

WCHA44M

Passive Data

2025/09/05

1. Test Condition

* WCHA44M Chip Antenna

- Test Chamber: Shine OTA Chamber

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

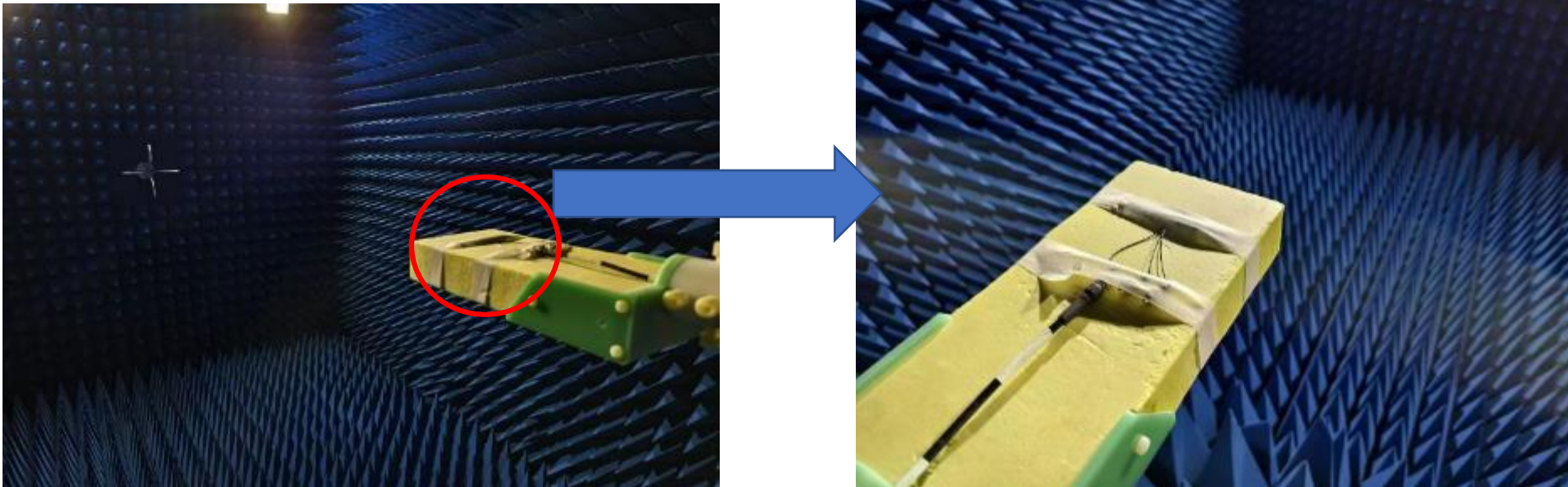
- Network Analyzer : Return Loss

- 3D Passive Chamber : Gain and Efficiency

- Measured by Will Wang 2025/09/05

Will Wang

2. Test Environment



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.

