



IAP2301A

Antenna Test Report

Senao Networks Inc.

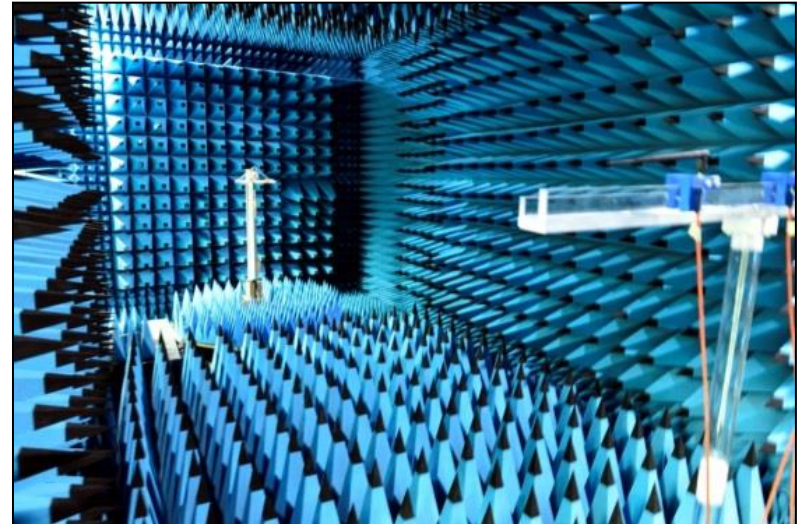
Customer	EnGenius
Project	IAP2301A
Project Description	2.4G*2 5G*2
Date	2025/05/08
Prepared by	Daniel
Report Version	V03

Version	Date	Description
V01	2024/11/21	EVT sample testing
V02	2025/02/17	EVT sample testing V2
V03	2025/05/08	EVT Sample testing update

- Antenna Test Information
- Antenna Test Setup
- Placement and Specification
- VSWR & Isolation
- Radiation Pattern
- Combine Pattern
- Efficiency and Gain

