

WCF730M

Passive Data

2024/09/25

Test Condition

1. Test Condition

* WCF730M Chip Antenna

- Test Chamber: Shine OTA Chamber

(Address: 1F,Building A5,No.18 Jinxing Rd., Huaqiao Economic Development Zone, Kunshan, China)

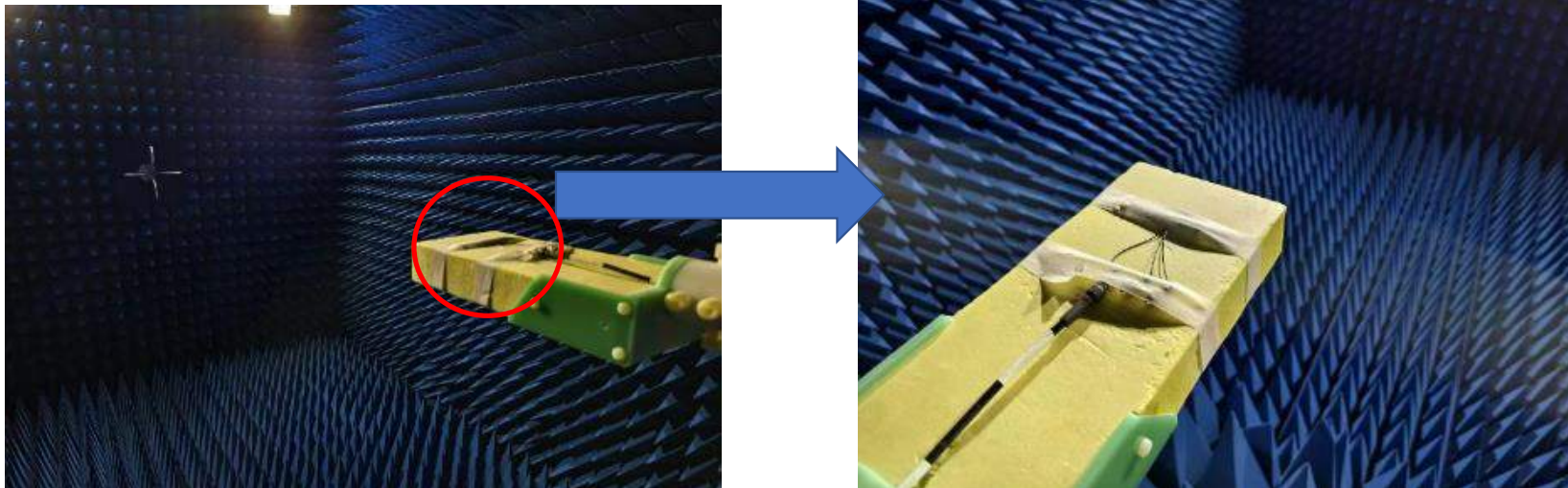
- Network Analyzer : Return Loss

- 3D Passive Chamber : Gain and Efficiency

- Measured by Will Wang 2024/09/24

Will Wang

2. Test Environment



Antenna Gain Measurement Procedure and Software

The O5Tester Software is used to test antenna gain in the far field 3D OTA chamber.

The overview of the far field 3D OTA chamber is shown in Fig.1 and the antenna turntable rotation sampling is shown in Fig.2.

The antenna gain can be measured by the following steps

1. Place the AUT (Antenna Under Test) on the biaxial 3D turntable.
2. The test horn antenna maintains horizontal polarization, and the turntable rotation is controlled by the O5Tester test system and the value of each angular horizontal polarization of the AUT is read.
3. The test horn antenna maintains vertical polarization, and the turntable rotation is controlled by the O5Tester test system and the value of each angular vertical polarization of the AUT is read.
4. The O5Tester test system compares the obtained test values with the standard antenna to obtain the final gain values.

