Logitech
Antenna Under Test (AUT)
Report

Model Name:	A00194
Equipment Type:	Base station
Manufacturer:	Logitech Far East LTD.
Report Issued By:	Bureau Veritas Consumer Products Services (Hong Kong) Limited, Taoyuan Branch Mobile Communications Laboratory
Address:	No.19, Hwa Ya 2nd Rd., Kwei shan Dist., Taoyuan City, Taiwan (R.O.C)
Tested by:	Leo chen
Report Date:	2024/5/21

Report Release History

Report version	Description	Date Issued
EVT-700-006809	Original release	2024/5/21

Table of Contents

1. EUT Antenna Information

1) Antenna Material：PCB on board

2) Antenna Type：Monopole antenna with extended bandwidth

3) Antenna Dimension: 20 x 15 mm

4) Operating Frequency：2.4 GHz - 2.4835 GHz

5) Input Impedance：50 Ω

6) Standing-Wave Ratio：2:1

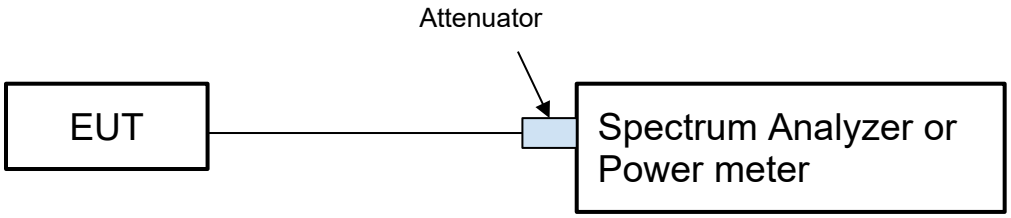
2. Measured Values and Calculation of Antenna Gains

E1			
Frequency (MHz)	**2402**	**2441**	**2480**
Average Gain (dBi)	-5.88	-5.87	-6.05
Peak Gain (dBi)	-1.77	-1.98	-2.42
Efficiency (%)	25.79	25.90	24.85
E2			
Frequency (MHz)	**2401.35**	**2441.35**	**2477.85**
Average Gain (dBi)	-6.88	-7.07	-7.23
Peak Gain (dBi)	-2.51	-2.81	-3.10
Efficiency (%)	20.52	19.64	18.93
E3			
Frequency (MHz)	**2401.35**	**2441.35**	**2477.85**
Average Gain (dBi)	-6.72	-7.02	-7.26
Peak Gain (dBi)	-1.50	-1.37	-1.33
Efficiency (%)	21.28	19.86	18.77

Test Date: 2024/5/7

3. Conducted Power Measurement

3.1 Test Setup



3.2 Test Instruments

Description	Model No.	Serial No.	Last Calibration
Spectrum Analyzer Keysight	N/A	N/A	N/A
RF signal cable Woken	N/A	N/A	N/A
Attenuator Keysight	N/A	N/A	N/A

Note: The calibration interval of the above test instruments is 12 months

3.3 Test Procedure

Just for reference, EE needs to check and modify it to make sure it is the same as our test procedure.

A spectrum analyzer or Power meter was used to perform output power measurement, setting the detector to average and configuring EUT continuously transmitting power(100% duty cycle).

