

Antenna

YCGA001AA Datasheet

Antenna Services

Version: 1.1

Date: 2021-07-13

Status: Released



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About the Document

Revision History

| Version | Date | Author | Note |
|---------|------------|------------------------|--------------------------|
| - | 2021-06-15 | Kenny YIN/ Aria CHU | Creation of the document |
| 1.0 | 2021-06-15 | Kenny YIN/ Aria CHU | First official release |
| 1.1 | 2021-07-13 | Aria CHU | Added Chapters 3 and 7. |

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1 Product Description

The antenna is designed for superior performance, and can be widely used for wireless applications.

We provide comprehensive antenna design support such as simulation, testing and manufacturing for custom antenna solutions to meet your specific application needs.

2 Product Features

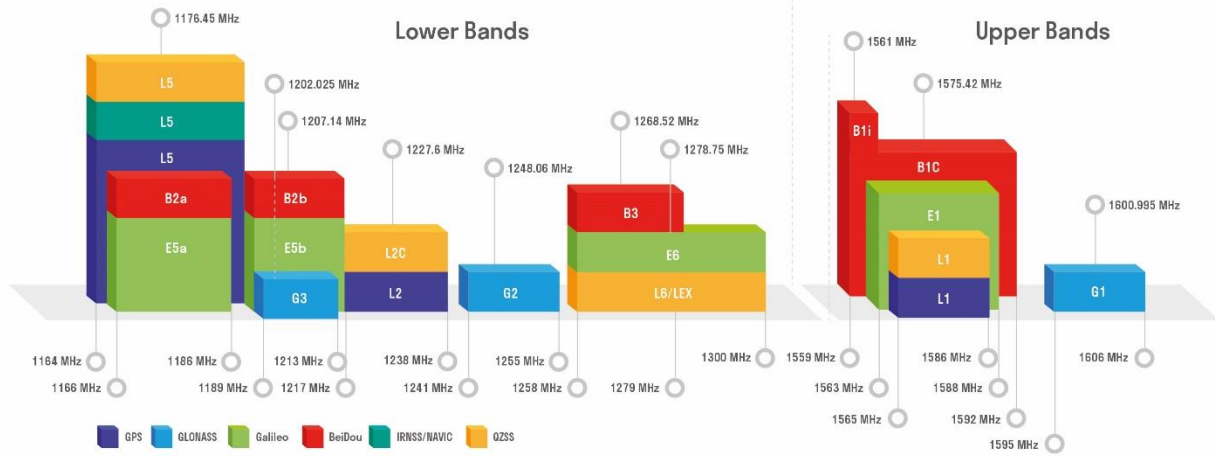
- Ceramic GNSS
- High efficiency
- Excellent performance



3 GNSS Frequency Band Checklist

| GNSS Frequency Bands (MHz) | | | | | |
|----------------------------|---|--|--|---|--|
| GPS | L1 Centre 1575.42 (1565–1586) | L2 Centre 1227.6 (1217–1238) | L5 Centre 1176.45 (1164–1189) | | |
| | ● | - | - | | |
| GLONASS | G1/L10C/L10F Centre 1601 (1595–1606) | G2/L20C/L20F Centre 1248.06 (1241–1255) | G3/L30C Centre 1202.025 (1189–1213) | | |
| | - | - | - | | |
| GALILEO | E1 Centre 1575.42 (1563–1588) | E5a Centre 1176.45 (1166–1187) | E5b Centre 1207.14 (1197–1218) | E6 Centre 1278.75 (1258–1300) | |
| | ● | - | - | - | |
| BEIDOU | B1I Centre 1561.098 (1559–1564) | B1C (BeiDou-3) Centre 1575.42 (1559–1592) | B2a/B2I Centre 1176.45 (1166–1187) | B2b Centre 1207.14 (1197–1217) | B3 Centre 1268.52 (1258–1279) |
| | - | ● | - | - | - |
| QZSS | L1 Centre 1575.42 (1573–1578) | L2C Centre 1227.6 (1226–1229) | L5 Centre 1176.45 (1166–1187) | L6 Centre 1278.75 (1257–1300) | |
| | ● | - | - | - | |
| IRNSS | L5 Centre 1176.45 (1164–1189) | | | | |
| | - | | | | |

GNSS Bands and Constellations



4 Product Specifications

- This antenna is tested on a 30 mm × 30 mm PCB.

