



IAP3701M-C

Antenna EVT Test Report



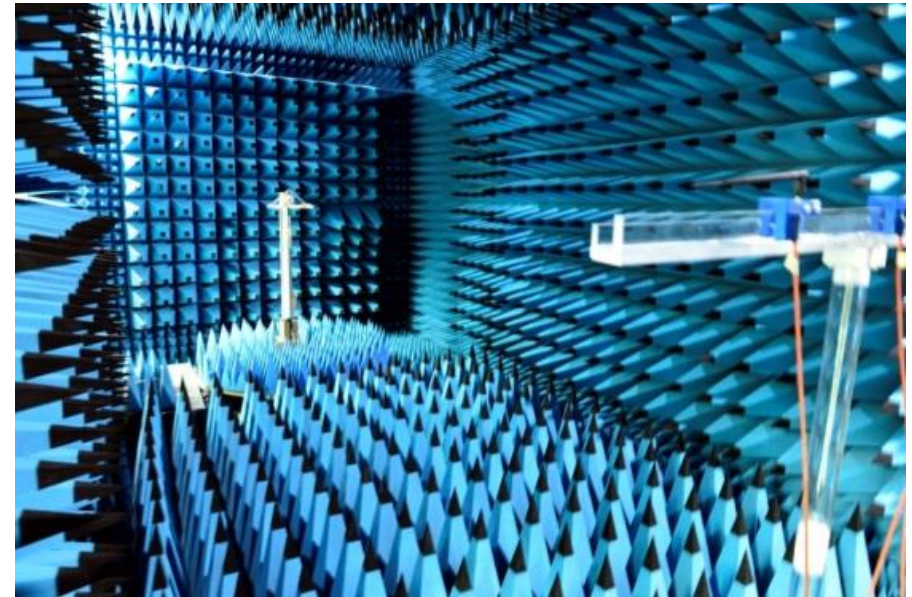
Senao Networks, Inc.

Customer	EnGenius
Project	IAP3701M-C
Project Description	Dual band antenna *2 5G antenna *1 6G antenna *3
Date	2024/09/26
Prepared by	Daniel
Checked	Tony
Report Version	A01

- **Agenda**
 - Antenna Development Resource
 - Antenna Testing Set Up
 - Placement and Specification
 - S11 & Isolation
 - Radiation Pattern
 - Efficiency and Gain

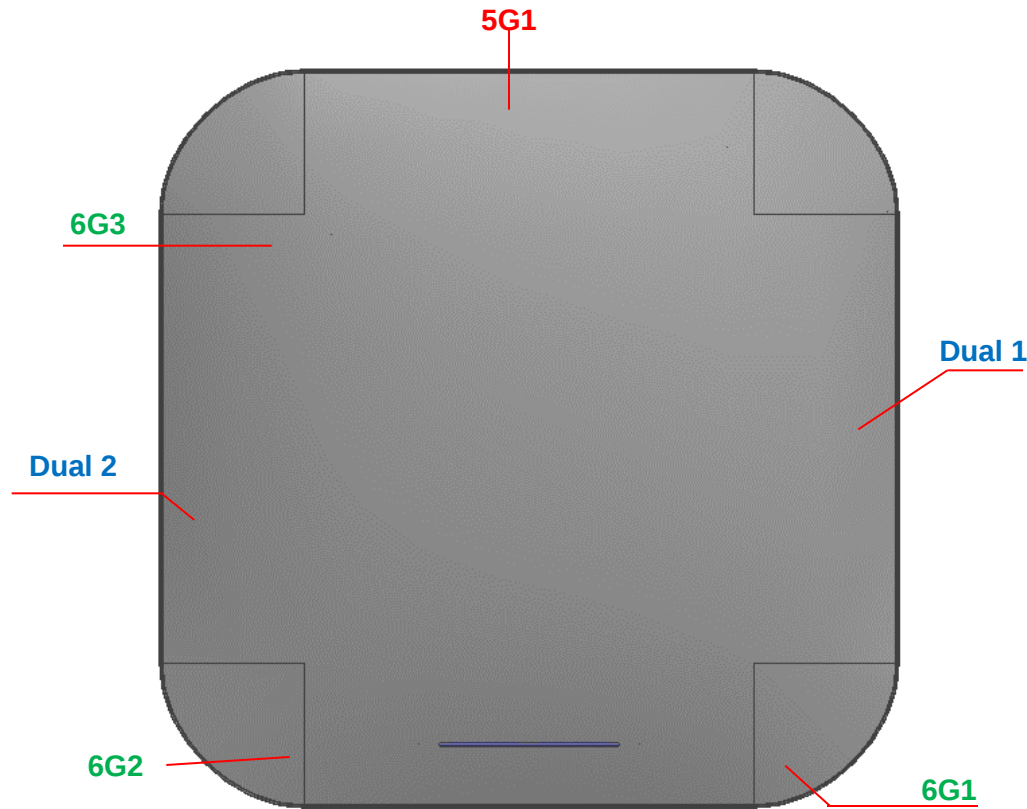
3D Anechoic Chamber - BWANT

- Size: 7.32M(L)x3.66M(W)x3.66M(H)
- Testing range from 400MHz to 7GHz
- Chamber Isolation : 10KHz to 10GHz >100dB (NSA 94-106)
- Calibration antenna : BWANT SD650 /SD740 /SD900 /SD1150 /SD1575 /SD1800 /SD2140 /SD2450 /SD3200 /SD3600 /SD4550 /SD5400 /HA-0508
- Calibration date: 2022/10/27
- Test software : BWANT 3D Passive



3D Anechoic Chamber

Placement and specification



Ant No.	Operating Band	Gain (dBi)	Efficiency (%)	Ant type	Material	Feeding	Dimension
Dual 1 ~Dual 2	2400MHz ~ 2500 MHz	1.7~3.5	51~67	PIFA	Metal	Cable	34.5*6.3*9 mm ³
Dual 1 ~Dual 2	5150MHz ~ 5850 MHz	2.5~4.7	51~65	PIFA	Metal	Cable	34.5*6.3*9 mm ³
5G1	5150MHz ~ 5850 MHz	3.7~3.8	60~67	PIFA	Metal	Cable	21*5*10 mm ³
6G1~6G2	5925MHz ~ 7125 MHz	3.7~4.4	62~70	Dipole	PCB	Cable	16*7*1.0 mm ³
6G3	5925MHz ~ 7125 MHz	4.2~4.8	62~63	Dipole	PCB	Cable	18*18*1.6 mm ³

Placement and specification

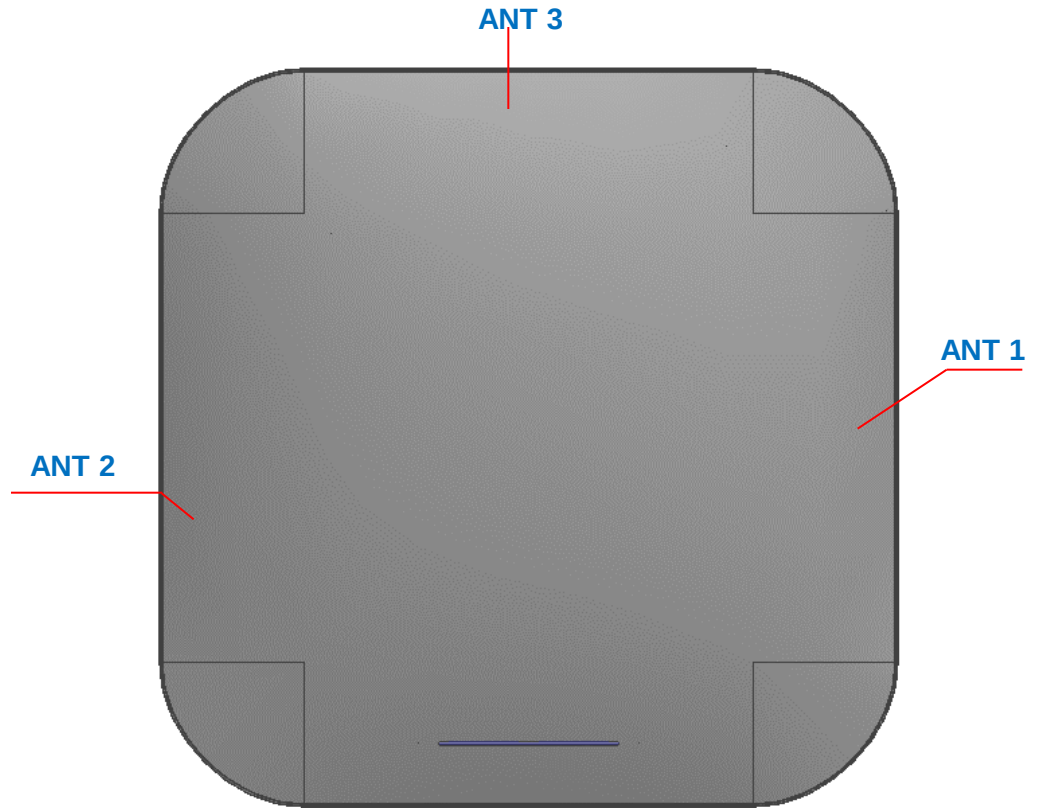
Radio_1 Ant.1~2
 Wi-Fi Frequency 2400~2500MHz
 Return Loss -10dB
 Antenna Type Pifa
 Material Metal
 Feeding Cable

