

LYNwave Technology

Antenna & Thermal solution provider

Antenna Field Test Report

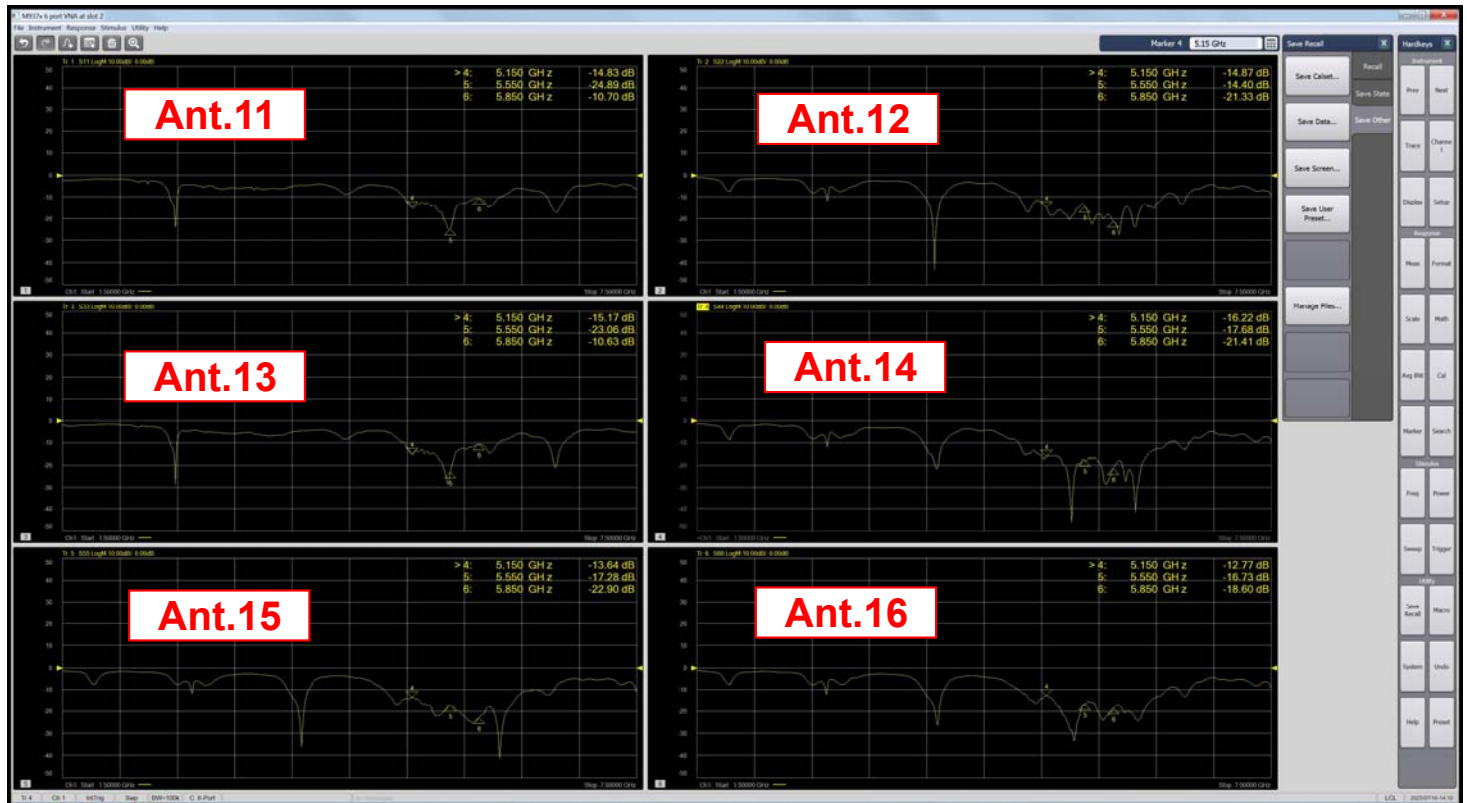
Company: Zyxel/DNI
Project Name: Root-Plus
Model Name: OLA25B-127160-A
Application: Base station

Date	Owner	Check	Revision	Remark
2025/06/25	Swetha	Dallas	V0.1	1. Halogenated PCB Board (White) 2. S-Parameter Measurement 3. Antenna passive measurement
2025/07/21	Swetha	Dallas	V0.2	1. Halogen free PCB Board (Gray) 2. S-Parameter Measurement 3. Antenna passive measurement
2025/07/31	Swetha	Dallas	V0.3	1. Updated labelling of ports

