LYNwave Technology

Antenna & Thermal solution provider

2025

www.lynwave.com

Antenna Field Test Report

Antenna Model Name: **(Ant.1) ALX23M-122AA1**
(Ant.2) ALX23M-122AA2

Polarization: **H+V**

Type: **PIFA**

Date	Owner	Revision	Remark
2024/09/24	Ken	v0.1	1. Antenna passive measurement using Satimo Lab
2024/10/15	Ken	v0.2	1. Antenna passive measurement using Satimo Lab
2024/10/17	Ken	v0.3	1. Antenna passive measurement using Satimo Lab
2024/11/04	Ken	v0.4	1. 更改外殼結構
2024/11/18	Ken	v0.5	1. 更改外殼結構，測試手法
2025/02/03	Ken	v0.6	1. 工廠樣

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Customer Specification

Ant. No.	Type	Function	Operating Freq.	Radiation Pattern	Cable Type	Connector Type
Ant.1	Metal	Wi-Fi	2400-2500MHz 5150-5850MHz 5925-7125MHz	NA	NA	NA
Ant.2	Metal	Wi-Fi	2400-2500MHz 5150-5850MHz 5925-7125MHz	NA	NA	NA

Specification	Return Loss	VSWR	Isolation	Peak Gain	Efficiency
2.4GHz	NA	NA	NA	NA	NA
5GHz	NA	NA	NA	NA	NA
6GHz	NA	NA	NA	NA	NA

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Antenna Placement

No.	Function	Material	Dimension(mm)	Frequency(MHz)	Remark
Ant.1	Wi-Fi	Metal		2400-2500 5150-5850 5925-7125	
Ant.2	Wi-Fi	Metal		2400-2500 5150-5850 5925-7125	

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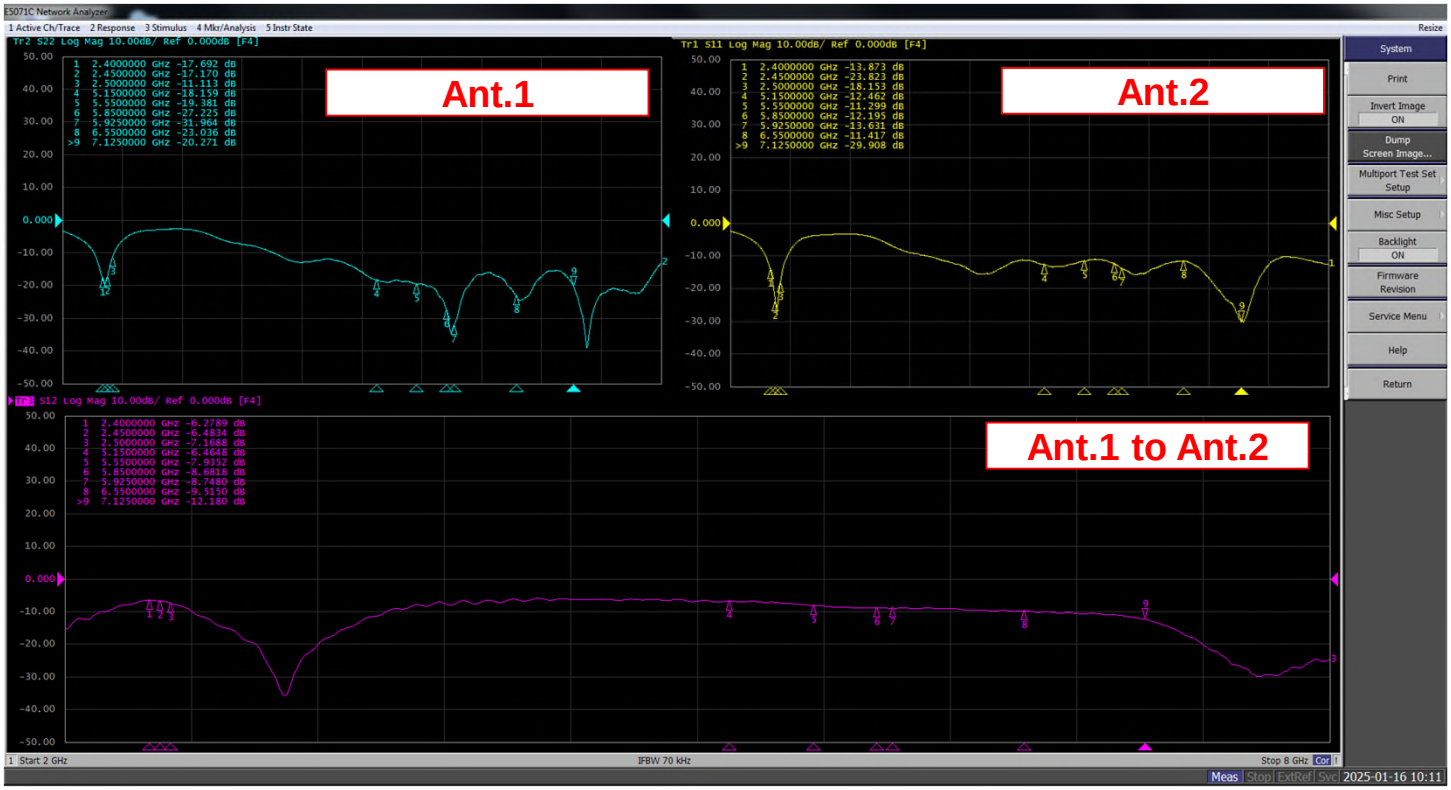
S-Parameters – Ant.1&Ant.2 (Wi-Fi Triple band)



