



# IAP4701A

## Antenna Test Report

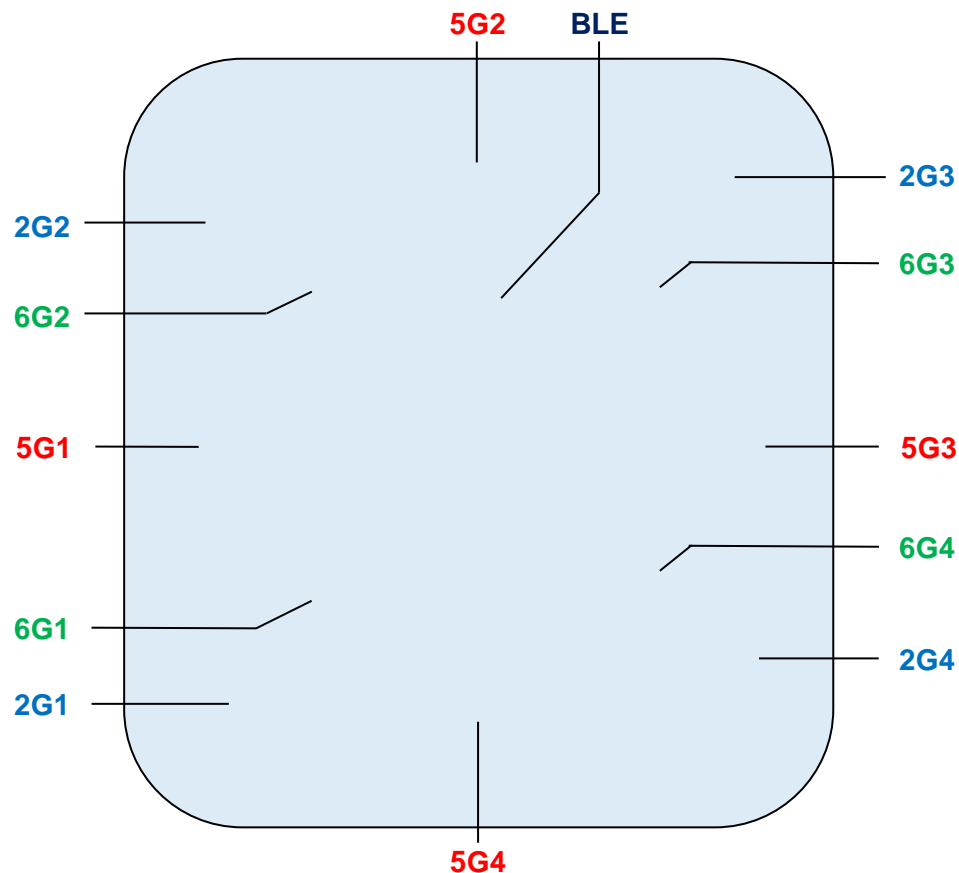


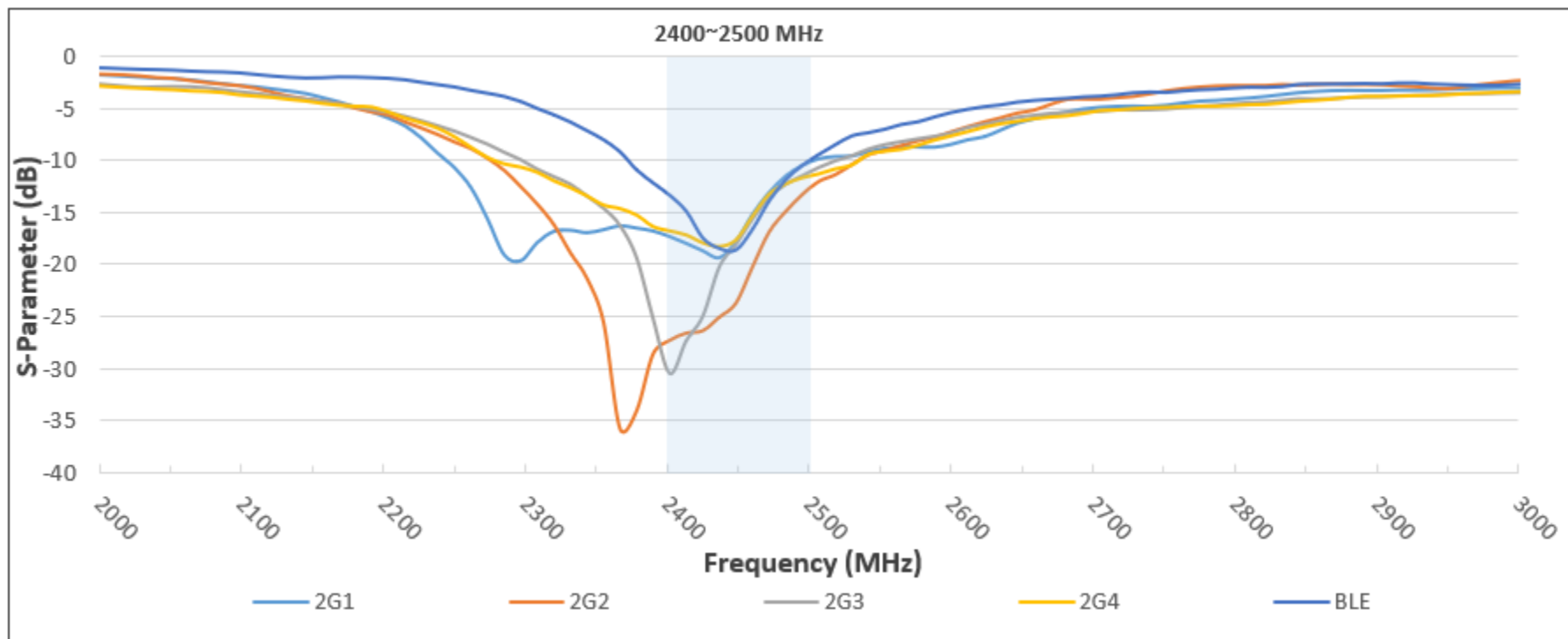
**Senao Networks, Inc.**

Customer	EnGenius
Project	IAP4701A
Project Description	2.4G antenna *4 5G antenna *4 6G antenna *4 BLE antenna *1
Date	2023/09/28
Prepared by	Kenny
Checked	Tony
Report Version	A02

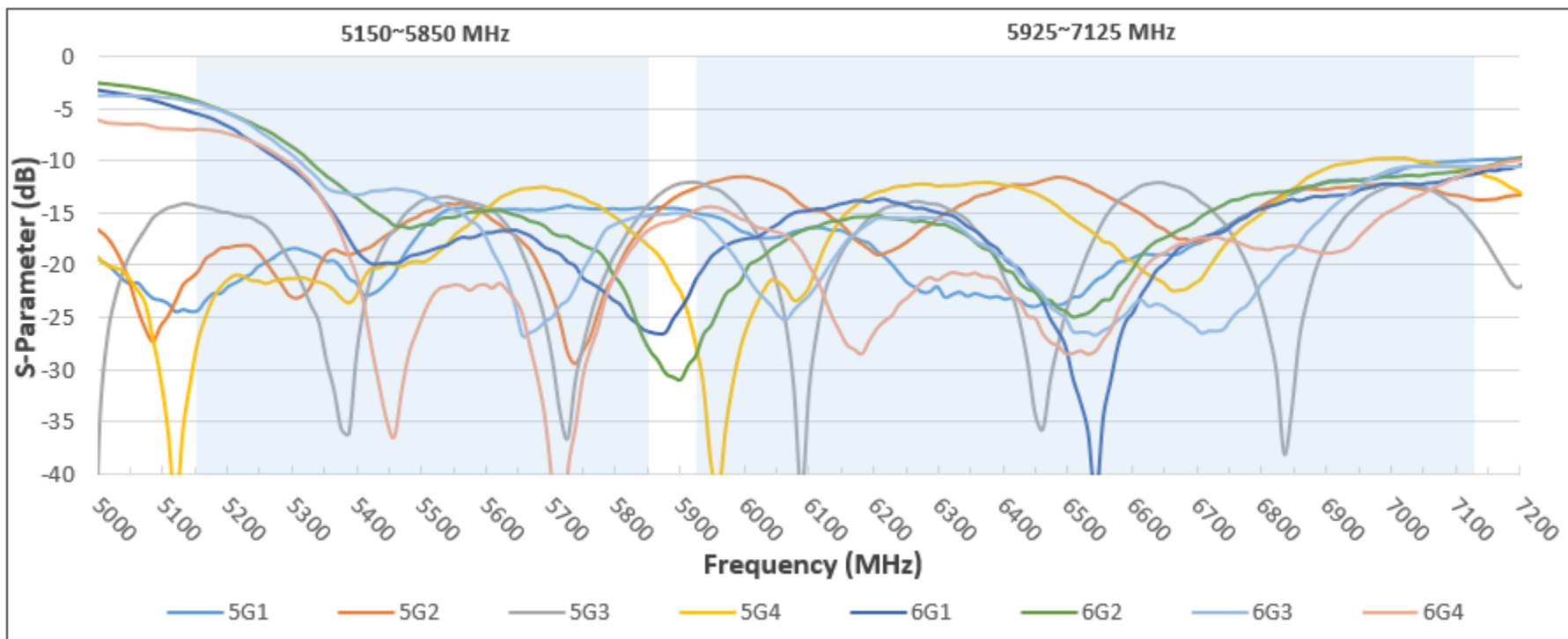
- **Agenda**
  - Placement and Specification
  - Return Loss & Isolation
  - Radiation Pattern
  - Combine Pattern
  - Efficiency and Gain

Ant No.	Brand name	Antenna P/N	Frequency (MHz)
2G1	Senao	5718A0738300	2400 ~ 2500
2G2	Senao	5718A0739300	
2G3	Senao	5718A0740300	
2G4	Senao	5718A0741300	
5G1	Senao	5718A0742300	5150 ~ 5850
5G2	Senao	5718A0743300	
5G3	Senao	5718A0744300	
5G4	Senao	5718A0745300	
6G1	AWAN	A8P8P-100089	5925 ~ 7125
6G2	AWAN	A8P8P-100090	
6G3	AWAN	A8P8P-100091	
6G4	AWAN	A8P8P-100092	
BLE	AWAN	A8P8P-100093	2400 ~ 2500

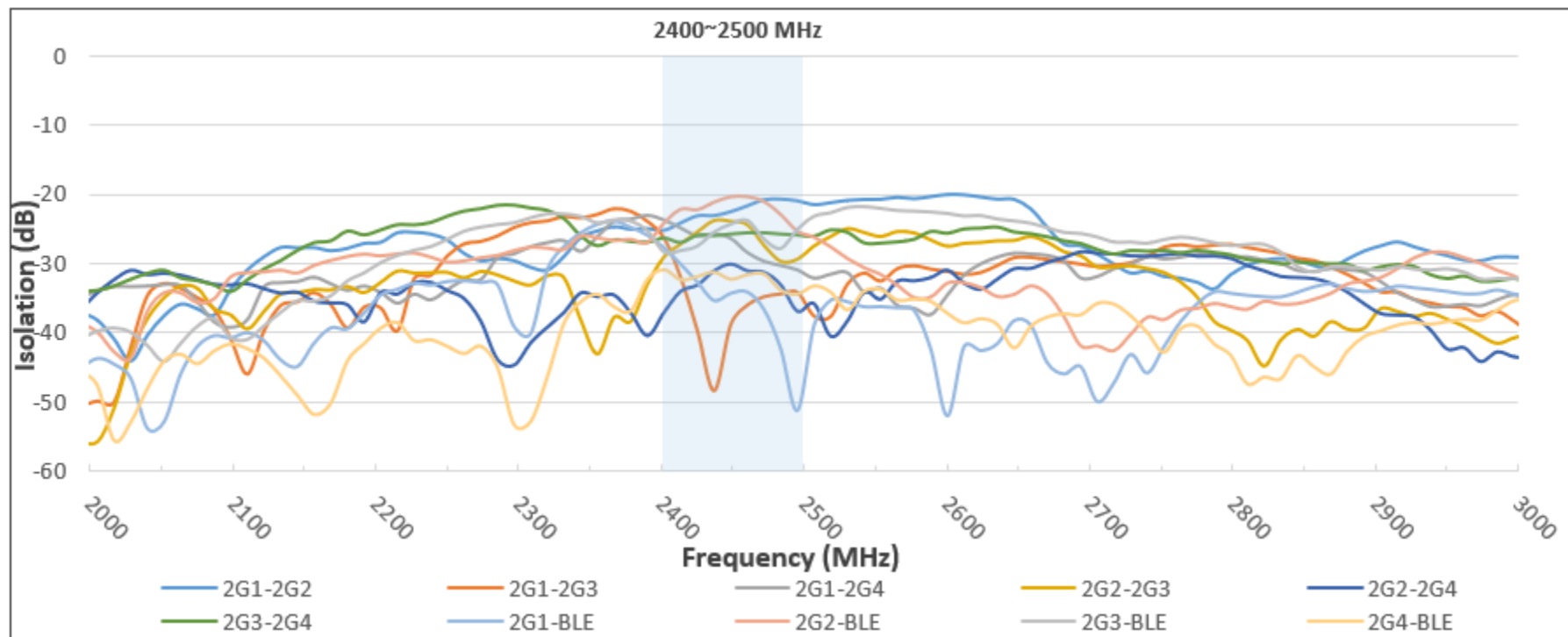




S11					
Freq. (MHz)	2G1	2G2	2G3	2G4	BLE
2400	-17.34	-27.34	-30.40	-16.83	-13.36
2450	-17.82	-23.76	-18.00	-17.69	-18.60
2500	-10.48	-13.32	-11.39	-11.68	-10.51

