



深圳汉阳天线设计有限公司

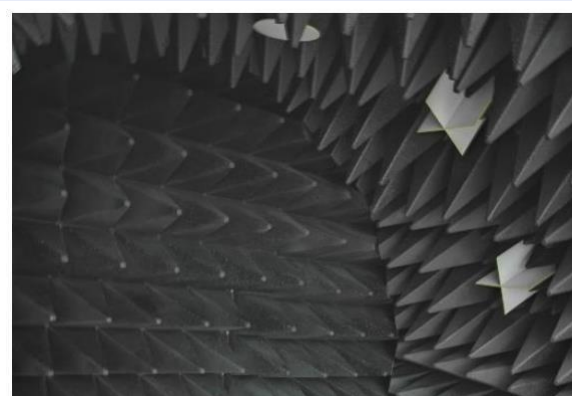
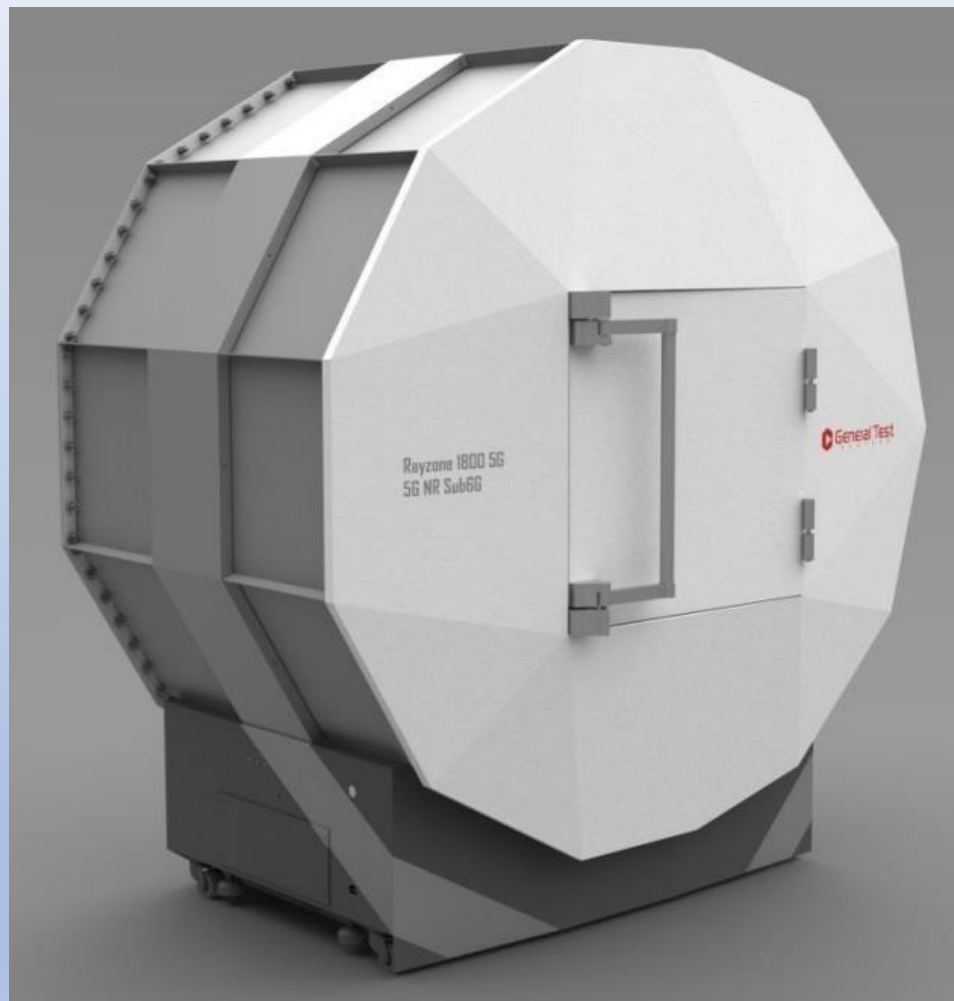
SHENZHEN HANYANG ANTENNA DESIGN CO., LTD.

客户：GSD

无源测试报告

项目名称：/

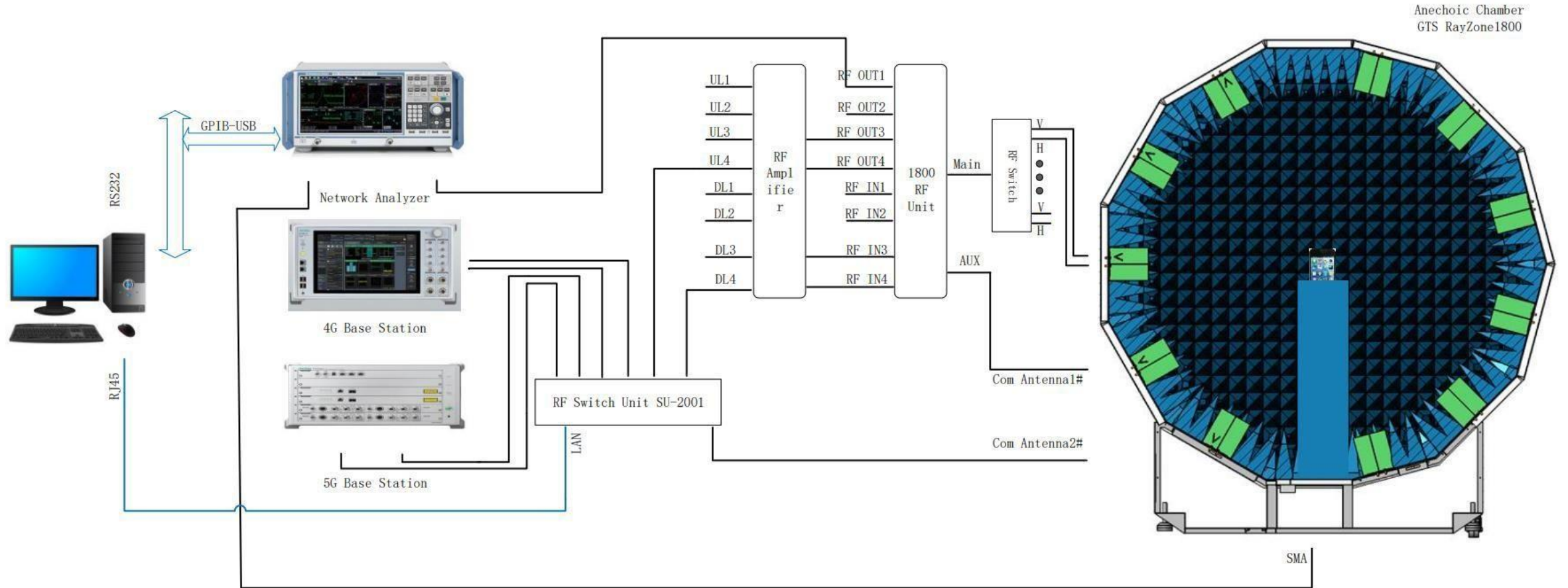
日期2023.4.15



- 无线通信标准: 2G/3G/4G/5G(FR1)/GNSS/A-GNSS/Wi-Fi/Bluetooth
- 物联网通信标准: LTE Cat NB1(NB-IoT)/Cat-M1(e-MTC)
- SISO测试TRP/TIS/EIRP/EIS, 2x2 MIMO吞吐率测试;
- 无源天线测试、Desense测试、ICS
- 支持600MHz-7.5GHz频段
- GTS MaxSign 100 测试软件支持天线/OTA测试, 提供可视化数据分析
- 新型EPP硬质环保吸波材料、低RCS高增益测量天线组、透波转台和夹具
- 快速MIMO测试; 认证级测试精度
- 一体化设计, 即插即用, 维护简单



