

# Testing Report

Customer Name: Shenzhen Yexiang Intelligent Technology Co., Ltd.

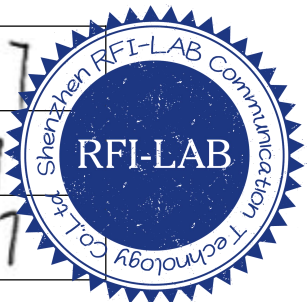
Product Name: Bluetooth mesh smart plug

Sample Model: YX-WS01C , YX-WS01B , YX-WS02A , YX-WS02B

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

Issue Date: 2022.11.17

Engineer: <i>Jeremy</i>	Date: <i>2022.11.17</i>
Auditor: <i>Eason</i>	Date: <i>2022.11.17</i>
Approver: <i>Aaron</i>	Date: <i>2022.11.17</i>



### Version

Version No.	Date	Description	Formulate	Approval
A0	2022.11.17	For the first time, formulate	Jeremy	Eason

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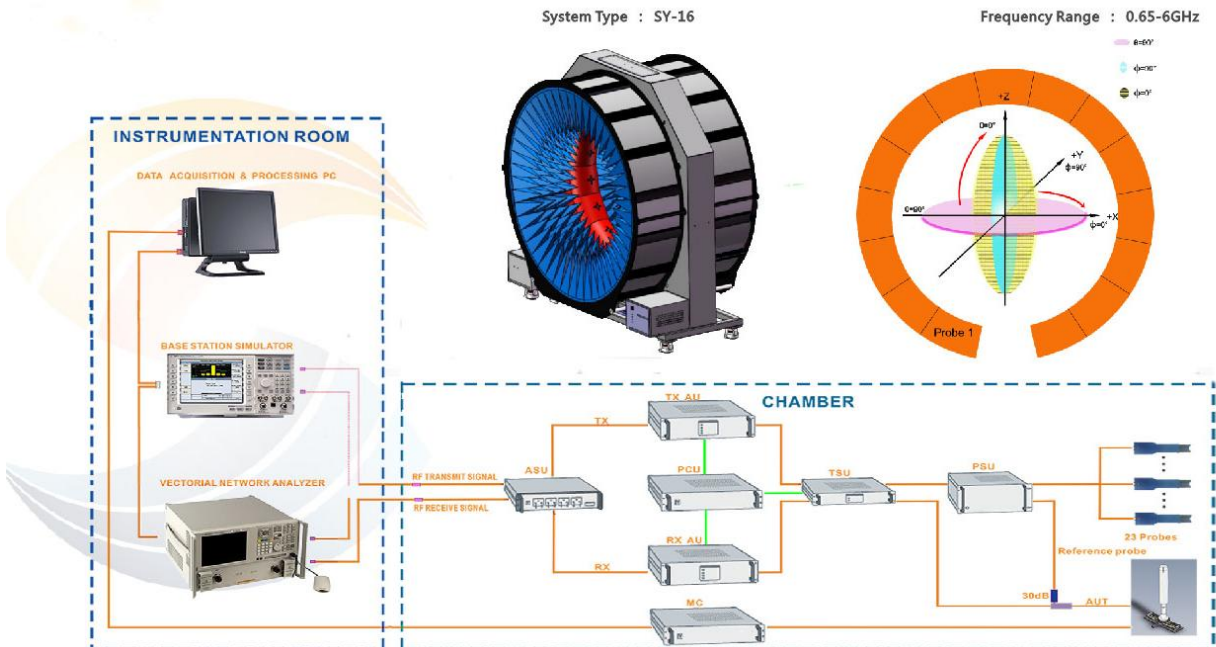
# 1. General Information

## 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 Rd, Baoan District, SZ
<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 10/F A, Lingyun Bld, Liufang Rd, Baoan District, SZ

## 1.2 Testing principle

### Multi-Probe OTA Measurement System



### 1.3 Test equipment

Equipment	Model No.	Serial No.	Manufacturer	Calibration date	Next calibration date
16 probe microwave chamber	3*3*2.5	RFI-LAB-RF-A00	SUNYIELD	2021.3.15	2023.3.14
Network Analyzer	E5071C	RFI-LAB-RF-A02	Agilent	2022.5.13	2023.5.12

### 1.4 Test environment

Temperature	23.0°C
Humidity	58%RH
Pressure	100.11kPa

### 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 Yexiang Intelligent Technology Co., Ltd.
<b>Address</b>	5th Floor, Office Building, Yiyuantong Industrial Park, No.6 Zhonghao Avenue, Xiangjiao Community, Bantian Street, Longgang District, SHENZHEN Guangdong
<b>Contacts</b>	/
<b>Tel</b>	/
<b>E-mail</b>	/
<b>Manufacturer</b>	Shenzhen Yexiang Intelligent Technology Co., Ltd.

### 2.2 Description of EUT(S)

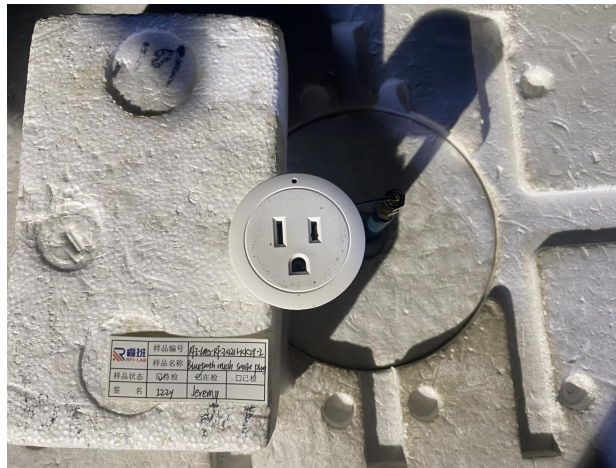
<b>Product Name</b>	Bluetooth mesh smart plug
<b>Sample Model</b>	YX-WS01C , YX-WS01B , YX-WS02A , YX-WS02B
<b>Size</b>	/
<b>Serial No.</b>	/
<b>Test Item</b>	Antenna gain; Efficiency; Radiation pattern
<b>Frequency Range</b>	2400-2500MHz
<b>Received Date</b>	2022.11.17
<b>Test Date</b>	2022.11.17
<b>Remark</b>	The length of the RF cable is 50mm

