

# TEST REPORT

**Applicant:** ThinkFIT (Xiamen) Information & Technology Co., Ltd.  
**Address:** Room 1101, 997 Tianlu Road, Jimei District, Xiamen City  
**Equipment Type:** PCB Antenna  
**Model Name:** 2.4G ANT  
**Brand Name:** N/A  
**Test Standard:** ANSI/IEEE Std 149-1979  
**Test Date:** Oct. 24, 2022  
**Date of Issue:** Oct. 28, 2022

**ISSUED BY:**

Shenzhen BALUN Technology Co., Ltd.



**Tested by:** Mai Jintian

**Checked by:** Tolan Tu

**Approved by:** Wei Yanquan  
(Chief Engineer)

*Mai Jintian*

*Tolan Tu*

*Wei Yanquan*

<b>Revision History</b>		
Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Oct. 28, 2022</u>	<u>Initial Issue</u>

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# 1 GENERAL INFORMATION

## 1.1 Test Laboratory

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

## 1.2 Test Location

Name	Shenzhen BALUN Technology Co., Ltd.
Location	<input checked="" type="checkbox"/> Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	<input type="checkbox"/> 1/F, Building B, Ganghongji High-tech Intelligent Industrial Park, No. 1008, Songbai Road, Yangguang Community, Xili Sub-district, Nanshan District, Shenzhen, Guangdong Province, P. R. China

## 2 PRODUCT INFORMATION

### 2.1 Applicant Information

Applicant	ThinkFIT (Xiamen) Information & Technology Co., Ltd.
Address	Room 1101, 997 Tianlu Road, Jimei District, Xiamen City
Contact Person	Guozhibin
Telephone Number	17689291145
E-mail Address	442367402@qq.com

### 2.2 Manufacturer Information

Manufacturer	N/A
Address	N/A

### 2.3 Factory Information

Factory	N/A
Address	N/A

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

EUT Name	PCB Antenna
Model Name Under Test	2.4G ANT
Antenna Type	PCB Antenna
Dimensions	12*3mm

### 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	--

#### 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
Gain	$\pm 1.92\text{dB}$

## 4 GENERAL TEST CONFIGURATIONS

### 4.1 Test Condition

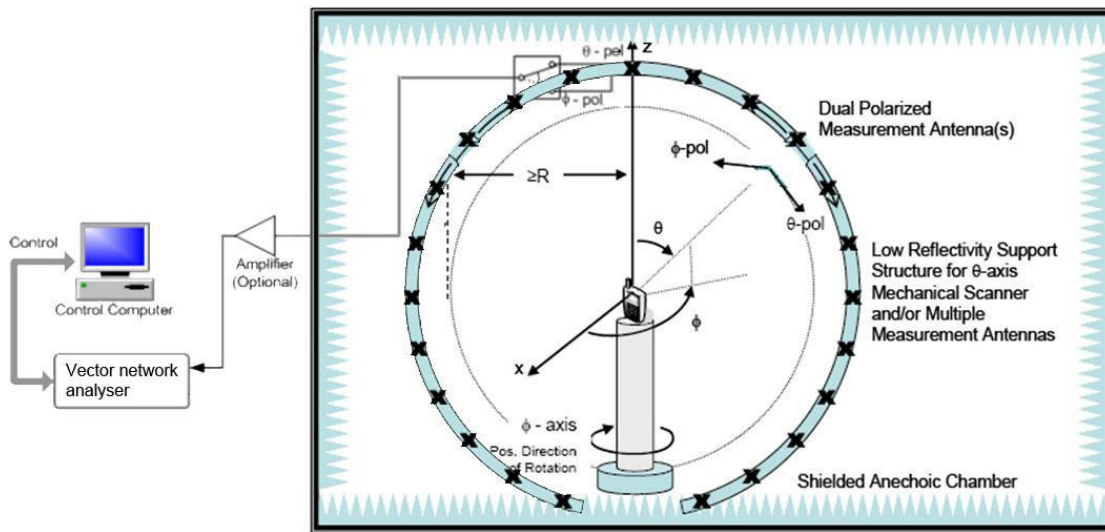
Environment Parameter	Selected Values During Tests			
	Ambient Pressure (KPa)	Temperature(°C)	Voltage	Relative Humidity (%)
Normal Temperature, Normal Voltage (NTNV)	101	25	N/A	50

