OTA TEST REPORT

Applicant	Shenzhen Guanqun Electronics Co. , Ltd.
Project name	DK038Pro美版
Date of report	September 8,2022
Engineer	Wang Zhifeng

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Test Laboratory

1. 1 Notes of the Test Report

This report shall not be reproduced in full or paritial,without the written approval of **Shenzhen Maya Communication Equipment Co. , Ltd.** The results documented in this report apply only to the tested sample,under the conditions and modes of operation as described herein. Measurement Uncertainties were not taken into account and are published for informational purposes only. This report is written to support regulatory compliance of the applicable standards stated above.

1. 2 Test facility

CERTIFICATE OF COMPLIANCE N° CC.126.2.16.MVI.A

Shenzhen Maya Communication Equipment Co. , Ltd. has been included in the Italian Institute of Laboratory Accreditation Executive Measurement

1. 3 Testing Location

Company: Shenzhen Maya Communication Equipment Co. , Ltd.

Address: 2/F, Unit 2, Building 1, Guanghui Science and Technology Park, Minqing Road, Longhua District, Shenzhen City, Guangdong Province

Post code: 518000

Contact: Yan Rong Fen

Telephone: 15815509272

E-mail: yyf@mayaant.com

1. 4 Laboratory Environment

Temperature	22℃-25℃	
Relative humidity	≤80%	
Shield effect	0.7-6GHz	>100dB
Ground resistance	<0.5Ω	

02

General Descrlption of Equipment under Test

2. 1 Applicant and Manufacturer Information

Applicant Name	Shenzhen Guanqun Electronics Co. , Ltd.
Applicant address	Block A, Block 7B01, Tianyao Plaza, Anhongji, Tai Leng community, Minzhi Street, Longhua District, Shenzhen City
Manufacturer Name	Shenzhen Maya Communication Equipment Co. , Ltd.
Manufacturer address	2/F, Unit 2, Building 1, Guanghui Science and Technology Park, Minqing Road, Longhua District, Shenzhen City, Guangdong Province

2. 2 General Information

EUT Description	
Project name	DK038Pro美版
Antenna Type	FPC Antenna
Antenna Manufacturer	Shenzhen Maya Communication Equipment Co. , Ltd.
Test Frequency	1710MHz~2700MHz,2400MHz~2500MHz,5200MHz~5800MHz, 1570MHz~1580MHz,700MHz~960MHz,
Note:The EUT is sent from the applicant to MAYA and the information of the EUT is declared by the applicant. All indications of Pass/Fail in this report are opinions expressed by MAYA based on interpretations and/or observations of test results.Measurement Uncertainties were not taken into account and are published for informational purposes only.	

2.3 Test Date

The test is performed from August 8,2022 to August 18,2022

2.4 Receiving Date

The sample was received on August 8,2022

2.5 Applied Standards

According to the specifications of the manufacturer,it must comply with the requirements of the following standards.

Test Method:Have been manufactured and tested following the MV Italy procedure and according to ISO 9001 requirements.

Test lab.of the antenna gain and radiation pattern measurement :
Shenzhen Maya Communication Equipment Co. , Ltd.

Test Conditions

3. 1 Test method description and data

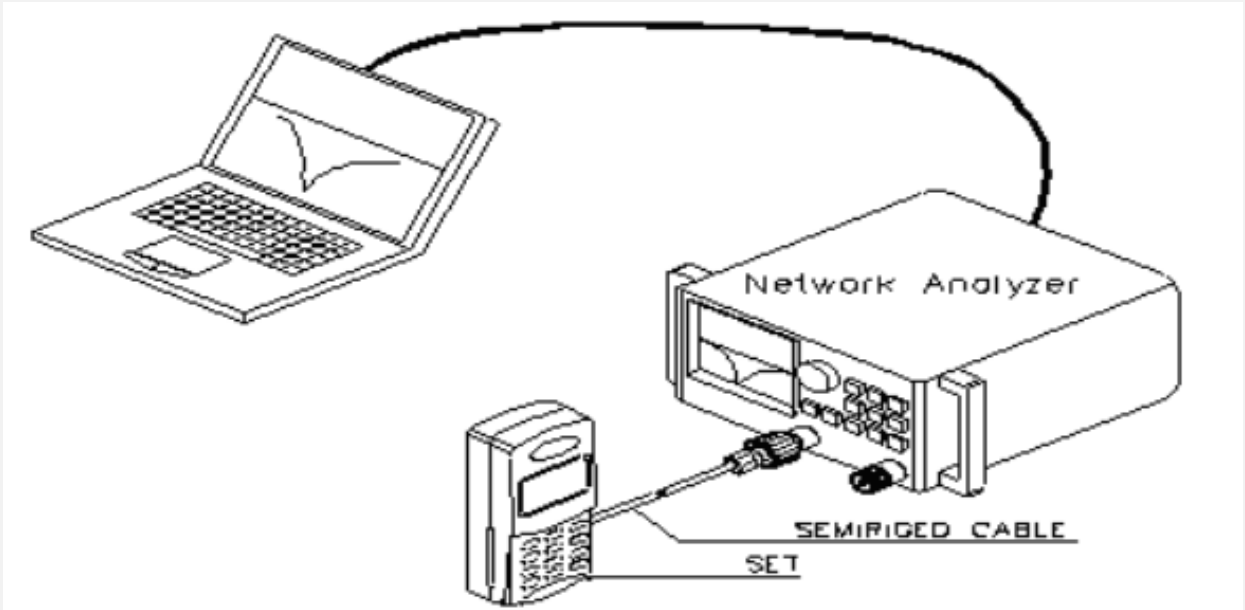
Device name	Purpose
Vector Network Analyzer	S11/Impedance/ Passive Test
Agilent 8960 SP6010 R&S CMU200	Mobile Communication Device Test including GSM, GPRS, EDGE, CDMA2000,1XEV-DO, TD-SCDMA, WCDMA, HSDPA
R&S CMW500 MT8820C	Mobile phone test including TD-SCDMA, WCDMA, HSDPA, LTE, WIFI, GPS
SP9500E	Contains 5G, SA, NSA
Agilent E4438C	Test active GPS
MVG Chamber	Passive Test / OTA active Test / Efficiency/Gain

3. 2

Passive Test Report

Test Equipment：Network analyzer

Test method: A 50 ohm CABLE is used to export from the instrument test port. After calibration, the SMA Joint of the handset is connected with the calibrated parts, and the data of the relevant frequency points such as echo loss or standing wave ratio is recorded.



测试示意图

3. 3

Active Test Report

TRP/TIS

Testing Tools: General Surveyor, Network Analyzer, full-wave Far-field ETS, French MVG SG24LT (Satmio) near-field 3D anechoic chamber,High Precision positioning system and its controller and computer test environment with automatic test program:Temperature 22 ° C ± 3 ° C, humidity 60% ± 15%:Using the Test Method and calculation of TRP in EST or Satimo 24LT system software, DUT (Device Under Test) is in the state of maximum transmitting power when TRP is tested, the position of the DUT is controlled by the positioning system. The 15-degree step is used to measure the 3D effective radiated power (EIRP) at each point. The mean value on the sphere is calculated by integrating,The formula is as follows:

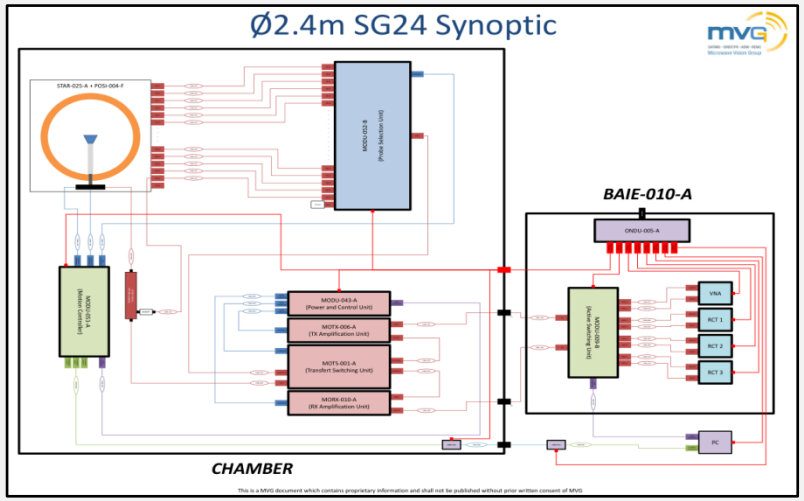
$$TRP \cong \frac{\pi}{2NM} \sum_{i=1}^{N-1} \sum_{j=0}^{M-1} \left[EiRP_{\theta}(\theta_i, \phi_j) + EiRP(\theta_i, \phi_j) \right] \sin(\theta_i)$$

