

GALTRONICS

WHEN CONNECTIONS COUNT



Gemtek-Cherry Wi-Fi Antenna Performance Report

Galtronics Project: 7935

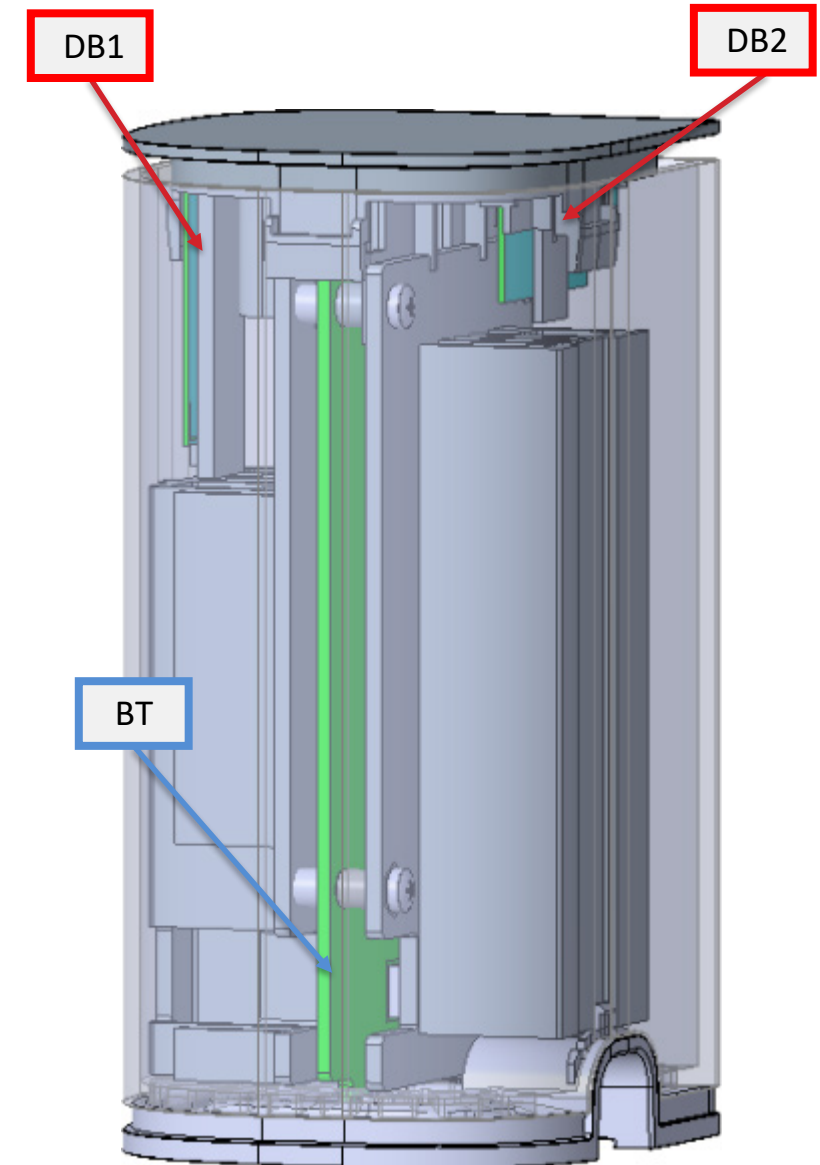
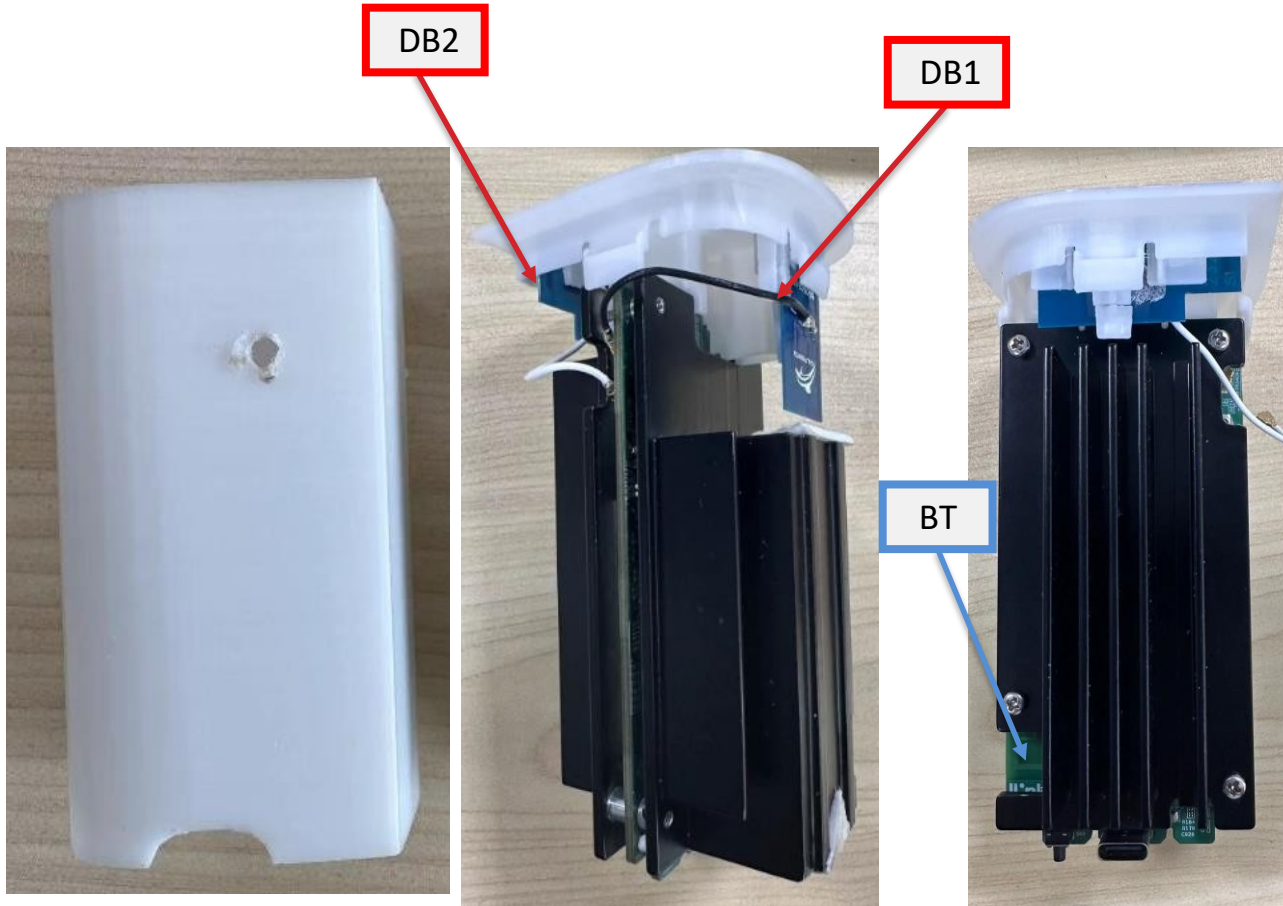
Prepared by Lean
May 24 , 2023