RayZone1800 Test Setup





Address of the testing laboratory: Shenzhen Baoan District Qianjin 2 Road BaoYunda logistics information building 12A11

Test Date: 4/15/2023

Test Engineer: Liu Deng

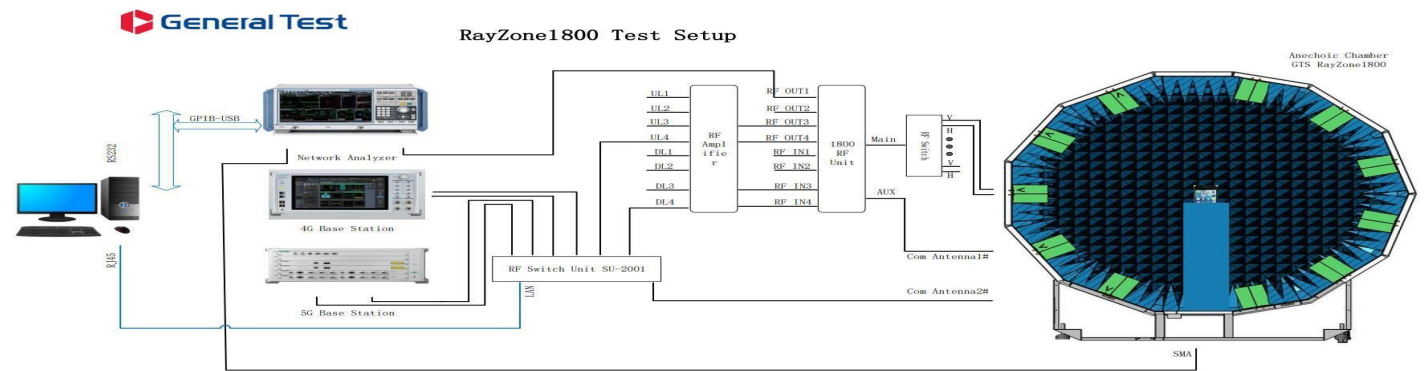
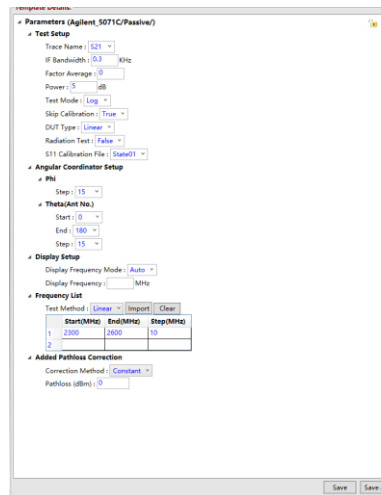
Software name and version: GTS_MAX SIGN Libra1.2.7

Cal Date: 4/1/2023

Equipment	Manufacturer	Model No.	Serial Model No.	Last Cal.	Due Date
Network Analyzer	Keysight	E5071C	MY47002902	2023.04.01	2024.03.30
CMW500 Antenna test system	GTS	1800	/	2023.04.01	2024.03.30

Test Principle: The test principle can be seen in accordance with the standard ANSI/IEEE std 149-2021

Test set-up:

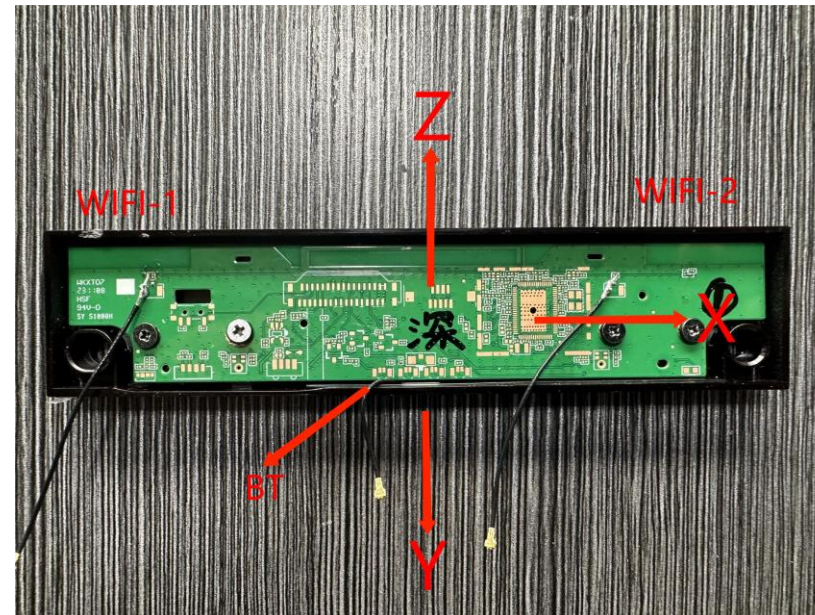
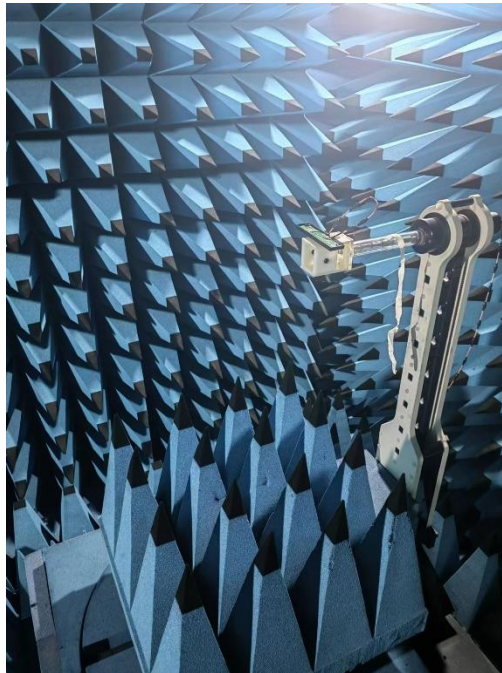