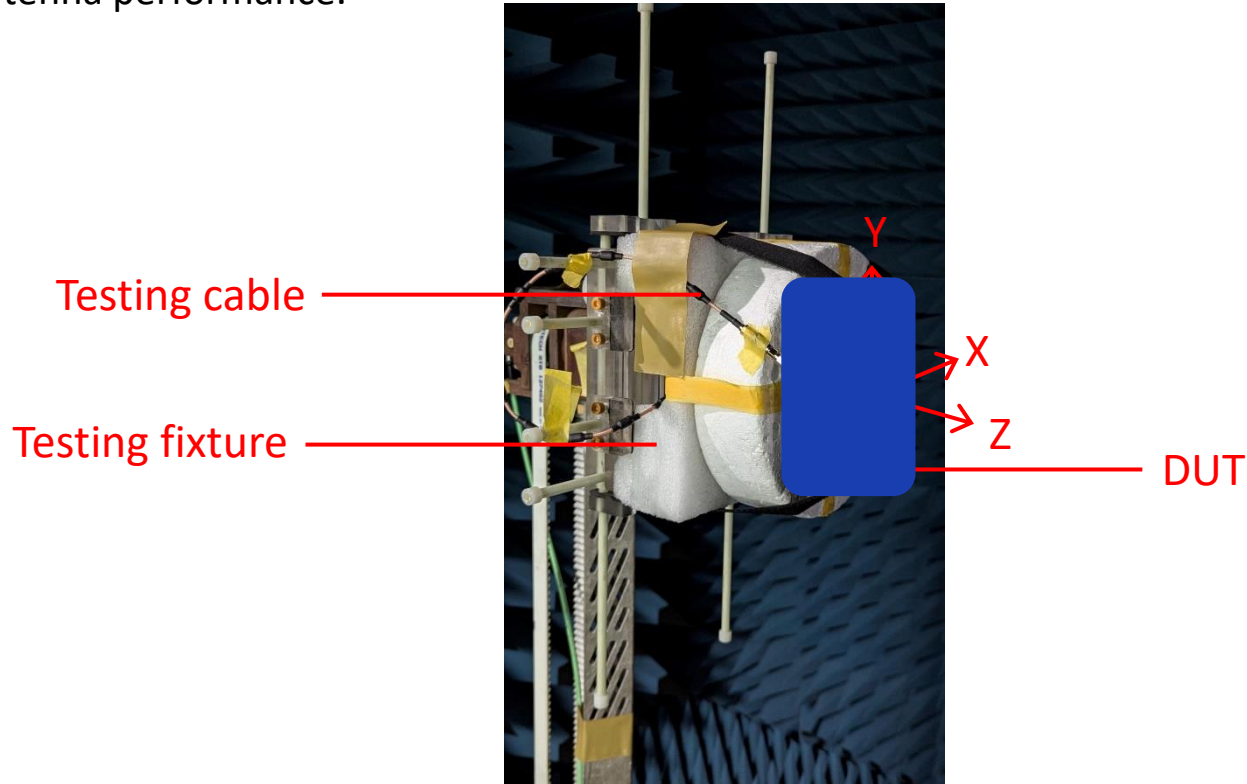
3D Anechoic Chamber - BWANT

- Size: 7.32M(L)x3.66M(W)x3.66M(H)
- Testing range from 600MHz to 8.5GHz
- 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
- Test software : BWANT 3D Passive

