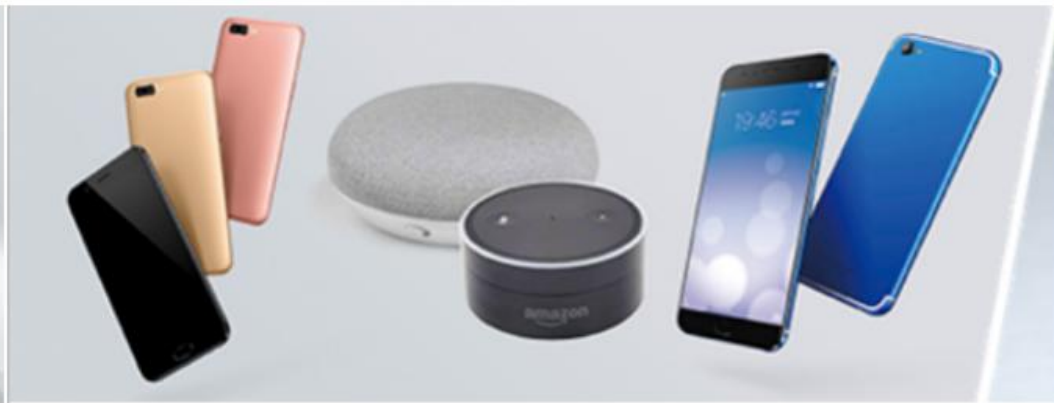




HF230404 DHU2.5 Antenna Performance Test Report



2025.03.03

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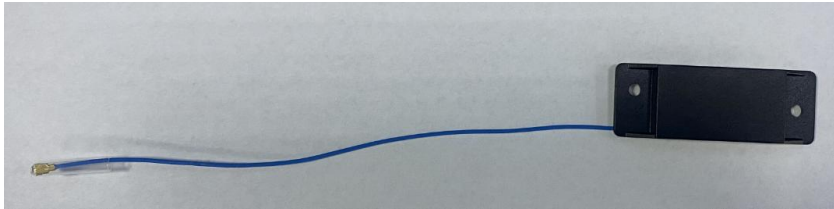
Contents

- 1. Antenna Picture**
- 2. Antenna Passive data**
- 3. Antenna Active data**
- 4. Summary**

