

WCF733R

Passive Data

2024/08/01

Test Condition

1. Test Condition

* WCF733R Metal Antenna and PCB Antenna

- Test Chamber: Shine OTA Chamber

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

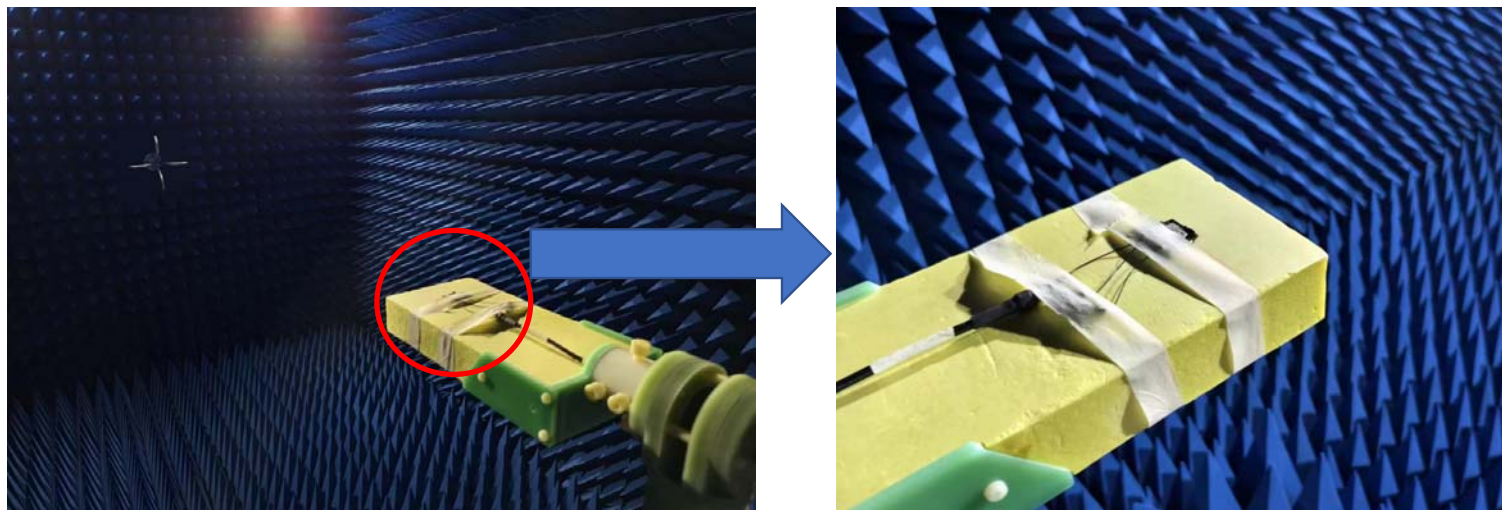
- Network Analyzer : Return Loss

- 3D Passive Chamber : Gain and Efficiency

- Measured by Will Wang 2024/08/01

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.