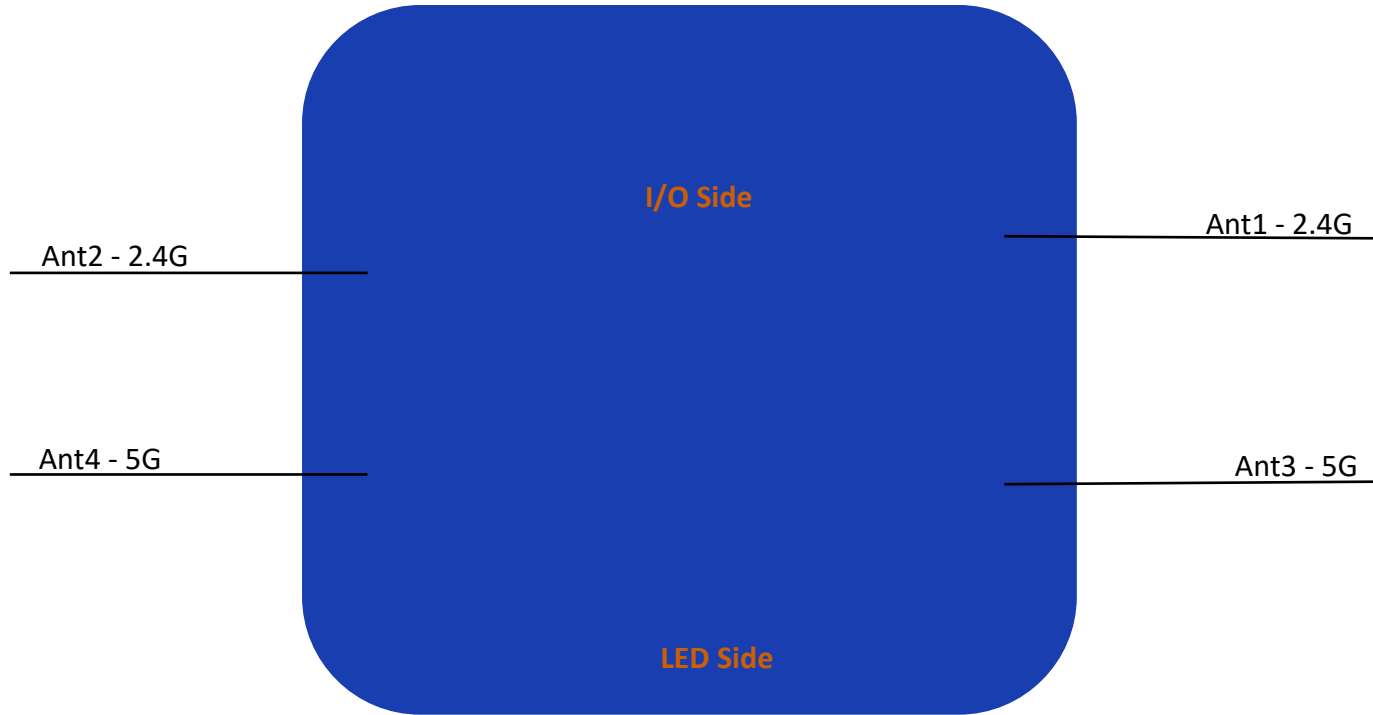


Antenna Test Setup

- The DUT is set up on the test fixture and the antenna is connected to the test cable to measure the antenna performance.



