Test Report- Dell Silent MS

Customer:	**Darfon**
Project:	**Dell Silent MS355d**
Antenna:	**Printing Ant**
Version:	**E**
Testing Date	**2024/04/19**
Release date:	**2024/04/19**

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

Report Outline

Unictron Technologies Corp.

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

Unictron Technologies Corp.

Sample

1. **Testing at Free Space & Hand held mode.**

Measurement Setup

Measurement Setup

Reflection Coefficient Measurement

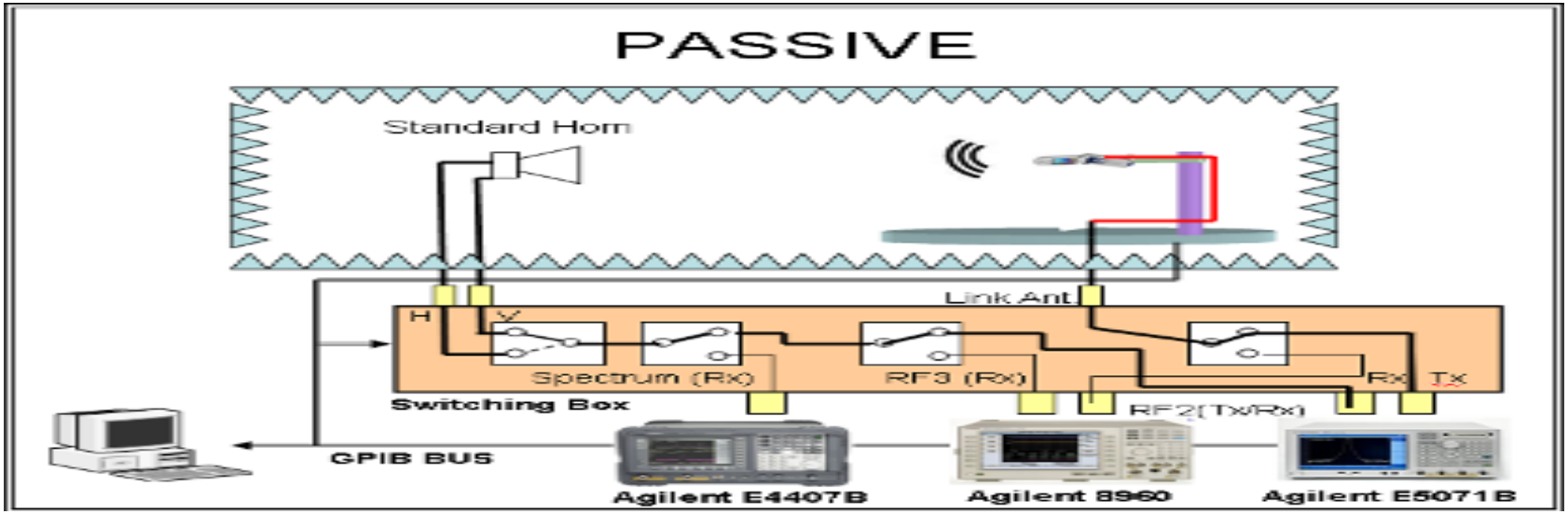
1. Equipment : Network Analyzer(Agilent E5071A)
    a. Last Calibration date: 2024/3/4
    b. Next Calibration date: 2025/3/4
2. Test Software: Maxwell Viewer
3. Test items : S-parameters (Impedance, return loss, VSWR)

Figure. Network Analyzer(Agilent E5071A)

Measurement Setup

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 Setup

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.