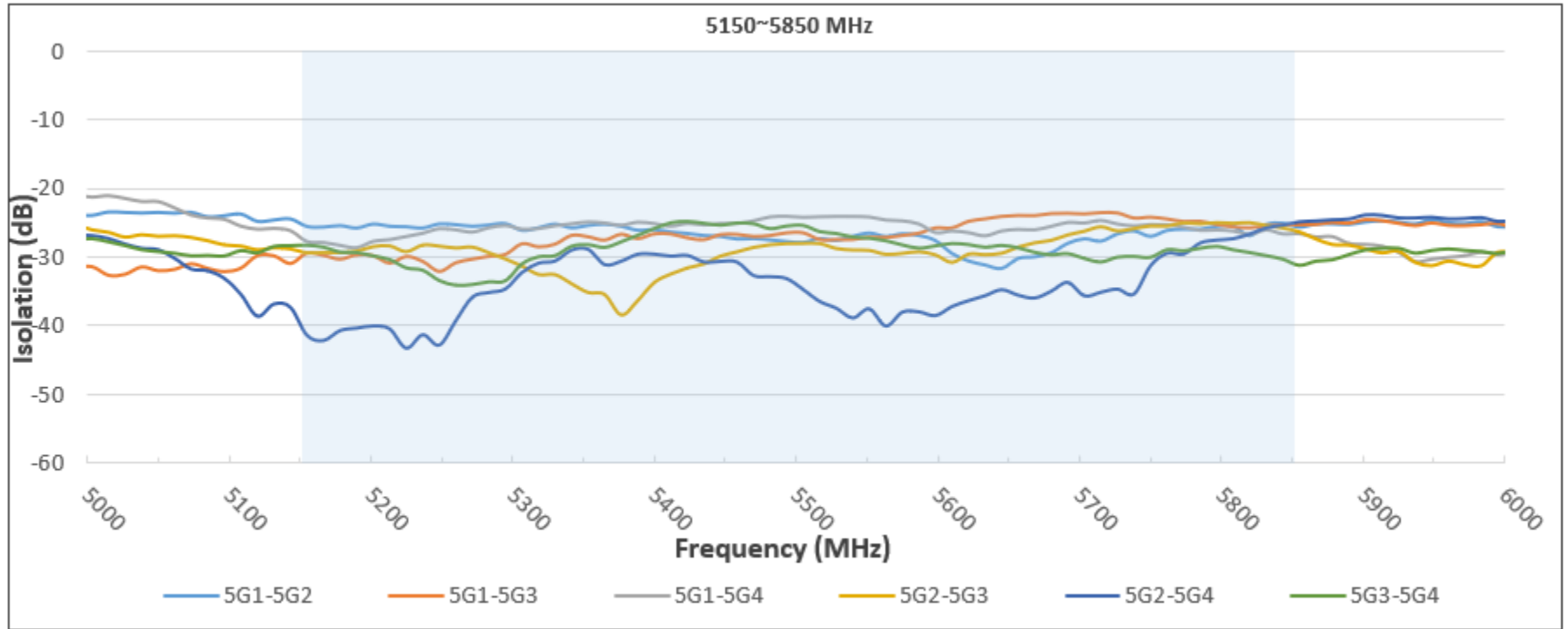


S11								
Freq. (MHz)	5G1	5G2	5G3	5G4	6G1	6G2	6G3	6G4
5150	-24.29	-20.58	-14.40	-27.20	-5.50	-4.22	-4.56	-7.00
5500	-16.27	-14.93	-13.71	-19.66	-18.80	-16.00	-13.38	-24.54
5850	-14.53	-15.50	-14.03	-18.30	-26.45	-28.28	-15.30	-16.54
5925	-14.94	-12.59	-12.08	-27.79	-21.38	-28.65	-15.56	-14.76
6500	-23.59	-11.61	-24.62	-15.01	-27.80	-24.37	-25.16	-28.52
7125	-9.85	-13.69	-16.05	-10.99	-11.32	-10.60	-10.60	-11.00

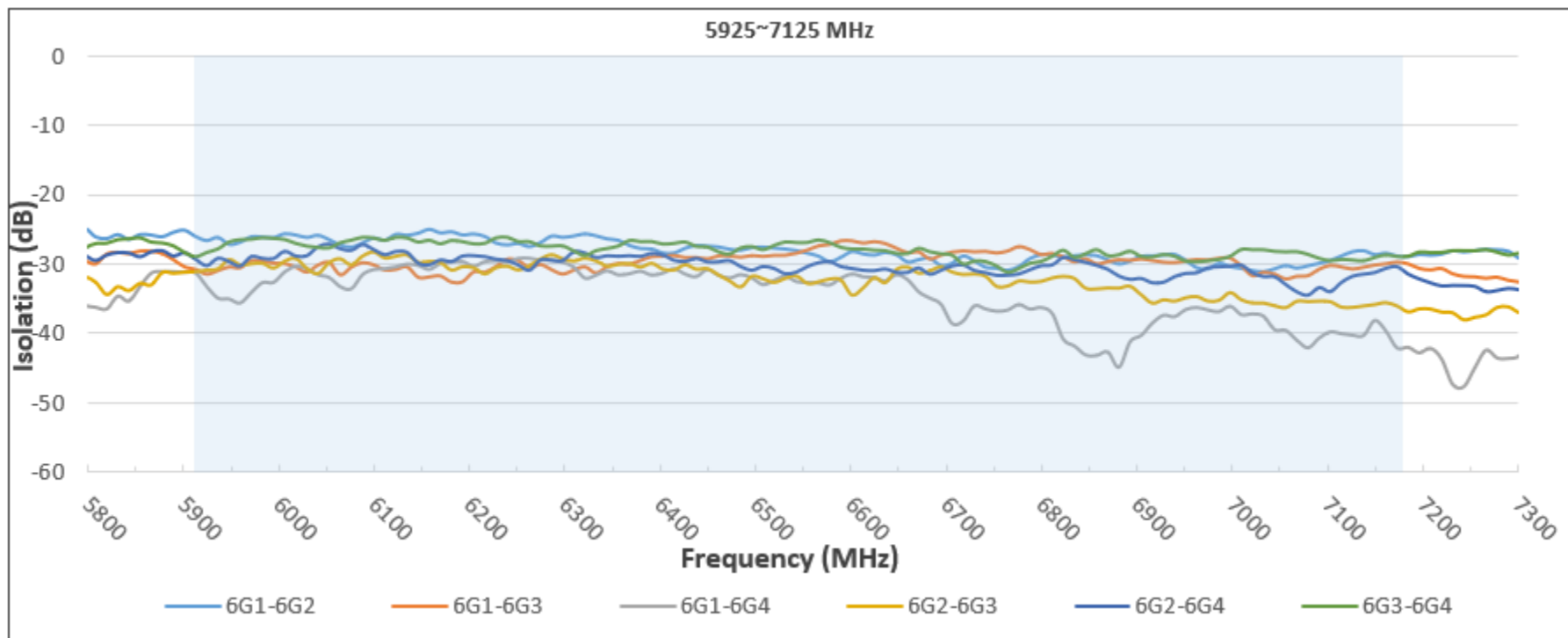


Isolation

Freq. (MHz)	2G1-2G2	2G1-2G3	2G1-2G4	2G2-2G3	2G2-2G4	2G3-2G4	2G1-BLE	2G2-BIE	2G3-BLE	2G4-BLE
2400	-25.17	-26.30	-23.62	-29.14	-36.97	-26.31	-27.65	-24.16	-28.40	-31.01
2450	-22.48	-38.76	-26.28	-24.02	-30.02	-25.73	-34.21	-20.42	-24.42	-32.37
2500	-20.91	-34.12	-30.84	-29.47	-36.83	-25.86	-51.17	-25.37	-25.15	-34.51

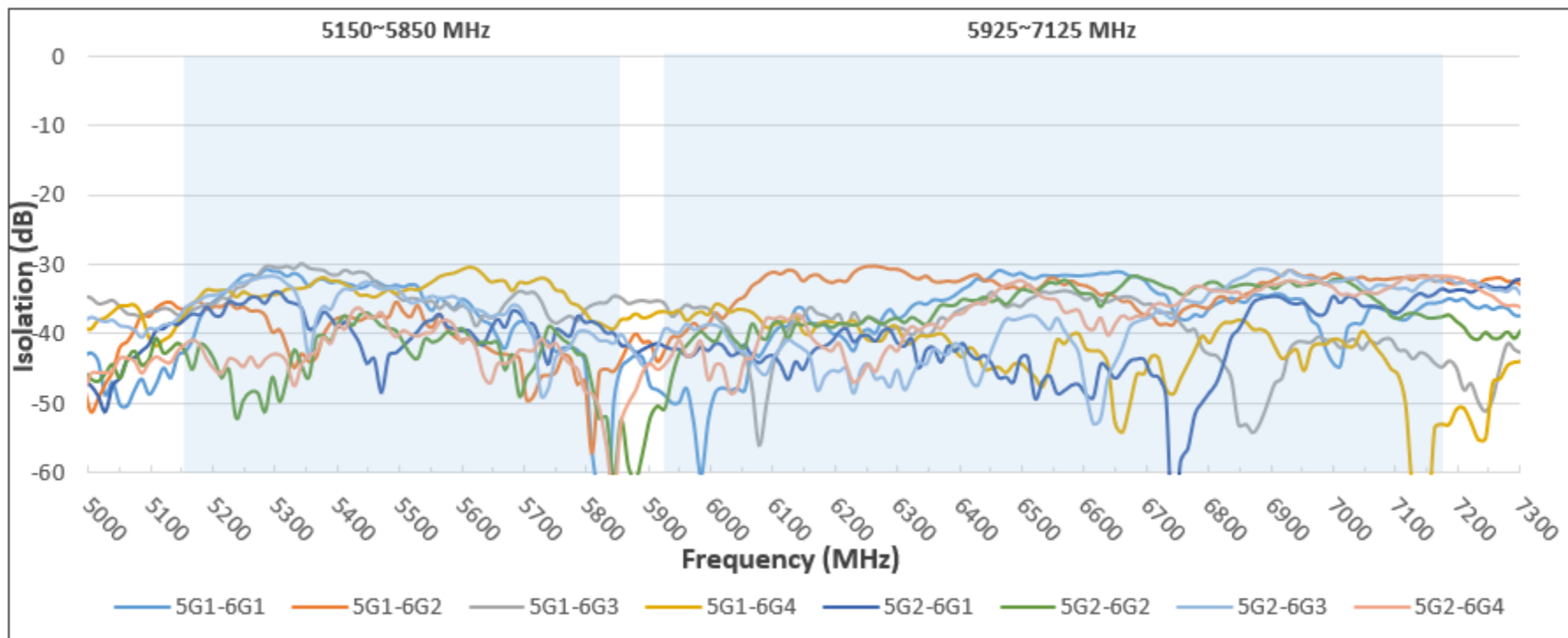


Isolation						
Freq. (MHz)	5G1-5G2	5G1-5G3	5G1-5G4	5G2-5G3	5G2-5G4	5G3-5G4
5150	-25.54	-29.35	-27.82	-29.38	-41.33	-28.29
5500	-27.86	-26.39	-24.28	-28.00	-34.67	-25.42
5850	-25.63	-25.20	-26.67	-26.33	-24.84	-31.21

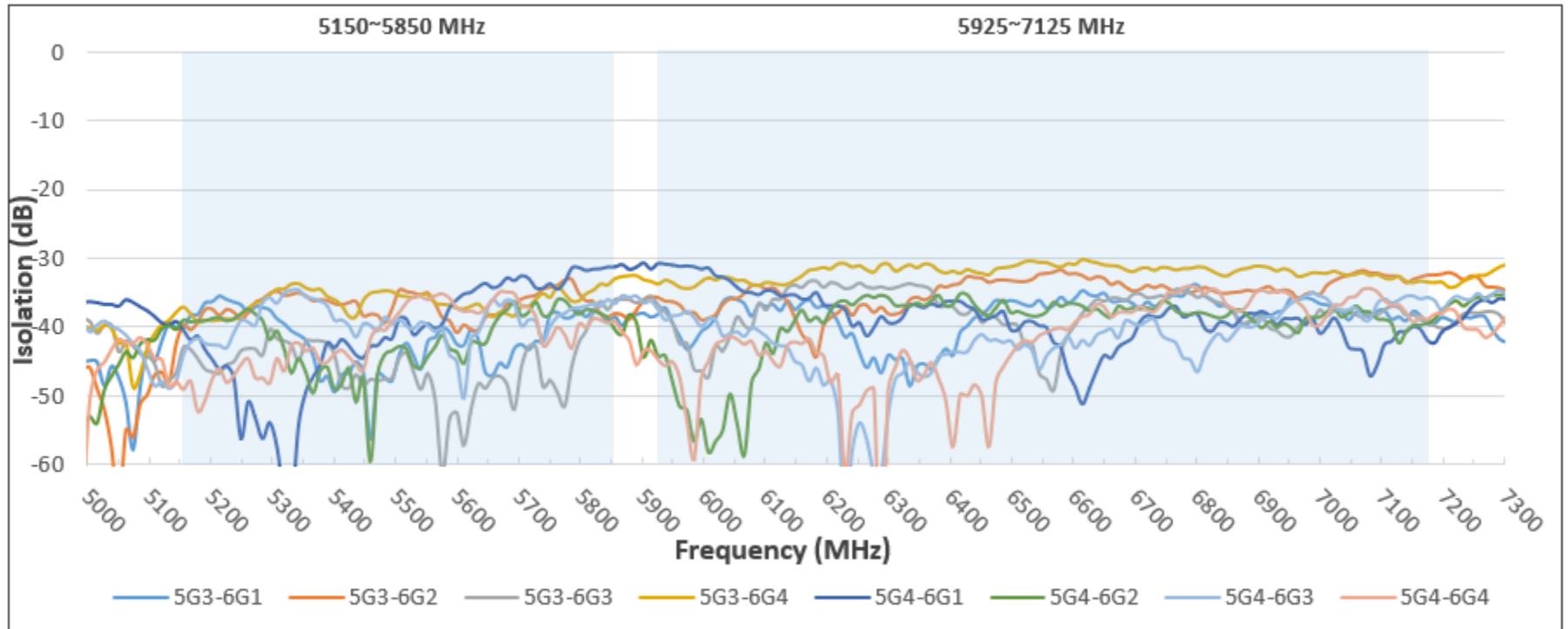


Isolation						
Freq. (MHz)	6G1-6G2	6G1-6G3	6G1-6G4	6G2-6G3	6G2-6G4	6G3-6G4
5925	-26.67	-31.49	-33.17	-30.82	-30.16	-28.32
6500	-27.68	-28.81	-31.91	-31.72	-30.81	-27.48
7125	-28.28	-30.75	-40.19	-36.19	-31.68	-29.42