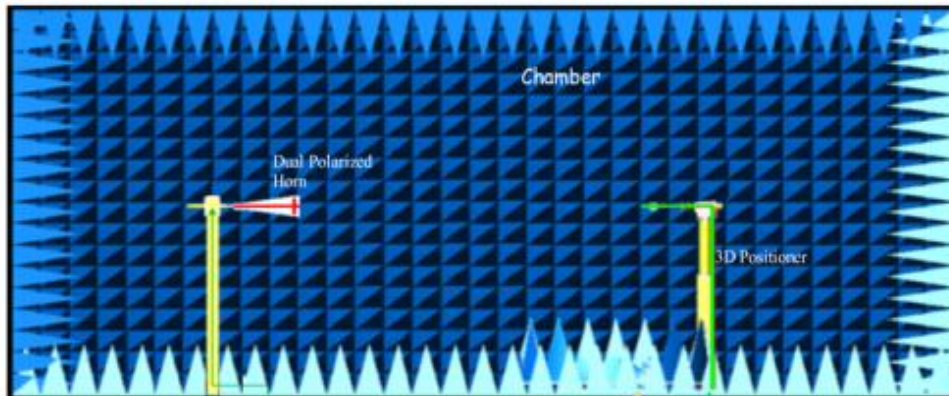


Fig.1 Overview of 3D chamber

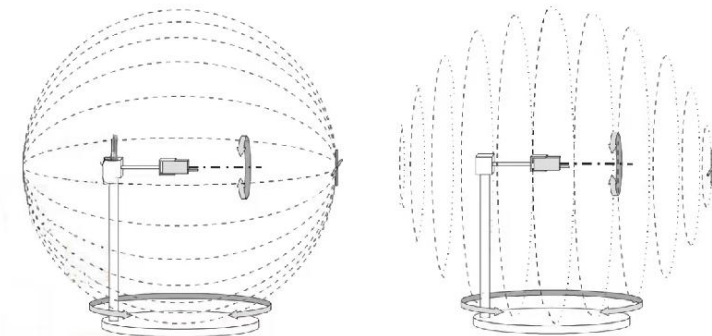


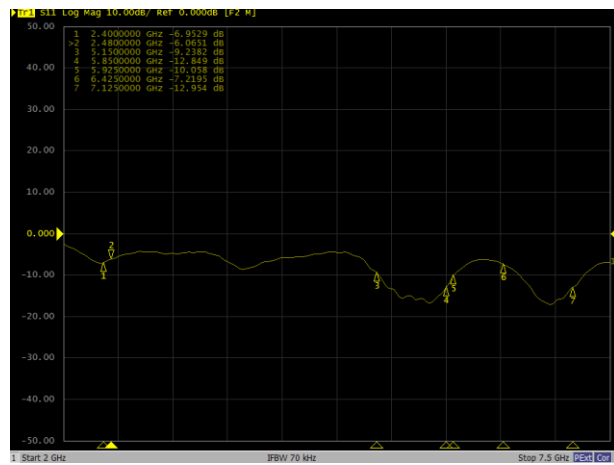
Fig.2 Antenna turntable rotation sampling

Item	Measuring Instruments	Latest Calibration Schedule
1	OTA Chamber	2025/07/06
2	Network Analyzer Keysight 5071c	2025/06/15

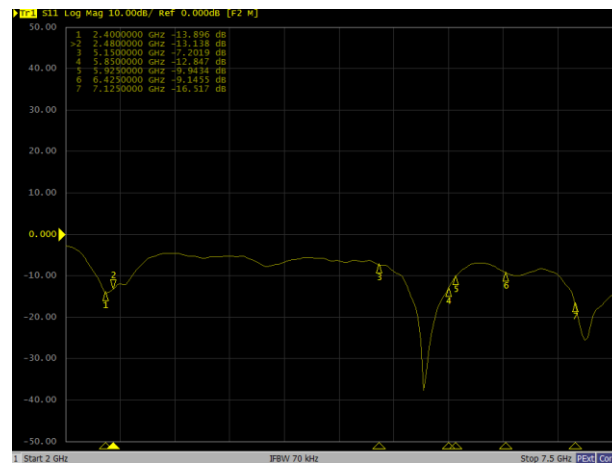
Electrical Characteristics

Item	Specification ANT0				Specification ANT1				Specification BT 0	Specification BT 1
Antenna Type	Chip Antenna				Chip Antenna				Chip Antenna	Chip Antenna
Central Frequency	2440MHz	5500MHz	6175MHz	6775MHz	2440MHz	5500MHz	6175MHz	6775MHz	2440MHz	2440MHz
Band Width	80MHz	700MHz	500MHz	700MHz	80MHz	700MHz	500MHz	700MHz	80MHz	80MHz
Peak Gain	-2.03dBi	1.72dBi	0.70dBi	0.91dBi	1.01dBi	1.63dBi	0.82dBi	-0.34dBi	-2.17dBi	-5.51dBi
Return Loss	<-5dB				<-6dB				<-6dB	<-6dB
Polarization	Linear				Linear				Linear	Linear
Azimuth Beam width	Omni-directional				Omni-directional				Omni-directional	Omni-directional
Impedance	50Ω				50Ω				50Ω	50Ω
Dimension	12.0*4.5mm				11.5*4.5mm				7.3*2.5mm	6.0*2.8mm

