

TEST REPORT

Applicant: Aether Mindtech Solutions Private Limited
Address: 5th Floor, Unit 2A/1, Octave Block, Salarpuria
Sattva Knowledge CityIn, InOrbit mall main road,
Madhapur, Hyderabad, Telangana. India. 500081
Equipment Type: Evolv28
Model Name: Evolv28
Brand Name: N/A
Test Standard: IEEE Std 149-2021
Sample Arrival Date: Apr. 04, 2023
Test Date: Apr. 06, 2023 - Apr. 10, 2023
Date of Issue: Aug. 18, 2023

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Mai Jintian

Checked by: Zou Liu

Approved by: Tolan Tu
(Testing Director)

Mai Jintian

Zou Liu

Tolan Tu

Revision History

Version	Issue Date	Revisions
<u>Rev. 01</u>	<u>Aug. 18, 2023</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	Aether Mindtech Solutions Private Limited
Address	5th Floor, Unit 2A/1, Octave Block, Salarpuria Sattva Knowledge CityIn, InOrbit mall main road, Madhapur, Hyderabad, Telangana. India. 500081

2.2 Manufacturer Information

Manufacturer	Aether Mindtech Solutions Private Limited
Address	5th Floor, Unit 2A/1, Octave Block, Salarpuria Sattva Knowledge CityIn, InOrbit mall main road, Madhapur, Hyderabad, Telangana. India. 500081

2.3 General Description for Equipment under Test (EUT)

EUT Name	Evolv28
Model Name Under Test	Evolv28
Antenna Type	PCB Antenna
Dimensions	14*4.5mm

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

Test Frequencies	2400MHz, 2410MHz, 2420MHz, 2430MHz, 2440MHz, 2450MHz, 2460MHz, 2470MHz, 2480MHz, 2490MHz, 2500MHz
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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 A.2	VSWR	--
ANNEX B	Radiation Pattern	--
Compared with the EUT of test report BL-SZ2340158-901, the changes of the EUT of this report as below: 1. Change applicant, manufacturer, equipment type, model name. Other hardware circuit and software are the same as EUT referred in test report BL-SZ2340158-901. Therefore, in addition to the above differences, all test data and EUT information are derived from the BL-SZ2340158-901 report published by Shenzhen BALUN Technology Co., Ltd. on Apr. 23, 2023.		

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

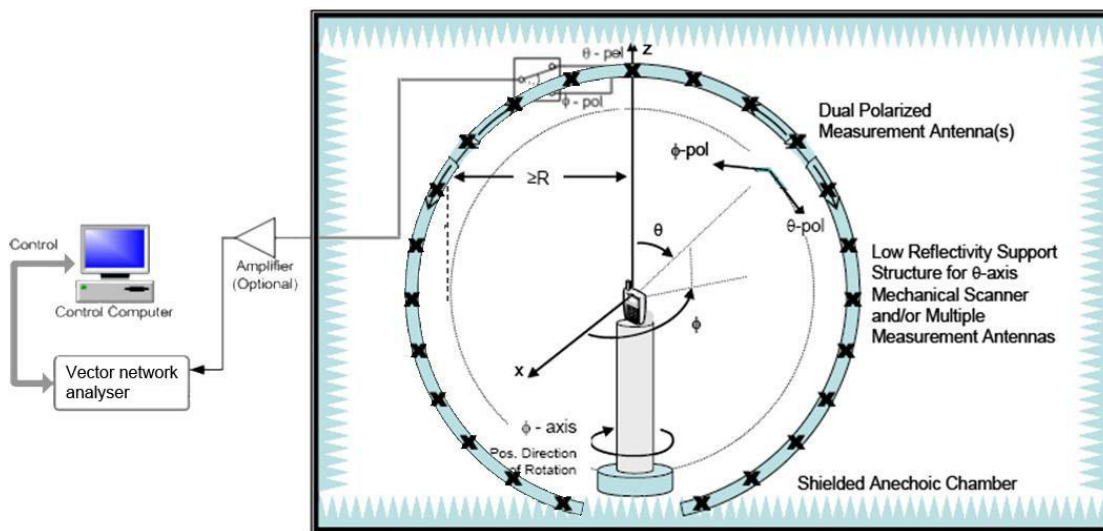
Environment Parameter	Selected Values During Tests			
	Ambient Pressure(KPa)	Temperature(°C)	Voltage	Relative Humidity (%)
Normal Temperature, Normal Voltage (NTNV)	101	21.4	N/A	44