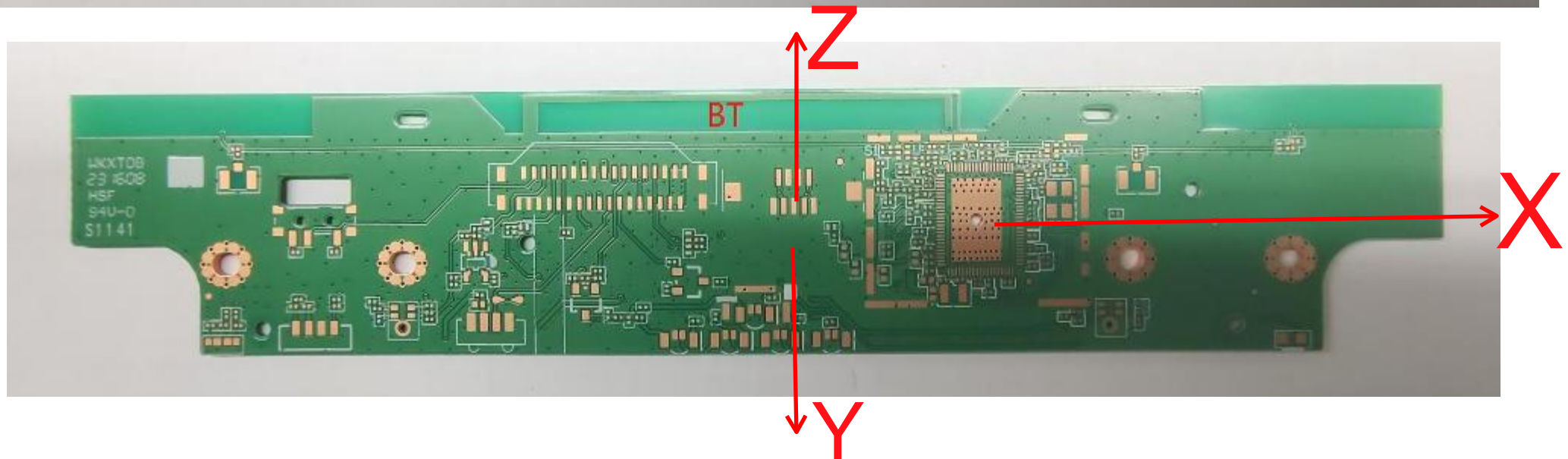
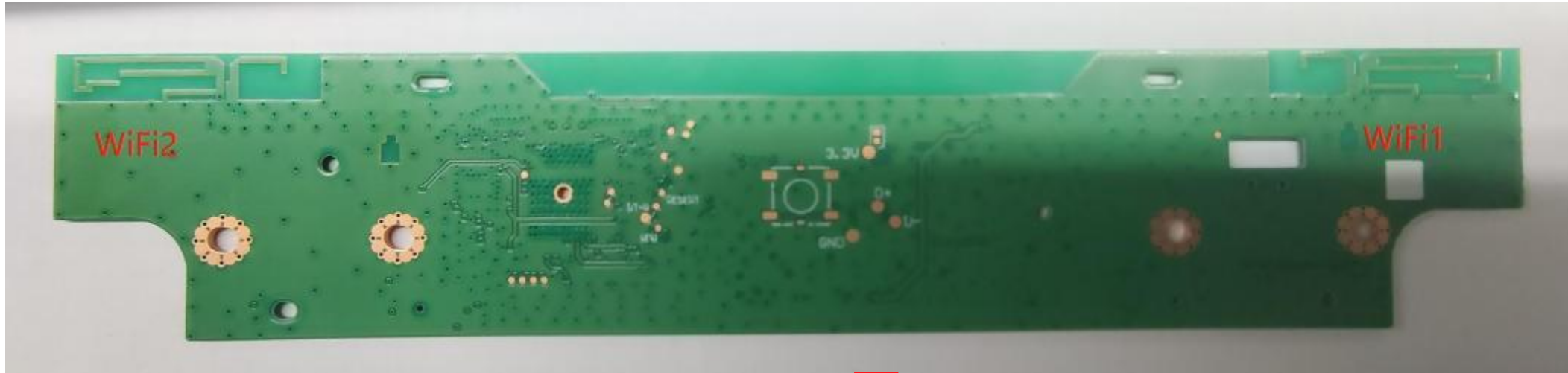


Test flow:

1. Maintain the test ambient temperature of 23 ± 2 C, the instrument is powered on and preheated for more than 30 minutes
2. Turn on the darkroom power supply, connect the test cable, and set up the sample according to the standard
3. Outline sets the test content objectives and conducts calibration tests
4. Run the EMQuest OTA software, the test is complete, export the corresponding test diagram and test data, and save to the corresponding directory

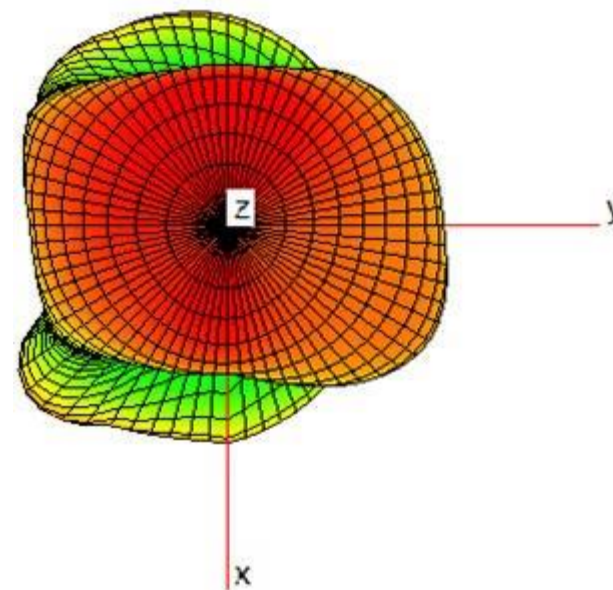
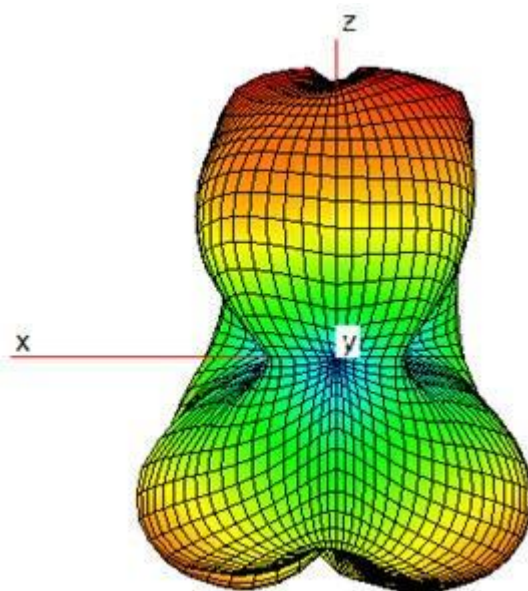
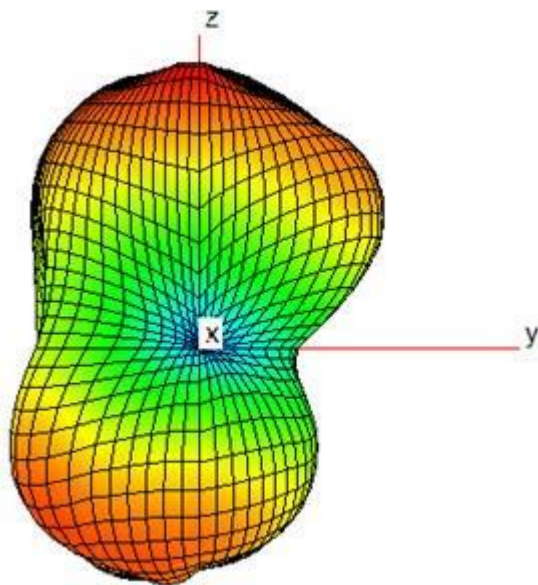
Antenna test setup photos:





Passive Test For 2400-2500			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	39.46	-4.04	0.84
2410	37.59	-4.25	0.6
2420	36.59	-4.37	0.47
2430	40.53	-3.92	0.97
2440	44.71	-3.5	1.52
2450	46.89	-3.29	1.75
2460	48.02	-3.19	1.9
2470	38.55	-4.14	0.73
2480	40.61	-3.91	1.02
2490	32.38	-4.9	-0.22
2500	27.68	-5.58	-0.87

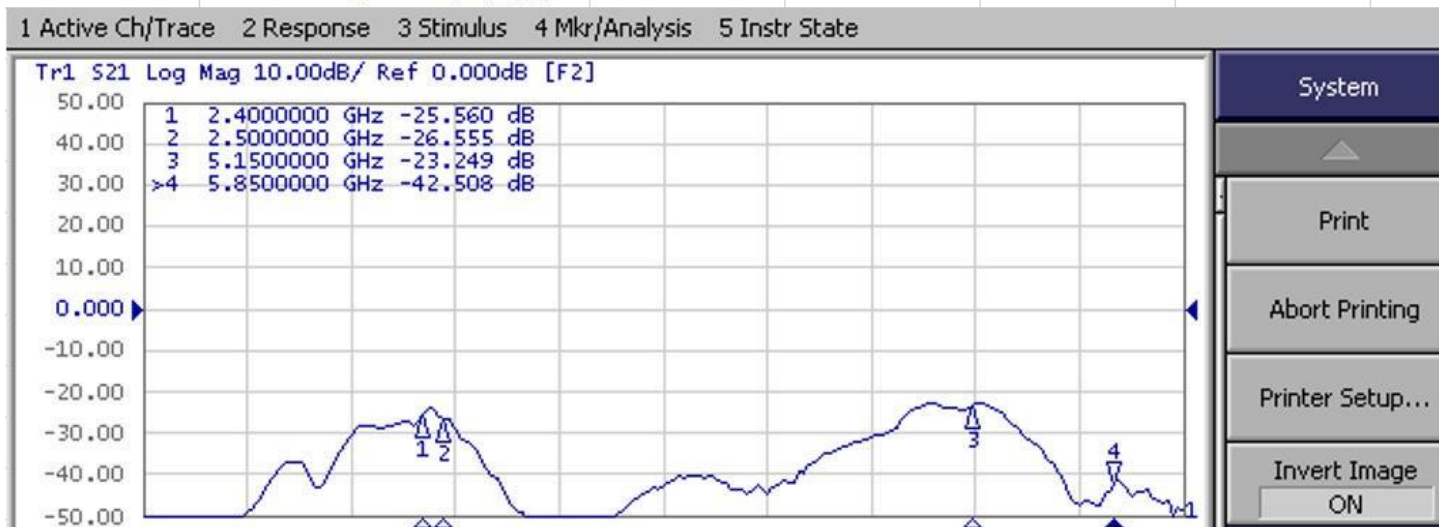
2450MHZ

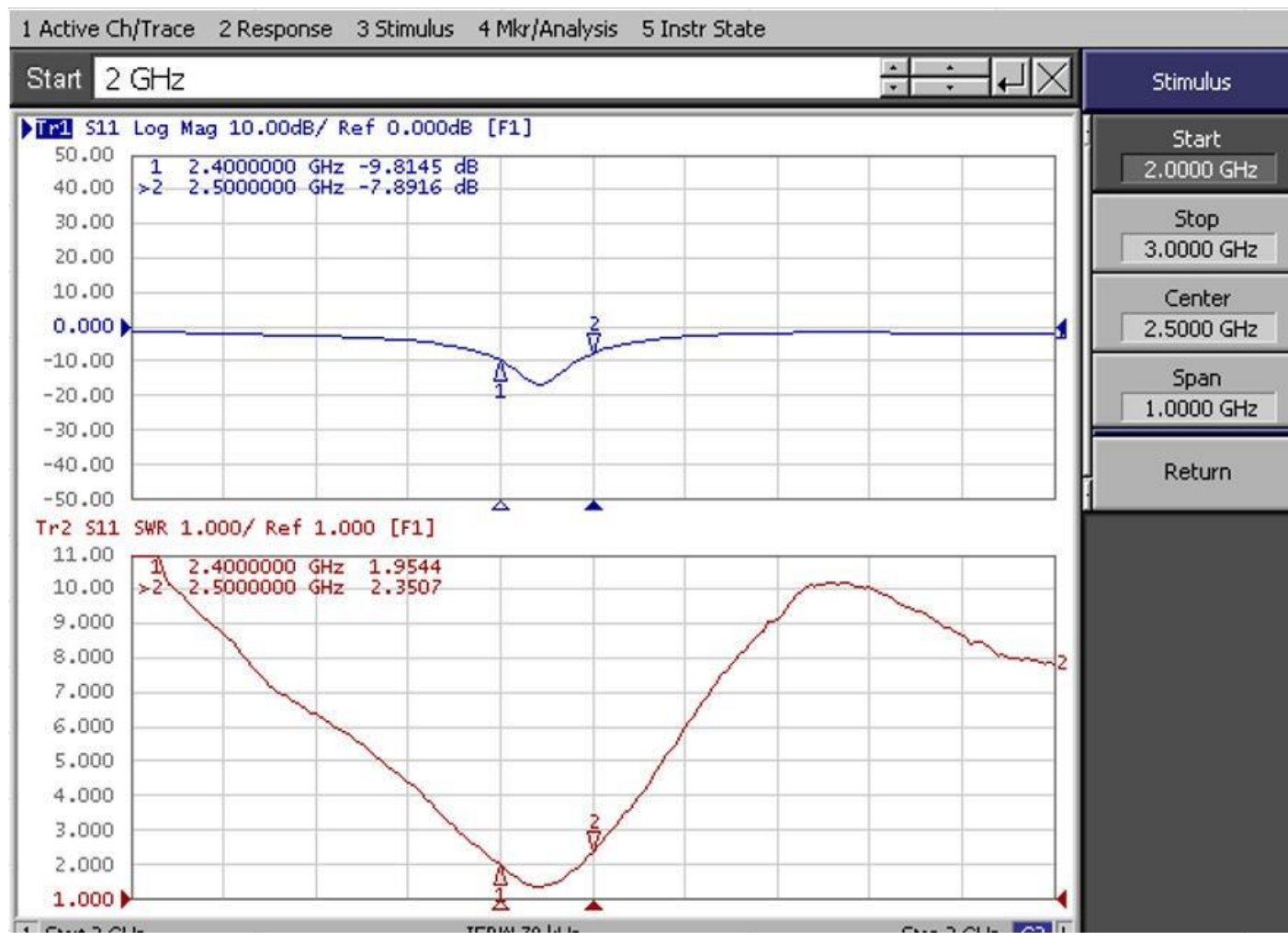


WIFI1和BT天线



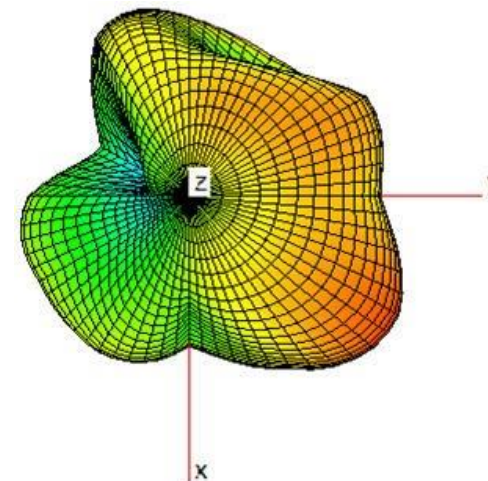
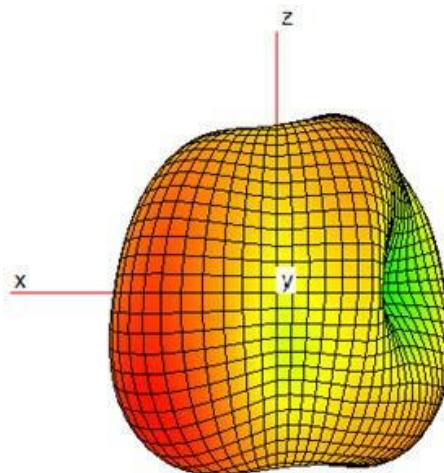
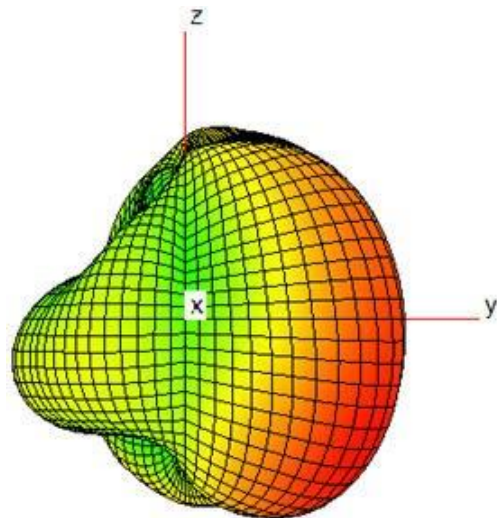
WIFI2和BT天线



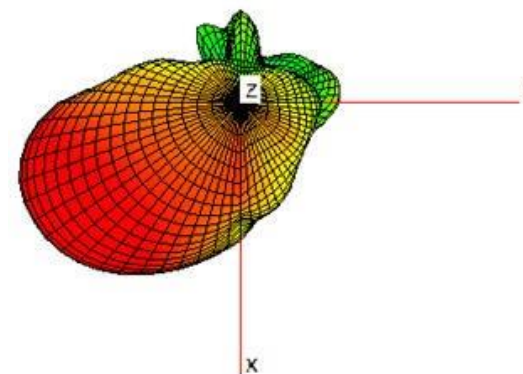
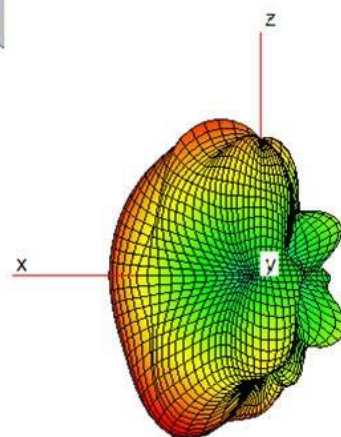
