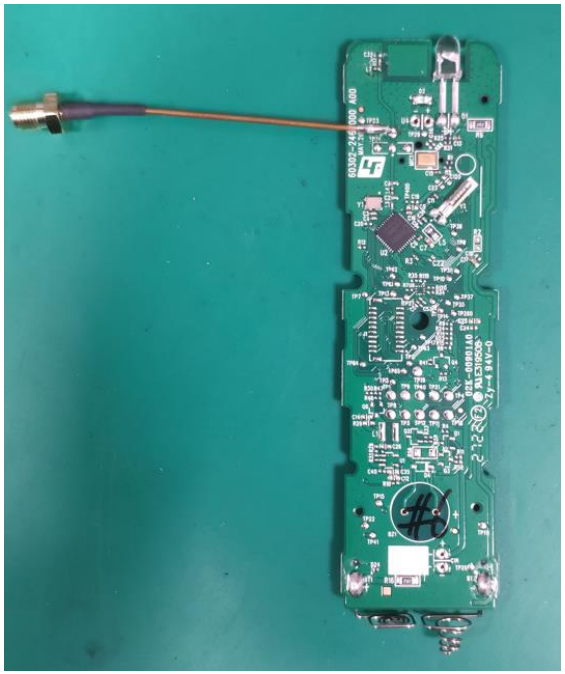
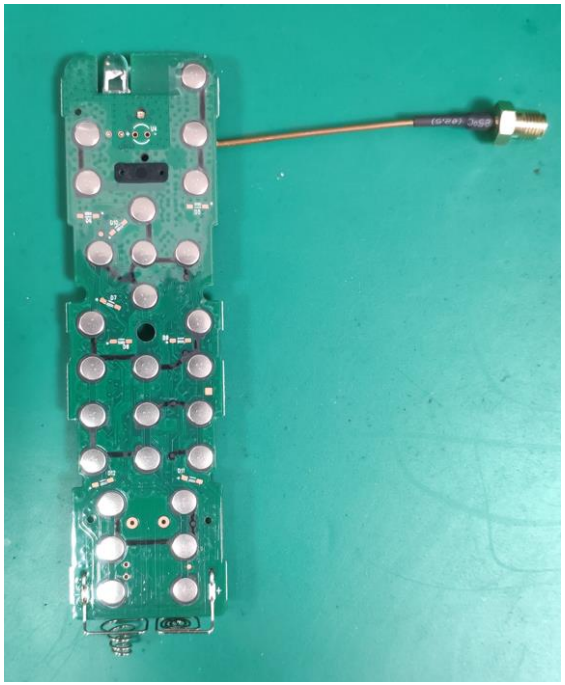
Sony FY23 Affordable T1 Antenna Measurement_20220901

Universal Electronic Inc.

