

Test Report-SILENT KB

Customer: Darfon
Project: Dell Silent KB555d
Antenna: Printing Ant
Version: F
Testing Date 2024/04/19
Release date: 2024/04/19

Tested by: Ken Yen
Checked by: Sam Wu
Approved by: Mike Yang

1. Background

2. Measurement Setup

2.1 Reflection coefficient measurement

2.2 Radiation pattern measurement

2.3 Mechanical setting

3. Experimental Results

3.1 S Parameters

3.2 Radiation efficiency

3.3 Conclusion

Background

Background

Sample

1. Testing at Free Space mode.

Measurement Setup

Reflection Coefficient Measurement

1. Equipment : Network Analyzer(Agilent E5071A)
 - a. Last Calibration date: 2024/3/4
 - b. Next Calibration date: 2025/3/4
2. Test Software: Maxwell Viewer
3. Test items : S-parameters (Impedance, return loss, VSWR)



Figure. Network Analyzer(Agilent E5071A)

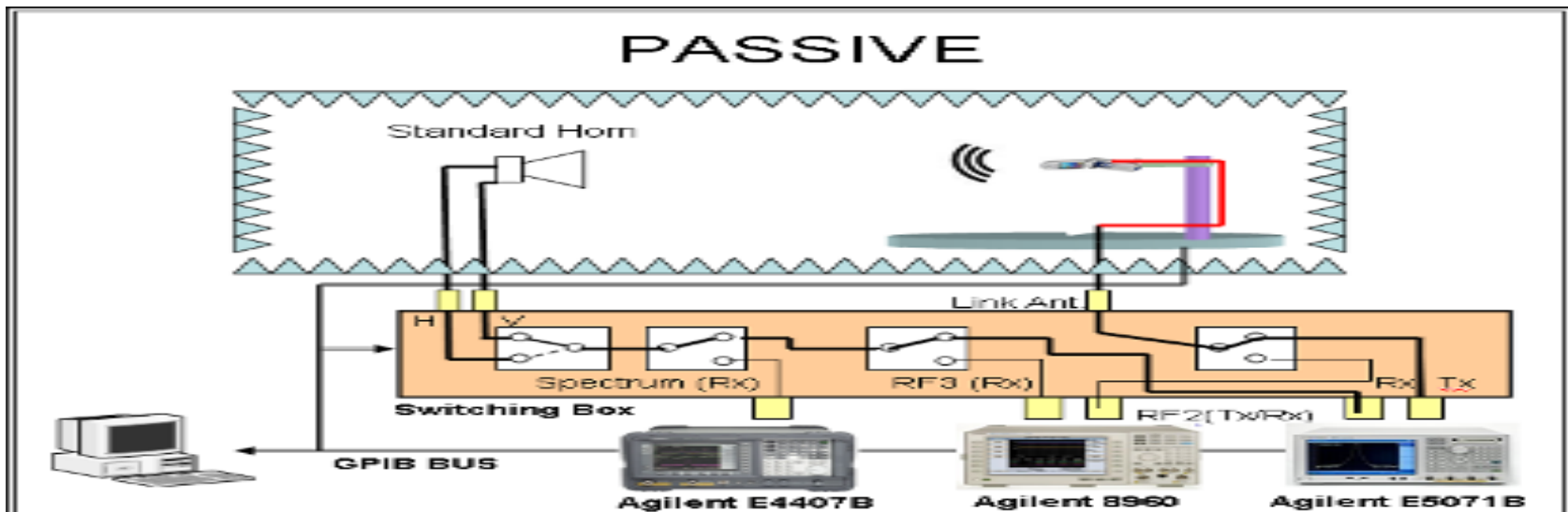
Radiation Pattern Measurement

1. Equipment :

- a. Anechoic Chamber/ Standard Horn
 - i. Last Calibration date: 2024/3/4
 - ii. Next Calibration date: 2025/3/4
- b. Network Analyzer (Agilent E5071C)
 - i. Last Calibration date: 2024/3/4
 - ii. Next Calibration date: 2025/3/4