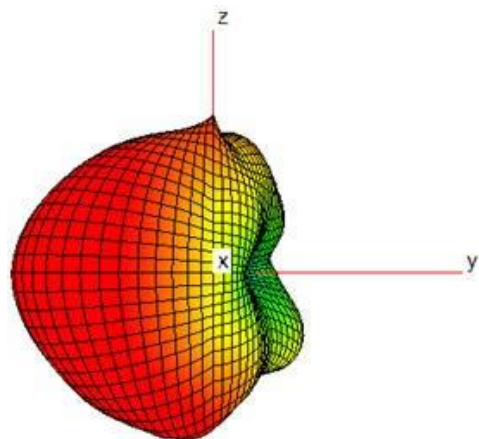


WIFI1 天线2.4G				WIFI1天线 5.8G			
Passive Test For 2400-2500				Passive Test For 5150-5850			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	41.19	-3.85	0.13	5150	36.64	-4.36	0.3
2410	39.78	-4	-0.13	5220	26.17	-5.82	-0.57
2420	39.09	-4.08	-0.34	5290	28.45	-5.46	0.29
2430	40.92	-3.88	-0.27	5360	41.66	-3.8	1.98
2440	43.47	-3.62	-0.02	5430	67.65	-1.7	3.94
2450	43.49	-3.62	0.2	5500	63.74	-1.96	4.04
2460	40.93	-3.88	0.05	5570	62.48	-2.04	4.27
2470	34.11	-4.67	-0.53	5640	67.51	-1.71	4.49
2480	34.87	-4.58	-0.18	5710	60.13	-2.21	3.59
2490	31.15	-5.06	-0.99	5780	62.68	-0.33	4.11
2500	26.38	-5.79	-1.83	5850	51.97	-2.84	2.66

