

# Testing Report

Customer Name: Shenzhen Adition Audio Science & Technology Co.,Ltd

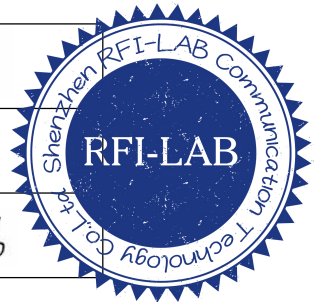
Product Name: PCB antenna

Sample Model: /

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

Issue Date: 2022.12.16

Engineer: Jackson	Date: 2022.12.16
Auditor: Eason	Date: 2022.12.16
Approver: Amon	Date: 2022. 12. 16



### Version

Version No.	Date	Description	Formulate	Approval
A0	2022.12.16	For the first time, formulate	Jackson	Eason

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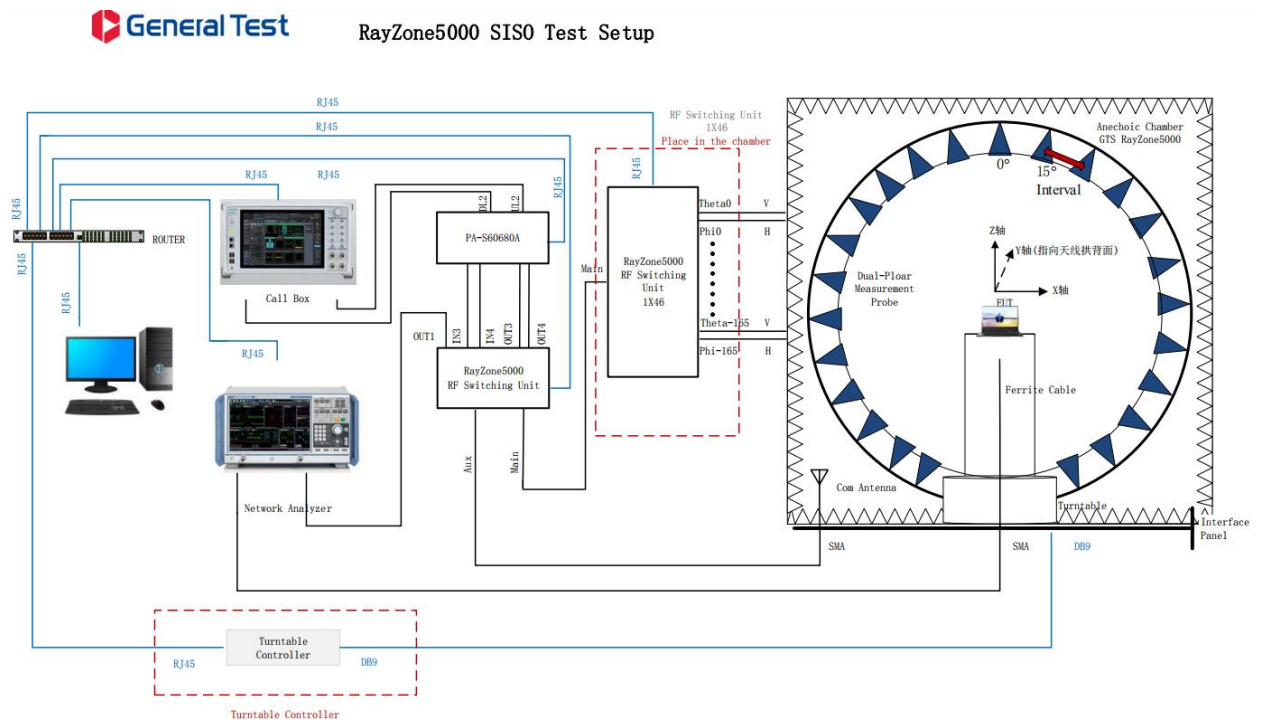
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# 1. General Information

## 1.1 General information of testing institutions

<b>Name</b>	Shenzhen RFI-LAB Communication Technology Co., Ltd.
<b>Address</b>	10/F A, Lingyun Bld, Liufang Road, Baoan District, Shenzhen
<b>Tel</b>	13682621346
<b>E-mail</b>	rfi-lab@tech-now.com
<b>Equipment</b>	All the equipment used in the report is fixed in Zone B, West Side of 1/F, Building 1, Tingwei Industrial Park, No.6 Liufang Road, Bao 'an District, Shenzhen

## 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	2021.3.15	2023.3.14
Network Analyzer	E5071C	RFI-LAB-RF-D01	KEYSIGHT	2022.5.13	2023.5.12

