

NWIEE 13M ANTENNA



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

Antenna system is characteristic of high gain, low sidelobes, low cross polarization, capable for frequency reuse both in transmit and receive bands, high driving/control accuracy with angle position display in high resolution.

The radiation patterns meet the associated requirements of INTELSAT (IESS), FCC and CCIR for 2 degree spacing location of geostationary satellites.

**NWIEE 11M DUAL SHAPED CASSEGRAIN ANTENNA
With 4-PORT 2Tx/2Rx Linear and Circular Pol FEED**

R.F. Spec.	Receive	Transmit
Frequency in GHz	3.400-3.700	6.425-6.725
Gain	$53.1+20\lg[f(\text{GHz})/4]$	$56.6+20\lg[f(\text{GHz})/6]$
Antenna Noise Temp. 5° Elevation 10° Elevation 20° Elevation 40° Elevation	49k with TRF 39k with TRF 33k with TRF 28k with TRF	
Antenna Sidelobe Pattern	First sidelobe level $\leq -14\text{dB}$. Wide sidelobes meets IESS, Eutelsat and CCIR 580-4.	
Cross Pol. Discrimination on Axis Within 1dB Beamwidth	35dB 30dB	35dB 30dB
VSWR	1.30:1(LP) 1.25:1(CP)	1.30:1(LP) 1.25:1 (CP)
Axial Ratio (CP only)	1.06:1	1.06:1
Feed Insertion or Ohmic Loss	0.3 dB	0.3dB
Power Handling Capability	5kw cw per Tx port	
Port to Port Isolation	Tx - Rx $\geq 85\text{dB}$ (with TRF) Tx - Tx $\geq 30\text{dB}$ (LP) Tx - Tx $\geq 22\text{dB}$ (CP) Rx - Rx $\geq 30\text{dB}$ (LP) Rx - Rx $\geq 22\text{dB}$ (CP)	
Feed Interfaces	CPR-229	CPR-159

NWIEE 13-METER 3913TC MECHANICAL SPECIFICATIONS

Azimuth Travel	180° (in two overlapped sectors)
*Travel Rate for Az and El	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	Aluminum
Pedestal Structure	Steel
Finishes	Aluminum panels with high-diffusive white paint, steel part with Hot-Zinc Spray

13-METER 3913TC ENVIRONMENTAL SPECIFICATIONS

Operational Winds	45mph (72km/h) gusts to 60mph(97km/h)
Survival Winds	125mph (200km/h)
Ambient Temperature (Survival)	-40°C to +60°C (survival) -15°C to +50°C (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, rail or truck
Corrosive Atmosphere	As encountered in coastal regions and/or heavily industrialized areas
Seismic(Survival)	0.3G's horizontal 0.1G's vertical