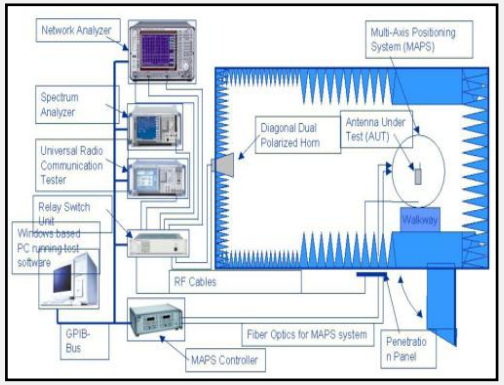
3. 3

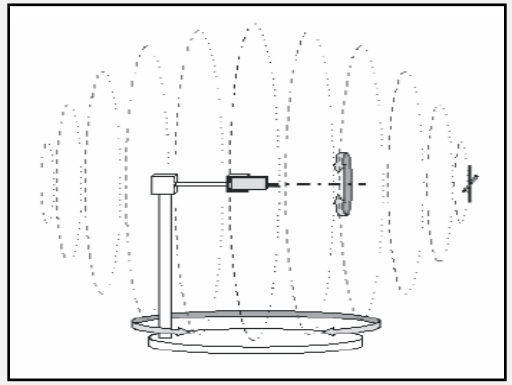
Active Test Report

In the TIS test, the DUT is in the state of maximum transmitting power. Three channels are selected to test. By controlling the position of the DUT, the receiving sensitivity of each point of the 3D is measured at a step length of 30 degrees, the mean value on the sphere is calculated by integration,The formula is as follows:

$$TIS \cong \frac{2NM}{\pi \sum_{i=1}^{N-1} \sum_{j=0}^{M-1} \left[\frac{1}{EIS_{\theta}(\theta_i, \phi_j)} + \frac{1}{EIS_{\phi}(\theta_i, \phi_j)} \right] \sin(\theta_i)}$$







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Test Results

4. 1 Gain

GSM850	0.3dB
GSM900	0.4dB
DCS1800	0.6dB
PCS1900	0.6dB
WCDMA1	0.6dB
WCDMA2	0.6dB
WCDMA4	0.6dB
WCDMA5	0.3dB
LTE B2	0.6dB
LTE B4	0.6dB
LTE B5	0.3dB
LTE B7	0.7dB
LTE B12	0.2dB
LTE B13	0.2dB
LTE B17	0.2dB
LTE B25	0.6dB
LTE B26	0.3dB
LTE B66	0.6dB
2.4G	1dB
5G	0.8dB

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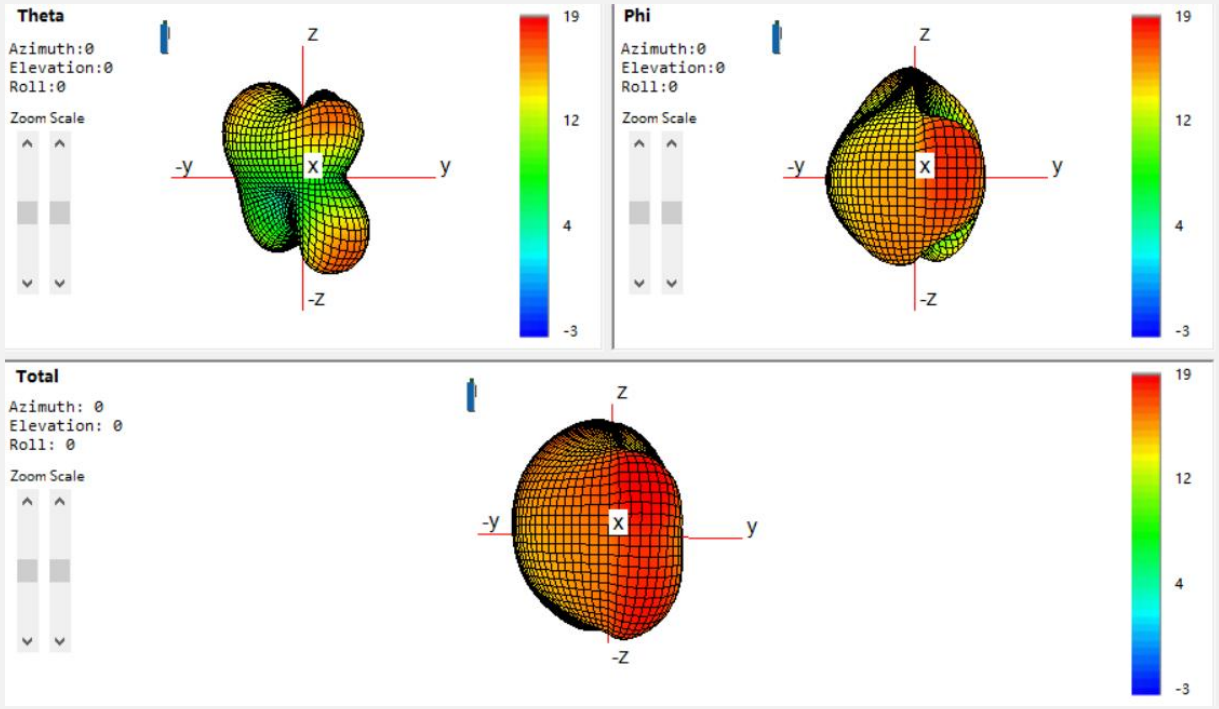
Equipment List

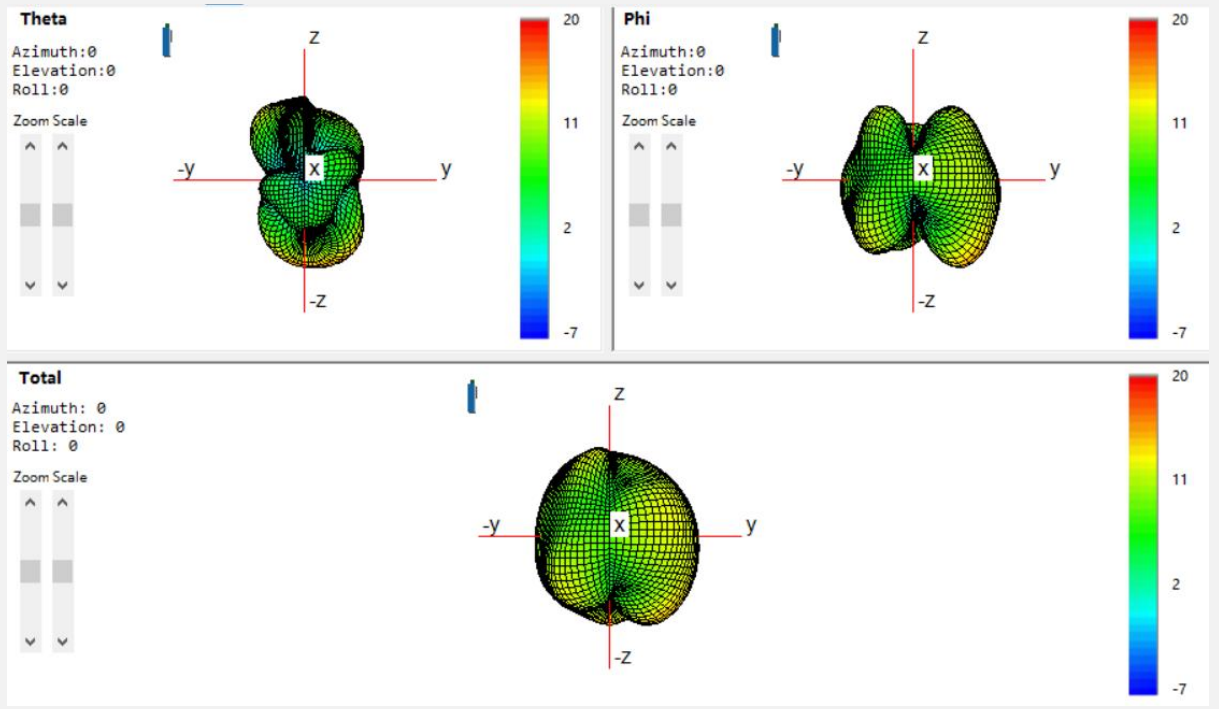
5. 1

Type of Equipment	Manufacture	Model Number	S/N	Calibration Date
Network Analyzer	KEYSIGHT	E5071C	MY46528346	2021-12-11
Network Analyzer	Agilent Technologies	E5071B	MY42200809	2021-12-11