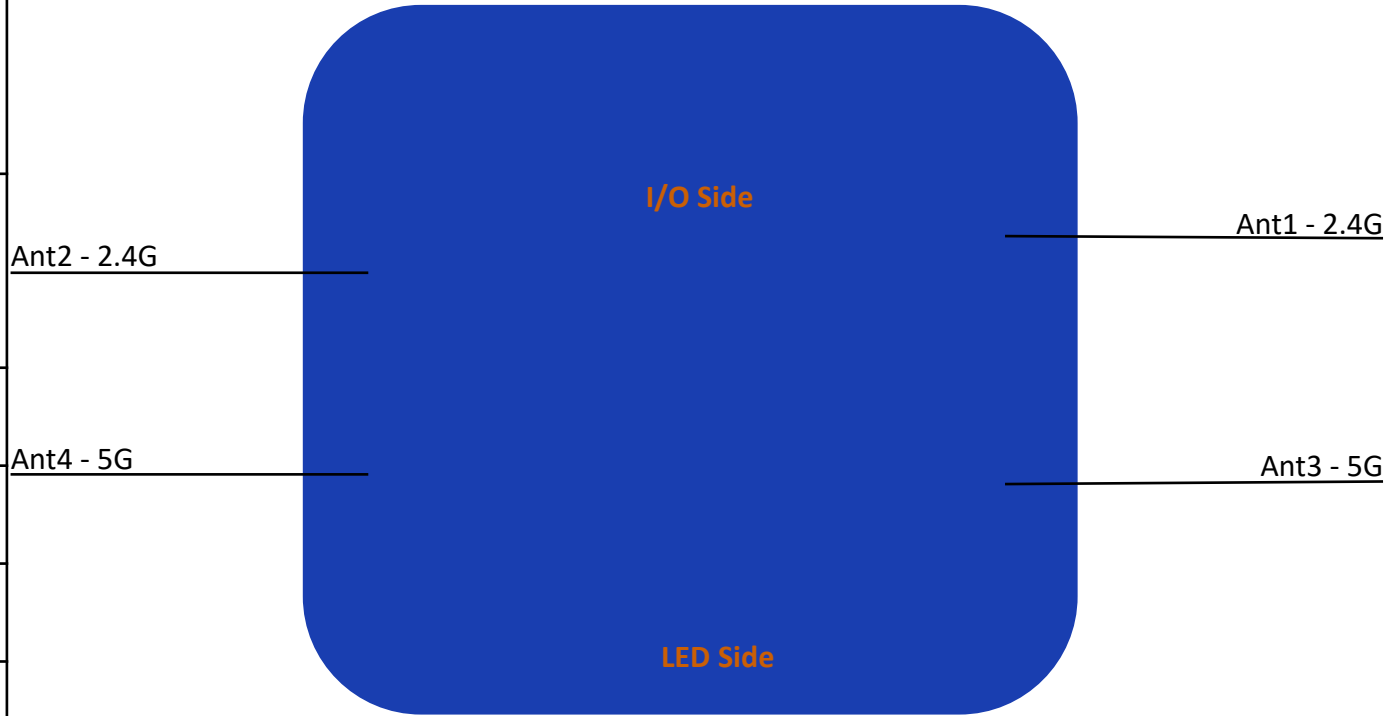
Placement and Specification

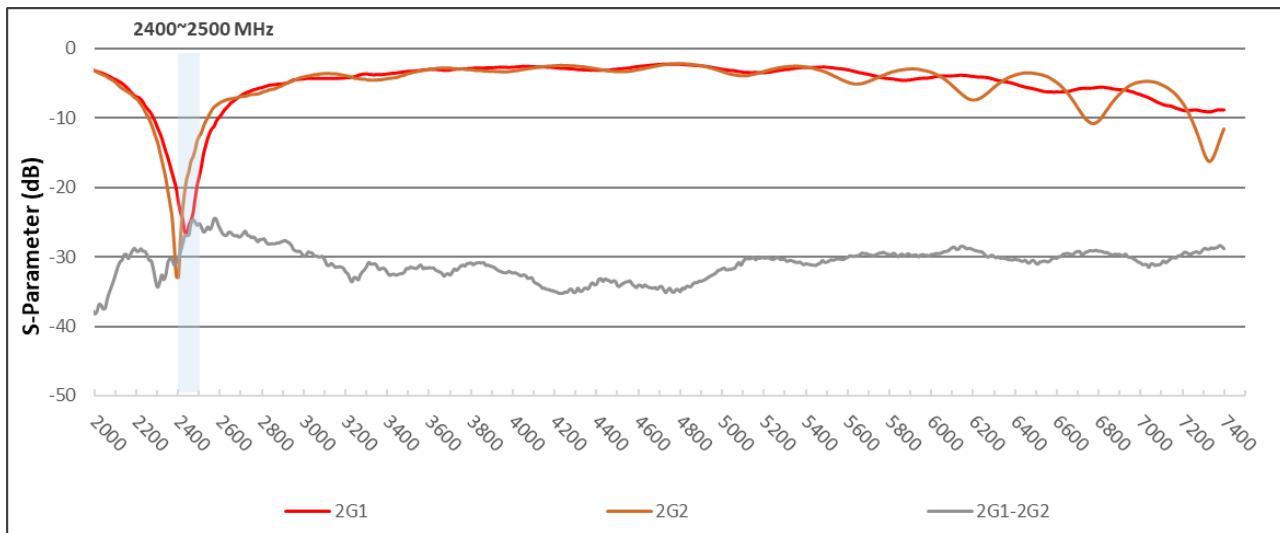


Ant No.	Operating Band	Efficiency (%)	Ant Type	Feeding
A 1~2	2400MHz ~ 2500 MHz	74@2G	PIFA	Cable
A 3~4	5150MHz ~ 5895 MHz	71@5G	PIFA	Cable

