

TEST REPORT

Applicant: TXS Industrial Design Inc. dba Brandstand Products

Address: 1219 Digital Drive #100 Richardson US 75081
United States Of America

Equipment Type: PCB Antenna

Model Name: BPEBL2

Brand Name: Brandstand

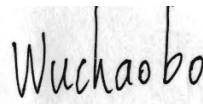
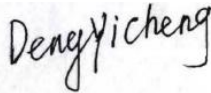
Test Standard: ANSI/IEEE Std 149-1979

Test Date: Dec.16.2025

Date of Issue: Dec.23.2025

ISSUED BY:

Shenzhen Huntkey Electric Co., Ltd.

Tested by: zhuqp**Checked by:** dengyicheng **Approved by:** wu chao bo
(Chief Engineer)

Revision History		
Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Dec. 16, 2025</u>	<u>Initial Issue</u>

TABLE OF CONTENTS

1 GENERAL INFORMATION..... 3

1.1 Identification of the Testing Laboratory 3

1.2 Identification of the Responsible Testing Location 3

2 PRODUCT INFORMATION 4

2.1 Applicant Information 4

2.2 Manufacturer Information 4

2.3 Factory Information 4

2.4 General Description for Equipment under Test (EUT) 4

2.5 Ancillary Equipment 4

2.6 Technical Information 4

3 SUMMARY OF TEST RESULTS 5

3.1 Test Standards 5

3.2 Test Verdict 5

3.3 Test Uncertainty 5

4 GENERAL TEST CONFIGURATIONS 6

4.1 Test Condition 6

4.2 Test Equipment List 6

4.3 Test Setup 7

ANNEX A TEST RESULTS..... 8

A.1 Gain and Efficiency 8

ANNEX B RADIATION PATTERN 10

ANNEX C TEST SETUP PHOTO..... 13

ANNEX D EUT PHOTO 14

1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen Huntkey Electric Co., Ltd
Address	Huntkey Industrial Park, Xue-Xiang Village, Banxue Road, Bantian, 518129 Shenzhen, Guangdong, People's Republic of China
Phone Number	+86 755 8960 6344

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen Huntkey Electric Co., Ltd
Address	Huntkey Industrial Park, Xue-Xiang Village, Banxue Road, Bantian, 518129 Shenzhen, Guangdong, People's Republic of China
Description	All measurement facilities used to collect the measurement data are located at Huntkey Industrial Park, Xue-Xiang Village, Banxue Road, Bantian, 518129 Shenzhen, Guangdong, People's Republic of China

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	TXS Industrial Design Inc. dba Brandstand Products.
Address	1219 Digital Drive #100 Richardson US 75081,United States Of America
Contact Person	Meridith Martin
Telephone Number	972-388-1450
E-mail Address	mmartin@brandstand.com

2.2 Manufacturer Information

Manufacturer	TXS Industrial Design Inc. dba Brandstand Products
Address	1219 Digital Drive #100 Richardson US 75081,United States Of America

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	BPEBL2
Antenna Type	PCB Antenna
Dimensions	94*70mm

2.5 Ancillary Equipment

Note: Not applicable.

2.6 Technical Information

Frequency Range	2402MHz ~ 2483.5MHz
Test Frequencies	2402MHz, 2404MHz, 2406MHz, 2408MHz, 2410MHz, 2412MHz, 2414MHz, 2416MHz, 2418MHz, 2420MHz, 2422MHz, 2424MHz, 2426MHz, 2428MHz, 2430MHz, 2432MHz, 2434MHz, 2436MHz, 2438MHz, 2440MHz, 2442MHz, 2444MHz, 2446MHz, 2448MHz, 2450MHz, 2452MHz, 2454MHz, 2456MHz, 2458MHz, 2460MHz, 2462MHz, 2464MHz, 2466MHz, 2468MHz, 2470MHz, 2472MHz, 2474MHz, 2476MHz, 2478MHz, 2480MHz, 2482MHz, 2483.5MHz