5. 2 ANNEX A 3-D Pattern Plots



1710-2700MHz



2400-2500MHz

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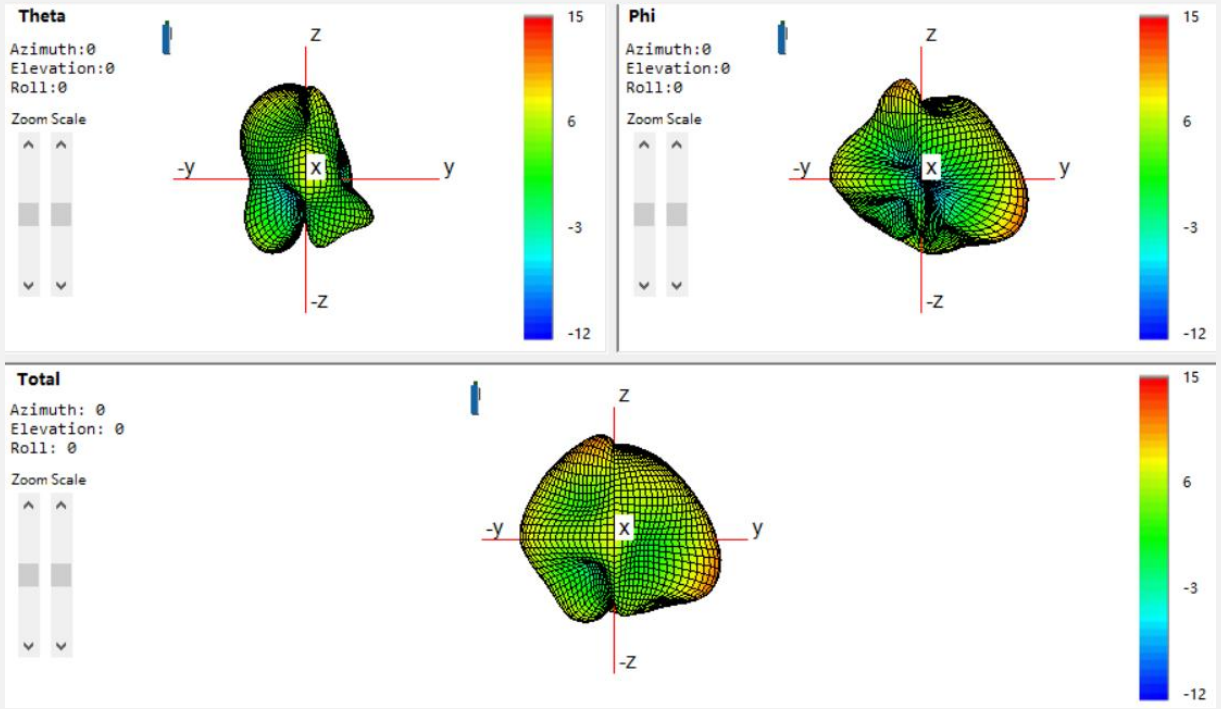
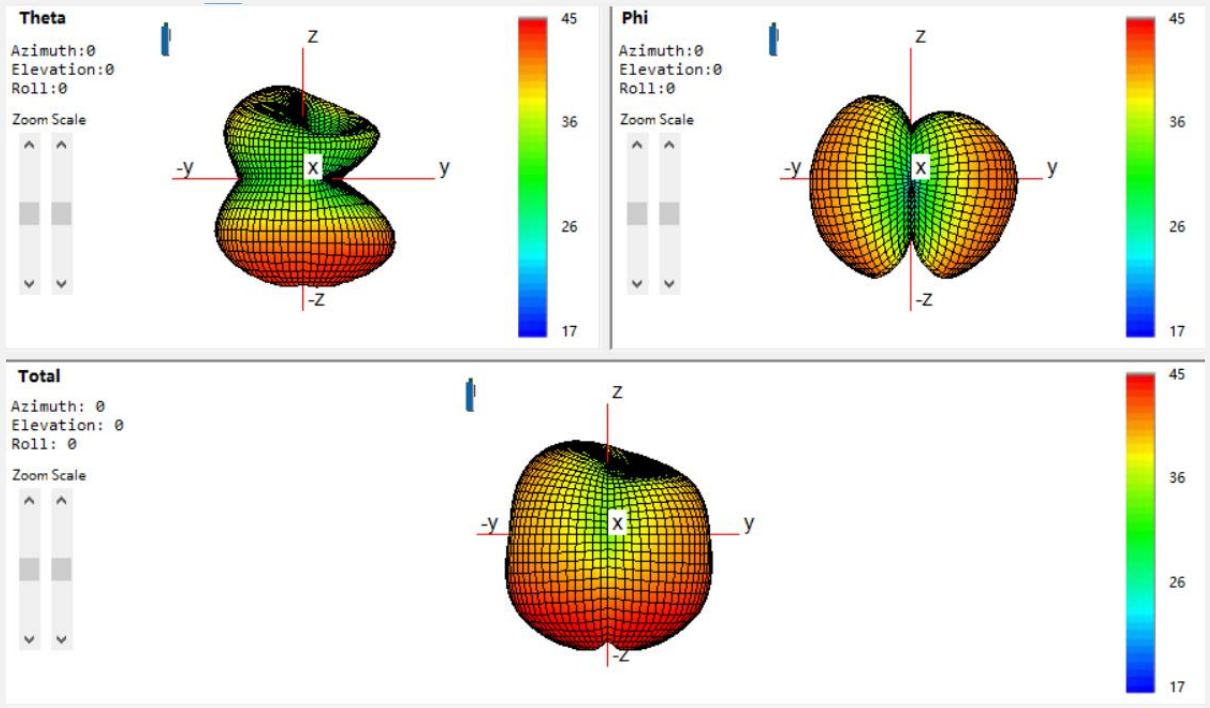


