

SKA20ME20-RSJ

Beidou High-Precision Antenna

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1 Overview

The BeiDou omnidirectional ceramic high-precision positioning antenna is specially designed for handheld devices and walkie-talkies. It uses high-dielectric-constant ceramic material to achieve miniaturization and high gain, supporting multiple frequency bands such as BeiDou B1/B2/B3. With right-hand circular polarization (RHCP), it effectively suppresses multipath interference. Its cardioid-shaped radiation pattern provides a wide reception elevation angle ($\pm 90^\circ$), ensuring stable signal acquisition in complex environments. The built-in low-noise amplifier (LNA) enhances weak signal reception capability, making it suitable for high-precision positioning scenarios such as emergency rescue and special operations. Featuring a compact structure and easy integration, the ceramic dielectric also reduces human body interference, making it compatible with explosion-proof walkie-talkies, single-BeiDou handheld terminals, and other devices.

2 Product Appearance

Dimensions	$\Phi 20 \times 30.6 \text{ mm}$	Mounting Method	Threaded fastening
Weight	15 g	Connector Type	SMA
Shell Color	Black	Cable	/

3 Operating Conditions

Temperature: $-40^\circ\text{C} \sim +85^\circ\text{C}$

Humidity: 95 % \sim 100 %

4 Storage Conditions

Temperature: $-40^\circ\text{C} \sim +85^\circ\text{C}$

Humidity: 95 % \sim 100 %

5 GPS/BD Antenna Specifications

NO.	Item	Specification	Post-Environmental Tolerance*
1	Receiving Frequency Range (MHz)	1、1168-1188 (MHz) 2、1559-1585 (MHz)	± 2.5 (MHz)
2	Center Frequency (with 30 mm \times 30 mm ground plane)	1568 (MHz)	± 25 (MHz)
3	Bandwidth (MHz) (Return Loss ≤ -10 dB)	≥ 20 (MHz)	± 25 (MHz)

4	V.S.W.R (at Center Frequency)	≤ 2.0	± 0.5
5	Gain (Zenith, dBi typ, with 70 mm square GND plane)	1	± 0.5
6	Axial Ratio (with 70 mm square GND plane)	6dB	± 0.2
7	Polarization	Right-Hand Circular Polarization	----
8	Characteristic Impedance (Ω)	50	----
9	Frequency Temperature Coefficient (ppm/ $^{\circ}\text{C}$)	0 ± 10	----

* Post-Environmental Tolerance refers to allowable deviation after environmental tests.

6 GPS/BD Amplifier Specifications

NO.	Item	Specification
1	Frequency Range	1176-1575 (MHz)
2	Antenna Gain	18dB \pm 2dB
3	Output V.S.W.R	< 2.0
4	Noise Figure	$\leq 1.5\text{dB}$
5	Supply Voltage (DC)	1.8-3.6V
6	Operating Current (DC)	$\leq 5\text{mA}$

7 Environmental Tests

1. High Temperature Test: Placed in a dry oven at 80°C for 48 hours. No deformation observed. After drying and placing at room temperature for 24 hours, no oxidation was found.

2. Low Temperature Test: Placed in a freezer at -40°C for 48 hours. No deformation observed, no oxidation or rust after returning to room temperature.

NO.	Performance (Normal)	Performance (High Temp.)	Performance (Low Temp.)
1	Amplifier Gain: 18dB \pm 2	± 2	± 2
2	V.S.W.R: < 2.0	± 0.1	± 0.3
3	Noise Figure: $\leq 1.5\text{dB}$	± 0.1	± 0.1

3. Rainfall Test: Place the product under a faucet for 4 hours, allowing water to flow directly onto the casing. After four hours, if no water ingredients are observed at the bottom of the product, it indicates that the product has excellent waterproof performance.

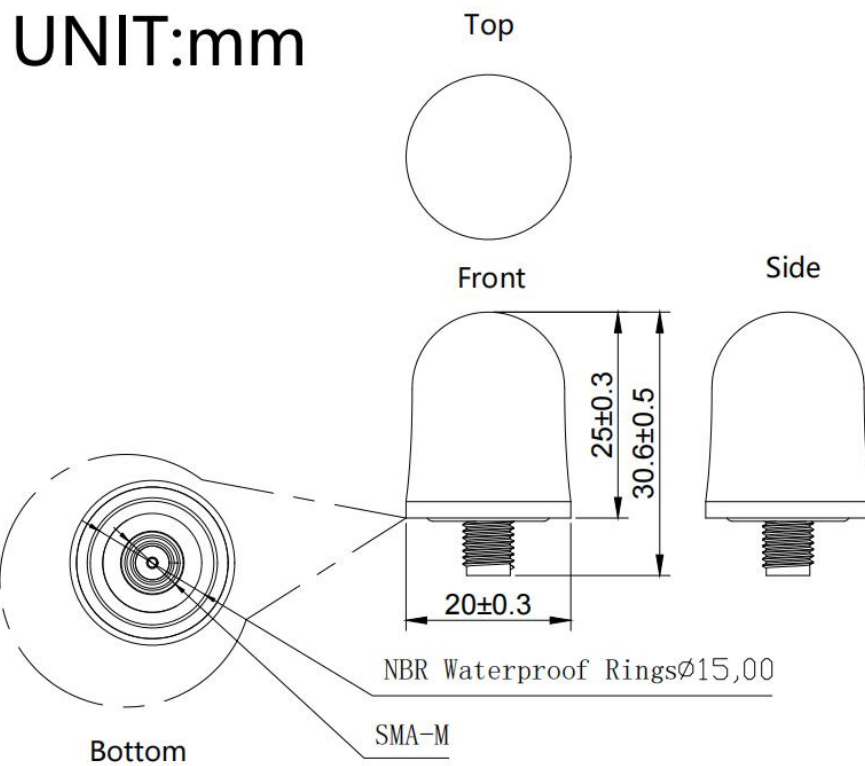
4. Salt Spray Test:

Test quantity	Suspension method	Test parameters	Result	Conclusion
2	30° hanging, cut edge covered with 3M tape	Dust-free environment, atmospheric pressure 80 Pa Solution pH: 6.9 Salt solution concentration: 42 g sea salt per liter of water at 35℃ Density: 1.0366 After testing, rinse with 32℃ flowing pure water and blow dry.	No oxidation or corrosion observed.	The product demonstrates excellent anti-oxidation and corrosion resistance.

8 Product Photos



9 Dimensional Drawing



Tolerance:

- $X = \pm 2 \text{ mm}$
- $X.X = \pm 0.3 \text{ mm}$
- $X.XX = \pm 0.05 \text{ mm}$

Units: mm

10 Contact Information

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