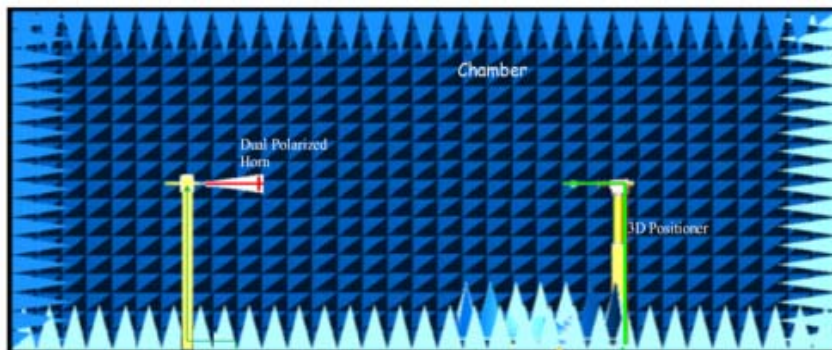


Fig.1 Overview of 3D chamber

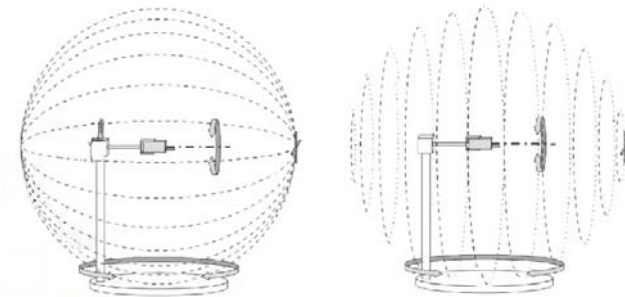


Fig.2 Antenna turntable rotation sampling

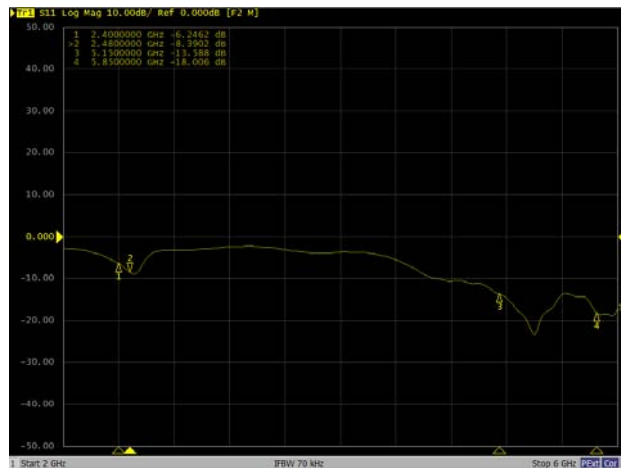
Measuring Instruments

Item	Measuring Instruments	Latest Calibration Schedule
1	OTA Chamber	2024/7/15
2	Network Analyzer Keysight 5071c	2024/5/10

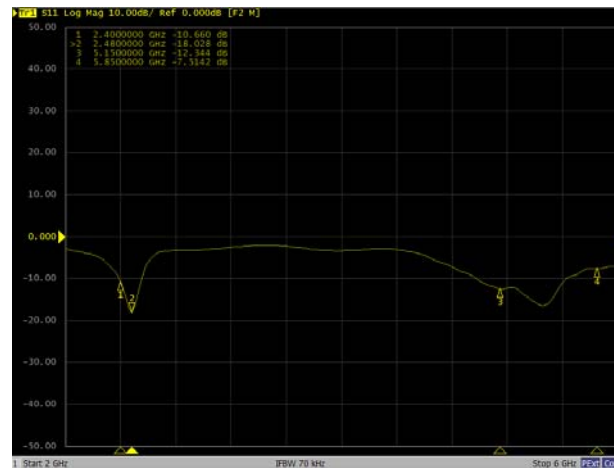
Electrical Characteristics

Item	Specification ANT1		Specification ANT2		Specification BT
Antenna Type	Metal Antenna		Metal Antenna		PCB Antenna
Central Frequency	2440MHz	5500MHz	2440MHz	5500MHz	2440MHz
Band Width	80MHz	700MHz	80MHz	700MHz	80MHz
Peak Gain	-1.51dBi	1.43dBi	-0.71dBi	0.86dBi	-4.06dBi
Return Loss	< -6dB		< -7dB		< -7dB
Polarization	Linear		Linear		Linear
Azimuth Beam width	Omni-directional		Omni-directional		Omni-directional
Impedance	50Ω		50Ω		50Ω
Dimension	18.5*5.0*2.5mm		18.5*5.0*2.5mm		10.0*3.0mm