Passive Electrical Specifications

| | |
|-------------------|------------------|
| Frequency Range | 1575.45 ±1.5 MHz |
| Input Impedence | 50 Ω |
| VSWR | ≤ 2.0 |
| Gain | < -2.0 dBi |
| Polarization Type | Linear |

Mechanical Specifications

| | |
|---------------------|----------------------|
| Antenna Size | 10 mm × 10 mm × 4 mm |
| Casing | Ceramics |
| Connector Type | - |
| Working Temperature | -40 °C to +85 °C |
| Radome Color | - |

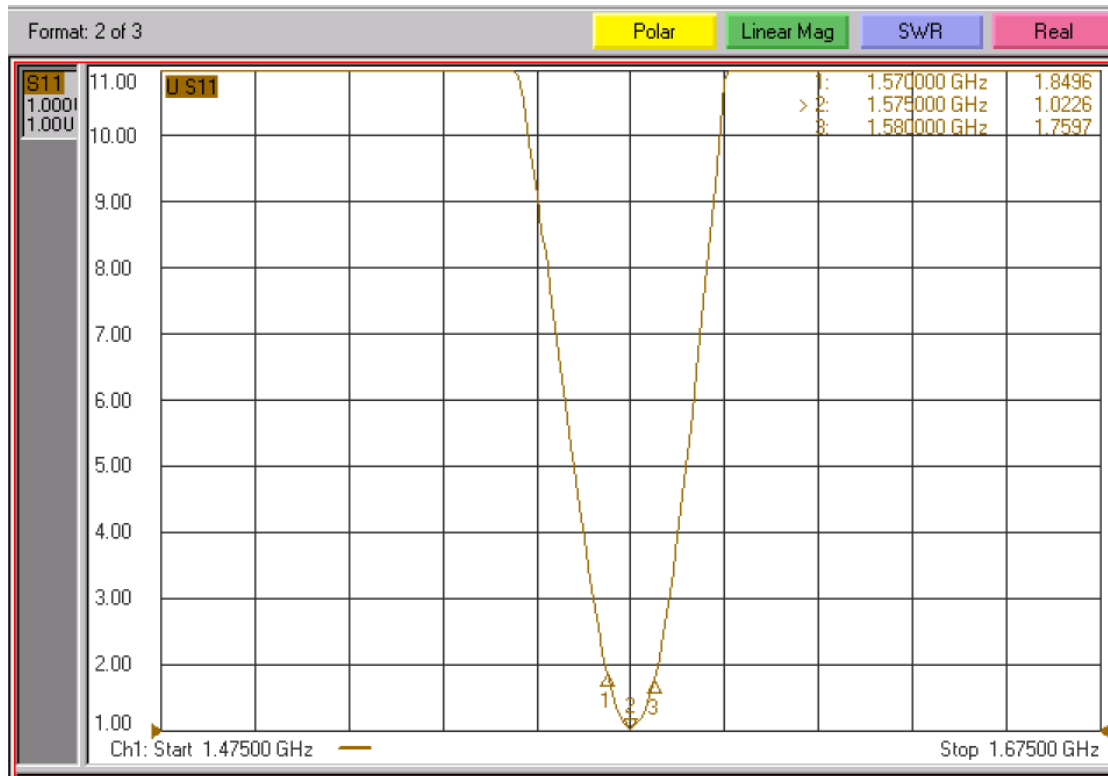
5 Overall Performance

5.1. Test Environment

- KEYSIGHT VNA Network Analyzer E5063A 100 kHz – 8.5 GHz
- RayZone® 2800 Chamber 5G (FR1) SISO/MIMO, 400 MHz – 8.0 GHz

