

LYNwave Technology

Antenna & Thermal solution provider

Antenna Field Test Report

Company: Amigo
Project Name: AE65U
Model Name:
Feature: Wi-Fi Tri-band x2
Application: USB Dongle

Date	Owner	Revision	Remark
2024/08/29	Zino/Leo	v0.1	1. Antenna passive measurement using Satimo Lab
2024/11/05	Zino	v0.2	1. Antenna passive measurement using Satimo Lab

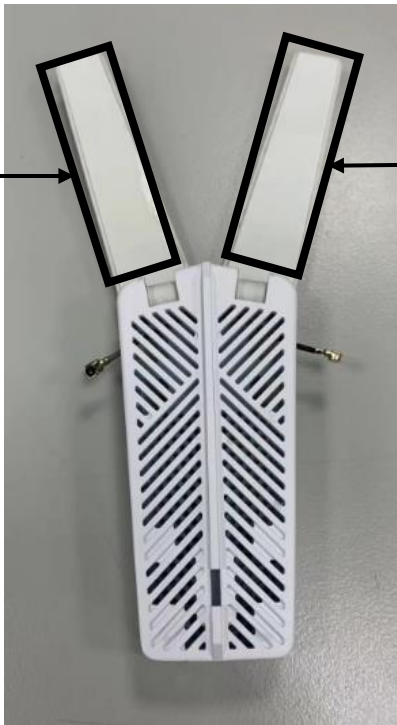
Table of Contents

- A. Antenna RF Characteristics
 - 1. Antenna Placement
 - 2. S-Parameters
 - 3. Coordinate Definition
 - 4. Gain Table
 - 5. Isolation Table
 - 6. Radiation Patterns
 - 7. Summary

Antenna Placement

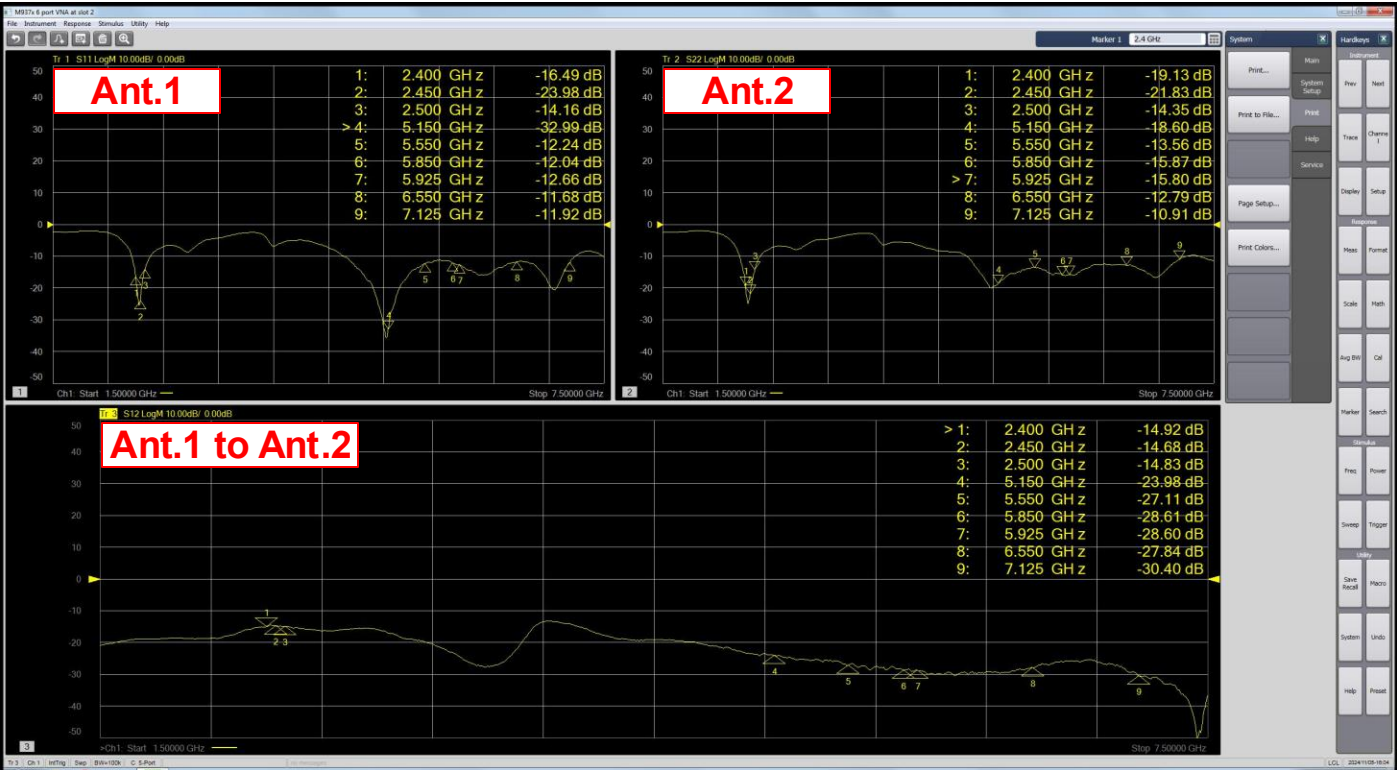
No.	Function	Material	Dimension(mm)	Frequency(MHz)	Remark
Ant.1	Wi-Fi	PCB	50.7x11.1x0.4	2400 – 2500 5150 – 5850 5925 – 7125	Thickness ≈ 0.4mm
Ant.2	Wi-Fi	PCB	50.7x11.1x0.4	2400 – 2500 5150 – 5850 5925 – 7125	Thickness ≈ 0.4mm

