

# LYNwave Technology

Antenna solution provider

## Antenna Field Test Report

**Project Name:** EW-7689PTX

**Model Name:**

**Feature:** 2.4G / 5G / 6E

**Application:**

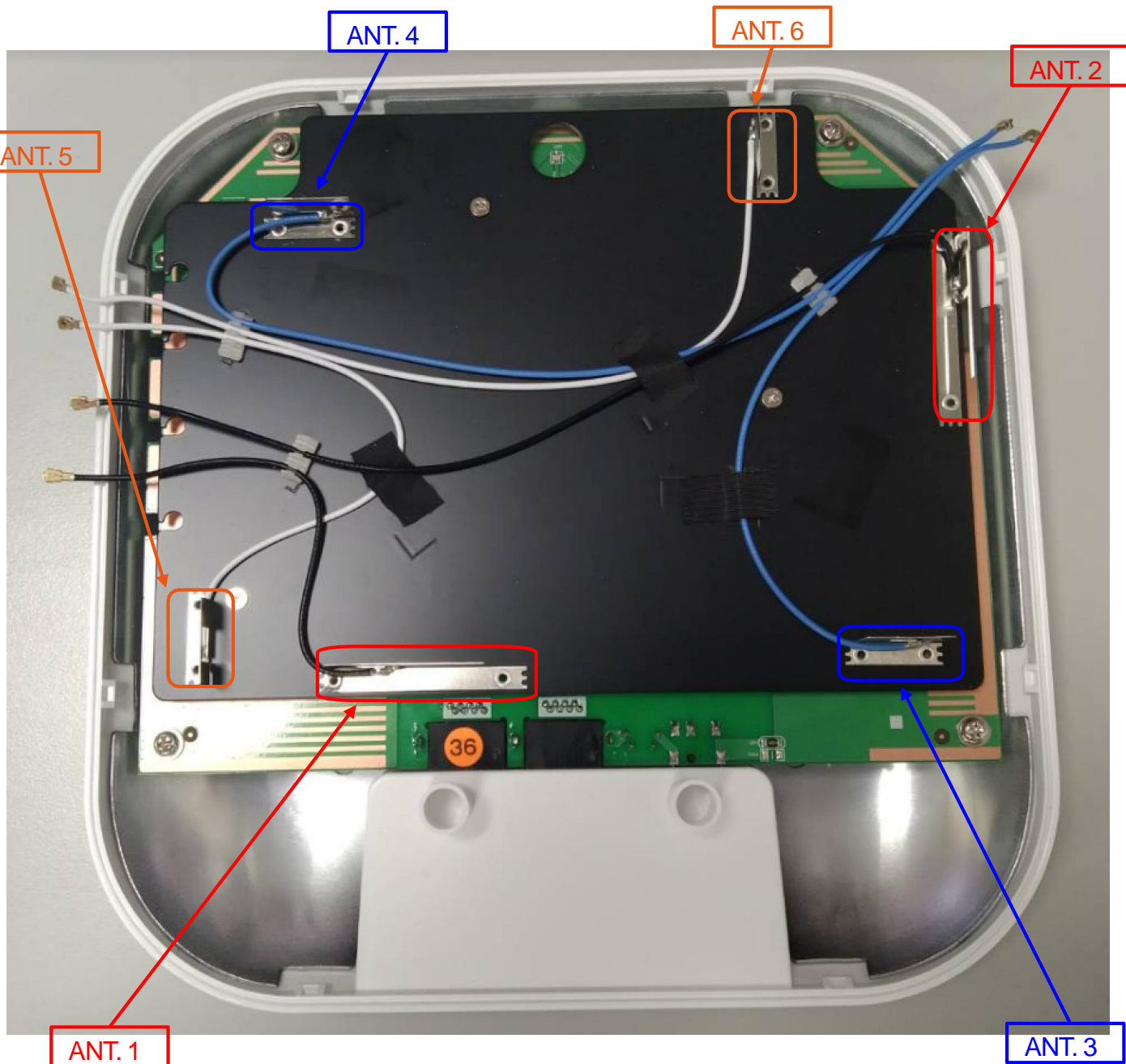
Date	Owner	Revision
2022/04/19	Michael Chen	1. Initial simulation
2022/08/19	Michael Chen	1. Initial simulation
2022/09/22	Jamie Su	1. Antenna Passive Measurement
2022/09/30	Jamie Su	1. Antenna Passive Measurement (optimizing 6E band)
2022/10/17	Jamie Su	1. Antenna Passive Measurement (Adding combine pattern)
2022/11/01	Jamie Su	1. Antenna Passive Measurement (Antenna bottom plate cover with graphene)
2022/11/04	Jamie Su	1. Antenna Passive Measurement (New antenna placement)
2022/12/02	Alon	1. Antenna Passive Measurement (Antenna Plane with Graphene)
2023/01/19	Alon	1. Antenna Passive Measurement (with three condition)
2023/01/31	Alon	1. Antenna Passive Measurement (EW-7689PTX T1 Sample)
2023/11/07	Michael	1. Add Test Setup & 3D Radiation Pattern