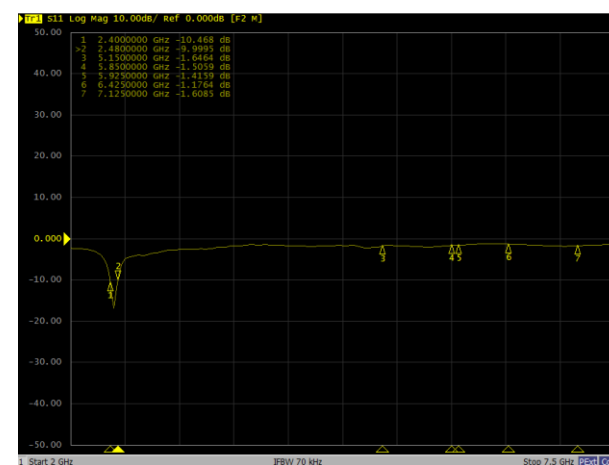
Passive Test – Return Loss



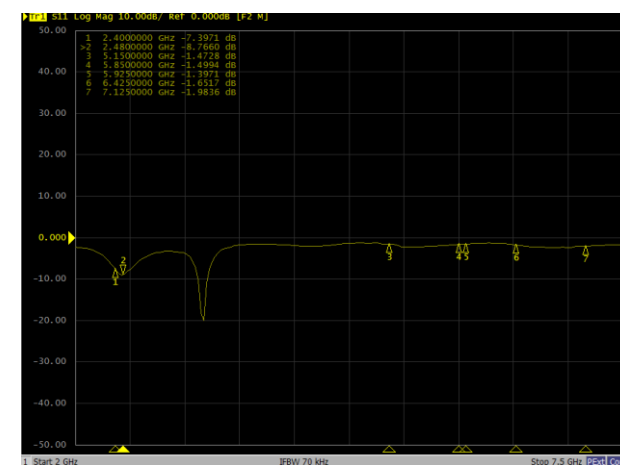
ANT 0



ANT 1



BT 0



BT 1

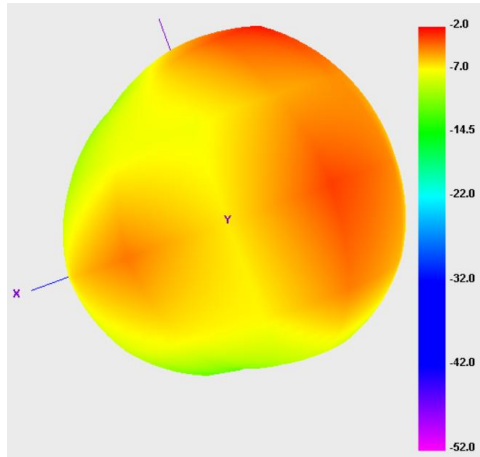


ANT0 Passive Test – Antenna 3D Gain

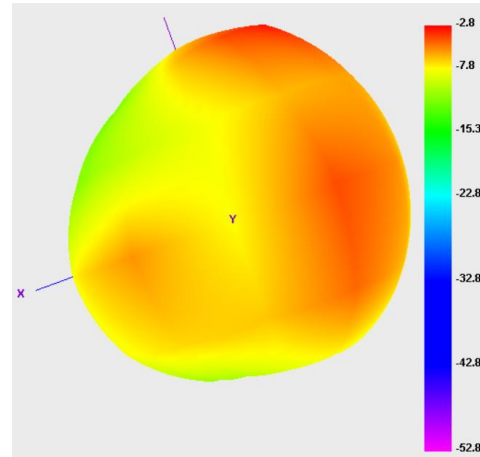
Frequency (MHz)	Efficiency (%)	Average Gain (dBi)			Max Gain (dBi)		
		Ver	Hor	Total	Ver	Hor	Total
2400	25.62	-7.63	-6.21	-5.91	-5.66	-3.20	-2.03
2410	23.12	-8.05	-6.85	-6.36	-6.03	-3.85	-2.47
2420	21.90	-8.23	-7.23	-6.60	-6.23	-4.21	-2.68
2430	21.22	-8.34	-7.48	-6.73	-6.47	-4.40	-2.91
2440	22.07	-8.14	-7.34	-6.56	-6.41	-4.22	-2.77
2450	22.17	-8.12	-7.43	-6.54	-6.48	-4.31	-2.81
2460	22.24	-8.13	-7.57	-6.53	-6.35	-4.49	-2.78
2470	21.11	-8.42	-7.98	-6.76	-6.52	-5.03	-3.04
2480	21.66	-8.32	-7.95	-6.64	-6.38	-5.18	-2.89
5150	38.13	-5.42	-5.22	-4.19	-2.78	-2.03	1.37
5250	41.74	-5.03	-5.61	-3.79	-2.95	-1.54	1.34
5350	44.21	-4.64	-5.41	-3.54	-2.42	-0.80	1.56
5450	44.43	-4.38	-5.12	-3.52	-2.83	-0.78	1.72
5550	45.45	-4.36	-4.87	-3.42	-3.26	-0.24	1.68
5650	47.29	-4.06	-4.84	-3.25	-3.48	-0.23	0.79
5750	46.10	-3.91	-5.20	-3.36	-3.56	-0.60	1.21
5850	46.91	-4.01	-5.23	-3.29	-3.01	-0.04	0.56
5925	43.28	-4.33	-5.90	-3.64	-3.11	-0.10	0.70
6075	31.99	-6.02	-7.86	-4.95	-4.76	-0.67	-0.58
6225	28.24	-6.35	-8.53	-5.49	-4.70	-1.40	-0.79
6375	33.73	-5.89	-7.77	-4.72	-3.71	-0.68	0.03
6525	35.35	-5.95	-6.36	-4.52	-2.15	-0.53	0.26
6675	43.16	-5.32	-4.39	-3.65	-0.93	0.29	0.91
6825	44.96	-4.87	-3.82	-3.47	-1.45	-0.30	0.24
6975	32.25	-6.44	-5.17	-4.91	-3.02	-2.03	-1.40
7125	27.84	-6.90	-5.78	-5.55	-4.00	-3.45	-1.47

