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### Antenna Gain Test Report

Project No.: 4790770330

Client Name: Zhongshan Zhikong Intelligent Technology Co., LTD

Client Address: Room 1206, Block 2, No.10, Shengping Middle Road, Xiaolan Town, Zhongshan City

Product Name: Bluetooth module

Product Model: ZKBM01

Manufacture: /

Antenna Type: PCB

Antenna Size: /

Test Standards: ANSI/IEEE std 149-2021

Test Date: 2023.4.26

Issued Date: 2023.4.26

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Laboratory Manager

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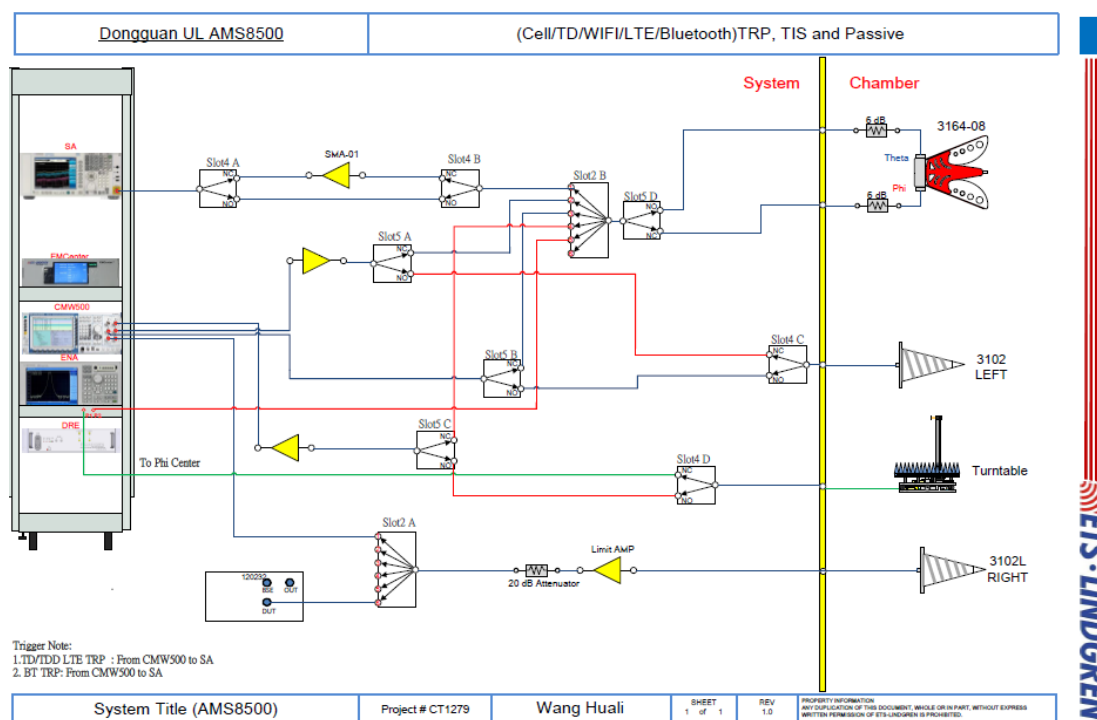
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## 1 Test Equipment Information

| Equipment           | Manufacturer | Mode No.      | Serial No. | Cal date   | Cal Due    |
|---------------------|--------------|---------------|------------|------------|------------|
| Test Chamber        | ETS-Lindgren | 8500          | /          | /          | /          |
| Test Software       | ETS-Lindgren | EMQuest V1.12 | 1496       | /          | /          |
| Network Analyzer    | Keysight     | E5071C        | MY46524531 | 2022.10.17 | 2023.10.16 |
| EXA Singal Analyzer | Keysight     | N9010A        | MY55150514 | 2022.10.17 | 2023.10.16 |

## 2 Setup block diagram



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### 3 Test Temperature and Humidity

Temperature: 22.6°C

Humidity: 62.3%

### 4 Test Step Flow

- 1) Maintain the test ambient temperature of  $23 \pm 2$  °C, the instrument is powered on and preheated for more than 30 minutes;
- 2) Turn on the darkroom power supply, connect the test cable, and set up the sample according to the standard;
- 3) Outline sets the test content objectives and conducts calibration tests;
- 4) Run the software, when the test is completed, export the corresponding test diagram and test data, and save to the corresponding directory.

