

LYNwave Technology

Antenna & Thermal solution provider

Antenna Simulation Report

Company:Leaf plus

Project Name:OLA25B-247160-A

Model Name:

Application:Wi-Fi 5G&6G high gain Outdoor directional Patch Antenna

Mounting Type:Pole Mount

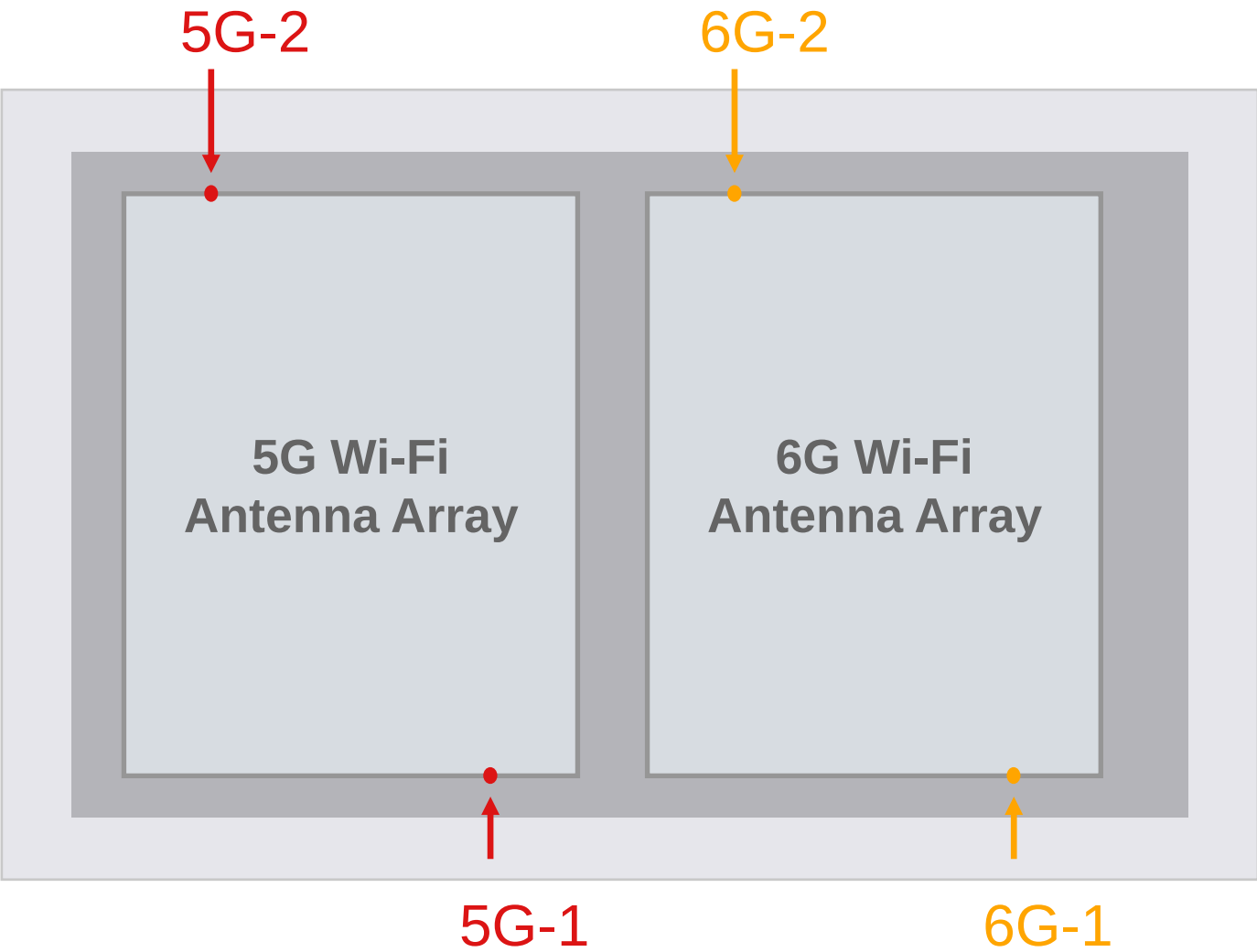
Date	Owner	Check	Revision	History
2025/08/15	Swetha	Dallas	v0.1	1. PCB Type: Halogenated 2. Cable Type: IPEX
2025/08/29	Swetha	Dallas	v0.2	1. PCB Type: Halogen-free 2. Cable Type: RG174
2025/09/03	Swetha	Dallas	v0.3	1. PCB Type: Halogen-free 2. Cable Type: RG174LL
2025/11/17	Jason	Dallas	v0.4	1. PCB Type: Halogen-free 2. Cable Type: RG174LL