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

4 GENERAL TEST CONFIGURATIONS

4.1 Test Condition

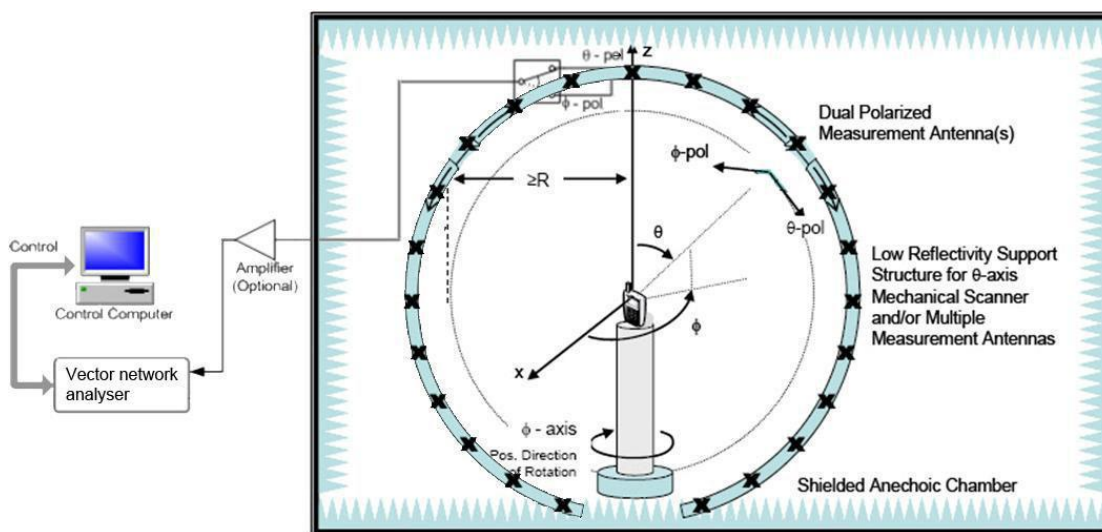
Environment Parameter	Selected Values During Tests			
	Ambient Pressure(KPa)	Temperature(°C)	Voltage	Relative Humidity (%)
Normal Temperature, Normal Voltage (NTNV)	100 to 102	19 to 25	N/A	45 to 55

4.2 Test Equipment List

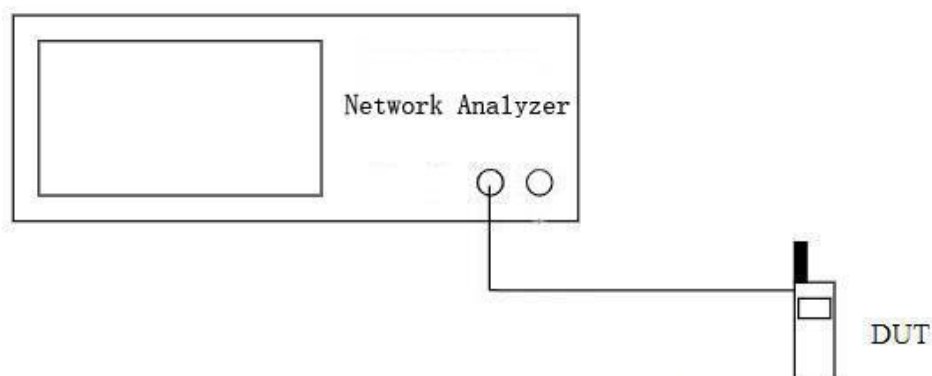
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
SG24 Multi-probe Antenna Measurement System	SATIMO	SG24-L	1101855- 0001	2023.11.12	2026.11.11
Vector Network Analyzer	Agilent	E5071B	MY42404001	2025.04.02	2026.04.01
Description	Manufacturer	Name		Version	
Test Software	MVG	SPM		V 1.8	