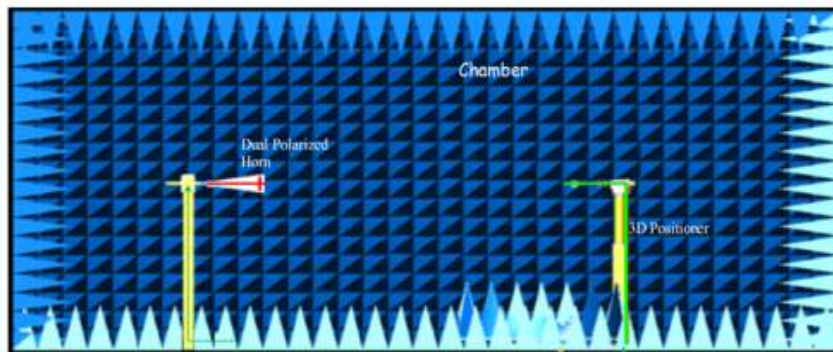


Fig.1 Overview of 3D chamber

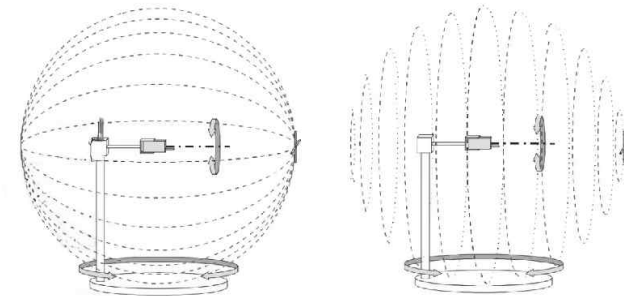


Fig.2 Antenna turntable rotation sampling

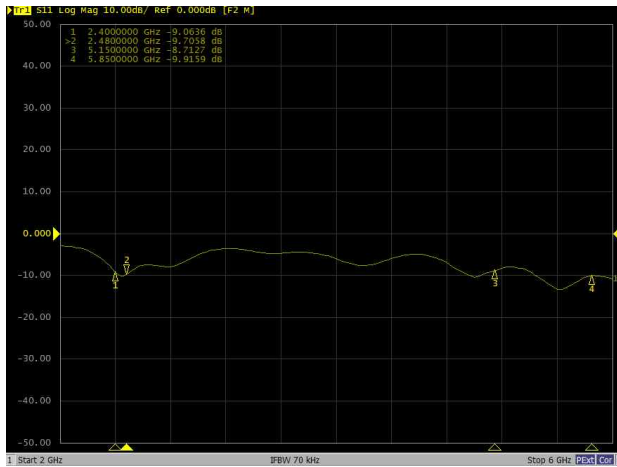
Measuring Instruments

Item	Measuring Instruments	Latest Calibration Schedule
1	OTA Chamber	2024/09/09
2	Network Analyzer Keysight 5071c	2024/05/10

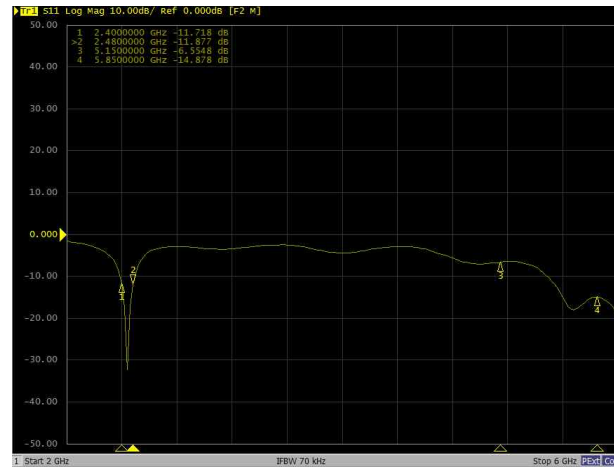
Electrical Characteristics

Item	Specification ANT1		Specification ANT2		Specification BT
Antenna Type	Chip Antenna		Chip Antenna		Chip Antenna
Central Frequency	2440MHz	5500MHz	2440MHz	5500MHz	2440MHz
Band Width	80MHz	700MHz	80MHz	700MHz	80MHz
Peak Gain	0.72dBi	1.69dBi	1.19dBi	3.75dBi	-2.97dBi
Return Loss	< - 7dB		< - 6dB		< - 7dB
Polarization	Linear		Linear		Linear
Azimuth Beam width	Omni- directional		Omni- directional		Omni- directional
Impedance	50Ω		50Ω		50Ω
Dimension	12.0*4.0mm		12.0*4.5mm		8.0*3.0mm

