

LYNwave Technology

Antenna & Thermal solution provider

Antenna Field Test Report

Company: Alarm
Project Name: V731b
Model Name:
Application: Camera
Mounting Type: Ceiling Mount

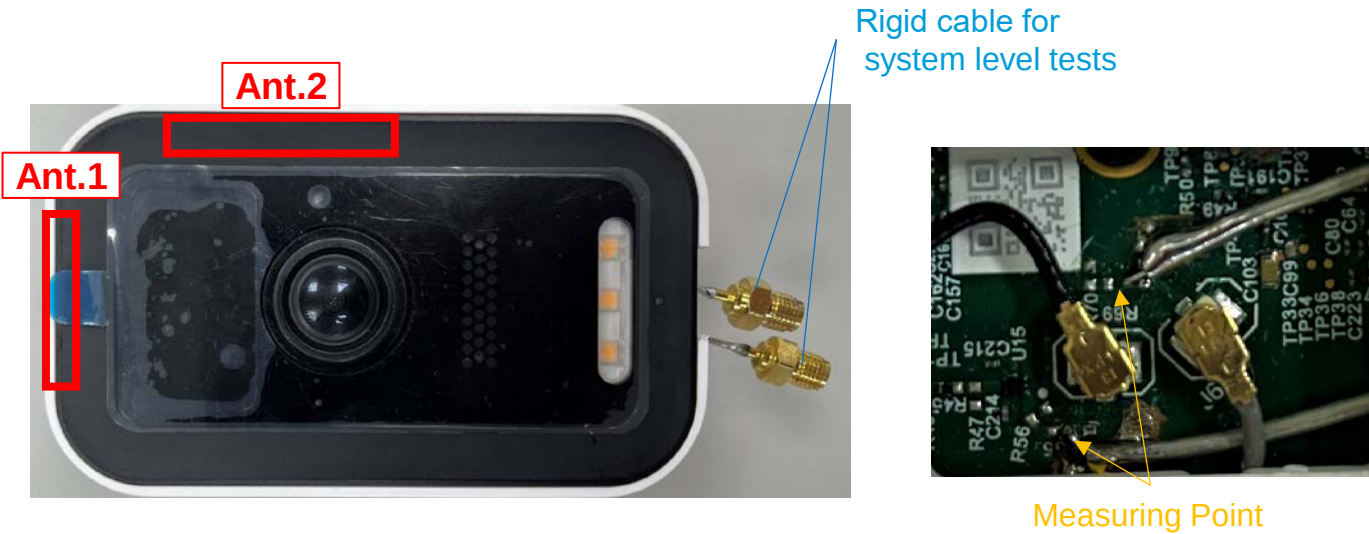
Date	Owner	Revision	Remark
2024/08/16	Ken	v0.1	1. Antenna passive measurement using Satimo Lab
2024/08/21	Ken	v0.2	1. Antenna passive measurement using Satimo Lab
2024/10/08	Ken	v0.1	1. Antenna passive measurement using Satimo Lab

