TEST REPORT

Applicant:	Dongguan Huachuang Electronic Co., Ltd.
Address:	No. 35, Rongfu Road, Shangsha Community, Chang'an Town, Dongguan, Guangdong Province
Equipment Type:	wireless carplay adapte
Model Name:	CP10
Brand Name:	N/A
Test Standard:	IEEE Std 149-2021
Sample Arrival Date:	Jul. 02, 2024
Test Date:	Jul. 02, 2024
Date of Issue:	Jul. 04, 2024

ISSUED BY:

Shenzhen BALUN Technology Co., Ltd.

Tested by: Mai Jintian **Checked by:** Xia Long **Approved by:** Tolan Tu (Testing Director)

Revision History

Version	Issue Date	Revisions
Rev. 01	Jul. 04, 2024	Initial Issue

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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	Dongguan Huachuang Electronic Co., Ltd.
Address	No. 35, Rongfu Road, Shangsha Community, Chang'an Town, Dongguan, Guangdong Province
Contact Person	Miss You
Telephone Number	18929176141
E-mail Address	671442677@qq.com

2.2 Manufacturer Information

Manufacturer	N/A
Address	N/A

2.3 General Description for Equipment under Test (EUT)

EUT Name	wireless carplay adapte
Model Name Under Test	CP10
Antenna Type	PCB Antenna
Dimensions	18*6 mm

Note: This sample contains includes test data for both 2.4G and 5G bands, where 1# is 2.4G band data and 2# is 5G band data. In this report, 1# and 2# are used to represent the corresponding frequency band and the corresponding test data.

2.4 Ancillary Equipment

Note: Not applicable.

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	--

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	±1.92dB

4 GENERAL TEST CONFIGURATIONS

4.1 Test Condition

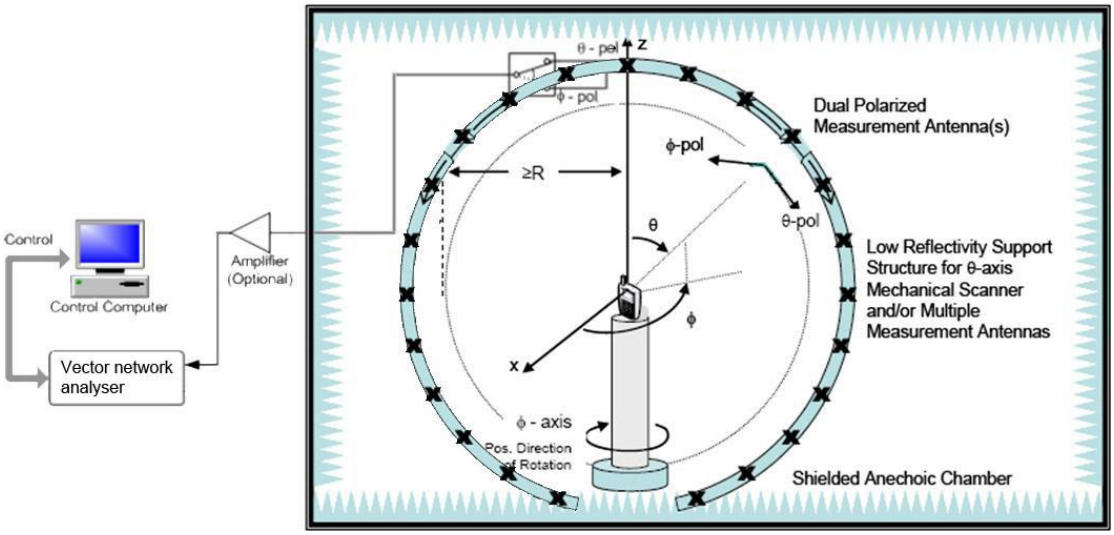
Environment Parameter	Selected Values During Tests			
	Ambient Pressure(KPa)	Temperature(℃)	Voltage	Relative Humidity (%)
Normal Temperature, Normal Voltage (NTNV)	101	21.6	N/A	45