Radio_2 Ant.1~3
 Wi-Fi Frequency 5150~5850MHz
 Return Loss -10dB
 Antenna Type Pifa
 Material Metal
 Feeding Cable

Ant.1
 Brand Name : Enrack
 P/N 7102A1311000

Ant.2
 Brand Name : Enrack
 P/N 7102A1312000

Ant.3
 Brand Name : Enrack
 P/N 7102A1313000



Placement and specification

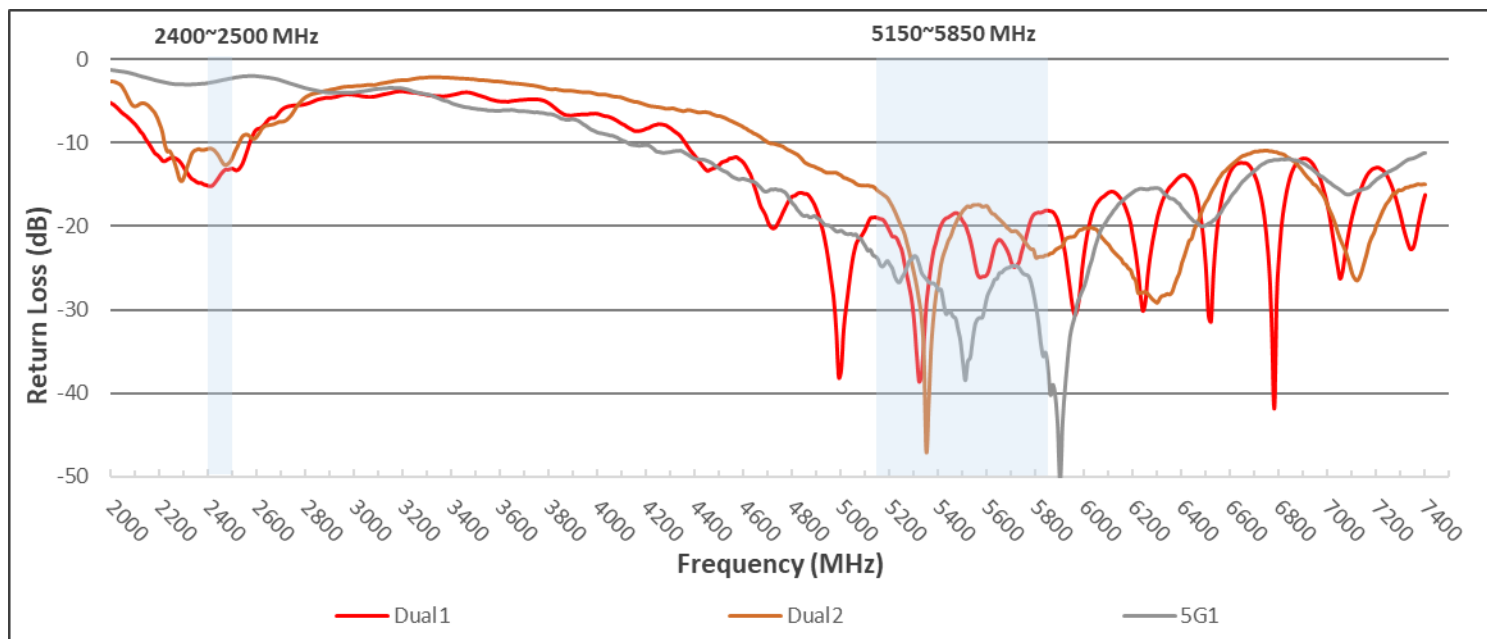
Radio_3	Ant.4~6
Wi-Fi Frequency	5925~7125MHz
Return Loss	-10dB
Antenna Type	Dipole
Material	FR4
Feeding	Cable

Ant.4	
Brand Name :	AWAN
P/N	7102A1315000

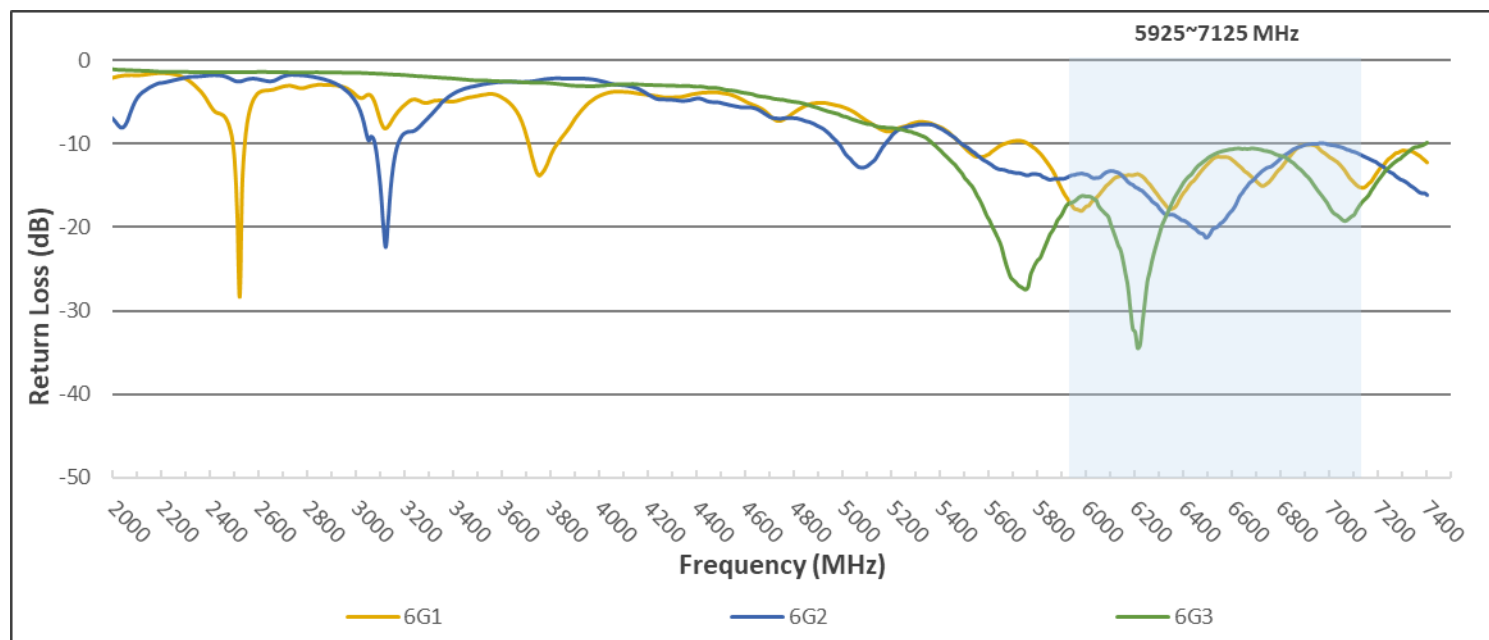
Ant.5	
Brand Name :	AWAN
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Ant.6	
Brand Name :	AWAN
P/N	7102A1314000

