

GALTRONICS

WHEN CONNECTIONS COUNT



Gemtek-ELM Wi-Fi Antenna Performance Report

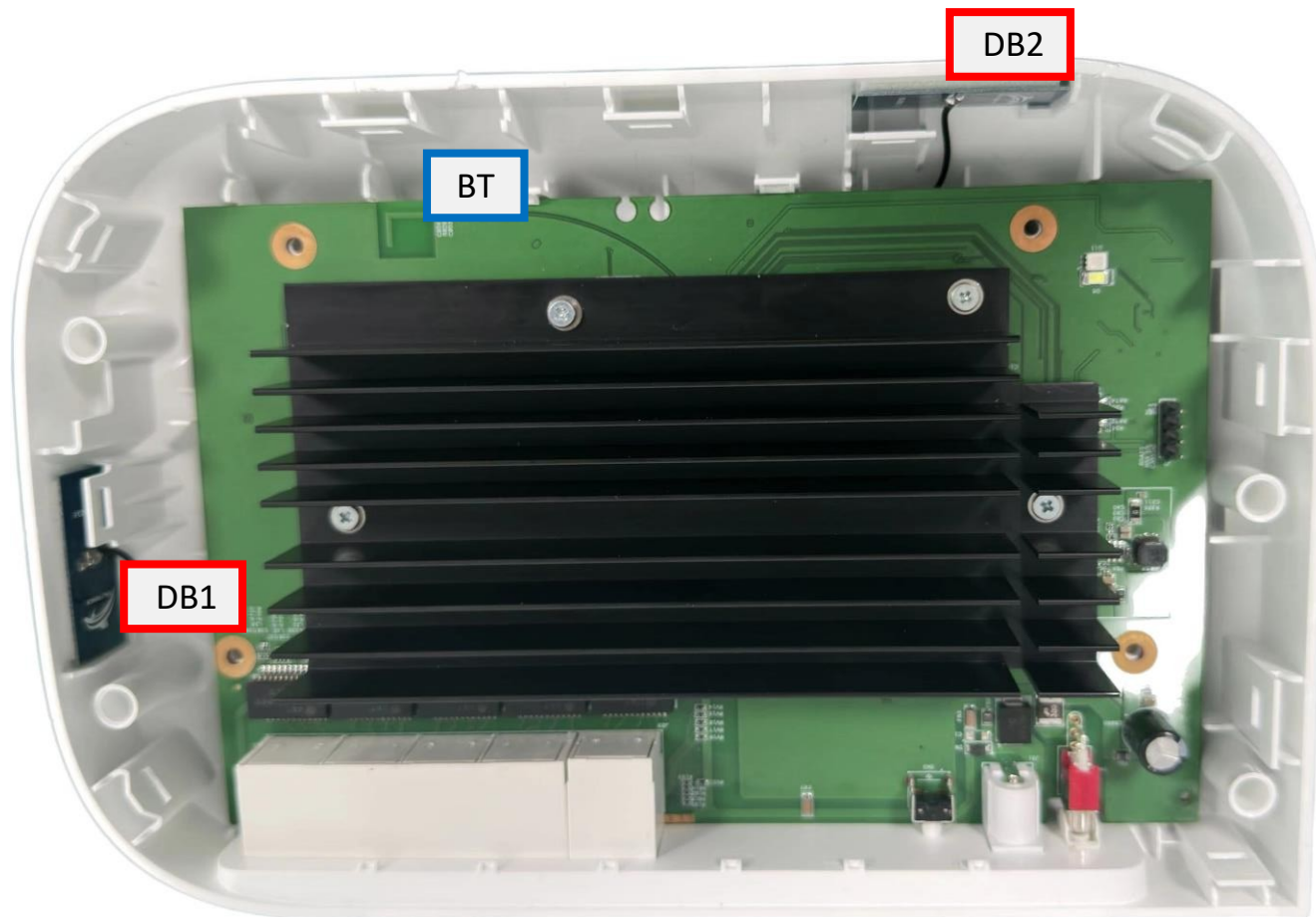
Galtronics Project: 7935

Prepared by Lean
Aug 10th , 2023

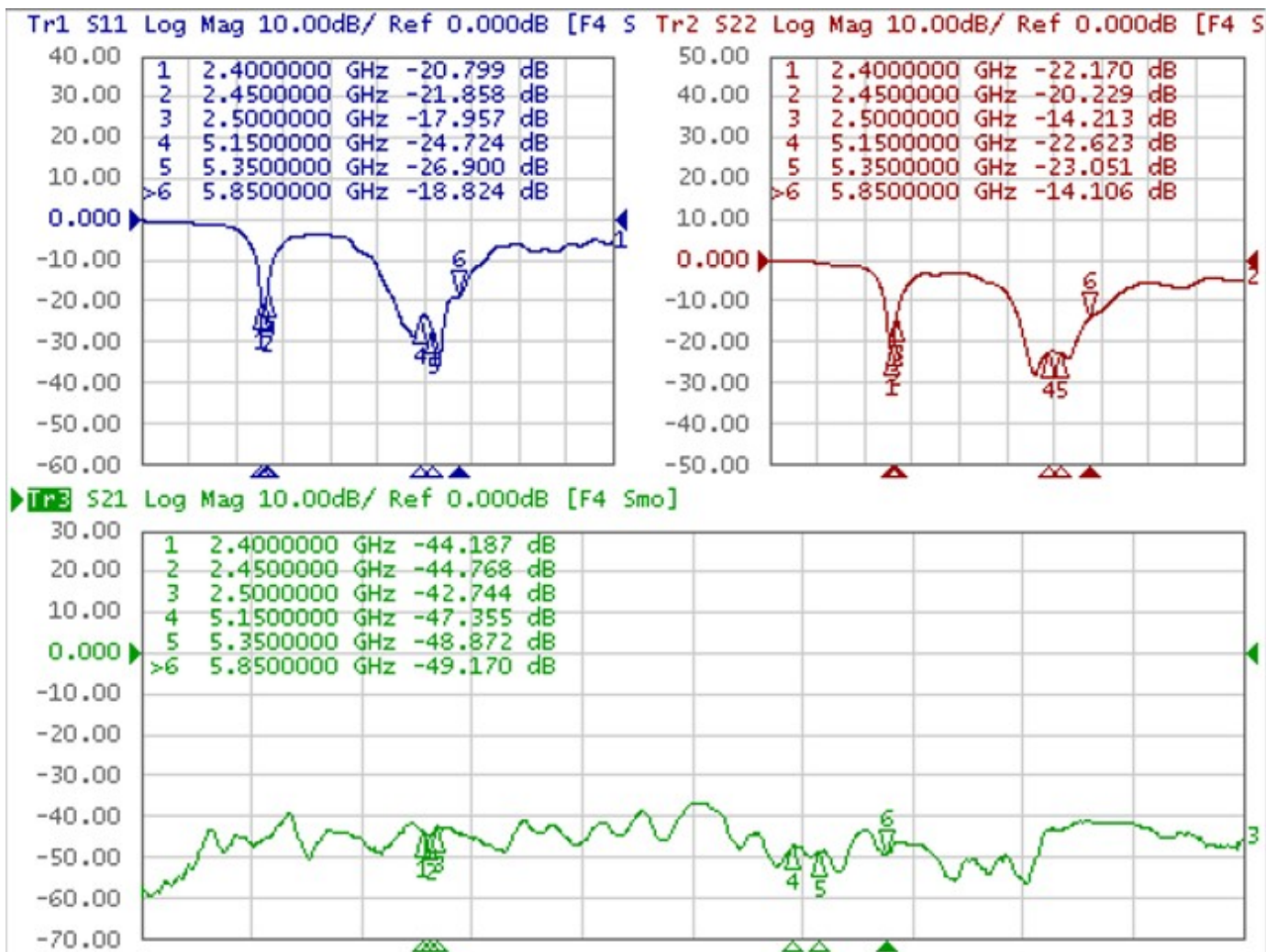
Introduction

- » Galtronics developed an antenna solution for Gemtek-ELM
- » There are 3 antennas :
 - Two Cabled PCB WI-FI Dual band antennas :- DB1 and DB2.
 - One On-board 2G band antenna :- BT.
- » The operating frequency of the Dual band is 2.4 GHz-2.5 GHz and 5.15GHz-5.85GHz.
Model NO: 02102140-07935E1(DB1)/02102140-07935E2(DB2)
- » 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

