

LYNwave Technology

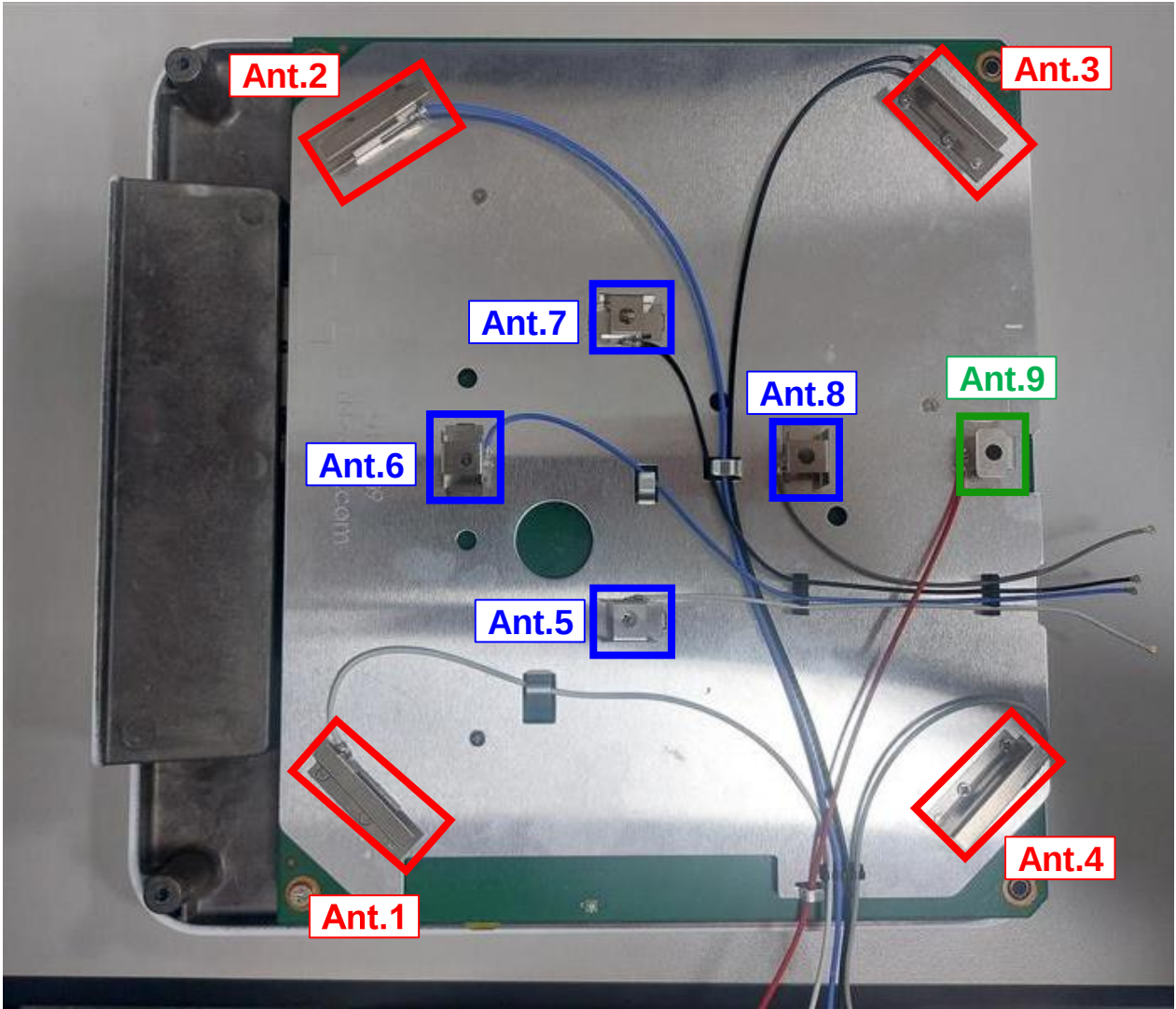
Antenna & Thermal solution provider

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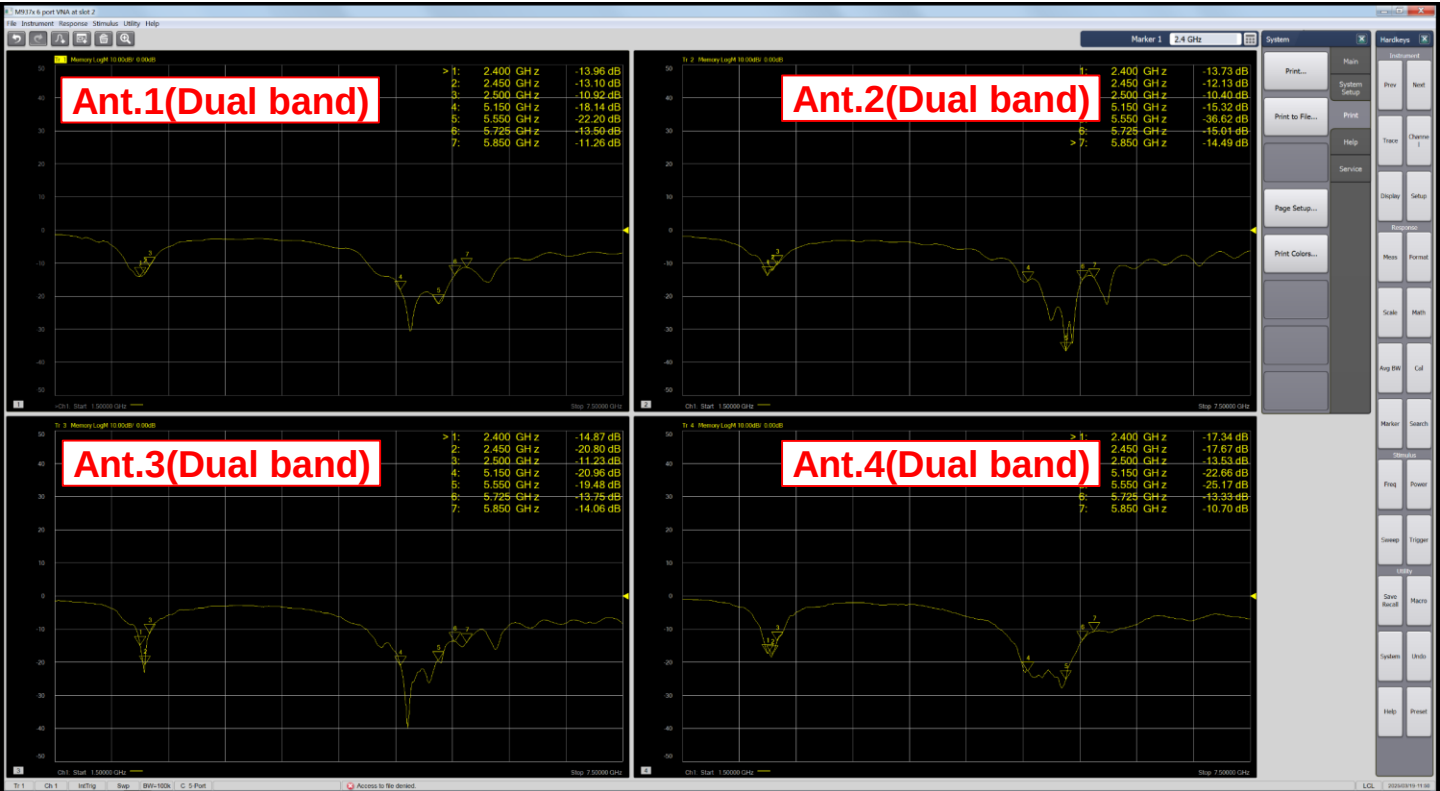
Antenna Placement

No.	Function	Material	Dimension(mm)	Frequency(MHz)	Remark
Ant.1~4	Wi-Fi Dual-Band	Metal	32.7*10.4*0.4	2400 – 2500 5150 – 5850	
Ant.5~8	Single-Band	Metal	18.8*9.9*0.3	5925 – 7125	
Ant.9	Single-Band	Metal	18.8*9.9*0.3	5150 – 5850	