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Coordinate Definition

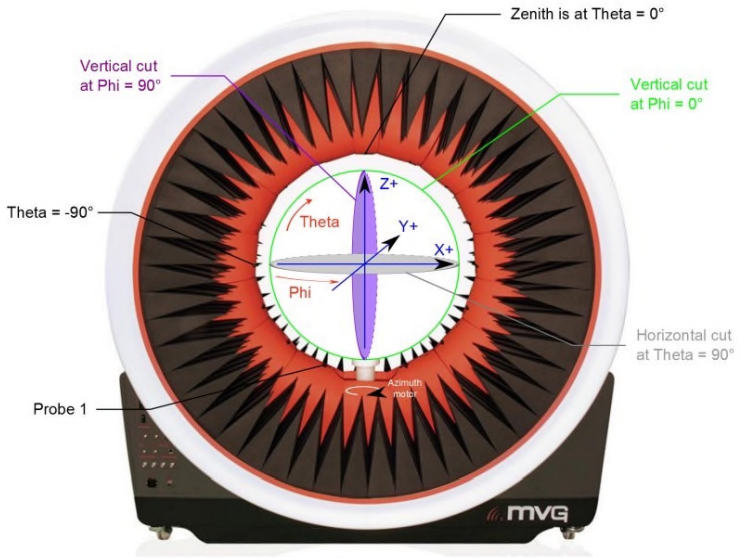
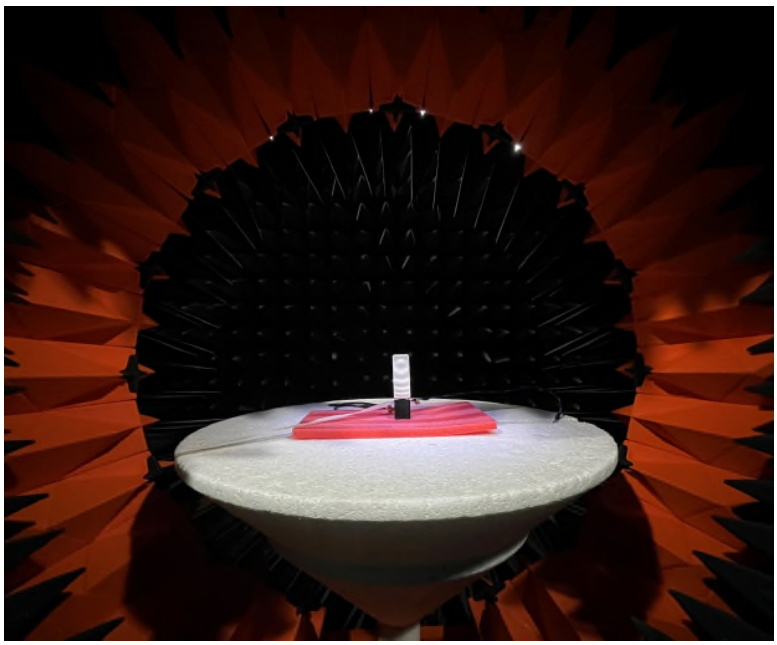
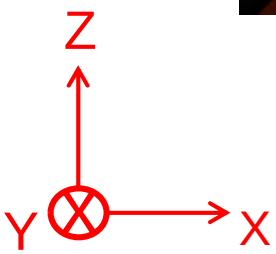


Figure 3.12: StarLab spherical coordinate system





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Gain Table

2.4GHz	Frequency(MHz)	2400	2450	2500
Ant.1	Peak Gain(dBi)	1.1	1.6	2.0
	Efficiency(%)	52	50	51
Ant.2	Peak Gain(dBi)	1.4	2.0	1.8
	Efficiency(%)	52	51	50

5GHz	Frequency(MHz)	5150	5550	5850
Ant.1	Peak Gain(dBi)	1.6	2.5	3.0
	Efficiency(%)	73	70	71
Ant.2	Peak Gain(dBi)	2.0	3.3	3.6
	Efficiency(%)	73	70	71

6GHz	Frequency(MHz)	5925	6525	7125
Ant.1	Peak Gain(dBi)	3.1	3.3	3.6
	Efficiency(%)	72	73	70
Ant.2	Peak Gain(dBi)	3.9	3.3	2.6
	Efficiency(%)	72	74	70

Isolation Table

Item	Worst mutual isolation (dB) 2.4GHz Band		Worst mutual isolation (dB) 5GHz Band		Worst mutual isolation (dB) 6GHz Band	
Antenna	Ant.1	Ant.2	Ant.1	Ant.2	Ant.1	Ant.2
Ant.1		-6.2		-6.4		-8.7
Ant.2						

