

TEST REPORT

Applicant: Gemstar Technology(Yangzhou) Co. Ltd
Address: Room 606, Guofa building, #3110 Renmin Road,
Suzhou, Jiangsu Province
Equipment Type: Remote Control
Model Name: BV Somfy Zigbee RCU 5C
Brand Name: UEI
Test Standard: ANSI/IEEE Std 149-1979
Test Date: May 18, 2022
Date of Issue: May 27, 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

Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>May 27, 2022</u>	<u>Initial Issue</u>

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1 GENERAL INFORMATION

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, 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, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, China
Description	All measurement facilities used to collect the measurement data are located at Block B, 1/F, Baisha Science and Technology Park, Shahe West Road, Nanshan District, ShenZhen, GuangDong Province, China

2 PRODUCT INFORMATION

2.1 Applicant Information

Applicant	Gemstar Technology(Yangzhou) Co. Ltd
Address	Room 606, Guofa building, #3110 Renmin Road, Suzhou, Jiangsu Province
Contact Person	Pi Jia
Telephone Number	15995803425
E-mail Address	jpi@uei.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	Remote Control
Model Name Under Test	BV Somfy Zigbee RCU 5C
Antenna Type	PCB Antenna
Dimensions	21.5*7.5mm

Note: This sample contains test data for two EUT. In this report, 1# represent the free space test data corresponding to the EUT 1, 2# represent the free space test data corresponding to the EUT 2, 3# represent the right-hand test data corresponding to the EUT 1, 4# represent the right-hand test data corresponding to the EUT 2, 5# represent the left-hand test data corresponding to the EUT 1, 6# represent the left-hand test data corresponding to the EUT 2.

2.5 Ancillary Equipment

Note: Not applicable.

2.6 Technical Information

1#~6#

Frequency Range	2300MHz ~ 2600MHz
Test Frequencies	2300MHz, 2310MHz, 2320MHz, 2330MHz, 2340MHz, 2350MHz, 2360MHz, 2370MHz, 2380MHz, 2390MHz, 2400MHz, 2405MHz, 2410MHz, 2420MHz, 2430MHz, 2440MHz, 2450MHz, 2460MHz, 2470MHz, 2480MHz, 2490MHz, 2500MHz, 2510MHz, 2520MHz, 2530MHz, 2540MHz, 2550MHz, 2560MHz, 2570MHz, 2580MHz, 2590MHz, 2600MHz

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)	± 0.61
Gain	$\pm 1.92\text{dB}$

4 GENERAL TEST CONFIGURATIONS

4.1 Test Condition

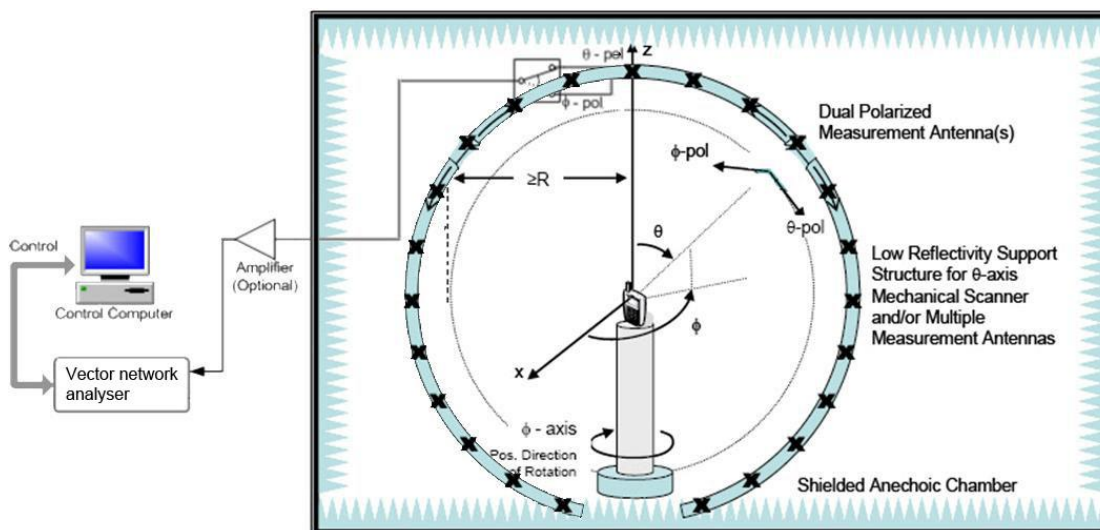
Environment Parameter	Selected Values During Tests			
	Ambient Pressure(KPa)	Temperature(°C)	Voltage	Relative Humidity (%)
Normal Temperature, Normal Voltage (NTNV)	100 to 102	19 to 25	N/A	45 to 55

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Vector Network Analyzer	Agilent	E5071B	MY42404001	2022.04.02	2023.04.01
SG24 Multi-probe Antenna Measurement System	SATIMO	SG24-L	1101855-0001	2021.11.12	2024.11.11

4.3 Test Setup

4.3.1 Antenna gain, efficiency and radiation pattern test setup



ANNEX A TEST RESULTS

A.1 Gain and Efficiency

1#

Frequency	Gain (dBi)	Efficiency (%)
2300MHz	2.75	70
2310MHz	2.97	73
2320MHz	3.07	75
2330MHz	2.97	75
2340MHz	2.77	76
2350MHz	2.75	77
2360MHz	2.99	80
2370MHz	3.26	80
2380MHz	3.28	80
2390MHz	3.14	80
2400MHz	3.08	79
2405MHz	3.12	78
2410MHz	3.18	78
2420MHz	3.33	77
2430MHz	3.28	78
2440MHz	2.97	77
2450MHz	2.81	76
2460MHz	2.88	76
2470MHz	3.17	76
2480MHz	3.28	77
2490MHz	3.11	76
2500MHz	2.80	75
2510MHz	2.79	75
2520MHz	2.81	72
2530MHz	3.08	70
2540MHz	3.15	69
2550MHz	3.06	69
2560MHz	2.80	70
2570MHz	2.50	69
2580MHz	2.41	66
2590MHz	2.48	65
2600MHz	2.33	62

2#

Frequency	Gain (dBi)	Efficiency (%)
2300MHz	3.14	75
2310MHz	3.39	79
2320MHz	3.49	80
2330MHz	3.36	81
2340MHz	3.12	81
2350MHz	2.98	82
2360MHz	3.23	84
2370MHz	3.31	84
2380MHz	3.40	84
2390MHz	3.46	84
2400MHz	3.43	83
2405MHz	3.48	83
2410MHz	3.56	83
2420MHz	3.67	81
2430MHz	3.63	82
2440MHz	3.30	81
2450MHz	3.09	81
2460MHz	3.11	80
2470MHz	3.41	80
2480MHz	3.57	80
2490MHz	3.46	79
2500MHz	3.22	78
2510MHz	3.18	78
2520MHz	3.15	76
2530MHz	3.32	74
2540MHz	3.13	73
2550MHz	3.06	73
2560MHz	2.88	73
2570MHz	2.62	71
2580MHz	2.41	69
2590MHz	2.40	67
2600MHz	2.29	65

3#

Frequency	Gain (dBi)	Efficiency (%)
2300MHz	2.15	40
2310MHz	2.26	41
2320MHz	2.37	42
2330MHz	2.40	42
2340MHz	2.39	42
2350MHz	2.48	42
2360MHz	2.66	44
2370MHz	2.88	45
2380MHz	2.95	45
2390MHz	2.79	44
2400MHz	2.78	45
2405MHz	2.74	45
2410MHz	2.73	45
2420MHz	2.58	44
2430MHz	2.67	44
2440MHz	2.75	45
2450MHz	2.61	44
2460MHz	2.52	44
2470MHz	2.63	45
2480MHz	2.56	46
2490MHz	2.34	45
2500MHz	2.35	45
2510MHz	2.34	44
2520MHz	2.18	43
2530MHz	2.23	43
2540MHz	2.26	44
2550MHz	2.05	43
2560MHz	1.93	42
2570MHz	1.86	42
2580MHz	1.76	41
2590MHz	1.72	41
2600MHz	1.50	39

4#

Frequency	Gain (dBi)	Efficiency (%)
2300MHz	1.93	38
2310MHz	2.07	40
2320MHz	2.15	41
2330MHz	2.15	40
2340MHz	2.14	40
2350MHz	2.23	41
2360MHz	2.41	42
2370MHz	2.61	43
2380MHz	2.68	43
2390MHz	2.53	43
2400MHz	2.52	43
2405MHz	2.47	43
2410MHz	2.51	43
2420MHz	2.32	42
2430MHz	2.41	43
2440MHz	2.53	43
2450MHz	2.40	43
2460MHz	2.28	43
2470MHz	2.37	44
2480MHz	2.29	44
2490MHz	2.08	43
2500MHz	2.09	43
2510MHz	1.99	43
2520MHz	1.80	41
2530MHz	1.84	41
2540MHz	1.90	42
2550MHz	1.67	41
2560MHz	1.54	41
2570MHz	1.48	40
2580MHz	1.37	39
2590MHz	1.31	38
2600MHz	1.13	37

5#

Frequency	Gain (dBi)	Efficiency (%)
2300MHz	1.43	46
2310MHz	1.52	48
2320MHz	1.73	49
2330MHz	1.83	49
2340MHz	1.73	47
2350MHz	1.69	48
2360MHz	1.89	51
2370MHz	2.05	52
2380MHz	1.99	51
2390MHz	1.82	49
2400MHz	1.91	50
2405MHz	1.97	50
2410MHz	1.93	51
2420MHz	1.69	50
2430MHz	1.64	49
2440MHz	1.77	49
2450MHz	1.75	49
2460MHz	1.73	50
2470MHz	1.79	52
2480MHz	1.68	51
2490MHz	1.58	50
2500MHz	1.76	50
2510MHz	1.81	51
2520MHz	1.68	50
2530MHz	1.62	49
2540MHz	1.51	48
2550MHz	1.28	48
2560MHz	1.17	48
2570MHz	1.15	47
2580MHz	1.15	45
2590MHz	1.25	45
2600MHz	1.06	44

6#

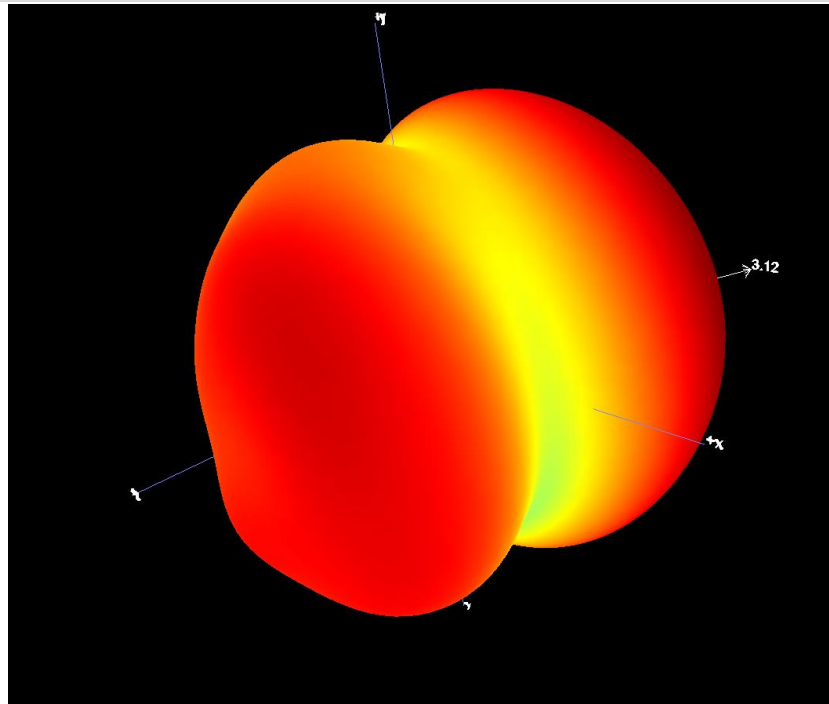
Frequency	Gain (dBi)	Efficiency (%)
2300MHz	1.43	46
2310MHz	1.53	48
2320MHz	1.72	49
2330MHz	1.90	49
2340MHz	1.73	48
2350MHz	1.69	48
2360MHz	1.84	51
2370MHz	1.98	52
2380MHz	1.94	51
2390MHz	1.81	50
2400MHz	1.90	50
2405MHz	1.94	50
2410MHz	1.90	51
2420MHz	1.63	50
2430MHz	1.59	49
2440MHz	1.70	49
2450MHz	1.67	49
2460MHz	1.63	50
2470MHz	1.67	51
2480MHz	1.59	51
2490MHz	1.47	49
2500MHz	1.63	50
2510MHz	1.68	50
2520MHz	1.56	49
2530MHz	1.48	48
2540MHz	1.32	48
2550MHz	1.12	47
2560MHz	1.03	47
2570MHz	0.98	46
2580MHz	0.78	45
2590MHz	0.86	45
2600MHz	0.68	43