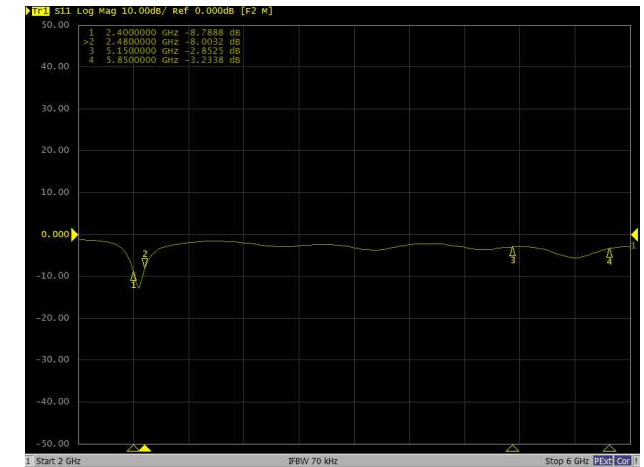
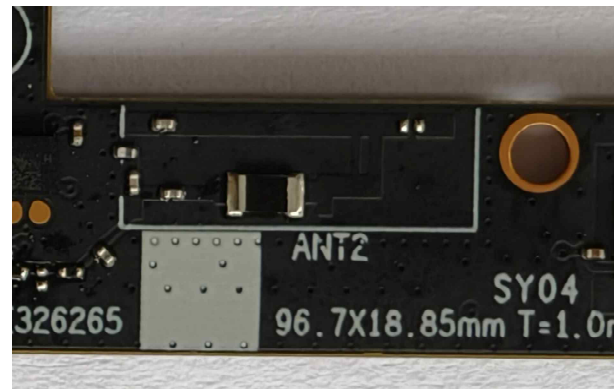
Passive Test – Return Loss