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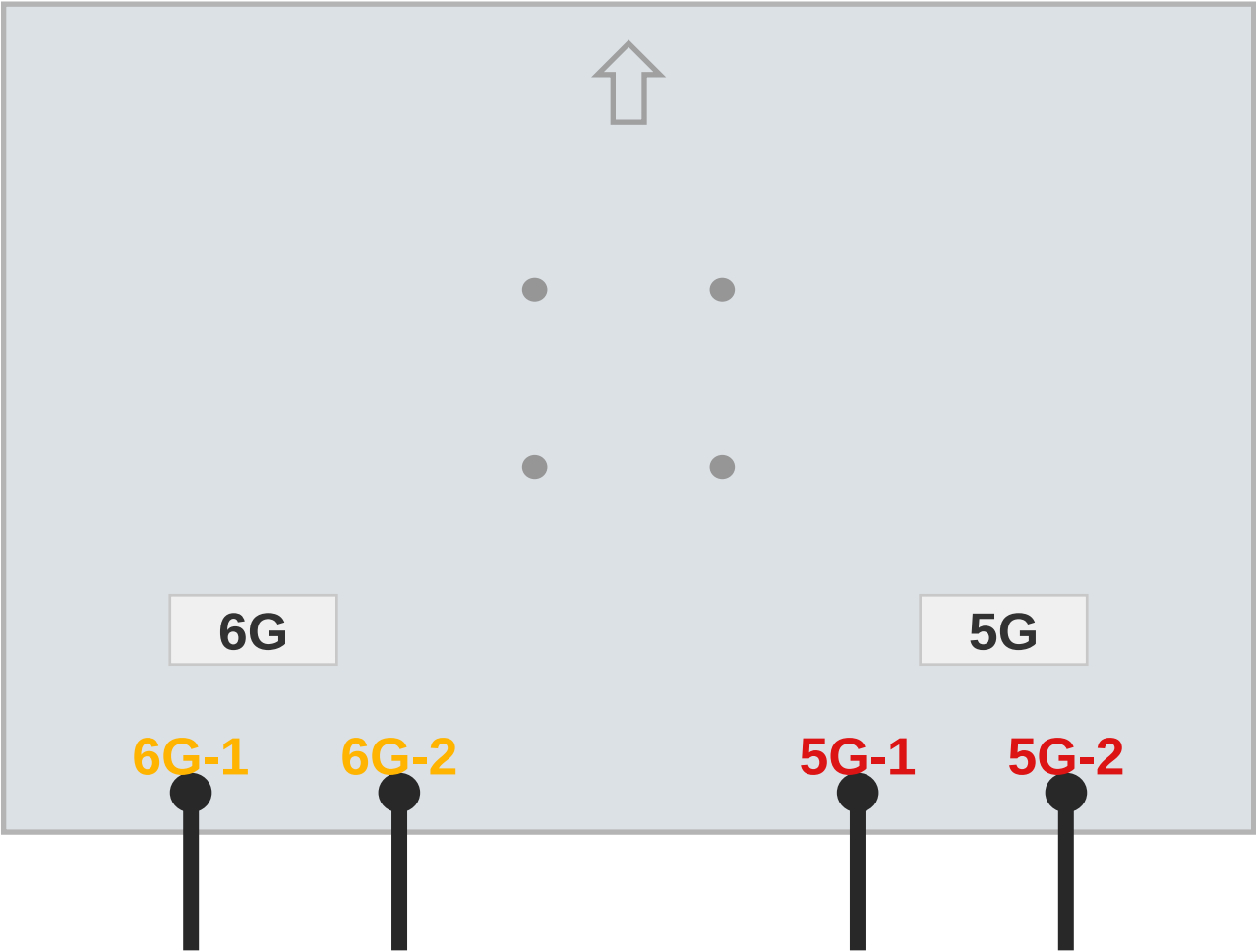
Antenna Placement