2. Test Software: Maxwell Viewer

3. Test items : Gain, efficiency, 2D gain pattern, 3D gain pattern



Measurement Procedure

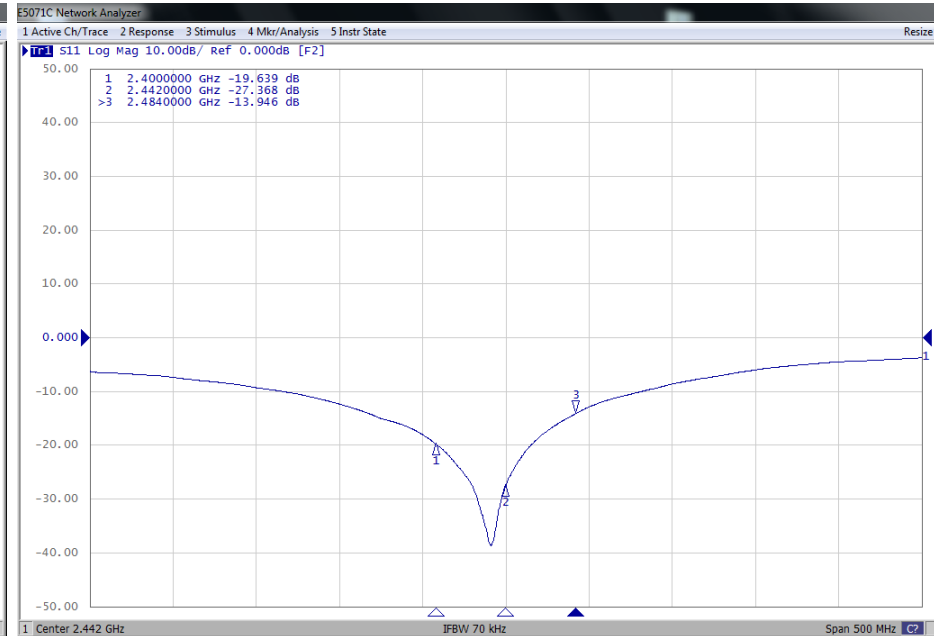
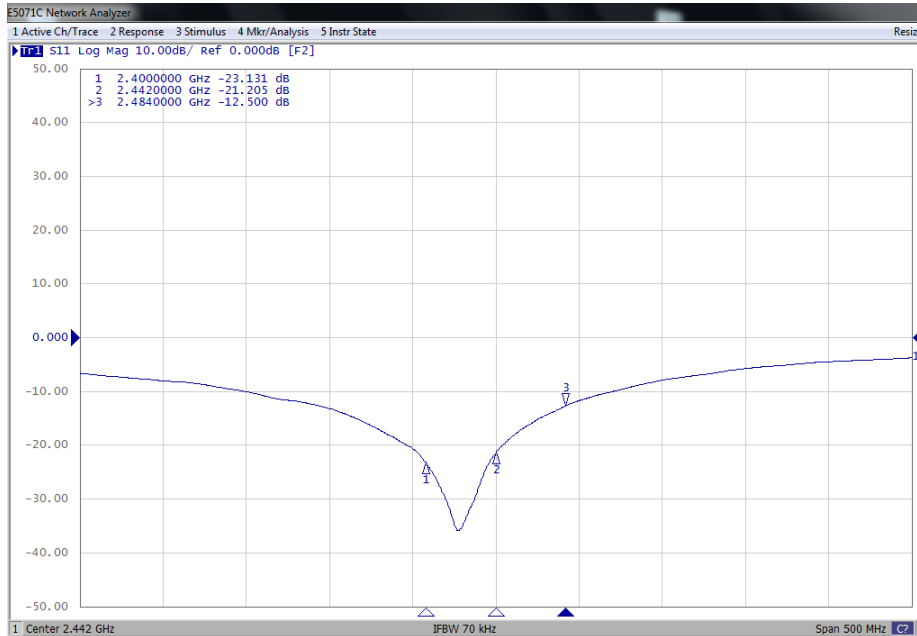
1. Place the DUT at the center of the turntable.
2. Connecting the test cable to the DUT , and use the software for measurement.
3. During the measured process, Equipment will conduct radiation testing with the DUT through 23 probes by a vertical 360- degree; then the turntable will rotate a horizontal 180-degree.
4. After a complete measurement of spherical 3D is completed.