ANNEX B RADIATION PATTERN

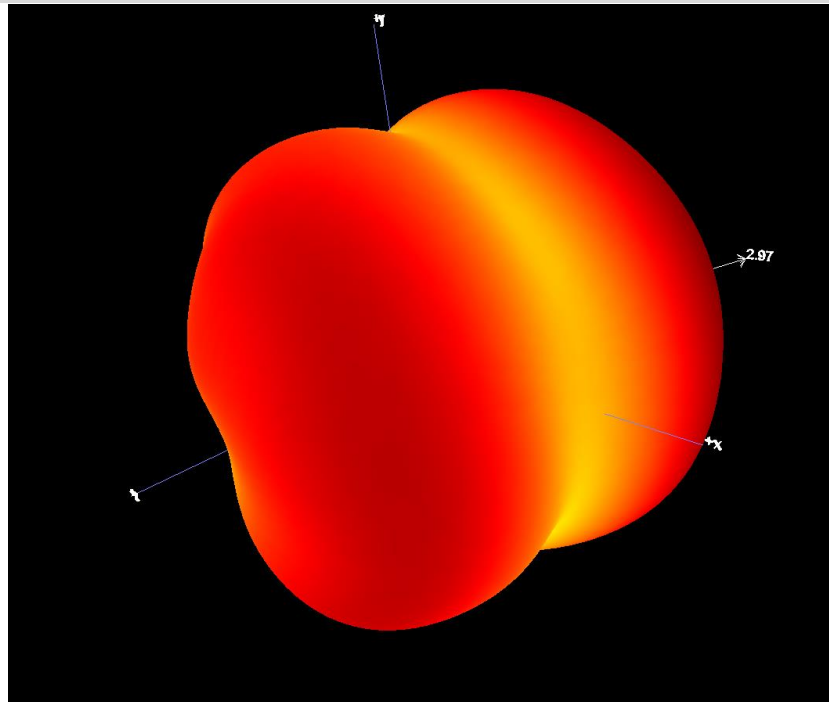
B.1 3D Pattern

1#

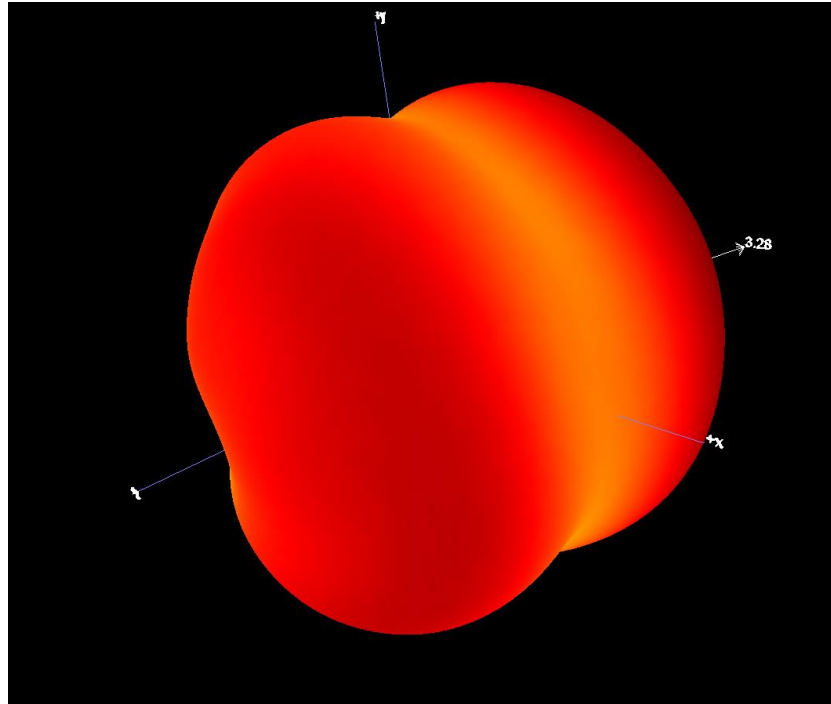
B1.1 3D Pattern for 2405MHz



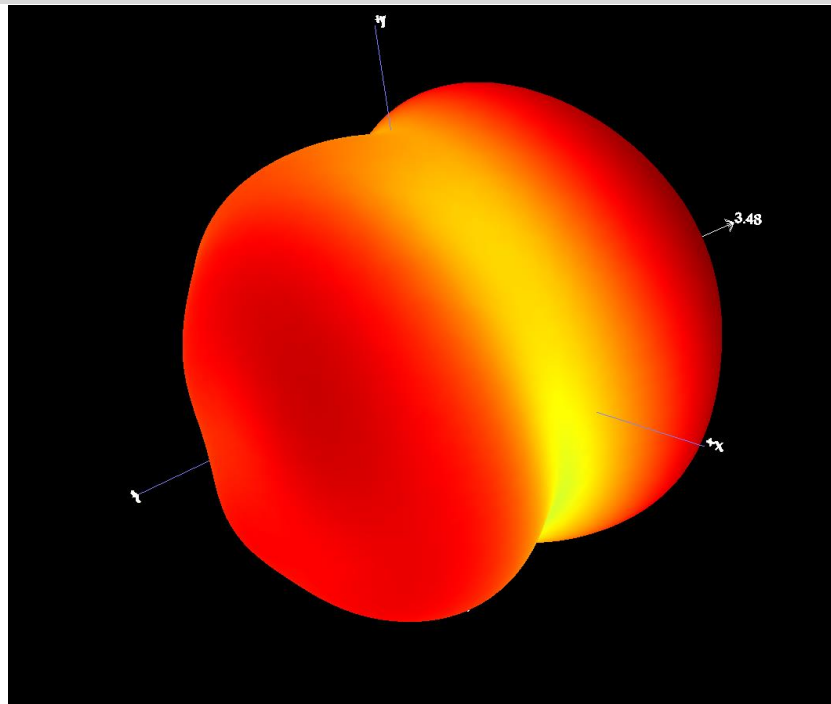
B1.2 3D Pattern for 2440MHz



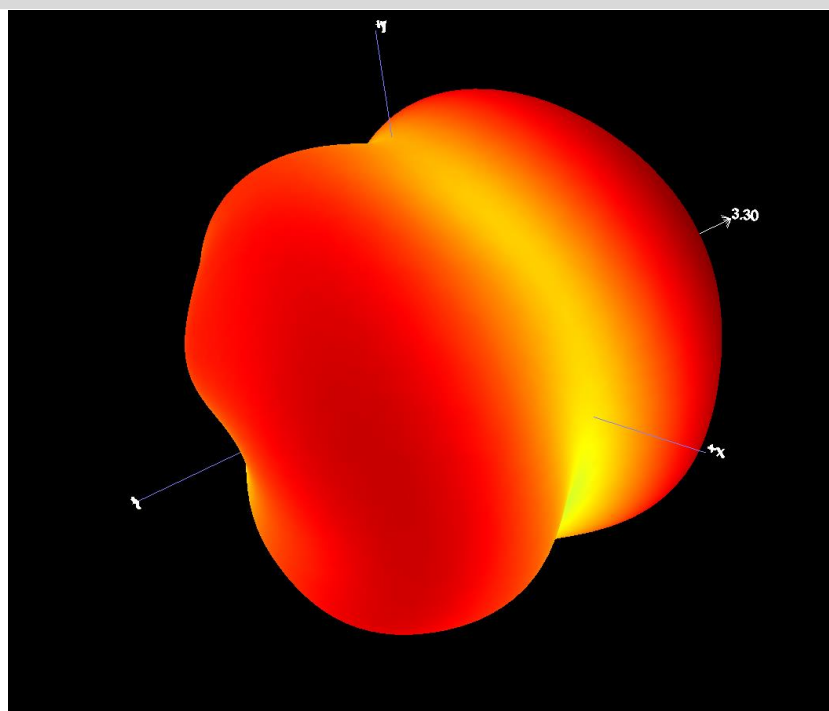
B1.3 3D Pattern for 2480MHz

2#

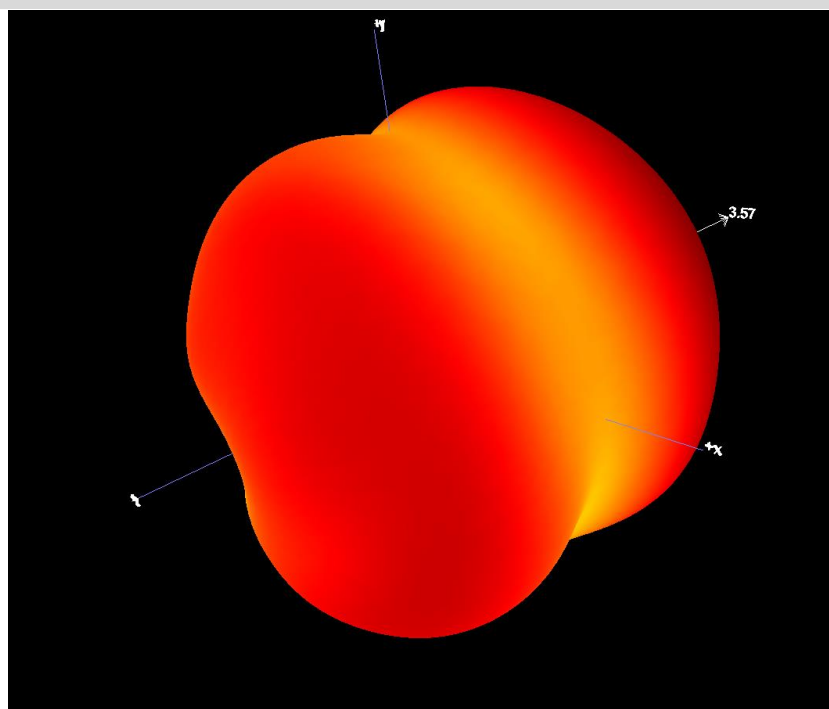
B1.4 3D Pattern for 2405MHz



B1.5 3D Pattern for 2440MHz

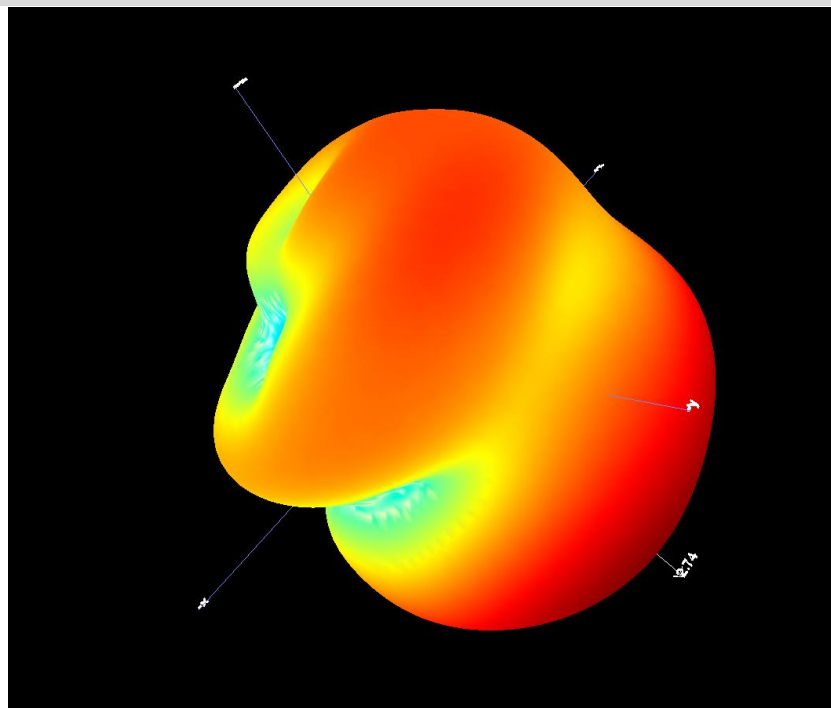