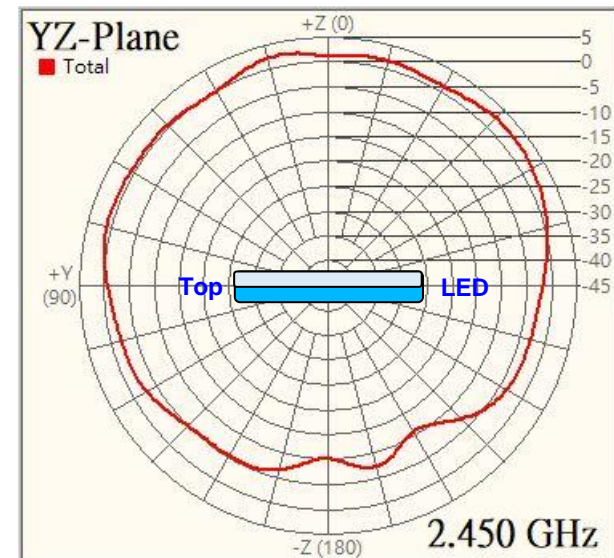
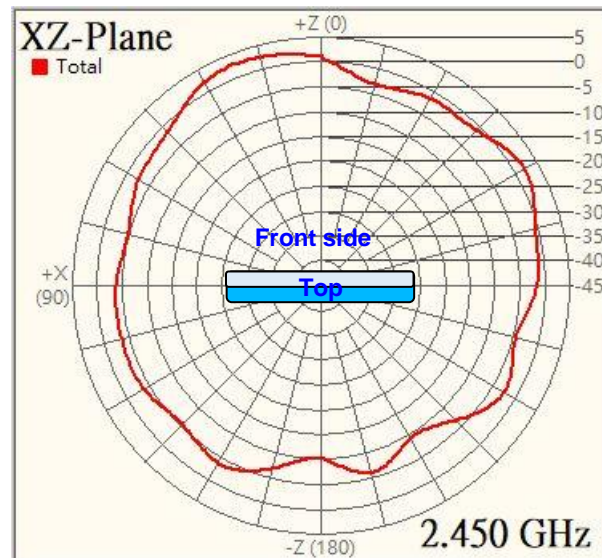
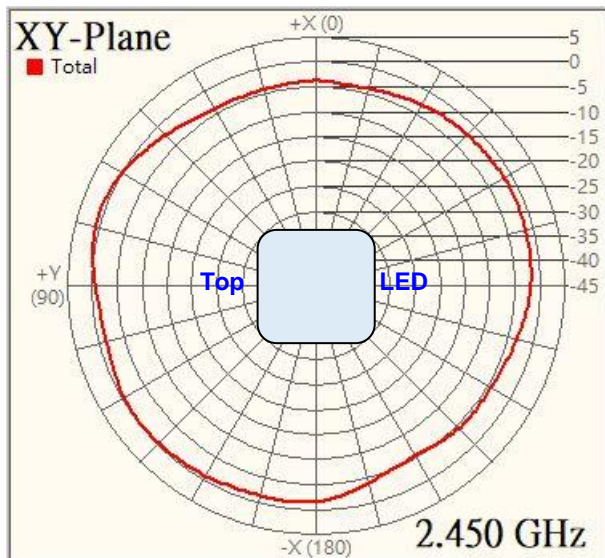
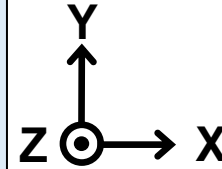
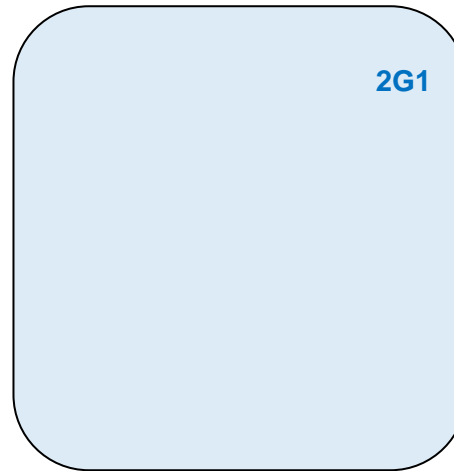
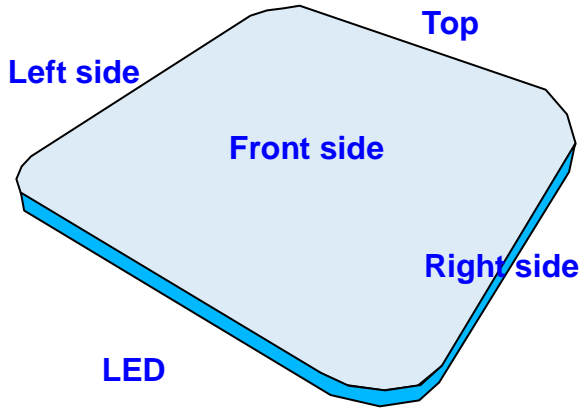


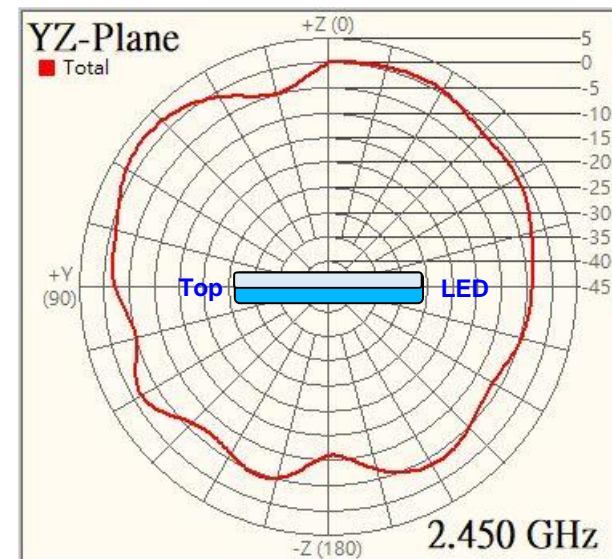
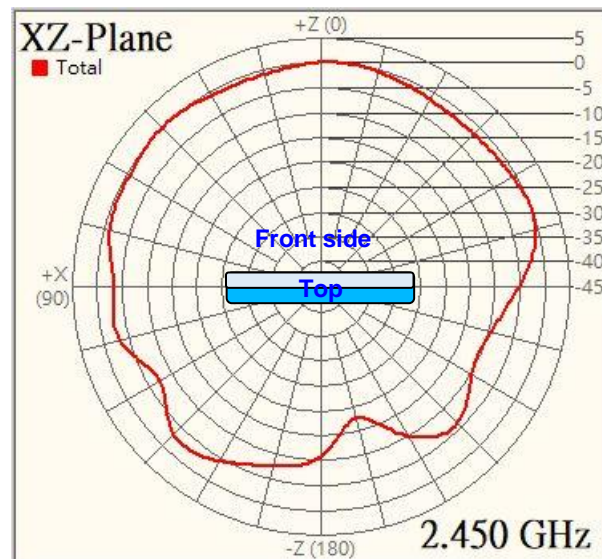
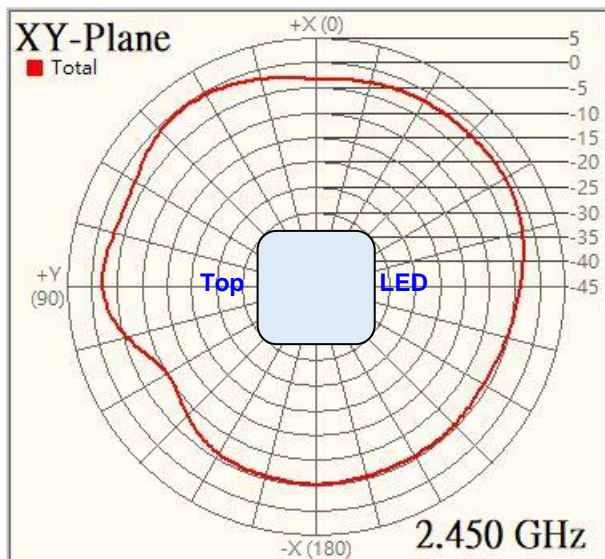
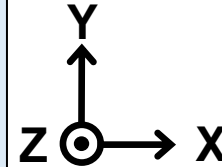
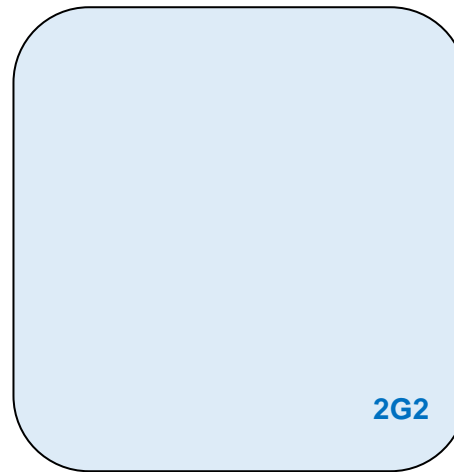
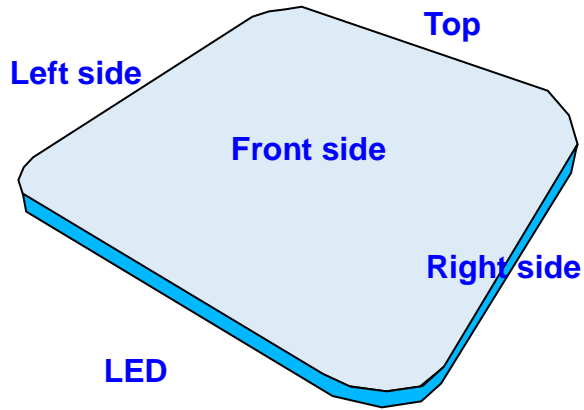