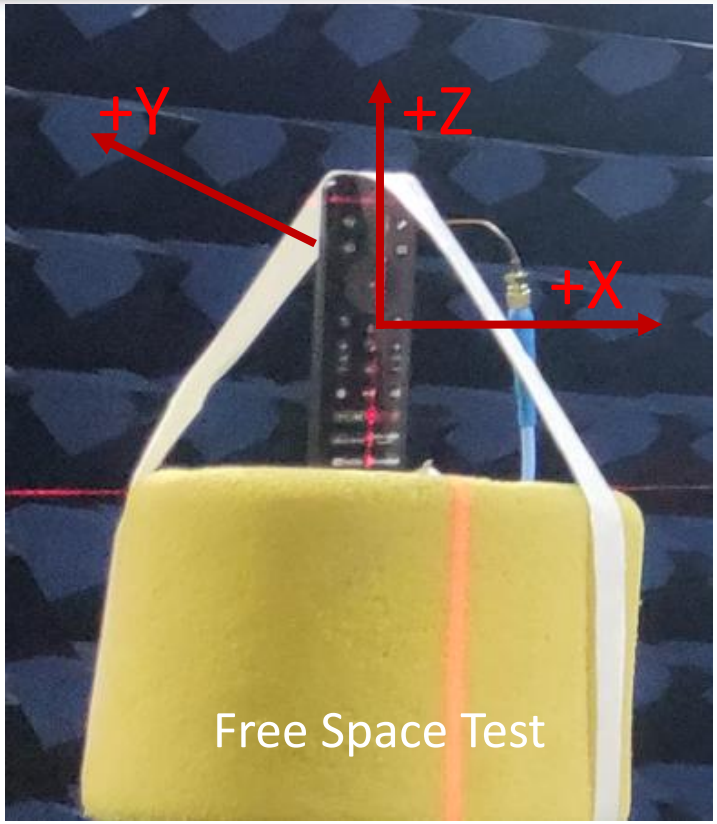
REDEFINING CONTROL

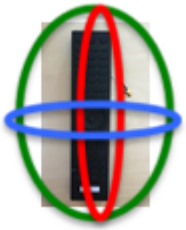
Photos – Antenna and PCB

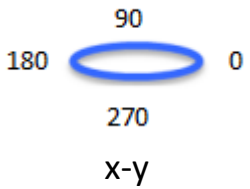


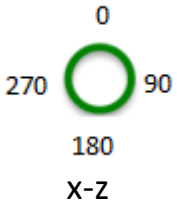


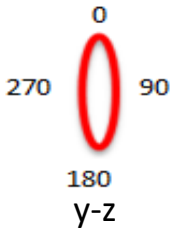
Photos – Radiation Test





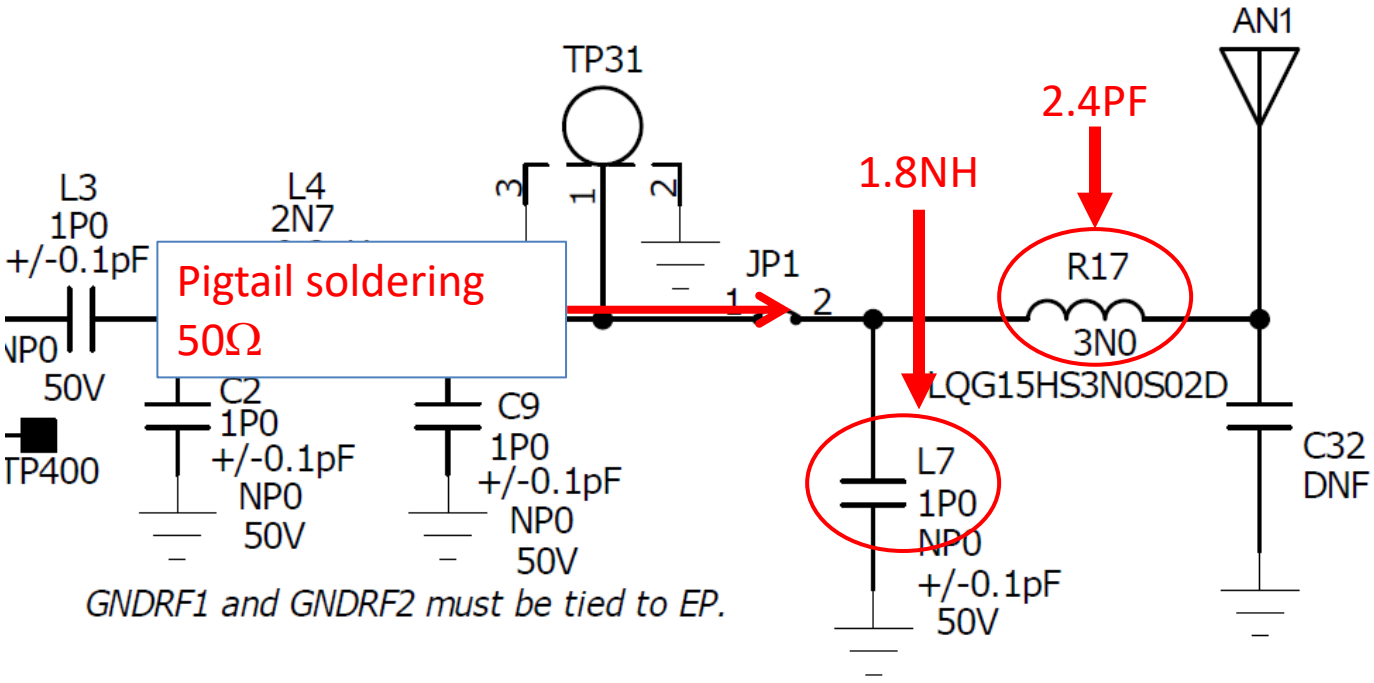






Facing host side:
x-y is from 0 to 90 to 180
x-z is from 270 to 0 to 90
y-z is from 270 to 0 to 90