B1.6 3D Pattern for 2480MHz

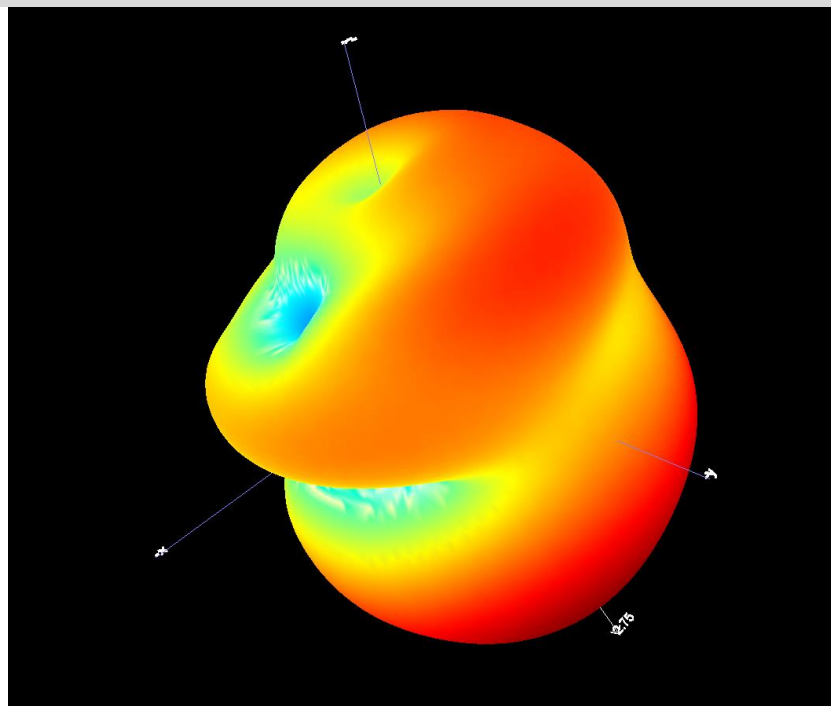


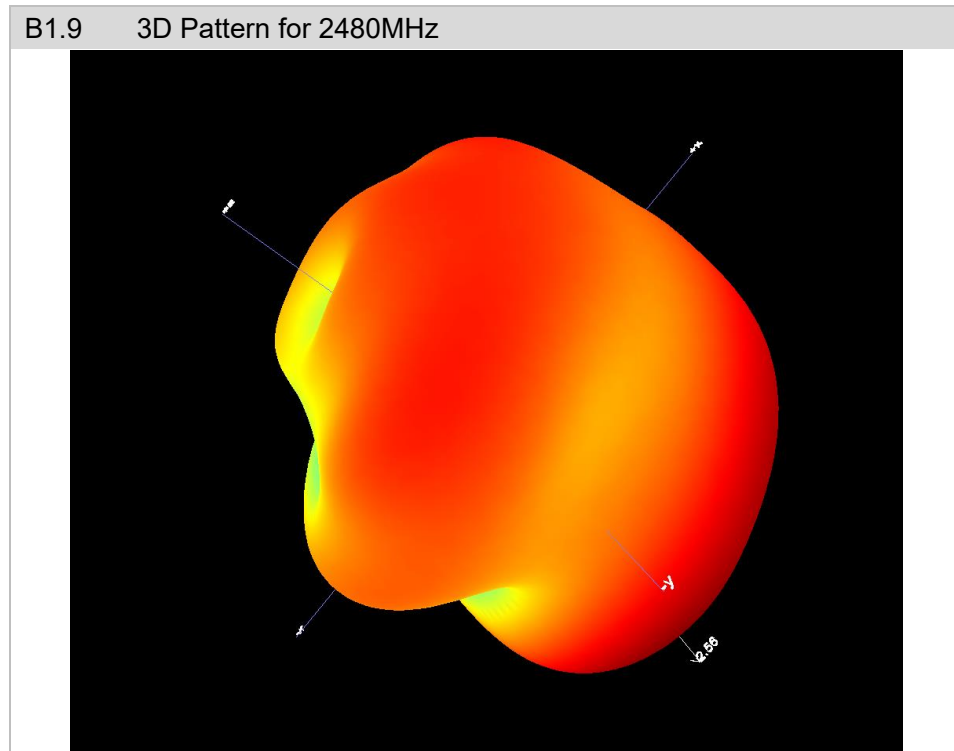
3#

B1.7 3D Pattern for 2405MHz

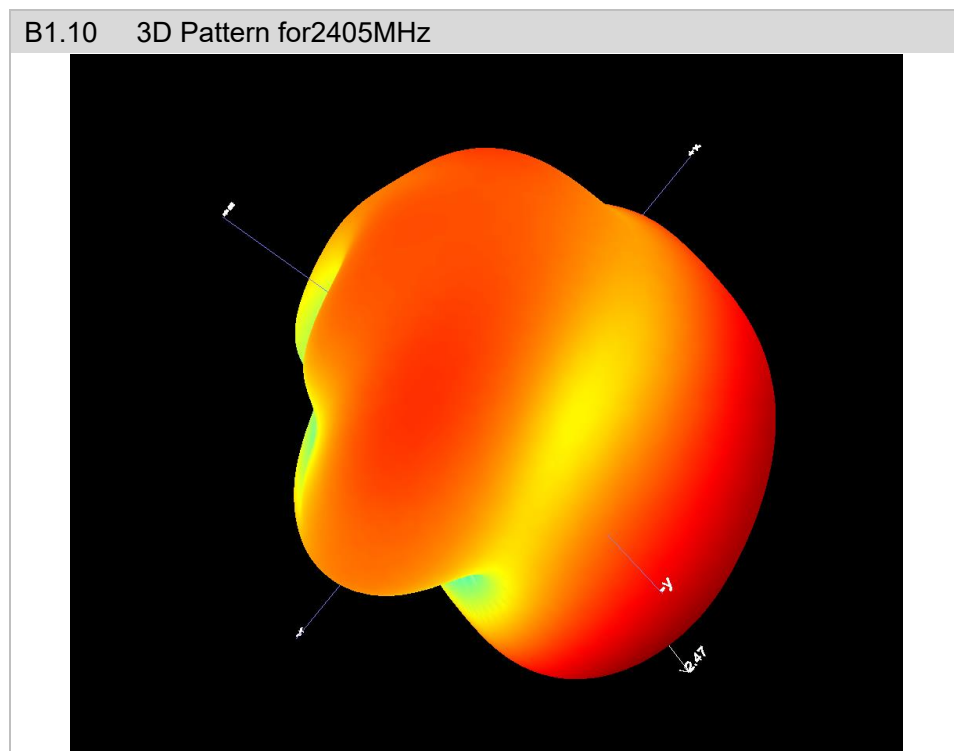


B1.8 3D Pattern for 2440MHz

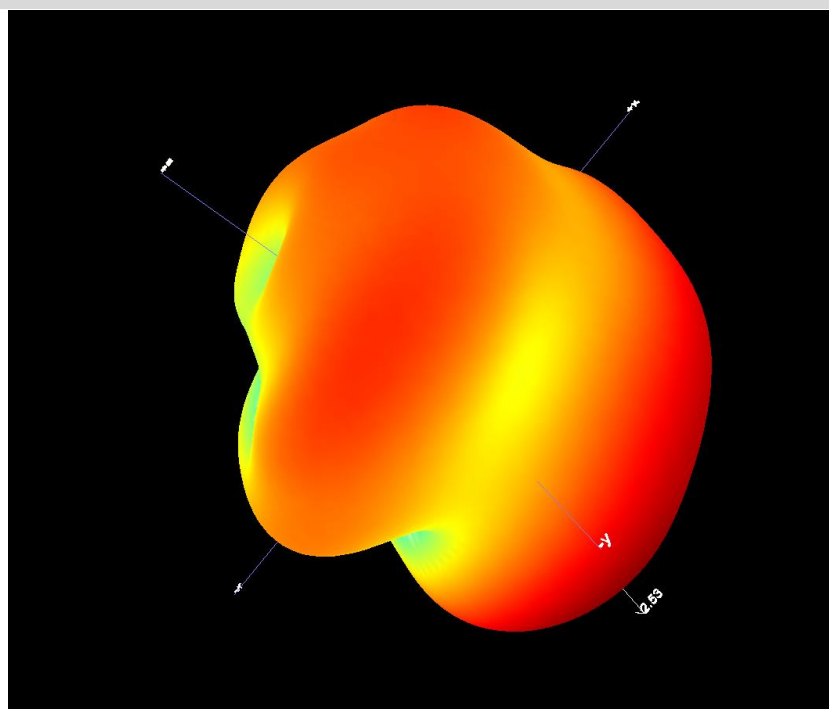




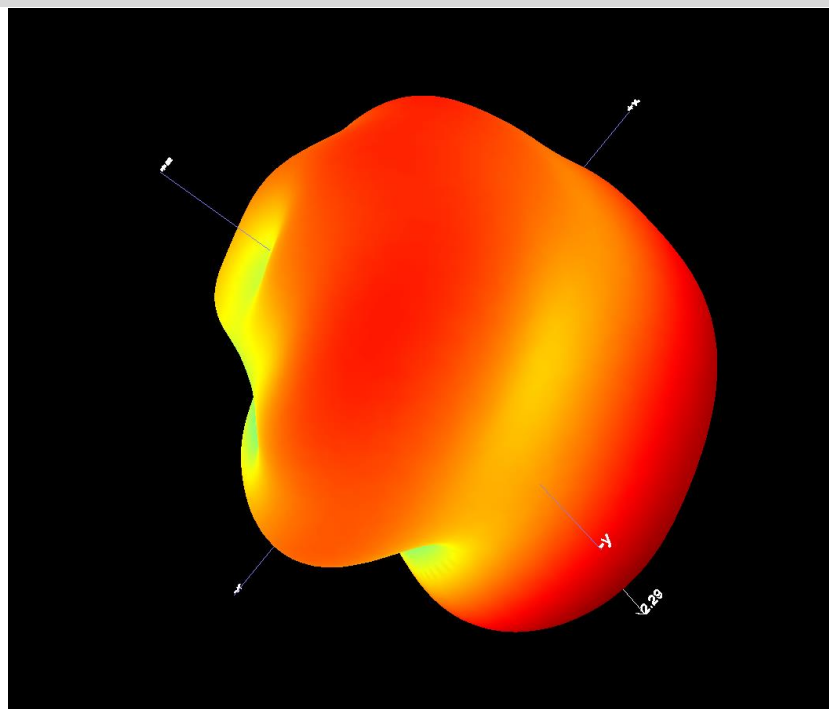
4#



B1.11 3D Pattern for 2440MHz

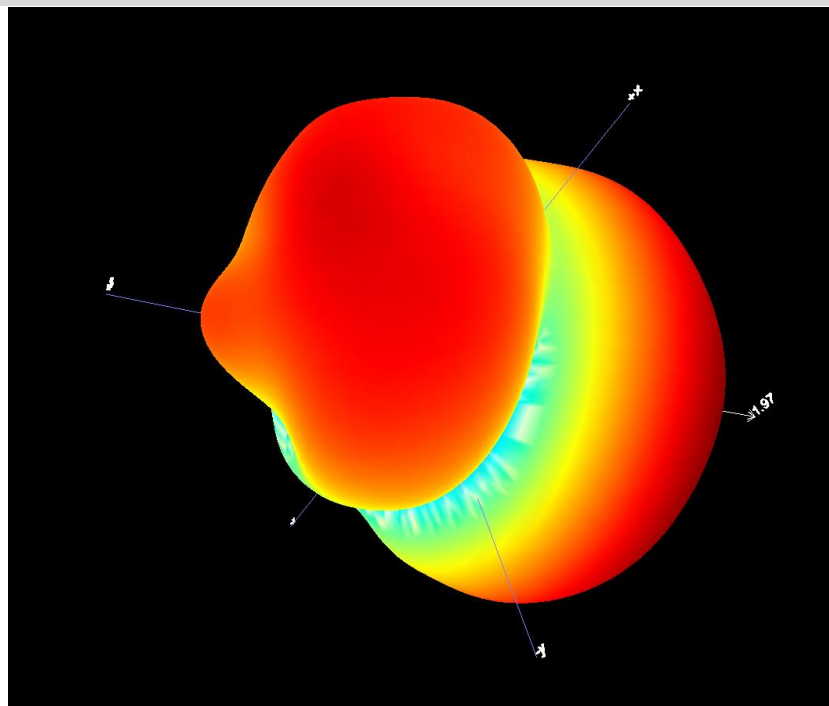


B1.12 3D Pattern for 2480MHz

