# 4.2 M K-Band LEO Satellite Communication Antenna Specifications

## 1. Features

PR42X / Y-K model 4.2m antenna is designed for K-band LEO satellite communication. The antenna is in the form of dual shaped Ring-Focus antenna. The main reflector is divided into 12 panels, made with

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aluminum stretched panel. The feed horn is multi-mode corrugated horn. The feed is optional with TE21 mode mono-pulse auto tracking or program tracking plus step-tracking.

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 ± 90˚, can cover the entire airspace, effectively avoid coiling and collector ring problem in Az/El structure. This structure is applicable for LEO satellite antenna tracking. 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 mono-pulse auto tracking, program tracking plus step-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.

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**3. Main specifications:**

1) Antenna Type: Dual shaped Ring-Focus antenna

2) Antenna main reflector diameter: 4.2m

3) The main reflector surface accuracy: 0.3mm (RMS)

4) Antenna pedestal: X / Y type

5) Operating frequency: Rx: 20.2～21.2GHz

6) Polarization: circular polarization (LHCP, RHCP simultaneously or switchable)

7) Antenna gain: 56.4dBi@20.2GHz

8) Side-lobe: The first side lobe level≤-14dB

9) VSWR: 1.3: 1

10) Axial ratio: 1.1

11) System G/T value: 31.4dBK@5 ° El

12) Interface type: WR-42

13) Travel range: ± 90 ° (Azimuth and Elevation)

14) Travel speed: 0.01 to 5 ° / s

15) Travel acceleration: ≥5 ° / s2

16) Pointing accuracy: ≤0.08 °

17) Tracking accuracy: mono-pulse auto tracking ≤ 0.03 °; program tracking plus step-tracking ≤0.08 °

18) Antenna total weight: ≤1000kg

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19) Rated power: ≤7kw

20) Working wind speed: 17m / s, gusts of 20m / s

21) Survival wind speed: 56 m / s

22) Working temperature: -40 ~ 55 ℃

23) Relative humidity: 100%

24) Rainfall: 100 mm / hr

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