ANT0 Passive Test – Antenna 3D Radiation Pattern

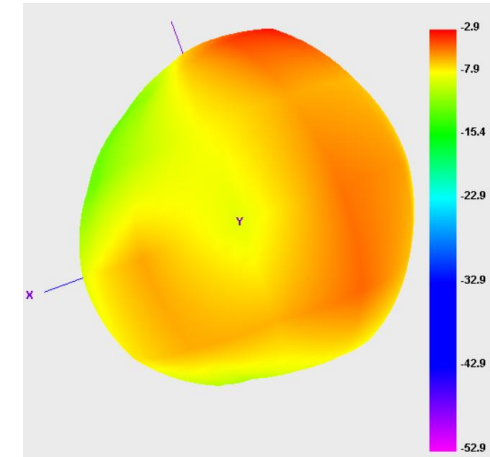
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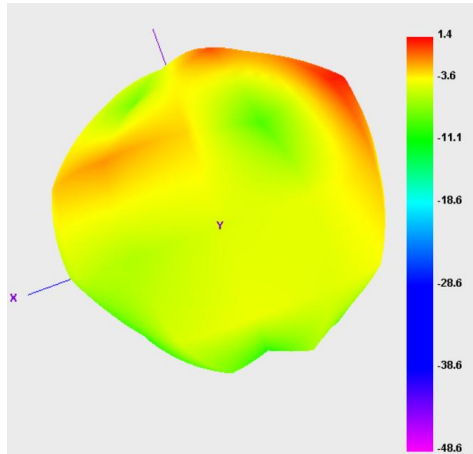
2440MHz



