

LYNwave Technology

Antenna & Thermal solution provider

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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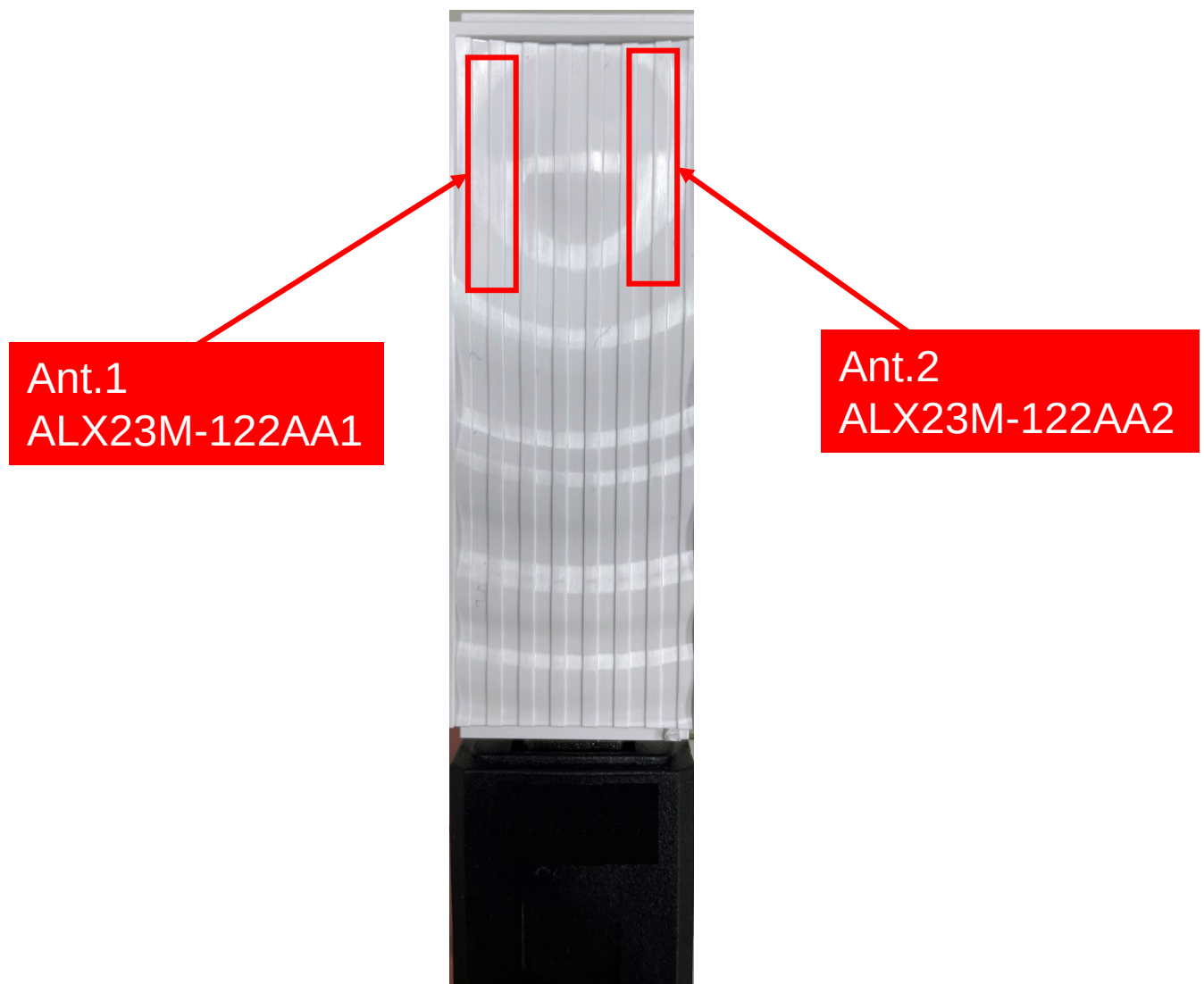
Customer Specification