4.2 Test Equipment List

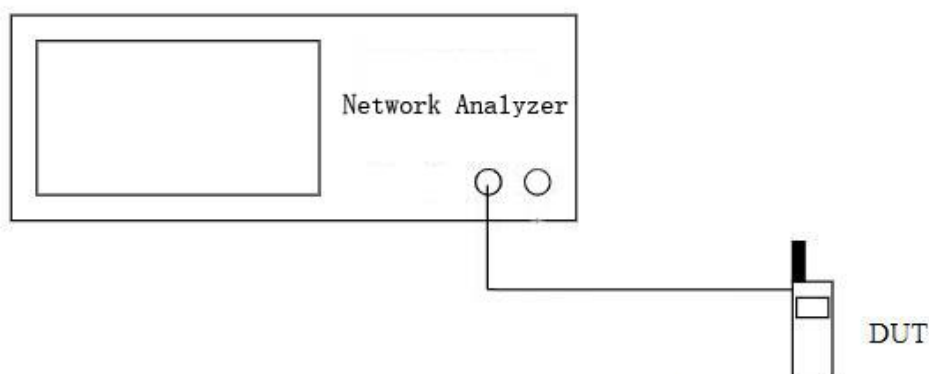
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
SG24 Multi-probe Antenna Measurement System	SATIMO	SG24-L	1101855- 0001	2021.11.12	2024.11.11
Vector Network Analyzer	Agilent	E5071B	MY42404001	2023.03.26	2024.03.25
Description	Manufacturer	Name		Version	
Test Software	MVG	SPM		V 1.8	

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

1#

Frequency	Gain (dBi)	Efficiency (%)
2400MHz	4.55	79%
2410MHz	4.62	79%
2420MHz	4.57	80%
2430MHz	4.36	80%
2440MHz	4.59	81%
2450MHz	4.70	83%
2460MHz	4.67	82%
2470MHz	4.71	81%
2480MHz	4.71	81%
2490MHz	4.82	83%
2500MHz	4.97	82%