4.2 Test Equipment List

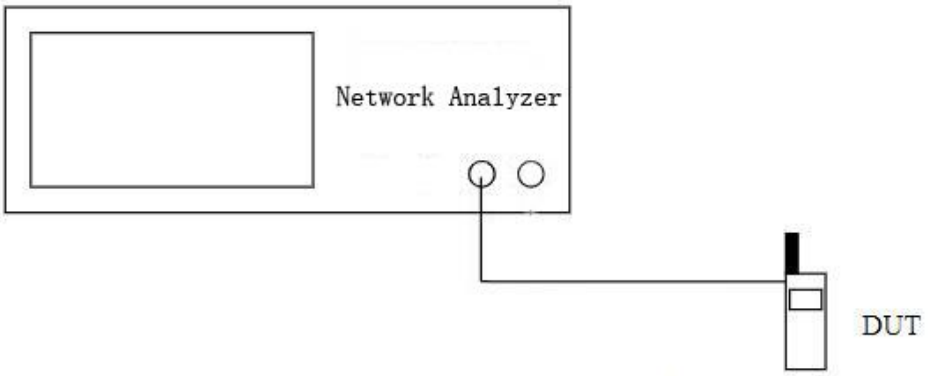
Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
SG24 Multi-probe Antenna Measurement System	SATIMO	SG24-L	1101855-0001	2021.11.12	2024.11.11
Vector Network Analyzer	Agilent	E5071B	MY42404001	2024.01.16	2025.01.15
Description	Manufacturer	Name		Version	
Test Software	MVG	SPM		V 1.8	

4.3 Test Setup

4.3.1 Antenna gain, efficiency and radiation pattern test setup



4.3.2 S11 parameter test setup



4.4 Test Frequencies

1#

Test Frequencies	2400MHz, 2410MHz, 2420MHz, 2430MHz, 2440MHz, 2450MHz, 2460MHz, 2470MHz, 2480MHz, 2490MHz, 2500MHz

2#

Test Frequencies	5150MHz, 5200MHz, 5250MHz, 5300MHz, 5350MHz, 5400MHz, 5450MHz, 5500MHz, 5550MHz, 5600MHz, 5650MHz, 5700MHz, 5750MHz, 5800MHz, 5850MHz

ANNEX A TEST RESULTS

A.1 Gain and Efficiency

1#

Frequency	Gain (dBi)	Efficiency (%)
2400MHz	2.68	22
2410MHz	2.59	22
2420MHz	2.62	23
2430MHz	2.80	24
2440MHz	2.95	25
2450MHz	2.74	25
2460MHz	2.63	25
2470MHz	2.73	27
2480MHz	2.94	**28**
2490MHz	2.90	28
2500MHz	**2.98**	28

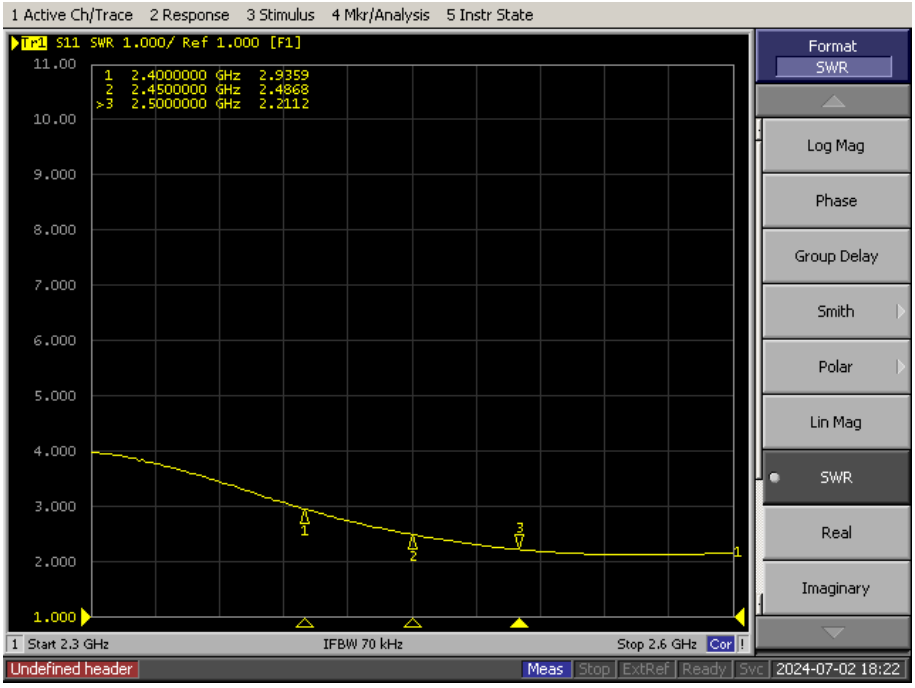
2#

Frequency	Gain (dBi)	Efficiency (%)
5150MHz	-1.97	12
5200MHz	-1.45	13
5250MHz	-0.05	18
5300MHz	1.40	24
5350MHz	2.66	33
5400MHz	3.39	38
5450MHz	4.02	45
5500MHz	4.18	**47**
5550MHz	3.93	46
5600MHz	3.78	43
5650MHz	3.73	41
5700MHz	3.90	39
5750MHz	3.73	37
5800MHz	3.91	37
5850MHz	**4.21**	40

