16.4 Meter Cassegrain Antenna

Antenna Technologies

Overview

The CPI Antenna Technologies' 16.4 meter antenna delivers exceptional performance for transmit/receive and receive only applications in L through Ku-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 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 FCC 25.209 regulations, ITU-RS-580 sidelobe specifications and Intelsat (F3) and Eutelsat requirements.

FEATURES:

- Fully interchangeable reflector components with aluminum reflector panels and galvanized steel backup structure
- Designed for 1.5 to 15 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, and Ku-Band feed configurations
- 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 configurations
- Bullgear azimuth drive
- High power 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]	CKU Receive Only									
	C-Band 4 Port (CPLP) Receive	Ku-Band 4 Port (LP) Receive	C-Band 4 Port (LP 5KW Per Port) Receive	C-Band 4 Port (LP 5KW Per Port) Transmit	C-Band 4 Port (CP) Receive	C-Band 4 Port (CP) Transmit	C-Band 4 Port (CP/LP Switchable) Receive	C-Band 4 Port (CP/LP Switchable) Transmit
Frequency (GHz)	3.400 -4.200	10.700 -12.750	3.625 - 4.200	5.825 - 6.725	3.400 - 4.200	5.850 - 6.725	3.400 - 4.200	5.725 - 6.725
Antenna Gain, dBi [2]	4.00 GHz 55.10 dBi	11.725 GHz 63.30 dBi	4.00 GHz 55.10 dBi	6.275 GHz 58.90 dBi	4.00 GHz 55.10 dBi	6.288 GHz 59.00 dBi	4.00 GHz 55.00 dBi	6.225 GHz 58.60 dBi
VSWR	1:38:1 (15.9dB)	1:30:1 (17.7dB)	1:30:1 (17.7dB)	1:30:1 (17.7dB)	1:30:1 (17.7dB)	1:30:1 (17.7dB)	1:30:1 (17.7dB)	1:30:1 (17.7dB)
Pattern Beamwidth [2]								
-3 dB, at midband	0.29°	0.10°	0.29°	0.19°	0.29°	0.19°	0.29°	0.19°
-15 dB, at midband	0.61°	0.21°	0.61°	0.40°	0.61°	0.40°	0.61°	0.40°
Antenna Noise Temperature								
5° Elevation	83 K	102 K	63 K		65 K		73 K	
10° Elevation	74 K	89 K	54 K		56 K		64 K	
20° Elevation	66 K	81 K	47 K		50 K		59 K	
40° Elevation	58 K	77 K	45 K		48 K		57 K	
Typical G/T (dB/K) [3]								
Midband, 30° K LNA			36.2					
Midband, 35° K LNA	35.0				35.5		35.3	
Midband, 50° K LNA	34.4		35.2		34.8		34.6	
Midband, 70° K LNA		41.5						
Midband, 90° K LNA		41.0						
Axial Ratio (dB)	0.50 dB				0.50 dB	0.50 dB	0.50 dB	0.50 dB
Power Handling (total)	N/A	N/A	10 kW CW		10 kW CW		5 kW CW	
Cross Polarization Isolation								
On Axis (dB)	30.8 (CP)/30.0(LP)	30.0	35.0	35.0	30.7	30.7	30.8(CP)/35.0(LP)	
Within 1.0 dB BW (dB)	30.8 (CP)/30.0(LP)	30.0	30.0	30.0	30.7	30.7	30.8(CP)/35.0(LP)	
Port-to-Port Isolation (dB)								
Rx/Tx (Rx frequency)			0.0 dB (in)	-50 dB	0.0 dB (in)	-30 dB	0.0 dB (in)	-85 dB
Tx/Rx (Tx frequency)			-85 dB	0 dB (in)	-30 dB	0 dB (in)	-85 dB	0 dB (in)
Rx/Rx, Tx/Tx (CP mode)	16.0 dB	30.0 dB	30 dB	30 dB	17 dB	17 dB	17 dB	17 dB
Rx/Rx, Tx/Tx (LP mode)	30.0 dB						30 dB	30 dB
Sidelobe Performance	Meets ITU-RS-580		Meets FCC		Meets IESS/ ITU-RS-580		Meets ITU-RS-580	
RF Specification	RF spec 975-1829		975-4933		975-3034		975-5143	

[1] All values are at rear feed flange. [2] 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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Specifications