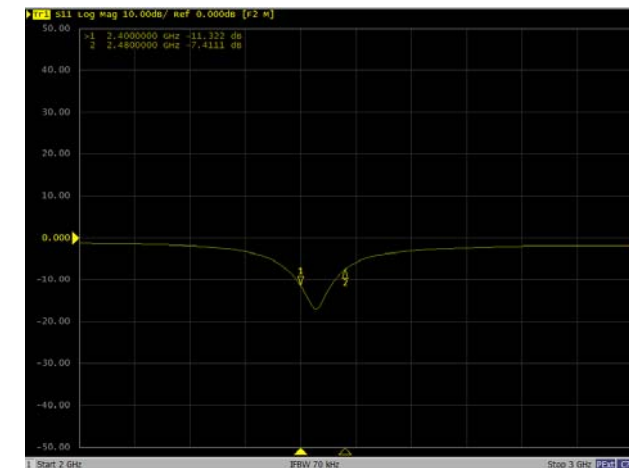
Passive Test – Return Loss



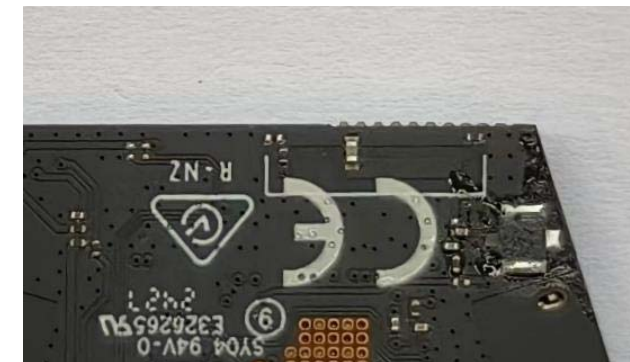
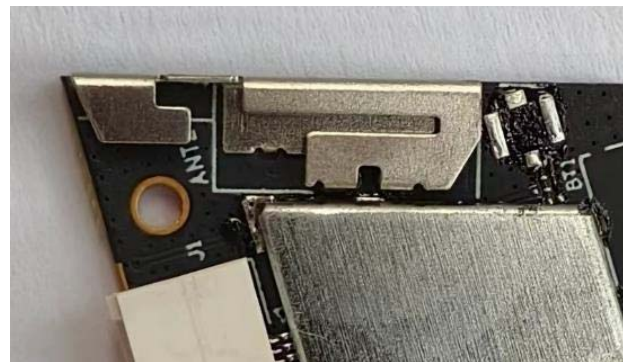
ANT 1