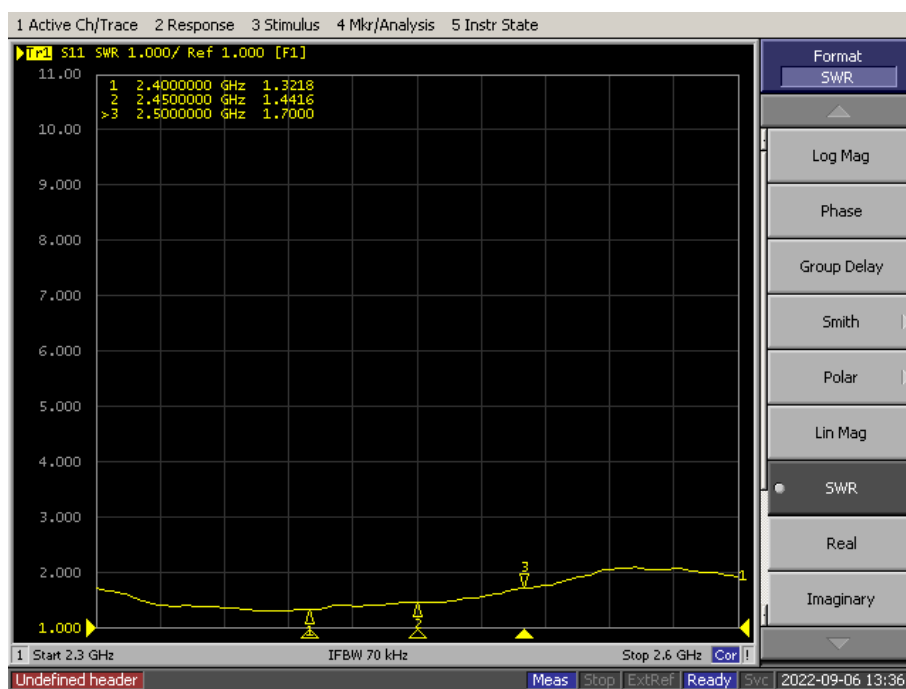
2#

Frequency	Gain (dBi)	Efficiency (%)
2400MHz	3.38	65%
2410MHz	3.43	65%
2420MHz	3.21	63%
2430MHz	3.04	62%
2440MHz	3.13	62%
2450MHz	3.04	63%
2460MHz	2.75	60%
2470MHz	2.56	58%
2480MHz	2.41	58%
2490MHz	2.44	58%
2500MHz	2.56	57%