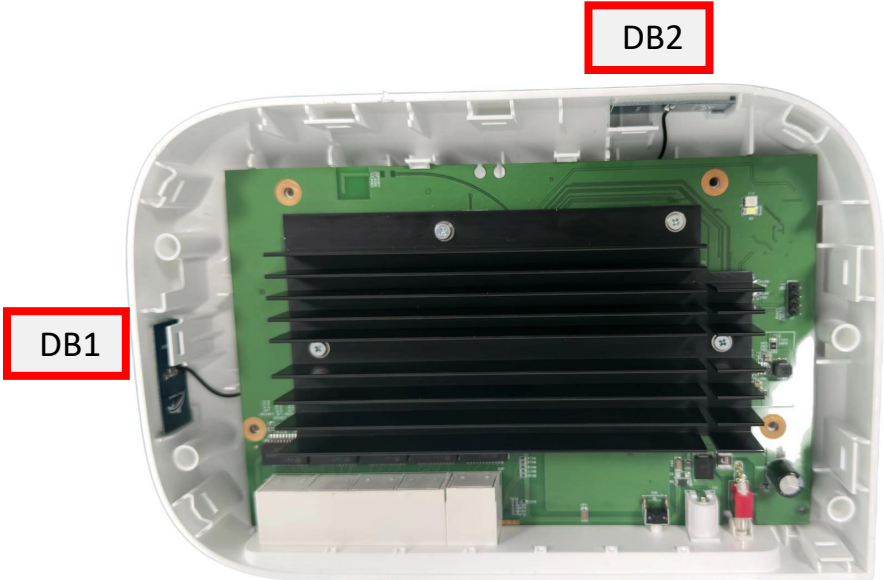


Return Loss and Isolation- Dual Band

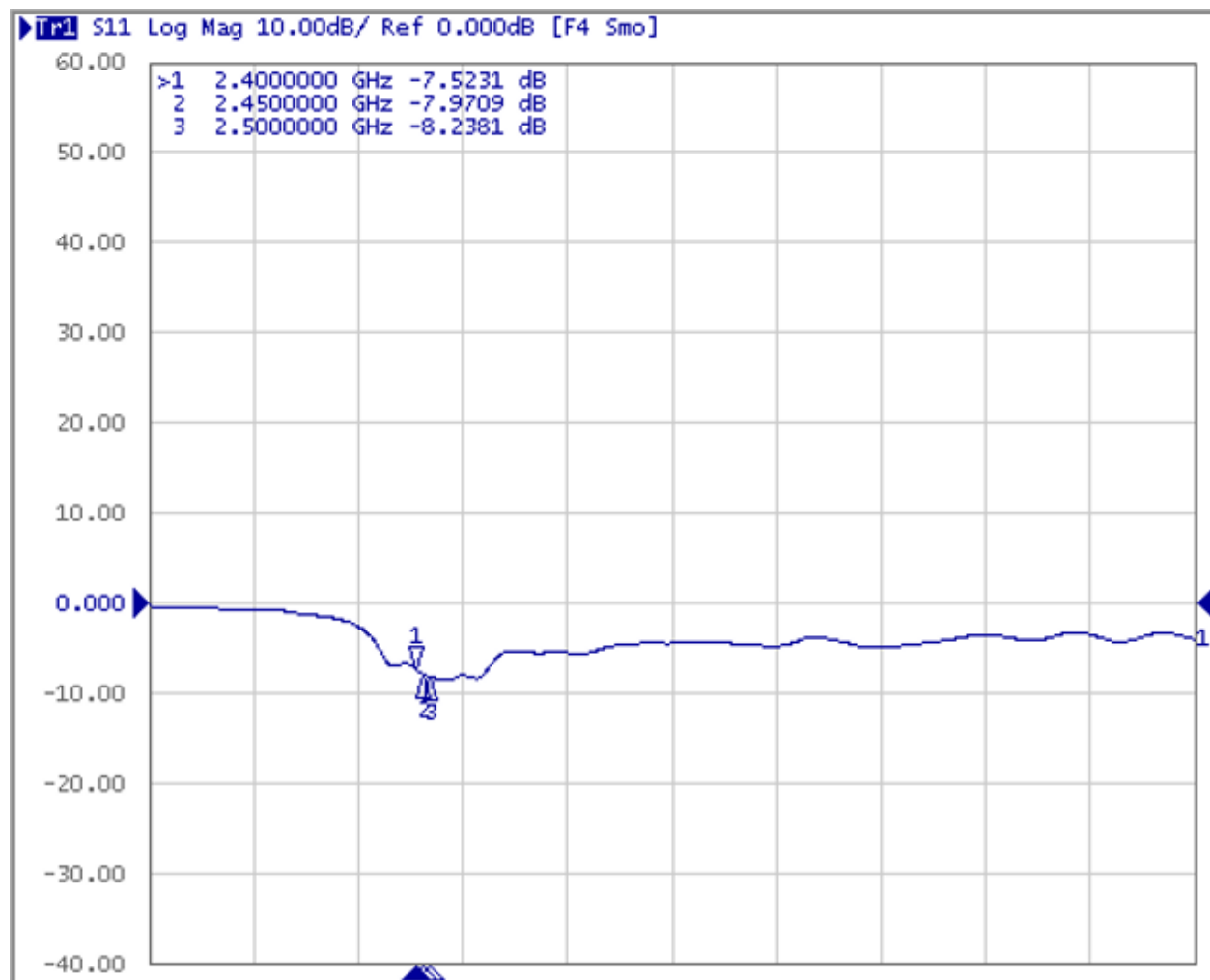


Port1= DB1

Port2= DB2



Antenna Return Loss of BT

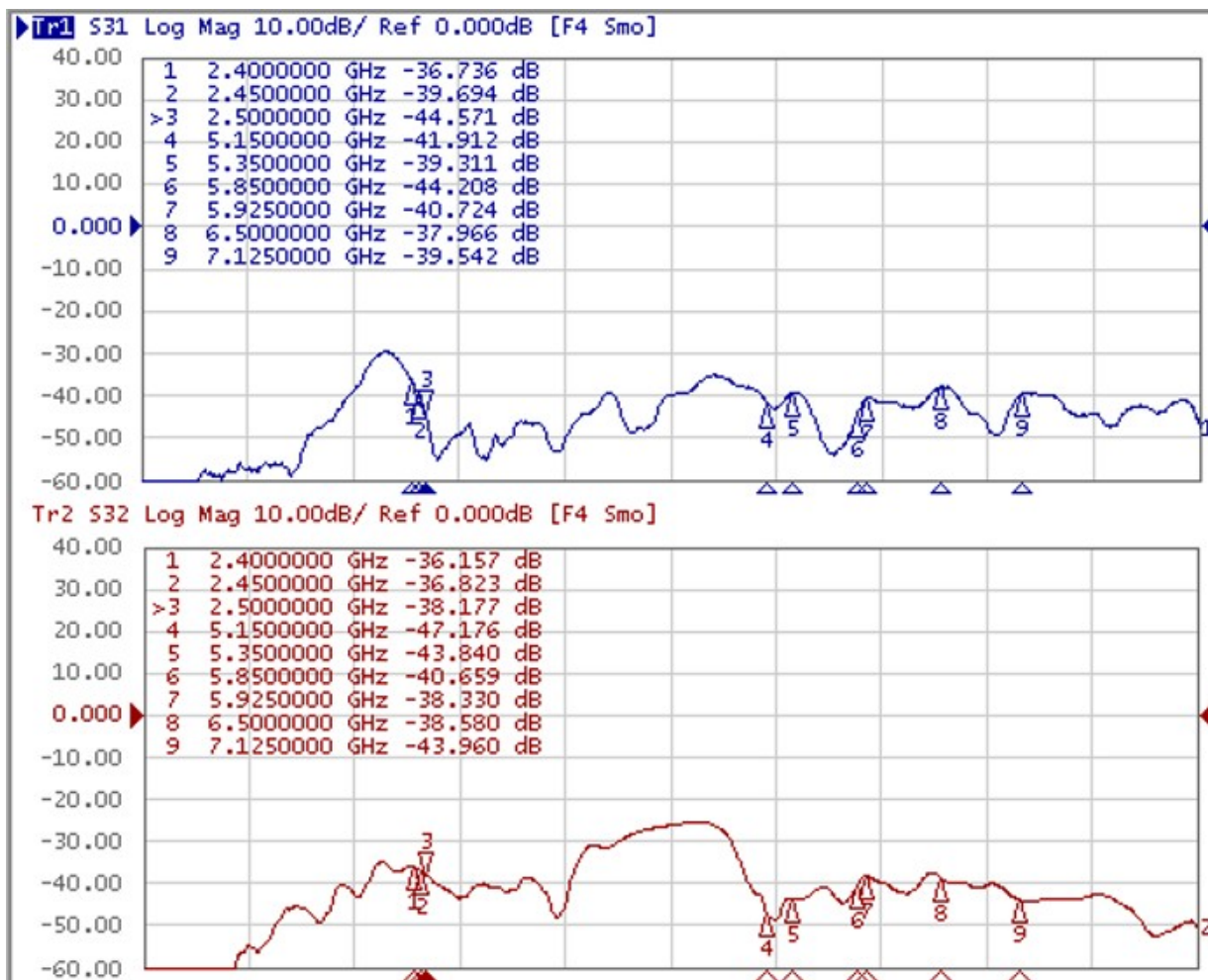


Port3= BT

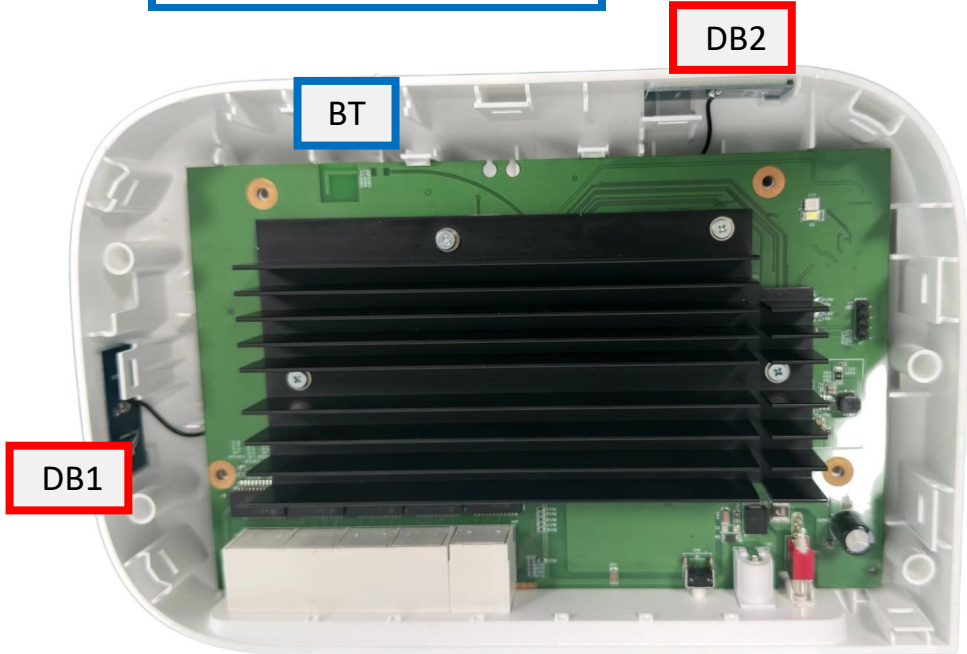
BT



Antenna Isolation the Dual Band and BT



Port1= DB1
Port2= DB2
Port3= BT



Gain & Efficiency summary

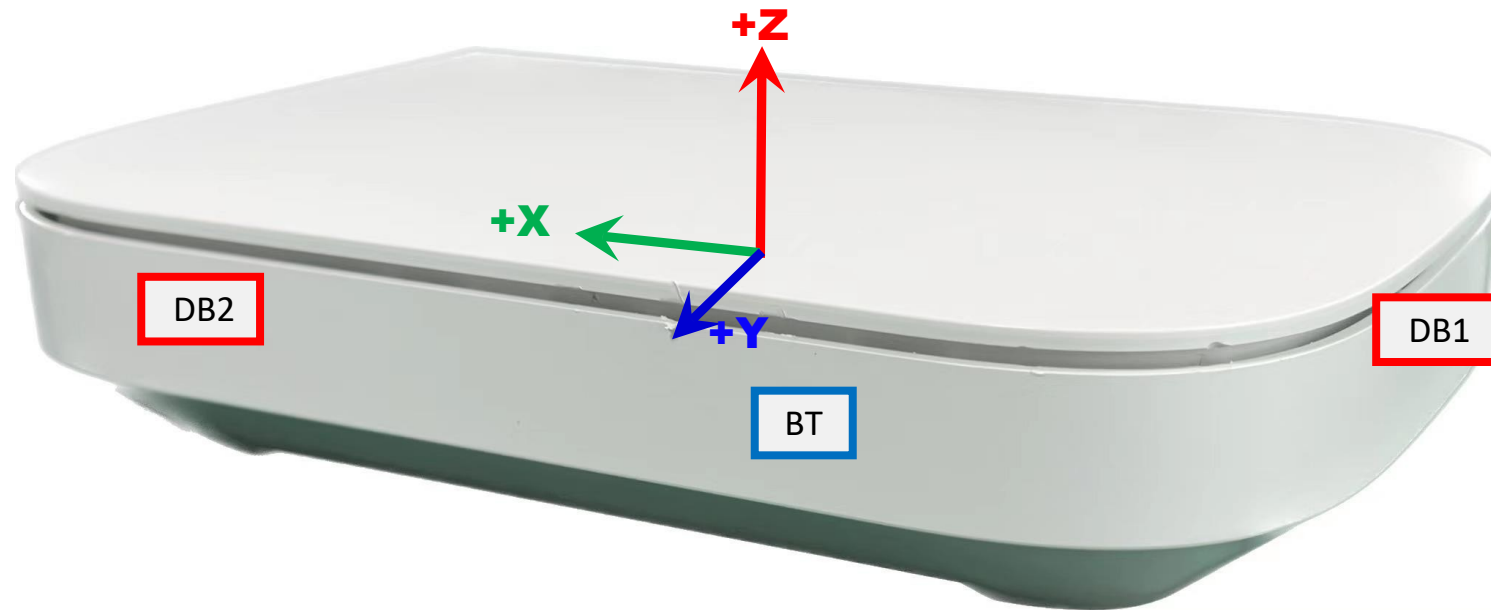
DB1	Freq(MHz)	Peak Gain(dBi)	Directivity(dBi)	Efficiency(%)
	2400	4.69	6.35	68.30%
	2450	4.63	6.21	69.50%
	2500	4.48	6.06	69.55%
	Average			69.12%

DB2	Freq(MHz)	Peak Gain(dBi)	Directivity(dBi)	Efficiency(%)
	2400	4.65	6.26	68.93%