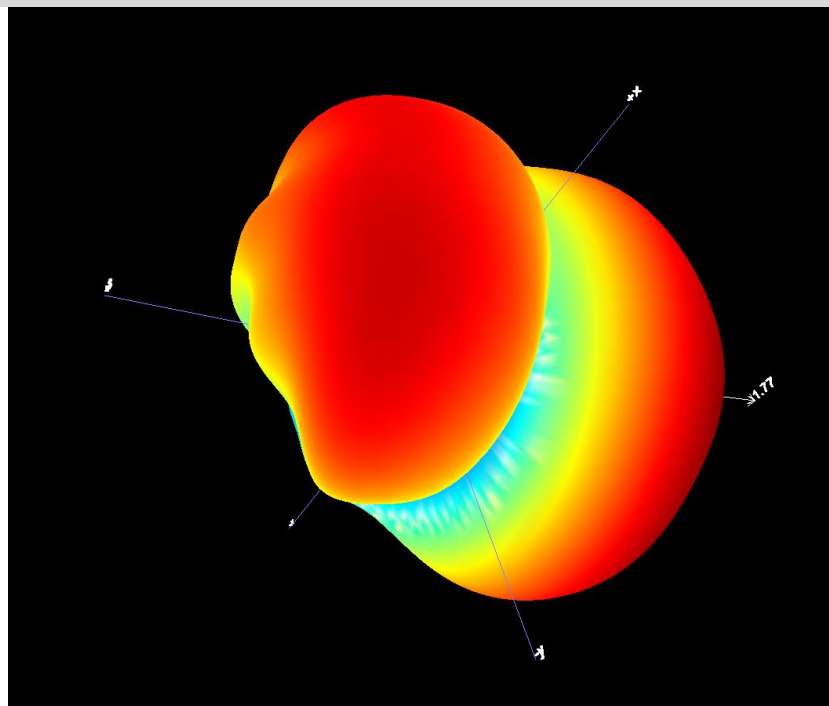


5#

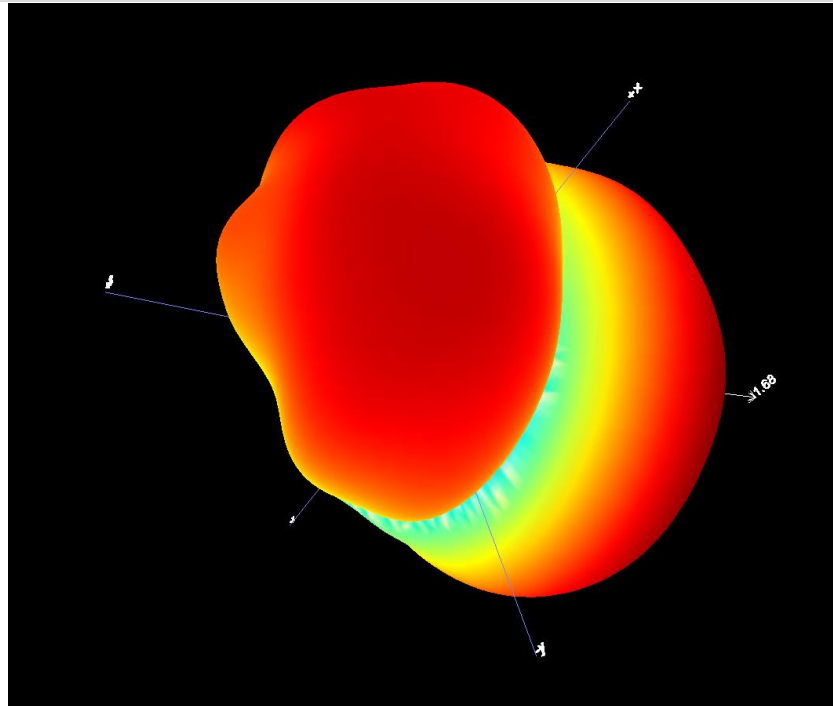
B1.13 3D Pattern for 2405MHz



B1.14 3D Pattern for 2440MHz

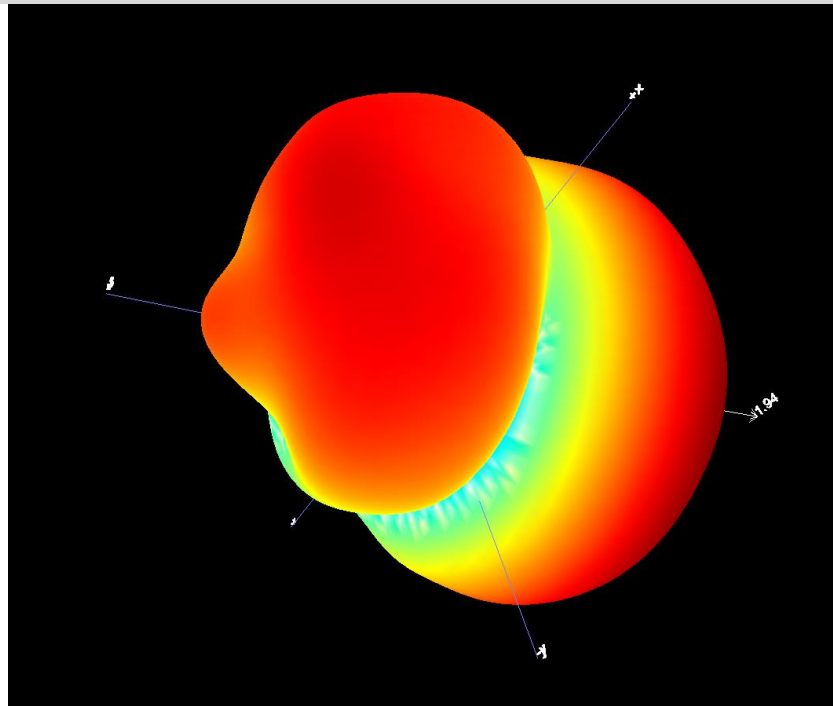


B1.15 3D Pattern for 2480MHz

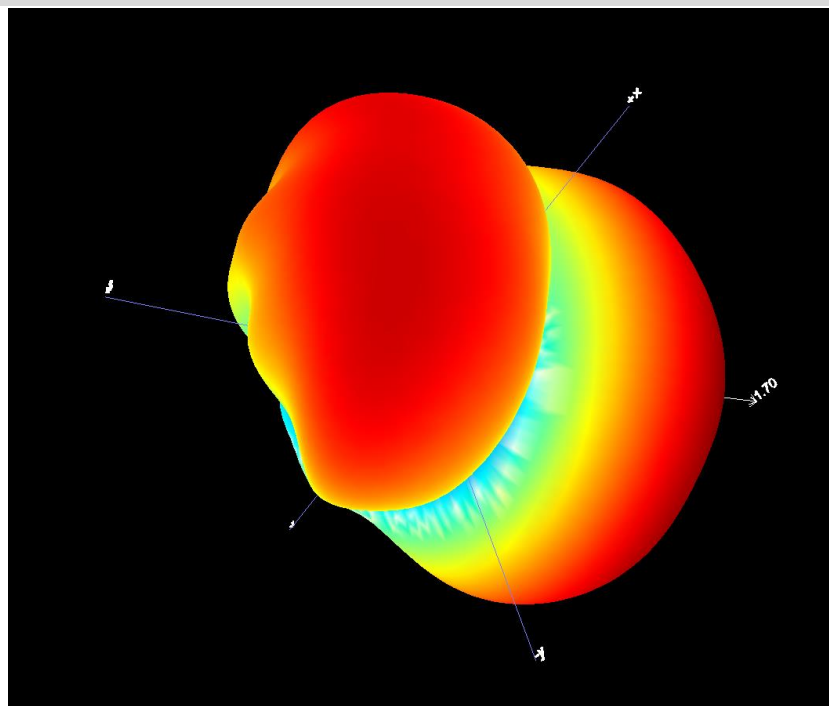


6#

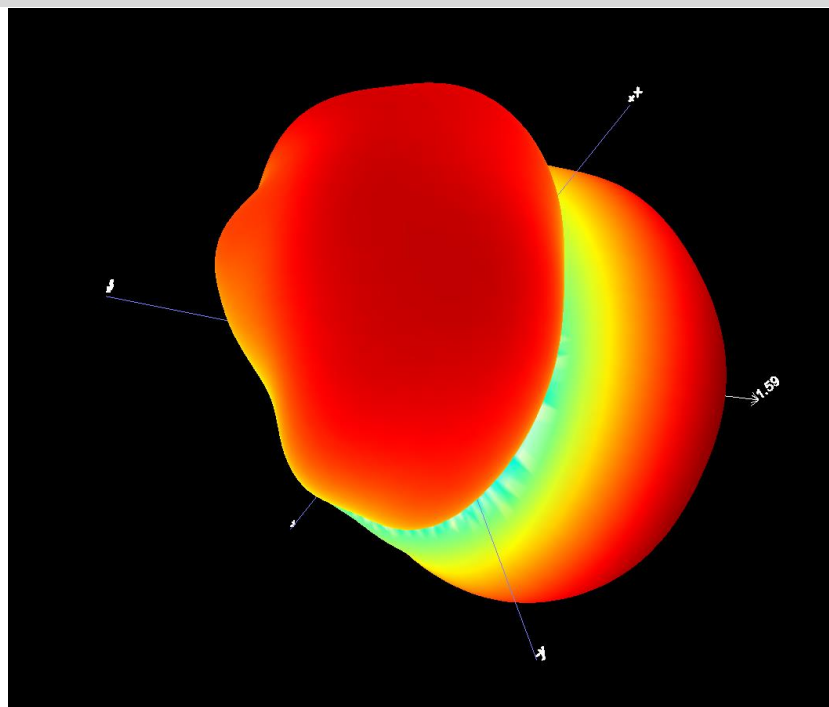
B1.16 3D Pattern for 2405MHz



B1.17 3D Pattern for 2440MHz



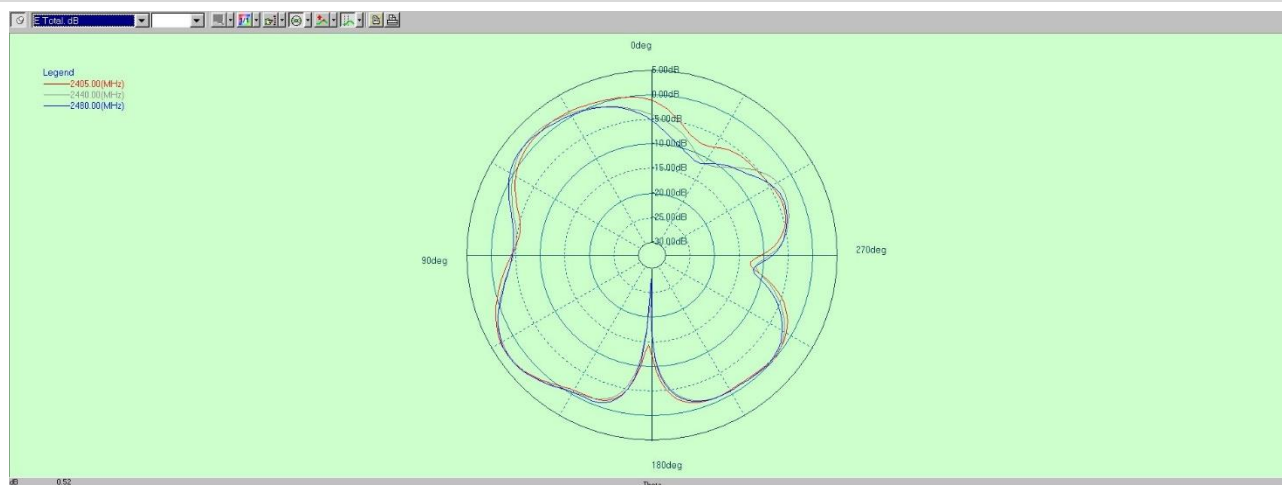
B1.18 3D Pattern for 2480MHz