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

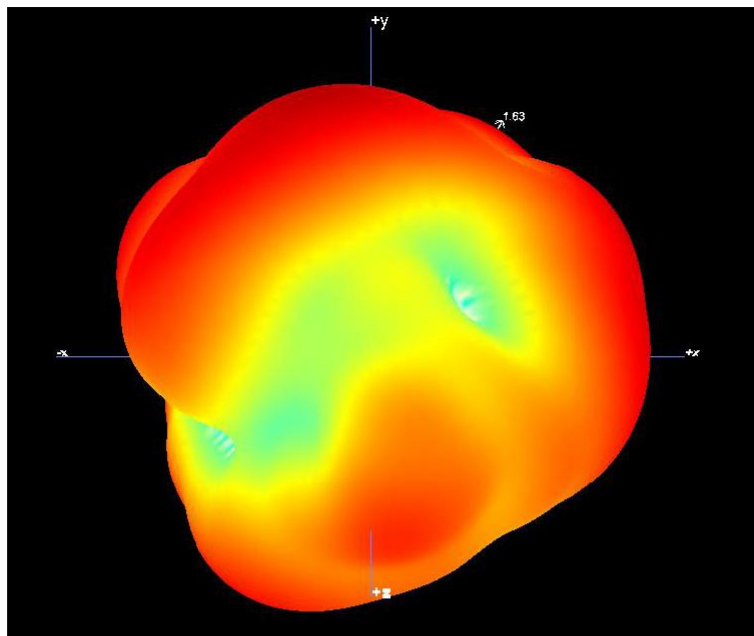
Frequency	Gain (dBi)	Efficiency (%)
2402MHz	1.63	46%
2404MHz	1.58	45%
2406MHz	1.55	45%
2408MHz	1.51	45%
2410MHz	1.47	44%
2412MHz	1.41	44%
2414MHz	1.34	44%
2416MHz	1.33	44%
2418MHz	1.27	43%
2420MHz	1.21	43%
2422MHz	1.22	42%
2424MHz	1.25	42%
2426MHz	1.21	42%
2428MHz	1.24	42%
2430MHz	1.27	42%
2432MHz	1.30	41%
2434MHz	1.32	41%
2436MHz	1.48	41%
2438MHz	1.52	41%
2440MHz	1.55	40%
2442MHz	1.58	40%
2444MHz	1.61	40%
2446MHz	1.48	39%
2448MHz	1.49	39%
2450MHz	1.51	39%
2452MHz	1.52	39%
2454MHz	1.51	38%
2456MHz	1.47	38%
2458MHz	1.45	38%
2460MHz	1.42	37%
2462MHz	1.42	37%
2464MHz	1.42	37%
2466MHz	1.47	37%
2468MHz	1.50	38%
2470MHz	1.52	38%
2472MHz	1.53	38%
2474MHz	1.56	38%
2476MHz	1.57	38%