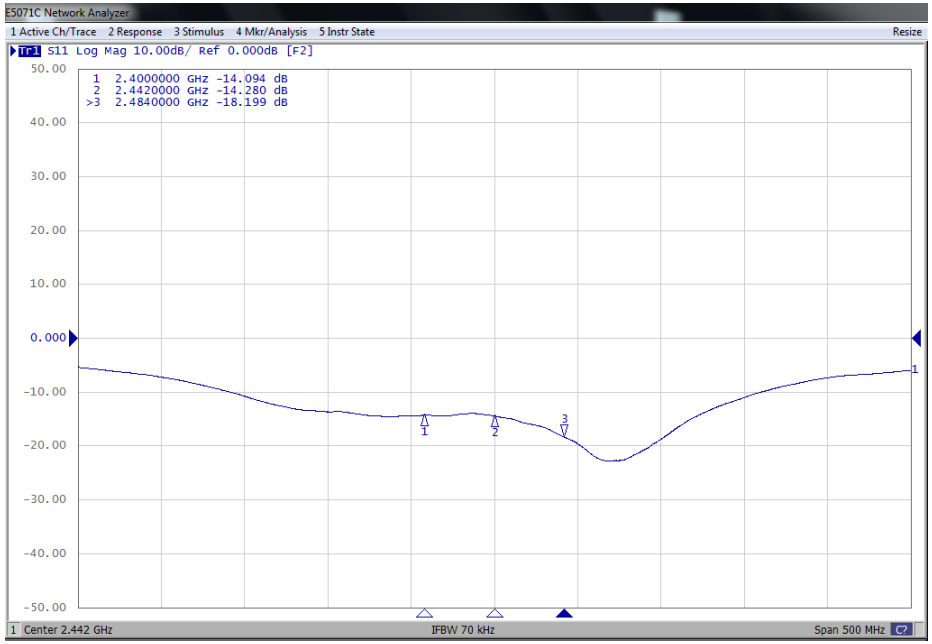
Experimental results

Experimental results

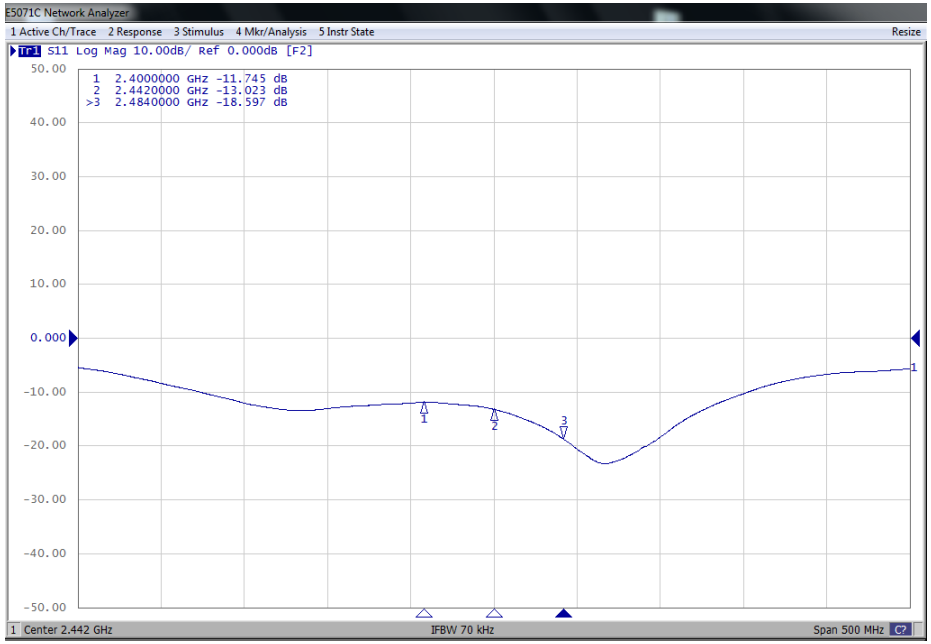
S-Parameters

Return Loss

Main-Free Space



Main-Hand held

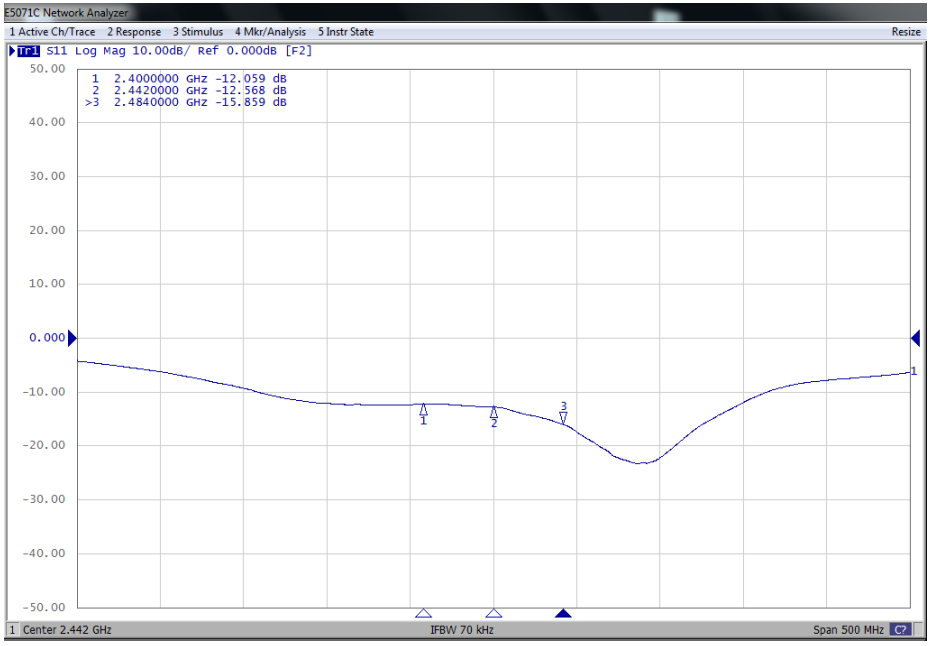


Experimental results

