

## Model AST 4.5M Carbon Fiber Folding Bat-Wing Antenna



### Antenna Features

- Comprised of a high precision, close tolerance Carbon Fiber, Ring Focus reflector, sub-reflector, heavy duty elevation-over-azimuth positioner, and an optional heavy duty trailer for transport, the 4.5M Folding Bat-Wing Antenna is a state-of-the-art, satellite earth station.
- An additional benefit is that, since Carbon Fiber reflectors have excellent environmental performance, (the temperature's influence on the R.M.S. is  $\leq 0.01\text{mm}$ ) they do not require air conditioning to maintain constant temperature control. This a major benefit when operating at high frequencies.
- Carbon Fiber reflectors exhibit panel accuracies of  $\text{R.M.S} \leq 0.13\text{mm}$ , and an assembled accuracy of  $0.25\text{mm}$  R.M.S. The reflector surface accuracy and precision permits the antenna to operate with a variety of transmit and receive feeds. The antenna can be configured with multiple linear or circular polarized C-band, X-band, X-band Low Passive InterModulation (PIM), Ku-band and Kaband feed systems. Each feed system has been designed to be easily removable and stored for transport, if required.
- The antenna system points to, and tracks, a GEO satellite via either an Antenna Control, System offering a full AC servo performance with adaptive step tracking, or optional Monopulse tracking, for unparalleled tracking performance.
- The antenna meets the standards of FCC, ITU and Eutelsat regulations.

## ELECTRICAL SPECIFICATION

4.5Transportable ESA electrical parameters	With X-Band 2 port circular polarized feed		With C-Band 2 port linear polarized feed		With C-Band 2 port circular polarized feed		With Ku-Band 2 port linear polar-ized feed		With Ka-Band 2 port circular polar-ized feed		With Ka-Band 2 port linear polarized feed	
(DA4500P-A01)	Rx	Tx	Rx	Tx	Rx	Tx	Rx	Tx	Rx	Tx	Rx	Tx
Frequency (GHz)	7.25	7.9	3.4	5.85	3.625	5.85	10.7	13.75	17.7	27.5	17.7	27.5
	7.75	8.4	4.2	6.425	4.2	6.425	12.75	14.5	21.2	31	21.2	31
Polarization	Tx-RHCP or LHCP con-figurable Rx-Orthogonal to Tx		Linear H/V Tx orthogo-nal to Rx		Tx-RHCP or LHCP con-figurable Rx-Orthogonal to Rx		Linear H/V Tx or-thogonal to Rx		Tx-RHCP or LHCP configurable Rx-Orthogonal to Rx		Tx-RHCP or LHCP configurable Rx-Orthogonal to Rx	
Antenna gain at mid-band ±0.2db (X band ±0.5db)	49	49.5	42.3	46.7	42.3	46.7	52.9	54.6	57.3	61	57.3	61
Antenna Noise Temperature (clear sky)												
20° Elevation (k)	52		33		33		53		108		108	
40° Elevation (k)	53		34		34		41		103		103	
Side lobe performance	Meets ITU-R S.580 and S.465											
Cross polarization (Axis)	21.3dB	21.3dB	30dB	30dB	20.7dB	27.3dB	35dB	35dB	27.3dB	30.7dB	27.3dB	30.7dB
Compliance Port-to-port isolation												
Rx/Tx (Rx frequency-Rx band isolation)	18 dB		35 dB		20 dB		35 dB		20 dB		20 dB	
Tx/Rx (Tx frequency-Tx band isolation)		85dB	85dB			85dB		85dB		85 dB		85 dB
VSWR	1.3:1	1.3:1	1.5:1	1.4:1	1.5:1	1.4:1	1.35:1	1.35:1	1.5:1	1.4:1	1.5:1	1.4:1
Axial ratio	1.5dB	1.5dB			2dB	2dB			2dB	2dB		
Feed insertion loss	0.15dB	0.15dB	0.3dB	0.3dB	0.5dB	0.5dB	0.4dB	0.3dB	0.5dB	0.5dB	0.45dB	0.45dB
Output waveguide flange interface	CPR-112G	CPR-112G	CPR-229G	CPR-137G	CPR-229G	CPR-137G	WR-75	WR-75	WR-42	WR-28	WR-42	WR-28

## MECHANICAL SPECIFICATION

## ENVIRONMENTAL REQUIREMENTS

Mounting	Elevation over azimuth	Relative humidity	5 - 95%
Reflector equivalent diameter	4.5 m	Operational temperature	-25°C - +55°C (Optional -40°C - +60°C )
Configuration	Ring Focus		
Reflector configuration	Segmented(3 Piece)	Storage temperature	-40°C - +60°C(Optional -50°C - +70°C )
Antenna adjustment	Elevation: 0º to 90º	Operational wind loading	30mph (48 km/h) Gusting to 45 mph (72 km/h)
	Azimuth: ±150º		
	Polarization:±95º		
Manual drive	Hand crank on Az and El, and Pol Axis	Wind loading survival	Go to stow at 80mph ( 129 km/h)
Antenna weight	<1900Kg		