

## 5.4 M Ka-Band LEO Satellite Communication Antenna

### 1. Features

RSA54X / Y-Ka model 5.4m antenna is designed for Ka-band LEO satellite communication. The antenna is in the form of dual shaped Cassegrain antenna. The main reflector is divided into 12 panels, made with aluminum honeycomb sandwich structure in negative pressure molding process. It has high accuracy, low weight and high temperature stability. The feed is multi-mode corrugated horn TE<sub>21</sub> mode monopulse automatic tracking feed, have high antenna efficiency and tracking accuracy.

The antenna pedestal is in X / Y type. It is the key performing mechanism to achieve non-blind tracking in zenith. Each axis rotation range is  $\pm 90^\circ$ , can cover the entire airspace, effectively avoid coiling and collector ring problem in Az/EI structure. The large-size final drive has high structural rigidity ensured the antenna pointing accuracy, tracking accuracy and rotation stability of the overall structure.



## 2. The main functions:

- a) Have monopulse auto tracking, program tracking and external data guide tracking modes.
- b) Have time offset adjustment and X, Y axis angle adjustment function in program tracking mode.
- c) Have angle measurement data acquisition function in auto tracking mode;
- d) Can be connected via a network interface or RS-232 serial interface with system monitoring computer, monitors the parameter configuration of antenna system, control and equipment status.

## 3. Main specifications:

<b>Electrical Specification</b>		
Type	KA54T	
Operating Frequency, GHz	Ka-Band	
	Receive	Transmit
	18.3~18.8	28.6~29.1
Gain, dBi	58.2@18.5GHz	62@28.8GHz
Polarization	Circular	
Axial Ratio, dB		0.5
VSWR	1.30	1.30
Antenna noise temperature ( EL=30° )	80K	
Feed Interface	WR-42	WR-28
Transmit port power capacity		1KW
Isolation, Tx to Rx, dB	85	
Side lobe	CCIR 580-4	
<b>Mechanical Specification</b>		
Antenna Diameter	5.4m	
Antenna Type	Dual shaped Cassegrain antenna	
The main reflector surface accuracy	0.2mm(RMS)	
Mount pedestal	X-Y type	
Travel range	±90° (two axes)	
Travel acceleration	≥5 ° / s <sup>2</sup>	
Pointing accuracy	≤0.05 °	
tracking accuracy	0.02°	
Antenna total weight	≤4T	
Rated power	≤15kw	
<b>Environmental Specification</b>		
Operational Wind	17m / s, gusts of 20m / s	
Survival wind speed	56 m / s	
Temperature	-40°~+55°	
Relative Humidity	100%	
Rainfall	100 mm / hr	