

# OTA TEST REPORT

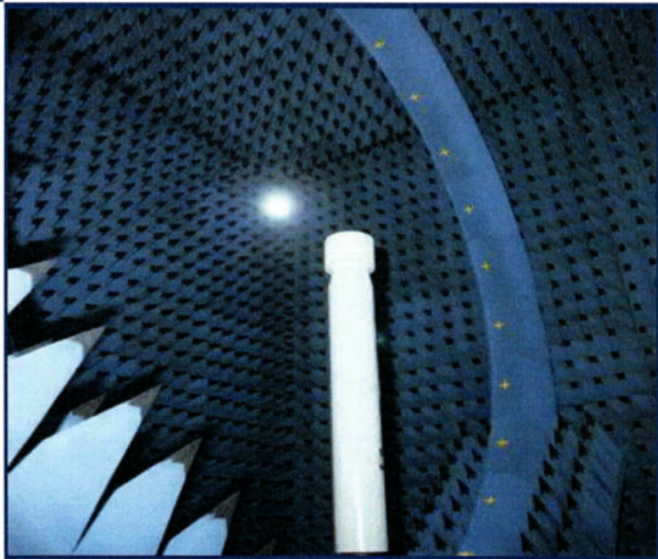
ISSUED BY  
Shenzhen BALUN Technology Co., Ltd.



FOR  
**2.4G infrared AAP color box**

ISSUED TO  
ShenZhen Rapoo Technology Co., Ltd.

22, Jinxiu Road East, Pingshan District, Shenzhen, China



Tested by: Mai Jintian

Mai Jintian

Date Dec. 15, 2021

Approved by: [Signature]

Liao Jianming

(Technical Director)

Date Dec. 15, 2021

Report No: BL-SZ21C0435-902

EUT Name: 2.4G infrared AAP color box

Model Name: M650

Brand Name: RAPOO

Test Standard: ANSI/IEEE Std 149-1979

Maximum: Gain: -2.85 (dBi)

Efficiency: 19%

Test Date: Dec. 08, 2021

Date of Issue: Dec. 15, 2021

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Revision History		
Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Dec. 15, 2021</u>	<u>Initial Issue</u>

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## 1 Administrative Data (GENERAL INFORMATION)

### 1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100

### 1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

### 1.3 Laboratory Condition

Ambient Temperature	19°C to 25°C
Ambient Relative Humidity	45% to 55%
Ambient Pressure	100 kPa to 102 kPa

### 1.4 Announce

- (1) The test report reference to the report template version v2.2.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
- (5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.
- (6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (7) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

## 2 PRODUCT INFORMATION

### 2.1 Applicant Information

Applicant	ShenZhen Rapoo Technology Co., Ltd.
Address	22, Jinxiu Road East, Pingshan District, Shenzhen, China
Contact Person	guirongtang
Telephone Number	13873962693
Fax Number	07552858 8958
E-mail Address	tangguirong@rapoo.com

### 2.2 Manufacturer Information

Manufacturer	ShenZhen Rapoo Technology Co., Ltd.
Address	22, Jinxiu Road East, Pingshan District, Shenzhen, China

### 2.3 Factory Information

Factory	N/A
Address	N/A

### 2.4 General Description for Equipment under Test (EUT)

EUT Name	2.4G infrared AAP color box
Model Name Under Test	M10 PLUS
Antenna Type	PCB Antenna
Dimensions	3*15.5 (mm)

### 2.5 Ancillary Equipment

Note: Not Applicable.

### 2.6 Technical Information

Frequency Range	2400MHz ~ 2500MHz
Test Frequencies	2400MHz, 2410MHz, 2420MHz, 2430MHz, 2440MHz, 2450MHz, 2460MHz, 2470MHz, 2480MHz, 2490MHz, 2500MHz

### 3 SUMMARY OF TEST RESULTS

#### 3.1 Test Standards

No.	Identity	Document Title
1	ANSI/IEEE Std 149-1979	IEEE Standard Test Procedures for Antennas

#### 3.2 Test Verdict

Report Section	Description	Remark
ANNEX A.1	Gain and Efficiency	--
ANNEX B	Radiation Pattern	--