	2450	4.69	6.25	69.85%
	2500	4.67	6.24	69.53%
	Average			69.44%

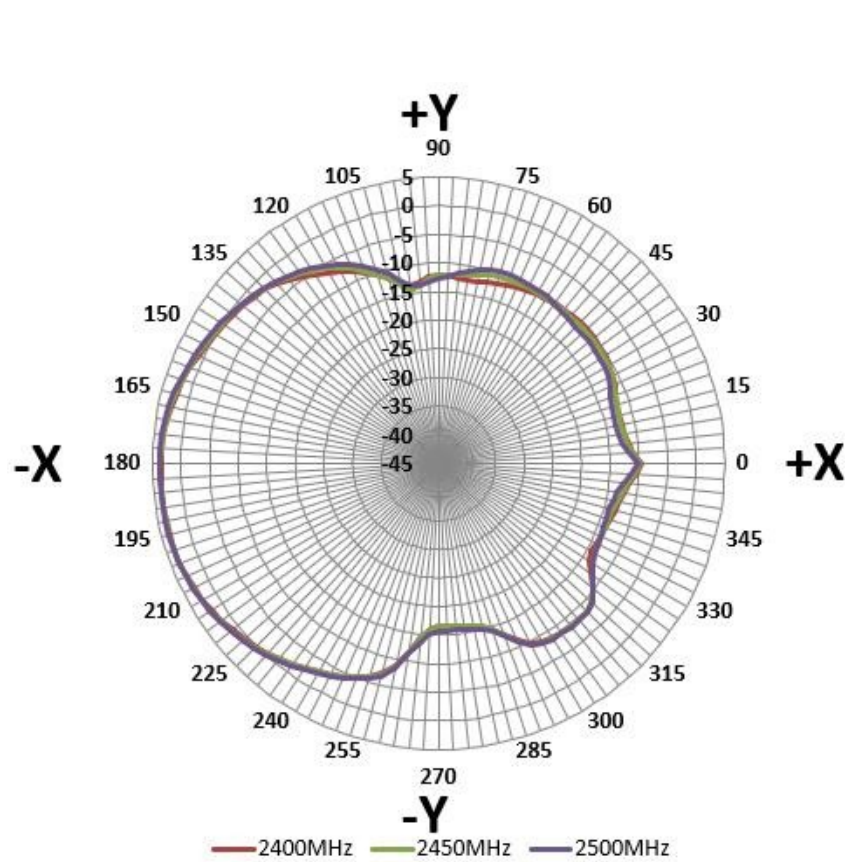
DB1	Freq(MHz)	Peak Gain(dBi)	Directivity(dBi)	Efficiency(%)
	5150	3.79	5.08	74.41%
	5250	3.86	4.99	76.98%
	5350	3.61	5.09	71.10%
	5750	4.05	5.11	78.30%
	5850	3.98	5.38	71.41%
	Average			74.44%

DB2	Freq(MHz)	Peak Gain(dBi)	Directivity(dBi)	Efficiency(%)
	5150	4.88	6.25	72.95%
	5250	4.76	6.28	70.50%
	5350	5.01	6.31	74.11%
	5750	4.88	6.19	73.97%
	5850	4.89	6.29	72.51%
	Average			72.81%

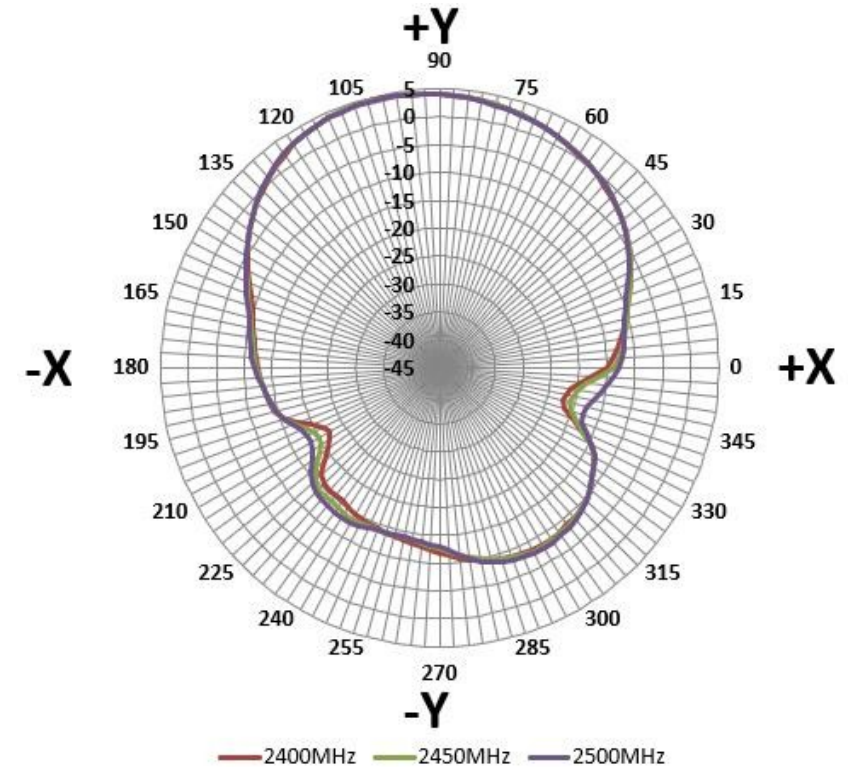
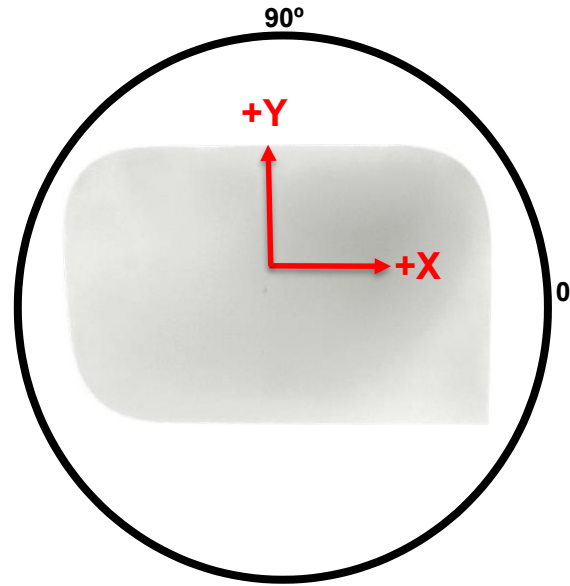
Chamber Coordinates



Power Sum-2.4GHz Band- Azimuth(XY)

