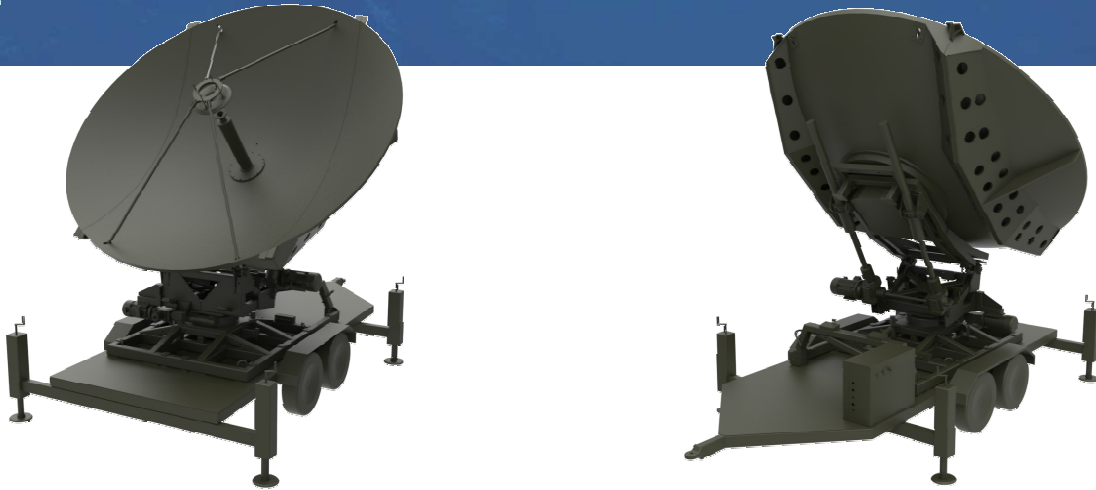


## Model AST 4.5M Carbon Fiber Folding Bat-Wing Antenna



### 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                                    |  |          |  |          |  |          |   |        |  |        |  |        |
|---|--|----------|--|----------|--|----------|---|--------|--|--------|--|--------|
| 4.5 Transportable 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 polarized feed |        | With Ka-Band 2 port circular polarized 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 configurable Rx-Orthogonal to Tx                                 |          | Linear H/V Tx orthogonal to Rx           |          | Tx-RHCP or LHCP configurable Rx-Orthogonal to Rx |          | Linear H/V Tx orthogonal 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 $\pm 0.2$ db (X band $\pm 0.5$ db) | 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   |          |  |          |  |          | Storage temperature                       |        | -40°C - +60°C (Optional -50°C - +70°C)           |        |  |        |
| Reflector configuration                                     | Segmented(3 Piece)   |          |  |          |  |          | Operational wind loading                  |        | 30mph (48 km/h) Gusting to 45 mph (72 km/h)      |        |  |        |
| Antenna adjustment  | Elevation: 0° to 90°<br>Azimuth: $\pm 150^\circ$<br>Polarization: $\pm 95^\circ$ |          |  |          |  |          | Wind loading survival                     |        | Go to stow at 80mph (129 km/h)                   |        |  |        |
| Manual drive  | Hand crank on Az and El, and Pol Axis  |          |  |          |  |          |   |        |  |        |  |        |
| Antenna weight  | <1900Kg  |          |  |          |  |          |   |        |  |        |  |        |

