



yGalaxLAB Antenna&RFTechnologies

T104_Antenna Report

2024.08.05

Contents（目录）

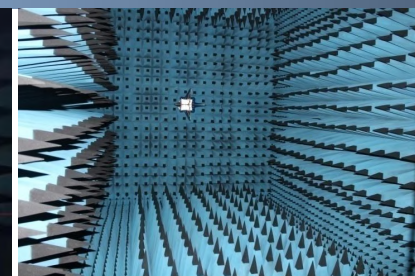
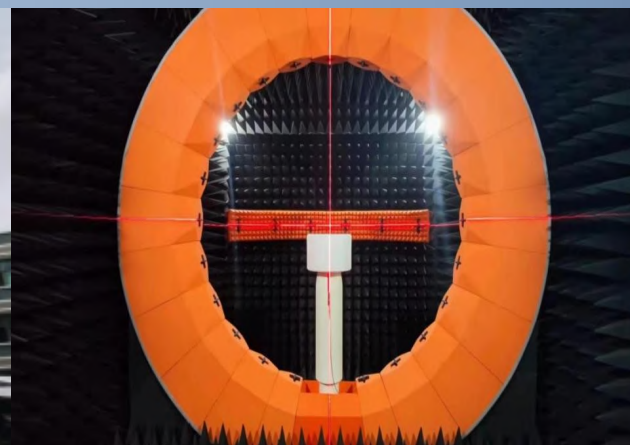
1.Company Introduction（公司简介）	-----3p
2.Antenna Information（天线信息）	-----4p
3.Antenna Impedance Matching（天线阻抗匹配）	-----5p
4.Antenna Passive（天线无源）	-----6-8p
5.Antenna Radiation Pattern（天线辐射方向图）	-----9-16p
6.Antenna Active（天线有源）	-----17p
7.Summary（总结）	-----18p



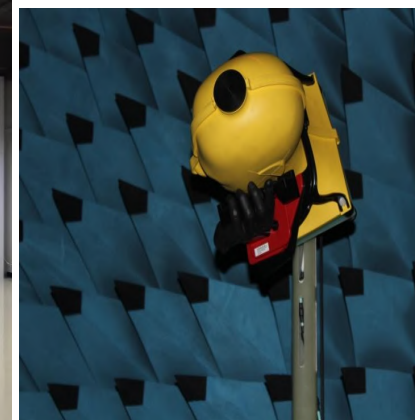
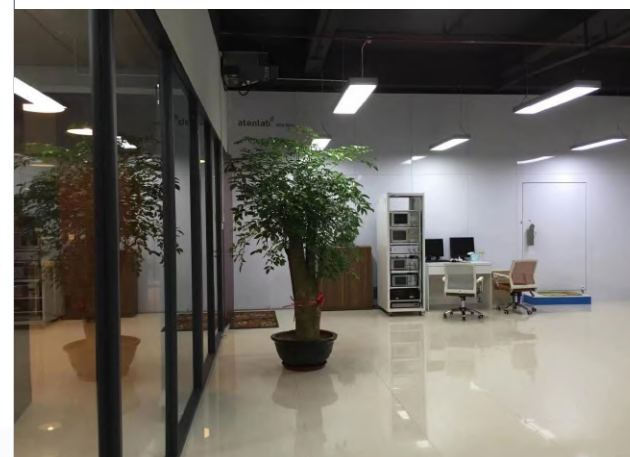
yGalax星河电波

深圳星河电波科技有限公司[yGalax]-5G&AIOT天线射频一站式解决方案创新者，研发涉及AIOT智能物联与智能家居设备天线及相关模组、汽车天线、TWS耳机/POS机/军工/安防/医疗/智能穿戴/笔记本电脑/移动通信终端设备天线、射频识别与电子标签模组、近场通信与无线充电模组、射频前端器件等。星河电波精密制造涵括三维表面金属化技术LDS/LCP/FPC/PCB天线、陶瓷天线、玻璃钢天线、胶棒天线、毫米波阵列天线等多种介质材料和工艺类型的微波射频器件。

星河电波在深圳市南山区设立微波射频创新实验室yGalax LAB，拥有高质量的技术和服务团队，多年深入探索各种应用场景，可以快速响应为客户提供一站式解决方案和技术支持。实验室配置业界领先的24探头近场OTA微波暗室，以及进口8m×4m×4m远场OTA微波暗室和天线有源/无源测试系统，配备完善的R&S/Keysight/Anritsu等测试设备，依据CTIA流程进行精准的OTA测试。此外，系统配备MIMO探头矩阵进行数据吞吐率测试。yGalax LAB的研发设计与测试能力涵盖2G-5G/NB-IoT/Cat-M/LoRa/WiFi&WiFi6/NFC/RFID/Bluetooth/ZigBee/UWB/GLONASS/GPS/BDS北斗/mmWave毫米波等制式频段。