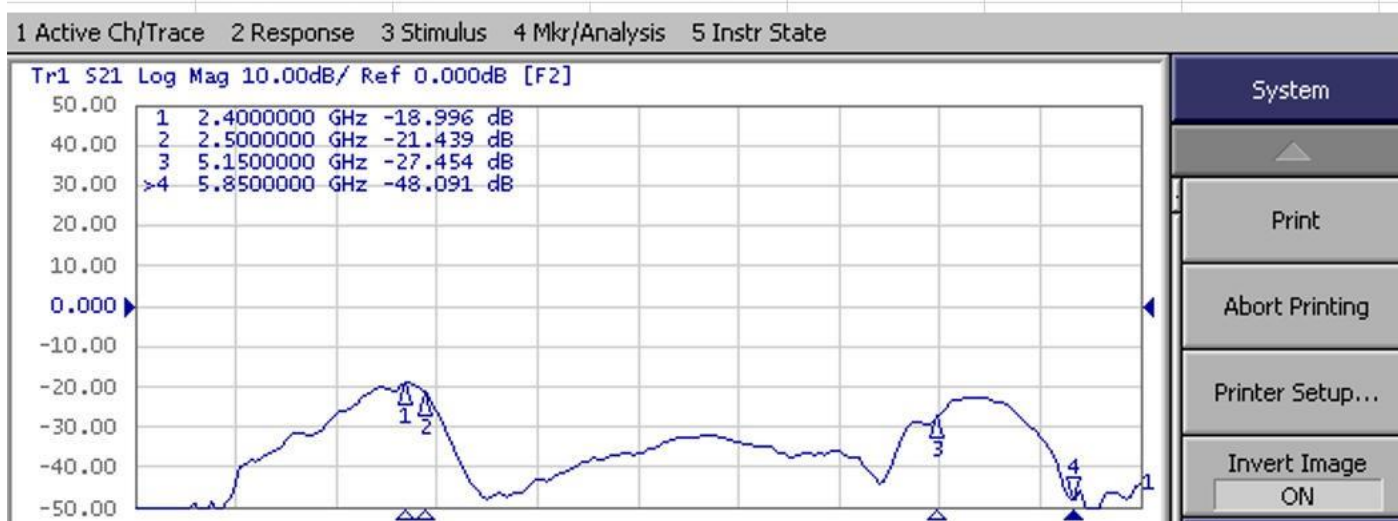
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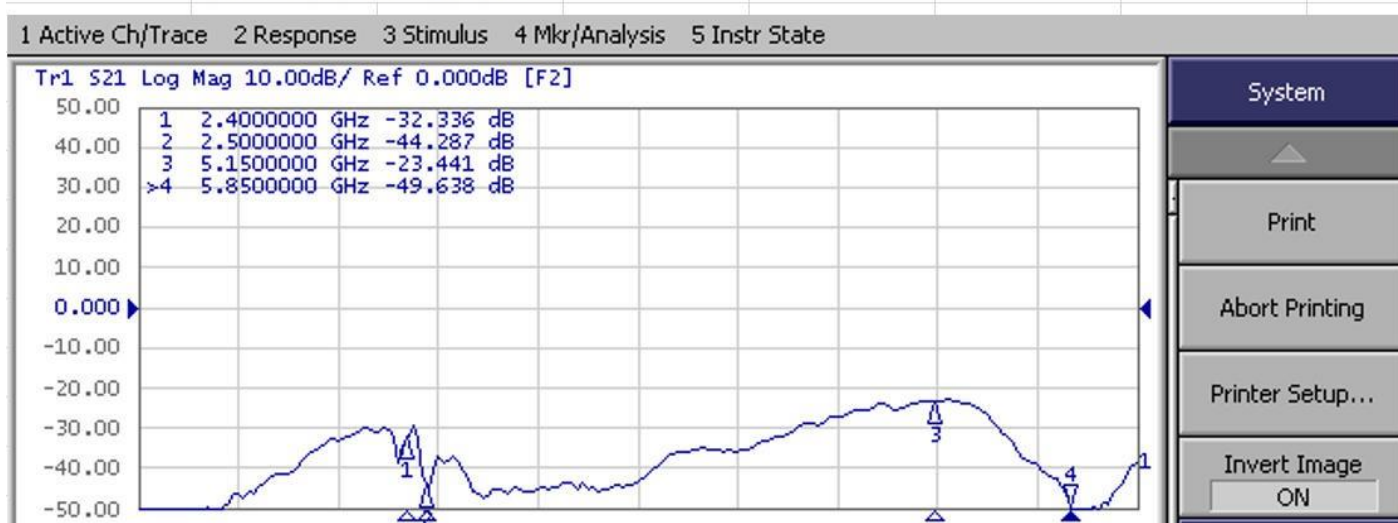
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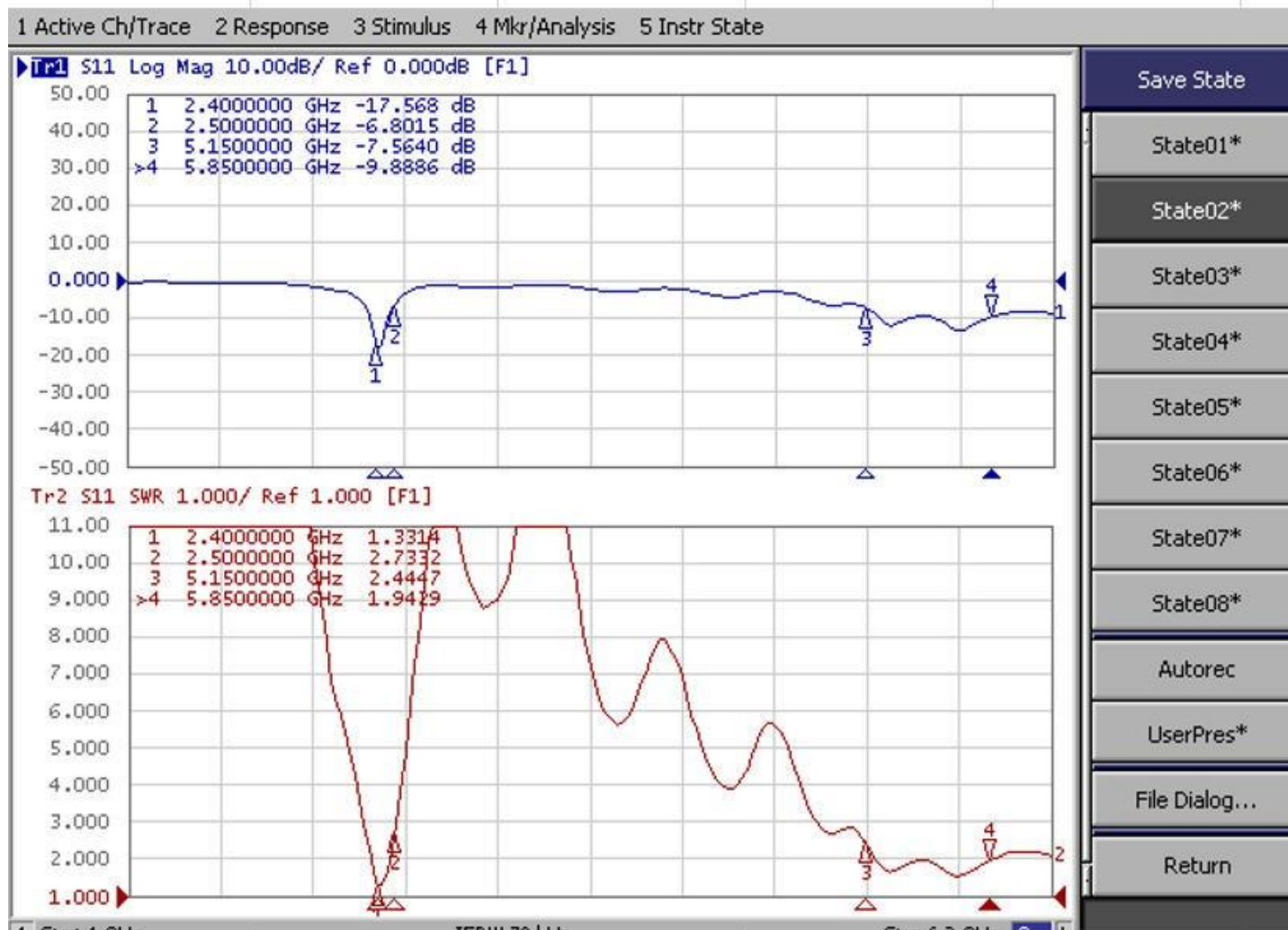
WiFi1天线和WiFi2天线



