

TEST REPORT

Applicant: Shenzhen BAKER Electronics Co. LTD
Address: 3/F.A.Building, The first industrial area of Fenghuang, Fuyong Bao'an, Shenzhen, China
Equipment Type: Carplay Box
Model Name: B01 (refer section 2.3)
Brand Name: N/A
Test Standard: IEEE Std 149-2021
Sample Arrival Date: 2025.05.12
Test Date: 2025.05.16
Date of Issue: 2025.05.23

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Mai Jintian

Checked by: Xia Long

Approved by: Sunny Zou
(Technical Director)

Mai Jintian

Xia Long

Sunny Zou

Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>2025.05.23</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	☒ Block B, 1/F, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
	☐ 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	Shenzhen BAKER Electronics Co.LTD
Address	3/F.A.Building, The first industrial area of Fenghuang, Fuyong Bao'an, Shenzhen, China
Contact Person	YongChao Yang
Telephone Number	13128918891
E-mail Address	2355713861@qq.com

2.2 Manufacturer Information

Manufacturer	N/A
Address	N/A

2.3 General Description for Equipment under Test (EUT)

EUT Name	Carplay Box
Model Name Under Test	B01
Serial Model Name	B02, B03, B04, B05, B06, B07, B08, B09, B10, B11, B12, B13, B14, B15, B16, B17, B18, B19, B20
Model Description	All models are same with electrical parameters and internal circuit structure, but only differ in model name. (this information provided by the customer)
Antenna Type	PCB

Note: This report contains test data for two EUT, In this report, 1#, 2# are used to represent the corresponding EUT and corresponding test data.

2.4 Ancillary Equipment

Note: Not applicable.

2.5 Technical Information

Frequency Range	2400MHz, 2402MHz, 2405MHz, 2410MHz, 2412MHz, 2415MHz, 2420MHz, 2425MHz, 2430MHz, 2435MHz, 2440MHz, 2441MHz, 2445MHz, 2450MHz, 2455MHz, 2460MHz, 2465MHz, 2470MHz, 2472MHz, 2475MHz, 2480MHz, 2485MHz, 2490MHz, 2495MHz, 2500MHz, 5150MHz, 5160MHz, 5170MHz, 5180MHz, 5190MHz, 5200MHz, 5210MHz, 5220MHz, 5230MHz, 5240MHz, 5250MHz
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3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	IEEE Std 149-2021	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
Gain	$\pm 1.92\text{dB}$

4 GENERAL TEST CONFIGURATIONS

4.1 Test Condition

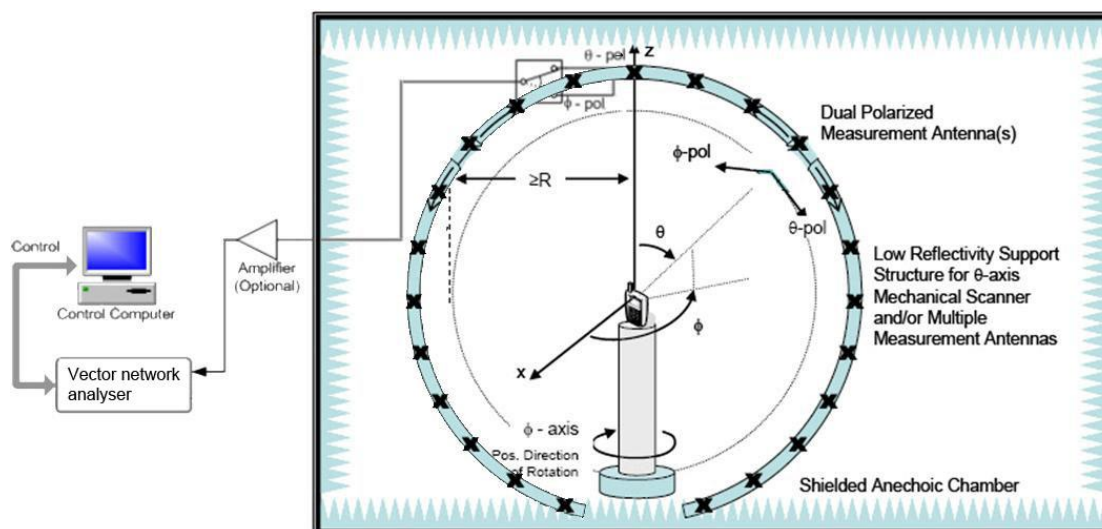
Environment Parameter	Selected Values During Tests			
	Ambient Pressure(KPa)	Temperature(°C)	Voltage	Relative Humidity (%)
Normal Temperature, Normal Voltage (NTNV)	101	21.6	N/A	48

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Multi-probe Antenna Measurement System	SATIMO	SG24-L	1101855- 0001	2024/11/11	2027/11/10
Vector Network Analyzer	Agilent	E5071B	MY42404001	2025/1/23	2026/1/22
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