### 4.2 Test Equipment List

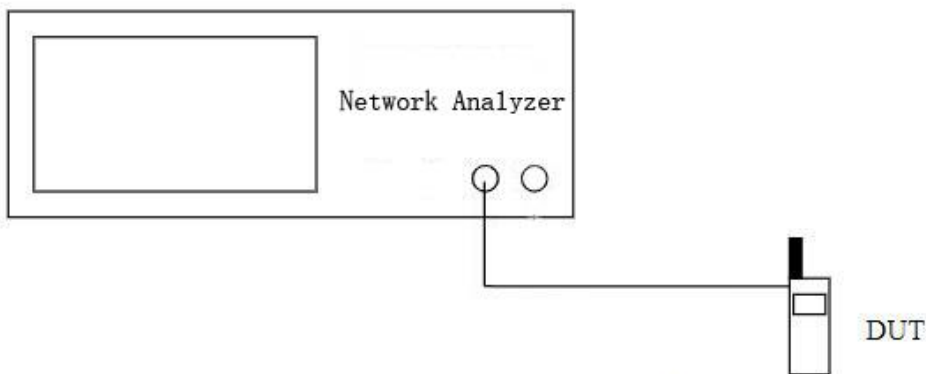
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
SG24 Multi-probe Antenna Measurement System	SATIMO	SG24-L	1101855-0001	2021.11.12	2024.11.11
Vector Network Analyzer	Agilent	E5071B	MY42404001	2022.04.02	2023.04.01
Description	Manufacturer	Name		Version	
Test Software	MVG	SPM		V 1.8	

