



Sony FY22 Premium WW P2/T1 Antenna Measurement_20210906

Universal Electronic Inc.

A close-up, angled view of a smartphone's back cover. The back cover is dark, and the internal circuitry is highlighted with a glowing, golden-yellow light. The circuitry is complex, showing various components and traces. The phone is positioned in the lower right quadrant of the slide, with a red diagonal line passing over it.

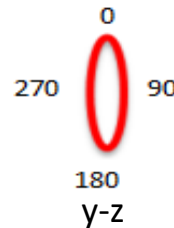
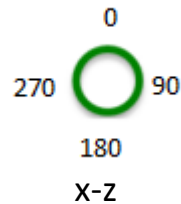
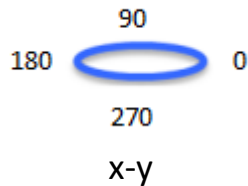
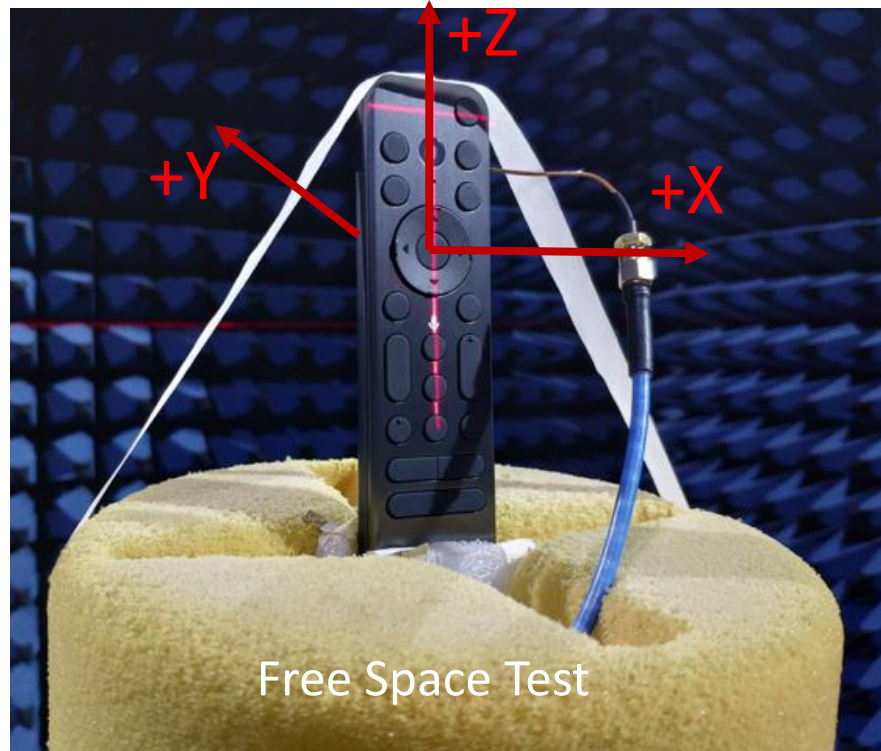
REDEFINING **CONTROL**