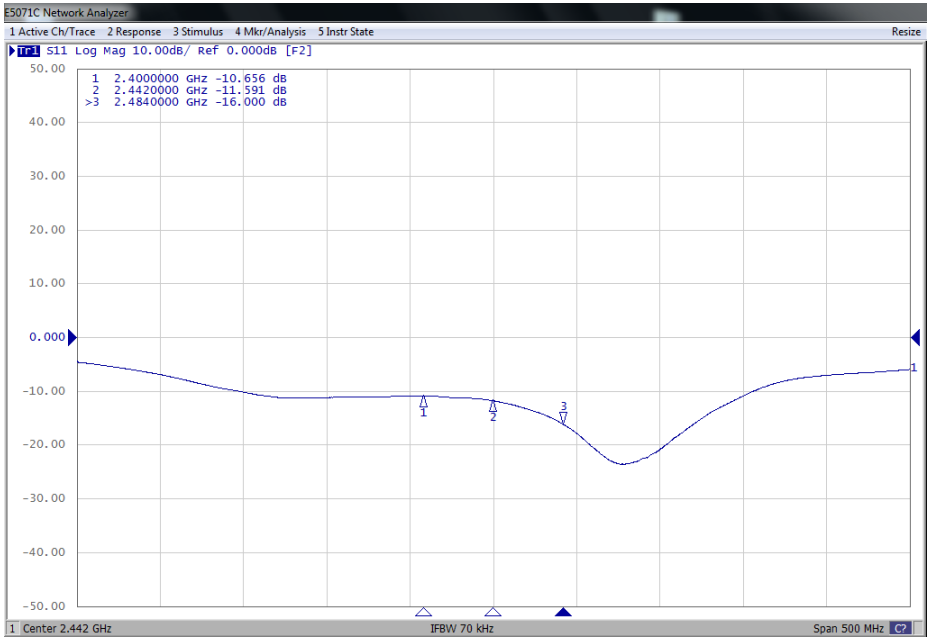
S-Parameters

Return Loss

Second-Free Space

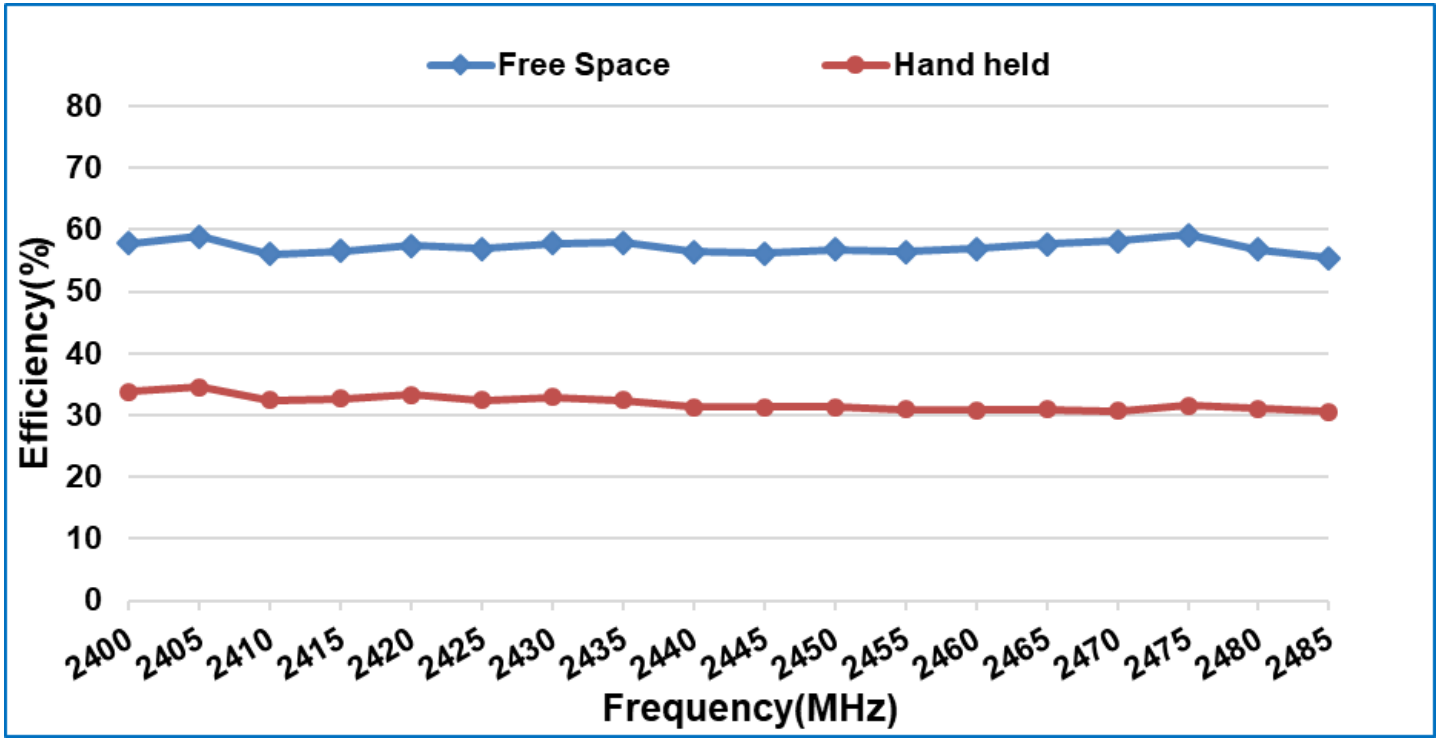


Second-Hand held



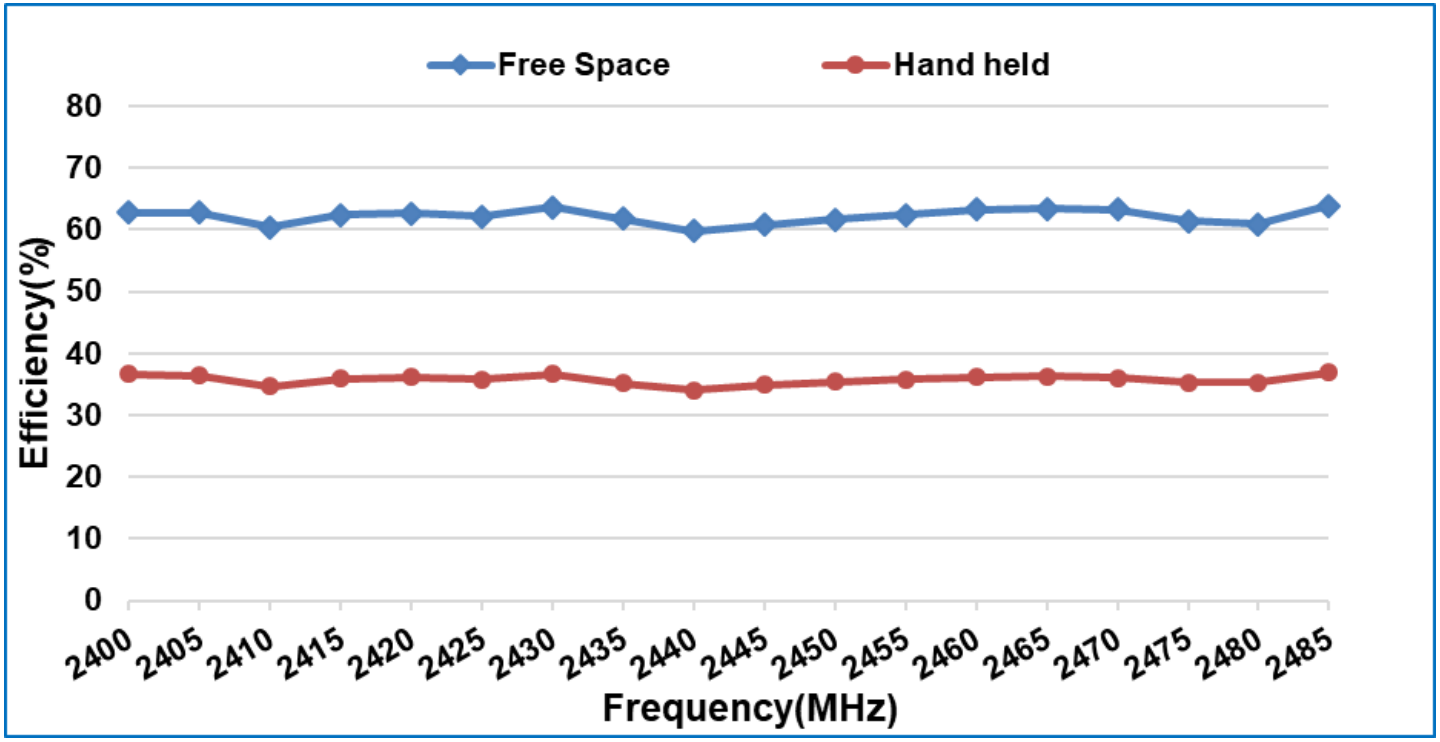
Experimental results (Main)

Radiation efficiency



Experimental results (Second)