Ant.1
Antenna Type : Dipole
P/N : ALX24P-121AA5-00



Ant.2
Antenna Type : Dipole
P/N : ALX24P-121AA6-00

S-Parameters



Coordinate Definition

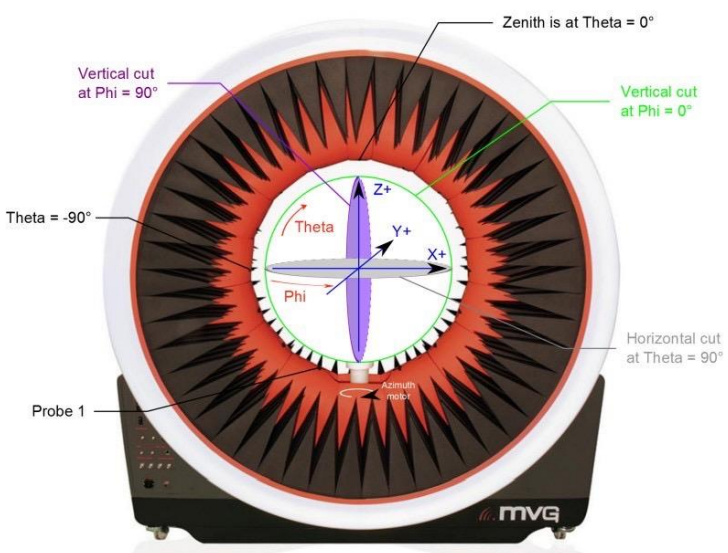
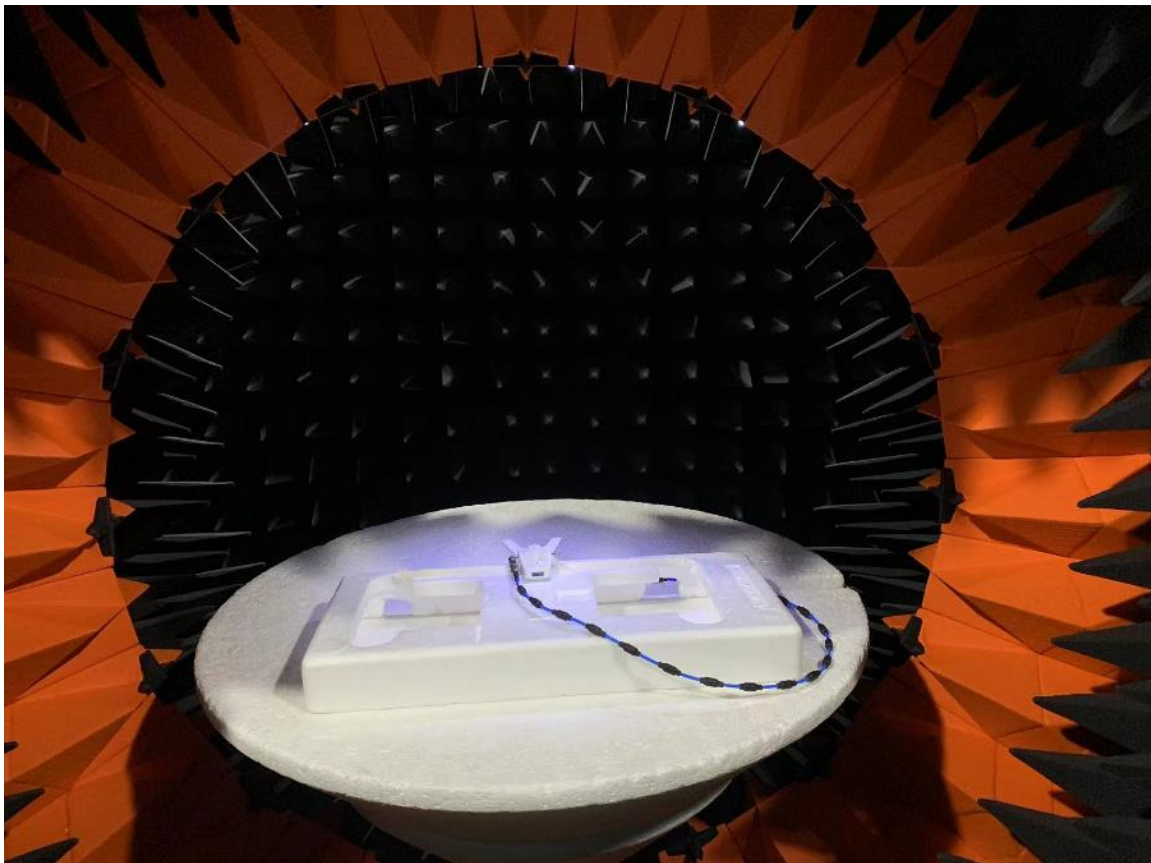


