

4.8M Ka-Band LEO Tracking Antenna

Engineering + Craftsmanship + Service

We welcome you to the world of Alpha Satcom, Inc. The oldest, new antenna company on the planet. ASI is dedicated to bringing to you, the discerning customer, world-class products and services at the right price and at the right time.

Comprised of a team of Engineers and Satellite Professionals, ASI is uniquely qualified to bring to the market new and state-of-the-art antennas that will provide years of exceptional service. Coupled with a network of select customer focused companies, ASI can address the various requirements your particular business plan requires.

We invite you to step into the professional world of Alpha Satcom, Inc.

Product Features

- Antenna can be provided with reflector sizes up to 4.8M. Can be supplied with either Carbon Fiber or Aluminium panels.
- Transmit / Receive feed system through Ka-Band, supplied with program and or step tracking ACU's for automatic tracking of the satellite constellation.
- The X/Y pedestal can achieve whole sky coverage without the keyhole problem. The design features a cycloidal drive system that provides zero backlash which is ideal for Ka-Band precise pointing: better than 0.05 degrees (typically 0.01 to 0.02 degrees).





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Preliminary Antenna Performance Estimate		Band - 1			Band - 2		
		Receive			Transmit		
		CP			CP		
17.7 - 20.2 GHz RX & 27.5 - 30.0 GHz TX							
4.8-mtr Ka-Band Ring Focus LEO Antenna							
Frequency Range	GHz	17.7	18.95	20.2	27.5	28.75	30
Ambient Temperature	Centigrade	23	23	23	23	23	23
Diameter	Meters	4.8	4.8	4.8	4.8	4.8	4.8
Theoretical Gain Go	dbi	58.99	59.58	60.13	62.81	63.20	63.57
Antenna Gain Gs	dbi	56.16	56.66	57.12	59.60	59.85	60.07
Antenna Noise Temperature	Kelvin	59	65	78			
LNA Noise Temperature	Kelvin	139	139	139			
Effective LNA Noise Temperature	Kelvin	140	140	140			
System Temperature Ts	Kelvin	199	205	218			
	dbK	22.98	23.13	23.38			
Antenna System G/T	dbK	33.18	33.53	33.74			
Elevation Angle	40 degrees						
Antenne Noise Temperature at :							
	7.5° Elevation	97	116	144			
	10° Elevation	85	100	125			
	20° Elevation	66	76	93			
	40° Elevation	59	65	78			
Maximum Transmit Power	Watts				400	400	400
Transmit eirp	dbW				86	86	86
Antenna Pattern Features:							
	3db beamwidth deg		0.22			0.17	
	10db beamwidth deg		0.38			0.29	
	Sidelobe envelope dbi		29-25log(t) 1>20			29-25log(t) > 20	
	% peak sidelobes over envelope			3db / 10%			3db / 10%
Antenna Terminal Characteristics							
	Cross-pol db		35			35	
Tx > Rx Rejection	db		85			0	
Rx > Tx Rejection	db		0			85	
Insertion Loss	db		0.50			0.50	
Rx - Rx Isolation	db		85				
Tx - Tx Isolation	db					85	
Return Loss (VSWR)	db		17	(1.25:1)		17	(1.25:1)
Waveguide Size	dBi		WR-42			WR-28	