Photos – Antenna and PCB

REDEFINING CONTROL

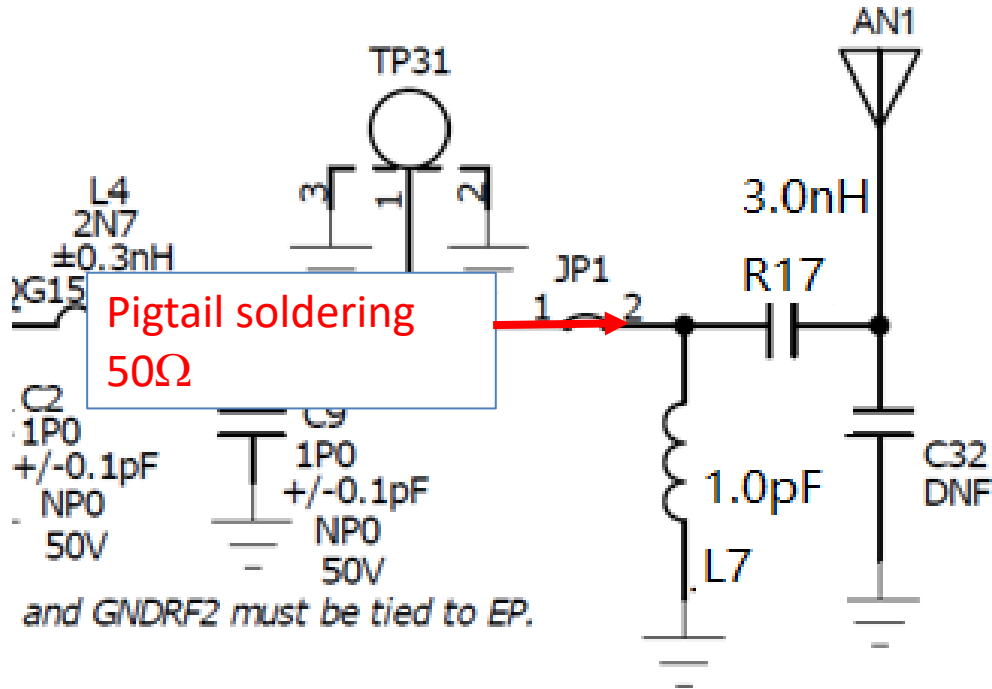


Photos – Radiation Test



Facing host side:
 x-y is from 0 to 90 to 180
 x-z is from 270 to 0 to 90
 y-z is from 270 to 0 to 90

Antenna Tuning Value



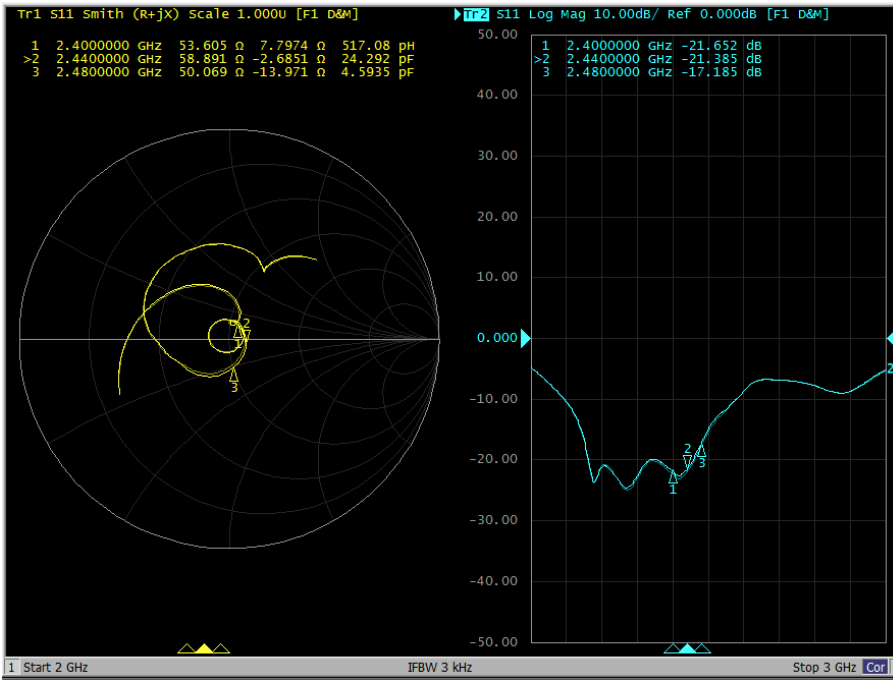
Part number:
R17 = 3.0nH \pm 0.1nH
Murata LQG15HS3N0B02
L7 = 1.0pF \pm 0.1pF
Walsin 0402N1R0B500