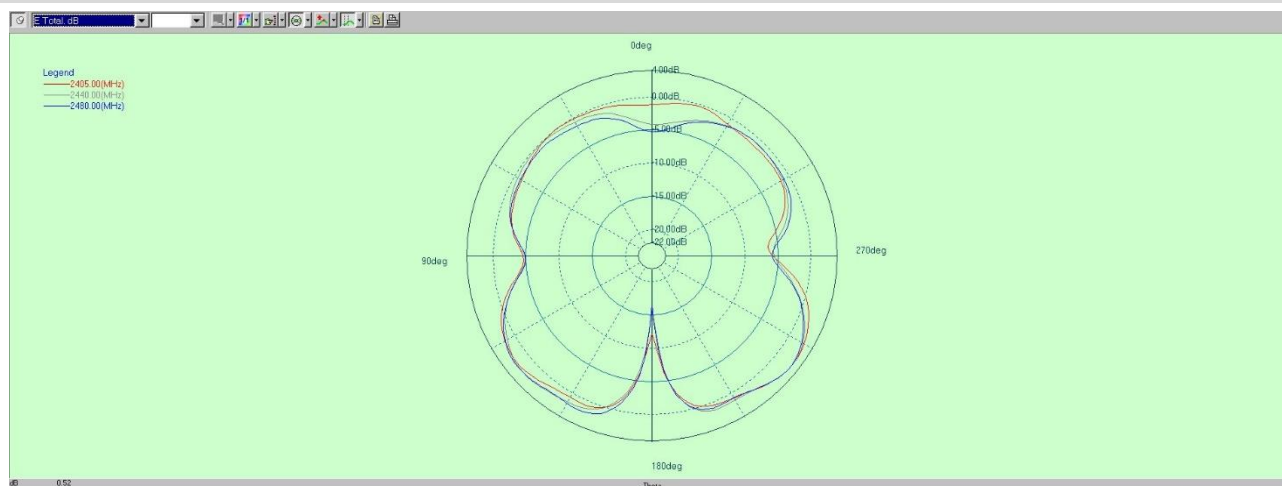
B.2 1D Radiation Pattern

1#

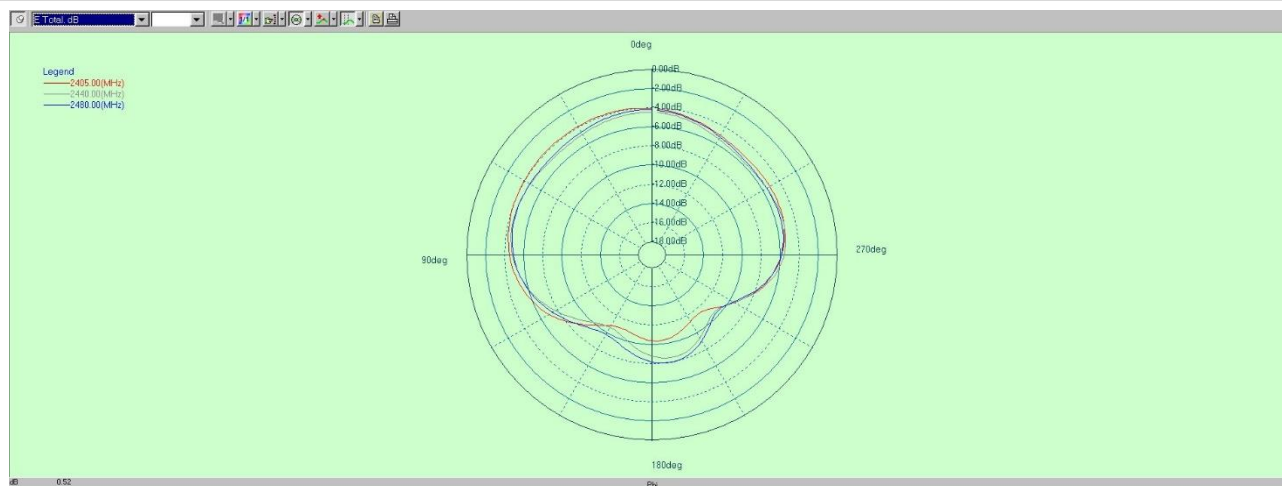
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B2.2 PHI=90

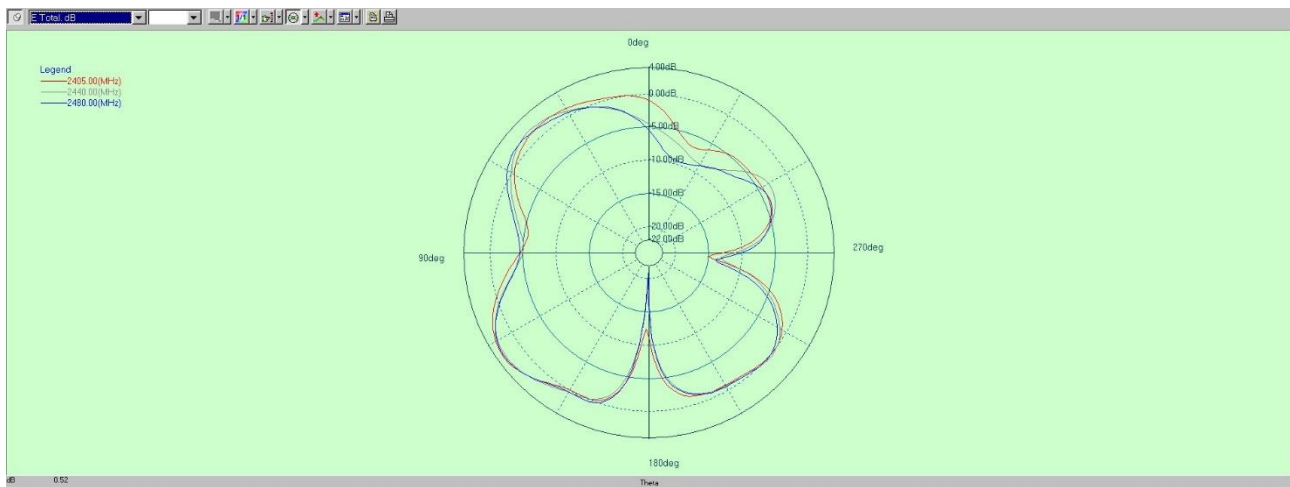


B2.3 THETA=90

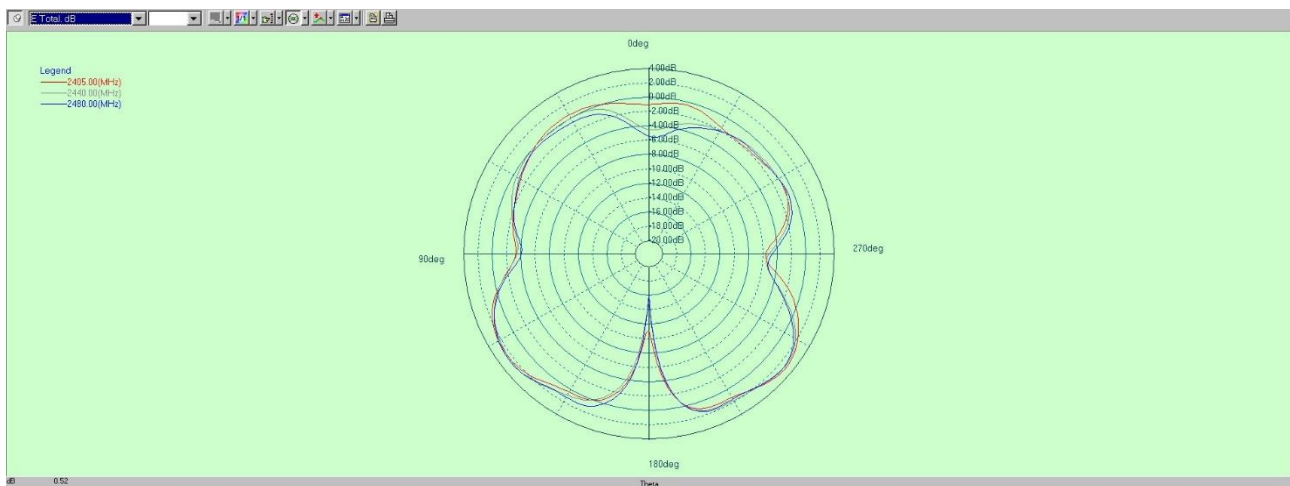


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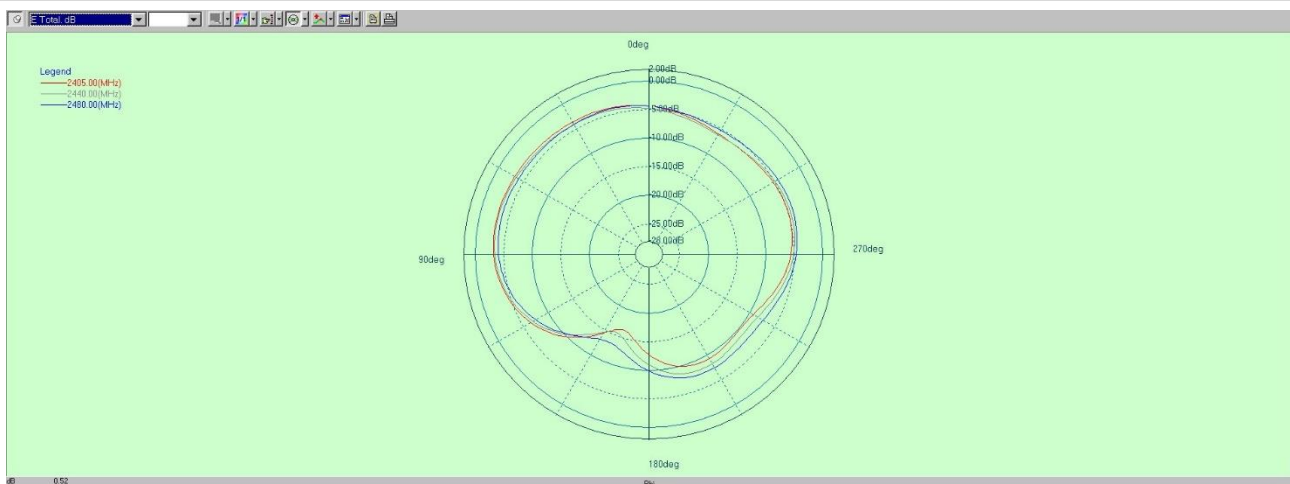
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B2.5 PHI=90