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

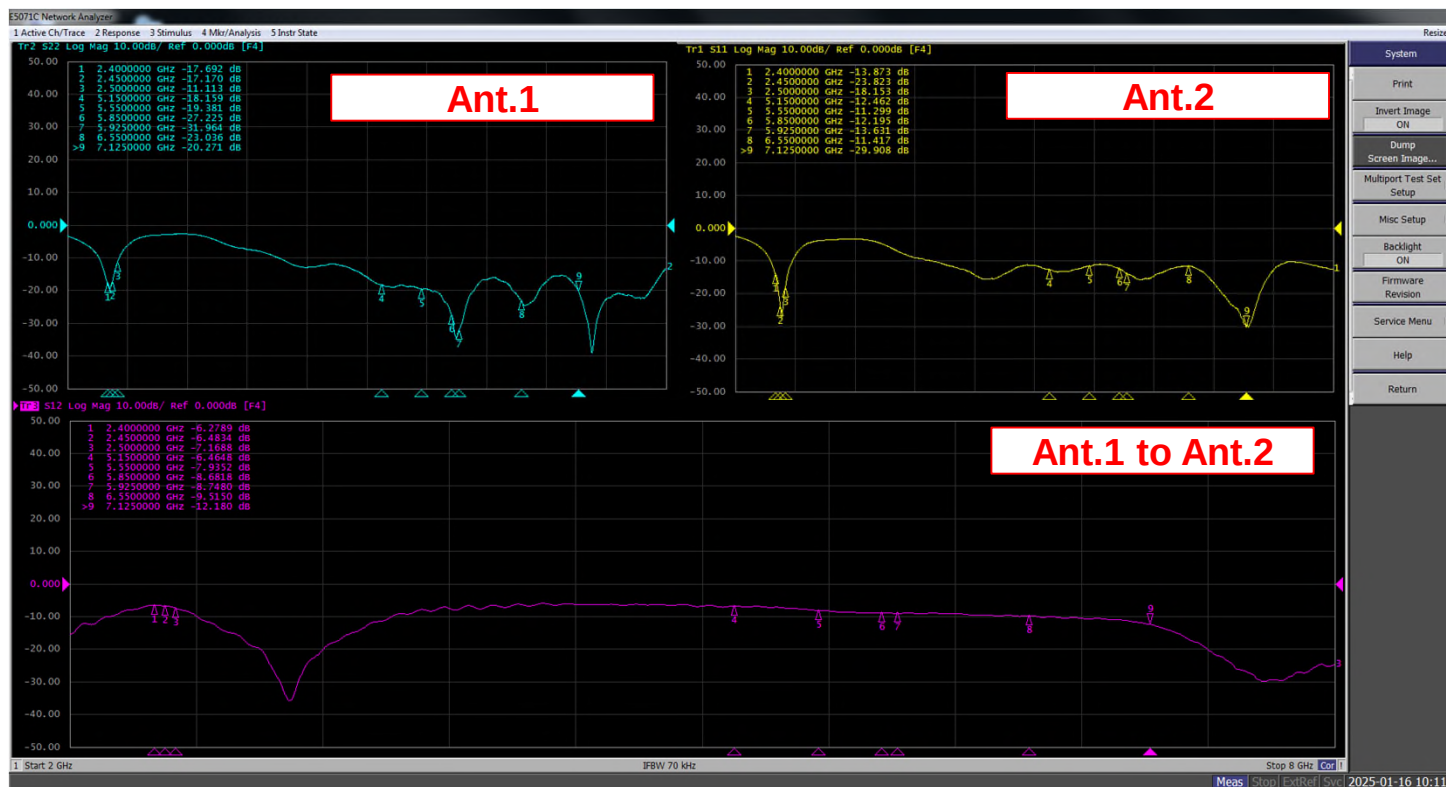
Specification	Return Loss	VSWR	Isolation	Peak Gain	Efficiency
2.4GHz	NA	NA	NA	NA	NA
5GHz	NA	NA	NA	NA	NA
6GHz	NA	NA	NA	NA	NA

