



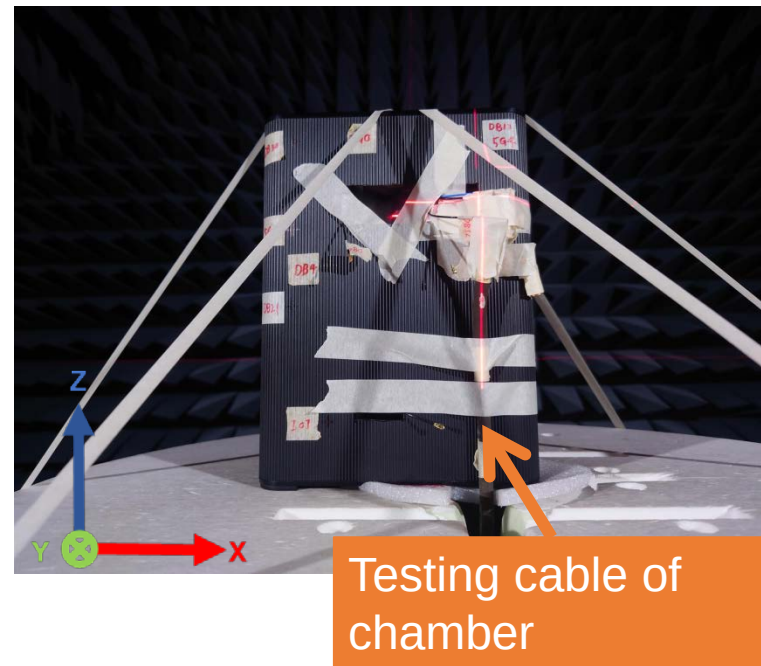
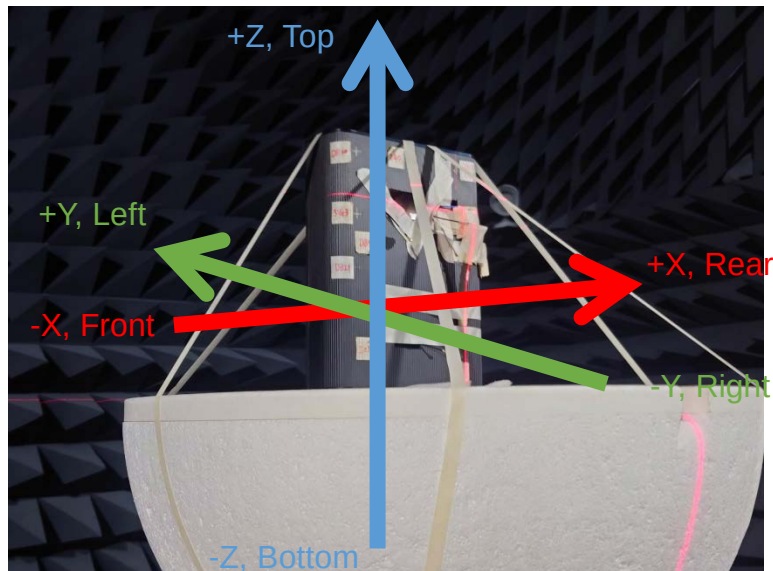
We connect the wireless world.

FGA228B_PLT1 data

WHA YU INDUSTRIAL CO., LTD.

No. 326 Sec 2. Kung Tao 5 Road, HsinChu City, Taiwan

Testing setting – In SG24 chamber



Antenna placement



- The length of antenna cable (from PCB edge to connector center).

Antennas		WY PN	IPN	Size (L * W * T) (mm)	Antenna Cable length (mm)	Antenna Type	Cable Color	Cable type
Off-board Antenna	DB12	C2074-510112-A	6336504D	31.9×12×0.6	36	PCB	Black	OD 1.37mm cable
	DB21	C2074-510113-A	6336505D	31.9×12×0.6	163	PCB	Grey	OD 1.37mm cable
	DB30	C2074-510114-A	6336506D	31.9×12×0.6	82	PCB	Blue	OD 1.37mm cable
	5G3	C2074-510115-A	6336507D	26.2×9.1×0.6	143	PCB	Black	OD 1.37mm cable
On-board Antenna	2G0	-----	-----	49.25 x 16.4	-----	PCB	-----	-----

Efficiency



Efficiency (%)					
Frequency (MHz)	2G0	DB12	DB21	DB30	5G3
2400	70	73	71	68	X
2410	71	73	72	70	X
2420	72	74	74	73	X
2430	72	75	75	75	X
2440	74	77	76	77	X
2450	75	77	77	79	X
2460	74	77	77	80	X
2470	72	77	77	80	X
2480	71	76	76	79	X
2490	71	75	75	79	X
2500	70	74	74	79	X

Efficiency (%)					
Frequency (MHz)	2G0	DB12	DB21	DB30	5G3
5150	X	76	68	75	67
5200	X	78	70	78	70
5250	X	75	69	78	69
5300	X	76	68	78	69
5350	X	76	66	74	68
5400	X	77	67	76	69
5450	X	74	68	78	69
5500	X	74	68	80	69
5550	X	74	68	79	70
5600	X	72	69	80	71
5650	X	71	69	79	71
5700	X	71	71	80	72
5750	X	70	71	78	72
5800	X	70	71	77	71
5850	X	69	69	76	70

Peak Gain_2G



Peak Gain (dBi)															
Frequency (MHz)	2G0			DB12			DB21			DB30			5G3		
	Total	Phi	Theta	Total	Phi	Theta	Total	Phi	Theta	Total	Phi	Theta	Total	Phi	Theta
2400	2.8	1.2	2.0	2.9	2.9	1.8	3.9	2.1	3.6	3.0	-6.7	2.8	X	X	X
2410	2.9	1.2	2.1	2.9	2.8	2.1	4.1	2.0	3.7	3.3	-6.7	3.1	X	X	X
2420	2.8	1.2	2.0	2.7	2.7	2.2	4.1	1.9	3.7	3.5	-6.8	3.3	X	X	X
2430	2.9	1.0	1.9	2.7	2.7	1.9	4.1	2.1	3.6	3.7	-6.8	3.5	X	X	X
2440	3.1	1.4	1.9	2.8	2.8	1.5	4.0	2.3	3.4	3.8	-6.6	3.6	X	X	X
2450	3.4	1.8	1.8	2.9	2.9	1.1	3.9	2.4	3.3	3.8	-6.5	3.7	X	X	X
2460	3.3	1.8	1.8	2.9	2.9	1.1	3.8	2.5	3.3	3.9	-6.6	3.9	X	X	X
2470	3.2	1.6	1.9	3.0	2.9	1.4	3.8	2.7	3.3	4.0	-6.2	4.0	X	X	X
2480	2.9	1.3	1.9	2.8	2.7	1.4	4.0	2.9	3.4	4.1	-5.5	4.0	X	X	X
2490	2.6	0.8	2.1	2.6	2.5	1.5	4.0	3.0	3.6	4.0	-4.8	4.0	X	X	X
2500	2.7	0.9	2.2	2.6	2.4	1.5	3.9	2.9	3.6	4.0	-4.4	3.9	X	X	X

Peak Gain_5G



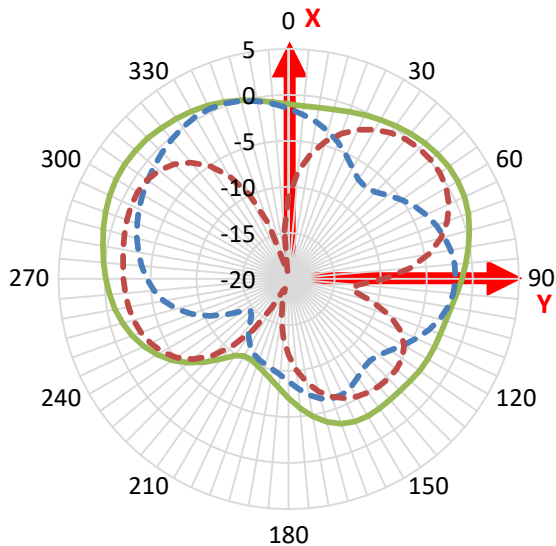
Peak Gain (dBi)															
Frequency (MHz)	2G0			DB12			DB21			DB30			5G3		
	Total	Phi	Theta	Total	Phi	Theta	Total	Phi	Theta	Total	Phi	Theta	Total	Phi	Theta
5150	X	X	X	4.8	4.7	0.2	4.3	3.3	4.0	4.1	-1.0	4.1	4.1	2.5	4.0
5200	X	X	X	4.6	4.6	0.8	4.6	3.2	4.4	4.1	-0.9	4.1	4.0	2.4	4.0
5250	X	X	X	4.3	4.2	0.9	4.5	2.9	4.3	4.1	-1.3	4.1	4.0	1.6	4.0
5300	X	X	X	4.3	4.2	1.1	4.4	2.8	4.2	4.1	-1.8	4.1	4.0	1.5	3.9
5350	X	X	X	4.3	4.2	1.1	4.1	2.3	4.0	3.8	-2.4	3.8	4.2	1.5	4.1
5400	X	X	X	4.4	4.4	1.0	4.4	2.1	4.3	3.9	-2.8	3.9	4.2	1.7	4.1
5450	X	X	X	4.5	4.5	1.0	4.5	2.2	4.5	4.0	-3.3	4.0	4.1	1.6	4.1
5500	X	X	X	4.8	4.8	0.6	4.6	2.4	4.5	4.0	-3.4	4.0	3.9	1.6	3.8
5550	X	X	X	4.9	4.9	0.7	4.4	2.6	4.3	4.0	-3.5	4.0	4.0	1.4	3.8
5600	X	X	X	5.0	4.9	0.5	4.5	3.0	4.4	4.0	-3.5	4.0	4.0	1.2	3.8
5650	X	X	X	4.8	4.7	0.6	4.3	3.4	4.3	3.8	-3.6	3.8	4.3	1.1	4.3
5700	X	X	X	4.7	4.6	0.2	4.4	3.7	4.3	4.0	-3.7	4.0	4.5	1.4	4.0
5750	X	X	X	4.4	4.4	0.0	4.3	3.7	4.3	4.1	-3.5	4.0	4.7	1.7	4.0
5800	X	X	X	4.7	4.7	0.0	4.1	3.8	4.1	4.1	-3.3	4.1	4.7	2.2	3.7
5850	X	X	X	4.7	4.7	0.7	3.9	3.9	3.8	4.1	-2.9	4.0	4.5	2.5	3.7

