SKA05M5040-30RSSJ Measurement Antenna

Document Information	
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Revision History

Version	Description	Writer	Date
V1.01	Original version	Lena	20240611
V1.02	Update parameters	Taylor	20250725

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1 Overview

SKA05M5040-30RSSJ is a quad-system, full-frequency measurement antenna supporting BeiDou B1, B2, and B3; GPS L1, L2, and L5; GLONASS G1 and G2; and Galileo E1, E2, E5a, E5b, and E6 signals. It is widely applicable in scenarios such as autonomous driving, geodetic surveying, bridge construction, marine surveying, and underwater topographic mapping. The antenna adopts a multi-feed design to ensure alignment between the phase center and geometric center, improving measurement accuracy. It integrates a low-noise amplification module and employs front-end and multi-stage filters to remove interference signals, ensuring reliable operation in harsh electromagnetic environments. Compact in size and lightweight in design.

2 Product Appearance

Dimensions	Φ145×60mm	Mounting Method	Threaded fastening
Weight	＜180 g	Connector Type	TNC-C-K
Shell Color	White	Cable	/

3 Operating Conditions

Temperature：-40℃～+85℃

Humidity：95％～100％

4 Storage Conditions

Temperature：-40℃～+85℃

Humidity：95％～100％

5 GPS/BD Antenna Specifications

NO.	Item	Specification	Post-Environmental Tolerance*
1	Receiving Frequency Range (MHz)	1、1160-1288（MHz） 2、1545-1615（MHz）	±2.5（MHz）
2	Center Frequency (with 30 mm × 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	5.0	±0.5

	square GND plane)		
6	Axial Ratio (with 70 mm square GND plane)	3.0dB	±0.2
7	Polarization	Right-Hand Circular Polarization	----
8	Characteristic Impedance (Ω)	50	----
9	Frequency Temperature Coefficient (ppm/°C)	0±10	----

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

6 GPS/BD Amplifier Specifications

NO.	Item	Specification
1	Frequency Range	1150-1610（MHz）
2	Antenna Gain	40dB±2dB
3	Output V.S.W.R	＜1.5
4	Noise Figure	≤1.5dB
5	Supply Voltage (DC)	3-15V
6	Operating Current (DC)	≤45mA
7	Differential Transmission Delay	＜5ns

7 Environmental Tests

1. High Temperature Test：Placed in a dry oven at 80℃ 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℃ 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: 40dB±2	±2	±2
2	V.S.W.R: ＜1.5	±0.1	±0.3
3	Noise Figure: ≤1.5dB	±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.

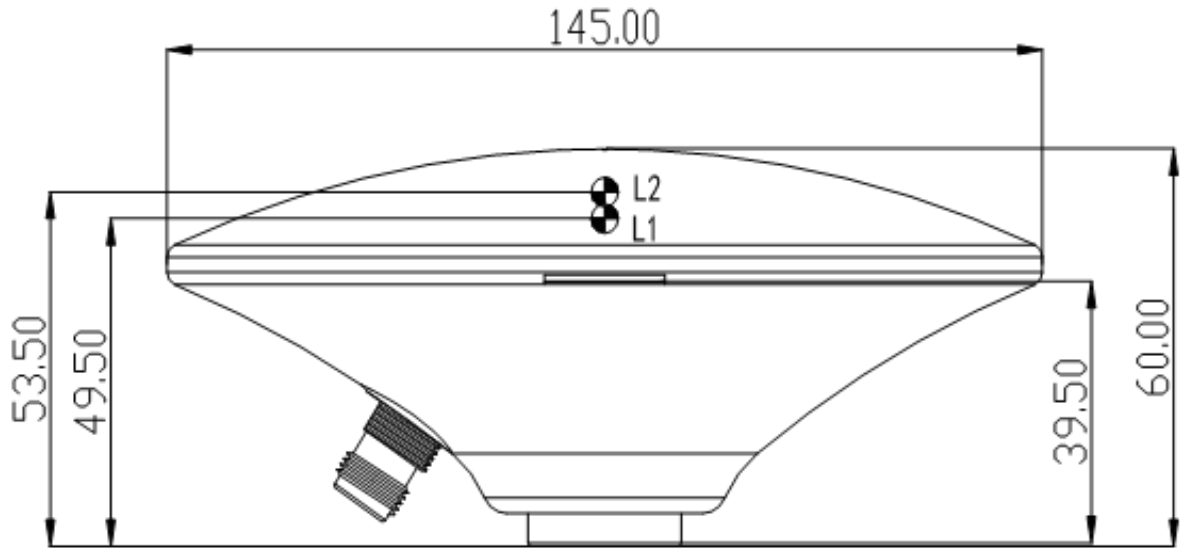
4.Waterproof Level: IP67

Test	Suspension	Test parameters	Result	Conclusion

quantity	method			
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 = ±2 mm
- X.X = ±0.3 mm
- X.XX = ±0.05 mm

Units: mm

10 Contact Information

Skylab M&C Technology Co., Ltd

Address:11th Floor, Building 6, Hongchuang Science and Technology Center, Fucheng Street, Longhua District, Shenzhen, Guangdong, China.

Phone:86-0755 8340 8210（Sales Support）

E-Mail: sales1@skylab.com.cn

Website: www.skylab.com.cn www.skylabmodule.com