

11.1 Meter Cassegrain Antenna

Antenna Technologies



Overview

The CPI Antenna Technologies' 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 or assistance

UPGRADES:

- X-Band low PIM reflector/feed
- Extended continuous 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

11.1 Meter Cassegrain Antenna

Specifications

ELECTRICAL ⁽¹⁾	CKU 4 Port CPLP RX Only		C-Band 4 Port Circular Polarized		Ext. C-Band 4 Port Linear Polarized	
	C-Band CPLP	Ku-Band LP	Receive	Transmit	Receive	Transmit
Frequency (GHz)	3.400- 4.200	10.700 - 12.750	3.625- 4.200	5.850 - 6.425	3.400 - 4.200	5.725 - 6.725
Antenna Gain, Midband dBi ⁽²⁾	51.70	60.40	51.90	55.60	51.90	55.30
VSWR	1.25:1	1.25:1	1.30:1	130:1	1.30:1	1.30:1
Pattern Beamwidth ⁽²⁾ -3 dB, at midband -15 dB, at midband	0.43° 0.90°	0.15° 0.32°	0.43° 0.90°	0.28° 0.59°	0.43° 0.90°	0.29° 0.61°
Antenna Noise Temperature 5° Elevation 10° Elevation 20° Elevation 40° Elevation	79 K 69 K 61 K 58 K	90 K 77 K 66 K 61 K	57 K 47 K 41 K 39 K		56 K 47 K 41 K 37 K	
Typical G/T (dB/K) ⁽³⁾ Midband	C: 31.9 (35 K LNA)	Ku: 39.1 (70 K LNA)	33.1 (35 K LNA)		33.0 (35 K LNA)	
Axial Ratio (dB)	0.50 dB	0.50 dB	0.50 dB		0.50 dB	
Power Handling (total)			10 kW CW		10 kW CW	
Cross Polarization Isolation (dB) On Axis Within 1.0 dB Beamwidth	C-Band CP 30.8 dB LP 30.0 dB 30.8 dB 30.0 dB	Ku-Band LP 30.0 dB 30.0 dB	30.8 dB 30.8 dB 30.8 dB 30.8 dB		35.0 dB 35.0 dB 30.0 dB 30.0 dB	
Port-to-Port Isolation (dB) Rx/Tx (Rx frequency) Tx/Rx (Tx frequency)	0.0 dB -16.0 dB -16.0 dB 0.0 dB	0.0 dB -30.0 dB -30.0 dB 0.0 dB	0 dB -70 dB -85 dB 0 dB		0 dB -85 dB -85 dB 0 dB	
Sidelobe Performance	Meets ITU-RS-580), FCC					
RF Specification	975-3496C		975-5018C		975-5178A	

⁽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.

11.1 Meter Cassegrain Antenna

Specifications

ELECTRICAL ⁽¹⁾	DBS-Band 4 Port Linear Polarized		X-Band 4 Port Low PIM Circular Polarized		Ext. Ku-Band 4 Port Linear Polarized	
	Receive	Transmit	Receive	Transmit	Receive	Transmit
Frequency (GHz)	10.700 - 12.750	17.300 - 18.400	7.250 - 7.750	7.900 - 8.400	10.700 - 12.750	13.750 - 14.800
Antenna Gain, Midband dBi ⁽²⁾	60.70	63.50	57.00	57.80	60.30	61.90
VSWR	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	0.15°	0.11°	0.22°	0.21°	0.15°	0.13°
-15 dB, at midband	0.32°	0.23°	0.46°	0.44°	0.32°	0.27°
Antenna Noise Temperature						
5° Elevation	83 K		88 K		99 K	
10° Elevation	69 K		77 K		86 K	
20° Elevation	60 K		72 K		76 K	
40° Elevation	56 K		70 K		72 K	
Typical G/T (dB/K) ⁽³⁾ Midband	39.6 (70 K LNA)		35.3 (60 K LNA) this is at 7.25 GHz		38.1 (70 K LNA)	
Axial Ratio (dB)			.50 dB	.50 dB		
Power Handling (total)	2 kW CW		2 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
Within 1.0 dB Beamwidth	30.0 dB	30.0 dB	30.8 dB	30.8 dB	35.0 dB	35.0 dB
Port-to-Port Isolation						
Rx/Tx (Rx frequency)	0 dB	-75 dB	0 dB	-110 dB	0 dB	-70 dB
Tx/Rx (Tx frequency)	-85 dB	0 dB	-110 dB	0 dB	-85 dB	0 dB
Sidelobe Performance	Meets ITU-RS-580, FCC					
RF Specification	975-1712C		975-4664C		975-4362B	

⁽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.