2G0

2D Radiation pattern _ 2400MHz

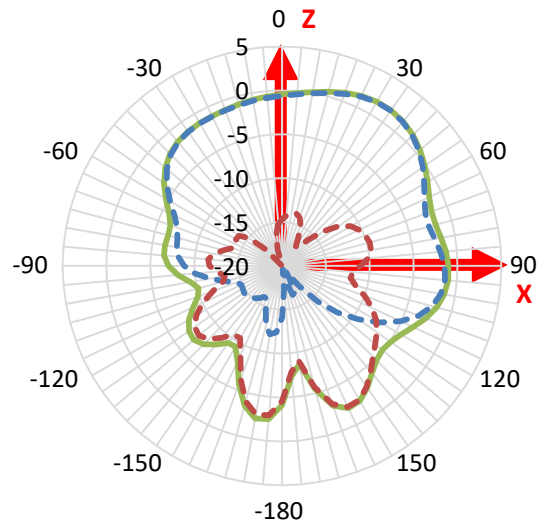


2400MHz-XY



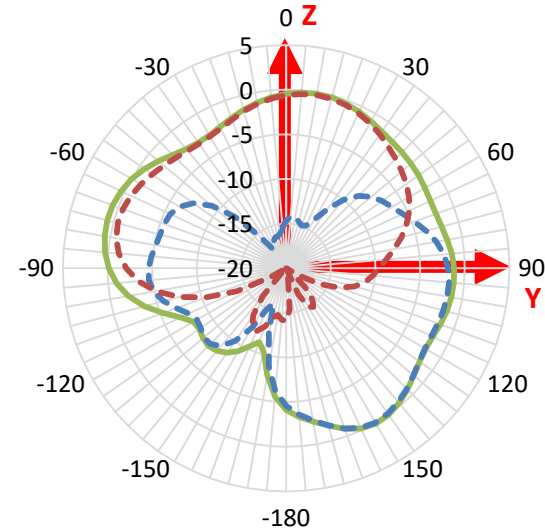
— E_total - - - E_theta - - - E_phi

2400MHz-XZ



— E_total - - - E_theta - - - E_phi

2400MHz-YZ

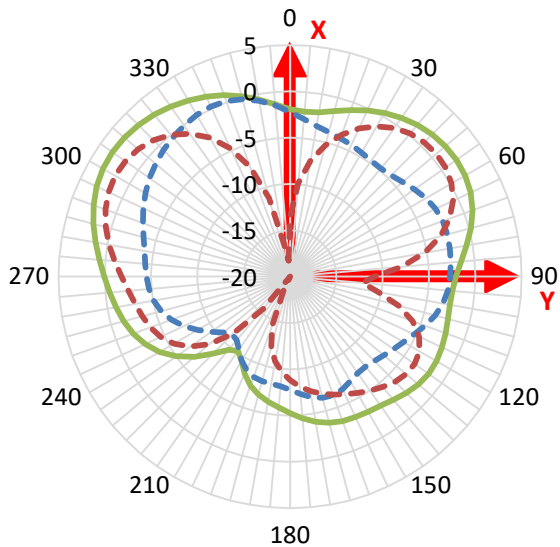


— E_total - - - E_theta - - - E_phi

2D Radiation pattern _ 2450MHz

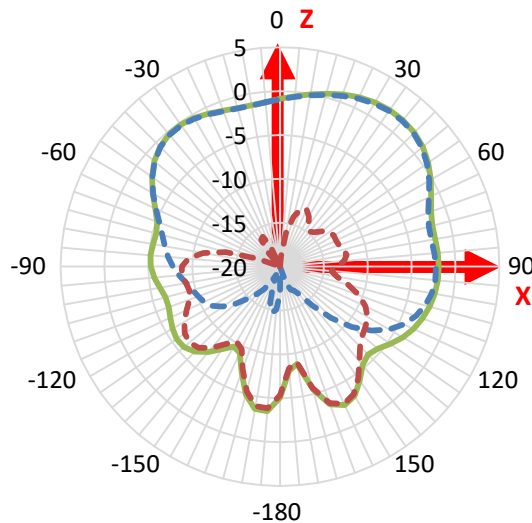


2450MHz-XY



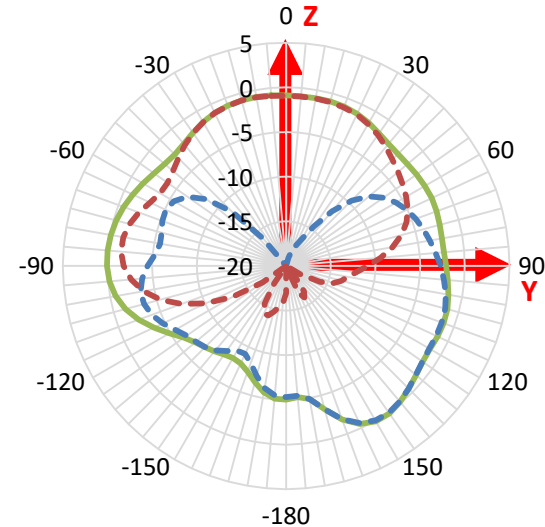
— E_total - - - E_theta - - - E_phi

2450MHz-XZ



— E_total - - - E_theta - - - E_phi

2450MHz-YZ

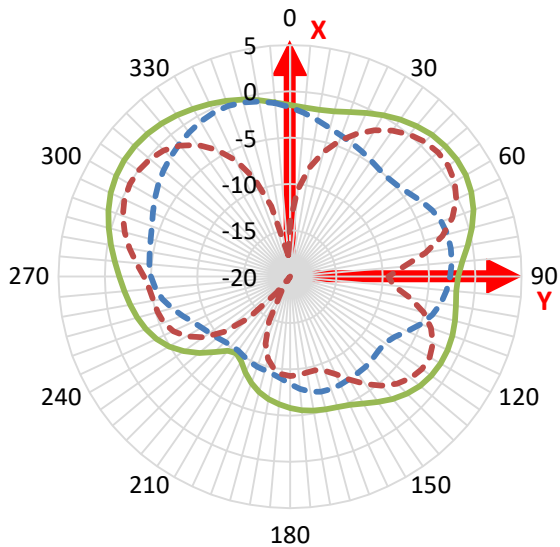


— E_total - - - E_theta - - - E_phi

2D Radiation pattern _ 2500MHz

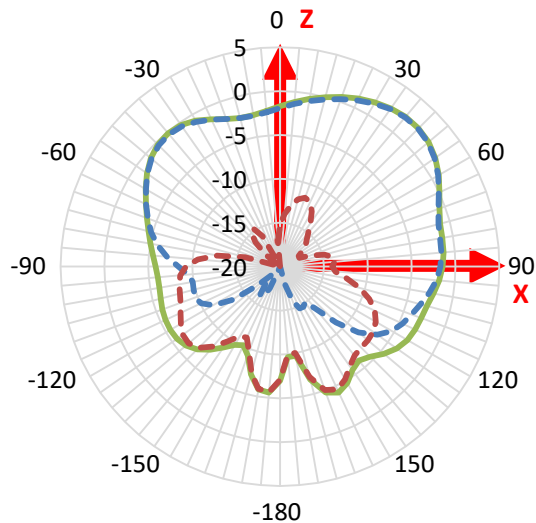


2500MHz-XY



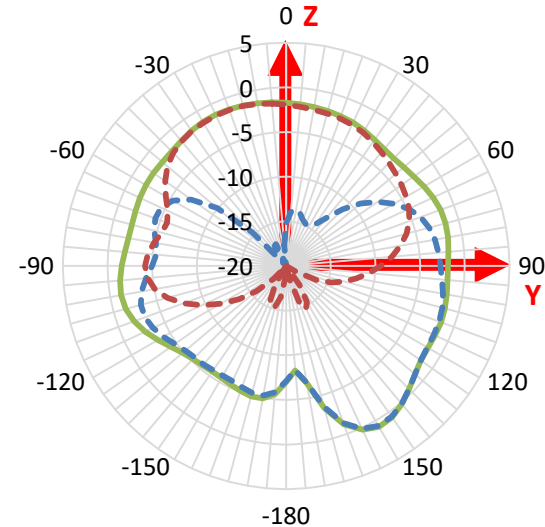
— E_total - - - E_theta - - - E_phi

2500MHz-XZ



— E_total - - - E_theta - - - E_phi

2500MHz-YZ



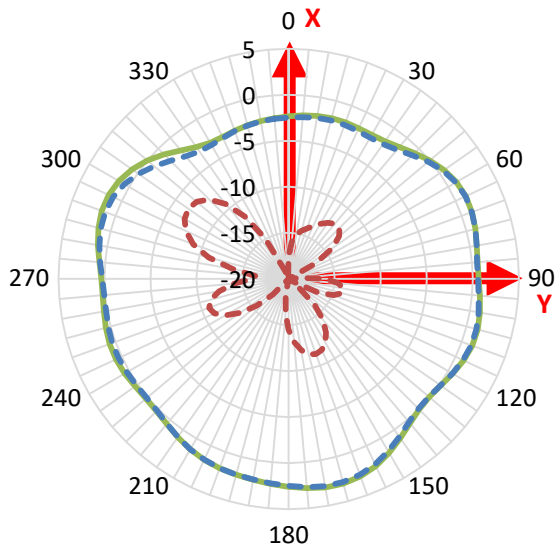
— E_total - - - E_theta - - - E_phi

DB12

2D Radiation pattern _ 2400MHz

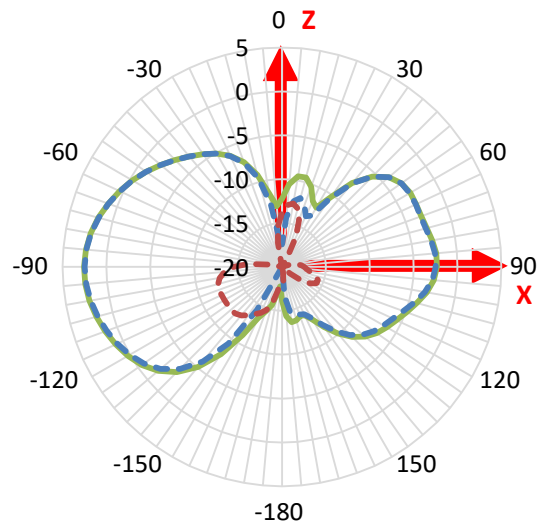


2400MHz-XY



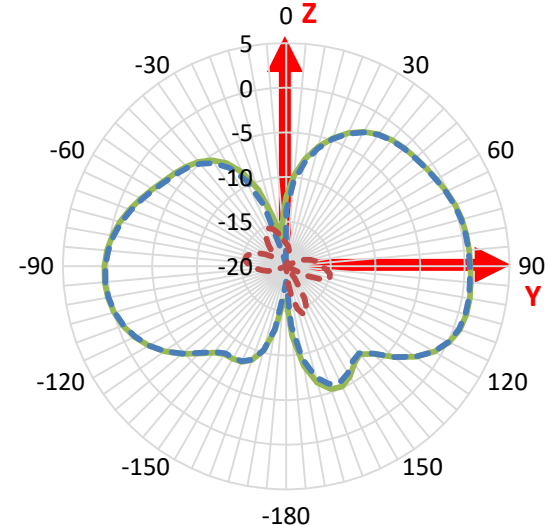