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	



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



Coordinate Definition

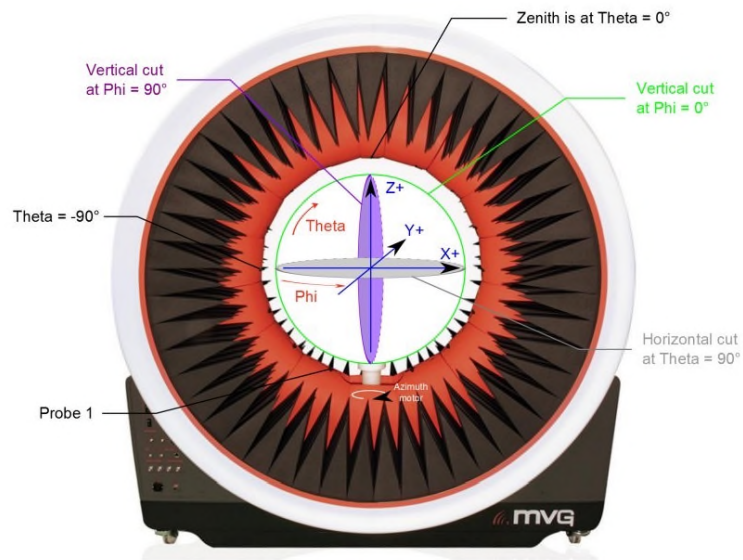
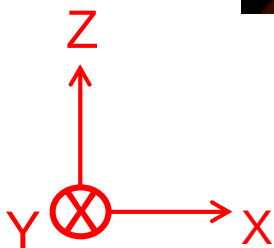
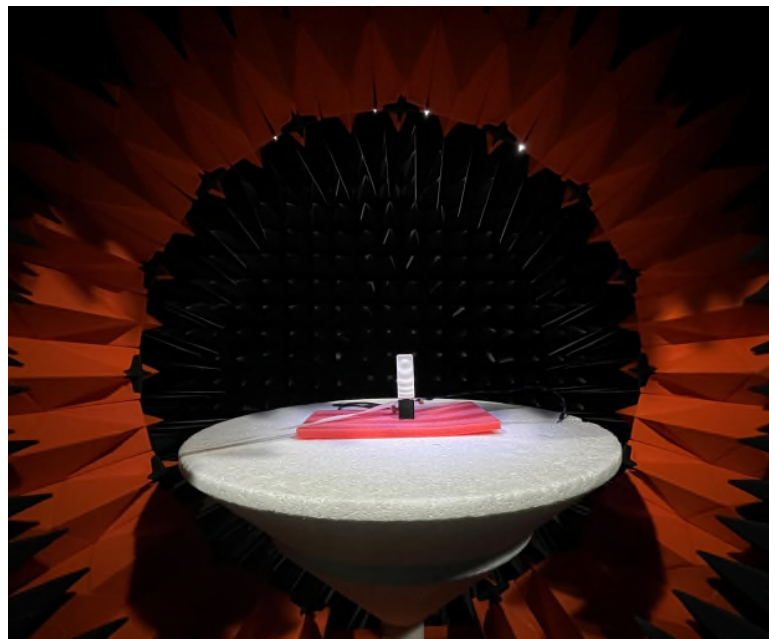


Figure 3.12: StarLab spherical coordinate system



Gain Table

2.4GHz	Frequency(MHz)	2400	2450	2500
Ant.1	Peak Gain(dBi)	1.1	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

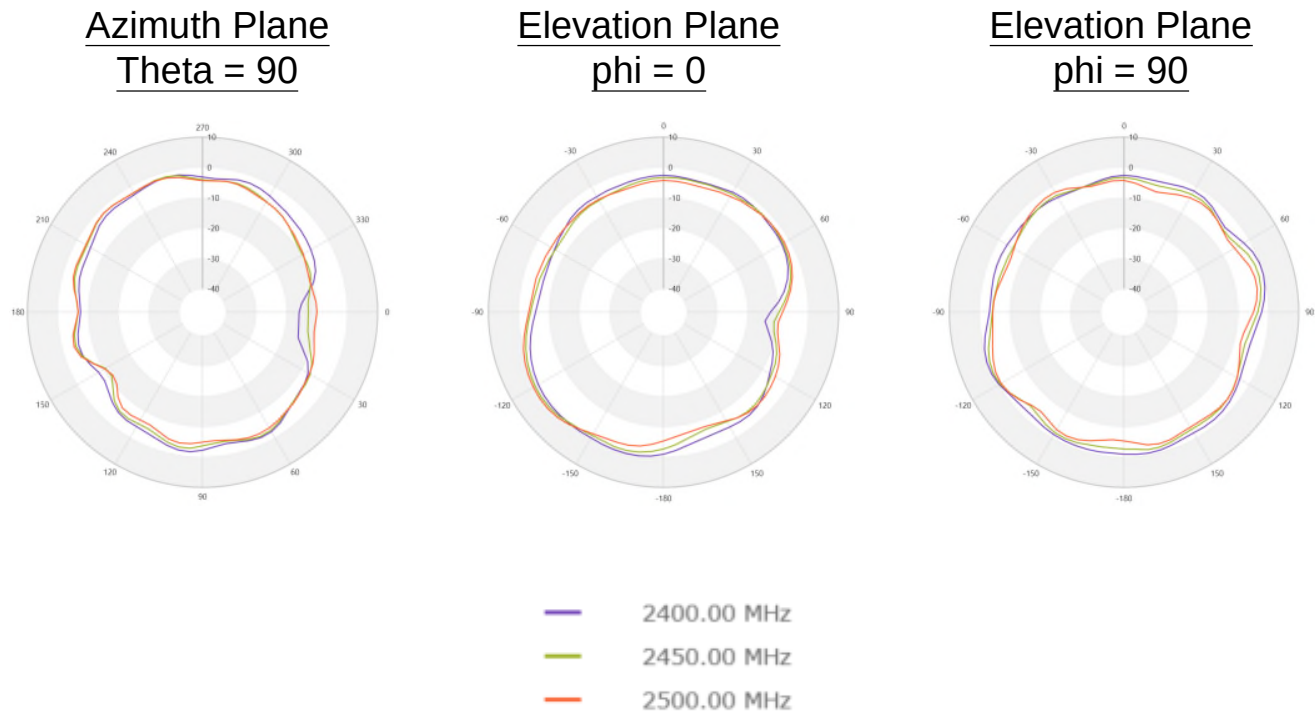
Item	Worst mutual isolation (dB) 2.4GHz Band		Worst mutual isolation (dB) 5GHz Band		Worst mutual isolation (dB) 6GHz Band	
	Ant.1	Ant.2	Ant.1	Ant.2	Ant.1	Ant.2
Ant.1		-6.2		-6.4		-8.7
Ant.2						