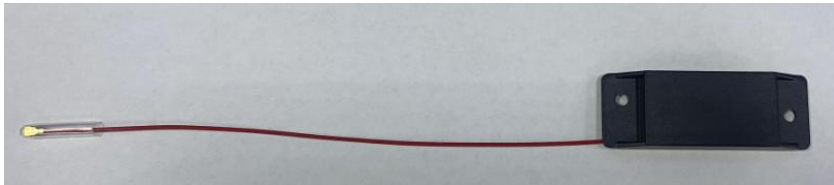


Antenna Picture

Left Antenna



Middle Antenna



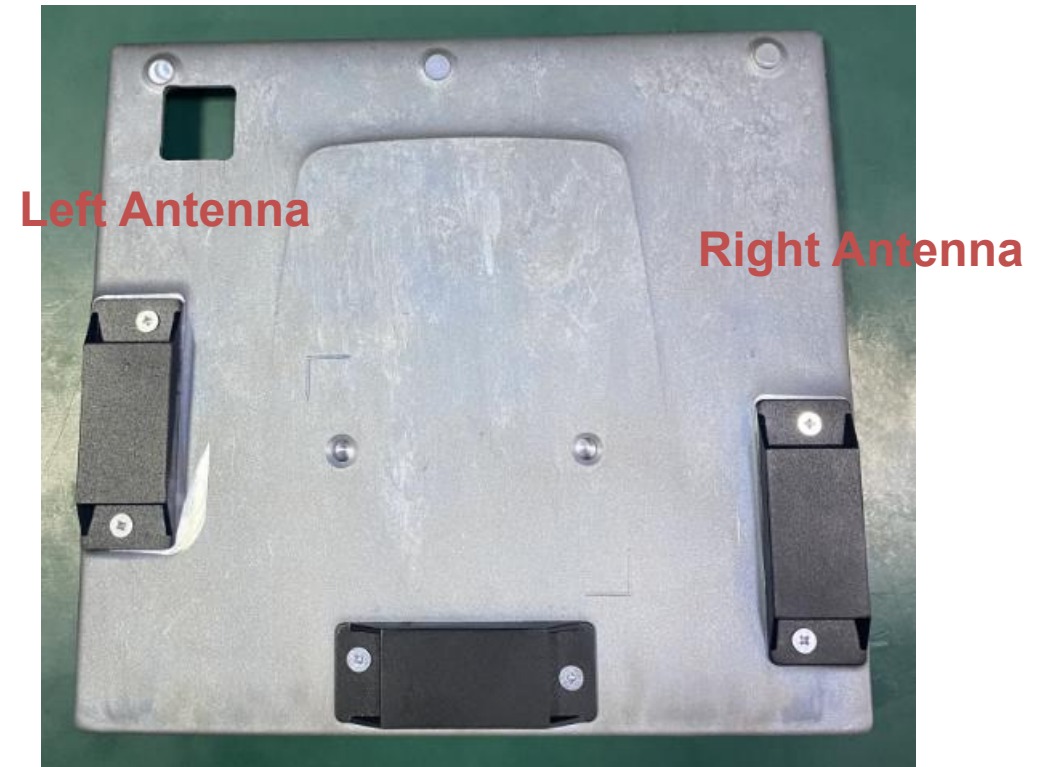
Right Antenna



Left Antenna Part No. : 3.6.02.0317

Middle Antenna Part No. : 3.6.02.0318

Right Antenna Part No. : 3.6.02.0319



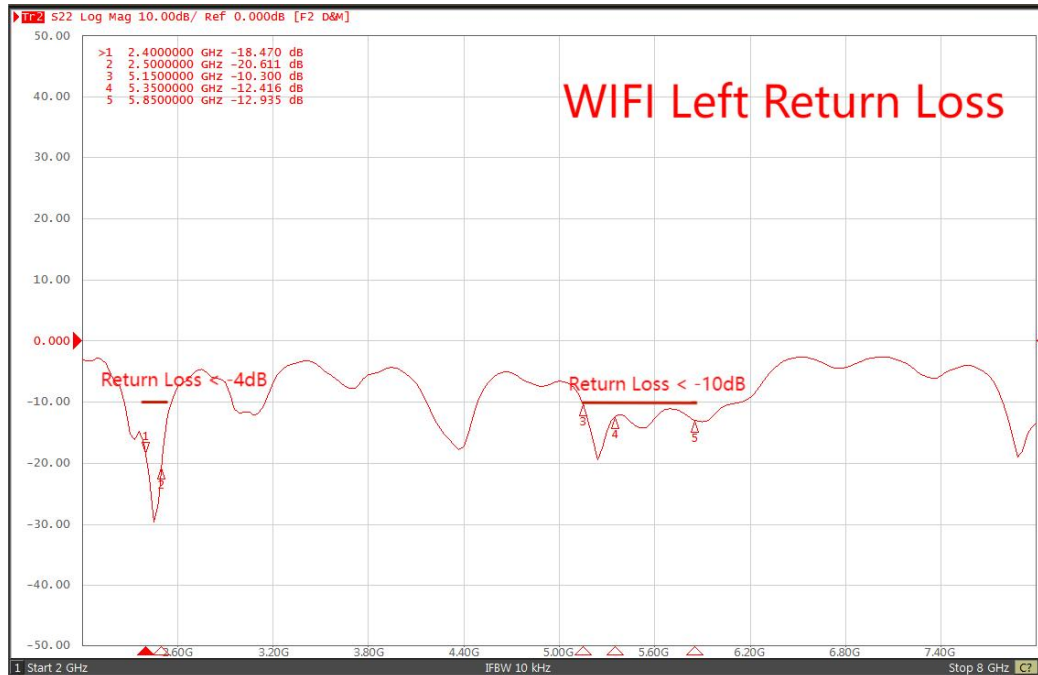
Left Antenna

Right Antenna

Middle Antenna



Antenna Passive data-Left Antenna

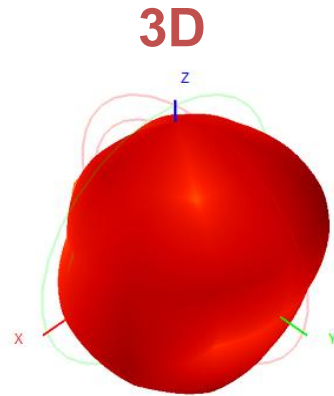


WIFI Left			
Frequency (MHz)	Efficiency (dBi)	Efficiency (%)	Gain(dBi)
2400	-3.53	44.36	1.41
2450	-3.66	43.04	-0.73
2500	-3.65	43.15	-1.20
avg	-3.61	43.52	-0.17
5150	-1.35	73.22	2.72
5200	-1.47	71.25	3.06
5250	-1.50	70.79	4.03
5300	-1.44	71.76	4.17
5350	-1.49	70.90	4.88
5400	-1.37	72.89	4.68
5450	-1.45	71.62	4.89
5500	-1.36	73.14	4.86
5550	-1.41	72.34	5.99
5600	-1.37	72.91	6.65
5650	-1.29	74.35	6.31
5700	-1.33	73.57	6.53
5750	-1.45	71.64	5.99
5800	-1.46	71.43	6.61
5850	-1.39	72.60	6.81
avg	-1.41	72.29	5.21

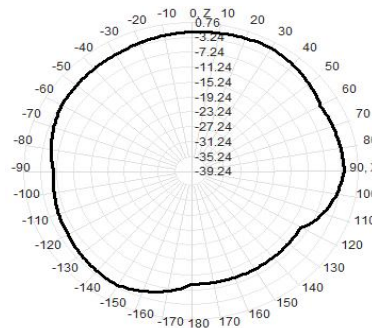


Antenna Passive data-Radiation pattern-Left Antenna

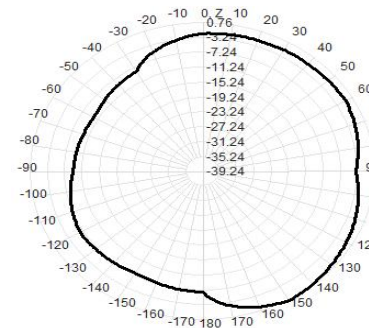
2400MHz



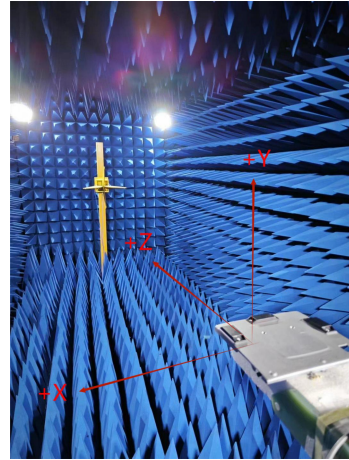
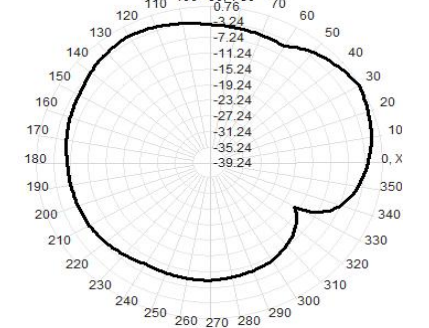
XOZ Plane



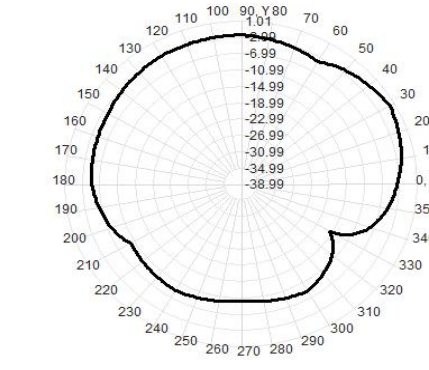
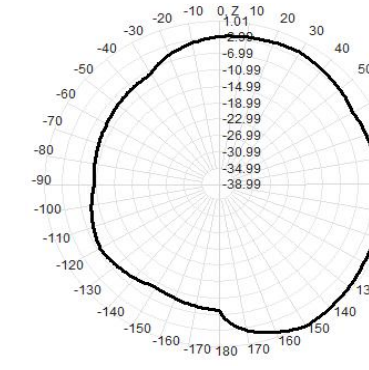
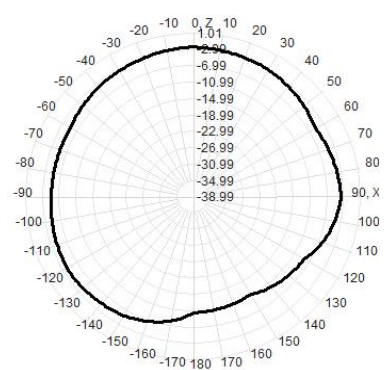
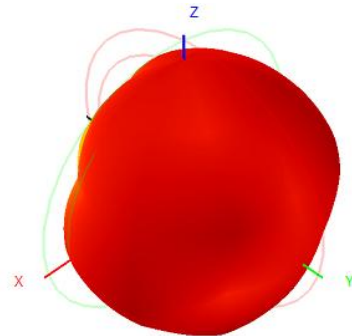
YOZ Plane