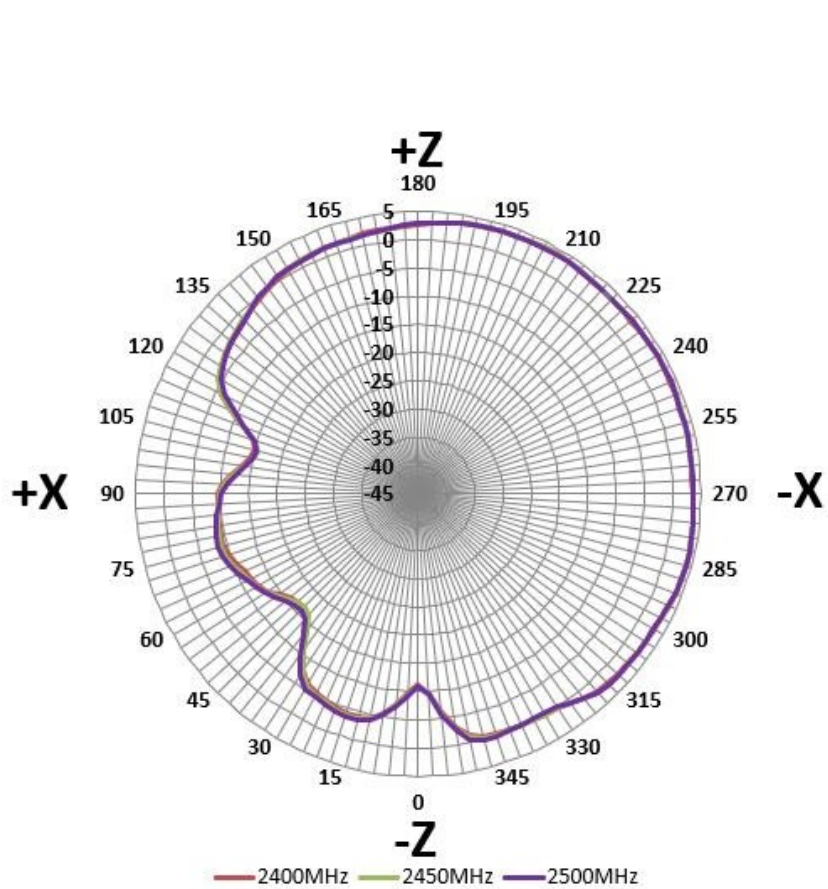


DB1

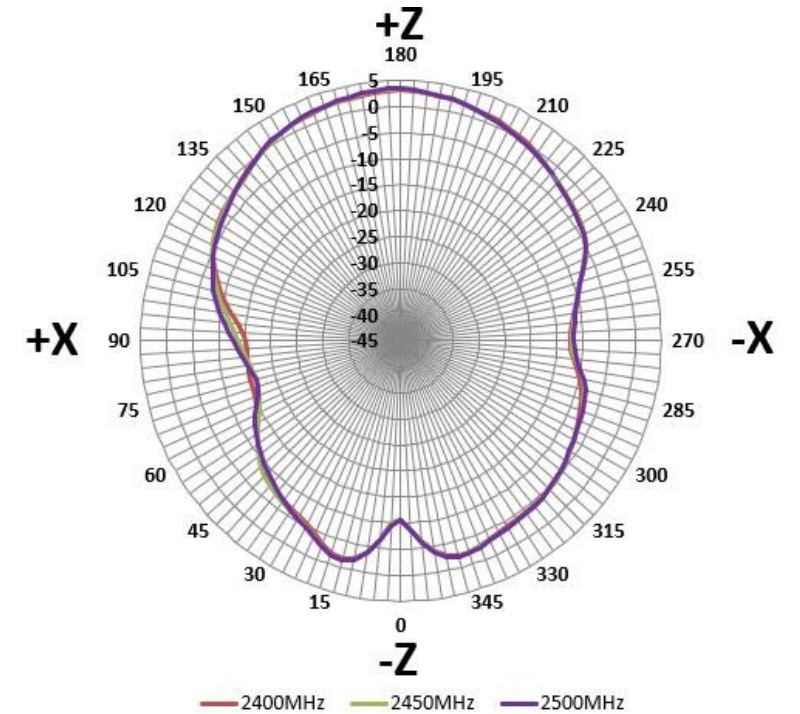
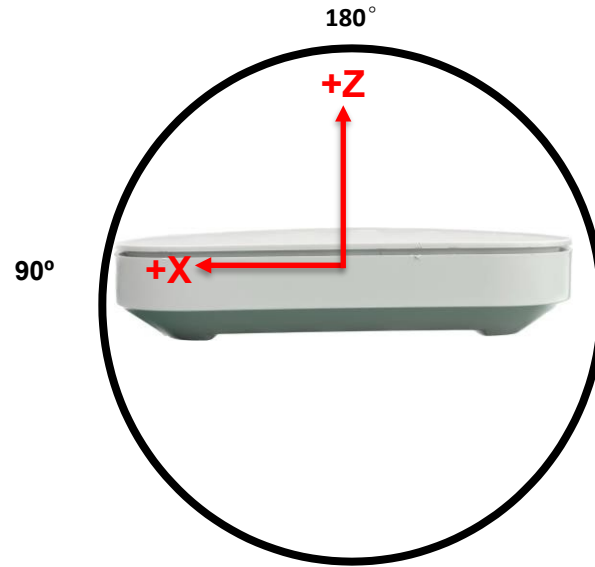


DB2

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

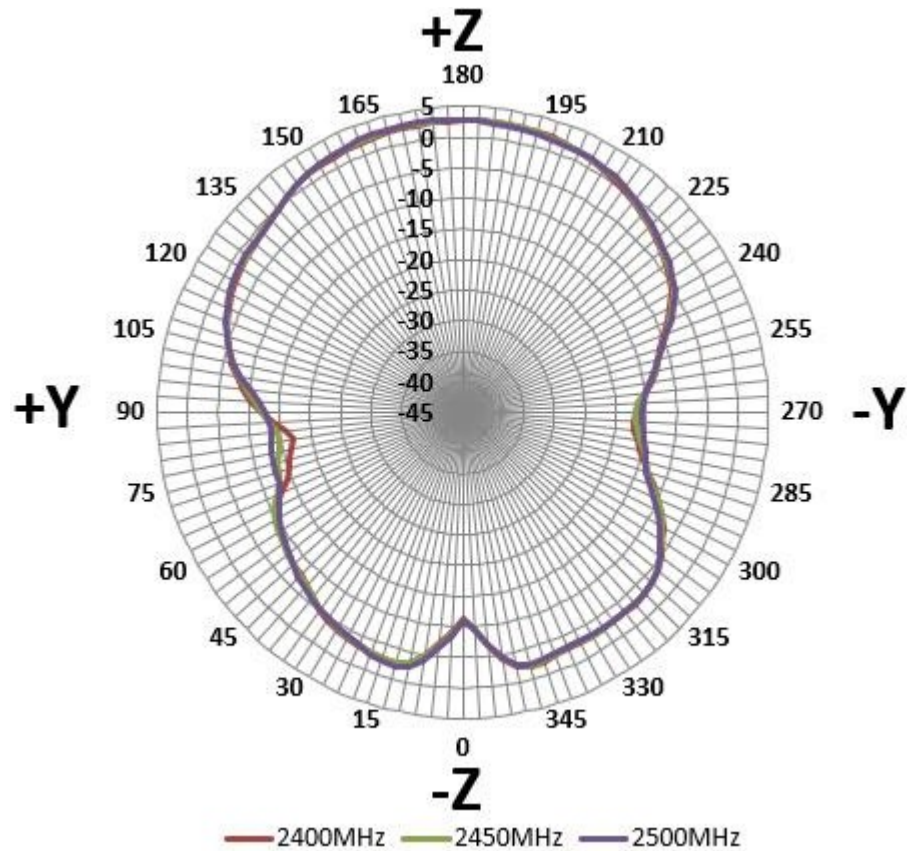


DB1

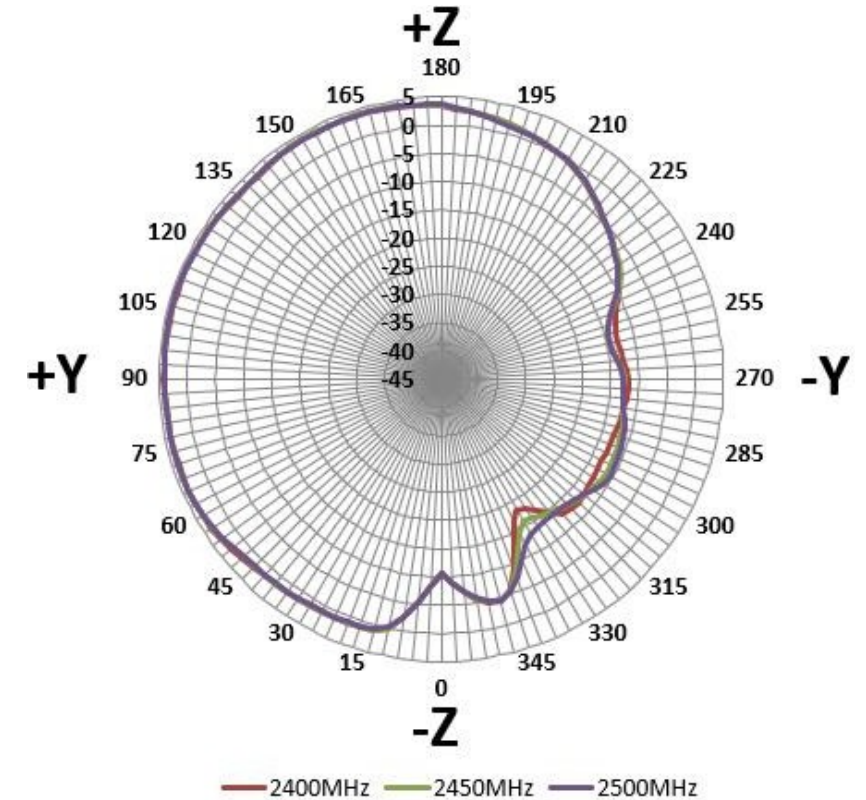
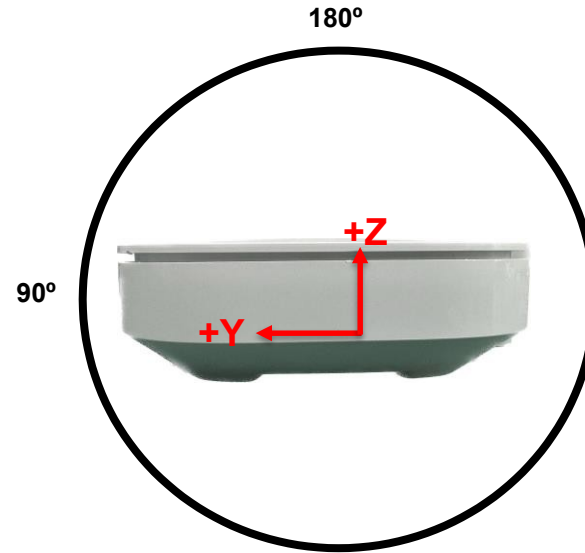