Table of Contents

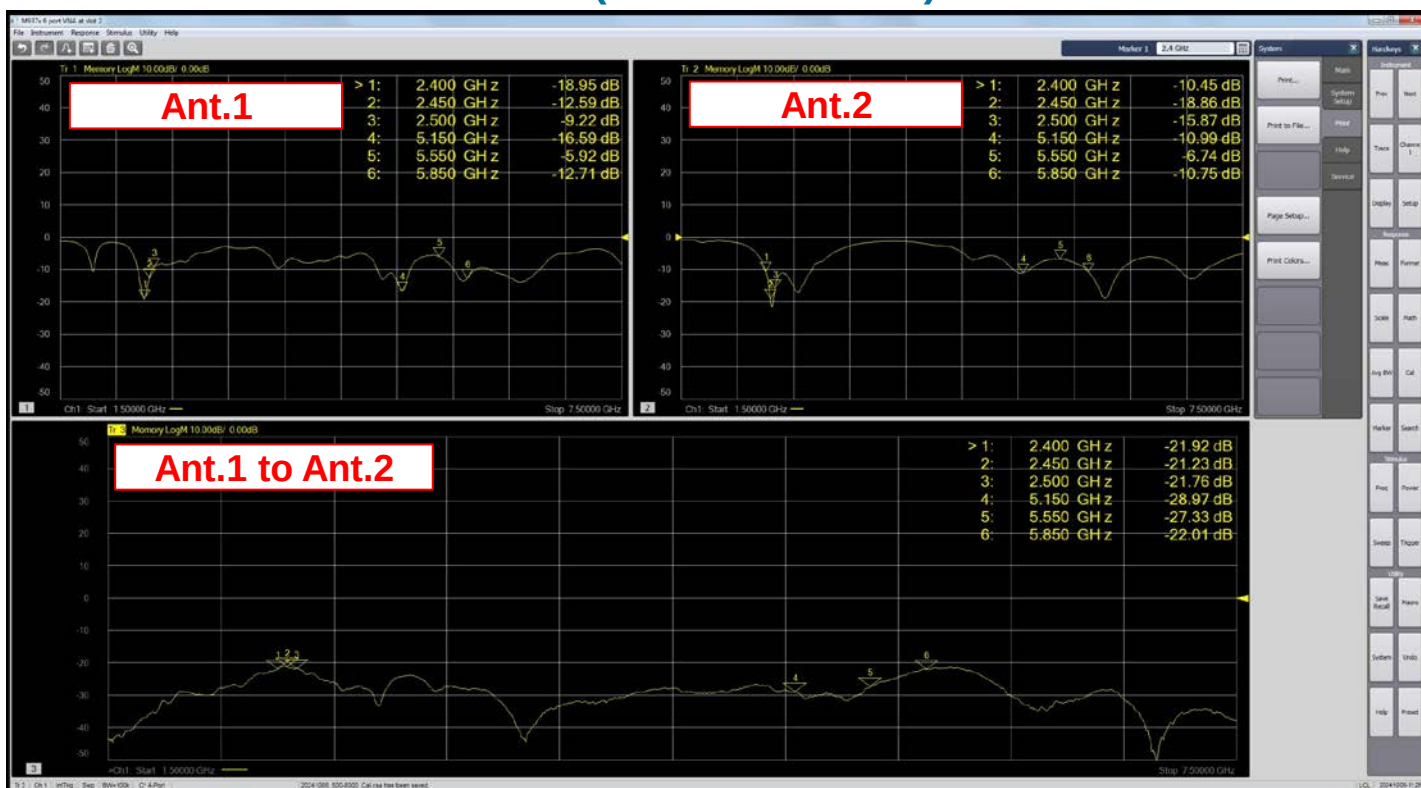
- A. Antenna RF Characteristics
 - 1. Customer Specification
 - 2. S-Parameters
 - 3. Coordinate Definition
 - 4. Gain Table
 - 5. Isolation Table
 - 6. Radiation Patterns
 - 7. Smith Chart
 - 8. Summary

Antenna Placement

No.	Function	Material	Dimension(mm)	Frequency(MHz)	Remark
Ant.1	Wi-Fi	FPC	40.9*18.8	2400 – 2500 5150 – 5850	
Ant.2	Wi-Fi	FPC	52.3*11.6	2400 – 2500 5150 – 5850	



S-Parameters – Ant.1&Ant.2 (Wi-Fi Dual band)