A.2 VSWR

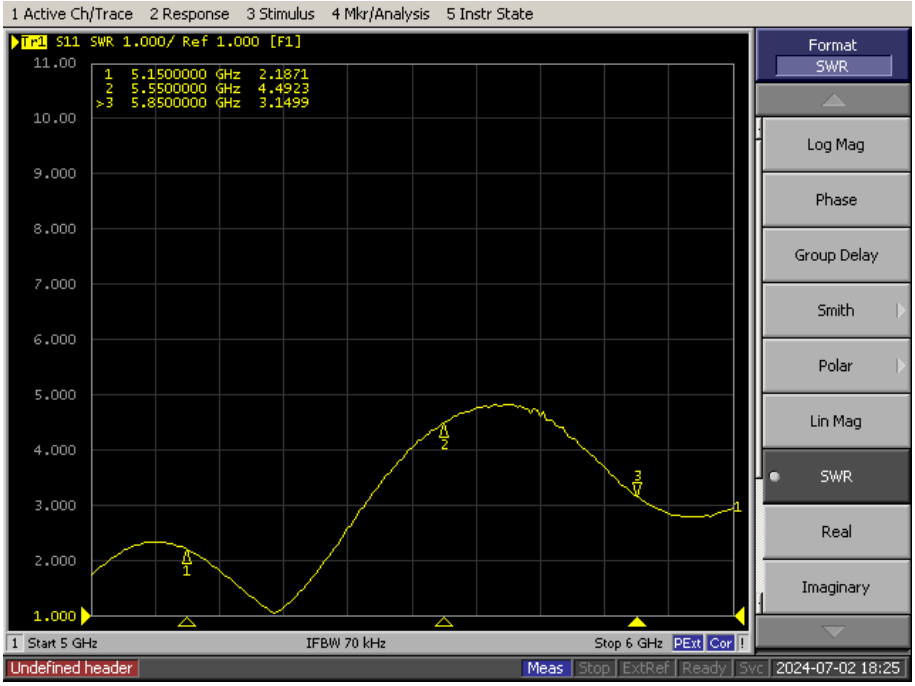
1#

Frequency	VSWR
2400MHz	2.94
2450MHz	2.49
2500MHz	2.21



2#

Frequency	VSWR
5150MHz	2.19
5500MHz	4.49
5850MHz	3.15

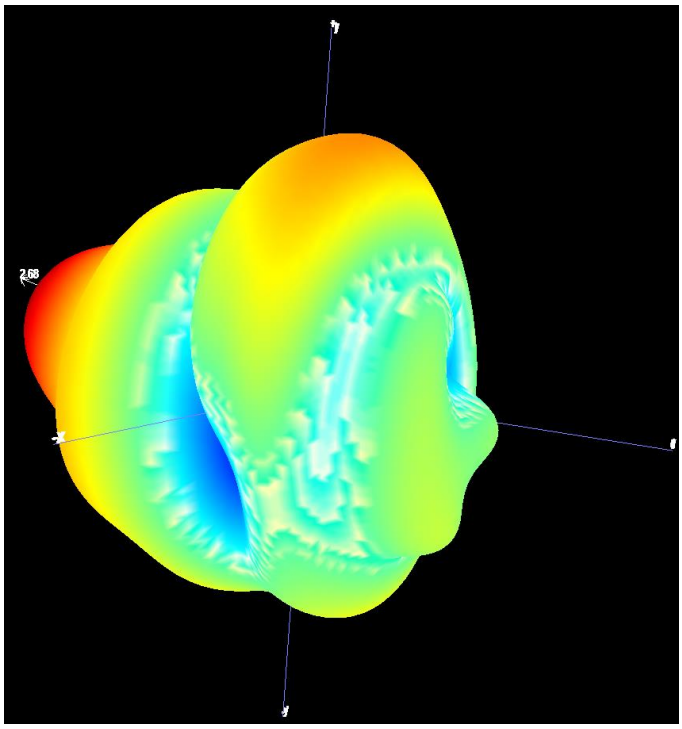


