# Specification

| |
|---|
| Customer Name :Chengdu Heltec Automation Technology Co., Ltd. |
| Part Name :VAE-GNSS-2206029-V01 |
| Customer P/N : |

| |
|---|
| Manufacturer Name :Chengdu VAE Communication Co., Ltd |
| Manufacturer Addr.： Room 201-03, 2F, Unit 1, Bldg IC Park, No. 2 Heshun Rd, High-Tech West Zone, Chengdu, Sichuan, China |
| Manufacturer P/N :675220602902 |

| Made | Check | Approve |
|---|---|---|
| Xiaojiang Shi | Guo Dai | Wei Liu |
| Date | Version | |
| 2026.09.22 | V1 | |

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# Revise Record

| Version | Record of change | Made | Approve | Date |
|---|---|---|---|---|
| V1 | Initial Release | Xiaojiang Shi | Wei Liu | 2026.09.22 |
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Note：
1. Rersion will be updated if any changes（V1 updated as V2、V3…）

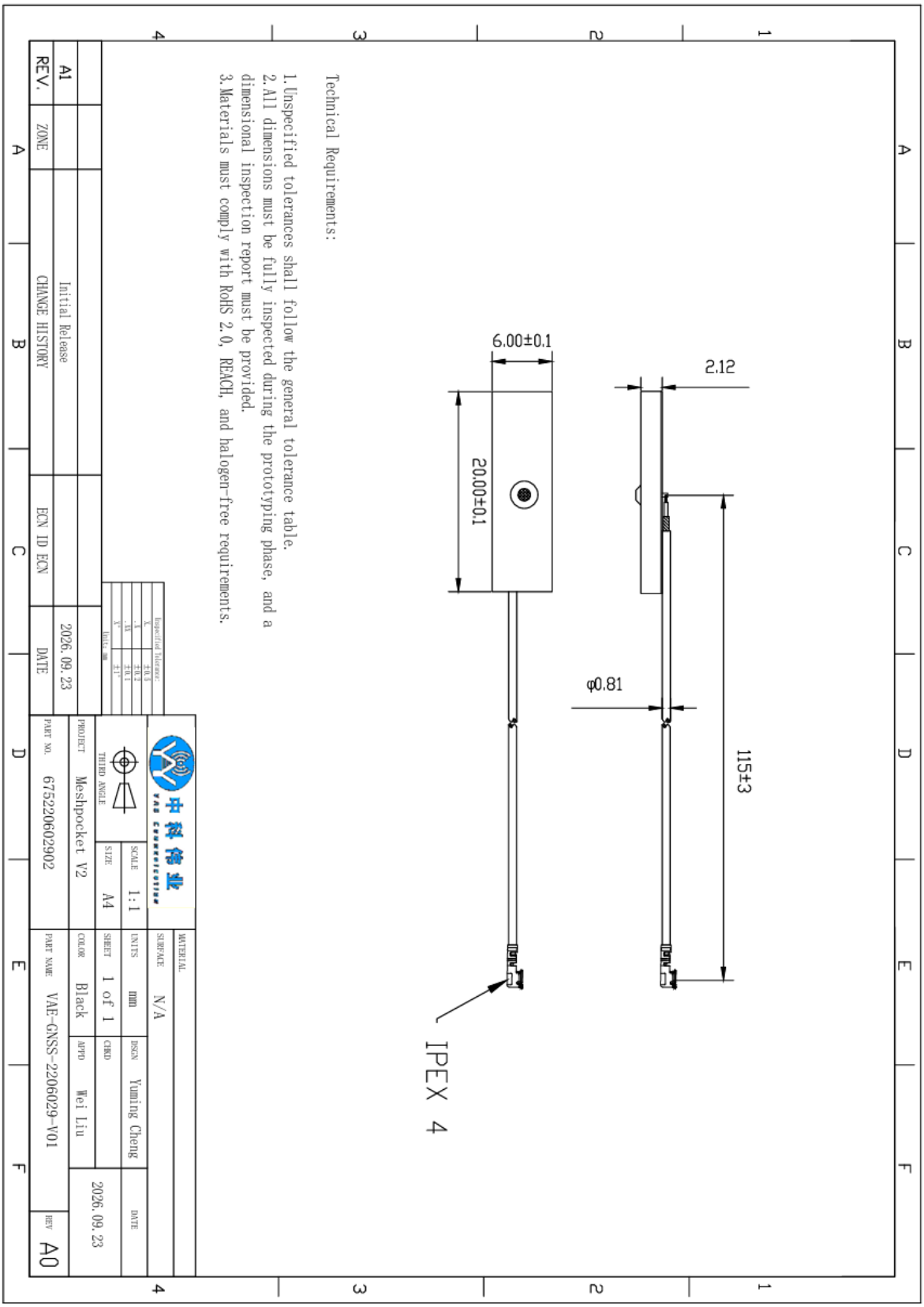
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## 1. 2D Drawing & Product Picture