No.	Function	Material	Dimension(mm)	Frequency(MHz)
5G-1	Wi-Fi	Halogen free PCB	Refer to 3D	5150-5850
5G-2	Wi-Fi	Halogen free PCB	Refer to 3D	5150-5850
6G-1	Wi-Fi	Halogen free PCB	Refer to 3D	5925-7125
6G-2	Wi-Fi	Halogen free PCB	Refer to 3D	5925-7125



Antenna Placement

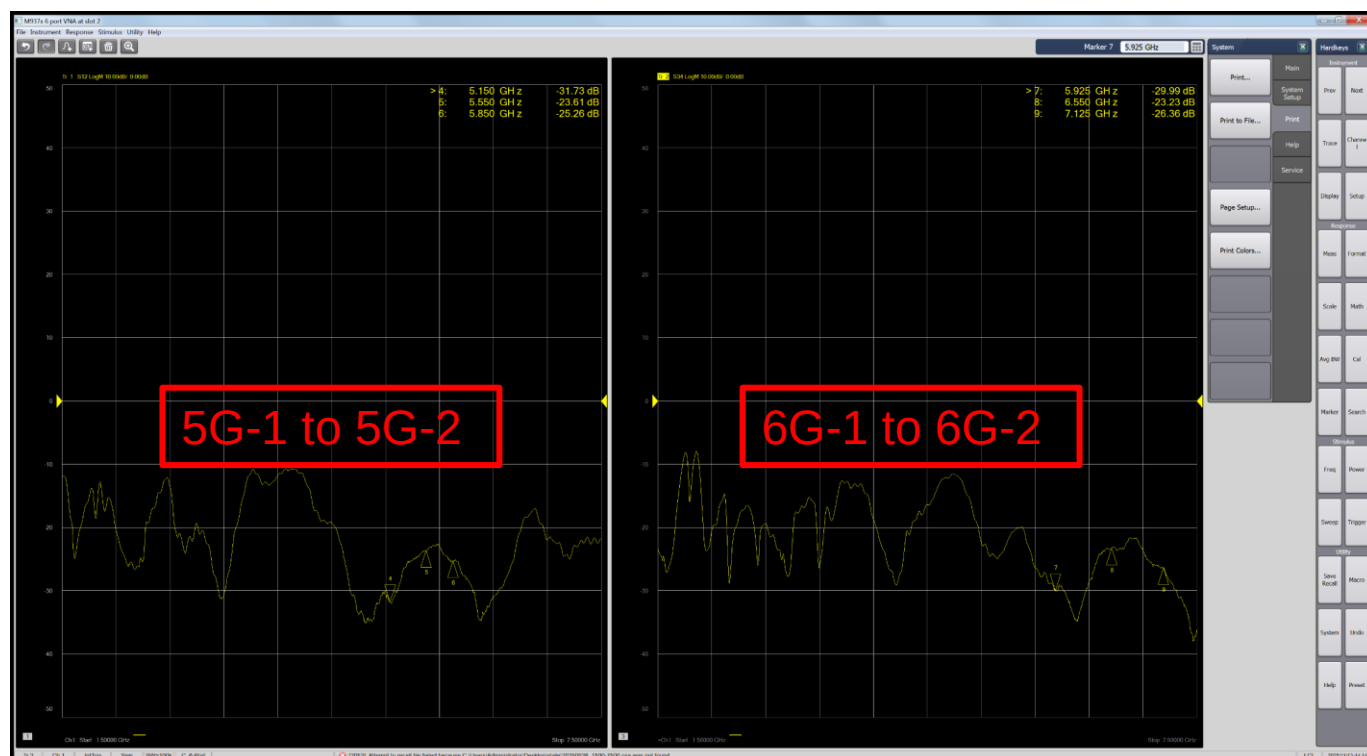
No.	Function	Material	Dimension(mm)	Frequency(MHz)
5G-1	Wi-Fi	Halogen free PCB	Refer to 3D	5150-5850
5G-2	Wi-Fi	Halogen free PCB	Refer to 3D	5150-5850
6G-1	Wi-Fi	Halogen free PCB	Refer to 3D	5925-7125
6G-2	Wi-Fi	Halogen free PCB	Refer to 3D	5925-7125