### 4.3 Test Setup

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



#### 4.3.2 S11 parameter test setup



## ANNEX A TEST RESULTS

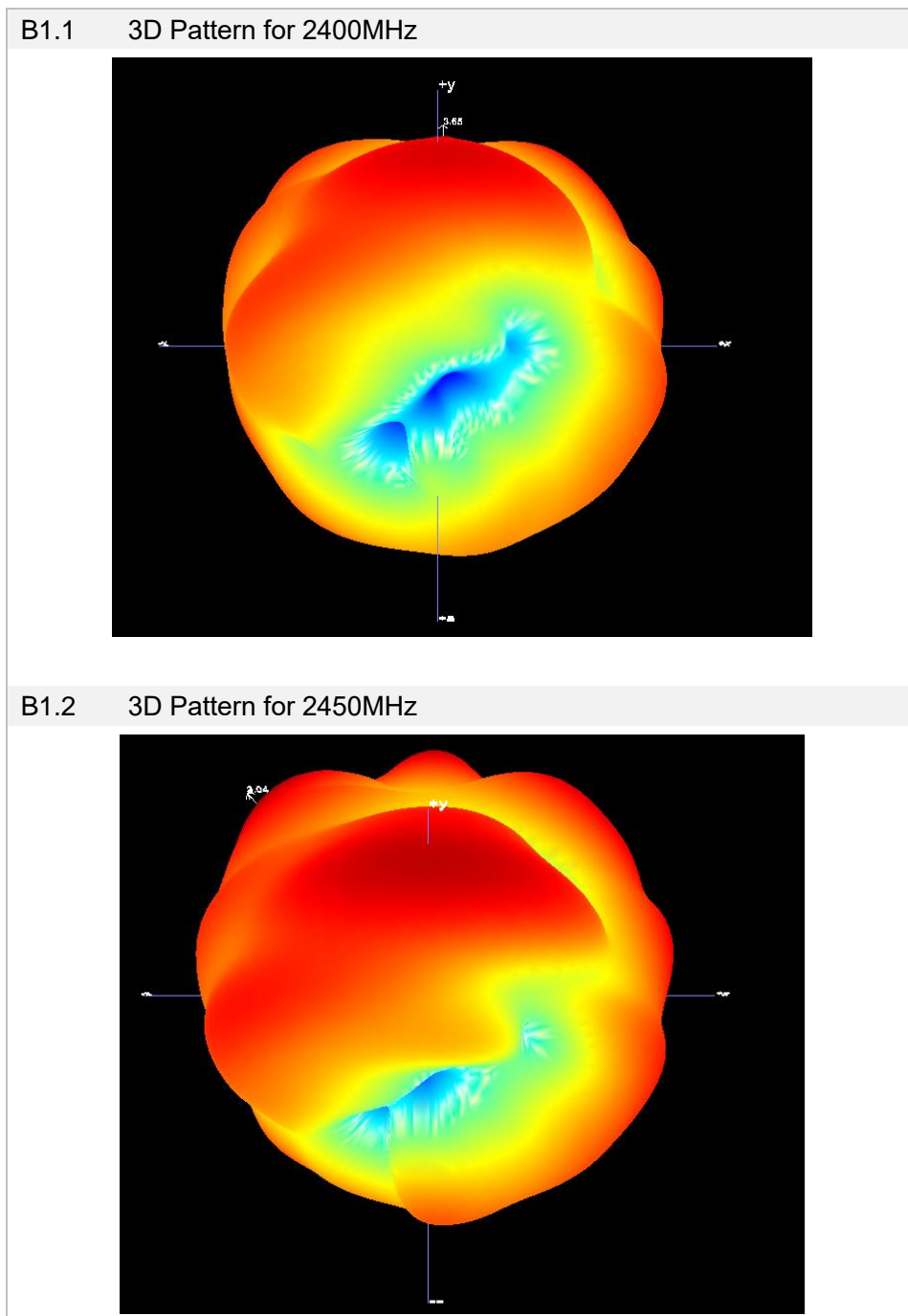
### A.1 Gain and Efficiency

Frequency	Gain (dBi)	Efficiency (%)
2400MHz	<b>3.65</b>	61%
2410MHz	3.39	61%
2420MHz	3.20	60%
2430MHz	3.17	61%
2440MHz	3.11	61%
2450MHz	3.04	61%
2460MHz	3.04	61%
2470MHz	3.13	62%
2480MHz	3.21	<b>63%</b>
2490MHz	3.02	62%
2500MHz	2.77	62%