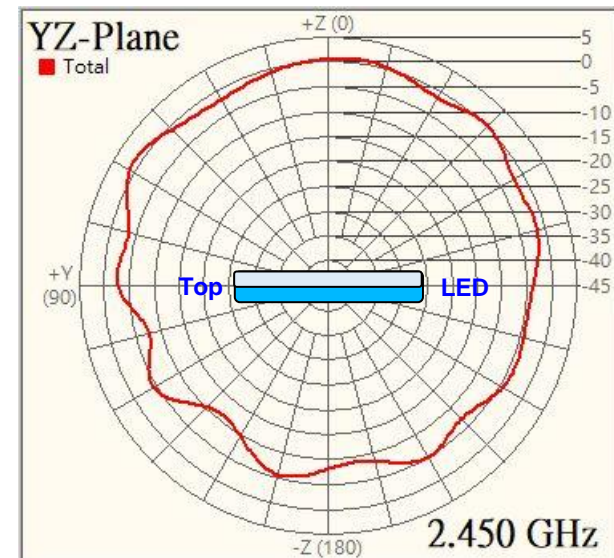
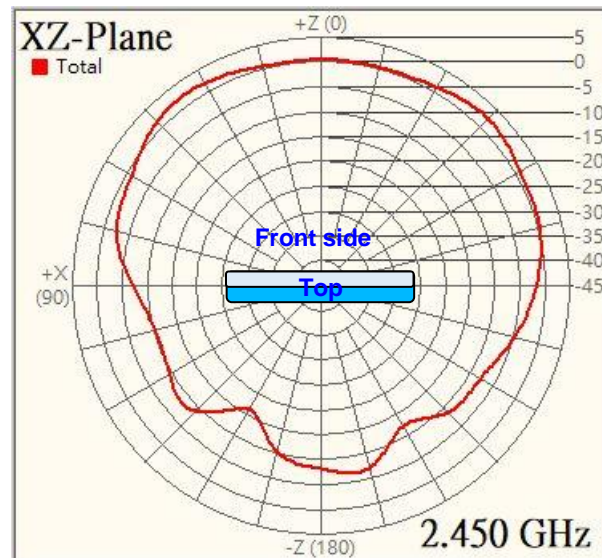
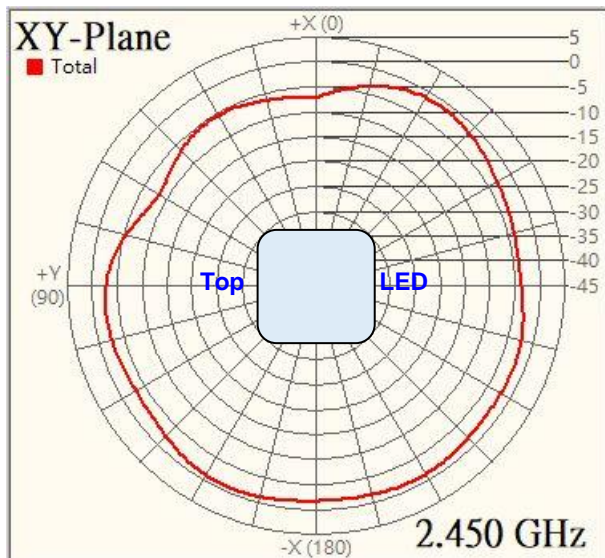
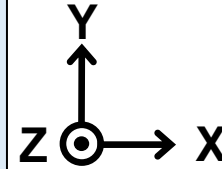
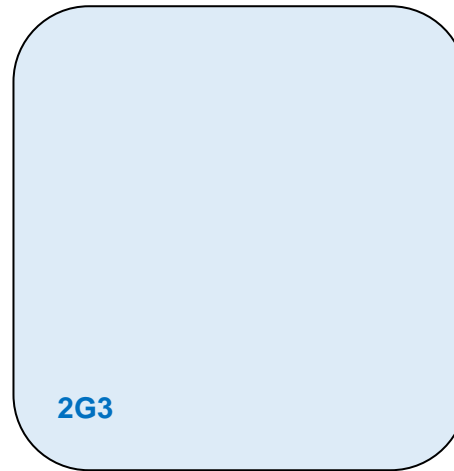
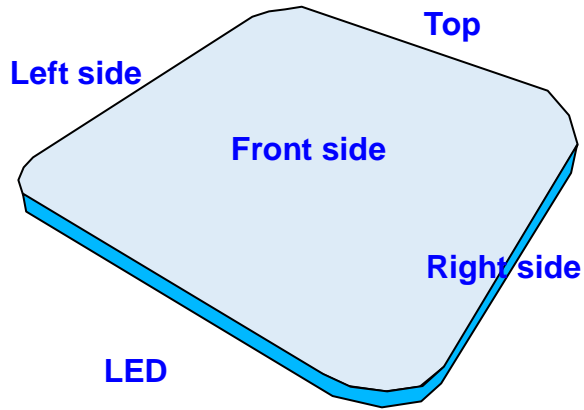
Isolation								
Freq. (MHz)	5G1-6G1	5G1-6G2	5G1-6G3	5G1-6G4	5G2-6G1	5G2-6G2	5G2-6G3	5G2-6G4
5150	-42.49	-36.34	-37.23	-37.02	-37.81	-42.54	-36.14	-41.51
5500	-33.18	-36.77	-35.16	-33.82	-41.74	-41.22	-34.33	-39.50
5850	-44.80	-43.64	-34.84	-37.94	-41.64	-52.38	-40.02	-52.69
5925	-48.79	-42.30	-35.63	-36.78	-41.78	-50.78	-39.22	-44.43
6500	-31.15	-33.56	-36.06	-44.21	-43.39	-33.67	-37.70	-32.31
7125	-37.02	-32.19	-43.58	-62.70	-34.82	-37.02	-33.78	-31.71

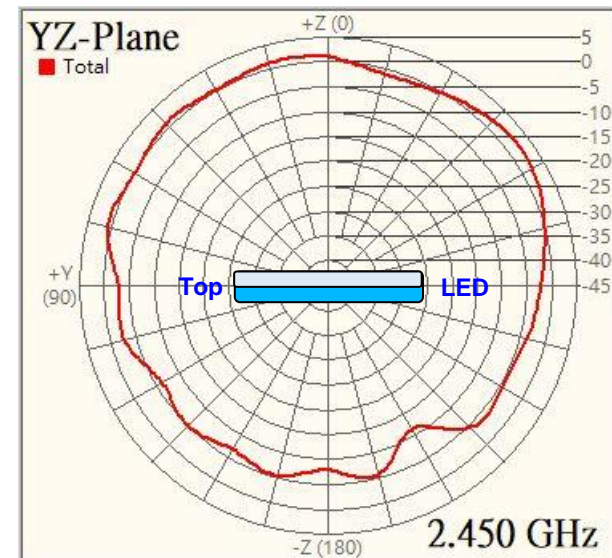
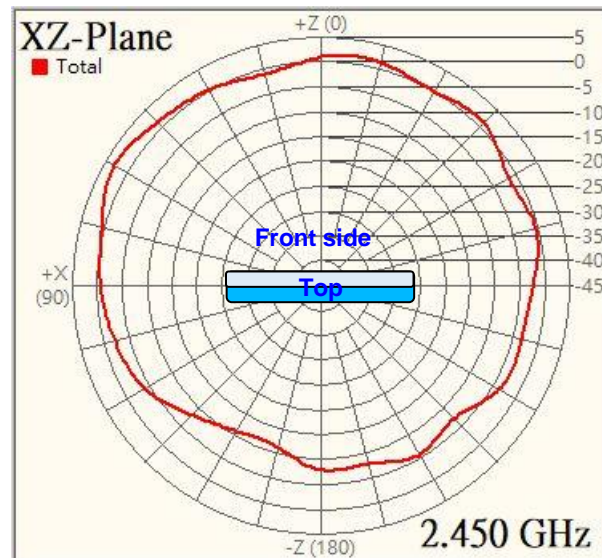
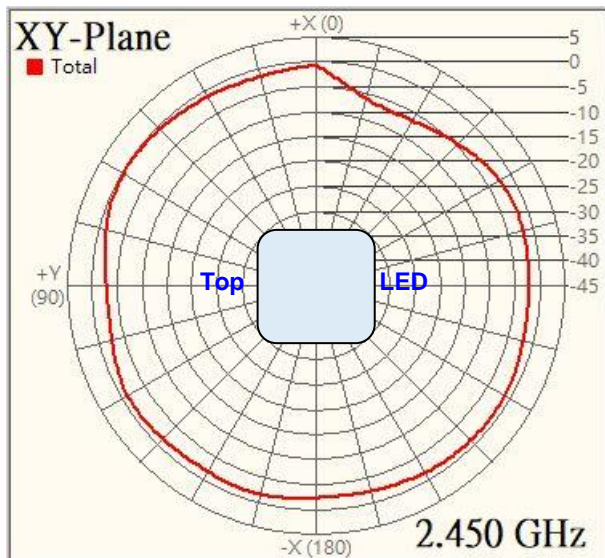
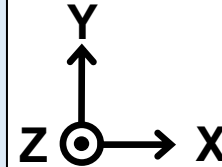
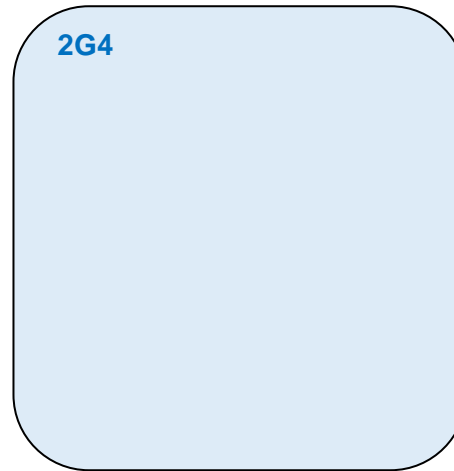
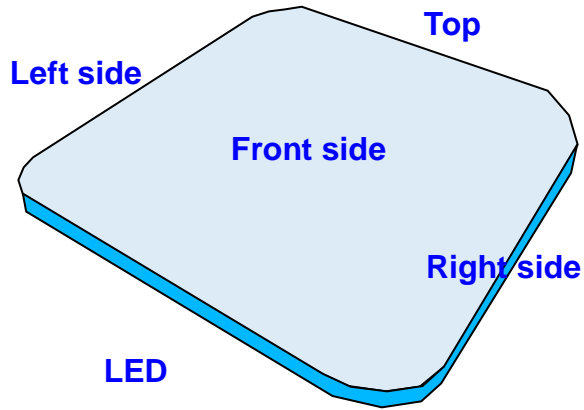


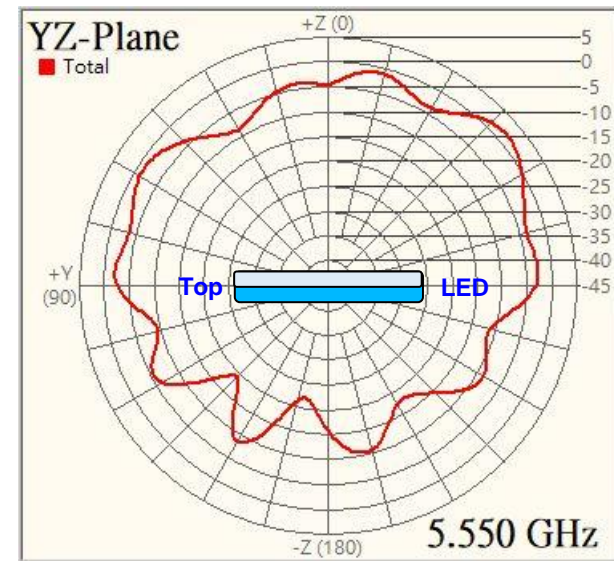
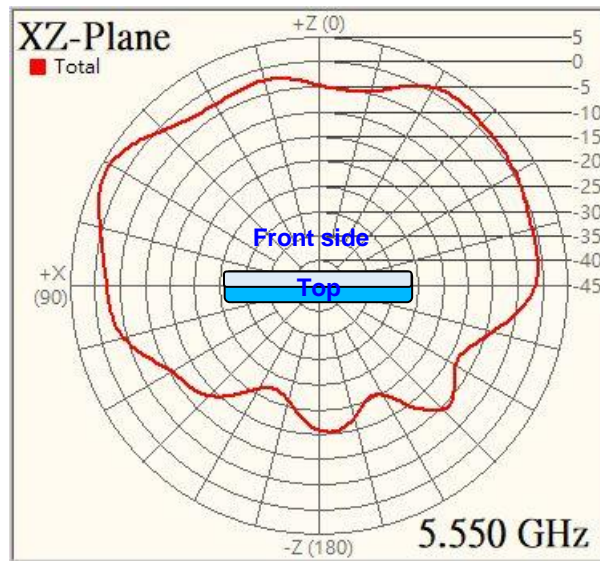
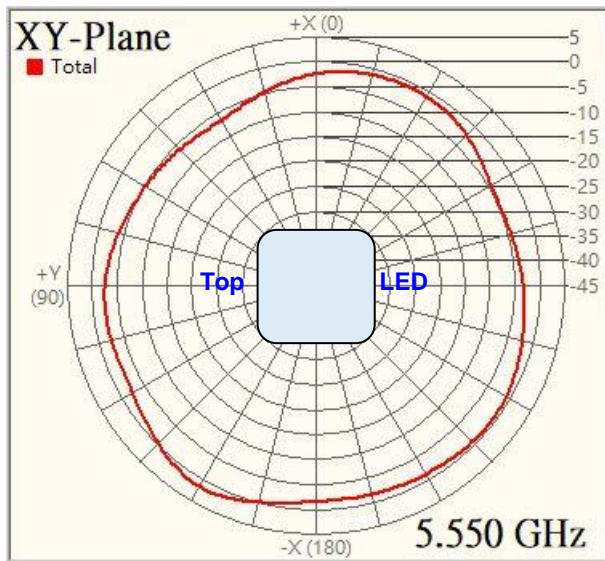
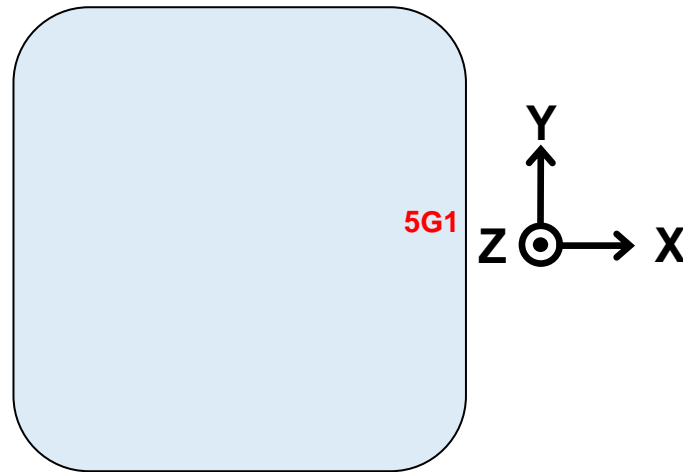
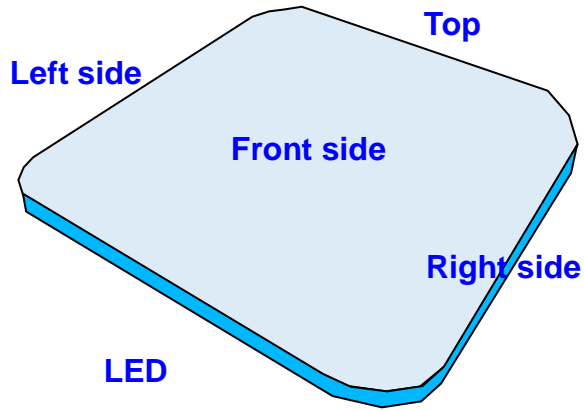
Isolation								
Freq. (MHz)	5G3-6G1	5G3-6G2	5G3-6G3	5G3-6G4	5G4-6G1	5G4-6G2	5G4-6G3	5G4-6G4
5150	-40.17	-39.77	-43.01	-37.19	-40.37	-38.97	-44.05	-49.07
5500	-44.06	-34.69	-44.62	-35.51	-38.74	-42.80	-38.90	-37.92
5850	-38.50	-38.07	-36.09	-33.08	-31.17	-40.38	-36.62	-39.22
5925	-38.12	-35.76	-36.88	-33.85	-30.66	-44.23	-37.50	-44.73
6500	-36.11	-33.29	-39.62	-31.34	-40.26	-37.89	-42.00	-44.15
7125	-38.49	-32.72	-37.26	-32.72	-40.65	-42.31	-36.11	-36.80