ANNEX B RADIATION PATTERN

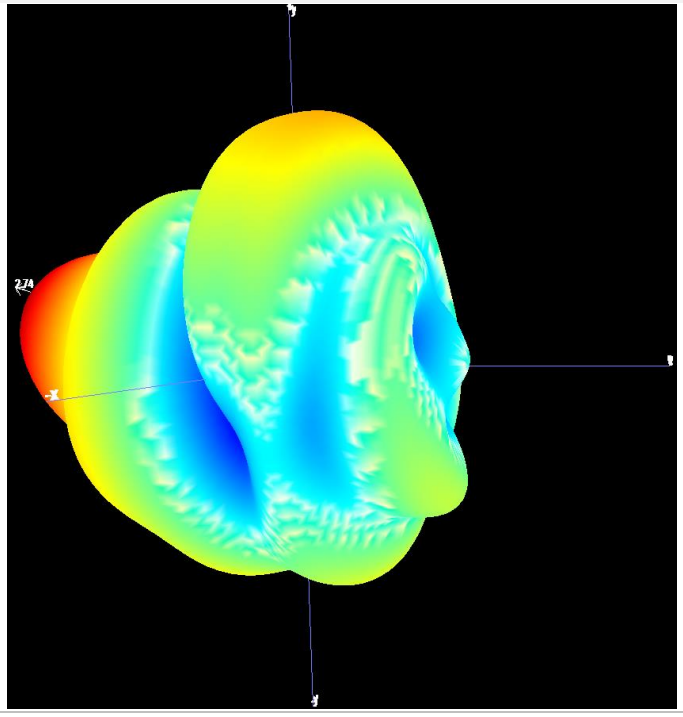
B.1 3D Pattern

1#

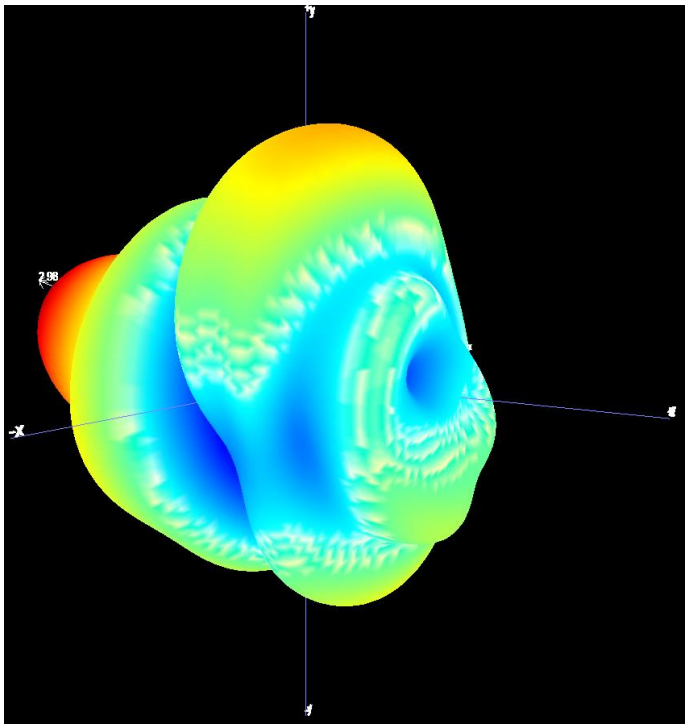
B1.1 3D Pattern for 2400MHz



B1.2 3D Pattern for 2450MHz