ANT 2



BT

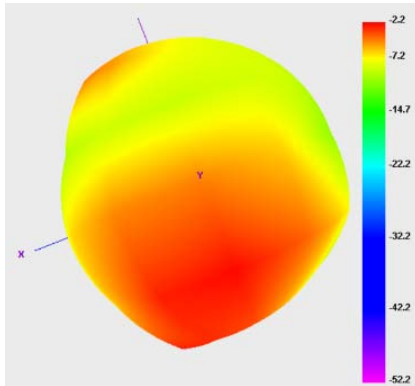


ANT1 Passive Test – Antenna 3D Gain

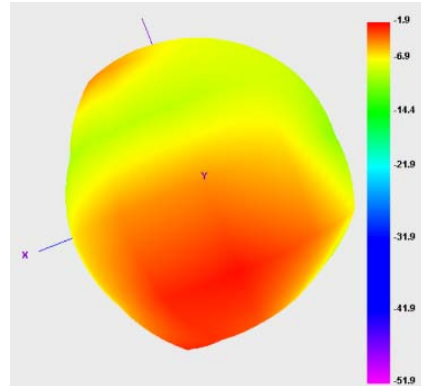
Frequency (MHz)	Efficiency (%)	Average Gain (dBi)			Max Gain (dBi)		
		Ver	Hor	Total	Ver	Hor	Total
2400	26.77	-8.05	-5.82	-5.72	-2.64	-2.50	-2.15
2410	27.73	-7.85	-5.71	-5.57	-2.59	-2.42	-2.12
2420	27.72	-7.79	-5.95	-5.57	-2.59	-2.71	-2.11
2430	28.11	-7.66	-6.16	-5.51	-2.44	-2.96	-1.96
2440	27.48	-7.76	-6.42	-5.61	-2.54	-3.20	-1.89
2450	28.59	-7.52	-6.34	-5.44	-2.29	-3.07	-1.84
2460	28.96	-7.37	-6.48	-5.38	-2.07	-3.19	-1.69
2470	29.51	-7.16	-6.67	-5.30	-1.80	-3.38	-1.55
2480	29.82	-7.03	-6.91	-5.25	-1.58	-3.64	-1.51
5150	47.97	-4.71	-3.25	-3.19	0.64	1.02	1.11
5200	45.90	-4.92	-3.37	-3.38	0.47	0.77	1.07
5250	49.90	-4.60	-3.06	-3.02	0.58	0.86	1.31
5300	51.73	-4.35	-2.91	-2.86	0.53	1.02	1.25
5350	55.03	-4.20	-2.66	-2.59	0.69	0.97	1.09
5400	54.41	-4.15	-2.81	-2.64	0.58	0.64	0.74
5450	50.94	-4.41	-3.13	-2.93	0.22	0.29	0.32
5500	49.66	-4.31	-3.42	-3.04	0.31	0.33	0.35
5550	51.04	-4.37	-3.44	-2.92	0.24	0.27	0.58
5600	50.11	-4.54	-3.65	-3.00	0.13	0.03	0.86
5650	52.85	-4.04	-3.34	-2.77	0.60	0.67	0.80
5700	55.00	-3.51	-3.05	-2.60	1.07	1.12	1.23
5750	55.04	-3.39	-3.04	-2.59	1.09	1.15	1.18
5800	54.35	-3.42	-3.06	-2.65	1.02	1.04	1.11
5850	56.12	-3.30	-2.72	-2.51	1.32	1.36	1.43