4.4 Test Frequencies

Test Frequencies	2400MHz, 2402MHz, 2405MHz, 2410MHz, 2412MHz, 2415MHz, 2420MHz, 2425MHz, 2430MHz, 2435MHz, 2440MHz, 2441MHz, 2445MHz, 2450MHz, 2455MHz, 2460MHz, 2465MHz, 2470MHz, 2472MHz, 2475MHz, 2480MHz, 2485MHz, 2490MHz, 2495MHz, 2500MHz, 5150MHz, 5160MHz, 5170MHz, 5180MHz, 5190MHz, 5200MHz, 5210MHz, 5220MHz, 5230MHz, 5240MHz, 5250MHz
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ANNEX A TEST RESULTS

A.1 Gain and Efficiency

1#

Frequency	Gain (dBi)	Efficiency (%)
2400MHz	-5.01	10%
2402MHz	-5.02	10%
2405MHz	-5.09	10%
2410MHz	-5.06	10%
2412MHz	-5.07	10%
2415MHz	-4.96	10%
2420MHz	-5.02	10%
2425MHz	-4.68	10%
2430MHz	-4.68	10%
2435MHz	-4.64	10%
2440MHz	-4.55	10%
2441MHz	-4.53	10%
2445MHz	-4.40	10%
2450MHz	-4.30	11%
2455MHz	-4.37	11%
2460MHz	-4.43	10%
2465MHz	-4.49	11%
2470MHz	-4.46	11%
2472MHz	-4.42	11%
2475MHz	-4.28	11%
2480MHz	-4.17	11%
2485MHz	-3.93	11%
2490MHz	-3.82	12%
2495MHz	-3.94	12%
2500MHz	-3.85	12%

2#

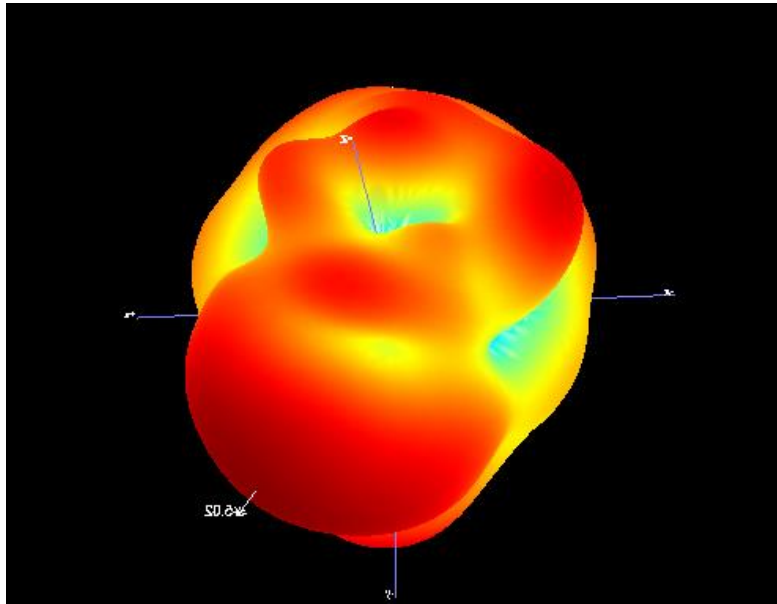
Frequency	Gain (dBi)	Efficiency (%)
5150MHz	-5.89	6%
5160MHz	-5.66	7%
5170MHz	-5.43	7%
5180MHz	-5.12	8%
5190MHz	-4.82	8%
5200MHz	-4.70	9%
5210MHz	-4.52	9%
5220MHz	-4.23	10%
5230MHz	-4.01	11%
5240MHz	-3.83	11%
5250MHz	-3.64	11%

