

Testing Report

Customer Name: Ningbo Diya Electric Appliance Co., Ltd.

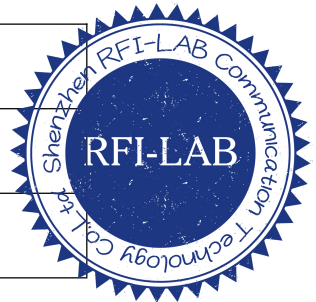
Product Name: Onboard Antenna

Sample Model: PHY6265

Reference Standard: *GB/T 9410-2008; ANSI/IEEE Std 149-1979*

Issue Date: 2024.1.23

| | |
|-----------------|-----------------|
| Engineer: Zkmis | Date: 2024.1.22 |
| Auditor: Eason | Date: 2024.1.23 |
| Approver: Jaron | Date: 2024.1.23 |



Version

| Version No. | Date | Description | Formulate | Approval |
|-------------|-----------|-------------------------------|-----------|----------|
| A0 | 2024.1.23 | For the first time, formulate | Zkris | Eason |
| | | | | |
| | | | | |

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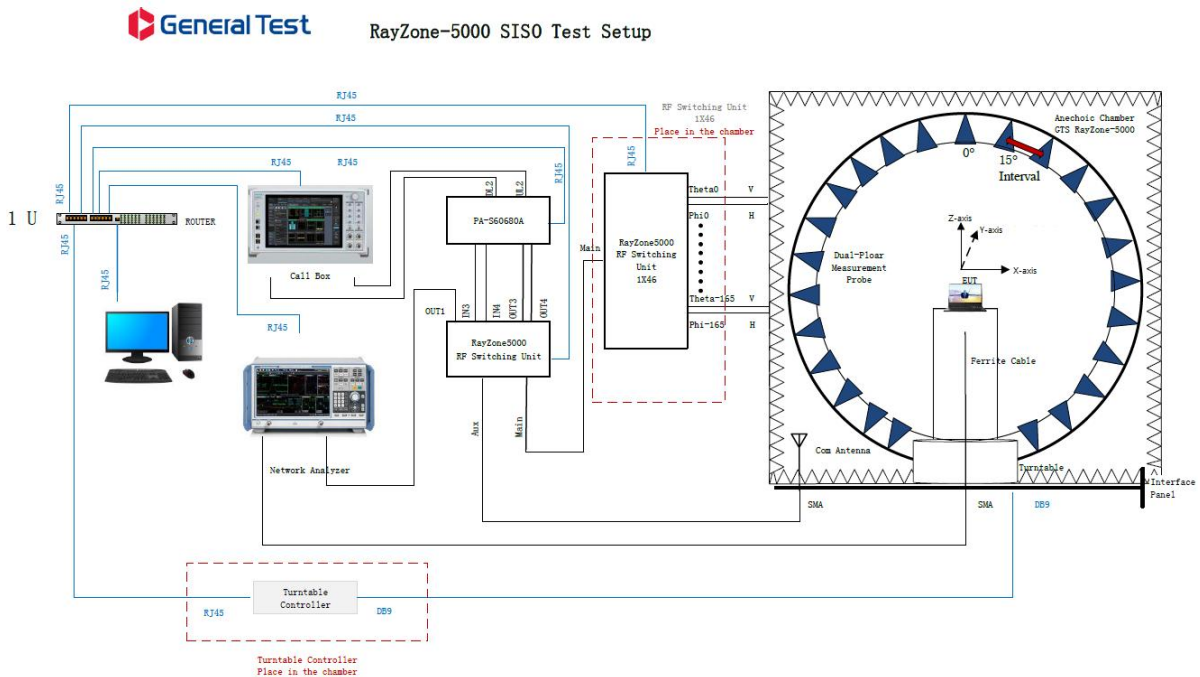
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1. General Information