## 1. 2D Drawing & Product Picture



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## 2. Antenna Specification

### 2.1. Electrical Specification

| Electrical Specification | |
|---|---|
| Operation Frequency (MHz) | 1561<br>1575 |
| Impedance (Ohms) | 50 |
| VSWR | 1561 ≤ 2.0<br>1575 ≤ 2.0 |
| Efficiency (%) | 1561：31.26<br>1575：36.31 |
| Peak Gain (dBi) | 1561：-2.48<br>1575：-1.67 |
| Radiation Properties | Directional |
| Polarization | Line Polarization |
| Max input Power (Watts) | 50 |

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## 2.2 Mechanical Parameter

| Mechanical Parameter | |
|---|---|
| Structure Type | Patch |
| Dimension | 20*6*2.12 |
| Material | ceramic |
| Salt Spray | 48H |

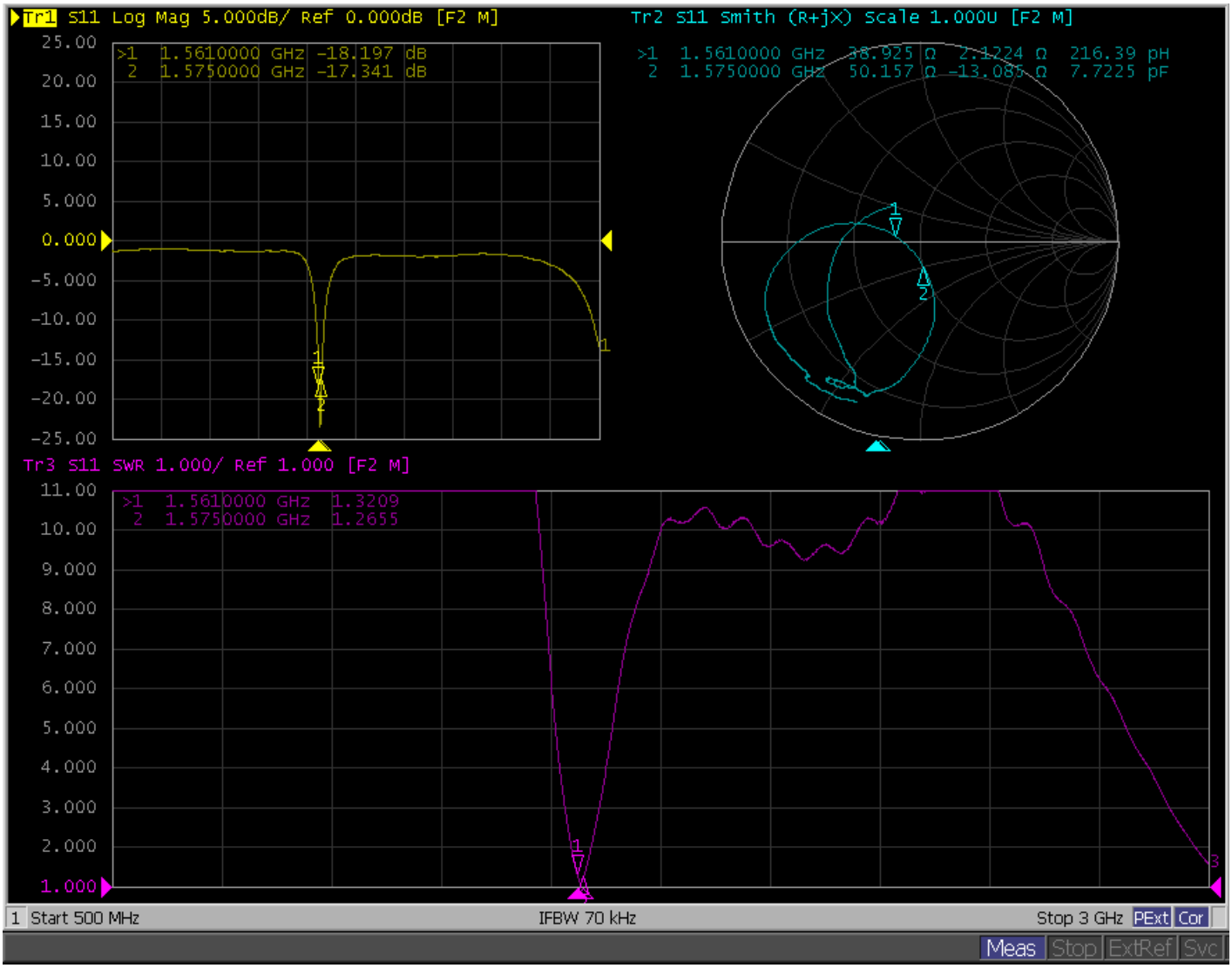
## 2.3 Environment Specification

| Environment Specification | |
|---|---|
| Operating temperature | -40℃ ~ +80℃ |
| Storage temperature | -40℃ ~ +80℃ |