5200-5800MHz



1570-1580MHz

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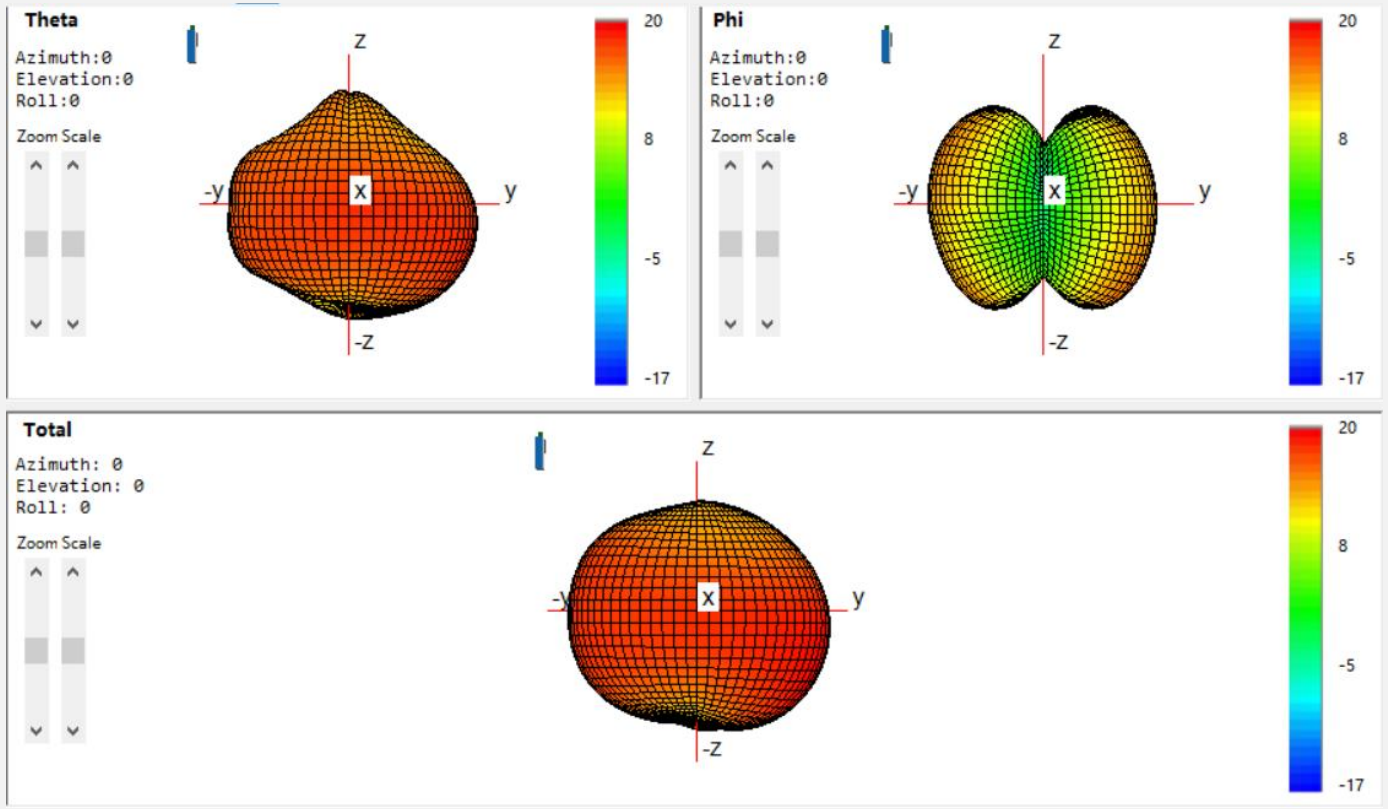
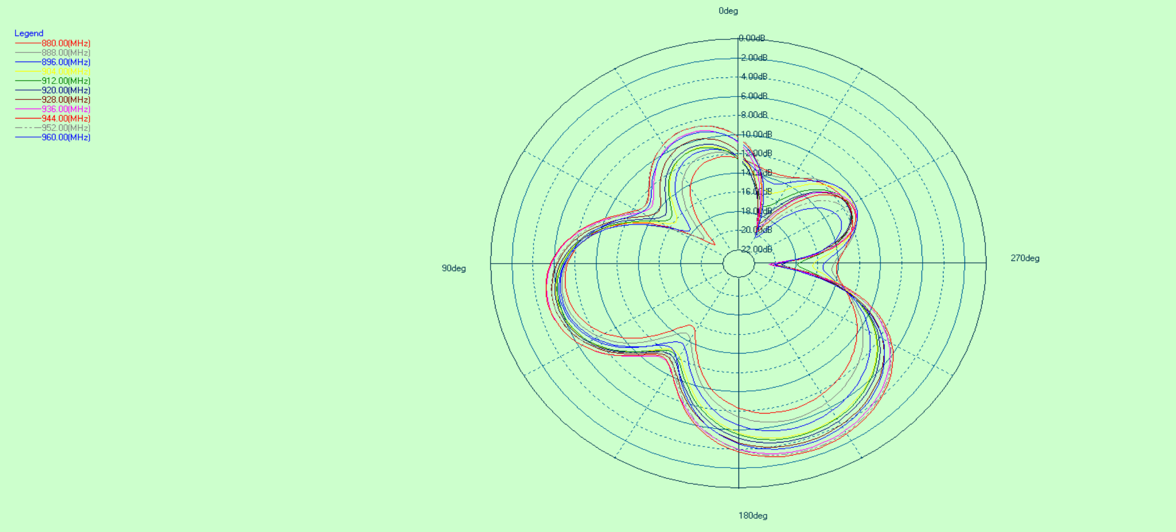
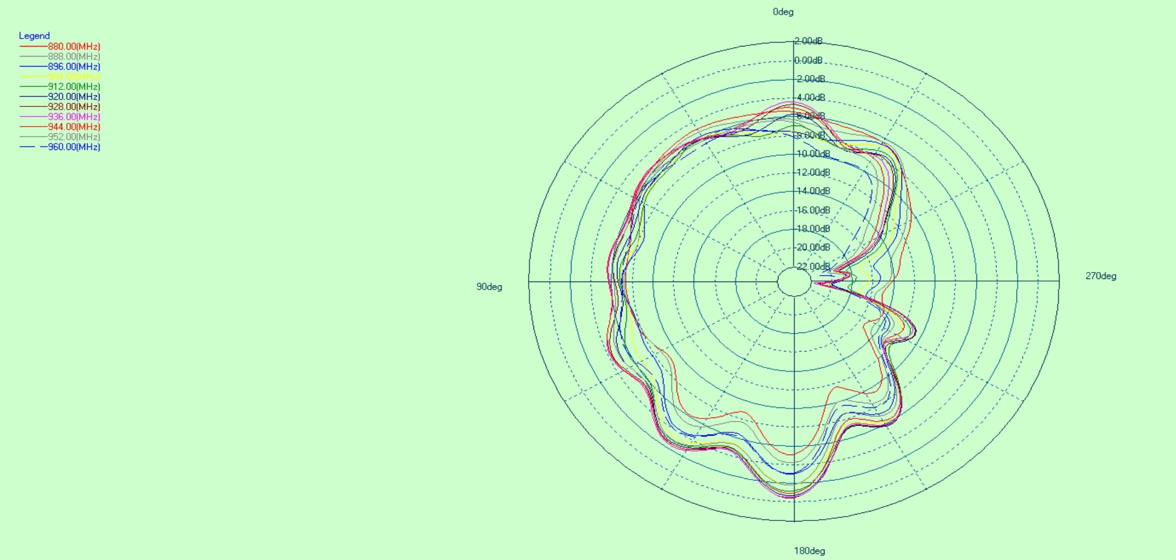