2478MHz	1.60	38%
2480MHz	1.62	38%
2482MHz	1.65	38%
2483.5MHz	1.69	38%

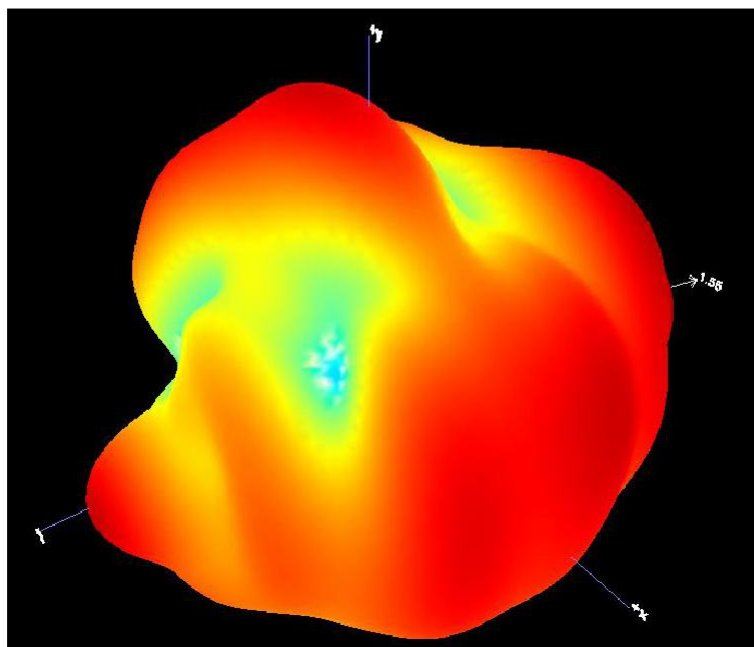
ANNEX B RADIATION PATTERN

B.1 3D Pattern

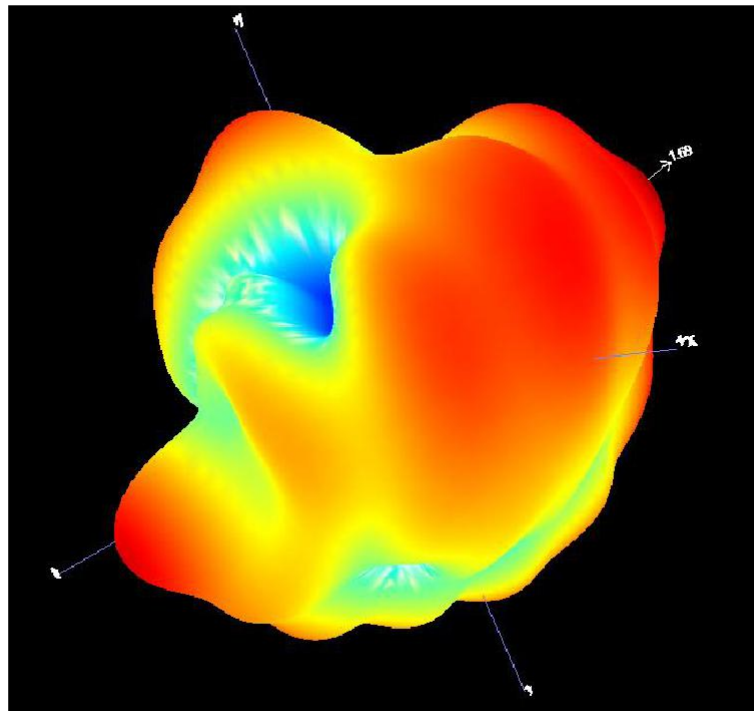
