

7.3m Tri-Band Antenna

THE INTEGRAL DIFFERENCE



COMMAND
+ CONTROL



SIGNAL PROCESSING
+ DATA COMM.



ENTERPRISE
NETWORK MGMT.



COMM. INFO
ASSURANCE



SERVICES

Overview



The 7.3-meter tri-band antenna has been developed specifically for satellite spectrum monitoring and interference geolocation applications in C, X and Ku Bands. The exceptional RF system design allows full performance in two polarizations for each operating band, simultaneously, via a 6-port feed

In C-Band it operates with orthogonal linear or circular polarizations, with the changeover between LP and CP taking less than a minute via remote control. X-Band operation is circularly polarized and Ku-Band is linear. The excess G/T available at Ku-Band allows the

reception of CP Ku-Band downlinks with sufficient C/N for geolocation applications.

The axes are fully motorized, allowing the antenna to steer over 180° in azimuth. High-speed high-precision ball screw jacks are used for azimuth and elevation axes. Polarization drive and CP/LP drive employ gear-and-pinion mechanics.

The axis drive speeds are such that the antenna can be re-pointed from anywhere on the visible geostationary orbit to anywhere else in a matter of minutes.

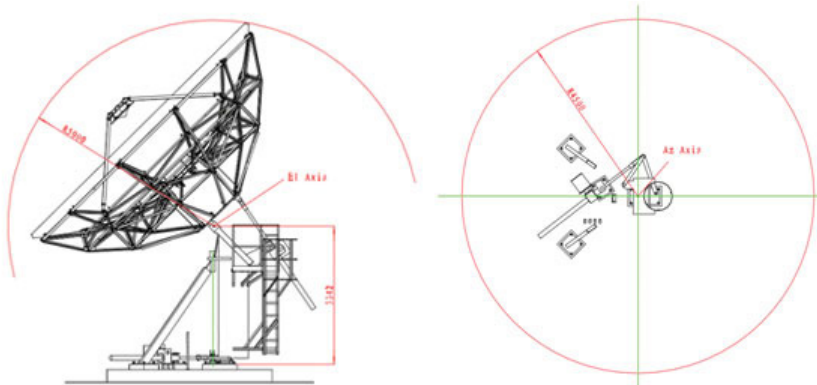
The structural steel parts are hot dip galvanized. The structure can additionally be painted white. The precision aluminium reflector panels are finished with a white solar-diffusive paint.

Antenna Options

- ◆ Upgrade manual antenna control system to autotrack
- ◆ White painted structure
- ◆ Reflector and feed deicing systems
- ◆ Environmental hub configurations
- ◆ Integrated LNA or LNB systems
- ◆ Packing for sea and air transport
- ◆ Turnkey installation and testing

Associated Systems

- ◆ Integrated spectrum monitoring system
- ◆ Integrated geolocation system (requires two antennas)



Electrical Specification			
	C-Band	X-Band	Ku-Band
	Receive	Receive	Receive
Operating Frequency, GHz	3.4 ~ 4.2	7.25 ~ 7.75	10.7 ~ 12.75
Gain, Mid-band, dBi	47.4	52.9	56.9
Polarization	Linear/Circular	Circular	Linear
XPD (on Axis), dB for LP modes	35	-	35
XPD across 1dB Beam Width, dB	30	-	30
Axial Ratio (Circular-Polarized), dB	1.12:1	1.09:1	-
VSWR	1.3:1 (CP) 1.4:1 (LP)	1.3:1	1.45:1 for 10.95-12.75 GHz 2.0:1 for 10.7-10.95 GHz
Antenna Noise Temperature 10° Elevation	45° K	75° K	80° K
-3dB Beam Width, Mid-band	0.75°	0.38°	0.24°
Typical G/T (El>10°) excl. second stage	27dB/° K	31dB/° K	35dB/° K
Feed Interface	CPR-229F	WR-84F	WR-75F
First Sidelobe	-14dB	-14±2dB	-14±2dB
Other Sidelobes	Compliant with ITU-R S.580-6		
Mechanical Specification			
Antenna Diameter	7.3m		
Antenna Type	Dual reflector Compact Cassegrain		
Mount Type	El. Over Az.		
Surface Accuracy (RMS)	≤ 0.5mm		
Antenna Pointing Range Azimuth Elevation Polarization	±90° (Continuous) 5° ~ 90° (Continuous) 180° (Continuous)		
Drive Mode	Motorized		
Motor Drive System Azimuth Travel Rate Elevation Travel Rate Polarization Travel Rate	0.8°/s 0.6°/s 0.3°/s		
Environmental Specification			
Operational Wind	13m/s Gusting to 20m/s		
Operational Wind (degraded)	20m/s Gusting to 27m/s		
Survival Wind	56m/s		
Temperature	-20°C ~ + 55°C		
Relative Humidity	100%		
Solar Radiation	1.2 kW/m ²		
Seismic (Survival)	0.3g (H), 0.1g (V)		
Ice Loading	13mm Operational; 25mm Survival		

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