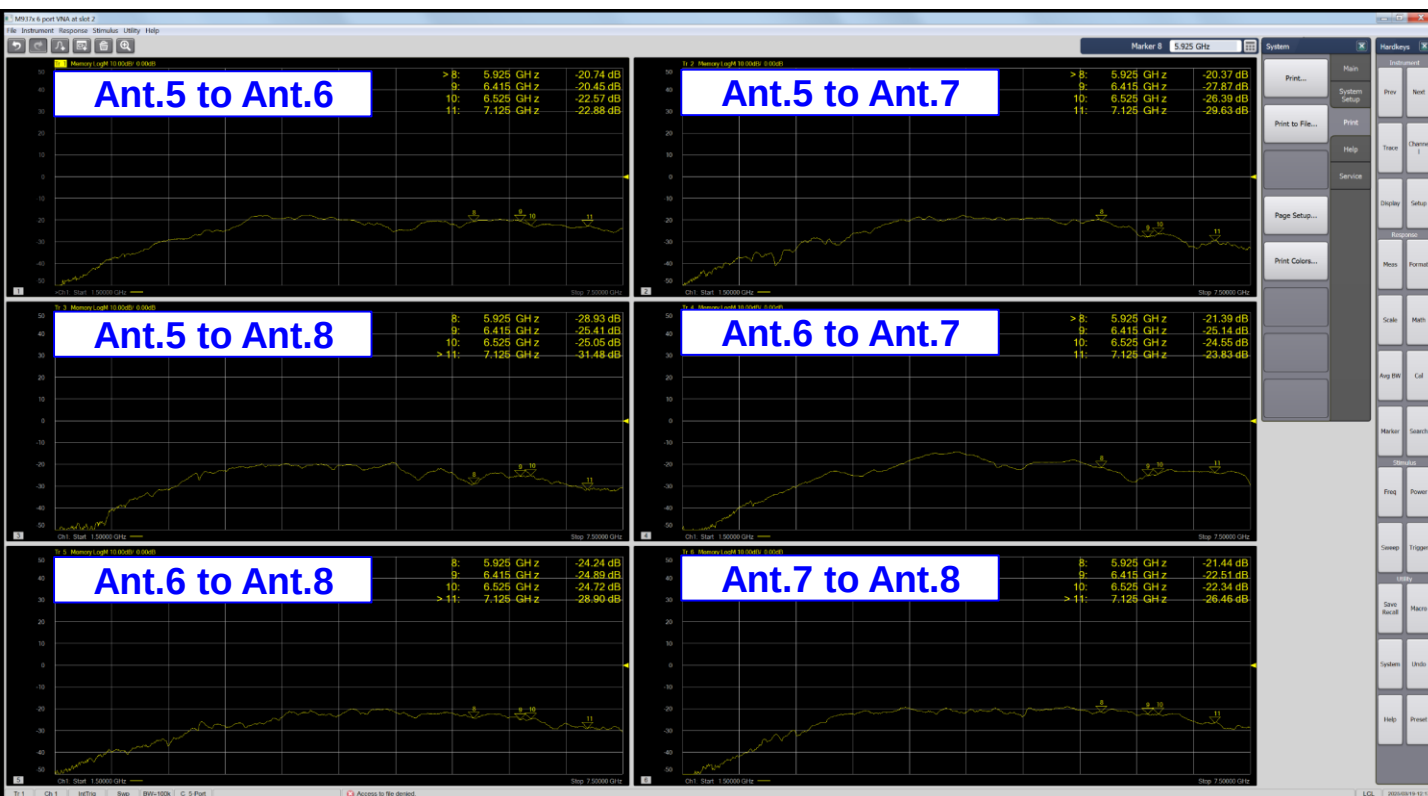
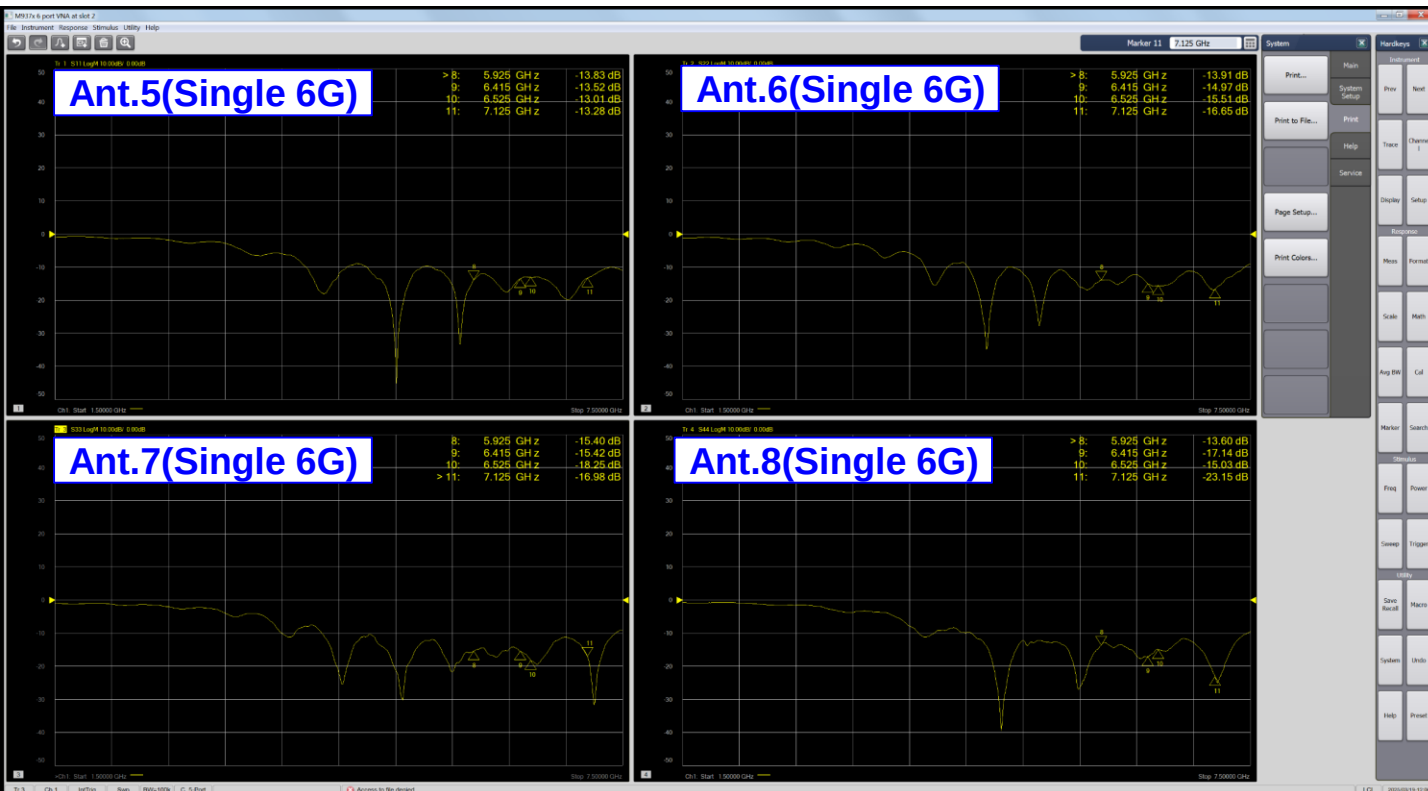


Top View

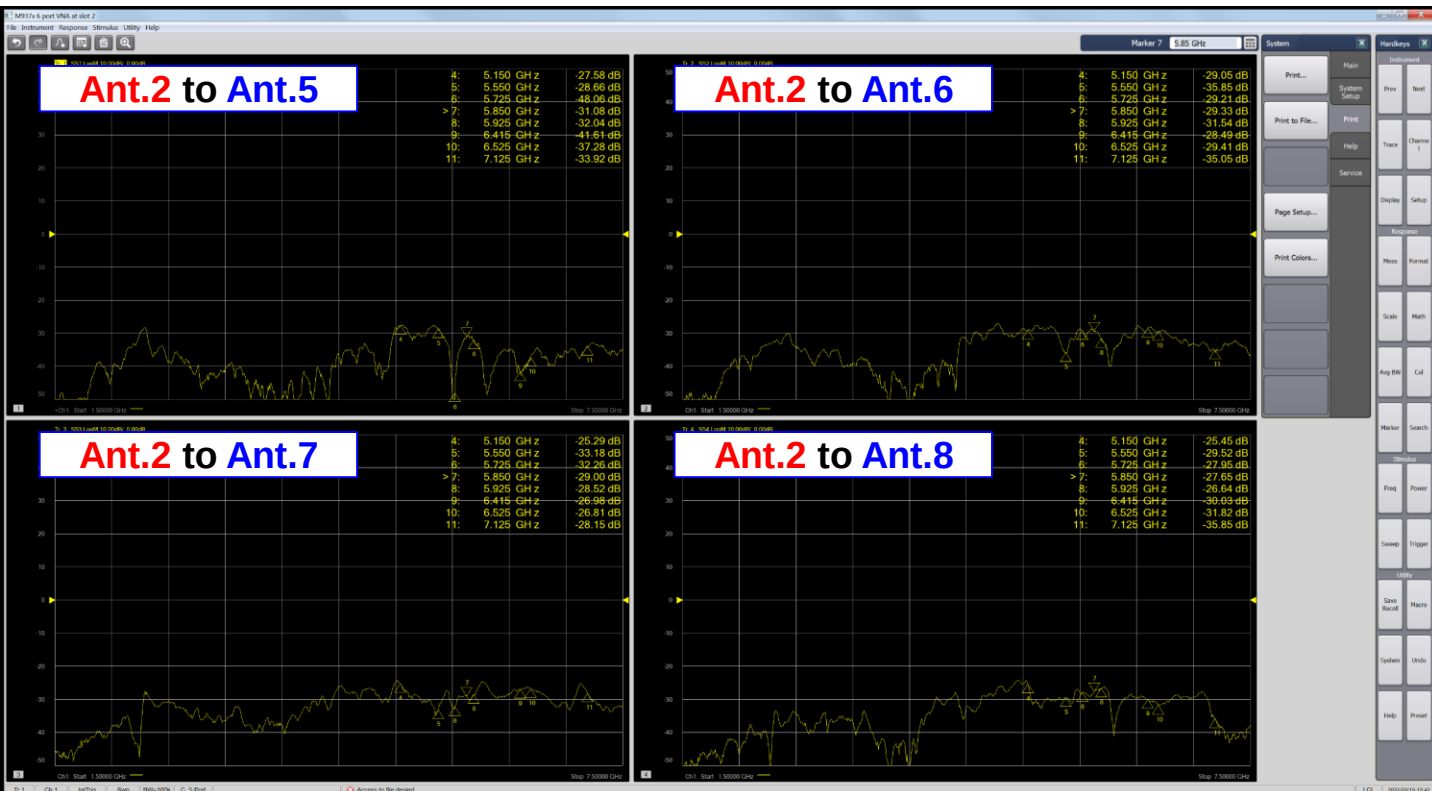
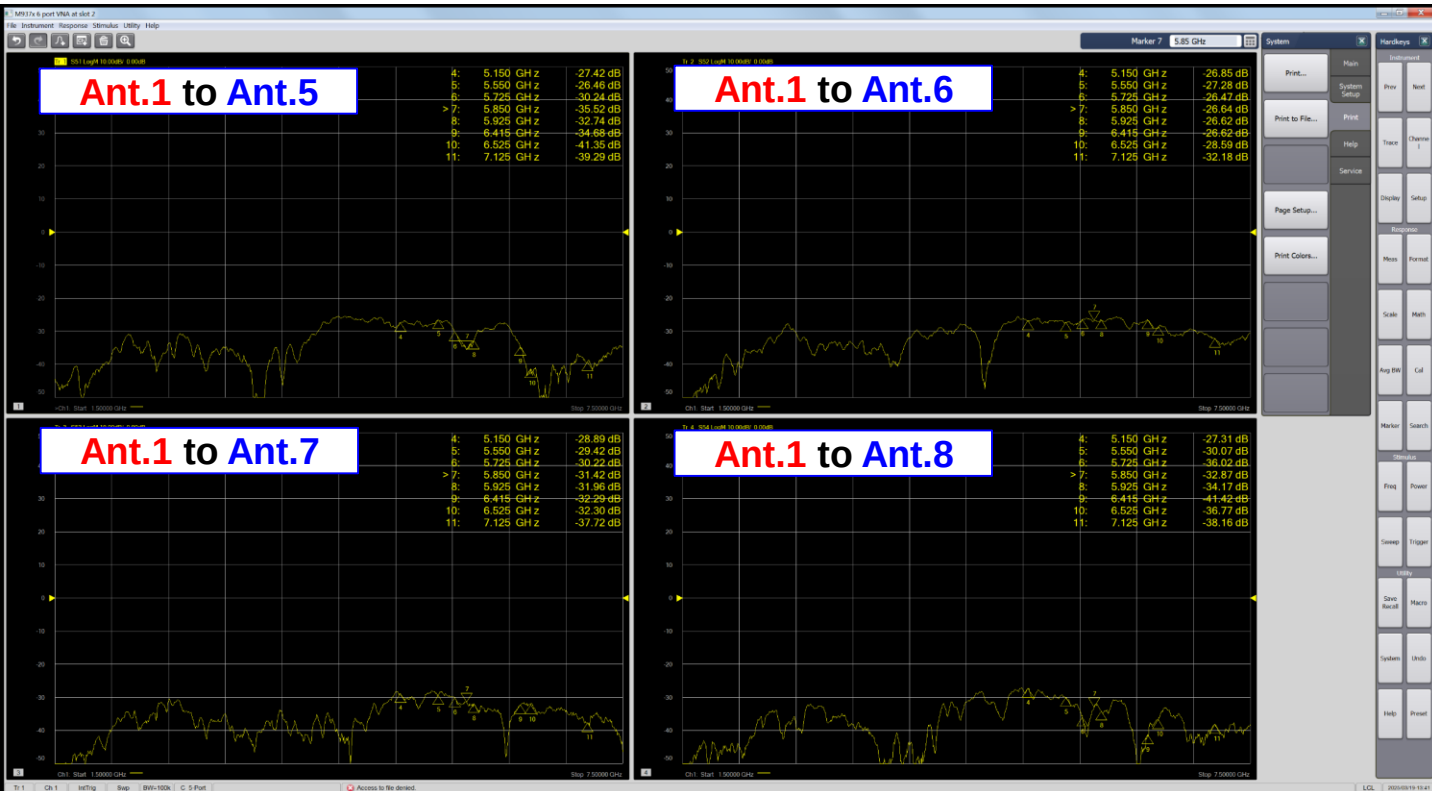
S-parameters