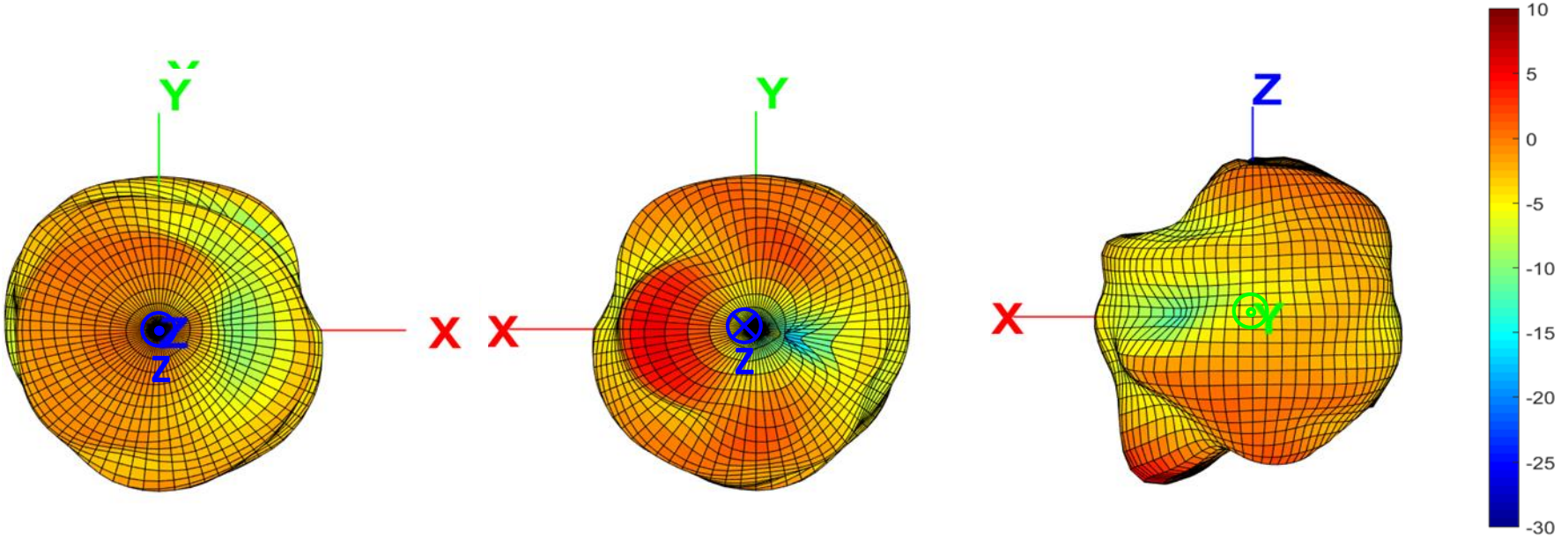
Radiation efficiency

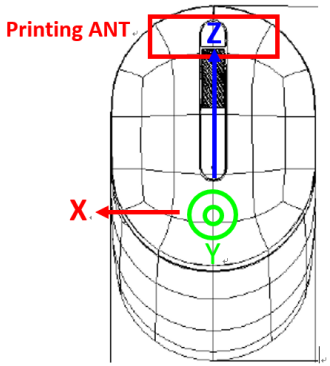


Experimental results(Main-Free Space)

Unictron Technologies Corp.

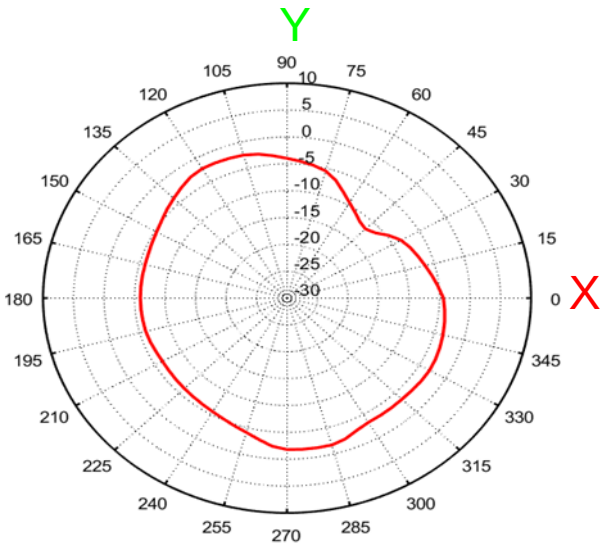
3D Gain Pattern (Radiation Pattern @ 2445 MHz) (unit: dBi)

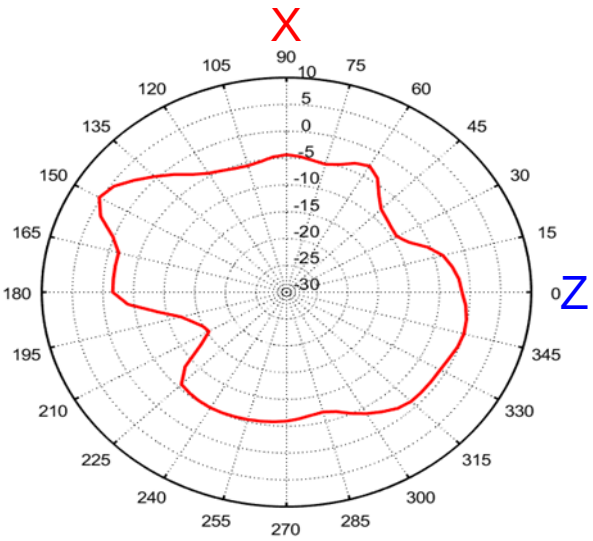


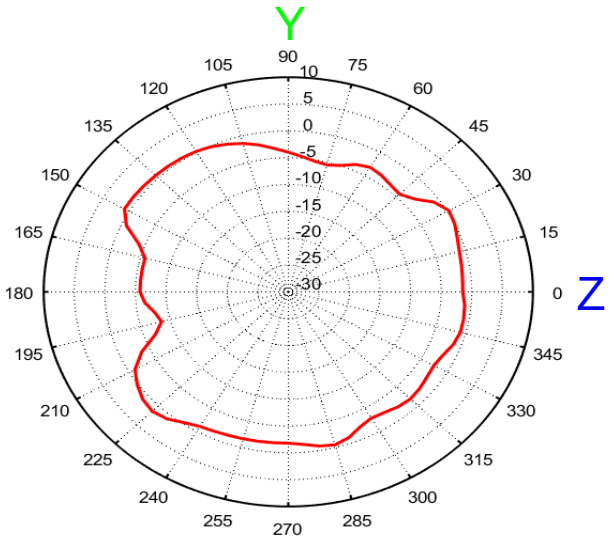


Experimental results (Main-Free Space)

