° Elevation	53 K		55 K		57 K		74 K		95 K	
10° Elevation	44 K		46 K		48 K		63 K		82 K	
20° Elevation	38 K		40 K		42 K		57 K		73 K	
40° Elevation	36 K		38 K		40 K		55 K		69 K	
Typical G/T (dB/K) [3] Midband	33.0 (35 K LNA)		33.1 (35 K LNA)		33.0 (35 K LNA)		36.5 (60 K LNA)		38.7 (70 K LNA)	
Axial Ratio			0.50 dB	0.50 dB			1.50 dB	1.50 dB		
Power Handling (total)		10 kW CW		10 kW CW		10 kW CW		5 kW CW		2 kW CW
Cross Polarization Isolation										
On Axis	35.0 dB	35.0 dB	30.8 dB	30.8 dB	35.0 dB	35.0 dB	21.3 dB	21.3 dB	35.0 dB	35.0 dB
Within 1.0 dB Beamwidth	30.0 dB	30.0 dB	30.8 dB	30.8 dB	30.0 dB	30.0 dB	21.3 dB	21.3 dB	35.0 dB	35.0 dB
Port-to-Port Isolation										
Rx/Tx (Rx frequency)	0 dB	-30 dB	0 dB	-70 dB	0 dB	-70 dB	0 dB	-110 dB	0 dB	-70 dB
Tx/Rx (Tx frequency)	-30 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB	-110 dB	0 dB	-85 dB	0 dB
Sidelobe Performance	Meets ITU-RS-580, FCC									
RF Specification	975-1276		975-1058		975-1864		975-2378		975-1942	

[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.

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Specifications

MECHANICAL/ENVIRONMENTAL [4]	Kingpost Pedestal (KX120)	Kingpost Pedestal (KX200)	Kingpost Pedestal (KX180-HW)
Antenna Diameter	11.1 meters (36.5 feet)		
Antenna Type	Cassegrain design		
Reflector Construction	36 precision-formed aluminum panels (two-tier) with heat-diffusing white paint, galvanized steel back-up structure		
Hub Dimensions	80 in (203 cm) OD, 48 in (122 cm) depth		88 in (224 cm) OD, 48 in (122 cm) depth
Mount Configuration	Elevation over azimuth pedestal, constructed of galvanized steel		
Drive Type Azimuth Travel Elevation Travel	Machine jack screws 120° continuous 0 to 90° continuous	Machine jack screws 200° (2 segments @ 110°) 0 to 90° continuous	Machine jack screws 180° (3 segments @ 70°) 0 to 90° continuous
Foundation (L x W x D) Concrete Reinforcing Steel	24.0 x 24.0 x 2.0 ft (7.3 x 7.3 x 0.6 m) 43.0 yds³ (32.9 m³) 6,000 lbs. (2,722 kg)		30.0 x 30.0 x 2.0 ft (9.1 x 9.1 x 0.6 m) 100 yds³ (77 m³) 7,730 lbs. (3,500 kg)
Shipping Containers	Four 40 ft HC containers		Three 40 ft open top, One 40 ft standard
Wind Loading Operational Survival (any Position) Survival (At Zenith)	45 mph (72 km/h) gusting to 60 mph (97 km/h) 165 mph (265 km/h) @ 58° F (15° C) 165 mph (265 km/h) @ 58° F (15° C)		Up to 60 mph (97 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 (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.

Communications & Power Industries

Satcom & Antenna Technologies Division
2600 N Longview St.
Kilgore, TX
USA 75662

+1 770-689-2040
1 888-874-7646
(In North America)
1 619-240-8480
(Outside North America)
CustomerCareSAT@cpii.com
www.cpii.com

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. © 2021 Communications & Power Industries LLC. Company proprietary: use and reproduction is strickly prohibited without written authorization from CPI.

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