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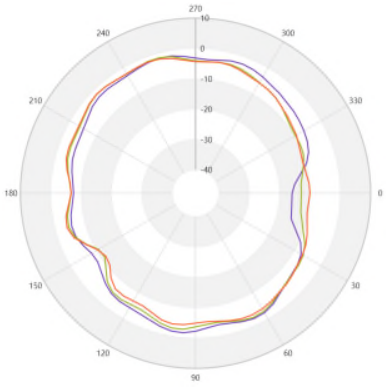
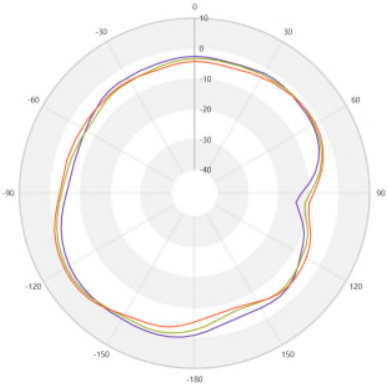
2D Radiation Pattern
Ant.1 (Wi-Fi Triple-band)
Frequency(MHz) : 2400-2500

Radiation Pattern :

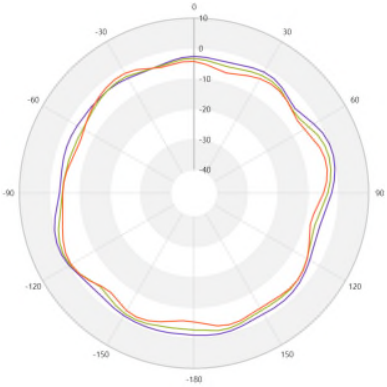
Azimuth Plane
Theta = 90



Elevation Plane
phi = 0



Elevation Plane
phi = 90



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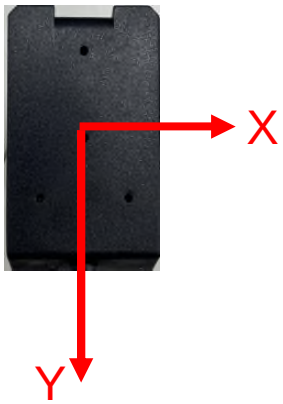

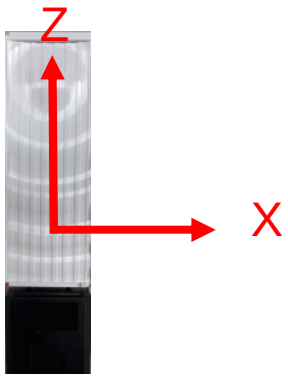

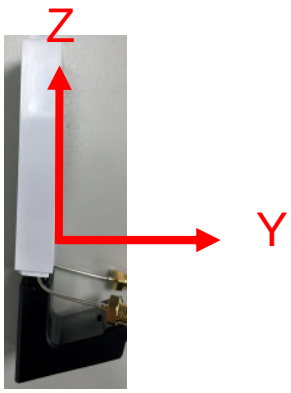

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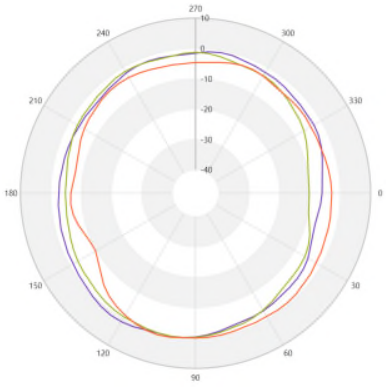
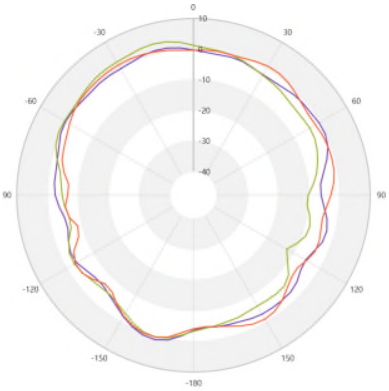
2D Radiation Pattern
Ant.1 (Wi-Fi Triple-band)
Frequency(MHz) : 5150-5850

Radiation Pattern :

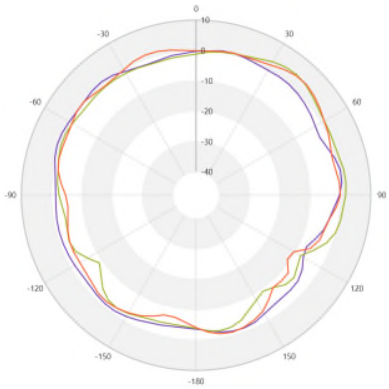
Azimuth Plane
Theta = 90

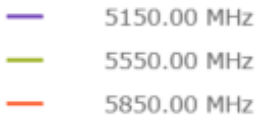


Elevation Plane
phi = 0



Elevation Plane
phi = 90





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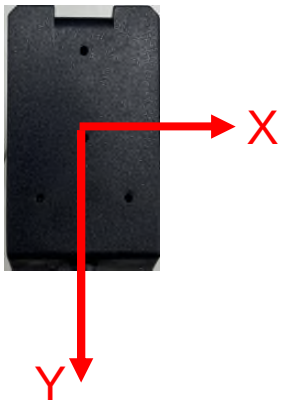