— E_total - - - E_theta - - - E_phi

2400MHz-XZ



— E_total - - - E_theta - - - E_phi

2400MHz-YZ

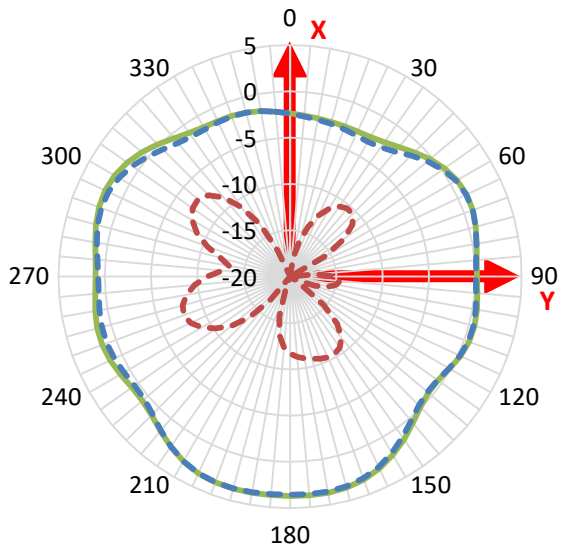


— E_total - - - E_theta - - - E_phi

2D Radiation pattern _ 2450MHz

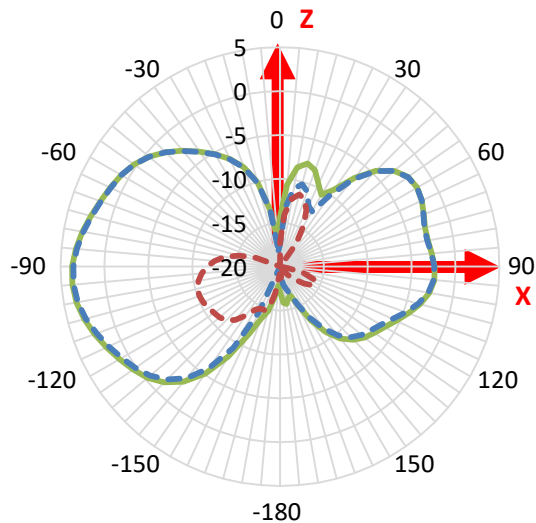


2450MHz-XY



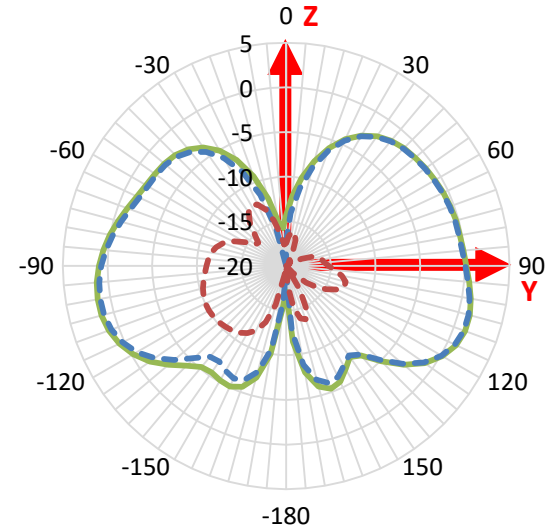
— E_total - - - E_theta - - - E_phi

2450MHz-XZ



— E_total - - - E_theta - - - E_phi

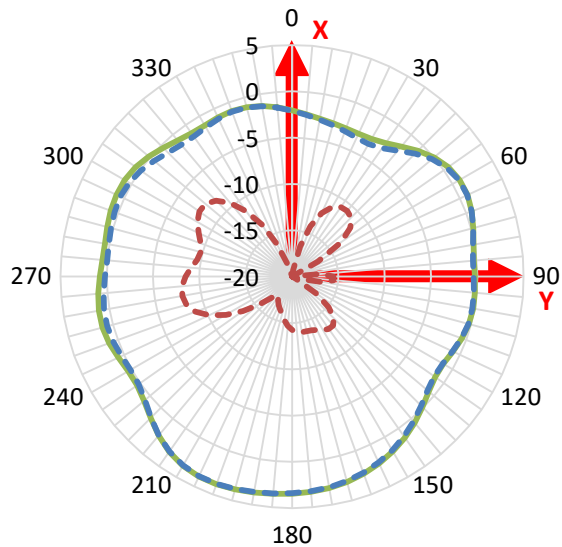
2450MHz-YZ



— E_total - - - E_theta - - - E_phi

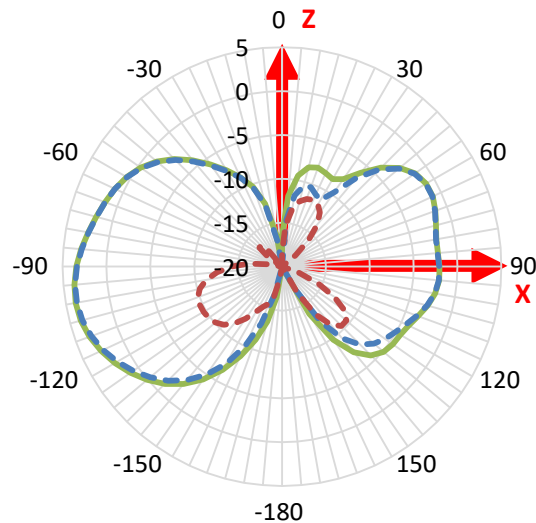
2D Radiation pattern _ 2500MHz

2500MHz-XY



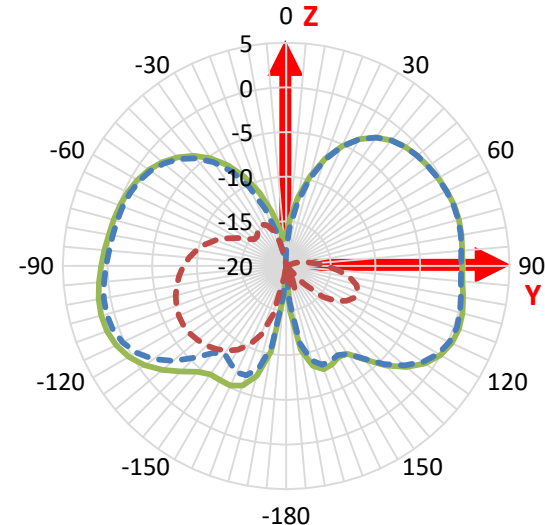
— E_{total} - - E_{theta} - - E_{phi}

2500MHz-XZ



— E_{total} - - E_{theta} - - E_{phi}

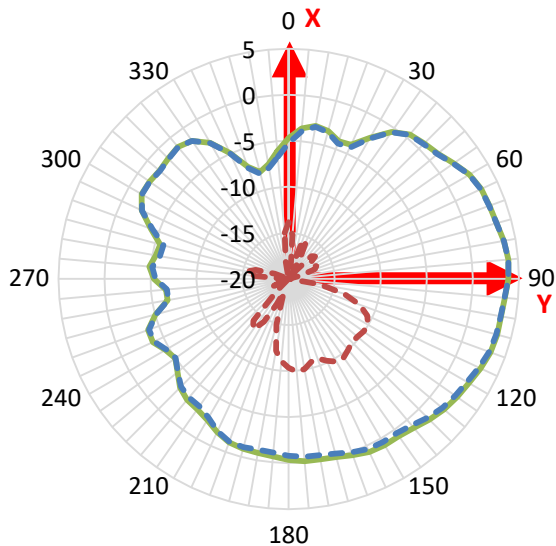
2500MHz-YZ



— E_{total} - - E_{theta} - - E_{phi}

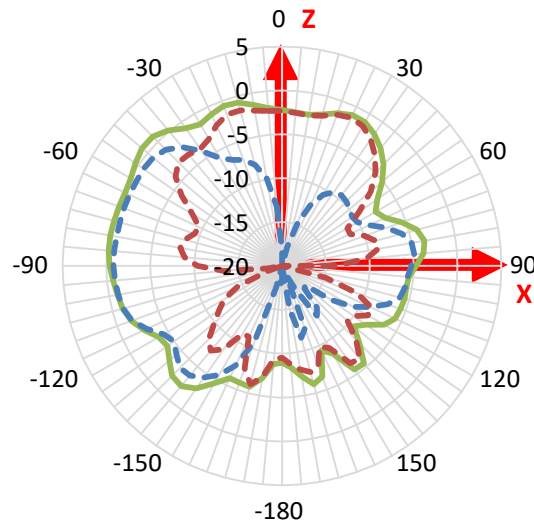
2D Radiation pattern _ 5150MHz

5150MHz-XY



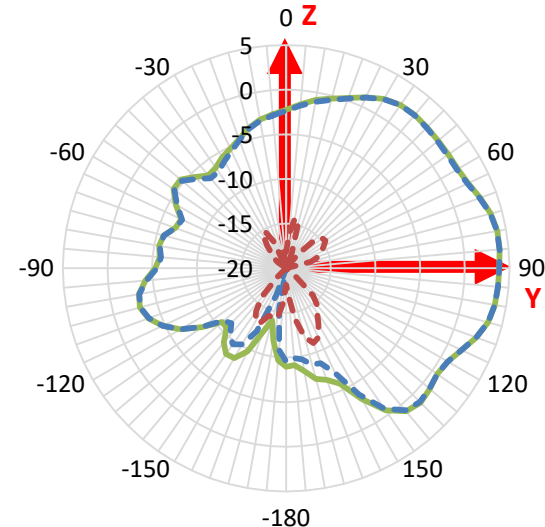
— E_total - - - E_theta - - - E_phi

5150MHz-XZ



— E_total - - - E_theta - - - E_phi

5150MHz-YZ