Figure 3.12: StarLab spherical coordinate system



Gain Table

2.4GHz	Frequency(MHz)	2400	2450	2500
Ant.1	Peak Gain(dBi)	1.2	1.5	1.5
	Efficiency(%)	51	54	53
Ant.2	Peak Gain(dBi)	1.3	1.6	1.4
	Efficiency(%)	52	55	52

5GHz	Frequency(MHz)	5150	5550	5850
Ant.1	Peak Gain(dBi)	1.8	1.7	1.5
	Efficiency(%)	57	55	54
Ant.2	Peak Gain(dBi)	1.8	1.7	1.7
	Efficiency(%)	58	56	56

6GHz	Frequency(MHz)	5925	6550	7125
Ant.1	Peak Gain(dBi)	1.7	1.9	1.7
	Efficiency(%)	56	59	57
Ant.2	Peak Gain(dBi)	1.9	1.8	1.5
	Efficiency(%)	58	58	55

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						
Ant.2	-14.68		-23.98		-27.84	

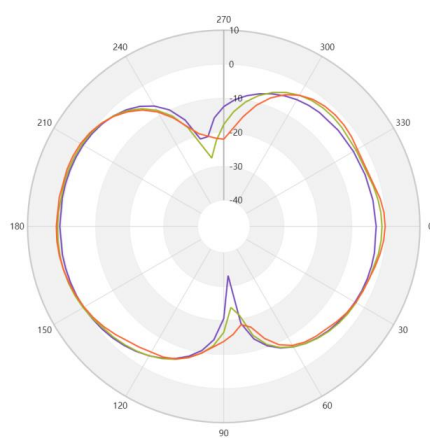
2D Radiation Pattern

Ant.1 (Wi-Fi Tri-band) :

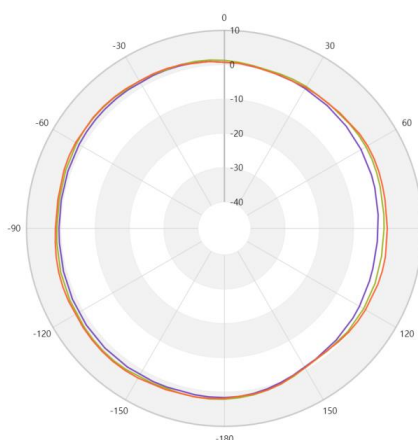
Frequency(MHz) : 2400-2500

Radiation Pattern :

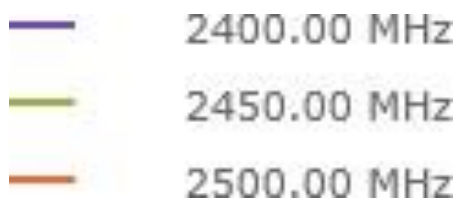
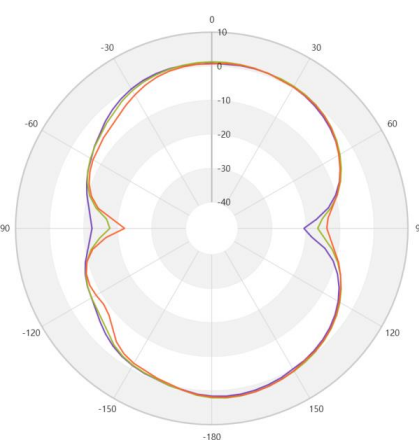
Azimuth Plane