1.1 General information of testing institutions

| | |
|------------------|---|
| Name | Shenzhen RFI-LAB Communication Technology Co., Ltd. |
| Address | 103 Building 1 Tingwei Industrial Park, No.6, Liufang Road, Zone 67Xingdong, Xin'an Subdistrict, Bao'an District, Shenzhen, Guangdong, China |
| Tel | 13682621346 |
| E-mail | rfi-lab@tech-now.com |
| Equipment | All the equipment used in the report is fixed in 103 Building 1 Tingwei Industrial Park, No.6, Liufang Road, Zone 67Xingdong, Xin'an Subdistrict, Bao'an District, Shenzhen, Guangdong, China |

1.2 Testing principle



1.3 Test equipment

| Equipment | Model No. | Serial No. | Manufacturer | Calibration date | Next calibration date |
|------------------|--------------|----------------|--------------|------------------|-----------------------|
| OTA Test System | RayZone-5000 | RFI-LAB-RF-D00 | GTS | 2023.3.14 | 2025.3.13 |
| Network Analyzer | E5071C | RFI-LAB-RF-D01 | KEYSIGHT | 2023.5.11 | 2024.5.10 |
| Network Analyzer | E5071C | RFI-LAB-RF-C02 | KEYSIGHT | 2023.5.11 | 2024.5.10 |

1.4 Test environment

| | |
|-------------|-----------|
| Temperature | 23.1°C |
| Humidity | 58%RH |
| Pressure | 100.13kPa |

1.5 Statement

- (1) The test results in the report are only applicable to the tested samples and the tested samples work under the environment described in the report.
- (2) Only Shenzhen RFI-LAB Communication Technology Co., Ltd. have the right to modify the report, and the modification information shall be annotated in the revision form.
- (3) Any objection to this report shall be raised within 30 days after formal confirmation of the report.
- (4) This report is invalid if there is any evidence that the sample information provided is falsified.
- (5) The report is invalid without the signature of the auditor and approver.

2. Sample Information

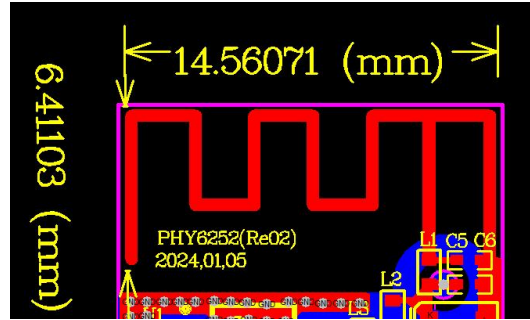
2.1 Client information

| | |
|---------------------|---|
| Name | Ningbo Diya Electric Appliance Co., Ltd. |
| Address | No. 27 Yunhuan Road, Simen Town, YUYAO Zhejiang |
| Contacts | Roger Li |
| Tel | 15857438022 |
| E-mail | engineer01@nbdeer.com |
| Manufacturer | / |

2.2 Description of EUT(S)

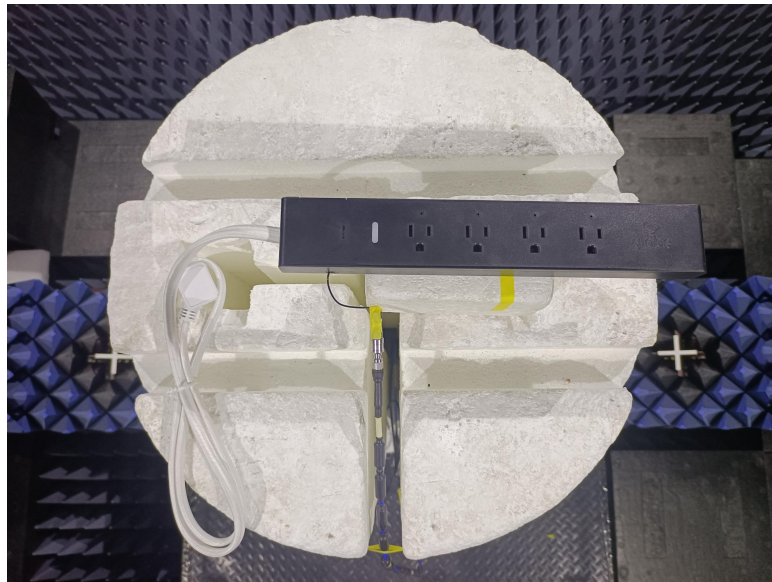
| | |
|------------------------|---|
| Product Name | Onboard Antenna |
| Sample Model | PHY6265 |
| Antenna Size | 14.5*6.4mm |
| Antenna Type | PCB Antenna |
| Test Item | Antenna gain; Efficiency; Radiation pattern |
| Frequency Range | 2400MHz-2500MHz |
| Received Date | 2024.1.21 |
| Test Date | 2024.1.22 |
| Remark | / |