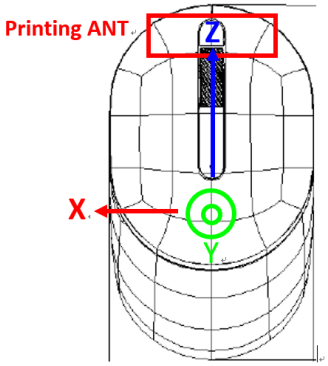
2D Gain Pattern (Radiation Pattern @ 2445 MHz) (unit: dBi)







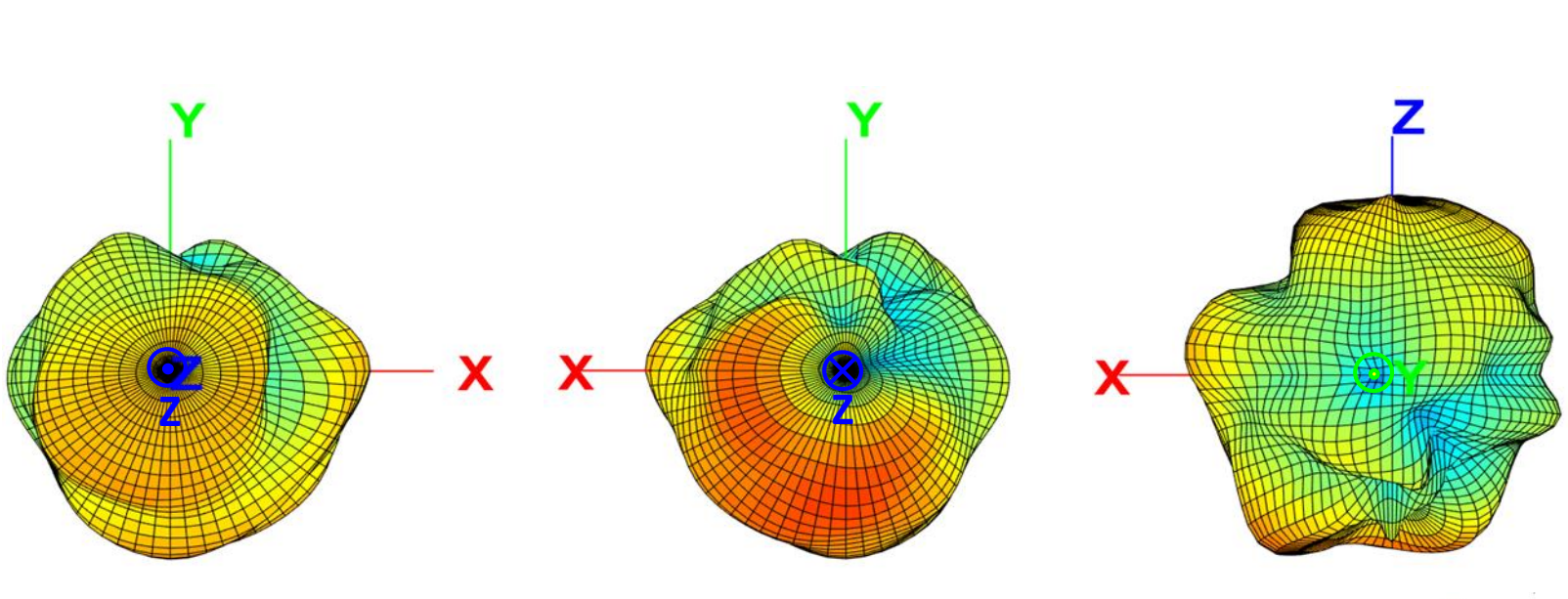
Total Polarization	XY Plane		XZ Plane		YZ Plane	
Frequency (MHz)	Peak Gain (dBi)	Average Gain (dBi)	Peak Gain (dBi)	Average Gain (dBi)	Peak Gain (dBi)	Average Gain (dBi)
2445MHz	-1.68	-4.46	5.33	-2.41	1.47	-1.45

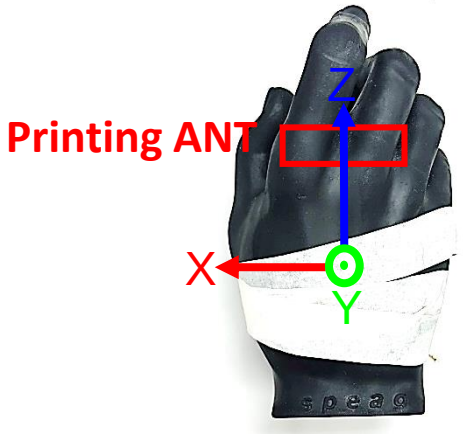


Experimental results (Main-Hand held)

Unictron Technologies Corp.

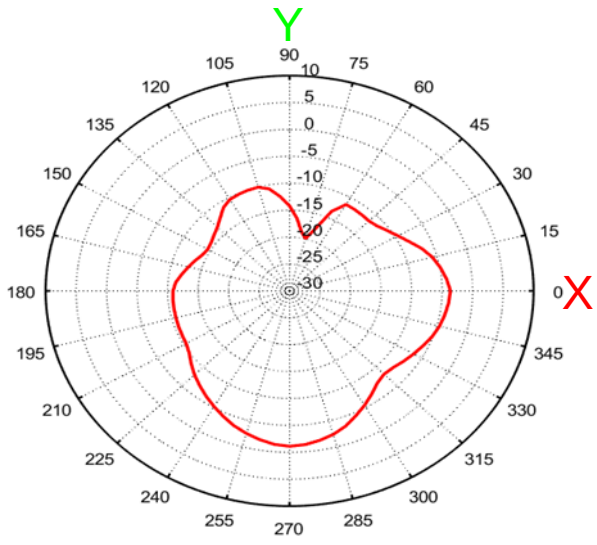
3D Gain Pattern (Radiation Pattern @ 2445 MHz) (unit: dBi)

