WIESON TECHNOLOGIES CO., LTD.

DATA SHEET

External Antenna
APPLICATIONS

WIFI 5/ WIFI 6

Antenna Part NO.: ARY121-1976-001-00

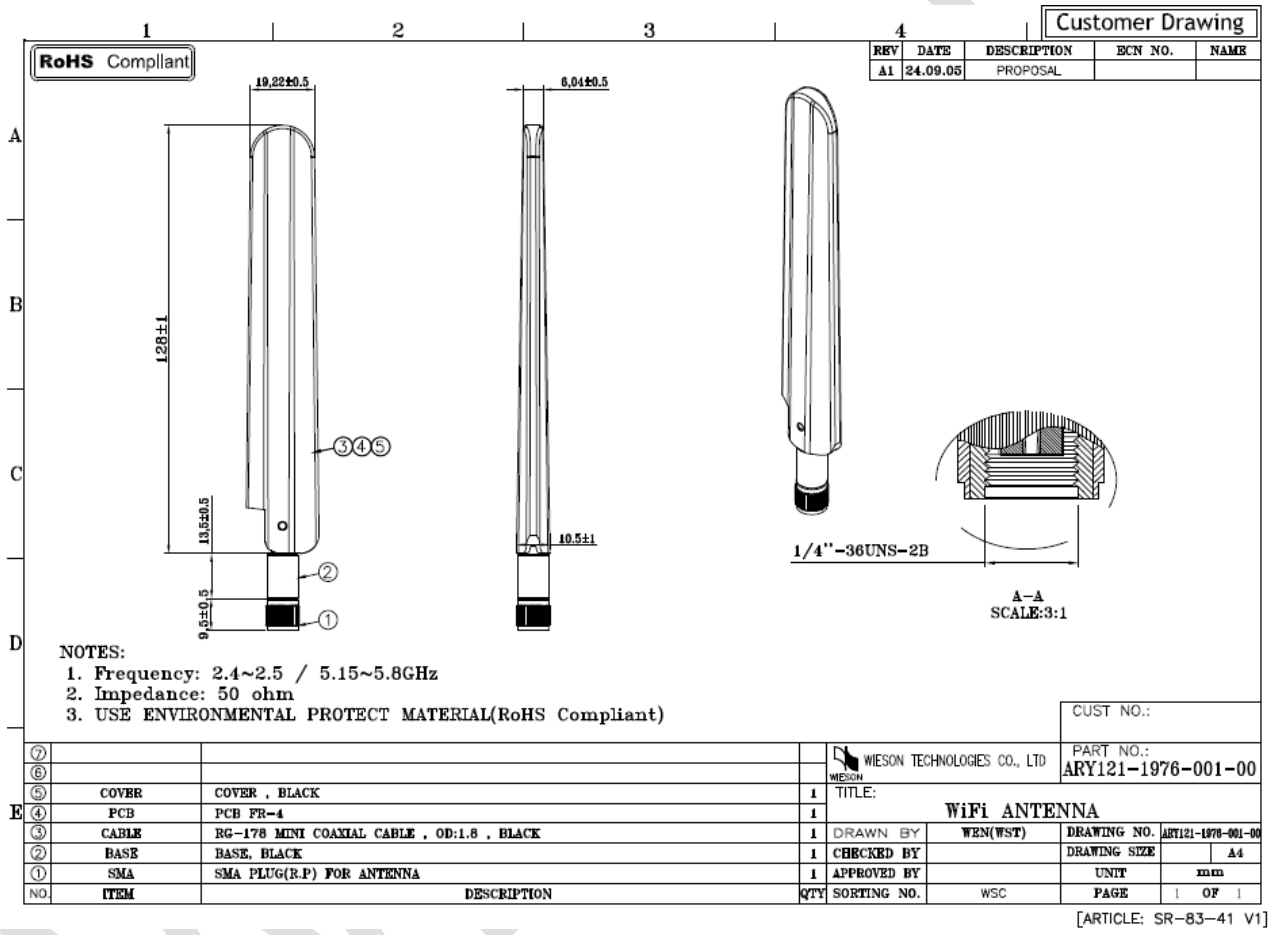
Report created by Ben in 20240905

TABLE OF CONTENT

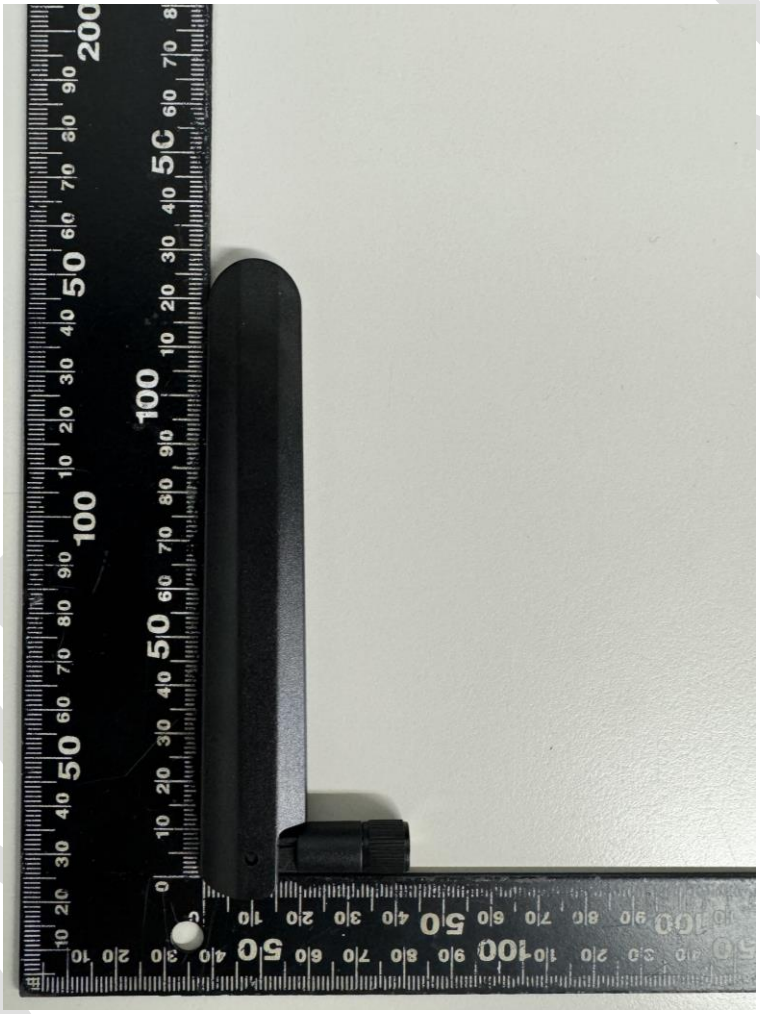
1. ELECTRONIC CHARACTERISTICS

Item	Specification	Specification
Operating Frequency(GHz)	2.4-2.5	5.15-5.85
Bandwidth	100MHz (Min.)	700MHz (Min.)
Return Loss	10dB (Min.)	10dB (Min.)
Polarization	Linear	Linear
Azimuth Bandwidth	Omni-directional	Omni-directional
Peak Gain	2.25 dBi (Max)	3.36 dBi (Max)
Impedance	50Ω	50Ω
Material	PCB	PCB
Maximum Power	1W	1W
V.S.W.R	2 : 1	2 : 1
Radiation	Omni directional	Omni directional
Efficiency	68%	74%
Operating Temperature	-40~85℃	-40~85℃
Storage temp	-40~85℃	-40~85℃