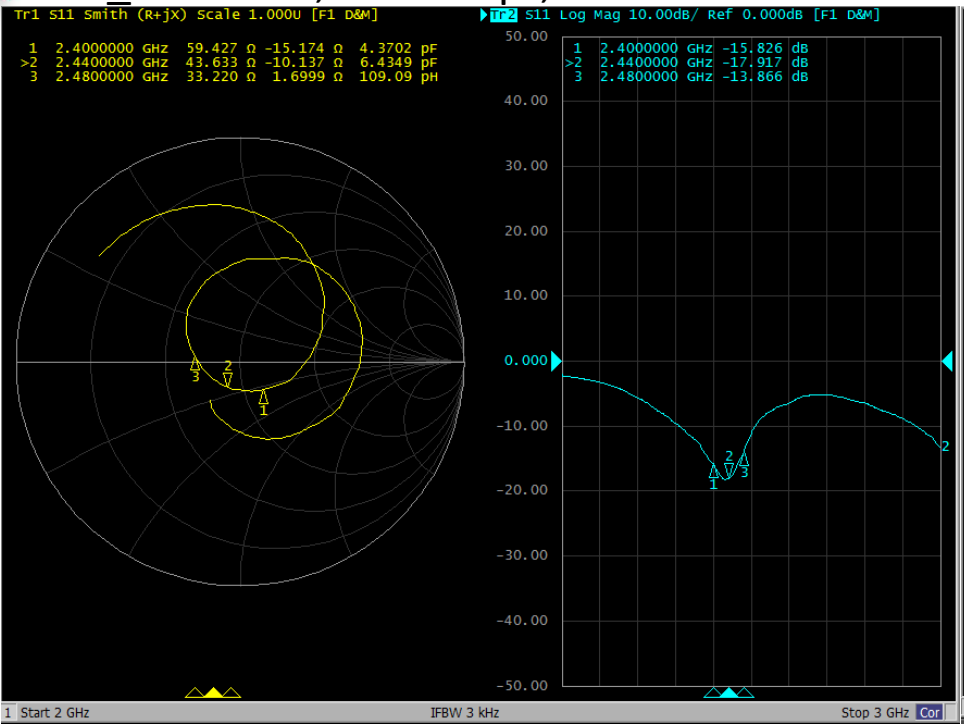
Antenna Tuning Value



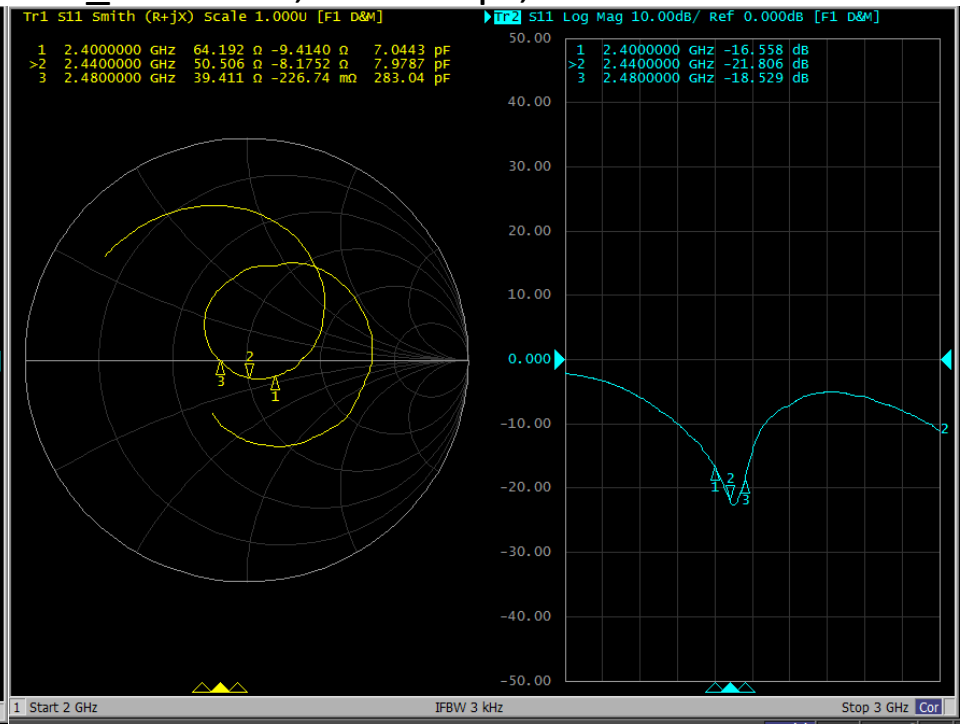
Part number:
L7 = 1.8nH±0.1nH
Murata LQG15HS1N8B02
R17 = 2.4pF ± 0.1pF
Walsin 0402N2R4B500

Return Loss and Smith Chart

#1_L7=1.8nH, R17=2.4pF, C32=DNF



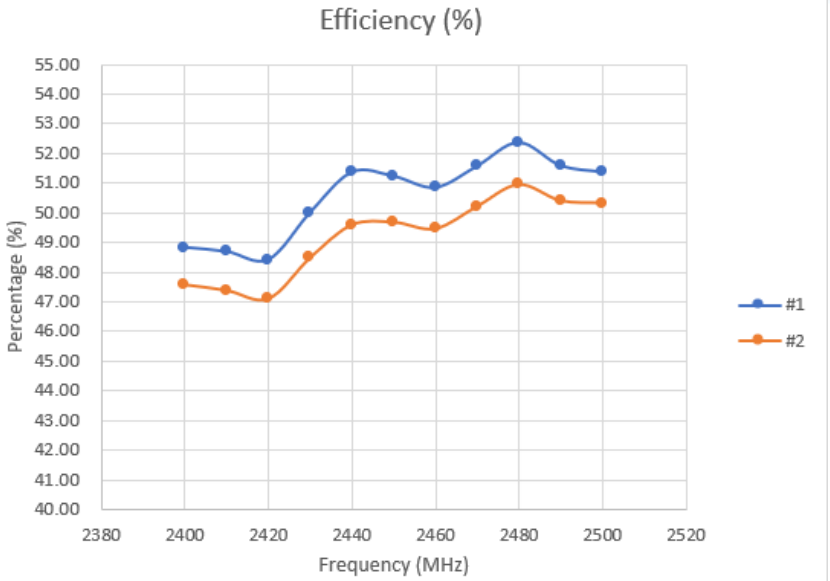
#2_L7=1.8nH, R17=2.4pF, C32=DNF



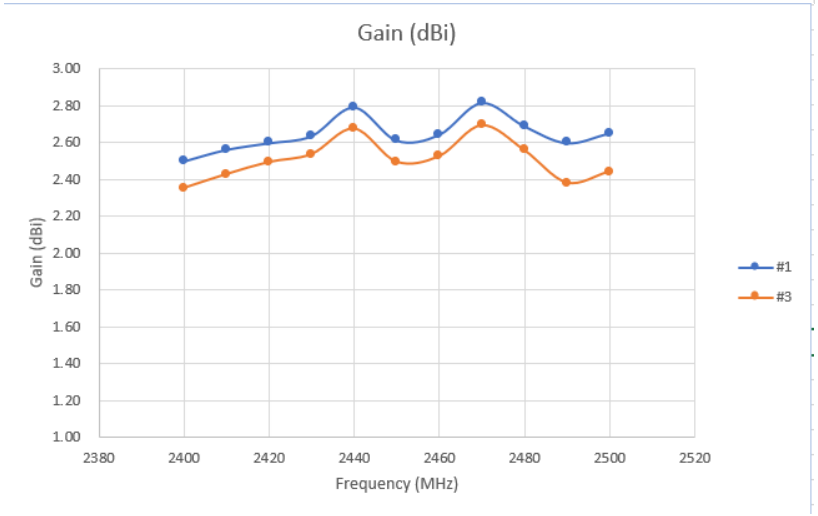
Frequency (MHz)	S11 (dB)		
	2400	2440	2480
# 1	-15.826	-17.917	-13.866

