



## Marketing Department Product Specification

Product Name: Ku-band Spaceborne Silicon-based Multi-beam  
Phased Array Antenna

## 1 Product Description

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This product is a Ku-band spaceborne phased array antenna, tile-type architecture, highly integrated with antenna array, multi-beam RF link, beam controller and other modules, with multi-beam capability, supporting full duplex mode.

## 2 Application Scenarios

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It is designed for LEO satellite communication systems with low-cost, high reliability, and high data transmission rate, whose orbit height of 1180km.

## 3 Product Features

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- Low-cost flat panel design
- Supports 8 transmitting beams with 250 MHz bandwidth per beam
- Supports 4 receiving beams with 125 MHz bandwidth per beam
- Supports multi-beam positioning
- Radiation-hardened capabilities
- Operational life span: 7 years

## 4 Technical Parameters

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The product includes transmitting phased array antenna (2 stand-alone) and receiving phased array antenna (1 stand-alone):

- Transmitting phased array antenna (2 single units):
  - 1) Working Frequency: 10.70GHz ~ 11.70GHz (1 unit), 11.70GHz ~ 12.70GHz (1 unit);
  - 2) Multi-beam Mode: each antenna supports 4 beams;
    - a) Beam 1~4: 10.70GHz-11.70GHz;
    - b) Beam 5~8: 11.7GHz-12.70GHz;

- 3) Beam Pointing Accuracy:  $\leq 1/10$  beam width;
- 4) Polarization: RHCP;
- 5) EIRP:
  - a)  $29.5\text{dBw} \pm 0.5\text{dB}$  @off-axis angle  $0^\circ$ ;
  - b)  $31.0\text{dBw} \pm 0.5\text{dB}$  @off-axis angle  $30^\circ$ ;
  - c)  $33.5\text{dBw} \pm 0.5\text{dB}$  @off-axis angle  $45^\circ$ ;
  - d)  $34.0\text{dBw} \pm 0.5\text{dB}$  @off-axis angle  $47^\circ$ ;
  - e)  $33.0\text{dBw} \pm 0.5\text{dB}$  @off-axis angle  $53^\circ$ ;
- 6) EVM:  $\leq 10\%$  (4 channels of 8PSK modulation, roll-off coefficient = 0.2, each channel bandwidth 250MHz, total bandwidth 1GHz)
- 7) ACPR:  $\leq -20\text{dBc}$  (4 channels of 8PSK modulation, roll-off coefficient = 0.2, each channel bandwidth 250MHz, total bandwidth 1GHz)
- 8) Spurious Suppression:  $\leq 50\text{dBc}$ ;

● **Receiving phased array antenna (1 stand-alone)**

- 1) Working Frequency: 14.0GHz ~ 14.5GHz
- 2) Multi-beam Mode: Support 4 beams
  - a) Beam 1~4: 14.0 GHz-14.50GHz;
- 3) Beam Pointing Accuracy:  $\leq 1/10$  beam width;
- 4) Polarization: LHCP;
- 5) G/T:
  - a)  $\geq 4.0\text{ dB/K}$  @off-axis angle  $0^\circ$ ;
  - b)  $\geq 3.0\text{dB/K}$  @off-axis angle  $30^\circ$ ;
  - c)  $\geq 2.0\text{dB/K}$  @off-axis angle  $45^\circ$ ;
  - d)  $\geq 1.5\text{dB/K}$  @off-axis angle  $47^\circ$ ;
  - e)  $\geq 1.0\text{ dB/K}$  @off-axis angle  $53^\circ$ ;
- 6) Out-of-band Suppression:
  - a)  $\geq 60\text{dBc}$  @10.7 GHz ~12.75GHz;
  - b)  $\geq 60\text{dBc}$  @37.5 GHz ~40.0GHz;

7) Spurious Suppression:  $\geq 50\text{dBc}$ ;