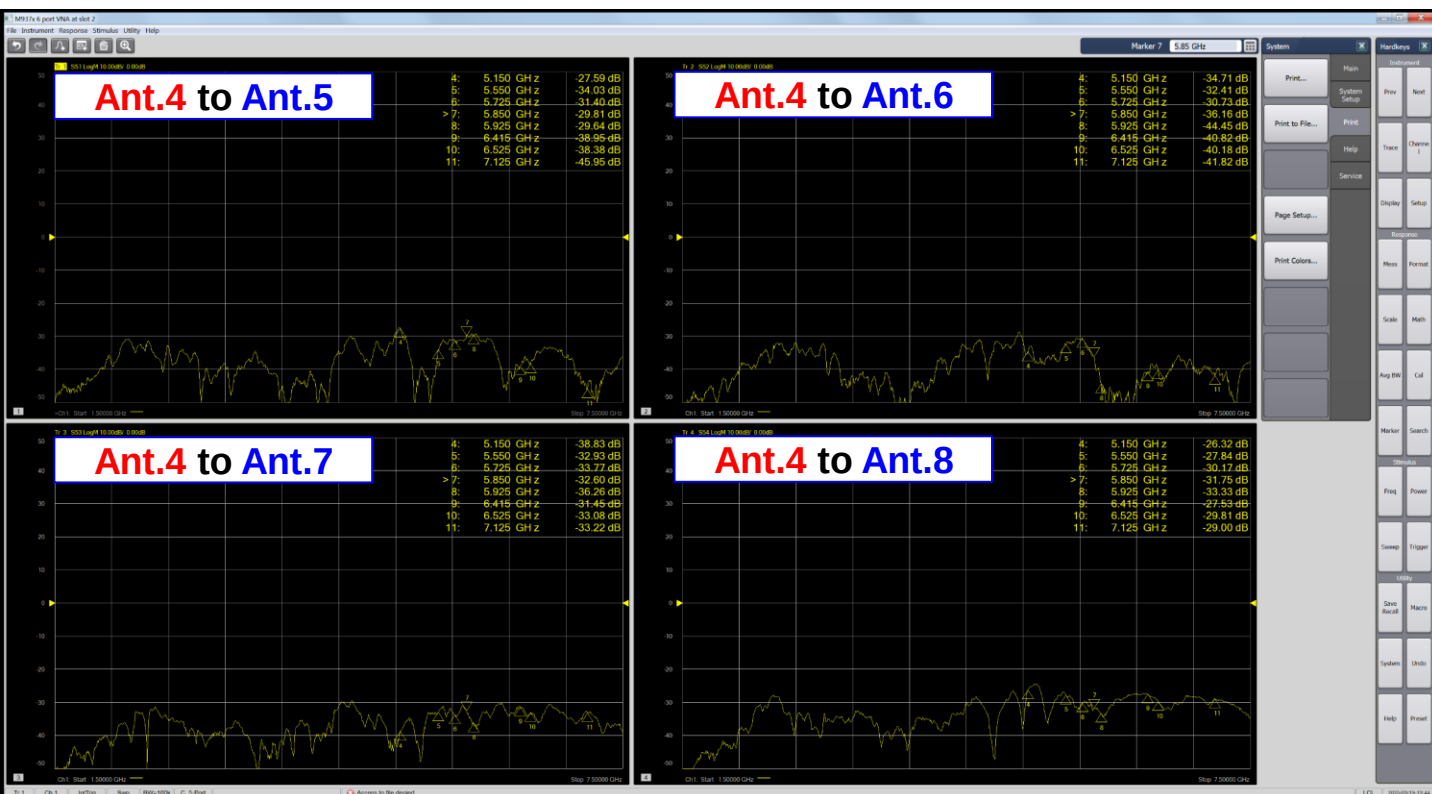
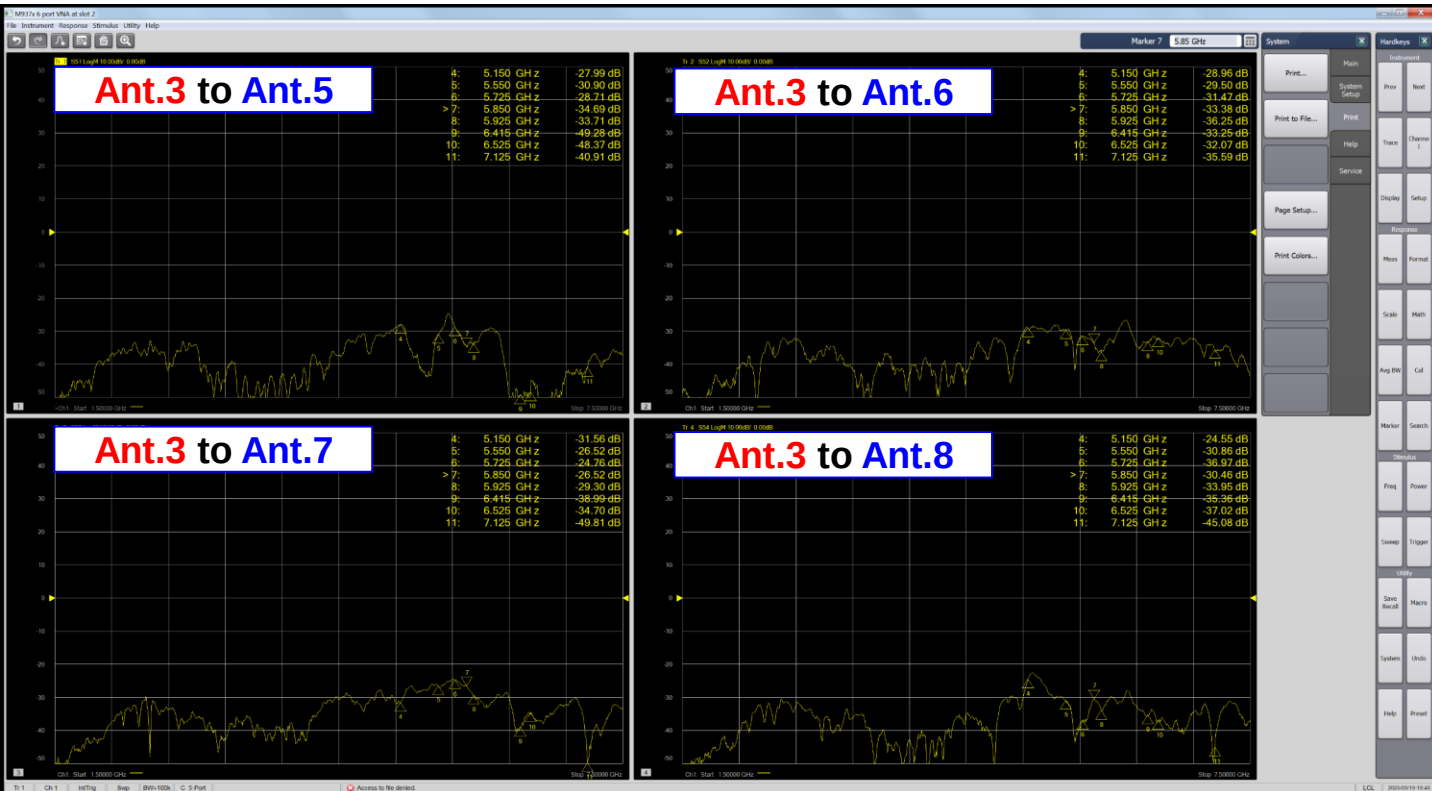
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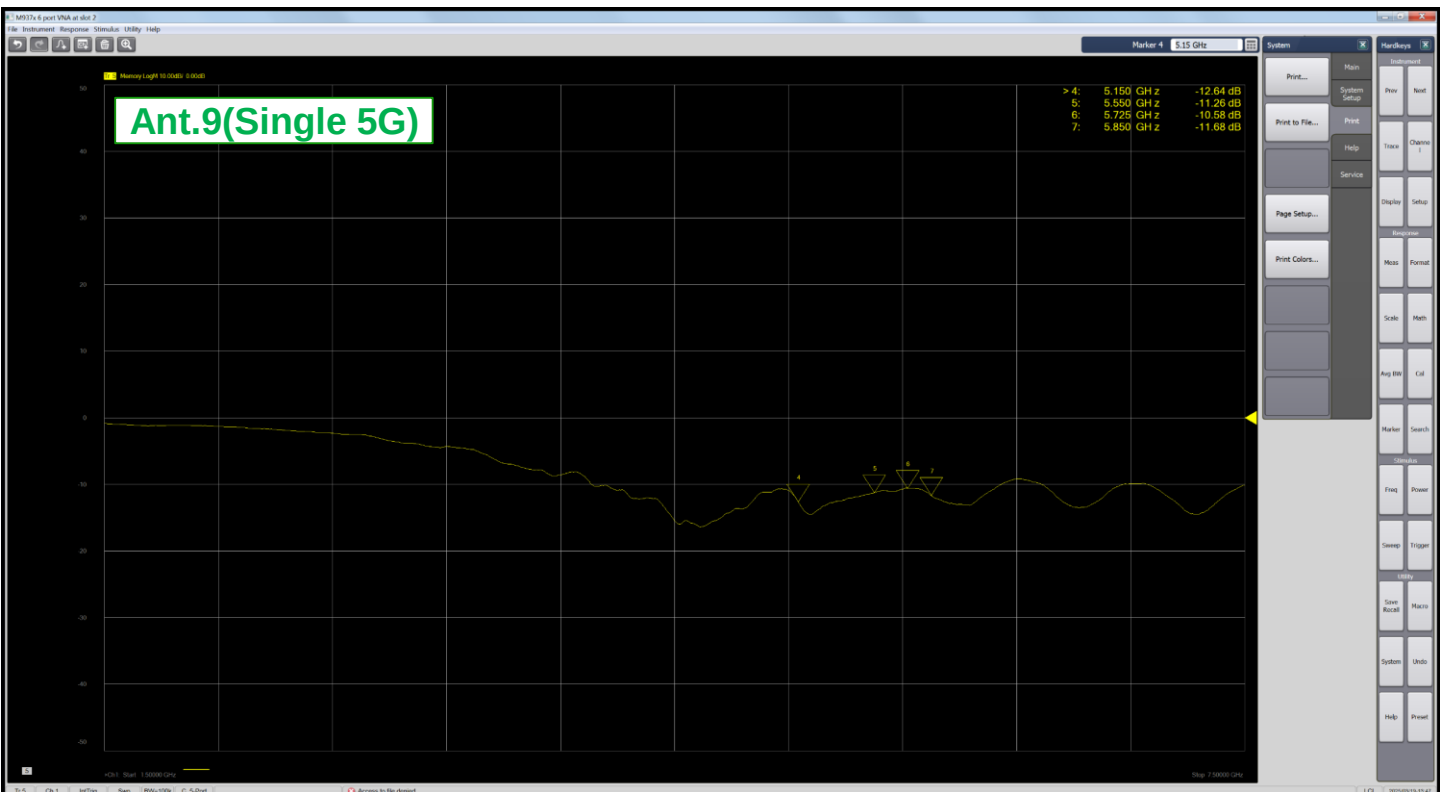
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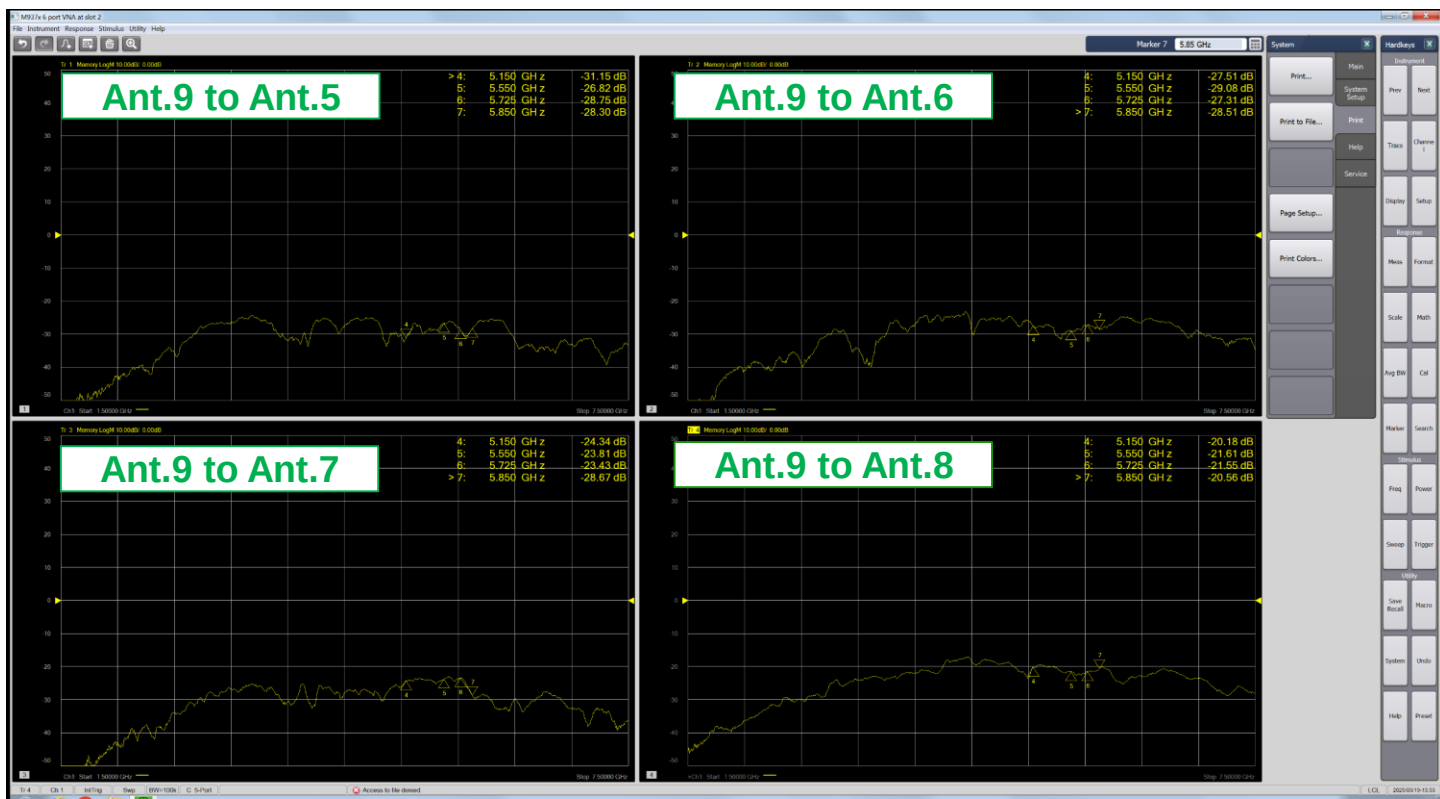
S-parameters