ANNEX B RADIATION PATTERN

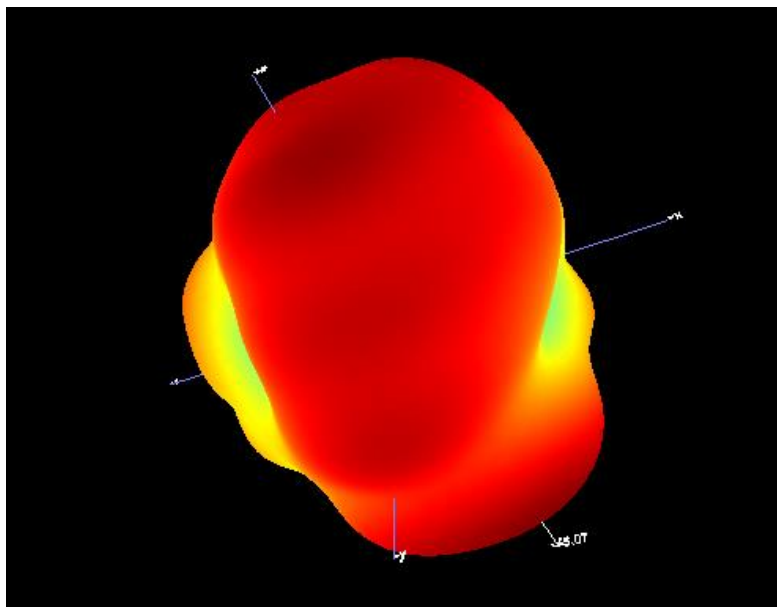
B.1 3D Pattern

1#

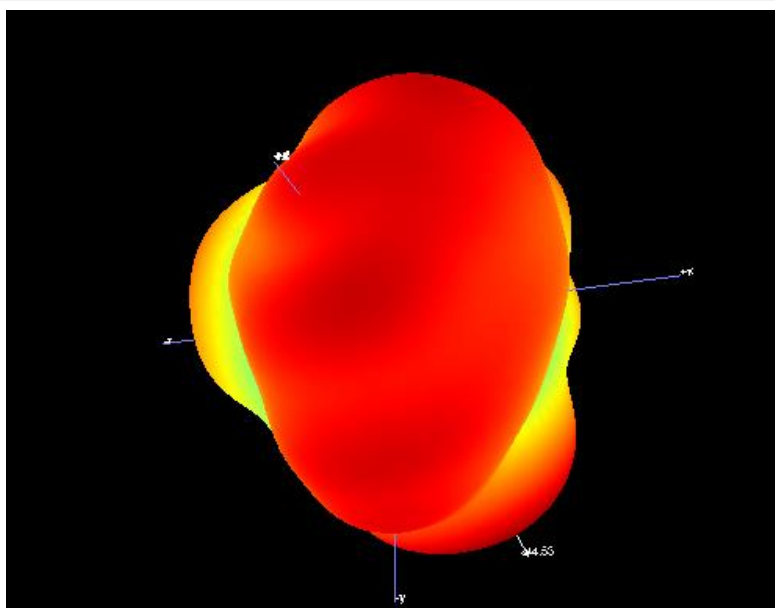
B.1.1 2402MHz



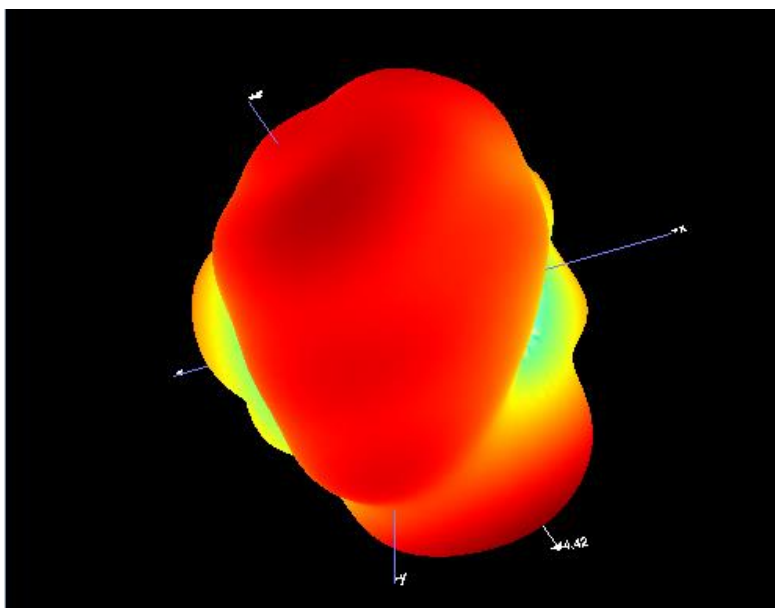