2D Radiation Pattern

Ant.1 (Wi-Fi Triple-band)

Frequency(MHz) : 2400-2500

Radiation Pattern :



Setup :

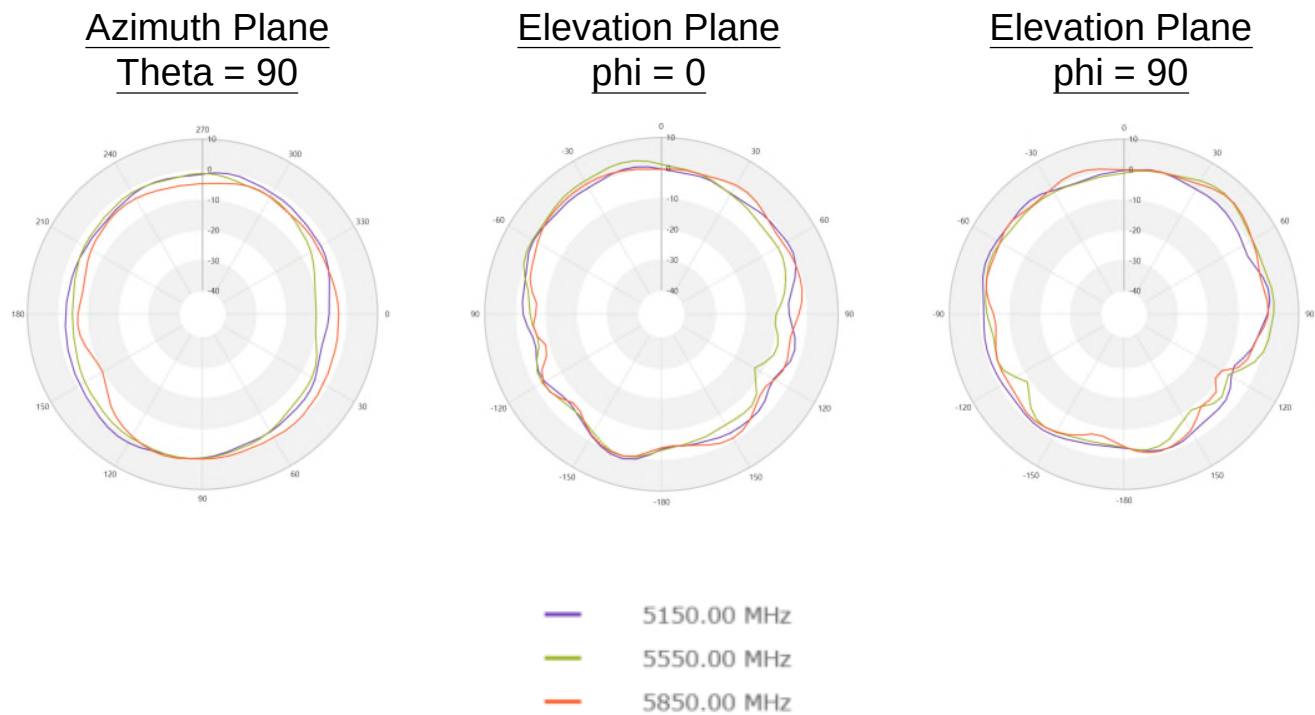


2D Radiation Pattern

Ant.1 (Wi-Fi Triple-band)

Frequency(MHz) : 5150-5850

Radiation Pattern :



Setup :