Return Loss and Smith Chart

REDEFINING CONTROL

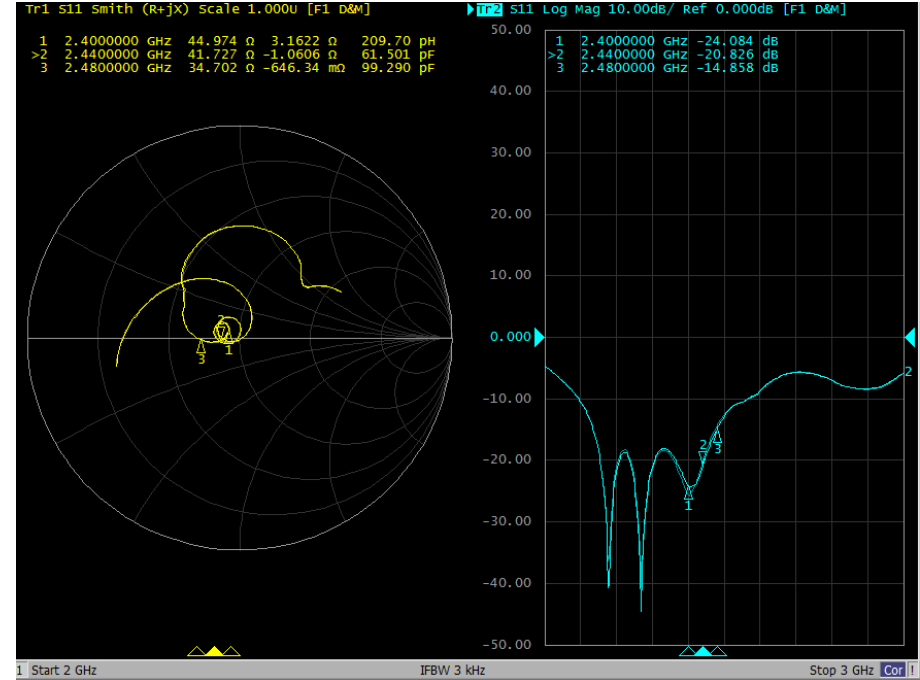
#3_L7=1.0pF, R17=3.0nH, C32=DNF

#4_L7=1.0pF, R17=3.0nH, C32=DNF



Measured 8/10

Frequency (MHz)	S11 (dB)		
	2400	2440	2480
# 3	-21.65	-21.39	-17.19



Measured 9/3

Frequency (MHz)	S11 (dB)		
	2400	2440	2480
# 4	-24.08	-20.83	-14.86

Efficiency and Gain table

REDEFINING CONTROL

Efficiency (%)

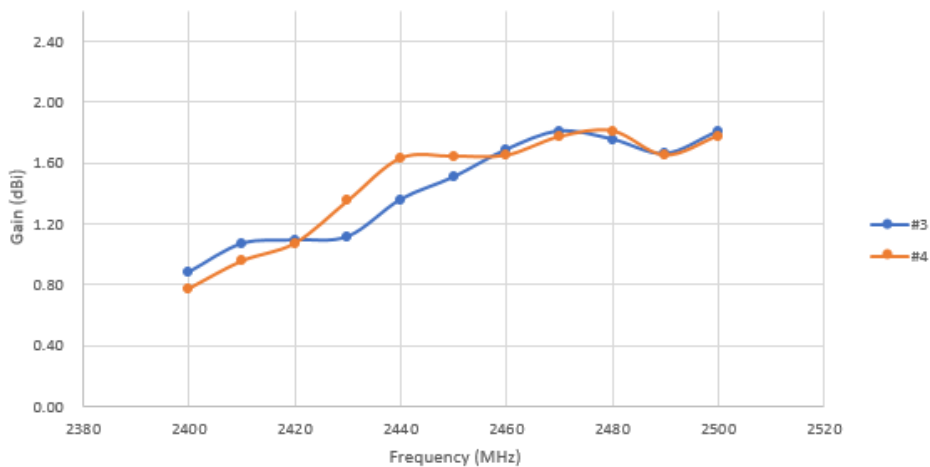


	#3	#4
Ferquency	Efficiency	Efficiency
2400MHz	30.09%	29.27%
2410MHz	29.98%	29.41%
2420MHz	29.79%	29.25%
2430MHz	30.59%	30.14%
2440MHz	31.72%	31.34%
2450MHz	32.23%	31.71%
2460MHz	32.51%	31.83%
2470MHz	33.09%	32.45%
2480MHz	33.84%	33.31%
2490MHz	33.99%	33.27%
2500MHz	34.15%	33.54%

Measured 8/10

Measured 9/3

Gain (dBi)