A.2 VSWR

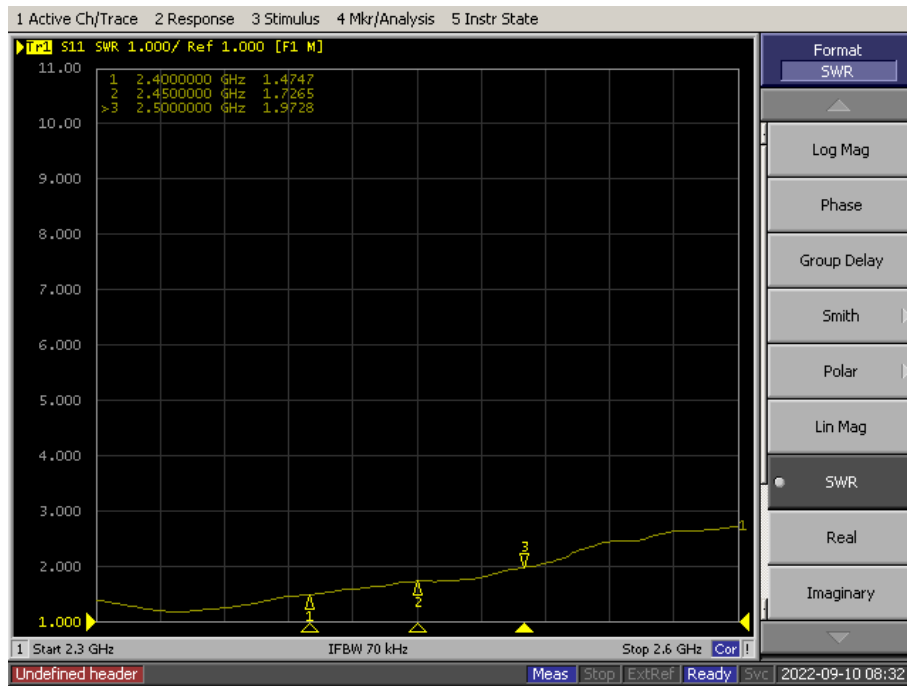
1#

Frequency	SWR
2400MHz	1.32
2450MHz	1.44
2500MHz	1.70



2#

Frequency	SWR
2400MHz	1.47
2450MHz	1.73
2500MHz	1.97