Frequency (MHz)	S11 (dB)		
	2400	2440	2480
# 2	-16.558	-21.806	-18.529

Efficiency and Gain table

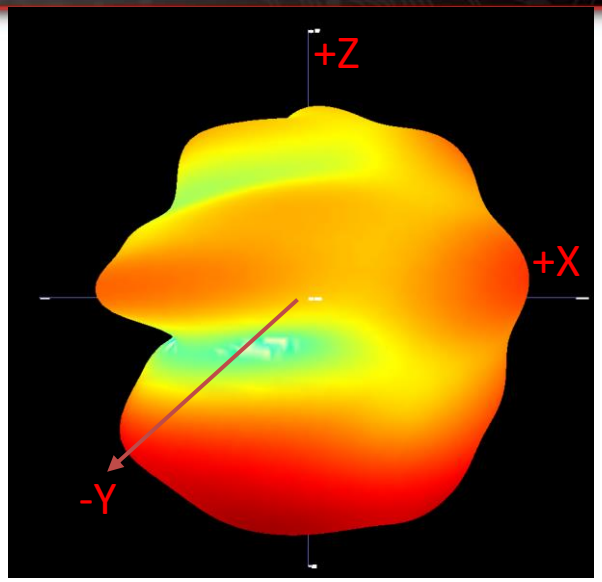


	#1	#2
Ferquecy	Efficiency	Efficiency
2400MHz	48.82%	47.56%
2410MHz	48.68%	47.37%
2420MHz	48.41%	47.09%
2430MHz	50.00%	48.47%
2440MHz	51.36%	49.58%
2450MHz	51.22%	49.61%
2460MHz	50.84%	49.45%
2470MHz	51.56%	50.20%
2480MHz	52.36%	50.94%
2490MHz	51.58%	50.40%
2500MHz	51.36%	50.32%

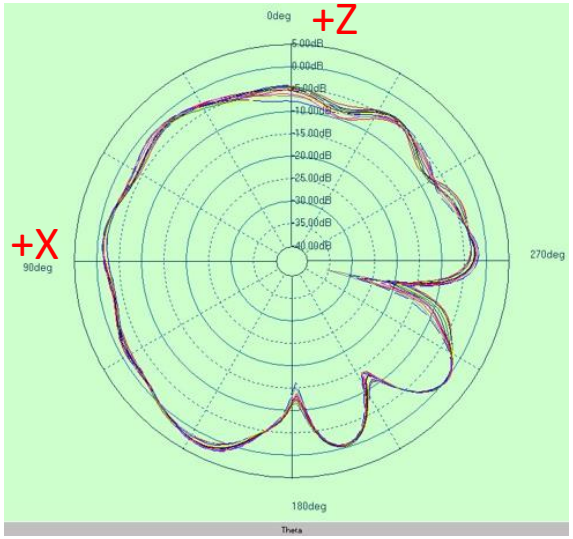


	#1	#2
Ferquecy	Gain	Gain
2400MHz	2.50	2.35
2410MHz	2.56	2.43
2420MHz	2.60	2.49
2430MHz	2.64	2.54
2440MHz	2.79	2.67
2450MHz	2.61	2.49
2460MHz	2.64	2.52
2470MHz	2.82	2.69
2480MHz	2.69	2.56
2490MHz	2.60	2.38
2500MHz	2.65	2.44

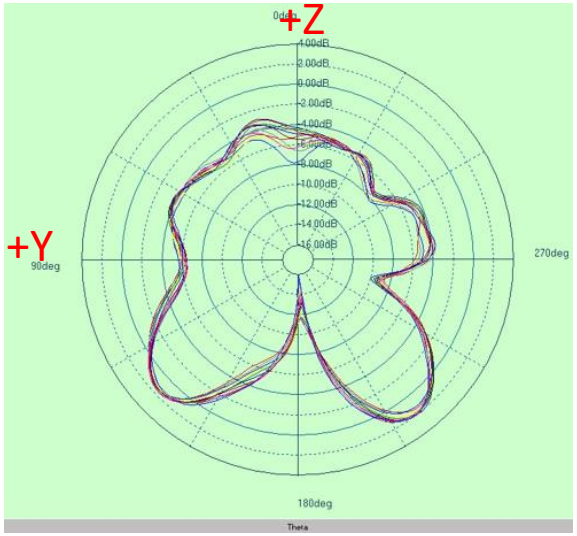
Radiation Pattern - Unit 1



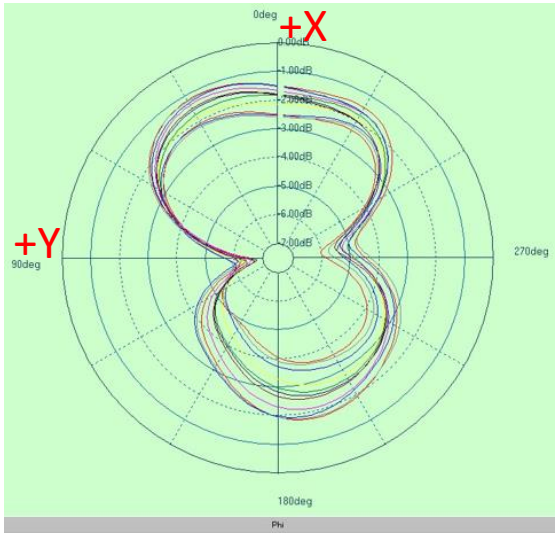
Unit 1_2.440 GHz



Phi=0° (Total)



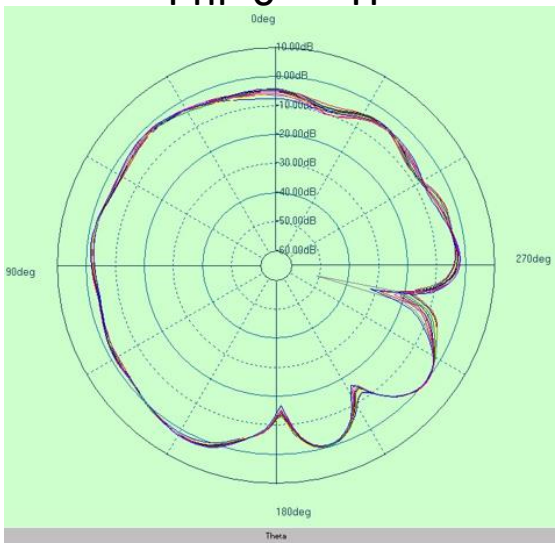
Phi=90 ° (Total)