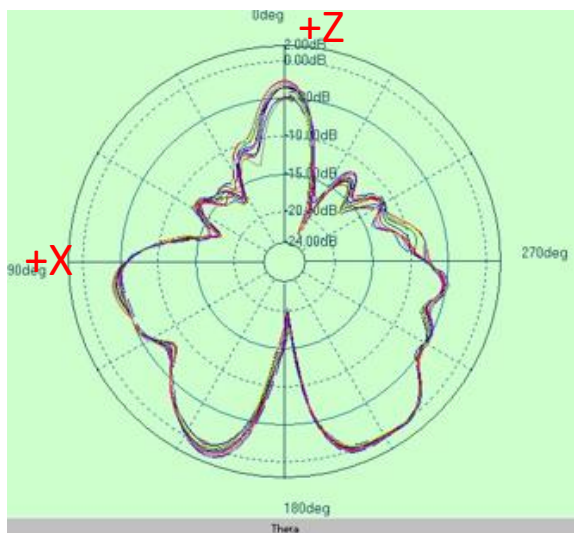
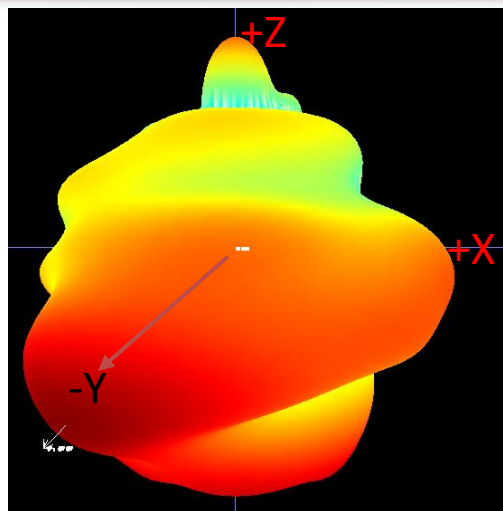
	#3	#4
Ferquency	Gain	Gain
2400MHz	0.88	0.77
2410MHz	1.07	0.95
2420MHz	1.09	1.07
2430MHz	1.12	1.35
2440MHz	1.36	1.63
2450MHz	1.51	1.64
2460MHz	1.69	1.65
2470MHz	1.81	1.77
2480MHz	1.75	1.81
2490MHz	1.66	1.65
2500MHz	1.81	1.77