Introduction

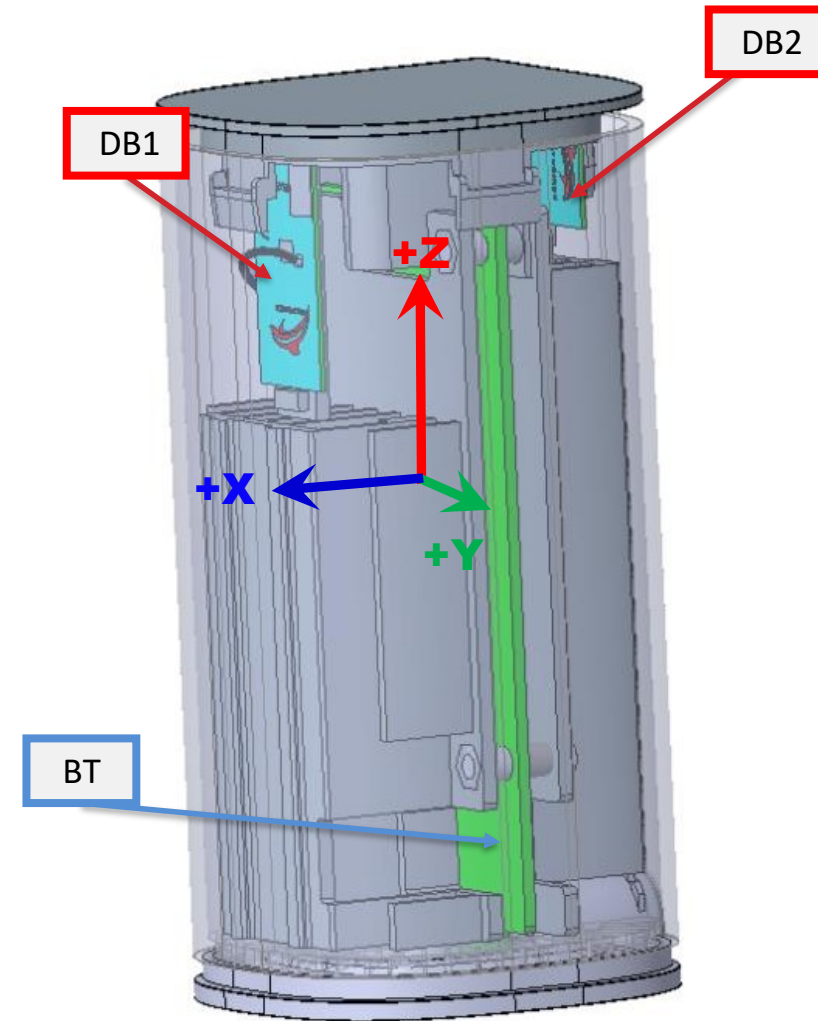
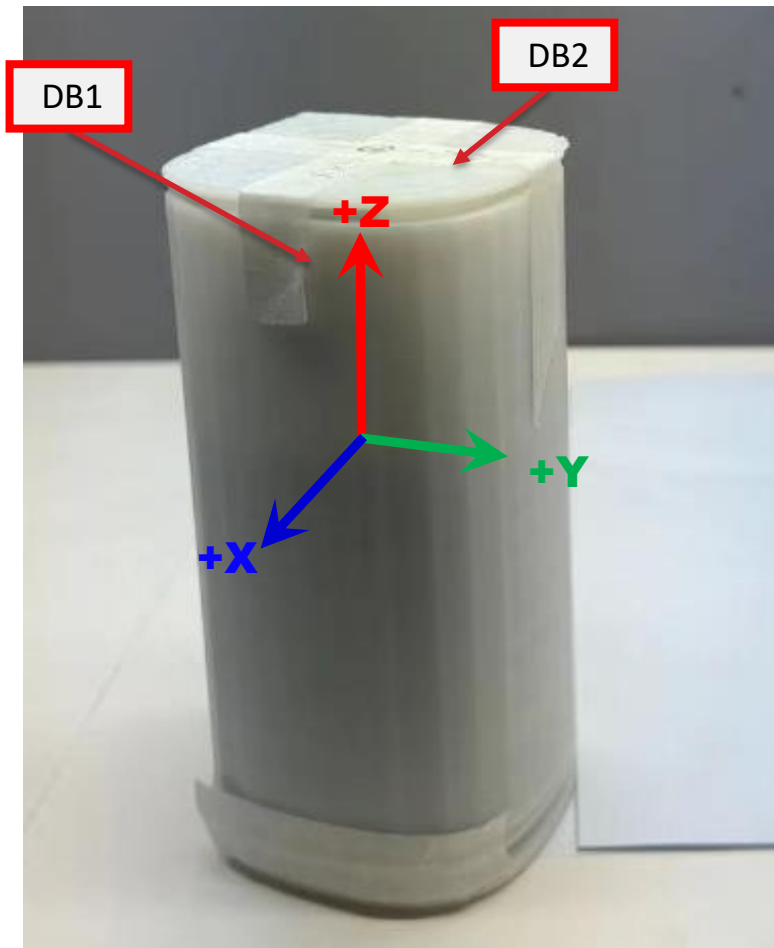
- » Galtronics developed an antenna solution for Gemtek-Cherry
- » There are 3 antennas :
 - Two Cabled PCB WI-FI Dual band antennas :- DB1 and DB2.
 - One On-board 2G band antenna :- BT.

DB1 : 02102140-07935C1/ DB2: 02102140-07935C2
- » The operating frequency of the Dual band is 2.4 GHz-2.5 GHz and 5.15GHz-5.85GHz.
- » The operating frequency of the 2G band is 2.4GHz-2.5GHz.
- » Measured return loss, isolation, peak gain, efficiency, and gain patterns of the antennas

Antenna Location



Chamber Coordinates /



Antenna Orientation

	Antenna Orientation	Cable Length
DB1	V	60mm
DB2	H	60mm

V = vertical

H = horizontal

WiFi Antenna Performance Summary

Antenna	Worst Return loss (dB)	Average Efficiency (%)	Highest Peak Gain (dB)	Mutual Isolation (dB) 2.4 GHz Band		Mutual Isolation (dB) 5GHz Band	
				DB1	DB2	DB1	DB2
DB1_2G	-12.8	63.10	3.35				
DB2_2G	-13.3	64.98	3.72	-21			
DB1_5G	-14.8	70.81	4.92				
DB2_5G	-13.8	71.87	4.79			-29	
BT	-7.8			-27	-26	-36	-34

Gain & Efficiency summary

DB1	Freq(MHz)	Peak Gain(dBi)	Directivity(dBi)	Efficiency(%)
	2400	3.14	5.16	62.81%
	2450	3.19	5.25	62.26%
	2500	3.35	5.27	64.23%
	Average			63.10%

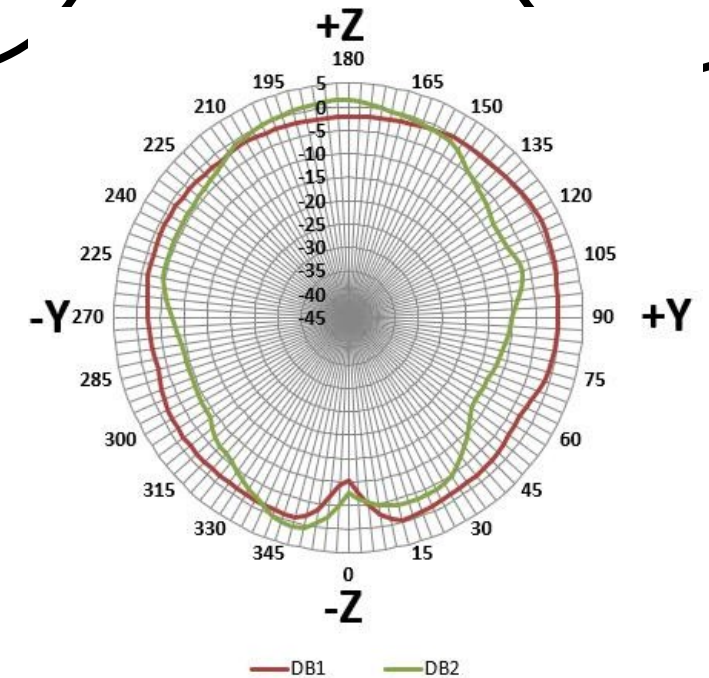
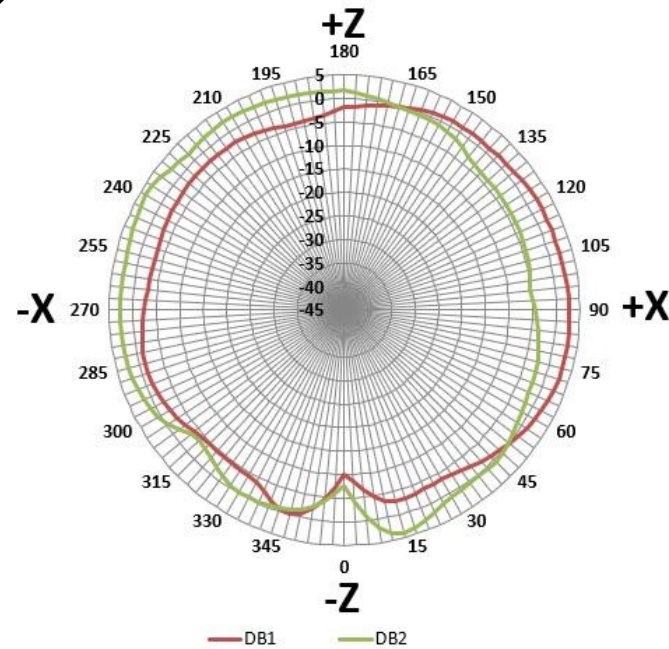
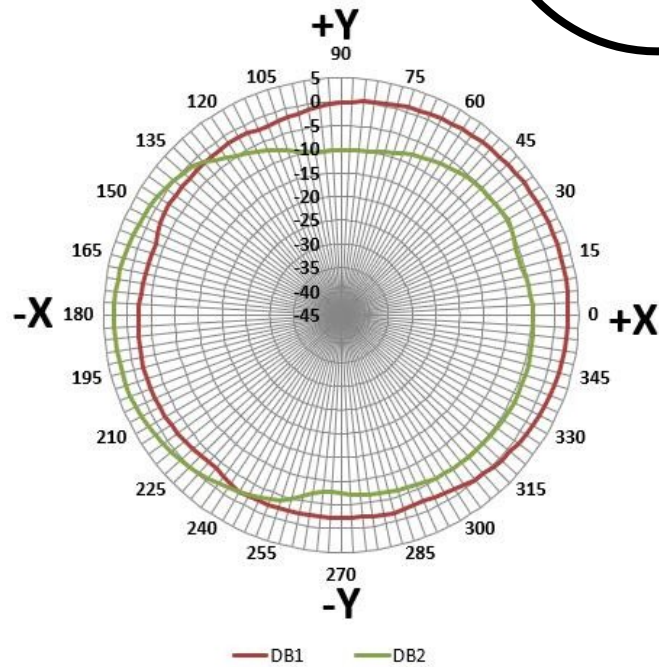
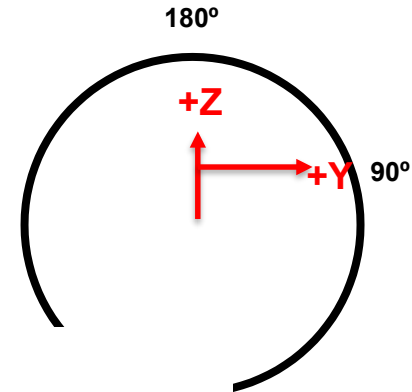
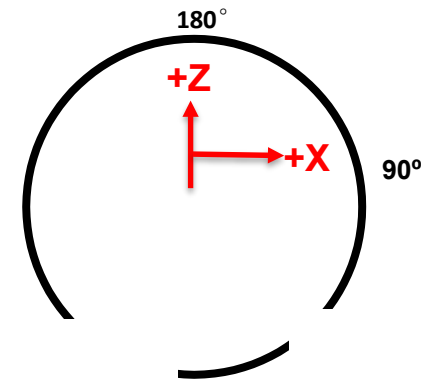
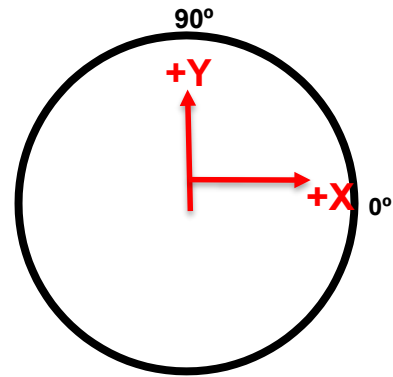
DB2	Freq(MHz)	Peak Gain(dBi)	Directivity(dBi)	Efficiency(%)
	2400	3.47	5.33	65.10%
	2450	3.69	5.51	65.72%
	2500	3.72	5.64	64.13%
	Average			64.98%