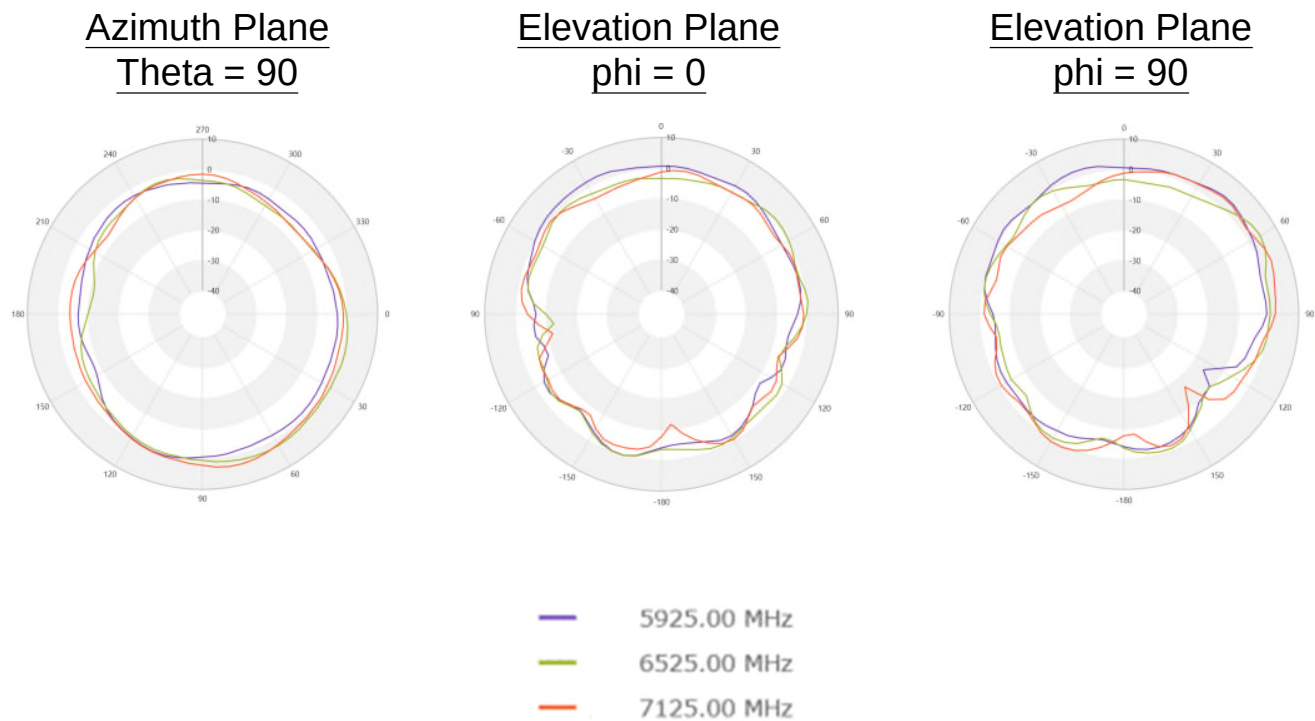


2D Radiation Pattern

Ant.1 (Wi-Fi Triple-band)

Frequency(MHz) : 5925-7125

Radiation Pattern :



Setup :