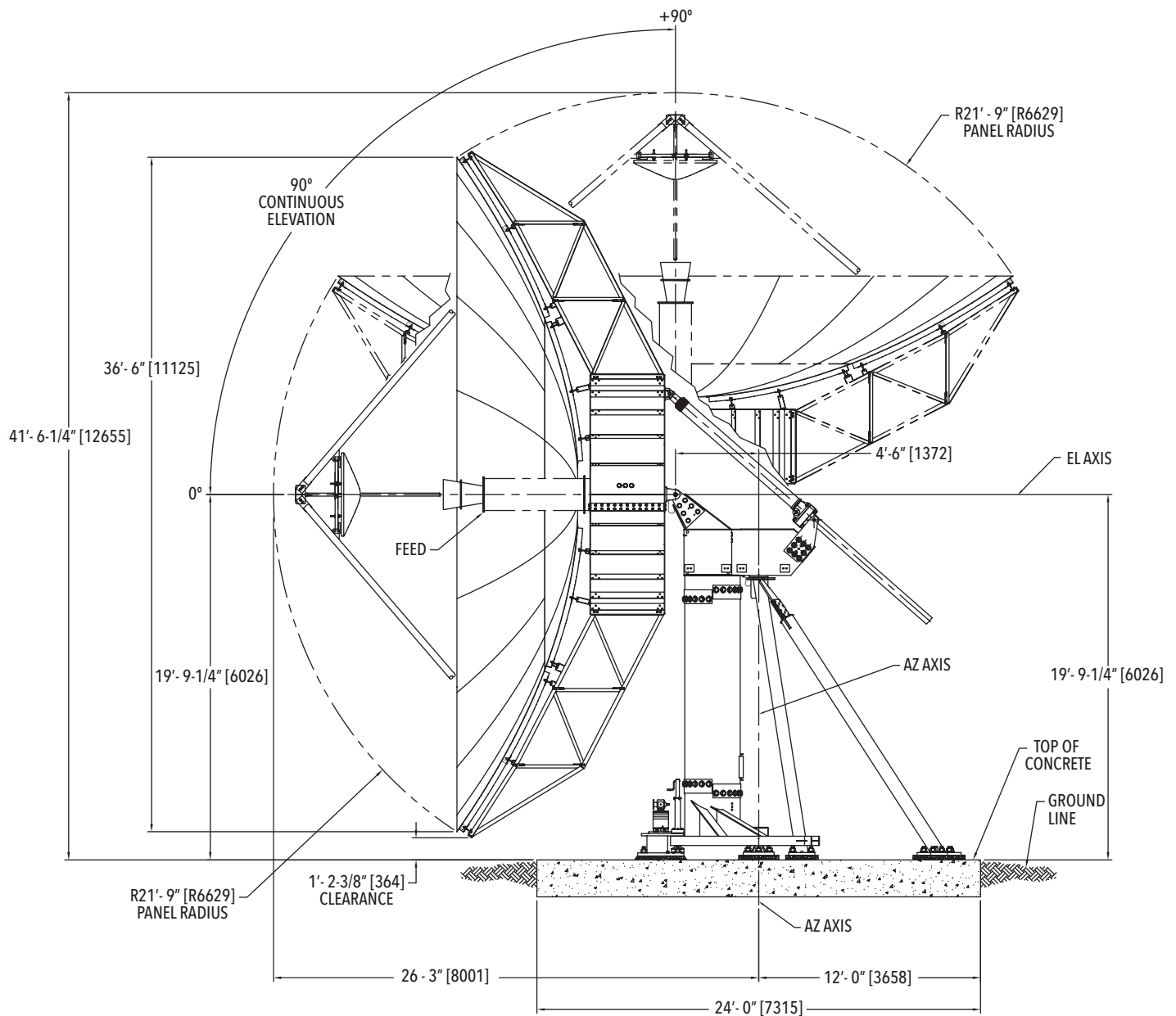
11.1 Meter Cassegrain Antenna

Specifications

MECHANICAL/ENVIRONMENTAL ⁽⁴⁾	BULLGEAR 200° AZ	Kingpost Pedestal (KX200)	Kingpost Pedestal (KX180-HW)
Antenna Diameter	11.1 meters (36.5 feet)		
Antenna Type	Cassegrain design		
Weights- Pedestal	Bullgear Pedestal 12,000 LBS	KX200 Pedestal 8,000 LBS	KX HW Pedestal 11,000 LBS
Weights-Reflector	18000 LBS		
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	Bullgear Drive	Machine jack screws	Machine jack screws
Azimuth Travel	200° continuous	200° (2 segments @ 120°)	180° (3 segments @ 70°)
Elevation Travel	Machine jack screws, 0 to 90° continuous	Machine jack screws, 0 to 90° continuous	Machine jack screws, 0 to 90° continuous
Polarization Feed	+/- 90°	+/- 90°	+/- 90°
Foundation (L x W x D)	24.0 x 24.0 x 2.0 ft	24.0 x 24.0 x 2.0 ft	30.0 x 30.0 x 2.0 ft