MECHANICAL/ENVIRONMENTAL [4]	Turning Head Pedestal (TH)	Turning Head Full Motion (TH-BG)	High Wind Turning Head Pedestal (TH-HW)
Antenna Diameter	16.4 meters (53.8 feet)		
Antenna Type	Cassegrain design		
Reflector Construction	40 precision-formed aluminum panels with heat-diffusing white paint Cleaned and brightened aluminum back-up structure		
Hub Dimensions	86 in (218 cm) OD, 55.5 in (141 cm) depth		
Mount Configuration	Elevation over azimuth pedestal, constructed of galvanized steel		
Drive Type Azimuth Travel Elevation Travel	Manual jack screw 205° (3 segments @ 85°) 0 to 90° continuous	Machine jack screw (EL), gear drive (AZ) 205° continuous 0 to 90° continuous	Machine jack screws 205° (3 segments @ 95°) 0 to 90° continuous
Foundation (L x W x D) Concrete Reinforcing Steel	31.5 x 31.5 x 3.5 ft (9.6 x 9.6 x 1.0 m) 128.6 yds³ (98.3 m³) 14,575 lbs. (6,611 kg)		36.5 x 36.5 x 3.5 ft (11.1 x 11.1 x 1.0 m) 173 yds³ (132.3 m³) 16,838 lbs. (7,638 kg)
Shipping Containers	One 40 ft flatrack, six 40 ft HC containers	One 40 ft flatrack, seven 40 ft HC containers	
Wind Loading Operational Survival (any Position) Survival (At Zenith)	45 mph (72 km/h) gusting to 60 mph (97 km/h) 125 mph (200 km/h) @ 58° F (15° C) 150 mph		Up to 60 mph (97 km/h) 135 mph (217 km/h) @ 58° F (15° C) 180 mph (290 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.**

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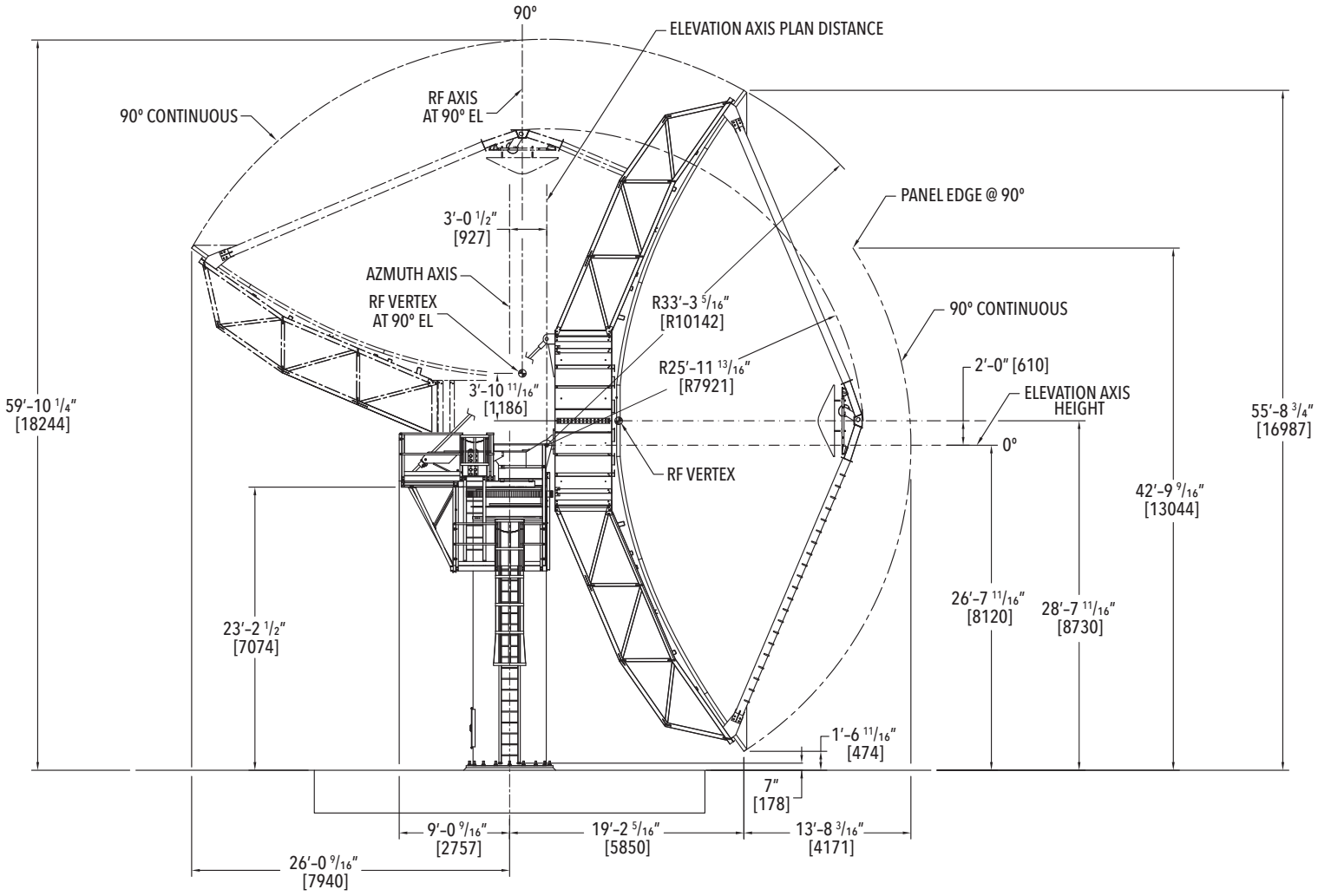