ANT1 Passive Test – Antenna 3D Radiation Pattern

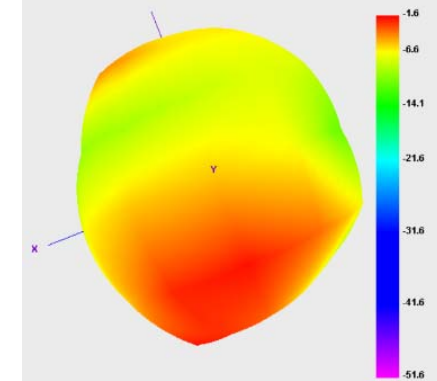
2400MHz



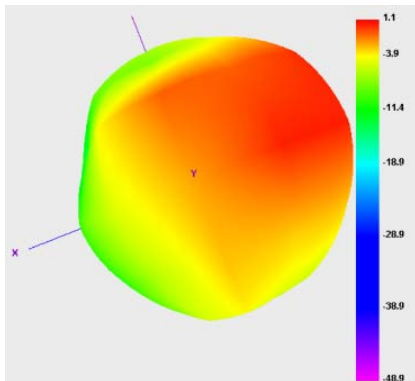
2440MHz



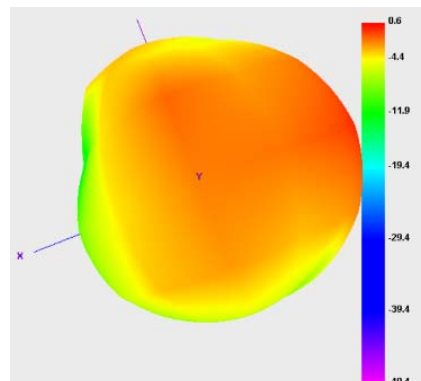
2480MHz



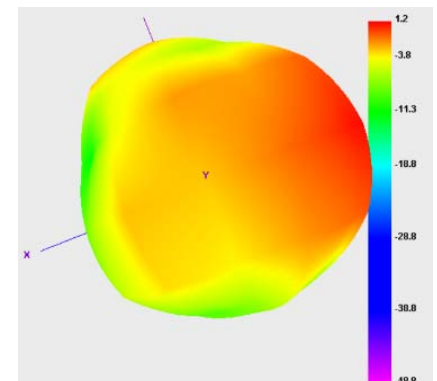
5150MHz



5550MHz



5750MHz

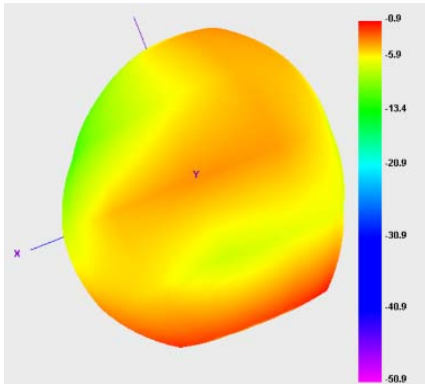


ANT2 Passive Test – Antenna 3D Gain

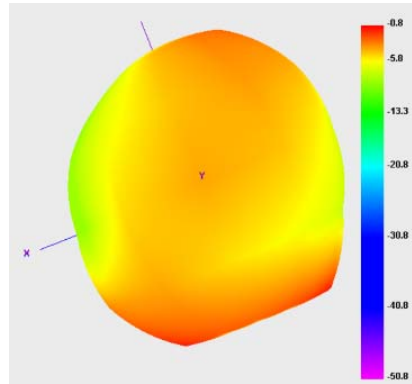
Frequency (MHz)	Efficiency (%)	Average Gain (dBi)			Max Gain (dBi)		
		Ver	Hor	Total	Ver	Hor	Total
2400	32.68	-5.19	-5.21	-4.86	-0.91	-2.53	-0.91
2410	33.49	-5.13	-5.23	-4.75	-0.96	-2.53	-0.96
2420	34.82	-5.03	-5.19	-4.58	-0.92	-2.43	-0.92
2430	36.14	-4.96	-5.19	-4.42	-0.87	-2.31	-0.87
2440	37.39	-4.88	-5.26	-4.27	-0.78	-2.18	-0.78
2450	37.23	-4.97	-5.47	-4.29	-0.83	-2.19	-0.77
2460	36.64	-5.06	-5.70	-4.36	-0.88	-2.29	-0.75
2470	36.28	-5.13	-5.90	-4.40	-0.86	-2.43	-0.73
2480	36.37	-5.13	-5.98	-4.39	-0.76	-2.52	-0.71
5150	41.11	-6.62	-5.74	-3.86	-0.81	-1.24	0.66
5200	39.07	-6.85	-6.05	-4.08	-0.86	-1.72	0.12
5250	41.16	-6.59	-5.68	-3.86	-0.84	-1.43	0.24
5300	44.71	-6.15	-5.11	-3.50	-0.71	-1.03	0.27
5350	50.35	-5.69	-4.30	-2.98	-0.57	-0.34	0.77
5400	52.81	-5.35	-4.06	-2.77	-0.46	-0.26	0.86
5450	50.17	-5.59	-4.03	-3.00	-0.26	0.39	0.70
5500	49.61	-5.56	-4.24	-3.04	-0.30	0.21	0.34
5550	48.70	-5.57	-4.42	-3.12	-0.42	0.08	0.08
5600	44.20	-6.00	-5.05	-3.55	-1.05	-0.61	-0.61
5650	43.50	-6.06	-4.91	-3.62	-0.65	-0.59	-0.56
5700	45.11	-5.75	-4.69	-3.46	-0.42	-0.49	-0.42
5750	45.08	-5.63	-4.81	-3.46	-0.54	-0.53	-0.53
5800	42.29	-5.92	-5.06	-3.74	-0.85	-0.96	-0.80
5850	42.44	-6.08	-4.76	-3.72	-0.61	-1.02	-0.58