#### 3.3 Test Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

Item	Uncertainty
VSWR(S11)	$\pm 0.61$
Gain	$\pm 1.92\text{dB}$

## 4 GENERAL TEST CONFIGURATIONS

### 4.1 Test Condition

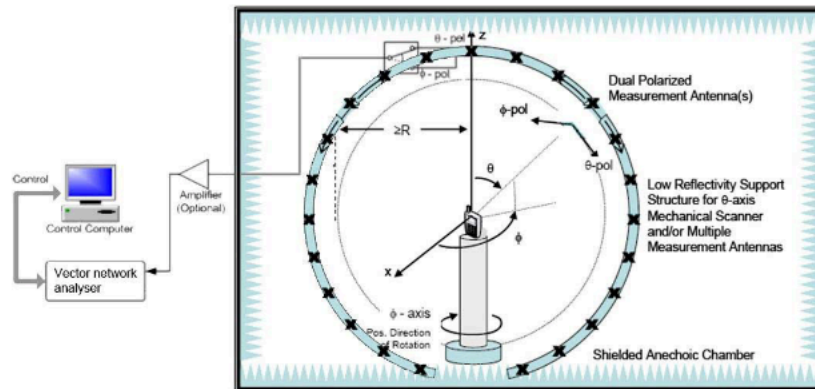
Environment Parameter	Selected Values During Tests			
	Ambient Pressure(KPa)	Temperature(°C)	Voltage	Relative Humidity (%)
Normal Temperature, Normal Voltage (NTNV)	100 to 102	19 to 25	N/A	45 to 55

### 4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Vector Network Analyzer	Agilent	E5071C	MY46103472	2021.01.27	2022.01.26
SG24 Multi-probe Antenna Measurement System	SATIMO	SG24-L	1101855-0001	2021.05.23	2022.05.24