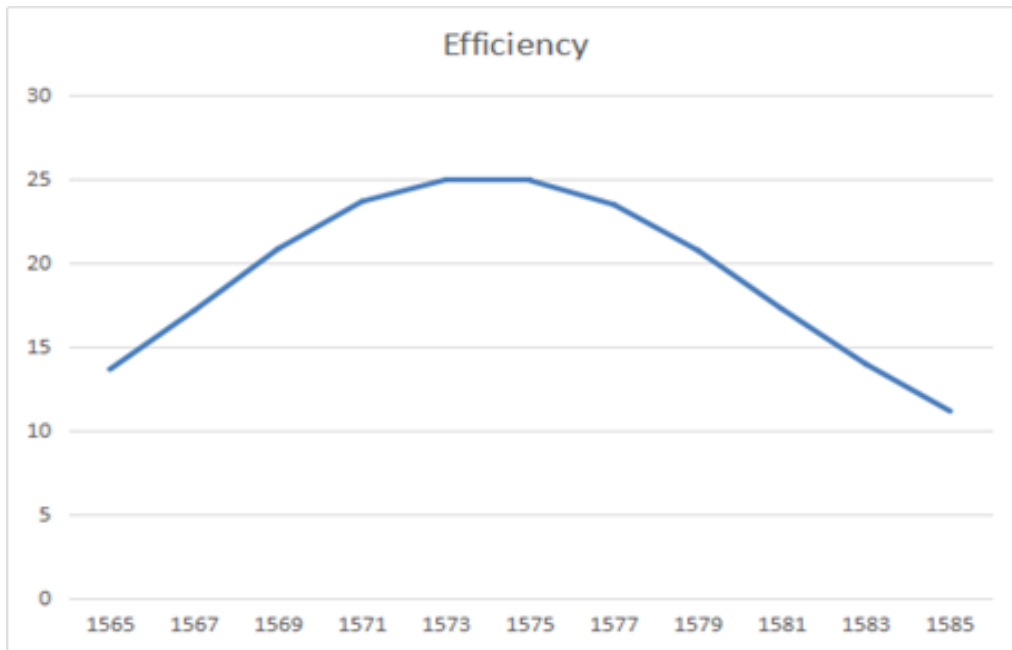


5.2. VSWR



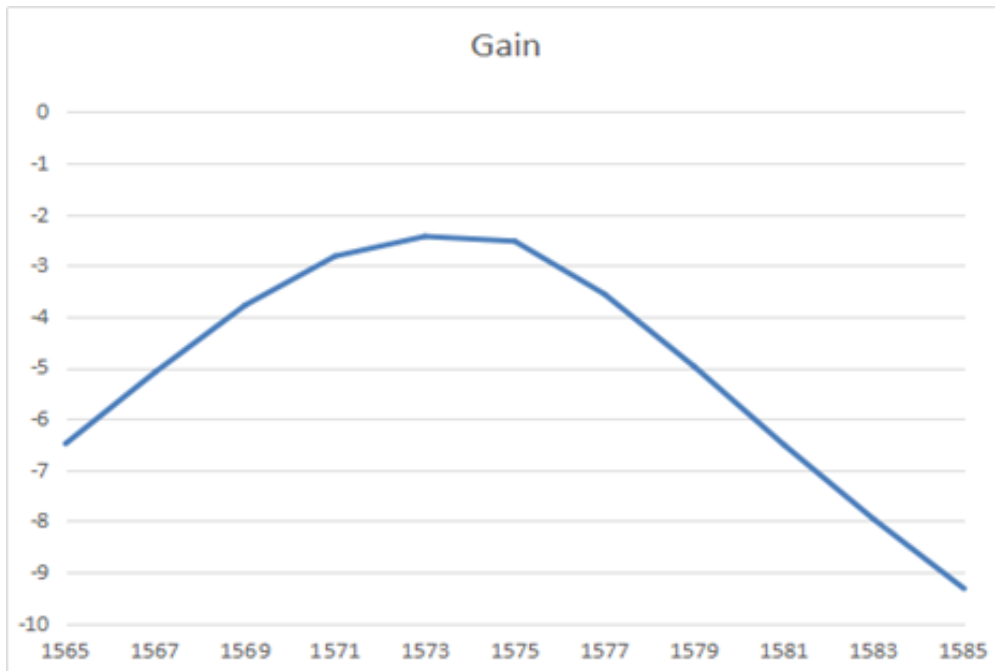
| | |
|-----------------|------|
| Frequency (MHz) | 1575 |
| VSWR | 1.02 |