ANT2 Passive Test – Antenna 3D Radiation Pattern

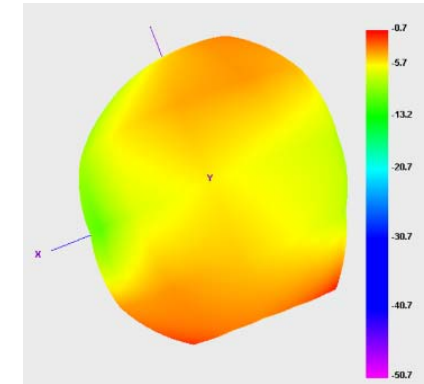
2400MHz



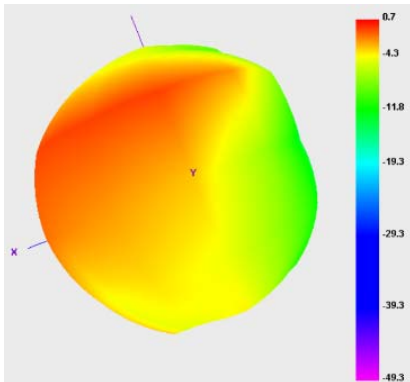
2440MHz



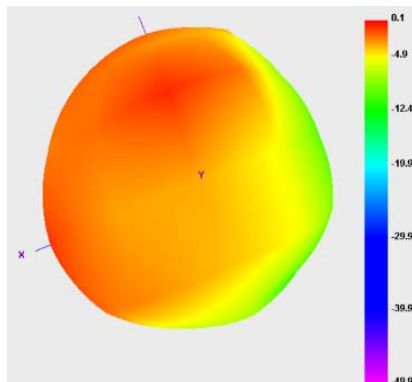
2480MHz



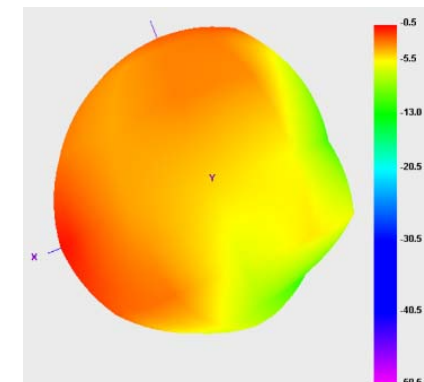
5150MHz



5550MHz



5750MHz

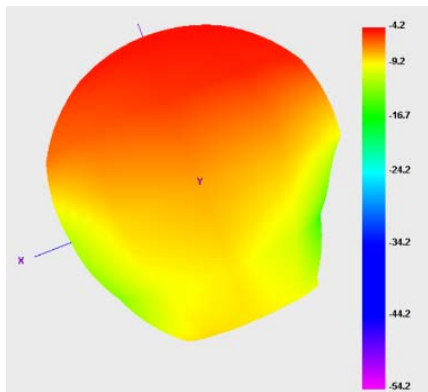


BT Passive Test – Antenna 3D Gain

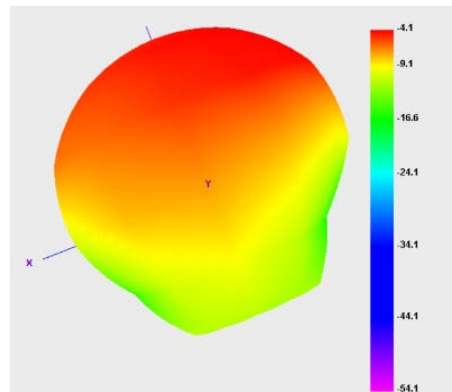
Frequency (MHz)	Efficiency (%)	Average Gain (dBi)			Max Gain (dBi)		
		Ver	Hor	Total	Ver	Hor	Total
2400	18.18	-9.69	-8.59	-7.40	-4.57	-6.06	-4.24
2410	18.76	-9.51	-8.33	-7.27	-4.29	-6.00	-4.06
2420	17.81	-9.70	-8.53	-7.49	-4.43	-6.42	-4.15
2430	17.55	-9.79	-8.56	-7.56	-4.34	-6.62	-4.14
2440	17.54	-9.87	-8.43	-7.56	-4.41	-6.55	-4.13
2450	17.24	-10.02	-8.44	-7.63	-4.54	-6.62	-4.25
2460	16.49	-10.20	-8.60	-7.83	-4.90	-6.80	-4.44
2470	14.81	-10.64	-8.96	-8.30	-5.55	-7.21	-4.76
2480	14.07	-10.72	-9.03	-8.52	-6.04	-7.44	-4.80

BT Passive Test – Antenna 3D Radiation Pattern

2400MHz



2440MHz



2480MHz