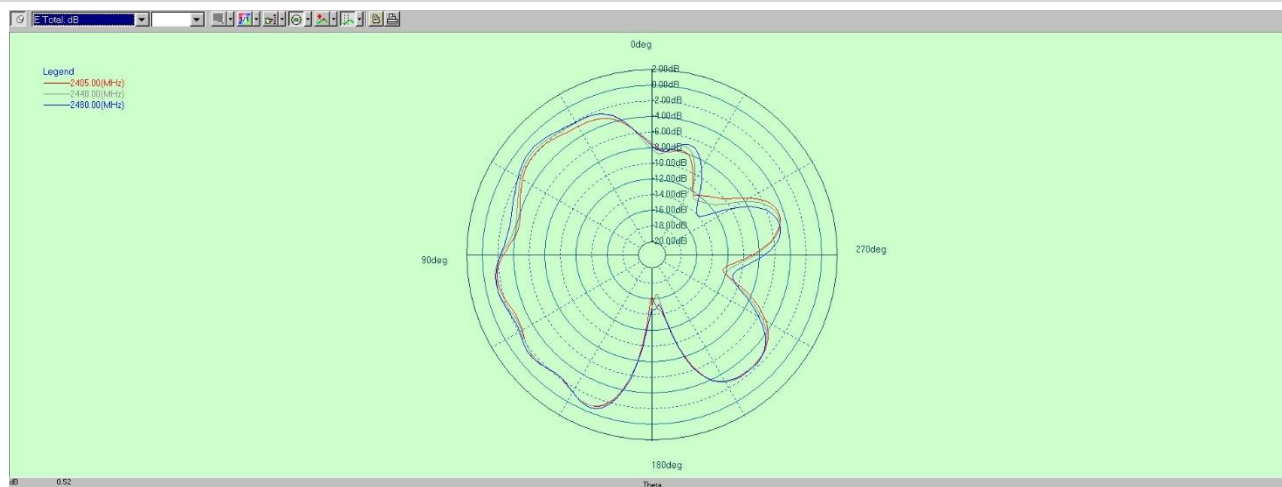


B2.6 THETA=90

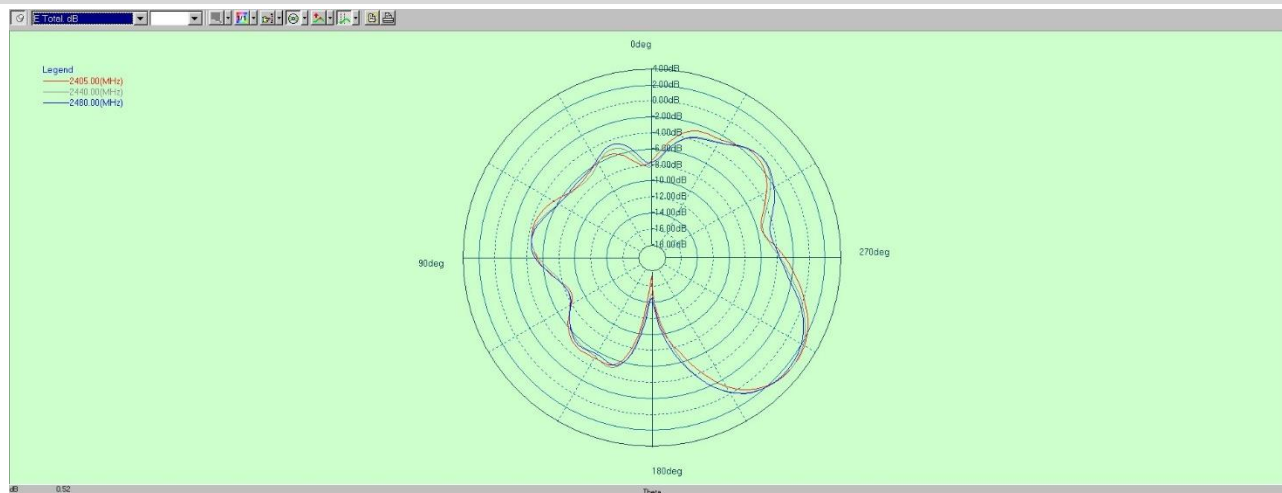


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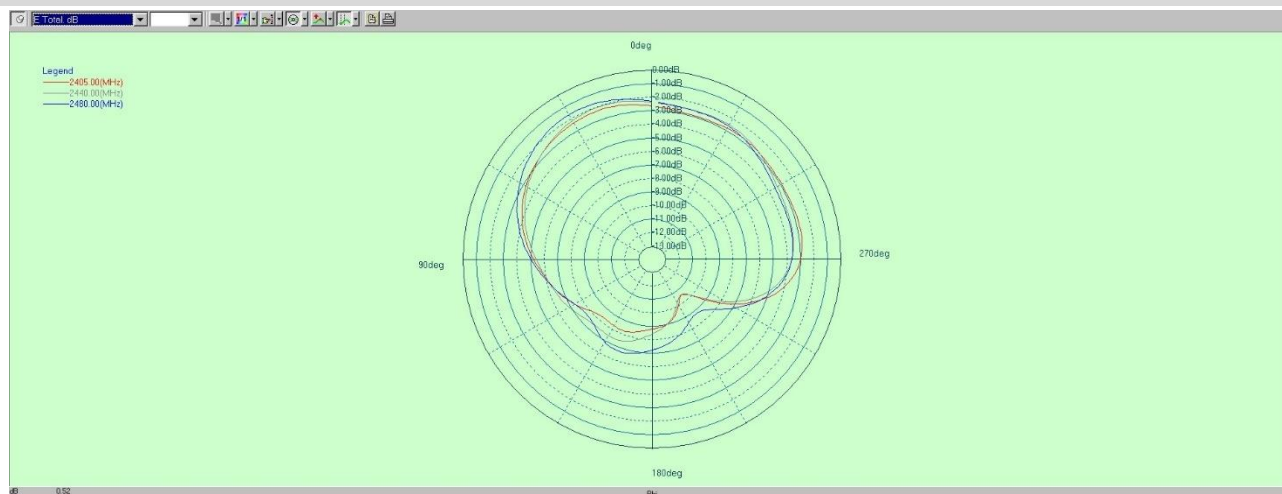
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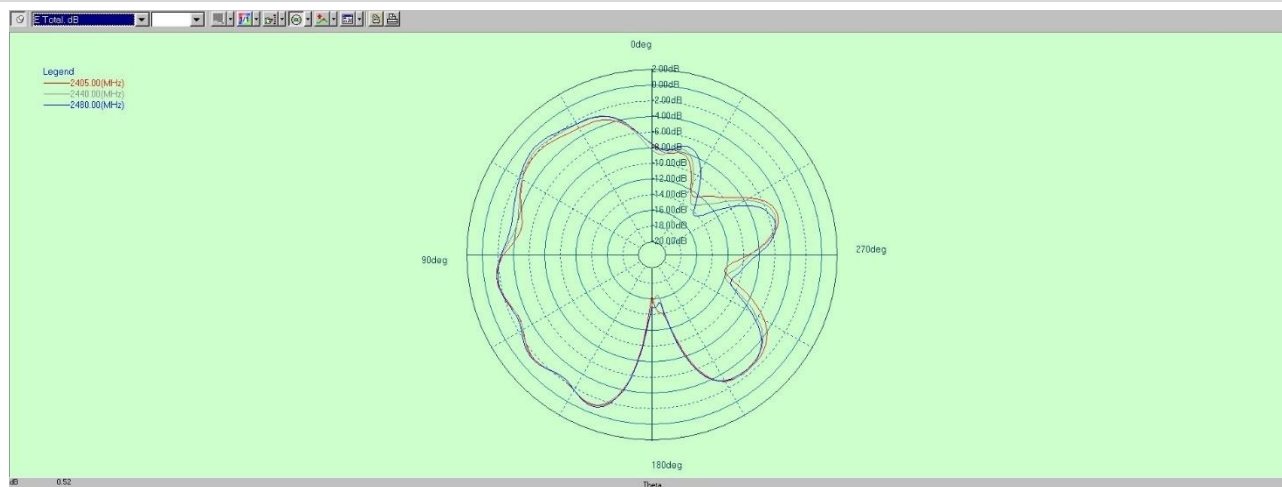
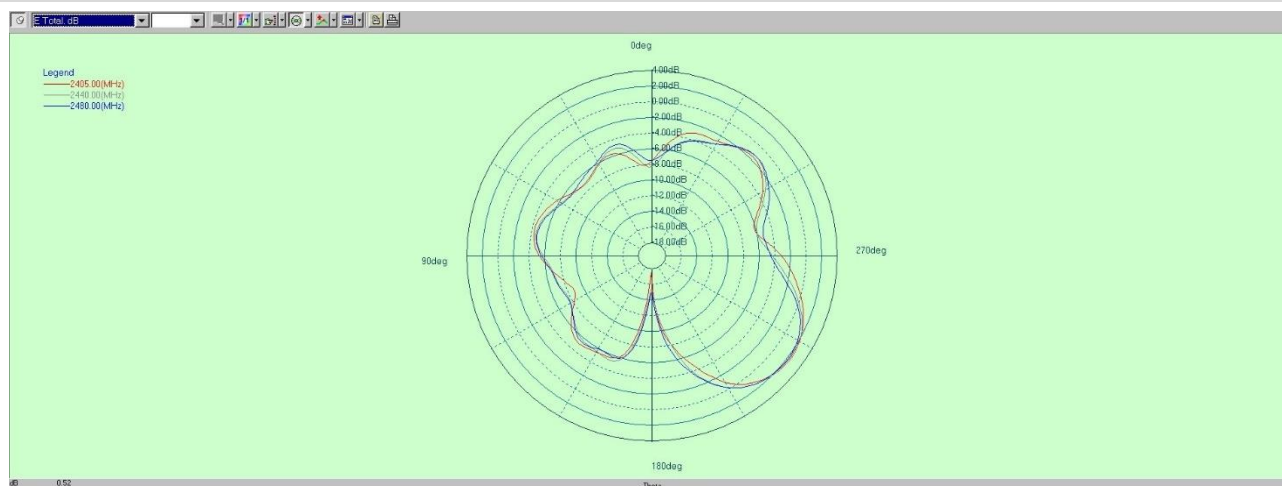
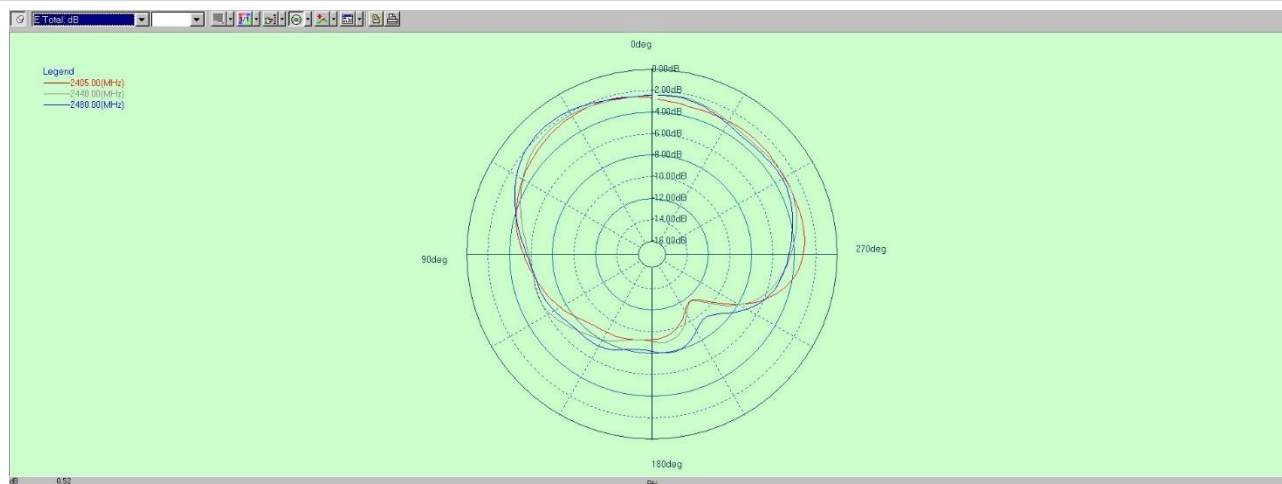