5.3. Efficiency



| | |
|-----------------|------|
| Frequency (MHz) | 1575 |
| Efficiency (%) | 25 |

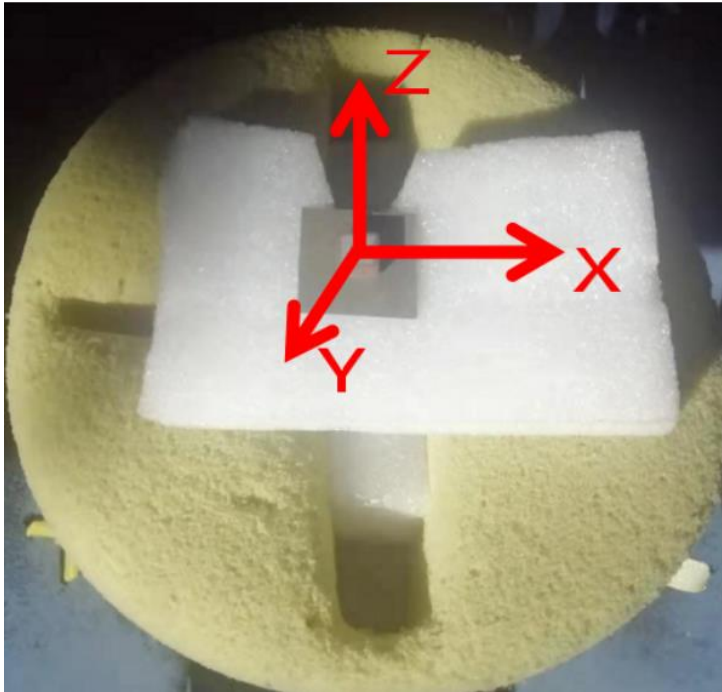
5.4. Gain



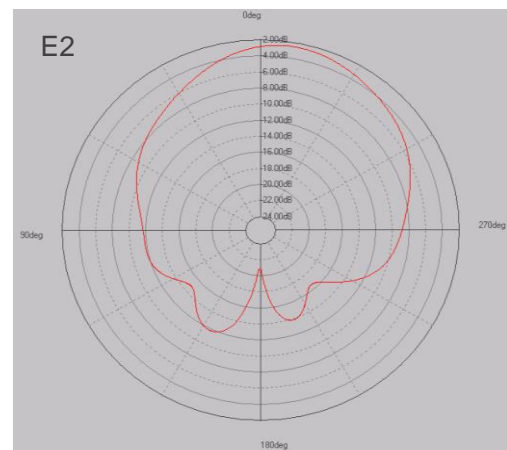
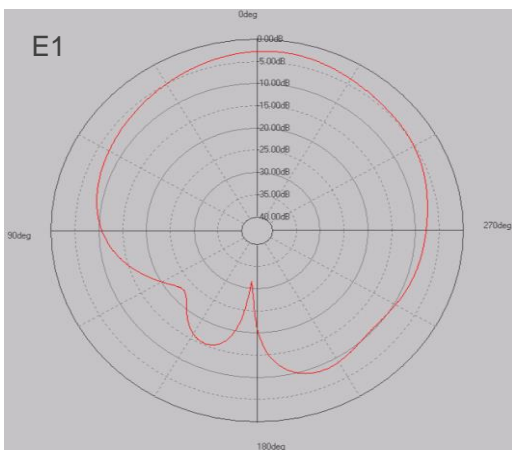
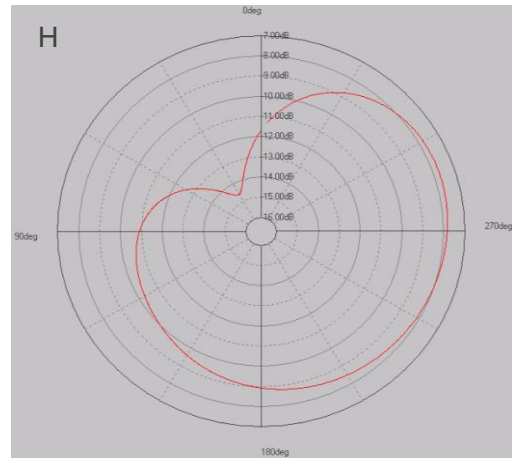
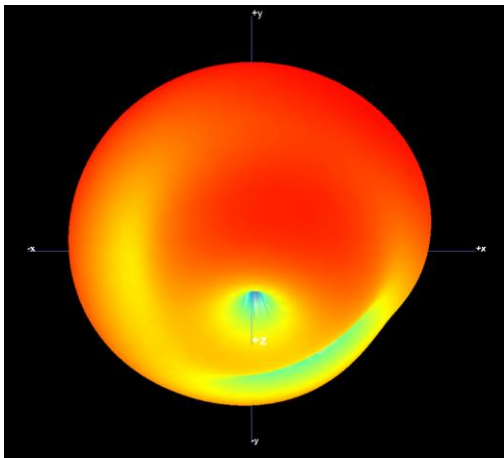
| | |