Coordinate Definition

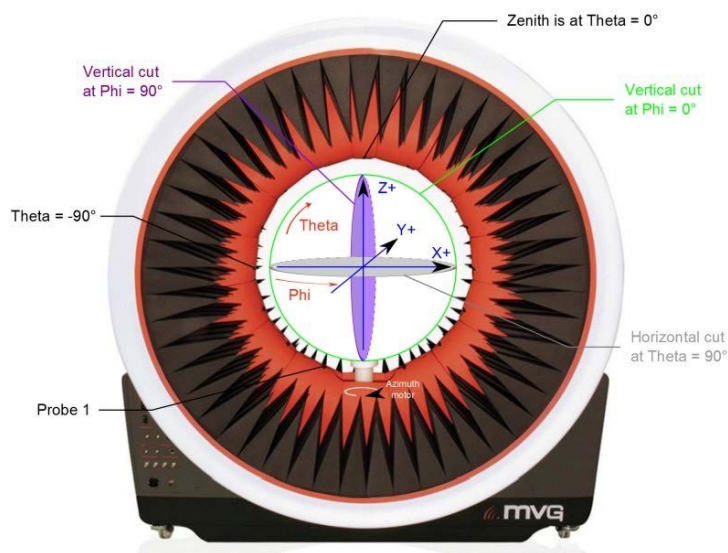
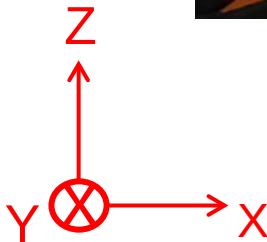
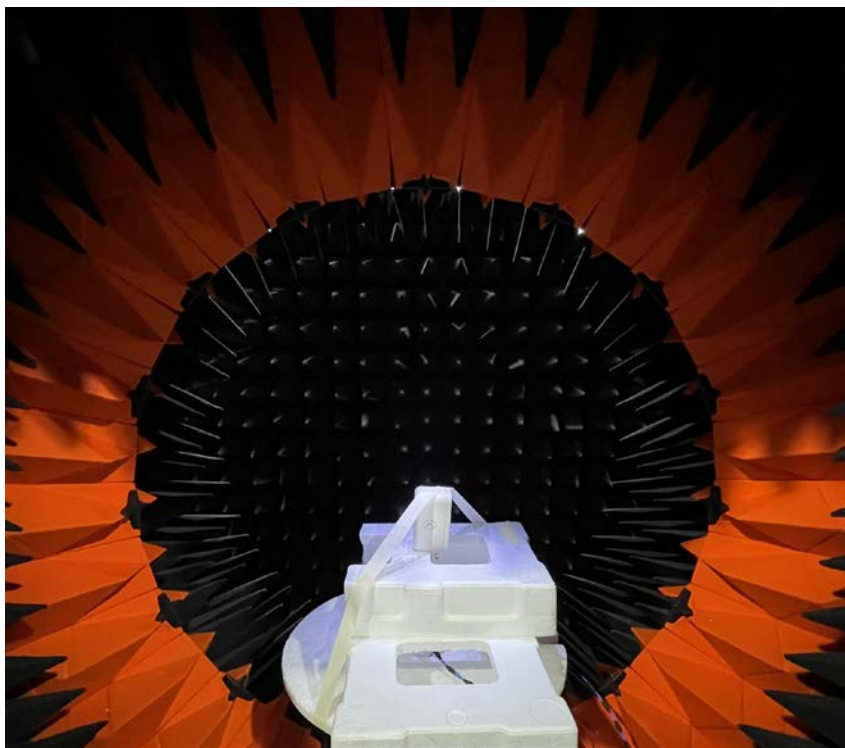


Figure 3.12: StarLab spherical coordinate system



Gain Table

2.4GHz	Frequency(MHz)	2400	2450	2500
Ant.1	Peak Gain(dBi)	1.7	1.5	1.4
	Efficiency(%)	62	60	59
Ant.2	Peak Gain(dBi)	1.9	2.0	1.7
	Efficiency(%)	62	60	57

5GHz	Frequency(MHz)	5150	5550	5850
Ant.1	Peak Gain(dBi)	3.2	2.3	4.0
	Efficiency(%)	60	59	63
Ant.2	Peak Gain(dBi)	3.8	2.9	3.8
	Efficiency(%)	61	59	65

Isolation Table

Item	Worst mutual isolation (dB) 2.4GHz Band		Worst mutual isolation (dB) 5GHz Band	
	Ant.1	Ant.2	Ant.1	Ant.2
Antenna				
Ant.1		-21.2		-22.0
Ant.2				

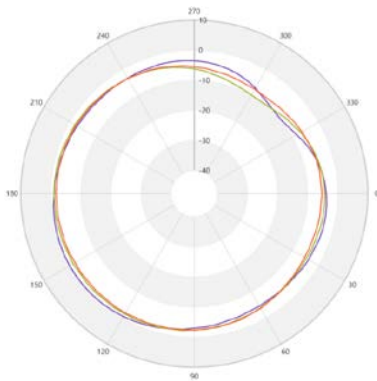
2D Radiation Pattern

Ant.1 (Wi-Fi Dual-band)

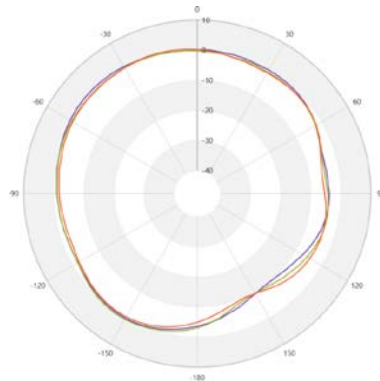
Frequency(MHz) : 2400-2500

Radiation Pattern :