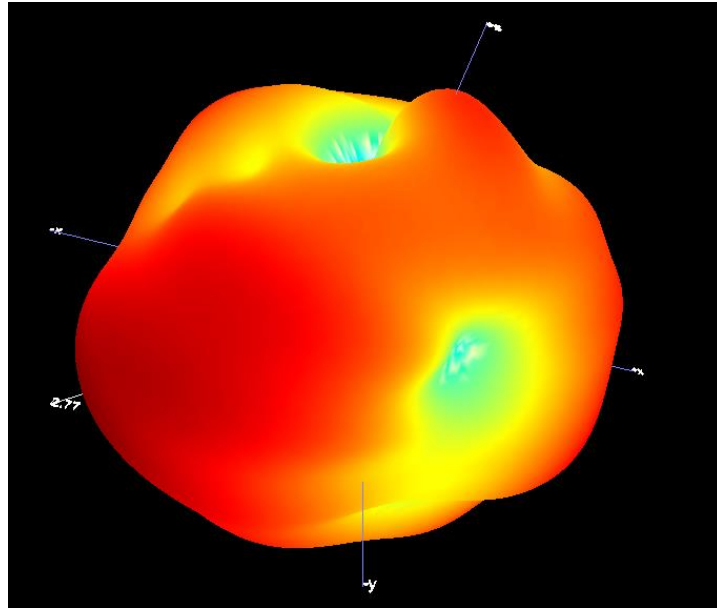


## ANNEX B RADIATION PATTERN

### B.1 3D Pattern

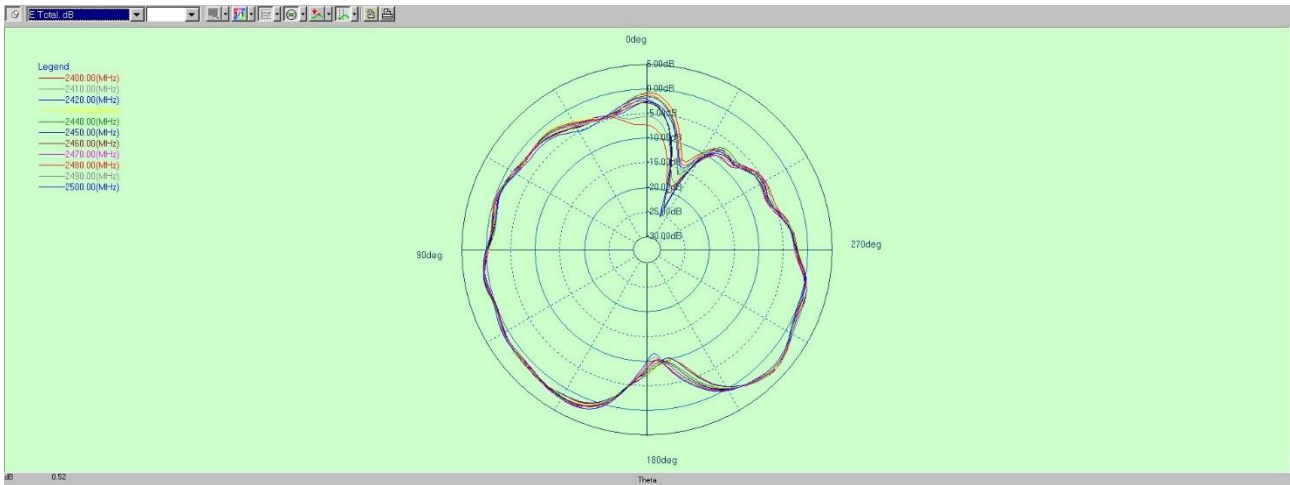


B1.3 3D Pattern for 2500MHz

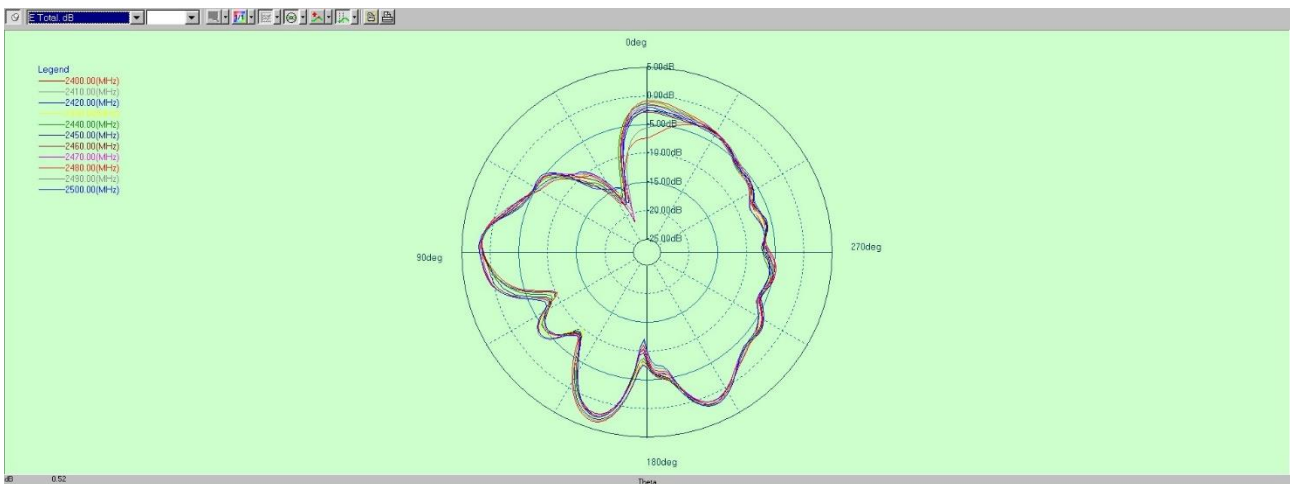