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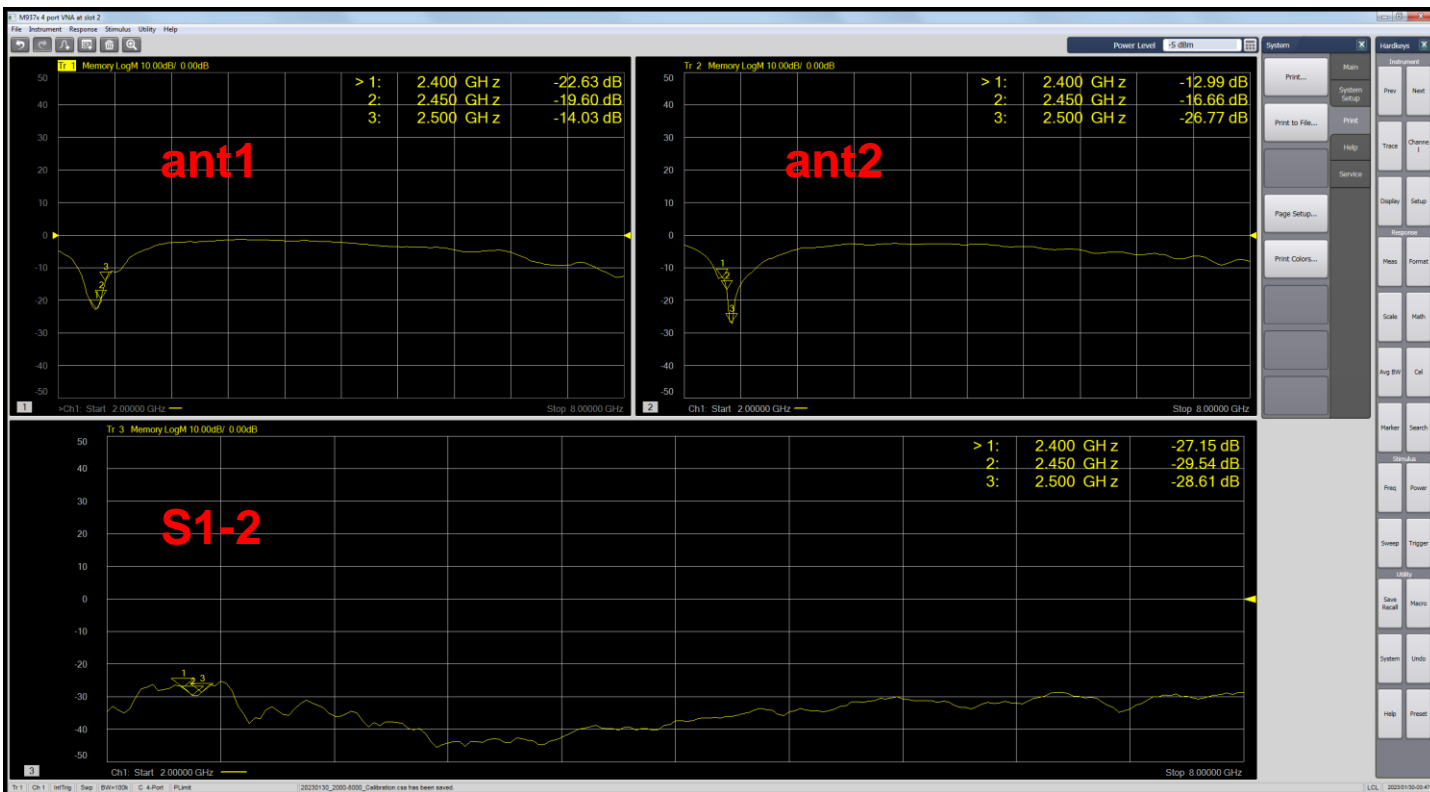
## Antenna Placement

Antenna	Description	Frequency	Cable Length	Color
Ant.1	Single Band	2400 ~ 2500 MHz	115mm	Black
Ant.2	Single Band	2400 ~ 2500 MHz	215mm	Black
Ant.3	Single Band	5150 ~ 5825 MHz	180mm	Blue
Ant.4	Single Band	5150 ~ 5825 MHz	234mm	Blue
Ant.5	Single Band	5925 ~ 7125 MHz	165mm	White
Ant.6	Single Band	5925 ~ 7125 MHz	205mm	White