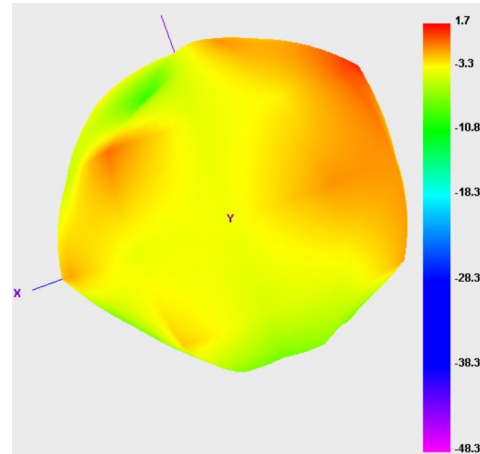
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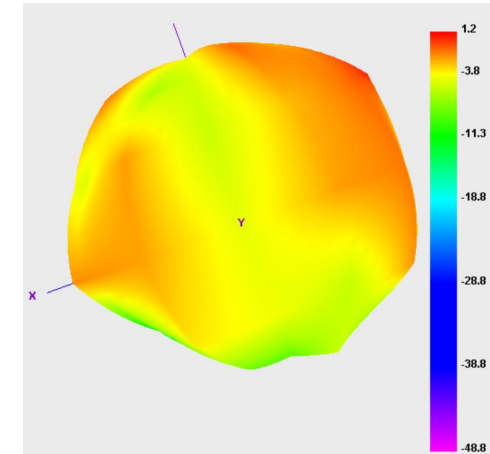
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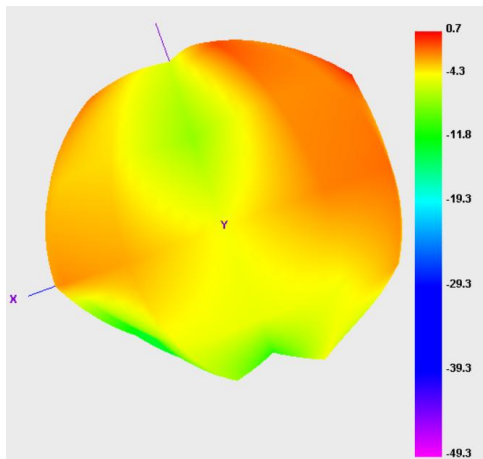
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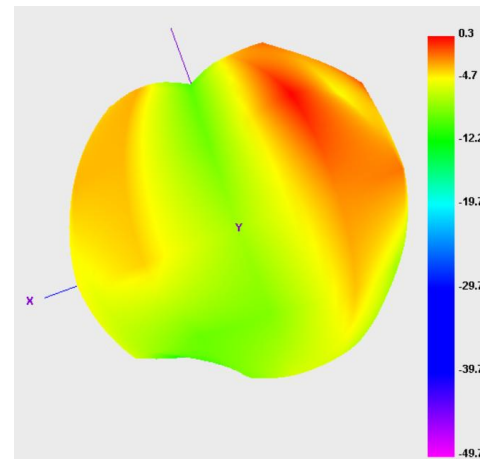
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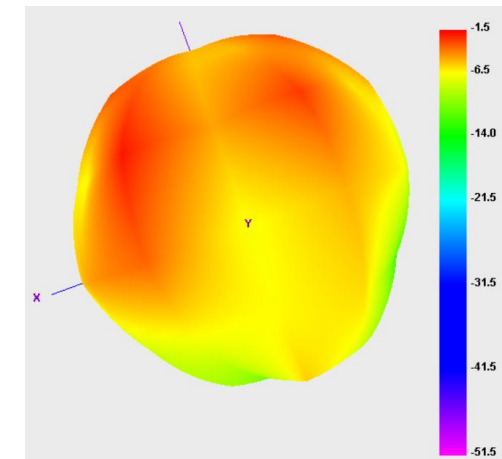
5925MHz