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Return Loss 5G



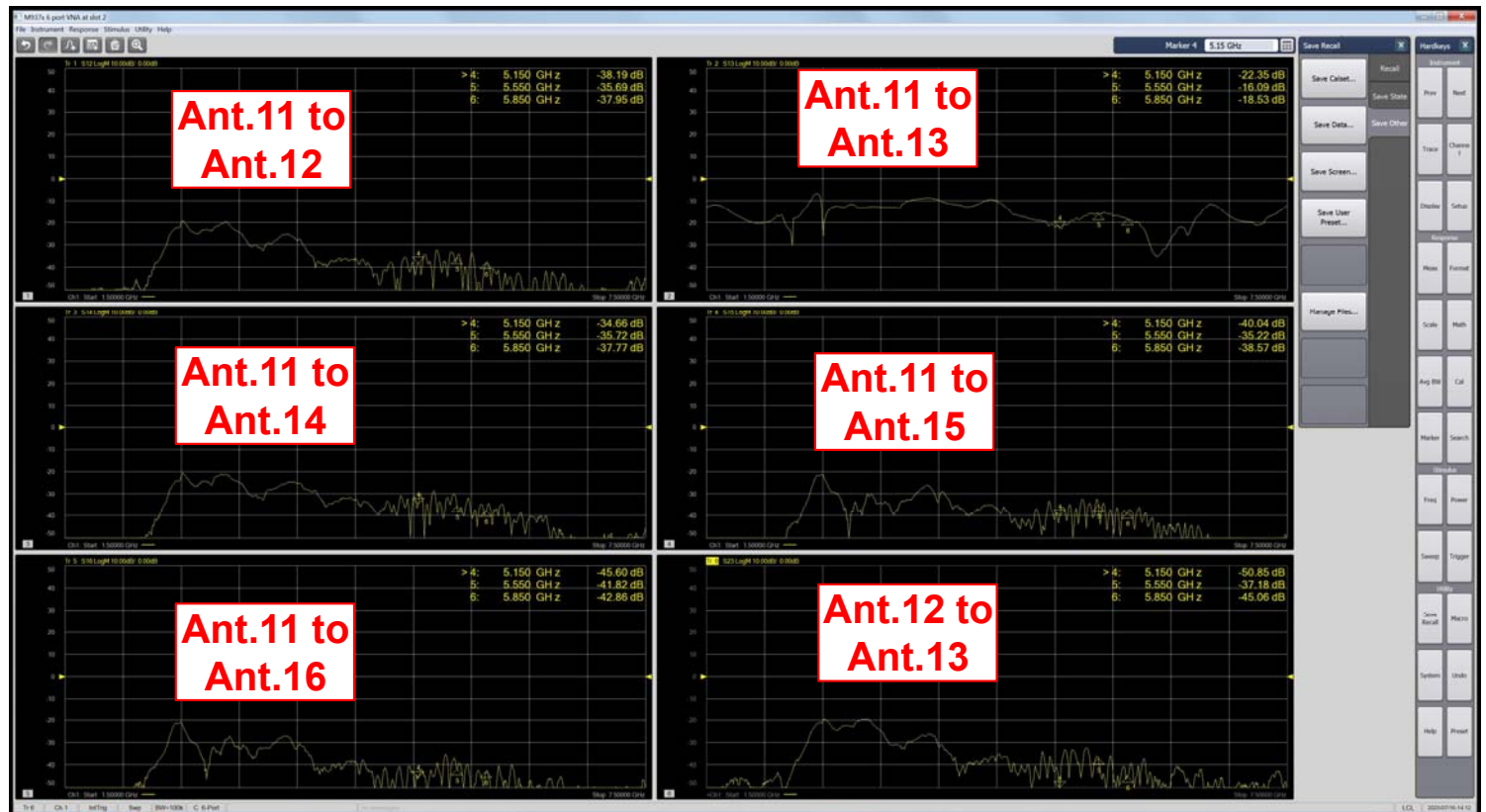
Return Loss 6G



Return Loss GPS



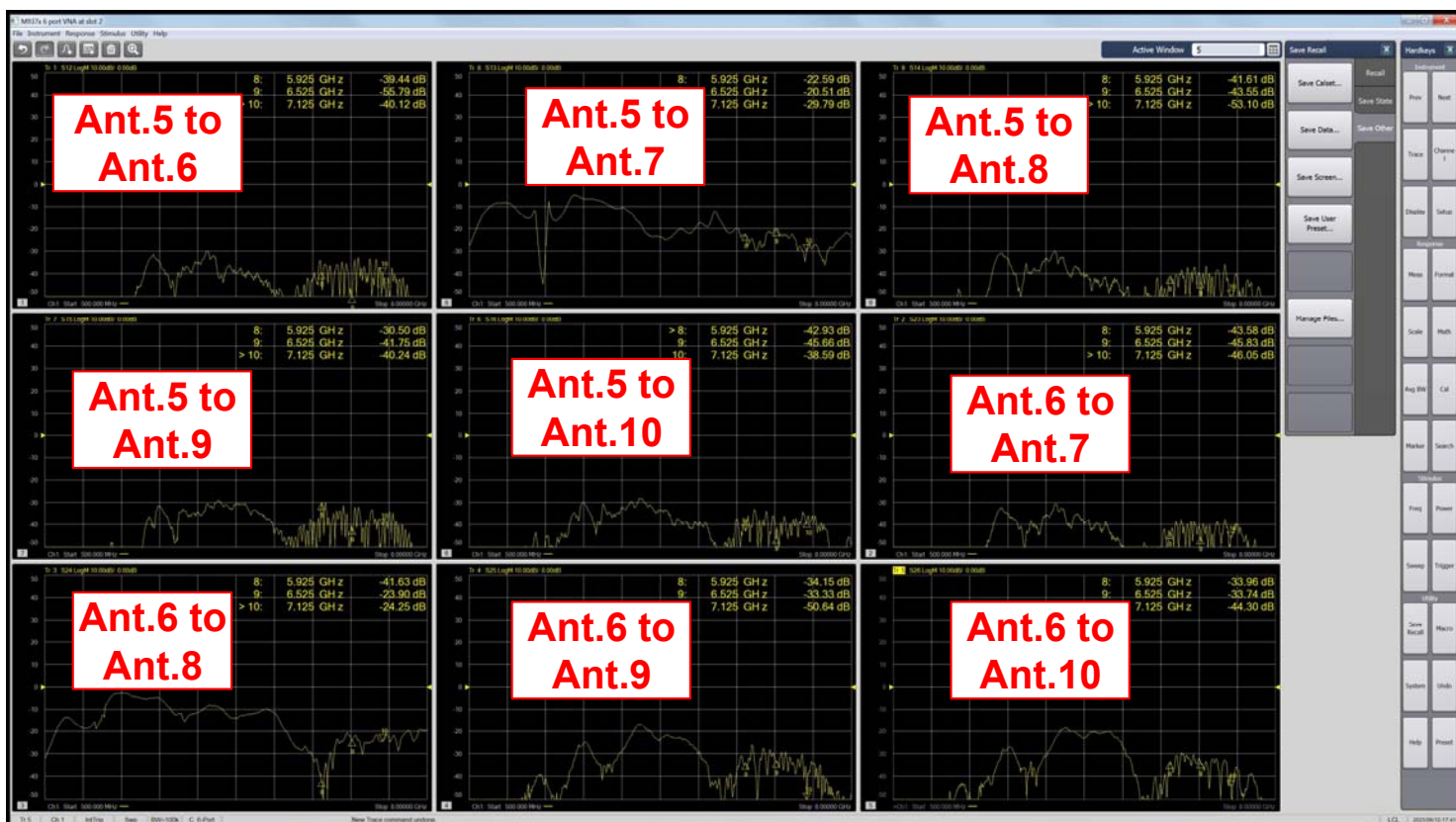
Isolation 5G



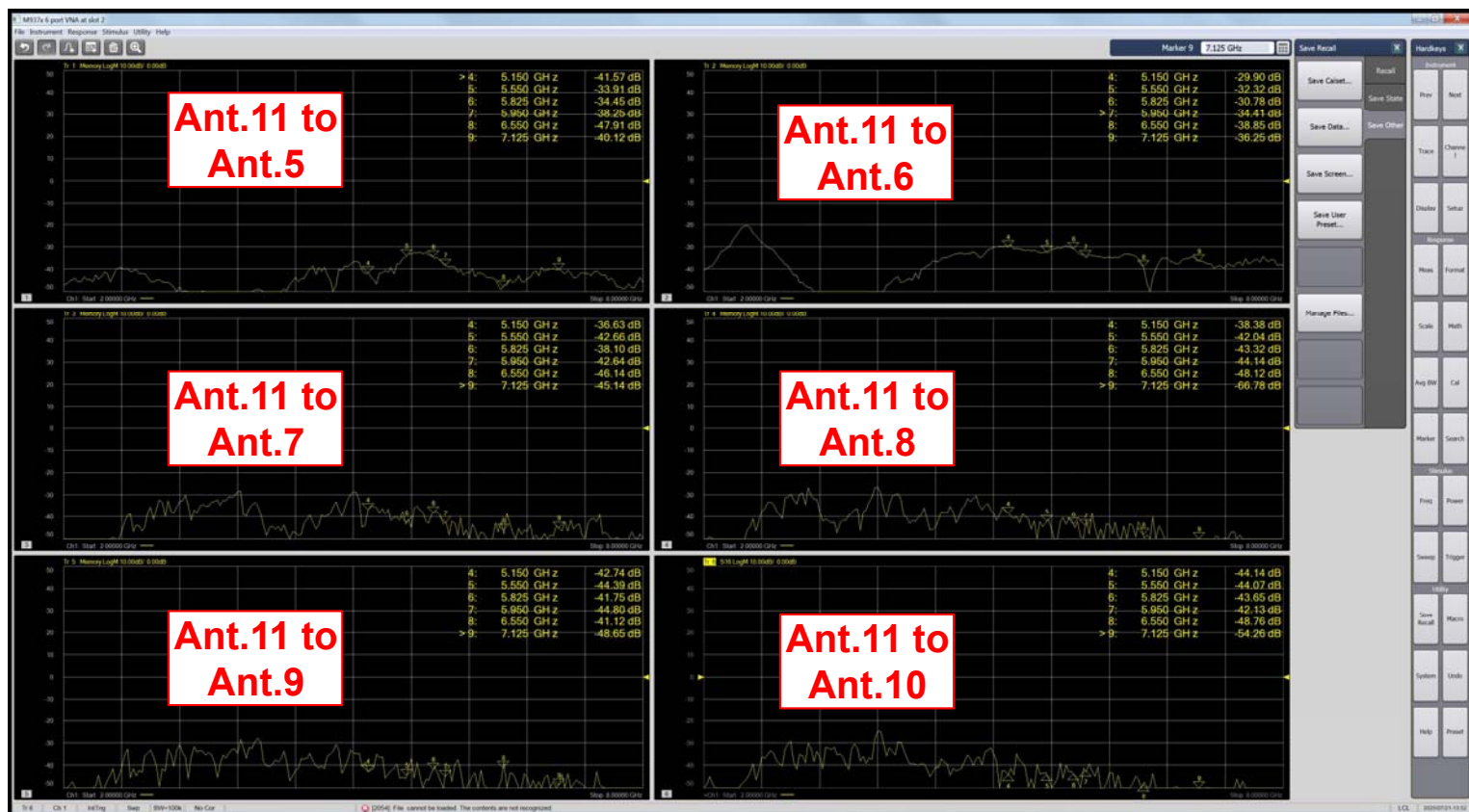
Isolation 5G



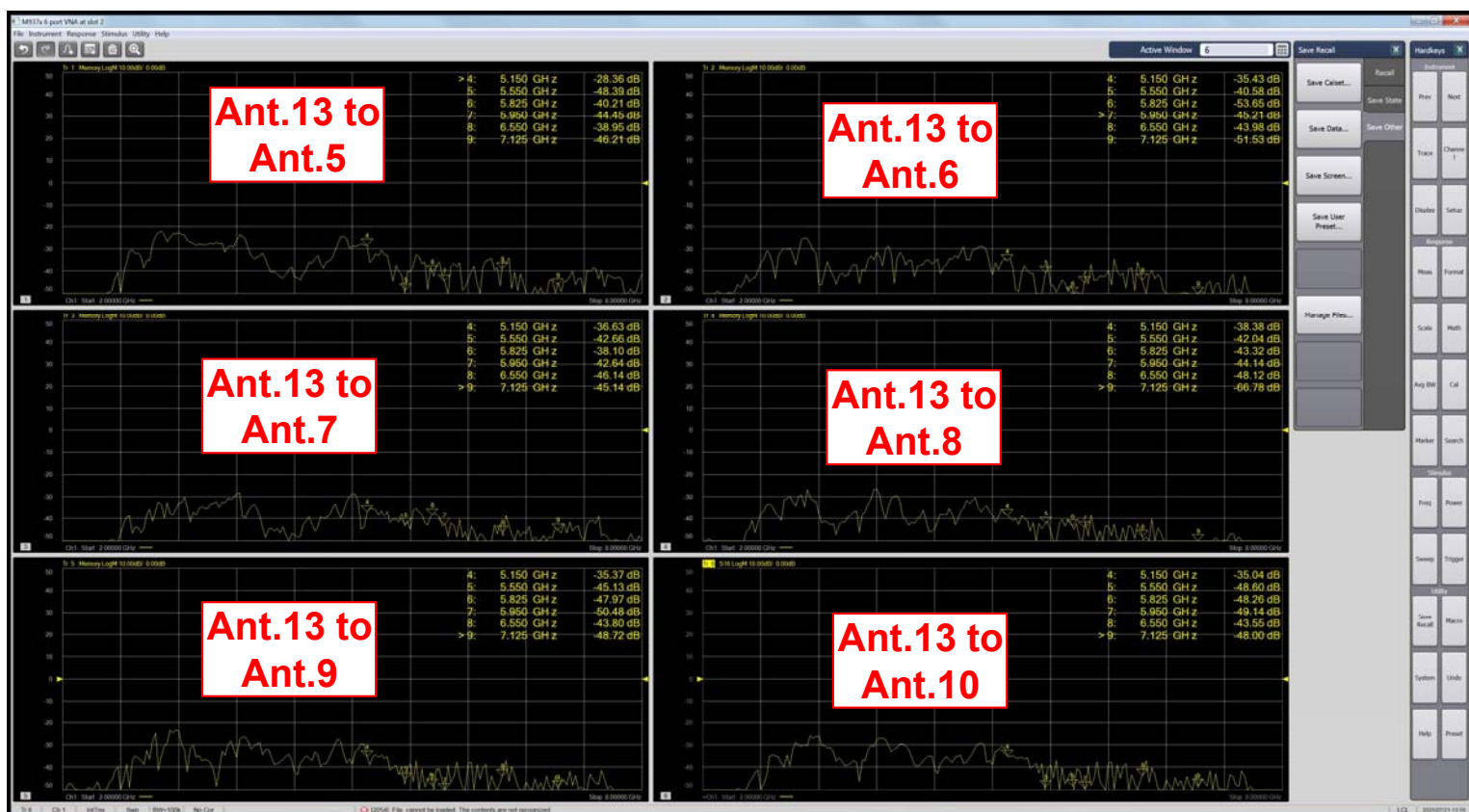
Isolation 6G



Cross Isolation 5G to 6G



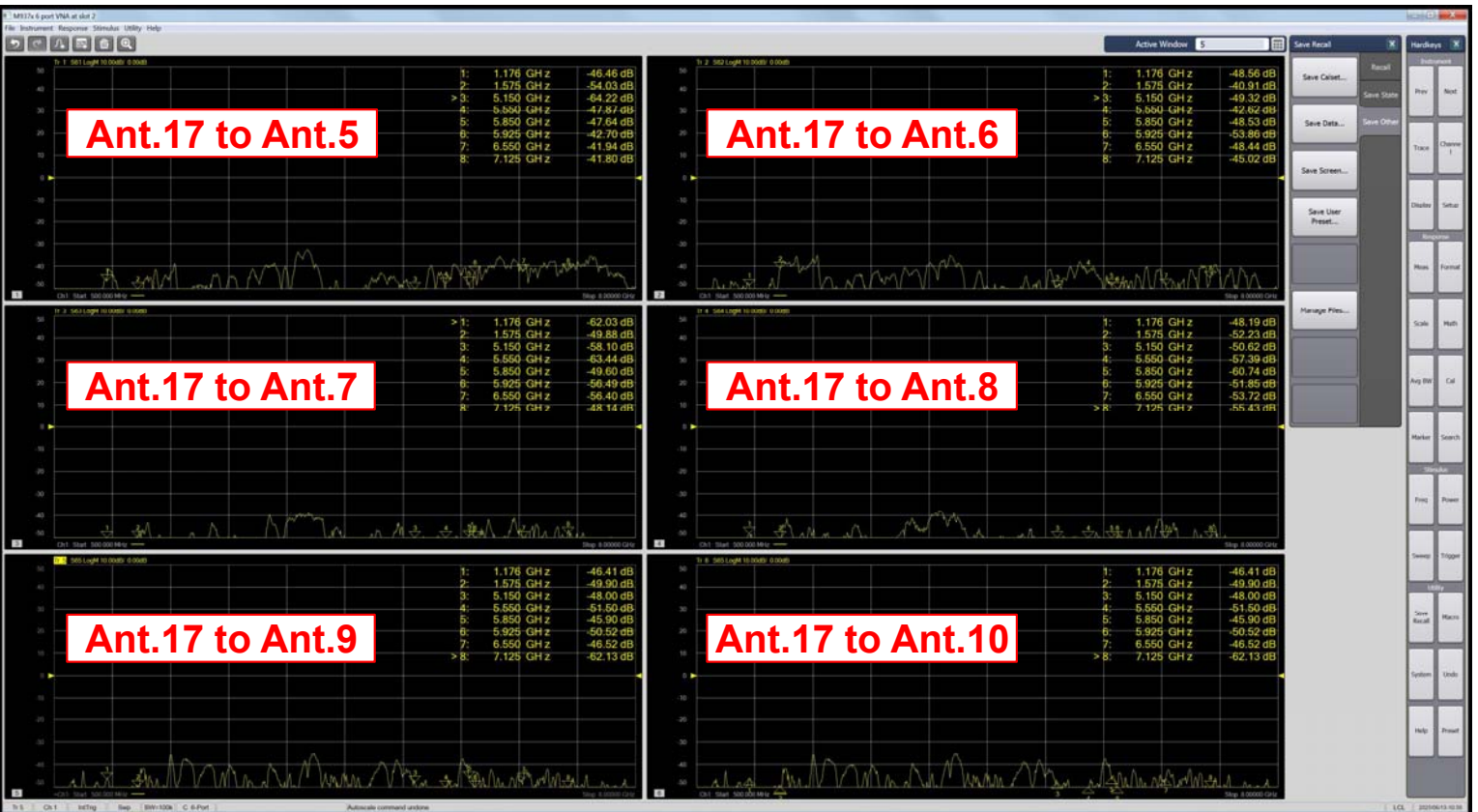
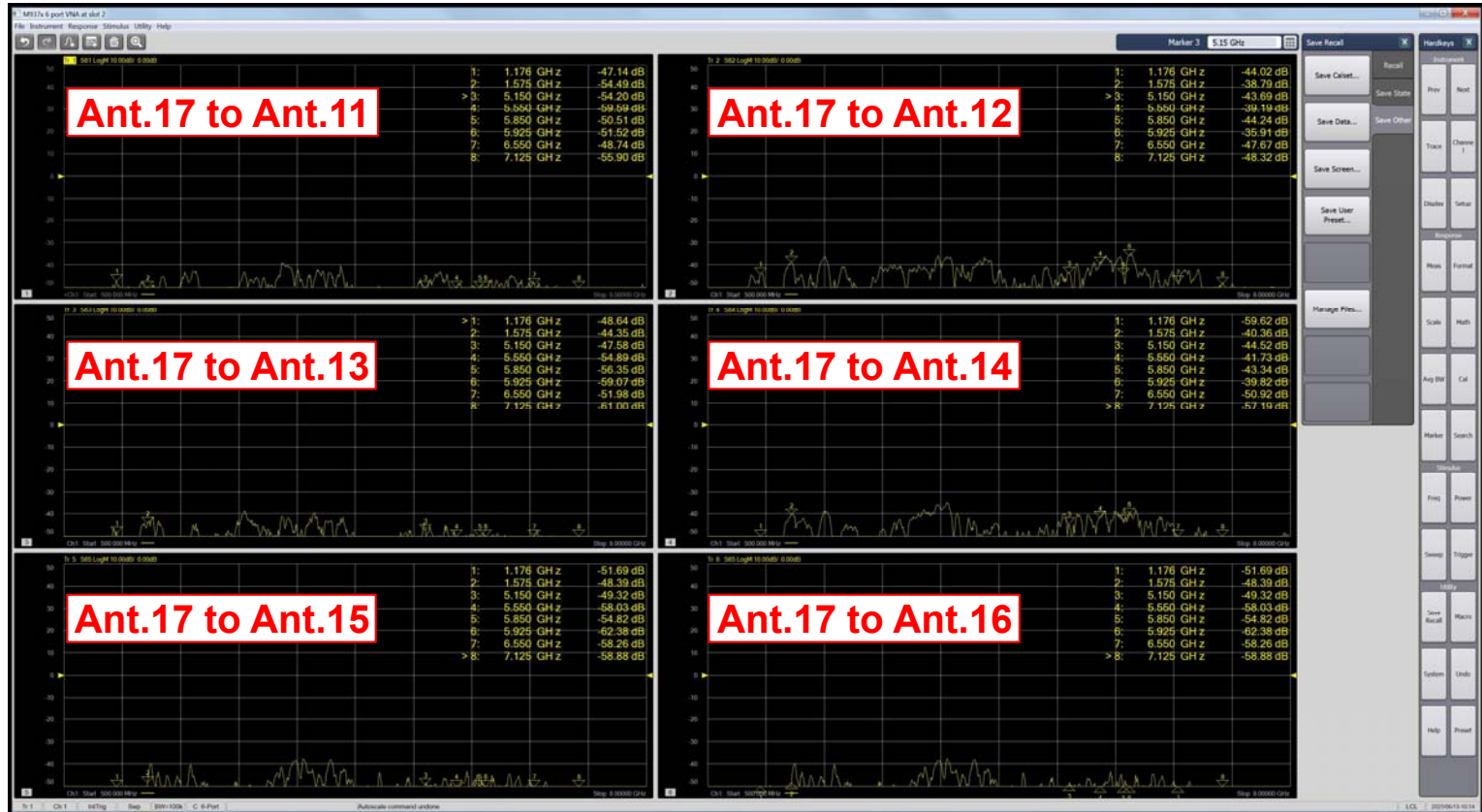
Cross Isolation 5G to 6G



Cross Isolation 5G to 6G



Cross Isolation GPS to 5G



Gain Table

5GHz	Frequency(MHz)	5150	5350	5550	5750	5850
Ant.11	Peak Gain(dBi)	11.1	11.4	12.1	11.6	11.4
	Efficiency(%)	57	56	59	47	48
	HPBW(Azimuth) (°)	57.7	54.3	54.2	44.7	45.8
	HPBW(Elevation) (°)	17.0	14.5	18.5	17.1	17.5
Ant.12	Peak Gain(dBi)	13.2	13.6	12.2	13.0	12.0
	Efficiency(%)	48	49	38	34	32
	HPBW(Azimuth) (°)	58.3	61.3	58.4	49.2	51.1