3.4 Test Result of RF conducted Power

Frequency	Conducted Power (dBm)
2402	N/A
2440	N/A
2480	N/A

Test Date: N/A

4. 3D Radiation Pattern Measurement

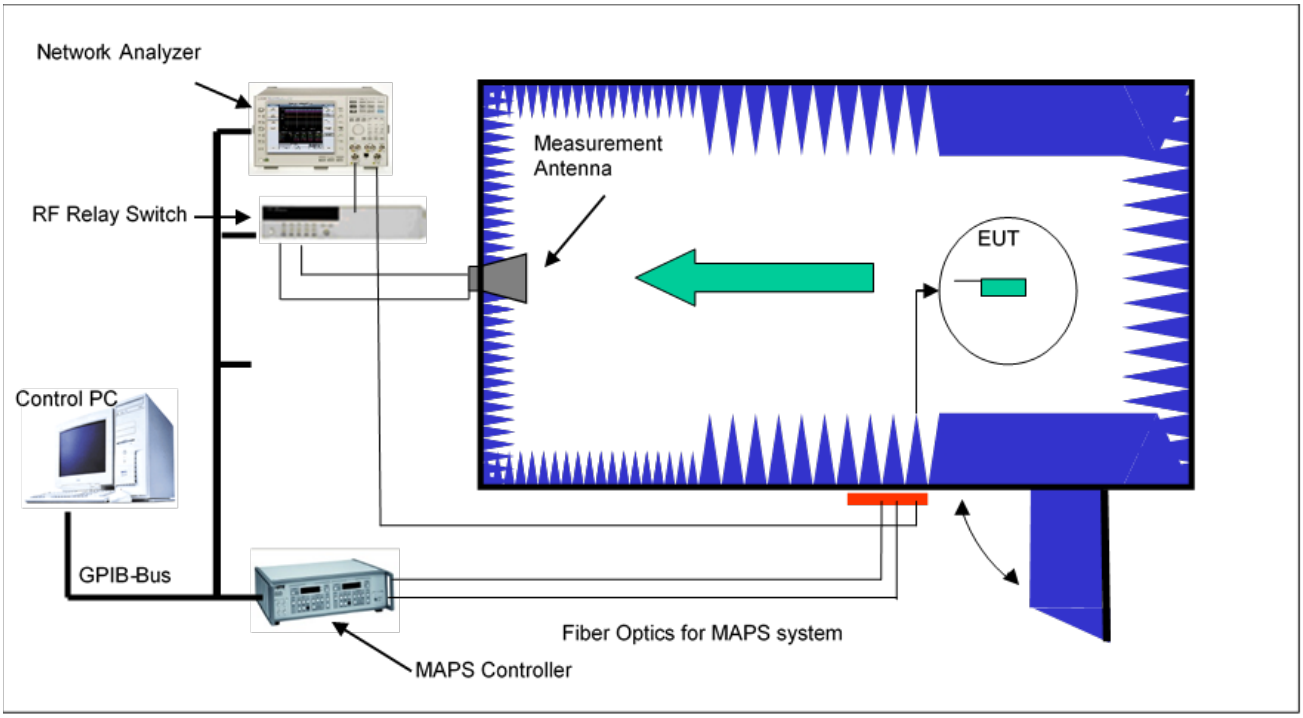
4.1 Test Location

3D radiation pattern measurement in the anechoic chamber

4.2 Description of the anechoic chamber

Anechoic Chamber

- Length: 7.32m
- Width: 3.66m
- Height: 3.51m



4.3 Test Instruments

DESCRIPTION	MODEL NO.	SERIAL NO.	LAST CALIBRATION
(OTA3-HY) ETS Anechoic Chamber	ETS-Lindgren AMS-8500	CT0000411-1132	N/A
Measurement Software	ETS-Lindgren EMQuest V1.14 build 31654	1281	N/A
Multi-Axis Positioning System	ETS-Lindgren 2090-OPTI	00086248	N/A
Measurement Antenna	ETS-Lindgren 3164-08	00157567	N/A
Switch Control	Agilent 3499A	MY42005285	N/A
Network Analyzer	Agilent E5071C	MY46104190	2023/5/27

Note: The calibration interval of the above test instruments is 12 months

4.4 Test Methods

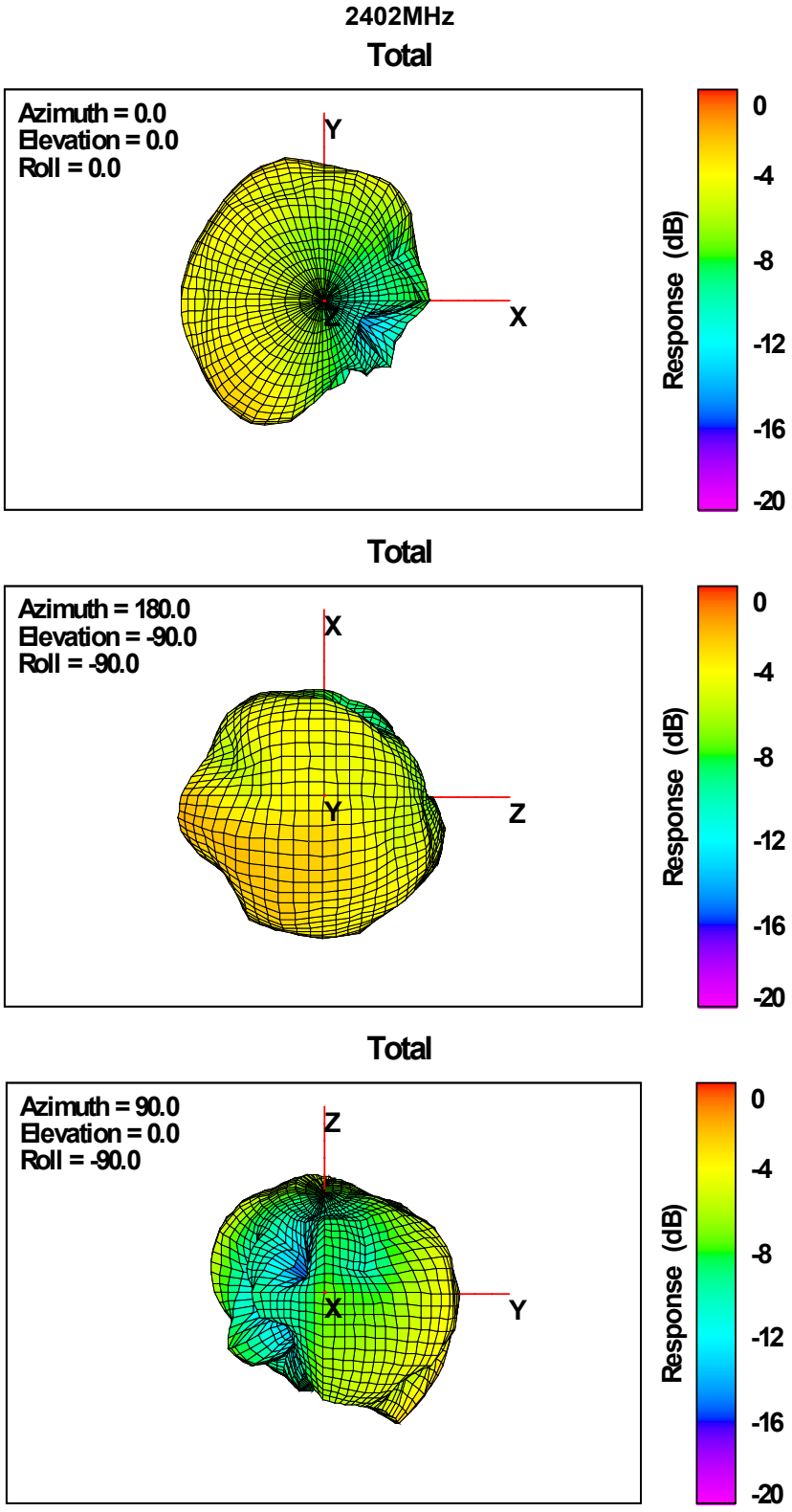
The Antenna Gain Test is performed according to The ANSI/IEEE Std 149 12.3.1 Antenna Gain (Small size (< 42cm) Linear Polarization Antennas), using a two-axis support device and one fixed measurement antenna. The EUT is positioned along the required MAPS centerline fixture holder. The EUT is then stepped between 0 and 180 degrees along the theta axis in 15-degree increments. At each theta position, the phi axis is stepped from 0-360 degrees in 15-degree increments. Data is recorded using the Network analyzer for both theta and phi polarizations at each position. Depending on the protocol, an appropriate filter is used in the EMQuest software to process the data. Upon completion of the test, test results (angular dependent EIRP) is calculated at each measurement point and the required value is automatically calculated. This test procedure is repeated for frequency and configuration as required.