DB1	Freq(MHz)	Peak Gain(dBi)	Directivity(dBi)	Efficiency(%)
	5150	4.85	6.34	71.05%
	5250	4.90	6.33	72.02%
	5350	4.64	6.08	71.87%
	5750	4.92	6.50	69.45%
	5850	4.72	6.29	69.66%
	Average			70.81%

DB2	Freq(MHz)	Peak Gain(dBi)	Directivity(dBi)	Efficiency(%)
	5150	4.70	6.18	71.12%
	5250	4.60	6.10	70.74%
	5350	4.70	6.19	70.94%
	5750	4.79	6.26	71.25%
	5850	4.61	5.84	75.29%
	Average			71.87%

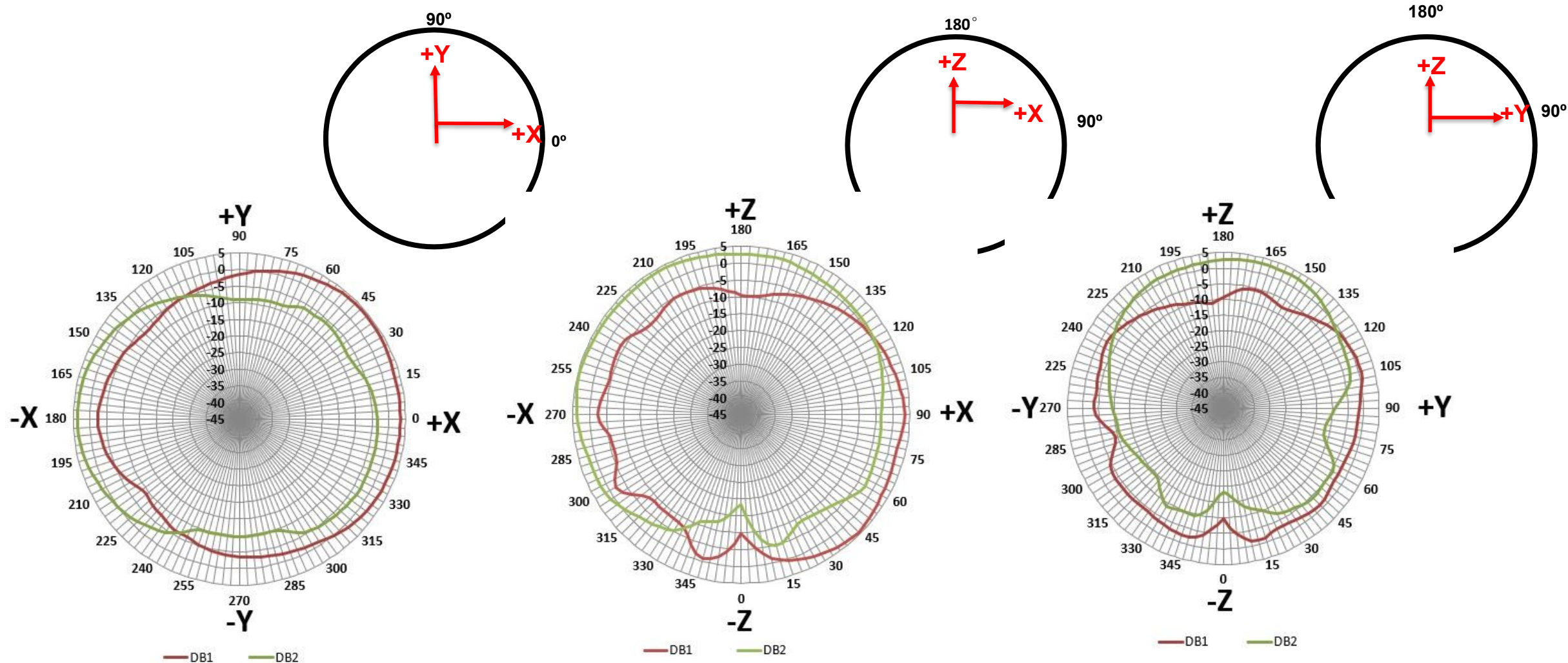
System Coverage- Gain [dB]

2450MHz _Dual band



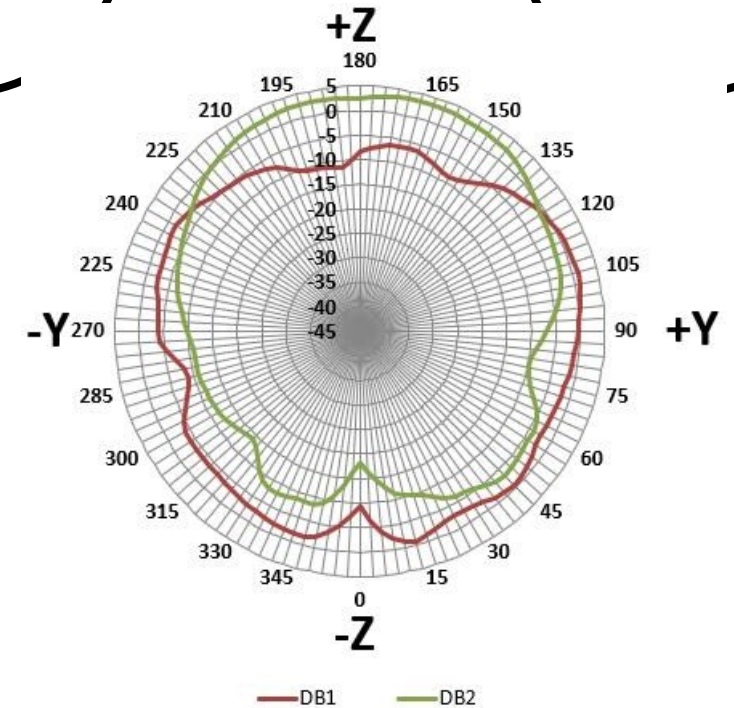
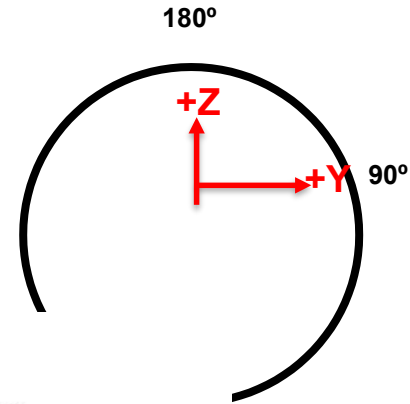
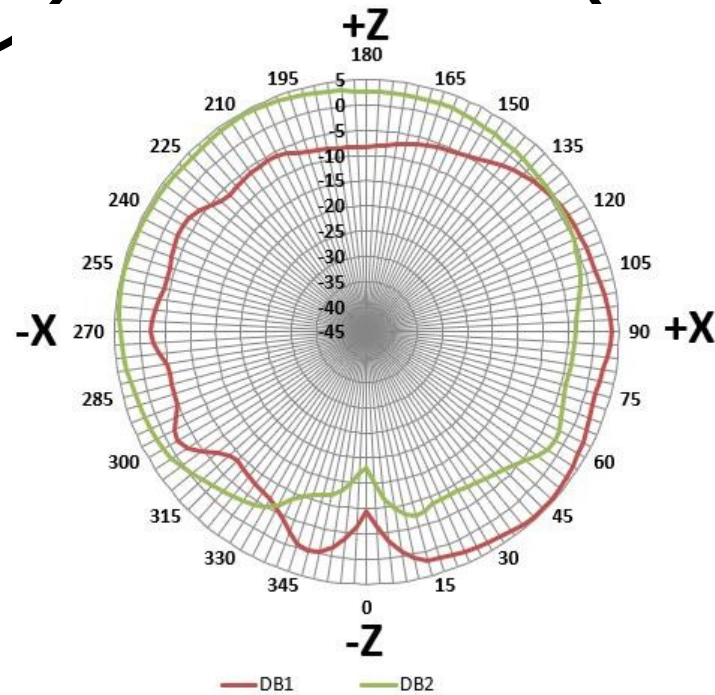
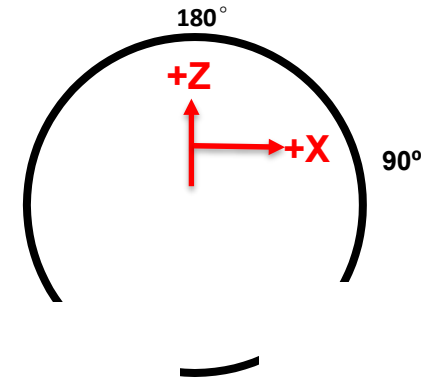
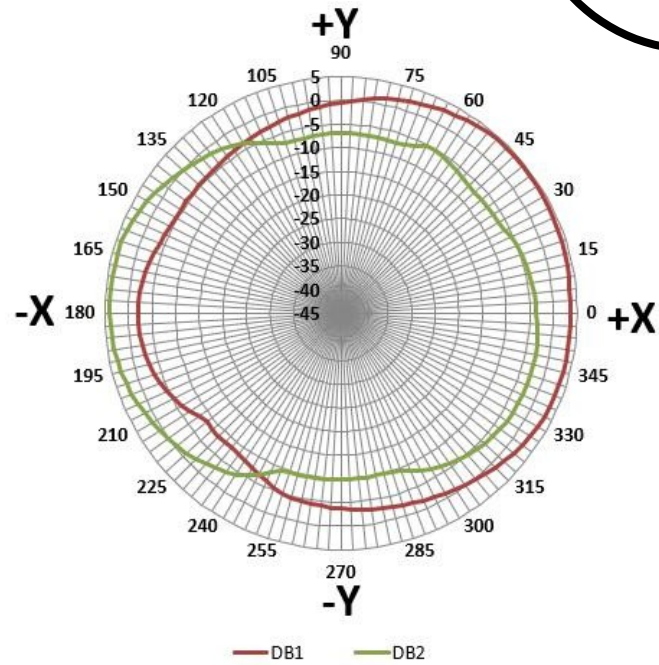
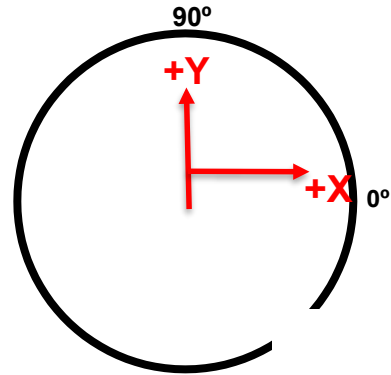
System Coverage- Gain [dB]