DB2

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

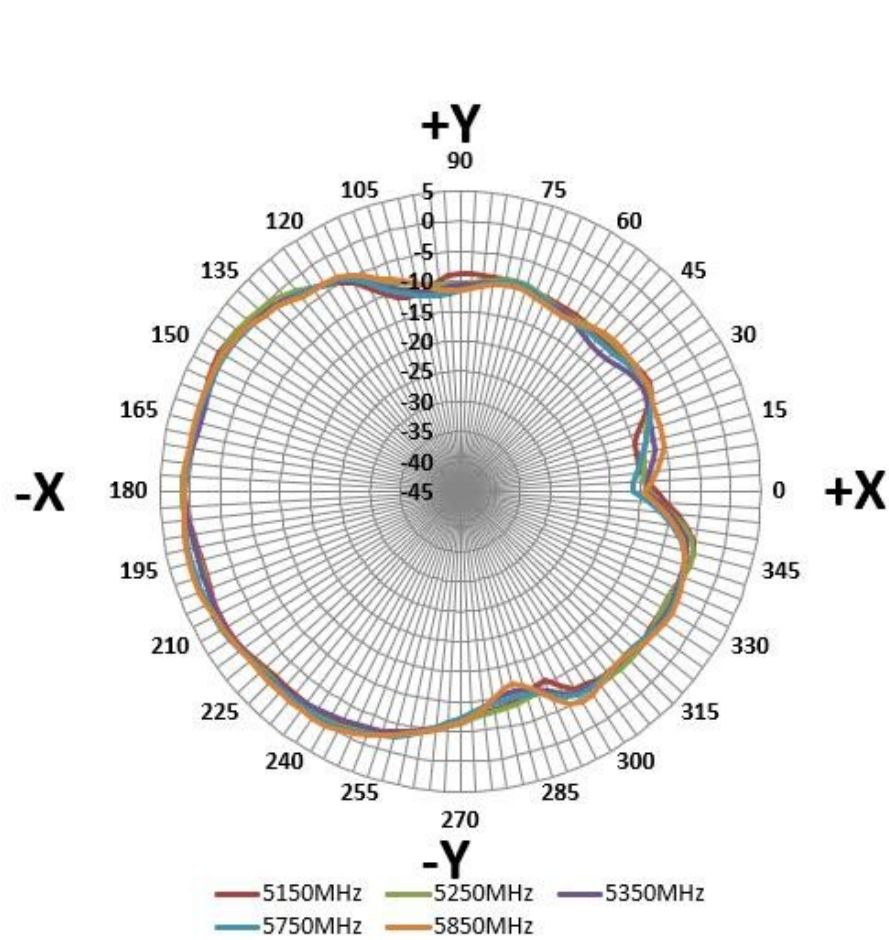


DB1

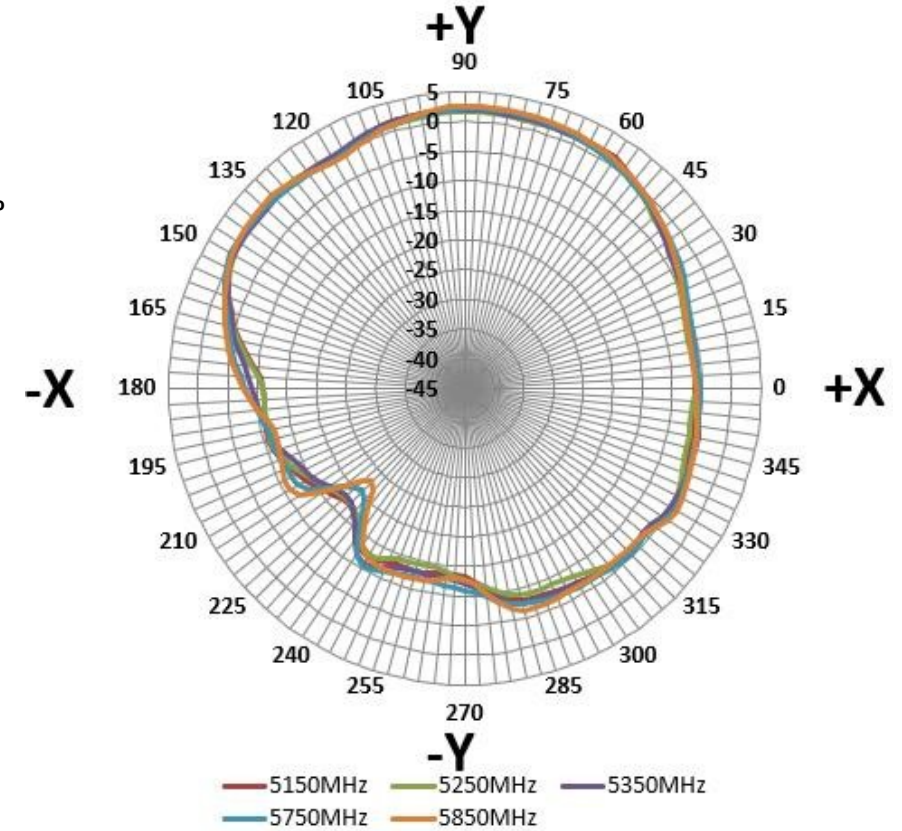
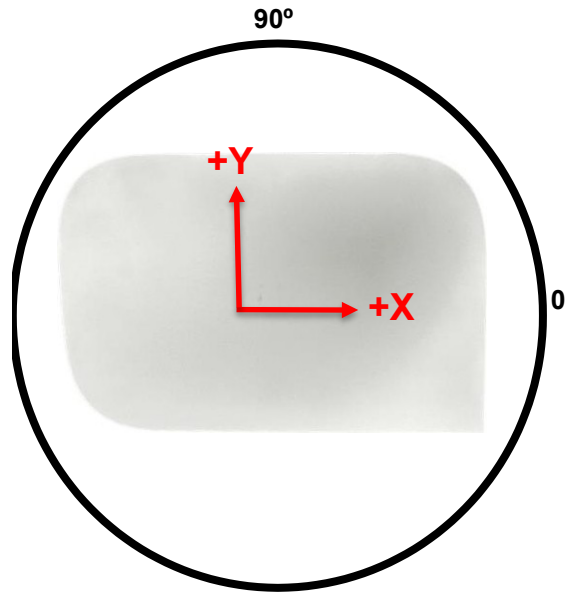


DB2

Power Sum-5GHz Band- Azimuth(XY)