WiFi1和BT天线

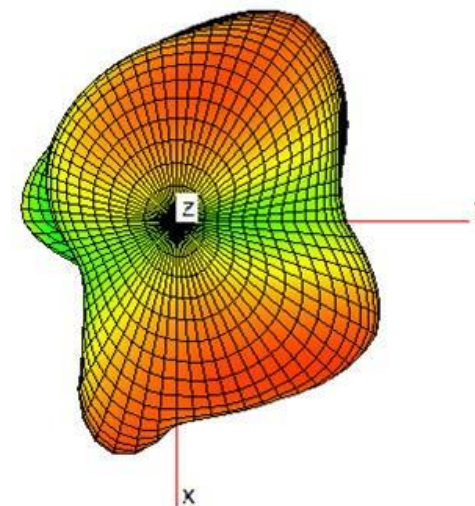
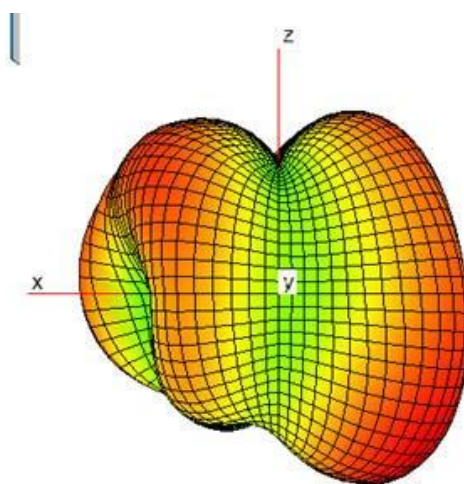
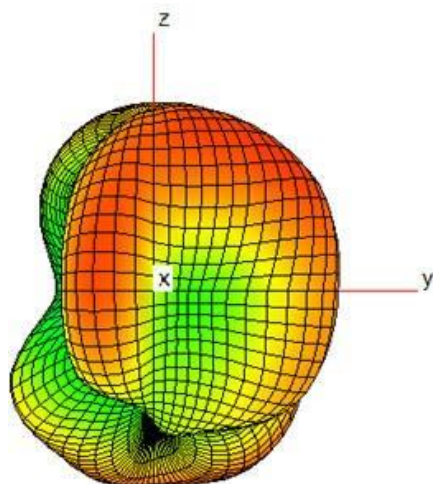


WiFi1 天线

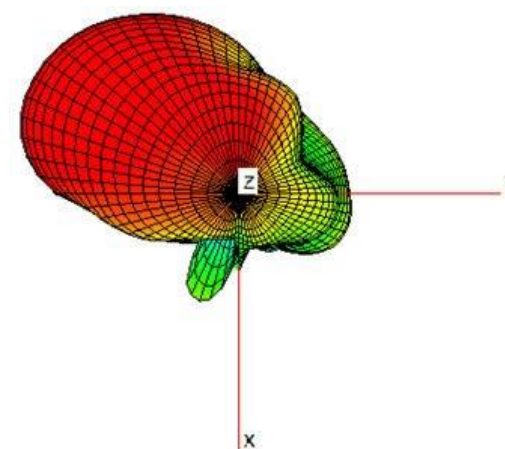
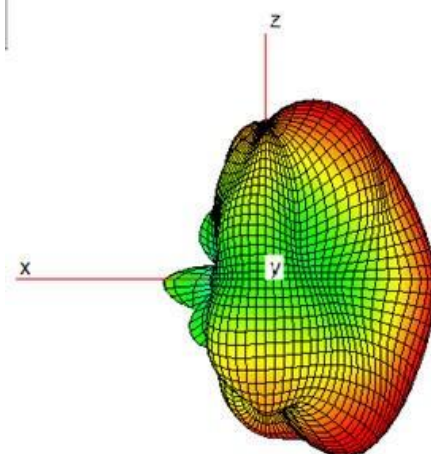
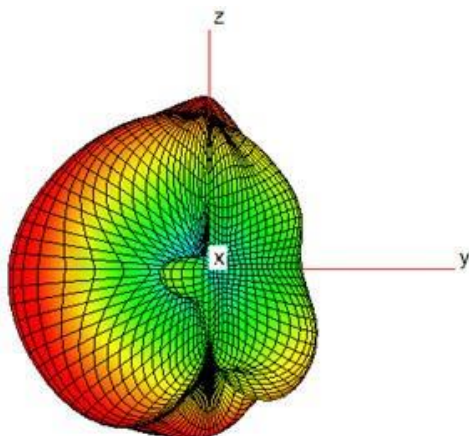


WIFI2天线 2.4G				WIFI2天线 5.8G			
Passive Test For 2400-2500				Passive Test For 5150-5850			
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)
2400	36.99	-4.32	0.36	5150	37.73	-4.23	0.45
2410	34.01	-4.68	0.25	5220	23.28	-6.33	-1.84
2420	32.11	-4.93	-0.21	5290	24.28	-6.15	-1.51
2430	32.85	-4.84	-0.17	5360	29.91	-5.24	-0.44
2440	34.13	-4.67	0.05	5430	42.27	-3.74	1.07
2450	34.22	-4.66	0.06	5500	36.38	-4.39	-0.06
2460	32.77	-4.85	-0.12	5570	36.27	-4.4	0.32
2470	30.24	-5.19	-0.66	5640	38.26	-4.17	0.85
2480	34.29	-4.65	-0.14	5710	33.88	-4.7	0.9
2490	32.34	-4.9	-0.78	5780	48.57	-2.26	3.14
2500	29.81	-5.26	-1.31	5850	36.45	-4.38	1.78

