

5.2M X-band Remote Sensing Antenna System

1 Main Function

Remote sensing satellite data receiving antenna system has the ability to track the target effectively, which collects, capture and track the X-band signal transmitted by satellite.



Fig.1-1 5.2M Antenna

2 Technology Features

The feature of remote sensing satellite data receiving system are as follows:

- To receive and record multi-satellite data and with the ability of formation of all-weather and multiple resolutions , to achieve one station, multi-satellite.
- Track the medium and low orbit satellite to achieve the orbital height of more than 250km full airspace without blind area tracking with the adoption of light X-Y



antenna mount.

- High system integration; friendly man-machine interface; easy operation and maintenance, automatic tracking and other capture capabilities with program.
- Strong self-testing, condition monitoring and alarming
- Lightning-Proof Protection
- Perfect Security Protection

3 Technical Specifications

3.1 Antenna Structure

- 1) Antenna Diameter: 5.2 Meters
- 2) Pedestal Type: X-Y
- 3) With the device of limited, security , stow and lock
- 4) Antenna Motion Range: X/Y ($\pm 90^\circ$)
- 5) The total outdoor weight: ≤ 4.5 tons

3.2 X-Band Feed System

- a) Operating Frequency: 7950~8950MHz
- b) Polarization :Left/Right Circular Polarization (Data)
Left/Right Circular Polarization (Tracking)
- c) Radiation Pattern First Sidelobe: ≤ -14 dB
- d) Cross Polarization Isolation(on axis): ≤ 0.6 dB (Within beam wave $\pm 0.05^\circ$ range)
- e) VSWR (In the Feed Line output and LNA input) : $\leq 1.25:1$
- f) G/T Value (On the condition of Sunny Day ;Gentle breeze; 5° EL and environment temperature 23°C) : ≥ 28 dB/K (X-band in all receiving band)
- g) Channel of Input and Output
X-Data Channel Output: 2 (Left/Right Circular Polarization)
X -Tracking Channel Output: 1 (Left/Right Circular Polarization for option)

3.3 Servo System

- a) Speed: $0.01-5^\circ/\text{s}$
- b) Angular Acceleration: $0.01-5^\circ/\text{s}^2$



- c) Servo System Band width: 1.0Hz
- d) Axial Angle Accuracy: 0.02°
- e) Axial Angle Resolution : 0.015°
- f) Tracking Accuracy: Superior to 1/8 half-power beamwidth
- g) Operational method: Standby, manual, remote control ,automatic track,
programme track
- h) Time compensation, angle compensation function
- i) Servo parameters with debug/adjustable interface (or means)