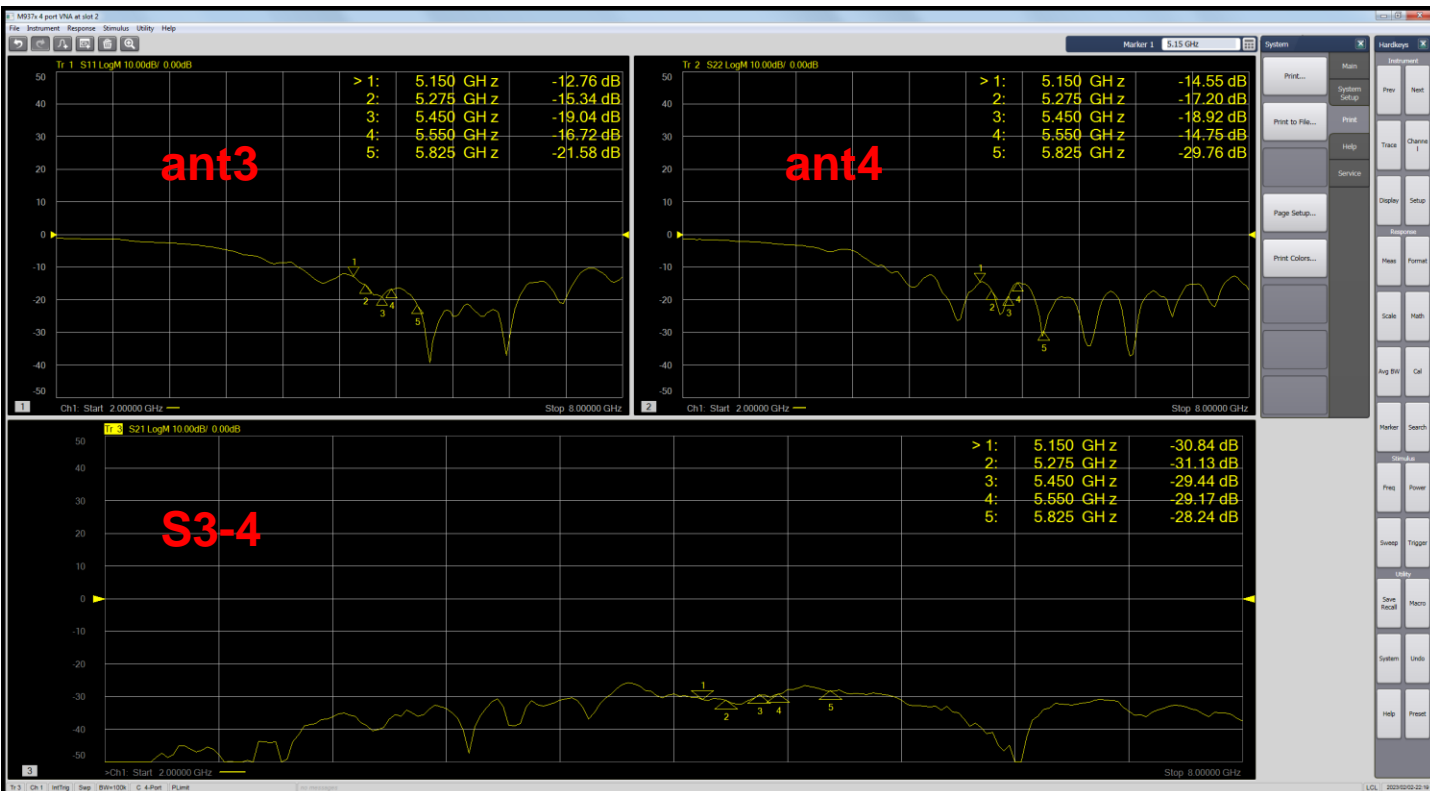


# S-Parameter

## 2G

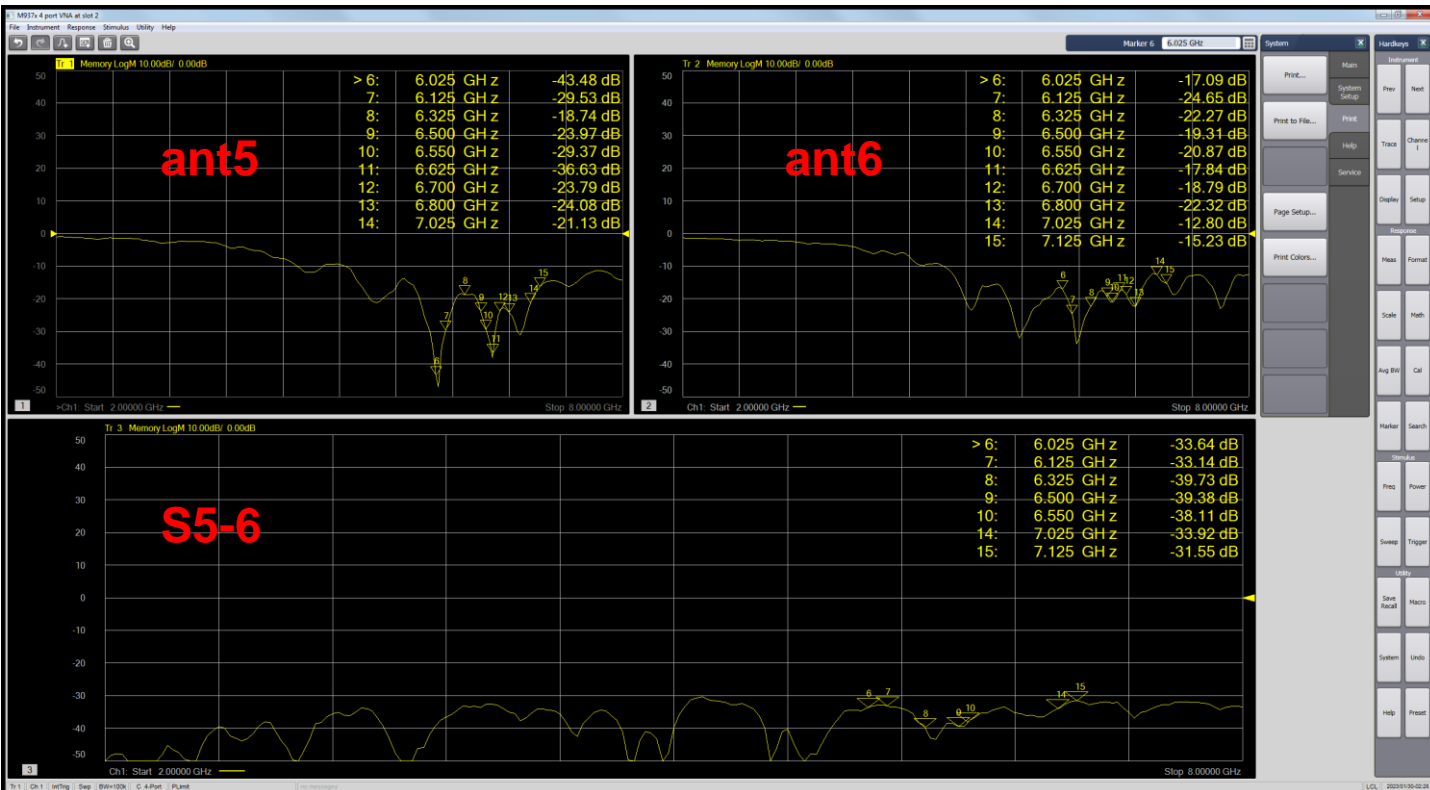


## 5G

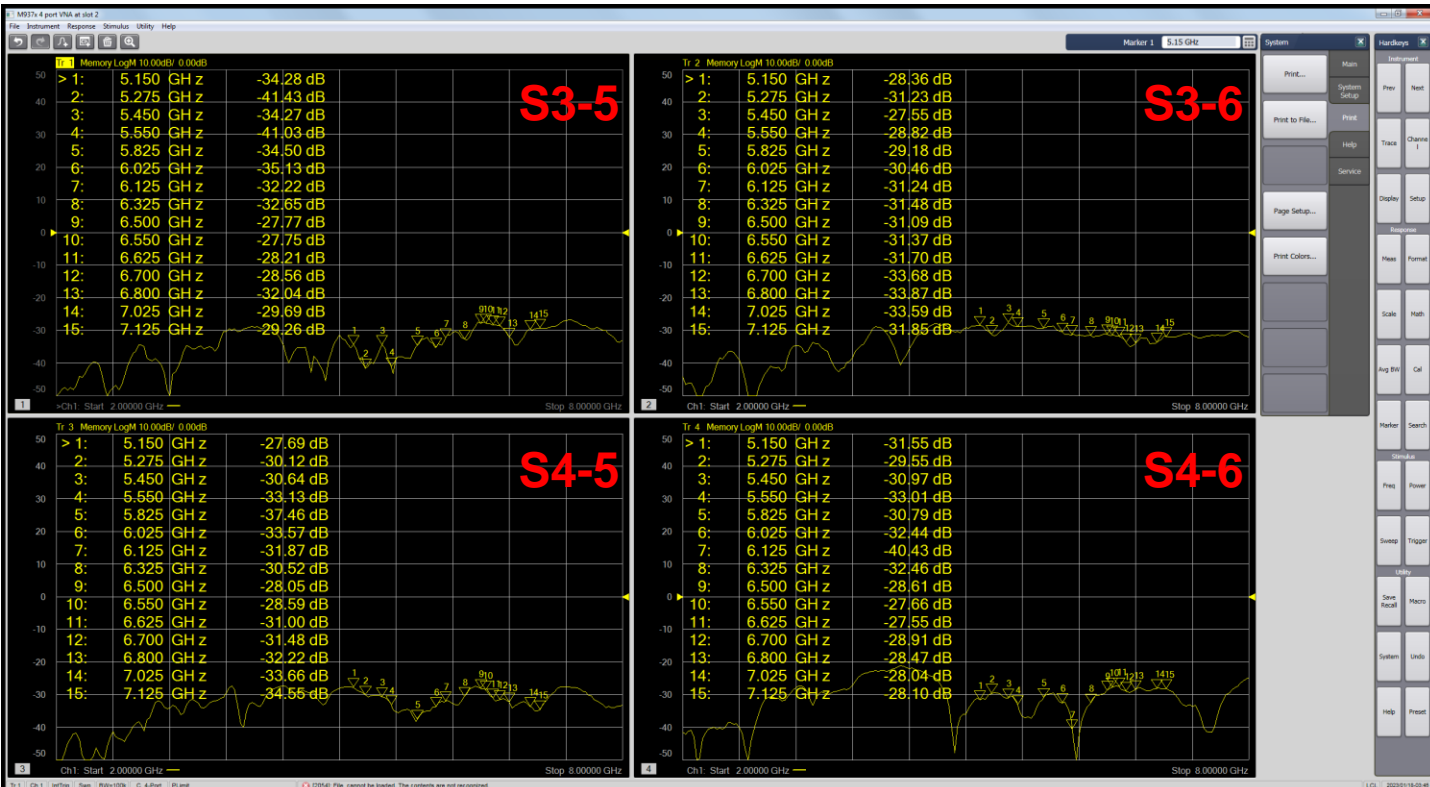


# S-Parameter

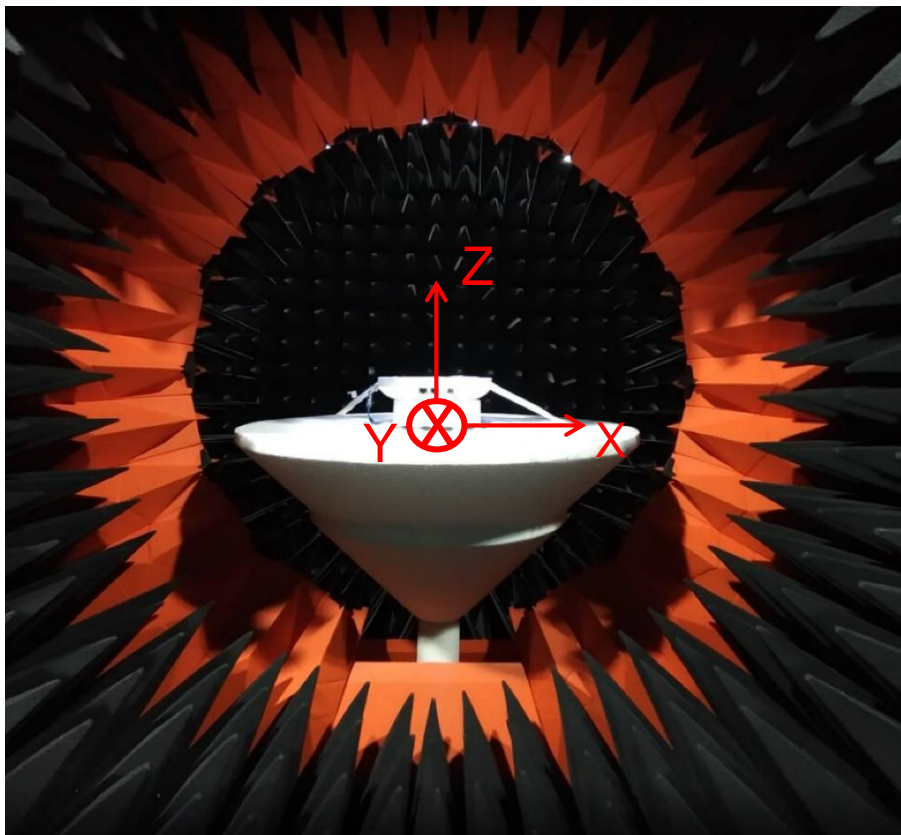
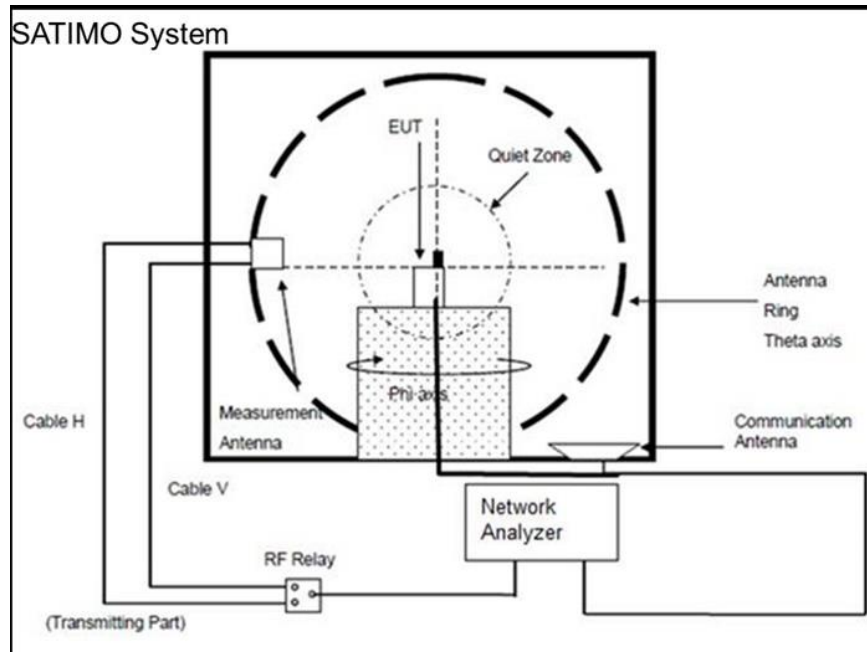
6E



## 5G+6E Cross isolation



## Equipment :Satimo Chamber &amp; Test Setup Photo



## Table of calibrated equipment

Description & Manufacturer	Model No.	Cal. Date	Cal. Date
3D Chamber SATIMO	StarLab	Sep. 15,2022	Sep. 15,2023

## Test date and test personnel

Test Software	Operator	Date	Time
Wave Studio	Michael Chen	2023/01/31	09:00~18:00

## Description of test setup

1. Position the DUT on the test turntable.
2. Record the coordinates and take picture.
3. Connect the RF Cable.
4. Leave the chamber and close the door.
5. Run the software.
6. Wait for the test to end and confirm the data.