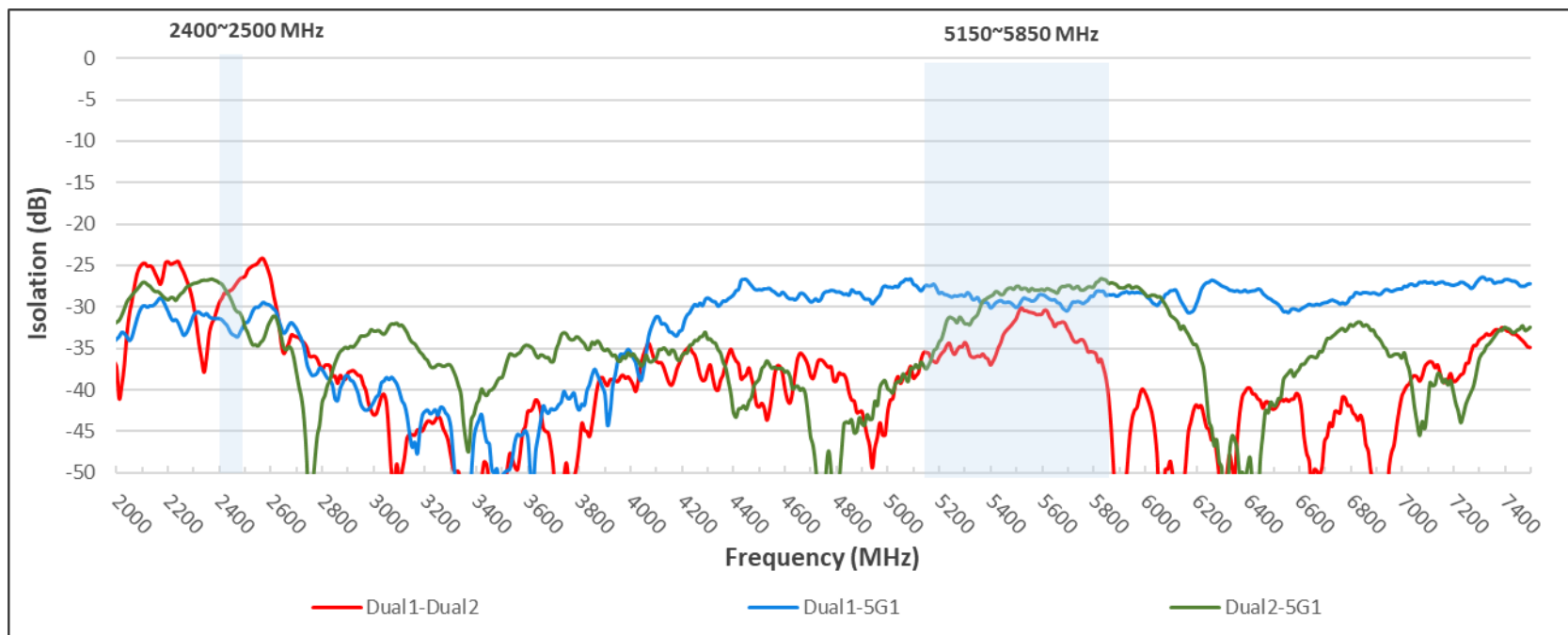




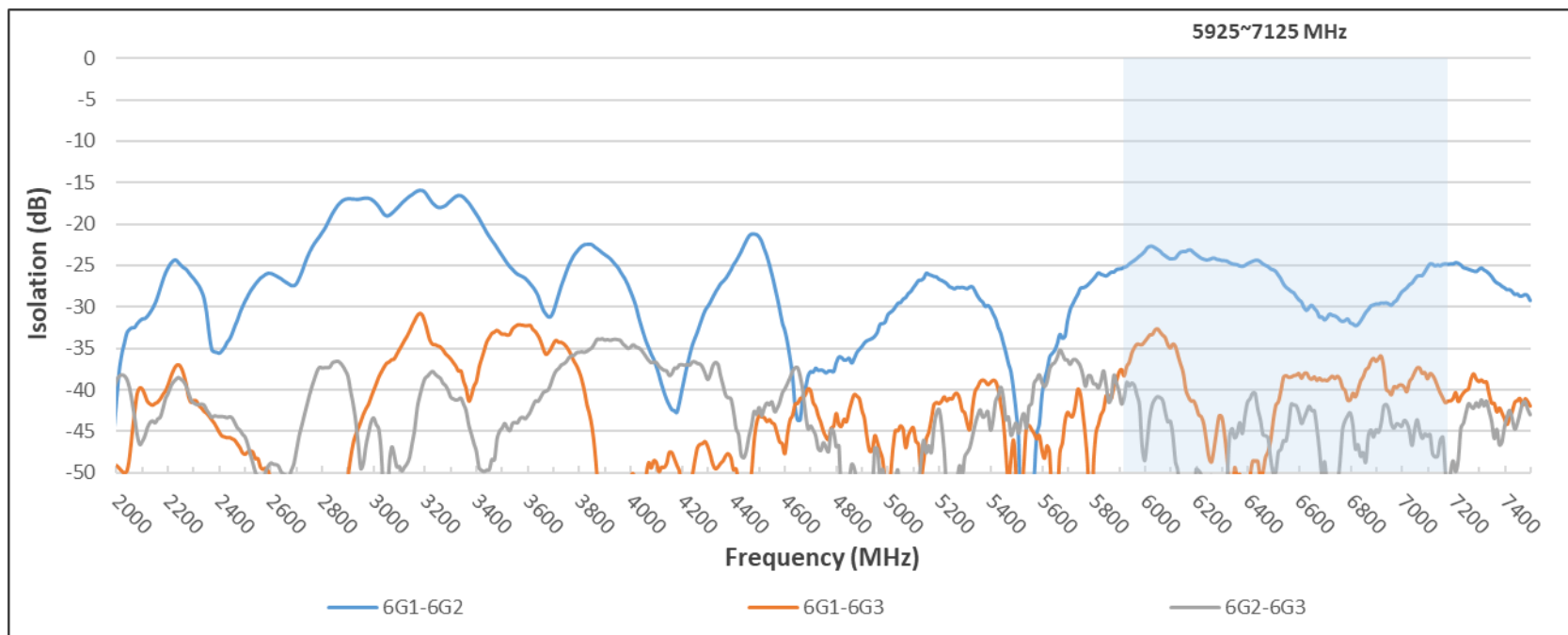
S11			
Freq. (MHz)	Dual1	Dual2	5G1
2400	-15.24	-10.67	
2450	-13.86	-11.95	
2500	-13.18	-11.61	
5150	-19.07	-15.69	-23.89
5500	-19.49	-18.09	-36.28
5850	-18.19	-23.39	-37.05



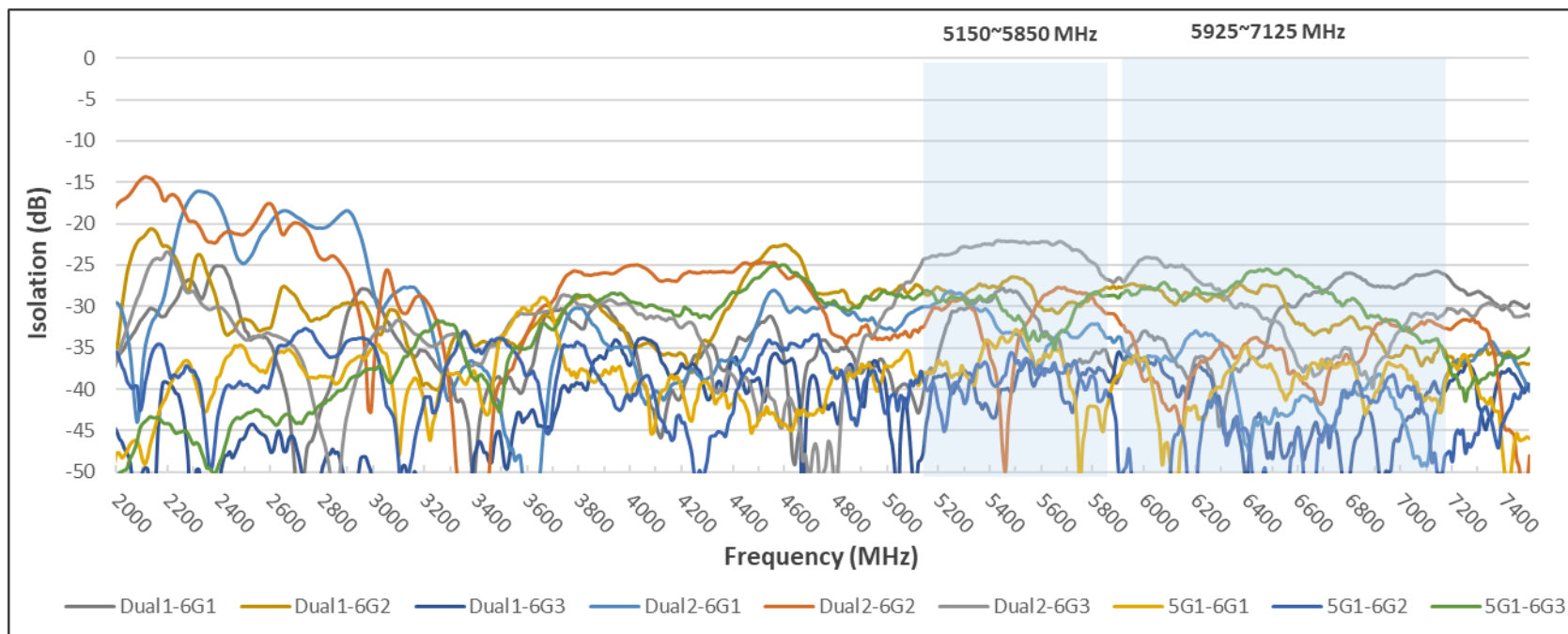
S11			
Freq. (MHz)	6G1	6G2	6G3
5925	-17.80	-13.77	-16.91
6500	-12.40	-21.17	-11.67
7125	-15.10	-11.66	-16.49