## B.2 1D Radiation Pattern

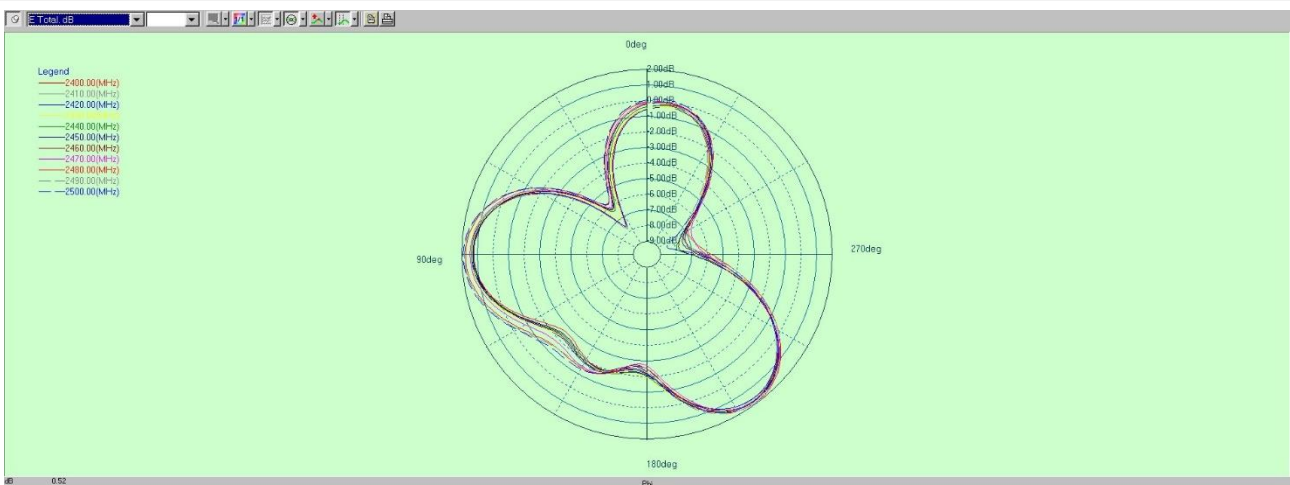
### B2.1 PHI=0



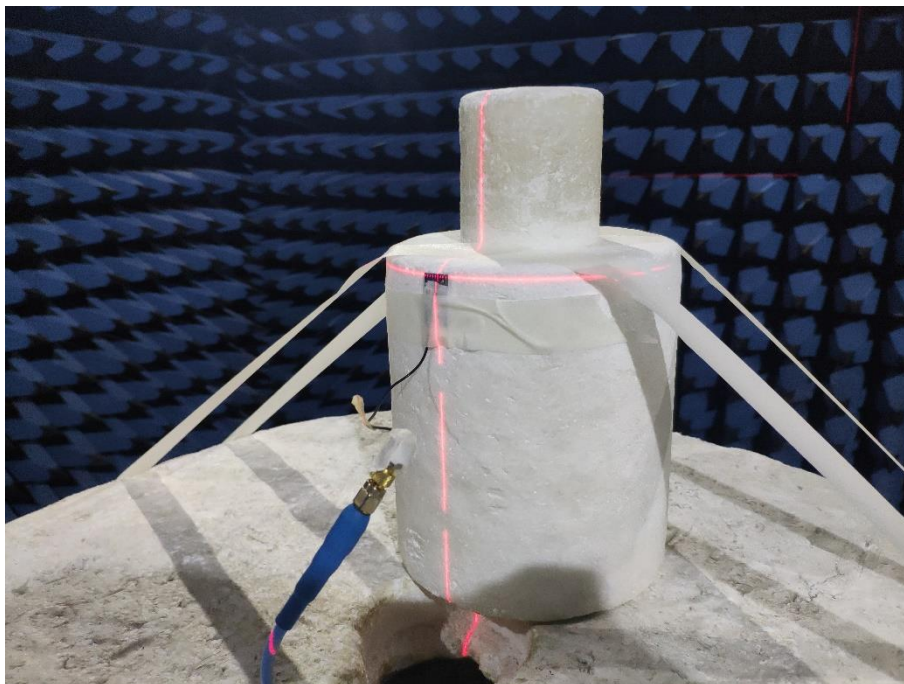
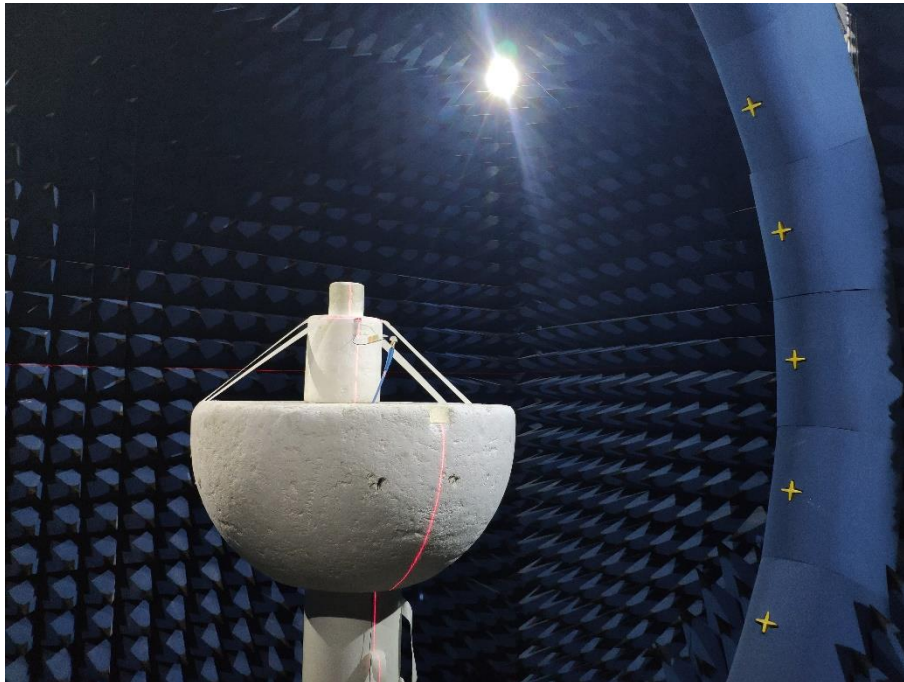
### B2.2 PHI=90