## Gain Table

Ant.1										
Frequency (MHz)	2400			2450			2500			
Efficiency(%)	65			64			63			
Peak Gain(dBi)	4.3			4.0			3.5			
Ant.2										
Frequency (MHz)	2400			2450			2500			
Efficiency(%)	66			61			62			
Peak Gain(dBi)	3.6			3.0			3.5			
Ant.3										
Frequency (MHz)	5150 – 5250		5251 – 5300		5301 - 5490		5491 - 5725		5726 - 5835	
Efficiency(%)	68		65		65		69		70	
Peak Gain(dBi)	4.4		4.6		4.6		5.2		5.4	
Ant.4										
Frequency (MHz)	5150 – 5250		5251 – 5300		5301 - 5490		5491 - 5725		5726 - 5835	
Efficiency(%)	70		70		68		66		69	
Peak Gain(dBi)	6.0		5.8		5.5		5.0		4.9	
Ant.5										
Frequency (MHz)	5945 - 6105	6106 - 6265	6266 - 6425	6426 - 6525	6526 - 6585	6586 - 6745	6476 - 6865	6866 - 6905	6906 - 7065	7066 - 7125
Efficiency(%)	67	65	66	68	66	68	67	67	67	69
Peak Gain(dBi)	5.4	5.8	5.5	5.8	6.0	5.8	5.3	5.3	5.4	6.0
Ant.6										
Frequency (MHz)	5945 - 6105	6106 - 6265	6266 - 6425	6426 - 6525	6526 - 6585	6586 - 6745	6746 - 6865	6866 - 6905	6906 - 7065	7066 - 7125
Efficiency(%)	67	66	66	66	67	65	65	67	65	65
Peak Gain(dBi)	4.4	4.2	5.2	4.3	4.9	5.2	4.6	4.7	5.0	5.8

## The antenna characteristics

- Return loss < -10dB in operating band
- Isolation
  - 2.4GHz to 2.4GHz >20dB
  - 5GHz to 5GHz >25dB
  - 6GHz to 6GHz >30dB
- Cross isolation
  - 5GHz to 6GHz >27dB
- Gain
  - 2.4GHz Band 3.5~4.3dBi
  - 5GHz Band 4.4~6.0dBi
  - 6GHz Band 4.2~6.0dBi
- Efficiency
  - 2.4GHz Band ≥ 60%
  - 5GHz Band ≥ 65%
  - 6GHz Band ≥65%

# Ant.1\_2.4GHz 2D/3D Radiation Pattern

Frequency(MHz) : 2D:2400~2500

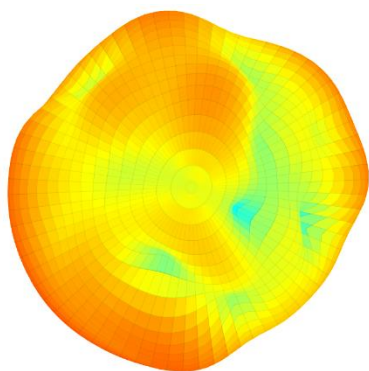
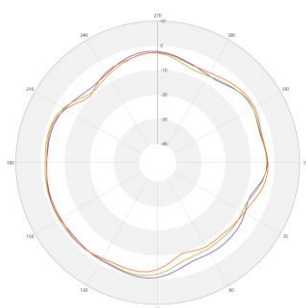
3D:2450

- 2400.00 MHz
- 2450.00 MHz
- 2500.00 MHz

Radiation Pattern :

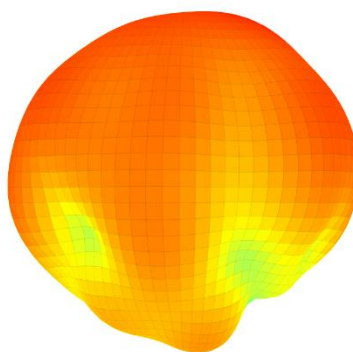
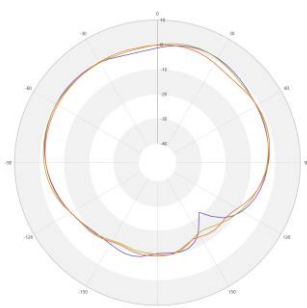
Azimuth Plane

Theta = 90



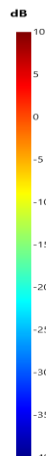
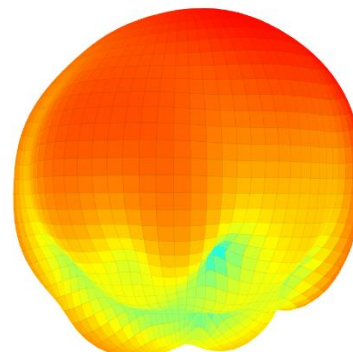
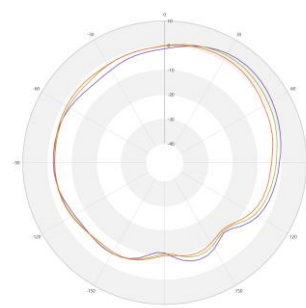
Elevation Plane

phi = 0

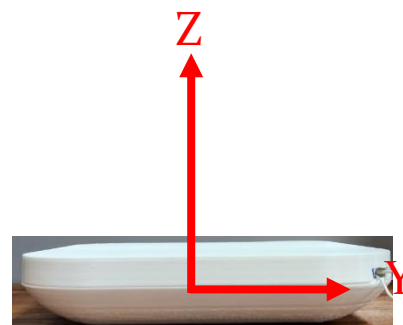
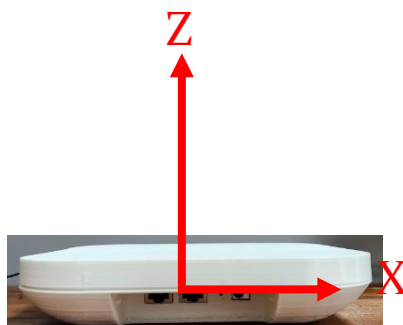
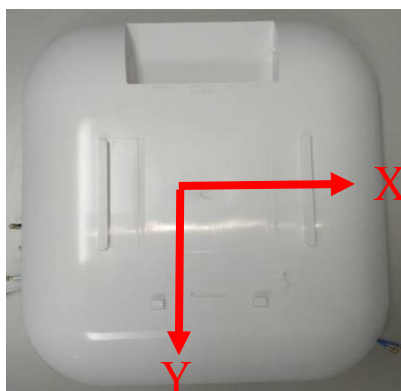


Elevation Plane

phi = 90



Setup :



# Ant.2\_2.4GHz 2D/3D Radiation Pattern

Frequency(MHz) : 2D:2400~2500

3D:2450

2400.00 MHz

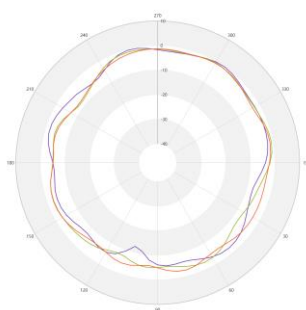
2450.00 MHz

2500.00 MHz

Radiation Pattern :