5350MHz _Dual band

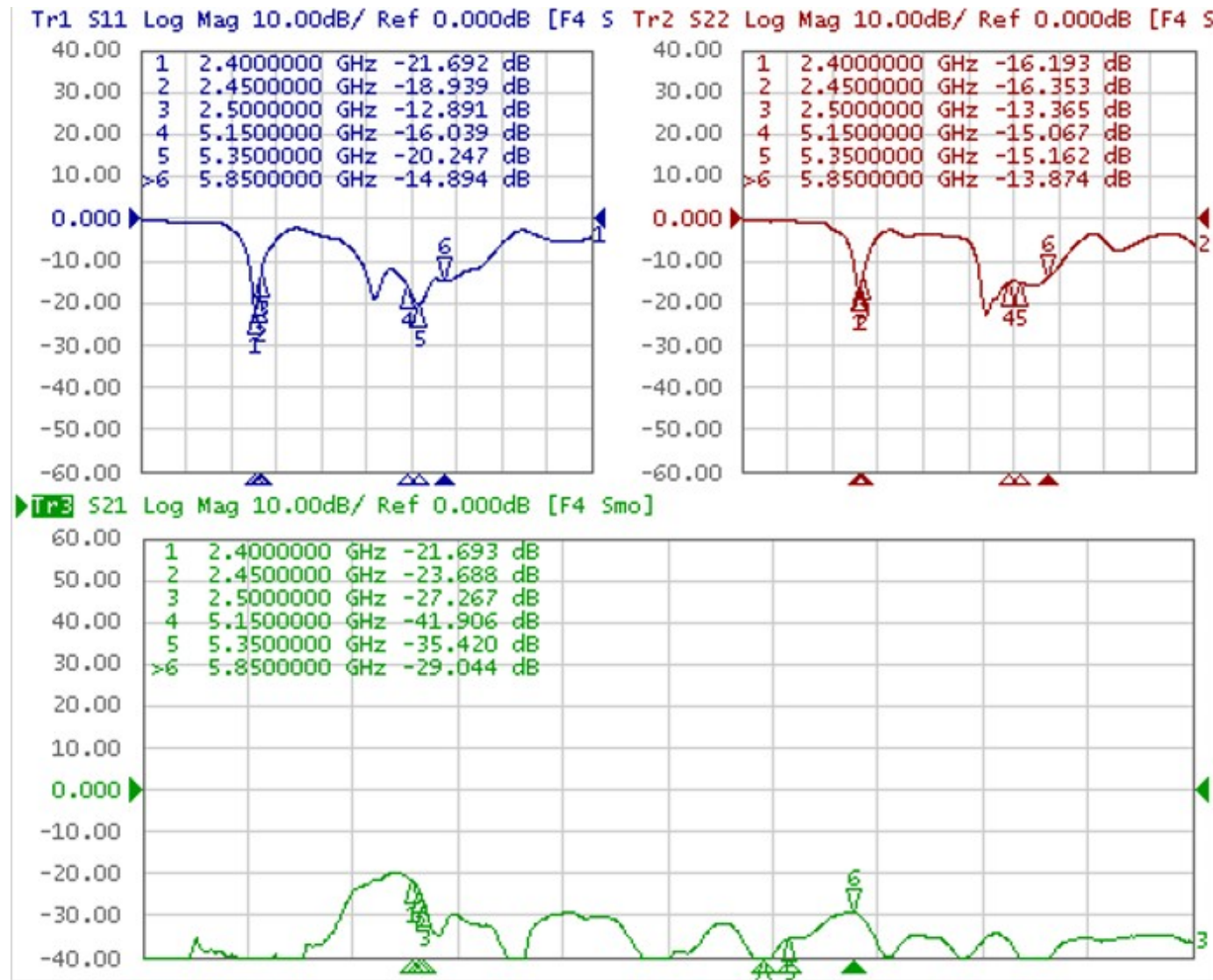


System Coverage- Gain [dB]