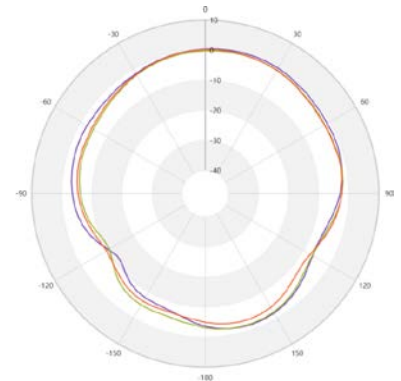
Azimuth Plane
theta = 90



Elevation Plane
phi = 0

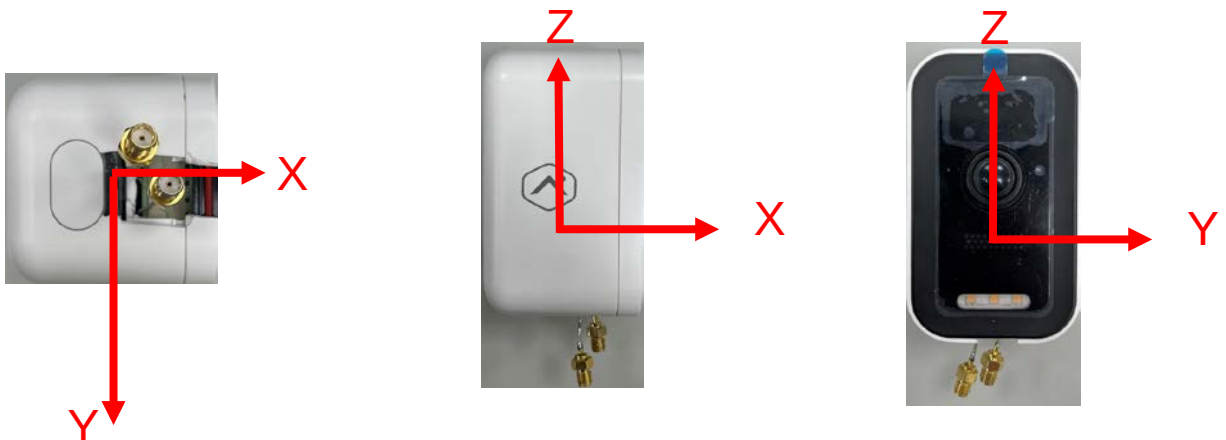


Elevation Plane
phi = 90



— 2400.00 MHz
— 2450.00 MHz
— 2500.00 MHz

Setup :



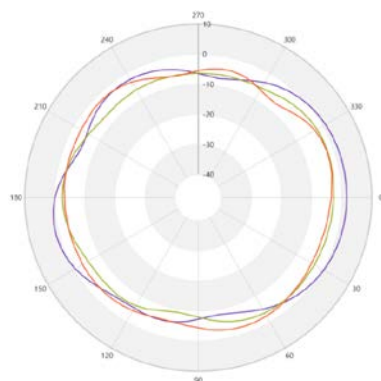
2D Radiation Pattern

Ant.1 (Wi-Fi Dual-band)

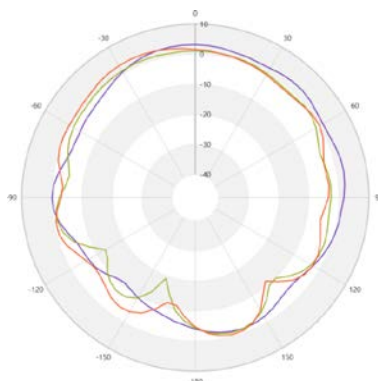
Frequency(MHz) : 5150-5850

Radiation Pattern :