B2.8 PHI=90



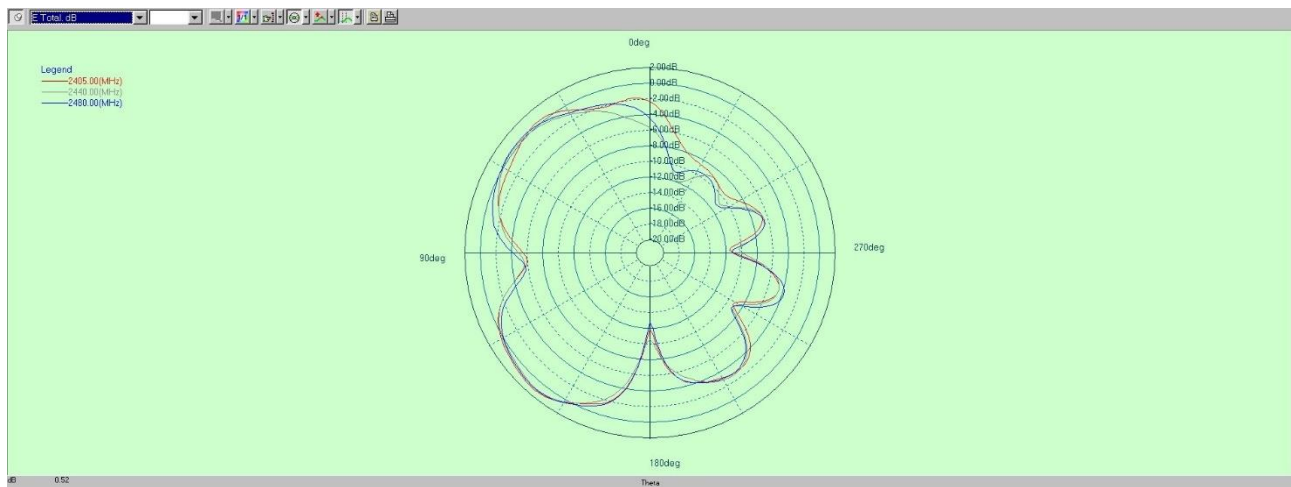
B2.9 THETA=90



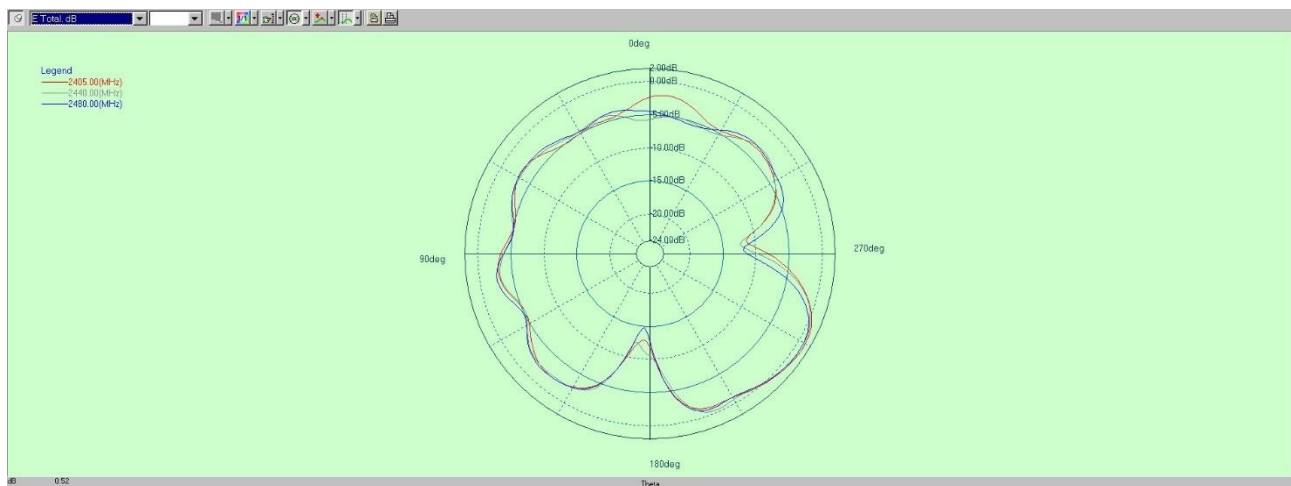
4#**B2.10 PHI=0****B2.11 PHI=90****B2.12 THETA=90**

5#

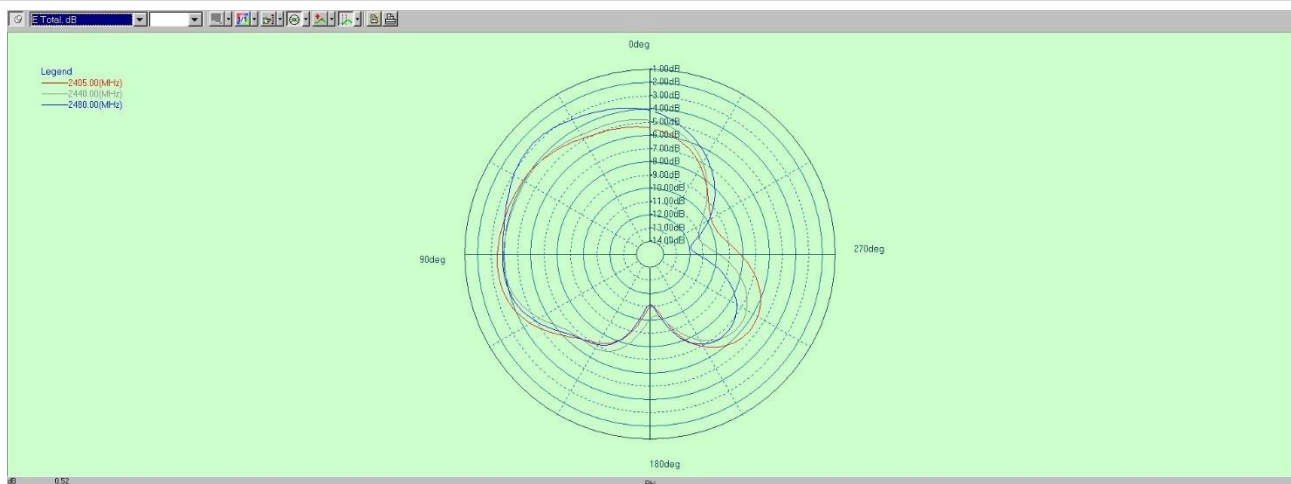
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B2.14 PHI=90

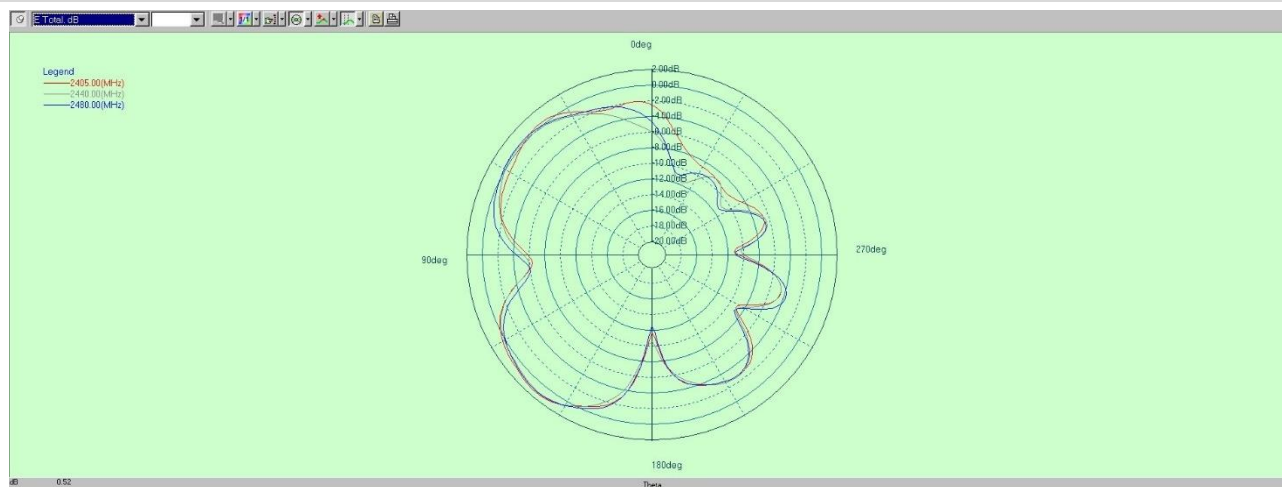


B2.15 THETA=90



6#

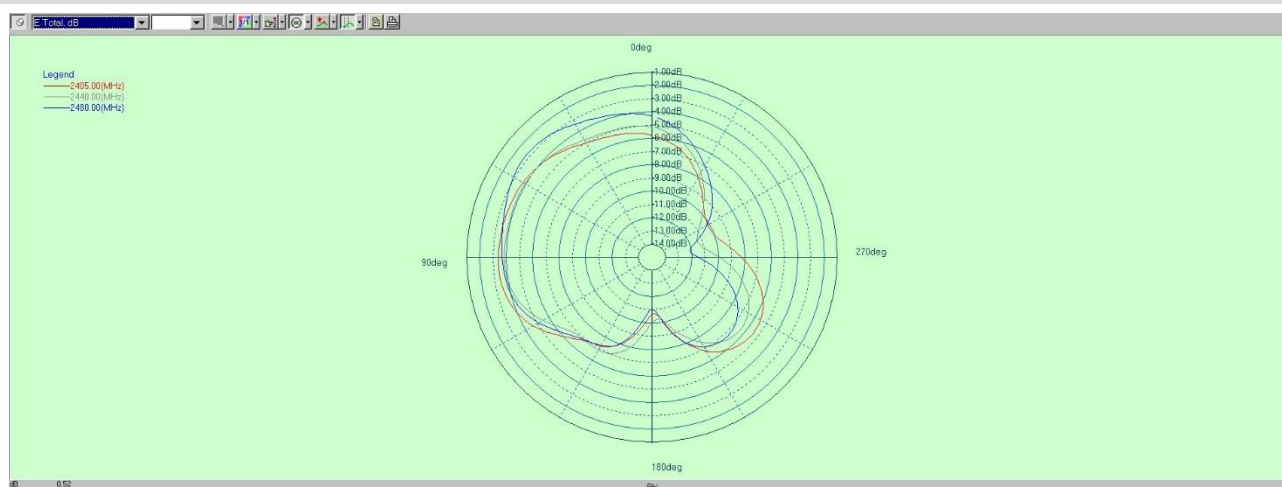
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B2.17 PHI=90

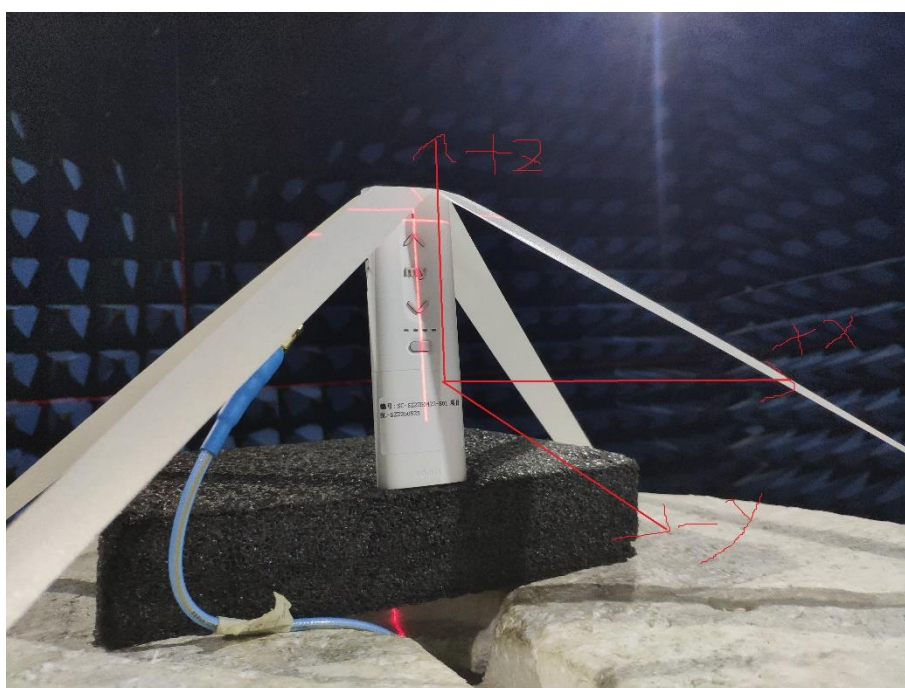
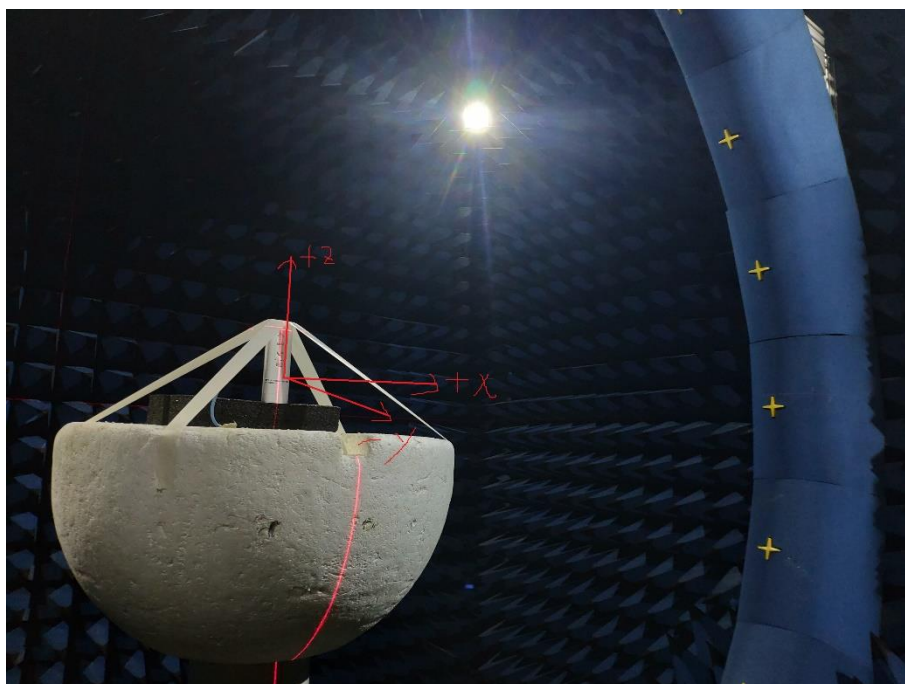