XOY Plane



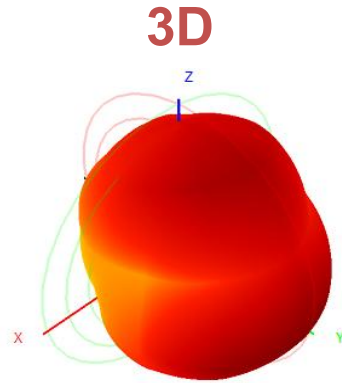
2500MHz



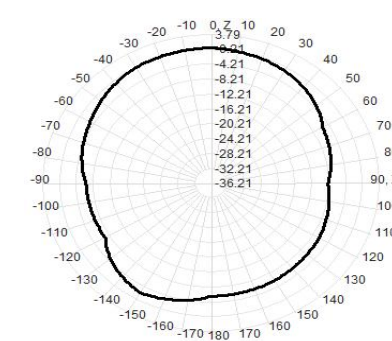


Antenna Passive data-Radiation pattern-Left Antenna

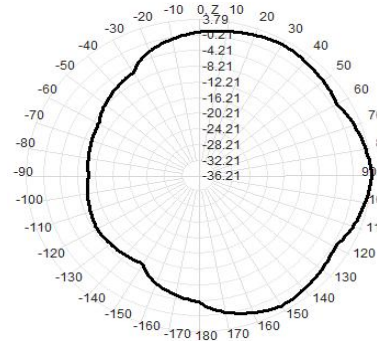
5150MHz



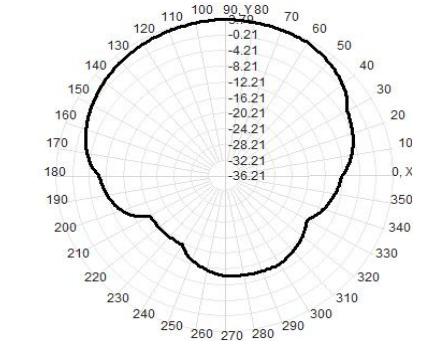
XOZ Plane



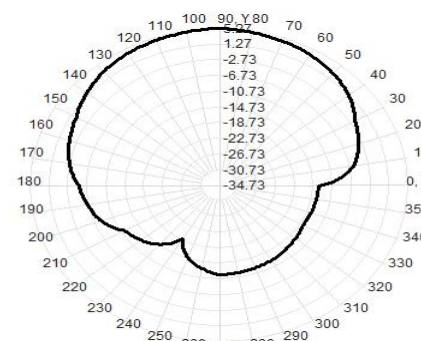
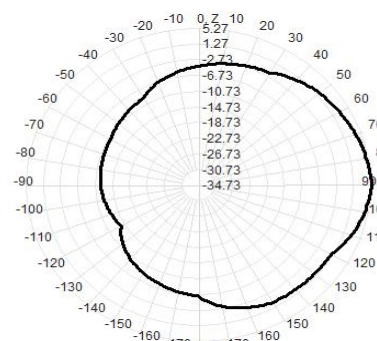
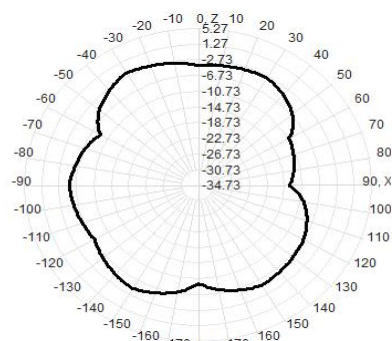
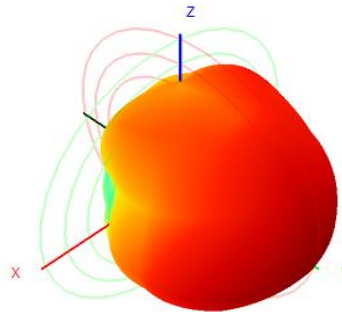
YOZ Plane



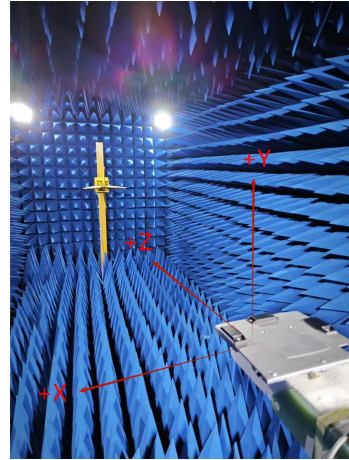
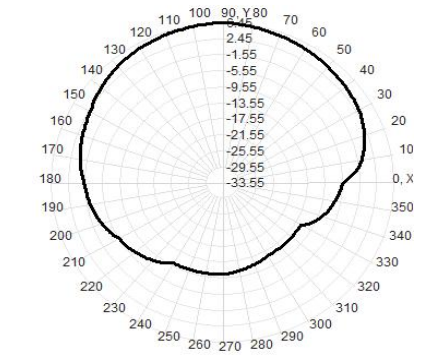
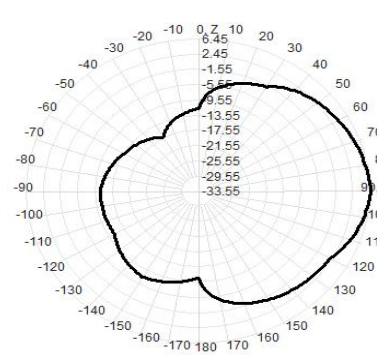
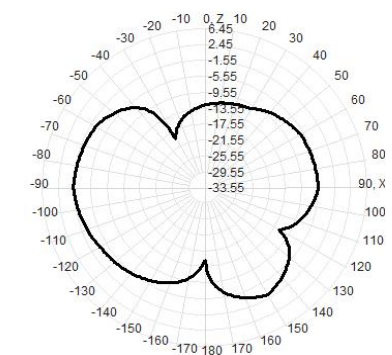
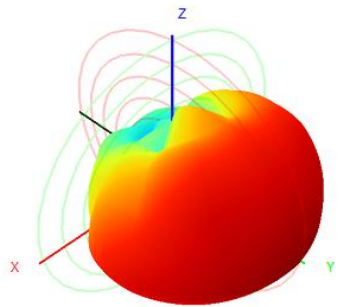
XOY Plane