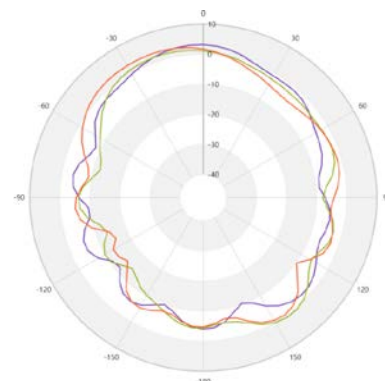
Azimuth Plane
theta = 90



Elevation Plane
phi = 0

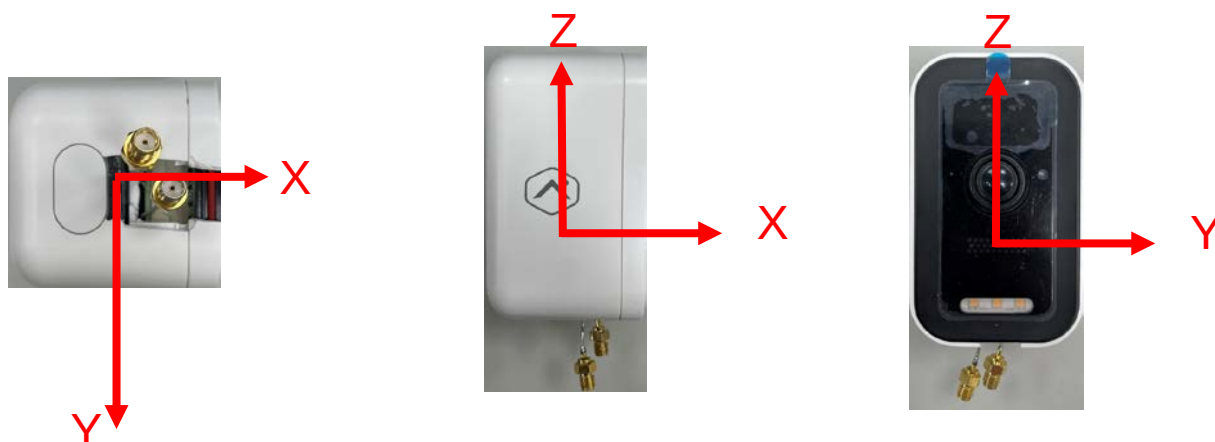


Elevation Plane
phi = 90



— 5150.00 MHz
— 5550.00 MHz
— 5850.00 MHz

Setup :



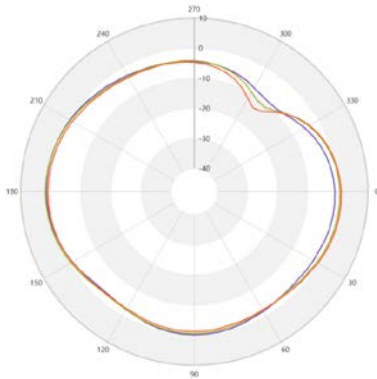
2D Radiation Pattern

Ant.2 (Wi-Fi Dual-band)

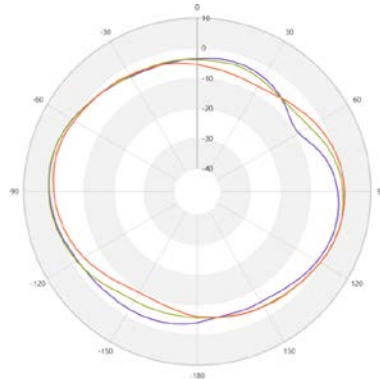
Frequency(MHz) : 2400-2500

Radiation Pattern :