S-parameters



S-parameters



Equipment :
Satimo

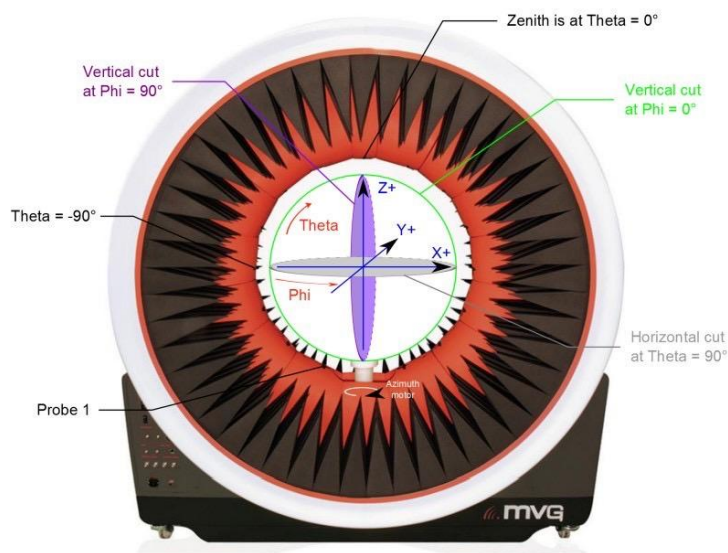
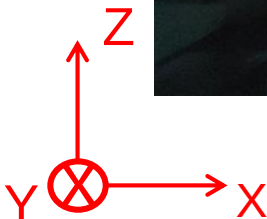
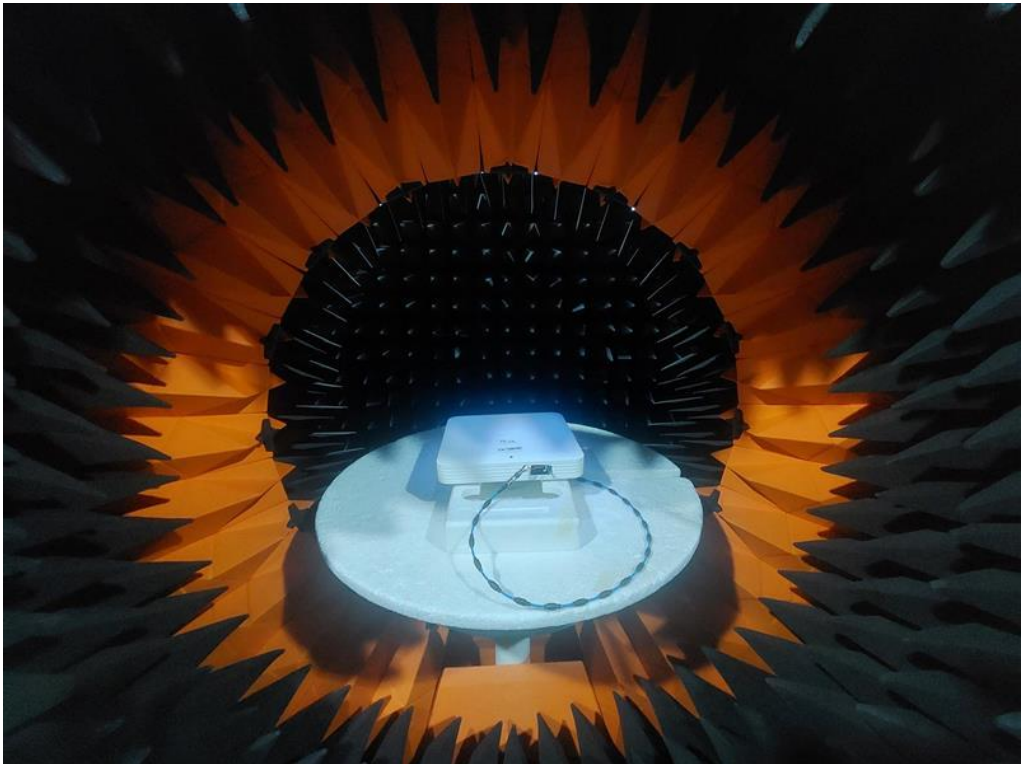


Figure 3.12: StarLab spherical coordinate system



***Measurement is based on the antenna center is aligned with center of Satimo chamber**

Gain Table

Item	Frequency(MHz)	2400	2450	2500	5150	5550	5725	5850
Ant.1	Peak Gain(dBi)	3.5	3.3	3.4	5.7	5.6	5.3	5.1
	Efficiency(%)	55	54	54	69	67	68	65
Ant.2	Peak Gain(dBi)	2.9	3.2	3.3	5.4	5.5	5.3	4.8
	Efficiency(%)	51	50	53	65	66	60	60
Ant.3	Peak Gain(dBi)	3.5	3.3	3.4	5.8	5.3	5.4	4.7
	Efficiency(%)	55	53	54	66	62	63	60
Ant.4	Peak Gain(dBi)	3.4	3.3	3.5	5.2	5.0	5.1	5.2
	Efficiency(%)	54	53	55	68	67	69	70