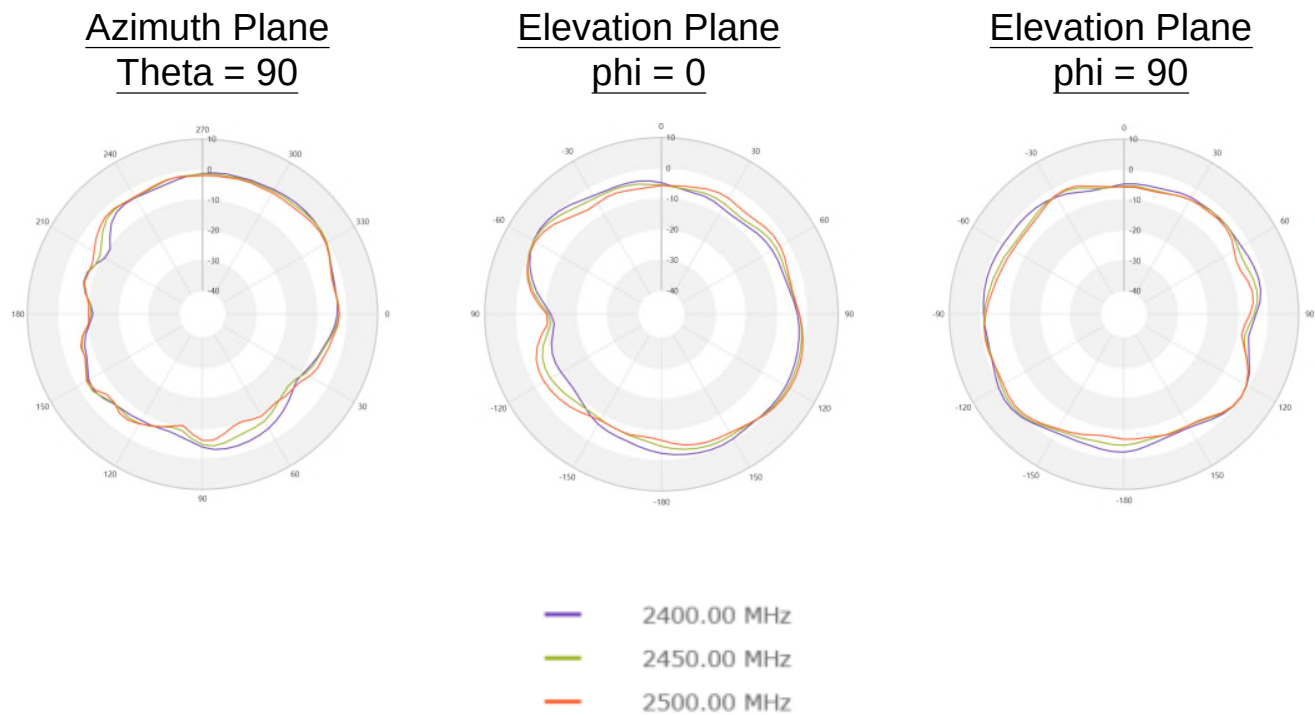


2D Radiation Pattern

Ant.2 (Wi-Fi Triple-band)

Frequency(MHz) : 2400-2500

Radiation Pattern :



Setup :

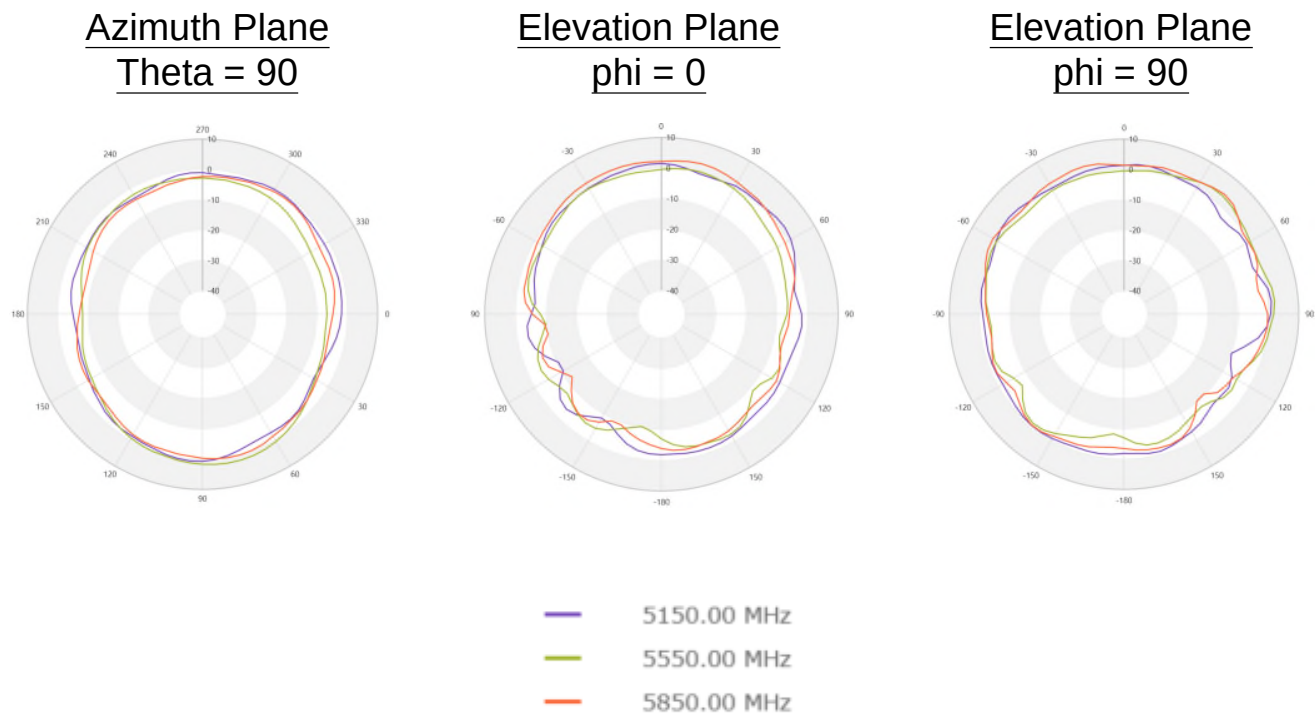


2D Radiation Pattern

Ant.2 (Wi-Fi Triple-band)

Frequency(MHz) : 5150-5850

Radiation Pattern :



Setup :