## 2.3 EUT appearance

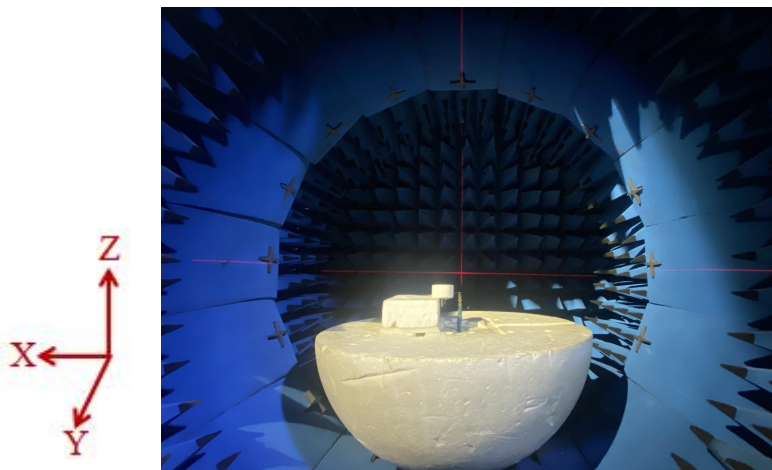


## 2.4 DUT setup photo of free space OTA testing

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	$\pm 1\text{dB}$
Radiation efficiency	$\pm 10\%$

### 3.3 Test data

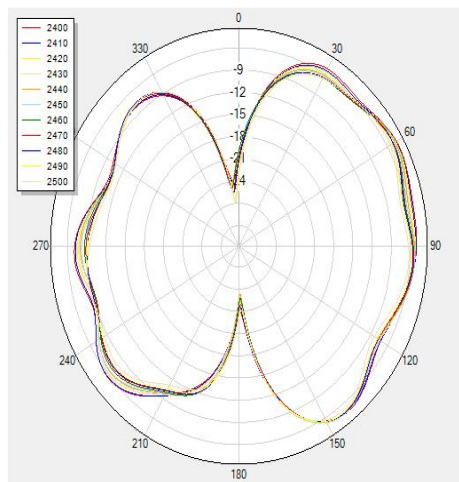
#### 3.3.2 Typical free space efficiency and gain

Frequency/MHz	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain/dBi	-3.78	-3.94	-4.05	-4.38	-4.32	-4.33	-4.45	-4.44	-4.38	-4.6	-4.78
Efficiency/%	18.29	18.04	17.47	17.02	16.78	16.60	15.78	15.51	15.40	14.99	14.02

#### 3.3.3 Typical free space radiation pattern

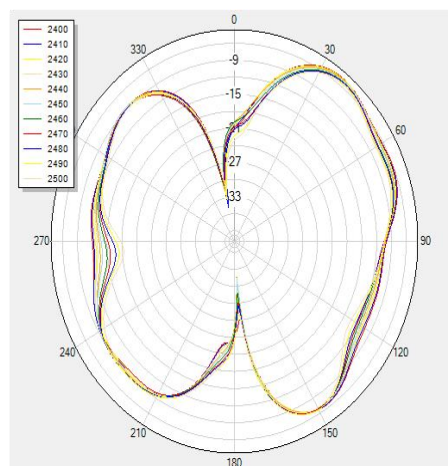
(1) X-Z Plane:

V Phi=0



(2) Y-Z Plane:

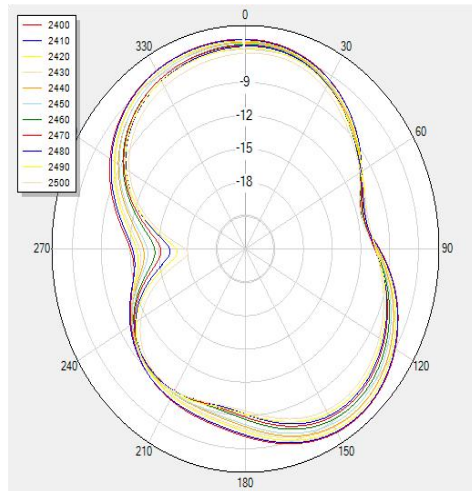
V Phi=90



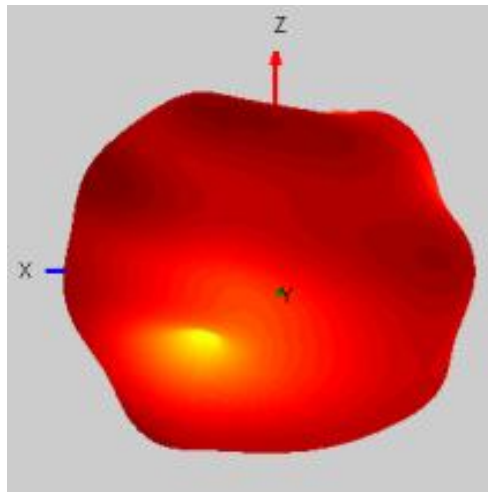


(3) X-Y Plane:

**H Theta=90**



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



**End**

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