

Model 9.3m Compact Cassegrain Antenna

VertexRSI Antenna Products - Satcom

The VertexRSI 9.3-meter antenna delivers exceptional performance for transmit/receive and receive only applications in C and Ku-band frequencies. This antenna offers a deep dish reflector design that incorporates precision-formed panels, a welded truss back-up structure and a machined hub assembly. It features an innovative Compact 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 elevation over azimuth 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-RS-580 sidelobe specifications.



Features

- True bolt-together aluminum reflector configuration
- Mechanically aligned reflector – no optical alignment
- Fully interchangeable reflector components
- Compliant with ITU-RS-580 sidelobe specifications
- Designed for 3.4 to 15 GHz operation
- Standard two and four port Tx/Rx and Rx only feeds
- Feed systems are factory assembled and tested
- Jack screws in azimuth and elevation
- Galvanized steel elevation over azimuth pedestal
- Survives 125 mph winds in any position
- Lightning arrest rods included
- Foundation hardware kit included

Options

- C and Ku-band feed configurations
- 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

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

Technical Specifications

<i>Electrical</i> ⁽¹⁾	C-Band 4-Port Circular Polarized ⁽⁴⁾		C-Band 4-Port Linear Polarized		Ext. C-Band 4-Port Linear Polarized		Ku-Band 4-Port Linear Polarized ⁽⁴⁾	
	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	10.950 - 12.750	13.750 - 14.500
Antenna Gain, Midband dBi ⁽²⁾	50.20	54.00	50.20	53.90	50.20	53.80	59.20	60.60
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
Pattern Beamwidth ⁽²⁾								
-3 dB, at midband	0.53°	0.34°	0.53°	0.35°	0.52°	0.34°	0.17°	0.15°
-15 dB, at midband	1.11°	0.71°	1.11°	0.73°	1.09°	0.71°	0.36°	0.32°
Antenna Noise Temperature								
5° Elevation	48 K		47 K		55 K		88 K	
10° Elevation	39 K		38 K		47 K		77 K	
20° Elevation	33 K		32 K		42 K		69 K	
40° Elevation	30 K		30 K		38 K		63 K	
Typical G/T (dB/K) ⁽³⁾								
4.000 GHz, 30 K LNA	32.2		32.3		31.6			
11.850 GHz, 70 K LNA							37.7	
Axial Ratio	0.50 dB	0.50 dB						
Power Handling (total)		10 kW CW		10 kW CW		10 kW CW		2 kW CW
Cross Polarization Isolation								
On Axis	30.8 dB	30.8 dB	35.0 dB	35.0 dB	35.0 dB	35.0 dB	35.0 dB	35.0 dB
Within 1.0 dB beamwidth	30.8 dB	30.8 dB	30.0 dB	30.0 dB	30.0 dB	30.0 dB	35.0 dB	35.0 dB
Port to Port Isolation								
Rx/Tx (Rx frequency)	0 dB	-30 dB	0 dB	-30 dB	0 dB	-70 dB	0 dB	-50 dB
Tx/Rx (Tx frequency)	-85 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB	-85 dB	0 dB
Sidelobe Performance	Meets ITU-RS-580							
RF Specification	975-1420		975-2024		975-2625		975-2322	

(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) Also available in extended frequency bands.

<i>Mechanical/</i> <i>Environmental</i> ⁽⁵⁾	Motorizable Kingpost Pedestal (KX120)	Motorizable Kingpost Pedestal (KX200)
Antenna Diameter	9.3 meters (30.50 feet)	
Antenna Type	Compact Cassegrain design	
Reflector Construction	16 two-tier, precision-formed aluminum panels with heat-diffusing white paint Clean and brightened aluminum back-up structure	
Hub Dimensions	70 in (178 cm) OD, 38 in (97 cm) depth	
Mount Configuration	Elevation over azimuth pedestal, constructed of galvanized A36 steel	
Drive Type	Manual jack screws	
Azimuth Travel	120° continuous	200° (2 segments @ 120°)
Elevation Travel	5 to 90° continuous	0 to 90° continuous
Foundation (L x W x D)	22.0 x 22.0 x 1.5 ft (6.7 x 6.7 x 0.46 m)	22.0 x 22.0 x 1.75 ft (6.7 x 6.7 x 0.53 m)
Concrete	27.0 yds ³ (20.6 m ³)	32.0 yds ³ (24.5 m ³)
Reinforcing Steel	3,360 lbs. (1,524 kg)	3,625 lbs. (1,644 kg)
Shipping Containers	Two 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	

(5) Some specifications may vary based on the combination of equipment, options and/or upgrades ordered.

GENERAL DYNAMICS