2. Antenna Drawing



3. Antenna Photo



4. Test Information Anechoic Chamber

A. Scope

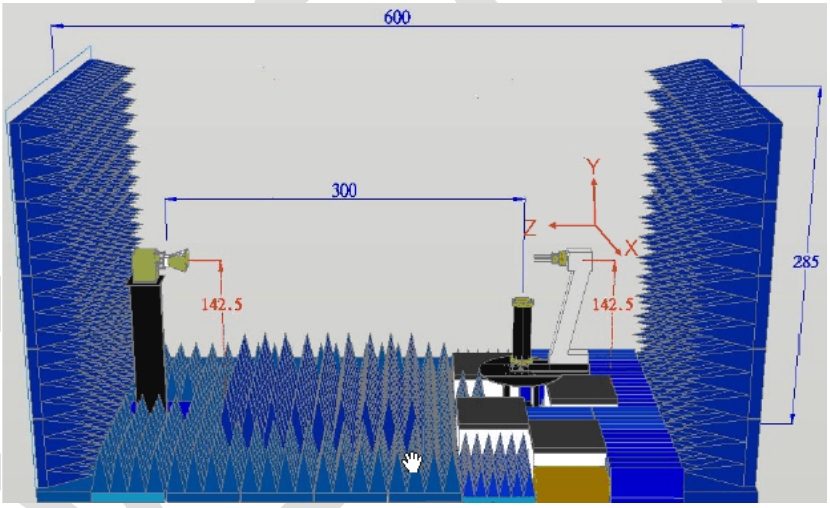
This statement of work defines the requirements of a far-field antenna measurement range, which includes

(1) One 325 cm (W) x 285 cm (H) x 640 cm (L) Antenna Measurement Anechoic Chamber, detailed requirements refer section 2.0 .

(2) One Far-field Antenna Measurement System with spinning linear CP measurement capabilities, detailed requirement refer section 3.0 .

(3) One broad-band transmitted antenna, detailed requirements refer section 8.0 .

(4) Three NRL-4433 standard gain antennas, detailed requirements refer section 9.0 .



B. Antenna Measurement Anechoic Chamber

Fully anechoic chamber with dimension 325 cm in width, 285 cm in height and 640 cm in length. The quiet zone of this Chamber shall be greater than
70 cm @ 0.9 GHz, 50 cm @1.8 GHz, 44 cm @2.4 GHz, 28 cm @5.8 GHz, 16 cm @18 GHz.
Contractor should be aware of this anechoic chamber is going to be used for performing far-filed antenna measurement.

C. Electrical specifications

Frequency Range: 800 MHz to 18 GHz,
Quiet zone size: >70 cm @ 0.9 GHz, >50 cm @1.8 GHz, >44 cm @2.4 GHz, >28 cm @5.8 GHz, >16 cm @18 GHz.
Quiet zone ripple: < +/- 0.5 dB @1.5~2.4 GHz, < +/- 0.25 dB @2.4~18GHz

D. Absorbers

We shall design and install proper absorbers on the inner walls of the chamber to guarantee the electrical specifications. However, the absorbers height shall be no less than 24" which enables the space in the chamber to be around 203 cm (W) x 163 cm (H) x 533 cm (L). All the absorber used shall meet NRL-8093 fire retardant regulations

E. Far-field Antenna Measurement System

We shall supply all the hardware and software which are capable of characterizing antenna radiation patterns from 30 KHz to 6 GHz or 18GHz using the existed Agilent 5230A PNA-L or Agilent 8753ES Vector Network Analyzer. The system shall be able to automatically measure and plot single axis amplitude and phase antenna patterns in either Cartesian or polar formats.

F. Far-field measurement software

The software consists of the control or data acquisition software and the data plotting software.

(1) The data acquisition software shall at least be capable of the following functions:
*measuring single frequency per cut - single axis (azimuth); system can automatically switch frequency at the end of a scan.
*measuring data in Uni-direction or bi-direction
*measuring data at least with azimuth 360 degrees. (+/- 180 degrees or 0-360 degrees)
*real time plot in Cartesian or polar format
*screen shows real time angle position
*system automatically calculates S/N ratio level based on measured signal fluctuation
*function to set positioner zero position
*operator can set data taking velocity and data sampling interval
*entry to allow positioner offset to any angle

(2) The data plotting software shall at least be capable of the following functions:
*Editing plot data
*plotting data in Cartesian, Polar or delimited ASCII output with header information
*plotting data in linear or dB scales
*normalizing data to peak (dB), standard gain reference (dBi), or no normalization
*overlaying data, (drag and drop capability is preferable)
*outputting data to any Windows supported printers