5350MHz

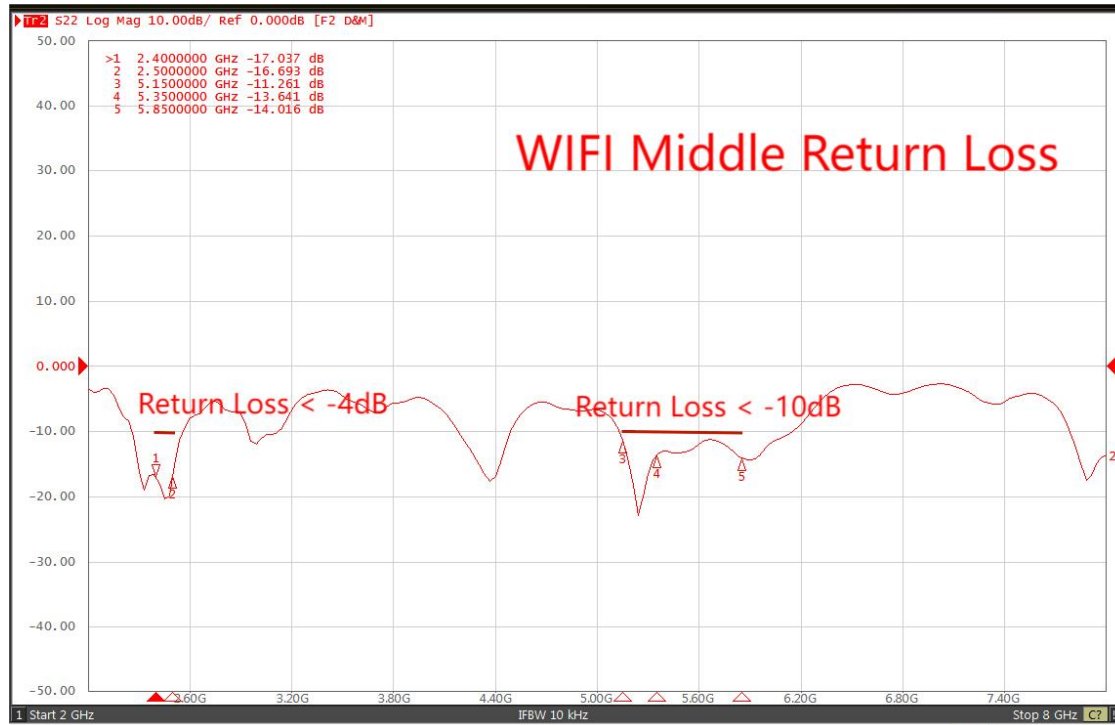


5850MHz





Antenna Passive data-Middle Antenna

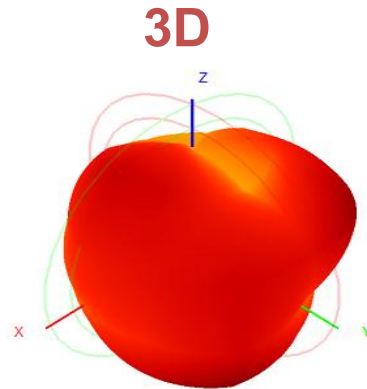


WIFI Middle			
Frequenc y (MHz)	Efficiency (dBi)	Efficiency (%)	Gain(dBi)
2400	-3.85	41.21	0.79
2450	-3.75	42.15	0.35
2500	-3.61	43.55	0.15
avg	-3.74	42.31	0.43
5150	-1.44	71.71	2.90
5200	-1.37	72.91	3.58
5250	-1.50	70.79	4.04
5300	-1.33	73.60	4.24
5350	-1.48	71.07	4.77
5400	-1.52	70.42	5.02
5450	-1.41	72.29	4.87
5500	-1.39	72.64	4.88
5550	-1.37	73.01	5.31
5600	-1.44	71.75	5.30
5650	-1.48	71.17	5.76
5700	-1.35	73.23	5.28
5750	-1.31	73.99	5.00
5800	-1.48	71.10	5.64
5850	-1.45	71.61	5.58
avg	-1.42	72.08	4.81

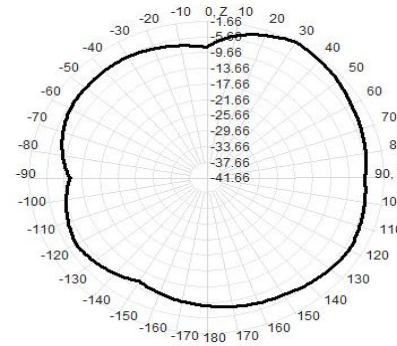


Antenna Passive data-Radiation pattern-Middle Antenna

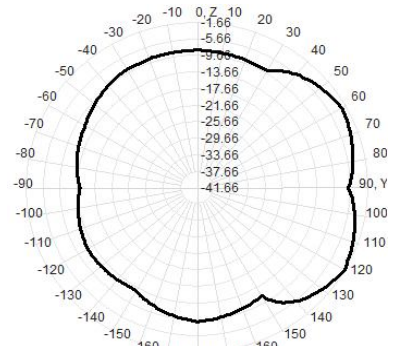
2400MHz



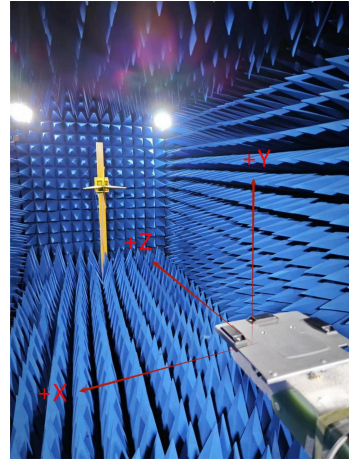
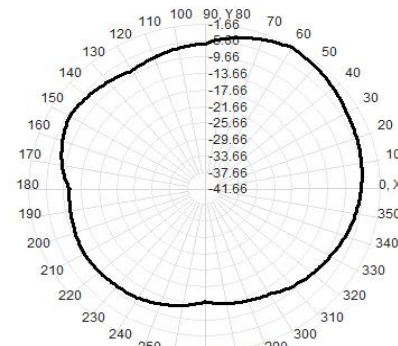
XOZ Plane



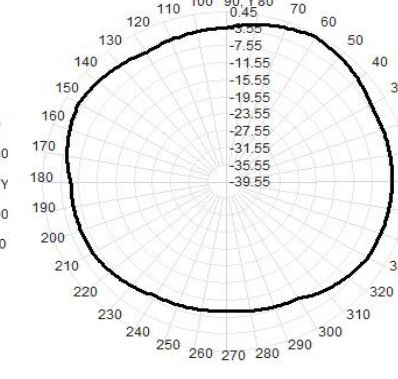
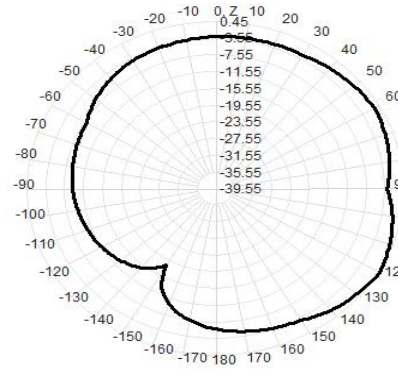
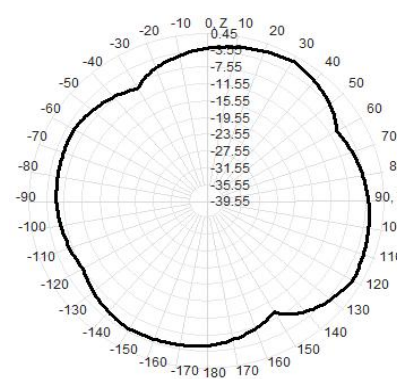
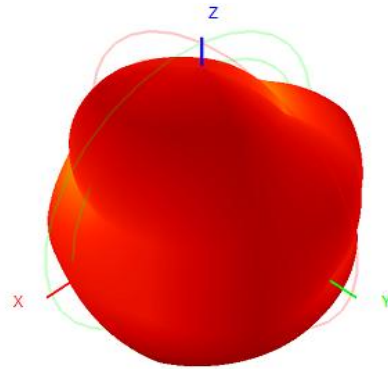
YOZ Plane