Experimental results

S-Parameters

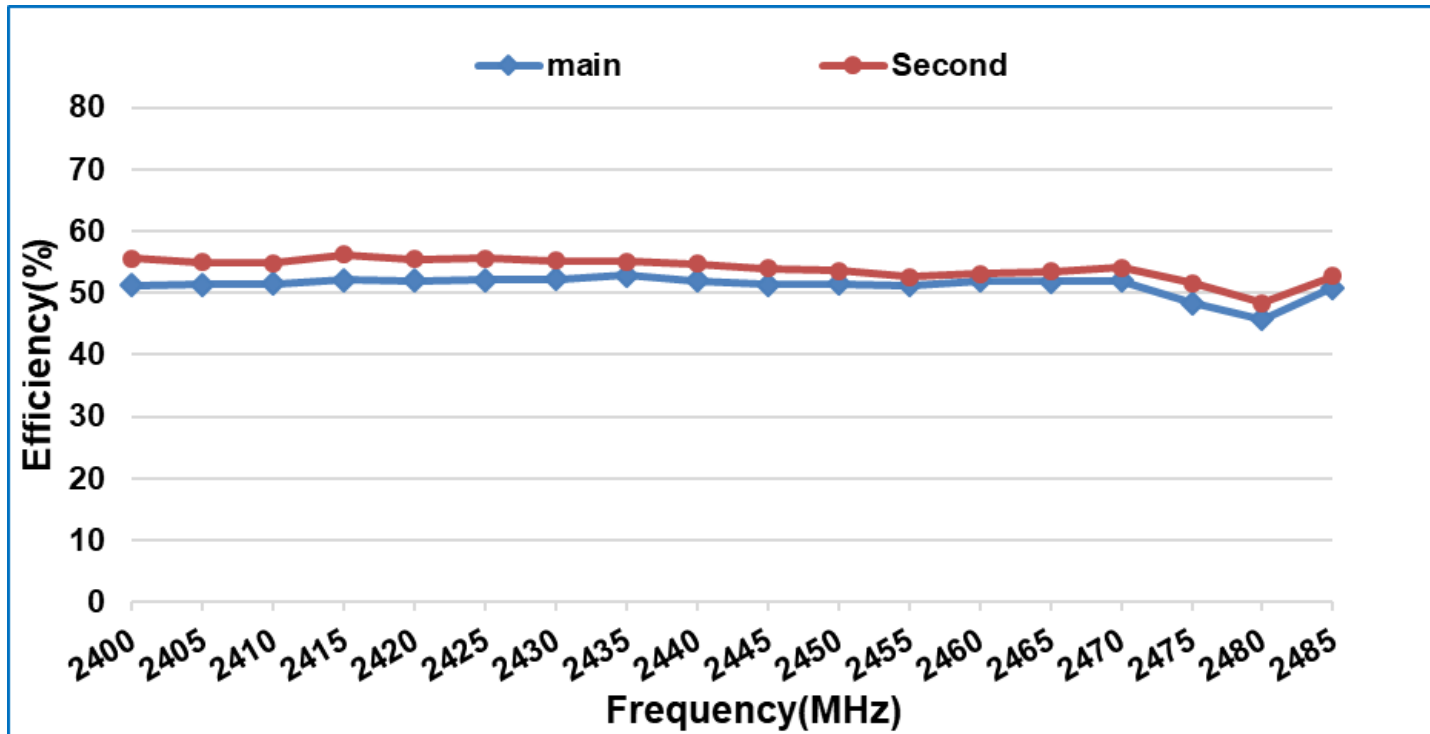
Main

Second