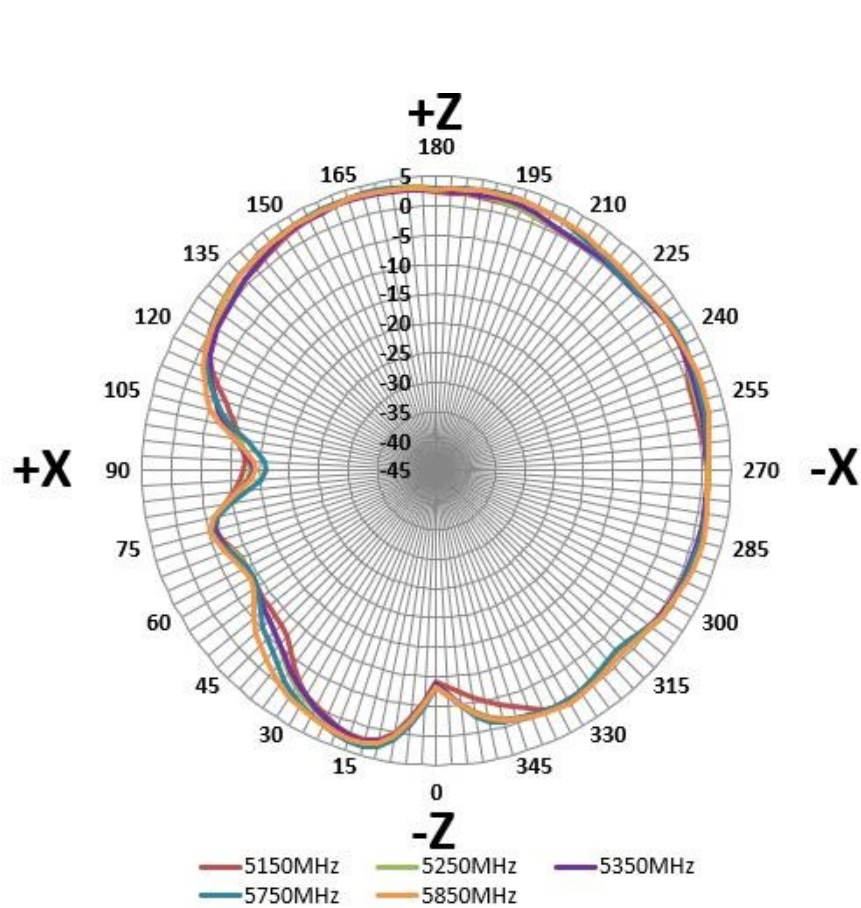


DB1

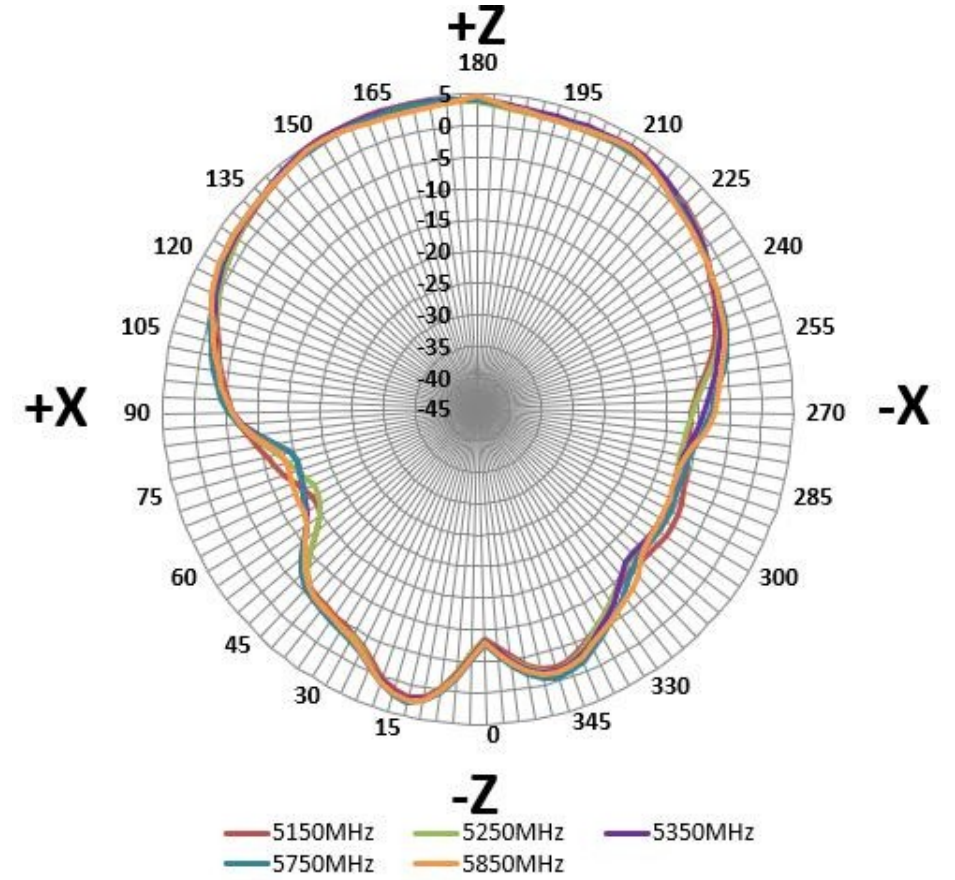
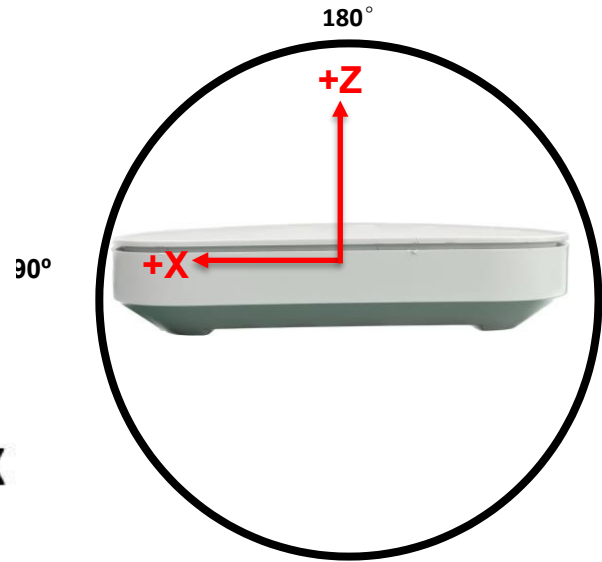


DB2

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

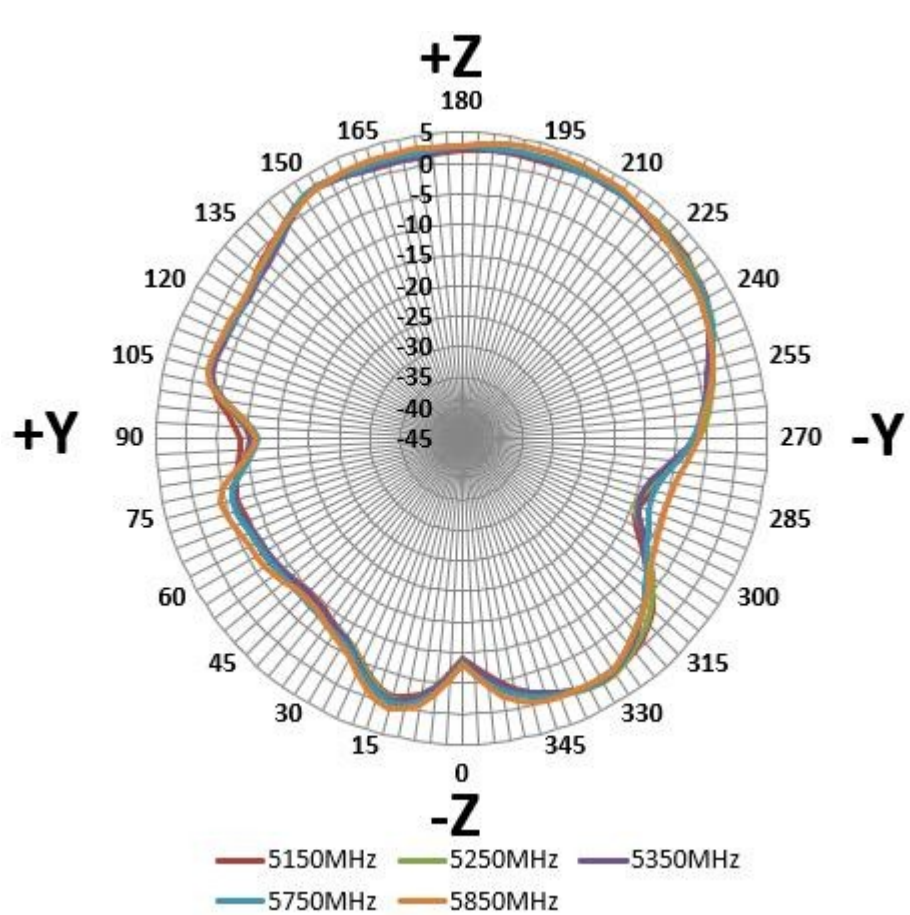


DB1

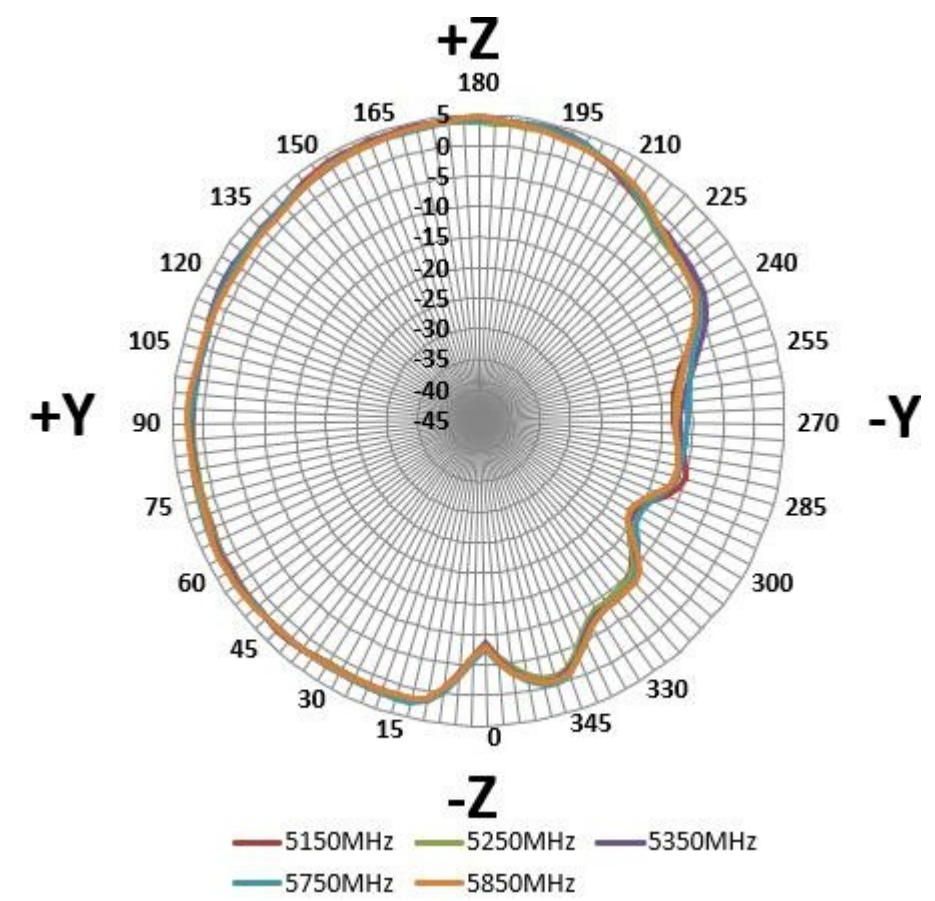
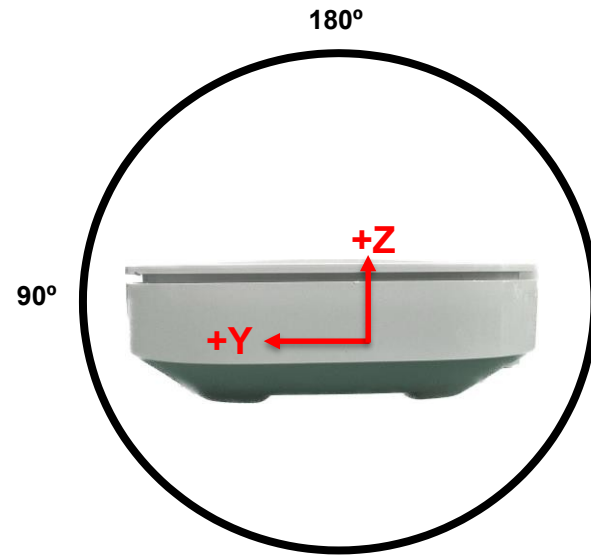