XOY Plane



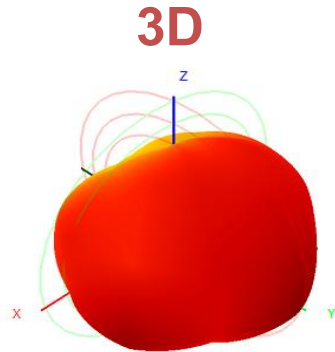
2500MHz



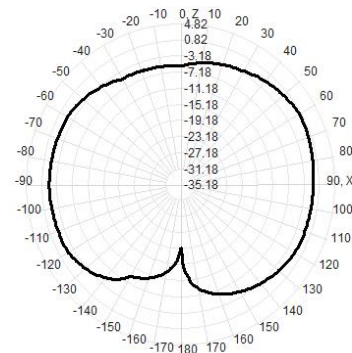


Antenna Passive data-Radiation pattern-Middle Antenna

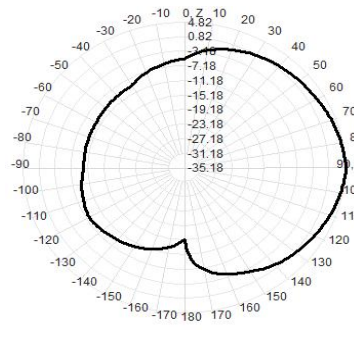
5150MHz



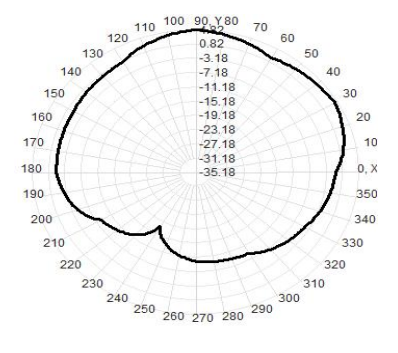
XOZ Plane



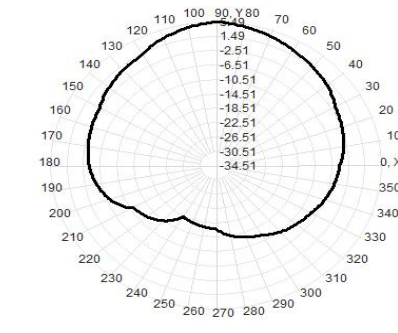
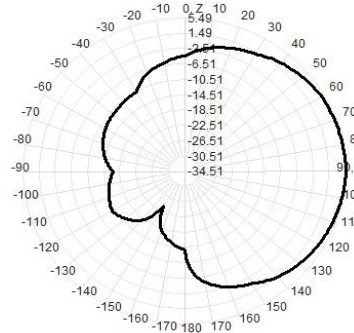
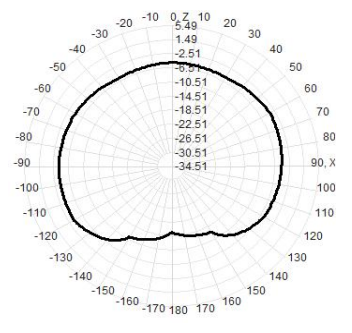
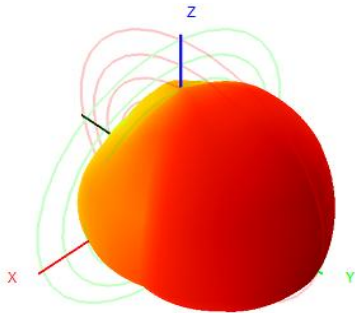
YOZ Plane



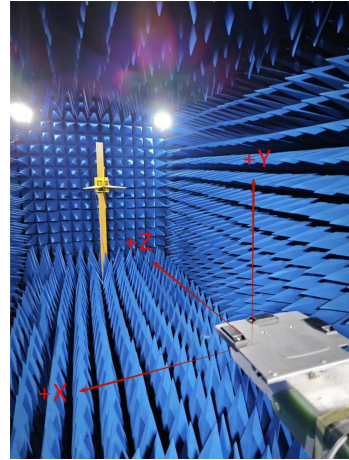
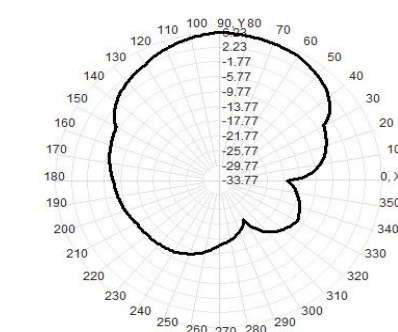
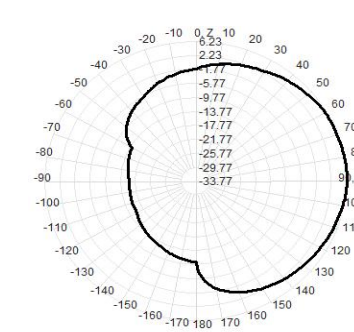
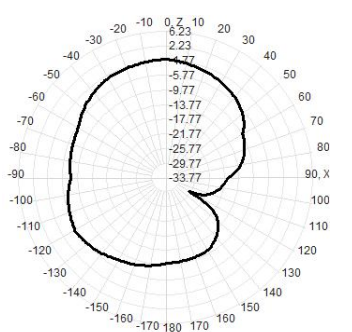
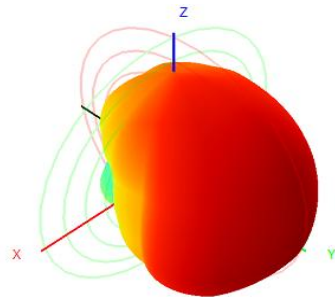
XOY Plane