6525MHz



7125MHz

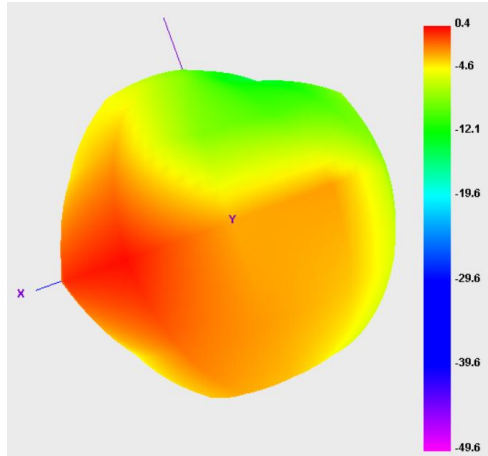


ANT1 Passive Test – Antenna 3D Gain

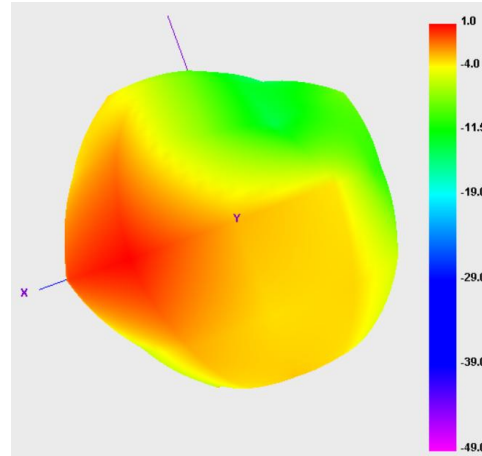
Frequency (MHz)	Efficiency (%)	Average Gain (dBi)			Max Gain (dBi)		
		Ver	Hor	Total	Ver	Hor	Total
2400	35.91	-7.67	-6.43	-4.45	-3.40	-2.36	0.41
2410	33.96	-7.92	-6.62	-4.69	-3.75	-2.86	0.10
2420	33.80	-7.92	-6.56	-4.71	-3.86	-2.87	0.11
2430	35.26	-7.76	-6.28	-4.53	-3.78	-2.35	0.37
2440	36.73	-7.62	-6.00	-4.35	-3.74	-1.88	0.62
2450	36.58	-7.71	-5.95	-4.37	-3.73	-1.72	0.67
2460	35.66	-7.91	-6.03	-4.48	-3.73	-1.71	0.61
2470	36.65	-7.90	-5.95	-4.36	-3.59	-1.56	0.75
2480	38.49	-7.79	-5.83	-4.15	-3.43	-1.30	1.01
5150	25.24	-8.60	-8.80	-5.98	-4.28	-4.05	-2.09
5250	28.03	-8.22	-8.33	-5.52	-4.40	-3.88	-1.70
5350	34.00	-7.17	-7.40	-4.69	-3.59	-3.28	-0.37
5450	34.87	-6.98	-7.43	-4.57	-3.17	-3.29	0.09
5550	41.56	-6.27	-6.45	-3.81	-1.90	-1.79	1.01
5650	42.09	-6.26	-6.65	-3.76	-2.32	-1.32	1.04
5750	42.57	-6.16	-6.99	-3.71	-2.38	-2.58	1.63
5850	41.24	-6.94	-6.83	-3.85	-1.91	-2.12	1.47
5925	37.16	-7.66	-6.87	-4.30	-3.04	-1.81	0.82
6075	27.22	-8.71	-7.88	-5.65	-5.44	-3.01	-0.48
6225	23.46	-8.91	-7.86	-6.30	-4.63	-3.59	-0.96
6375	25.86	-8.11	-6.88	-5.87	-4.36	-2.72	-0.43
6525	22.17	-8.48	-6.88	-6.54	-4.91	-2.42	-1.45
6675	22.01	-8.14	-6.75	-6.57	-5.33	-1.94	-1.77
6825	23.38	-7.54	-7.02	-6.31	-5.30	-2.86	-0.78
6975	20.38	-8.71	-7.19	-6.91	-6.23	-3.03	-0.72
7125	23.32	-8.13	-7.01	-6.32	-4.84	-2.29	-0.34

ANT1 Passive Test – Antenna 3D Radiation Pattern

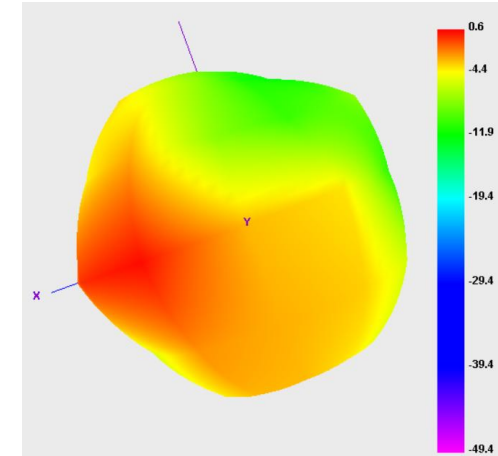
2400MHz



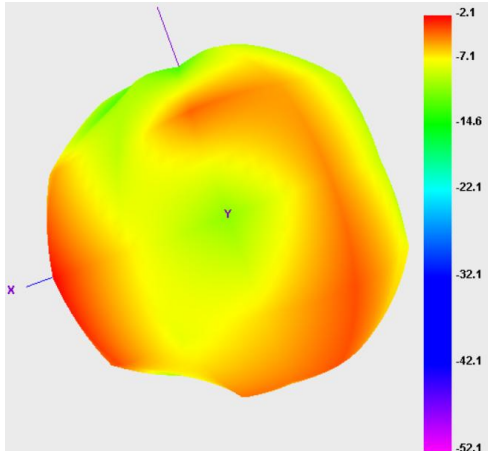
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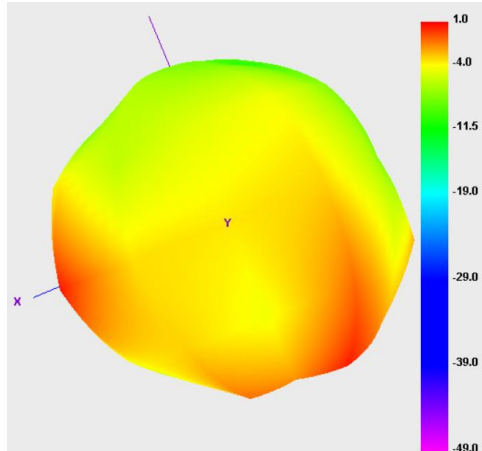
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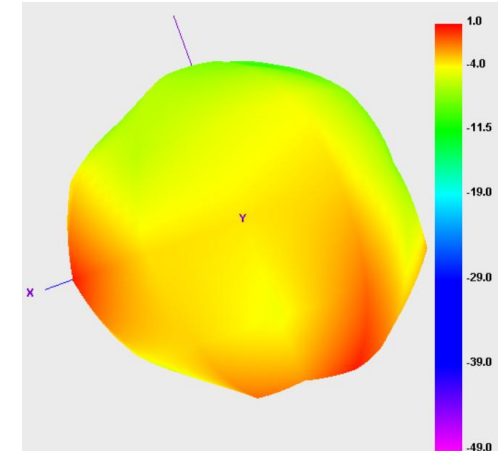
5150MHz



