

NWIEE 16M ANTENNA



The model 3916TC 16M antenna system, designed and manufactured by NWIEE with CAD, can be applied to the newly updated INTELSAT (IESS) standard A 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 for limit motion or a turntable mount for full motion. 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 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 16M DUAL SHAPED CASSEGRAIN ANTENNA
With 4-PORT 2Tx/2Rx Linear and Circular Pol FEED**

R.F. Spec.	Receive	Transmit
Frequency in GHz	3.625-4.200	5.850-6.425
Gain	$55+20\lg[f(\text{GHz})/4]$	$58.2+20\lg[f(\text{GHz})/6]$
Antenna Noise Temp. 5° Elevation 10° Elevation 20° Elevation 40° Elevation	48k with TRF 36k with TRF 29k with TRF 24k with TRF	
Antenna Sidelobe Pattern	First sidelobe level $\leq -14\text{dB}$. Wide sidelobes meets IESS, Eutelsat and CCIR 580-5.	
Cross Pol. Discrimination(LP) 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)
3dB Beamwidth	0.30°	0.20°
Axial Ratio (CP only)	1.06:1	1.06:1
Feed Insertion or Ohmic Loss	0.30 dB	0.30dB
Power Handling Capability	5kw cw per port	
Port to Port Isolation	Tx - Rx $\geq 85\text{dB}$ (with TRF) Tx - Tx $\geq 30\text{dB}$ (LP) Tx - Tx $\geq 20\text{dB}$ (CP)	
Feed Interfaces	CPR-229G	CPR-137G

NWIEE 16-METER 3916TC 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	Steel
Pedestal Structure	Steel
Finishes	Aluminum panels with high-diffusive white paint, steel part with Hot-Zinc Spray

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

16-METER 3916TC 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