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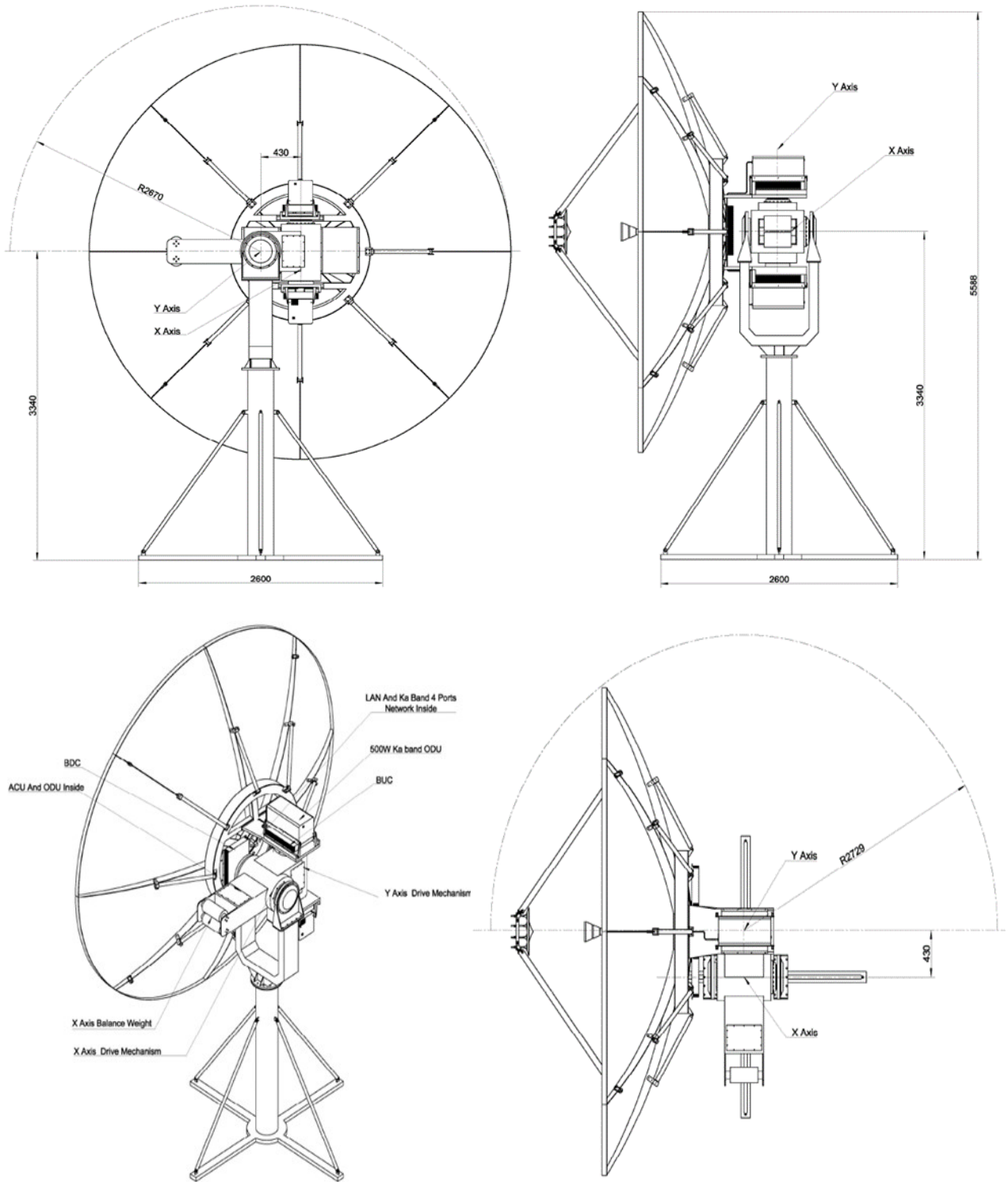
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MECHANICAL PERFORMANCE	
Antenna Diameter	4.8M
Axis Configuration	X over Y Geometry
Pointing Accuracy	< 0.022°
Position Step Resolution	0.00004°
Acceleration	10° / s ² max
Velocity	4° / s typical, 11° / s or greater
Axis Travel	Full hemispheric coverage
Power Supply	AC110-240V 50/60Hz
Horizon Limits	-2° typical
Servo	Brushless DC Servo Motors. On-Axis Optical Encoders (26 bit) Step Track over Program Track AUgmentation. Integrated GPS with NTP time source.
ENVIRONMENTAL PERFORMANCE	
Protection Grade	IP65
Solar Radiation	360 BTU/hr/ft ² (1135 Watts/m ²)
Operational Temperature	-40°C to +60°C
Storage Temperature	-55°C to +70°C
Operational Wind Loading	40 mph Gusting to 65 mph
Wind Loading, Survival	125 mph at Zenith
Relative Humidity	100%
Operational Rain	Up to 10 cm/hour
Ice (Survival)	1 inch (2.5cm) on all surfaces
Atmospheric Conditions	As per the environment in industrial areas or coastal regions
Shock and Vibration	As encountered by commercial truck and air transportation
Seismic	0.1 G Vertical and 0.3 G Horizontal Acceleration (8.3 Richter/11 Modified Mercalli Scale)