5350MHz

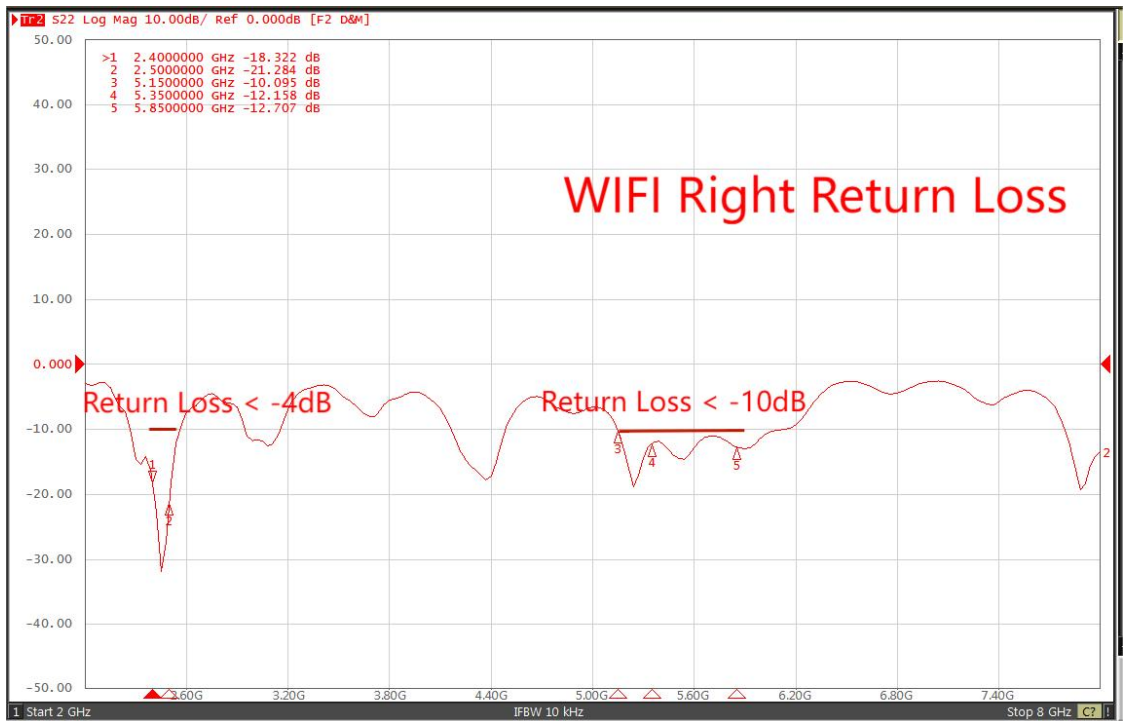


5850MHz





Antenna Passive data-WIFI Right

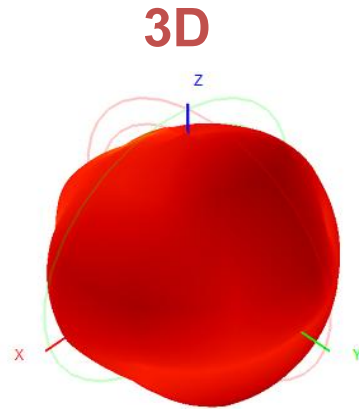


WIFI Right			
Frequenc y (MHz)	Efficiency (dBi)	Efficiency (%)	Gain(dBi)
2400	-3.78	41.88	0.34
2450	-3.69	42.74	0.58
2500	-3.71	42.56	0.42
avg	-3.73	42.39	0.45
5150	-1.51	70.64	3.29
5200	-1.48	71.08	3.77
5250	-1.46	71.44	3.83
5300	-1.32	73.77	4.66
5350	-1.37	72.89	4.78
5400	-1.40	72.42	4.85
5450	-1.44	71.79	4.76
5500	-1.34	73.48	4.65
5550	-1.43	72.01	5.49
5600	-1.50	70.76	5.63
5650	-1.32	73.84	5.84
5700	-1.41	72.23	5.67
5750	-1.23	75.36	5.11
5800	-1.47	71.26	5.52
5850	-1.40	72.44	5.82
avg	-1.41	72.36	4.91

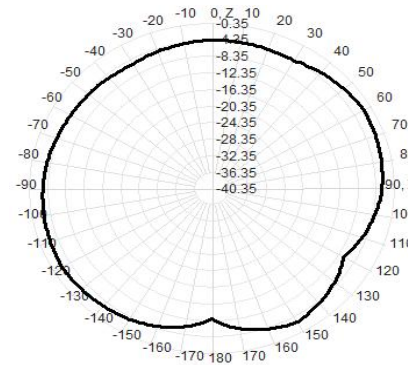


Antenna Passive data-Radiation pattern-Right Antenna

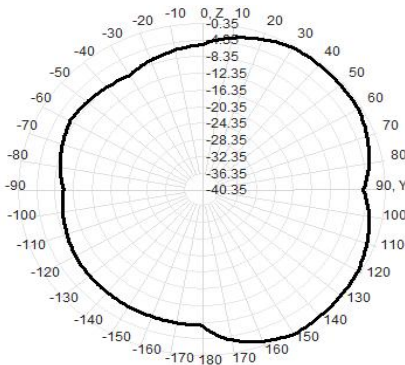
2400MHz



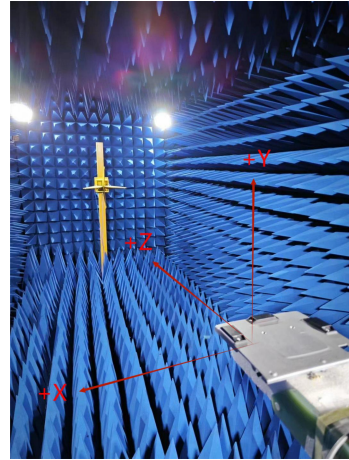
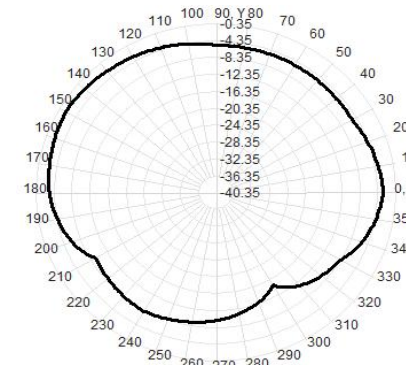
XOZ Plane