2.3 EUT appearance

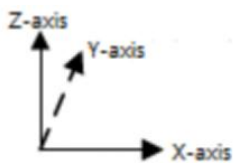
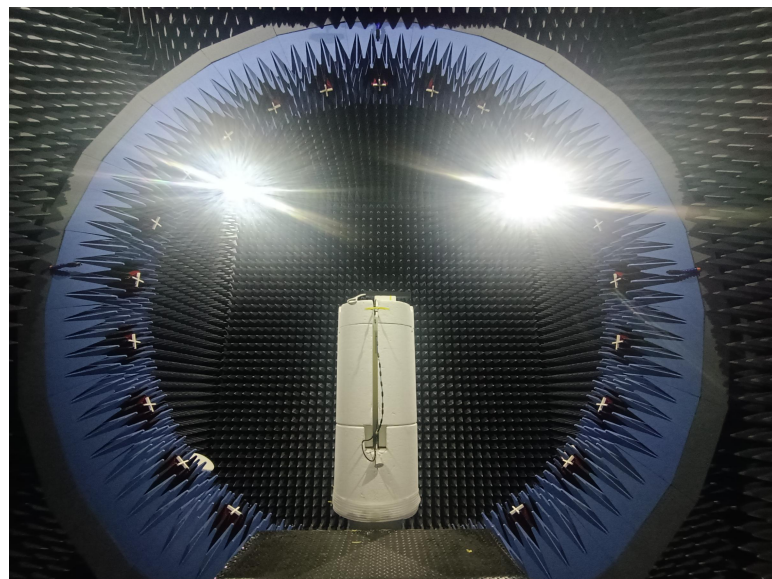


2.4 EUT setup photo of free space OTA testing

Planform



Front view



3. Test Results

3.1 Test standard

| Name | Parameter | Method | Standard no. |
|------------------------------|----------------------|--|------------------------|
| Mobile communication antenna | Antenna gain | Generic specification for antennas used in the mobile communications | GB/T 9410-2008 |
| | Radiation pattern | | |
| Antenna | Radiation efficiency | IEEE Standard Test Procedures for Antennas | ANSI/IEEE Std 149-1979 |
| | Gain and directivity | | |

3.2 Test uncertainty

The uncertainty was calculated on the basis of the GUM published by ISO, using the inclusion factor of $K=2$ and the 95% confidence level to express the extended uncertainty.

| Item | Uncertainty |
|----------------------|---------------------|
| Antenna gain | $\pm 0.72\text{dB}$ |
| Radiation efficiency | $\pm 0.72\text{dB}$ |