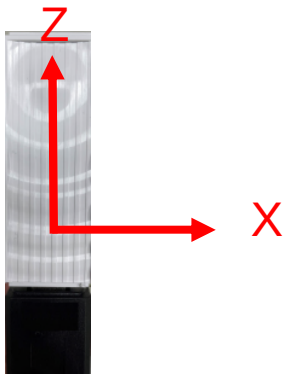

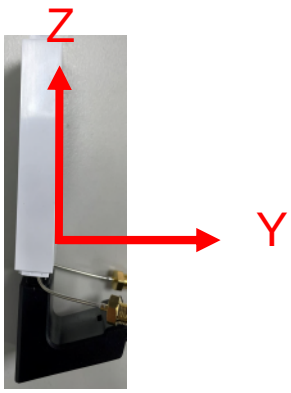

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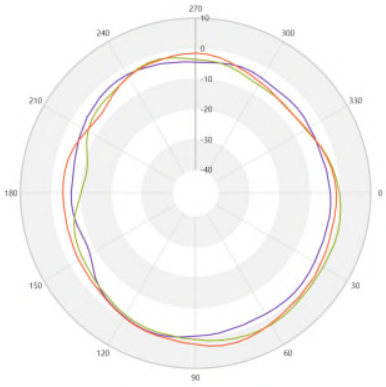
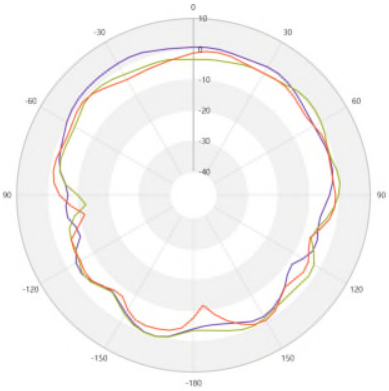
2D Radiation Pattern
Ant.1 (Wi-Fi Triple-band)
Frequency(MHz) : 5925-7125

Radiation Pattern :

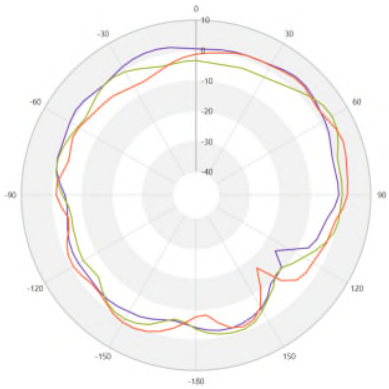
Azimuth Plane
Theta = 90

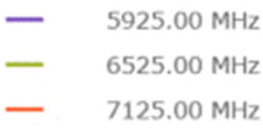


Elevation Plane
phi = 0



Elevation Plane
phi = 90





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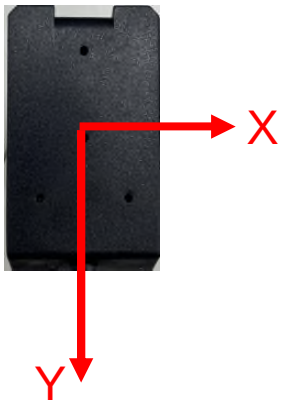

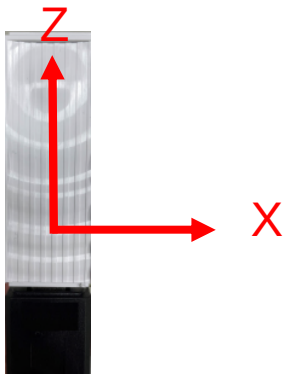

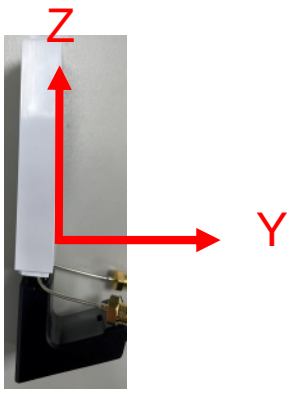

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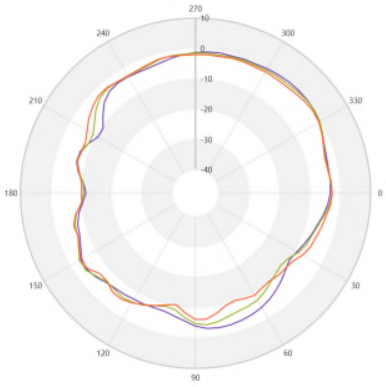
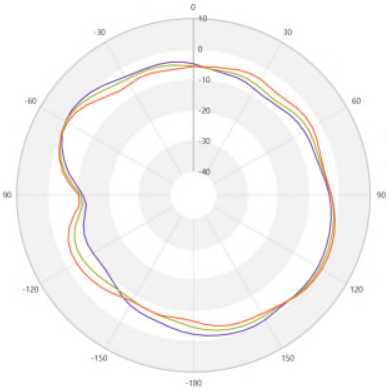
2D Radiation Pattern
Ant.2 (Wi-Fi Triple-band)
Frequency(MHz) : 2400-2500

Radiation Pattern :