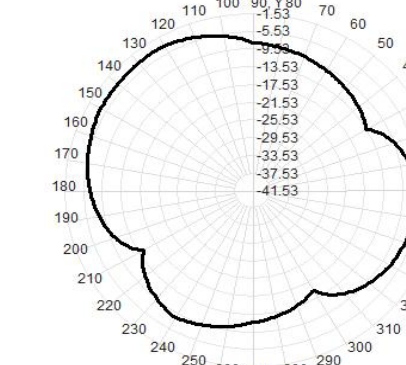
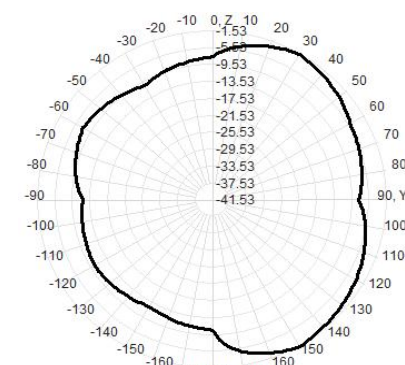
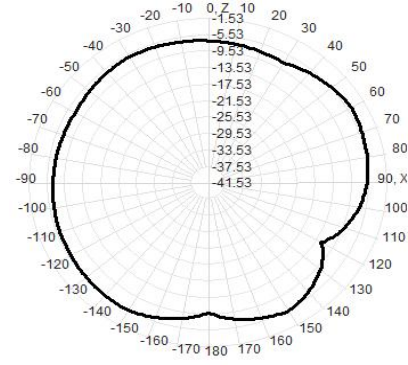
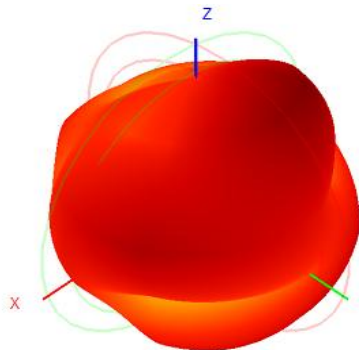
YOZ Plane



XOY Plane



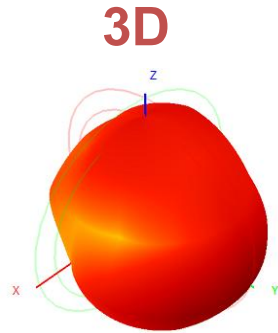
2500MHz



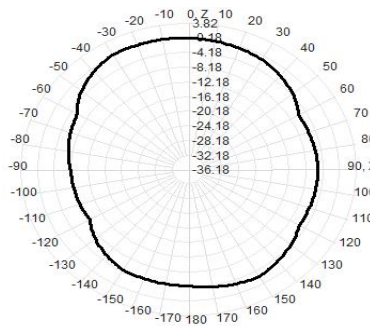


Antenna Passive data-Radiation pattern-Right Antenna

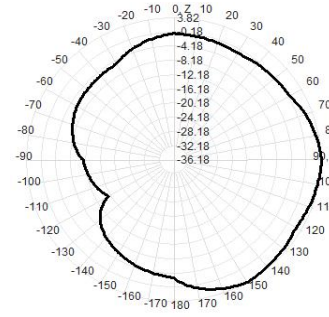
5150MHz



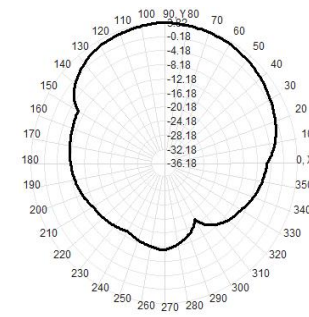
XOZ Plane



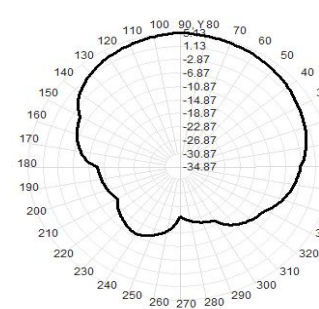
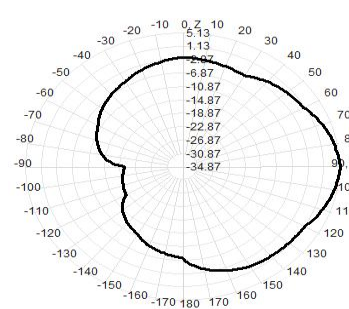
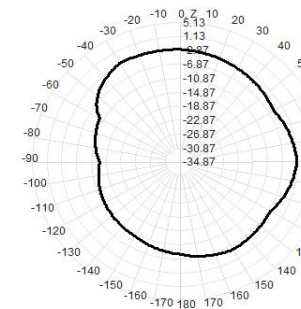
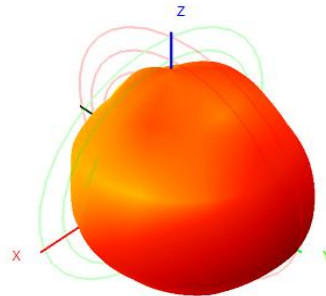
YOZ Plane



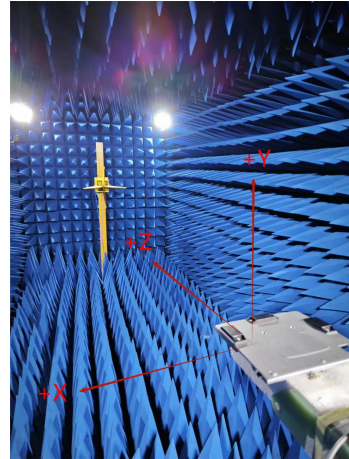
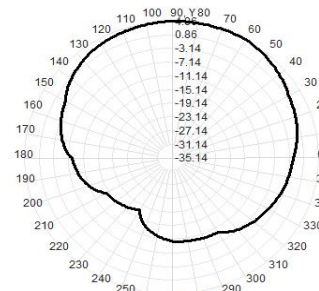
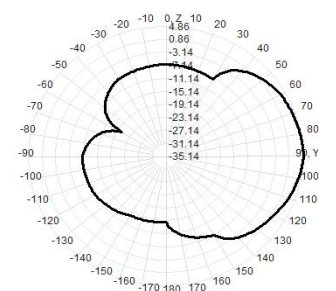
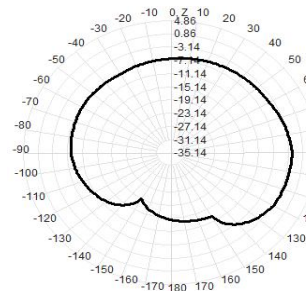
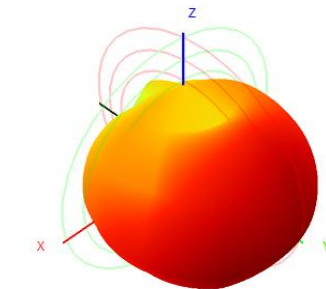
XOY Plane