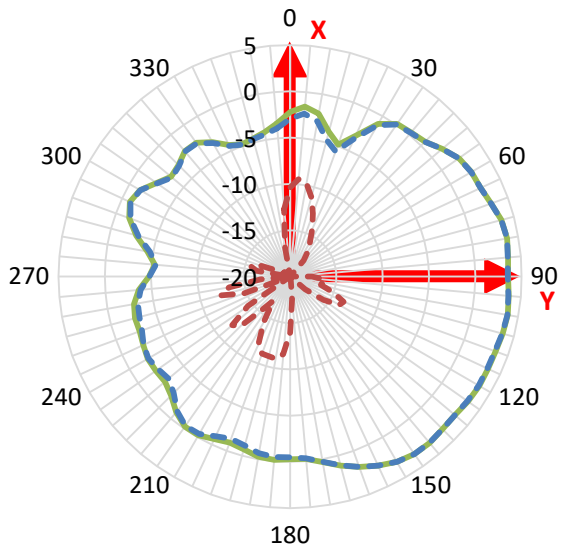


— E_total - - - E_theta - - - E_phi

2D Radiation pattern _ 5500MHz

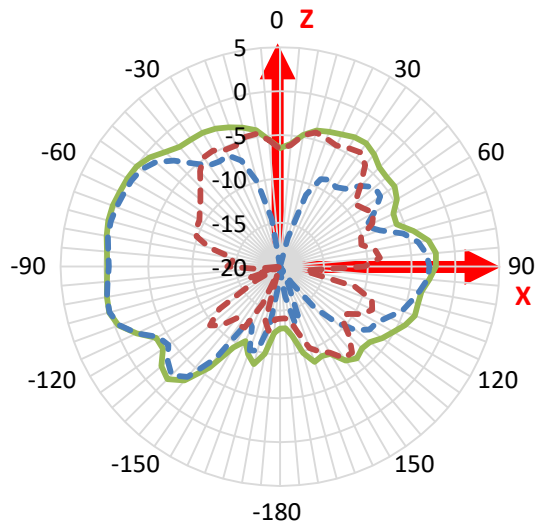


5500MHz-XY



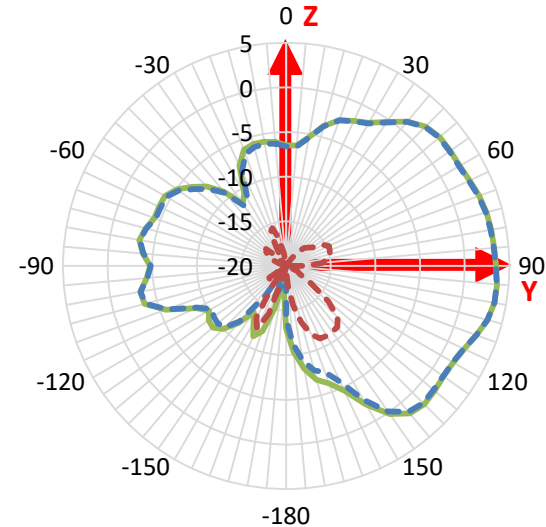
— E_{total} - - E_{theta} - - E_{phi}

5500MHz-XZ



— E_{total} - - E_{theta} - - E_{phi}

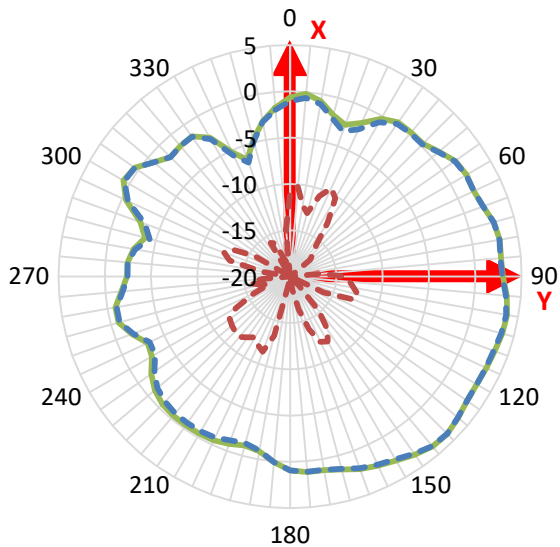
5500MHz-YZ



— E_{total} - - E_{theta} - - E_{phi}

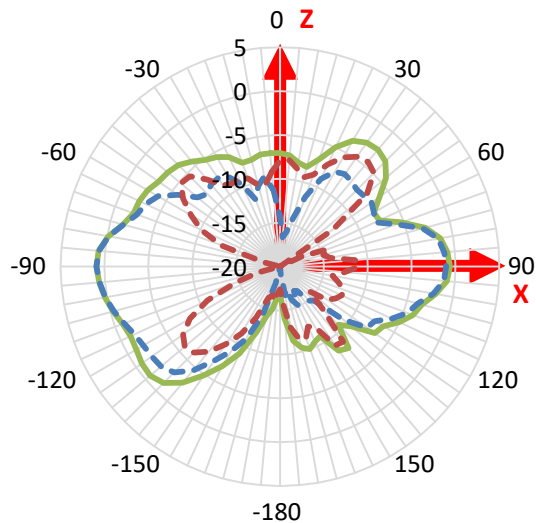
2D Radiation pattern _ 5850MHz

5850MHz-XY



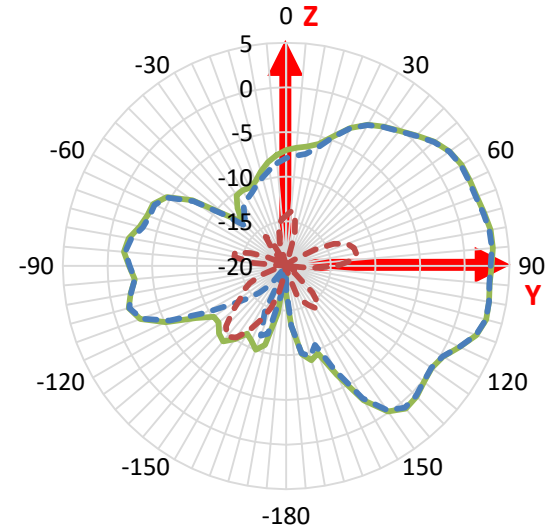
— E_total - - - E_theta - - - E_phi

5850MHz-XZ



— E_total - - - E_theta - - - E_phi

5850MHz-YZ



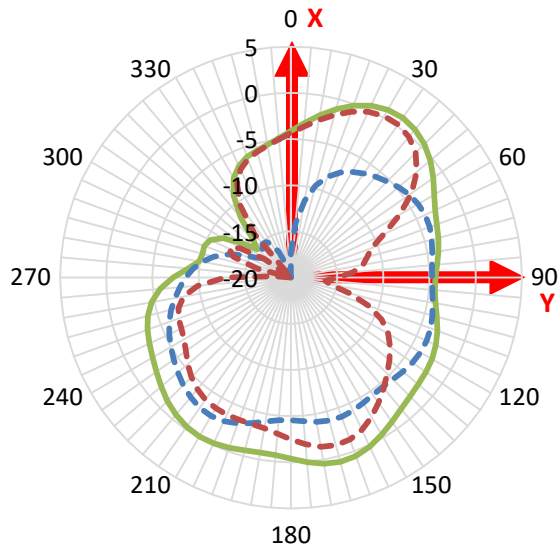
— E_total - - - E_theta - - - E_phi

DB21

2D Radiation pattern _ 2400MHz

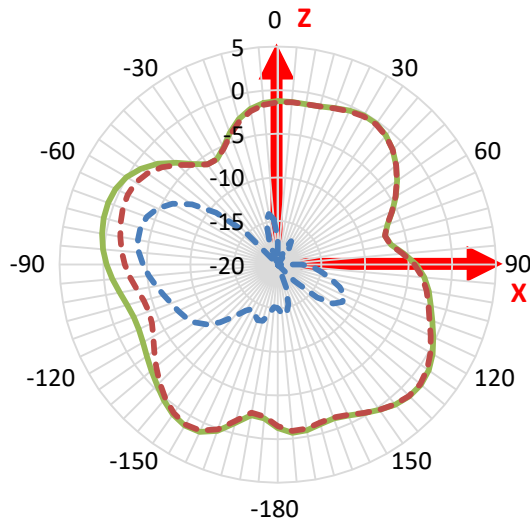


2400MHz-XY



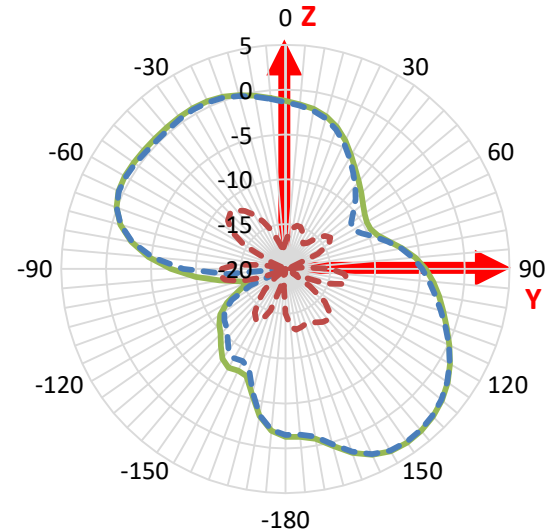
— E_total - - - E_theta - - - E_phi

2400MHz-XZ



— E_total - - - E_theta - - - E_phi

2400MHz-YZ

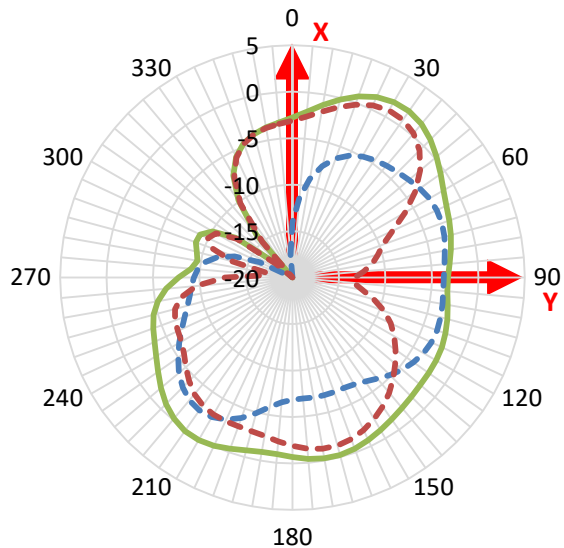


— E_total - - - E_theta - - - E_phi

2D Radiation pattern _ 2450MHz

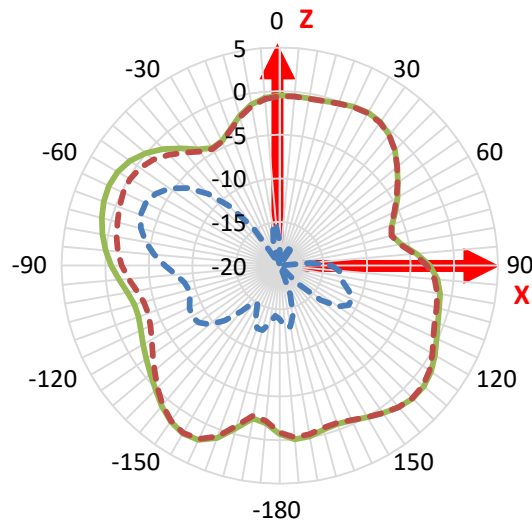