Isolation			
Freq. (MHz)	Dual1-Dual2	Dual1-5G1	Dual2-5G1
2400	-29.45	-31.34	
2450	-27.86	-33.24	
2500	-26.28	-31.85	
5150	-35.48	-27.30	-37.52
5500	-31.41	-30.00	-27.58
5850	-38.68	-28.56	-26.80



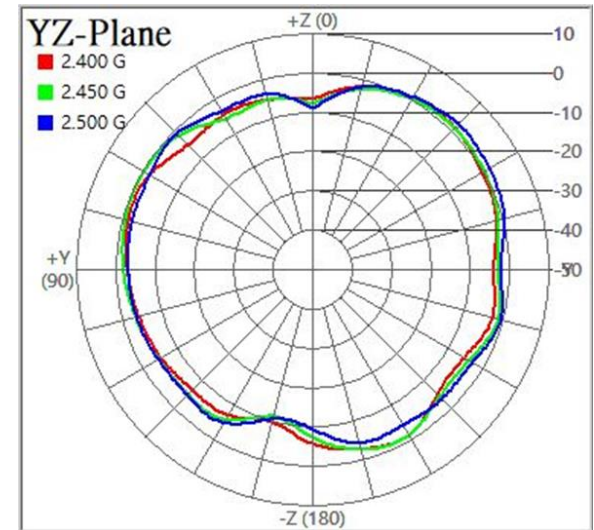
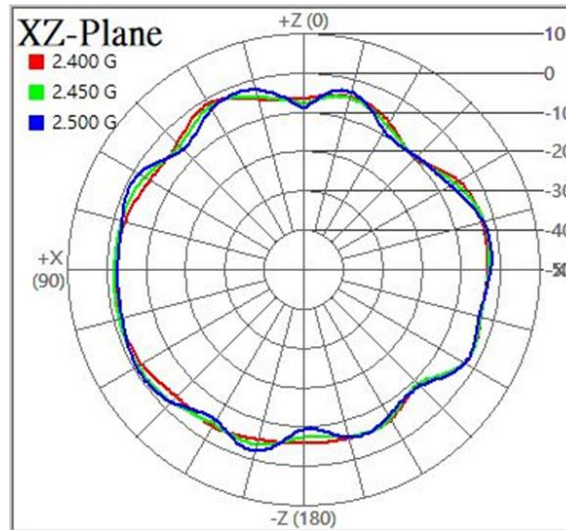
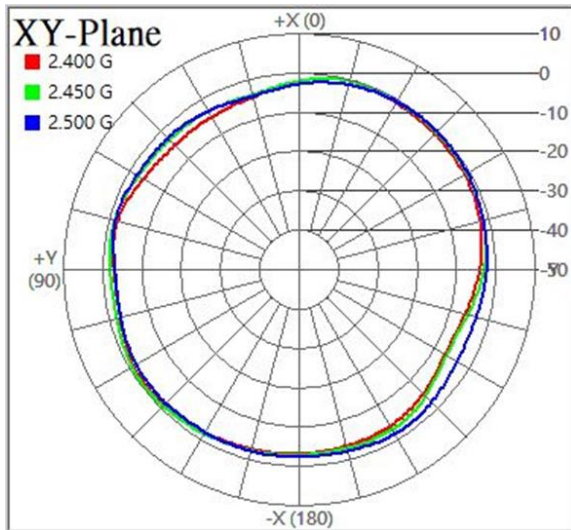
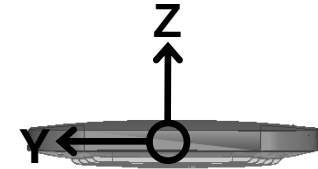
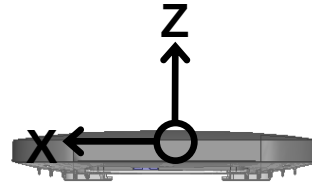
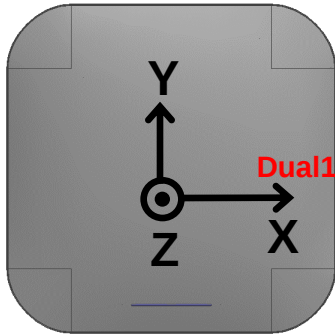
Isolation			
Freq. (MHz)	6G1-6G2	6G1-6G3	6G2-6G3
5925	-24.61	-35.52	-39.16
6500	-25.55	-43.74	-50.05
7125	-25.06	-40.36	-46.12



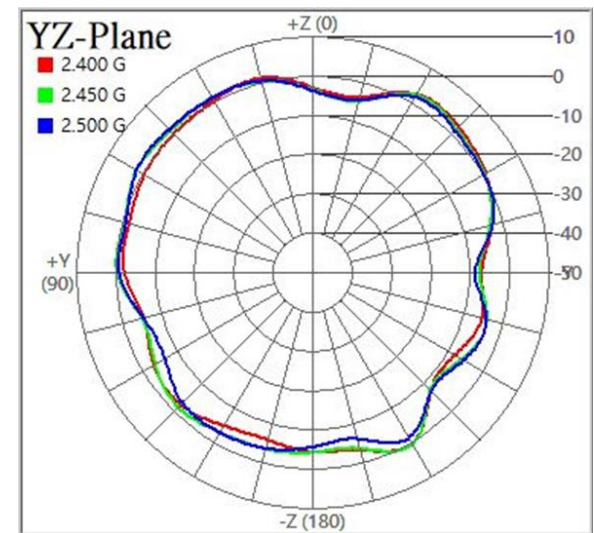
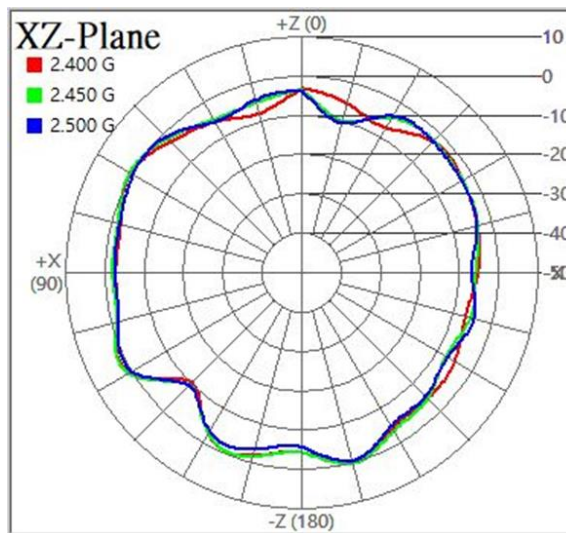
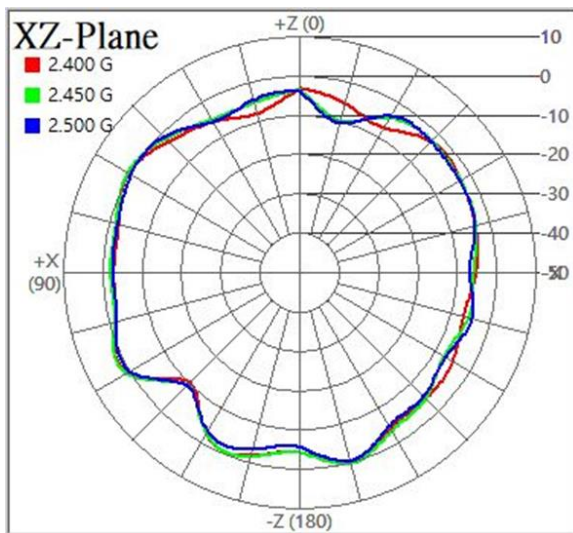
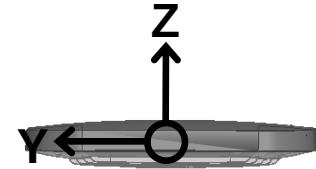
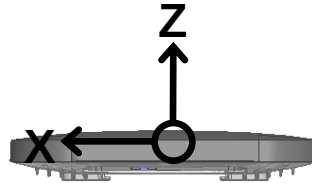
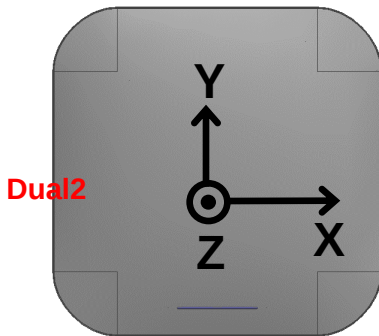
Isolation