Radiation Pattern - Unit 3

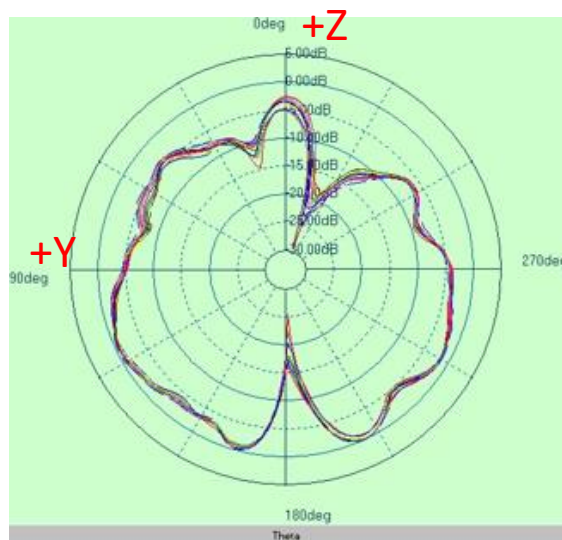


REDEFINING CONTROL

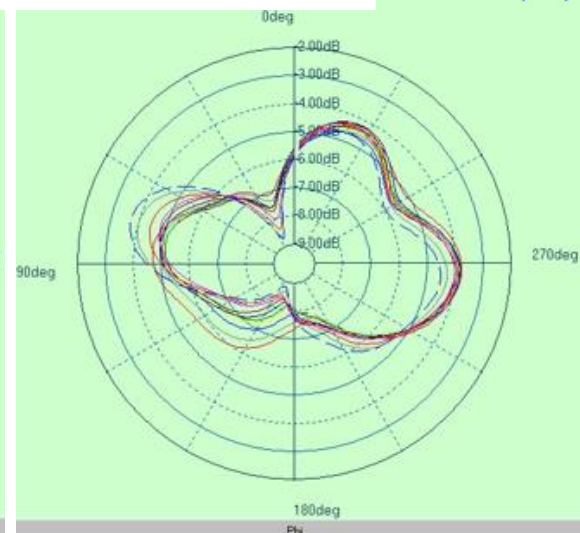
Unit 3_2.440 GHz



Phi=0°



Phi=90°

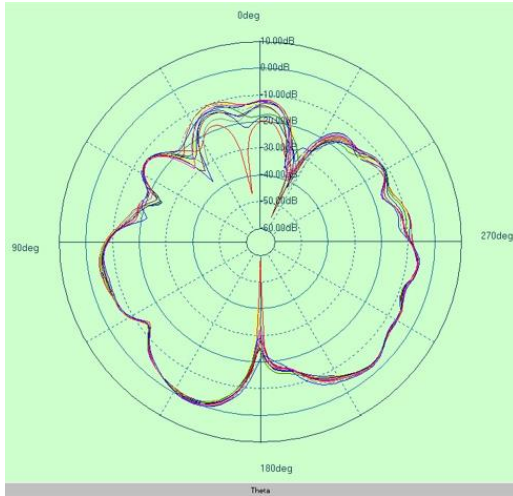


Theta=90°

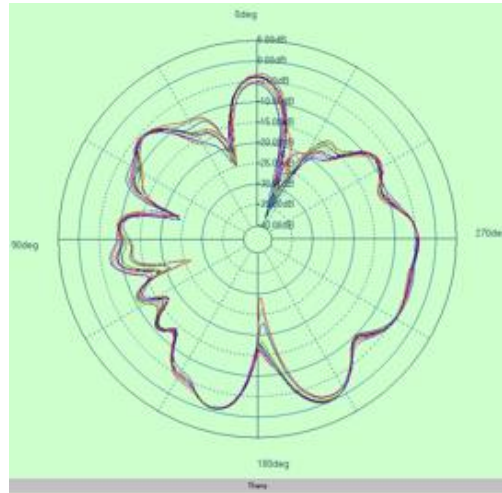
Radiation Pattern - Unit 3

REDEFINING CONTROL