2450MHz-XY



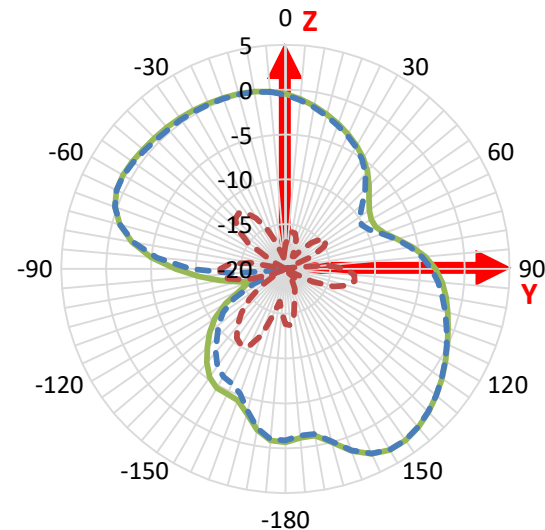
— E_total - - - E_theta - - - E_phi

2450MHz-XZ



— E_total - - - E_theta - - - E_phi

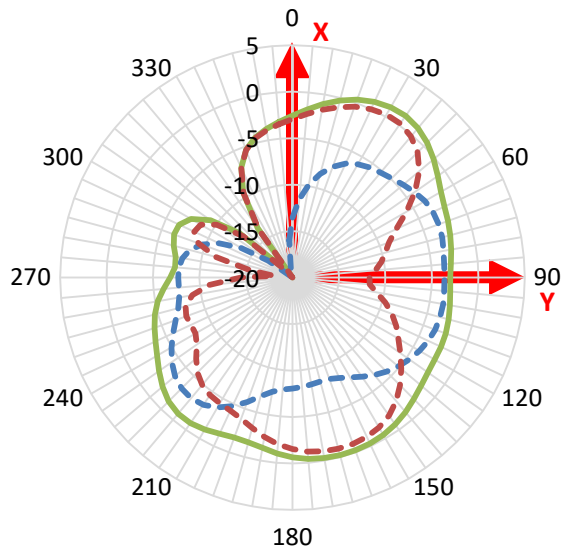
2450MHz-YZ



— E_total - - - E_theta - - - E_phi

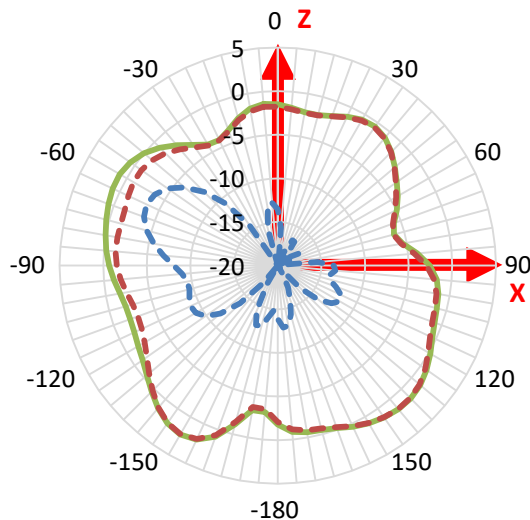
2D Radiation pattern _ 2500MHz

2500MHz-XY



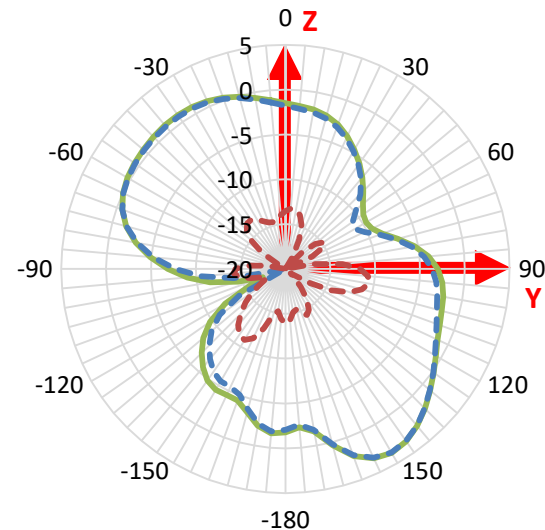
— E_total - - - E_theta - - - E_phi

2500MHz-XZ



— E_total - - - E_theta - - - E_phi

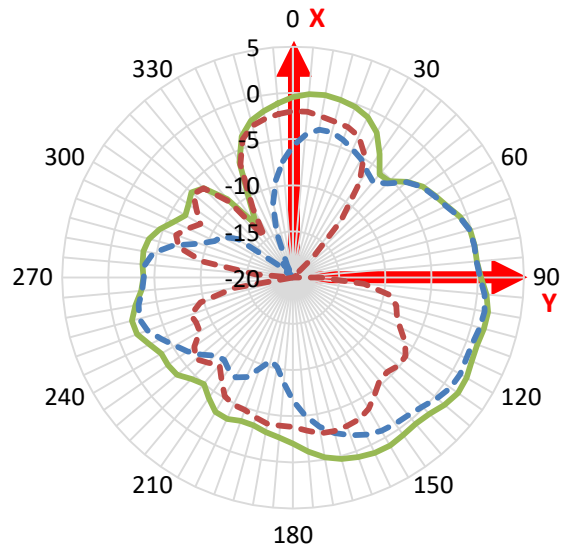
2500MHz-YZ



— E_total - - - E_theta - - - E_phi

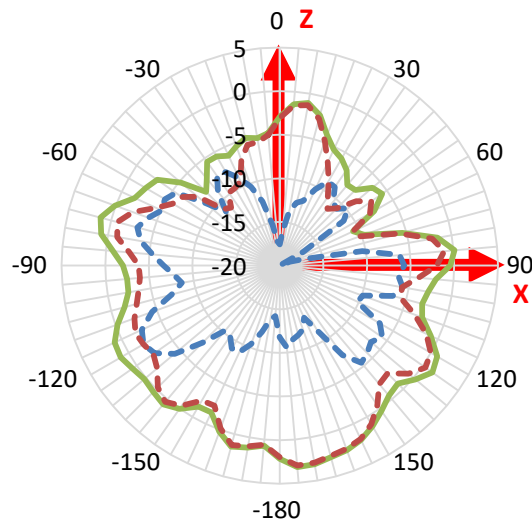
2D Radiation pattern _ 5150MHz

5150MHz-XY



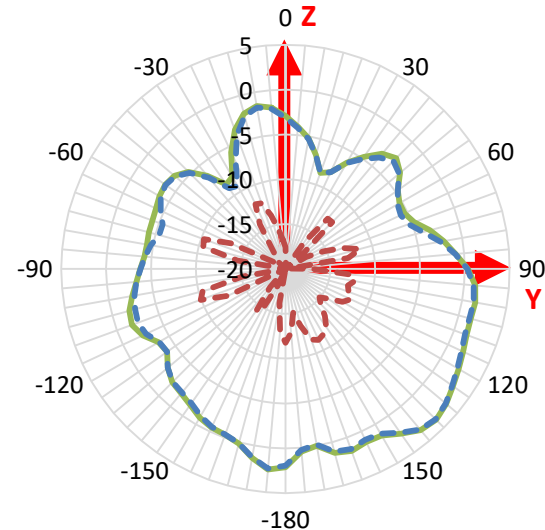
— E_total - - - E_theta - - - E_phi

5150MHz-XZ



— E_total - - - E_theta - - - E_phi

5150MHz-YZ

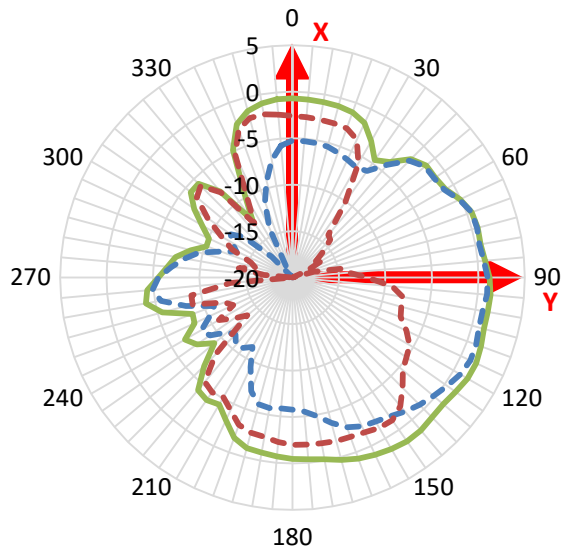


— E_total - - - E_theta - - - E_phi

2D Radiation pattern _ 5500MHz

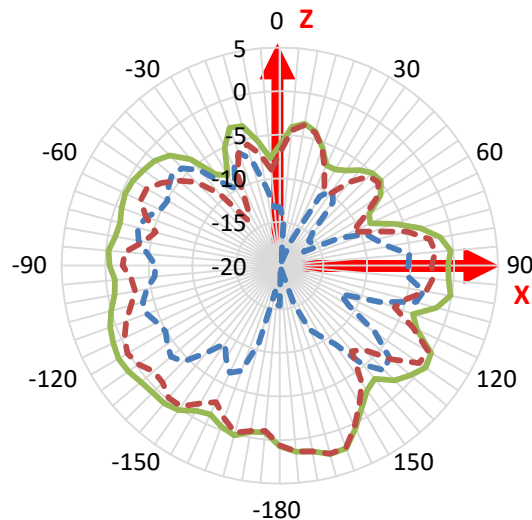


5500MHz-XY



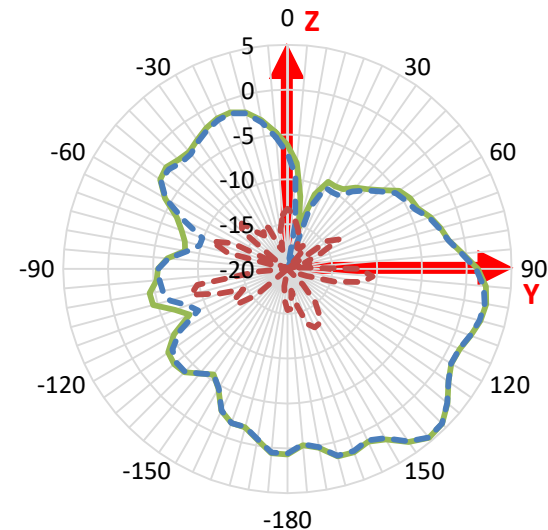
— E_total - - - E_theta - - - E_phi

5500MHz-XZ