Freq. (MHz)	Dual1-6G1	Dual1-6G2	Dual1-6G3	Dual2-6G1	Dual2-6G2	Dual2-6G3	5G1-6G1	5G1-6G2	5G1-6G3
5150	-39.02	-28.59	-44.52	-29.96	-31.98	-24.11	-38.10	-39.87	-28.14
5500	-28.11	-26.47	-39.01	-33.31	-35.99	-22.09	-32.82	-36.83	-31.69
5850	-35.26	-27.71	-38.50	-33.68	-30.90	-26.62	-42.62	-40.09	-28.78
5925	-34.68	-27.26	-36.23	-35.92	-33.43	-25.69	-36.96	-50.16	-28.66
6500	-31.88	-27.57	-48.37	-43.19	-34.92	-31.50	-37.65	-56.25	-26.00
7125	-25.80	-34.73	-40.58	-41.61	-32.36	-31.15	-42.87	-50.22	-34.67

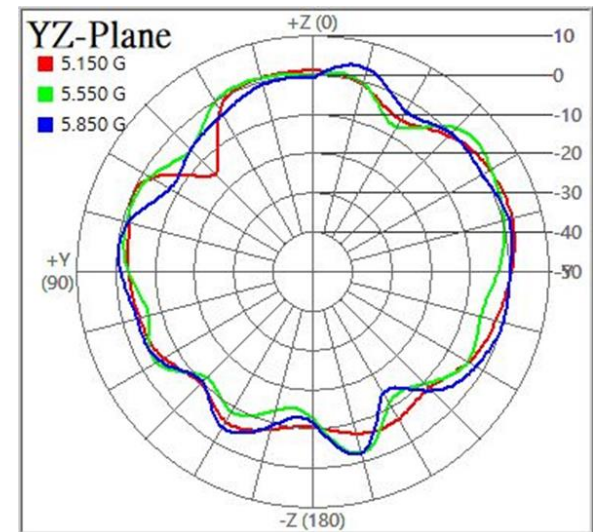
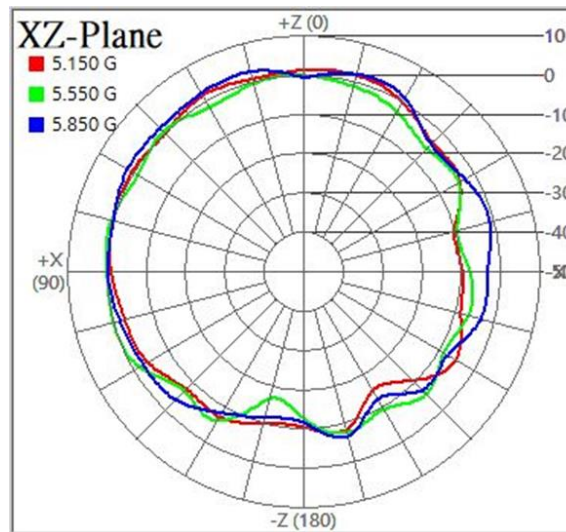
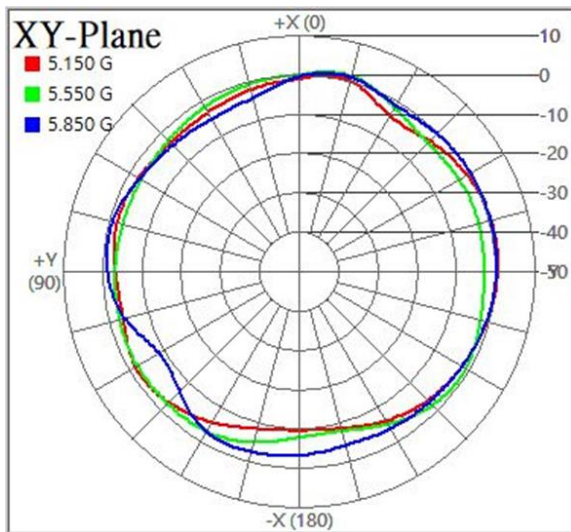
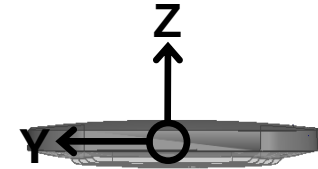
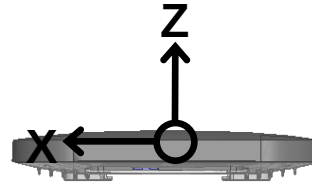
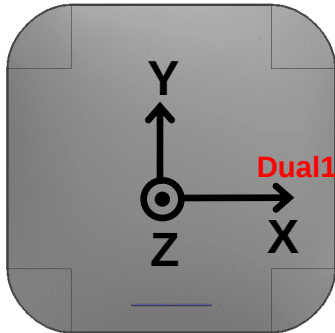
2D Radiation Pattern – Dual-1 @ 2.45GHz



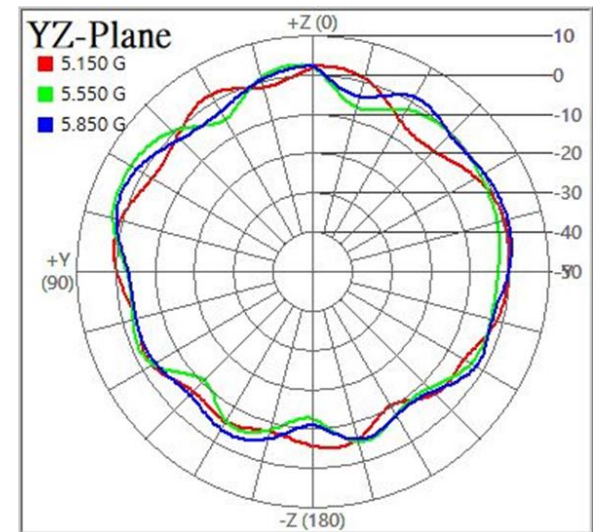
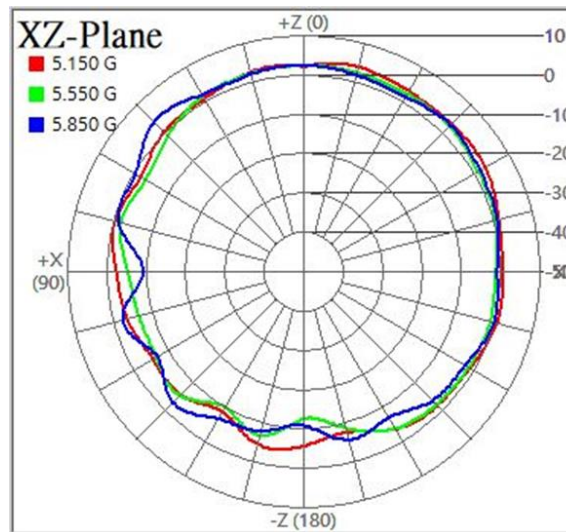
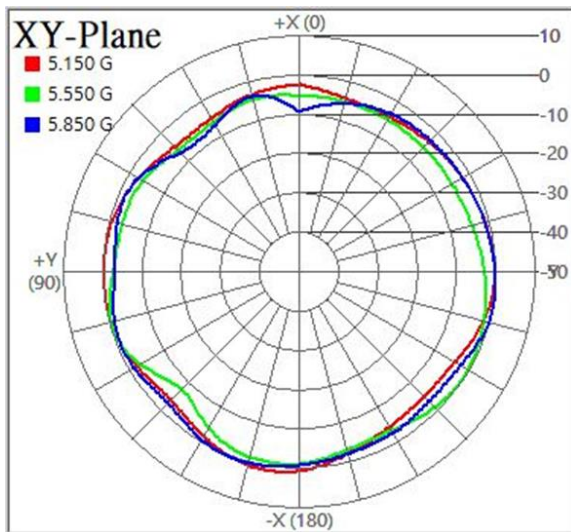
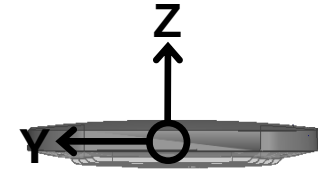
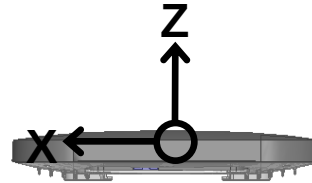
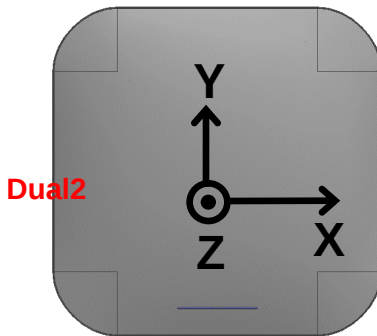
2D Radiation Pattern – Dual-2 @ 2.45GHz