B.1.2 2412MHz



B.1.3 2441MHz

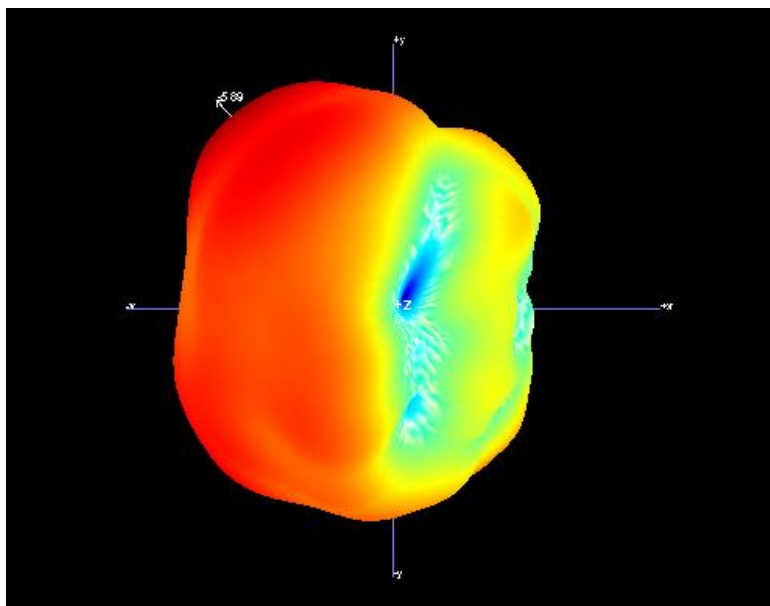


B.1.4 2472MHz

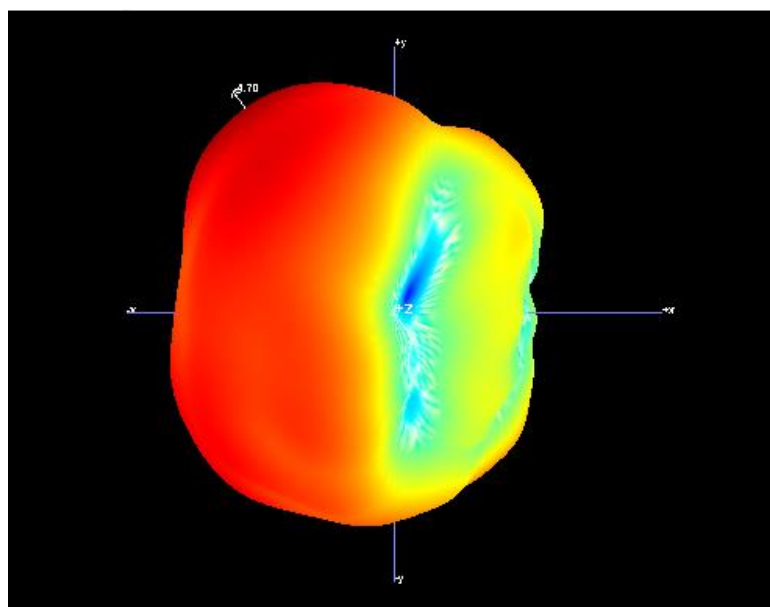


2#