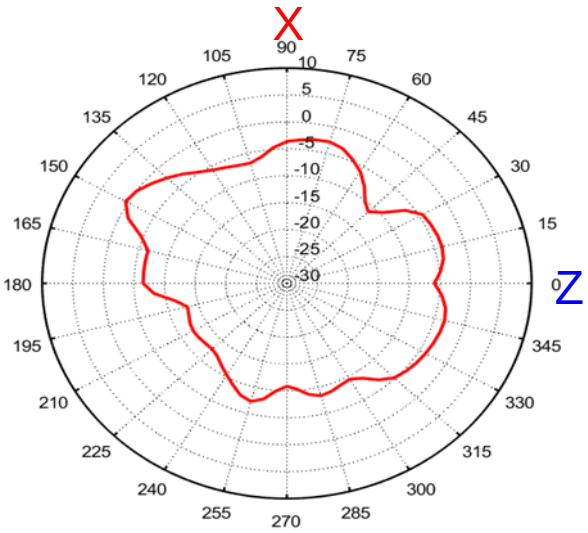


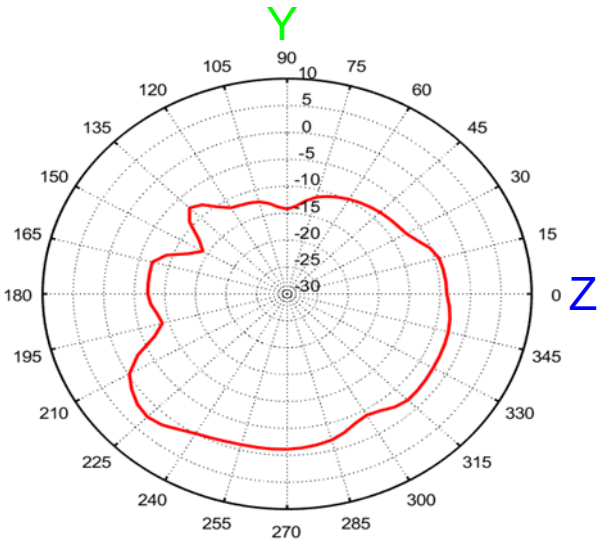


Experimental results (Main-Hand held)

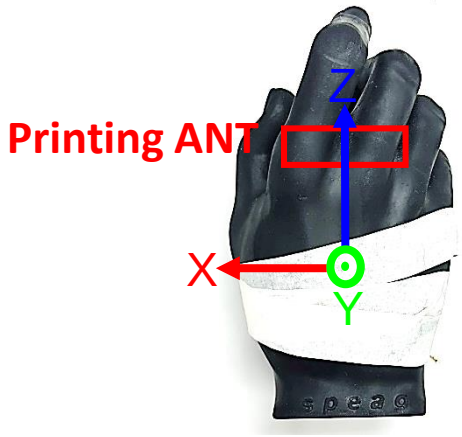
2D Gain Pattern (Radiation Pattern @ 2445 MHz) (unit: dBi)







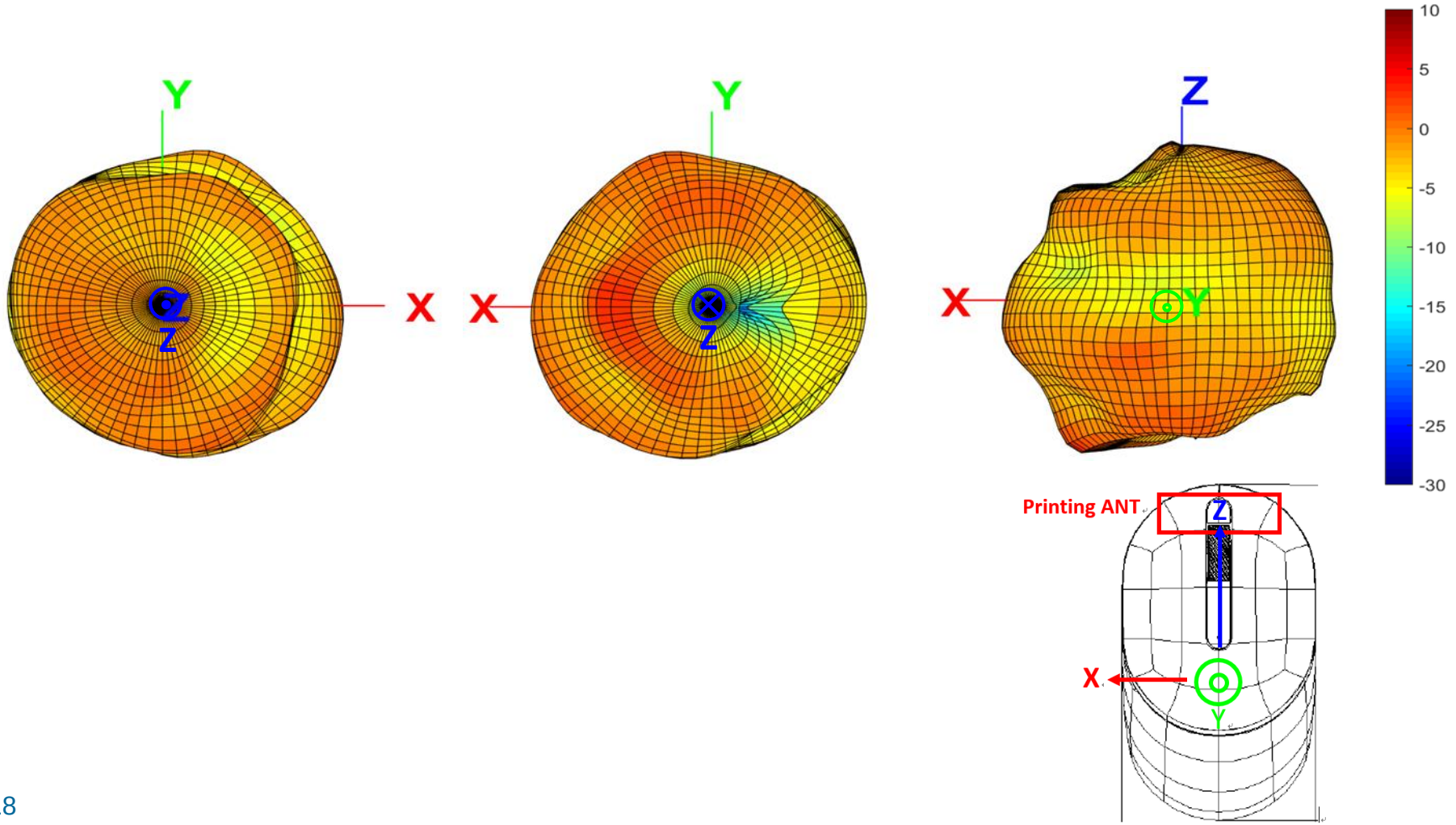
Total Polarization	XY Plane		XZ Plane		YZ Plane	
Frequency (MHz)	Peak Gain (dBi)	Average Gain (dBi)	Peak Gain (dBi)	Average Gain (dBi)	Peak Gain (dBi)	Average Gain (dBi)
2445MHz	-1.12	-6.66	0.44	-5.41	2.33	-3.64