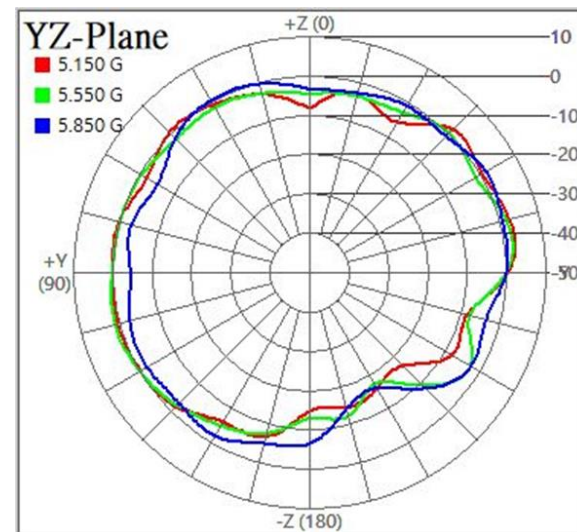
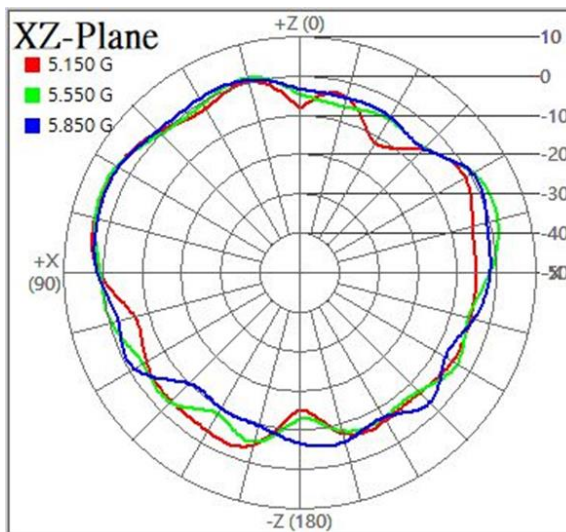
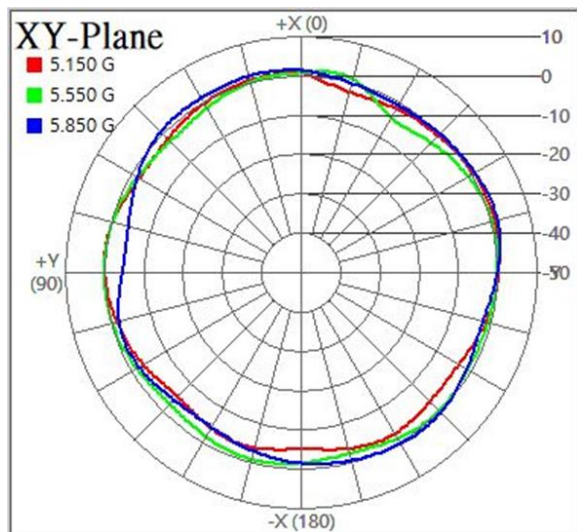
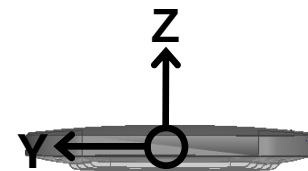
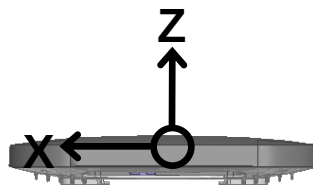
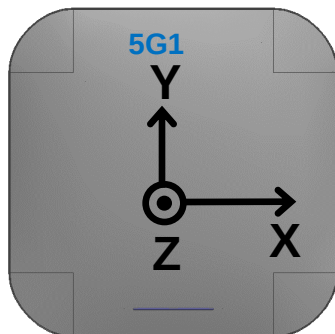
2D Radiation Pattern – Dual-1 @ 5.55GHz



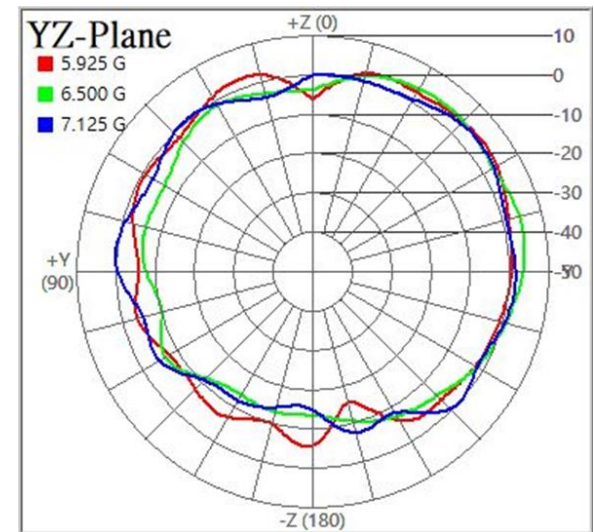
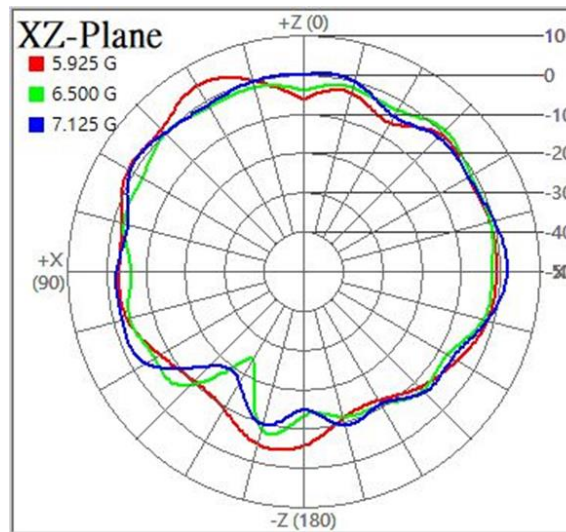
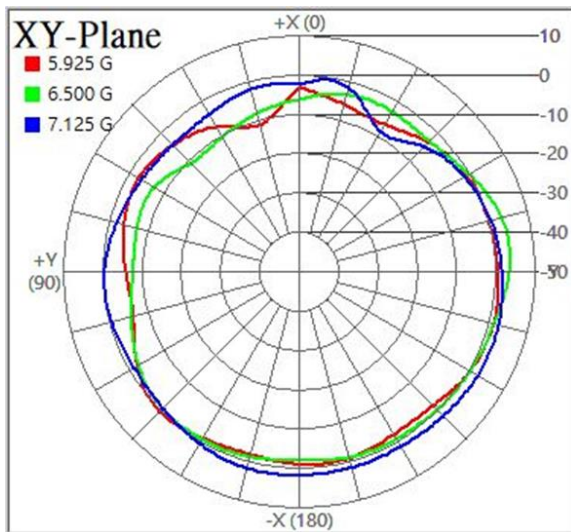
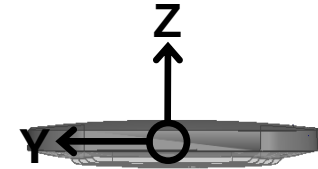
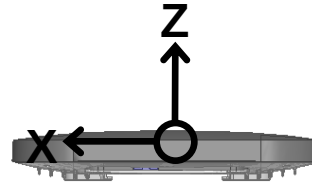
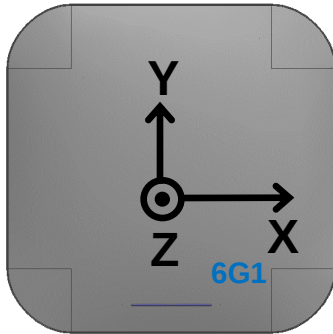
2D Radiation Pattern – Dual-2 @ 5.55GHz