4.5 Test Setup photos

Please refer to another document - Test Setup Photographs. (APPENDIX.)

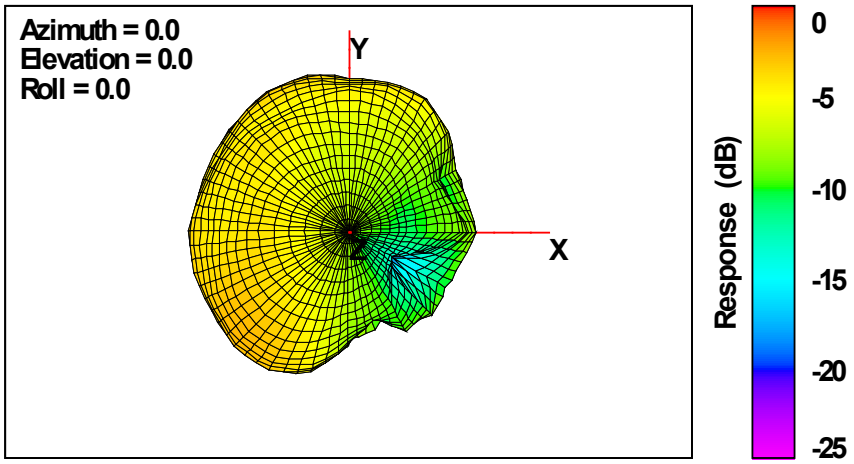
4.6 3D Pattern Test Plot

E1:



2441MHz

Total



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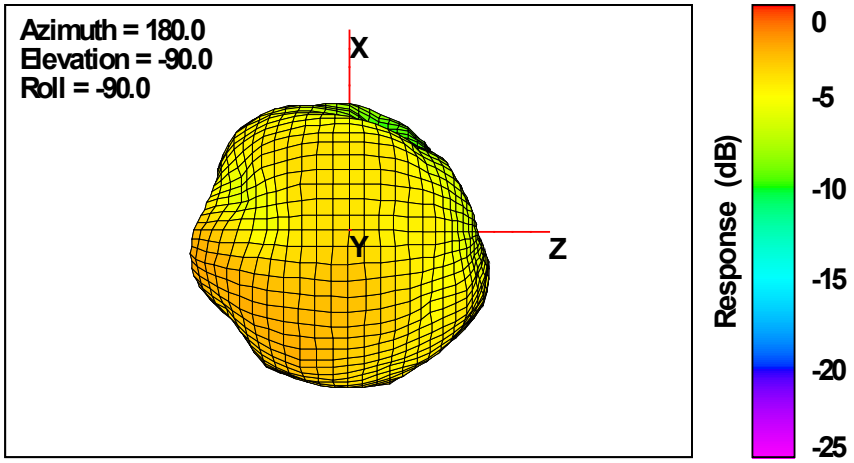

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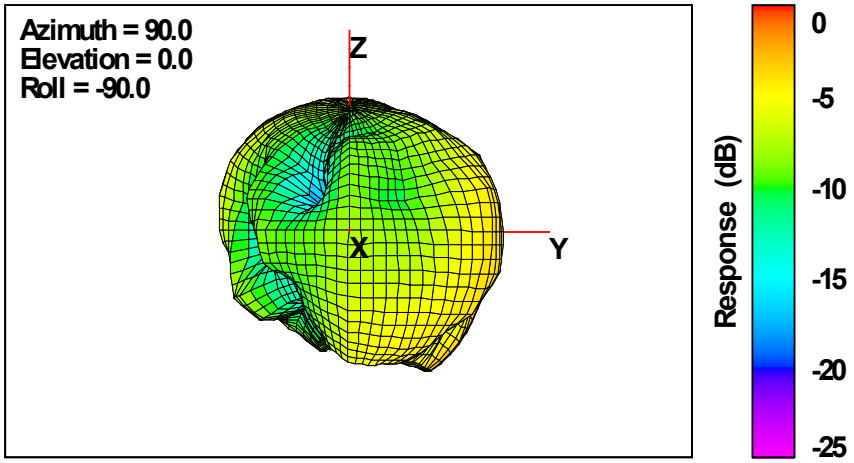