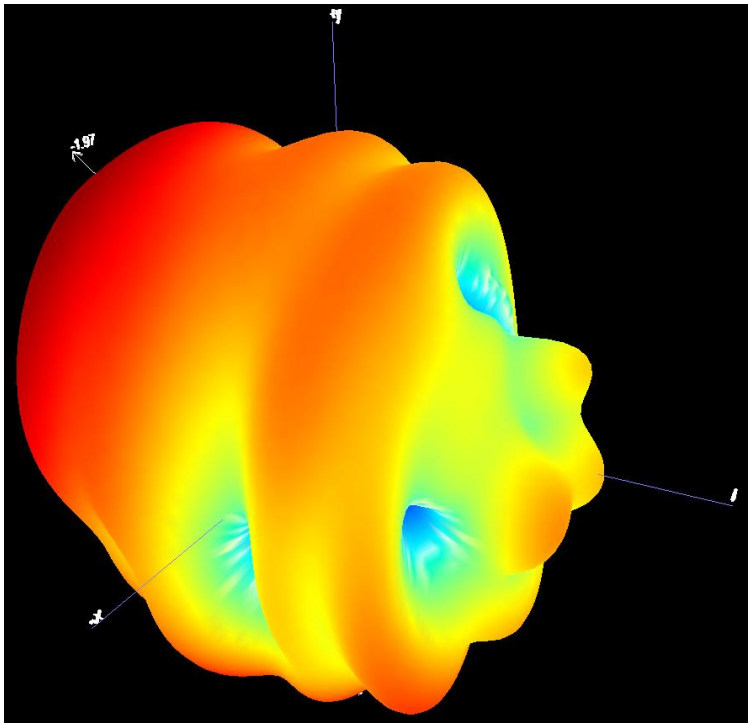


B1.3 3D Pattern for 2500MHz

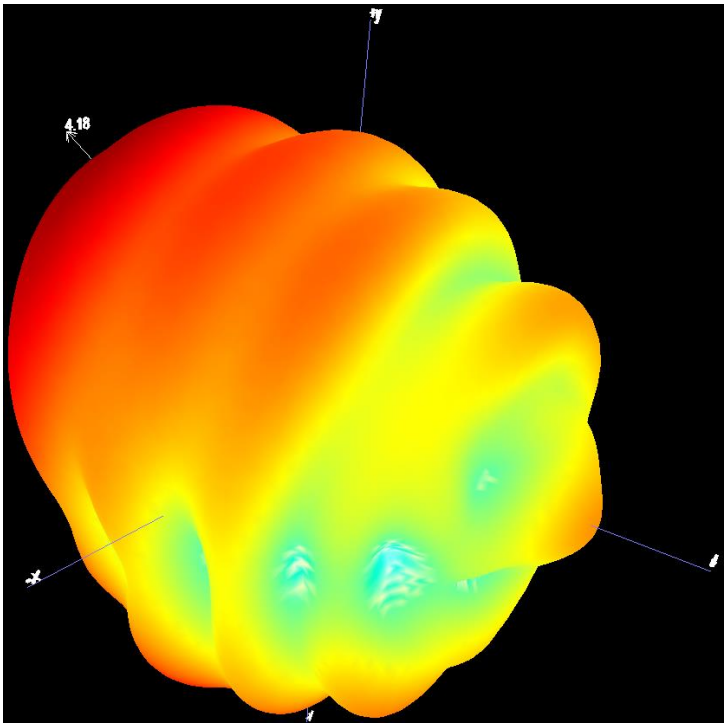


2#

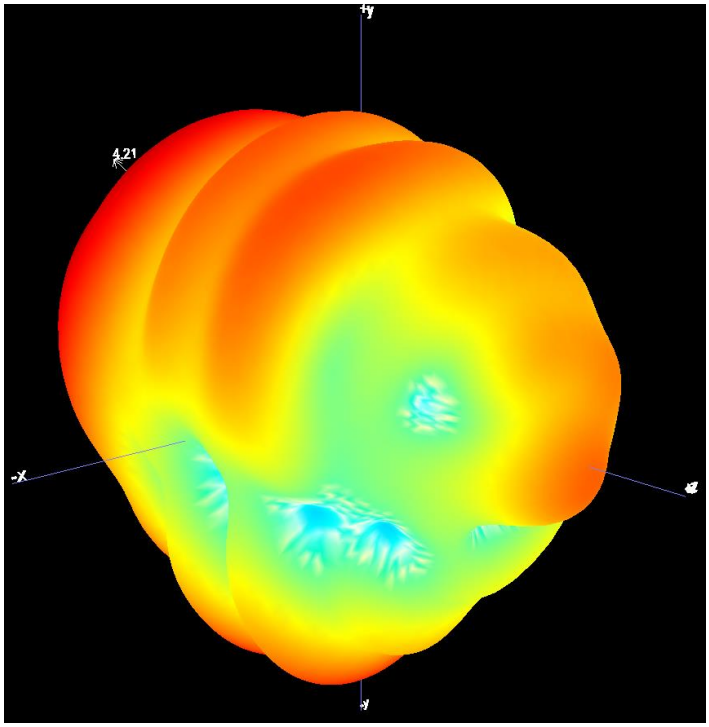
B1.4 3D Pattern for 5150MHz



B1.5 3D Pattern for 5500MHz