5750MHz _Dual band



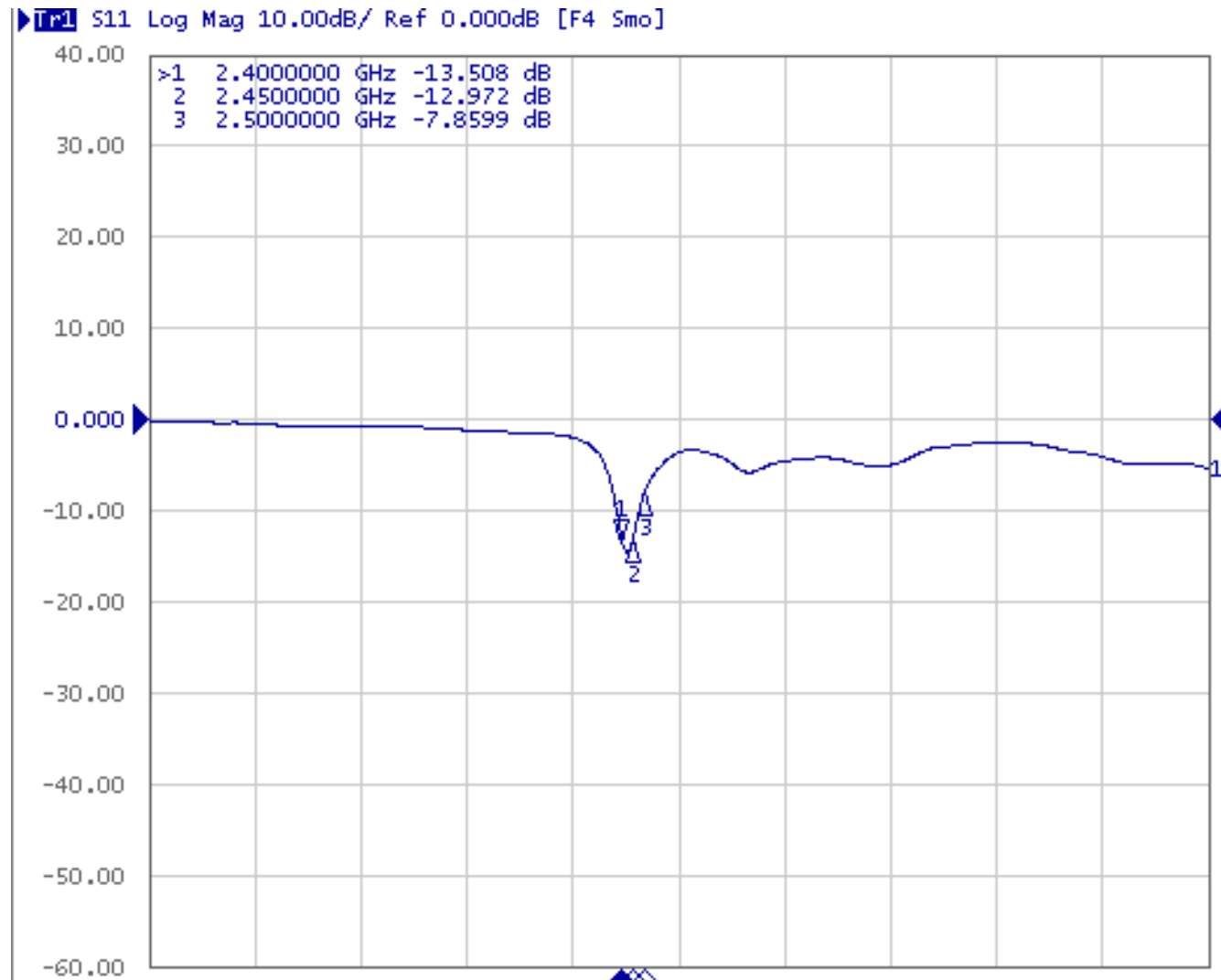
Return Loss and Isolation- Dual Band



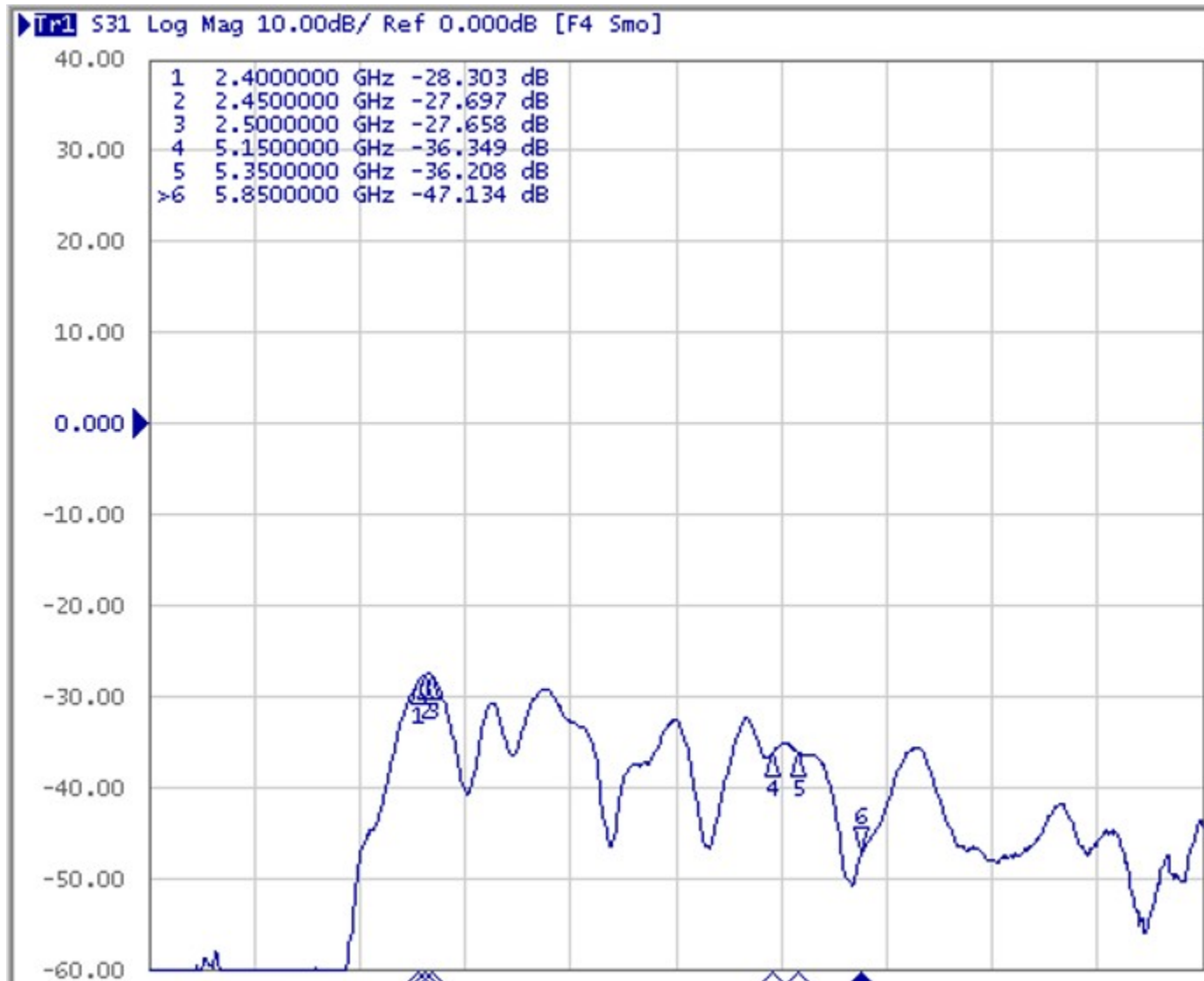
Port1= DB1

Port2= DB2

Return Loss BT



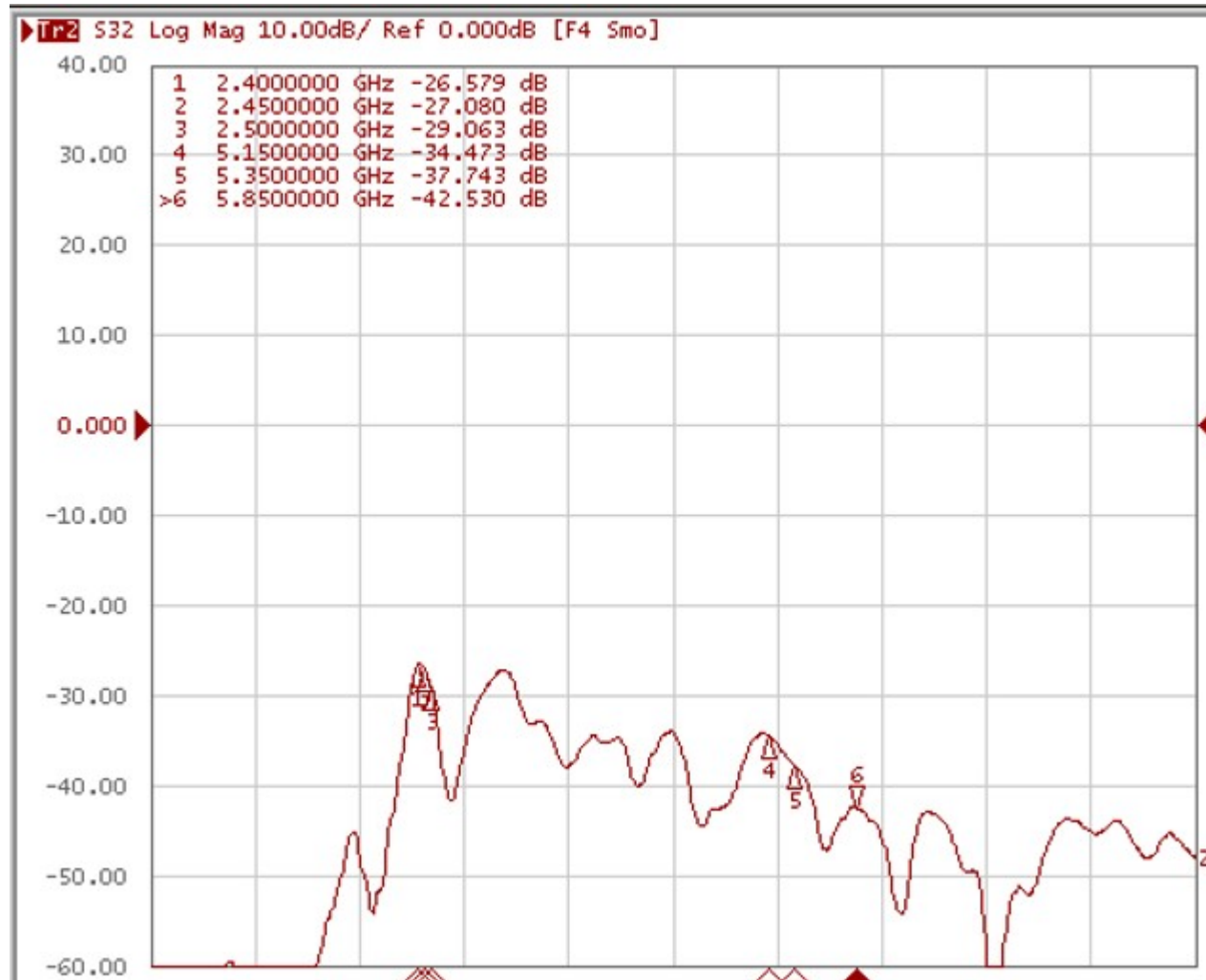
Isolation- Dual Band / BT



Port1= DB1

Port3= BT