### 5 Test Result

2.4GHz

| Frequency (MHz) | Efficiency (%) | Gain (dBi) |
|-----------------|----------------|------------|
| 2400            | 44.54          | 0.09       |
| 2410            | 46.39          | -0.11      |
| 2420            | 48.55          | -0.30      |
| 2430            | 50.01          | -0.53      |
| 2440            | 50.94          | -0.81      |
| 2450            | 51.05          | -1.11      |
| 2460            | 50.82          | -1.41      |
| 2470            | 50.17          | -1.72      |
| 2480            | 49.76          | -2.10      |
| 2490            | 49.90          | -2.32      |
| 2500            | 49.79          | -2.53      |
| MAX             | 51.05          | 0.09       |

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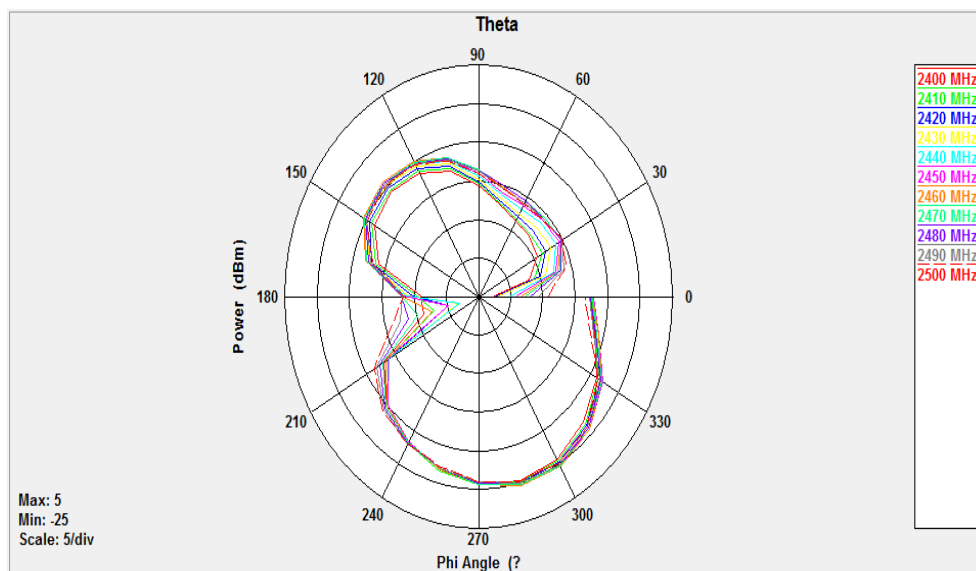
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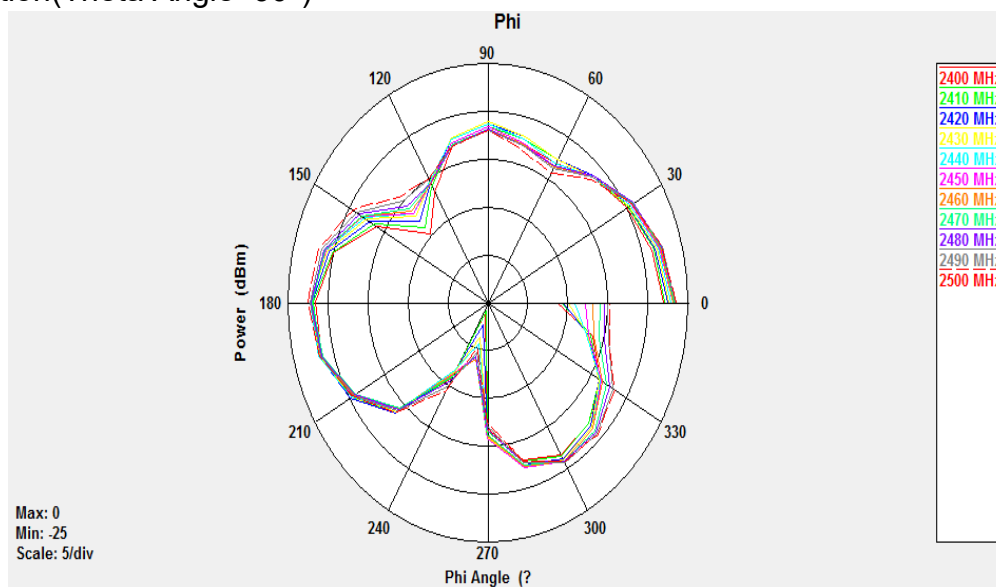
## Polarization Pattern Photos

2.4GHz

Theta Polarization(Theta Angle=90°)



Phi Polarization(Theta Angle=90°)