### 4.3 Test Setup

#### 4.3.1 Antenna gain, efficiency, and radiation pattern test setup



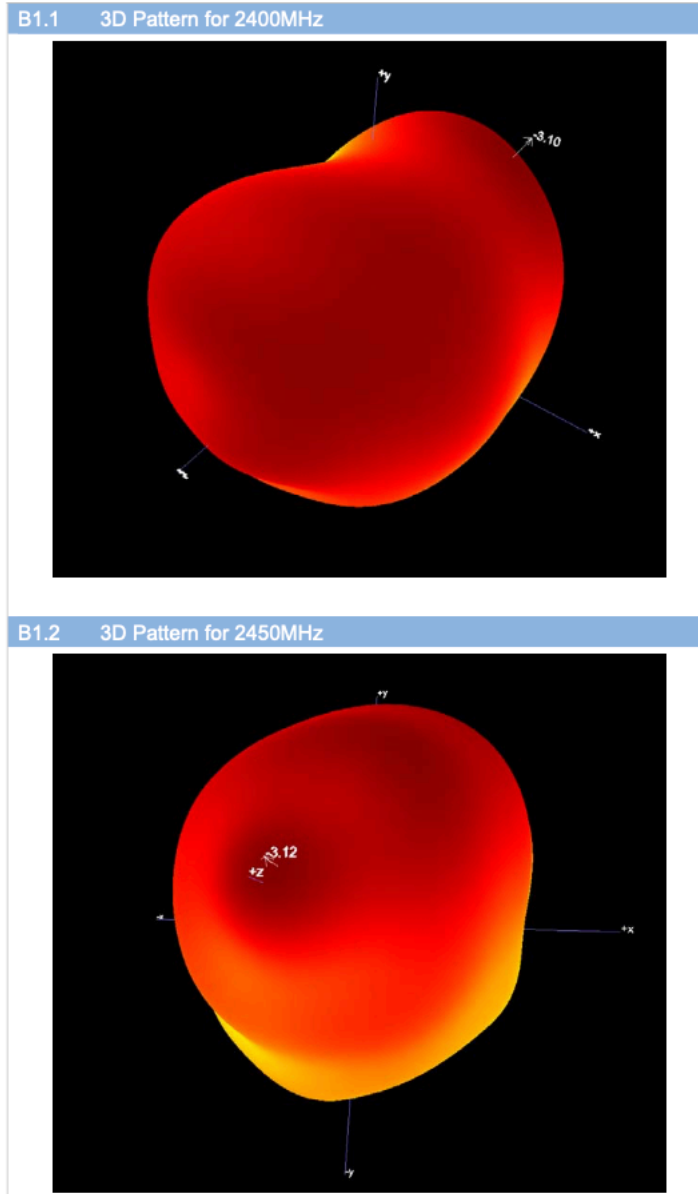
## ANNEX A TEST RESULTS

### A.1 Gain and Efficiency

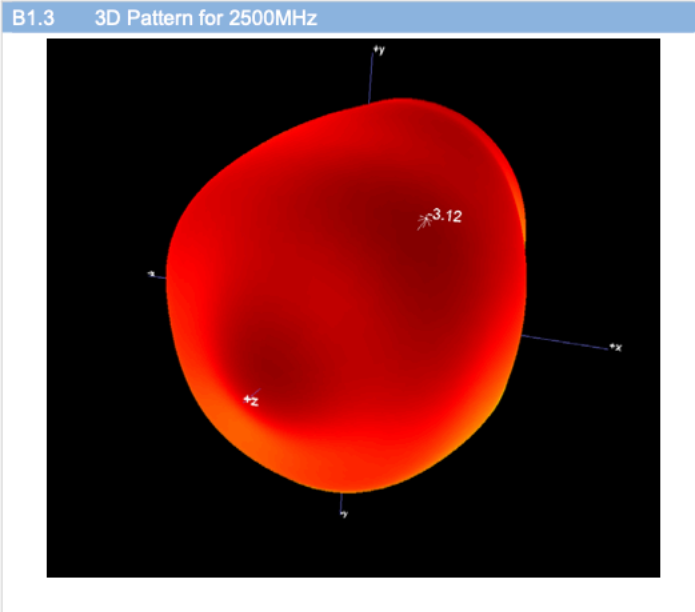
Frequency	Gain (dBi)	Efficiency (%)
2400MHz	-3.10	19
2410MHz	-3.15	18
2420MHz	-3.09	17
2430MHz	-3.03	18
2440MHz	-2.85	18
2450MHz	-3.12	17
2460MHz	-3.20	17
2470MHz	-3.12	17
2480MHz	-3.11	17
2490MHz	-3.13	17
2500MHz	-3.12	16

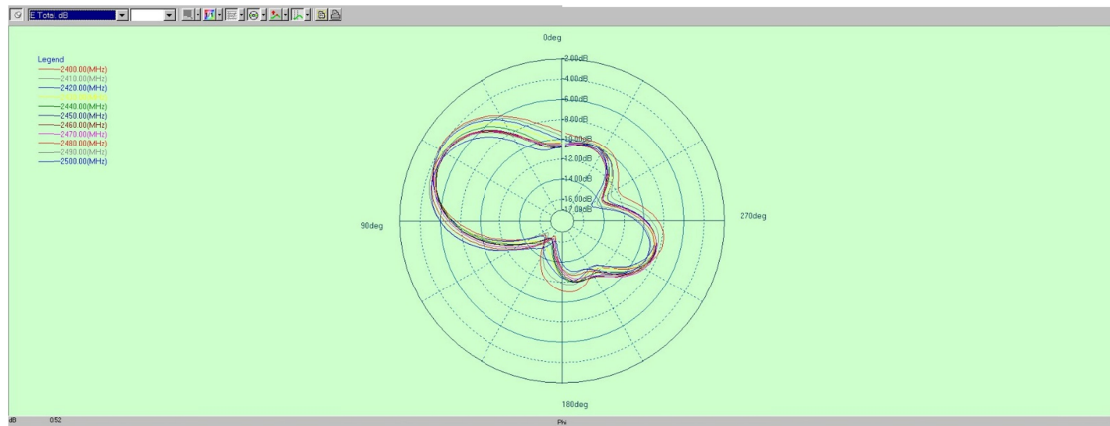
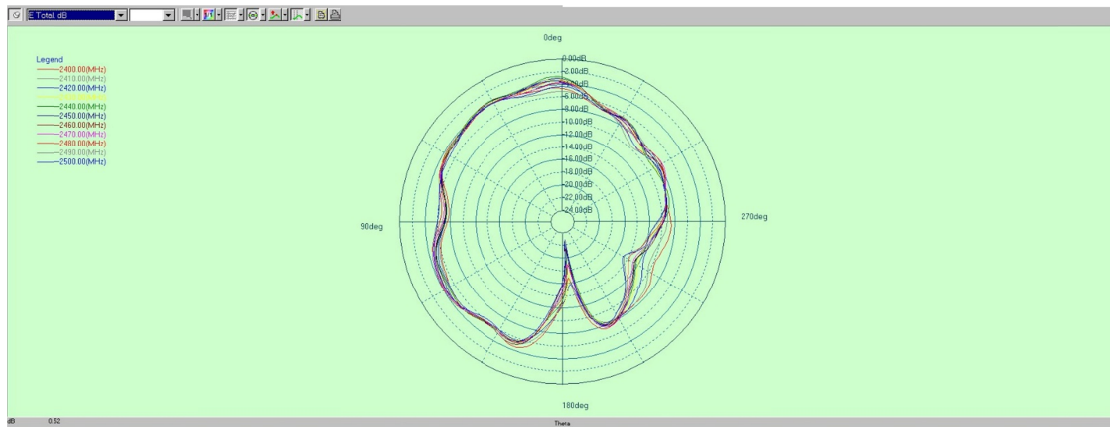
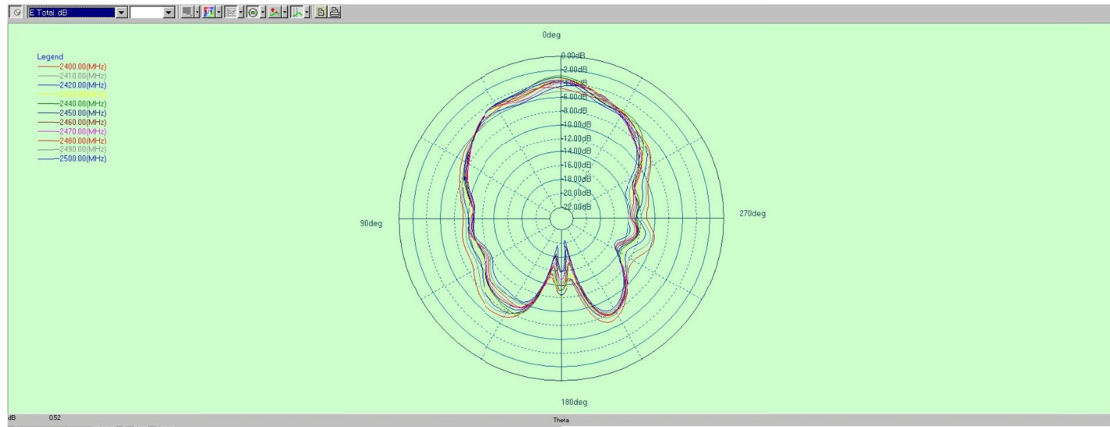
## ANNEX B RADIATION PATTERN