G. Broadband Transmitted antenna

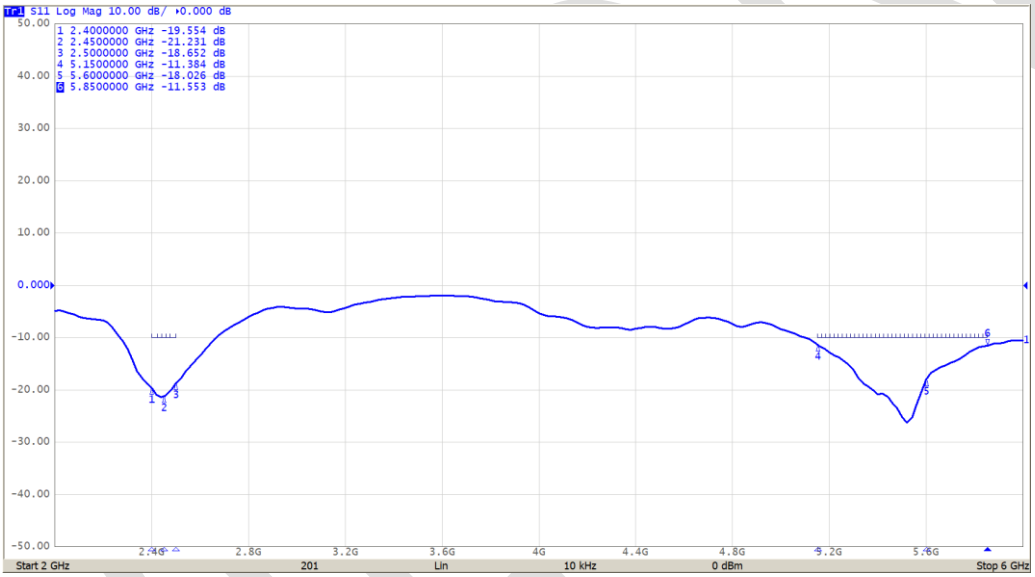
We shall provide a linear-polarized broadband antenna with the specifications better than those listed hereafter in this article,
Frequency: 1-18 GHz, Gain: >12 dBi @10 GHz, VSWR:<2,0:1, Front to Back Ration > 20 dB

H. NRL4433 Standard Gain Horns

We shall provide one WR-430, WR-187 one DRH0118 standard gain horns which meets the specifications of NRL-4433 report. The operating frequency of WR-430 standard gain horn is from 1.7 to 2.6 GHz, and WR-187 from 3.95 to 5.85 GHz, and DRH-0118 from 0.8 to 18GHz. We shall also provide NRL-4433 theoretical gain curves and tables for the standard gain horns.