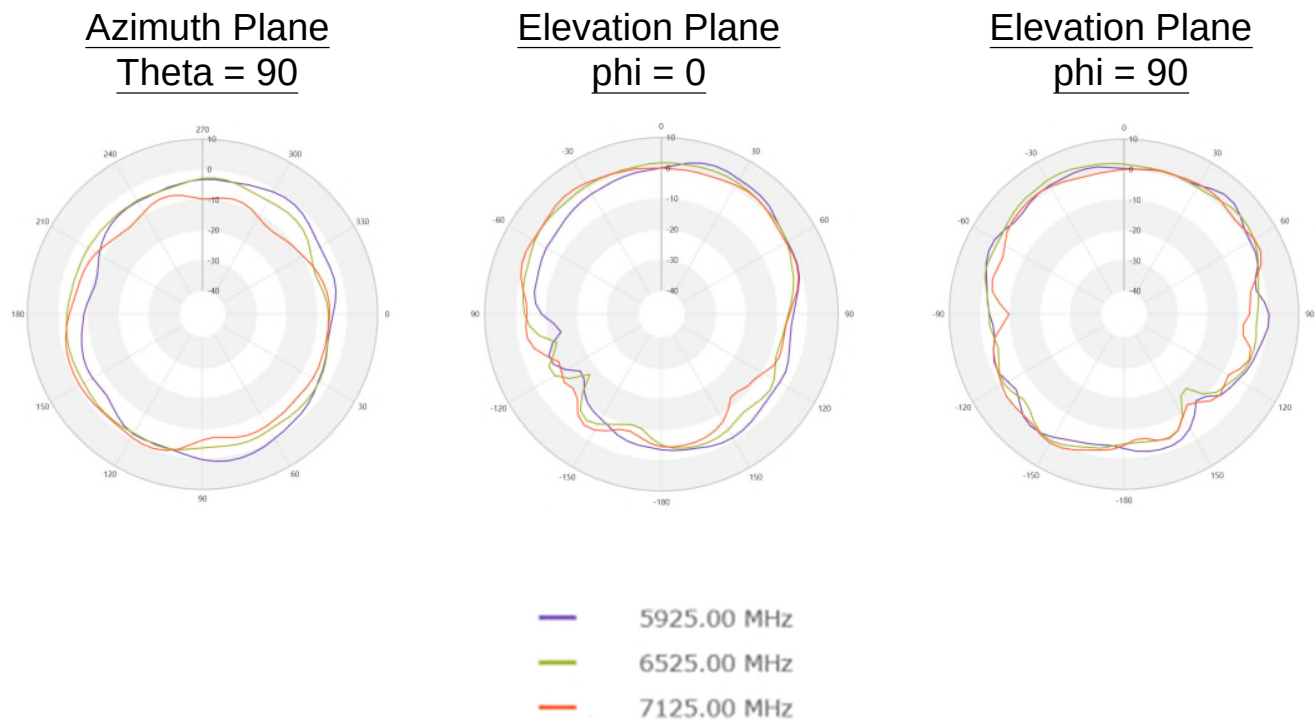


2D Radiation Pattern

Ant.2 (Wi-Fi Triple-band)

Frequency(MHz) : 5925-7125

Radiation Pattern :



Setup :

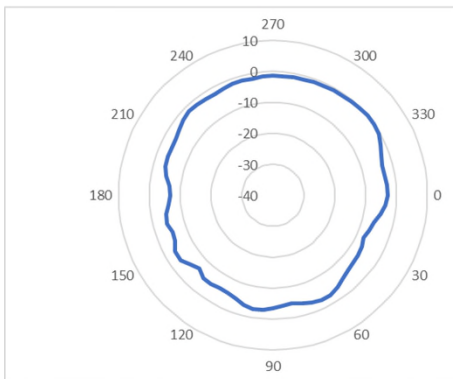


Wi-Fi Tri-Band Radiation Pattern – Total Coverage

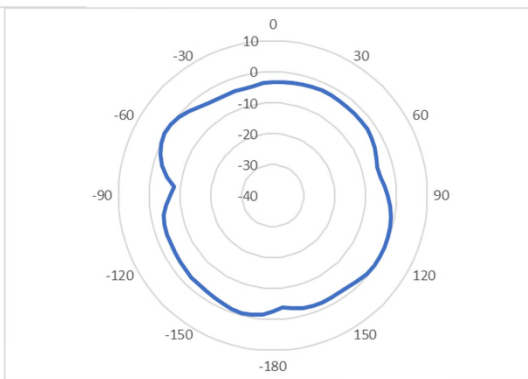
Frequency(MHz) : 2450

Radiation Pattern :