ELEVATION VIEW

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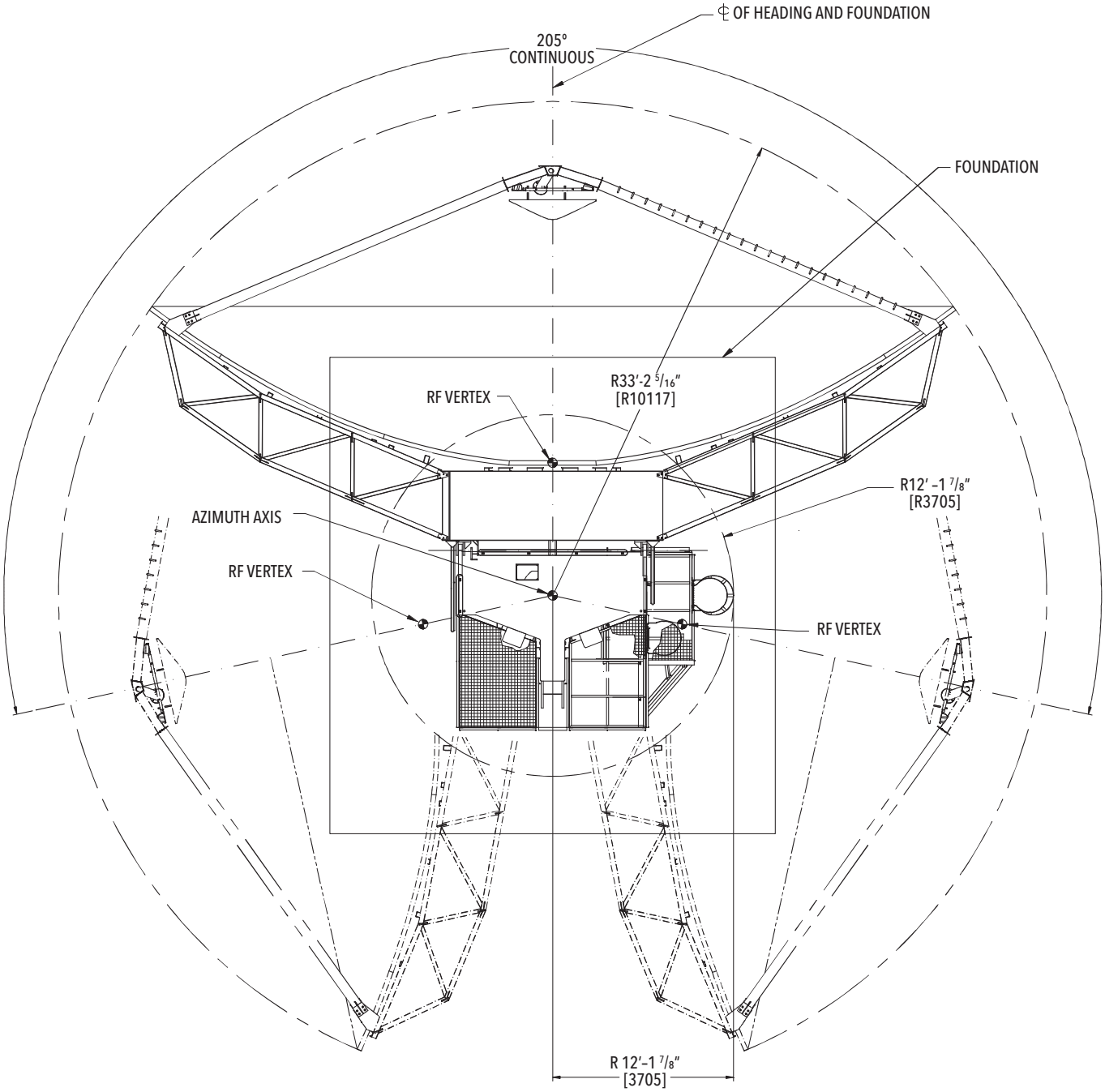

PLAN VIEW

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

Antenna Technologies
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