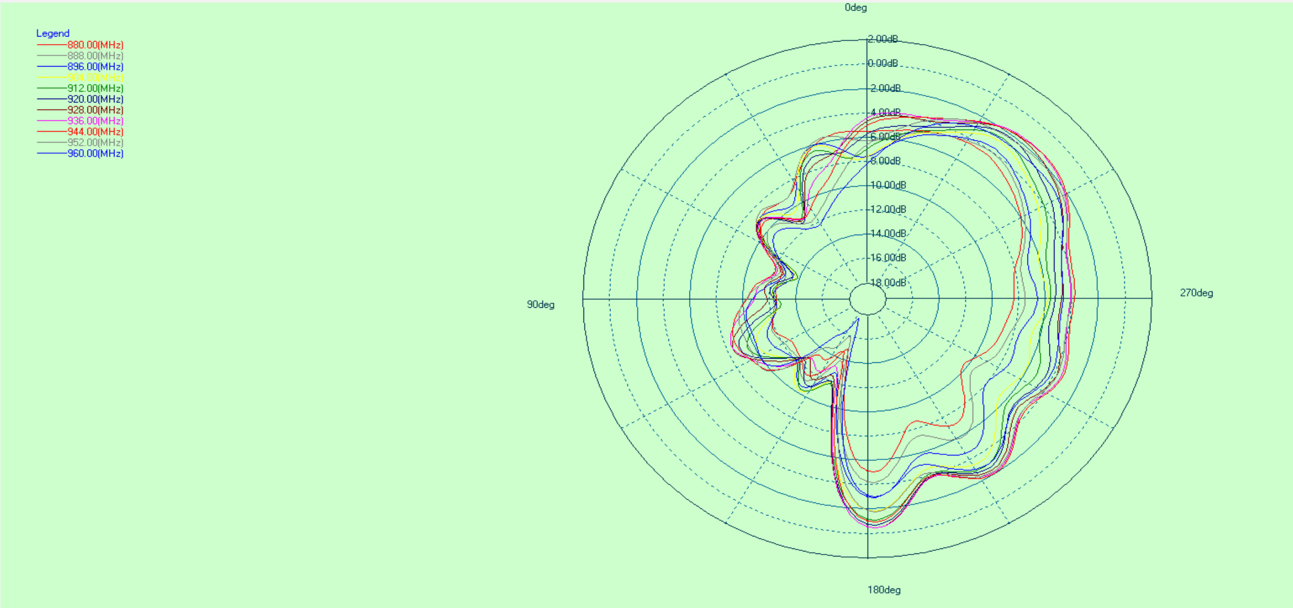
700-960MHz

5. 2

ANNEX A 3-D Pattern Plots







700-960MHz

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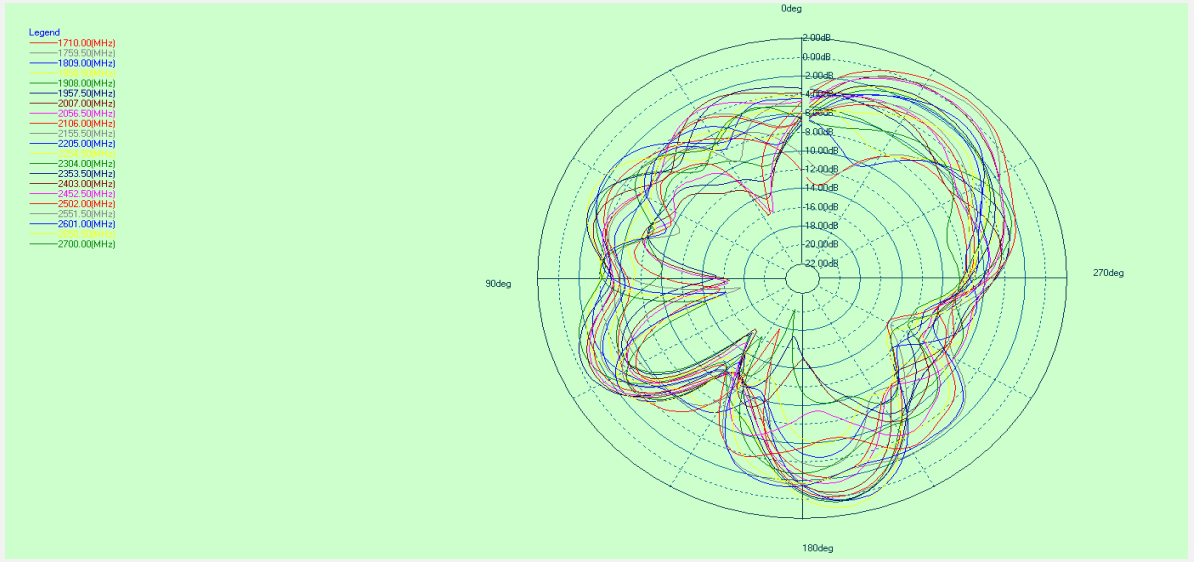

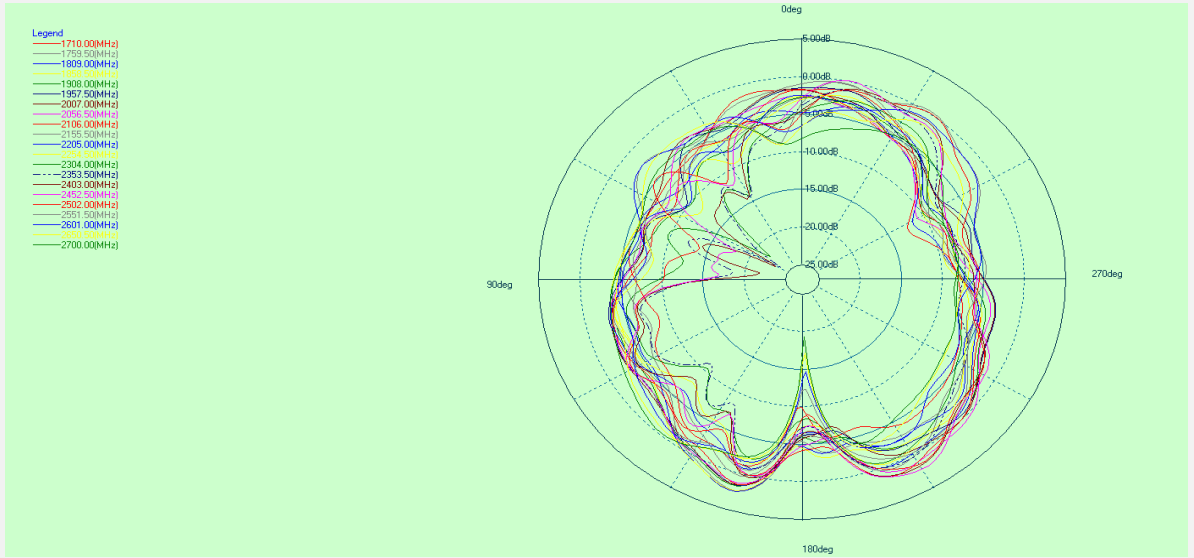

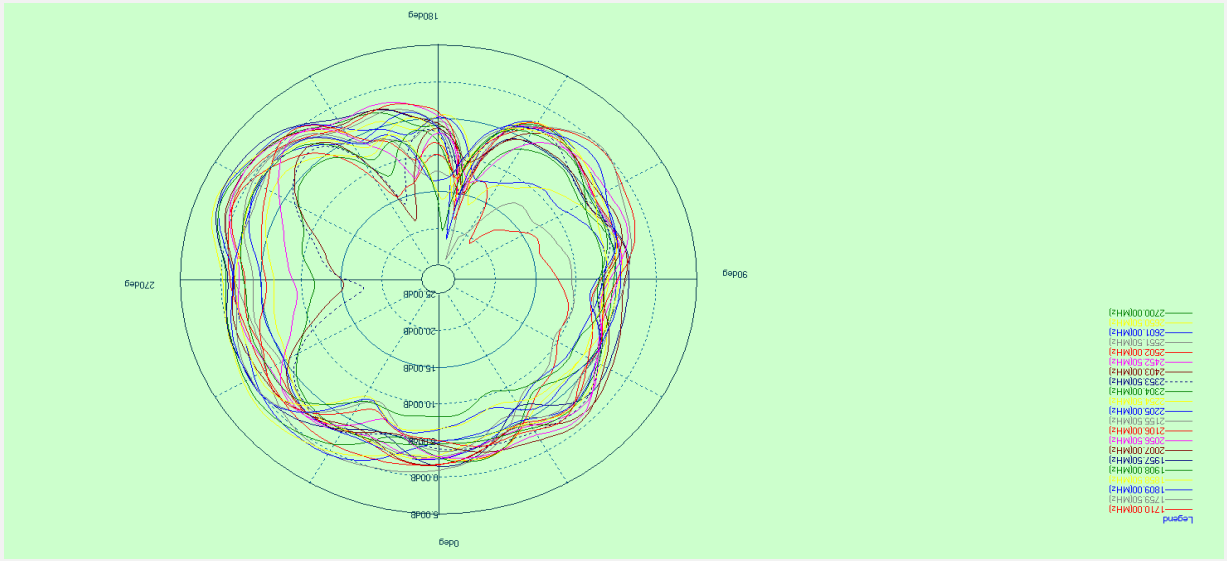

1710-2700MHz

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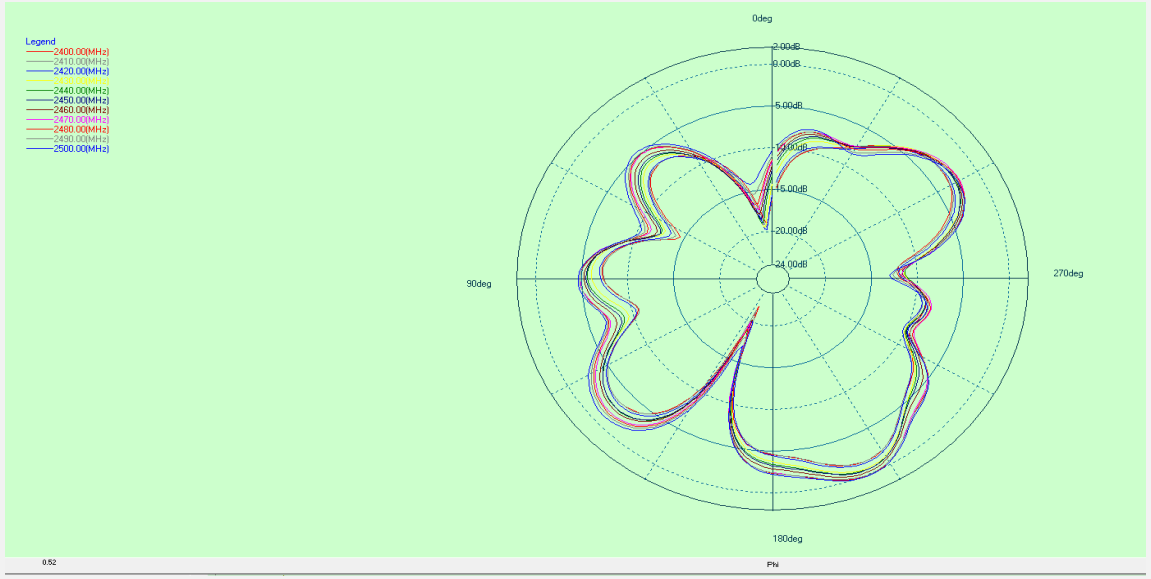