— E_total - - - E_theta - - - E_phi

5500MHz-YZ

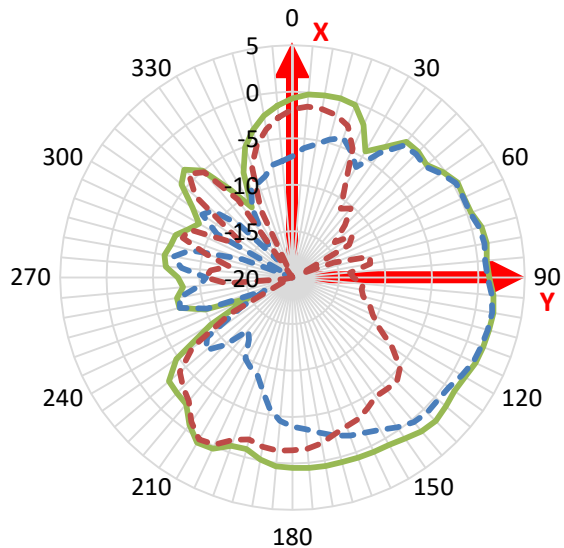


— E_total - - - E_theta - - - E_phi

2D Radiation pattern _ 5850MHz

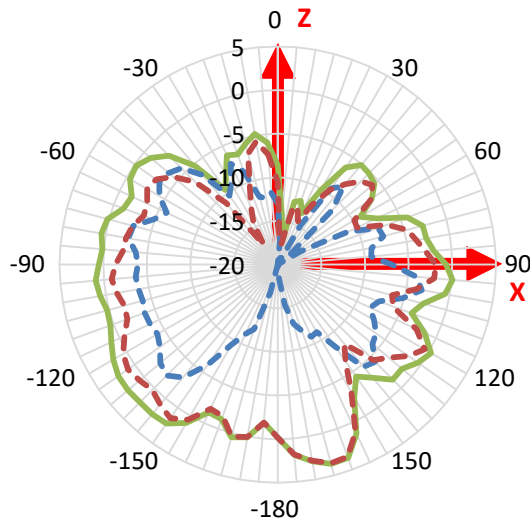


5850MHz-XY



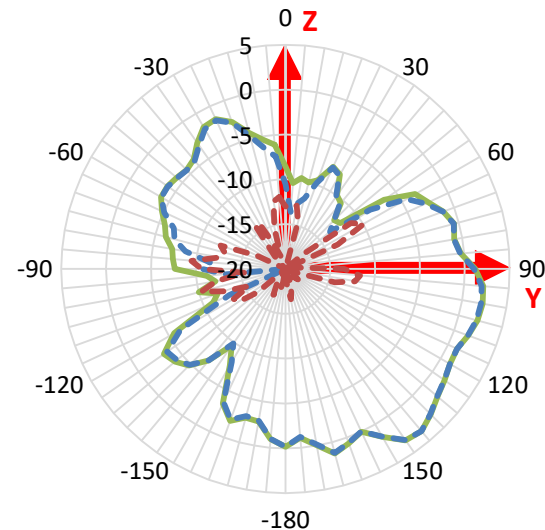
— E_total - - - E_theta - - - E_phi

5850MHz-XZ



— E_total - - - E_theta - - - E_phi

5850MHz-YZ



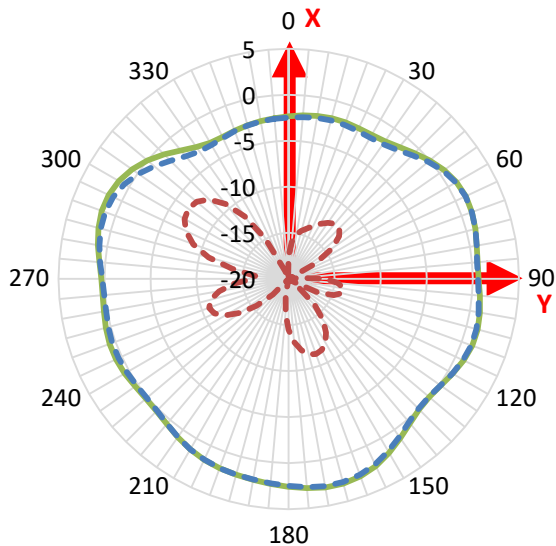
— E_total - - - E_theta - - - E_phi

DB30

2D Radiation pattern _ 2400MHz

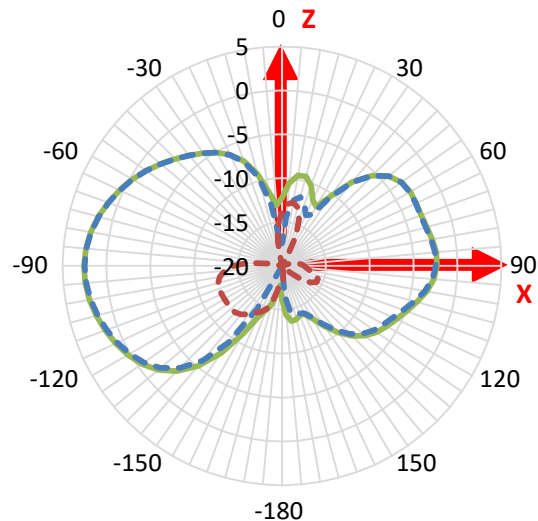


2400MHz-XY



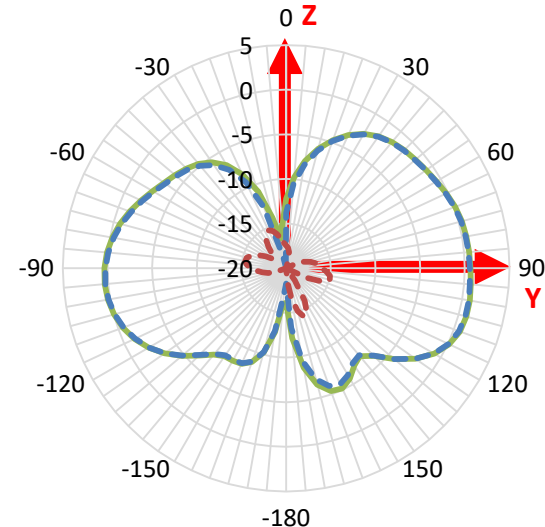
— E_total - - - E_theta - - - E_phi

2400MHz-XZ



— E_total - - - E_theta - - - E_phi

2400MHz-YZ

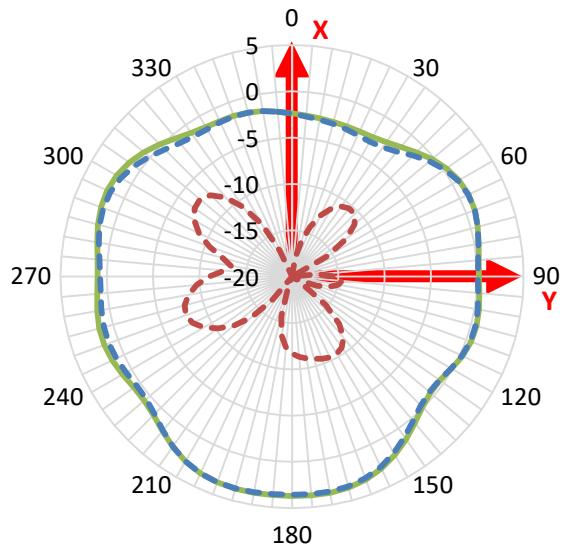


— E_total - - - E_theta - - - E_phi

2D Radiation pattern _ 2450MHz

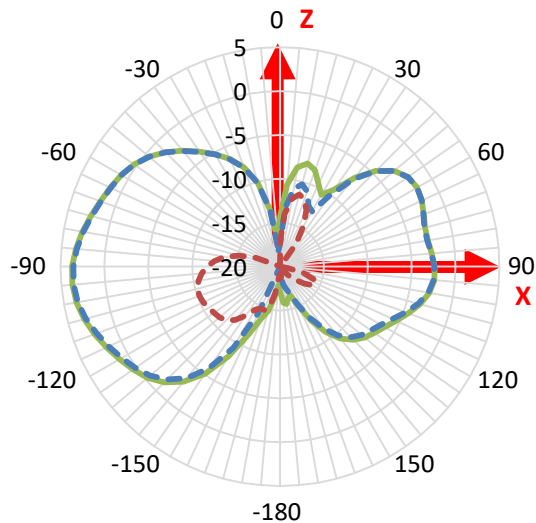


2450MHz-XY



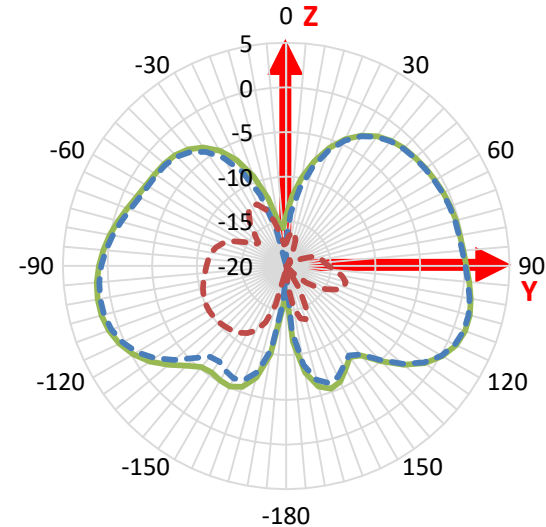
— E_total - - - E_theta - - - E_phi

2450MHz-XZ



— E_total - - - E_theta - - - E_phi

2450MHz-YZ

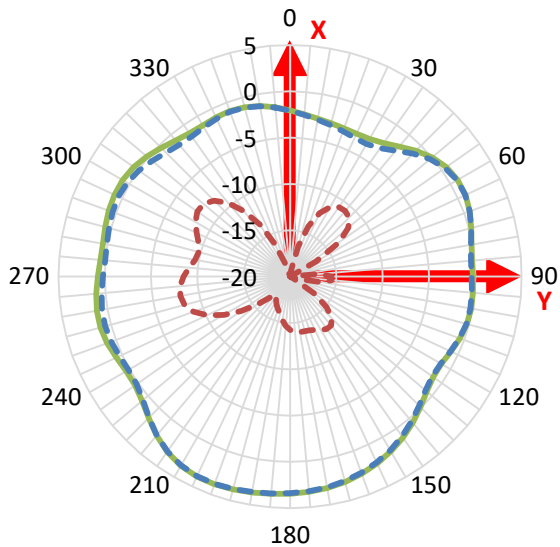


— E_total - - - E_theta - - - E_phi