### 1.4 Test environment

Temperature	24.1°C
Humidity	60%RH
Pressure	100.23kPa

### 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

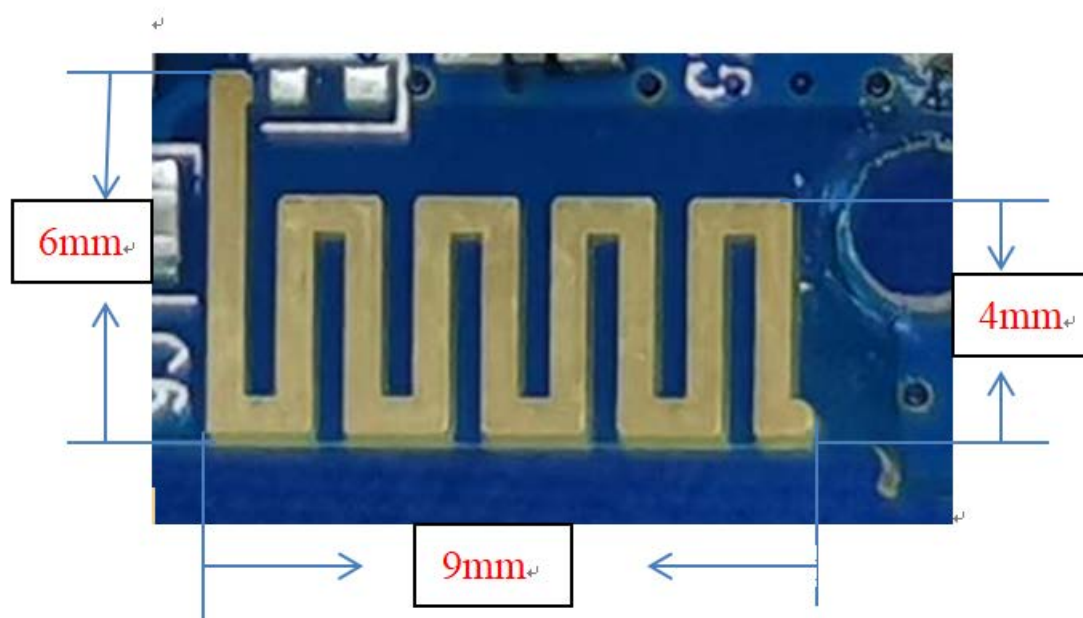
### 2.1 Client information

<b>Name</b>	Shenzhen Addition Audio Science & Technology Co.,Ltd
<b>Address</b>	Floor1-5, No.2 Building, Huidebao Industrial Park, No.11, Second Industrial Zone, Baihua Community, Guangming Sub-district, Guangming District, Shenzhen City, China
<b>Contacts</b>	/
<b>Tel</b>	/
<b>E-mail</b>	/

### 2.2 Description of EUT(S)

<b>Product Name</b>	PCB antenna
<b>Sample Model</b>	/
<b>Size</b>	/
<b>Serial No.</b>	/
<b>Test Item</b>	Antenna gain; Radiation pattern and efficiency
<b>Frequency Range</b>	2400MHz-2500MHz
<b>Received Date</b>	2022.12.16
<b>Test Date</b>	2022.12.16
<b>Remark</b>	The length of the RF cable is 55mm