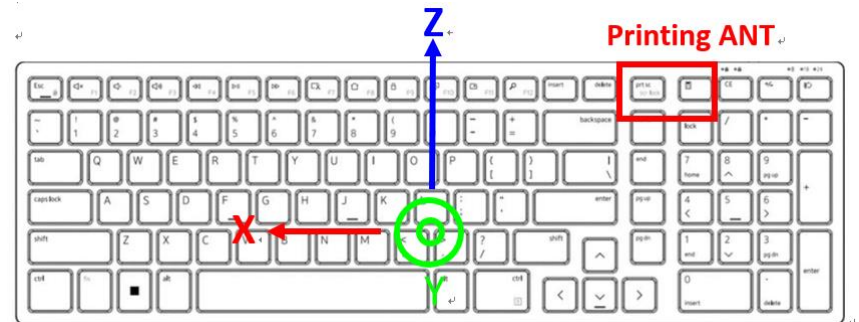
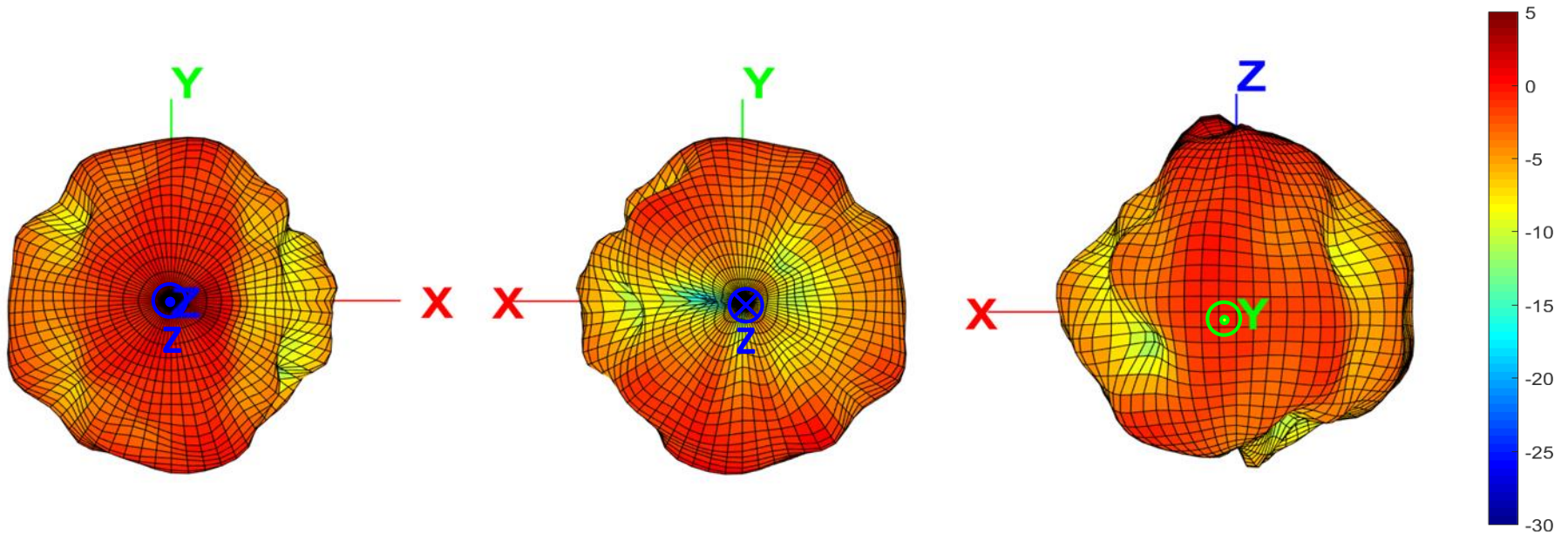
Experimental results