Return loss – 5GHz / 6GHz



Isolation– 5GHz to 5GHz / 6GHz to 6GHz



Cross Isolation– 5GHz to 6GHz



Coordinate Definition

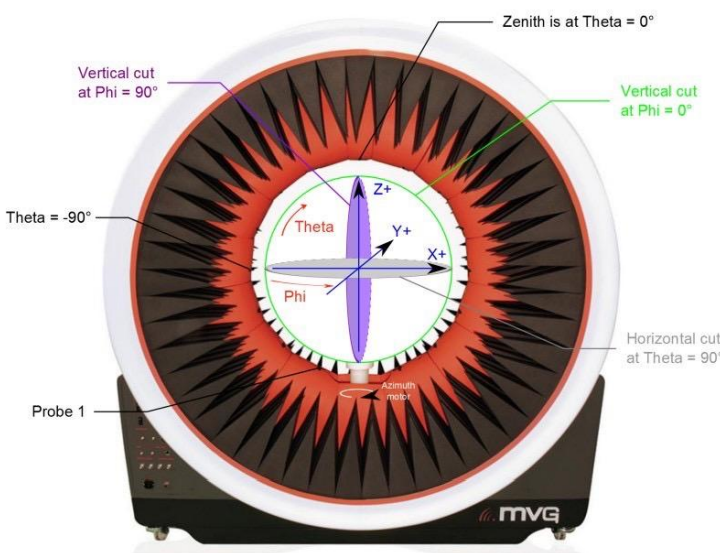
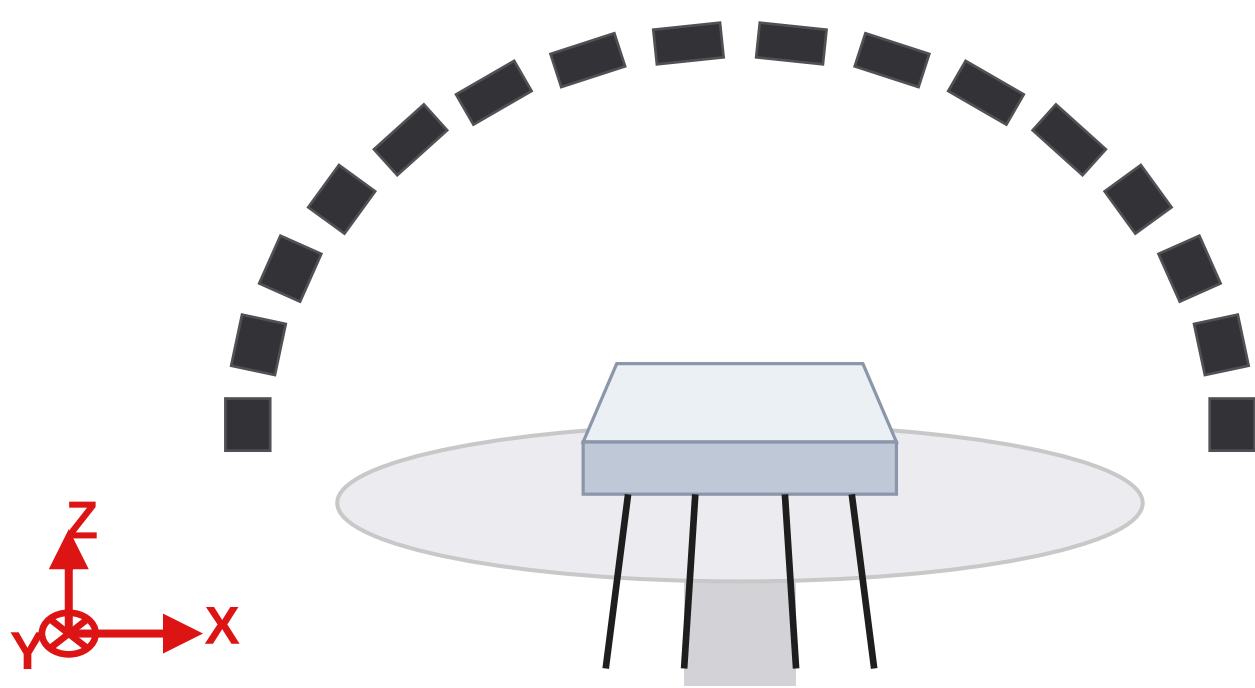