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# 3. Passive Test Data

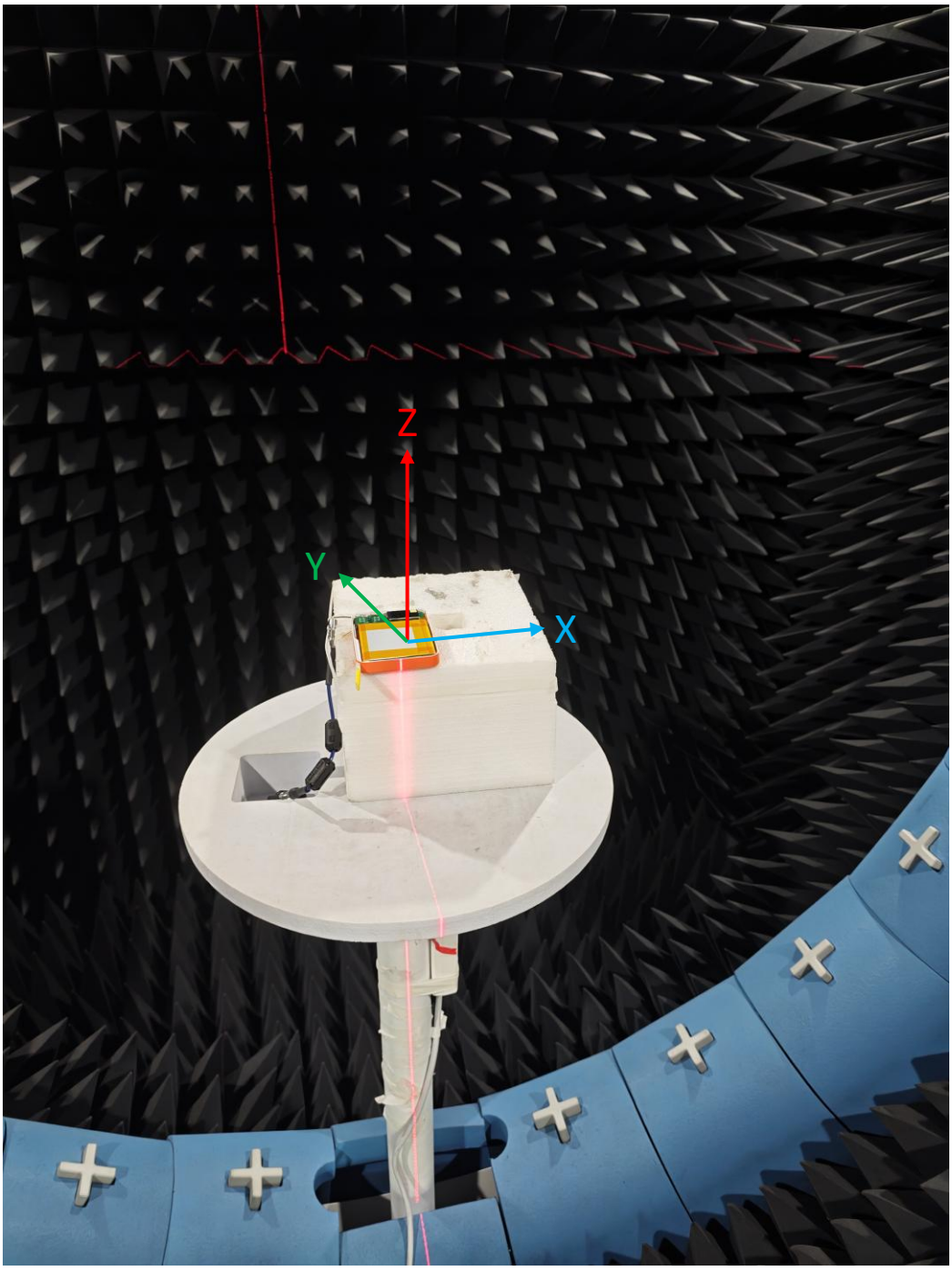
## 3.1. Smith chart / Return loss





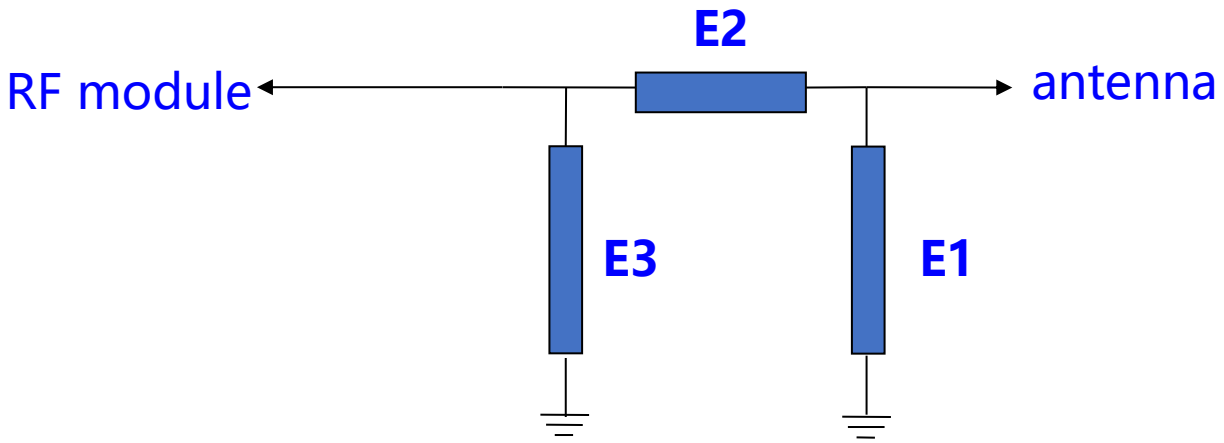
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## 3.2 test environment