B1.1 3D Pattern for 2402



B1.2 3D Pattern for 2440

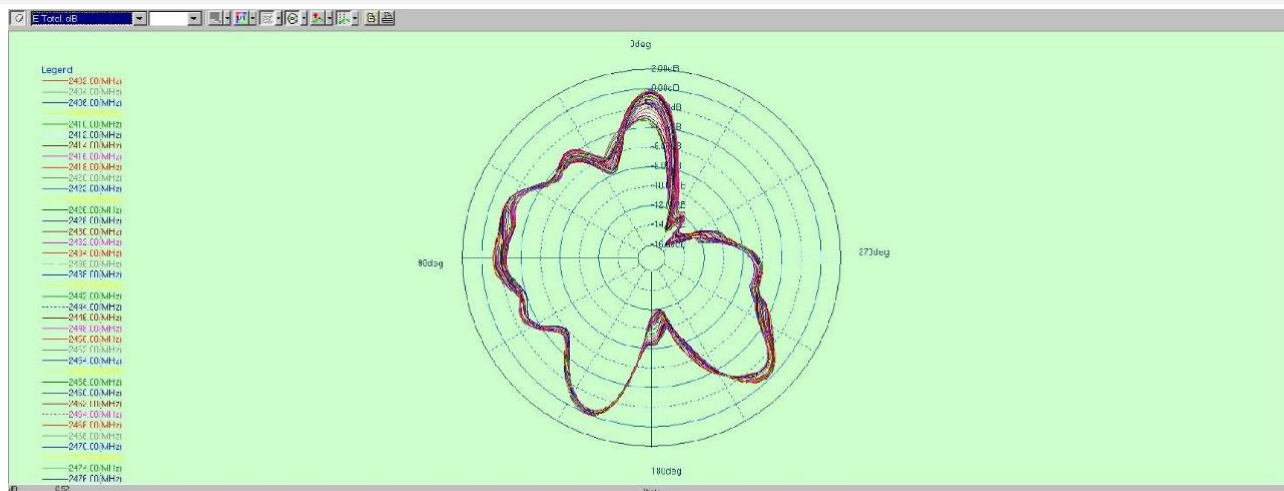


B1.3 3D Pattern for 2483.5

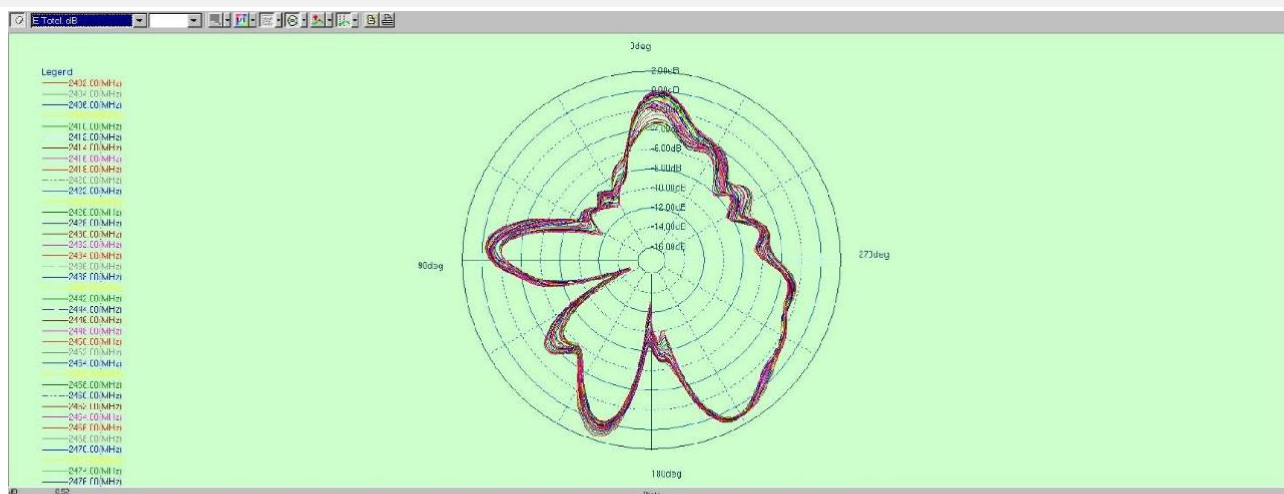


