

# Testing Report

Customer Name: Shenzhen JX ROBOT Technology Co., Ltd

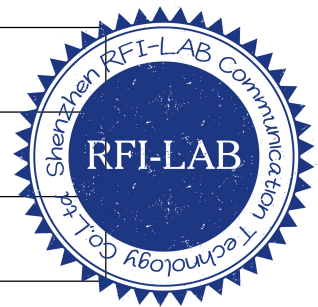
Product Name: 2.4G ANT

Sample Model: 2.4G ANT

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

Issue Date: 2023.3.27

Engineer: Zkmis	Date: 2023. 3. 24
Auditor: Eason	Date: 2023. 3. 27
Approver: Amona	Date: 2023. 3. 27



## Version

Version No.	Date	Description	Formulate	Approval
A0	2023.3.27	For the first time, formulate	Zkris	Eason

## Contents

1.General Information .....	3
1.1 General information of testing institutions .....	3
1.2 Testing principle .....	3
1.3 Test equipment .....	4
1.4 Test environment .....	4
1.5 Statement .....	4
2.Sample Information .....	5
2.1 Client information .....	5
2.2 Description of EUT(S) .....	5
2.3 EUT appearance .....	6
2.4 EUT setup photo of free space OTA testing .....	6
3.Test Results .....	7
3.1 Test standard .....	7
3.2 Test uncertainty .....	7
3.3 Test data .....	7
3.3.1 Typical free space efficiency and gain .....	7
3.3.2 Typical free space radiation pattern .....	8
(The following is blank) .....	9



### 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	2022.5.13	2023.5.12

### 1.4 Test environment

Temperature	23.5°C
Humidity	59%RH
Pressure	100.18kPa

### 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

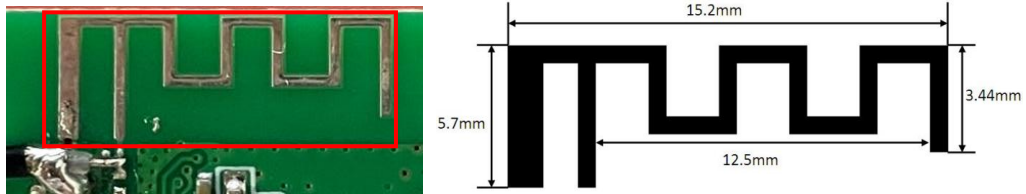
### 2.1 Client information

<b>Manufacturer</b>	Shenzhen JX ROBOT Technology Co., Ltd
<b>Address</b>	/
<b>Contacts</b>	/
<b>Tel</b>	/
<b>E-mail</b>	/
<b>Manufacturer</b>	JXROBOT.CO.,LTD

### 2.2 Description of EUT(S)

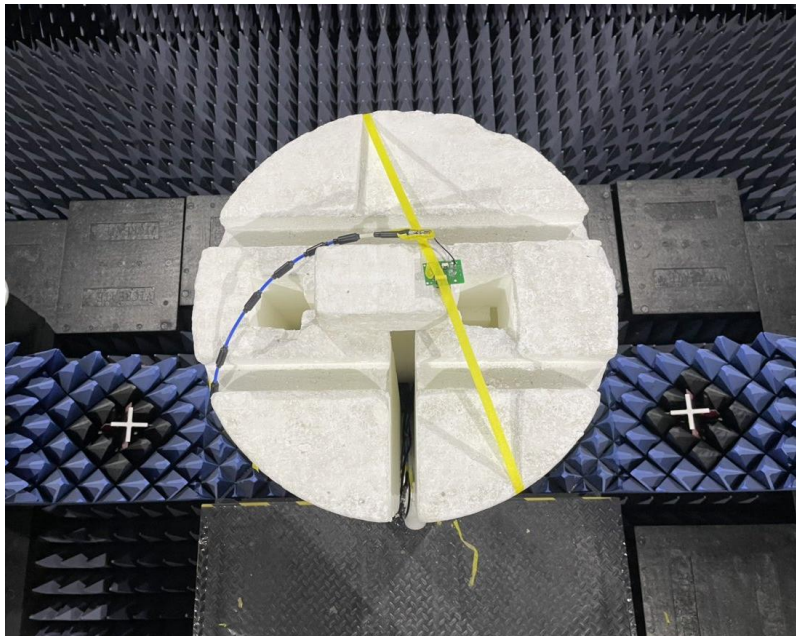
<b>Product Name</b>	2.4G ANT
<b>Sample Model</b>	2.4G ANT
<b>Antenna Size</b>	/
<b>Serial No.</b>	/
<b>Antenna Type</b>	PCB Antenna
<b>Test Item</b>	Antenna gain; Efficiency; Radiation pattern
<b>Frequency Range</b>	2400-2500MHz
<b>Received Date</b>	2023.3.24
<b>Test Date</b>	2023.3.24
<b>Remark</b>	The length of the RF cable is 40mm