|-----------------|-------|
| Frequency (MHz) | 1575 |
| Gain (dBi) | -2.55 |

5.5. Radiation Pattern

- Test condition: free space.

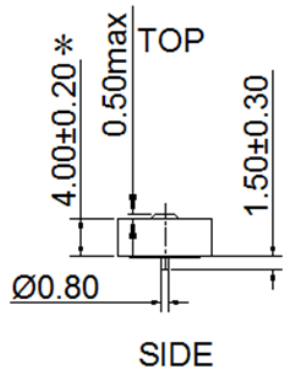
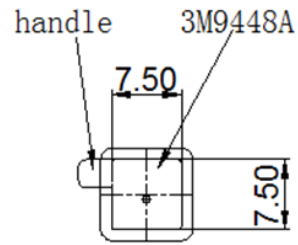
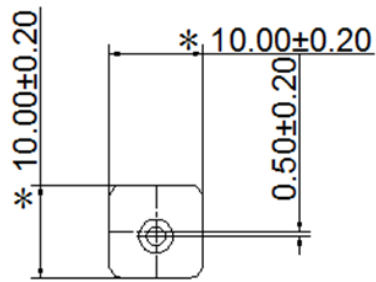


H plane: the tangent of XY
E1 plane: the tangent of XZ
E2 plane: the tangent of YZ