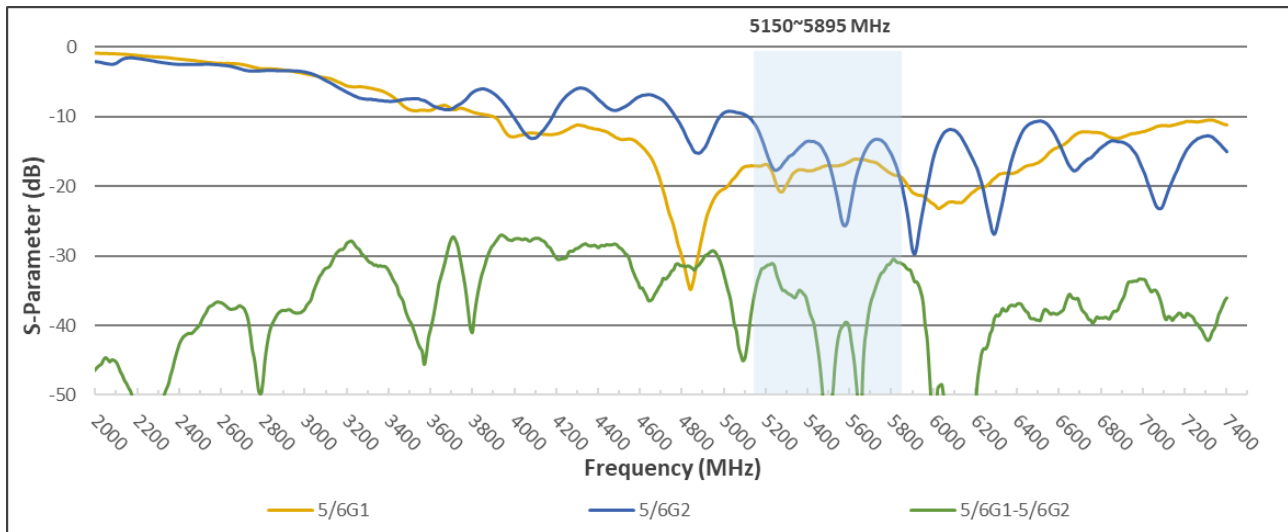
Placement and Specification

Radio_1 Ant.1~2
Wi-Fi Frequency 2400~2500MHz
Return Loss -10dB
Antenna Type Pifa
Material Metal
Feeding Cable
Radio_2 Ant.3~4
Wi-Fi Frequency 5150~5895MHz
Return Loss -10dB
Antenna Type Pifa
Material Metal
Feeding Cable
Ant.1
Brand Name : Enrack
P/N 7102A1307000
Ant.2
Brand Name : Enrack
P/N 7102A1308000
Ant.3
Brand Name : Enrack
P/N 7102A1309000
Ant.4
Brand Name : Enrack
P/N 7102A1310000





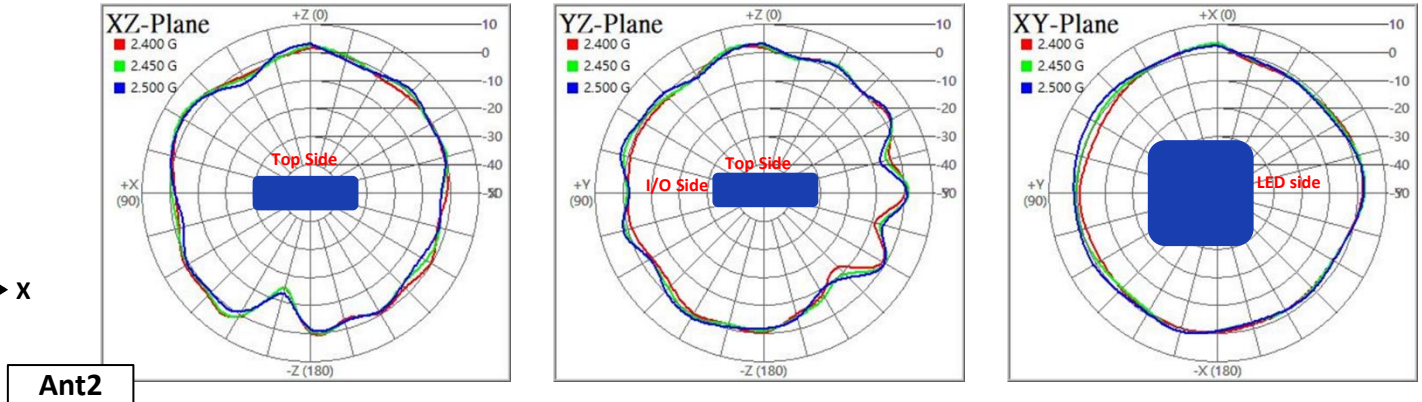
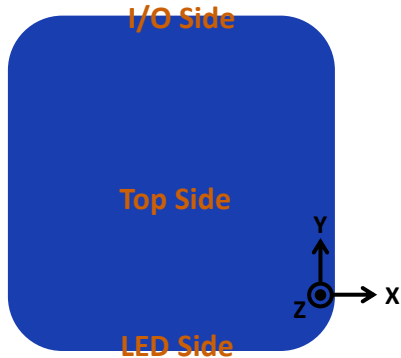
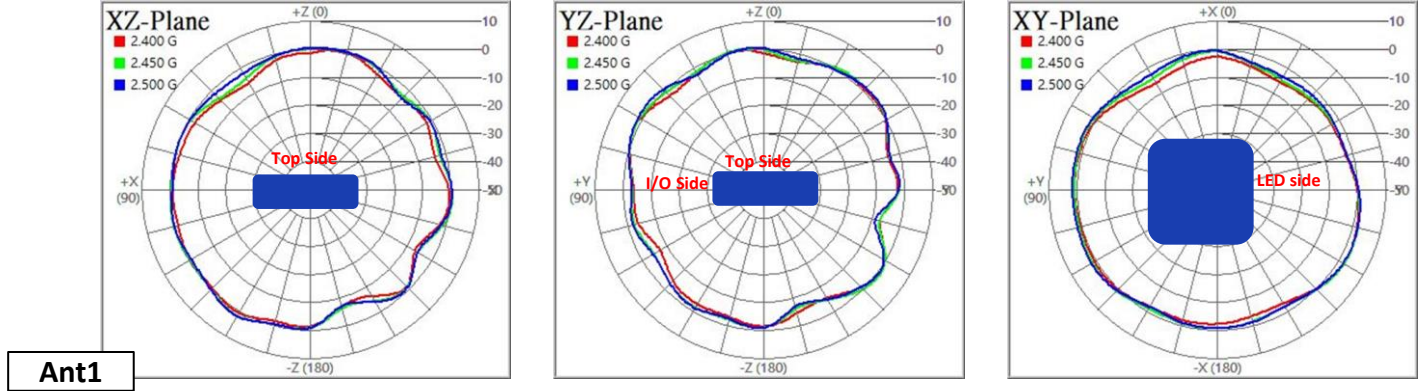
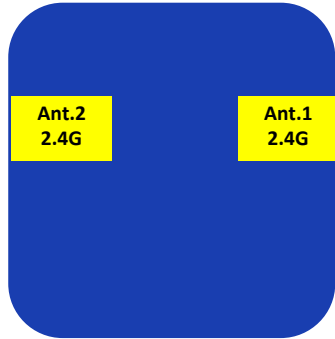
S11		S21	
Freq. (MHz)	2G1	2G2	2G1-2G2
2400	-22.17	-32.95	-30.00
2450	-25.50	-17.75	-26.80
2500	-18.39	-12.62	-25.19