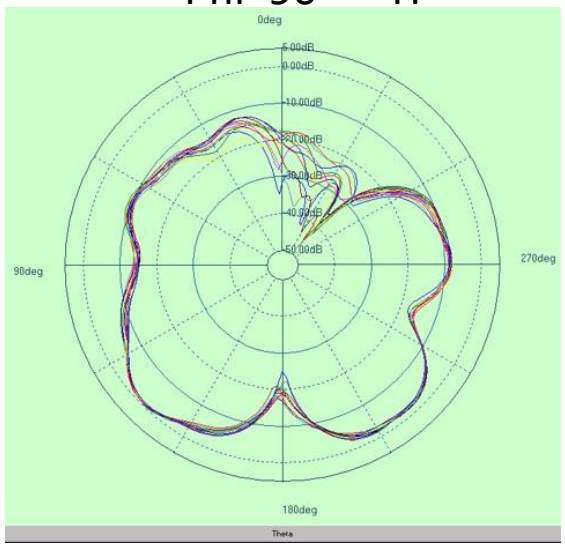
Theta=90 ° (Total)

Radiation Pattern - Unit 1

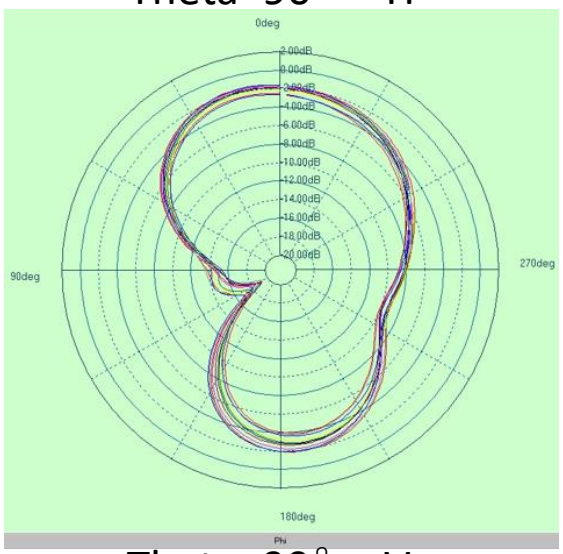
Phi=0° - H



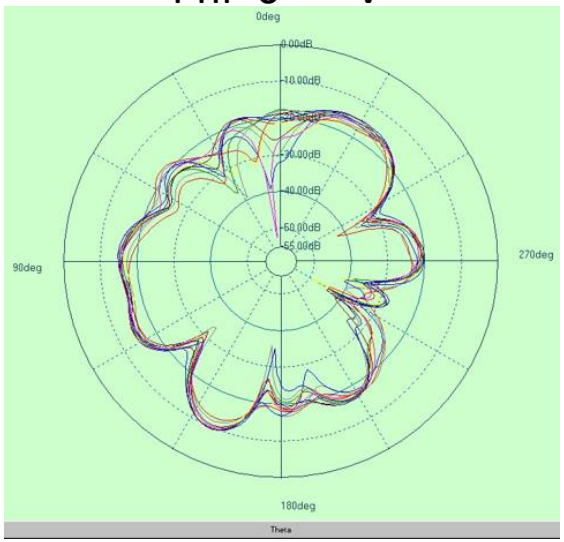
Phi=90° - H



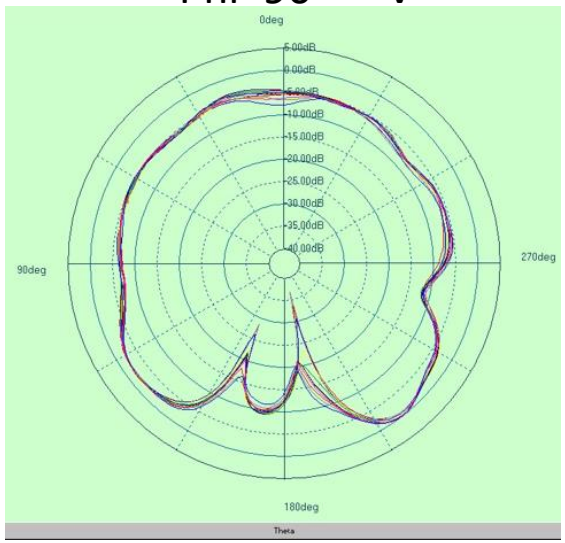
Theta=90° - H



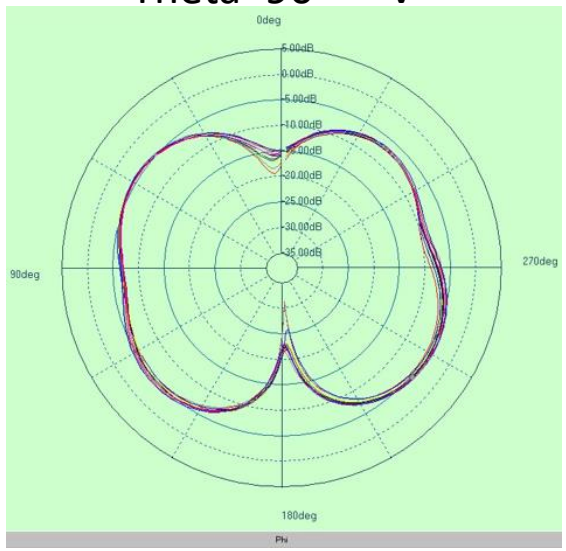
Phi=0° - V