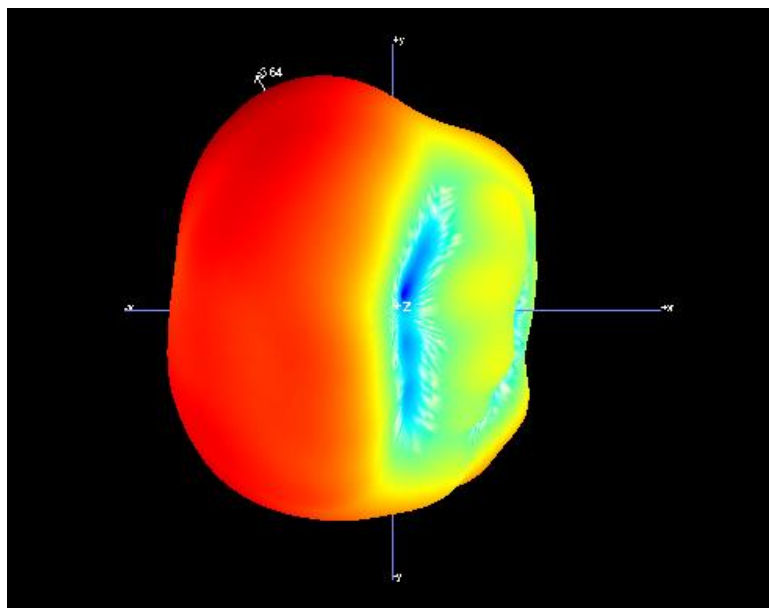
B.1.5 5150MHz



B.1.6 5200MHz



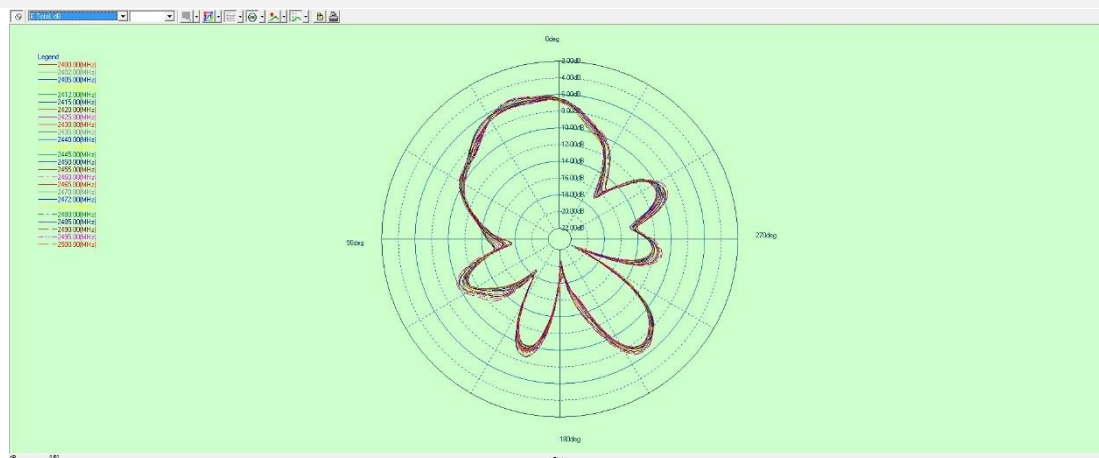
B.1.7 5250MHz



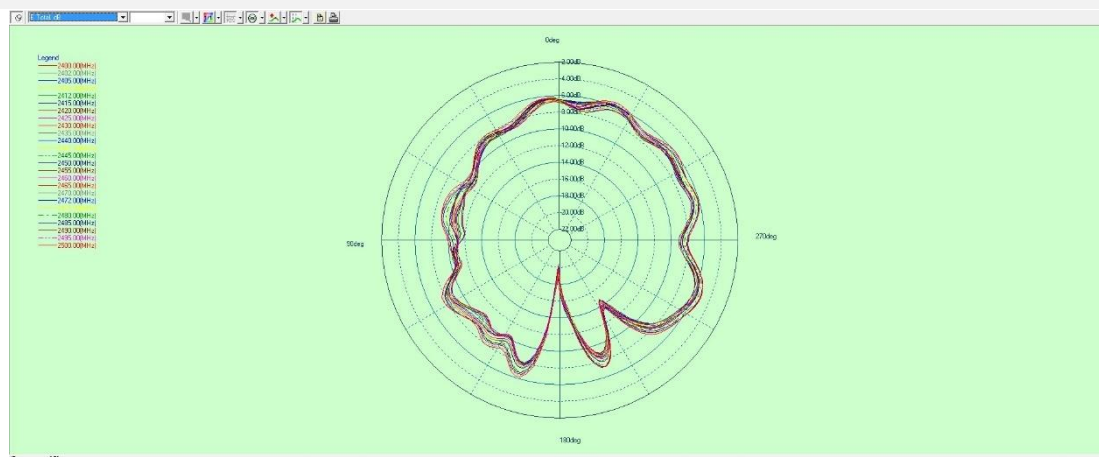
B.2 1D Radiation Pattern