### 2.3 EUT appearance

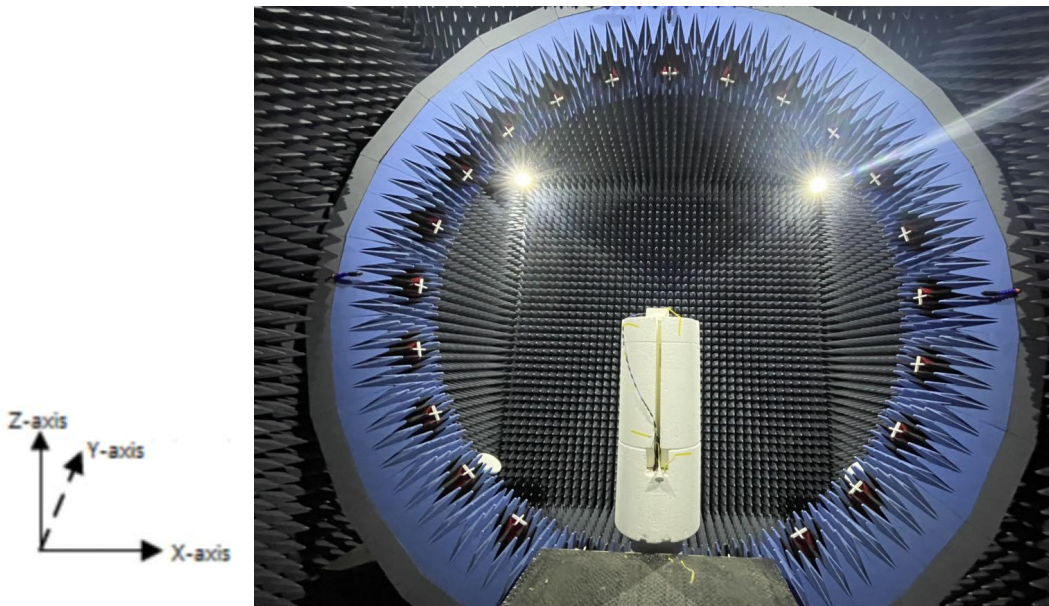


### 2.4 EUT setup photo of free space OTA testing

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

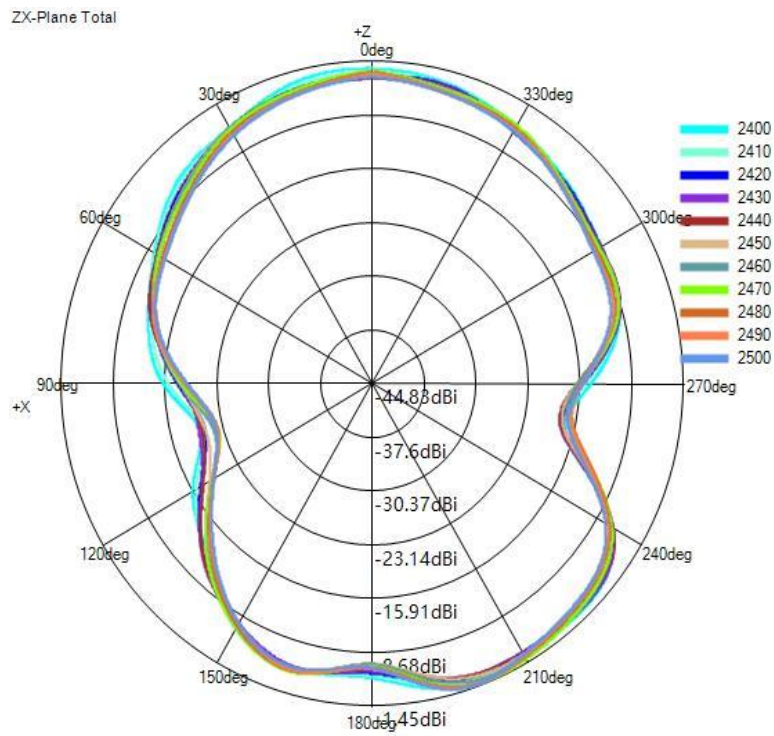
#### 3.3.1 Typical free space efficiency and gain

Frequency/MHz	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain/dBi	-1.37	-1.64	-1.83	-2.07	-2.09	-2.08	-2.09	-1.79	-1.88	-1.90	-1.93
Efficiency/%	31.76	30.16	29.48	29.20	28.71	28.11	28.90	29.14	27.08	26.04	25.12