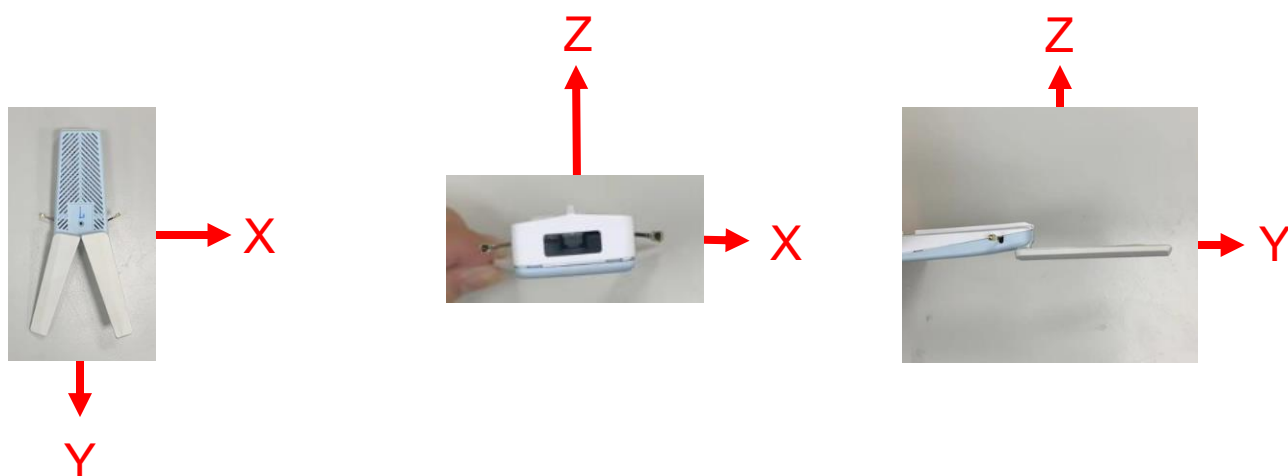
Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :

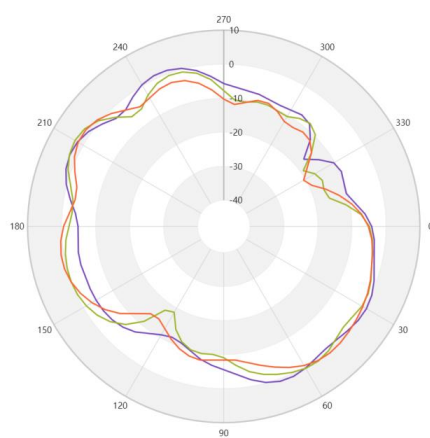


2D Radiation Pattern

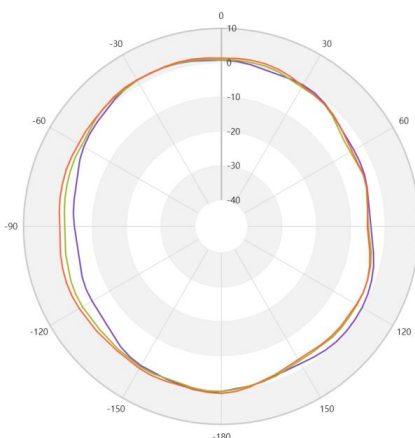
Ant.1 (Wi-Fi Tri-band) :
Frequency(MHz) : 5150-5850

Radiation Pattern :

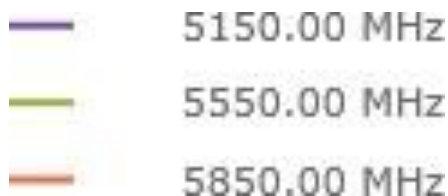
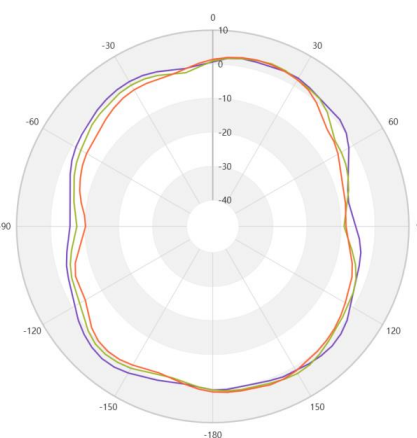
Azimuth Plane