Radiation efficiency - Main & Second



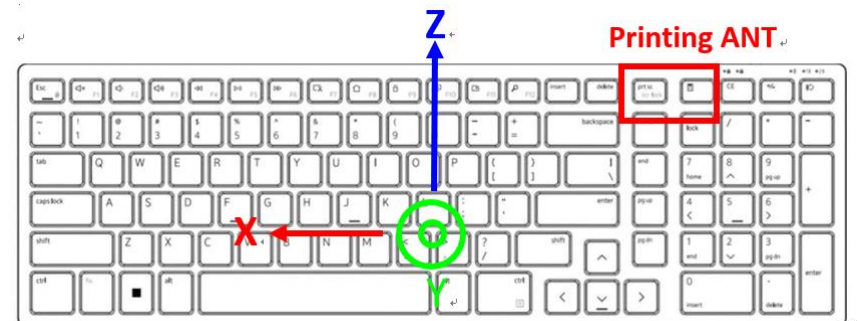
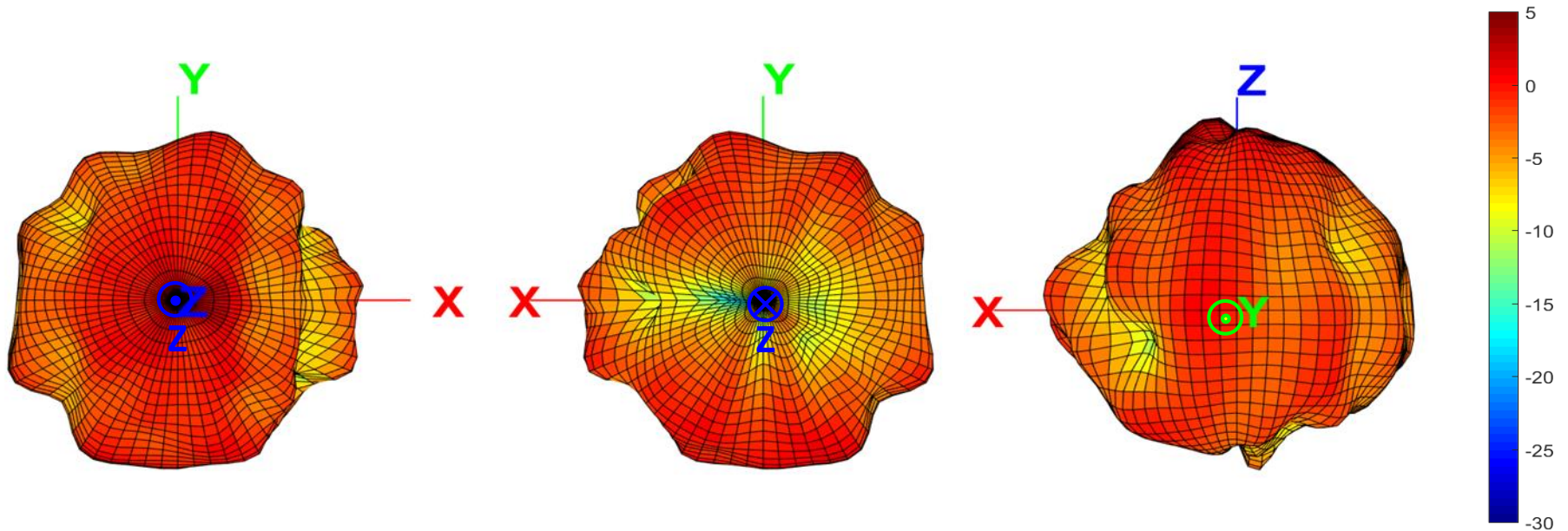
Experimental results(Main)

3D Gain Pattern (Radiation Pattern @ 2445 MHz) (unit: dBi)