	HPBW(Elevation) (°)	7.3	5.8	4.7	4.4	6.4
Ant.13	Peak Gain(dBi)	11.7	11.8	12.1	11.8	11.6
	Efficiency(%)	57	55	58	50	47
	HPBW(Azimuth) (°)	50.7	52.3	47.3	42.2	45.2
	HPBW(Elevation) (°)	17.4	14.5	15.0	15.0	17.3
Ant.14	Peak Gain(dBi)	13.1	13.5	13.9	13.8	11.7
	Efficiency(%)	45	50	45	38	31
	HPBW(Azimuth) (°)	40.7	50.9	47.4	48.7	54.7
	HPBW(Elevation) (°)	6.2	5.4	5.1	4.5	4.9
Ant.15	Peak Gain(dBi)	11.0	12.4	14.3	14.4	11.7
	Efficiency(%)	37	47	47	42	34
	HPBW(Azimuth) (°)	63.0	45.0	51.9	46.7	63.6
	HPBW(Elevation) (°)	6.3	6.0	5.6	5.5	5.8
Ant.16	Peak Gain(dBi)	10.9	12.8	13.0	11.7	12.3
	Efficiency(%)	36	42	44	36	37
	HPBW(Azimuth) (°)	74.4	62.3	62.1	55.3	50.5
	HPBW(Elevation) (°)	7.1	6.3	6.0	5.3	7.9

Gain Table

6GHz	Frequency(MHz)	5925	6125	6525	6925	7125
Ant.5	Peak Gain(dBi)	12.9	12.7	13.8	13.8	13.9
	Efficiency(%)	60	62	61	60	57
	HPBW(Azimuth) (°)	43.0	47.1	43.4	39.6	48.7