Azimuth Plane
Theta = 90



Elevation Plane
phi = 0



Elevation Plane
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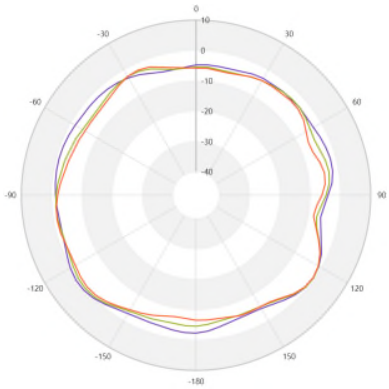

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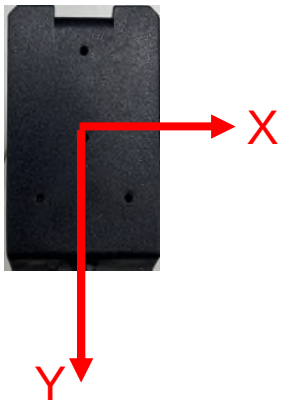

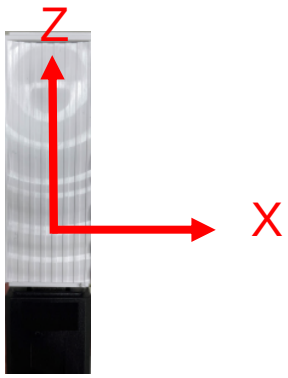

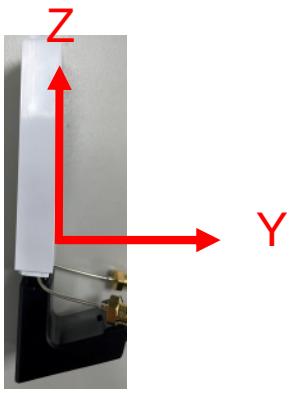

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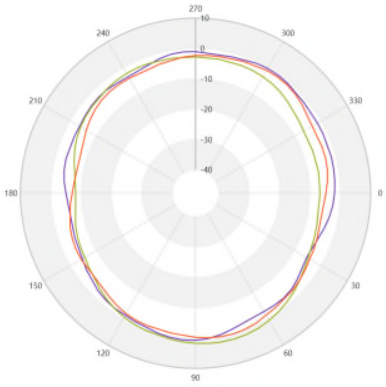
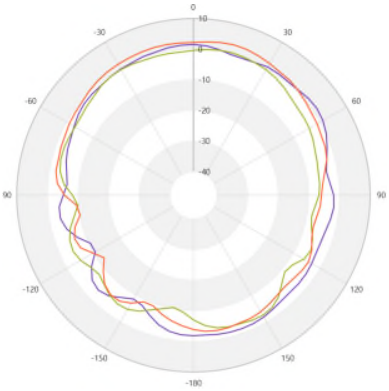
2D Radiation Pattern
Ant.2 (Wi-Fi Triple-band)
Frequency(MHz) : 5150-5850

Radiation Pattern :

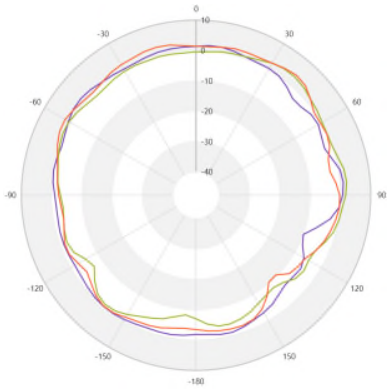
Azimuth Plane
Theta = 90

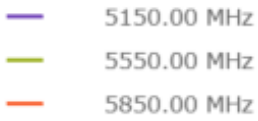


Elevation Plane
phi = 0



Elevation Plane
phi = 90





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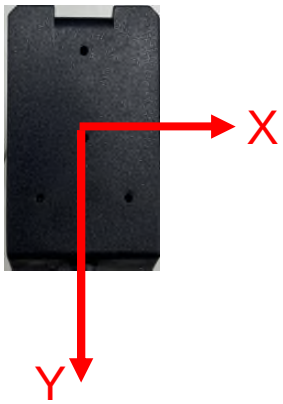

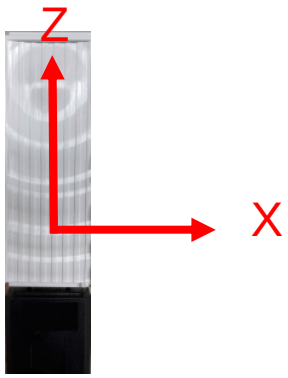

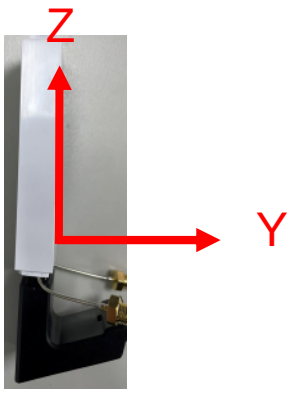

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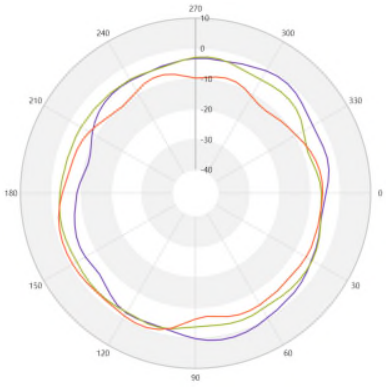
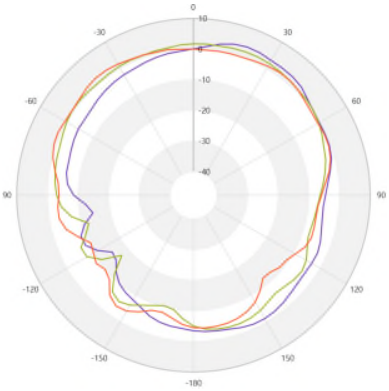
2D Radiation Pattern
Ant.2 (Wi-Fi Triple-band)
Frequency(MHz) : 5925-7125