5. Measurement Results

Return Loss

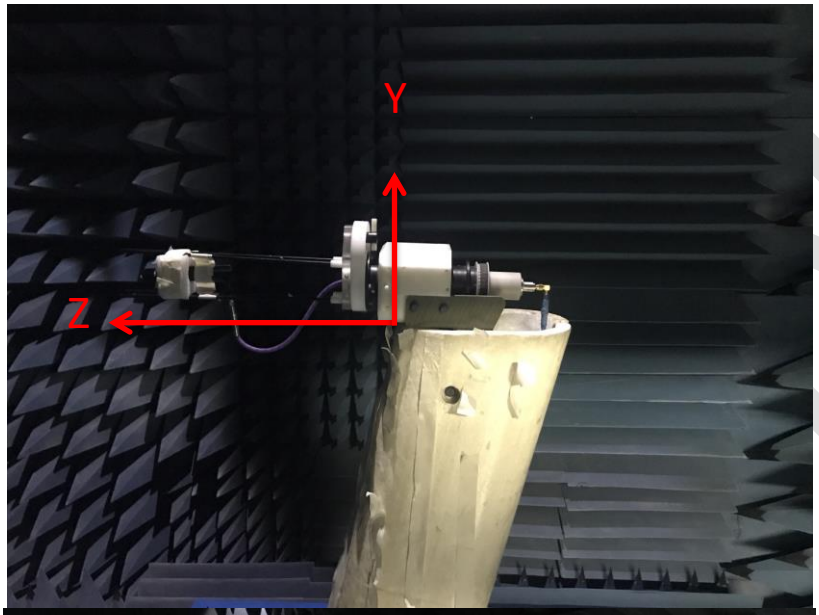


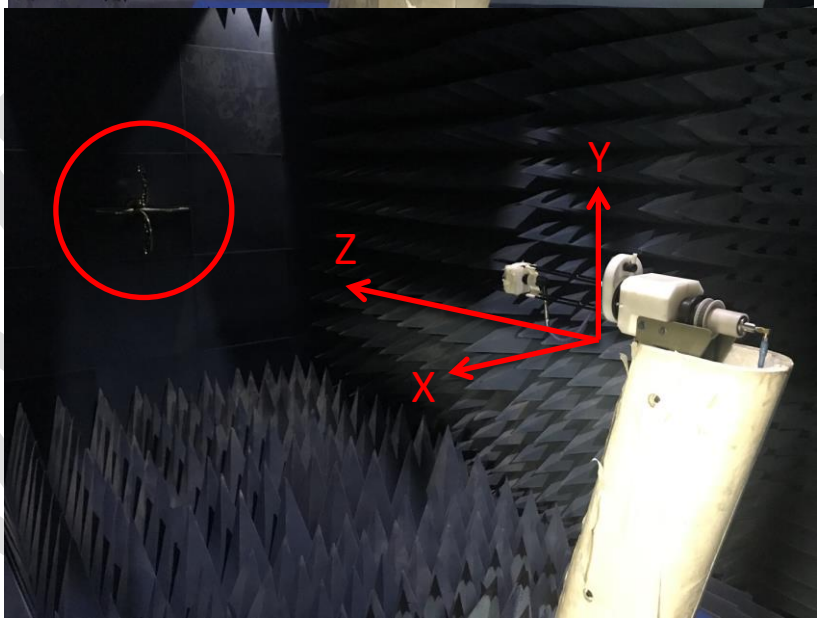
Frequency (MHz)	2400	2450	2500	5150	5600	5850
S11(dB)	-19.5	-21.2	-18.6	-11.3	-18.0	-11.5

- **Antenna Gain Value**

Freq(MHz)	Peak Gain(dBi)	3D-avg Gain(dBi)	Efficiency(%)
2400	2.03	-2.04	63
2450	2.25	-1.65	68
2500	2.03	-1.69	68
5150	2.55	-2.56	55
5250	2.06	-2.66	54
5350	1.95	-2.49	56
5470	1.47	-2.39	58
5600	1.74	-2.16	61
5725	2.53	-1.46	71
5785	2.69	-1.28	74
5850	3.36	-1.31	74