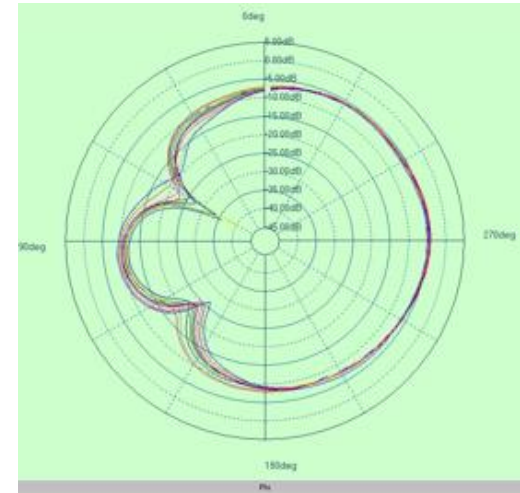
Phi=0° - H



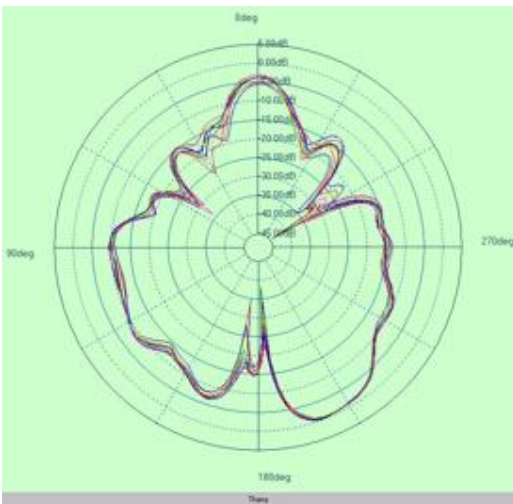
Phi=90° - H



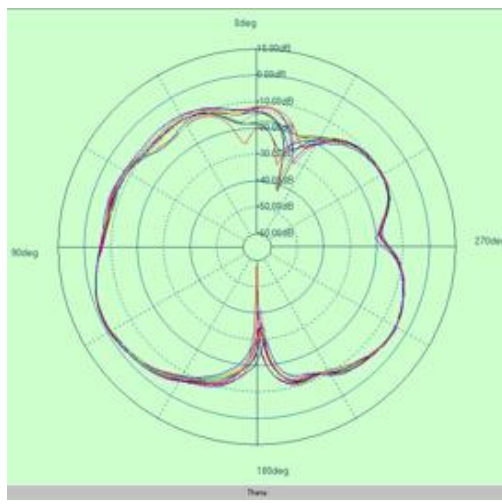
Theta=90° - H



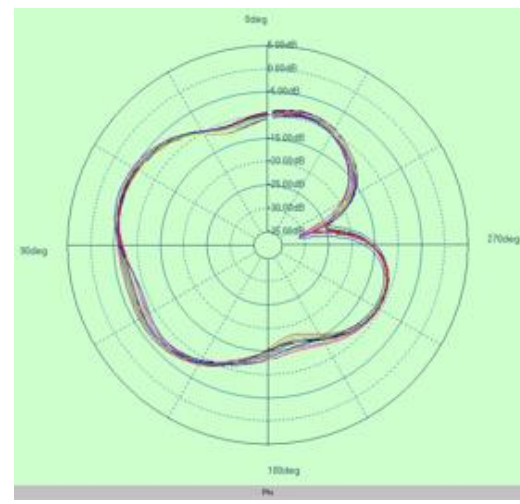
Phi=0° - V



Phi=90° - V



Theta=90° - V

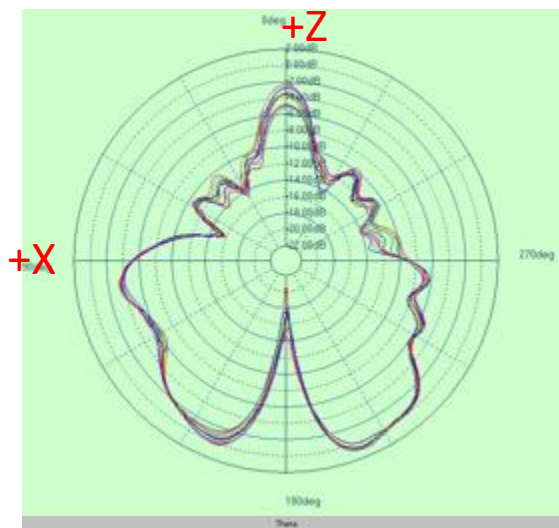
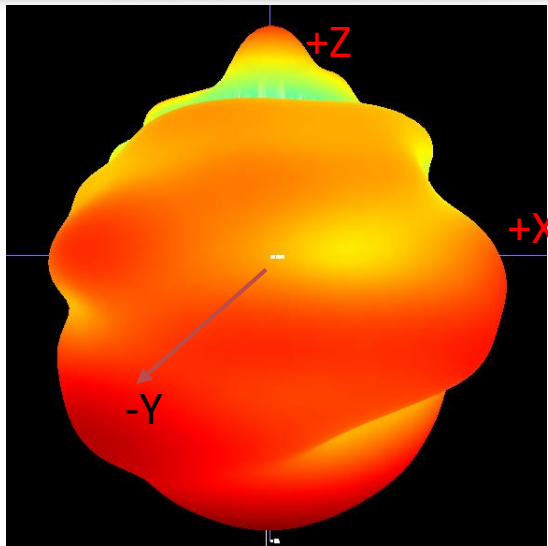