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## 3.3 matching circuit

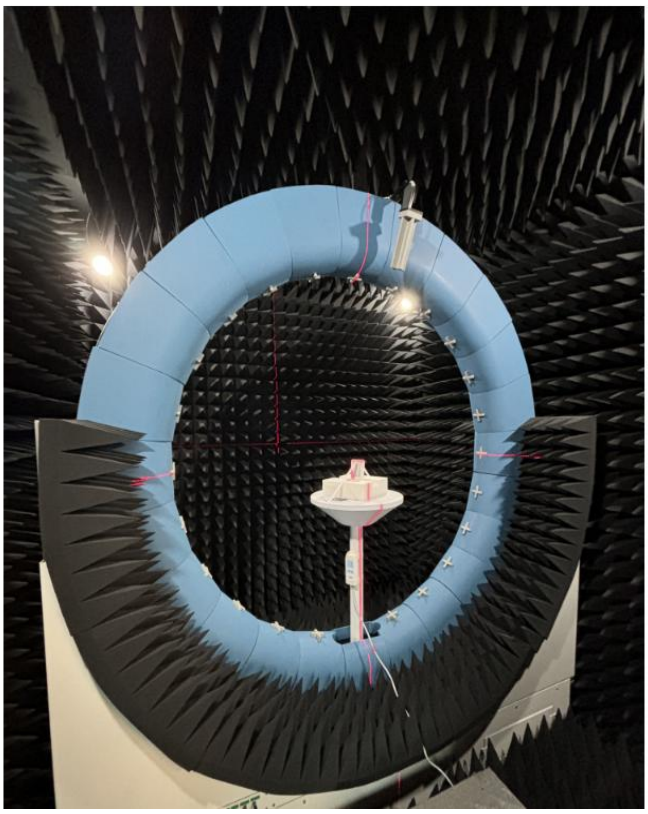


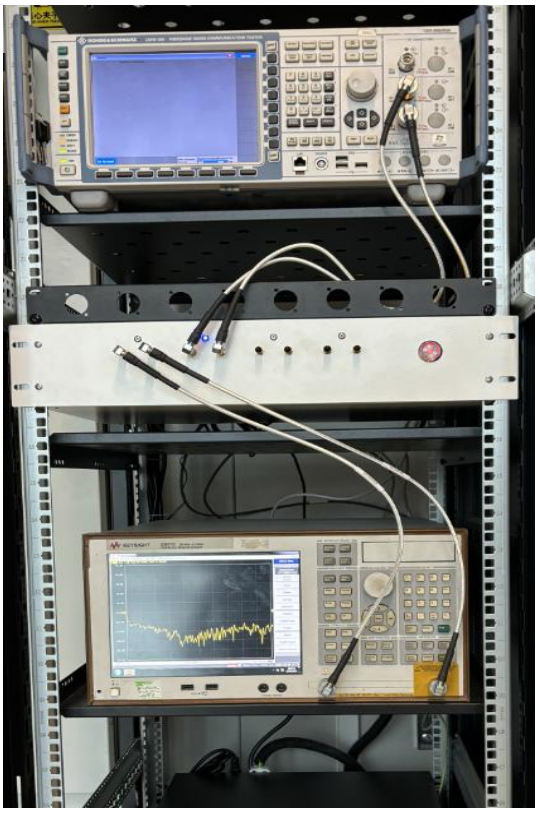

| component | value |
|---|---|
| E1(0402) | NC |
| E2(0402) | 0Ω |
| E3(0402) | NC |
| | |

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## 3.4 Test System

**Multi-probe spherical near-field anechoic chamber test system that meets the relevant international regulations such as CTIA and 3GPP, a multi-functional wireless test system with excellent performance in radio frequency, absorption, and mechanical structure. The system has high integration and reliability. It supports pendulum sampling frequency-doubling technology and can be adapt to the testing needs of small multi-lobed antennas. It is suitable for the wireless testing of small high-integration electronic devices such as IoT devices, drone modules, car machine modules, smart home devices, and mobile communication equipment. It can also meet the testing needs of ceiling antennas, miniature base stations, and embedded routers, etc., which have high dependence on the passive performance of antennas.**





| | |
|---|---|
| **Supported Bnad** | **600MHz-9GHz (Expand. 12GHz)** |
| **Test Item** | **Passive: Gain/Efficiency/2D/3D radiation/non-circularity/axial ratio...<br>Active: TRP/TIS/EIRP/EIS** |
| **Test Standard** | **2G/3G/4G/5G/Wi-Fi b/g/n/a/ac/ax/BT /NB-IOT /Cat-M (eMTC)/GPS/BEIDOU/GLONASS/ZigBee/LoRa(Non-signaling )...** |