- **Antenna Measurement Photo**





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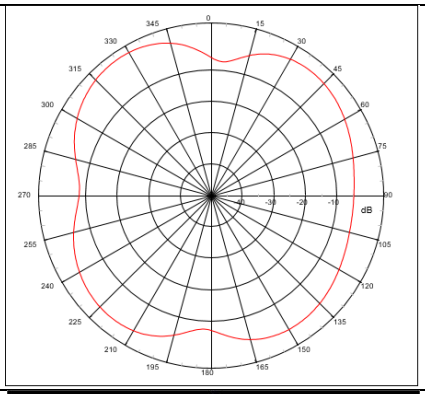
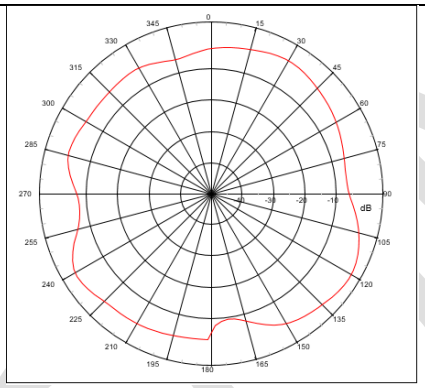
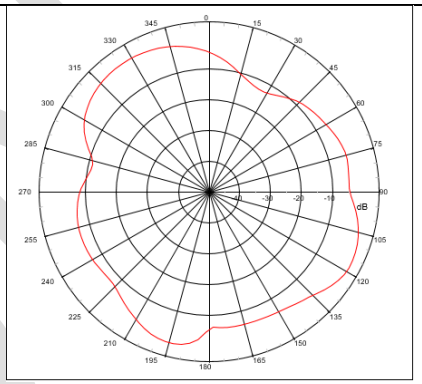
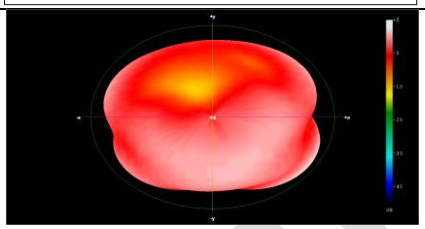
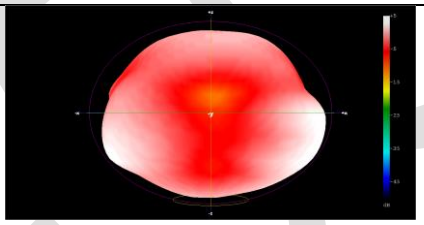
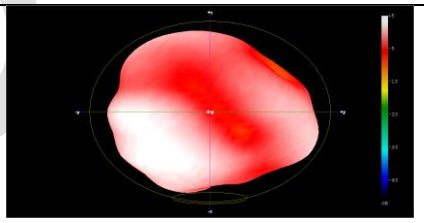
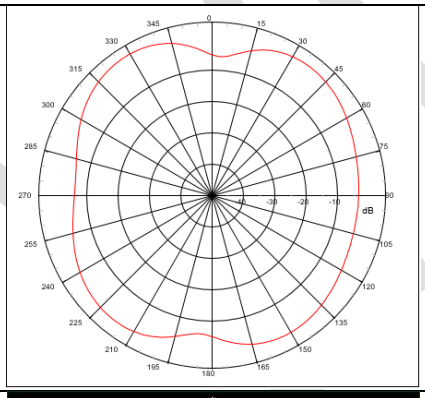
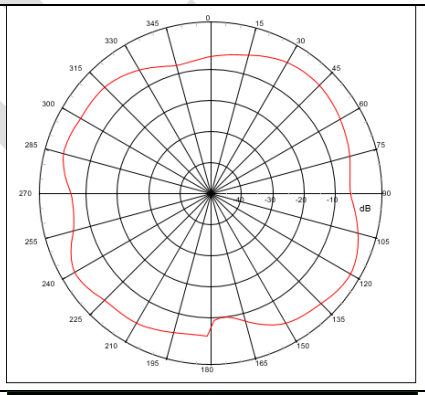
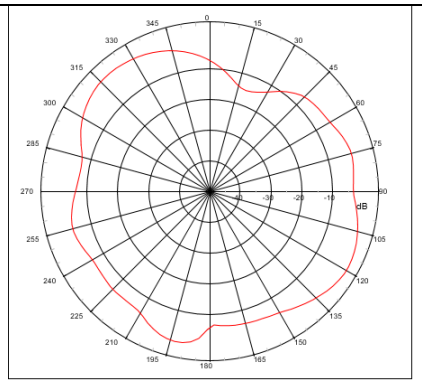
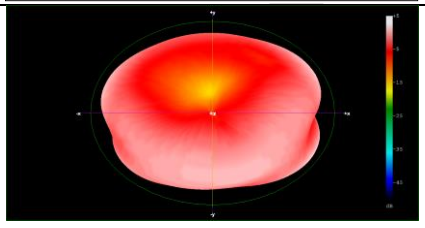
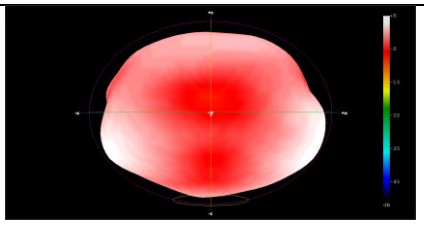
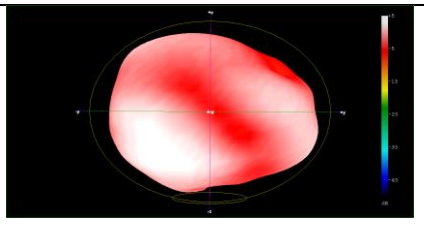
- **3D Radiation Pattern of WIFI 6 Antenna**

Frequency 2400 MHz		
XY Plane	XZ Plane	YZ Plane
		
		
Frequency 2450MHz		
XY Plane	XZ Plane	YZ Plane
		
		