Item	Frequency(MHz)	5925	6415	6525	7125
Ant.5	Peak Gain(dBi)	5.1	5.4	5.3	5.5
	Efficiency(%)	60	63	67	73
Ant.6	Peak Gain(dBi)	4.3	4.4	4.3	4.7
	Efficiency(%)	62	63	65	66
Ant.7	Peak Gain(dBi)	4.2	4.0	4.4	4.9
	Efficiency(%)	61	60	63	64
Ant.8	Peak Gain(dBi)	4.4	4.2	4.3	5.8
	Efficiency(%)	62	63	62	71

Item	Frequency(MHz)	5150	5550	5725	5850
Ant.9	Peak Gain(dBi)	6.6	6.3	5.3	5.0
	Efficiency(%)	72	69	66	69

Isolation Table

Item	Worst mutual isolation (dB) 2.4GHz Band			
Antenna	Ant.1	Ant.2	Ant.3	Ant.4
Ant.1		-29.1	-31.4	-21.4
Ant.2			-20.7	-23.9
Ant.3				-20.3
Ant.4				

Item	Worst mutual isolation (dB) 5GHz Band			
Antenna	Ant.1	Ant.2	Ant.3	Ant.4
Ant.1		-28.6	-34.1	-29.4
Ant.2			-21.4	-28.2
Ant.3				-27.9
Ant.4				

Item	Worst mutual isolation (dB) 6GHz Band			
Antenna	Ant.5	Ant.6	Ant.7	Ant.8
Ant.5		-20.4	-20.3	-25.0
Ant.6			-21.3	-24.2
Ant.7				-21.4
Ant.8				

Cross Isolation Table

Item	Worst mutual cross isolation (dB) 5GHz Band			
Antenna	Ant.5	Ant.6	Ant.7	Ant.8
Ant.1	-26.4	-26.4	-28.8	-27.3
Ant.2	-27.8	-29.0	-25.2	-25.4
Ant.3	-27.9	-28.9	-24.7	-24.5
Ant.4	-27.5	-30.7	-32.6	-26.3

Item	Worst mutual cross isolation (dB) 6GHz Band			
Antenna	Ant.5	Ant.6	Ant.7	Ant.8
Ant.1	-32.7	-26.6	-28.8	-27.3
Ant.2	-32.0	-28.4	-26.8	-26.6
Ant.3	-33.7	-32.0	-29.3	-33.9
Ant.4	-29.6	-40.1	-31.4	-27.5

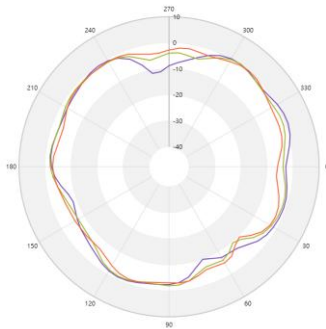
Item	Worst mutual cross isolation (dB) 5GHz Band							
Antenna	Ant.1	Ant.2	Ant.3	Ant.4	Ant.5	Ant.6	Ant.7	Ant.8
Ant.9	-29.1	-28.4	-26.2	-22.4	-26.8	-27.3	-23.4	-20.1

Ant.1_2.4GHz 2D Radiation Pattern

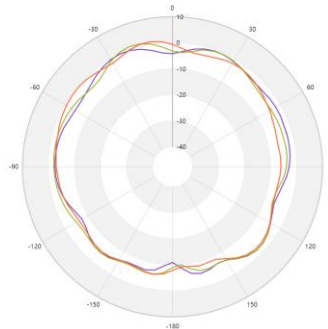
Frequency(MHz) : 2400~2500

Radiation Pattern :

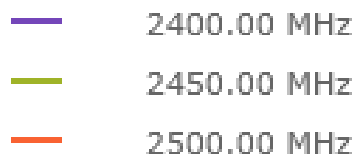
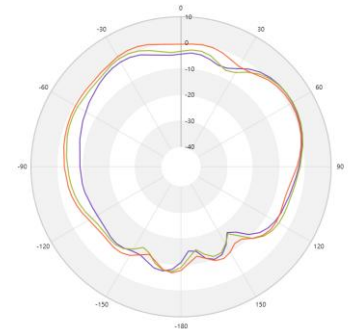
Azimuth Plane
Theta = 90



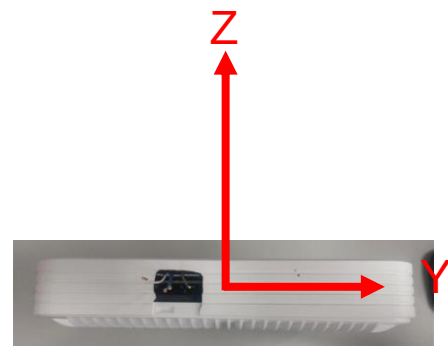
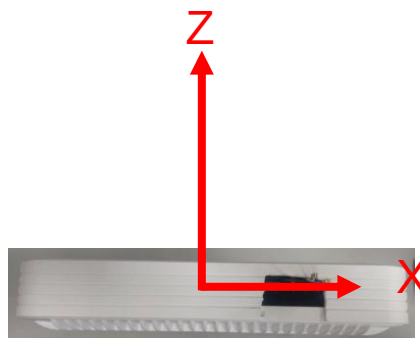
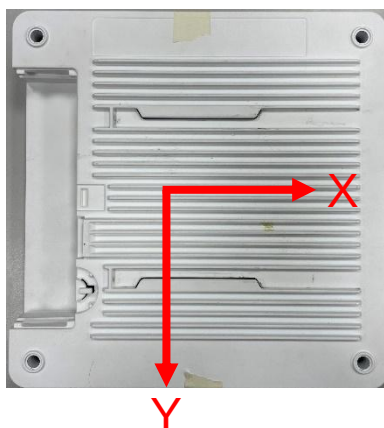
Elevation Plane
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Elevation Plane
phi = 90



Setup :

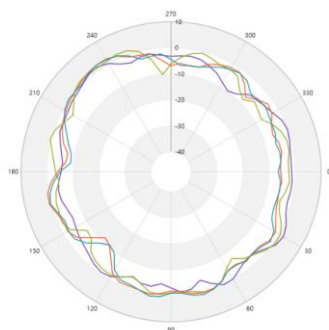


Ant.1_5GHz 2D Radiation Pattern

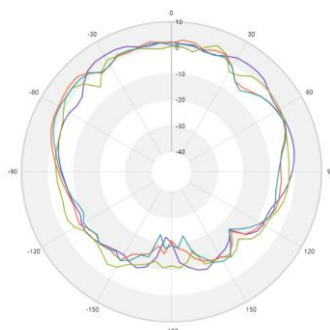
Frequency(MHz) : 5150~5850

Radiation Pattern :

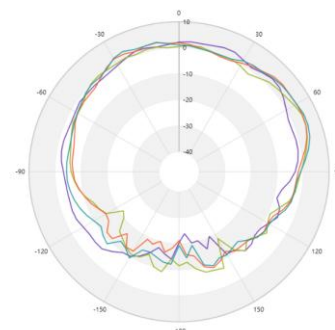
Azimuth Plane
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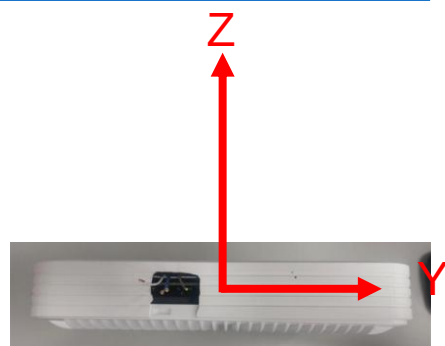
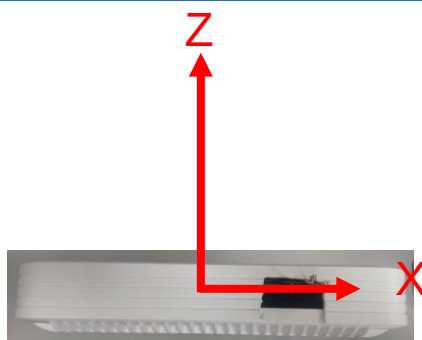
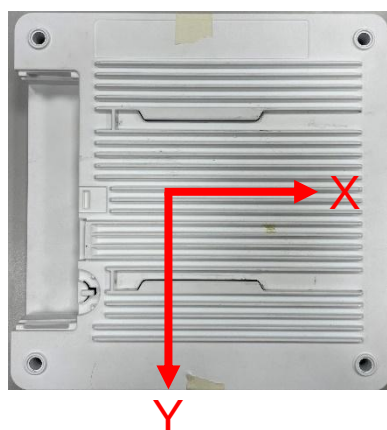
Elevation Plane
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Elevation Plane
phi = 90



Setup :

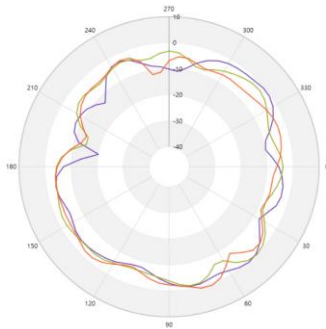


Ant.2_2.4GHz 2D Radiation Pattern

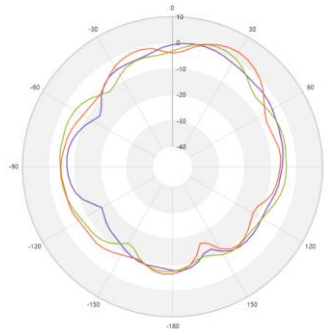
Frequency(MHz) : 2400~2500

Radiation Pattern :

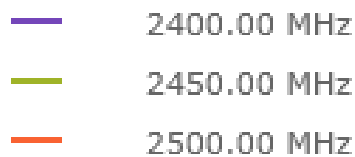
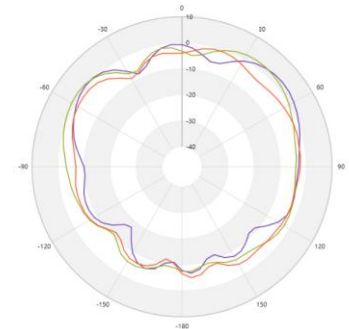
Azimuth Plane
Theta = 90