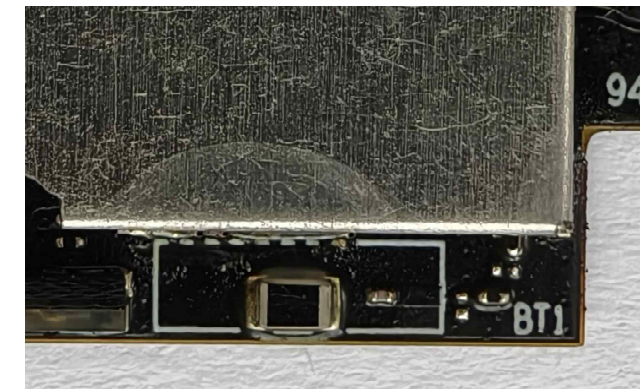
ANT 1



ANT 2



BT

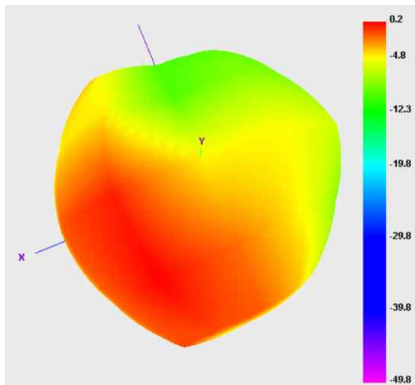


ANT1 Passive Test – Antenna 3D Gain

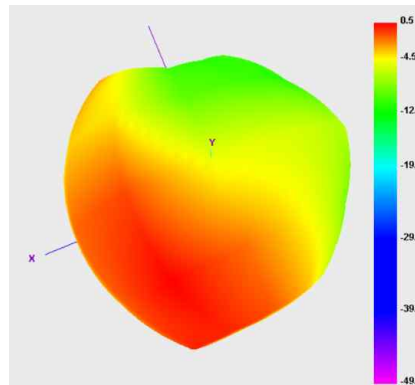
Frequency (MHz)	Efficiency (%)	Average Gain (dBi)			Max Gain (dBi)		
		Ver	Hor	Total	Ver	Hor	Total
2400	36.21	-6.18	-4.71	-4.41	-0.79	-0.40	0.22
2410	35.39	-6.19	-4.89	-4.51	-0.86	-0.64	0.20
2420	35.13	-6.16	-4.77	-4.54	-0.78	-0.86	0.22
2430	36.46	-5.96	-4.78	-4.38	-0.45	-0.88	0.36
2440	37.42	-5.83	-4.87	-4.27	-0.12	-0.87	0.48
2450	38.62	-5.64	-4.96	-4.13	0.26	-0.81	0.60
2460	35.89	-5.88	-5.53	-4.45	0.18	-1.19	0.33
2470	36.17	-5.78	-5.69	-4.42	0.40	-1.15	0.43
2480	37.34	-5.59	-5.68	-4.28	0.66	-0.99	0.72
5150	31.53	-7.62	-5.79	-5.01	-4.08	-0.41	-0.39
5200	28.98	-7.93	-6.33	-5.38	-4.62	-1.03	-0.91
5250	29.69	-7.76	-6.14	-5.27	-4.70	-0.89	-0.62
5300	31.20	-7.59	-5.83	-5.06	-4.00	-0.18	-0.12
5350	33.71	-7.36	-5.43	-4.72	-3.42	-0.56	0.54
5400	32.14	-7.59	-5.71	-4.93	-3.45	-0.69	0.27
5450	30.57	-7.72	-5.91	-5.15	-3.44	-0.91	0.11
5500	31.33	-7.61	-5.92	-5.04	-3.60	-0.48	0.22
5550	35.76	-7.12	-5.38	-4.47	-2.98	0.11	0.98
5600	37.20	-6.87	-5.28	-4.29	-2.56	0.51	1.35
5650	35.32	-6.79	-5.54	-4.52	-2.51	0.16	1.30
5700	35.21	-6.59	-5.59	-4.53	-2.10	0.13	1.19
5750	39.18	-6.18	-5.12	-4.07	-1.62	0.66	1.59
5800	39.44	-6.27	-5.03	-4.04	-1.64	0.70	1.57
5850	39.94	-6.21	-4.85	-3.99	-1.49	0.59	1.69