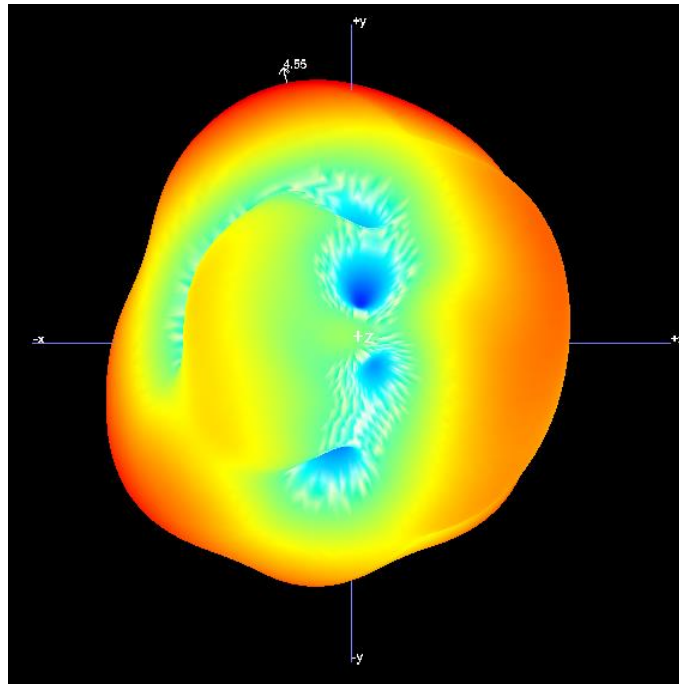


ANNEX B RADIATION PATTERN

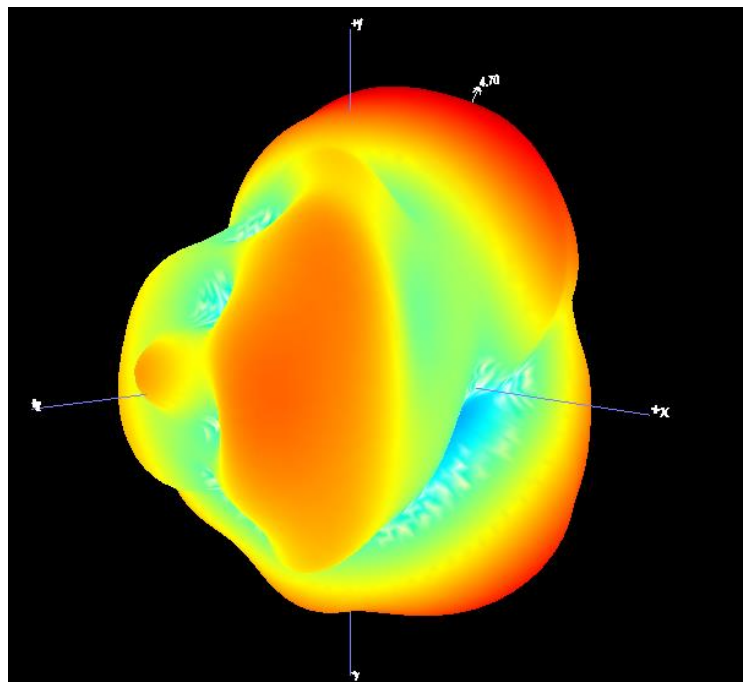
B.1 3D Pattern

1#

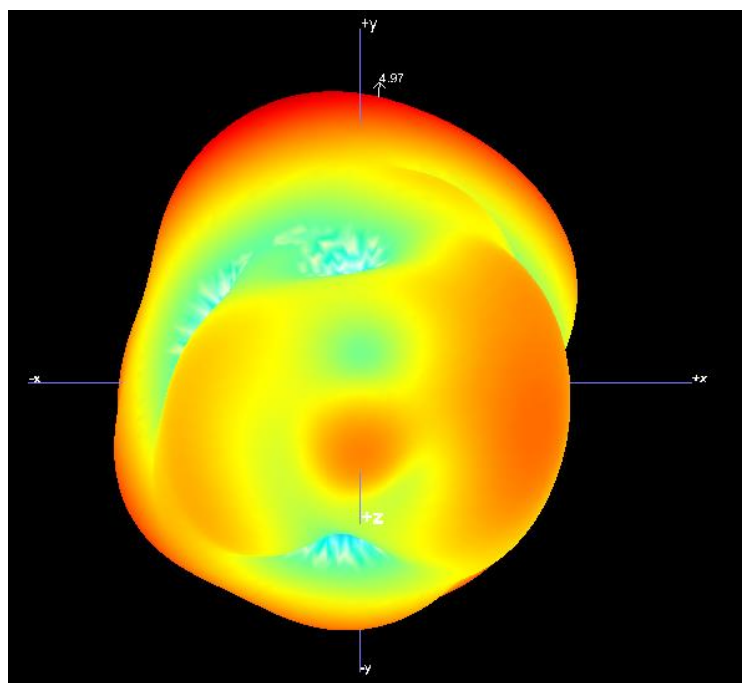