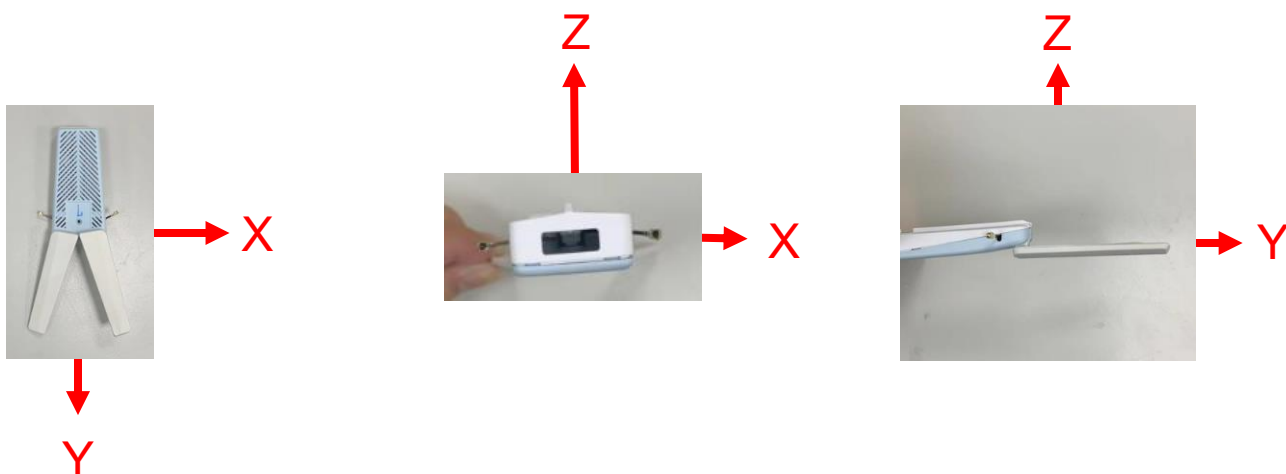
Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :

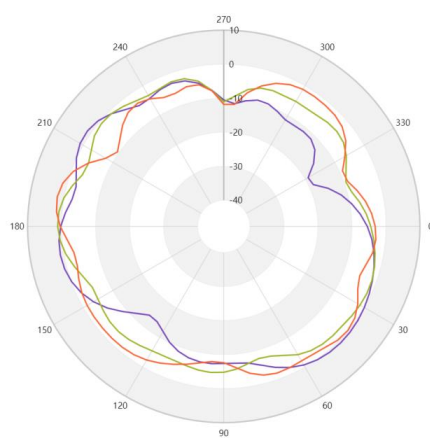


2D Radiation Pattern

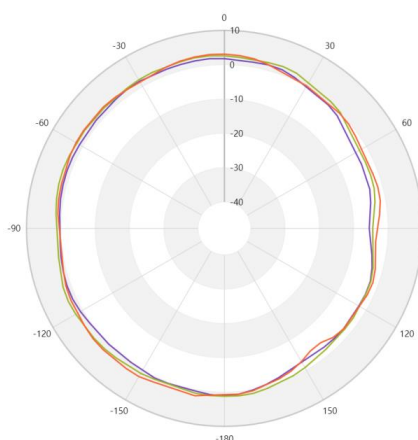
Ant.1 (Wi-Fi Tri-band) :
Frequency(MHz) : 5925-7125

Radiation Pattern :