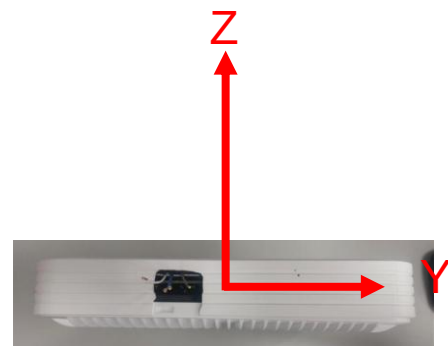
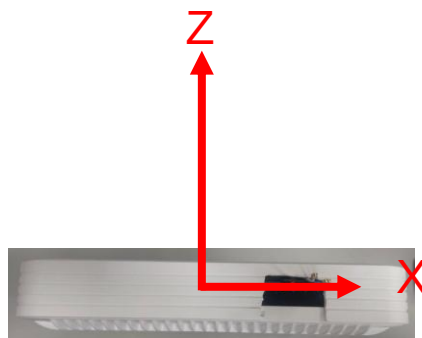
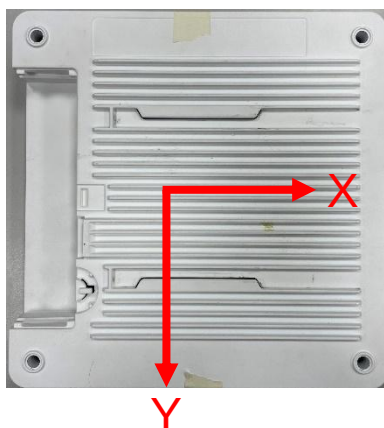
Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :

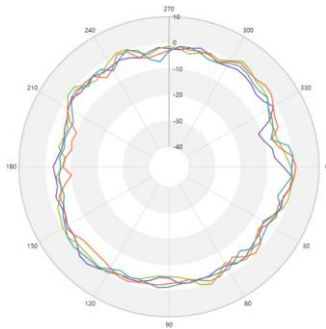


Ant.2_5GHz 2D Radiation Pattern

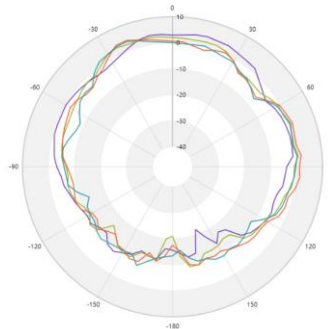
Frequency(MHz) : 5150~5850

Radiation Pattern :

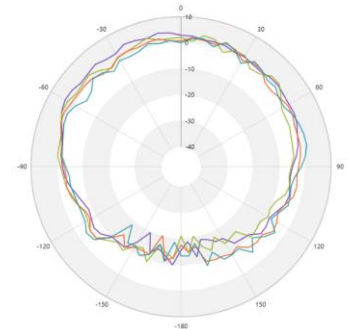
Azimuth Plane
Theta = 90



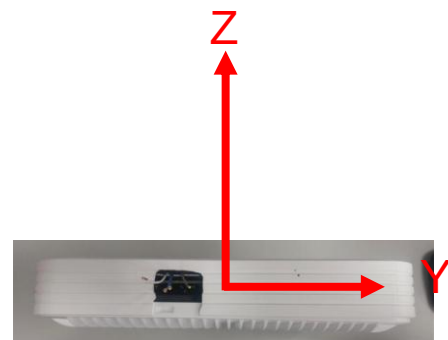
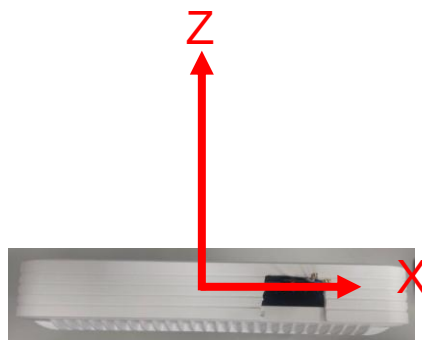
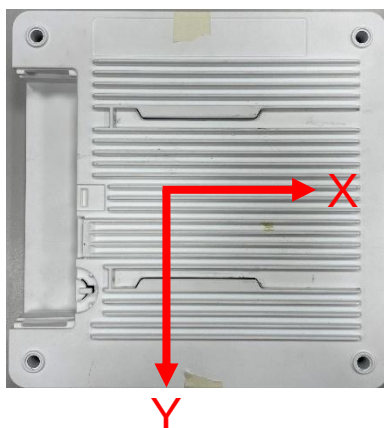
Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :

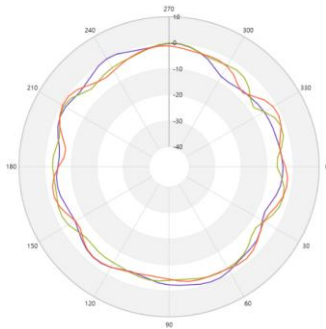


Ant.3_2.4GHz 2D Radiation Pattern

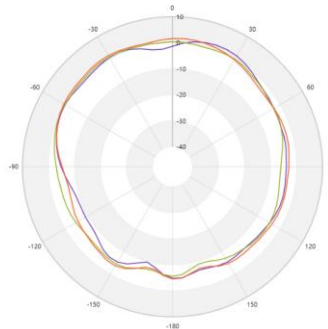
Frequency(MHz) : 2400~2500

Radiation Pattern :

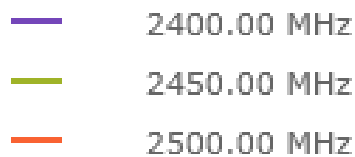
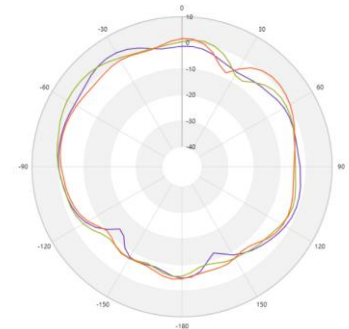
Azimuth Plane
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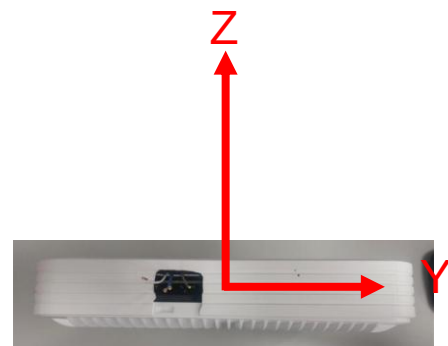
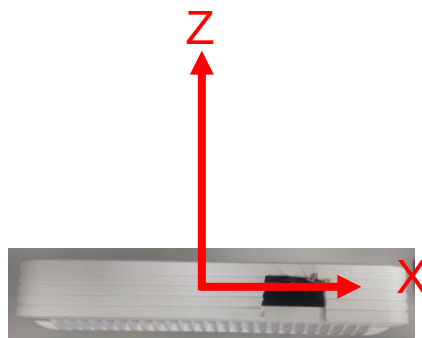
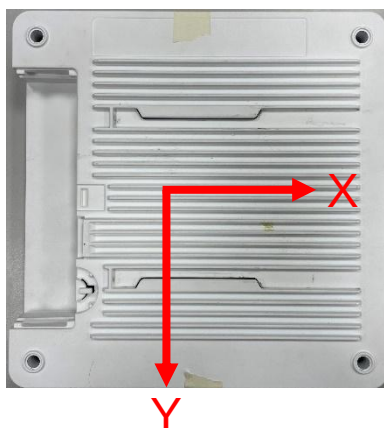
Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :

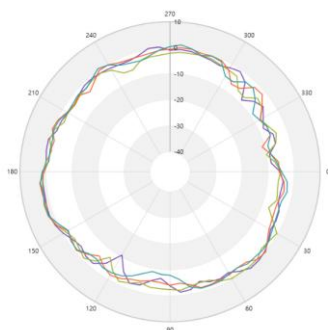


Ant.3_5GHz 2D Radiation Pattern

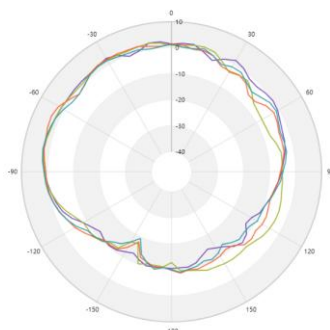
Frequency(MHz) : 5150~5850

Radiation Pattern :

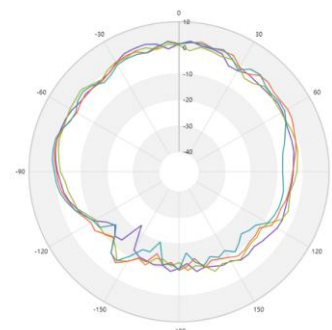
Azimuth Plane
Theta = 90



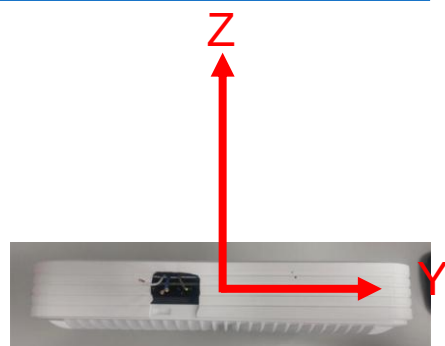
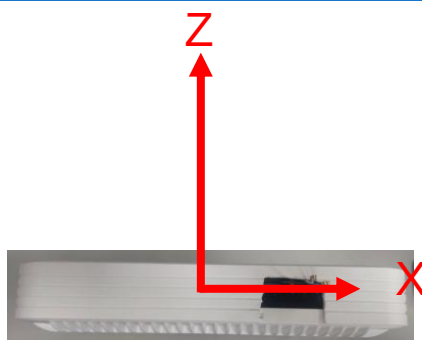
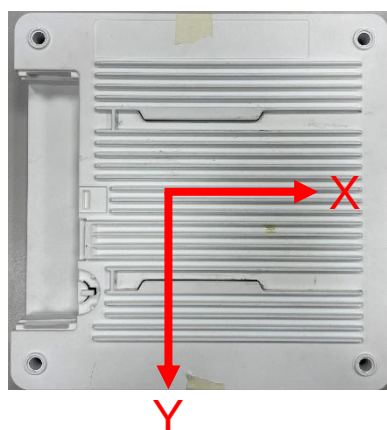
Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :

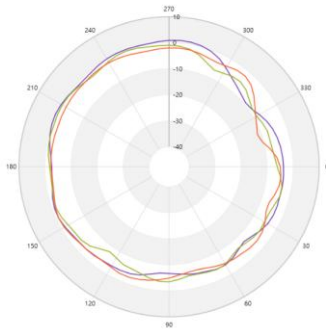


Ant.4_2.4GHz 2D Radiation Pattern

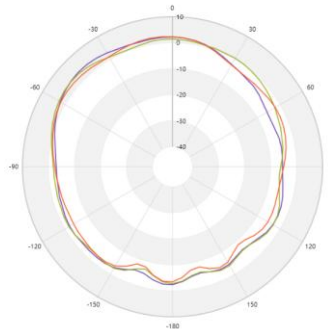
Frequency(MHz) : 2400~2500

Radiation Pattern :