B1.1 3D Pattern for 2400MHz



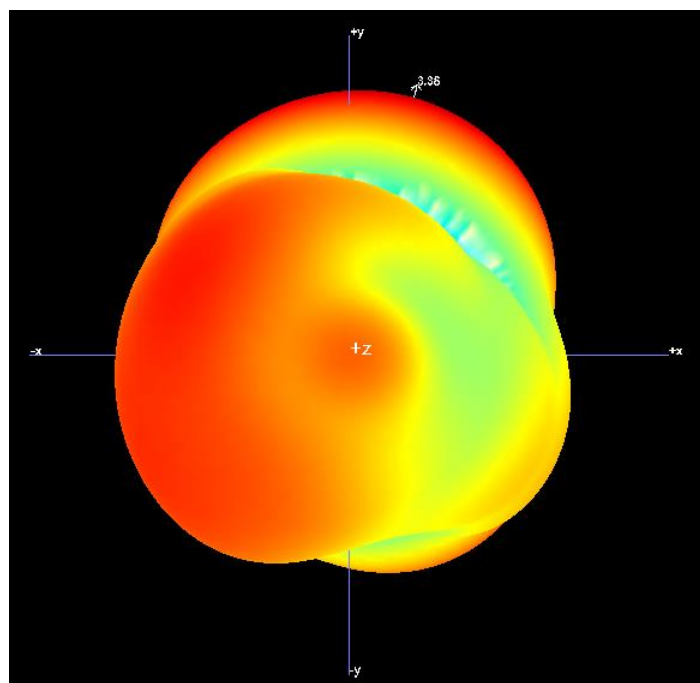
B1.2 3D Pattern for 2450MHz

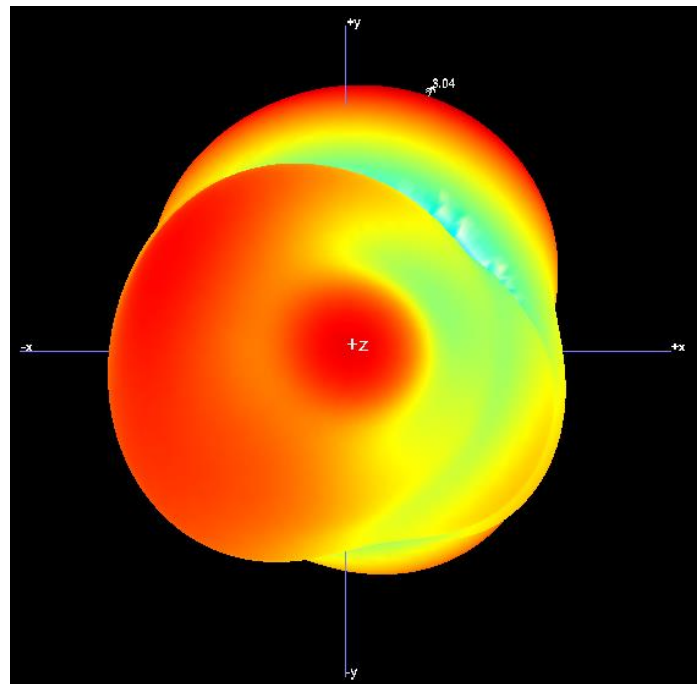
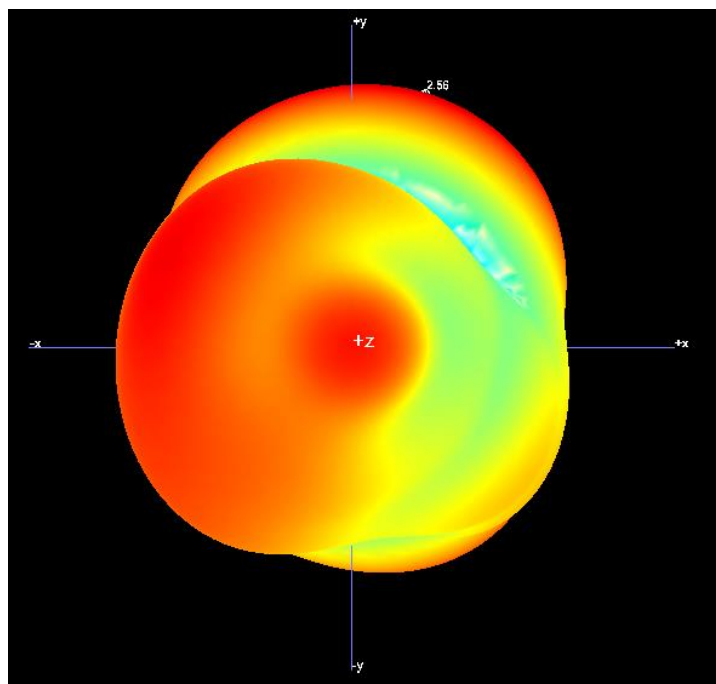