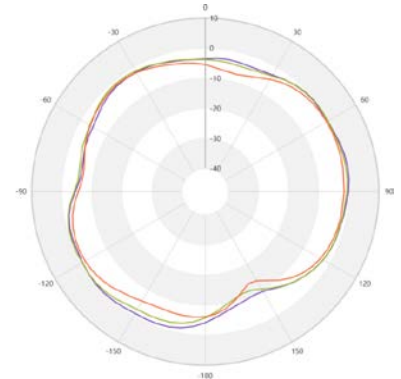
Azimuth Plane
theta = 90



Elevation Plane
phi = 0

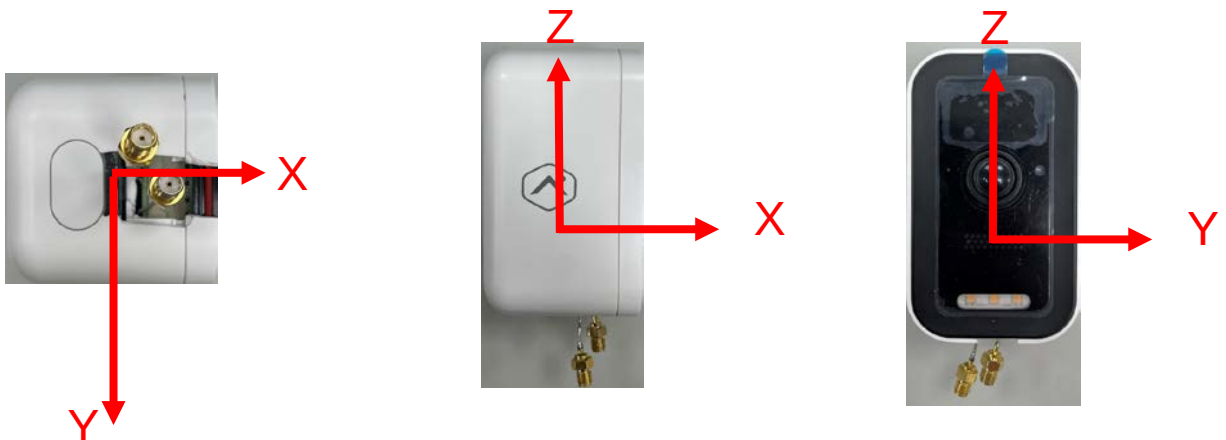


Elevation Plane
phi = 90



— 2400.00 MHz
— 2450.00 MHz
— 2500.00 MHz

Setup :



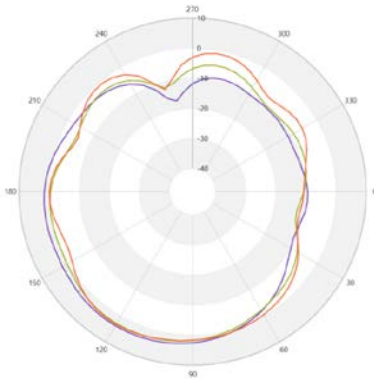
2D Radiation Pattern

Ant.2 (Wi-Fi Dual-band)

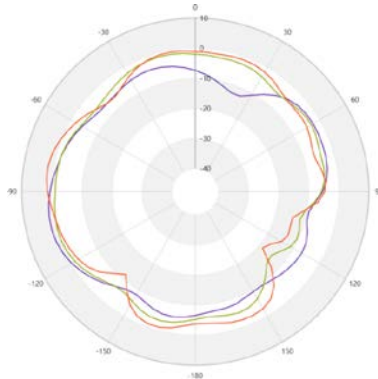
Frequency(MHz) : 5150-5850

Radiation Pattern :

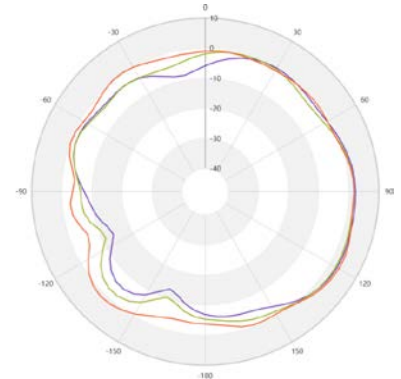
Azimuth Plane
theta = 90



Elevation Plane
phi = 0

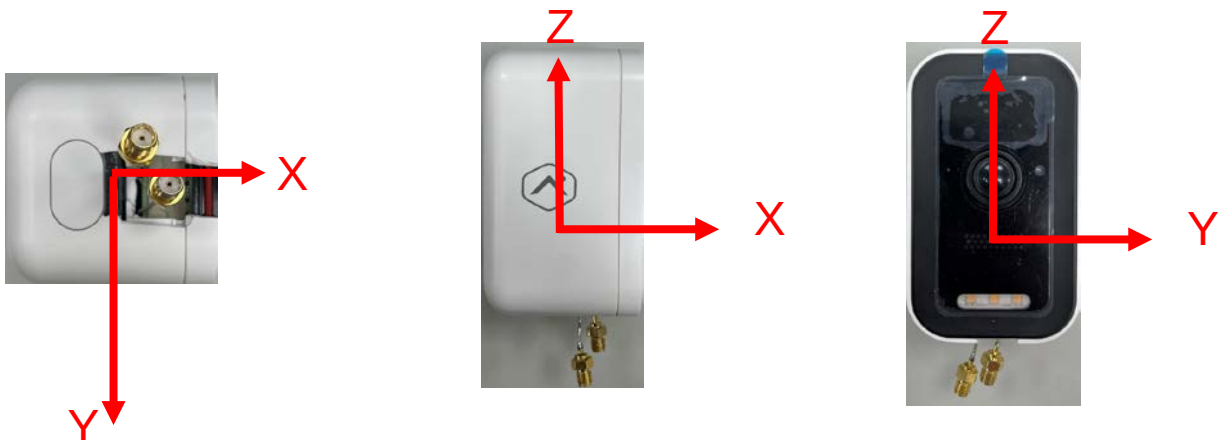


Elevation Plane
phi = 90



— 5150.00 MHz
— 5550.00 MHz
— 5850.00 MHz

Setup :