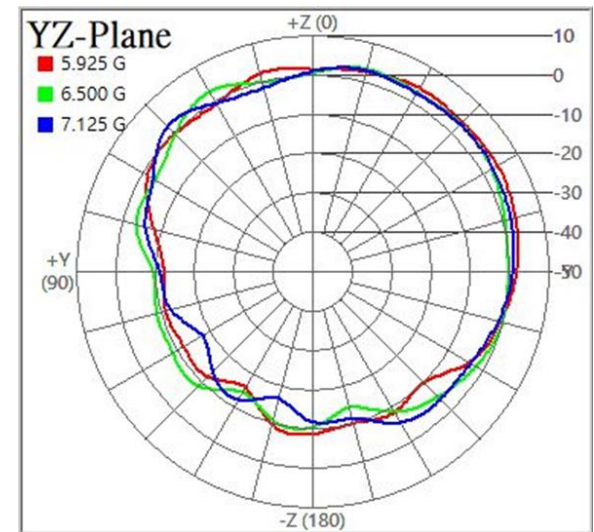
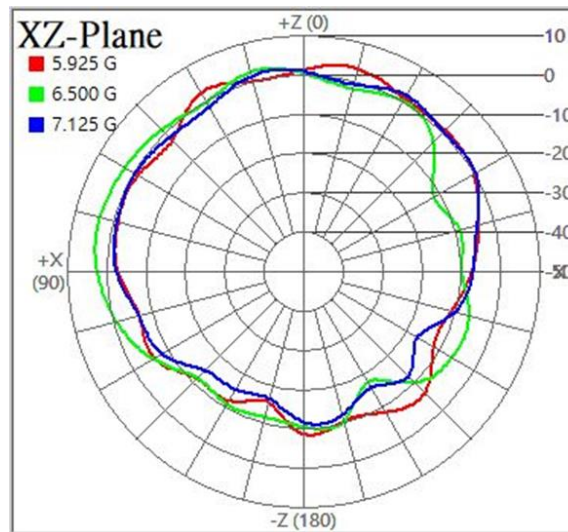
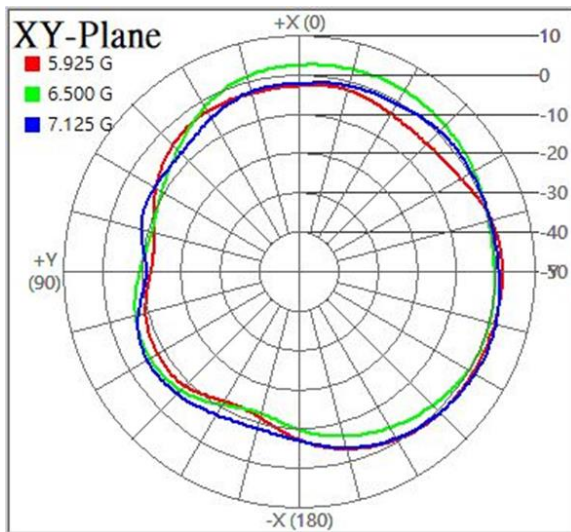
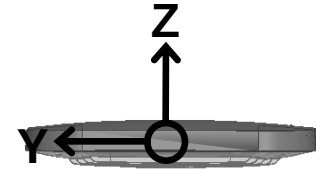
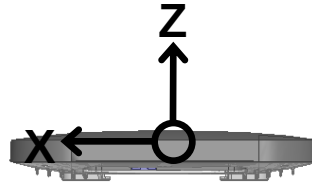
2D Radiation Pattern – 5G1 @ 5.55GHz



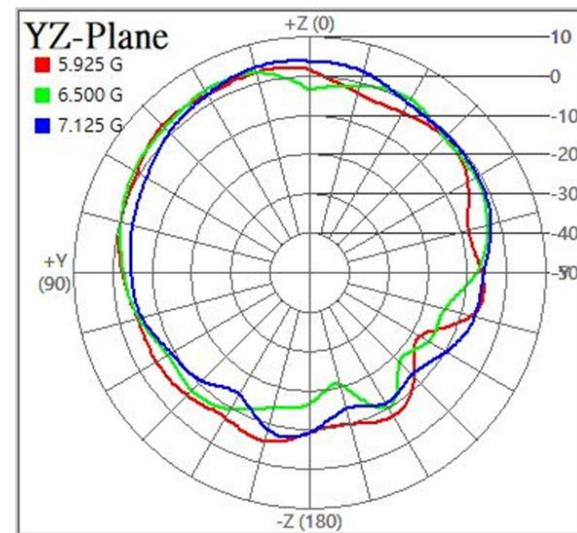
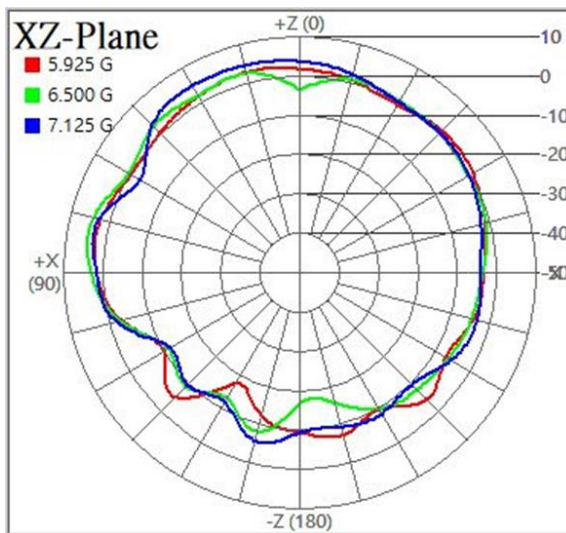
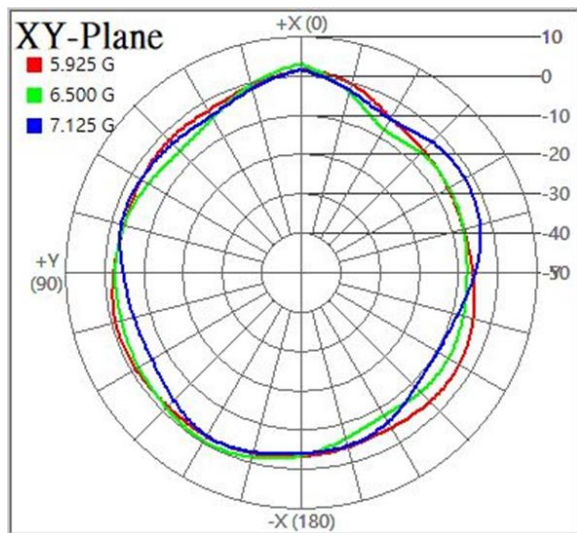
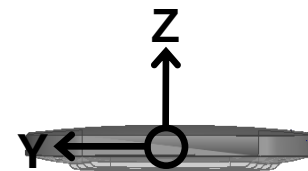
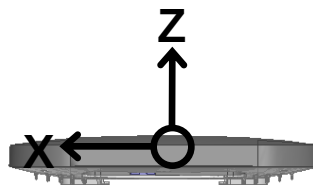
2D Radiation Pattern – 6G1 @ 6.5GHz



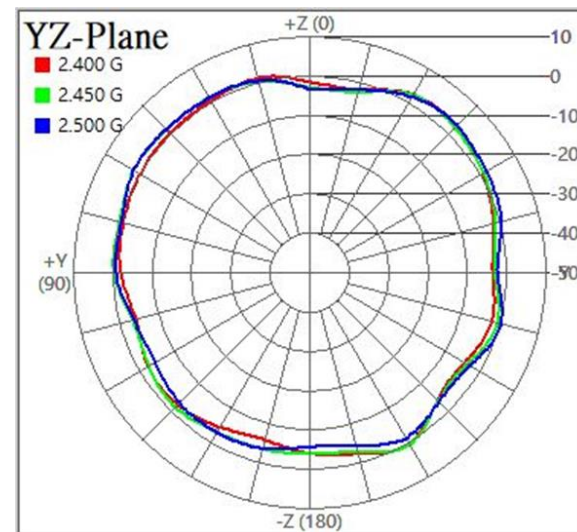
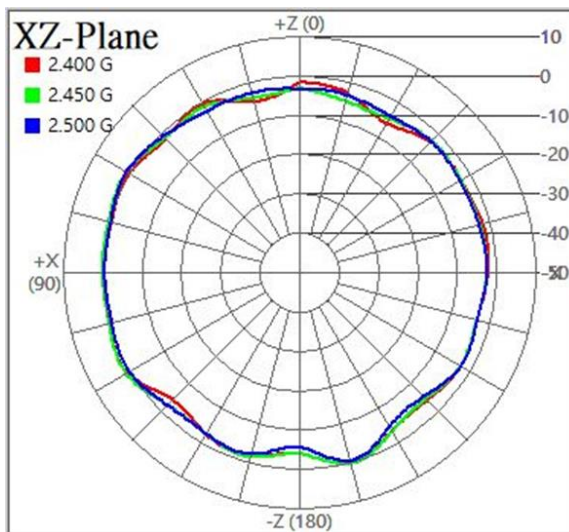
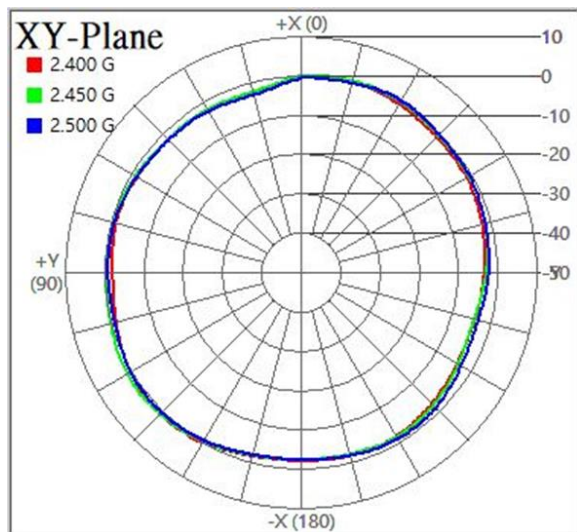
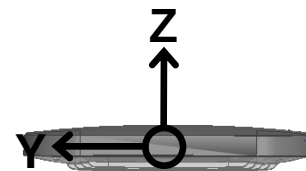
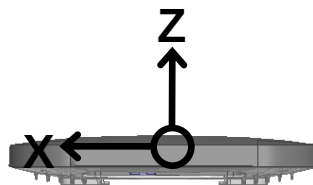
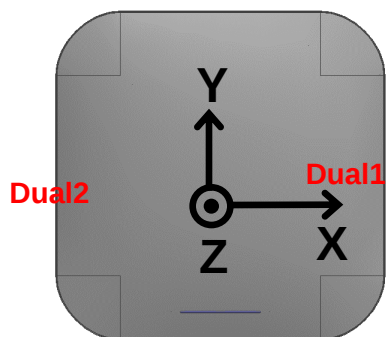
2D Radiation Pattern – 6G2 @ 6.5GHz