B1.3 3D Pattern for 2500MHz

2#

B1.4 3D Pattern for 2400MHz

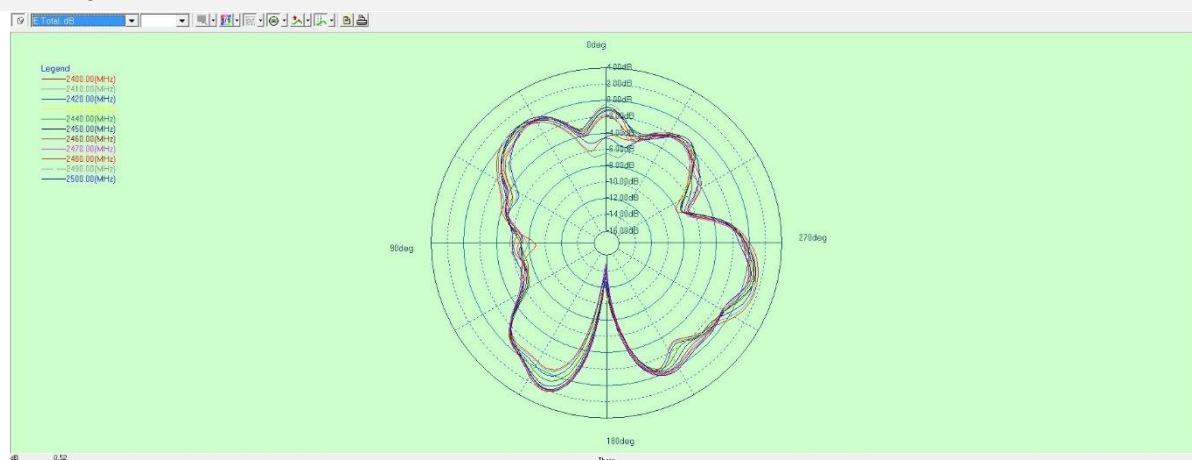


B1.5 3D Pattern for 2450MHz**B1.6** 3D Pattern for 2500MHz

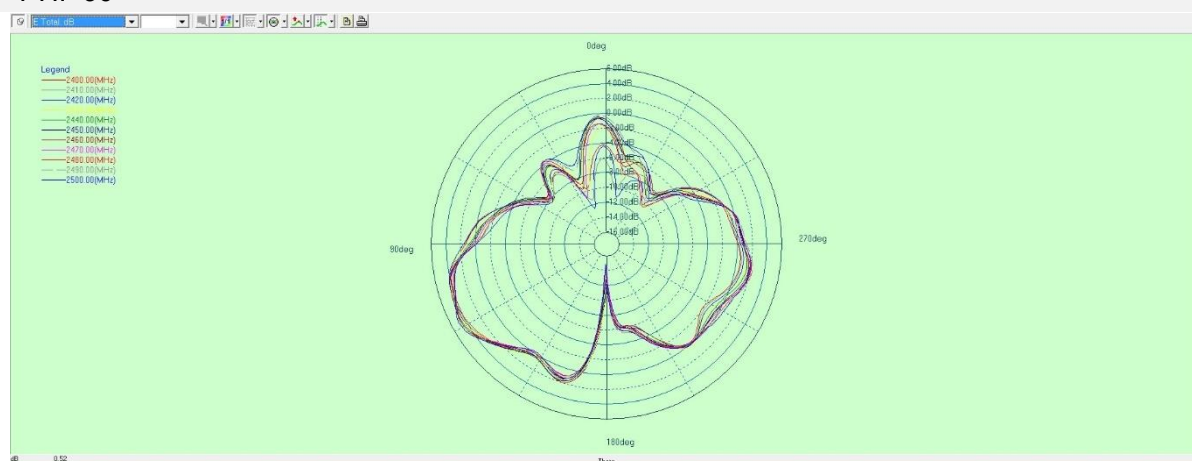
B.2 1D Radiation Pattern

1#

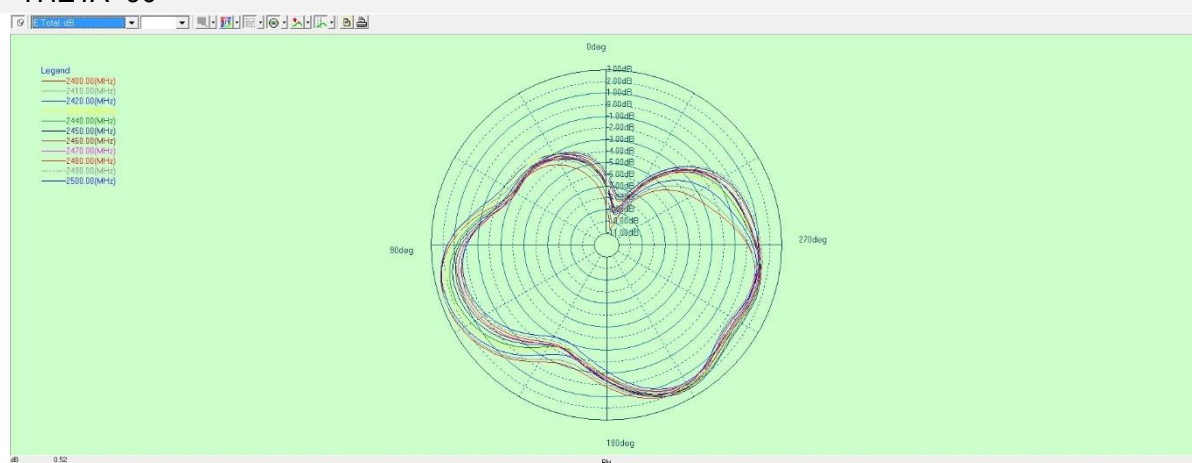
B2.1 PHI=0

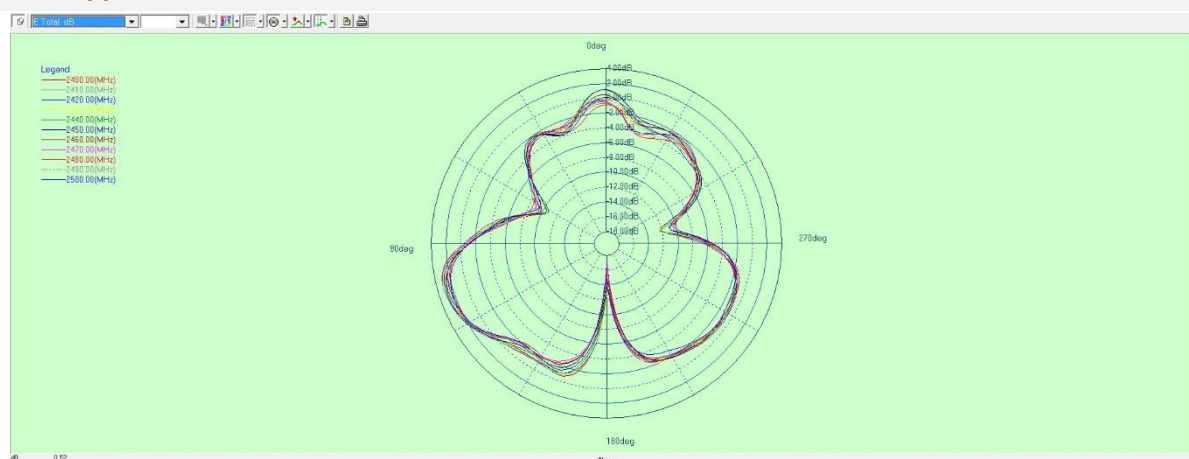
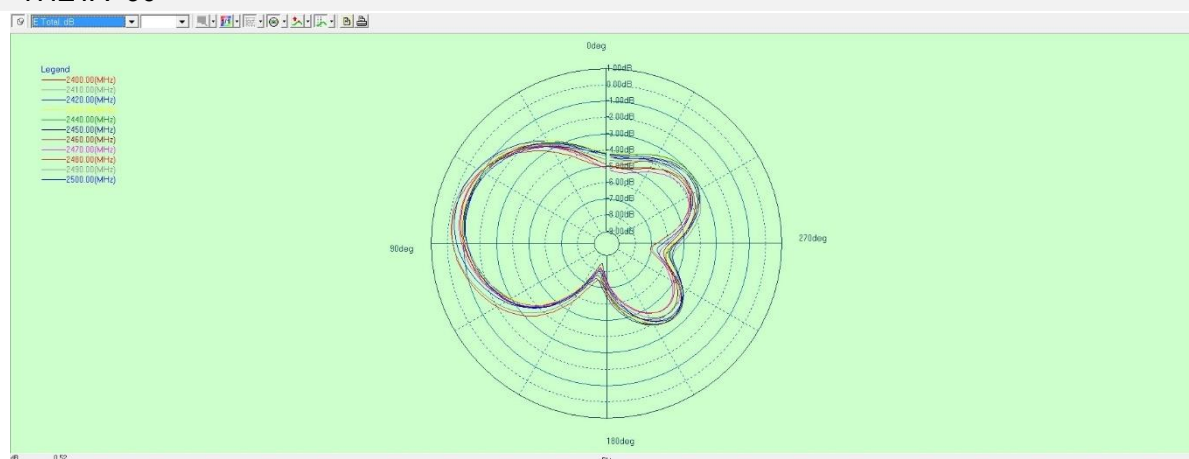


B2.2 PHI=90



B2.3 THETA=90



2#**B2.4 PHI=0****B2.5 PHI=90****B2.6 THETA=90**

ANNEX C TEST SETUP PHOTOS

Please refer the document “BL-SZ2380799-AO.PDF”.

ANNEX D EUT PHOTO

Please refer the document “BL-SZ2380799-AA.PDF”.

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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7. Any objection shall be raised to the laboratory within 30 days after receiving the report.

--END OF REPORT--