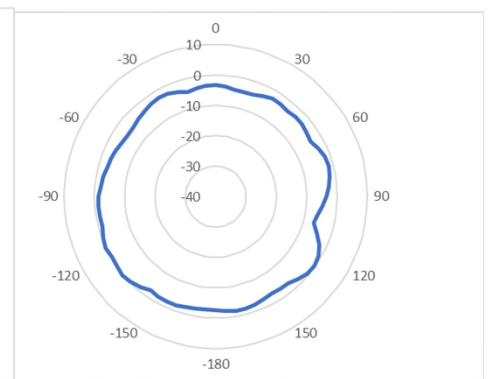
Azimuth Plane
Theta = 90



Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :

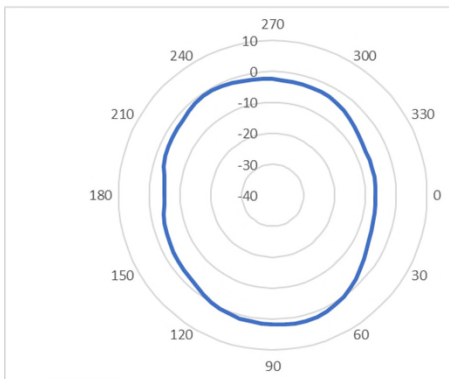


Wi-Fi Tri-Band Radiation Pattern – Total Coverage

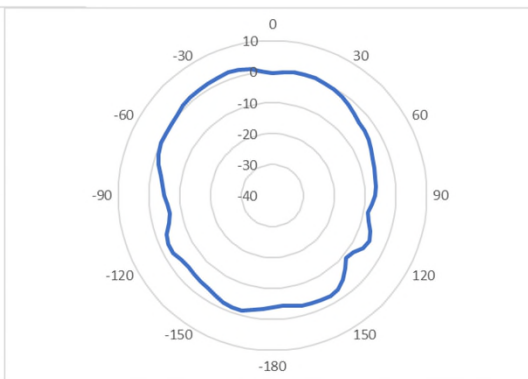
Frequency(MHz) : 5550

Radiation Pattern :

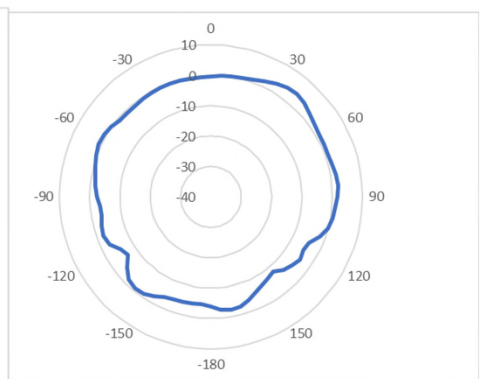
Azimuth Plane
Theta = 90



Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :

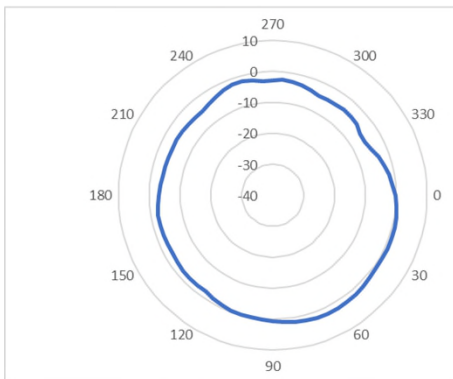


Wi-Fi Tri-Band Radiation Pattern – Total Coverage

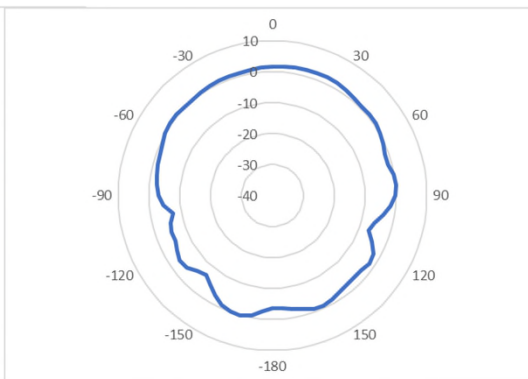
Frequency(MHz) : 6525

Radiation Pattern :

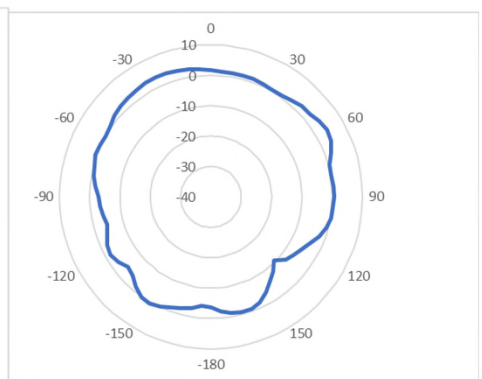
Azimuth Plane
Theta = 90



Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :



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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