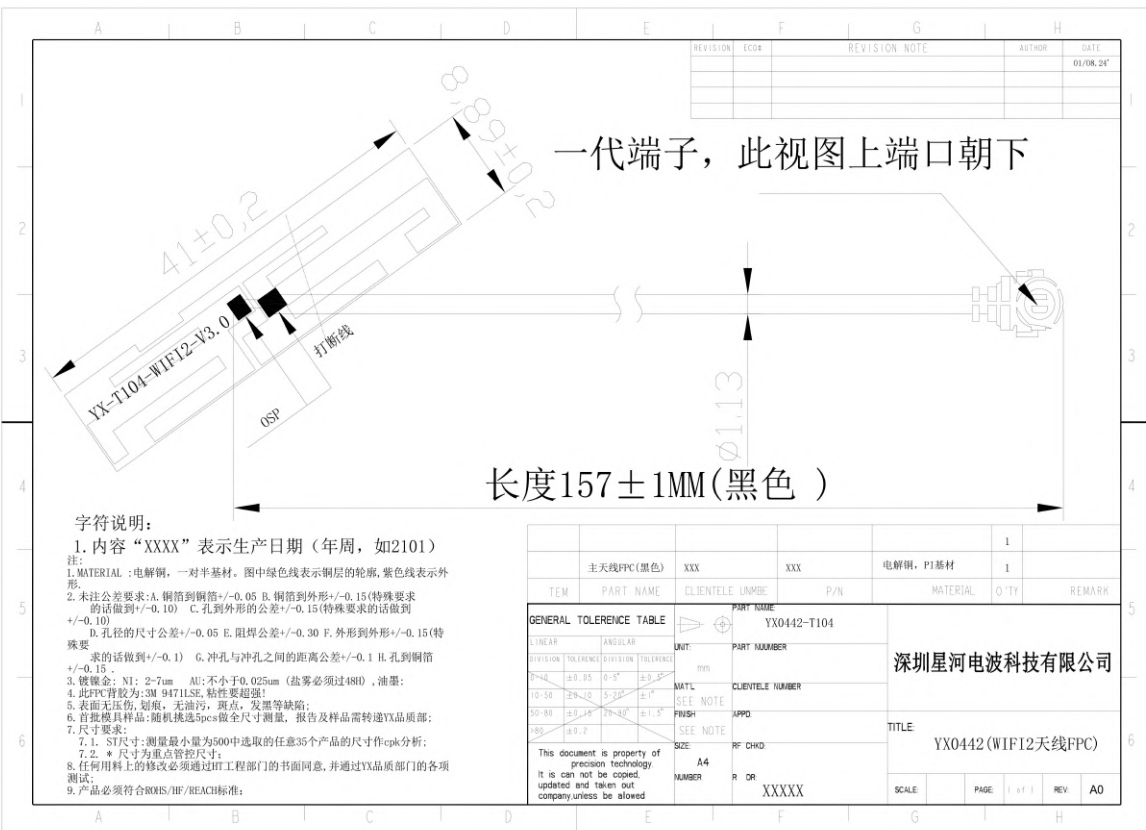
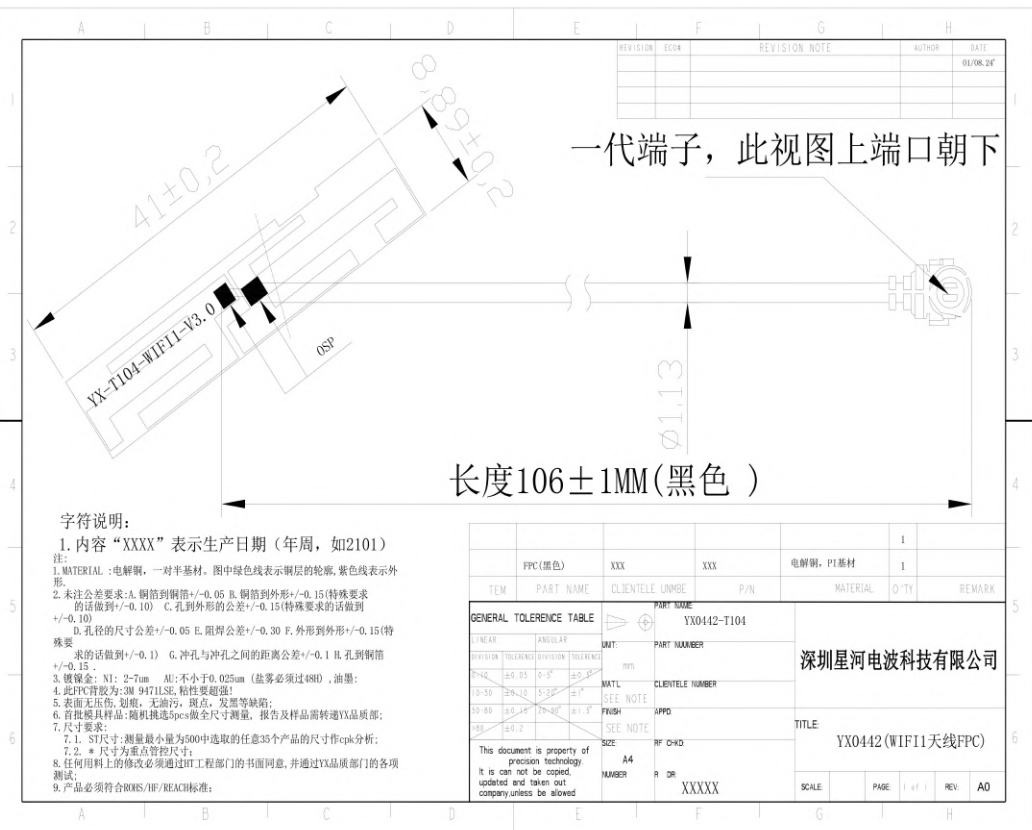
实验室配置业界领先的24探头近场OTA微波暗室，以及进口8m×4m×4m远场OTA微波暗室和天线有源/无源测试系统，配备完善的R&S/Keysight/Anritsu等测试设备，依据CTIA流程进行精准的OTA测试。