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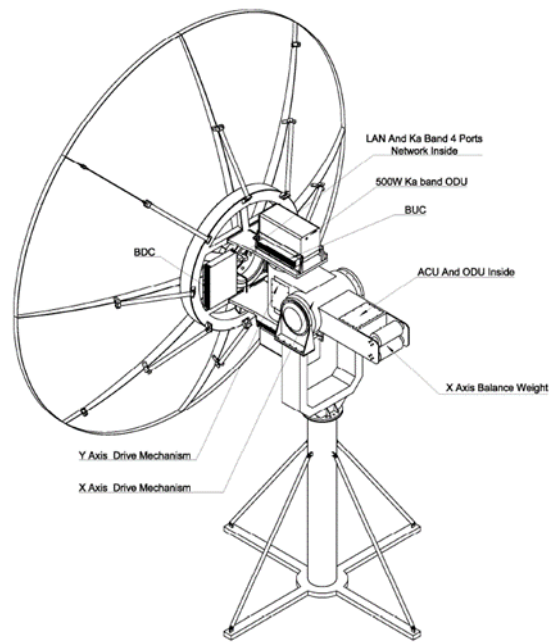
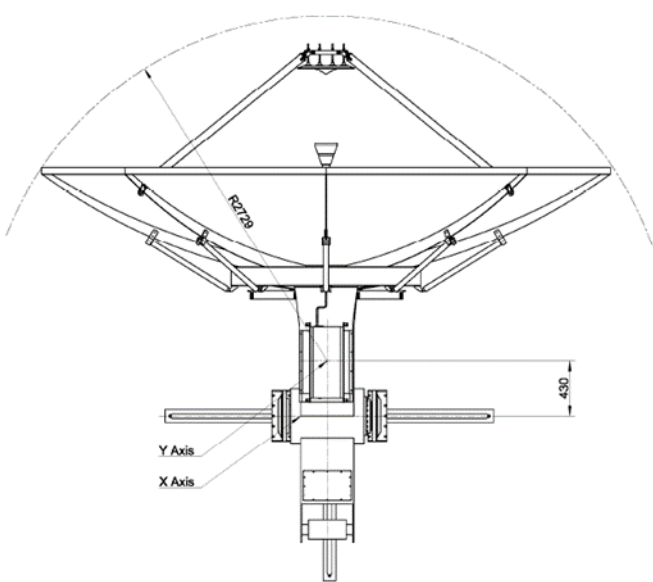
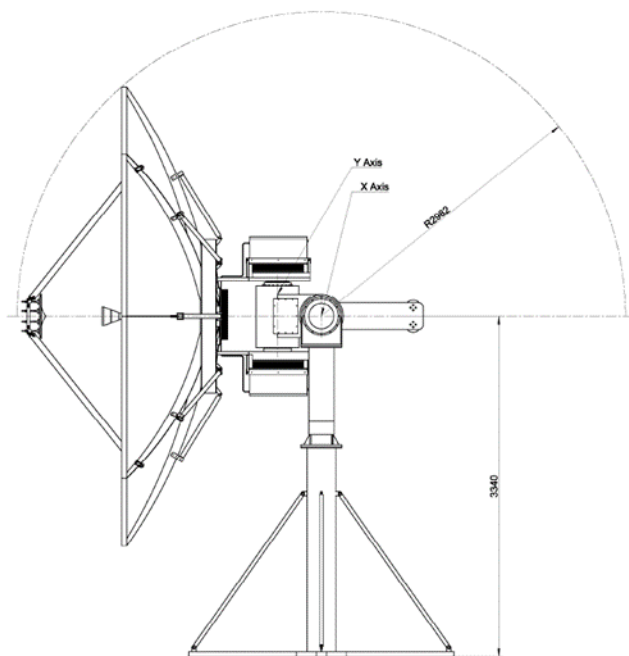
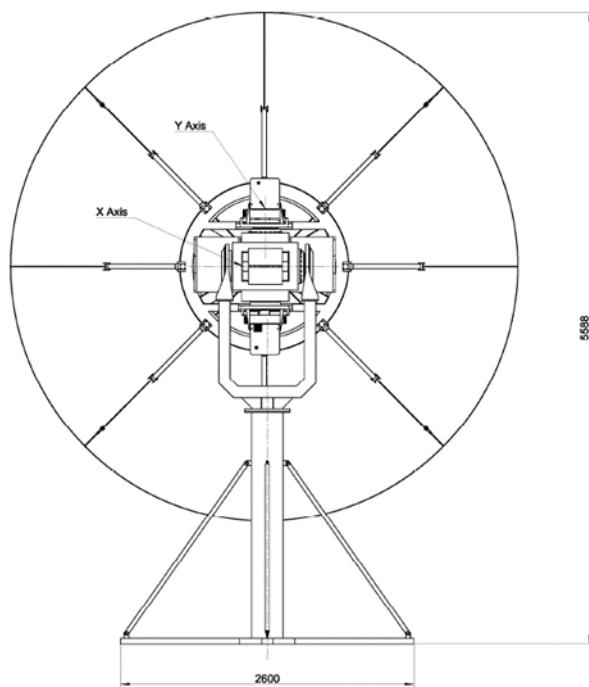
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X Axis 0°, Y Axis 0°

Note: 4.5M Reflector shown for illustrative purposes only

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