Radiation Pattern :

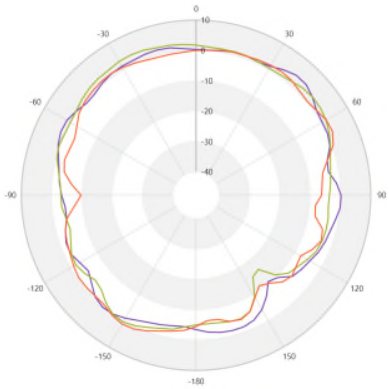
Azimuth Plane
Theta = 90

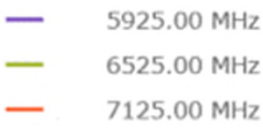


Elevation Plane
phi = 0



Elevation Plane
phi = 90





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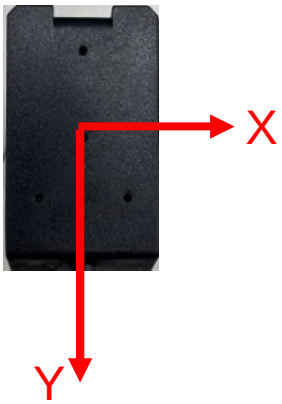

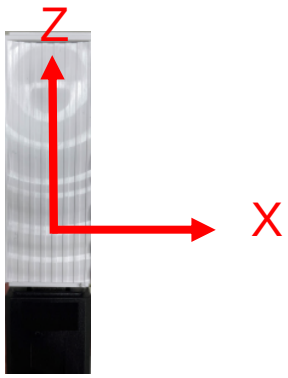

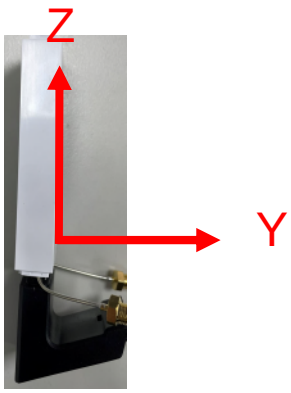

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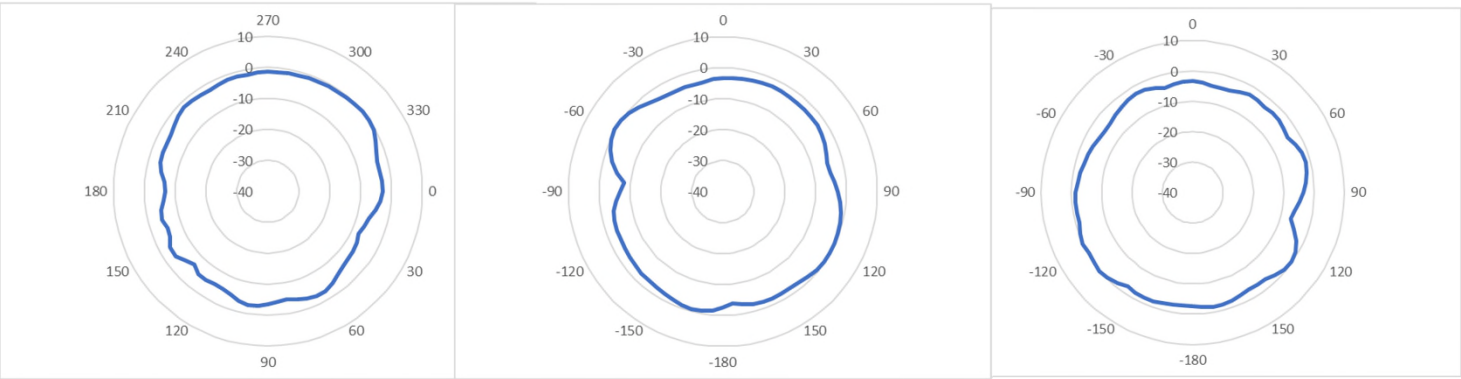
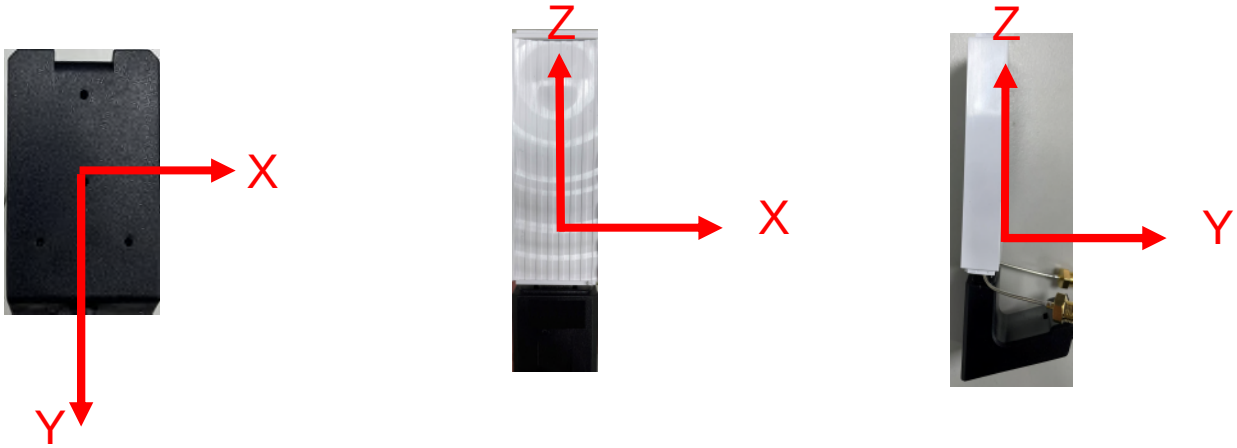
Wi-Fi Tri-Band Radiation Pattern – Total Coverage
Frequency(MHz) : 2450