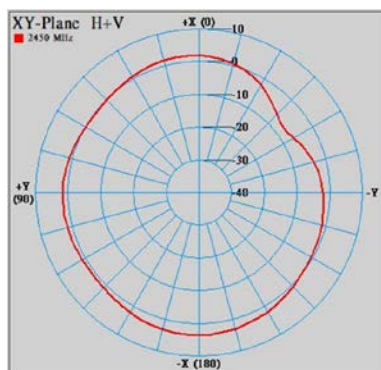


Combine 2D Radiation Pattern

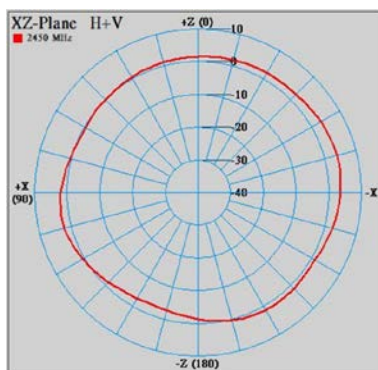
Frequency(MHz) : 2450/5550

Radiation Pattern :

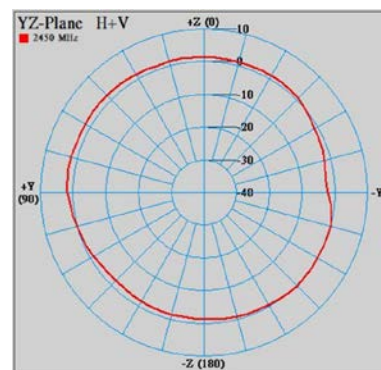
Azimuth Plane
Theta = 90



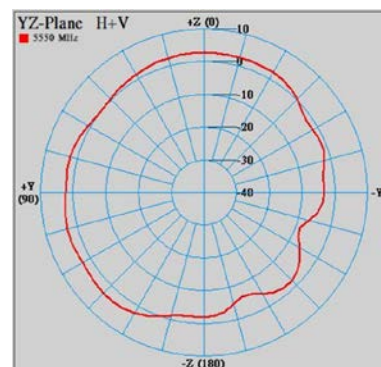
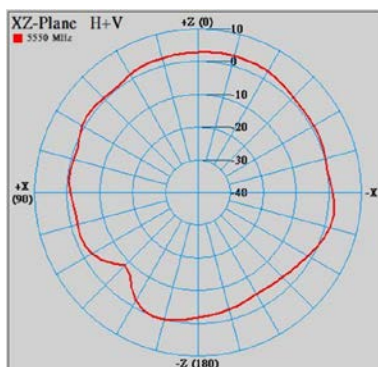
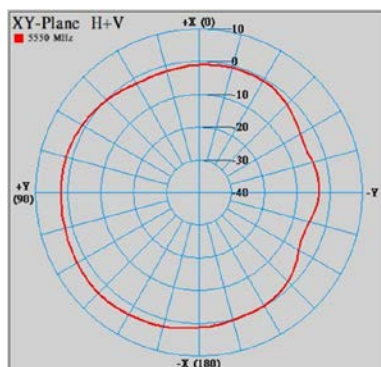
Elevation Plane
phi = 0



Elevation Plane
phi = 90

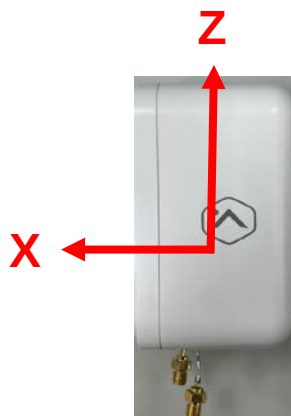
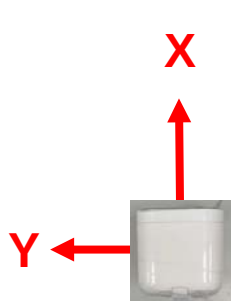