Experimental results(Second -Free Space)

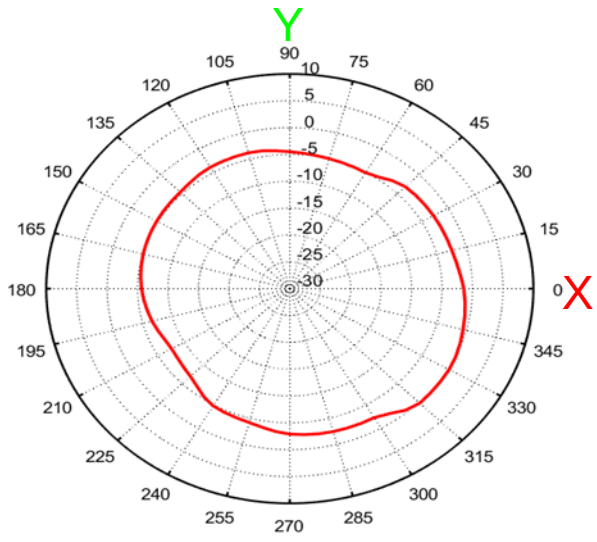
Unictron Technologies Corp.

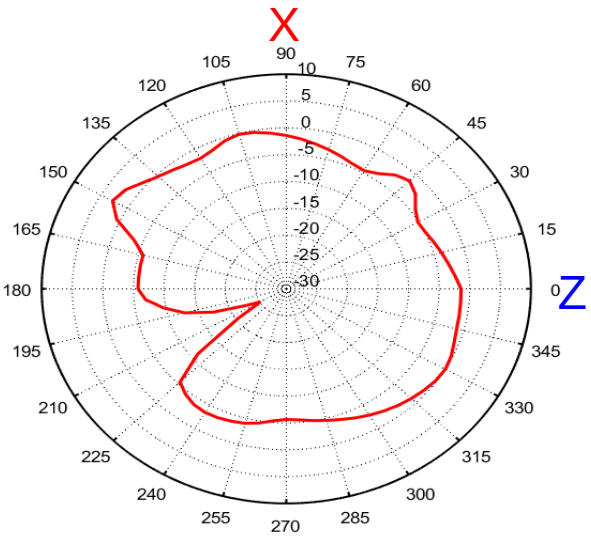
3D Gain Pattern (Radiation Pattern @ 2445 MHz) (unit: dBi)

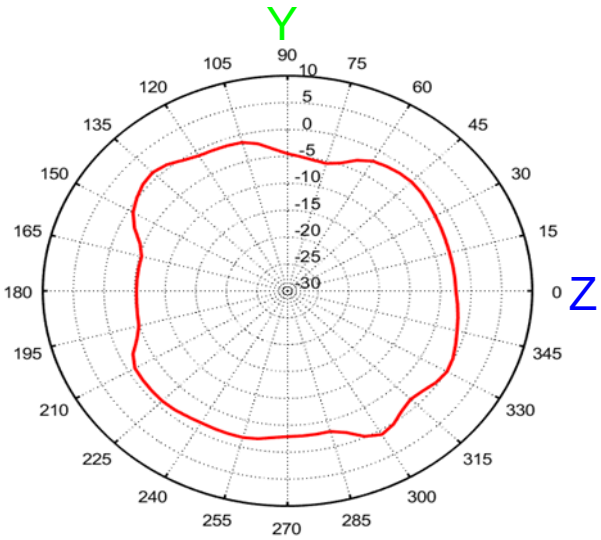


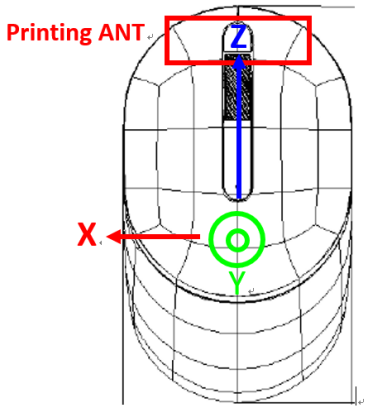
Experimental results (Second -Free Space)