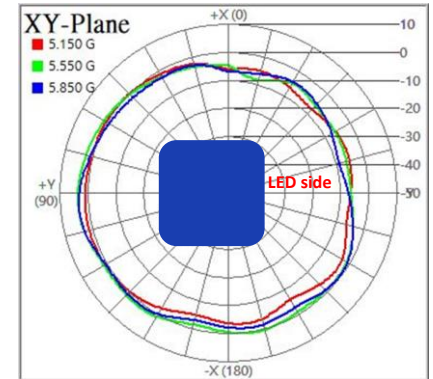
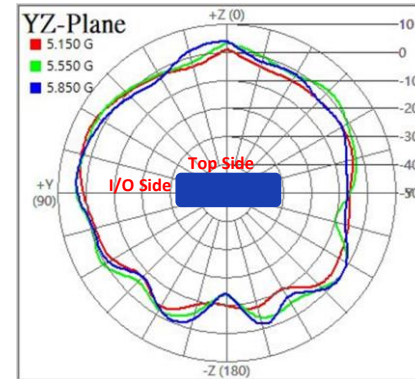
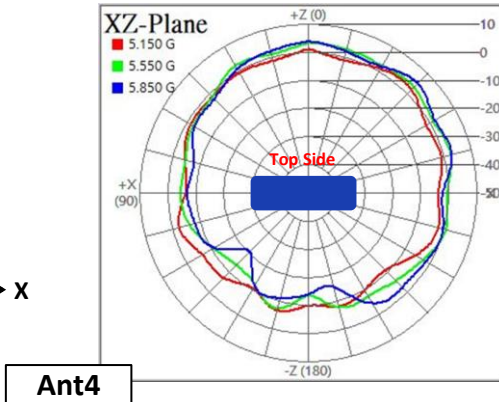
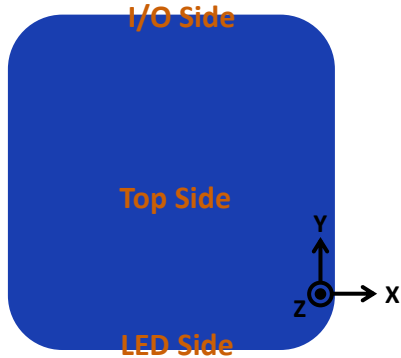
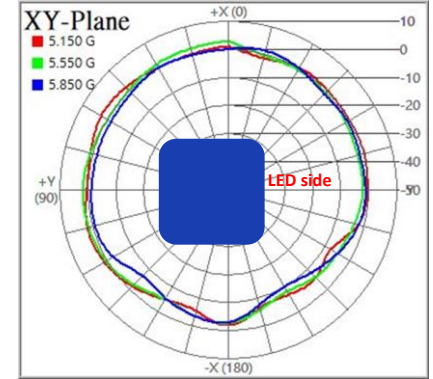
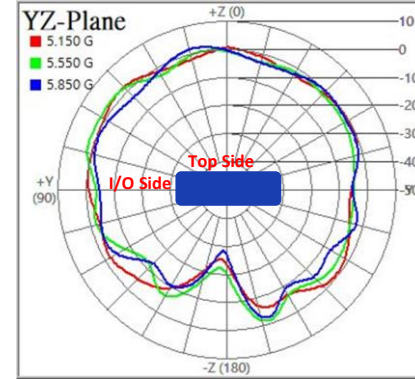
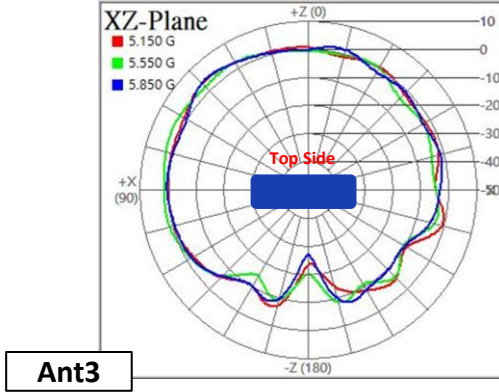
Freq. (MHz)	S11		S21
	5/6G1	5/6G2	5/6G1-5/6G2
5150	-17.06	-11.19	-34.89
5500	-17.05	-16.53	-53.21
5895	-20.48	-27.07	-32.02