6 Product Size

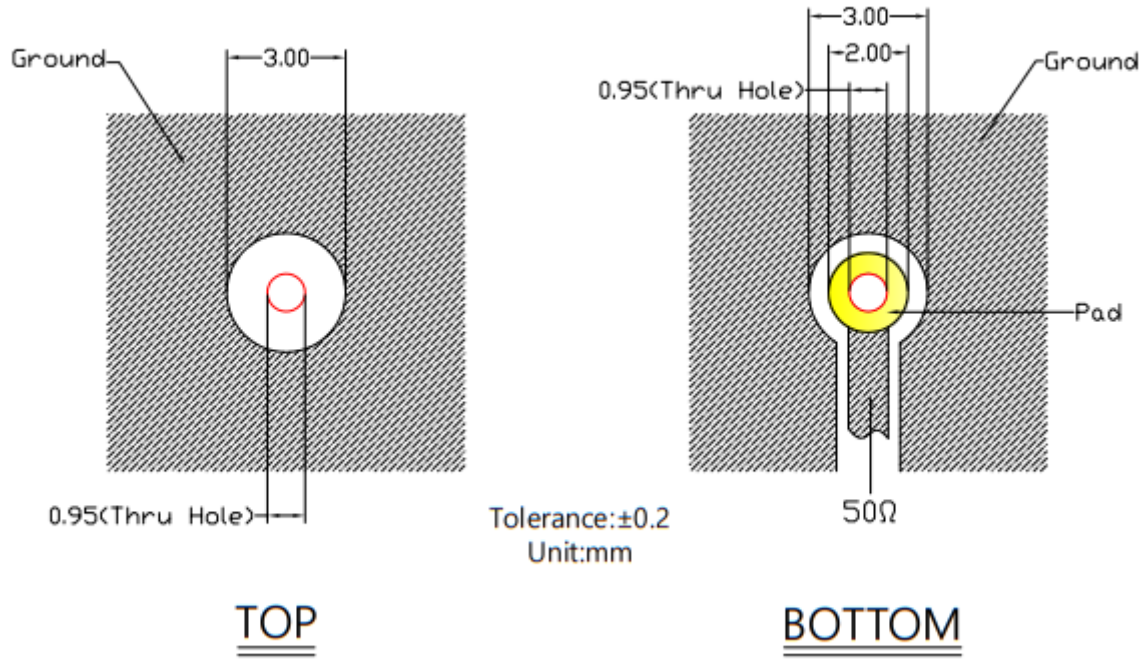
RoHS



BOTTOM

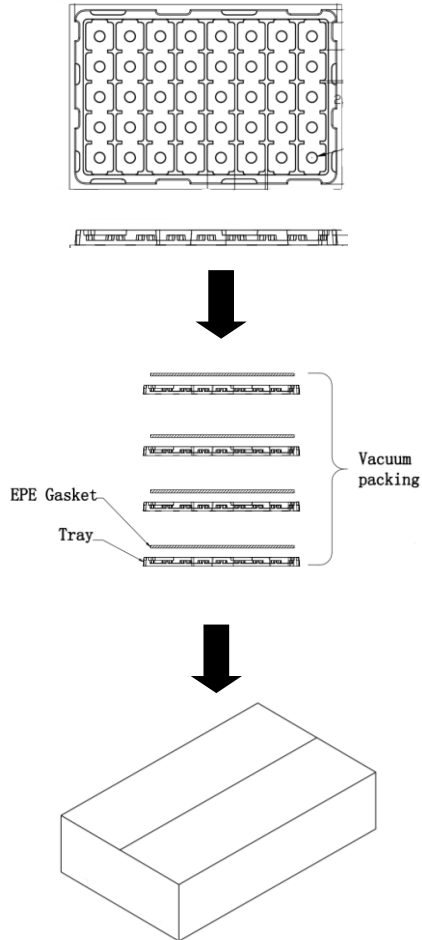
SIDE

7 PCB Footprint Recommendation



8 Packaging

- 150 pcs/Tray, 3000 pcs/Carton.
- The packaging steps are as follows:



Step 1:

- 1) 150 pcs/Tray;
- 2) Place 1 pcs in each cell.

Step 2:

- 1) 20 trays are staggered;
- 2) Vacuum sealing.

Step 3:

- 1) Place the sealed one in the carton;
- 2) 3000 pcs/Carton.