5G

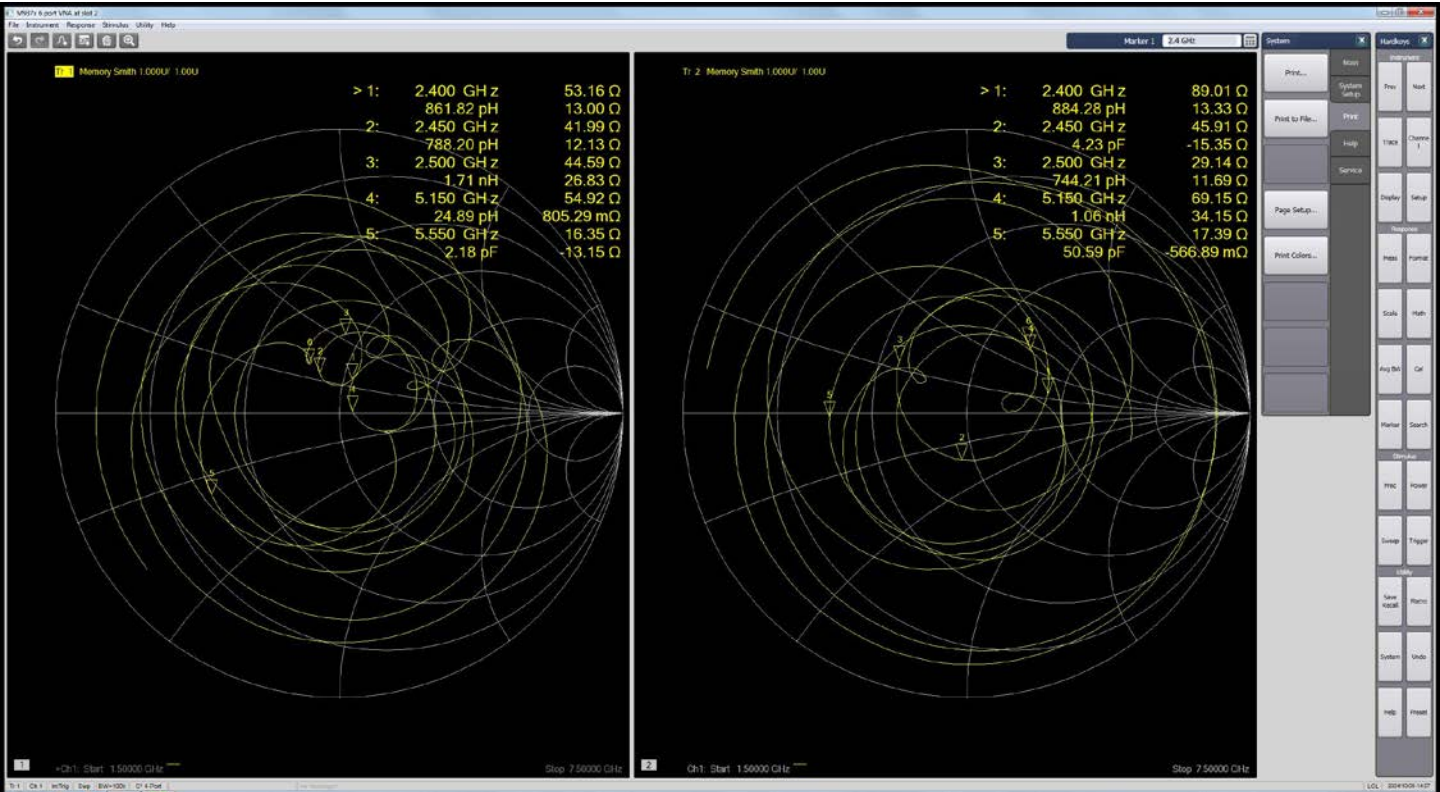


There is no obvious null point for combine radiation pattern

Setup :



Smith Chart



Summary

- 20241008
 - A 2mm sponge is applied to the DUT to simulate the battery locked with buckle.

Summary	Ant.1	Ant.2	Remark
Return Loss – 2.4GHz	< -9dB	< -10dB	
Return Loss – 5GHz	< -5dB	< -6dB	
Efficiency – 2.4GHz	> 55%	> 55%	
Efficiency – 5GHz	> 55%	> 55%	
Peak Gain – 2.4GHz	1.4 – 1.7dBi	1.7 – 2.0dBi	
Peak Gain – 5GHz	2.3 – 4.0dBi	2.9 – 3.8dBi	



www.lynwave.com



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



<https://www.linkedin.com/company/lynwave-technology-ltd./>



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