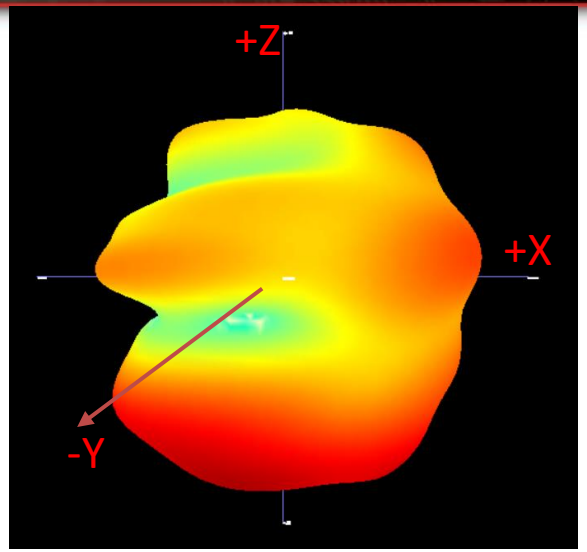
Phi=90° - V



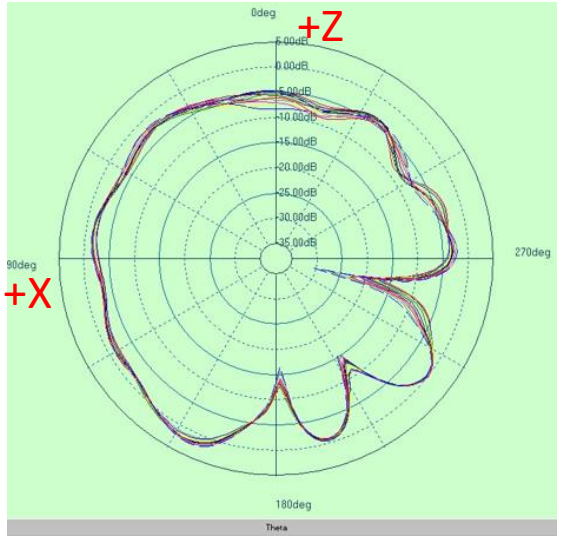
Theta=90° - V



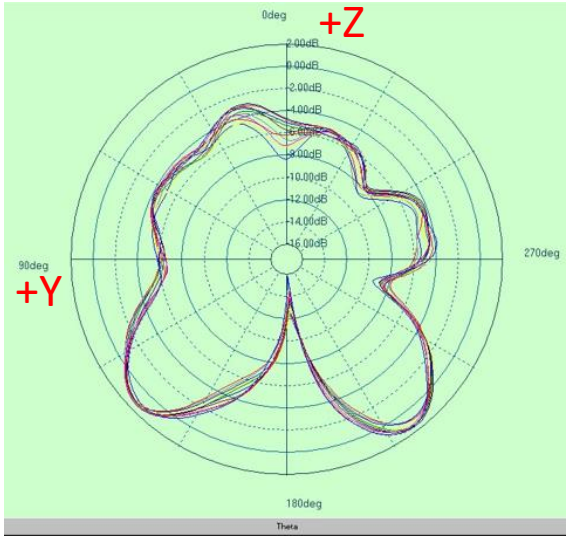
Radiation Pattern - Unit 2



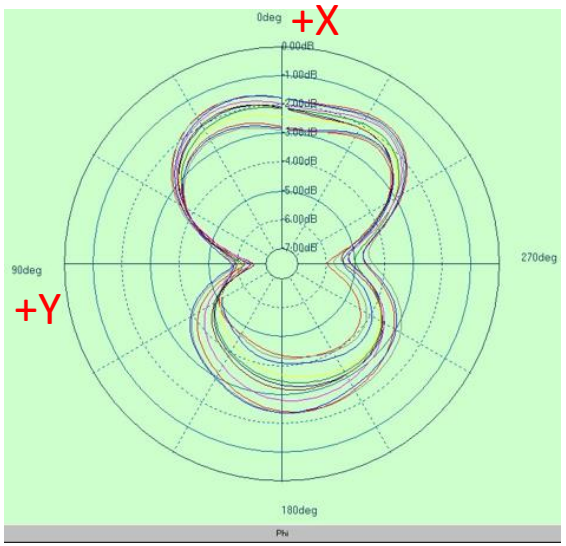
Unit 2_2.440 GHz



Phi=0° (Total)



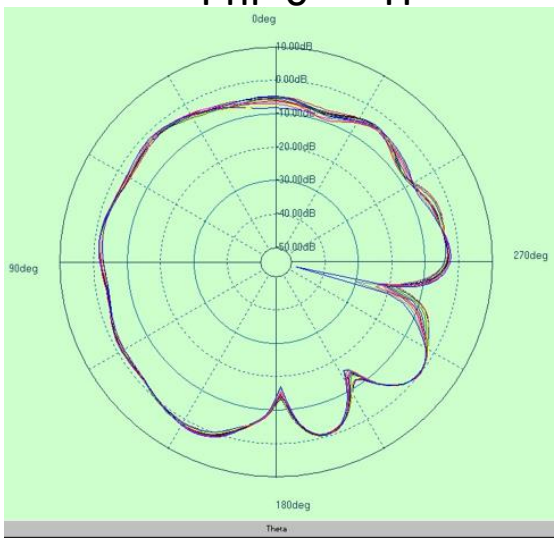
Phi=90 ° (Total)