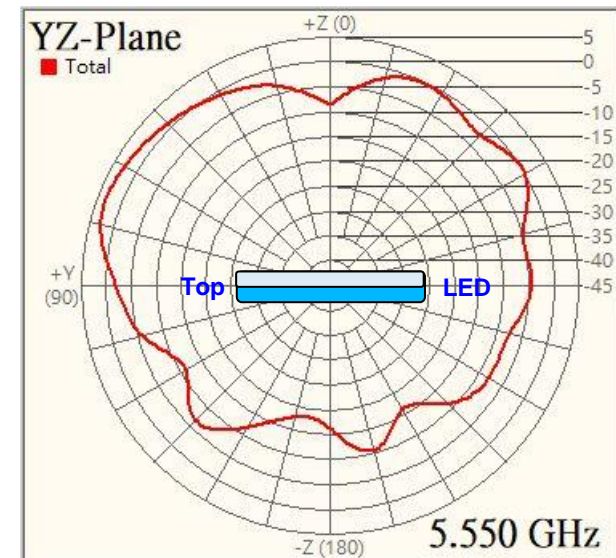
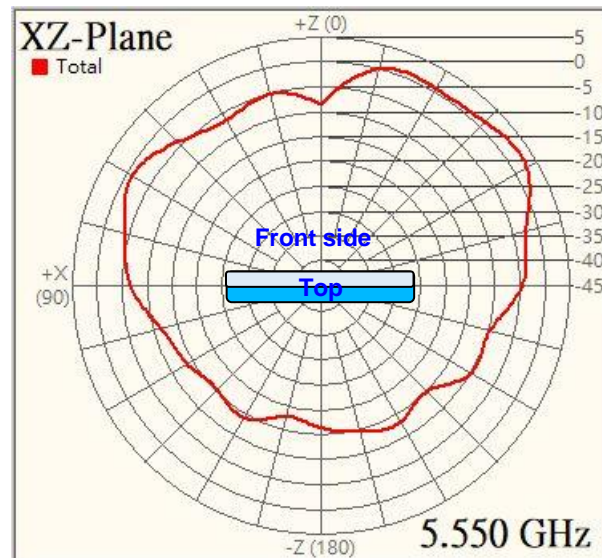
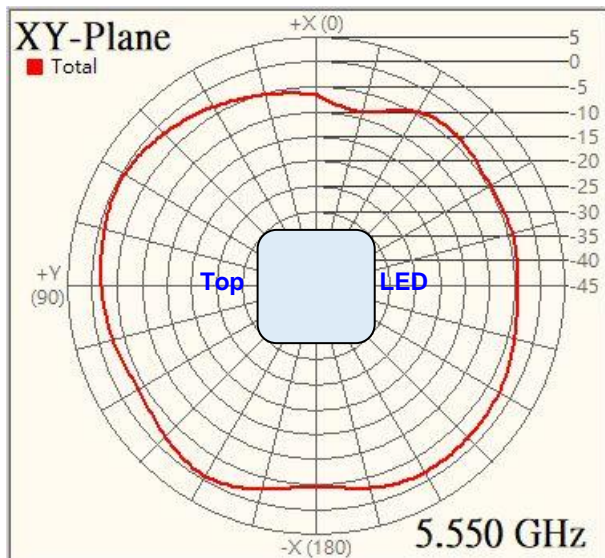
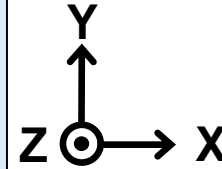
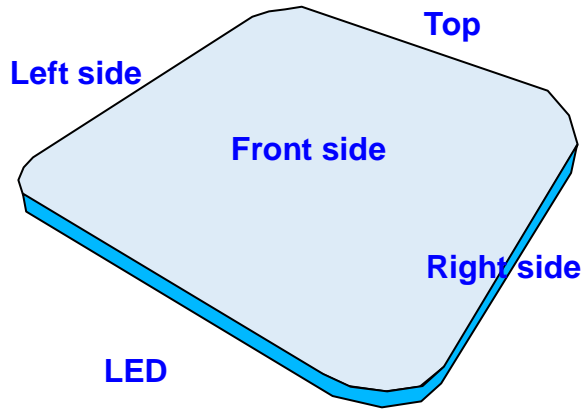




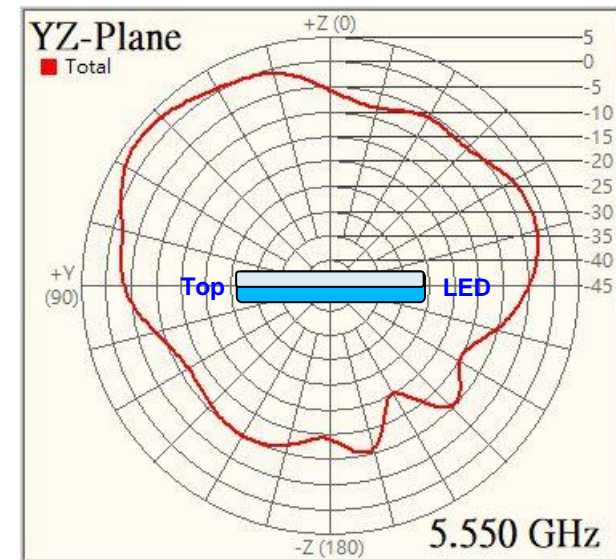
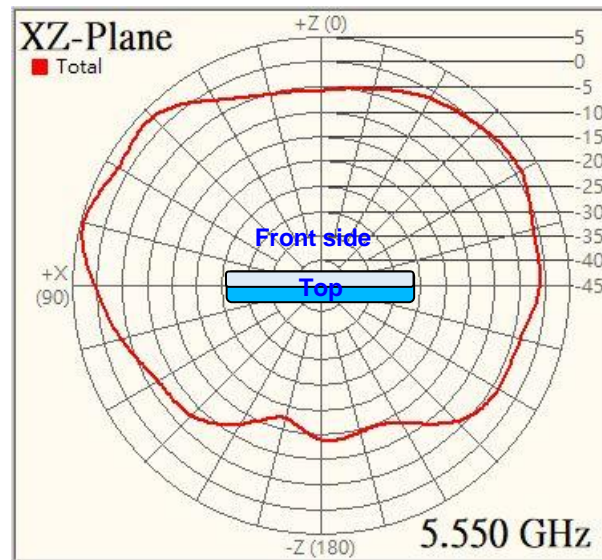
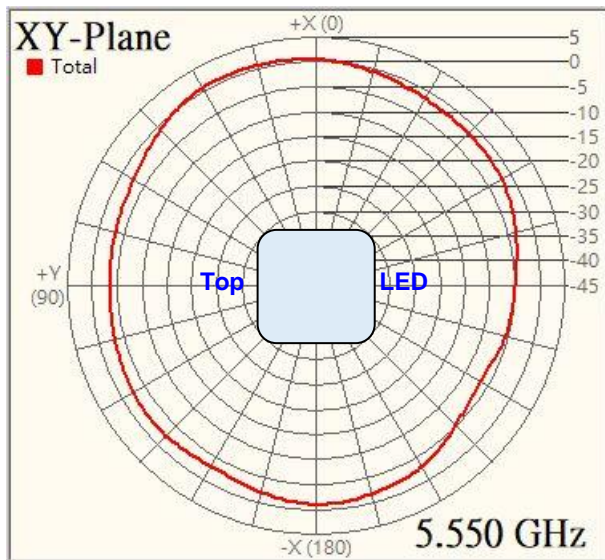
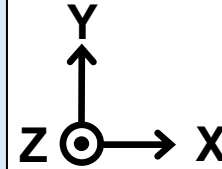
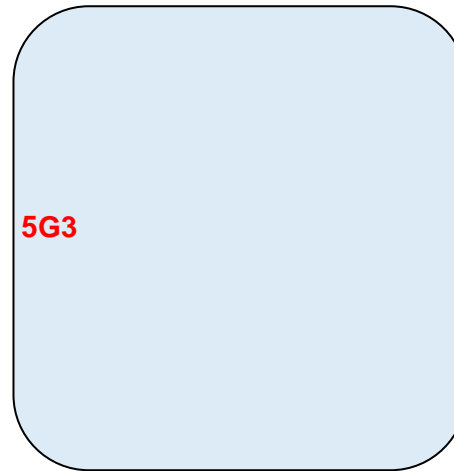
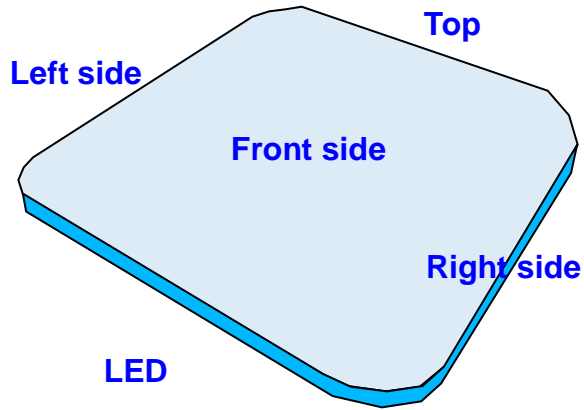




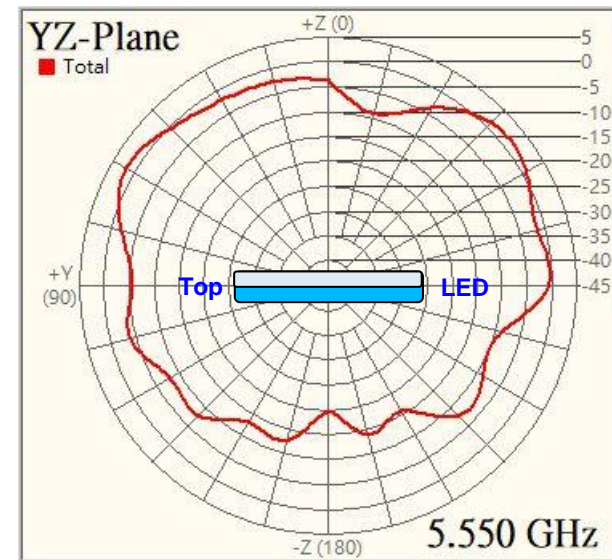
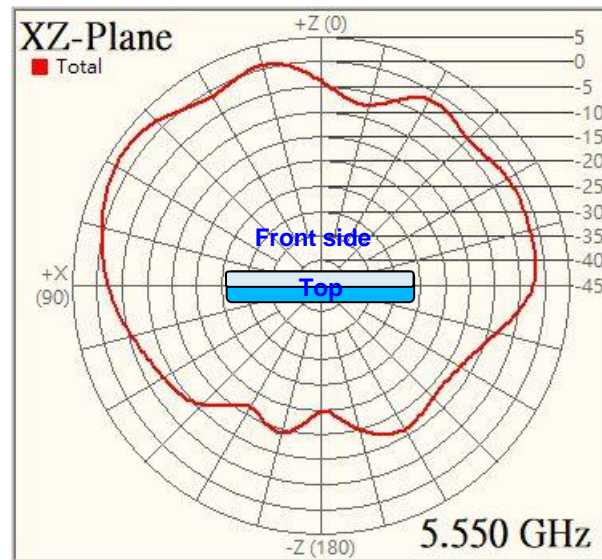
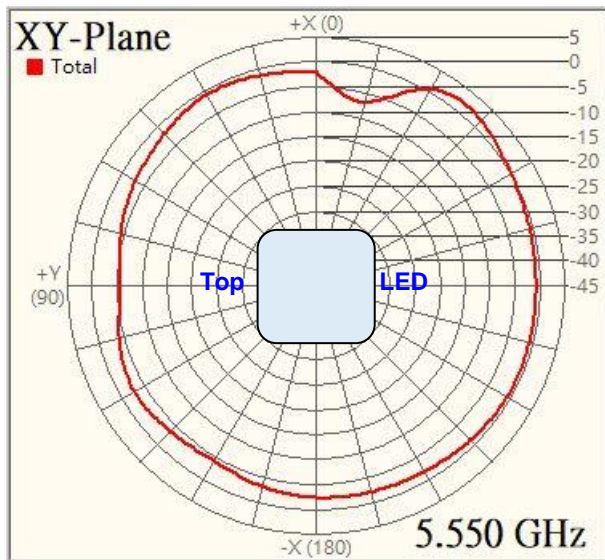
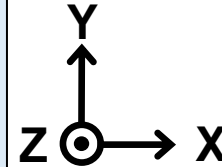
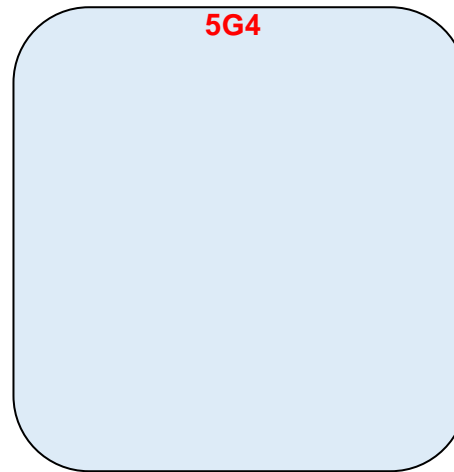
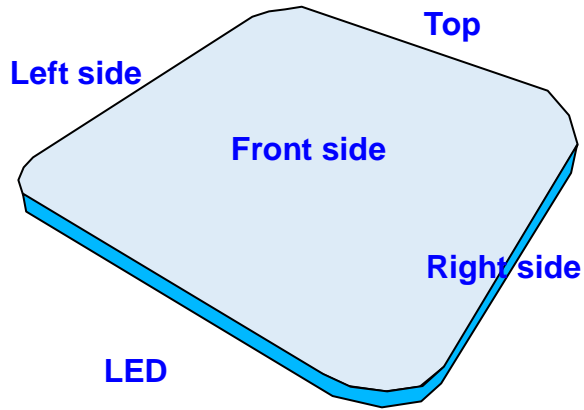