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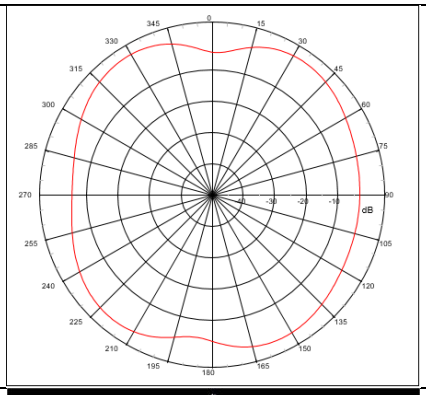
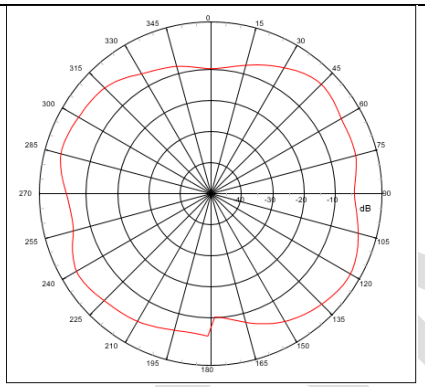
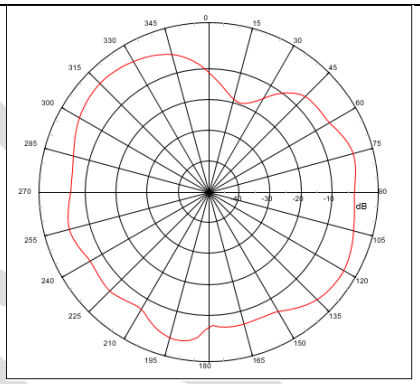
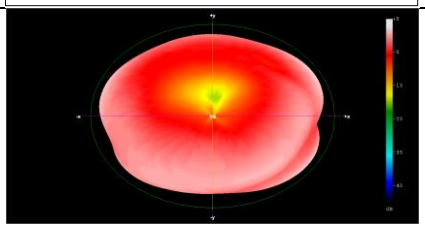
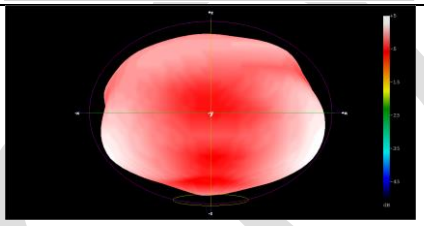
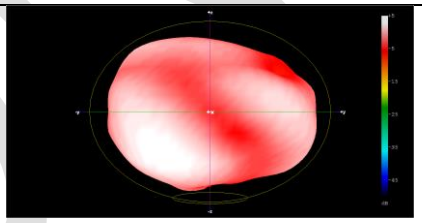
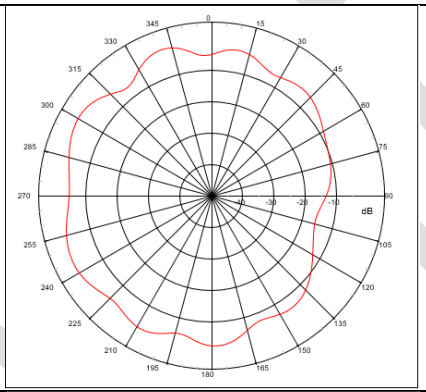
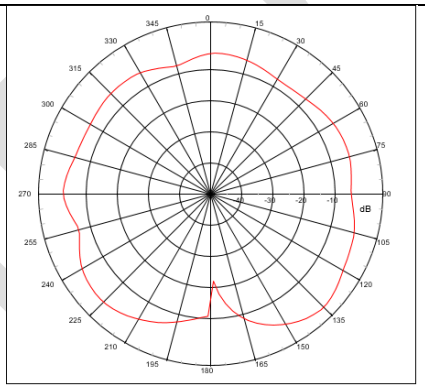
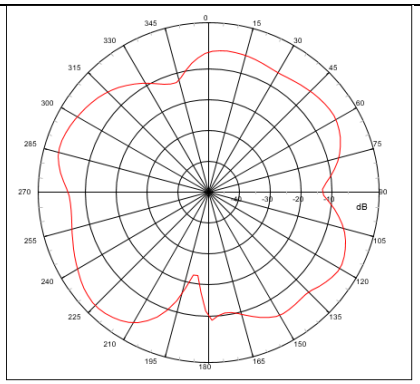
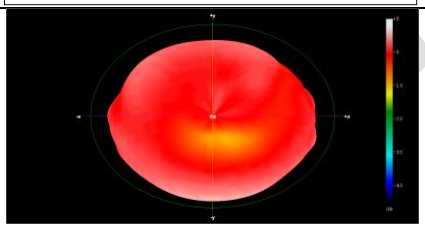
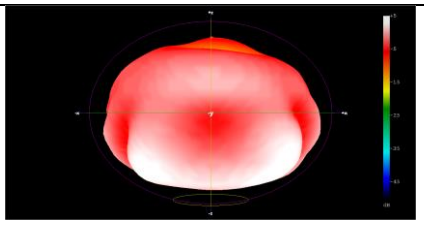
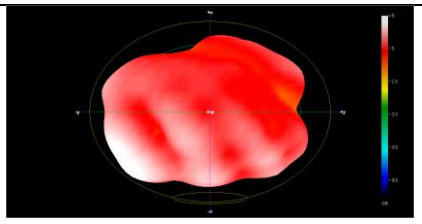
Frequency 2500MHz