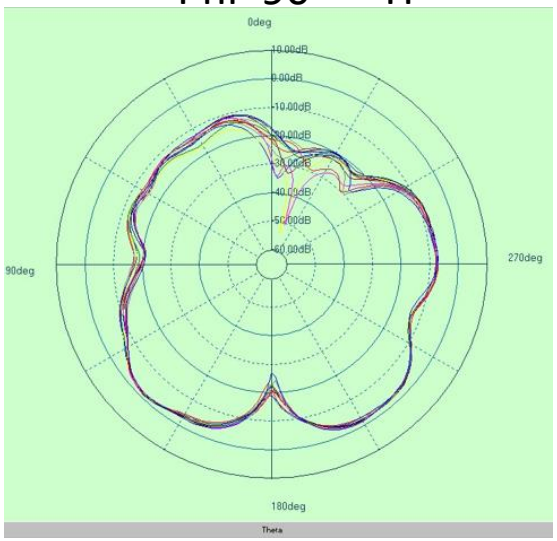
Theta=90 ° (Total)

Radiation Pattern - Unit 2

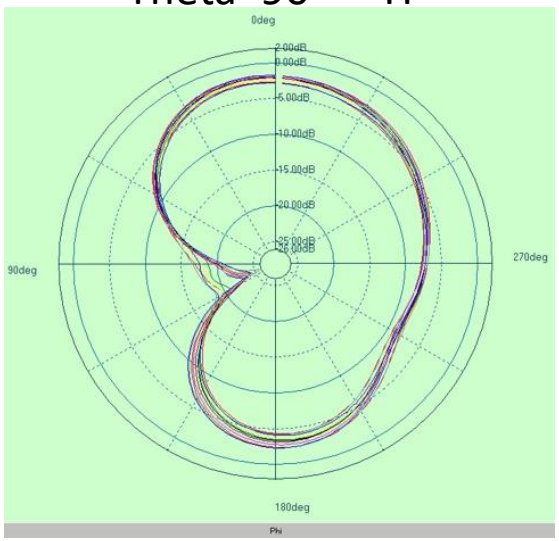
Phi=0° - H



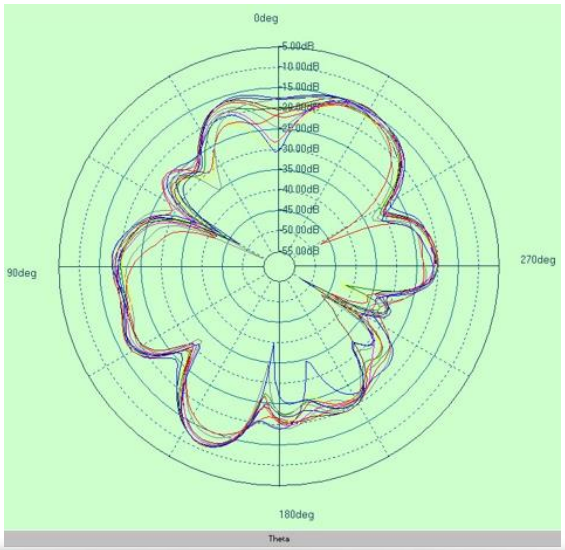
Phi=90° - H



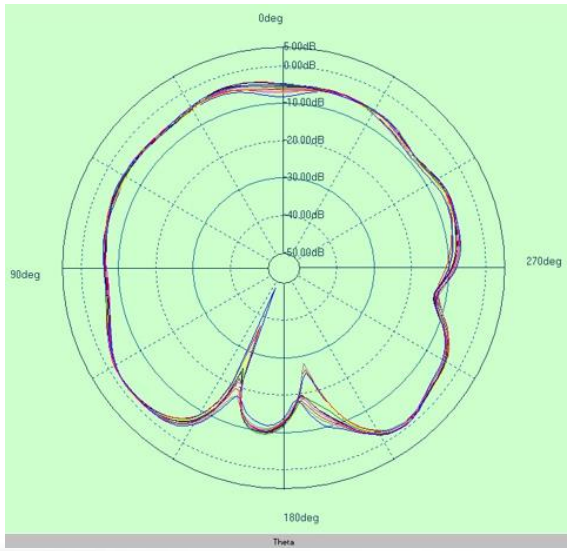
Theta=90° - H



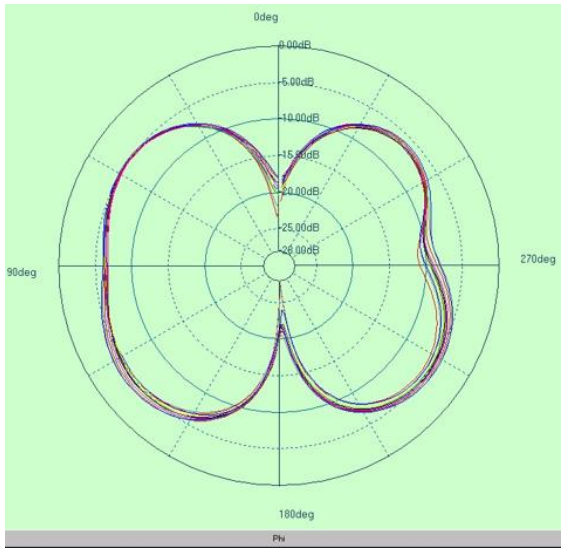
Phi=0° - V



Phi=90° - V



Theta=90° - V



Measured Gain Table

SONY FY23 Affordable			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)	
Coordinate System	Sony	UEI	H (phi)	V (theta)	H (phi)	V (theta)
Remote 1	XY	XZ	-20.3	-4.2	-30.3	-10.0
	YZ	YZ	-5.6	-13.6	-7.2	-31.6
	ZX	XY	-7.7	-4.8	-10.0	-10.1

SONY FY23 Affordable			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)	
Coordinate System	Sony	UEI	H (phi)	V (theta)	H (phi)	V (theta)
Remote 2	XY	XZ	-20.7	-4.4	-28.7	-9.1
	YZ	YZ	-5.8	-13.6	-7.8	-28.3
	ZX	XY	-8.1	-4.9	-10.6	-9.3