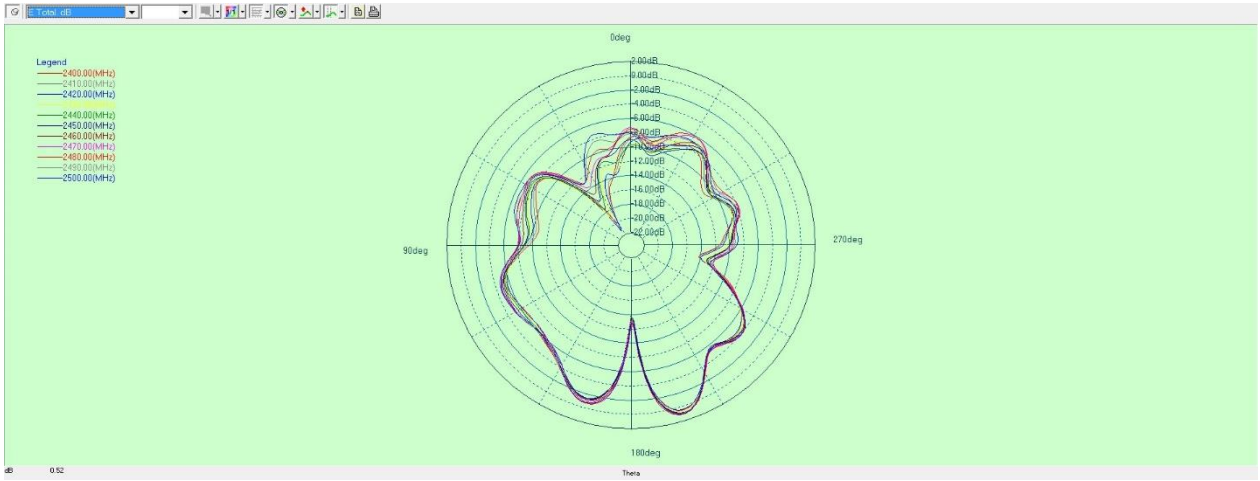
B1.6 3D Pattern for 5850MHz



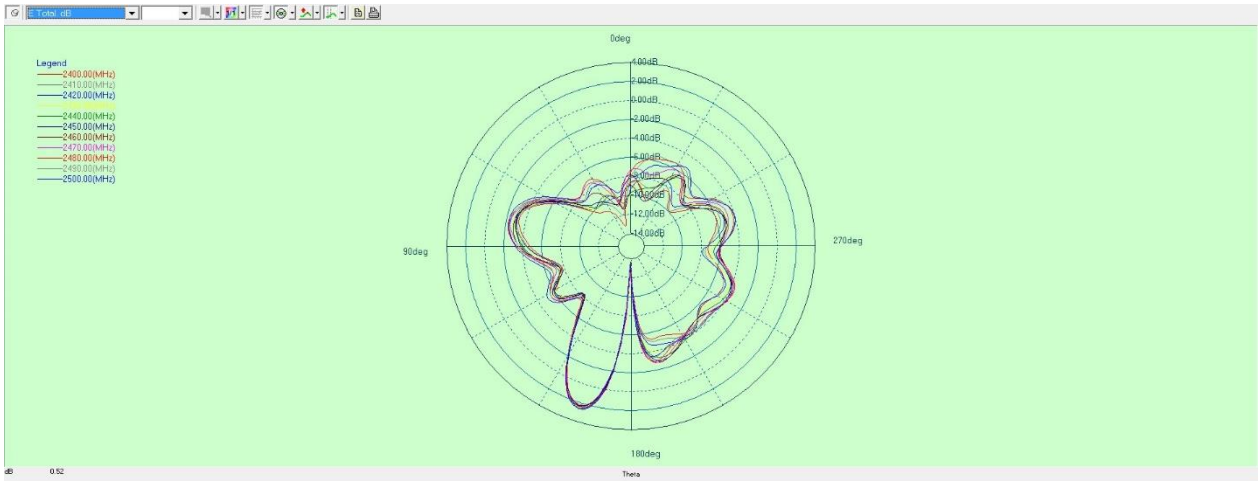
B.2 1D Radiation Pattern

1#

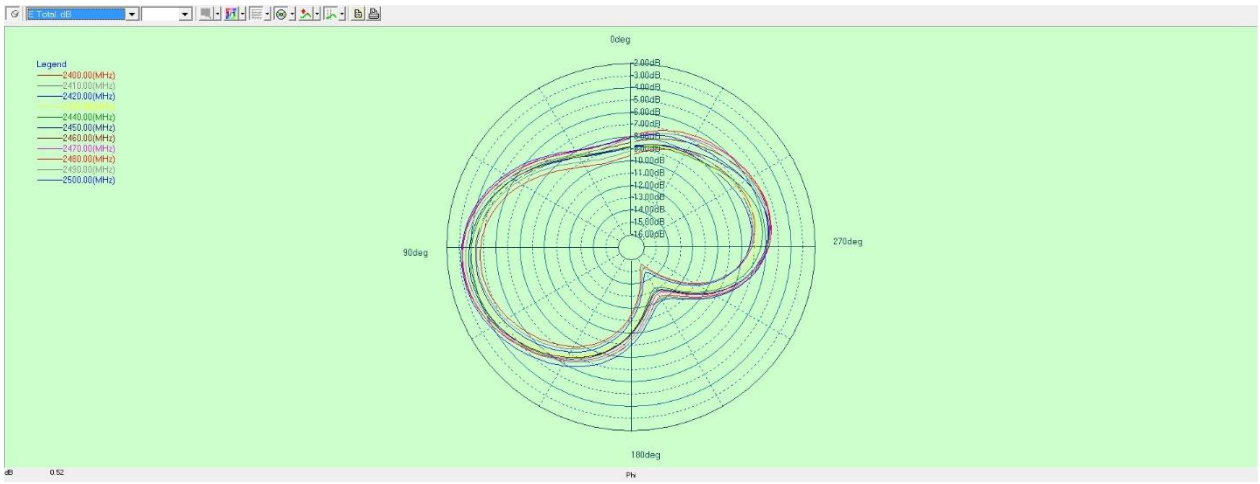
B2.1 PHI=0



B2.2 PHI=90