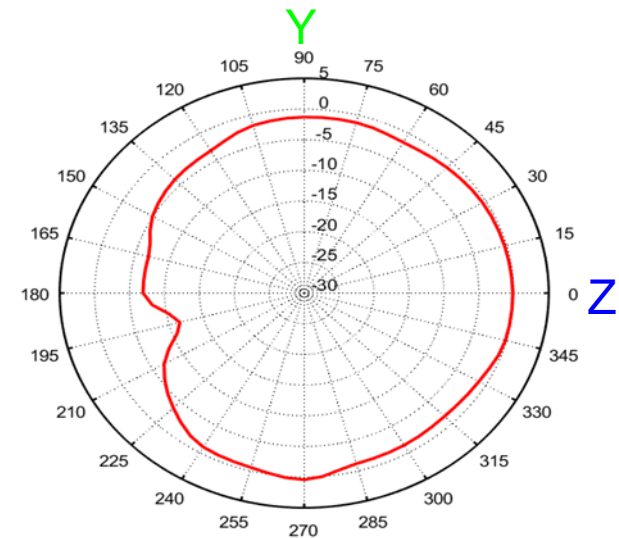
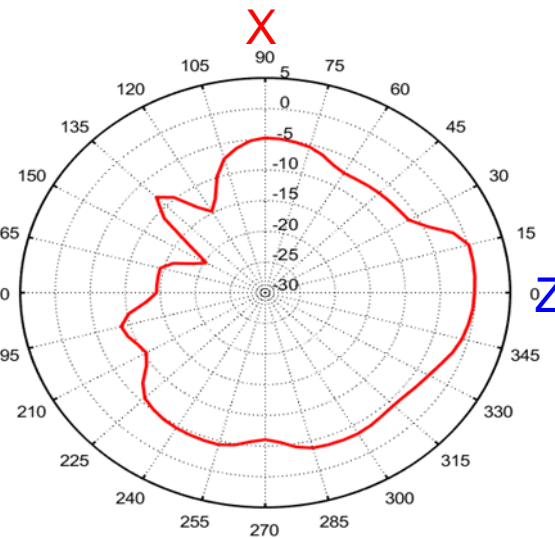
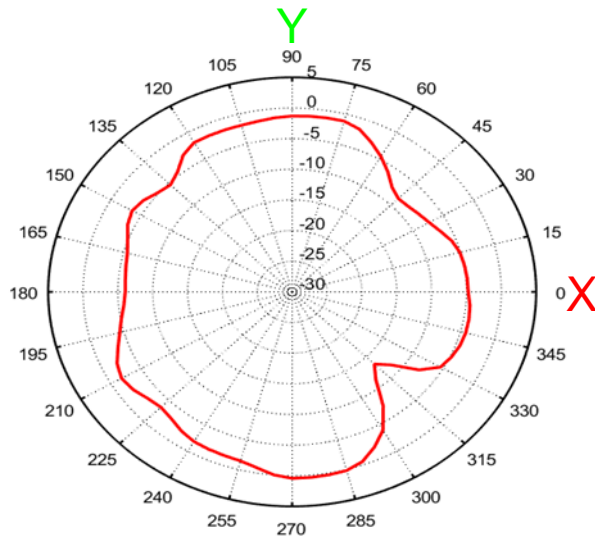
Experimental results(Second)

3D Gain Pattern (Radiation Pattern @ 2445 MHz) (unit: dBi)

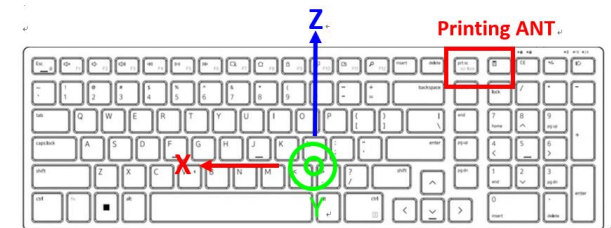


Experimental results(Main)

