NWIEE 13M EARTH STATION ANTENNA

The model 3913TC&K, 13M antenna system, designed and manufactured by NWIEE with CAD, can be applied to the newly updated INTELSAT (IESS) standard earth station.

The antenna system consists of dual shaped Cassegrain reflectors, a frequency reuse feed network with corrugated horn, an elevation-over-azimuth limit motion kingpost pedestal. The backup structure for the reflector, the hub connecting the main reflector with mount and the pedestal provides the guaranteed pointing accuracy required in normal operation.

The main reflector diameter consists of 80 precision stretch formed aluminum panels riveted with the rings and radials in three rings.

Key Features

- CP/LP switchable feed for C-band
- Galvanized steel parts
- High RF performance
- Extended C-band feeds
- AC motor drive per Az., El. and Pol. axes with single speed
- Elevation over azimuth pedestal with jackscrew drive
- Different frequency ranges from many feed configurations

Options

- High wind-resistant design
- 800MHz LP or CP 4-port feed
- Auto-tracking control system
- Hot-dipped galvanized steel parts
- Two or four Tx/Rx port in linear or circular polarized feed
- AC motor drive per azimuth and elevation axes with single or dual speed.

NWIEE 13M DUAL SHAPED CASSEGRAIN ANTENNA IN WITH 4-PORT 2Tx/2Rx LINEAR POL. FEED		
R.F. SPECIFICATION	RECEIVE	TRANSMIT
Frequency in GHz*	10.95-12.75	13.75-14.5
Gain	62.6+20lg[f(GHz)/12.5]	63.6+20lg[f(GHz)/14.25
Antenna Noise Temp. 5°Elevation 10°Elevation 20°Elevation 40°Elevation	 87 K 73K 65K 50K	
Sidelobe Pattern	First sidelobe level ≤-14dB Wide sidelobes meets IESS, Eutelsat and CCIR 580-4.	
Cross Polarization Isolation(LP only) On Axis Within 1 dB Beamwidth	 35dB 30dB	 35dB 30dB
VSWR	1.30:1	1.30:1
-3dB Beamwidth	0.13°	0.11°
Feed Insertion or Ohmic Loss	0.5dB	0.6dB
Power Handling Capability	1 Kw cw (2kw High power Option) per port	
Port to Port Isolation	Tx – Rx ⩾85dB(with TRF) Tx – Tx ⩾30dB(LP) Tx – Tx ⩾22dB(CP)	
Feed Interfaces	WR75	WR75

*DBS Frequency Band available.

NWIEE 13M DUAL SHAPED CASSEGRAIN WITH 4-PORT 2 TX/RX LINEAR AND CIRCULAR POL. FEED		
R.F. SPECIFICATION	RECEIVE	TRANSMIT
Frequency in GHz	3.625-4.200 3.400-4.200	5.850-6.425 5.850-6.650
Gain	53.1+20lg[f(GHz)/4]	56.6+20lg[f(GHz)/6]
Antenna Noise Temp. 5°Elevation 10°Elevation 20°Elevation 40°Elevation	 54 K with TRF 46K with TRF 36K with TRF 30K with TRF	
Sidelobe Pattern	First sidelobe level ≤-14dB Wide sidelobes meets IESS, Eutelsat and CCIR 580-4.	
Cross Polarization Isolation(LP only) On Axis Within 1 dB Beamwidth	 35dB 30dB	 35dB 30dB
VSWR	1.3:1 (LP) 1.25:1 (CP)	1.3:1 (LP) 1.25:1 (CP)
Axial Ratio(CP only)	1.06:1	1.06:1
Feed Insertion or Ohmic Loss	0.3dB	0.3dB
Total Power Handling Capability	3kw cw per Tx port (5KW CW high power per port Optional)	
Port to Port Isolation	Tx – Rx ⩾85dB(with TRF) Tx – Tx ⩾30dB(LP) Tx – Tx ⩾22dB(CP)	
Feed Interfaces	CPR -229	CPR -137

MECHANICAL SPECIFICATIONS	
Azimuth Travel	180°(in two 100°overlapped sectors)
*Azimuth Travel Rate	0.1°/second
Elevation Travel	0° to 90° Continuous
Elevation Travel Rate	0.1°/second *
Polarization Travel	±45°
Tracking travel rate for Az and El	0.012°/second
Polarization Travel Rate	1.0°/second
Reflector Structure	Steel
Pedestal Structure	Steel
Finish Reflector Surface Pedestal and Steel Structure	 Aluminum panels with high-diffusive white paint, steel part with Hot-Zinc Spray

*Dual Rates Available, Low Travel Rate 0.02°/s, High Travel Tate 0.2°/s. Optional for customers.

ENVIRONMENTAL SPECIFICATIONS	
Operation Wind	45mph (72km/h) gusts to 60mph(97km/h)
Survival Wind	125mph (200km/h)
Ambient Temperature	-30℃ to +60℃(survival) -15℃ to +50℃(Operational)
Rain	up to 4 in/h (10cm/h), lasting 10 minutes
Relative Humidity	up to 100% with condensation
Solar Radiation	360BTU/h/ft^2 (1000 kcal/h/M^2)
Radial Ice (Survival)	1 inch (25mm) on all surface or 1/2 inch(13mm) on all surface with 130km/h wind gusts.
Shock and Vibration	As encountered during shipment by commercial air, sea or truck
Corrosive atmosphere	As encountered in coastal regions and/or heavily industrialized areas
Seismic(Survival)	0.3G's horizontal 0.1G's vertical