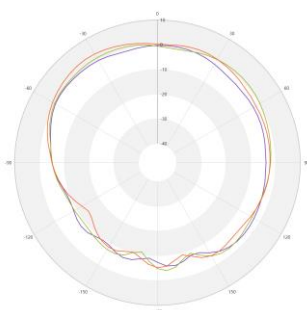
Azimuth Plane

Theta = 90



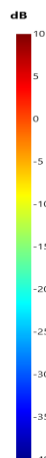
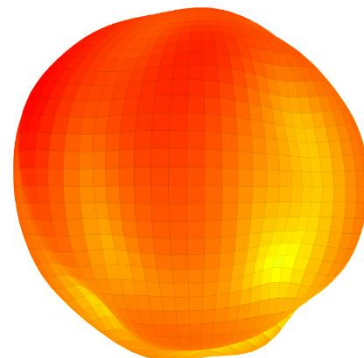
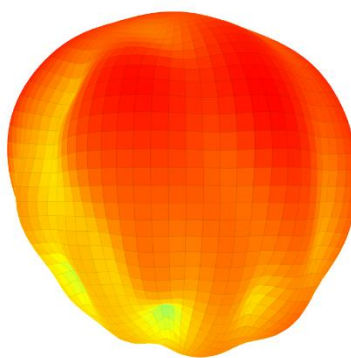
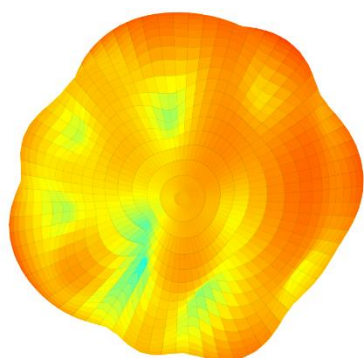
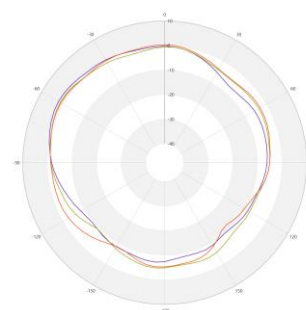
Elevation Plane

phi = 0

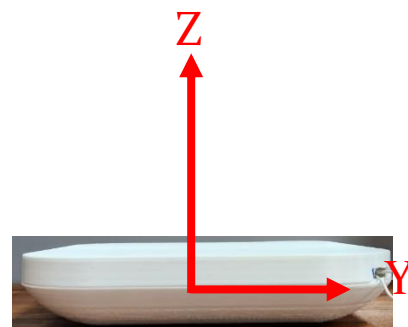
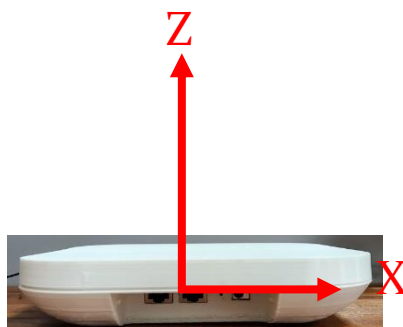
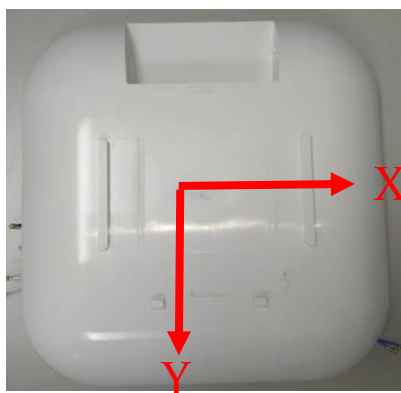


Elevation Plane

phi = 90



Setup :



# Ant.3\_5GHz 2D/3D Radiation Pattern

Frequency(MHz) : 2D:5150~5825

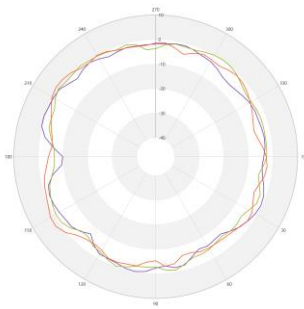
3D:5550

- 5150.00 MHz
- 5550.00 MHz
- 5825.00 MHz

Radiation Pattern :

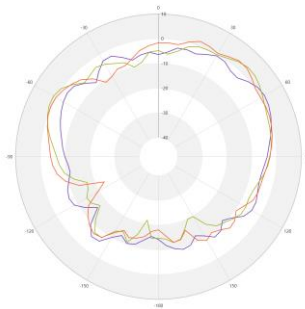
Azimuth Plane

Theta = 90



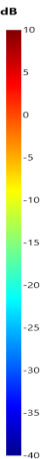
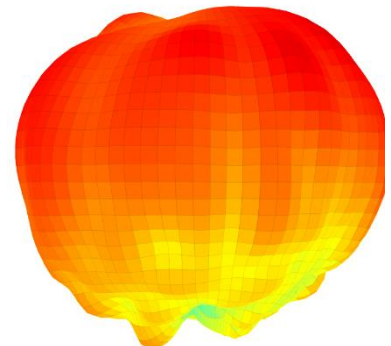
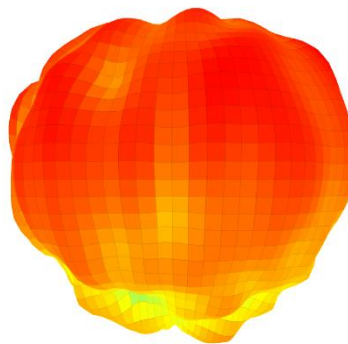
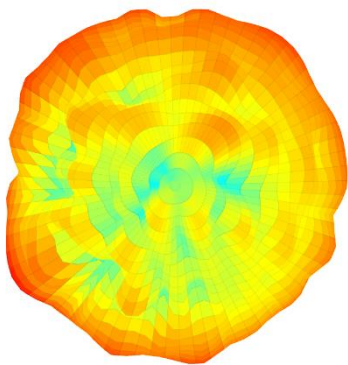
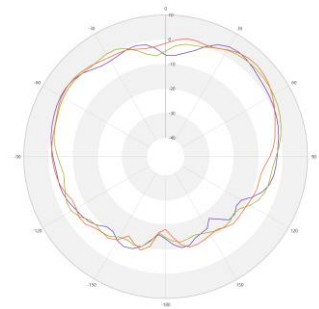
Elevation Plane

phi = 0

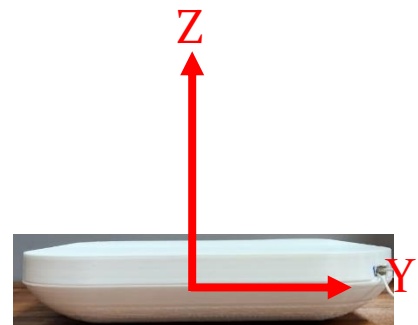
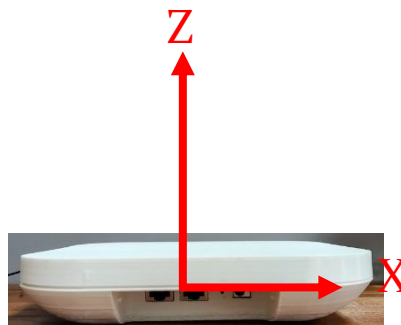
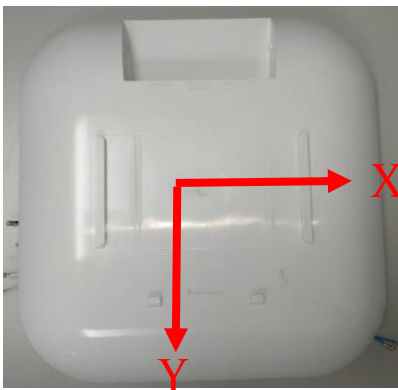