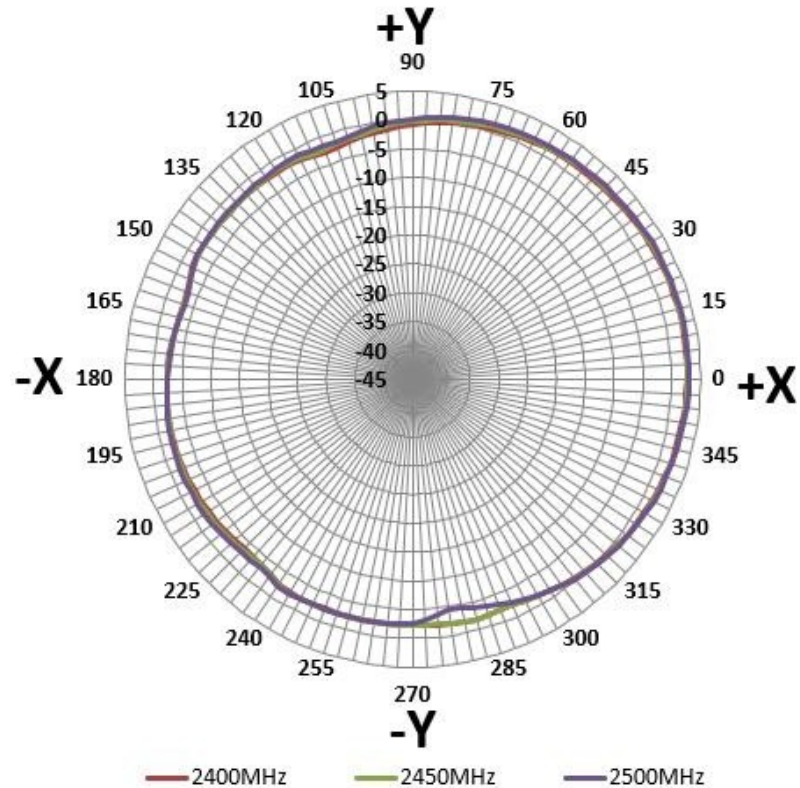
Isolation- Dual Band / BT



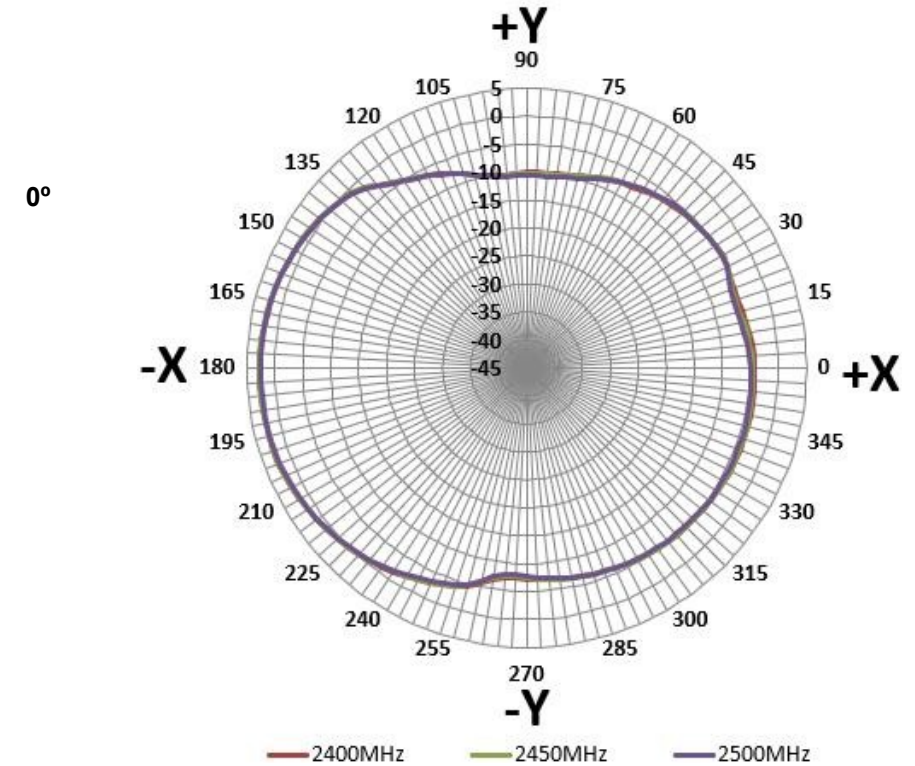
Port2= DB2

Port3= BT

Power Sum-2.4GHz Band- Azimuth(XY)

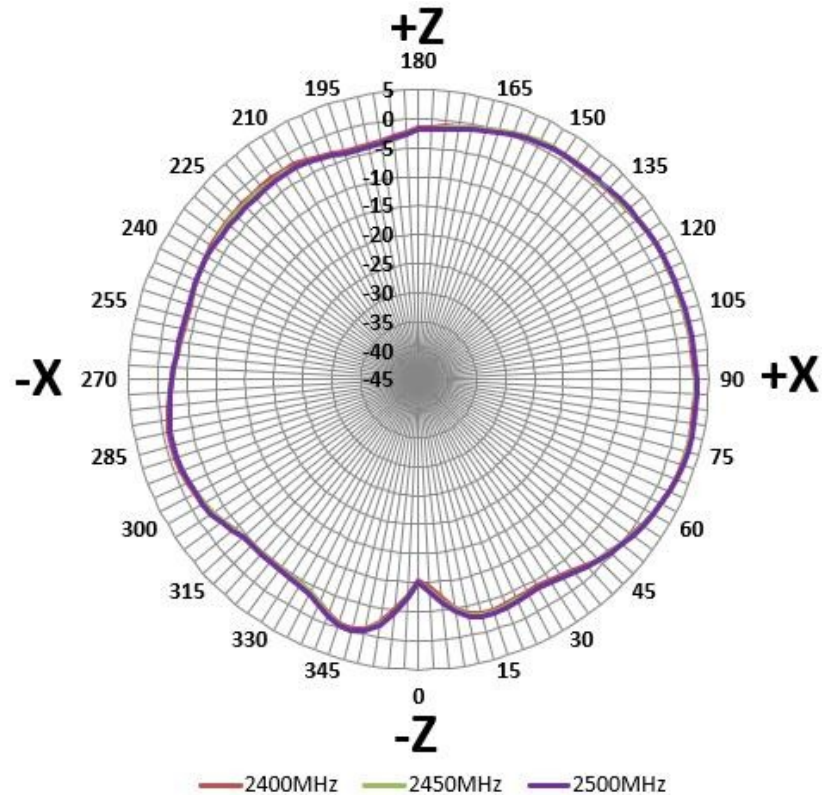


DB1

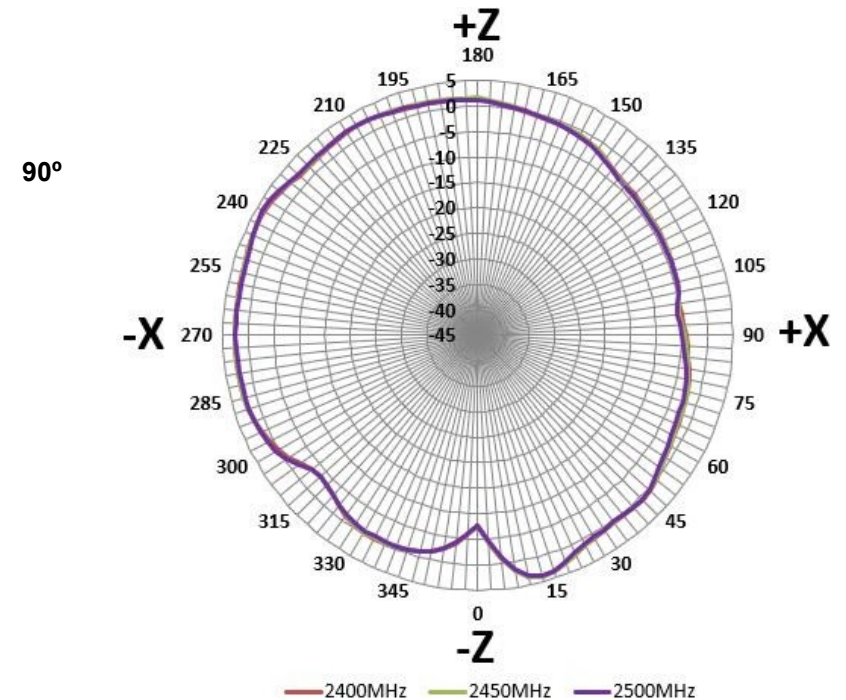


DB2

Power Sum-2.4GHz Band- Elevation Cut (ZX)