2D Radiation Pattern – Radio 1

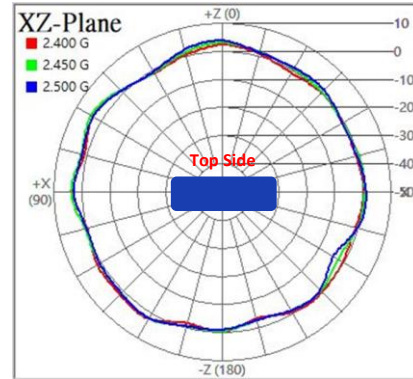
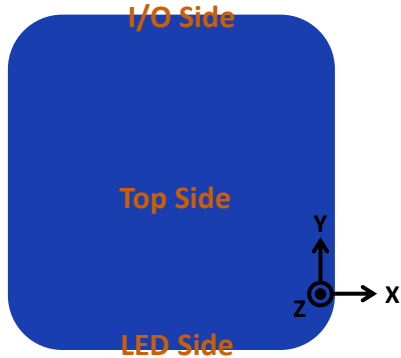
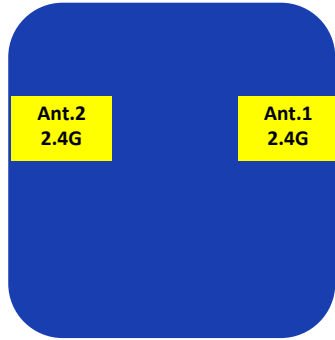
Represent the all X-Y plane using down tiles 30-degree angle.