## 5 Three-view Drawing

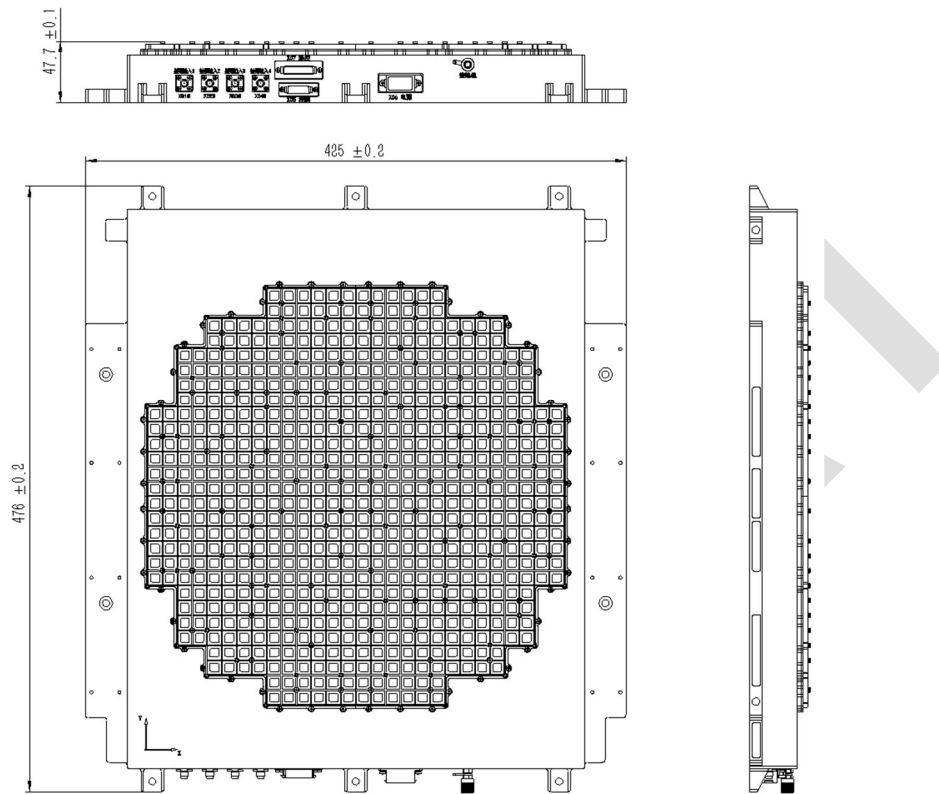


Fig. 1 Transmitting Antenna 3 View

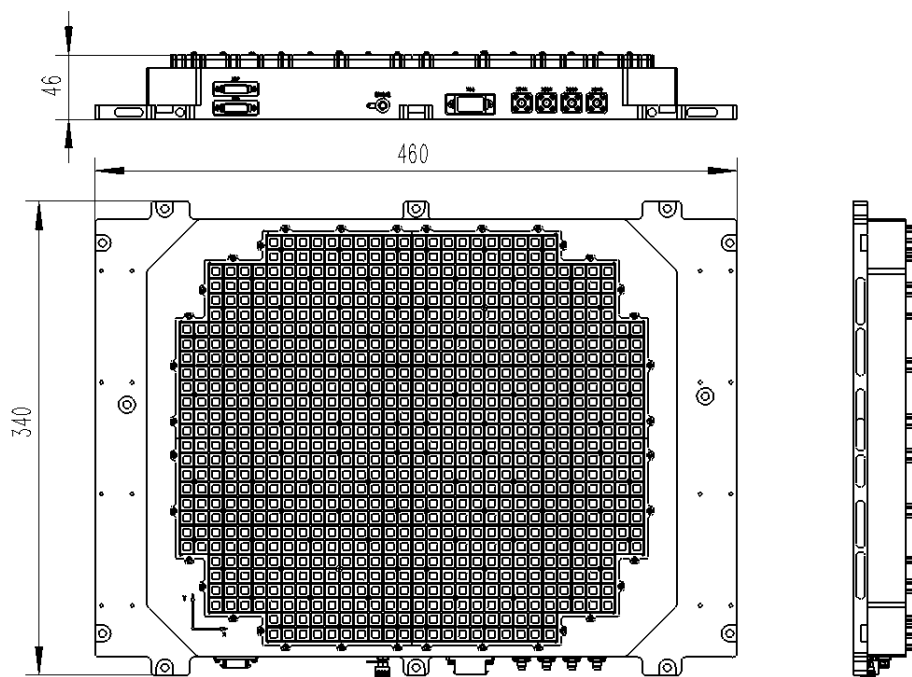


Figure 2 Receive Antenna 3 View

## 6 Product Photos

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