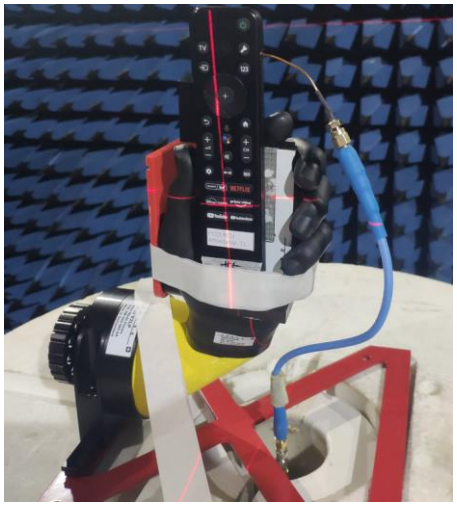
Measured Gain Table

SONY FY22 Affordable WW			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)	
Coordinate System	Sony	UEI	H (phi)	V (theta)	H (phi)	V (theta)
Remote 1	XY	XZ	-21.8	-4.8	-34.9	-10.8
	YZ	YZ	-6.6	-13.8	-8.3	-35.2
	ZX	XY	-8.2	-5.3	-10.6	-10.6

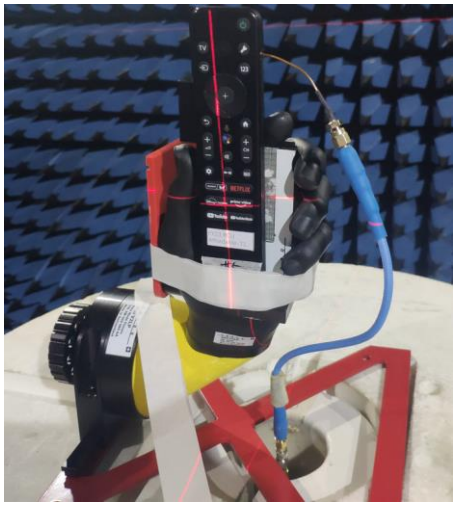
Hands Model

The white part and the red part belong to the hand bracket, which is used for fixing and holding, and cannot be removed. They use the same materials as the hands.

Measured Gain Table with Left Hand

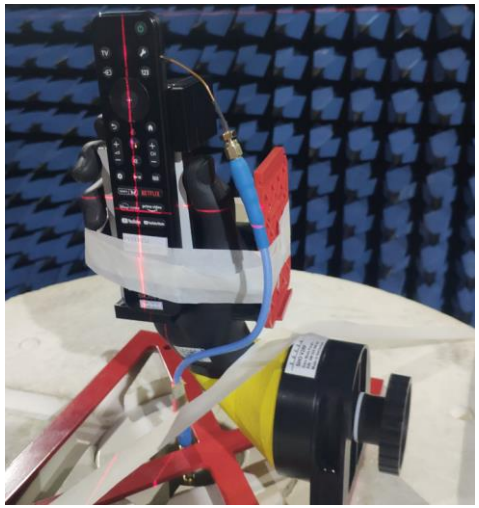


SONY FY23 Sony Affordable with left hand			Average Gain +/- 90 deg (Averaged for 3 frequencies)		Minimum gain +/- 45 deg (Averaged every 10 deg, min value picked among all the values and all 3 frequencies)	
Coordinate System	Sony	UEI	H (phi)	V (theta)	H (phi)	V (theta)
Remote #1	XY	XZ	-21.2	-4.7	-28.8	-7.0
	YZ	YZ	-4.2	-14.6	-6.0	-28.0
	ZX	XY	-8.9	-5.7	-10.5	-10.7

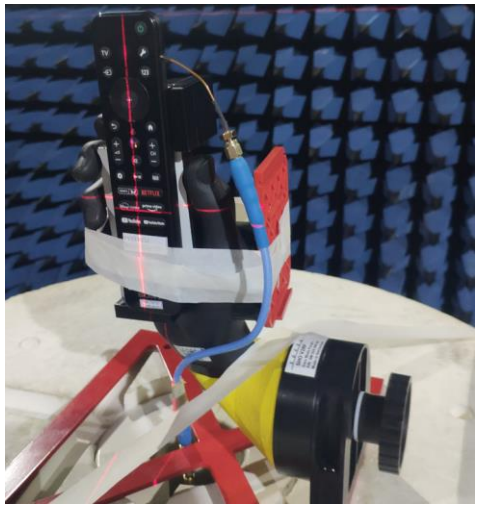


SONY FY23 Sony Affordable with left hand			Average Gain +/- 90 deg (Averaged for 3 frequencies)		Minimum gain +/- 45 deg (Averaged every 10 deg, min value picked among all the values and all 3 frequencies)	
Coordinate System	Sony	UEI	H (phi)	V (theta)	H (phi)	V (theta)
Remote #2	XY	XZ	-18.7	-4.8	-34.8	-6.1
	YZ	YZ	-4.2	-13.6	-6.4	-29.2
	ZX	XY	-9.1	-6.0	-9.8	-9.8

Measured Gain Table with Right Hand



SONY FY23 Sony Affordable with right hand			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)	
Coordinate System	Sony	UEI	H (phi)	V (theta)	H (phi)	V (theta)
Remote #1	XY	XZ	-18.5	-4.5	-31.1	-7.1
	YZ	YZ	-4.3	-13.8	-5.9	-25.4
	ZX	XY	-9.7	-5.8	-10.2	-11.7



SONY FY23 Sony Affordable with right hand			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)	
Coordinate System	Sony	UEI	H (phi)	V (theta)	H (phi)	V (theta)
Remote #2	XY	XZ	-18.5	-4.6	-28.5	-7.7
	YZ	YZ	-4.4	-12.2	-6.1	-26.4
	ZX	XY	-9.9	-5.1	-9.8	-9.5