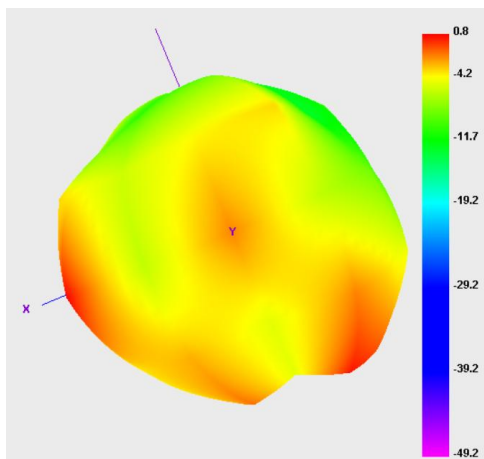
5550MHz



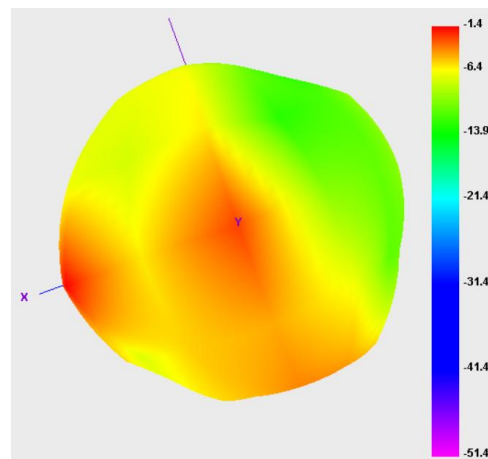
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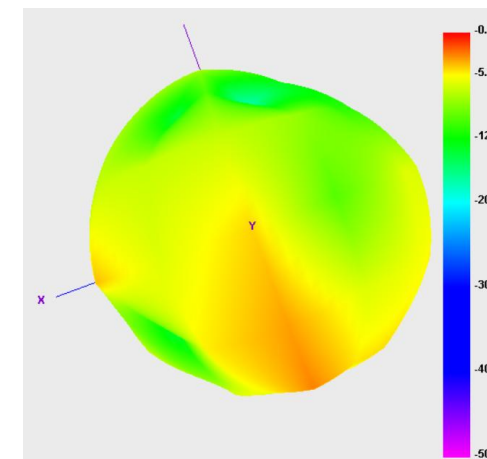
5925MHz