Figure 3.12: StarLab spherical coordinate system



Gain Table

5GHz	Frequency (MHz)	5150	5350	5550	5750	5850
5G-1	Peak Gain(dBi)	11.1	11.6	10.7	11.3	10.4
	Efficiency(%)	36	35	27	30	26
	HPBW(H°)	23.6	20.4	19.1	19.6	19.7
	HPBW(V°)	17.7	16.5	17.2	16.2	17.7
5G-2	Peak Gain(dBi)	11.0	10.9	10.8	10.5	10.8
	Efficiency(%)	32	31	30	29	28
	HPBW(H°)	23.5	20.4	21.1	20.5	20.4
	HPBW(V°)	17.2	16.2	19.3	17.8	15.8

6GHz	Frequency (MHz)	5925	6325	6725	6925	7125
6G-1	Peak Gain(dBi)	10.0	11.4	11.1	11.4	11.8
	Efficiency(%)	21	25	23	23	21
	HPBW(H°)	25.6	21.2	19.1	18.5	17.5
	HPBW(V°)	15.7	13.5	13.4	15.9	14.7
6G-2	Peak Gain(dBi)	10.3	11.3	11.6	10.8	12.0
	Efficiency(%)	25	27	25	23	24
	HPBW(H°)	22.9	22.3	18.2	17.2	17.1
	HPBW(V°)	18.5	13.7	12.3	16.2	14.3

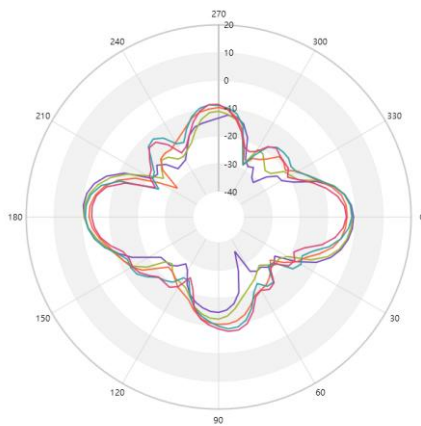
2D Radiation Pattern

5G-1 (WIFI)