5350MHz

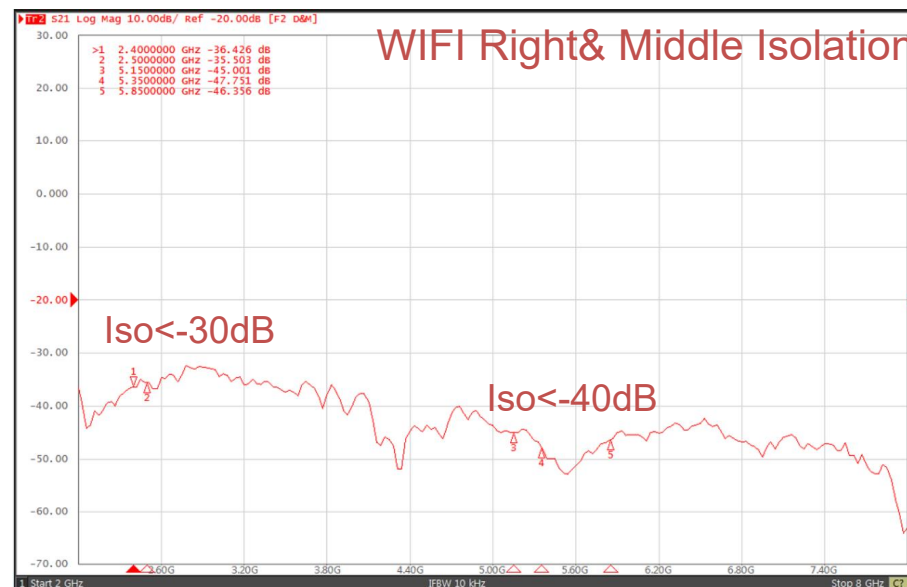
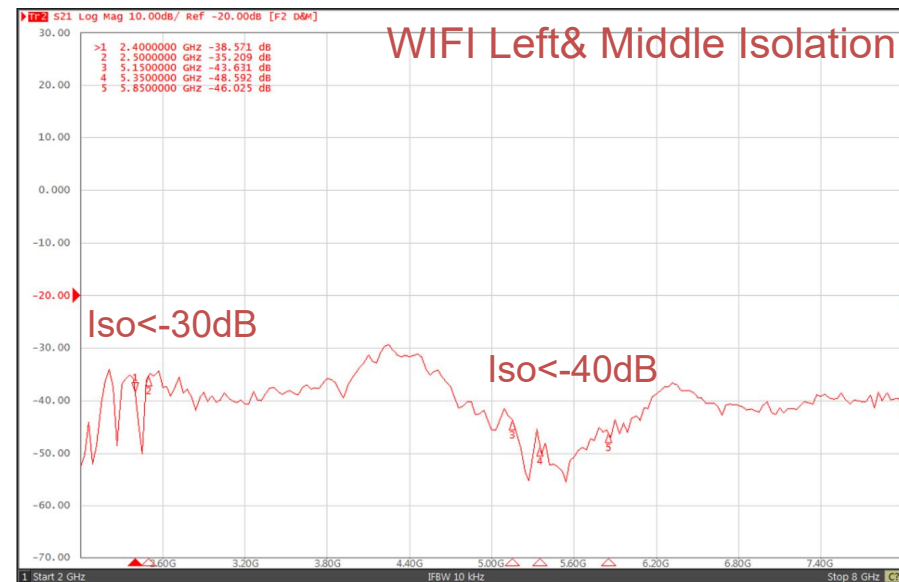
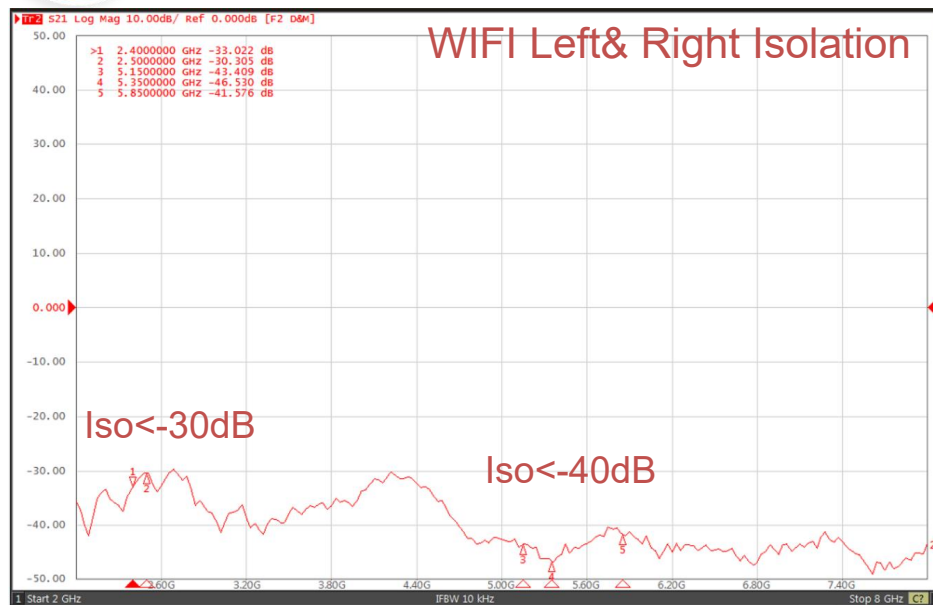


5850MHz





Antenna Passive data -Isolation





VC1.9 WIFI Active Test Data



Mode	rate	channel	TRP	TIS
11G	6M	1	15.46	-71.58
		7	14.86	-70.06
		13	15.33	-71.19
11B	CCK11 M	1	15.83	-75.22
		7	15.31	-74.08
		13	16.09	-75.68
11N(G)	6M	1	12.47	-74.33
		7	12.22	-74.59
		13	12.39	-74.28
11A	6M	36	16.62	-69.31
		100	15.85	-69.24
		165	16.24	-70.01

Remark :11G、11B、11N(G) is 2.4G, 11A is 5G。Test voltage 12V, current is 1.8A around.



A1-C-5 WIFI Active Test Data



Mode	rate	channel	TRP	TIS
11G	6M	1	15.98	-71.46
		7	15.70	-69.40
		13	15.83	-70.37
11B	CCK11M	1	16.14	-76.38
		7	16.59	-74.65
		13	16.32	-75.47
11N(G)	6M	1	12.96	-73.52
		7	12.11	-75.24
		13	12.58	-74.63
11A	6M	36	17.07	-69.51
		100	15.32	-68.91
		165	16.58	-70.24

Remark:11G、11B、11N(G)is 2.4G, 11Ais 5G。 Test voltage 12V, current is 1.8A around.



Summary

1. Return Loss : Left Antenna 2.4G Return Loss < -4dB,
5G Return Loss < -10dB
Mid Antenna 2.4G Return Loss < -4dB,
5G Return Loss < -10dB
Right Antenna 2.4G Return Loss < -4dB,
5G Return Loss < -10dB

2. Passive Effi : Left Antenna 2.4G Avg Effi: -3.61dB(43.52%),
5G Avg Effi: -1.41dB(72.29%)
Mid Antenna 2.4G Avg Effi: -3.74dB(42.31%),
5G Avg Effi: -1.42dB(72.08%)
Right Antenna 2.4G Avg Effi: -3.73dB(42.39%),
5G Avg Effi: -1.41dB(72.36%)

3. Isolation : isolation among left,mid&right antenna
2.4G isolation < -30dB, 5G isolation < -40dB

4. WIFI Active data : 11G TRP 15.5 TIS -70.5 11B TRP 16 TIS -75
11N (G) TRP 12.5 TIS -74.5 11A TRP 16 TIS -69.5



Thanks!

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