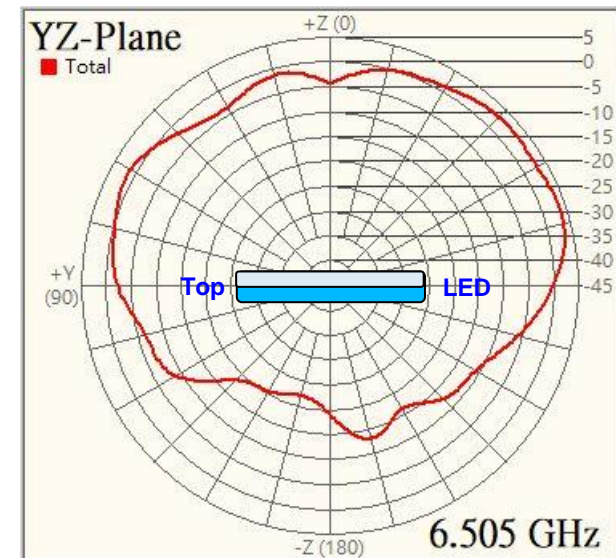
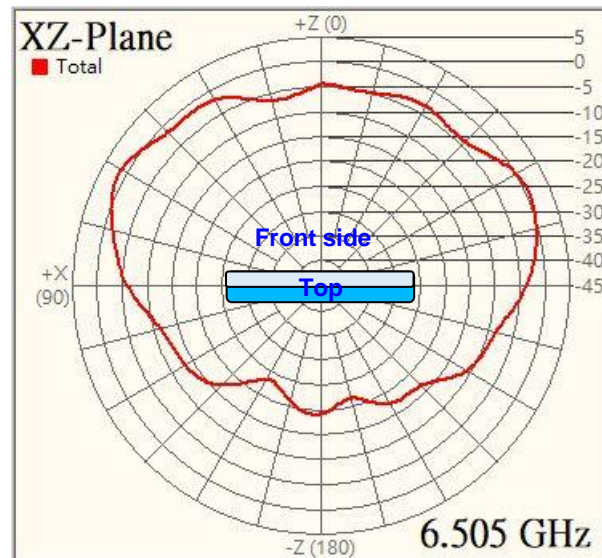
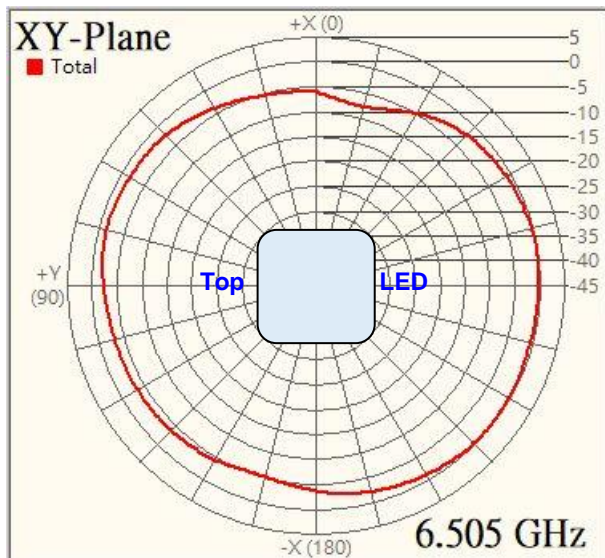
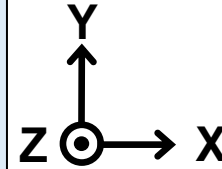
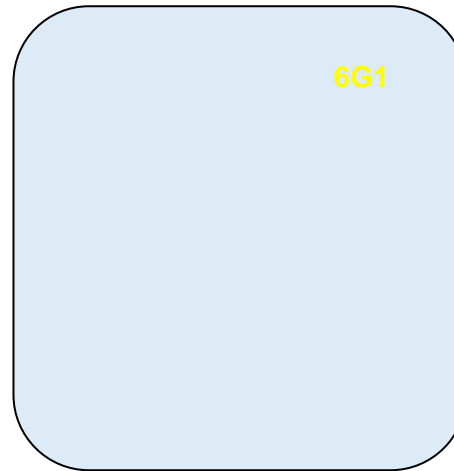
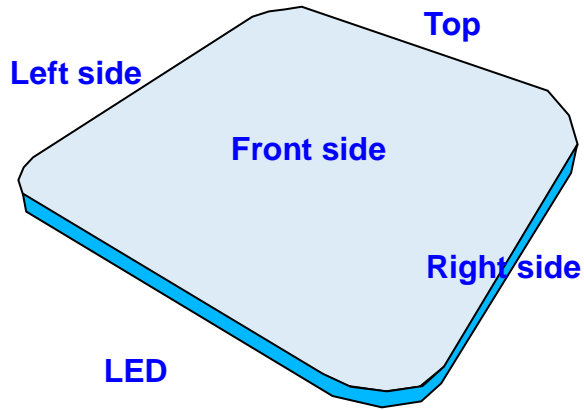


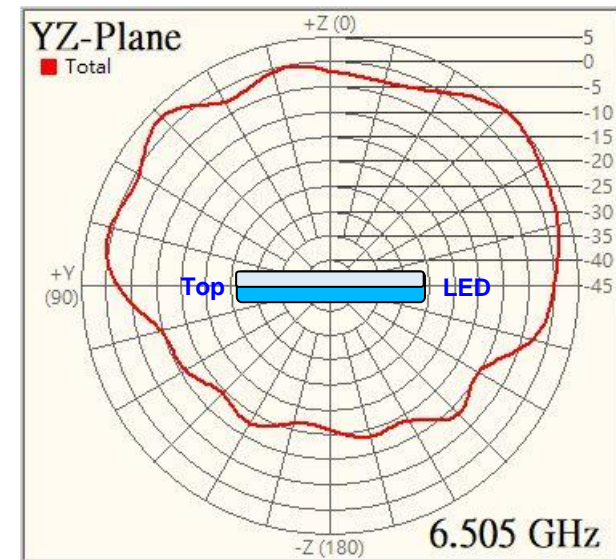
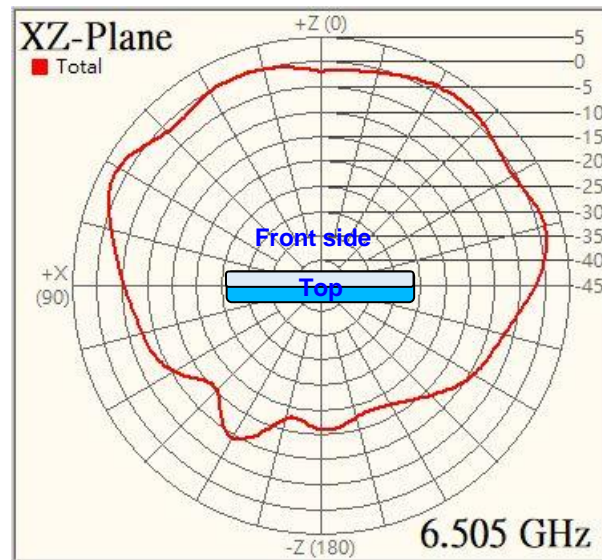
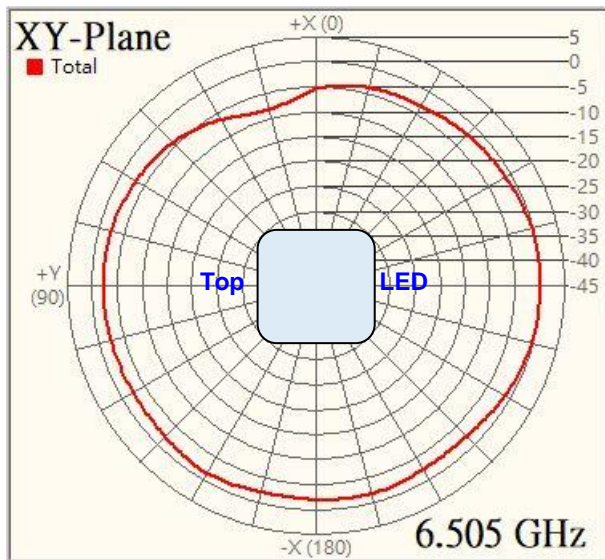
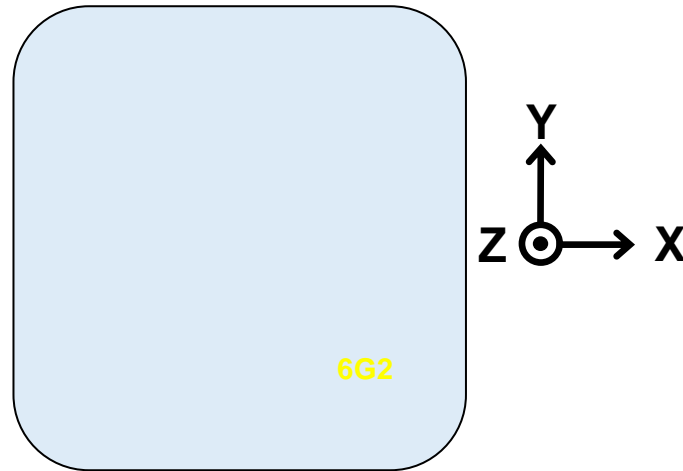
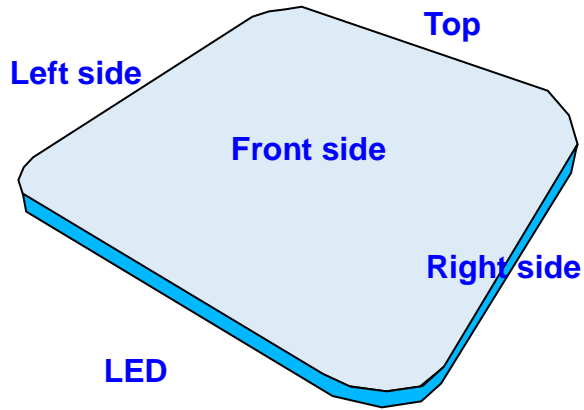


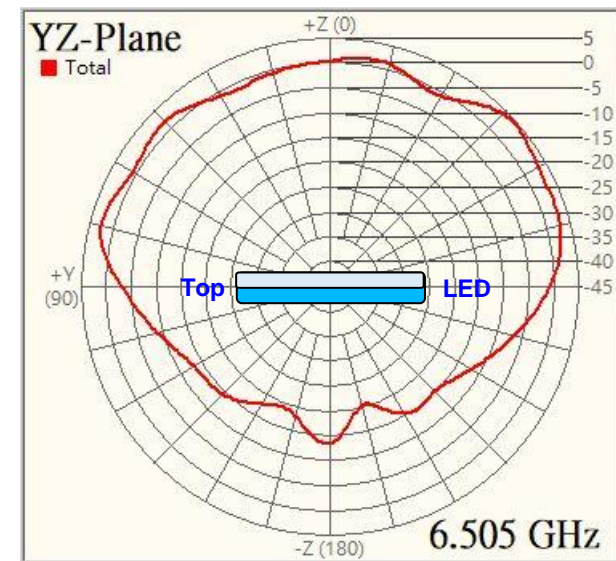
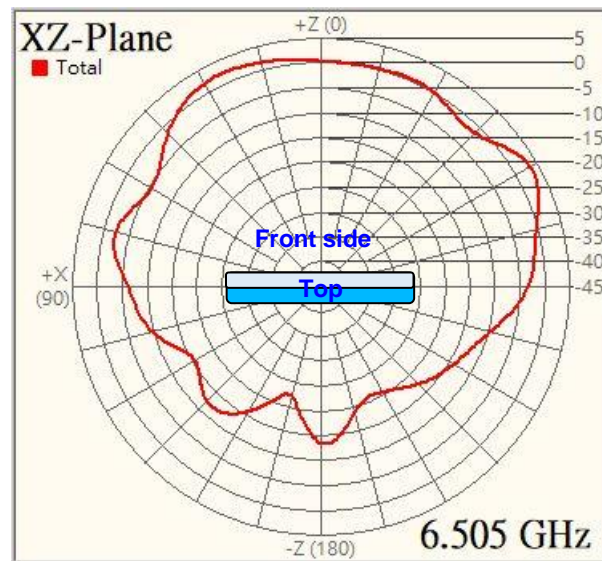
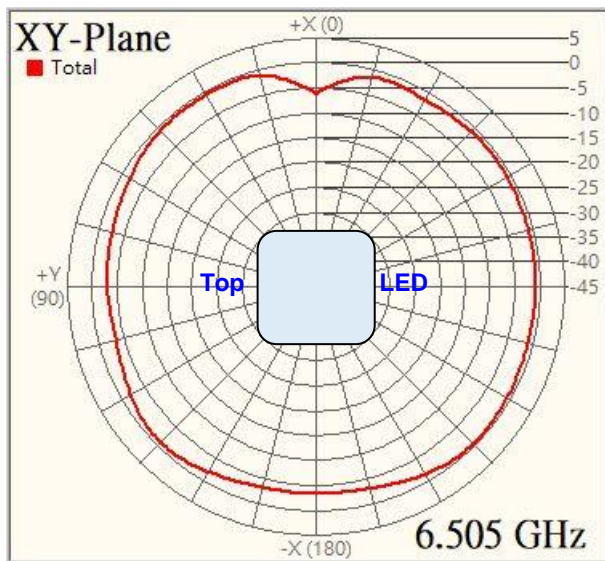
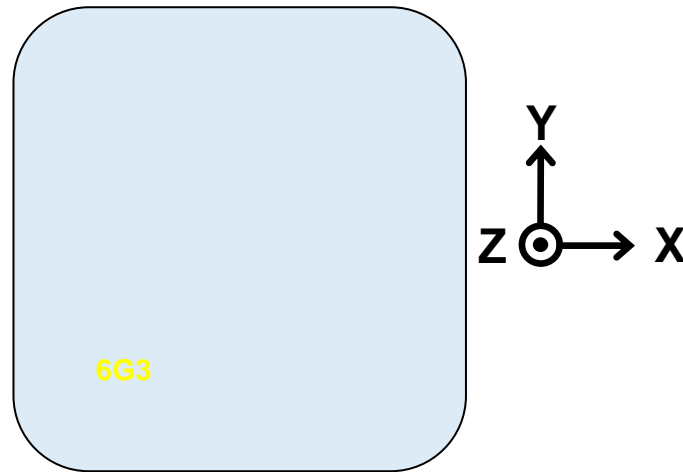
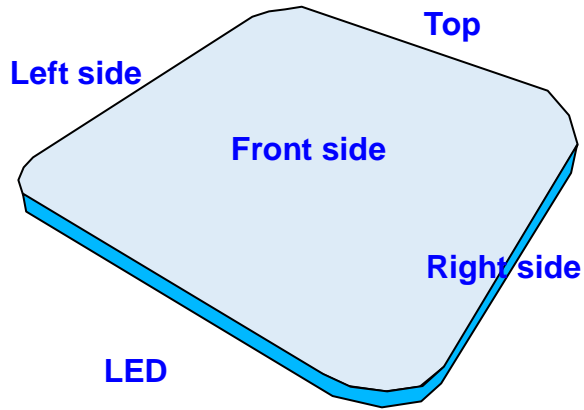