Concrete	(43.0 yds ³ (32.9 m ³))	(43.0 yds ³ (32.9 m ³))	100 yds ³ (77 m ³)
Reinforcing Steel	9,522 lbs. (4,319 kg)	6,000 lbs. (2,722 kg)	7,730 lbs. (3,500 kg)
Shipping Containers	One 40 ft. Flat Rack, One 20 ft. Flat Rack to Four 40 ft. HC Containers	Four 40 ft. HC Containers	Four 40 ft. HC Containers, One 40 ft. standard container
Wind Loading Operational Survival (any Position) Survival (At Zenith)	45 mph (72 km/h) gusting to 62 mph (100 km/h) 165 mph (265 km/h) @ 58° F (15° C) 165 mph (265 km/h) @ 58° F (15° C)		Up to 62 mph (100 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/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.

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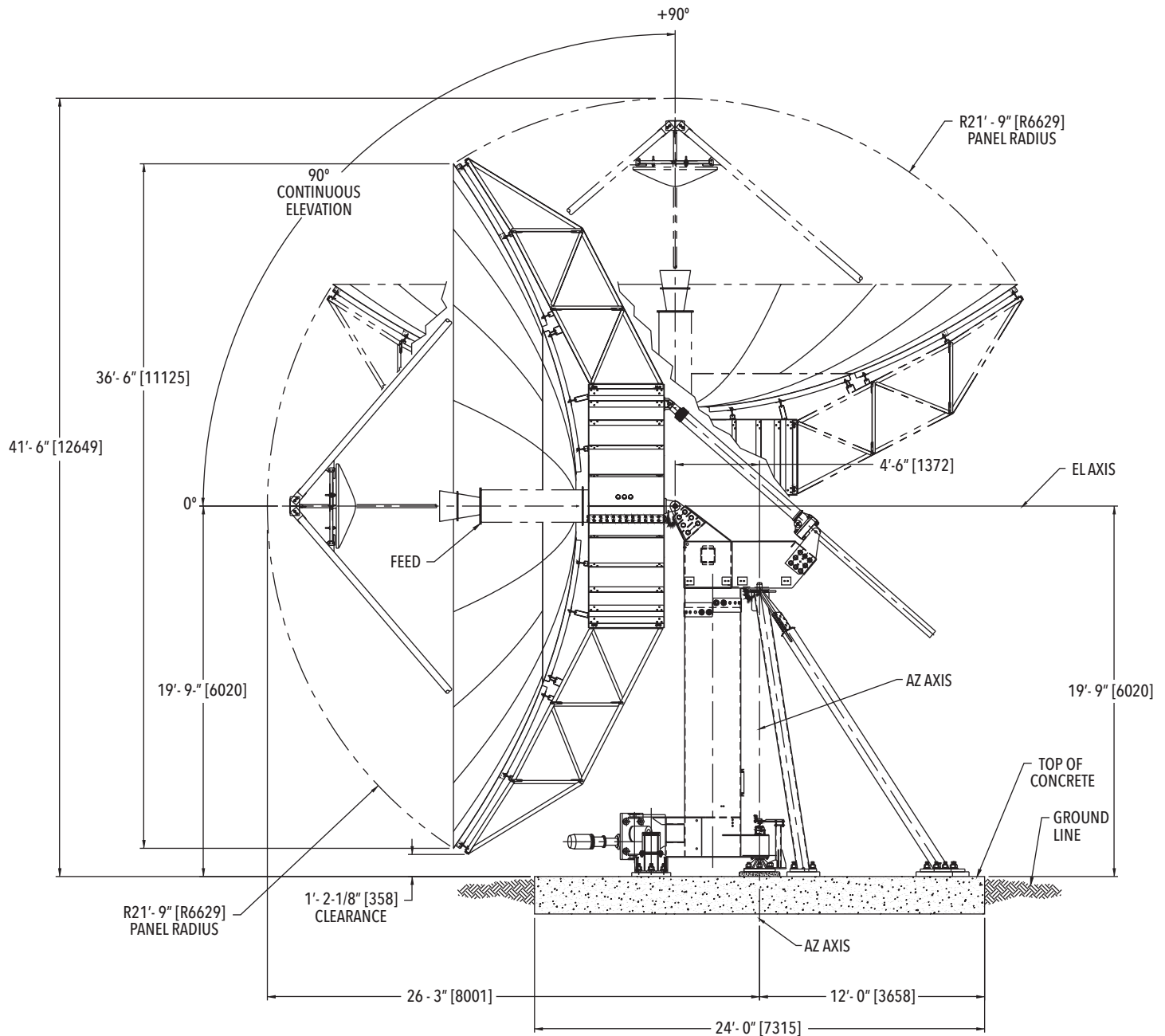
SIDE ELEVATION VIEW