	HPBW(Elevation) (°)	13.6	14.6	14.8	15.9	8.6
Ant.6	Peak Gain(dBi)	11.0	12.5	12.8	12.8	12.2
	Efficiency(%)	43.	45	43	39	35
	HPBW(Azimuth) (°)	67.5	72.5	53.7	36.5	31.7
	HPBW(Elevation) (°)	7.0	6.5	5.7	6.2	6.4
Ant.7	Peak Gain(dBi)	13.1	12.9	14.0	14.3	14.2
	Efficiency(%)	63	64	61	61	58
	HPBW(Azimuth) (°)	50.5	48.7	39.5	33	43.6
	HPBW(Elevation) (°)	11.8	15.2	10.7	14.6	9.0
Ant.8	Peak Gain(dBi)	11.9	13.1	13.2	13.8	13.6
	Efficiency(%)	45	46	46	42	35
	HPBW(Azimuth) (°)	64.1	65.4	44.5	43.9	38.6
	HPBW(Elevation) (°)	6.7	6.4	6.5	6.6	6.1
Ant.9	Peak Gain(dBi)	13.1	14.4	14.2	15.1	14.0
	Efficiency(%)	53	55	52	49	42
	HPBW(Azimuth) (°)	51.3	47.9	40.9	37.8	37.2
	HPBW(Elevation) (°)	6.7	6.7	5.6	5.8	5.3
Ant.10	Peak Gain(dBi)	13.1	14.5	14.5	15.0	14.3
	Efficiency(%)	55	56	53	49	42
	HPBW(Azimuth) (°)	56.9	54.0	37.2	38.3	40.4
	HPBW(Elevation) (°)	6.5	6.5	6.1	5.9	5.1