6525MHz



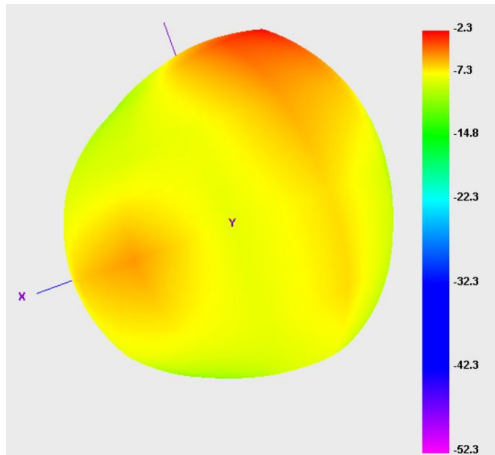
7125MHz



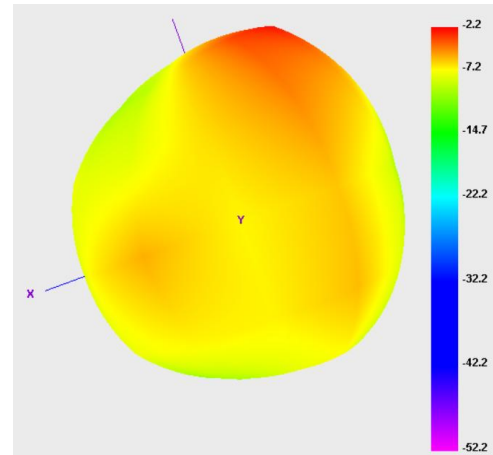
BT 0 Passive Test – Antenna 3D Gain

Frequency (MHz)	Efficiency (%)	Average Gain (dBi)			Max Gain (dBi)		
		Ver	Hor	Total	Ver	Hor	Total
2400	18.63	-8.27	-7.22	-7.30	-5.21	-5.26	-2.28
2410	18.54	-8.33	-7.35	-7.32	-5.09	-5.40	-2.28
2420	19.04	-8.26	-7.30	-7.20	-4.89	-5.46	-2.18
2430	19.56	-8.24	-7.22	-7.09	-4.76	-5.44	-2.22
2440	20.49	-8.12	-7.09	-6.88	-4.62	-5.10	-2.17
2450	20.06	-8.22	-7.36	-6.98	-4.64	-5.52	-2.40
2460	19.25	-8.32	-7.71	-7.16	-4.64	-6.02	-2.69
2470	18.75	-8.41	-7.92	-7.27	-4.62	-6.23	-2.80
2480	18.41	-8.44	-8.14	-7.35	-4.77	-6.39	-2.65

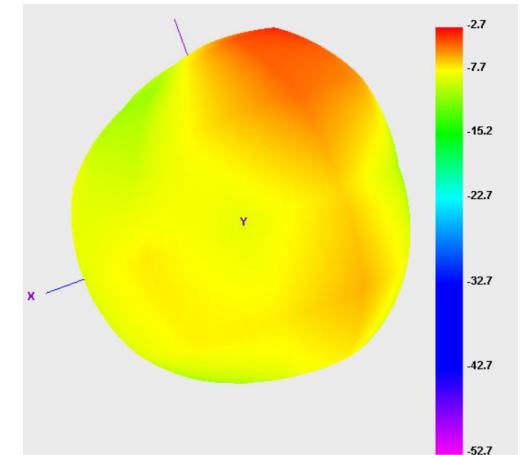
2400MHz



2440MHz



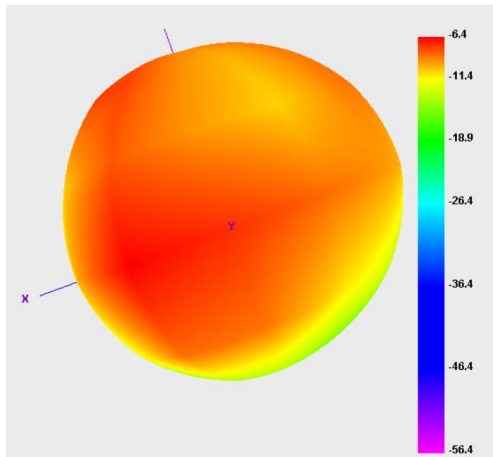
2480MHz



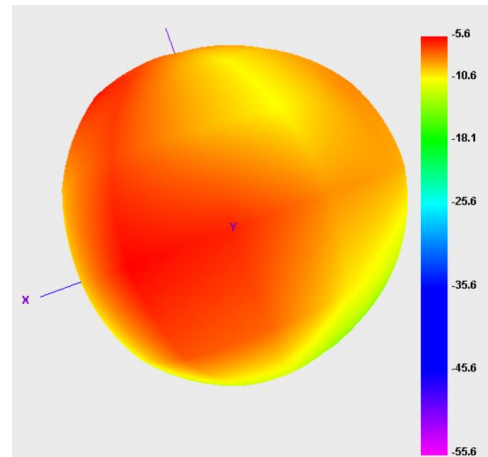
BT 1 Passive Test – Antenna 3D Gain

Frequency (MHz)	Efficiency (%)	Average Gain (dBi)			Max Gain (dBi)		
		Ver	Hor	Total	Ver	Hor	Total
2400	10.72	-11.41	-10.50	-9.70	-7.67	-7.20	-6.41
2410	11.07	-11.31	-10.40	-9.56	-7.44	-6.97	-6.17
2420	11.85	-11.00	-10.13	-9.26	-7.02	-6.62	-5.81
2430	12.49	-10.70	-9.95	-9.03	-6.56	-6.43	-5.62
2440	13.01	-10.45	-9.87	-8.86	-6.05	-6.22	-5.57
2450	12.63	-10.55	-10.10	-8.99	-5.91	-6.30	-5.72
2460	12.44	-10.65	-10.23	-9.05	-5.77	-6.34	-5.59
2470	12.27	-10.78	-10.37	-9.11	-5.75	-6.50	-5.54
2480	12.08	-10.88	-10.56	-9.18	-5.73	-6.83	-5.51

2400MHz



2440MHz



2480MHz