DB2

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



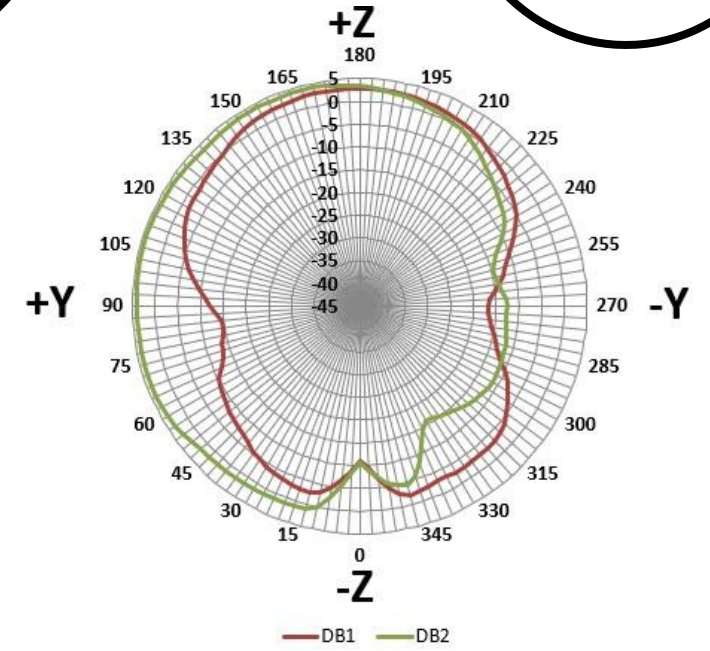
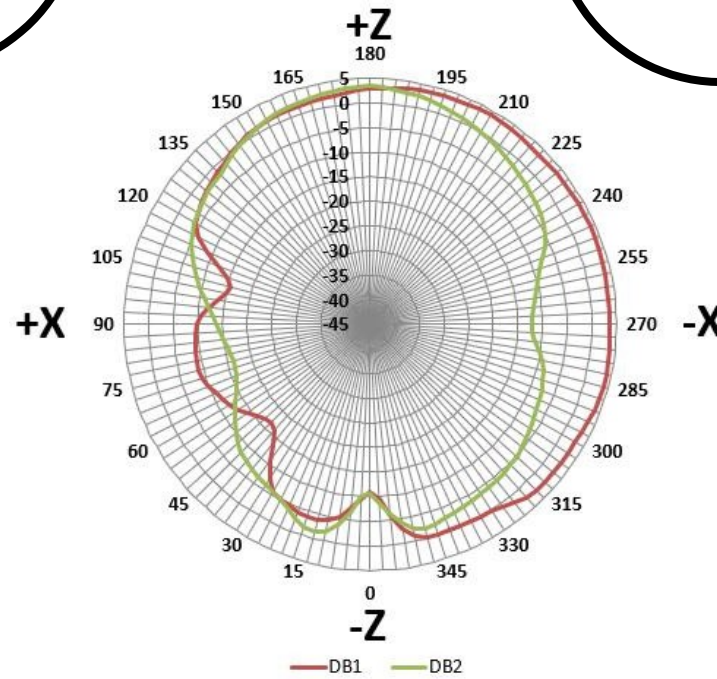
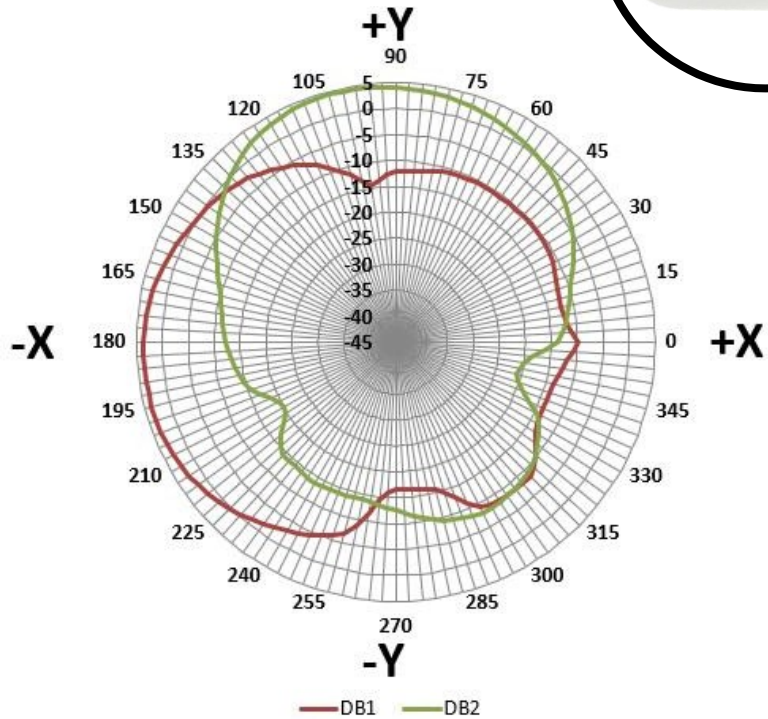
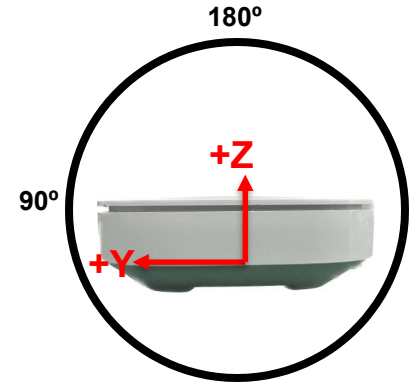
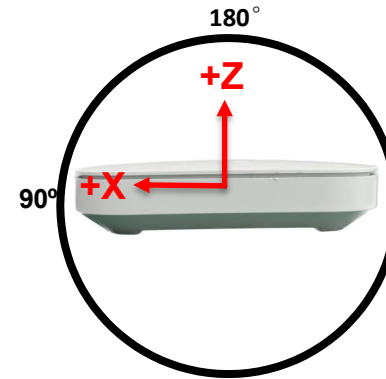
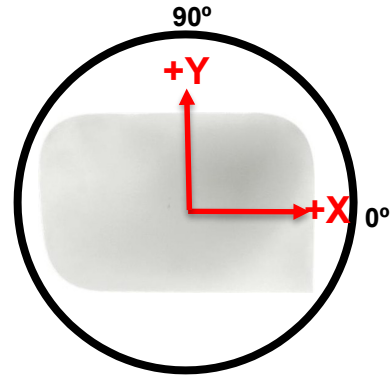
DB1



DB2

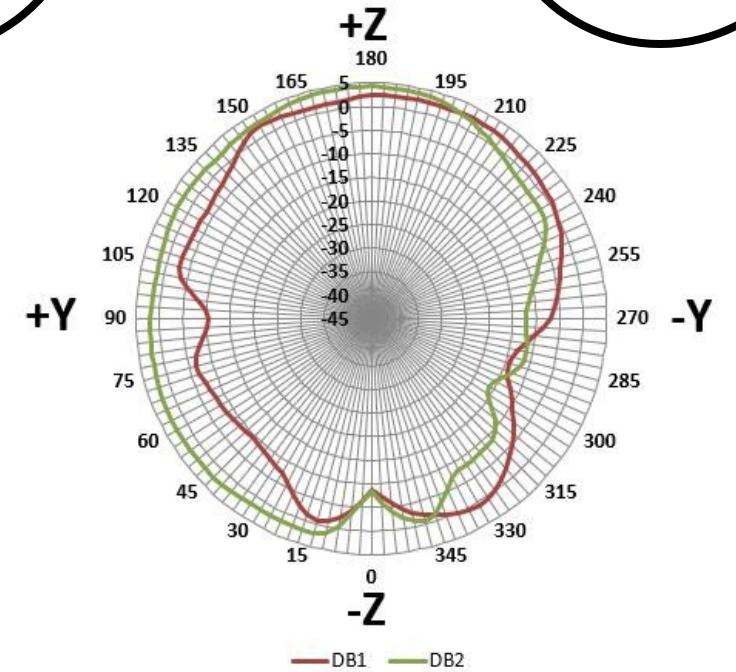
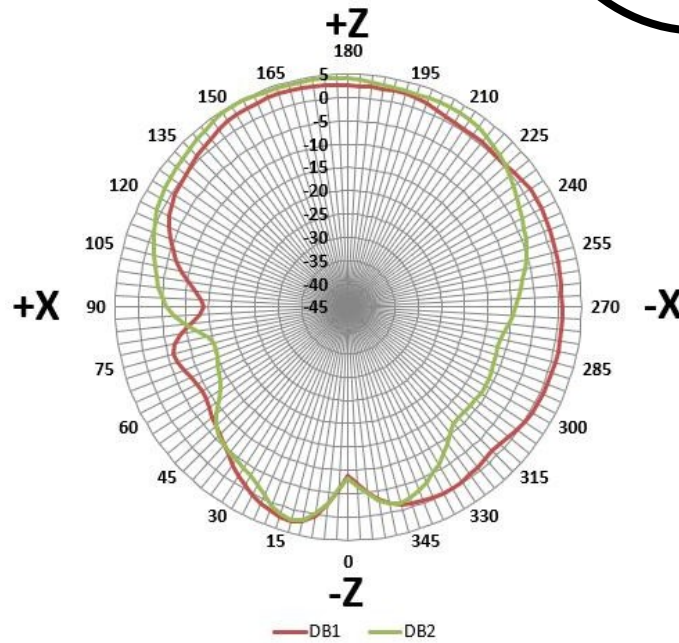
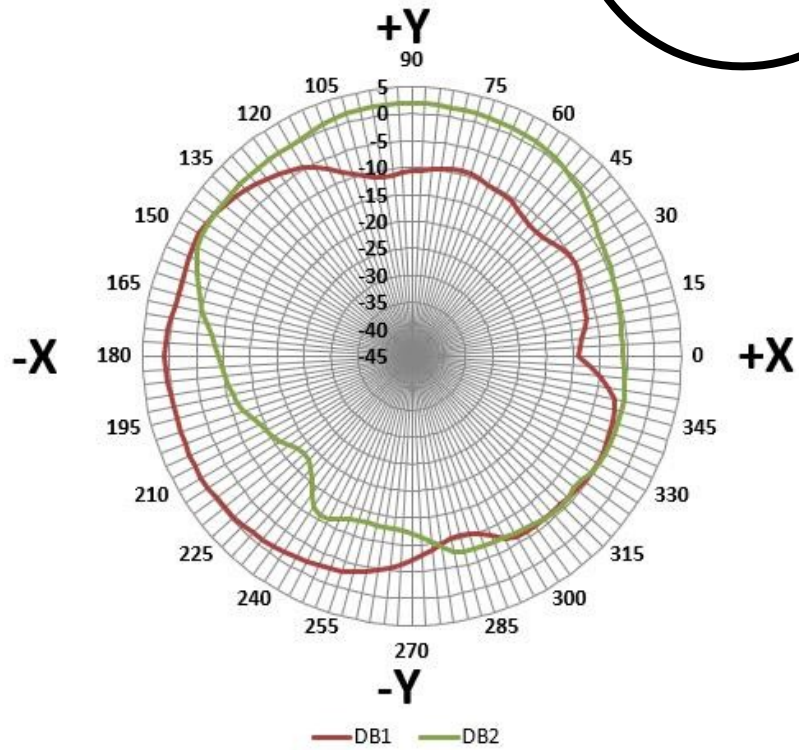
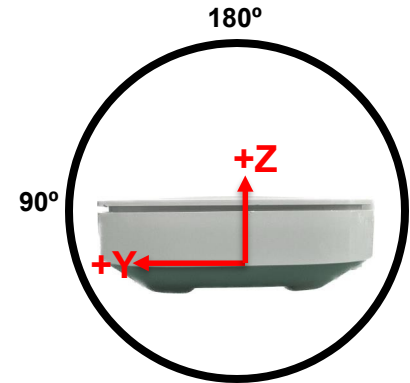
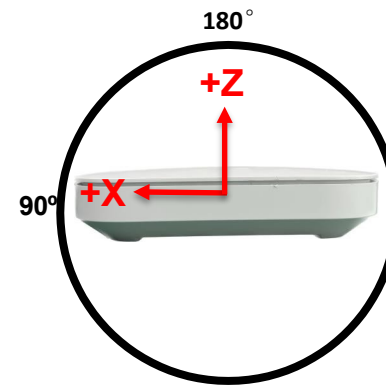
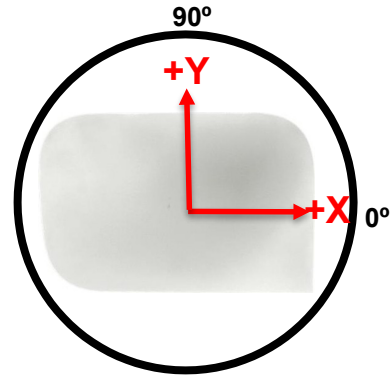
System Coverage- Gain [dB]