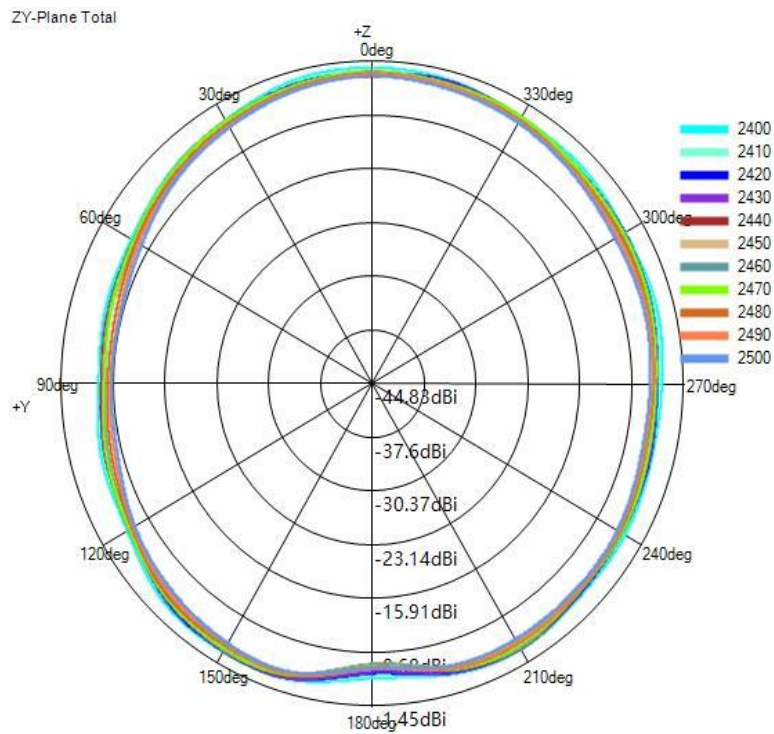


### 3.3.2 Typical free space radiation pattern

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

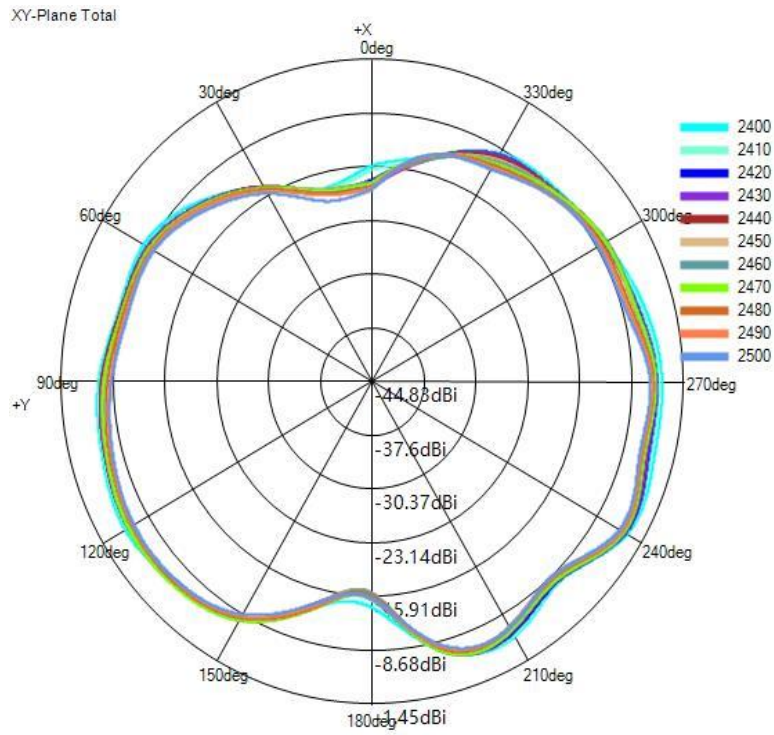


(2) Y-Z Plane(unit:dBi):

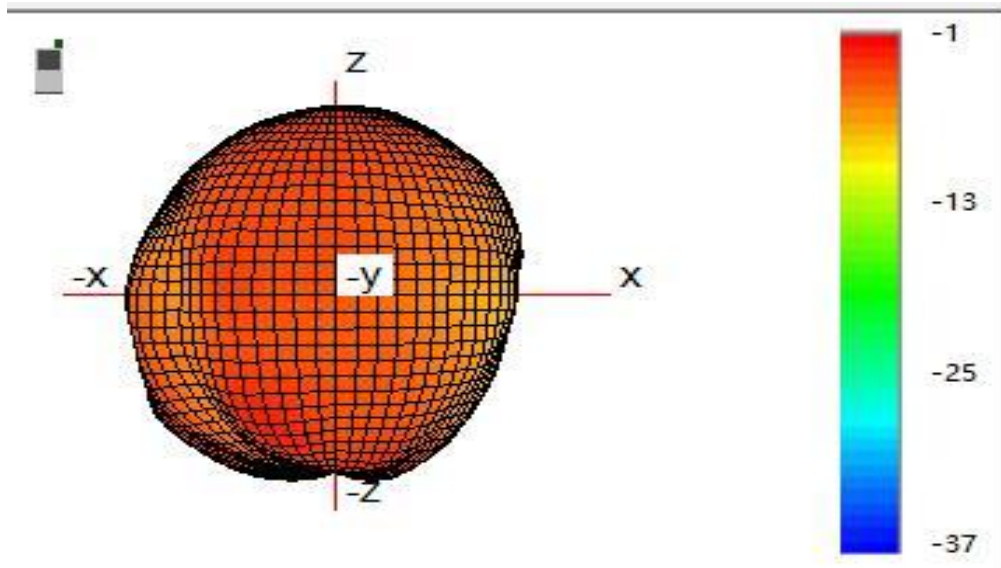




(3) X-Y Plane(unit:dBi):



(4) Typical Free Space 3D Radiation Pattern at 2.4GHz(unit:dBi):



-----  
End

(The following is blank)