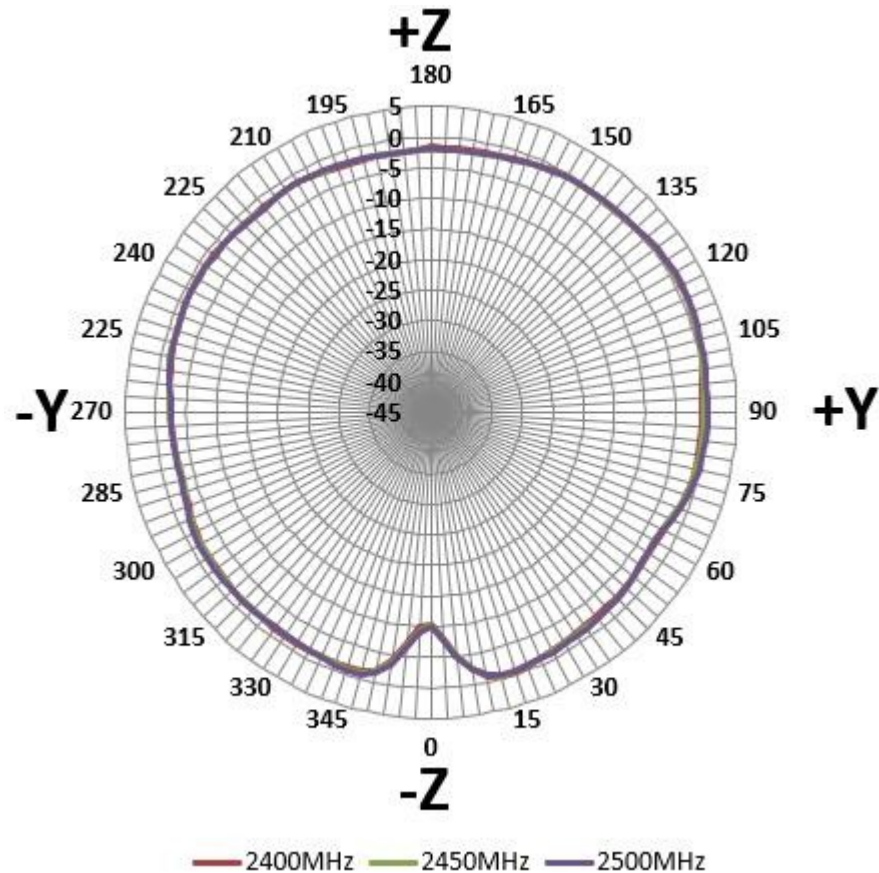


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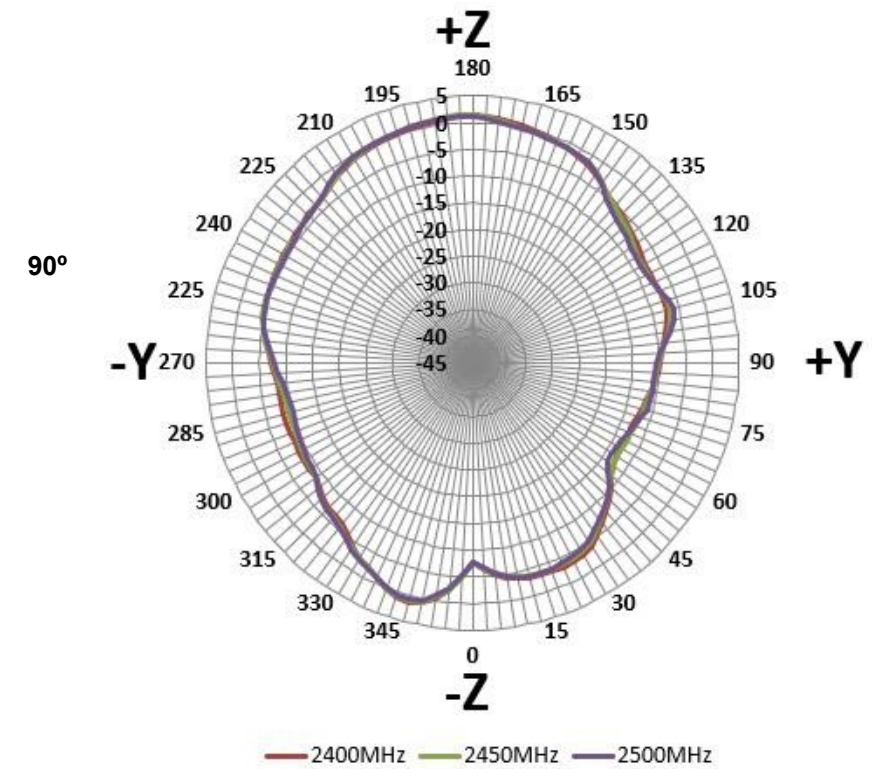


DB2

Power Sum-2.4GHz Band- Elevation Cut (ZY)

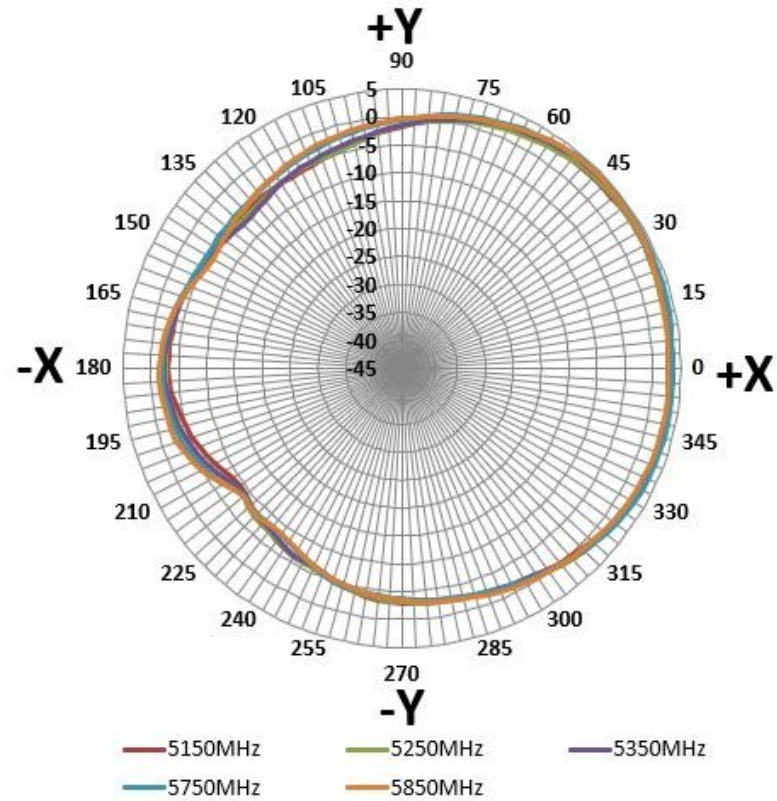


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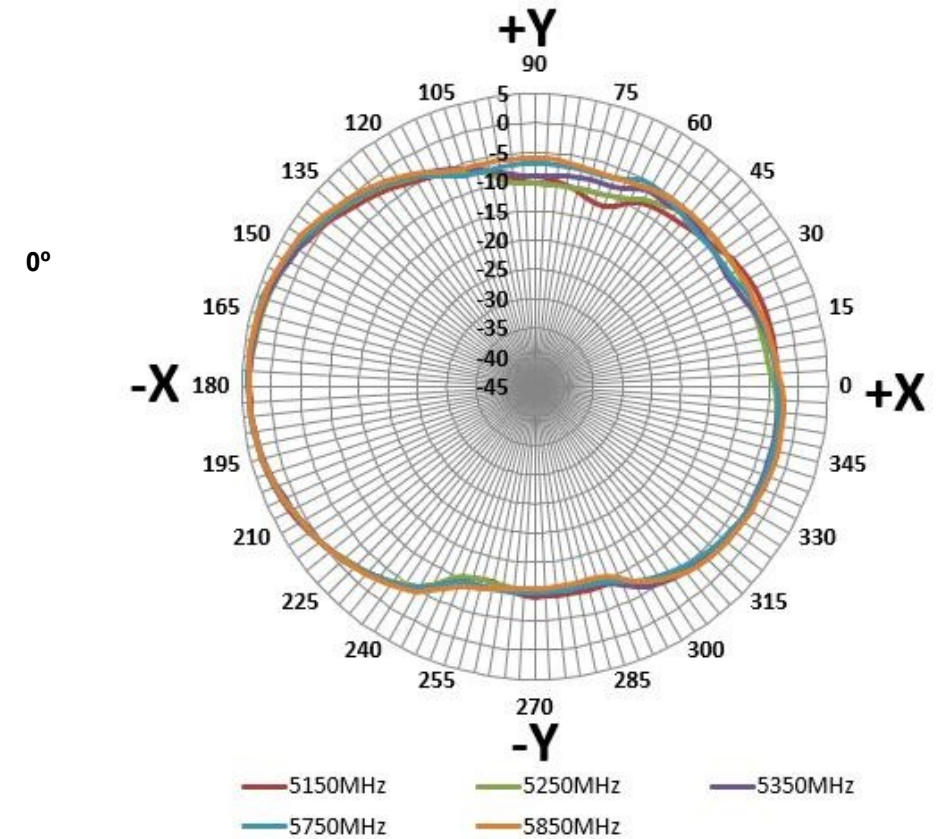


DB2

Power Sum-5GHz Band- Azimuth(XY)

