



Overview

The Advantech Wireless A-Line Series model 3912T, 12M antenna system, designed and manufactured with CAD, can be applied to the newly updated INTELSAT (IESS) standard B earth station.

The Advantech Wireless A-Line Series 12M antenna system consists of dual shaped Gregorain 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.

Advantech Wireless A-Line Series 12M 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.

A-Line Series 12m ANTENNA

Antenna Specifications

R.F Specifications		
4-PORT 2Tx/2Rx Linear and Circular Pol feed	C-Band	
	Receive	Transmit
Frequency in GHz*	3.625-4.200 3.400-4.200 (Optional)	5.85- 6.425GHz 5.850-6.650(Optional)
Gain	52.47 +20lg[f(GHz)/4]	55.68 +20lg[f(GHz)/6]
Antenna Noise Temp.		
5°Elevation	49k with TRF	
10°Elevation	39k with TRF	
20°Elevation	33k with TRF	
40°Elevation	28k with TRF	
Sidelobe Pattern	First sidelobe level ≤-14dB Beyond first sidelobe meet IESS(Intelsat) or CCIR 580-4 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)
Axial Ratio (CP only)	1.06:1	
Feed Insertion or Ohmic Loss	0.15dB	
Power Handling Capability	3kw cw per port (5Kw high power per port optional)	
Port to Port Isolation		
Tx to Rx	≥85dB(with TRF)	
Rx to Rx	≥30dB (LP), ≥22dB (CP)	
Tx to Tx	≥30dB (LP), ≥22dB (CP)	
Feed Interfaces	CPR-229	CPR-137
	X,S band available.	
R.F Specifications		
4-PORT 2Tx/2Rx Circular Pol feed	X-Band	
	Receive	Transmit
Frequency in GHz*	7.25-7.75	7.9-8.4Ghz
Gain	57.1+ 20lg[f(GHz)/7.5]	57.8 + 20lg[f(GHz)/8.25]
Antenna Noise Temp.		
5°Elevation	74k with TRF	
10°Elevation	65k with TRF	
20°Elevation	58k with TRF	
40°Elevation	54k with TRF	
Sidelobe Pattern	First sidelobe level ≤-14dB Beyond first sidelobe meet IESS(Intelsat) or CCIR 580-4 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)
Axial Ratio (CP only)	1.06:1	
3dB Beamwidth	0.72Deg	
Polarization	RHCP/LHCP	
Feed Insertion or Ohmic Loss	0.60dB	
Power Handling Capability	1Kw cw	
Port to Port Isolation		
Tx to Rx	≥70dB(with TRF)	
Rx to Rx	≥20dB	
Tx to Tx	≥20dB	
Feed Interfaces	WR112	WR112
	X,S band available.	

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Antenna Specifications

Mechanical Specifications	
Pedestal Type	Limited Motion, El. Over Az. Kingpost
Azimuth Travel	180°(in two 100 continuous overlapped sectors)
*Travel Rate for Az and El	0.1%/second * Dual Rates Available, Low Travel Rate 0.02%/s, High Travel Rate 0.2%/s. Optional for customers.
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	Steel
Pedestal Structure	Steel
Finish	Aluminum panels with high-diffusive white paint, steel part with Hot-Zinc Spray
Antenna Drive Mode	AC motor Drive per Az, El and Pol.
Physical	
Ambient Temperature	-30°C to 60°C (survival) , -15°C to 50°C (Operational)
Operational Wind	72km/h gusts to 97km/h
Survival Wind	200km/hm
Rain	up to 4 in/h(10cm/h), lasting 10 minutes
Relative Humidity	up to 100% with condensation
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 truck
Corrosive atmosphere	As encountered in coastal regions and/or heavily industrialized areas
Seismic(Survival)	0.3G's horizontal 0.1G's vertical
Foundation Size	24ft x 24ft x 2ft(7.3m x 7.3m x 0.6m)
Concrete Volume	43 cubic yards (32.9m ³ ,typical)
Reinforcing Steel	6.000 Pound (2.721Kg, typical)
Soil Bearing Pressure	3.000PSF (15.000Kg/m ²)
Shipping Weight(Typical)	15500kg
Shipping Volume	4.520 cubic feet (128m ³)

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