B.2 1D Radiation Pattern

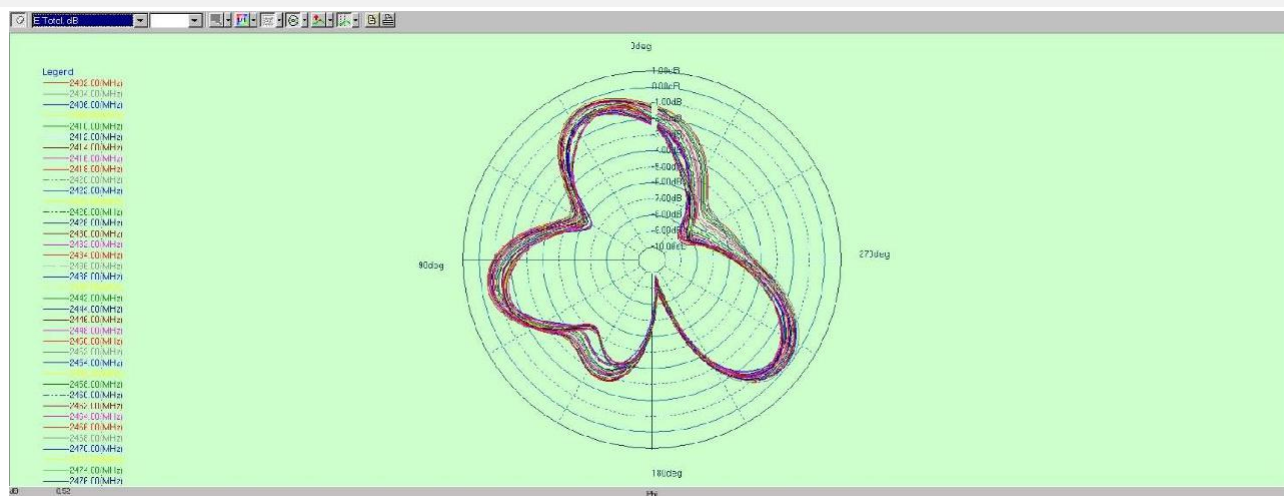
B2.1 PHI=0



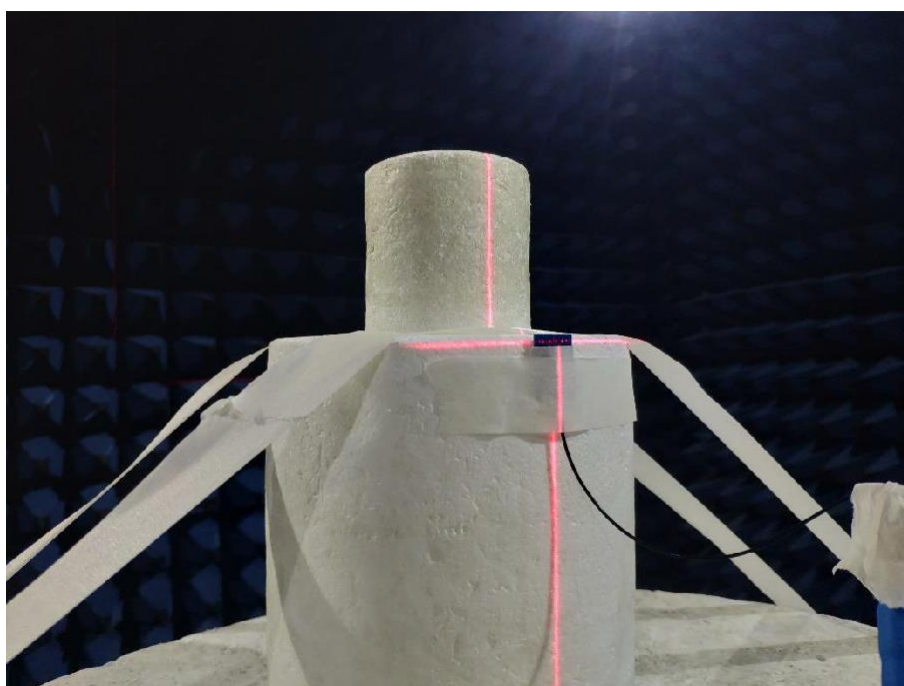
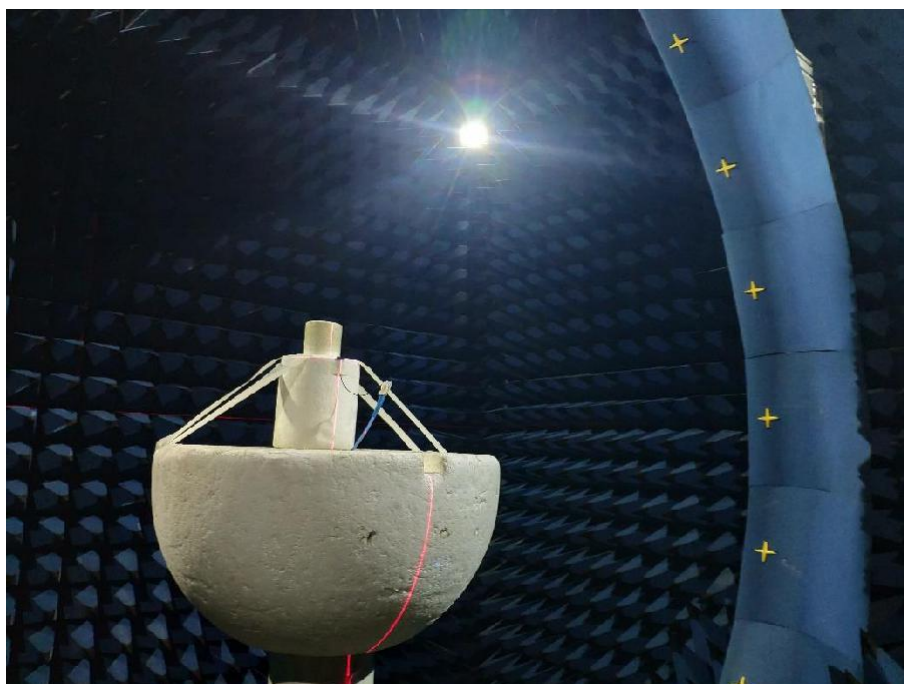
B2.2 PHI=90