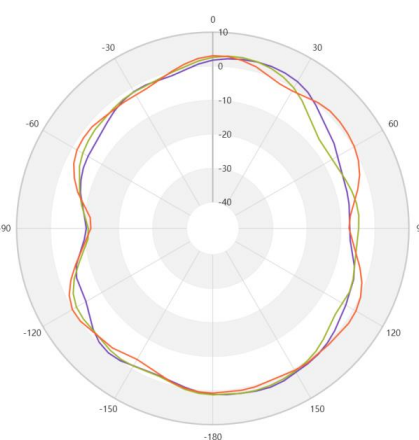
Azimuth Plane



Elevation Plane
phi = 0

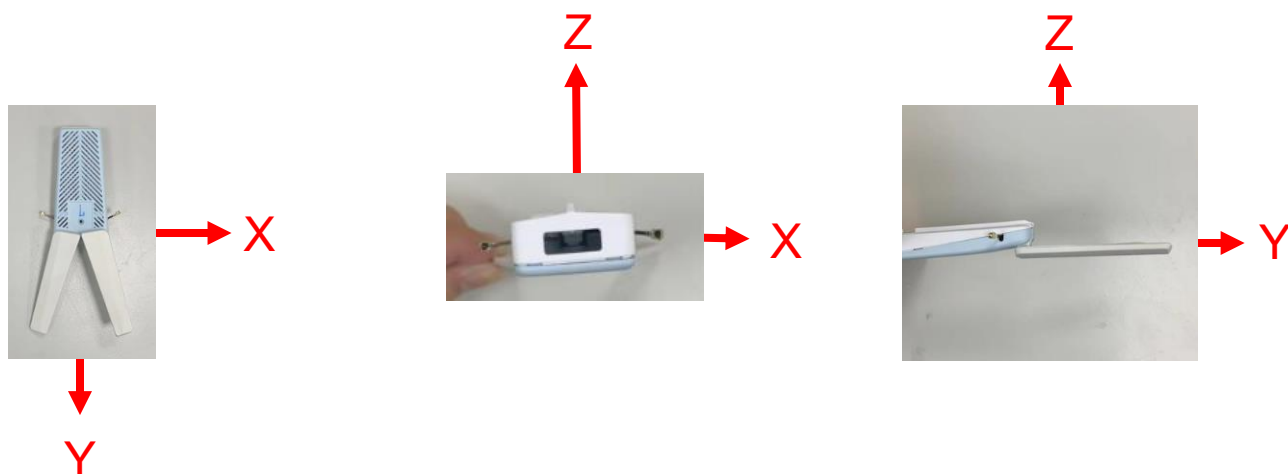


Elevation Plane
phi = 90



5925.00 MHz
6550.00 MHz
7125.00 MHz

Setup :



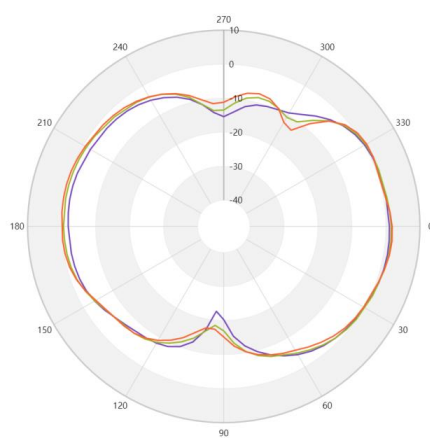
2D Radiation Pattern

Ant.2 (Wi-Fi Tri-band) :

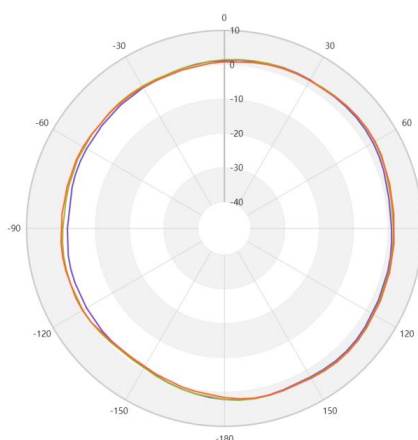
Frequency(MHz) : 2400-2500

Radiation Pattern :

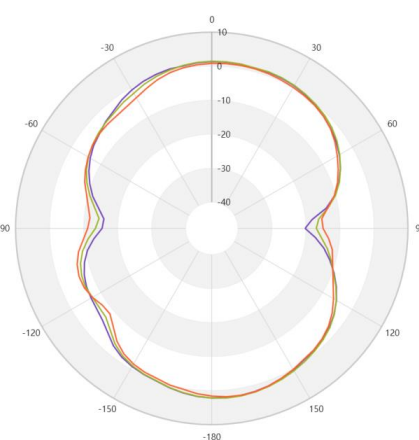
Azimuth Plane



Elevation Plane
phi = 0

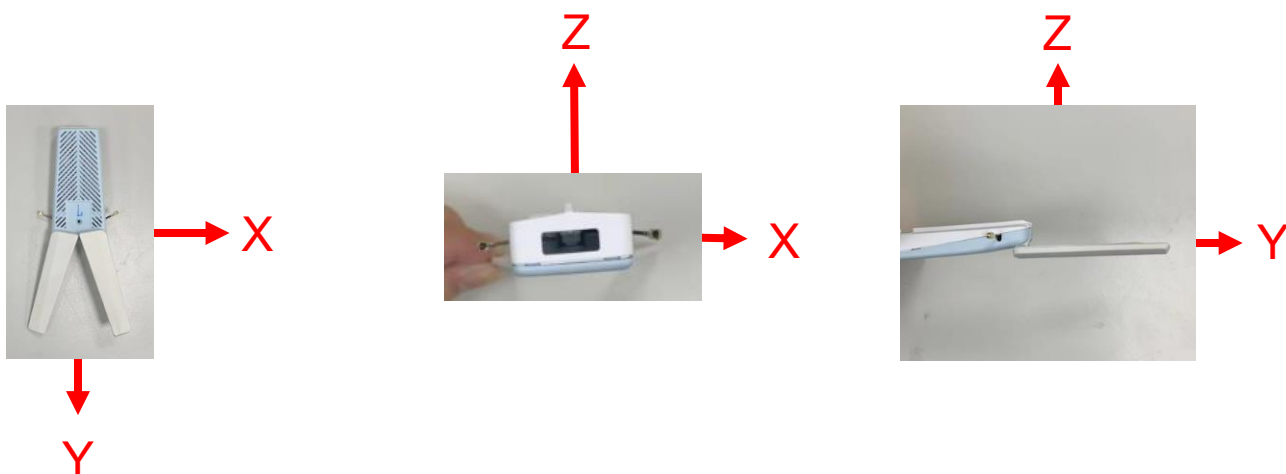


Elevation Plane
phi = 90



2400.00 MHz
2450.00 MHz
2500.00 MHz

Setup :