2480MHz

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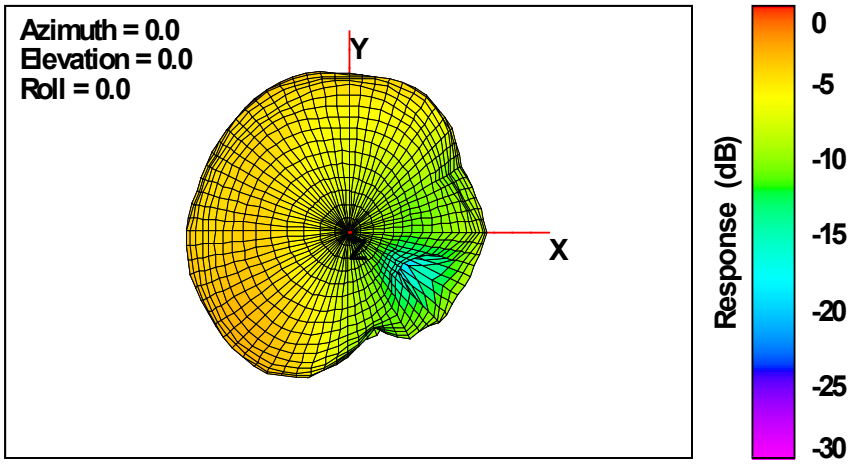

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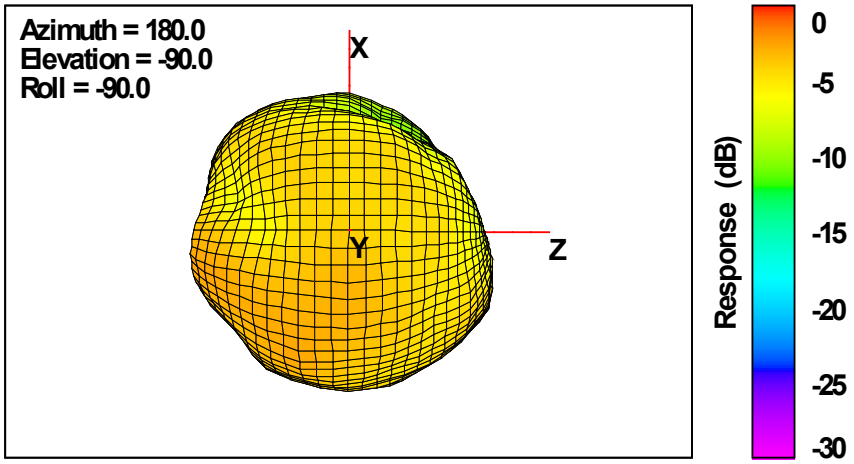

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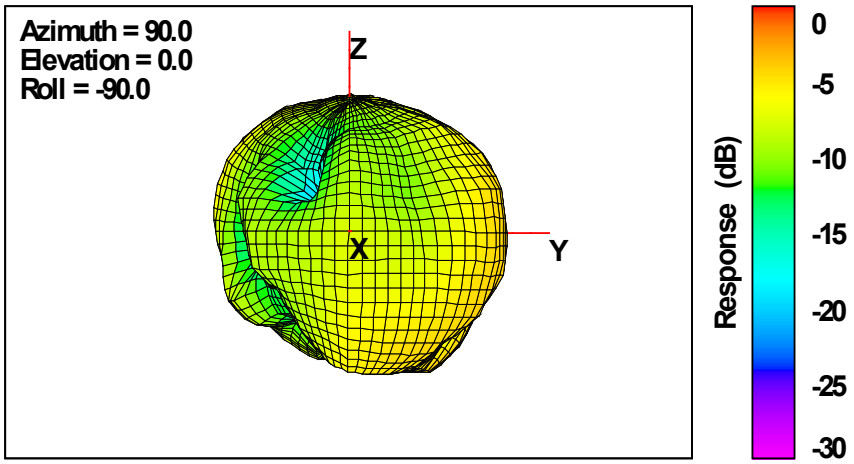
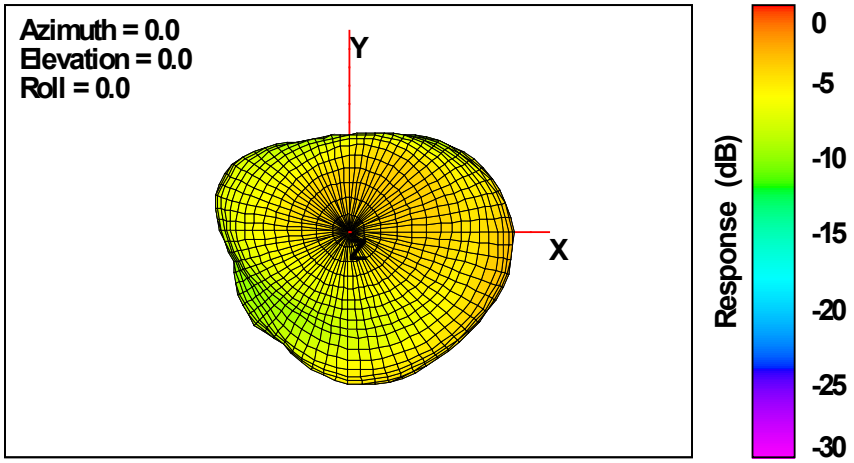


E2:

2401.35MHz

Total



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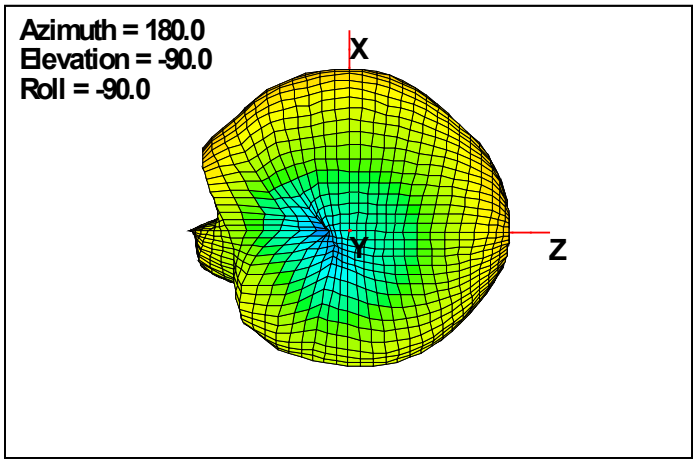

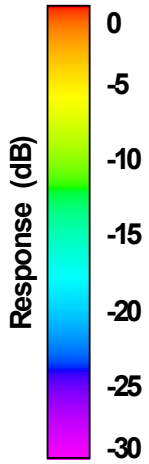

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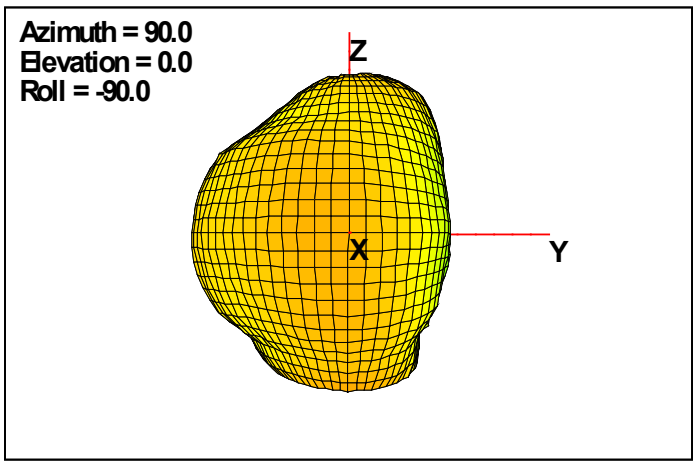
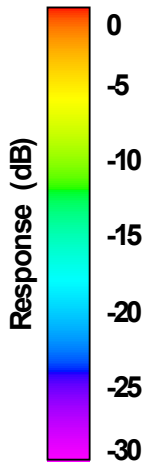
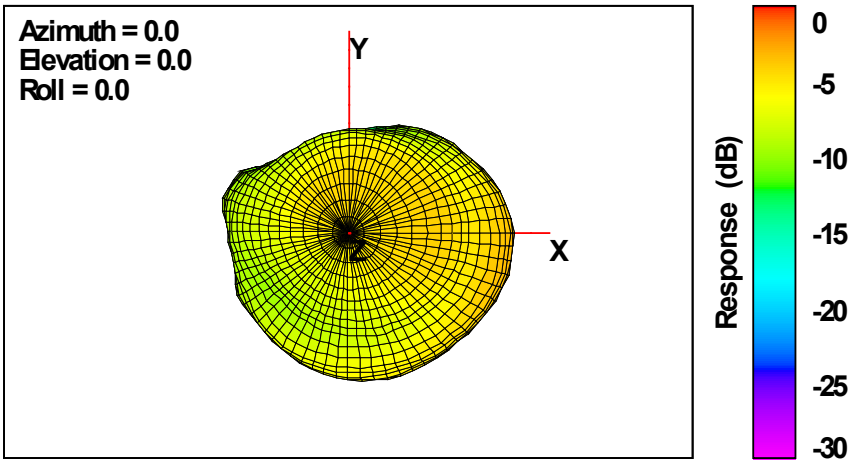




2441.35MHz

Total



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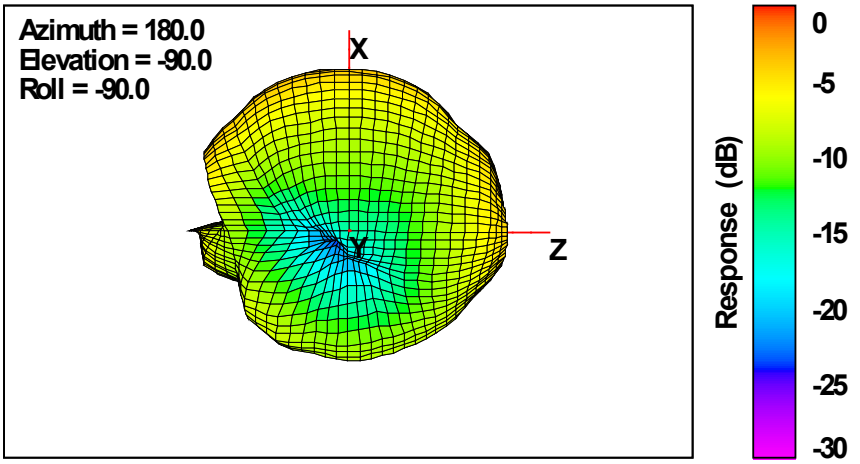