Gain Table

GPS	Frequency(MHz)	1176	1575
Ant.17	Peak Gain(dBi)	5.0	4.1
	Efficiency(%)	70	52
	HPBW(Azimuth) (°)	52.5	27.2
	HPBW(Elevation) (°)	60.7	28.1

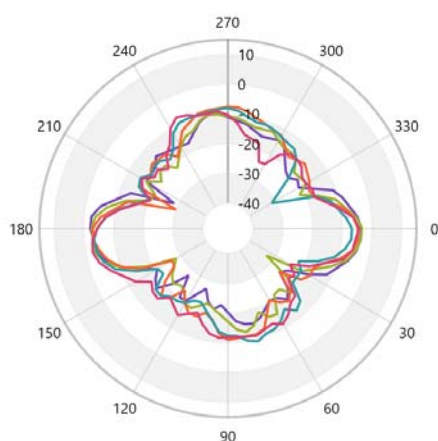
2D Radiation Pattern

Ant.11 (Wi-Fi 5G)

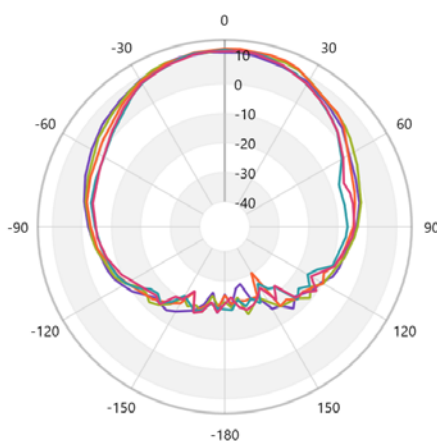
Frequency(MHz) : 5150-5850

Radiation Pattern :

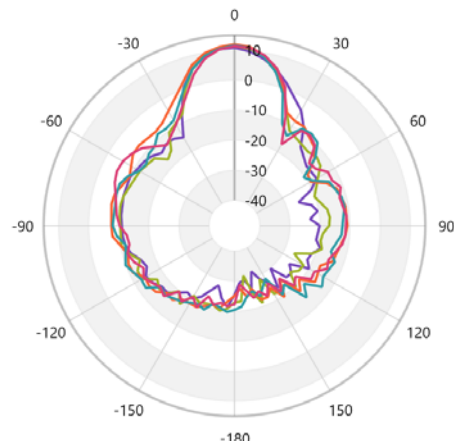
Azimuth Plane



Elevation Plane
phi = 0



Elevation Plane
phi = 90



- 5150.00 MHz
- 5350.00 MHz
- 5550.00 MHz
- 5750.00 MHz
- 5850.00 MHz

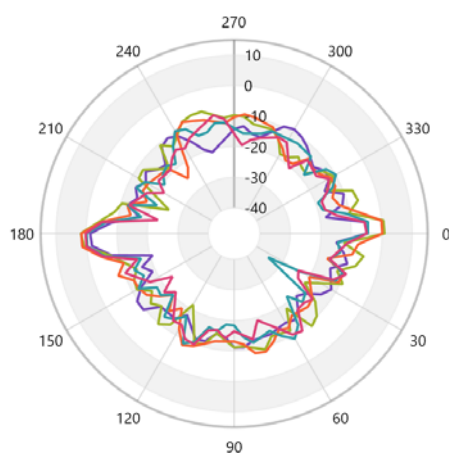
2D Radiation Pattern

Ant.12 (Wi-Fi 5G)

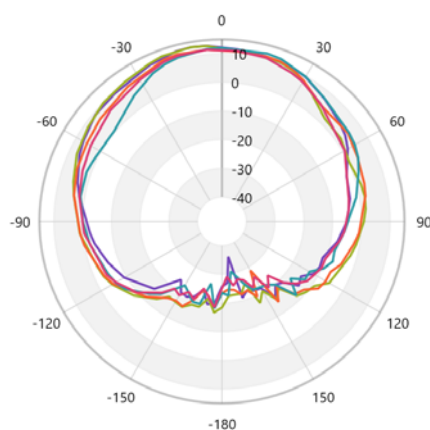
Frequency(MHz) : 5150-5850

Radiation Pattern :

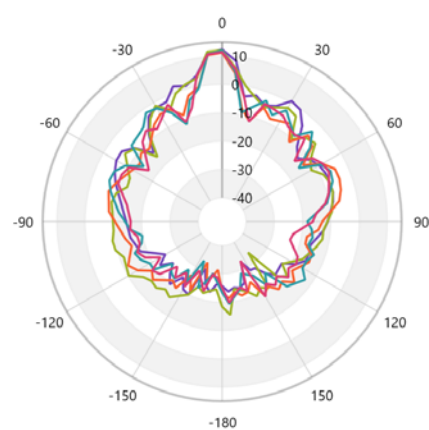
Azimuth Plane



Elevation Plane
phi = 0



Elevation Plane
phi = 90



- 5150.00 MHz
- 5350.00 MHz
- 5550.00 MHz
- 5750.00 MHz
- 5850.00 MHz

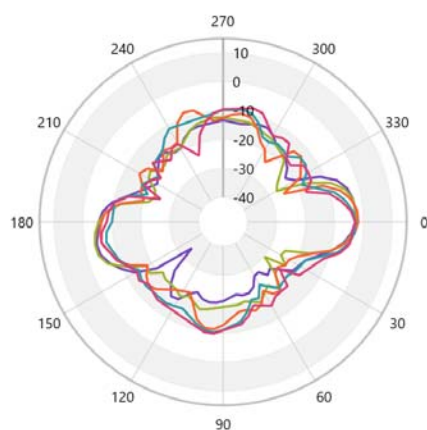
2D Radiation Pattern

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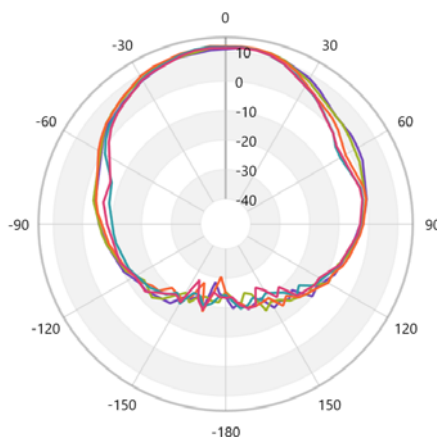
Frequency(MHz) : 5150-5850

Radiation Pattern :

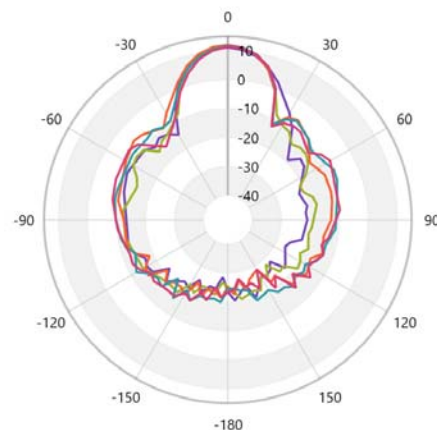
Azimuth Plane



Elevation Plane
phi = 0



Elevation Plane
phi = 90



- 5150.00 MHz
- 5350.00 MHz
- 5550.00 MHz
- 5750.00 MHz
- 5850.00 MHz

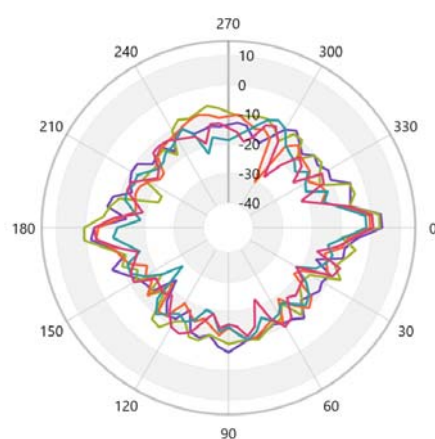
2D Radiation Pattern

Ant.14 (Wi-Fi 5G)