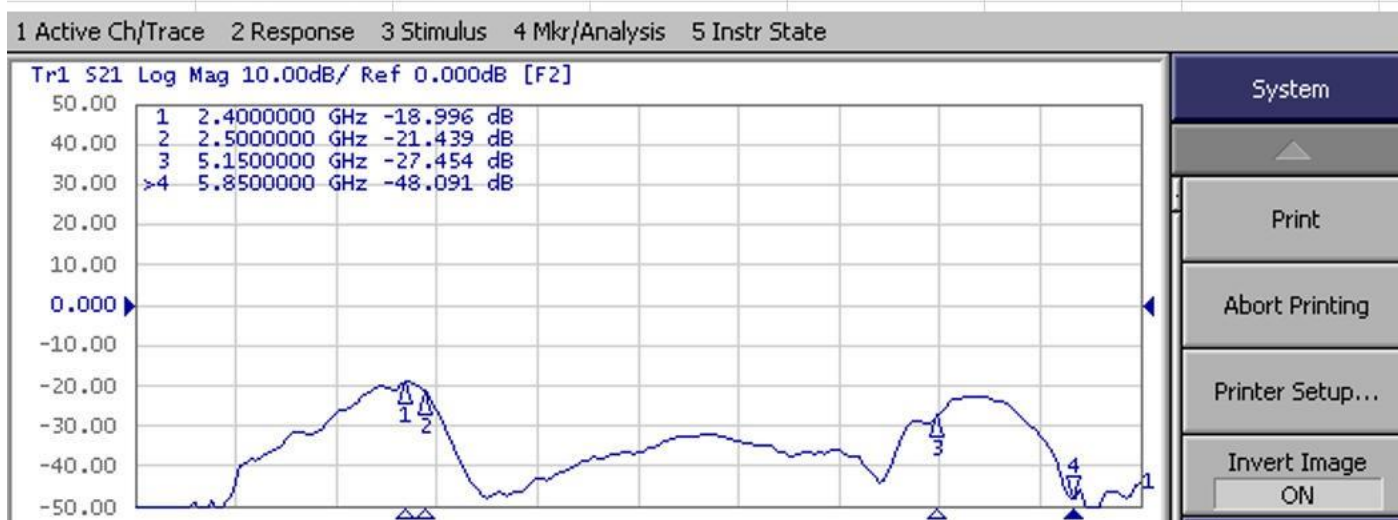
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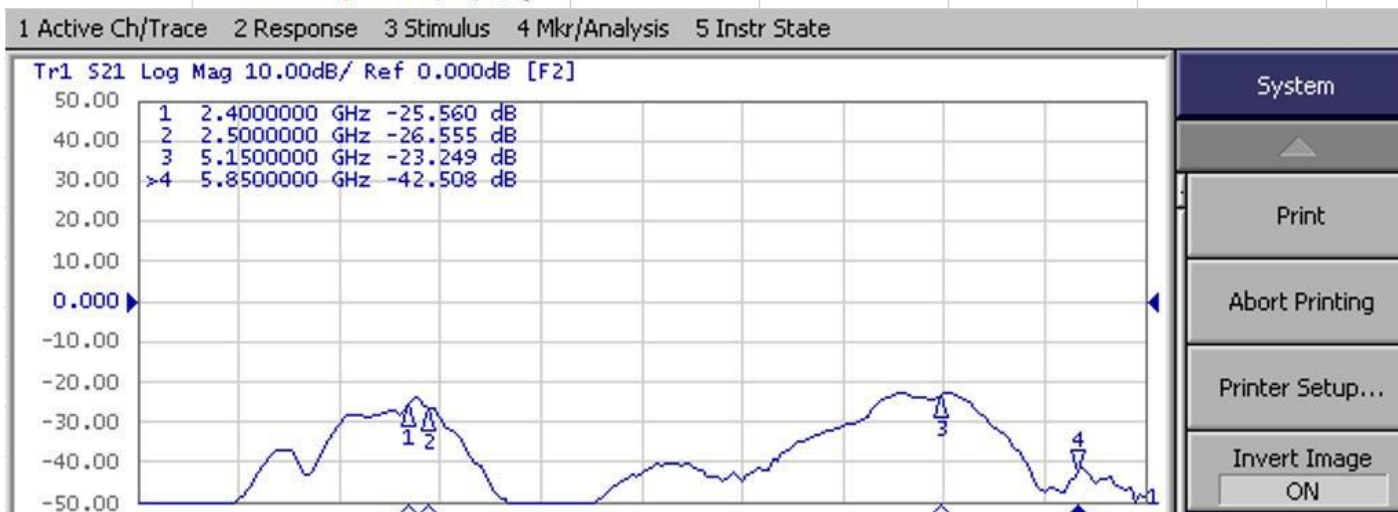
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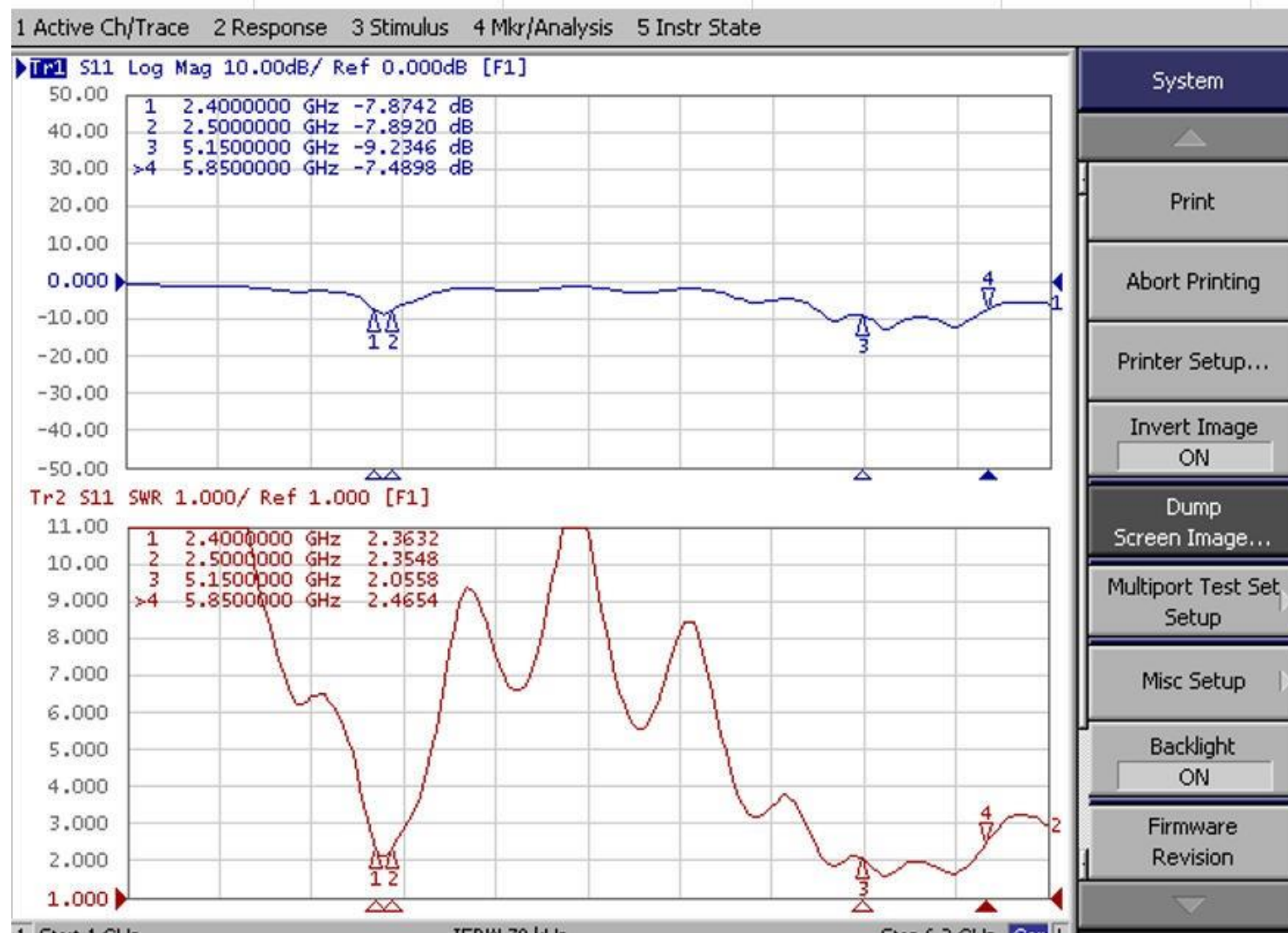
WiFi1天线和WiFi2天线



WiFi2和BT天线



WiFi2 天线





深圳汉阳天线设计有限公司

SHENZHEN HANYANG ANTENNA DESIGN CO. LTD.

5G

Welcome calls consultations, negotiations and guidance come!

Thank you

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