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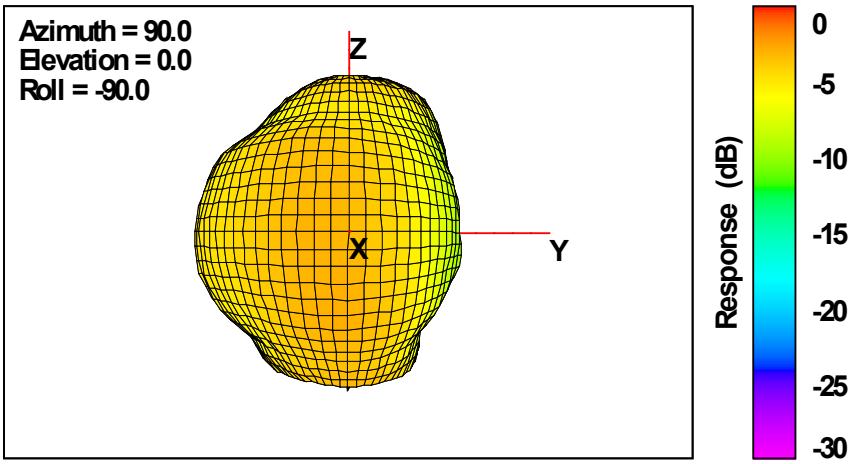
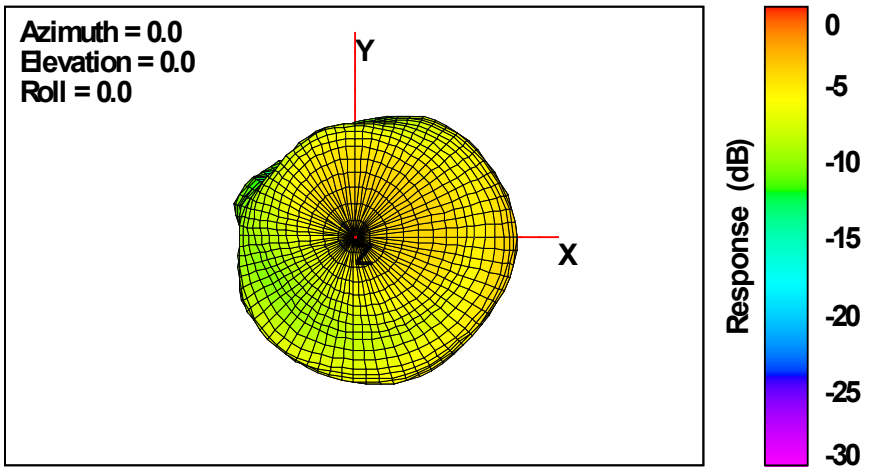


2477.85MHz

Total



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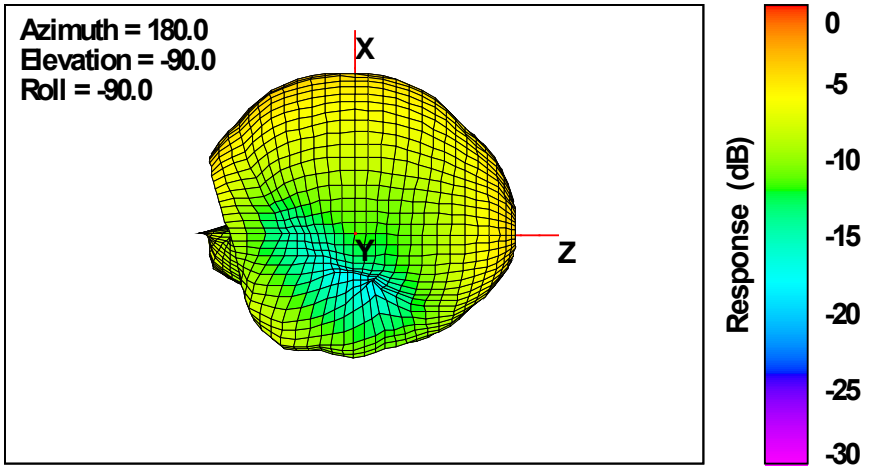