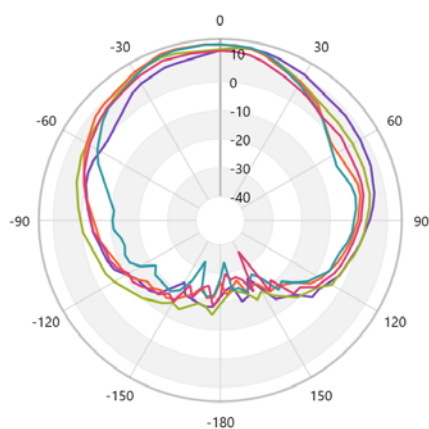
Frequency(MHz) : 5150-5850

Radiation Pattern :

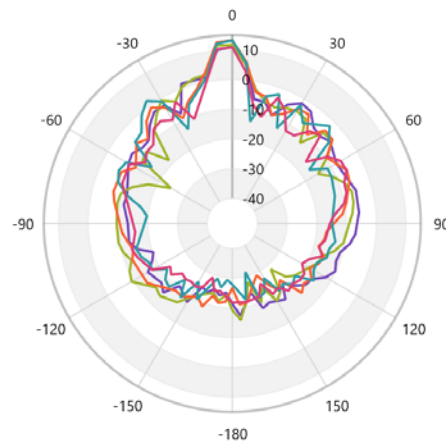
Azimuth Plane



Elevation Plane
phi = 0



Elevation Plane
phi = 90



- 5150.00 MHz
- 5350.00 MHz
- 5550.00 MHz
- 5750.00 MHz
- 5850.00 MHz

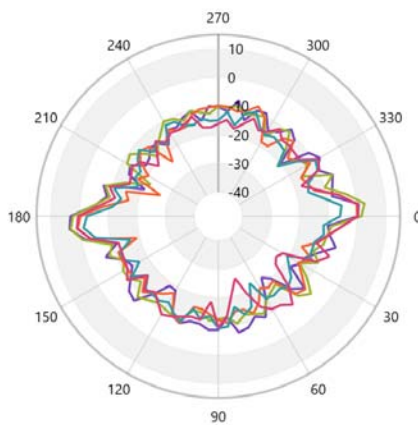
2D Radiation Pattern

Ant.15 (Wi-Fi 5G)

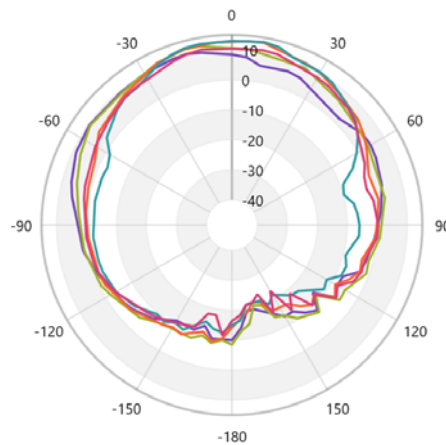
Frequency(MHz) : 5150-5850

Radiation Pattern :

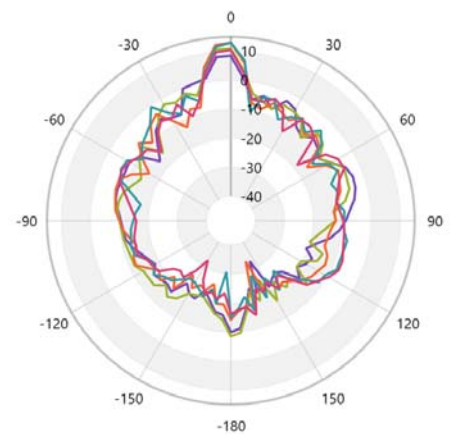
Azimuth Plane



Elevation Plane
phi = 0



Elevation Plane
phi = 90



- 5150.00 MHz
- 5350.00 MHz
- 5550.00 MHz
- 5750.00 MHz
- 5850.00 MHz

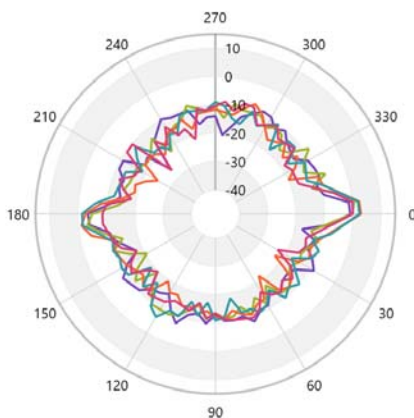
2D Radiation Pattern

Ant.16 (Wi-Fi 5G)

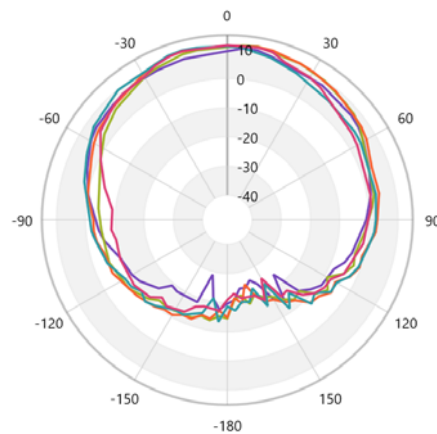
Frequency(MHz) : 5150-5850

Radiation Pattern :

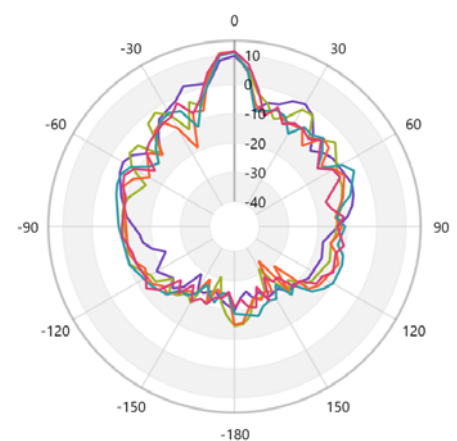
Azimuth Plane



Elevation Plane
phi = 0



Elevation Plane
phi = 90



— 5150.00 MHz
— 5550.00 MHz
— 5850.00 MHz

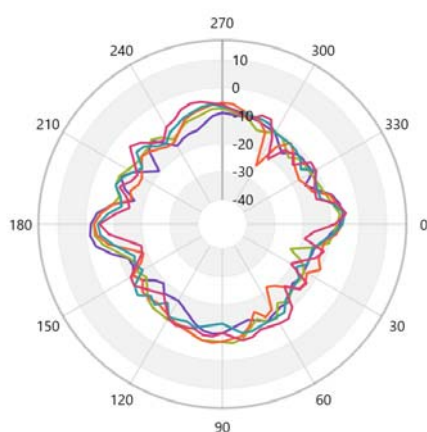
2D Radiation Pattern

Ant.5 (Wi-Fi 6G)