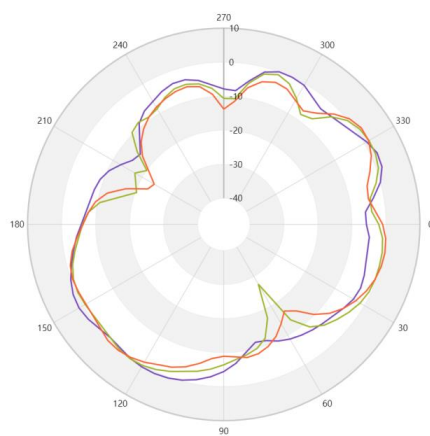
2D Radiation Pattern

Ant.2 (Wi-Fi Tri-band) :

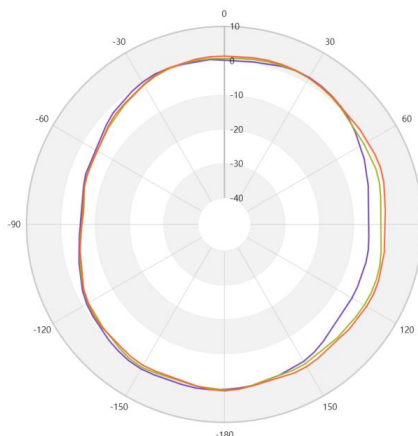
Frequency(MHz) : 5150-5850

Radiation Pattern :

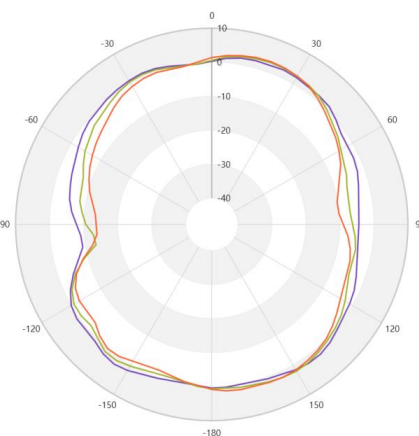
Azimuth Plane



Elevation Plane
phi = 0

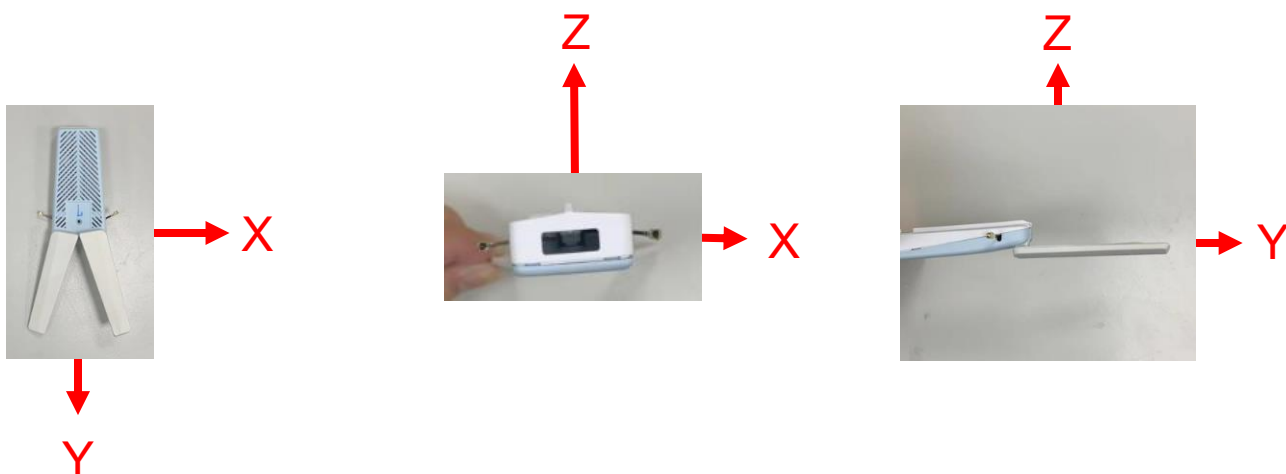


Elevation Plane
phi = 90



5150.00 MHz
5550.00 MHz
5850.00 MHz

Setup :