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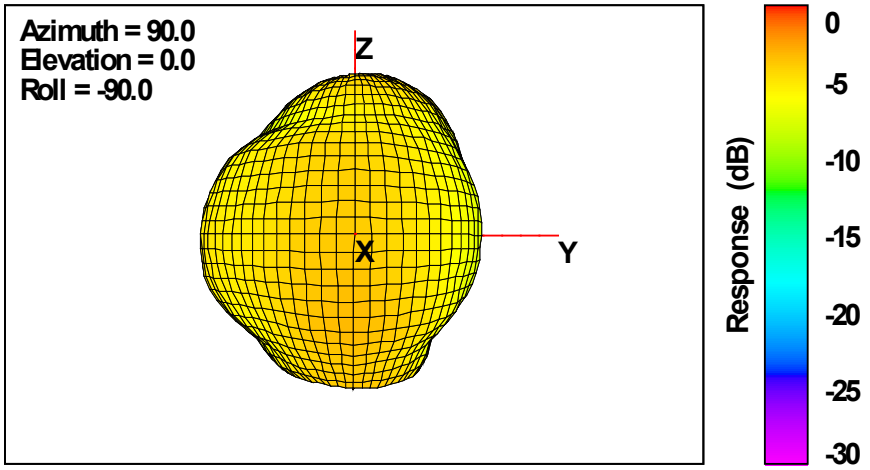
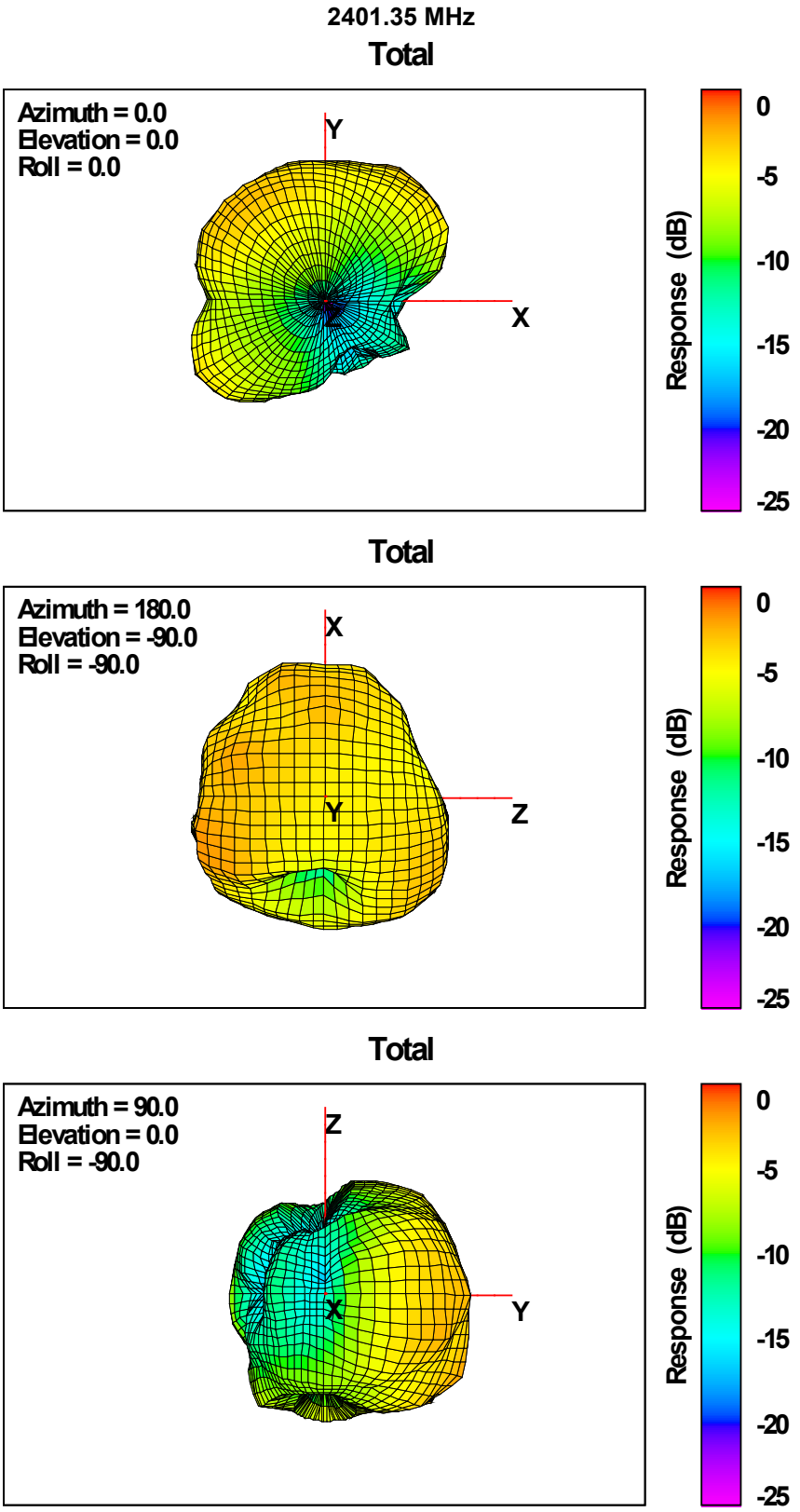
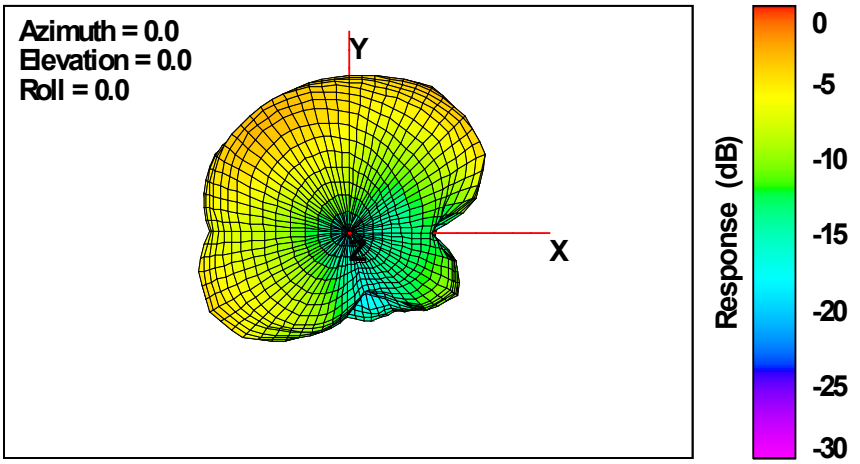


E3:


2401.35 MHz
Total
Azimuth = 0.0
Elevation = 0.0
Roll = 0.0
Y
X
Response (dB)
0
-5
-10
-15
-20
-25
Total
Azimuth = 180.0
Elevation = -90.0
Roll = -90.0
X
Y
Z
Response (dB)
0
-5
-10
-15
-20
-25
Total
Azimuth = 90.0
Elevation = 0.0
Roll = -90.0
Z
X
Y
Response (dB)
0
-5
-10
-15
-20
-25