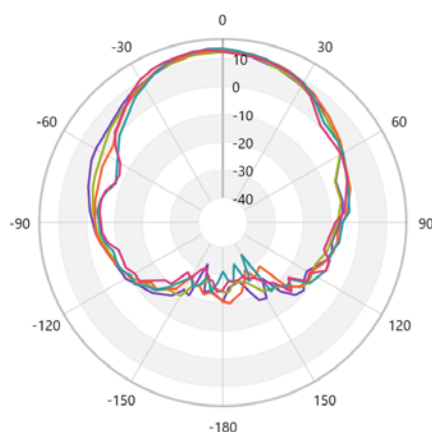
Frequency(MHz) : 5925-7125

Radiation Pattern :

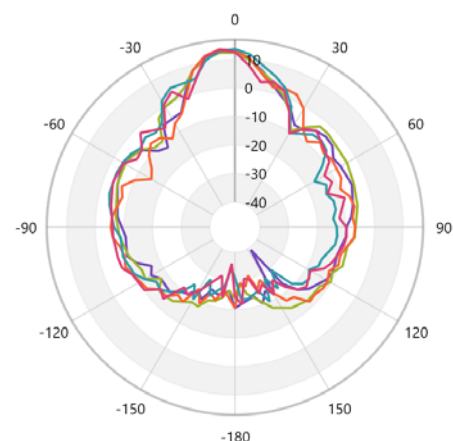
Azimuth Plane



Elevation Plane
phi = 0



Elevation Plane
phi = 90



— 5925.00 MHz
— 6125.00 MHz
— 6525.00 MHz
— 6925.00 MHz
— 7125.00 MHz

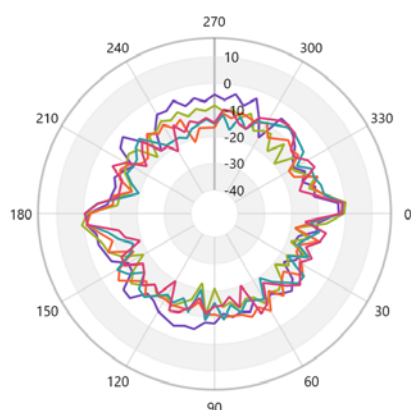
2D Radiation Pattern

Ant.6 (Wi-Fi 6G)

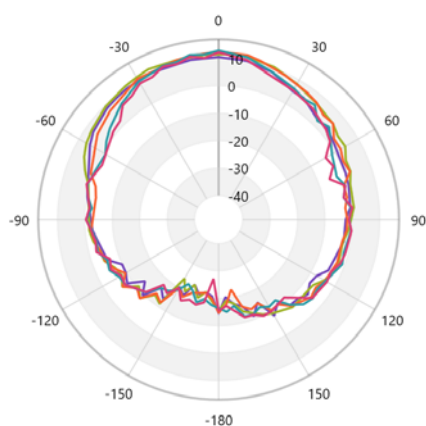
Frequency(MHz) : 5925-7125

Radiation Pattern :

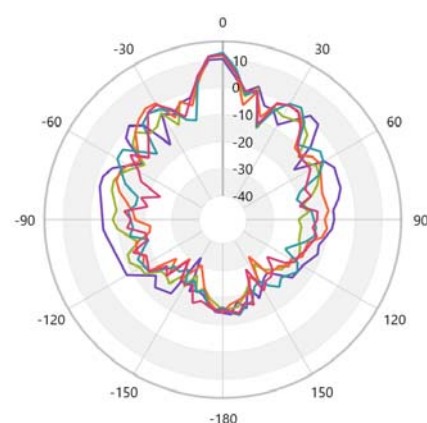
Azimuth Plane



Elevation Plane
phi = 0



Elevation Plane
phi = 90



— 5925.00 MHz
— 6125.00 MHz
— 6525.00 MHz
— 6925.00 MHz
— 7125.00 MHz

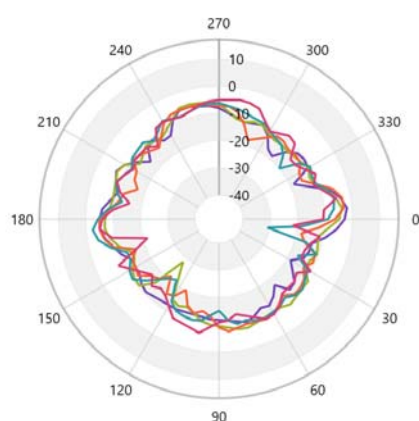
2D Radiation Pattern

Ant.7 (Wi-Fi 6G)

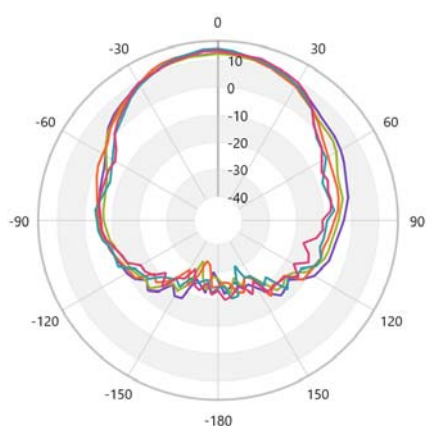
Frequency(MHz) : 5925-7125

Radiation Pattern :

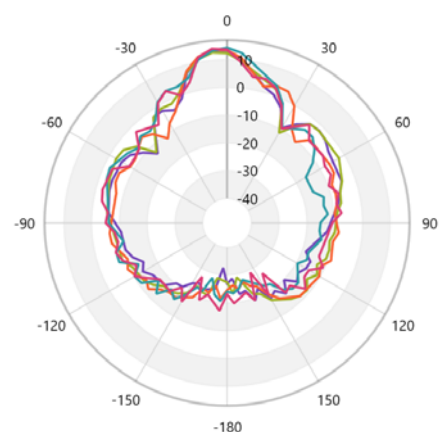
Azimuth Plane



Elevation Plane
phi = 0



Elevation Plane
phi = 90



— 5925.00 MHz
— 6125.00 MHz
— 6525.00 MHz
— 6925.00 MHz
— 7125.00 MHz

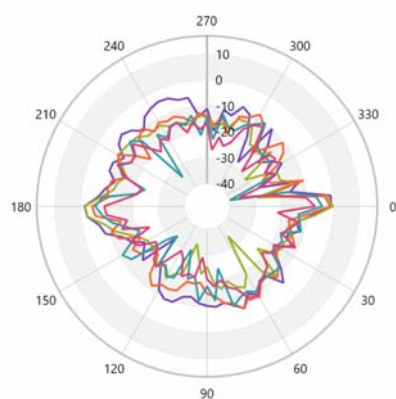
2D Radiation Pattern

Ant.8 (Wi-Fi 6G)

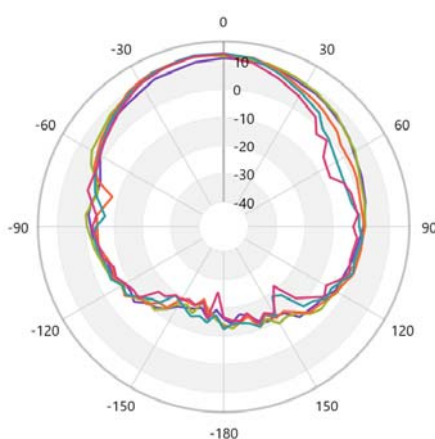
Frequency(MHz) : 5925-7125

Radiation Pattern :