### B.1 3D Pattern

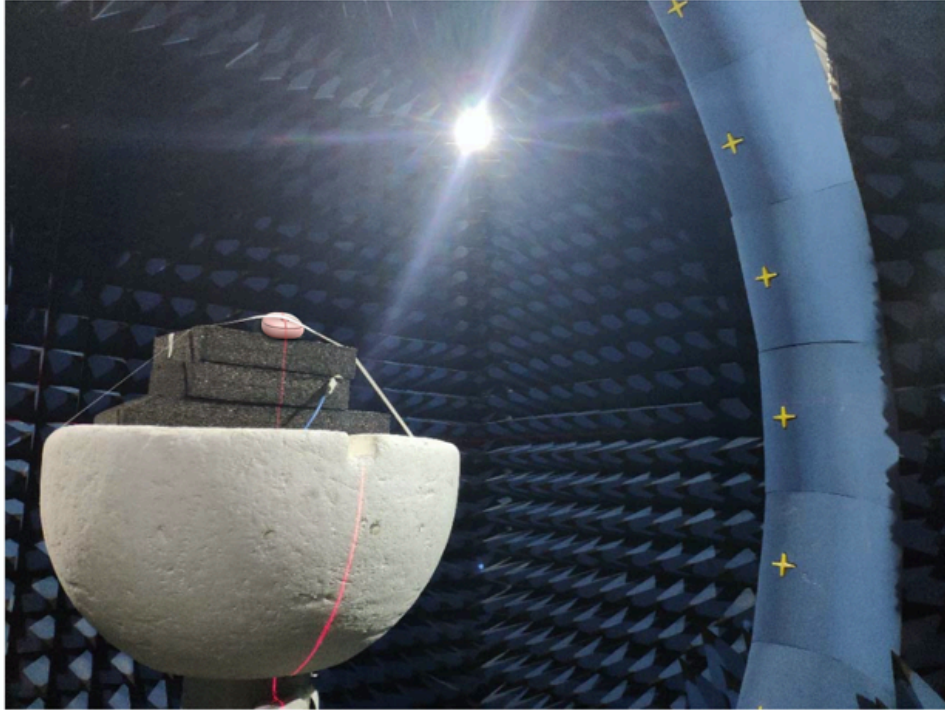




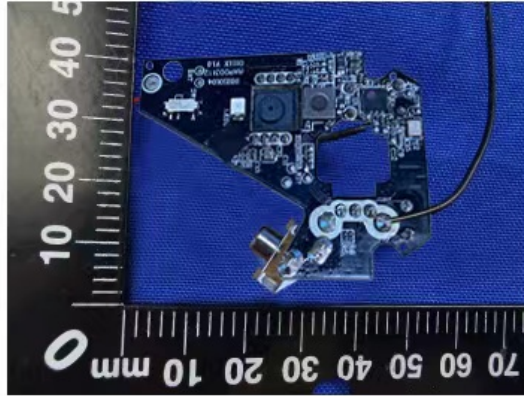




**ANNEX C TEST SETUP PHOTO**



**ANNEX D EUT PHOTO**



--END OF REPORT--