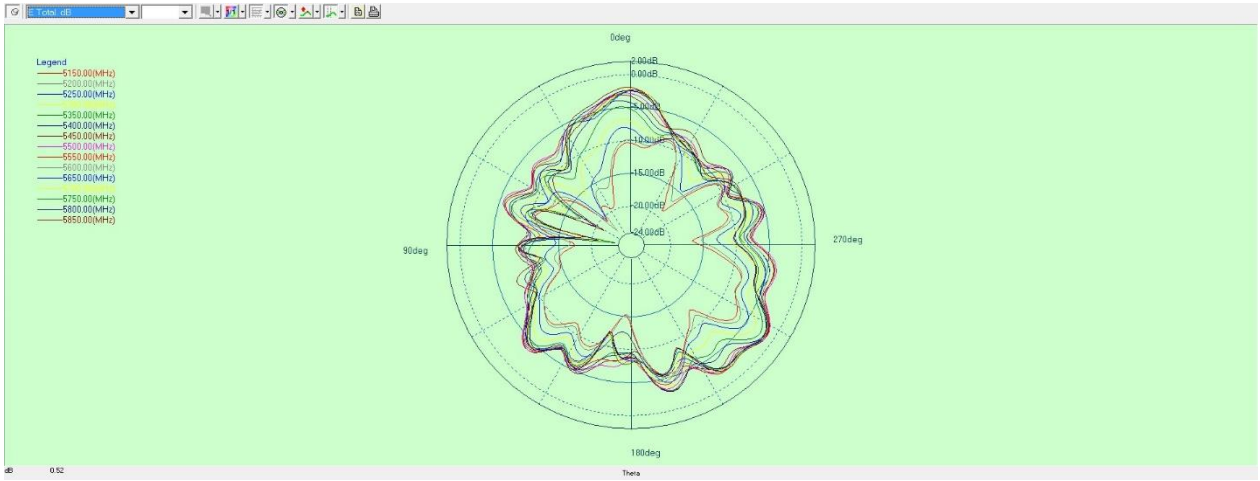


B2.3 THETA=90

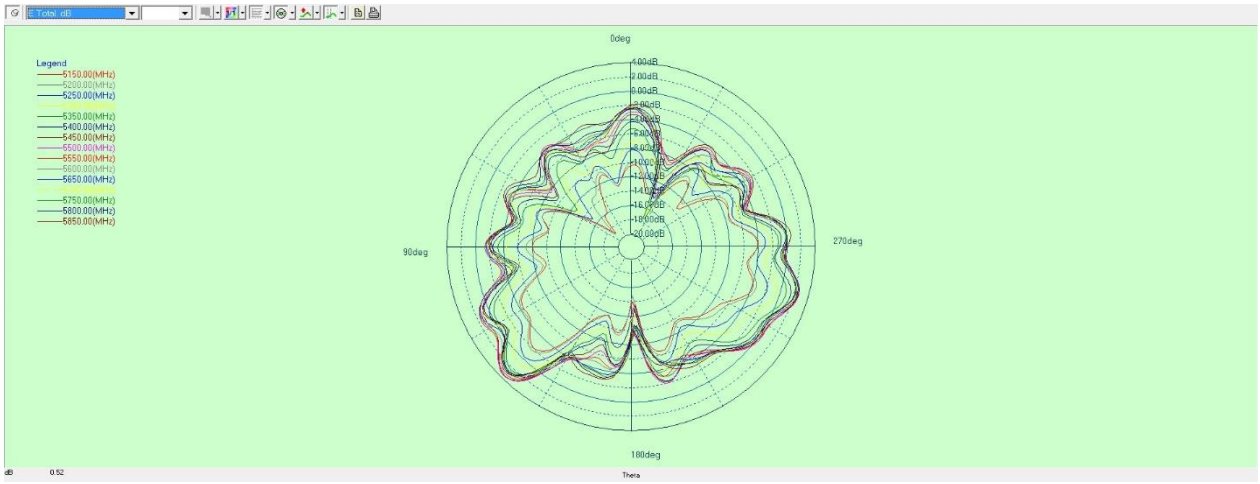


2#

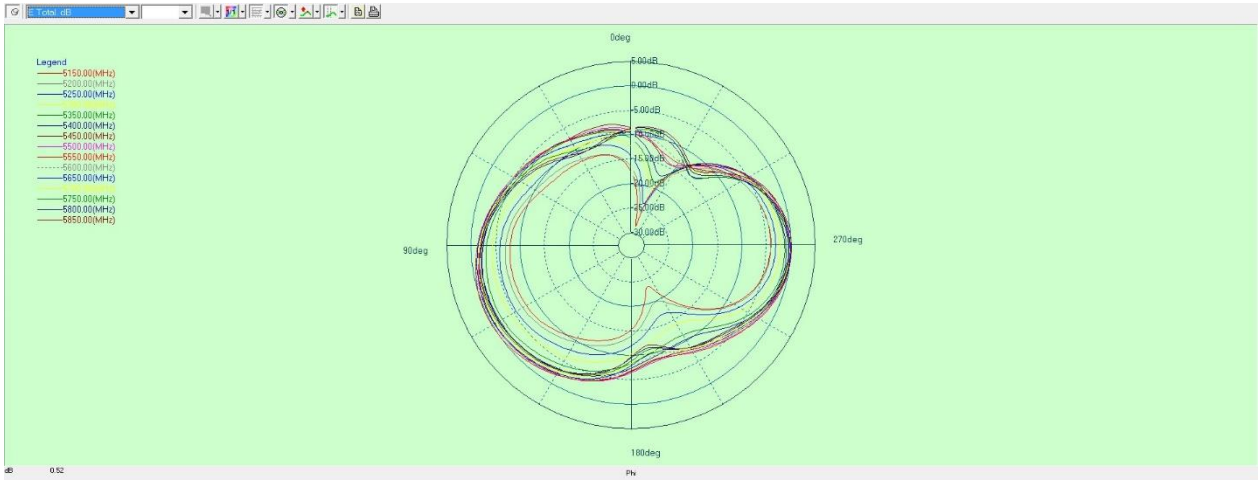
B2.4 PHI=0



B2.5 PHI=90



B2.6 THETA=90



ANNEX C TEST SETUP PHOTOS

Please refer the document “BL-SZ2470167-AO.PDF”.

ANNEX D EUT PHOTO

Please refer the document “BL-SZ2470167-AA.PDF”.

Statement

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--END OF REPORT--