ANT1 Passive Test – Antenna 3D Radiation Pattern

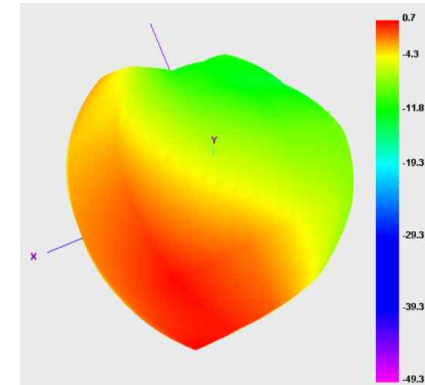
2400MHz



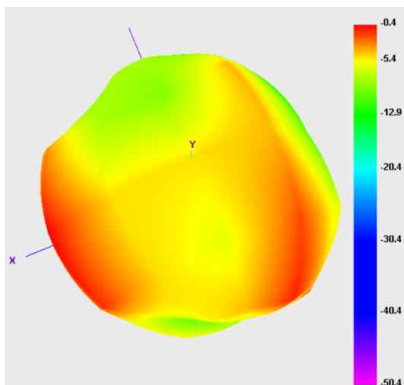
2440MHz



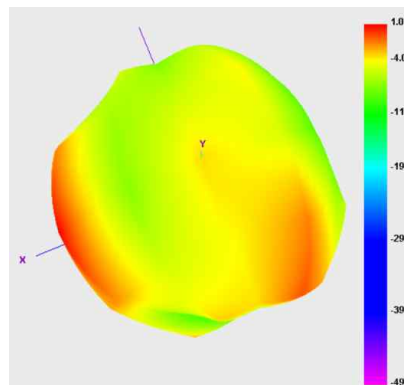
2480MHz



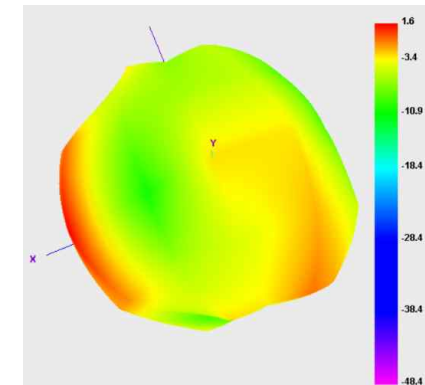
5150MHz



5550MHz



5750MHz

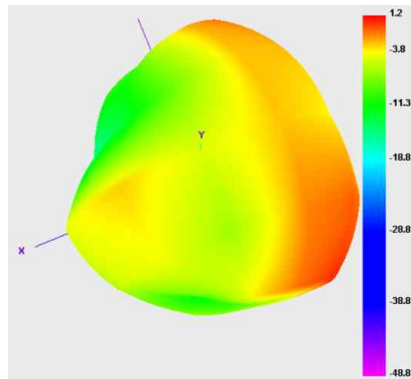


ANT2 Passive Test – Antenna 3D Gain

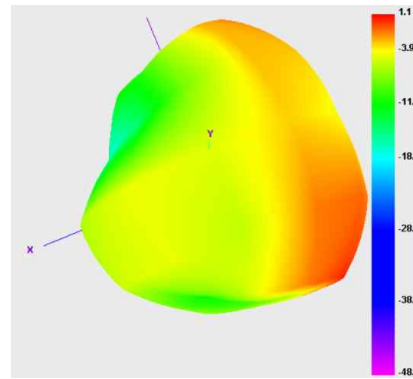
Frequency (MHz)	Efficiency (%)	Average Gain (dBi)			Max Gain (dBi)		
		Ver	Hor	Total	Ver	Hor	Total
2400	39.64	-4.51	-4.58	-4.02	0.69	-2.71	1.15
2410	40.15	-4.53	-4.59	-3.96	0.74	-2.66	1.18
2420	39.98	-4.61	-4.71	-3.98	0.77	-2.71	1.19
2430	39.18	-4.75	-4.94	-4.07	0.77	-2.81	1.15
2440	38.46	-4.86	-5.19	-4.15	0.76	-2.88	1.13
2450	37.00	-5.03	-5.51	-4.32	0.68	-2.83	1.04
2460	33.34	-5.47	-6.10	-4.77	0.31	-3.08	0.69
2470	30.15	-5.90	-6.62	-5.21	-0.07	-3.33	0.32
2480	28.90	-6.11	-6.83	-5.39	-0.27	-3.33	0.15
5150	31.29	-7.32	-5.47	-5.05	-2.86	-0.16	0.00
5200	29.80	-7.42	-5.79	-5.26	-2.87	-0.27	0.12
5250	32.03	-6.99	-5.53	-4.94	-2.73	0.21	0.50
5300	36.17	-6.38	-5.04	-4.42	-2.49	0.82	1.12
5350	41.58	-5.67	-4.34	-3.81	-1.98	1.47	1.58
5400	41.99	-5.52	-4.37	-3.77	-1.69	1.37	1.65
5450	41.04	-5.60	-4.70	-3.87	-1.50	1.06	1.47
5500	43.98	-5.37	-4.59	-3.57	-1.35	1.71	1.93
5550	50.97	-4.76	-4.00	-2.93	-0.79	2.32	2.56
5600	54.21	-4.38	-3.85	-2.66	-0.40	2.70	2.81
5650	53.12	-4.34	-3.90	-2.75	-0.23	2.34	2.82
5700	52.87	-4.26	-3.83	-2.77	-0.13	2.98	3.01
5750	56.73	-4.00	-3.42	-2.46	0.01	3.40	3.60
5800	55.64	-4.11	-3.57	-2.55	-0.04	3.51	3.63
5850	55.63	-4.13	-3.70	-2.55	0.00	2.91	3.75