1#

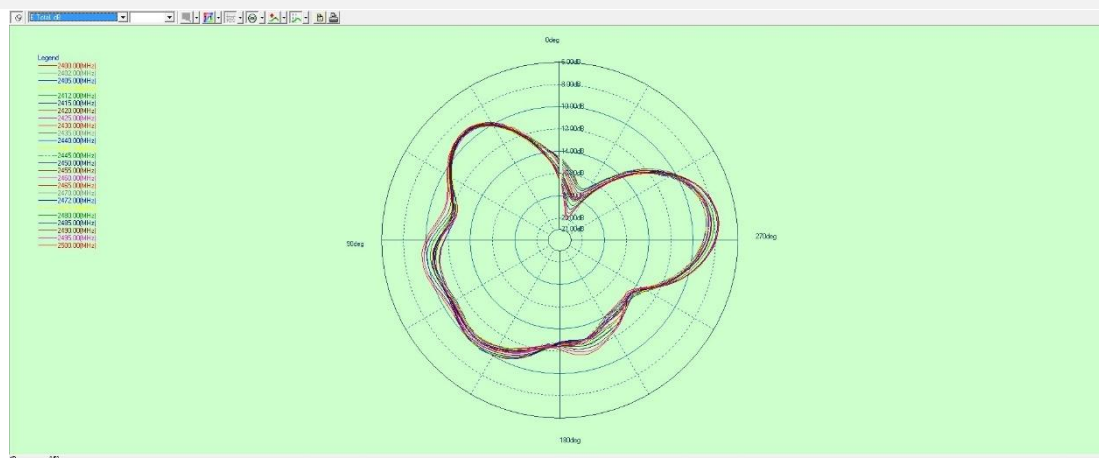
B.2.1 PHI=0



B.2.2 PHI=90

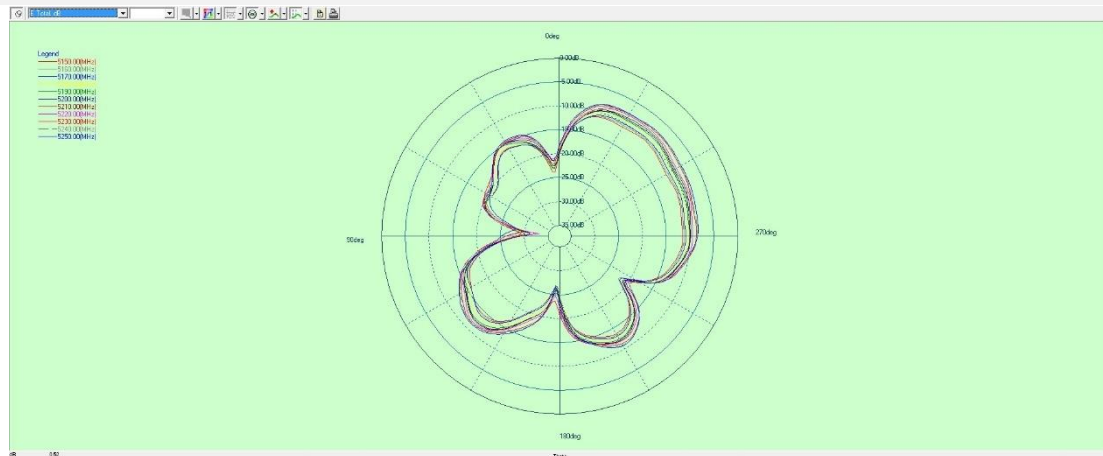


B.2.3 THETA=90

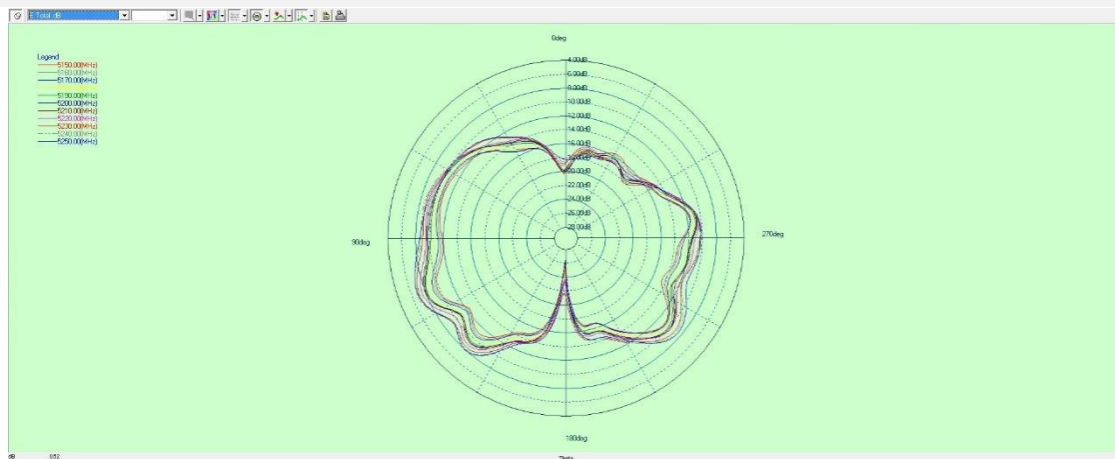