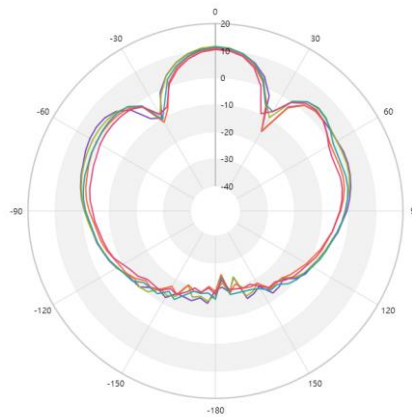
Frequency(MHz) : 5150-5850

Radiation Pattern :

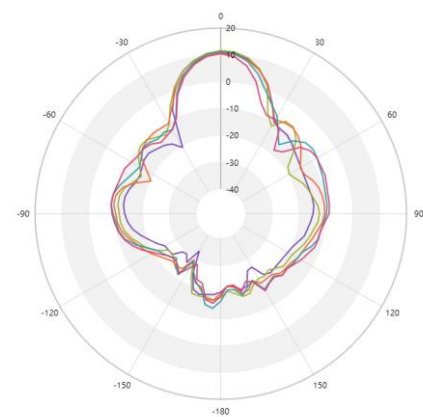
Azimuth Plane



Elevation Plane
phi = 0

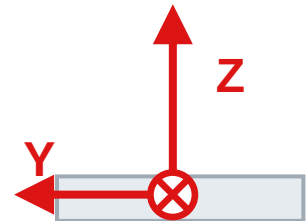
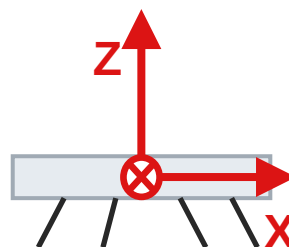
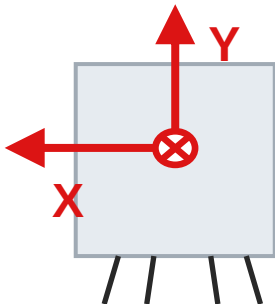


Elevation Plane
phi = 90



— 5150.00 MHz
— 5350.00 MHz
— 5550.00 MHz
— 5750.00 MHz
— 5850.00 MHz

Setup :



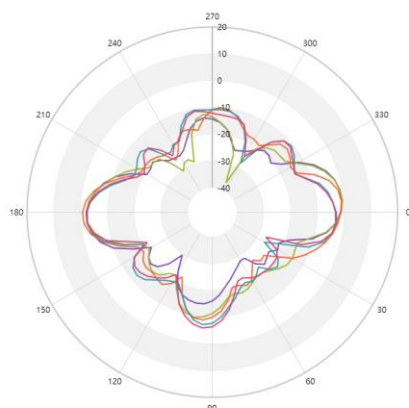
2D Radiation Pattern

5G-2 (WIFI)

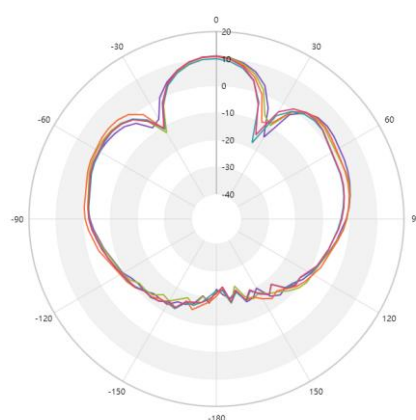
Frequency(MHz) : 5150-5850

Radiation Pattern :