XY Plane	XZ Plane	YZ Plane
		
		

Frequency 5150MHz

XY Plane	XZ Plane	YZ Plane
		
		

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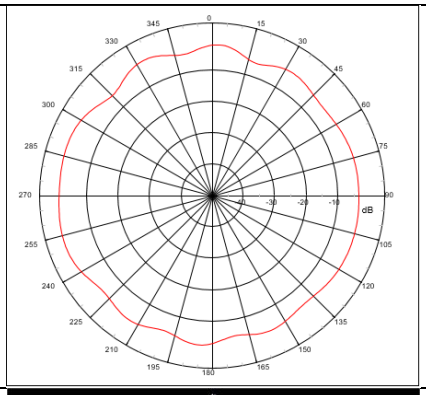
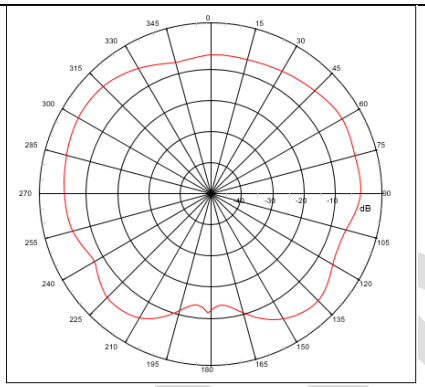
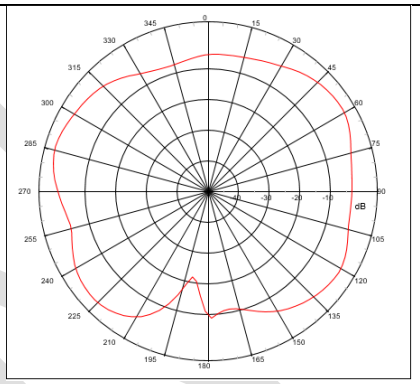
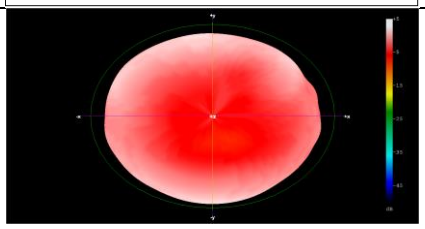
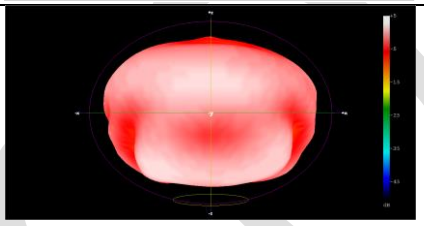
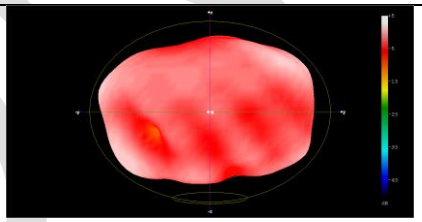
Frequency 5600MHz

XY Plane	XZ Plane	YZ Plane
		
		

Frequency 5850MHz

XY Plane	XZ Plane	YZ Plane