### B2.3 THETA=90

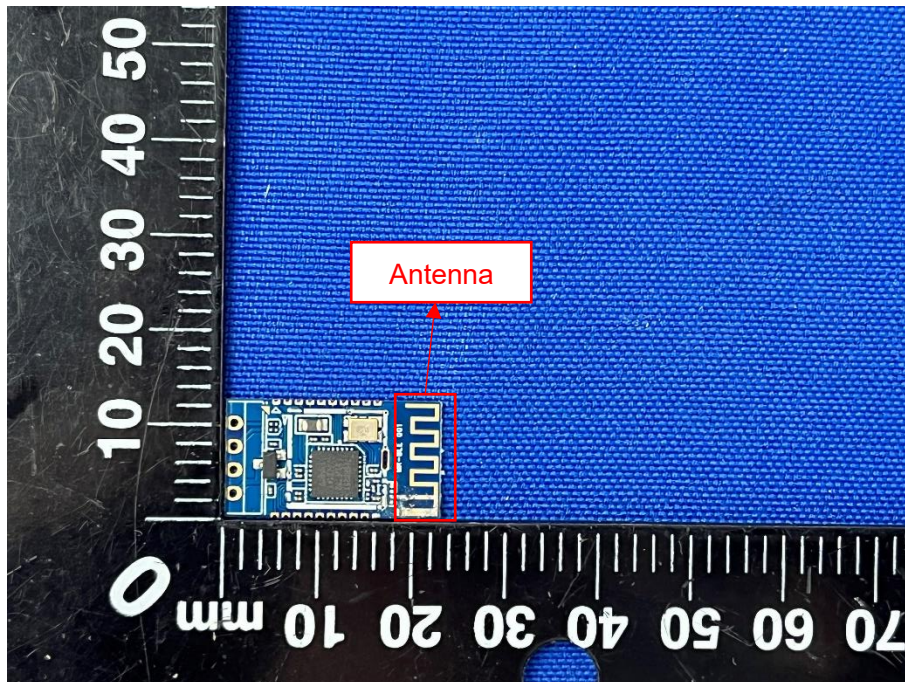


## ANNEX C TEST SETUP PHOTO

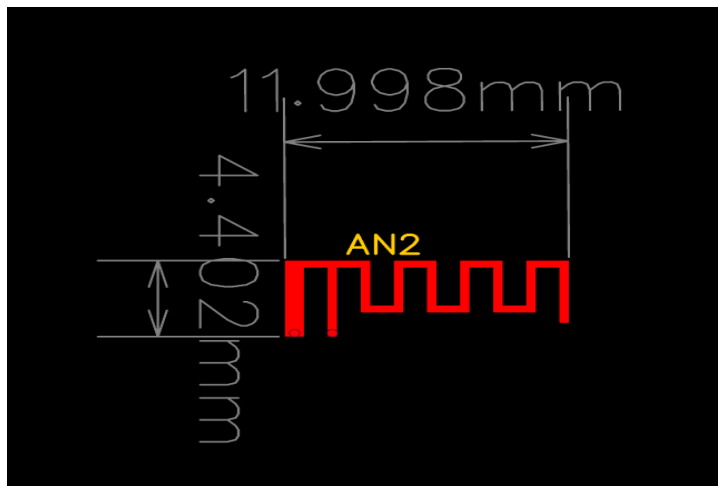




# ANNEX D EUT PHOTO



Antenna size



## Statement

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
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--END OF REPORT--