2D Radiation pattern _ 2500MHz

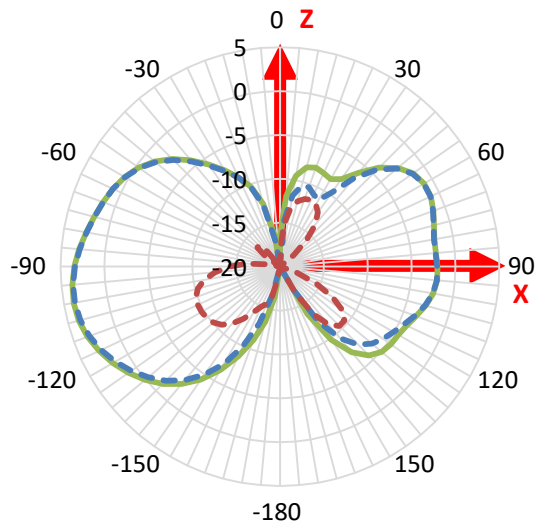


2500MHz-XY



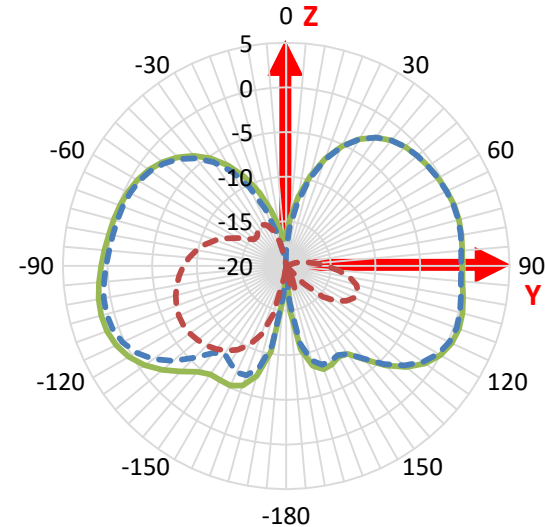
— E_total - - - E_theta - - - E_phi

2500MHz-XZ



— E_total - - - E_theta - - - E_phi

2500MHz-YZ

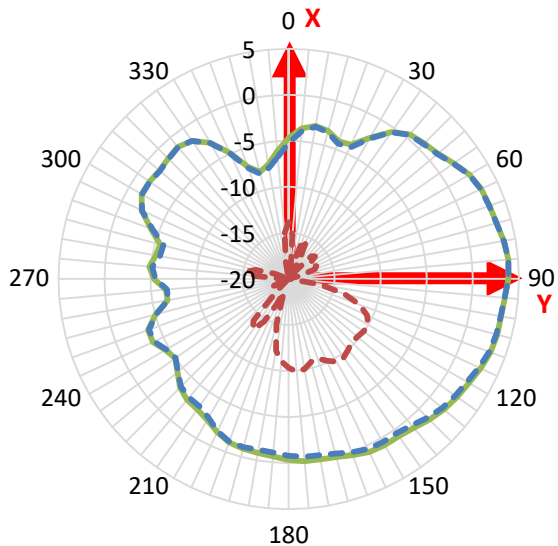


— E_total - - - E_theta - - - E_phi

2D Radiation pattern _ 5150MHz

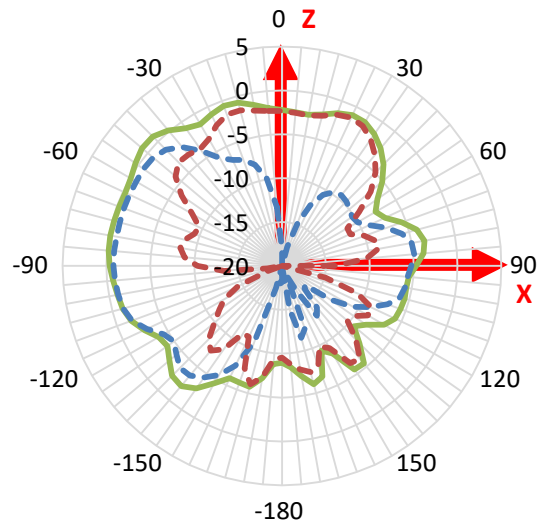


5150MHz-XY



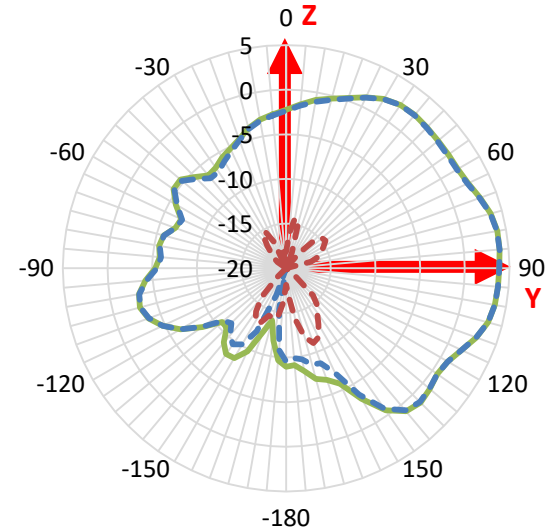
— E_total - - - E_theta - - - E_phi

5150MHz-XZ



— E_total - - - E_theta - - - E_phi

5150MHz-YZ

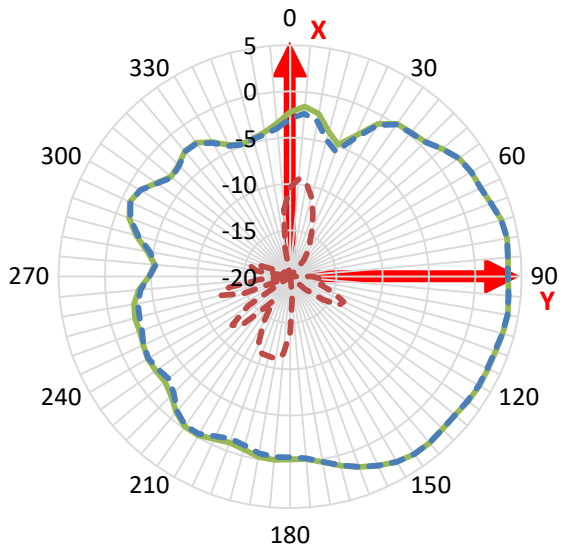


— E_total - - - E_theta - - - E_phi

2D Radiation pattern _ 5500MHz

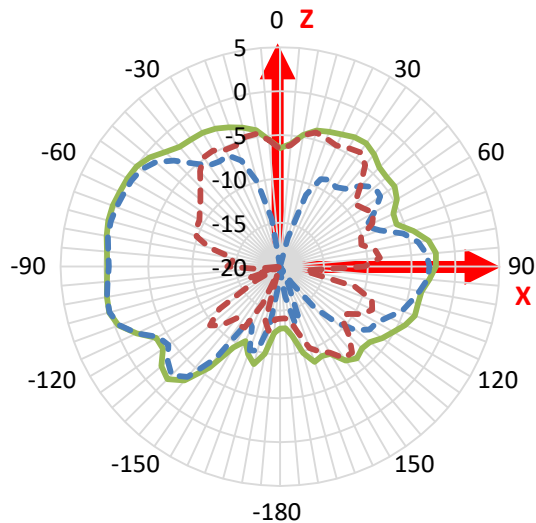


5500MHz-XY



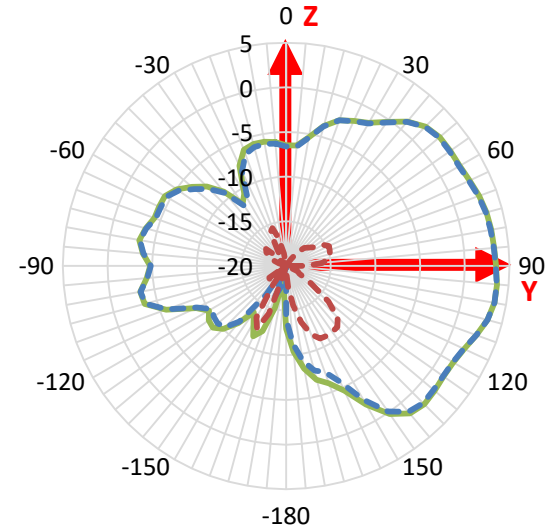
— E_total - - - E_theta - - - E_phi

5500MHz-XZ



— E_total - - - E_theta - - - E_phi

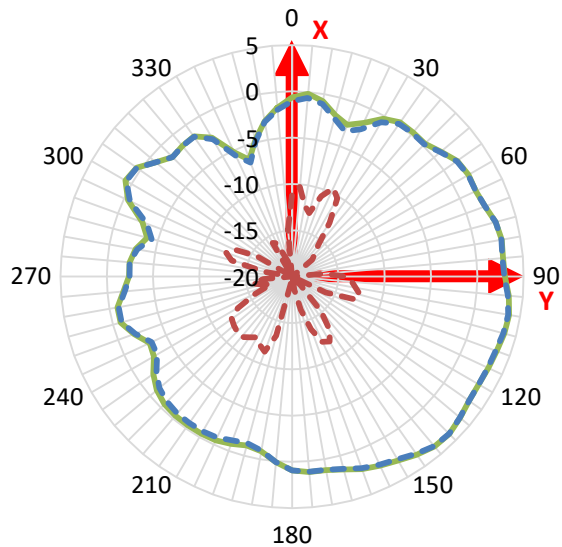
5500MHz-YZ



— E_total - - - E_theta - - - E_phi

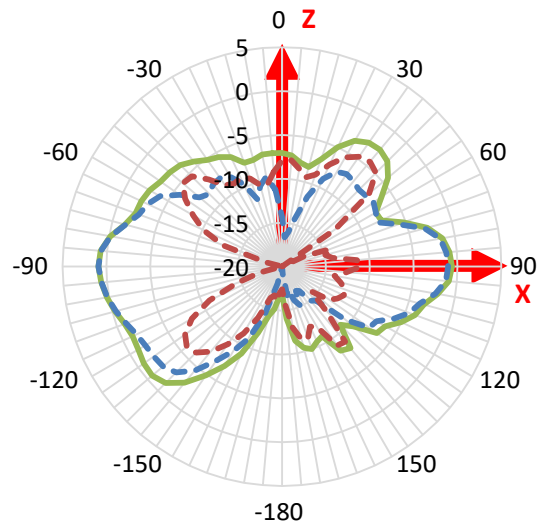
2D Radiation pattern _ 5850MHz

5850MHz-XY



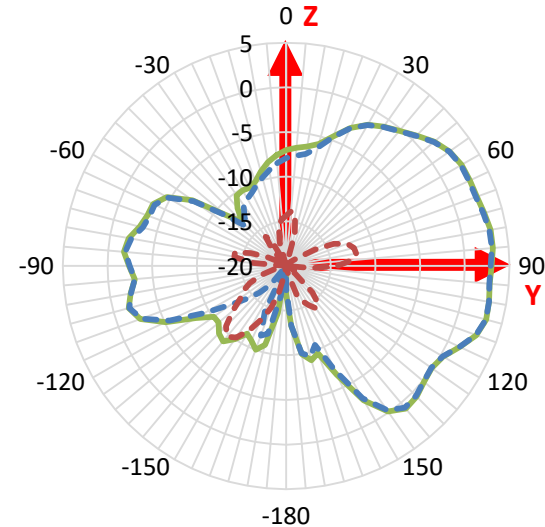