2#

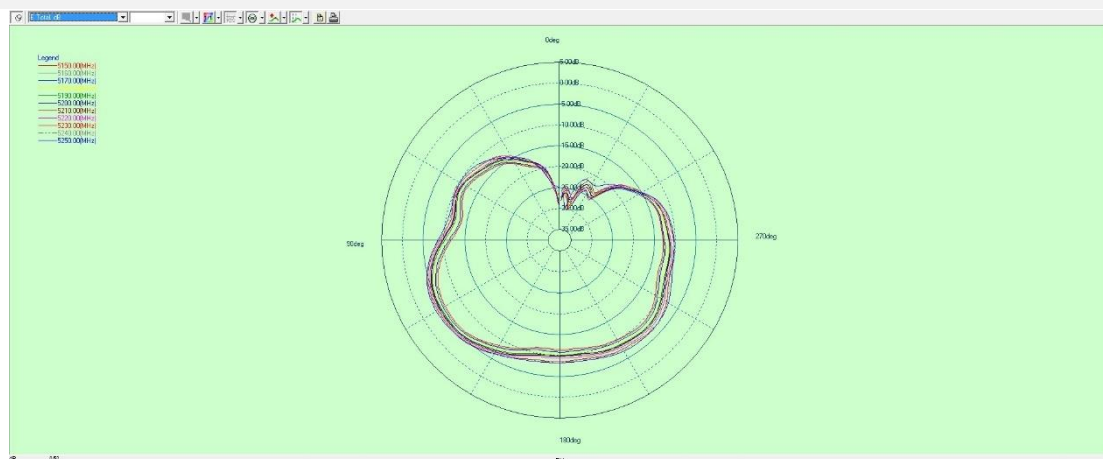
B.2.4 PHI=0



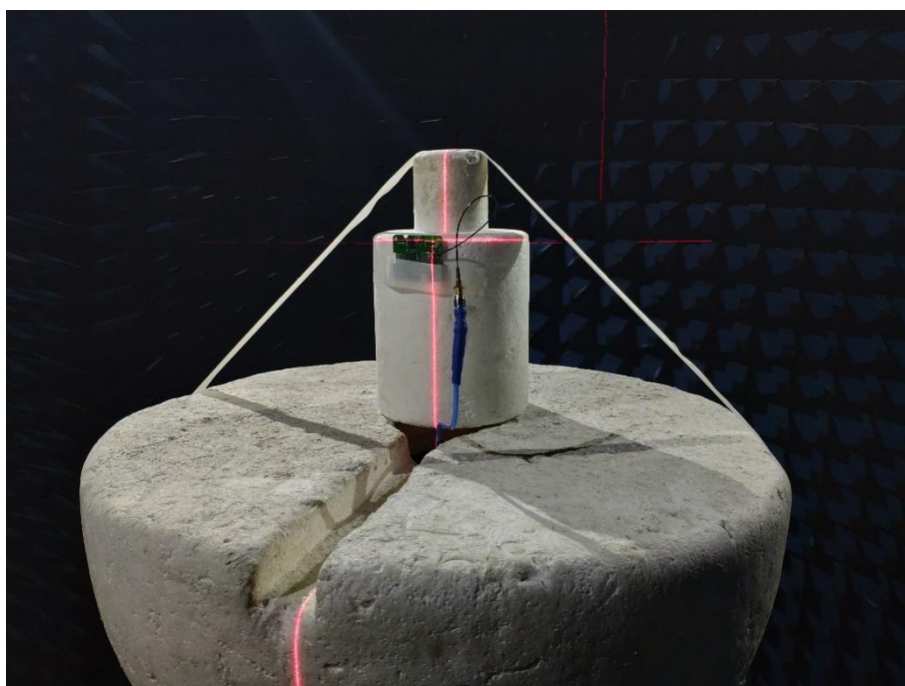
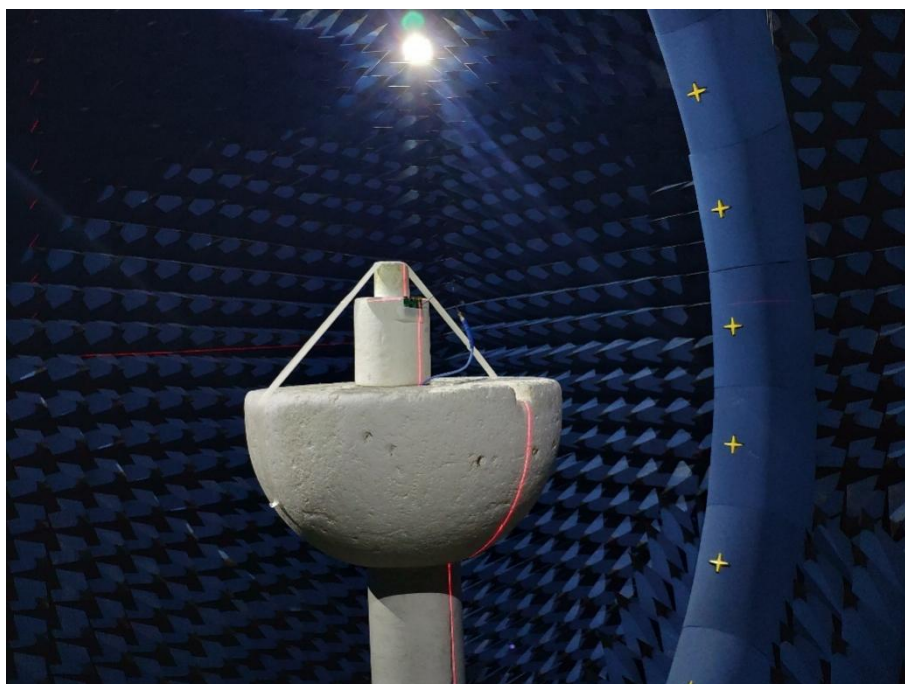
B.2.5 PHI=90