2450MHz _Dual band



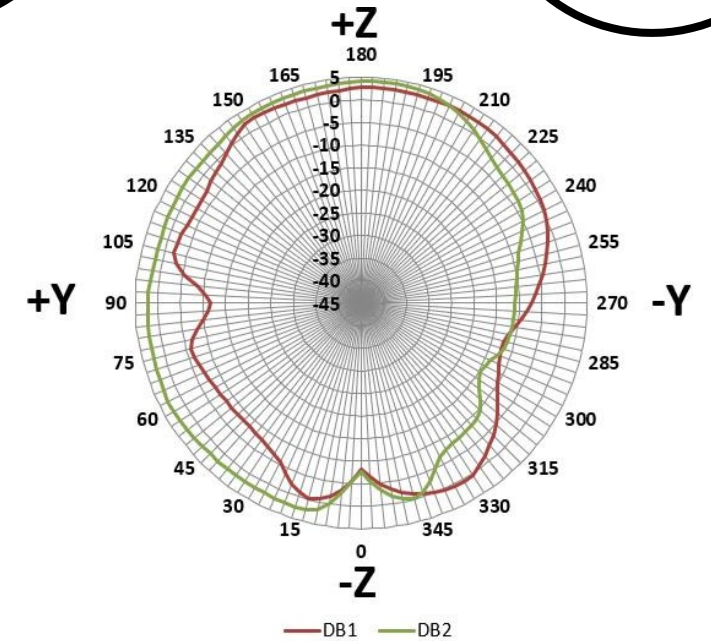
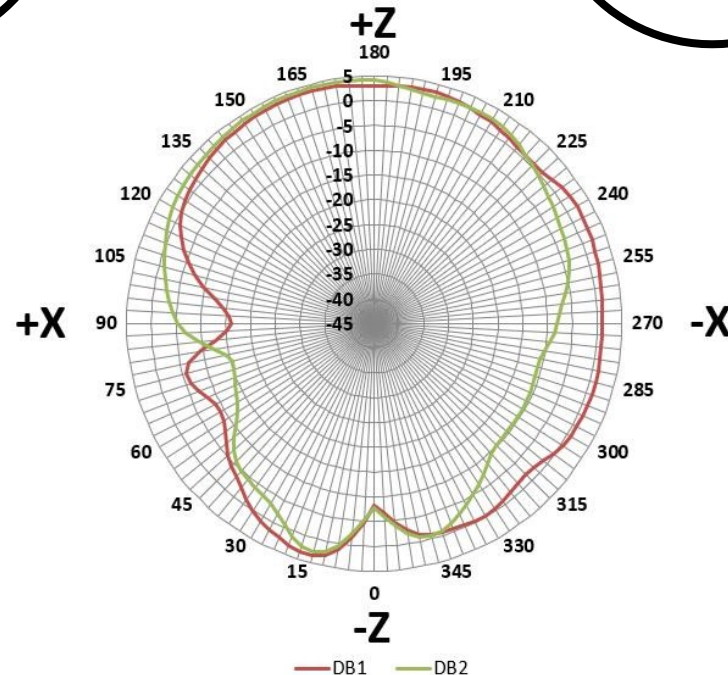
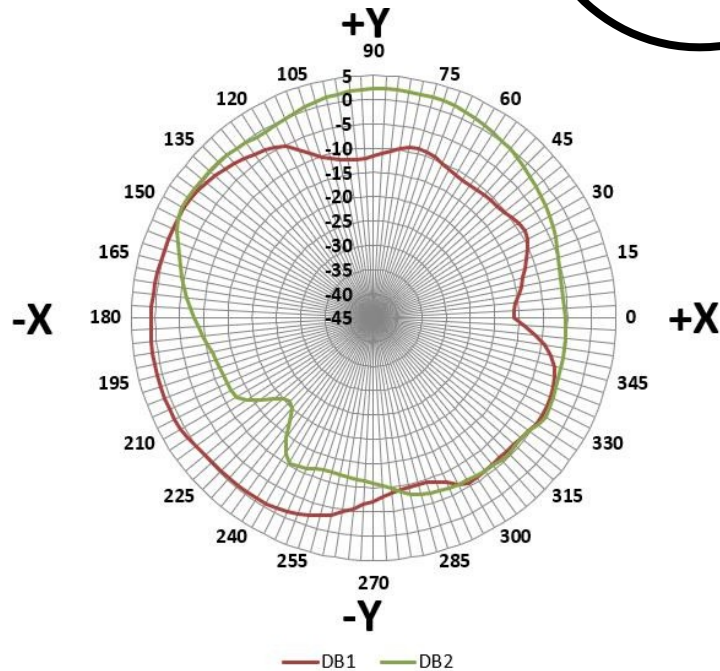
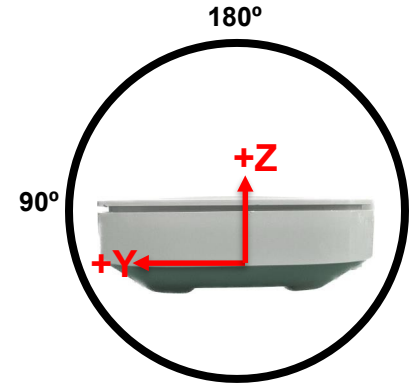
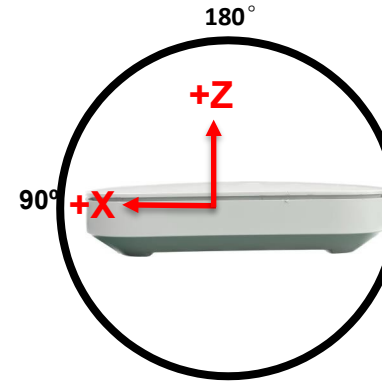
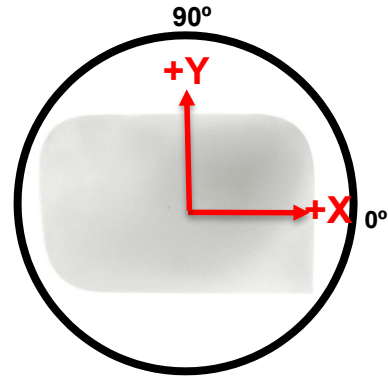
System Coverage- Gain [dB]

5350MHz _Dual band



System Coverage- Gain [dB]

5750MHz _Dual band



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	-17.9	69.12	4.69				
DB2_2G	-14.2	69.44	4.69	-42.7			
DB1_5G	-18.8	74.44	4.05				
DB2_5G	-14.1	72.81	5.01			-44	
BT	-7.5			-36	-36	-37	-38

Our Contact

WWW.GALTRONICS.COM

Social Media



Contact

✉ info@galtronics.com

☎ + 1-480-496-5100

📍 8930 S. Beck Avenue, Suite # 103 Tempe,
Arizona 85284-2891, USA

USA Design Center

Galtronics USA Inc.
8930 South Beck Avenue
Suite #103
Tempe, AZ 85284 USA
Tel: +1-480-496-5100

Ottawa, Canada Design Center

Galtronics Canada Inc.
200 Terence Mathews Crescent,
Unit A
Kanata, ON K2M 2C6 Canada

Suzhou, China Design Center

Galtronics Electronics (Wuxi) Co.
No.28, Jinxing Road, Metallurgical
Industrial Park(Jinfeng Town),
Zhangjiagang City, Jiangsu, China

China Factory

Galtronics Electronics (Wuxi) Co.
No. 1, Xishi Road,
Wuxi New District
Jiangsu Province 214028, China
Tel: +86-510-8866-5500

Corporate Headquarters

Baylin Technologies Inc.,
60 Columbia Way
Suite 205
Markham, ON L3R 0C9 Canada

Korea Design Center

Galtronics Korea Co.
#B214, Innoplex Bldg.,306, Sinwon-ro,
Yeongtong-gu, Suwon-si, Gyeonggi-do,
16675 Korea
Tel: + 82-32-227-0771

Vietnam Factory

Galtronics Vietnam
Lot G1 , G2, Que Vo Industrial
Park, Phuong Lieu commune,
Que Vo district, Bac Ninh
province, Vietnam

Thank You!

We Look Forward To Working Together