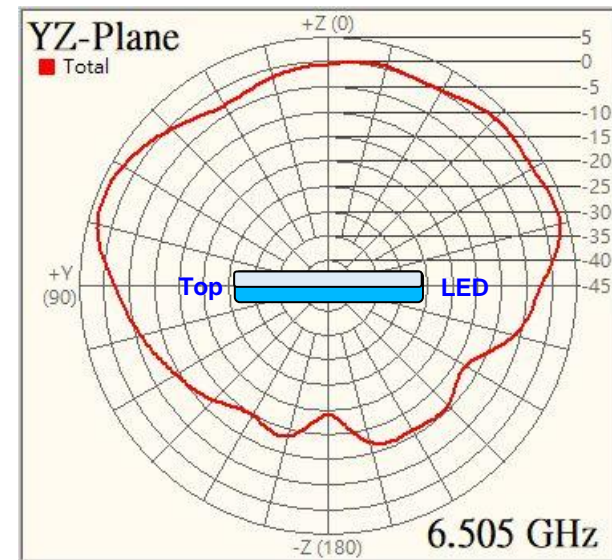
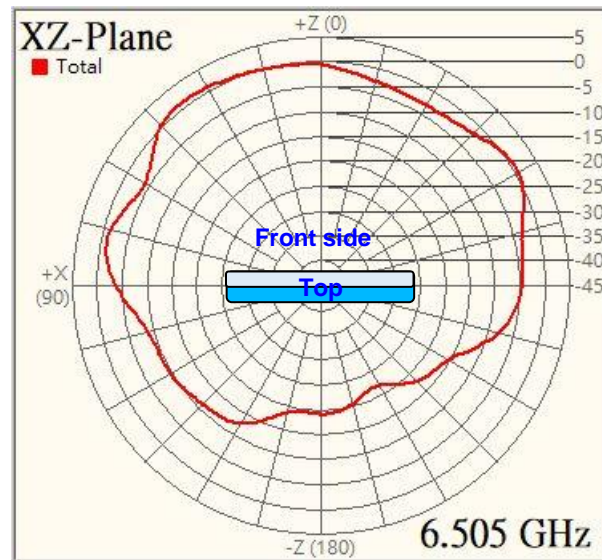
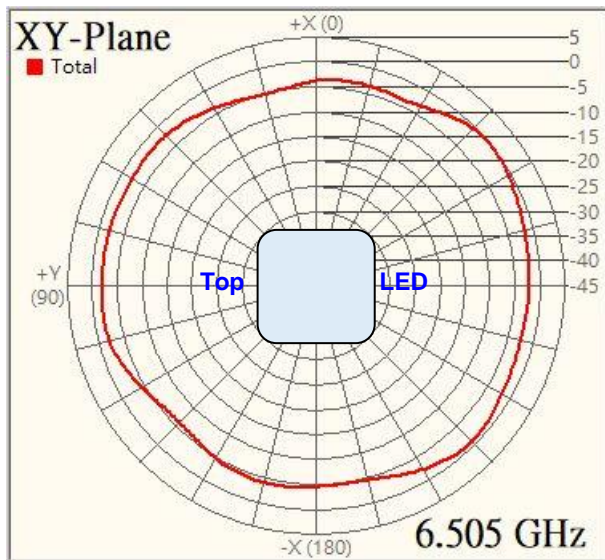
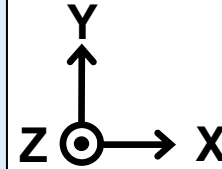
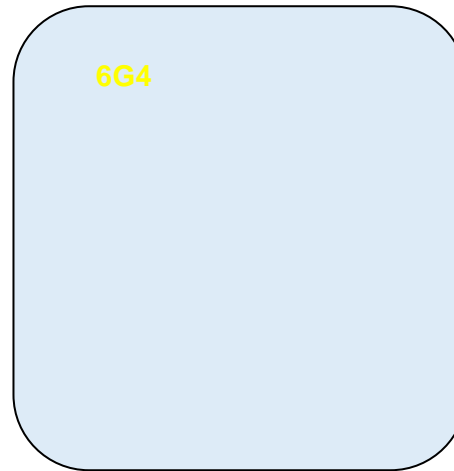
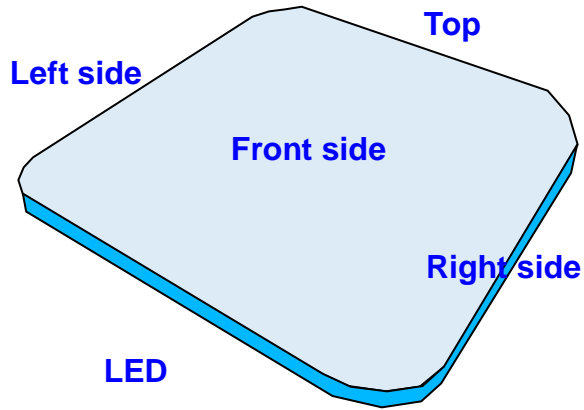
# 2D Radiation Pattern – 5G4 @ 5.55GHz

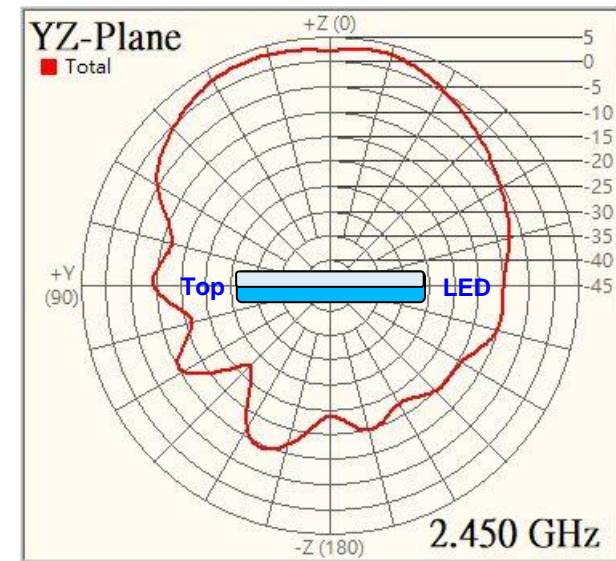
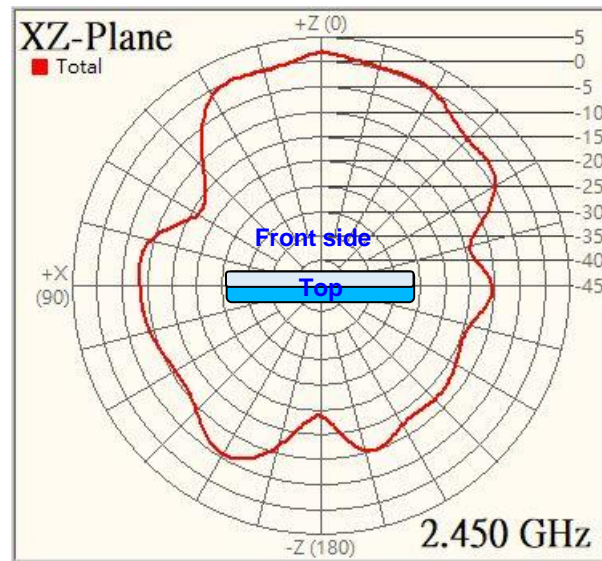
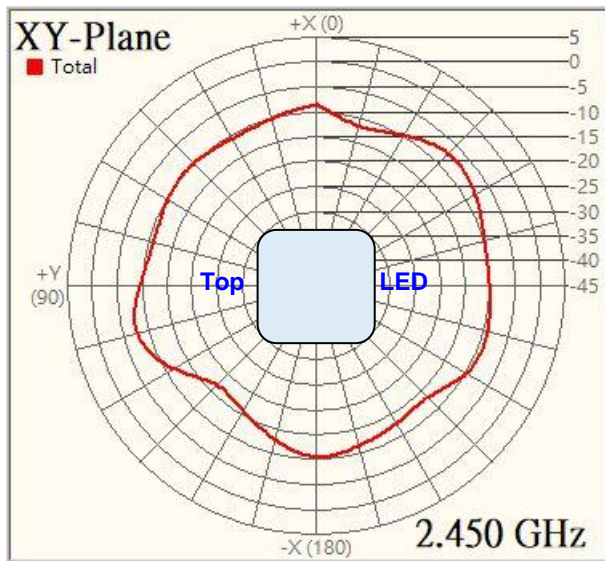
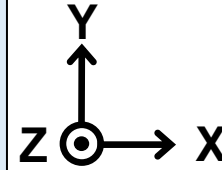
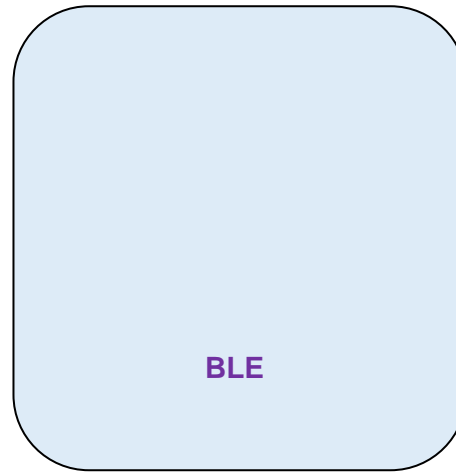
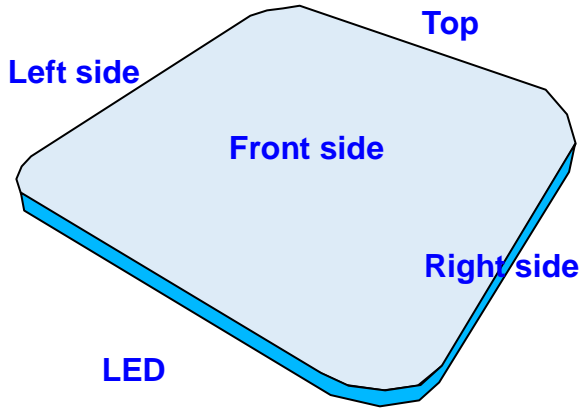