Radiation Pattern :

Azimuth Plane Theta = 90	Elevation Plane phi = 0	Elevation Plane phi = 90



Setup :



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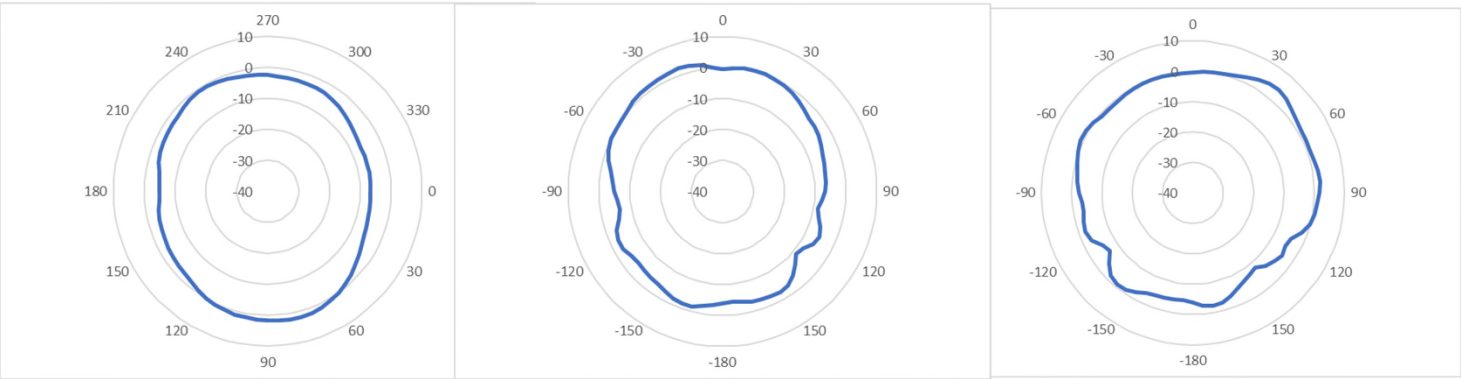
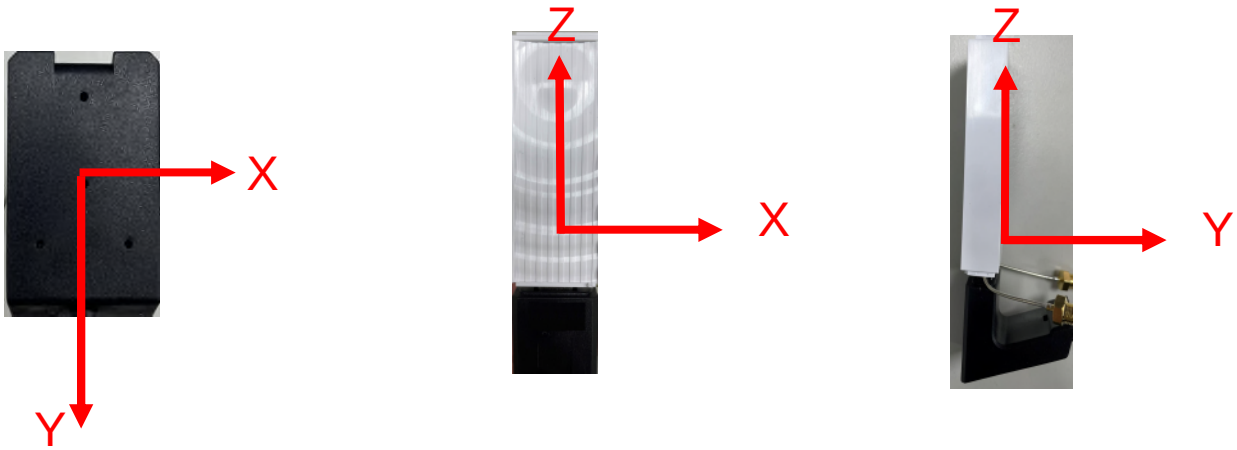
Wi-Fi Tri-Band Radiation Pattern – Total Coverage
Frequency(MHz) : 5550