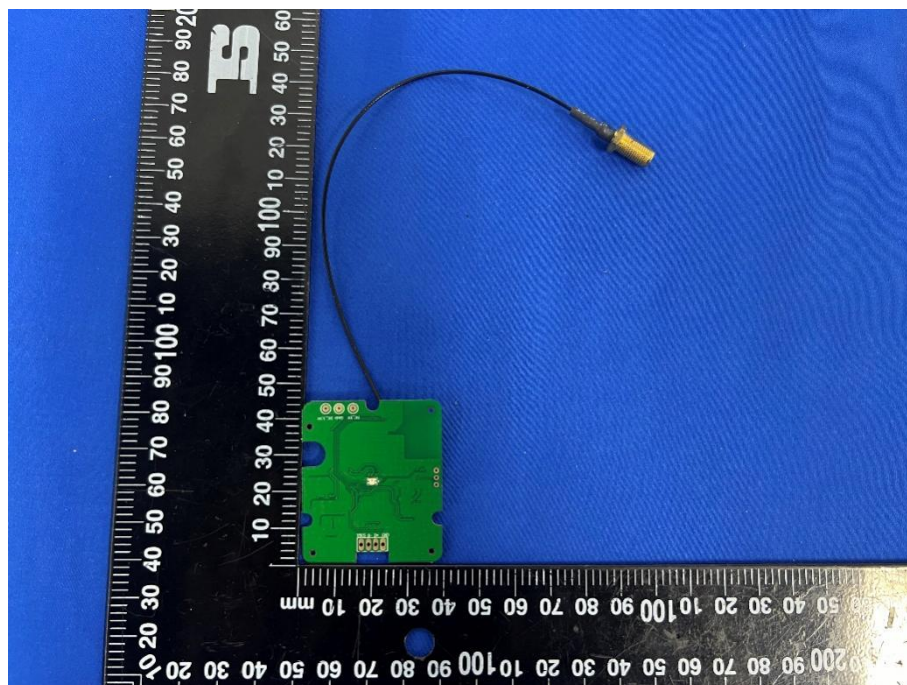
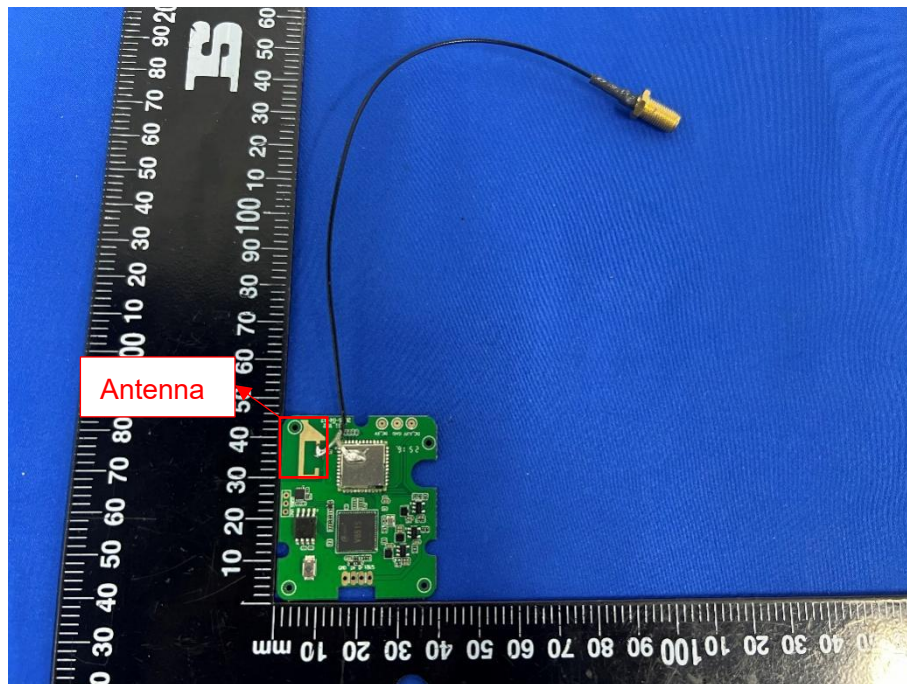
B.2.6 THETA=90



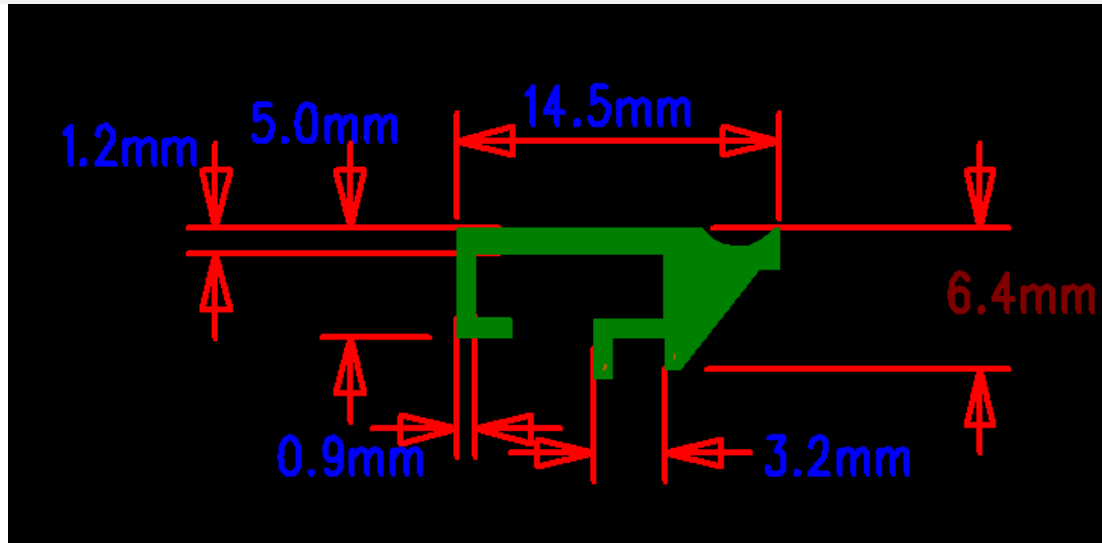
ANNEX C TEST SETUP PHOTO



ANNEX D EUT PHOTO



Antenna



Statement

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--END OF REPORT--