Elevation Plane

phi = 90



Setup :



# Ant.4\_5GHz 2D/3D Radiation Pattern

Frequency(MHz) : 2D:5150~5825

3D:5550

5150.00 MHz

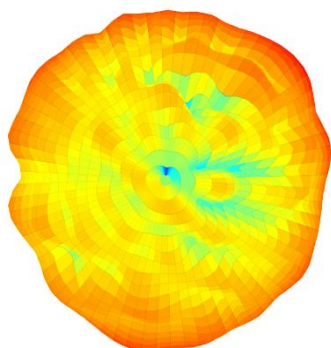
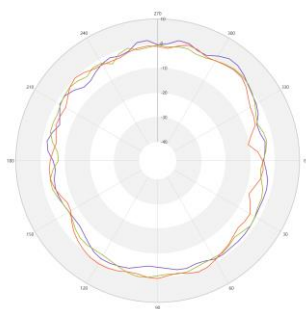
5550.00 MHz

5825.00 MHz

Radiation Pattern :

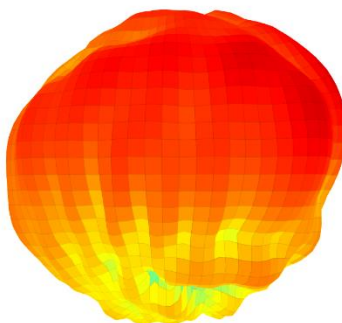
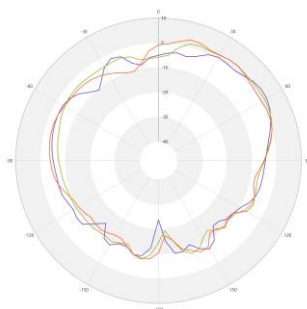
Azimuth Plane

Theta = 90



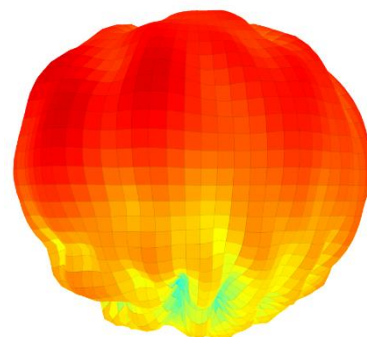
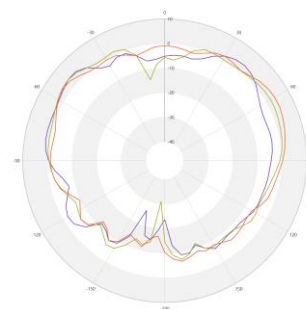
Elevation Plane

phi = 0

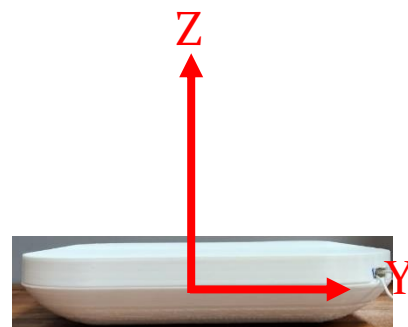
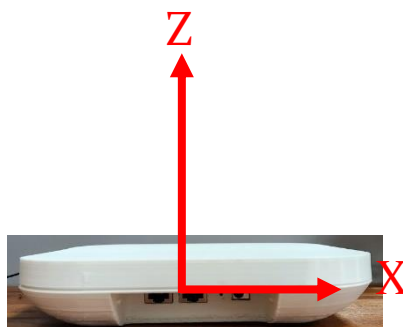
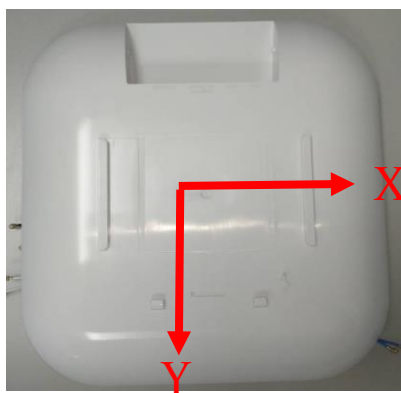


Elevation Plane

phi = 90



Setup :



# Ant.5\_6GHz 2D/3D Radiation Pattern

Frequency(MHz) : 2D:5925~7125

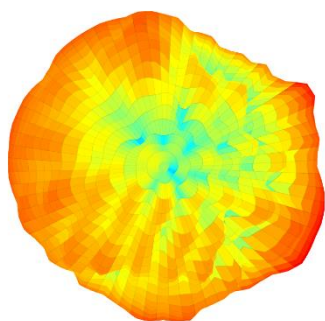
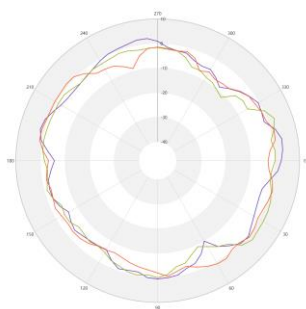
3D:6500

- 5925.00 MHz
- 6500.00 MHz
- 7125.00 MHz

Radiation Pattern :

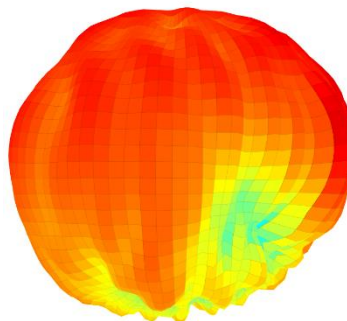
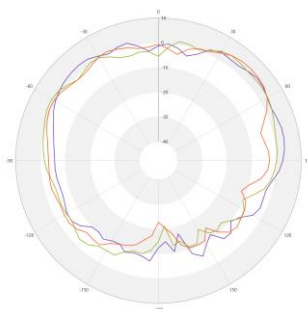
Azimuth Plane

