



Overview

Advantech Wireless A-Line Series 7.3M antenna system, Model 3957TC and Model 3957TK, designed and manufactured with CAD, can be applied to the newly updated INTELSAT (IESS) standard earth station.

The Advantech Wireless A-Line Series 7.3M antenna system consists of dual shaped Cassegrain reflectors, a frequency reused 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 C band and Ku band operations.

The Advantech Wireless A-Line Series 7.3M 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.

A-Line Series 7.3m ANTENNA



Antenna Specifications

R.F Specifications				
	C-Band			
	2-Port		4-Port	
	Receive	Transmit	Receive	Transmit
Frequency in GHz*	3.625-4.200*	5.850-6.425	3.625-4.2	5.85-6.425
Gain	48.1+ 20lg[f(GHz)/4]	51.6+ 20lg[f(GHz)/6.2]	47.9+ 20lg[f(GHz)/4]	51.6+ 20lg[f(GHz)/6.2]
Antenna Noise Temp.				
10°Elevation	40K		42K	
20°Elevation	30K		32K	
40°Elevation	29K		29K	
Sidelobe Pattern	First sidelobe level ≤-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	1.3:1
Axial Ration in CP	1.3	0.75	0.5	0.5
Feed Insertion or Ohmic Loss	0.15dB	0.10dB	0.25dB	0.20dB
Power Handling Capability	3 Kw		3 Kw	
Port to Port Isolation	80 db		80 db	
Feed Interfaces	CPR-229G	CPR-137F	CPR-229G	CPR-137F
All data are available at the feed assembly output and input ports. The following extended frequency range are 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				
R.F Specifications with 4 Port Linear/ Circular Pol. Feed				
	C-Band		Ku-Band	
	Receive	Transmit	Receive	Transmit
	Receive	Transmit	Receive	Transmit
Frequency in GHz*	3.625-3.400*	5.850-6.425	12.20-12.75**	14.0-14.5
Gain	47.9+ 20lg[f(GHz)/4]	51.3+ 20lg[f(GHz)/6.2]	57+ 20lg[f(GHz)/12]	58.2+ 20lg[f(GHz)/14]
Antenna Noise Temp.				
10°Elevation	43K		72K	
20°Elevation	35K		54K	
40°Elevation	27K		45K	
Sidelobe Pattern	First sidelobe level ≤-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	1.3:1
Axial Ratio (CP only)	0.5	0.5		
Feed Insertion or Ohmic Loss	0.25dB	0.20dB	0.50dB	0.50dB
Power Handling Capability	10 Kw		2 Kw	
Port to Port Isolation	80 db		80 db	
Feed Interfaces	CPR-229G	CPR-137F	WR75	WR75
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 VSAT antennas can be of 10.95- 11.7GHz or 11.7-12.2GHz, even extended as 10.95-12.75GHz. They are available with an option for customers when order.				

A-Line Series 7.3m ANTENNA



Antenna Specifications

Mechanical Specifications	
Pedestal Type	Limited Motion, El. Over Az. Kingpost
Azimuth Travel	180° in total
Elevation Range	0° to 90°
Az and El Travel Rate	0.01°/second (with motor for Ku band, option)
Polarization Travel	±45°
Reflector	Aluminium
Backup Structure	Steel
Pedestal Structure	Steel
Finish	
Reflector Surface	Aluminium panels with heat-diffusing white paint
Pedestal and Steel Structure	Sand blast and hot spray galvanized and two times paint
Surface Accuracy	0.6mm(RMS)
Antenna Drive Mode	Motorized drive
Physical	
Ambient Temperature	-40°C to 50°C
Operational Wind	50km/h gusts to 97km/h
Survival Wind	200km/hm
Rain	Up to 100mm/h
Relative Humidity	Up to 100%
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

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