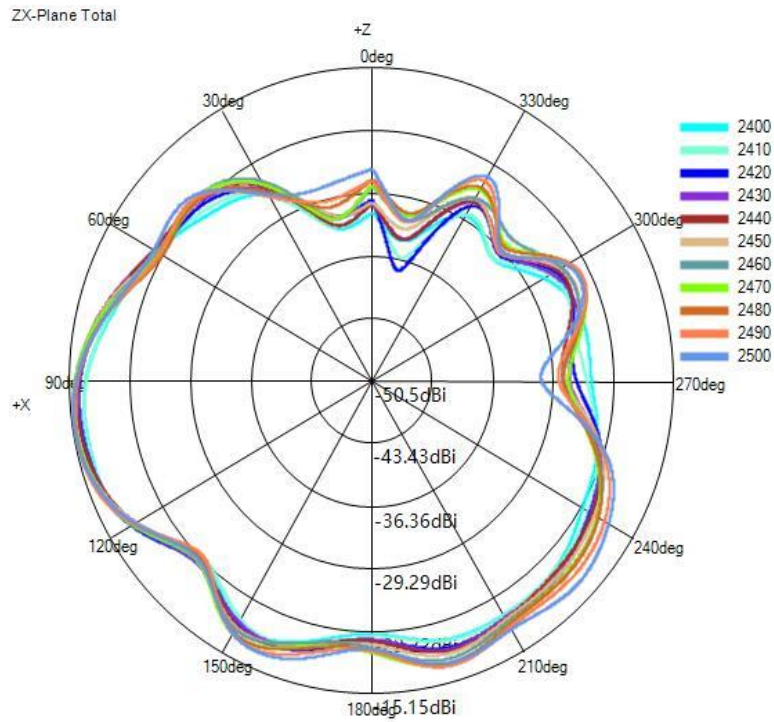
3.3 Test data

3.3.1 Typical free space efficiency and gain

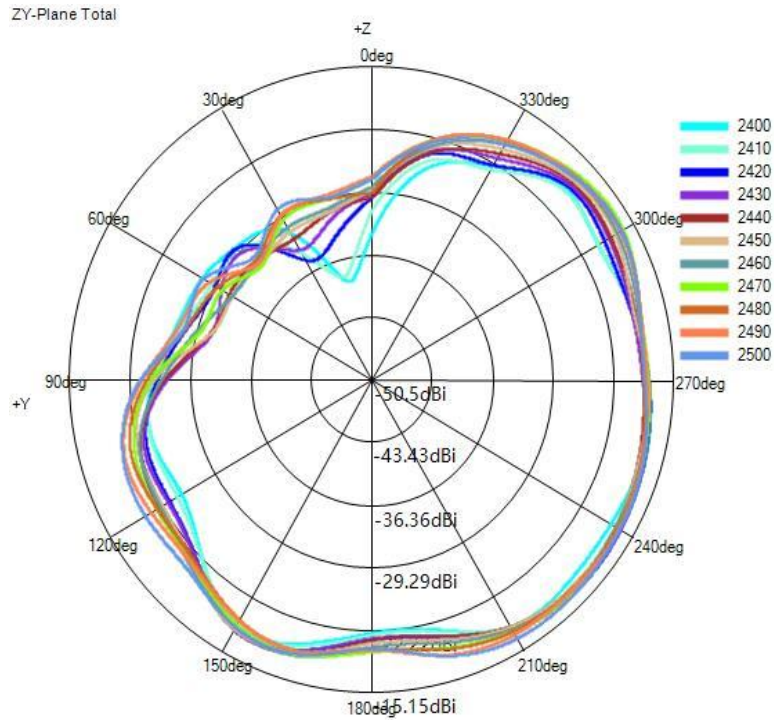
| Frequency/MHz | 2400 | 2410 | 2420 | 2430 | 2440 | 2450 | 2460 | 2470 | 2480 | 2490 | 2500 |
|---------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Peak Gain/dBi | -16.53 | -16.42 | -16.16 | -16.05 | -15.89 | -15.57 | -15.51 | -15.61 | -15.39 | -15.36 | -15.42 |
| Efficiency/% | 0.67 | 0.70 | 0.76 | 0.76 | 0.77 | 0.81 | 0.86 | 0.90 | 0.88 | 0.94 | 0.99 |

