

NWIEE 7.3 METER EARTH STATION ANTENNA



The 7.3M antenna system, Model 3957TC and Model 3957TK , 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 with backup structure, a frequency reused feed assembly with corrugated horn, an elevation-over-azimuth limit motion kingpost pedestal. the hub connecting the main reflector with mount. The pedestal provides the guaranteed pointing accuracy required in C and Ku band operations.

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, and CCIR for satellites at 2 degrees spacing location in geo- stationary orbit.

NMEE 7.3M COMPACT CASSEGRAIN ANTENNA IN C-BAND				
R.F. Specification	2 Port		4 Port	
	Receive	Transmit	Receive	Transmit
Frequency in GHz	3.625-4.2	5.850-6.425	3.625-4.200	5.85-6.425
Gain at mid band	48.05+ 20lg[f(GHz)/4]	51.6+ 20lg[f(GHz)/6 .2]	47.9+ 20lg[f(GHz)/4]	51.6+ 20lg[f(GHz)/6.2]
Ant. Noise Temp.				
5° Elevation	48K		54K	
10° Elevation	40K		42K	
20° Elevation	30K		32K	
40° Elevation	29K		29K	
Sidelobe Pattern	First sidelobe level \square -14dB Beyond first sidelobe meet IESS(Intelsat) or CCIR 580-5 Recommendation			
Cross-Pol. Discrimination	35dB (On axis) 30dB (within 1 dB Beamwidth)			
VSWR	1.3:1 (LP) 1.25:1 (CP)	1.3:1 (LP) 1.25:1 (CP)	1.3:1 (LP)	1.3:1 (LP)
Axial Ratio (CP only)	1.3dB	0.75dB	0.50dB	0.50dB
Feed Insertion or Ohmic Loss	0.15 dB	0.10dB	0.25dB	0.20dB
Power Handling Capability	3 Kw per port		3Kw per port	
Port to Port Isolation Tx/Rx	80dB		80 dB	
Feed Interfaces	CPR-229F	CPR-137F	CPR-229F	CPR-137F

All data are available at the feed assembly output and input ports.

The following extended frequency range is available at the request from customers:

Extended C band A: 3.4-3.7GHz/6.425-6.725GHz

Extended C band B: 3.4-4.2GHz /5.85-6.650GHz

Extended C band C: 3.4-4.2GHz /5.85-6.750GHz

NWIEE 7.3M CASSEGRAIN ANTENNA IN C or Ku-BAND WITH 4-PORT FEED		
R.F. SPECIFICATION	RECEIVE	TRANSMIT
Frequency in GHz	12.20-12.75*	14.0-14.50
Gain	57+ 20lg[f(GHz)/12.5]	58.20+ 20lg[f(GHz)/14.25]
Antenna Noise Temperature		
5° Elevation	87k	
10° Elevation	72k	
20°Elevation	54k	
40°Elevation	45k	
Sidelobe	First sidelobe level <= - 14dB Beyond first sidelobe meet IESS(Intelsat) or CCIR 580-5 Recommendation	
Cross Polarization Isolation(LP only)		
On Axis	35dB	35dB
Within 1 dB Beamwidth	30dB	30dB
Axial Ratio(CP only) ,dB	0.5dB	0.5dB
VSWR	1.3:1 (LP)	1.3:1(LP)
Feed Insertion or Ohmic Loss	0.50dB	0.60dB
Port to Port Isolation		
Tx to Rx	80dB	
Rx to Rx		
Tx to Tx		
Feed Interfaces	WR 75F	WR 75F
Total Power Handling Capability	2kw cw	

NOTE: All values are at the rear feed output flange.

* The frequency range are Rx: 3.4-3.7GHz/Tx: 6.424-6.725GHz or Rx:3.4-4.2GHz /Tx:5.85-6.650GHz optional.

** The other operational frequency bands of NWIEE VSAT antennas can be of 10.95- 11.7GHz or 11.7-12.2GHz, even extended as 10.95-12.75GHz. They are available in NWIEE and an option for customers when order.

NWIEE 7.3M ANTENNA MECHANICAL SPECIFICATIONS	
Pedestal Type	Limited Motion, El.over Az., Kingpost
Azimuth Travel	180° in total
Elevation Travel	0° to 90°
Polarization Travel	± 45°
Reflector	Stretch-formed aluminum panel
Backup Structure	Steel
Pedestal Structure	Steel
Finish	
Reflector Surface	Aluminum panels with heat-diffusing white
Pedestal and Steel Structure	Hot-dipped galvanization
Antenna Drive Mode	AC motor Drive per Az, El and Pol.

NWIEE 7.3M ANTENNA ENVIRONMENTAL SPECIFICATIONS	
Operation Wind	50km/h gusts to 97km/h
Survival Wind	200km/h
Ambient Temperature	-30°C to 50°C
Rain	up to 100mm/h Operational and Survival
Relative Humidity	up to 100% Operational and Survival
Solar Radiation	1000 Kcal/M ² /h
Radial Ice (Survival)	25mm on all surface or 13mm on all surface with 130km/h wind gusts.
Shock and Vibration	As encountered during shipment by commercial air, sea or
Corrosive atmosphere	As encountered in coastal regions and/or heavily industrialized areas
Seismic(Survival)	0.3G's horizontal 0.1G's vertical