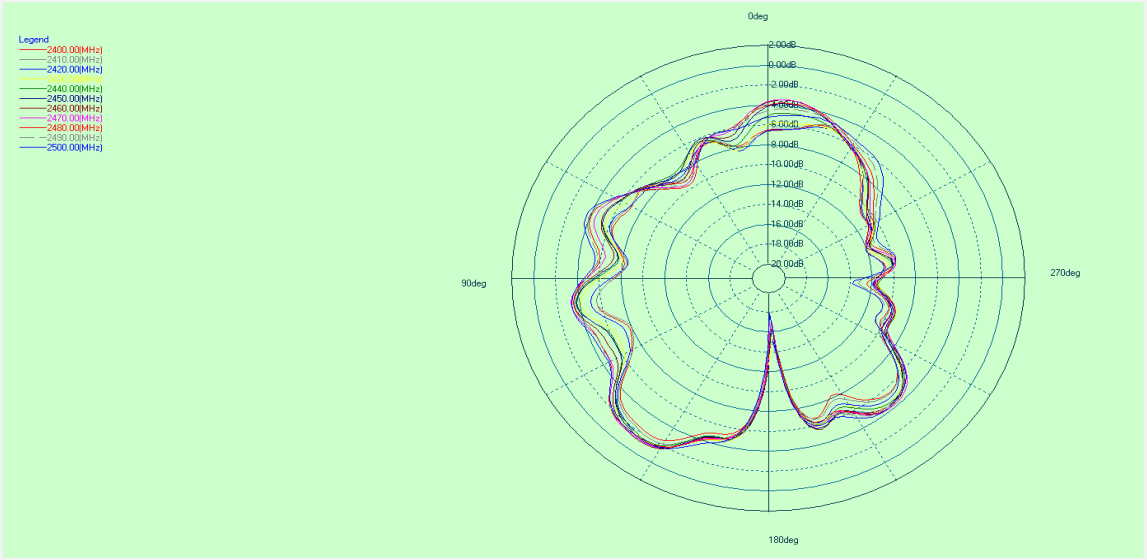

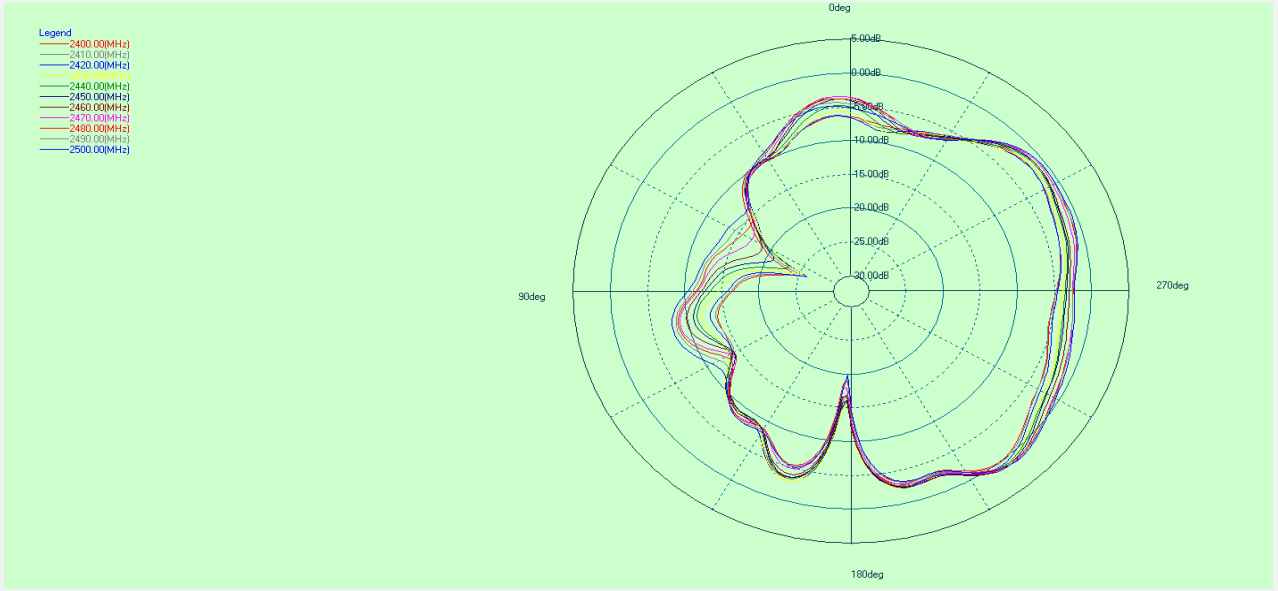

2400-2500MHz

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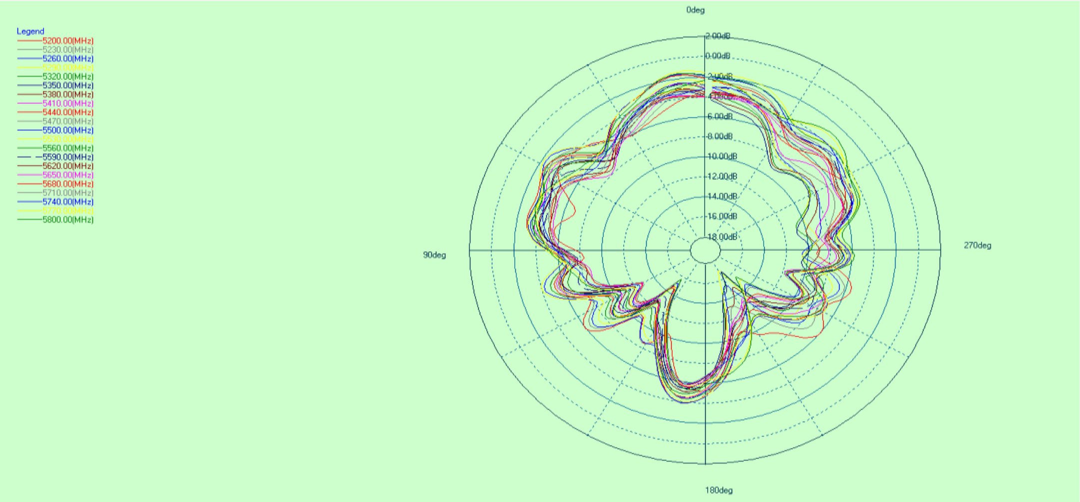