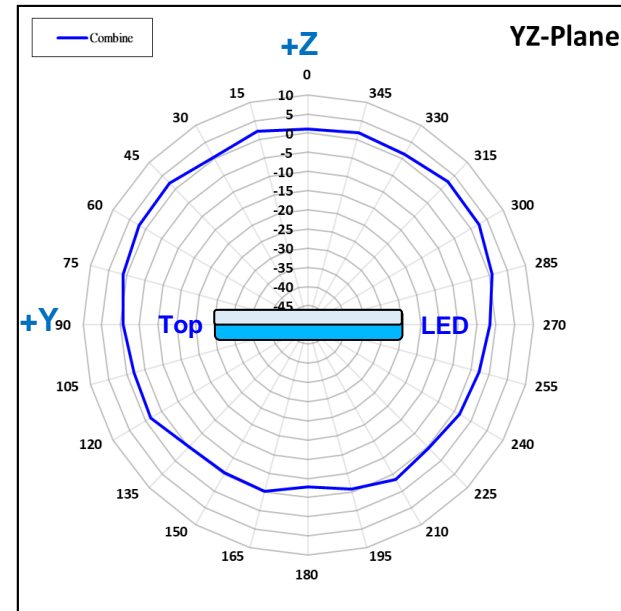
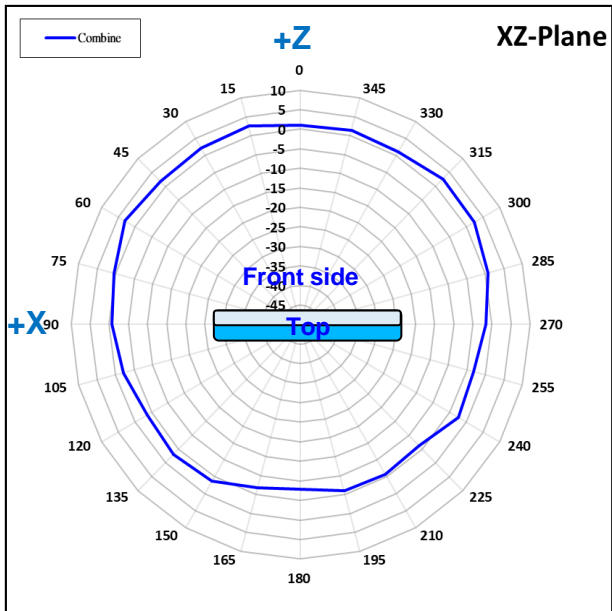
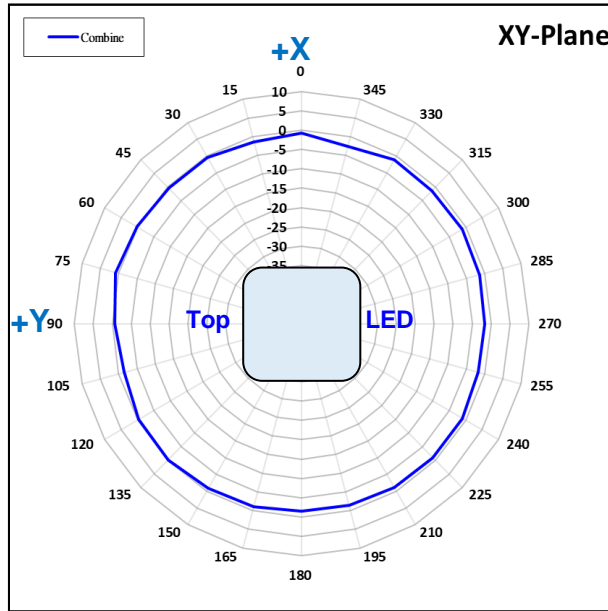
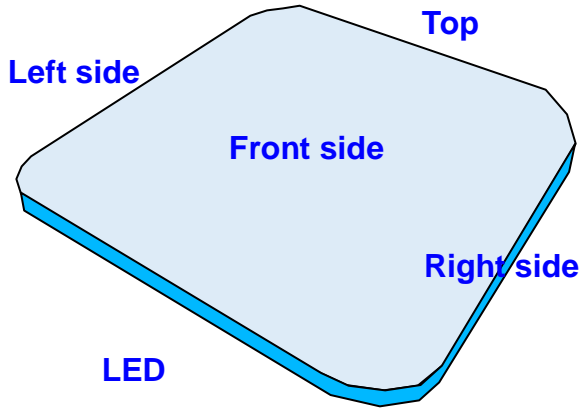




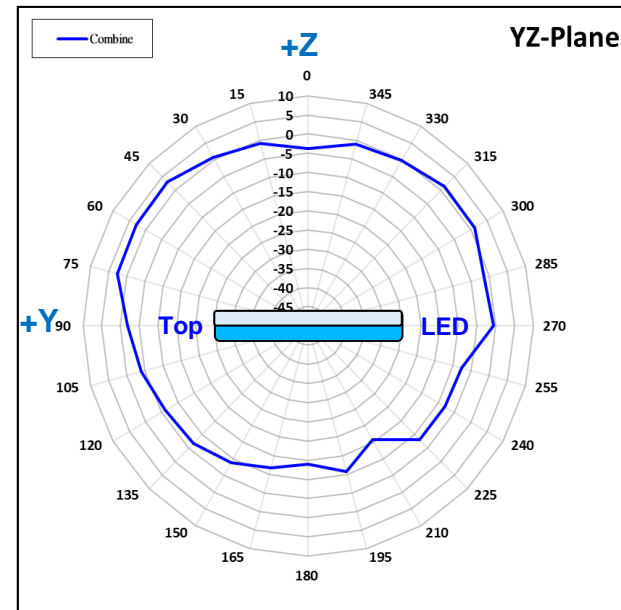
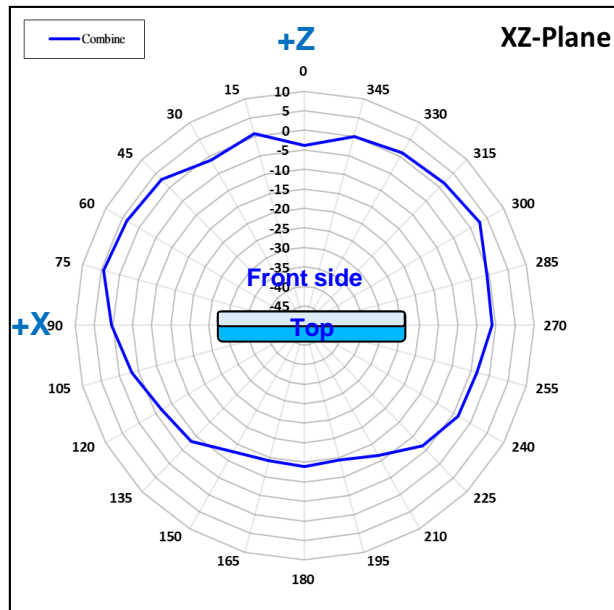
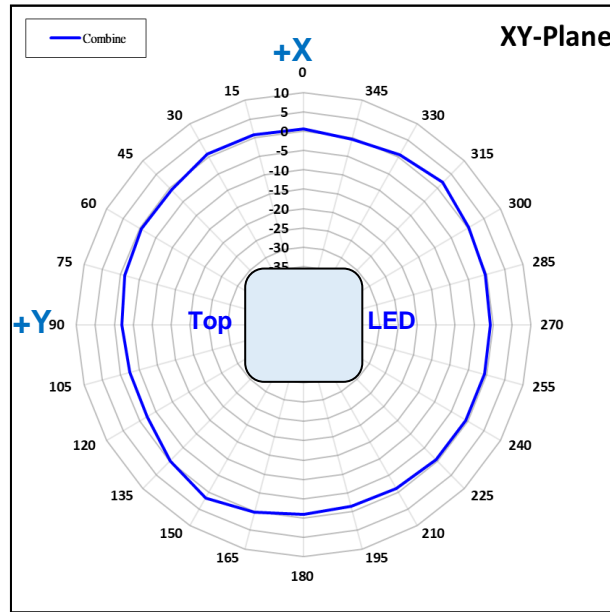
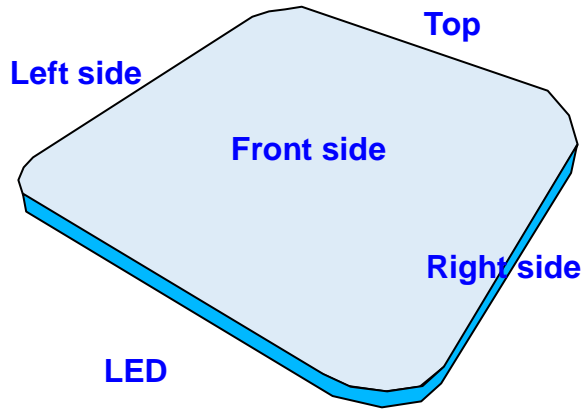


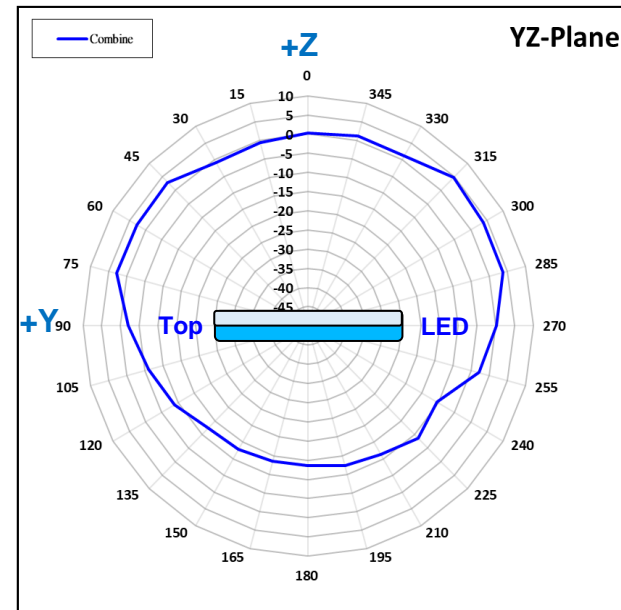
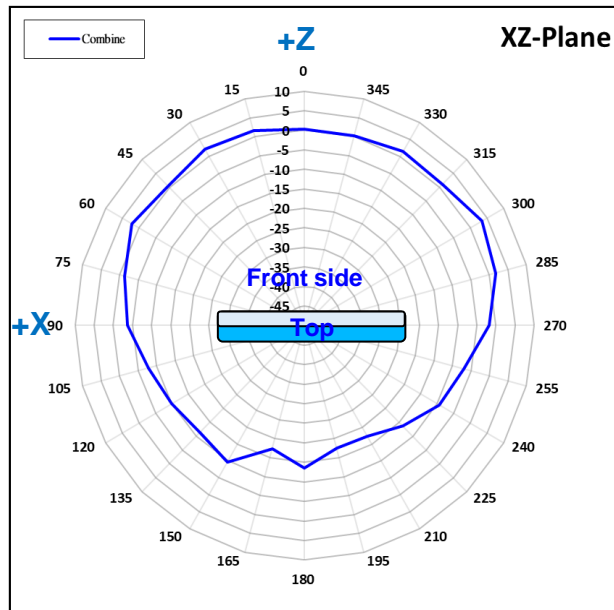
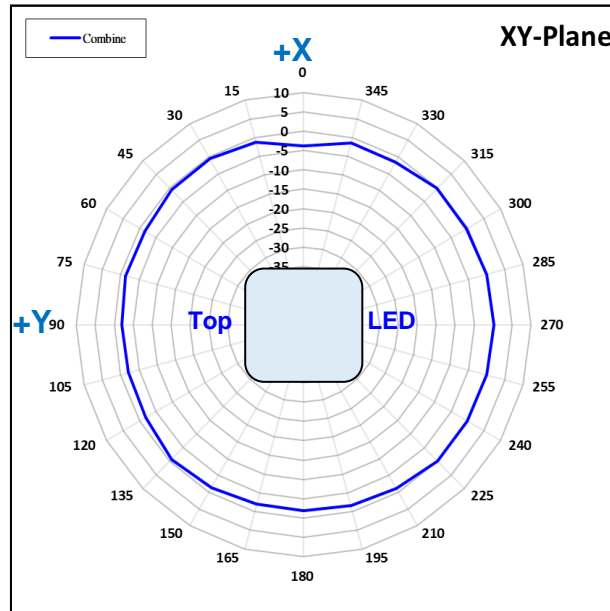
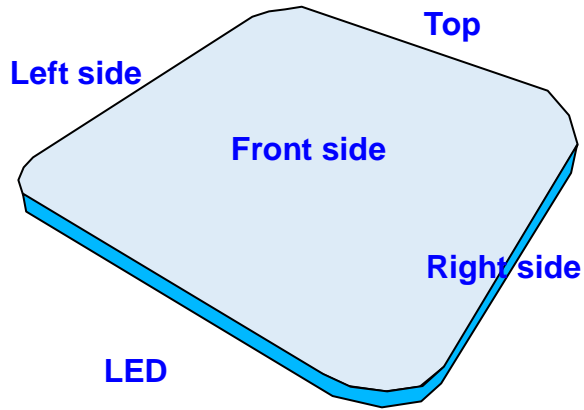


# Combine pattern – 2G @ 2.45 GHz









# Antenna Efficiency and Gain

Antenna Performance								
Freq. (MHz)	2G1		2G2		2G3		2G4	
	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)
2400	60.3	3.10	61.7	3.32	60.6	3.40	60.8	3.28
2450	63.3	3.64	65.5	3.27	63.3	4.01	64.1	3.36
2500	67.8	4.64	67.4	4.31	60.9	4.05	67.1	4.18

Antenna Performance								
Freq. (MHz)	5G1		5G2		5G3		5G4	
	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)
5150	65.3	4.78	65.9	4.16	65.5	5.08	61.0	4.72
5550	61.1	4.46	63.2	3.91	64.7	4.32	62.7	4.78
5850	64.3	4.95	64.1	4.55	61.3	5.32	64.9	5.10

Antenna Performance								
Freq. (MHz)	6G1		6G2		6G3		6G4	
	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)
5925	61.2	4.17	63.2	4.25	62.4	4.35	62.6	4.29
6500	64.1	4.33	65.3	4.81	66.4	4.23	61.5	4.10
7125	61.2	4.81	63.9	4.62	61.2	4.20	63.9	4.91

Antenna Performance		
Freq. (MHz)	BLE	
	Efficiency (%)	Peak Gain (dBi)
2400	60.3	3.06
2450	62.3	3.07
2500	61.5	3.07