SA-4.5T C/Ku ANTENNA

1. Summary

The satellite communication antenna SA-4.5T C/Ku is a dual reflector, sectioned reflector ring focus design(step up from 1980's technology of Gregorian) type. The antenna diameter is 4.5 meters, and the antenna mount is the A-E type joist style. In ring focus design antennas, the side-reflector exhibit the characteristic of reverse rotation and reflection to reflecting feed irradiating beams, and it makes the shelter from the feed disappear, thus improve the efficiency of the antenna , and cut down the voltage standing wave ratio (VSWR) to achieve the low side-lobe design easily. The ring focus structure is suitable for antenna with mid-size and small-size apertures especially.

The SA-4.5T C/Ku antenna performance meets the standard CCIR-580 relevant to satellite earth stations. It was the first one to obtain the network access type approval certification in batch size by AsiaSat amongst antenna makers in China. Since it was introduced to the market in 1996, the antenna has received good feedbacks from users for its performance.

2. Main Technical Parameters

2.1 Electrical Specification

Electrical Specification	C-Receive	C-Transmit	Ku-Receive	Ku-Transmit
Frequency（GHz）	3.652～4.2	5.85～6.425	10.95～12.75	14.00～14.50
Gain(dBi)	43.8	47.2	53	54.5
Voltage Standing Wave Ratio	1.25:1	1.25:1	1.25：1	1.25：1
Beamwidth-3dB	1.14°	0.72°	0.37°	0.31°
-15dB	2.4°	1.42°	0.57°	0.63°

Noise Temperature	2-Port Feed		2 Port Feed	
10° E1	36° K		60K	
20° E1	27° K		50K	
40° E1	24° K		44K	
Power Capacity		5KW/port		1KW/port
Interface	CPR-229G	CPR-159G	WR-75	
Insertion Loss of Feed	0.25dB	0.2dB	0.25dB	0.25dB
Isolation Tx-Rx		85dB	85dB	
Axial Ratio	1.5dB	1.8dB		
Sidelobe Envelope	29-25LOG(θ) dBi (1°≤ θ 20°)		29-25LOG(θ) dBi (1°≤ θ 20°)	
	-3.5 dBi (20°<θ26.3°)		-3.5 dBi (20°<θ26.3°)	
	32-25LOG(θ) dBi (26.3°<θ≤48°)		32-25LOG(θ) dBi (26.3°<θ≤48°)	
	-10(Average) dBi (θ>48°)		-10(Average) dBi (θ>48°)	

2.2 Mechanical Specification

Mechanical Specification	Parameter
Diameter of Main Reflecting Surface	D=4.5m
Travel of Azimuth	±65°
Travel of Elevation	5° ～90°
Surface Accuracy	0.5mm（r.m.s）
Re-Installation Accuracy	0.6mm（r.m.s）
Net Weight of Antenna	1200Kg
Spray Paint	White

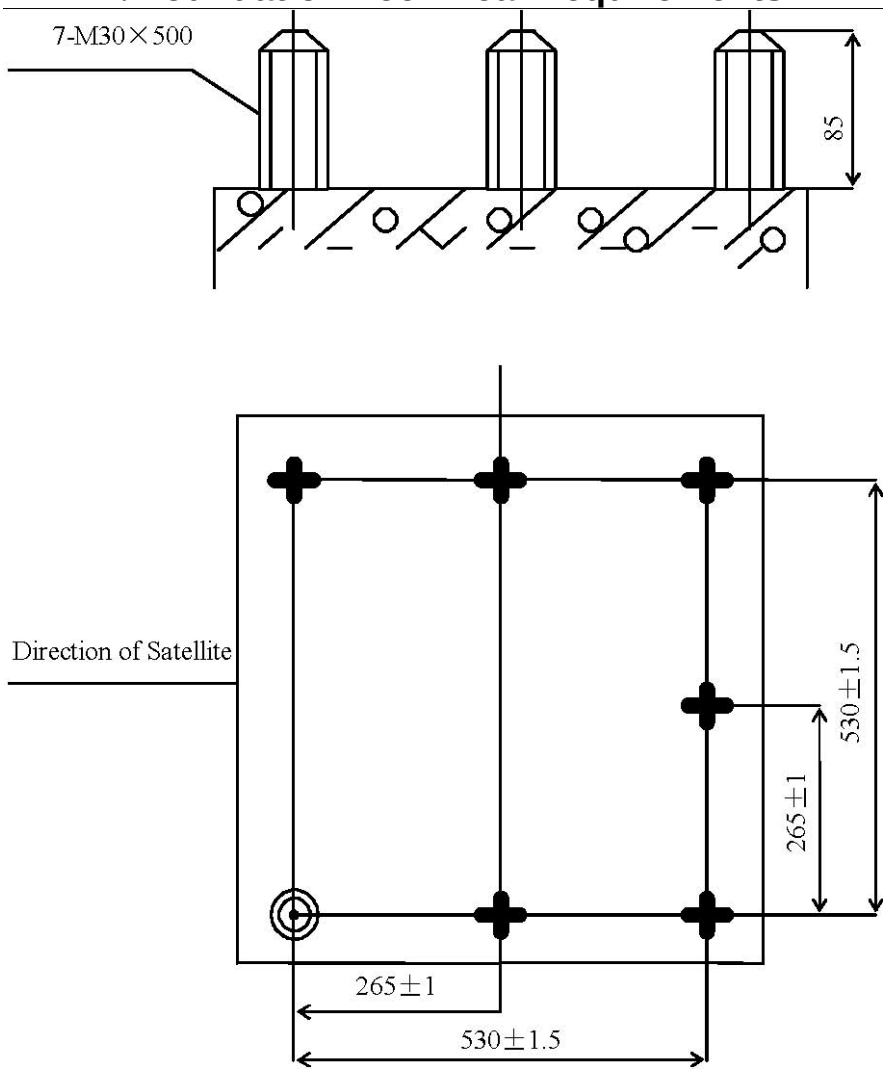
2.3 Environmental Specification

Environmental Specification	Parameter
Operational Wind Speed	72Km/h～97Km/h
Survival Wind Speed	200K/h
Humidity	10%～98%
Temperature	-45℃～+60℃
Anti-Seismic Capacity	Horizontal: 0.3G's Vertical: 0.15G's
Ice thick	3cm
Atmospheric Conditions	Salt、Pollutants

3. Detail Packing List

NO.	Component name	Qty.	Remark
1	Main Reflector	12	
2	Subreflector	4	
3	Supporting Legs	12	
4	Hub	1	
5	Subreflector bearing rod	1	
6	Feed System	1	
7	Duplexer	1	
8	Phase Shifter	1	According to User's requirement
9	Fastener	1	
10	Anchor Blots	7	
11	Upright Column	1	
12	Rotary Pedestal	1	
13	Azimuth Adjusting Device	1	
14	Elevation Adjusting Device	1	

4. Foundation Technical Requirements



4.5 Meters Antenna

Foundation Technical Requirements

1. The level of foundation shall be higher than the ground surface by 200~300mm. The position of anchor bolt shall be arranged for connecting with the reinforcing steel bar in concrete of base strictly according to the requirement of drawing. The foundation shall be formed by processing of cast at one time. The anchor bolts shall be kept parallel strictly with each other, and all of them shall be perpendicular with the ground surface. The upper plane of base shall be flat and level.

2. The dead weight of antenna is 1200Kg; its maximal overturning moment is 11000Kg-m (under wind speed of 55m/s).

3. Based on specific status of different erecting place, the foundation shall be designed according to the condition offered by this figure.