Radiation Pattern :

Azimuth Plane Theta = 90	Elevation Plane phi = 0	Elevation Plane phi = 90



Setup :



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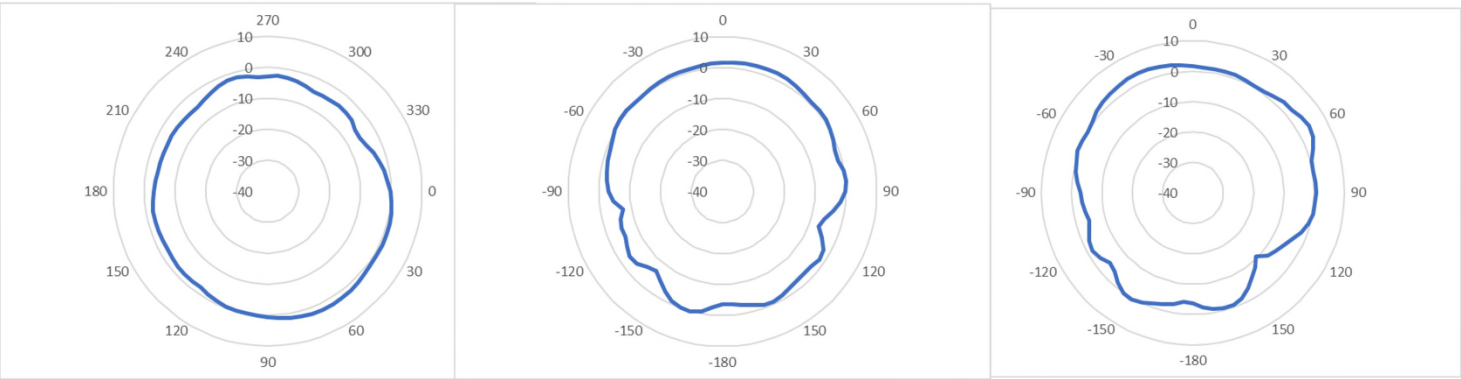
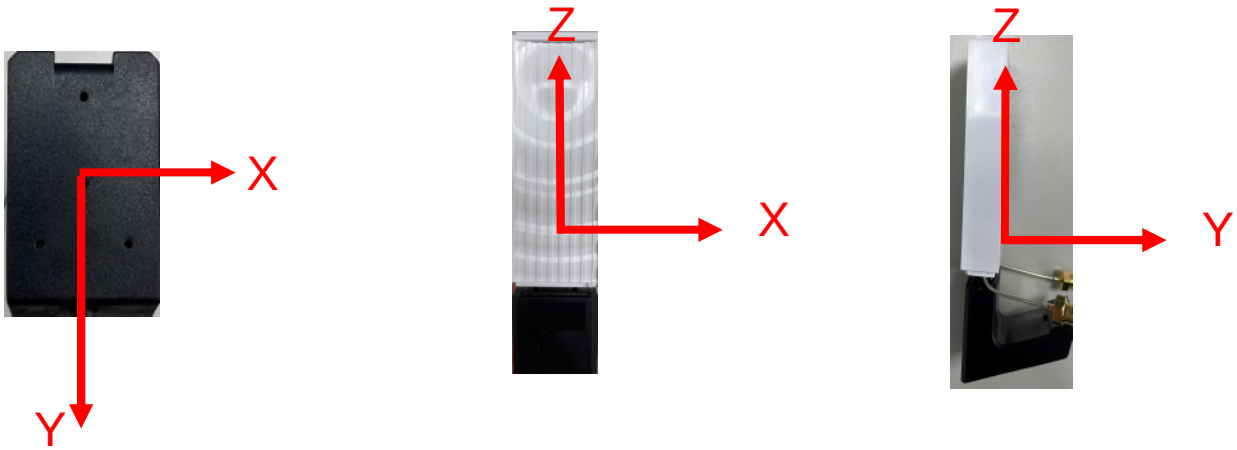
Wi-Fi Tri-Band Radiation Pattern – Total Coverage
Frequency(MHz) : 6525

Radiation Pattern :

Azimuth Plane Theta = 90	Elevation Plane phi = 0	Elevation Plane phi = 90



Setup :



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Summary

- The antenna specifications meet the requirements.

Summary	Ant.1	Ant.2	Remark
Return Loss – 2.4GHz	< -10dB	< -10dB	
Return Loss – 5GHz	< -10dB	< -10dB	
Return Loss – 6GHz	< -10dB	< -10dB	
Efficiency – 2.4GHz	> 50%	> 50%	
Efficiency – 5GHz	> 70%	> 70%	
Efficiency – 6GHz	> 70%	> 70%	
Peak Gain – 2.4GHz	1.1 – 2.0dBi	1.4 – 2.0dBi	
Peak Gain – 5GHz	1.6 – 3.0dBi	2.0 – 3.6dBi	
Peak Gain – 6GHz	3.1 – 3.6dBi	2.6 – 3.9dBi	

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