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







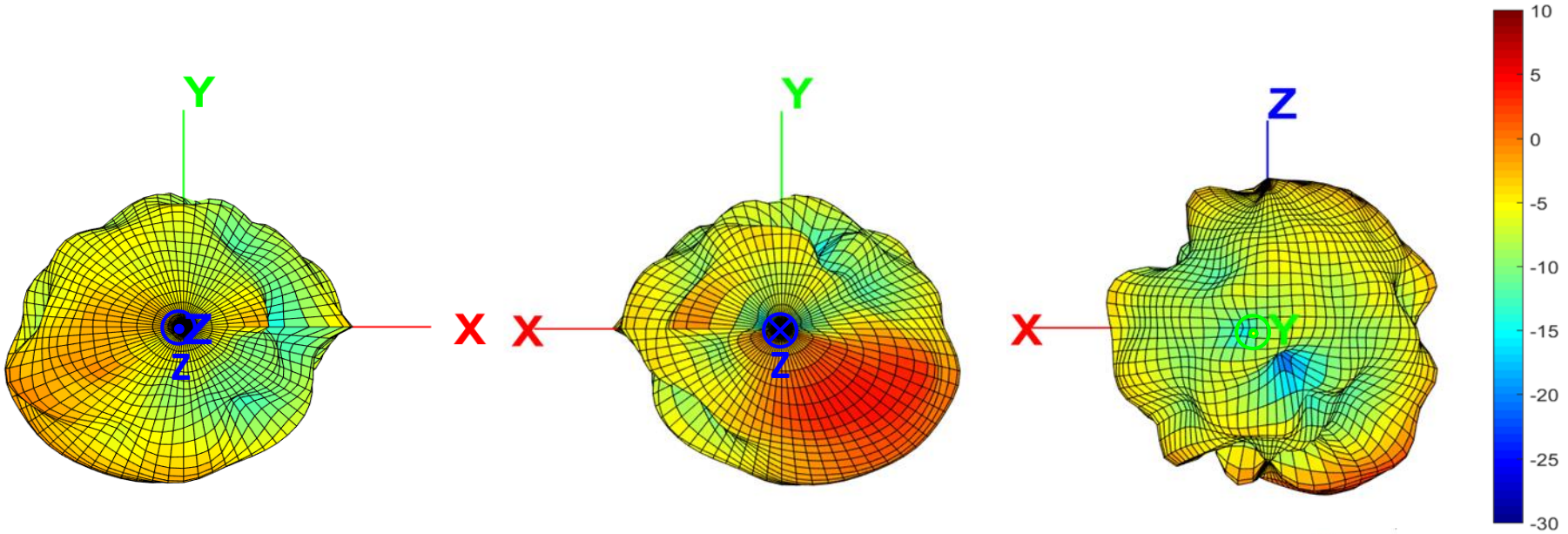


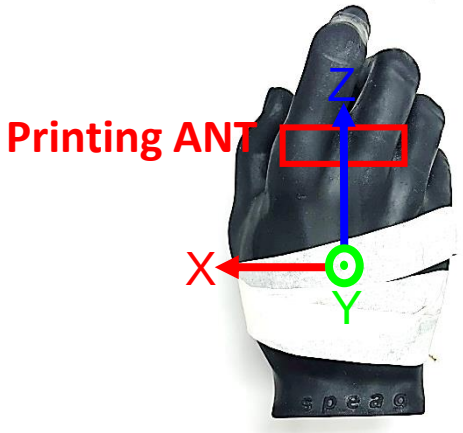
Total Polarization	XY Plane		XZ Plane		YZ Plane	
Frequency (MHz)	Peak Gain (dBi)	Average Gain (dBi)	Peak Gain (dBi)	Average Gain (dBi)	Peak Gain (dBi)	Average Gain (dBi)
2445MHz	0.19	-3.16	2.81	-2.3	1.16	-1.75

Experimental results (Second -Hand held)

Unictron Technologies Corp.

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

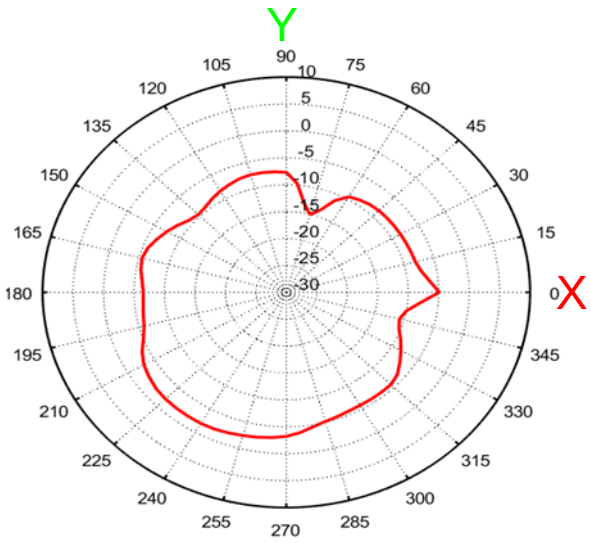


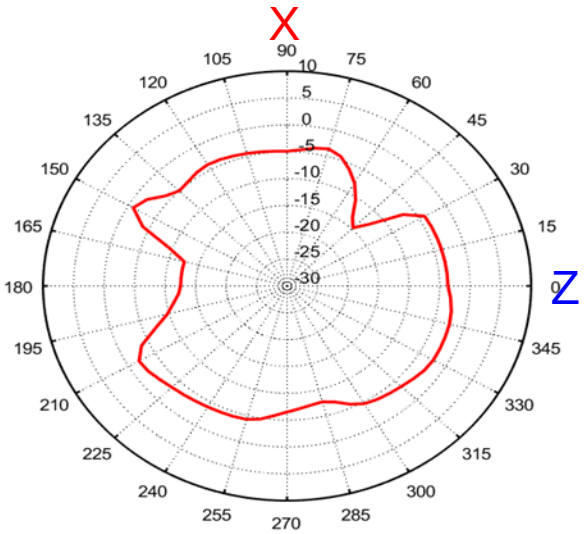


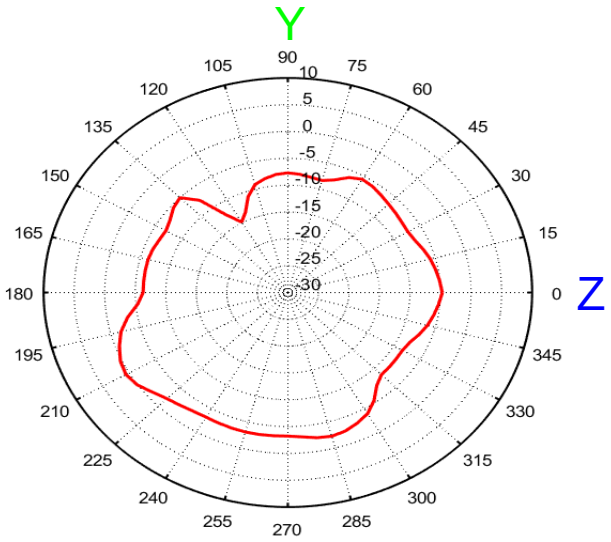
Experimental results (Second -Hand held)

Unictron Technologies Corp.

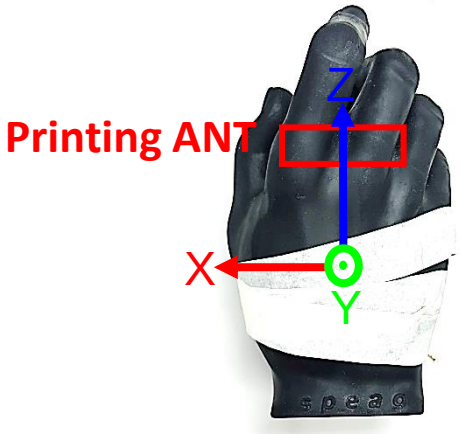
2D Gain Pattern (Radiation Pattern @ 2445 MHz) (unit: dBi)







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	-1.87	-5.72	-0.88	-4.27	0.63	-4.63



Conclusion

Peak Gain and Efficiency

Freq	Peak Gain	Efficiency
2.4GHz	5.33dBi	63.7%