

# Model 4.8m Compact Cassegrain Antenna

## Satcom Antennas



### *The Strength to Perform*

'Type-Approved,' bolt-together, all-aluminum reflector with self-aligning, fully interchangeable components

Designed for 3.4 to 31 GHz operation, meeting FCC 25.209 regulation at Ku-band

Galvanized steel elevation over azimuth pedestal with jackscrews or struts

Survives 125 mph winds in any position

### Description

The VertexRSI 4.8-meter antenna delivers exceptional performance for transmit/receive and receive only applications for C through Ka-band frequencies. This antenna offers a deep dish reflector that incorporates precision-formed panels, contoured radials and a machined 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 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. Type approved configurations are available for Intelsat (F1, E2), Eutelsat (L), Asiasat, Hispasat, EuropeStar or Singapore Telecom. All configurations meet SATCOM Technologies' own type-approved quality assurance and performance guarantee.

### Options

- C, X, Ku and DBS-band feed configurations
- C/Ku receive-only feed systems
- Specialized feed systems (e.g. extended, multi-band)
- 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
- Load frame or non-penetrating 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
- High stiffness configuration on Ka-band operation

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# Technical Specifications **Model 4.8m Compact Cassegrain Antenna**

Electrical <sup>(1)</sup>	C-Band 2-Port Circular Polarized		C-Band 4-Port Circular Polarized <sup>(4)</sup>		X-Band 2-Port Circular Polarized		Ku-Band 2-Port Linear Polarized <sup>(4)</sup>		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	10.950 - 12.750	13.750 - 14.500	10.700 - 12.750	17.300 - 18.400
Antenna Gain, Midband dBi <sup>(2)</sup>	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 <sup>(2)</sup>										
-3 dB, at midband	1.04°	0.67°	1.08°	0.69°	0.55°	0.52°	0.34°	0.28°	0.36°	0.23°
-15 dB, at midband	2.18°	1.41°	2.27°	1.45°	1.16°	1.09°	0.71°	0.59°	0.76°	0.48°
Antenna Noise Temperature										
5° Elevation	60 K		50 K		61 K		80 K		73 K	
10° Elevation	57 K		41 K		51 K		67 K		59 K	
20° Elevation	47 K		36 K		45 K		58 K		50 K	
40° Elevation	43 K		33 K		42 K		53 K		44 K	
Typical G/T (dB/K) <sup>(3)</sup>	25.3 (4.000 GHz, 30 K LNA)		25.8 (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	.51 dB	.51 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										
On Axis	19.7 dB	27.3 dB	30.7 dB	30.7 dB	21.3 dB	21.3 dB	35.0 dB	35.0 dB	35.0 dB	35.0 dB
Within 1.0 dB beamwidth	19.7 dB	27.3 dB	30.7 dB	30.7 dB	21.3 dB	21.3 dB	35.0 dB	35.0 dB	35.0 dB	30.0 dB
Port to Port Isolation										
Rx/Tx (Rx frequency)	0 dB	-60 dB	0 dB	-70 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	ITU-RS-580		ITU-RS-580		ITU-RS-580		ITU-RS-580, FCC		ITU-RS-580, FCC	
RF Specification	975-2635		975-2601		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 to feed.

(4) Also available in extended frequency bands.

Mechanical/Environmental <sup>(5)</sup>	Fixed Post Mount (PM) Pedestal	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 A36 steel		
Drive Type	Manual strut	Manual strut or jack screw	Manual jack screws
Azimuth Travel	360° coarse, 40° fine adjustment	120° continuous	120° continuous
Elevation Travel	0 to 90° continuous	0 to 90° continuous	0 to 90° continuous
Foundation (L x W x D)	12.5 x 12.5 x 1.5 ft (3.8 x 3.8 x 0.38 m)		16.5 x 16.5 x 2.5 ft (5.0 x 5.0 x 0.76 m)
Concrete	8.7 yds <sup>3</sup> (6.65 m <sup>3</sup> )		25.5 yds <sup>3</sup> (19.5 m <sup>3</sup> )
Reinforcing Steel	1,125 lbs. (510 kg)		1,680 lbs. (762 kg)
Shipping Containers	One 20 ft standard (4 units in one 40 ft)	One 20 ft standard (2 units in one 40 ft)	Two units in one 40 ft standard
Operational Wind Loading	45 mph (72 km/h) gusting to 60 mph (97 km/h)		Up to 62 mph (100 km/h)
Survival Wind Loading			
Any Position	125 mph (200 km/h) @ 58° F (15° C)		180 mph (290 km/h) @ 58° F (15° C)
At Zenith	n/a		210 mph (338 km/h) @ 58° F (15° C)
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 <sup>2</sup> (1,000 Kcal/h/m <sup>2</sup> )		
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

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