2441.35 MHz

Total



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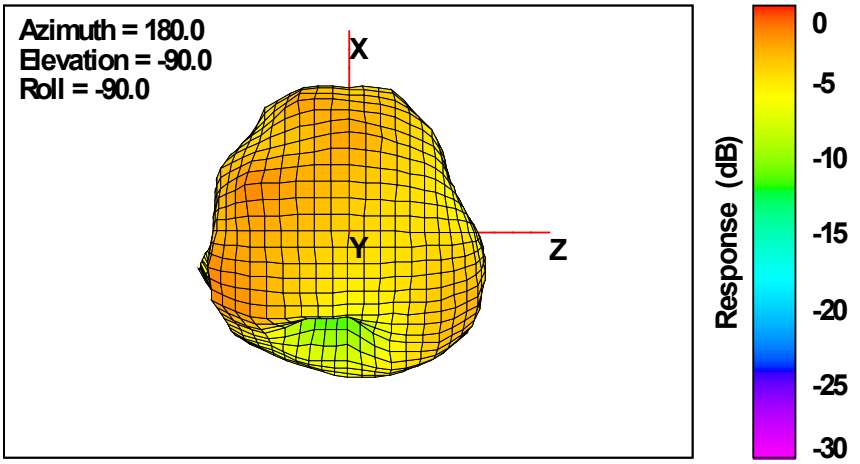

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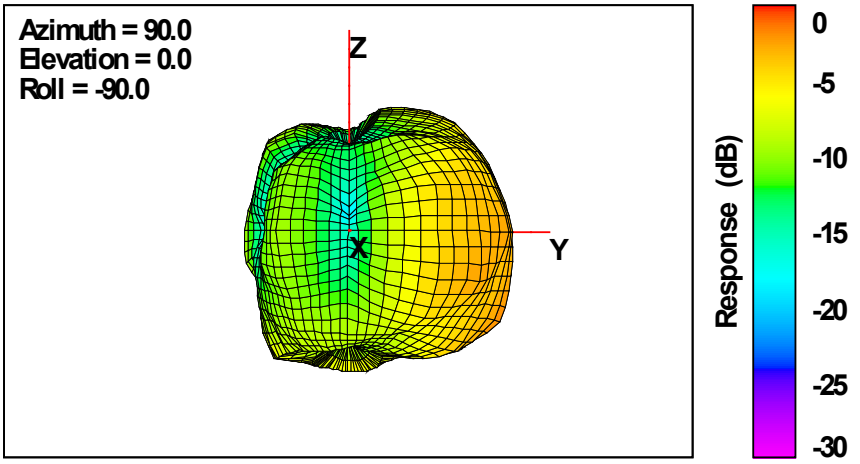

2477.85 MHz

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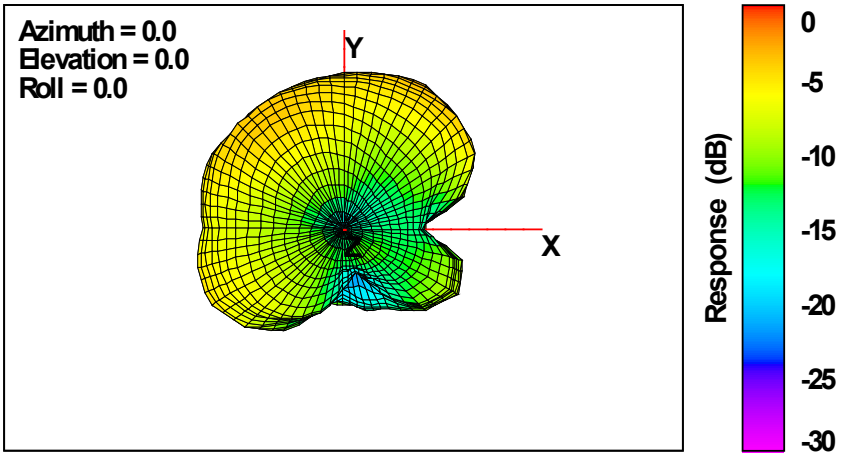

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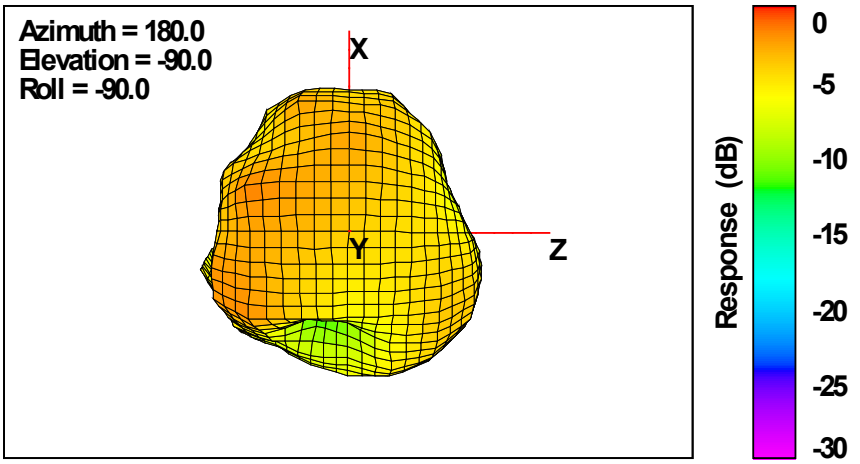

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