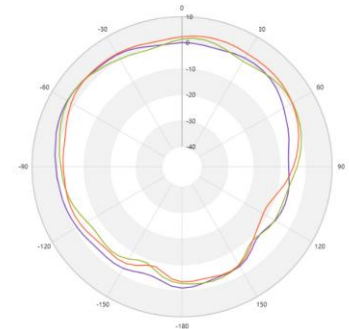
Azimuth Plane
Theta = 90



Elevation Plane
phi = 0

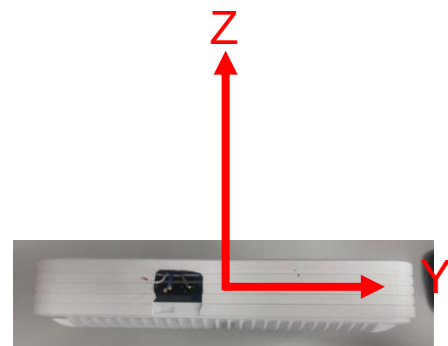
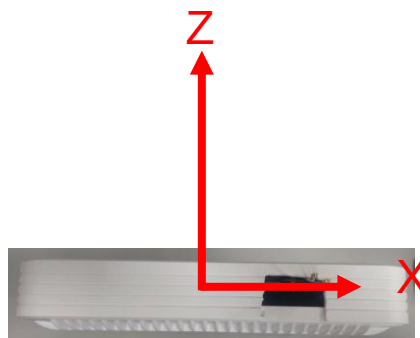
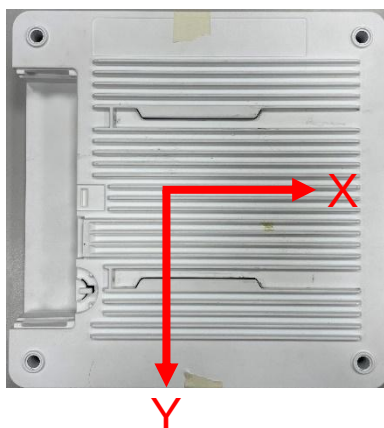


Elevation Plane
phi = 90



— 2400.00 MHz
— 2450.00 MHz
— 2500.00 MHz

Setup :

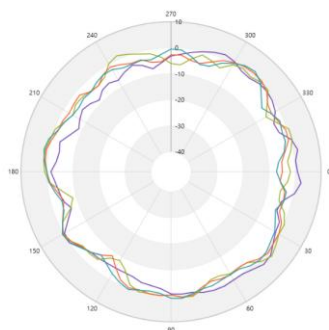


Ant.4_5GHz 2D Radiation Pattern

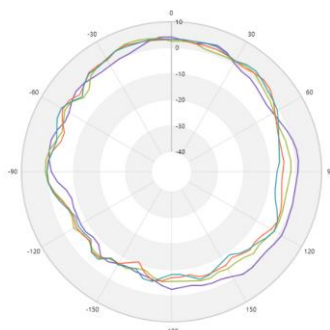
Frequency(MHz) : 5150~5850

Radiation Pattern :

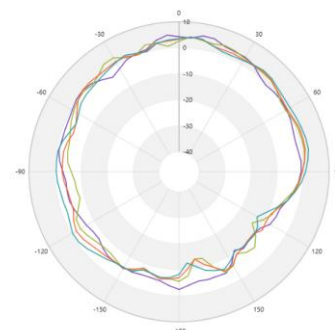
Azimuth Plane
Theta = 90



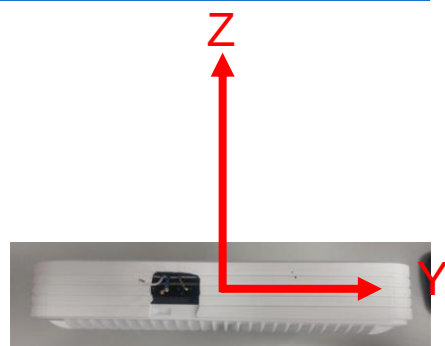
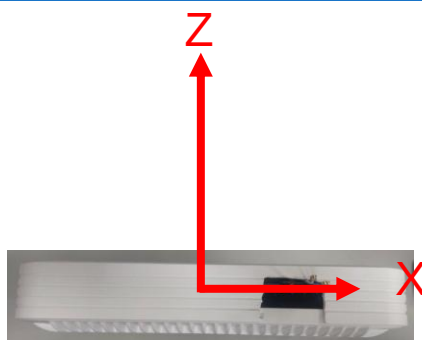
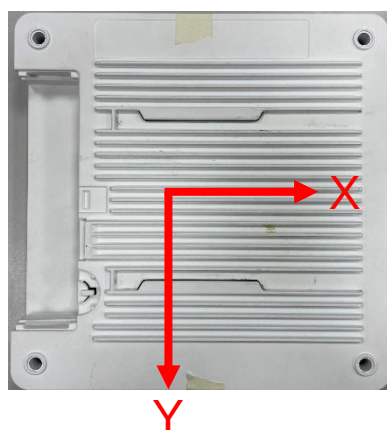
Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :

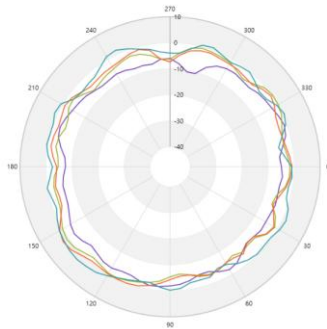


Ant.5_6GHz 2D Radiation Pattern

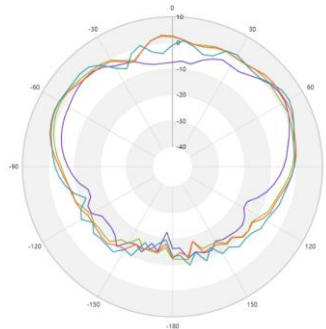
Frequency(MHz) : 5925~7125

Radiation Pattern :

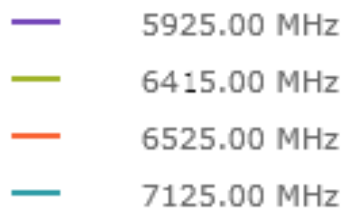
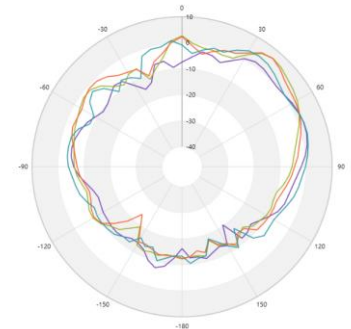
Azimuth Plane
Theta = 90



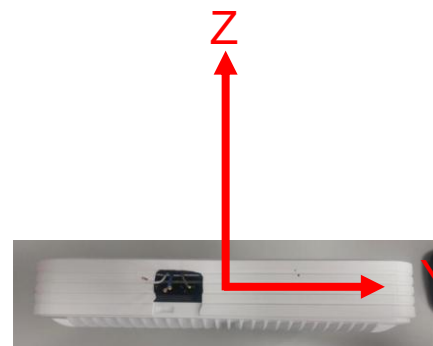
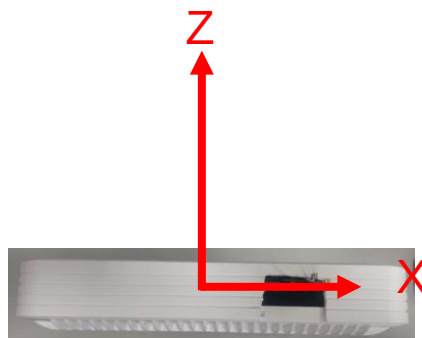
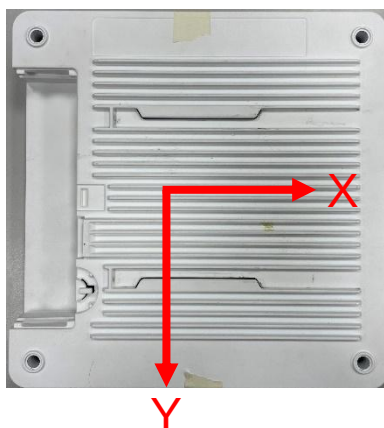
Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :

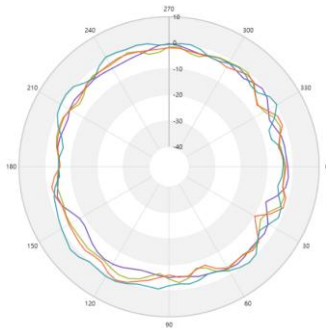


Ant.6_6GHz 2D Radiation Pattern

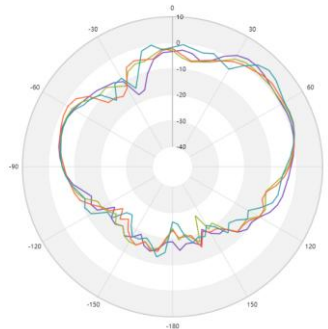
Frequency(MHz) : 5925~7125

Radiation Pattern :

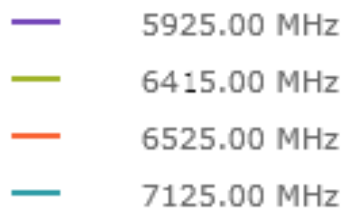
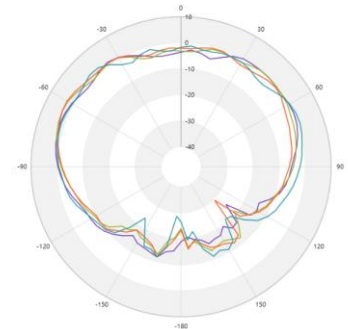
Azimuth Plane
Theta = 90



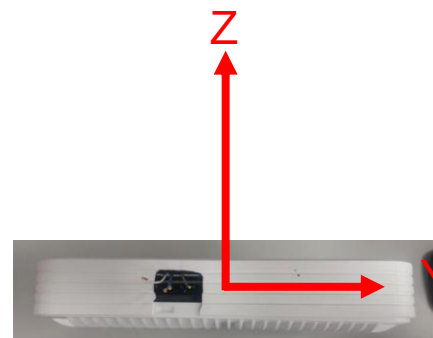
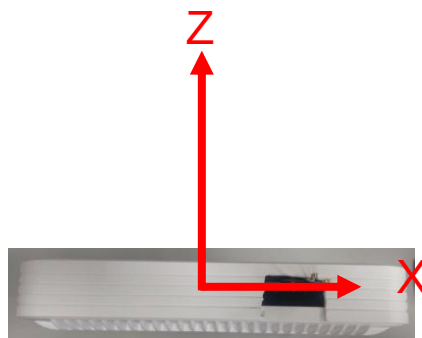
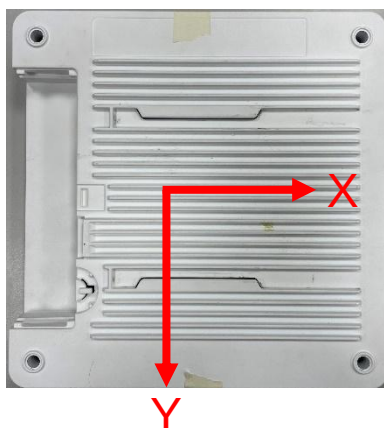
Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :

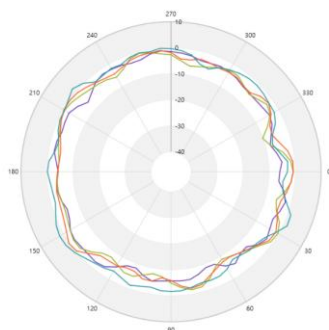


Ant.7_6GHz 2D Radiation Pattern

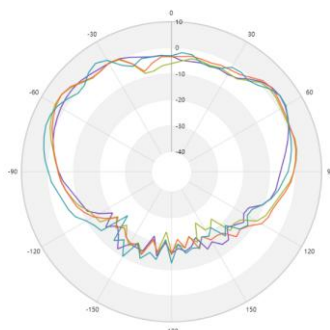
Frequency(MHz) : 5925~7125

Radiation Pattern :

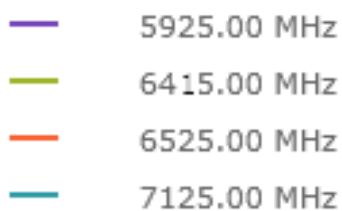
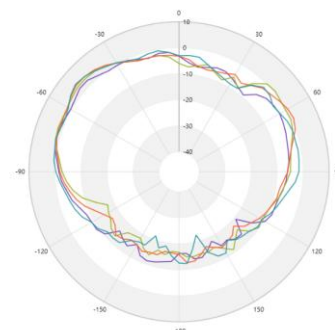
Azimuth Plane
Theta = 90



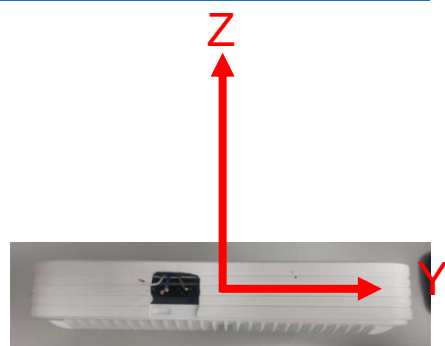
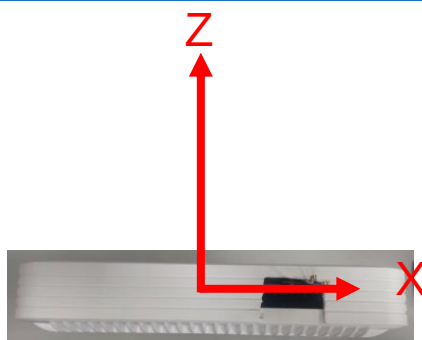
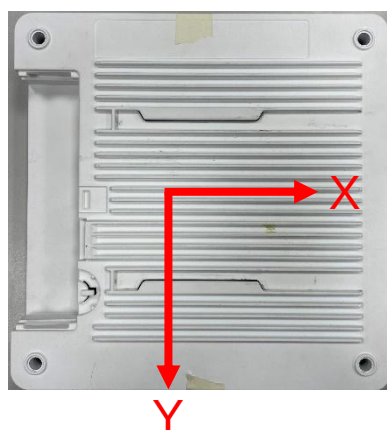
Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :

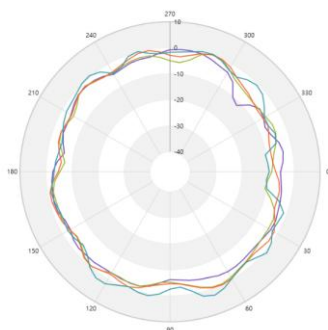


Ant.8_6GHz 2D Radiation Pattern

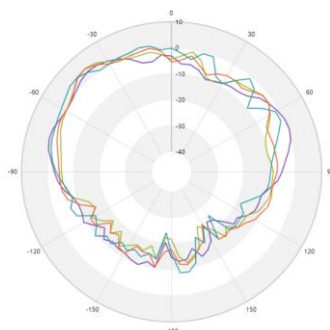
Frequency(MHz) : 5925~7125

Radiation Pattern :

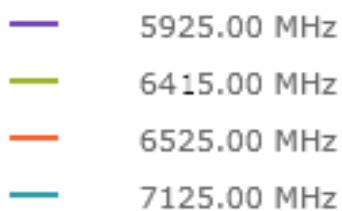
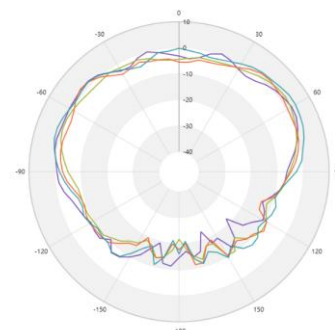
Azimuth Plane
Theta = 90



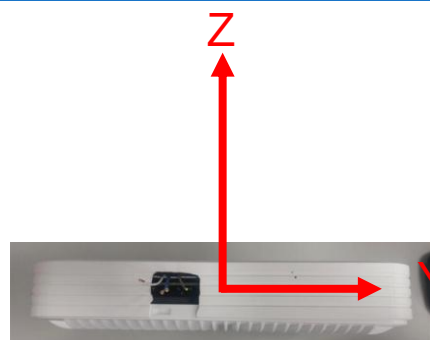
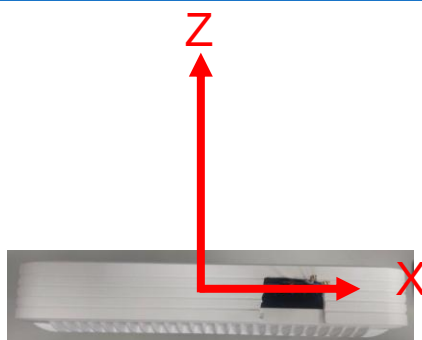
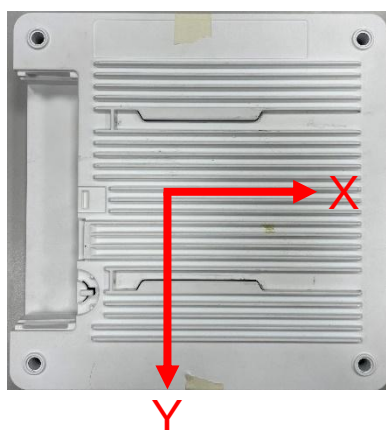
Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :

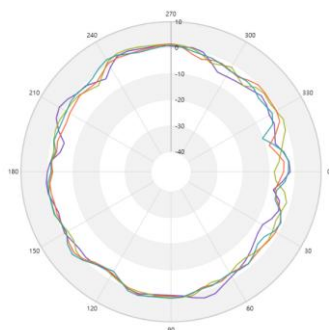


Ant.9_5GHz 2D Radiation Pattern

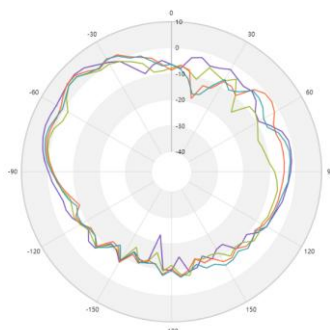
Frequency(MHz) : 5150~5850

Radiation Pattern :

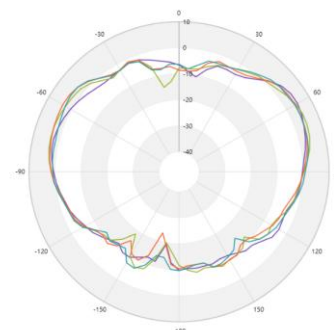
Azimuth Plane
Theta = 90



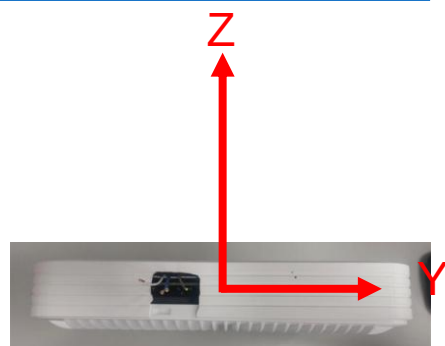
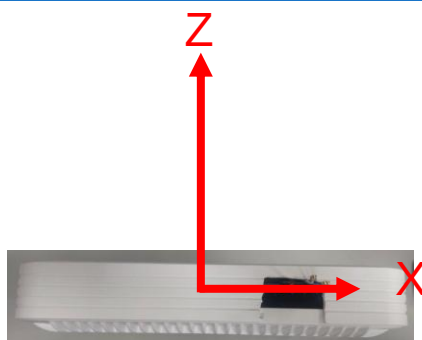
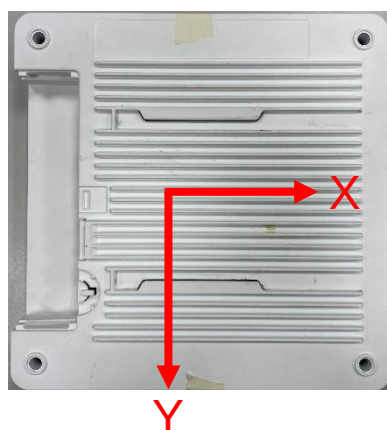
Elevation Plane
phi = 0



Elevation Plane
phi = 90



Setup :



Summary

Summary	Ant.1	Ant.2	Ant.3	Ant.4	Ant.5	Ant.6	Ant.7	Ant.8	Ant.9	Remark
Return Loss – 2.4GHz	< -10dB	< -10dB	< -10dB	< -10dB						
Return Loss – 5GHz	< -10dB	< -10dB	< -10dB	< -10dB					< -10dB	
Return Loss – 6GHz					< -10dB	< -10dB	< -10dB	< -10dB		
Efficiency – 2.4GHz	> 50%	> 50%	> 50%	> 50%						
Efficiency – 5GHz	> 60%	> 60%	> 60%	> 60%					> 65%	
Efficiency – 6GHz					> 60%	> 60%	> 60%	> 60%		
Peak Gain – 2.4GHz	3.3–3.5dBi	2.9–3.3dBi	3.3–3.5dBi	3.3–3.5dBi						
Peak Gain – 5GHz	5.1–5.7dBi	4.8–5.5dBi	4.7–5.8dBi	5.0–5.2dBi					5.0–6.6dBi	
Peak Gain – 6GHz					5.1–5.5dBi	4.3–4.7dBi	4.0–4.9dBi	4.2–5.8dBi		

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