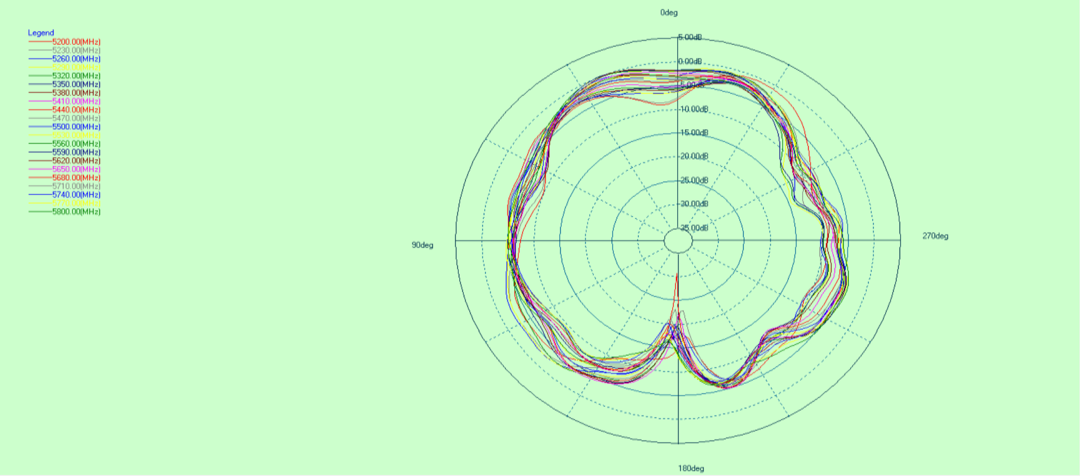

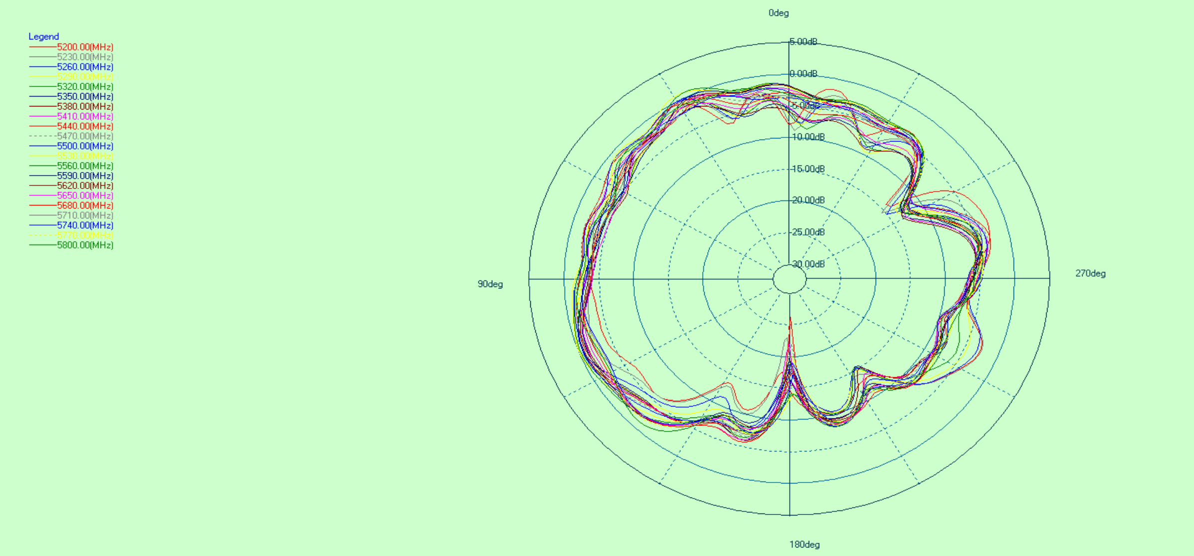

5200-5800MHz

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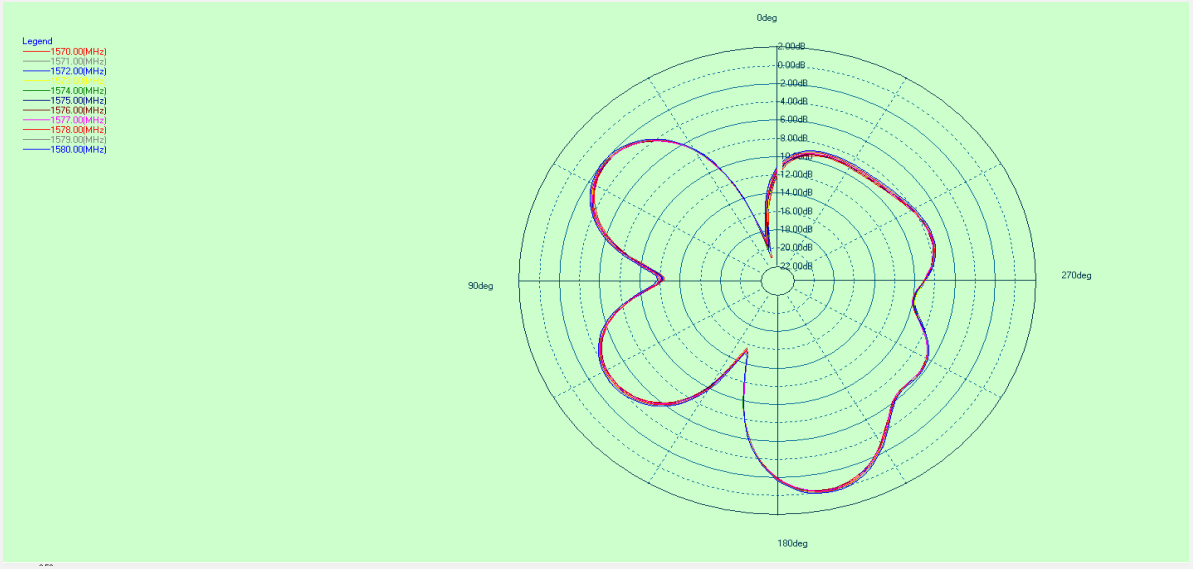
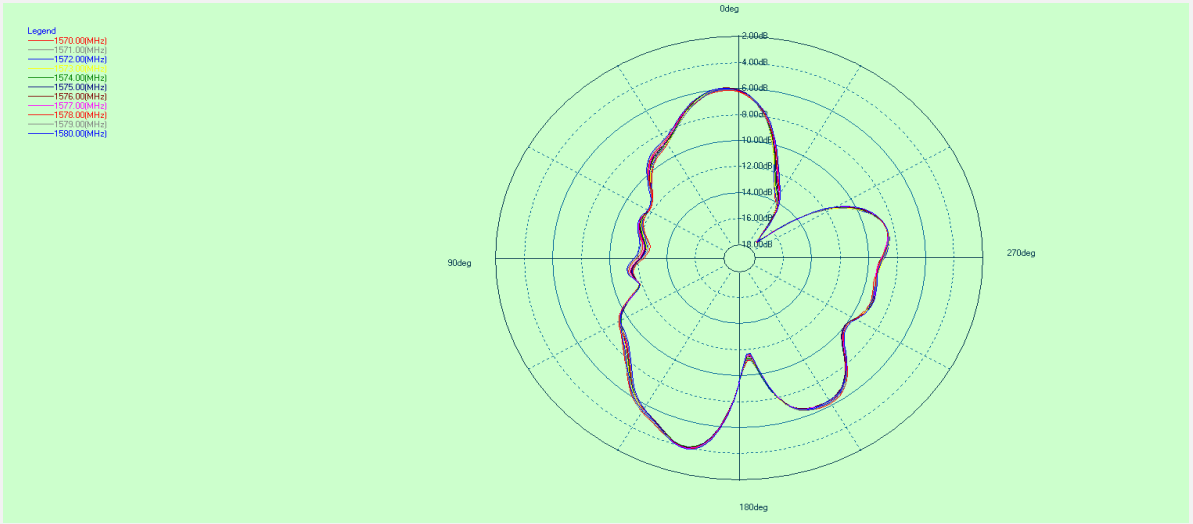
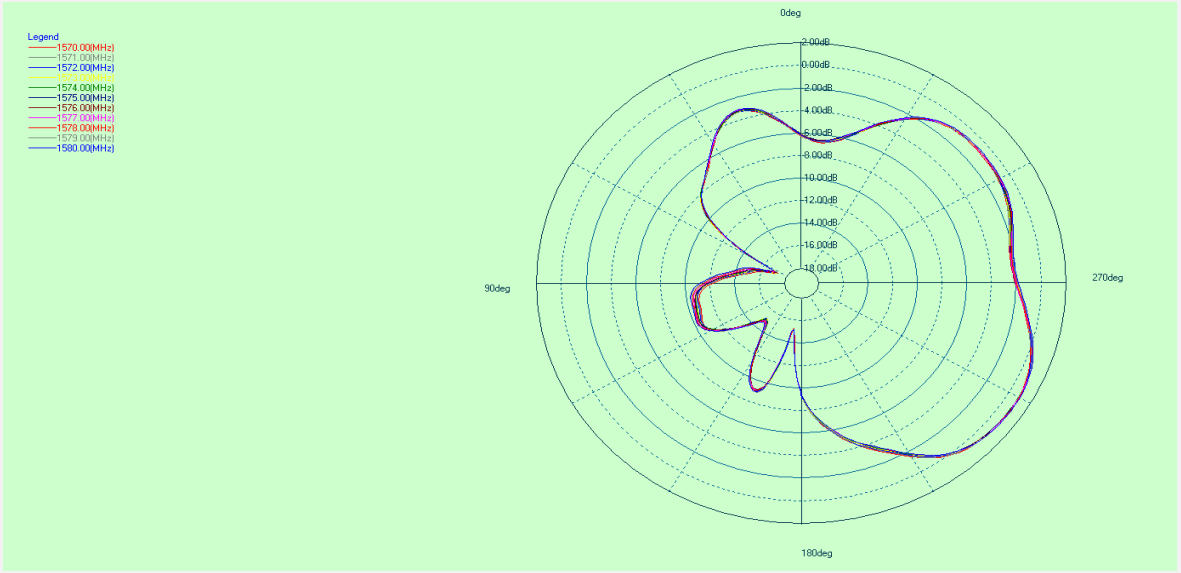