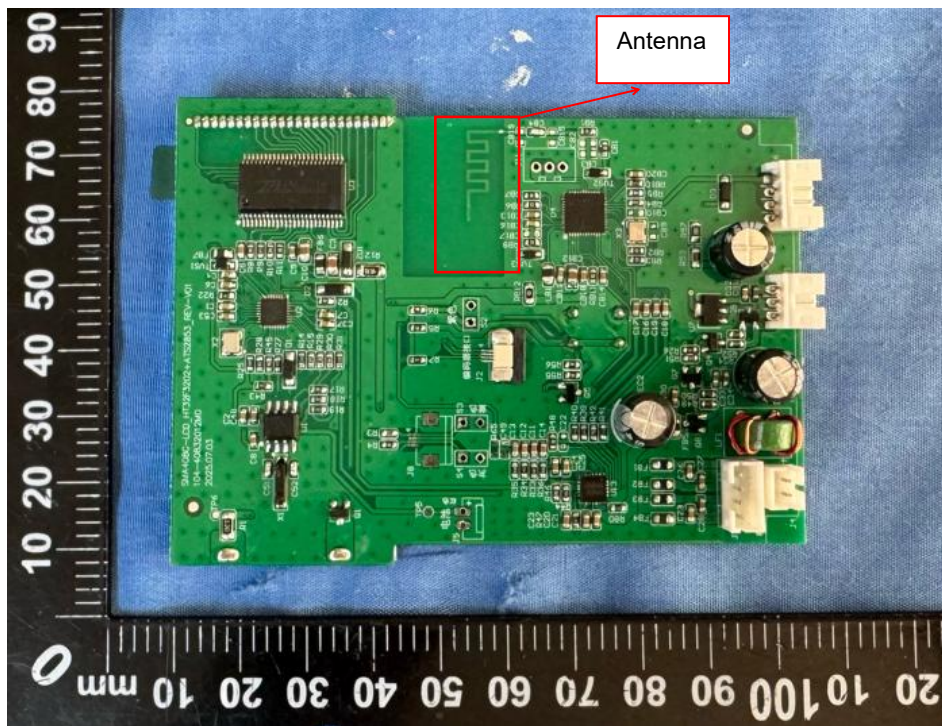
B2.3 THETA=90



ANNEX C TEST SETUP PHOTO



ANNEX D EUT PHOTO



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.
2. The report without China inspection body and laboratory Mandatory Approval (CMA) mark has no effect of proving to the society.
3. For the report with CNAS mark or A2LA mark, the items marked with "☆" are not within the accredited scope.
4. This report is invalid if it is altered, without the signature of the testing and approval personnel, or without the "inspection and testing dedicated stamp" or test report stamp.
5. The test data and results are only valid for the tested samples provided by the customer.
6. This report shall not be partially reproduced without the written permission of the laboratory.
7. Any objection shall be raised to the laboratory within 30 days after receiving the report.

--END OF REPORT--