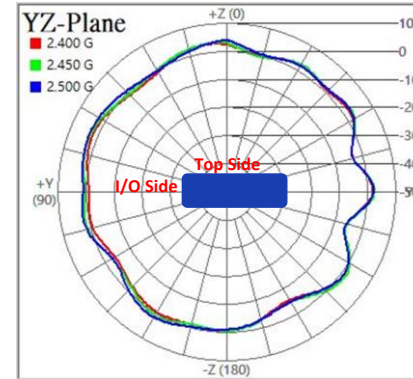
2D Radiation Pattern – Radio 2



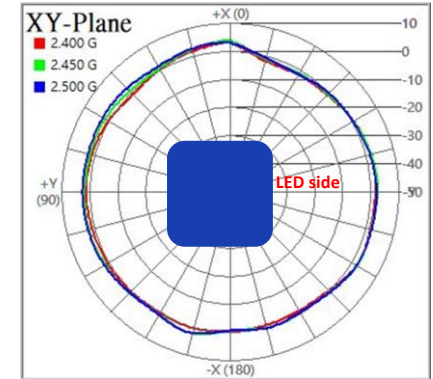
Combine Pattern – Radio 1



XZ-Plane

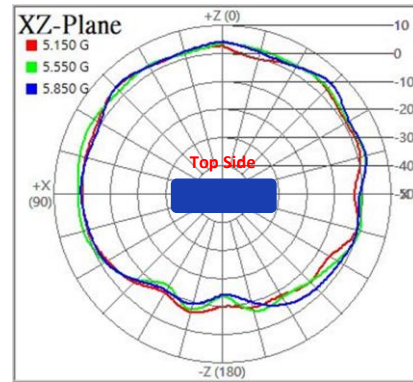
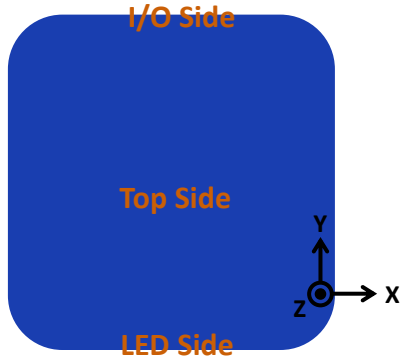


YZ-Plane

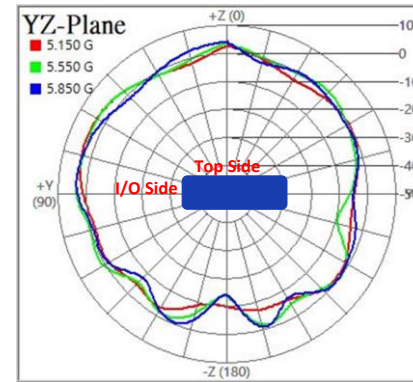


XY-Plane

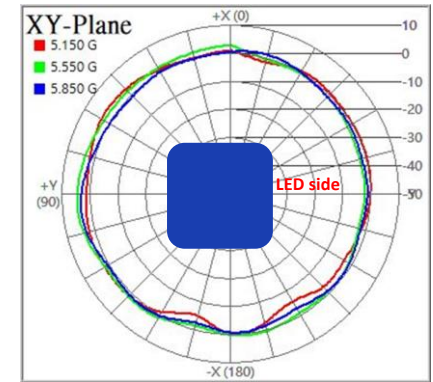
Combine Pattern – Radio 2



XZ-Plane



YZ-Plane



XY-Plane

Antenna Efficiency and Gain

Freq. (MHz)	ANT1_2G		ANT2_2G		ANT3_5G		ANT4_5G	
	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)
2400	65	3.5	67	3.1				
2450	69	4.2	72	3.5				
2500	74	4.3	72	3.7				
5150					66	3.4	68	3.8
5550					64	3.7	71	4.2
5850					61	3.6	67	5.1
5895					61	3.7	65	4.5

- Wi-Fi antennas are metal PIFA and fed by cables.
- The Wi-Fi antenna efficiency is higher than 60%, with peak gains of around 4.3 dBi at Radio1, 5.1 dBi at Radio2.
- The antennas are fixed on the bottom cover, and the radiation energy of the antennas covers different directions respectively.