— E_total - - - E_theta - - - E_phi

5850MHz-XZ



— E_total - - - E_theta - - - E_phi

5850MHz-YZ

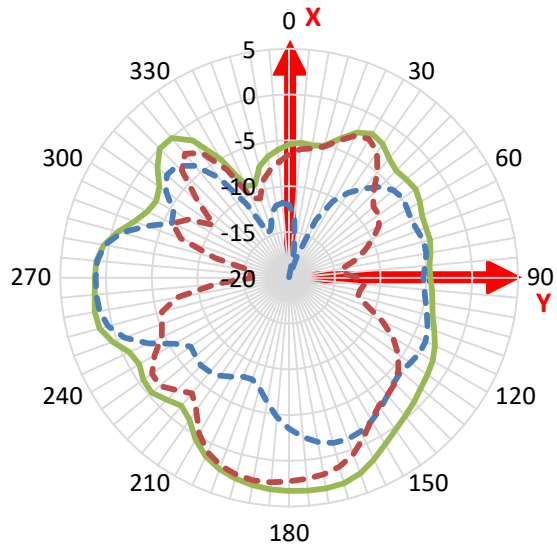


— E_total - - - E_theta - - - E_phi

5G3

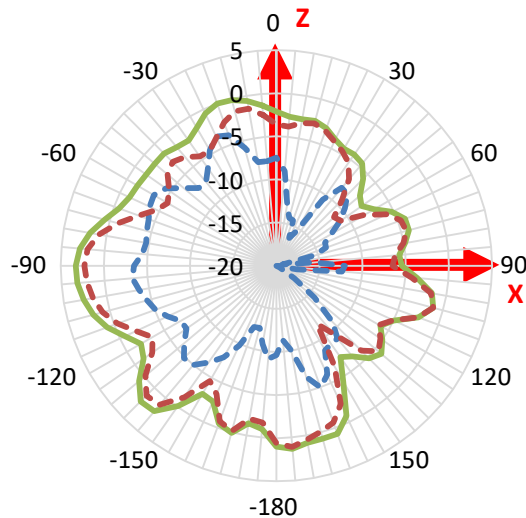
2D Radiation pattern _ 5150MHz

5150MHz-XY



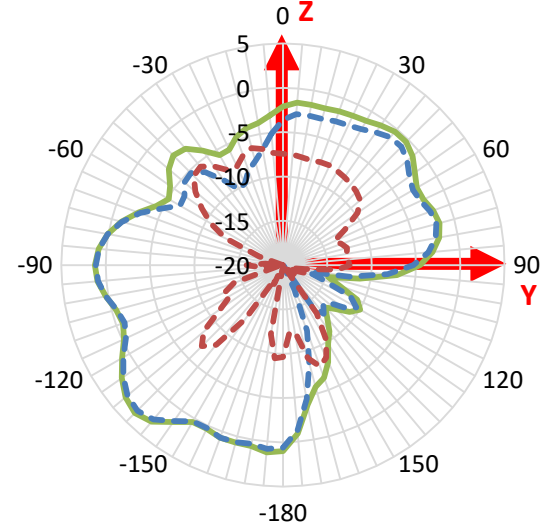
— E_total - - - E_theta - - - E_phi

5150MHz-XZ



— E_total - - - E_theta - - - E_phi

5150MHz-YZ

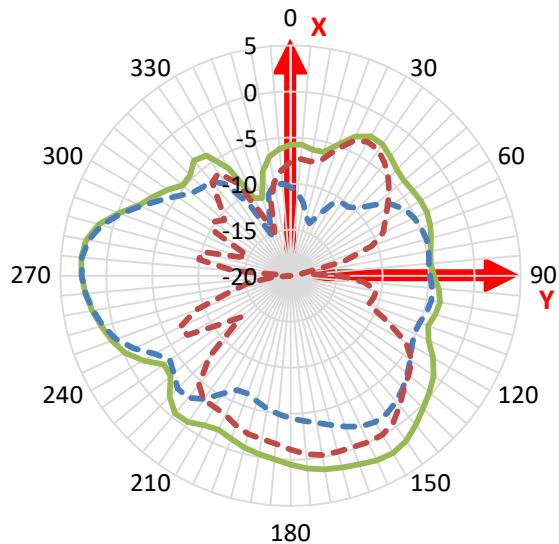


— E_total - - - E_theta - - - E_phi

2D Radiation pattern _ 5500MHz

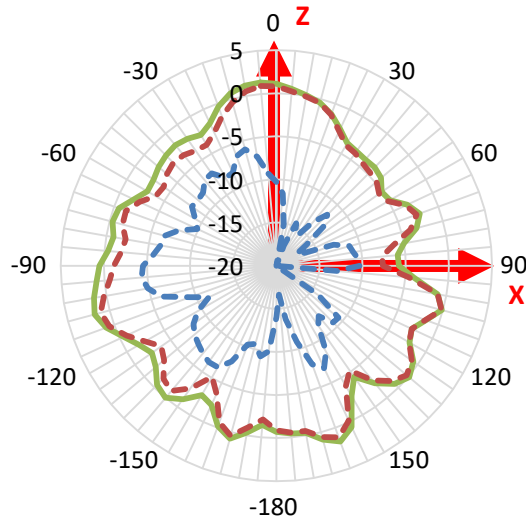


5500MHz-XY



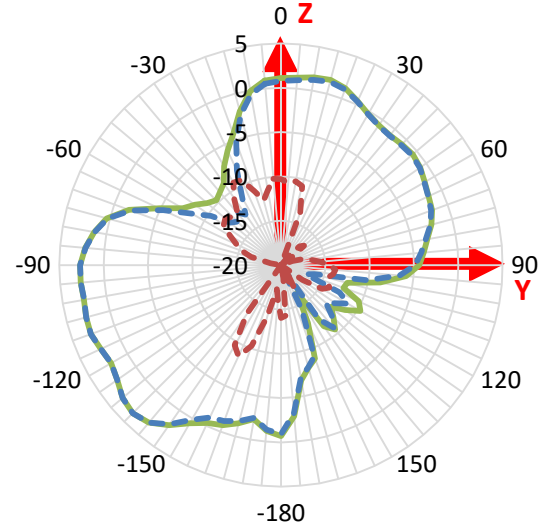
— E_total - - - E_theta - - - E_phi

5500MHz-XZ



— E_total - - - E_theta - - - E_phi

5500MHz-YZ

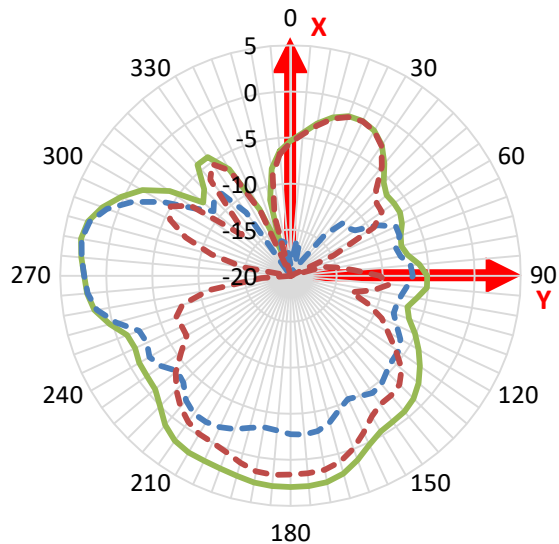


— E_total - - - E_theta - - - E_phi

2D Radiation pattern _ 5850MHz

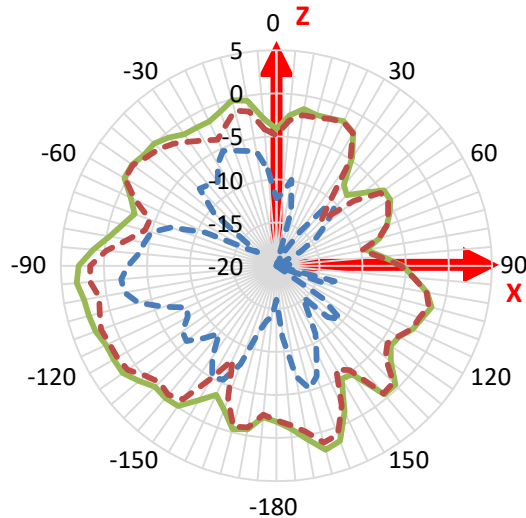


5850MHz-XY



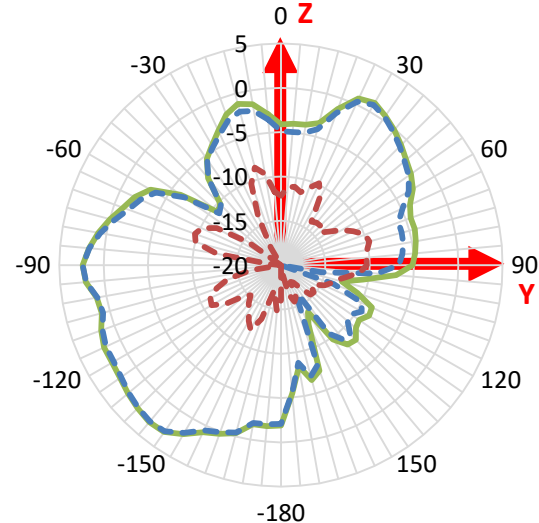
— E_total - - - E_theta - - - E_phi

5850MHz-XZ



— E_total - - - E_theta - - - E_phi

5850MHz-YZ



— E_total - - - E_theta - - - E_phi