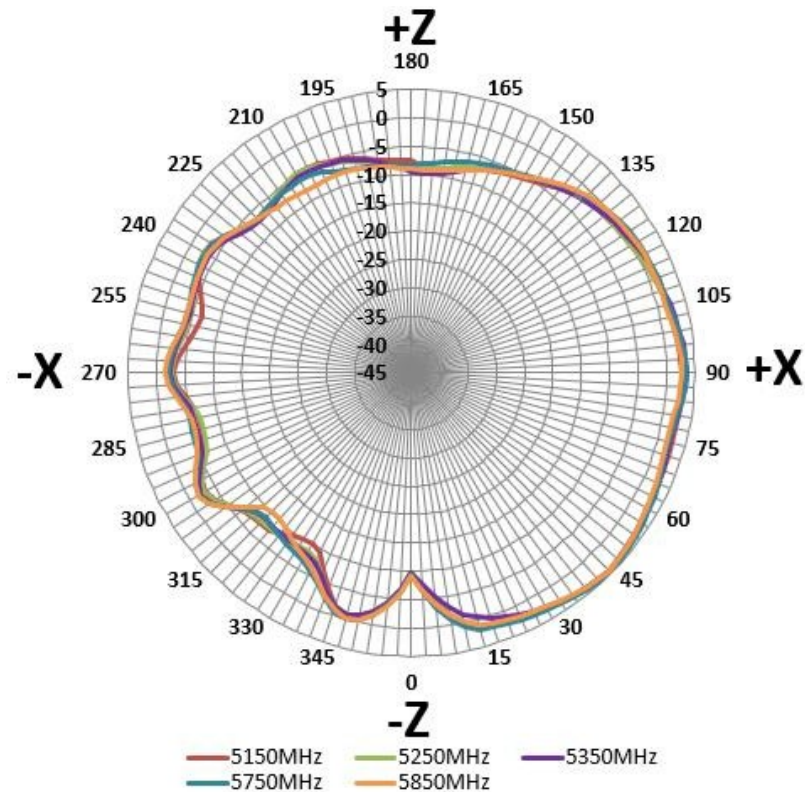


DB1

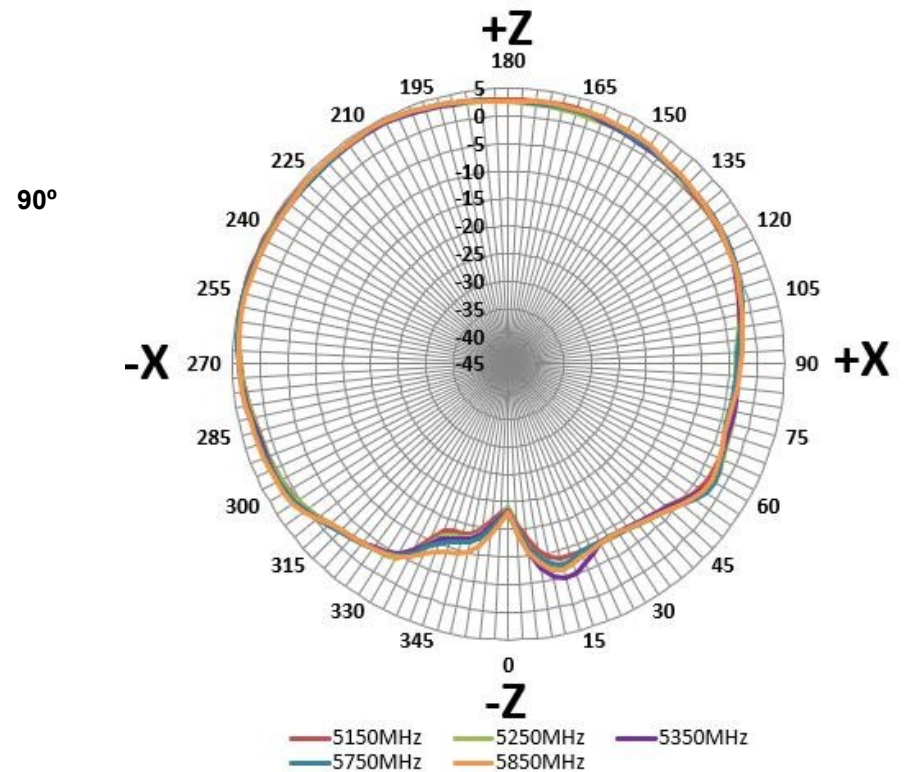


DB2

Power Sum-5GHz Band- Elevation Cut (ZX)

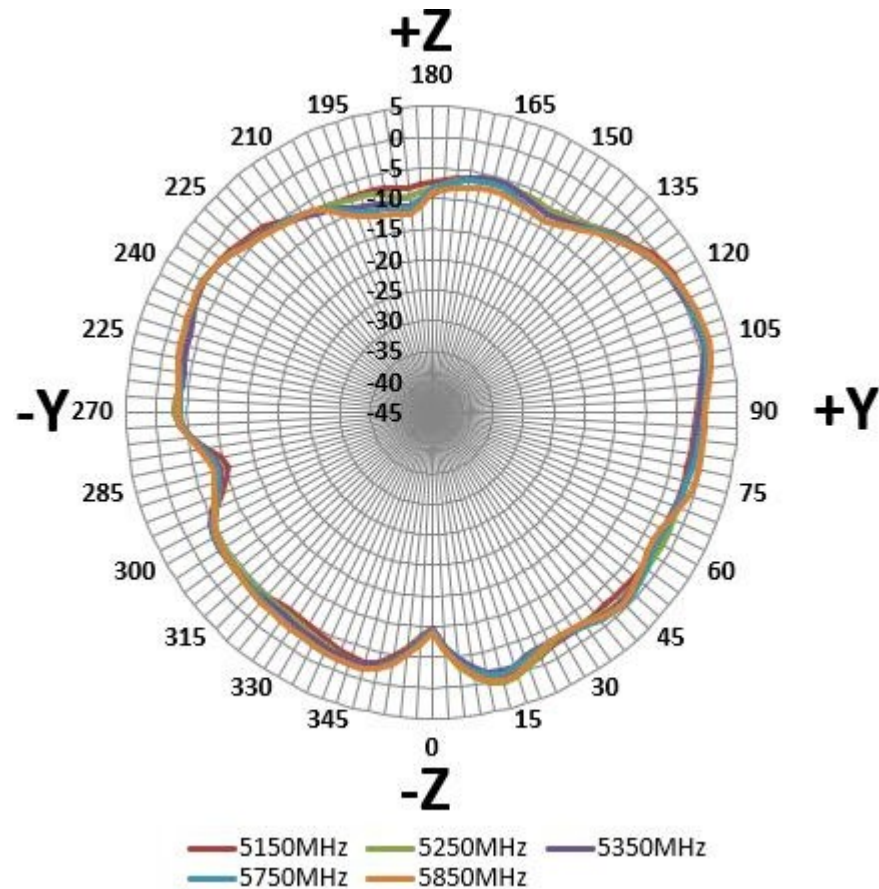


DB1

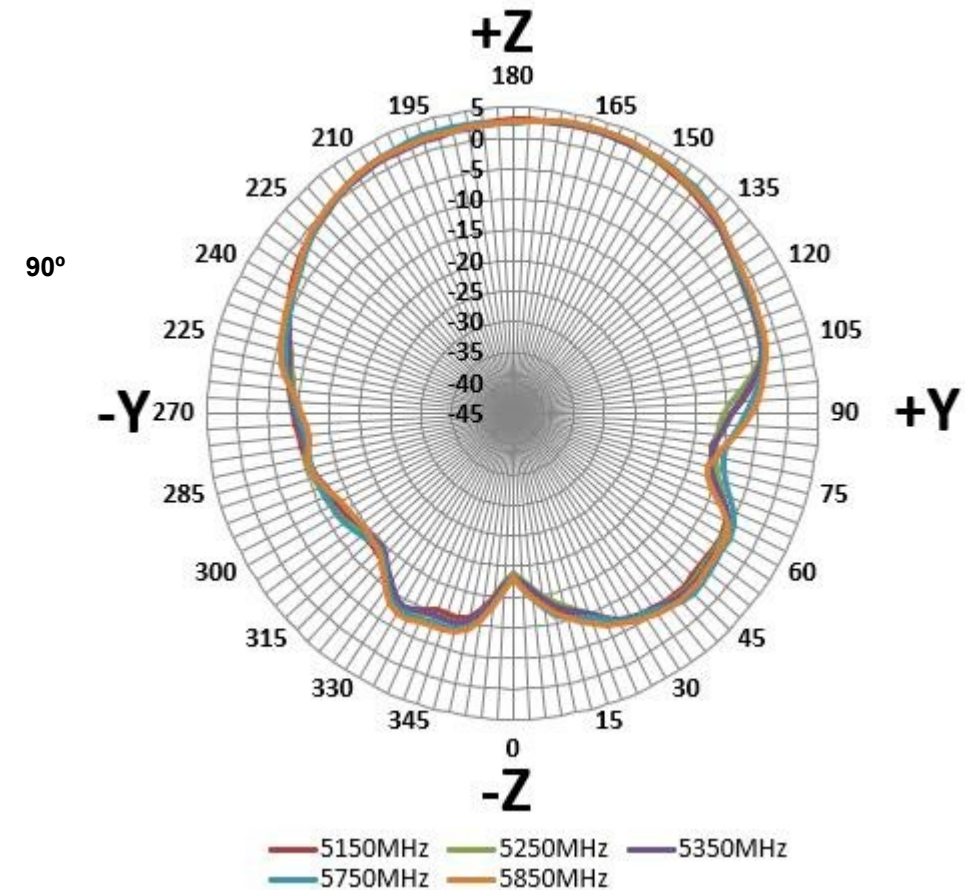


DB2

Power Sum-5GHz Band- Elevation Cut (ZY)



DB1



DB2

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Thank You!

We Look Forward To Working Together