GEOMETRY DRAWING

11M KX BG 125 MPH BULLGEAR

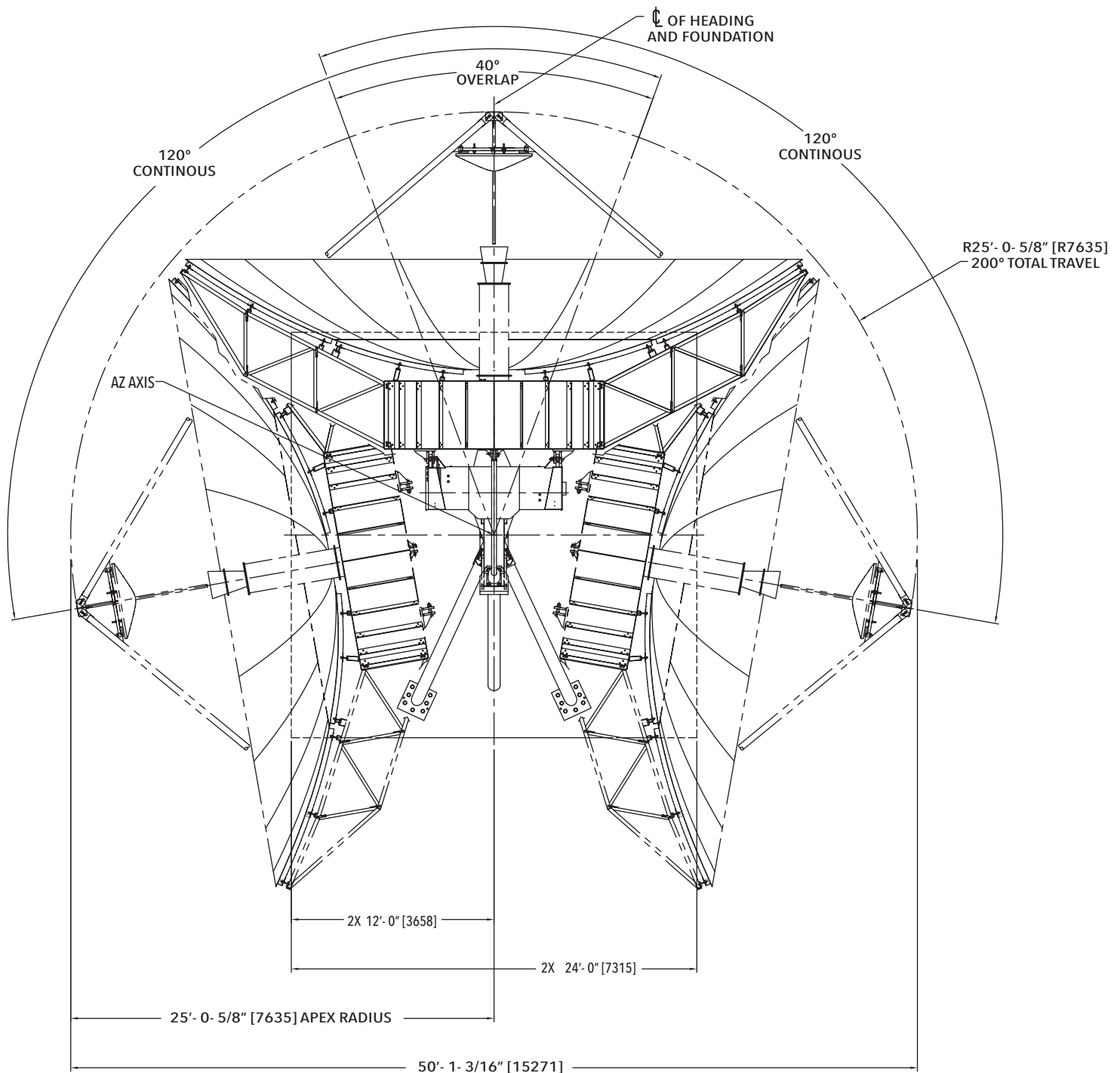
200° AZ & 90° EL

11.1 Meter Cassegrain Antenna



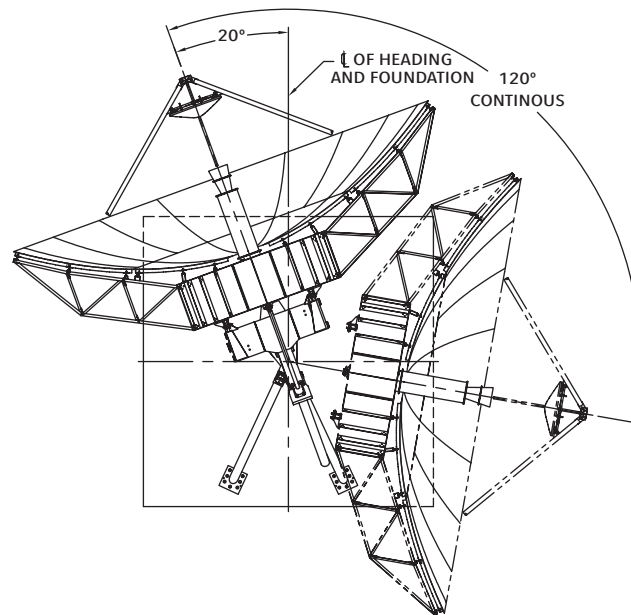
SIDE ELEVATION VIEW
GEOMETRY DRAWING
11M KX Kingpost Pedestal
200° AZ & 0°-90° EL

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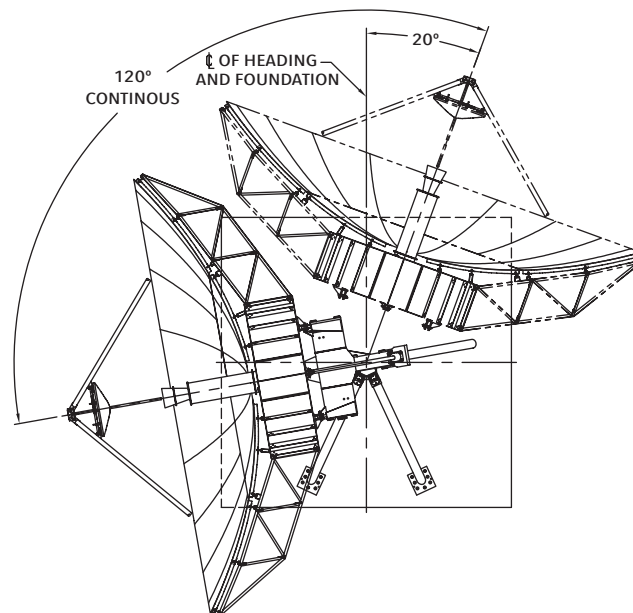


PLAN VIEW – 200° TRAVEL

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PLAN VIEW – 2ND POSITION JACK



PLAN VIEW – 1ST POSITION JACK

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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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