



# Mantis Flyaway Antenna System



## The World's Most Popular Flyaway Solution

### Overview

A comprehensive range of lightweight, compact satellite terminals for all transportable applications.



### Features

- Mantis is available in 1m, 1.2m, 1.9m and 2.4m antenna sizes
- Available in single, dual, tri and quad band configurations
- Bands available:
  - ◇ 1m - X, Ku, DBS & Ka
  - ◇ 1.2m - X, Ku, DBS & Ka
  - ◇ 1.9m - C, X, Ku, DBS & Ka
  - ◇ 2.4m - C, X, Ku, DBS & Ka
- Manufactured using latest carbon fibre composite materials for minimum weight
- Easily deployed by a single user
- IATA weight compliant options available on all the Mantis range of antennas
- Fully compliant with all satellite operator specifications
- Motorised tracking option for inclined orbit operation available on 1m, 1.9m and 2.4m Mantis flyaway
- Electronics available in single thread, power combined or 1:1 redundant configuration
- Antennas are approved for use with most Satellite operators
- Variety of uplink electronics packages available
- Available in most colours to order
- Co-polar Rx available on Ku antennas
- Second Rx port available on C Band linear antennas

# Specifications

## 1M MANTIS

### Configuration

- Offset fed

### Frequency

#### X:

- Tx 7.9 to 8.4 GHz
- Rx 7.25 to 7.75 GHz

#### Ku:

- Tx 13.75 to 14.5 GHz (option from 12.75 GHz)
- Rx 10.95 to 12.75 GHz

#### DBS:

- Tx 17.3 to 18.1 GHz (option to 18.4 GHz)
- Rx 10.95 to 12.75 GHz

#### Ka:

- Tx 27.5 to 30.0 GHz
- Rx 18.0 to 22.0 GHz

### Tx Gain

#### X:

- Tx 36.7 dBi typ @ 8.15 GHz

#### Ku:

- Tx 41.5 dBi typ @ 14.25 GHz

#### DBS:

- Tx 43.5 dBi typ @ 17.85 GHz

#### Ka:

- Tx 47.6 dBi typ @ 28.75 GHz

### G/T

#### X:

7.40 GHz = 13.7 dBk (assumes LNA 50 dB Gain 0.8 dB NF)

#### Ku:

- 11.20 GHz = 17.7 dBk (assumes LNB 60 dB gain 0.7 dB NF)

#### DBS:

- 11.20 GHz = 17.7 dBk (assumes LNB 60 dB Gain 0.7 dB NF)

#### Ka:

- 19.70 GHz = 21.0 dBk (assumes LNB 55 dB Gain 1.6 dB NF)

### Meets The Requirements of:

- ITU-R S.580-6
- ITU-R S.465-5
- INTELSAT IESS-601
- EUTELSAT ESS-502 \*
- MIL STD 188-164A
- STANAG 4484 (as applicable)

### Cross Polarisation Isolation

#### X Band Circular

- 30 dB Tx (axial ratio 1.07)
- 20 dB Rx (axial ratio 1.22)

#### Ku and DBS Band Linear

- -35 dB

#### Ka Band

• Consult factory (all relative to co-polar gain within 1 dB contour)

### Port to Port Isolation

#### X:

- Tx / Rx 20 dB (100 dB incl filter)
- Rx / Tx 20 dB

#### Ku:

- Tx / Rx 40 dB (110 dB incl filter)
- Rx / Tx 30 dB

#### DBS:

- Tx / Rx 40 dB (110 dB incl filter)
- Rx / Tx 30 dB

#### Ka:

- Tx / Rx 35 dB (110 dB incl filter)
- Rx / Tx 35 dB

### Mechanical

#### Mount:

- Elevation over azimuth



### Operation

- Manual and/or 2/3 axis motorisation

### Manual Movement

#### Azimuth adjustment:

- 270°

#### Elevation adjustment:

- 10° to 91°

#### Polarisation adjustment:

- +/-95° (Linear polarisation only)

### Motorised Movement

#### Azimuth adjustment

- +/-90° @ 4 °/s max

#### Elevation adjustment

- 10° to 91° @ 4°/s max

#### Polarisation adjustment

- +/- 95° @ 4°/s max

#### Rates

- 0.1°/s, 1.0°/s, 4.0°/s

### IATA Dimensions & Weight

#### Single case

- 800 x 600 x 250 mm - <20Kg (31.5 x 23.6 x 9.8 inches)

#### Weight

- <44lbs

### Temperature

#### Operational:

- -20°C to +60°C (-4°F to 140°F)