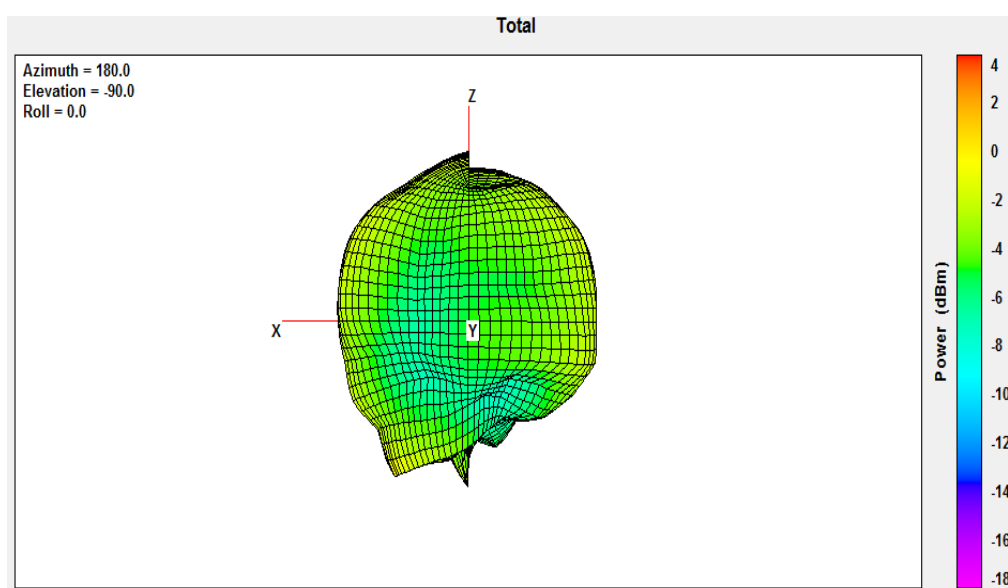
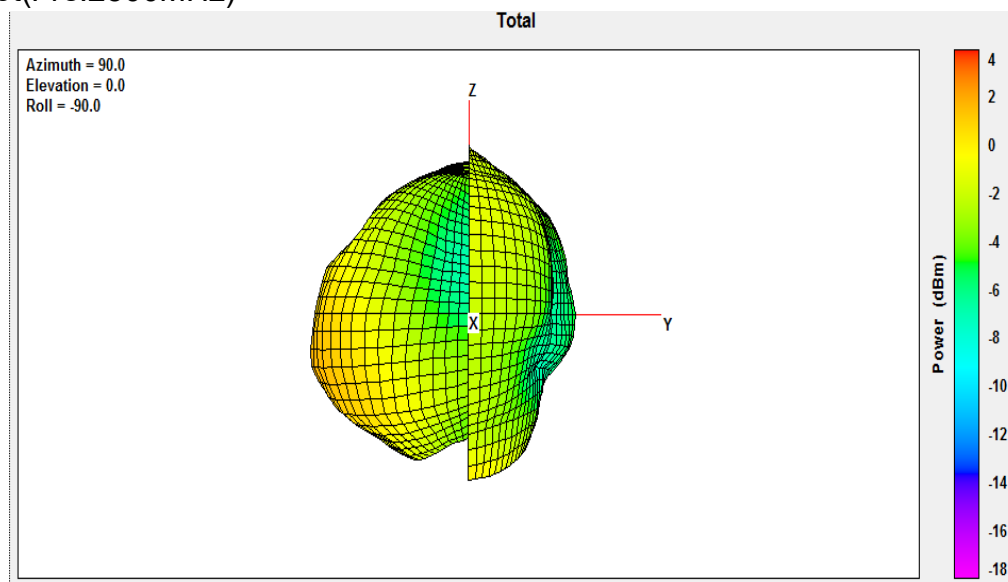


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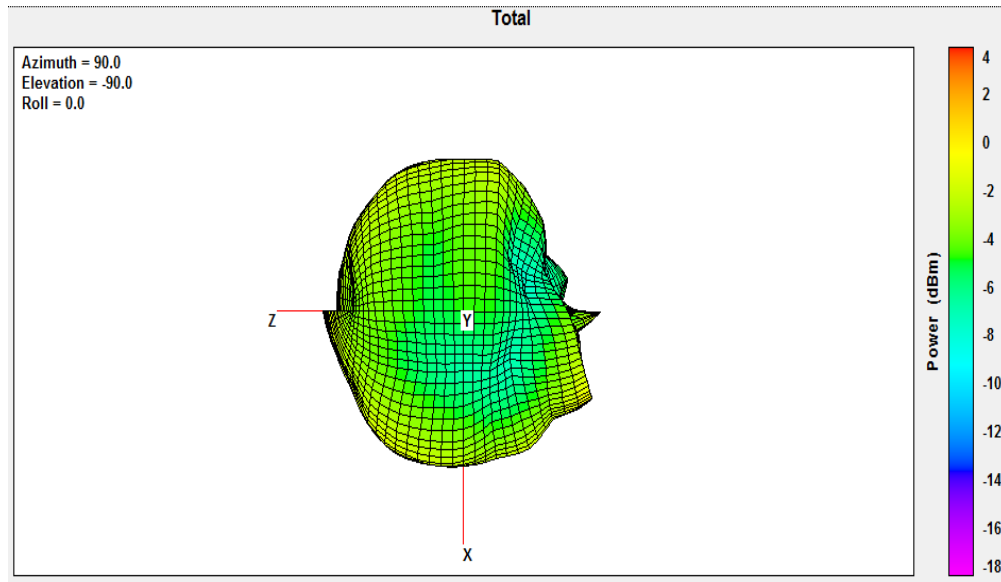


## Total 3D Plot(Fre.2500MHz)



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## 6 Photo



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