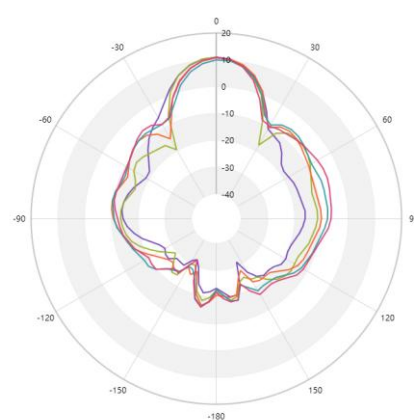
Azimuth Plane



Elevation Plane
phi = 0

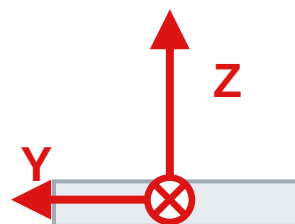
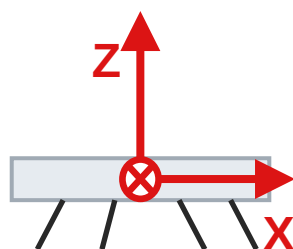
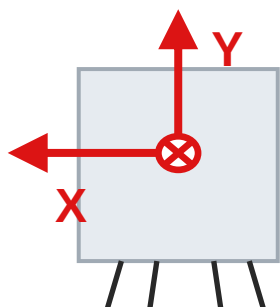


Elevation Plane
phi = 90



— 5150.00 MHz
— 5350.00 MHz
— 5550.00 MHz
— 5750.00 MHz
— 5850.00 MHz

Setup :



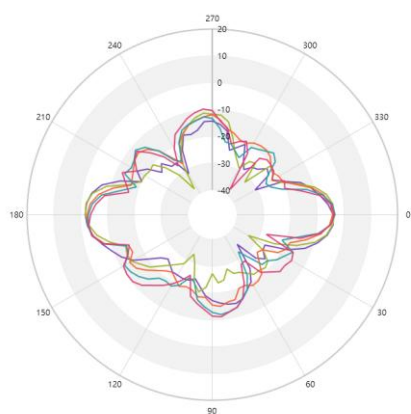
2D Radiation Pattern

6G-1 (WIFI)

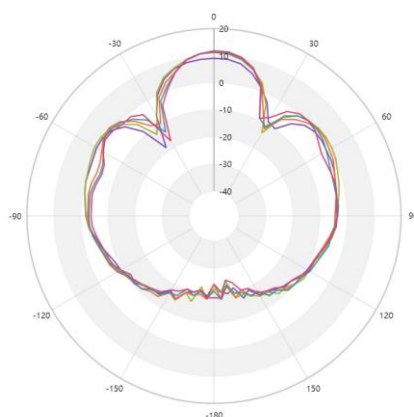
Frequency(MHz) : 5925-7125

Radiation Pattern :

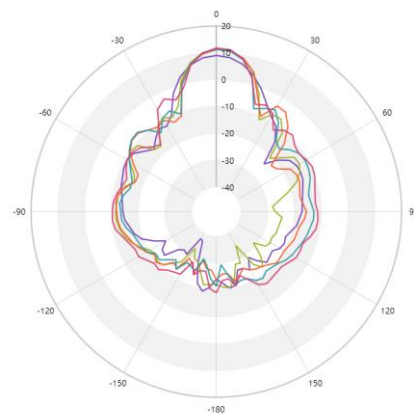
Azimuth Plane



Elevation Plane
 $\phi = 0$

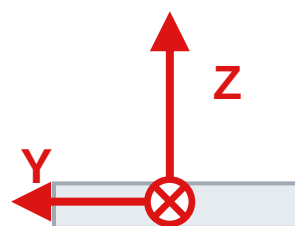
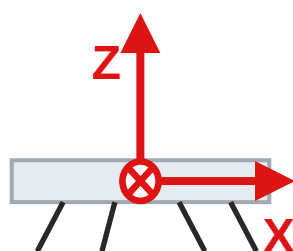
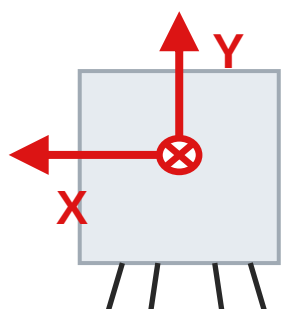