Theta = 90



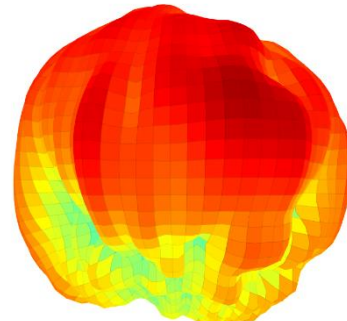
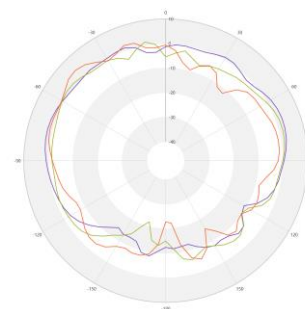
Elevation Plane

phi = 0

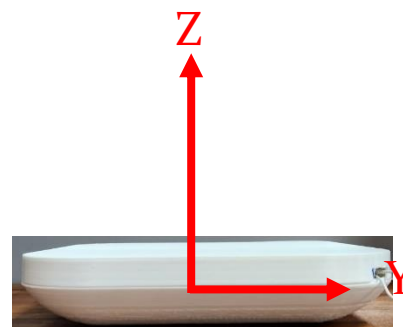
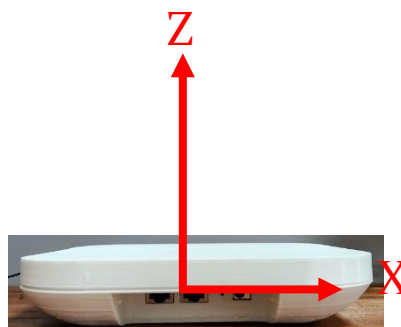
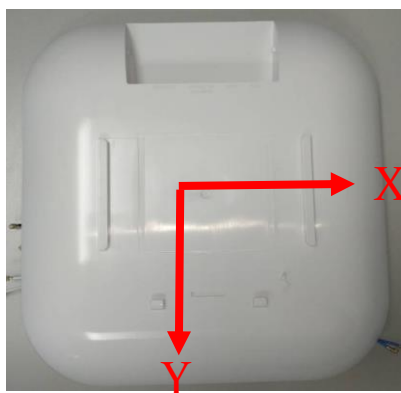


Elevation Plane

phi = 90



Setup :



# Ant.5\_6GHz 2D/3D Radiation Pattern

Frequency(MHz) : 2D:5925~7125

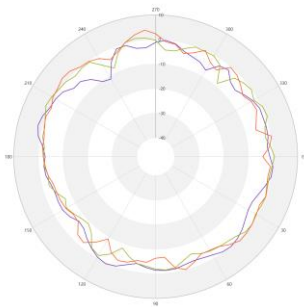
3D:6500

- 5925.00 MHz
- 6500.00 MHz
- 7125.00 MHz

Radiation Pattern :

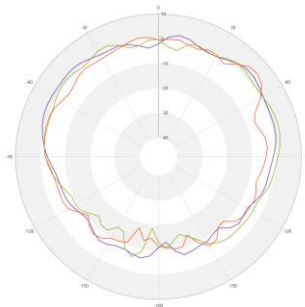
Azimuth Plane

Theta = 90



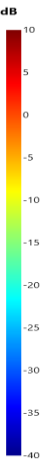
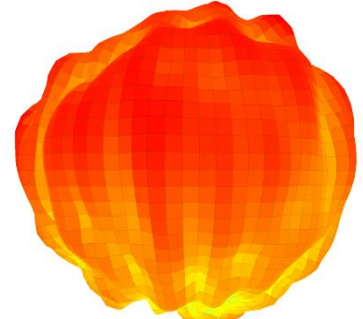
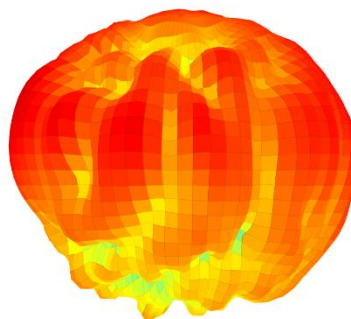
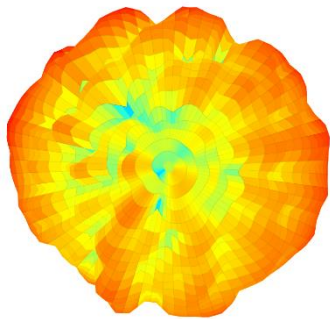
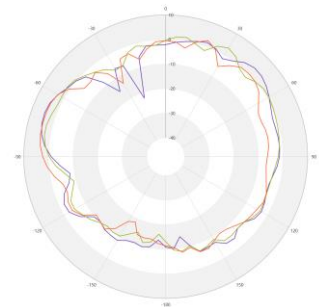
Elevation Plane

phi = 0

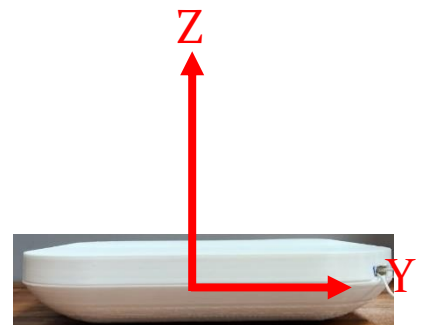
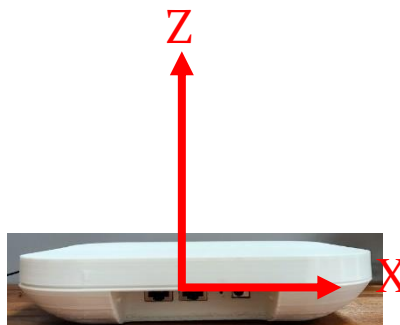
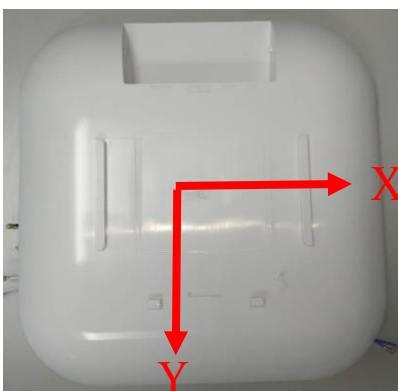


Elevation Plane

phi = 90



Setup :



[www.lynwave.com](http://www.lynwave.com)



<https://www.facebook.com/LYNwaveTechnology/>



[https://www.linkedin.com/company/lynwave-technology-ltd./](https://www.linkedin.com/company/lynwave-technology-ltd/)



<https://lynwave.en.alibaba.com/>