## 2.3 EUT appearance



## 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	$\pm 0.72\text{dB}$

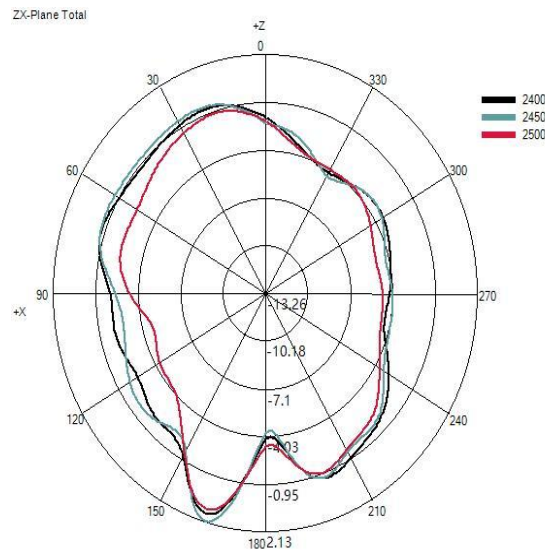
### 3.3 Test data

#### 3.3.1 Typical free space efficiency and gain

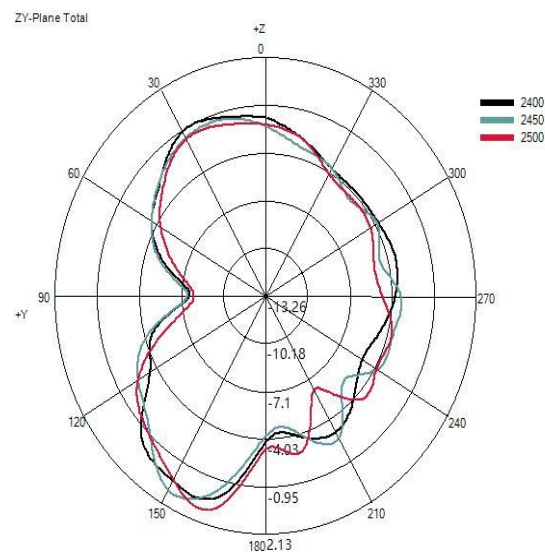
Frequency/MHz	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain/dBi	1.75	1.76	1.79	1.88	1.82	1.92	2.05	2.07	1.79	1.55	1.48
Efficiency/%	52.04	51.99	52.31	51.79	51.29	51.56	51.38	50.49	47.90	46.11	44.28

#### 3.3.2 Typical free space radiation pattern

(1) X-Z Plane:

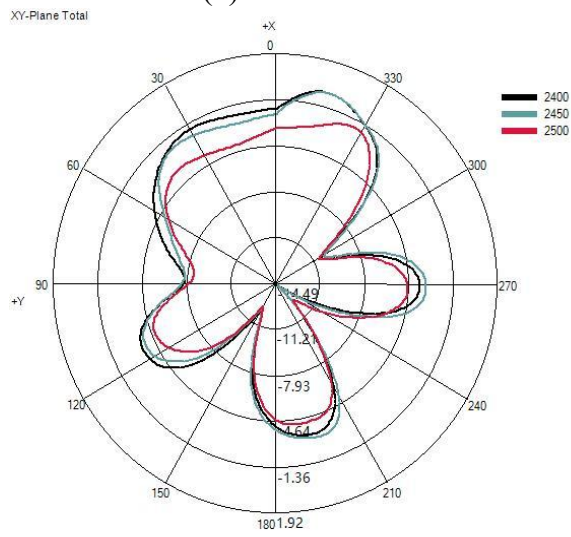


(2) Y-Z Plane:

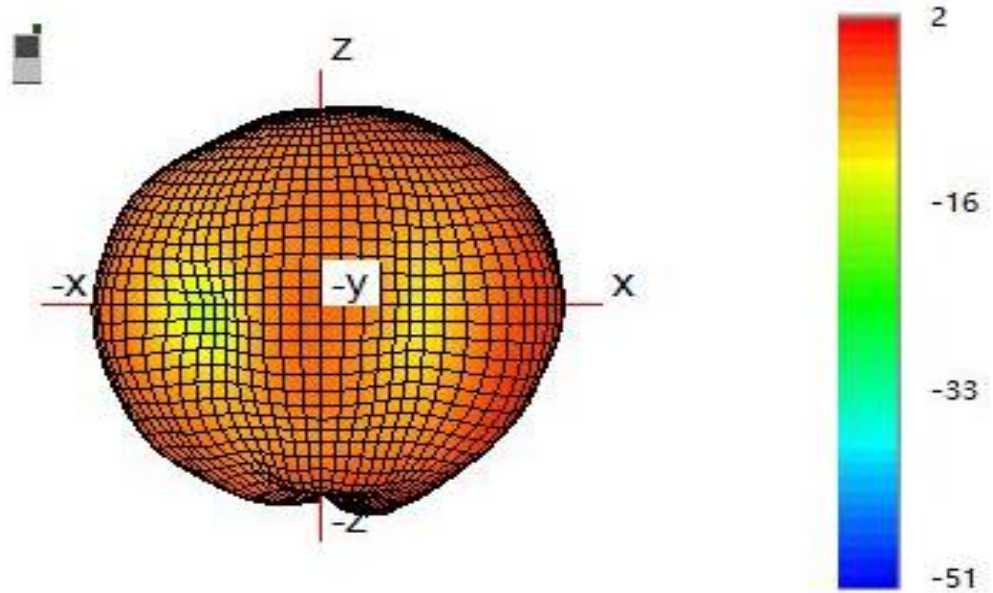




(3) X-Y Plane:



(4) Typical Free Space 3D Radiation Pattern at 2.45GHz:



End

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