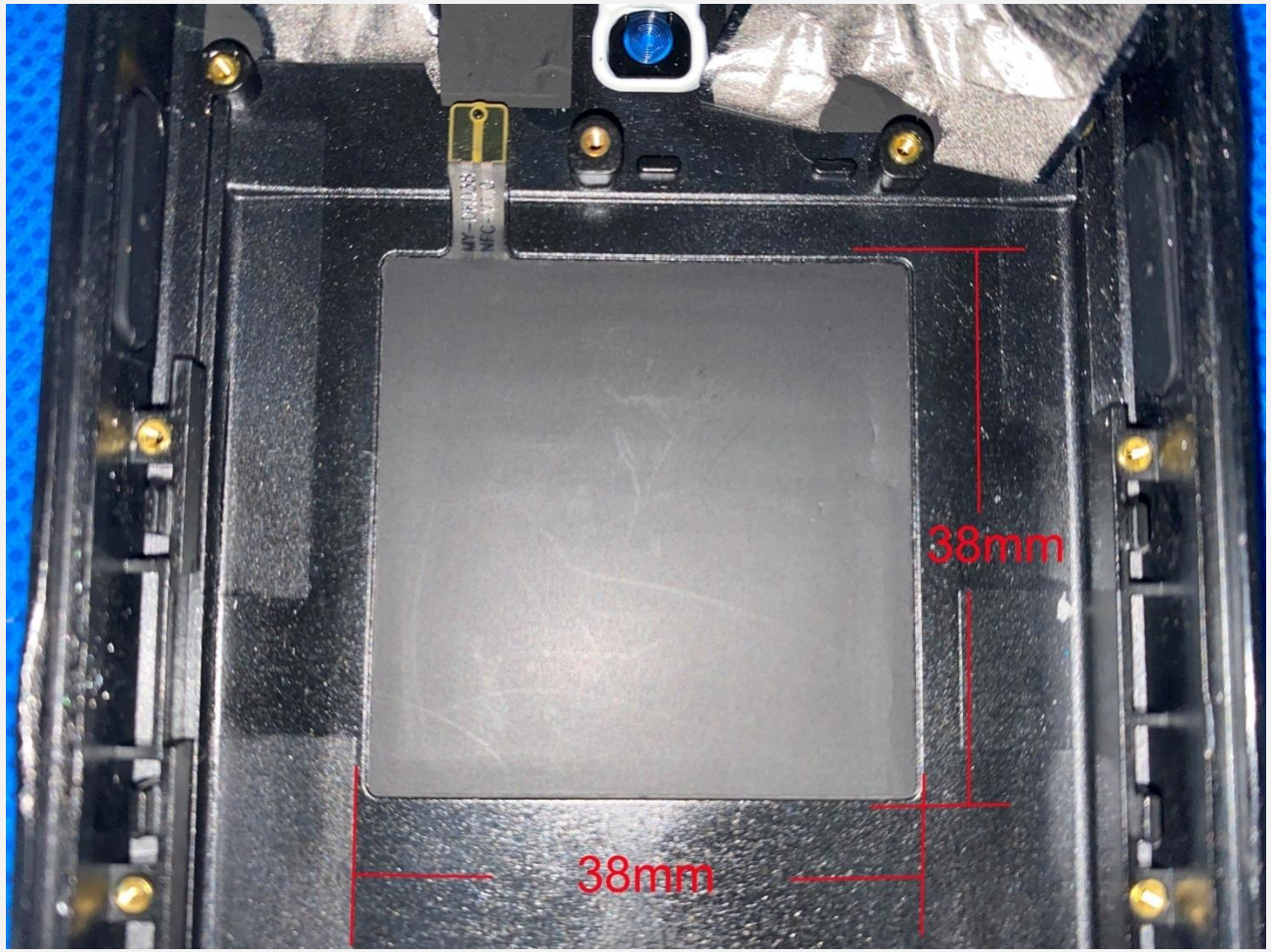






1570-1580MHz

5.2 NFC ANT



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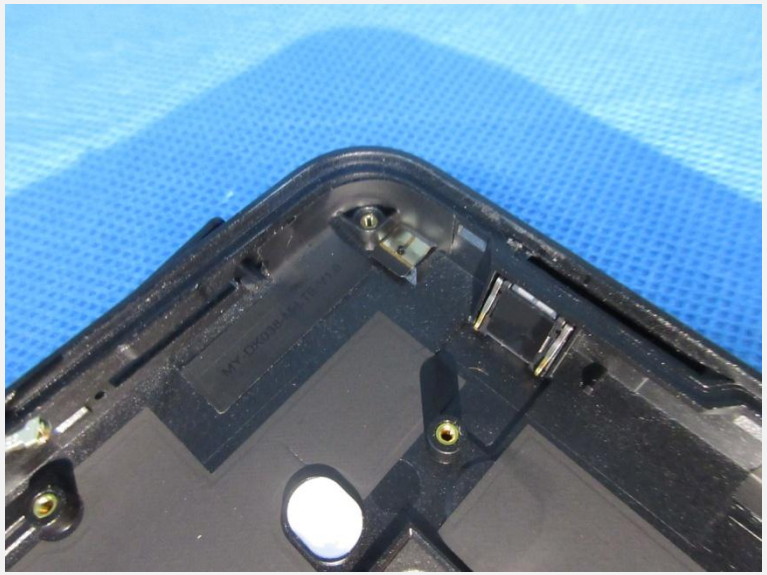

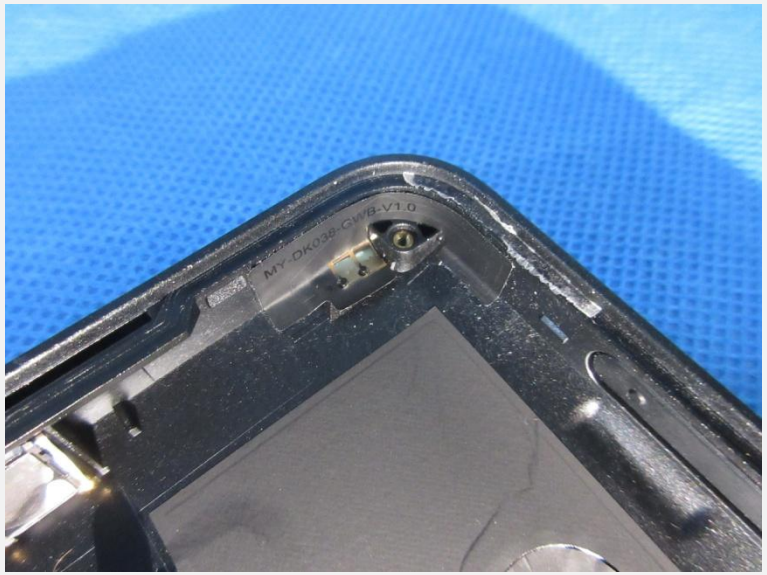

B.2 Test Configuration