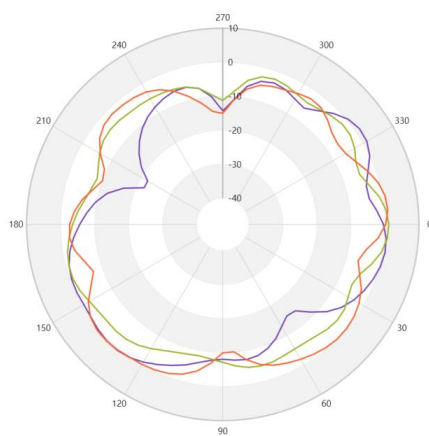


2D Radiation Pattern

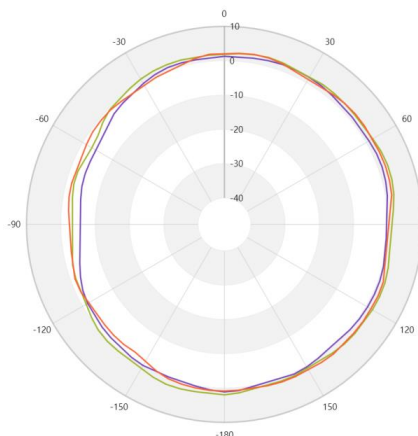
Ant.2 (Wi-Fi Tri-band) :
Frequency(MHz) : 5925-7125

Radiation Pattern :

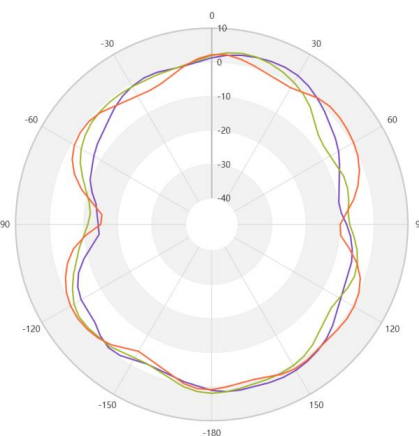
Azimuth Plane



Elevation Plane
phi = 0

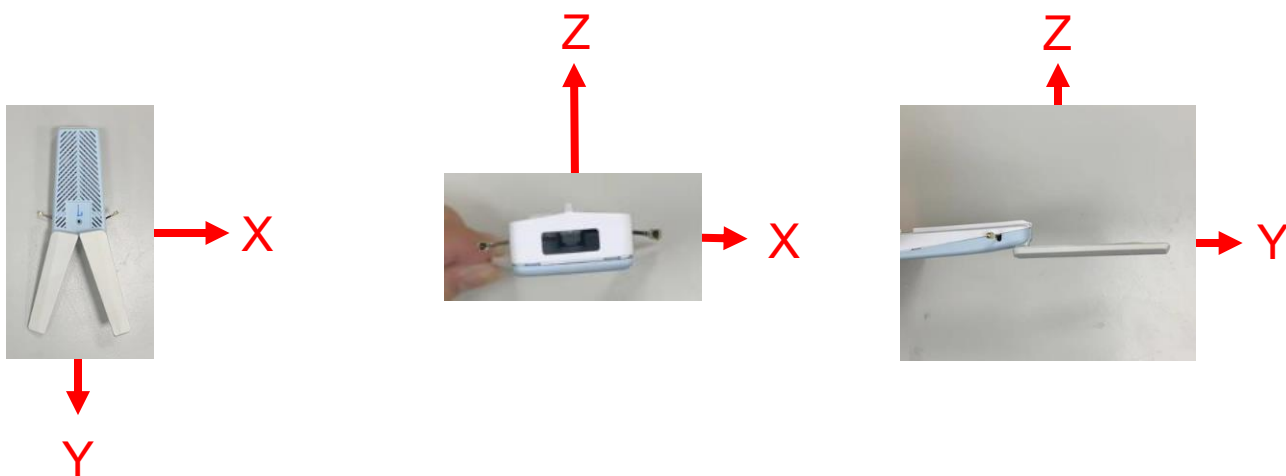


Elevation Plane
phi = 90



5925.00 MHz
6550.00 MHz
7125.00 MHz

Setup :



Summary

The antenna characteristics

- **Return Loss**
 - All operating band < -10dB in operating band
- **Gain**
 - Wi-Fi Tri Band 2G : 1.2 ~ 1.6dBi
 - Wi-Fi Tri Band 5G : 1.5 ~ 1.8dBi
 - Wi-Fi Tri Band 6G : 1.5 ~ 1.9dBi
- **Efficiency**
 - All operation band > 50%

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