#### Transport:

- -40°C to +70°C (-40°F to 158°F)

### Windspeeds

#### Operational:

- 21 m/s (47 mph)

#### Survival:

- 30 m/s (67 mph)

#### Humidity

- 0 to 100% RH

### \* Ku Band EIRP Restriction

*Note should be taken that where Ku band satellite orbit spacings are less than 2 degrees then for a 1m diameter antenna an EIRP restriction may be applied by the Satellite operator. This will vary but for Eutelsat ESS-502 this restriction would typically be 36.1dBW / 40KHz.*

## 1.2M MANTIS

### Configuration

- Offset fed

### Frequency

#### X:

- Tx 7.9 to 8.4 GHz
- Rx 7.25 to 7.75 GHz

#### Ku:

- Tx 13.75 to 14.5 GHz (option from 12.75 GHz)
- Rx 10.95 to 12.75 GHz

#### DBS:

- Tx 17.3 to 18.1 GHz (option to 18.4 GHz)
- Rx 10.95 to 12.75 GHz

#### Ka:

- Tx 27.5 to 30.0 GHz
- Rx 18.0 to 22.0 GHz

### Tx Gain

#### X:

- Tx 38.4 dBi typ @ 8.15 GHz

#### Ku:

- Tx 43.3 dBi typ @ 14.25 GHz

#### DBS:

- Tx 45.2 dBi typ @ 17.85 GHz

#### Ka:

- Tx 49.4 dBi typ @ 28.75 GHz

### G/T

#### X:

7.40 GHz = 15.3 dBk (assumes LNA 50 dB Gain 0.8 dB NF)

#### Ku:

- 11.20 GHz = 19.2 dBk (assumes LNB 60 dB gain 0.7 dB NF)

#### DBS:

- 11.20 GHz = 19.2 dBk (assumes LNB 60 dB Gain 0.7 dB NF)

#### Ka:

- 19.70 GHz = 22.6 dBk (assumes LNB 55 dB Gain 1.6 dB NF)

### Meets The Requirements of

- ITU-R S.580-6
- ITU-R S.465-5
- INTELSAT IESS-601
- EUTELSAT ESS-502
- MIL STD 188-164A
- STANAG 4484 (as applicable)

### Cross Polarisation Isolation

#### X Band Circular

- 30 dB Tx (axial ratio 1.07)
- 20 dB Rx (axial ratio 1.22)

#### Ku and DBS Band Linear

- -35 dB

#### Ka Band

- Consult factory (all relative to co-polar gain within 1 dB contour)

### Port to Port Isolation

#### X:

- Tx / Rx 20 dB (100 dB incl filter)
- Rx / Tx 20 dB

#### Ku:

- Tx / Rx 40 dB (110 dB incl filter)
- Rx / Tx 30 dB

#### DBS:

- Tx / Rx 40 dB (110 dB incl filter)
- Rx / Tx 30 dB

#### Ka:

- Tx / Rx 35 dB (110 dB incl filter)
- Rx / Tx 35 dB

### Mechanical

#### Mount:

- Elevation over azimuth

#### Operation

- Manual

### Manual Movement

#### Azimuth adjustment:

- +/- 180° coarse adjust, +/- 2.5° fine adjust

#### Elevation adjustment:

- 0° to 90° (with adjustable mount elevation)

#### Polarisation adjustment:

- +/-95° (Linear polarisation only)

### Standard Dimensions & Weights

#### Single case

- 495 x 1050 x 650mm - 43Kg (19.5 x 41.3 x 25.6 inches - 94.8lbs)

### IATA Dimensions & Weights

#### Standard case

- 800 x 600 x 250 mm
- <20kg (00lbs)

#### Rugged case

- 850 x 650 x 320 mm
- <30Kg (00lbs) including op

### IATA Dimensions & Weight

#### Antenna case

- 495 x 1050 x 650 mm -31.9Kg (19.5" x 41.3" x 25.6" - 70.3 lbs)

#### Feedarm case

- 1290 x 340 x 135 mm - 16.95Kg (50.8" x 13.3" x 5.3" - 37.4lbs)

#### Petal & Waveguide Softpack

- 1160 x 570 x 230 mm - 12Kg (45.7" x 22.4" x 9" - 26.5lbs)

### Temperature

#### Operational:

- -20°C to +60°C (-4°F to 140°F)

#### Transport:

- -40°C to +70°C (-40°F to 158°F)

### Windspeeds

#### Operational:

- 14 m/s (30 mph)

#### Survival:

- 27 m/s (60 mph)

### Humidity

- 0 to 100% RH