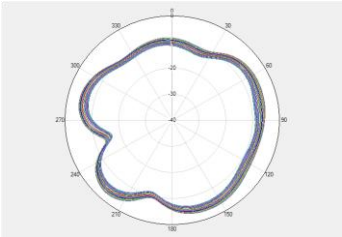
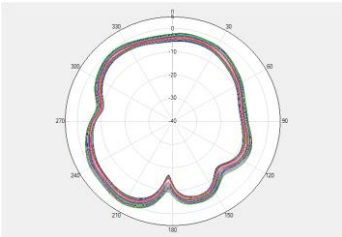
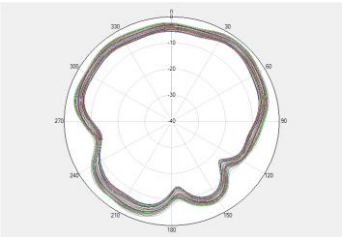
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## 3.5. Efficiency & Gain

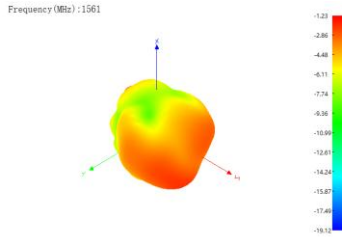
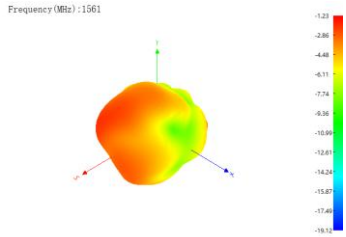
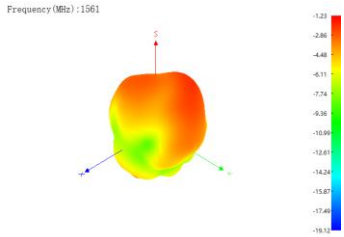
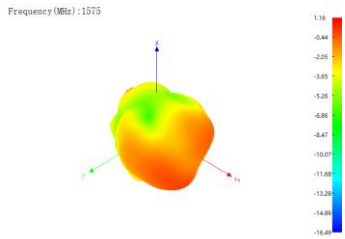
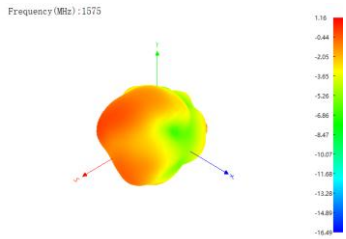
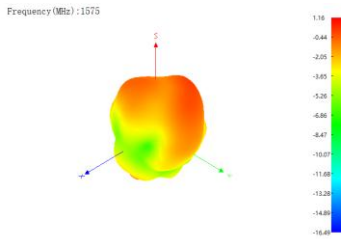
| Frequency (MHz) | Gain(dBi) | Efficiency (%) |
|---|---|---|
| 1560 | -2.6 | 30.34 |
| 1561 | -2.48 | 31.26 |
| 1562 | -2.4 | 32.21 |
| 1563 | -2.36 | 33.11 |
| 1564 | -2.35 | 34.12 |
| 1565 | -2.36 | 34.99 |
| 1566 | -2.31 | 35.81 |
| 1567 | -2.28 | 36.39 |
| 1568 | -2.45 | 36.56 |
| 1569 | -2.45 | 36.39 |
| 1570 | -2.42 | 35.89 |
| 1571 | -2.35 | 36.14 |
| 1572 | -2.03 | 36.22 |
| 1573 | -1.9 | 36.31 |
| 1574 | -1.78 | 36.31 |
| 1575 | -1.67 | 36.31 |
| 1576 | -1.9 | 35.48 |
| 1577 | -2.15 | 34.59 |
| 1578 | -2.43 | 33.5 |
| 1579 | -2.9 | 32.36 |
| 1580 | -2.99 | 31.33 |

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## 3.6. 2D Ridiation Model

| Frequency(MHz) | XOY-plane | XOZ-plane | YOZ-plane |
|---|---|---|---|
| 1561-1575 |  |  |  |

## 3.7. 3D Ridiation Model

| Frequency(MHz) | XOY-plane | XOZ-plane | YOZ-plane |
|---|---|---|---|
| 1561 |  |  |  |
| 1575 |  |  |  |

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