ANT2 Passive Test – Antenna 3D Radiation Pattern

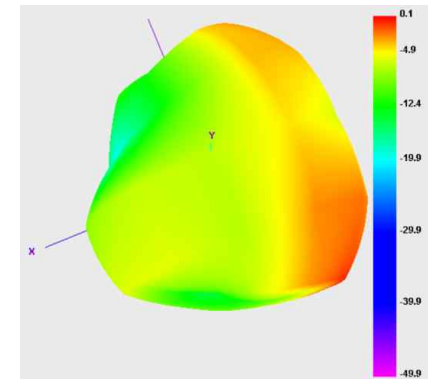
2400MHz



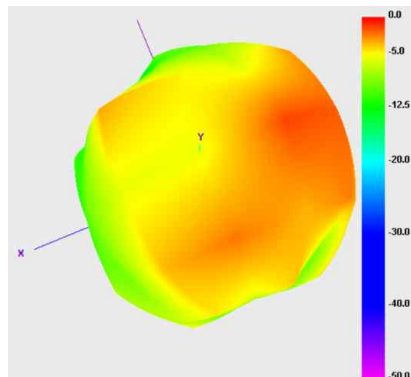
2440MHz



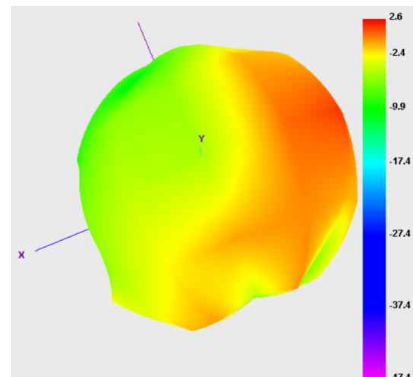
2480MHz



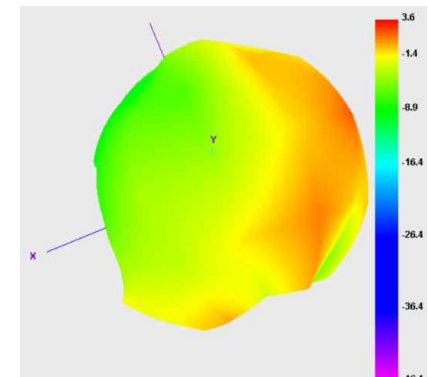
5150MHz



5550MHz



5750MHz

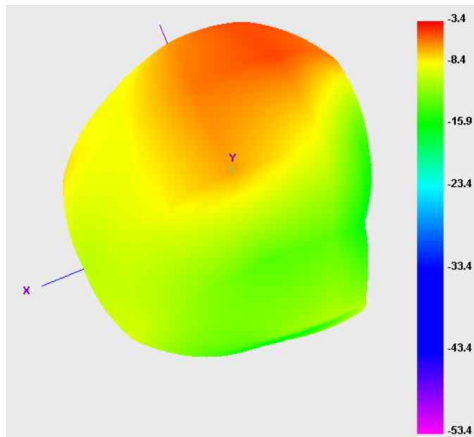


BT Passive Test – Antenna 3D Gain

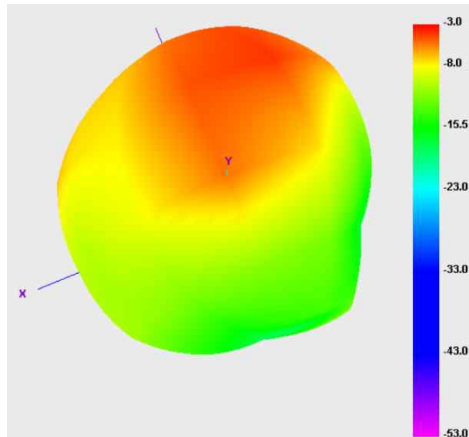
Frequency (MHz)	Efficiency (%)	Average Gain (dBi)			Max Gain (dBi)		
		Ver	Hor	Total	Ver	Hor	Total
2400	15.55	-8.88	-9.06	-8.08	-3.94	-6.14	-3.38
2410	16.01	-8.77	-8.90	-7.96	-3.94	-5.95	-3.25
2420	16.61	-8.64	-8.61	-7.80	-4.00	-5.63	-3.12
2430	17.51	-8.47	-8.18	-7.57	-4.01	-5.25	-2.97
2440	17.70	-8.46	-7.95	-7.52	-4.13	-5.05	-2.99
2450	17.04	-8.61	-8.07	-7.69	-4.40	-5.17	-3.26
2460	16.64	-8.64	-8.11	-7.79	-4.48	-5.17	-3.42
2470	15.98	-8.80	-8.23	-7.96	-4.62	-5.21	-3.66
2480	15.58	-8.86	-8.29	-8.07	-4.63	-5.24	-3.82

BT Passive Test – Antenna 3D Radiation Pattern

2400MHz



2440MHz



2480MHz