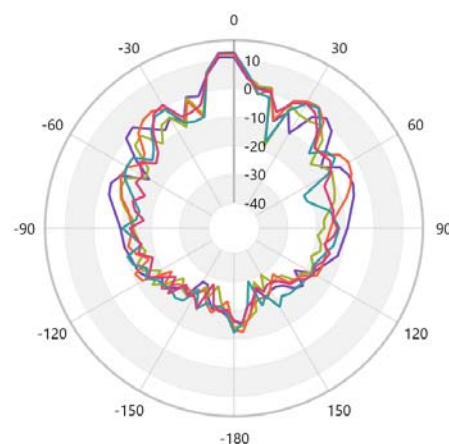
Azimuth Plane



Elevation Plane
phi = 0



Elevation Plane
phi = 90



— 5925.00 MHz
— 6125.00 MHz
— 6525.00 MHz
— 6925.00 MHz
— 7125.00 MHz

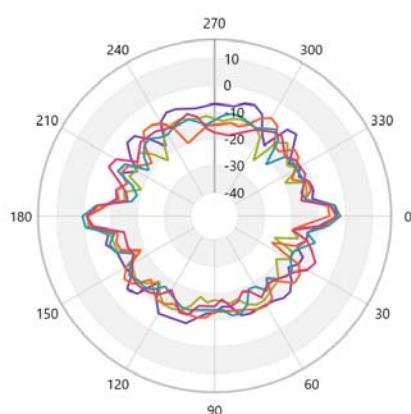
2D Radiation Pattern

Ant.9 (Wi-Fi 6G)

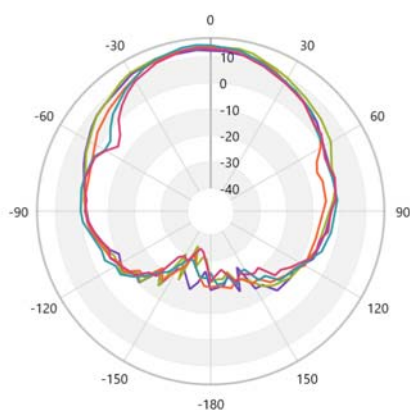
Frequency(MHz) : 5925-7125

Radiation Pattern :

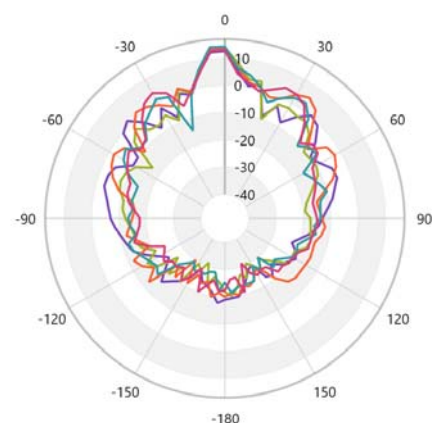
Azimuth Plane



Elevation Plane
phi = 0



Elevation Plane
phi = 90



— 5925.00 MHz
— 6125.00 MHz
— 6525.00 MHz
— 6925.00 MHz
— 7125.00 MHz

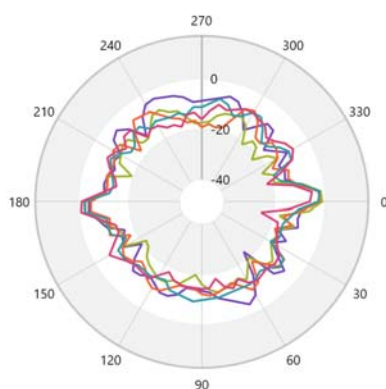
2D Radiation Pattern

Ant.10 (Wi-Fi 6G)

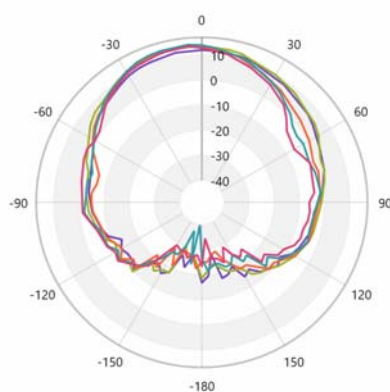
Frequency(MHz) : 5925-7125

Radiation Pattern :

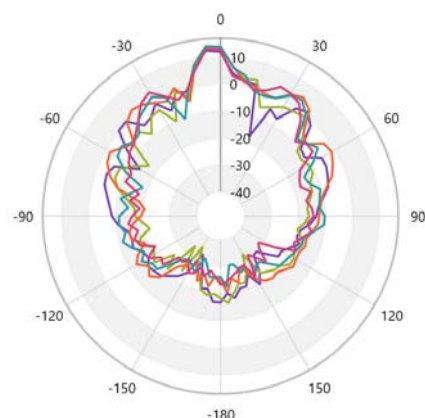
Azimuth Plane



Elevation Plane
phi = 0



Elevation Plane
phi = 90



— 5925.00 MHz
— 6125.00 MHz
— 6525.00 MHz
— 6925.00 MHz
— 7125.00 MHz

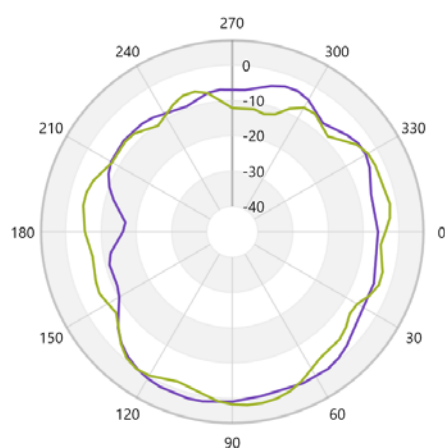
2D Radiation Pattern

Ant.17 (GPS)

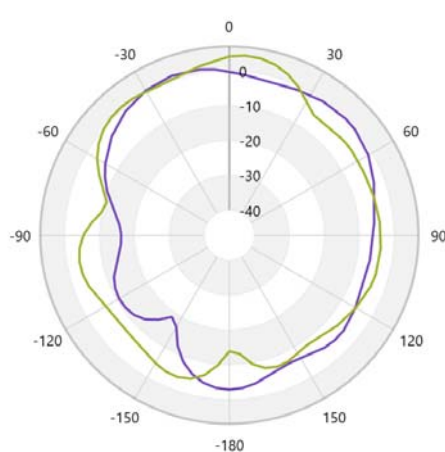
Frequency(MHz) : 1176-1575

Radiation Pattern :

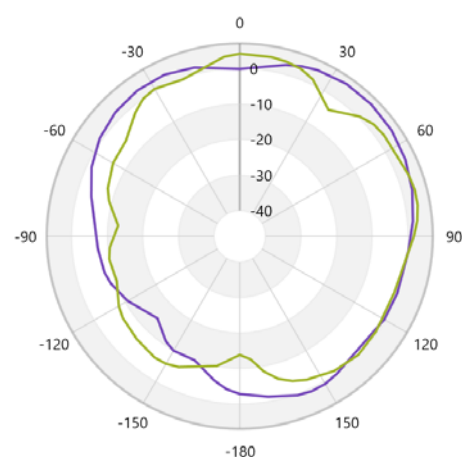
Azimuth Plane



Elevation Plane
phi = 0



Elevation Plane
phi = 90



— 1176.00 MHz
— 1575.00 MHz

Summary:

- The results for WISP **base station** are presented in the following table
- S-parameters fall within the in-band operating frequencies.

Parameters	WIFI
Return Loss – 5G	< -10 dB
Return Loss – 6G	< -10 dB
Isolation – 5G	< -20 dB
Isolation – 6G	< -20 dB
Cross Isolation – GPS	< -30 dB
Efficiency – 5G	> 30%
HPBW(Azimuth) (°) – 5G	40.7-74.4
HPBW(Elevation) (°) – 5G	4.5-18.5
Efficiency – 6G	> 35%
HPBW(Azimuth) (°) – 6G	31.7-72.5
HPBW(Elevation) (°) – 6G	5.1-15.2
Peak Gain – 5G	10.9-14.4 dBi
Peak Gain – 6G	11.0-15.1 dBi

Parameters	GPS
Return Loss	<-10 dB
Cross Isolation – 5G	<-40 dB
Cross Isolation – 6G	<-40 dB
Efficiency	>50%
Peak Gain	4.1-5.0 dBi

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