Radiation Pattern - Unit 4

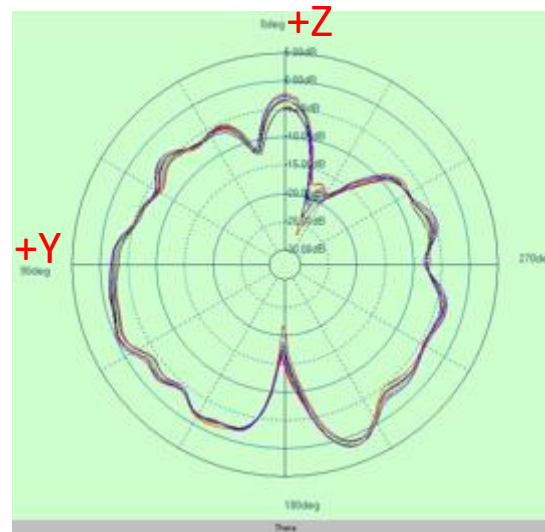


REDEFINING CONTROL

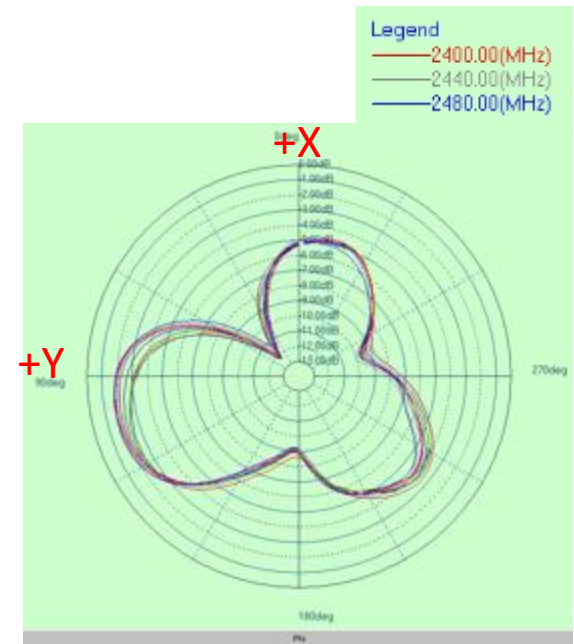
Unit 4_2.440 GHz



Phi=0°



Phi=90°



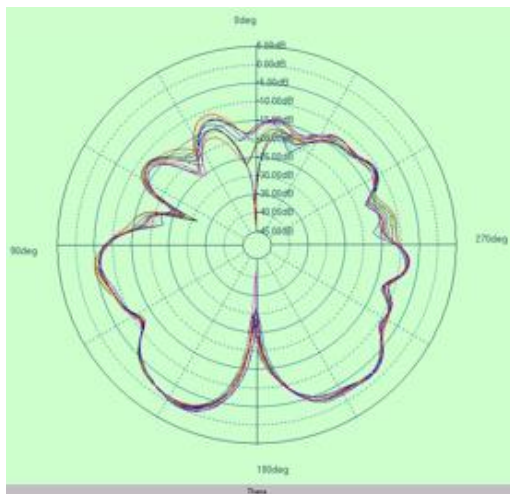
Theta=90°

Radiation Pattern - Unit 4

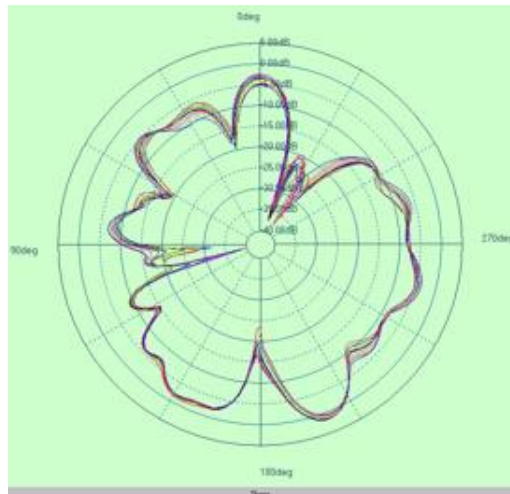


REDEFINING CONTROL

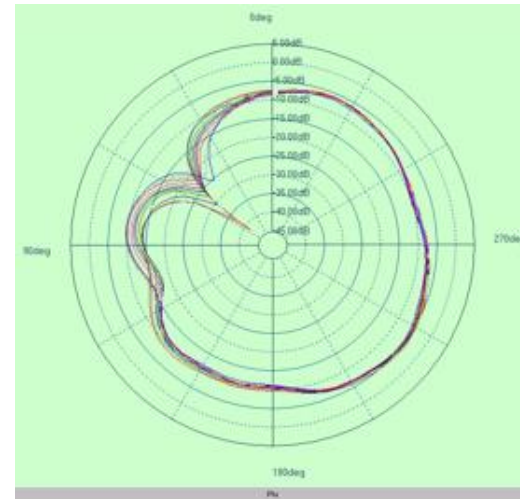
Phi=0° - H



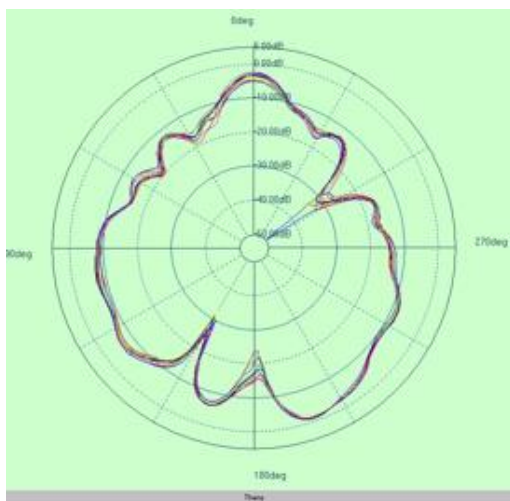
Phi=90° - H



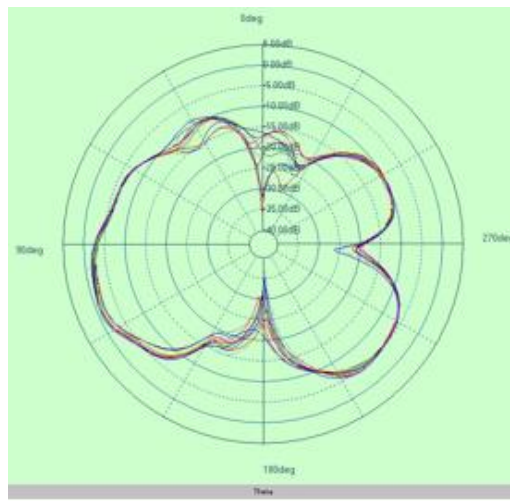
Theta=90° - H



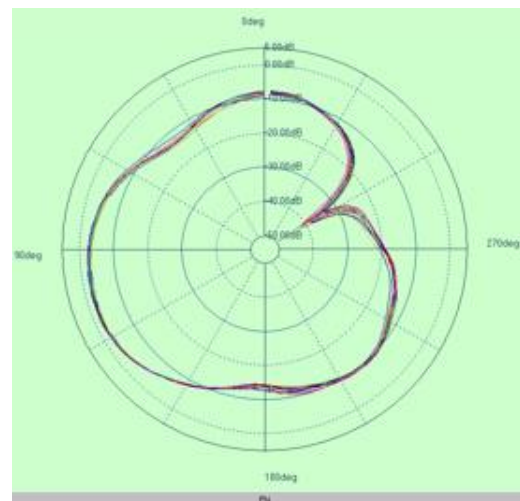
Phi=0° - V



Phi=90° - V



Theta=90° - V



Measured Gain Table

SONY FY22				Average Gain +/- 90 deg (Averaged for 3 frequencies)		Minimum gain +/- 45 deg (Averaged every 10 deg, min value picked among all the values and all 3 frequencies)		
Premium WW 30°								
Coordinate System	Sony	UEI	H (phi)	V (theta)	H (phi)	V (theta)		
	Remote #3	XY	XZ	-12.4	-14.4	-23.1	-34.3	
		YZ	YZ	-11.2	-9.4	-25.6	-24.7	
		ZX	XY	-7.8	-11.8	-8.9	-25.2	

Measured 8/10