B2.18 THETA=90

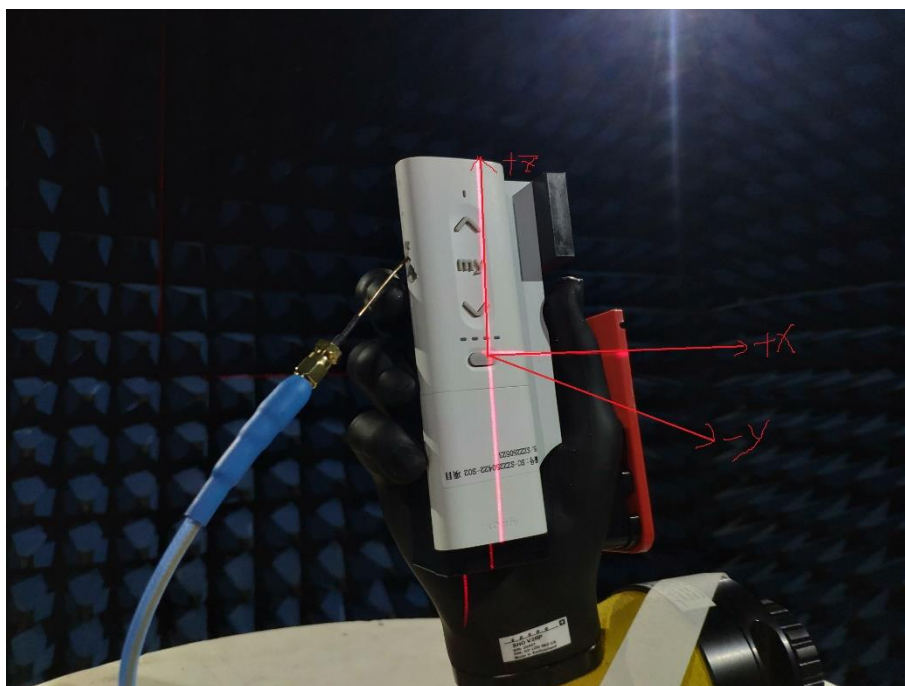
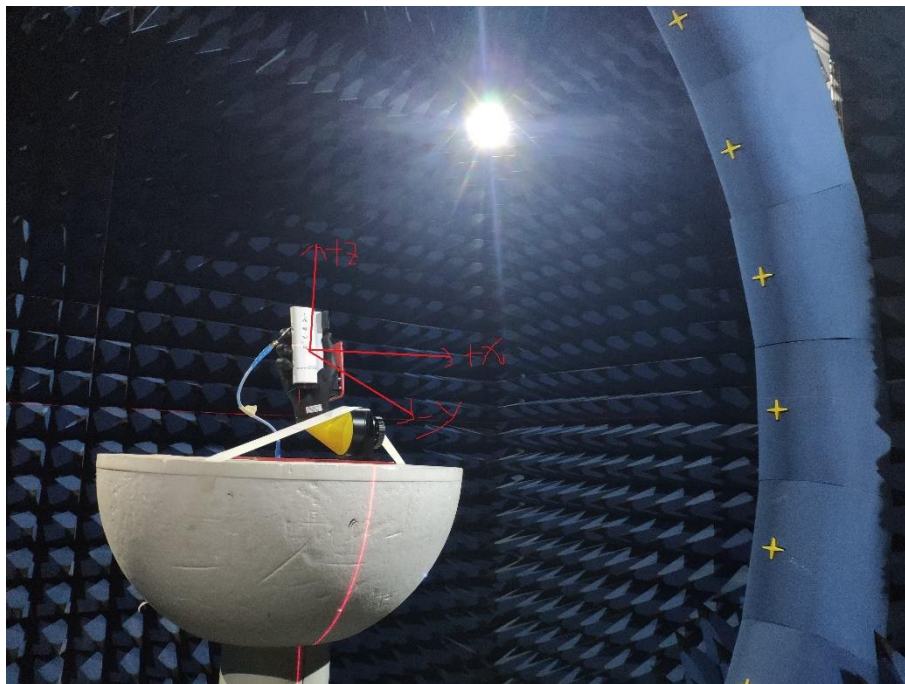


ANNEX C TEST SETUP PHOTO

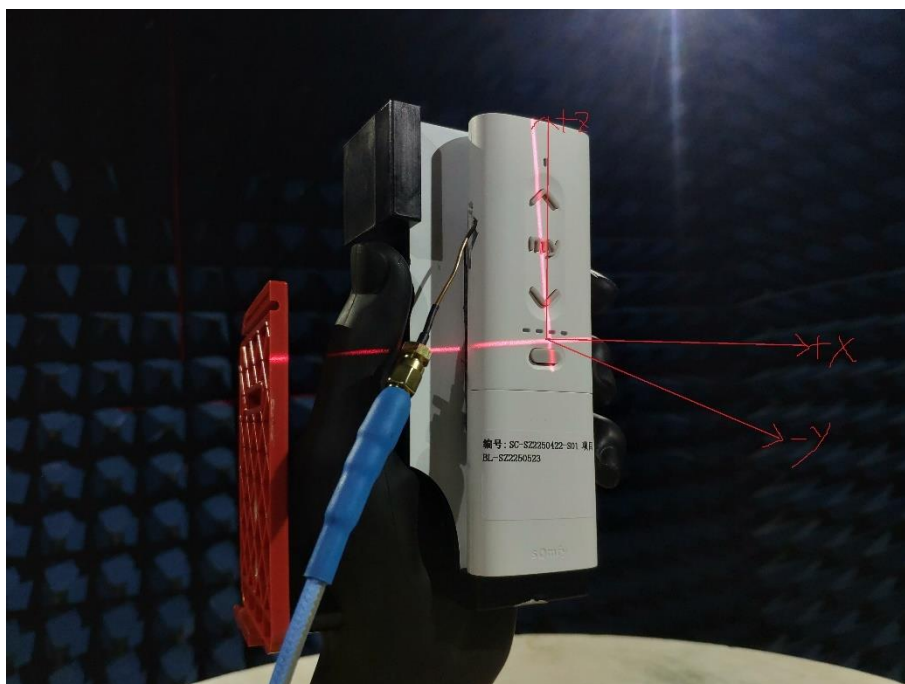
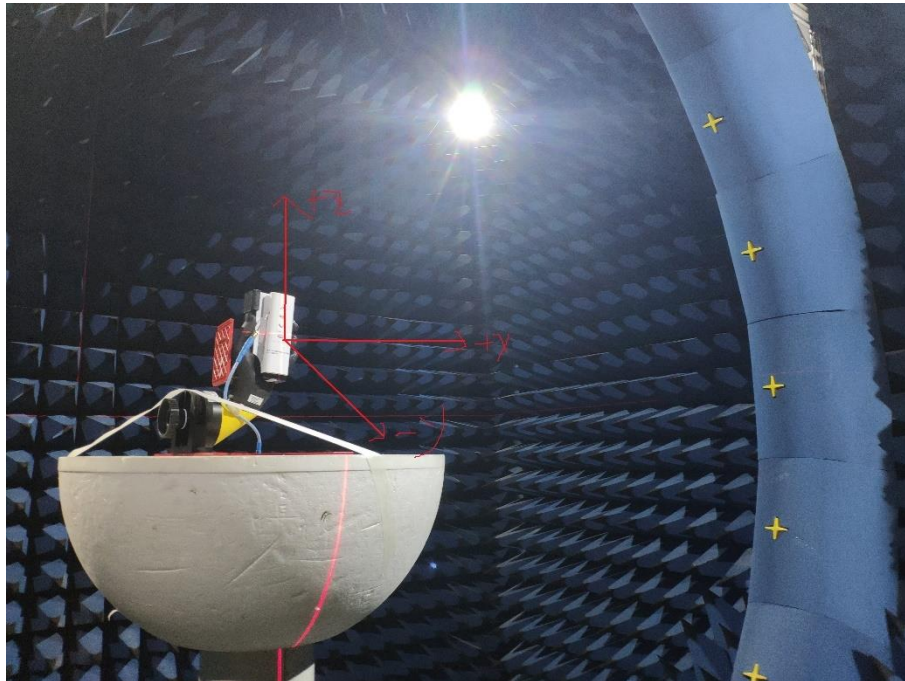
1#&2#



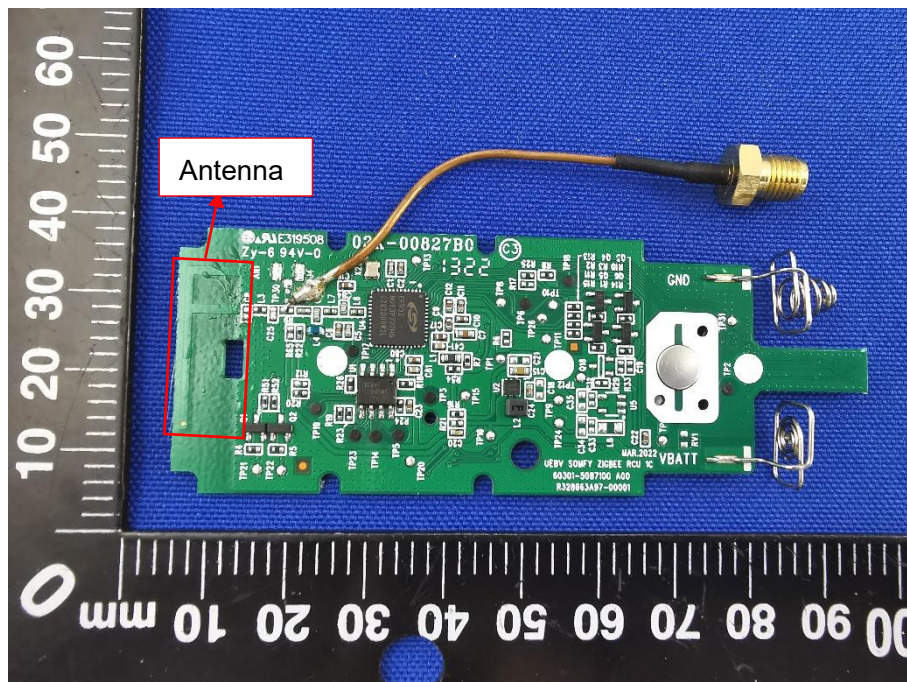
3#&4#



5#&6#



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--