3.3.2 Typical free space radiation pattern

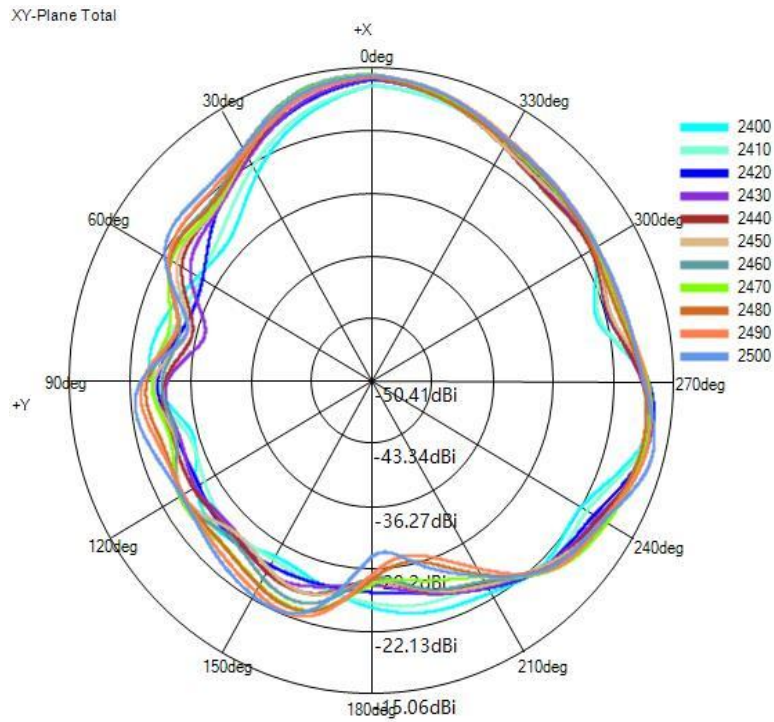
(1) X-Z Plane(unit:dBi):



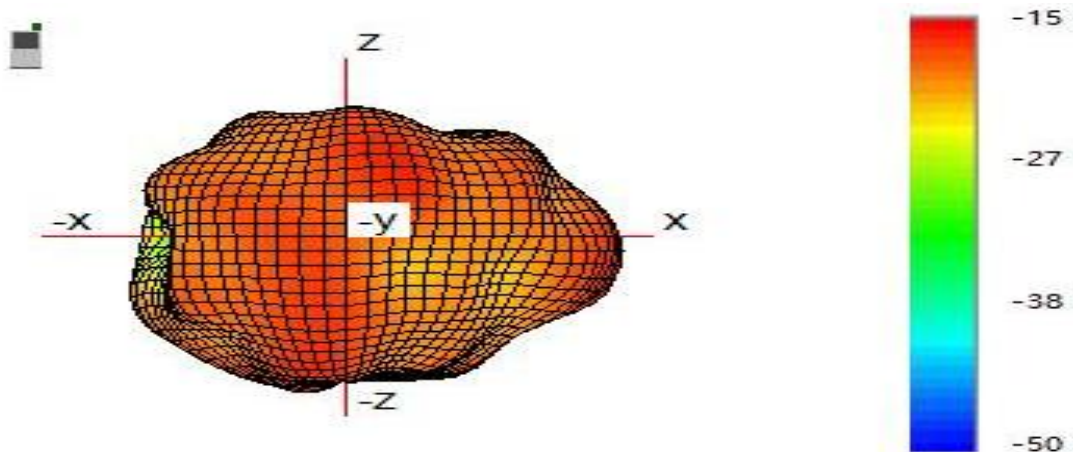
(2) Y-Z Plane(unit:dBi):



(3) X-Y Plane(unit:dBi):



(4) Typical Free Space 3D Radiation Pattern at 2490MHz(unit:dBi):



End

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