SONY FY22				Average Gain +/- 90 deg (Averaged for 3 frequencies)		Minimum gain +/- 45 deg (Averaged every 10 deg, min value picked among all the values and all 3 frequencies)		
Premium WW 30°								
Coordinate System	Sony	UEI	H (phi)	V (theta)	H (phi)	V (theta)		
	Remote #4	XY	XZ	-11.3	-14.5	-17.9	-27.1	
		YZ	YZ	-10.4	-9.2	-30.0	-24.7	
		ZX	XY	-6.3	-11.8	-12.2	-27.7	

Measured 9/3

Measured Gain Table(FY21 Toshi for reference)

REDEFINING CONTROL

SONY FY21			Average Gain +/- 90 deg		Minimum gain +/- 45 deg	
			(Averaged for 3 frequencies)		(Averaged every 10 deg, min value picked among all the values and all 3 frequencies)	
Coordinate System	Sony	UEI	H (phi)	V (theta)	H (phi)	V (theta)
Remote #1	XY	XZ	-15.5	-11.1	-35.0	-17.6
	YZ	YZ	-7.3	-16.2	-15.9	-21.7
	ZX	XY	-5.8	-15.9	-5.6	-32.8

SONY FY21			Average Gain +/- 90 deg		Minimum gain +/- 45 deg	
			(Averaged for 3 frequencies)		(Averaged every 10 deg, min value picked among all the values and all 3 frequencies)	
Coordinate System	Sony	UEI	H (phi)	V (theta)	H (phi)	V (theta)
Remote #2	XY	XZ	-16.0	-11.9	-39.0	-15.4
	YZ	YZ	-6.8	-16.5	-14.6	-32.9
	ZX	XY	-6.8	-16.3	-7.9	-30.0