2D Gain Pattern (Radiation Pattern @ 2445 MHz) (unit: dBi)

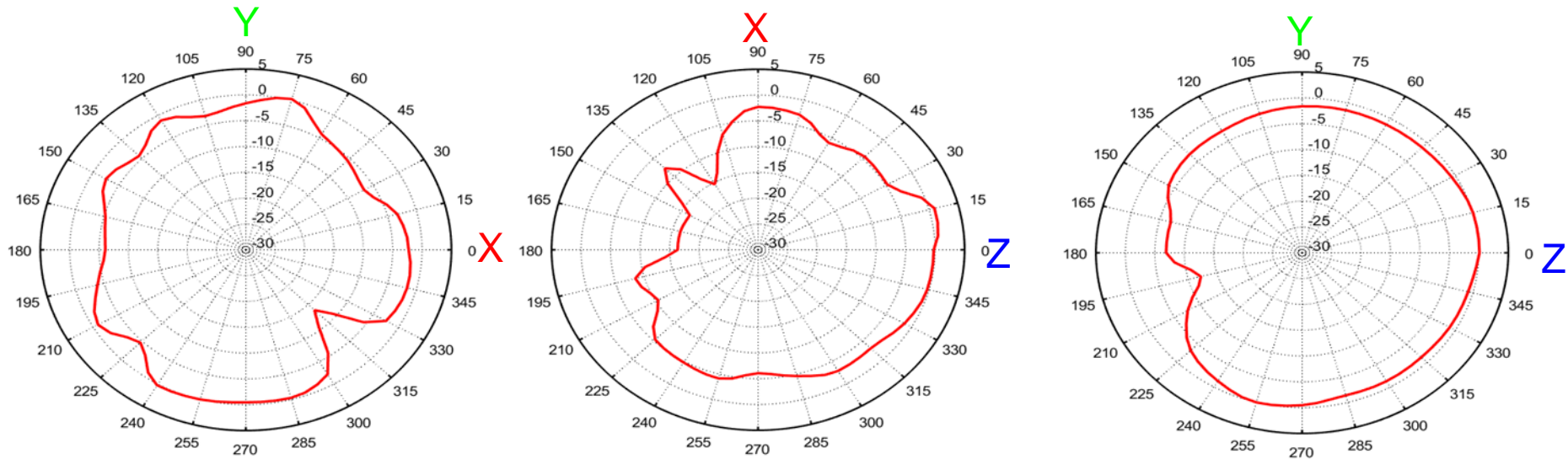


Total Polarization	XY Plane		XZ Plane		YZ Plane	
Frequency (MHz)	Peak Gain (dBi)	Average Gain (dBi)	Peak Gain (dBi)	Average Gain (dBi)	Peak Gain (dBi)	Average Gain (dBi)
2445MHz	0.42	-3.24	0.12	-4.13	0.42	-1.63

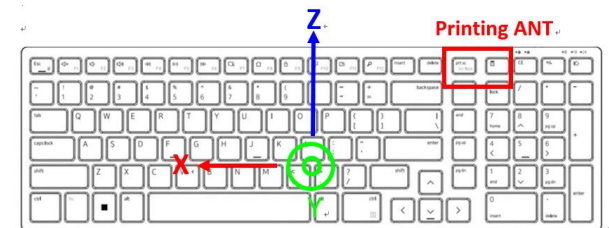


Experimental results(Second)

2D Gain Pattern (Radiation Pattern @ 2445 MHz) (unit: dBi)



Total Polarization	XY Plane		XZ Plane		YZ Plane	
Frequency (MHz)	Peak Gain (dBi)	Average Gain (dBi)	Peak Gain (dBi)	Average Gain (dBi)	Peak Gain (dBi)	Average Gain (dBi)
2445MHz	0.28	-2.4	0.95	-3.52	0.11	-1.61



Conclusion

Peak Gain and Efficiency

Freq	Peak Gain	Efficiency
2.4GHz	1.1dBi	52.8%