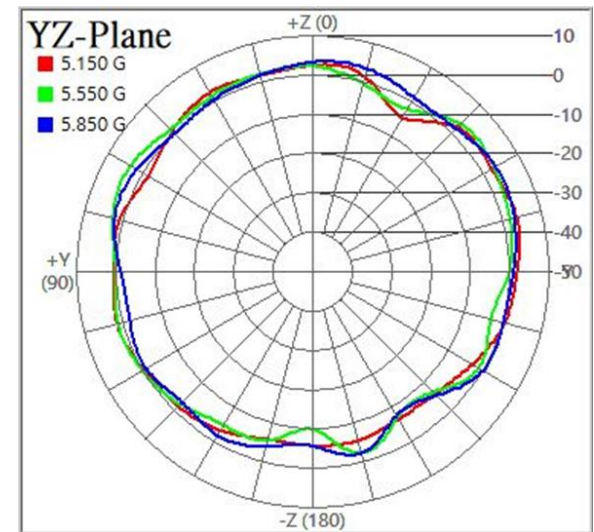
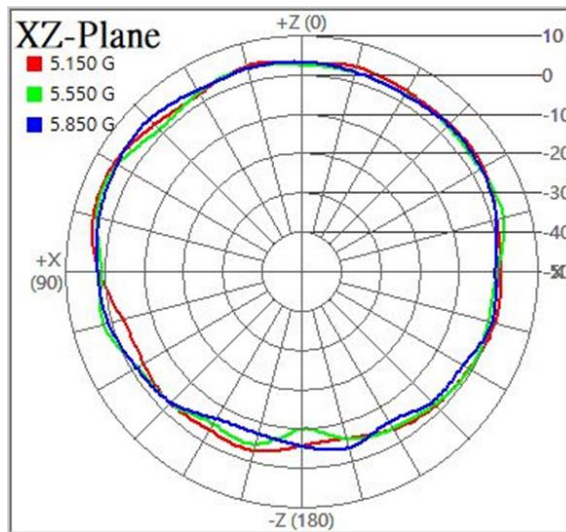
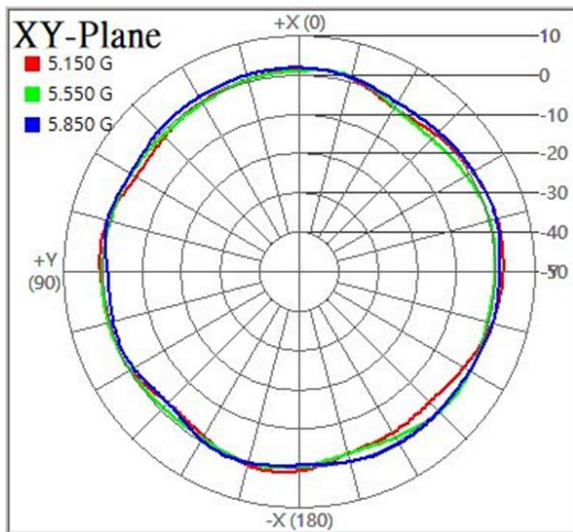
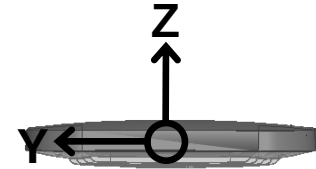
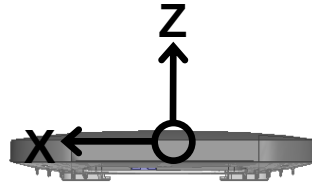
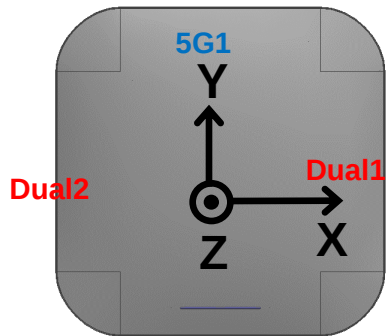
2D Radiation Pattern – 6G3 @ 6.5GHz



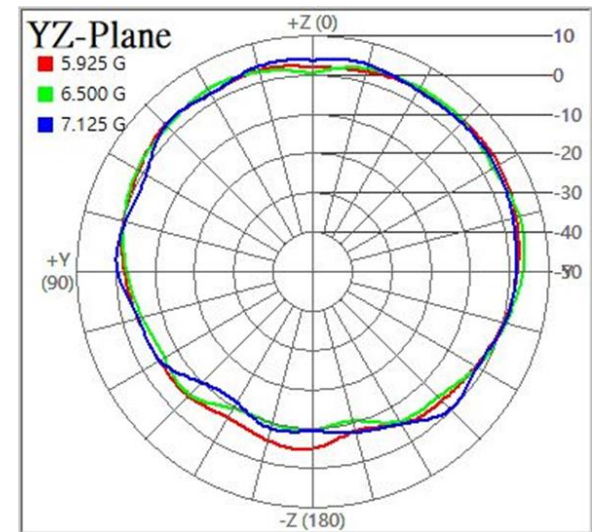
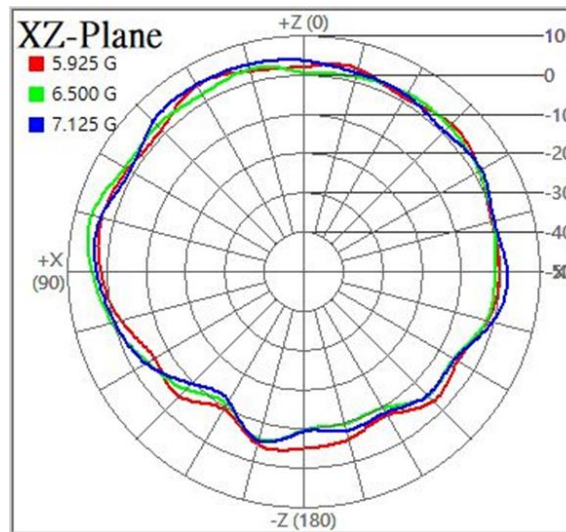
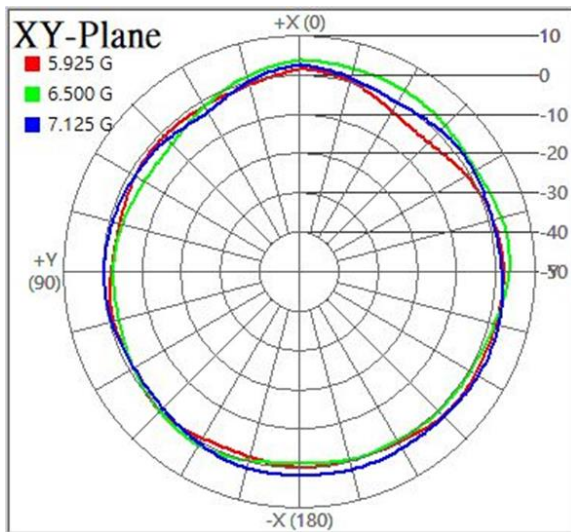
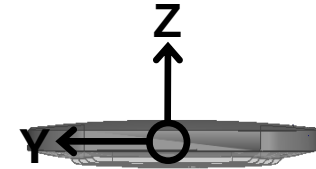
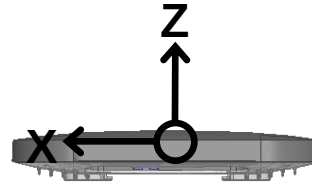
Combine pattern – 2G @ 2.45 GHz



Combine pattern – 5G @ 5.55 GHz



Combine pattern – 6G @ 6.5 GHz



Antenna Efficiency and Gain

Antenna Performance – 2G				
Freq. (MHz)	Dual-1		Dual-2	
	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)
2400	51	1.7	61	2.7
2450	56	2.2	67	3.5
2500	53	2.3	62	3.2

Antenna Performance – 5G						
Freq. (MHz)	Dual-1		Dual-2		5G1	
	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)
5150	51	2.5	63	3.8	60	3.7
5500	53	3.3	65	4.7	65	3.8
5850	52	3.1	62	3.8	67	3.8

Antenna Performance – 6G						
Freq. (MHz)	6G1		6G2		6G3	
	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)
5925	64	4.0	67	4.2	63	4.7
6500	62	4.4	70	4.4	62	4.2
7125	62	3.7	67	4.1	63	4.8