Elevation Plane
 $\phi = 90$



— 5925.00 MHz
 — 6325.00 MHz
 — 6725.00 MHz
 — 6925.00 MHz
 — 7125.00 MHz

Setup :



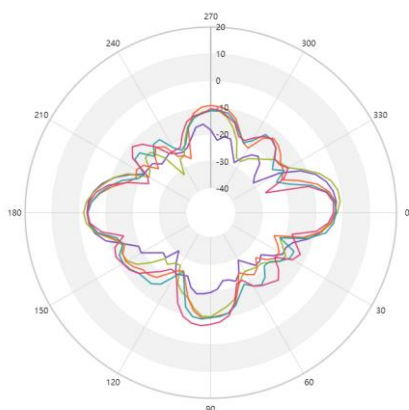
2D Radiation Pattern

6G-2 (WIFI)

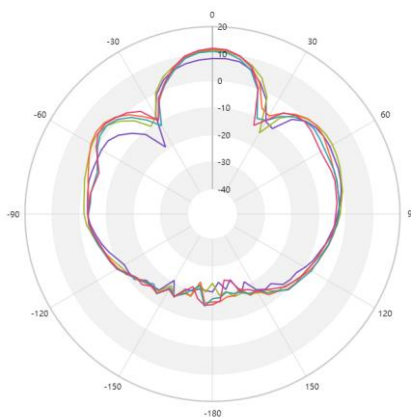
Frequency(MHz) : 5925-7125

Radiation Pattern :

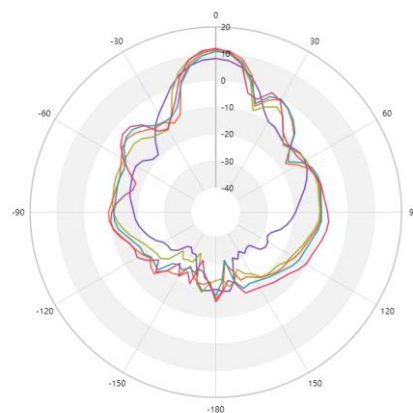
Azimuth Plane



Elevation Plane
phi = 0

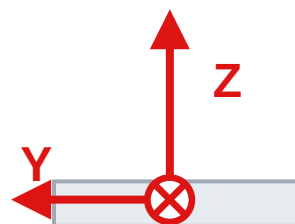
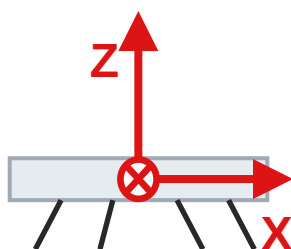
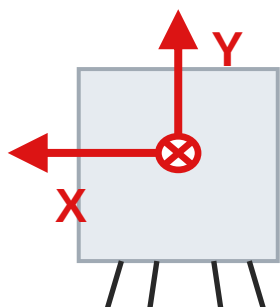


Elevation Plane
phi = 90



— 5925.00 MHz
— 6325.00 MHz
— 6725.00 MHz
— 6925.00 MHz
— 7125.00 MHz

Setup :



Summary

Summary	5G-1	5G-2	6G-1	6G-2	Remark
Return Loss – 5GHz	< -8dB	< -10dB			
Return Loss – 6GHz			< -9dB	< -10dB	
Efficiency – 5GHz	> 20%	> 20%			
Efficiency – 6GHz			> 20%	> 20%	
Peak Gain – 5GHz	10.4 – 11.6dBi	10.5 – 11.0dBi			
Peak Gain – 6GHz			10.0 – 11.8dBi	10.3 – 12.0dBi	
HPBW(H°)-5G	19.7-23.6	20.4-23.5			
HPBW(H°)-6G			17.5-25.6	17.1-22.9	
HPBW(V°)-5G	16.2-17.7	15.8-19.3			
HPBW(V°)-6G			13.4-15.9	12.3-18.5	

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