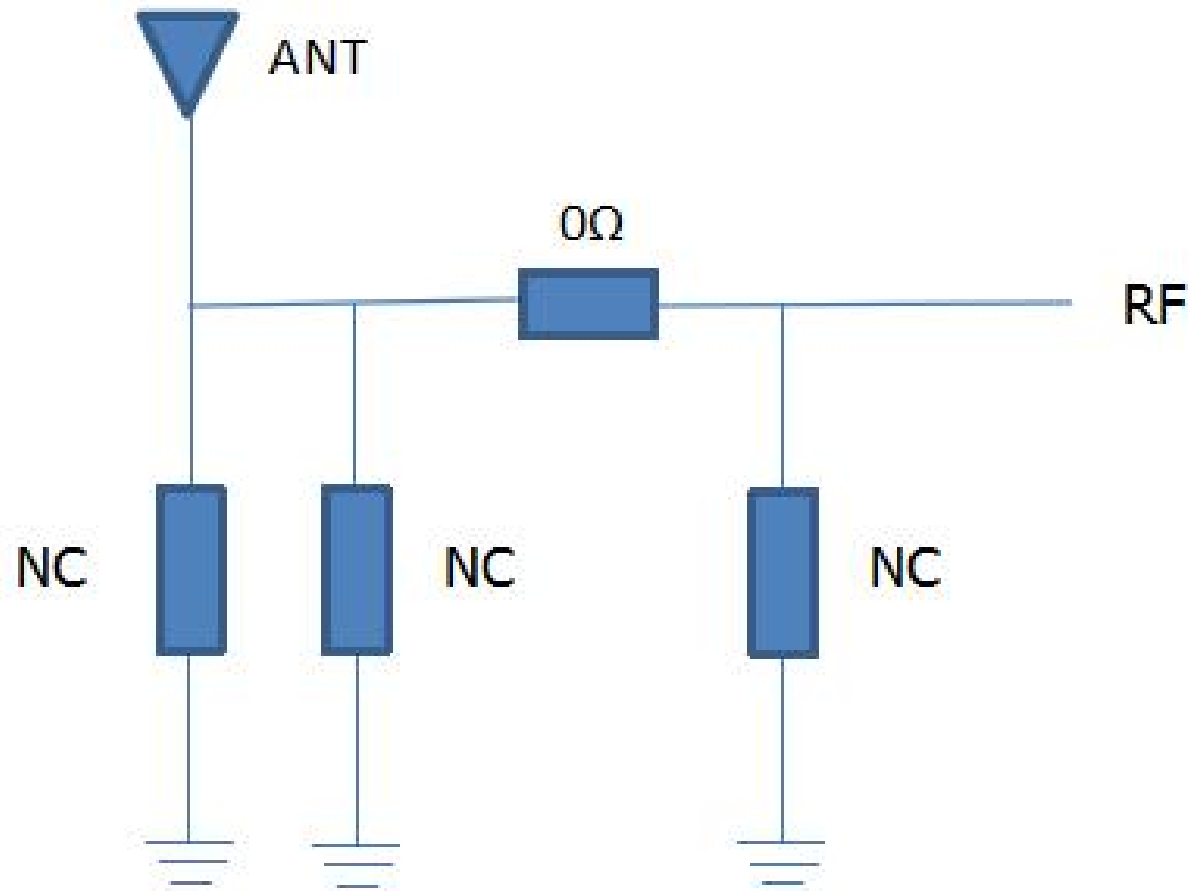
T104_ Antenna Information (天线信息)

Confidential

- 1. Type of the antenna (天线类型) : FPC+CABLE
- 2. The name of the antenna (天线名字) : YX-T104-V3.0
- 3. Coverage (覆盖范围) : 2400 ~ 2500MHz(WIFI2.4G).
5150 ~ 5850MHz(WIFI5.8G)

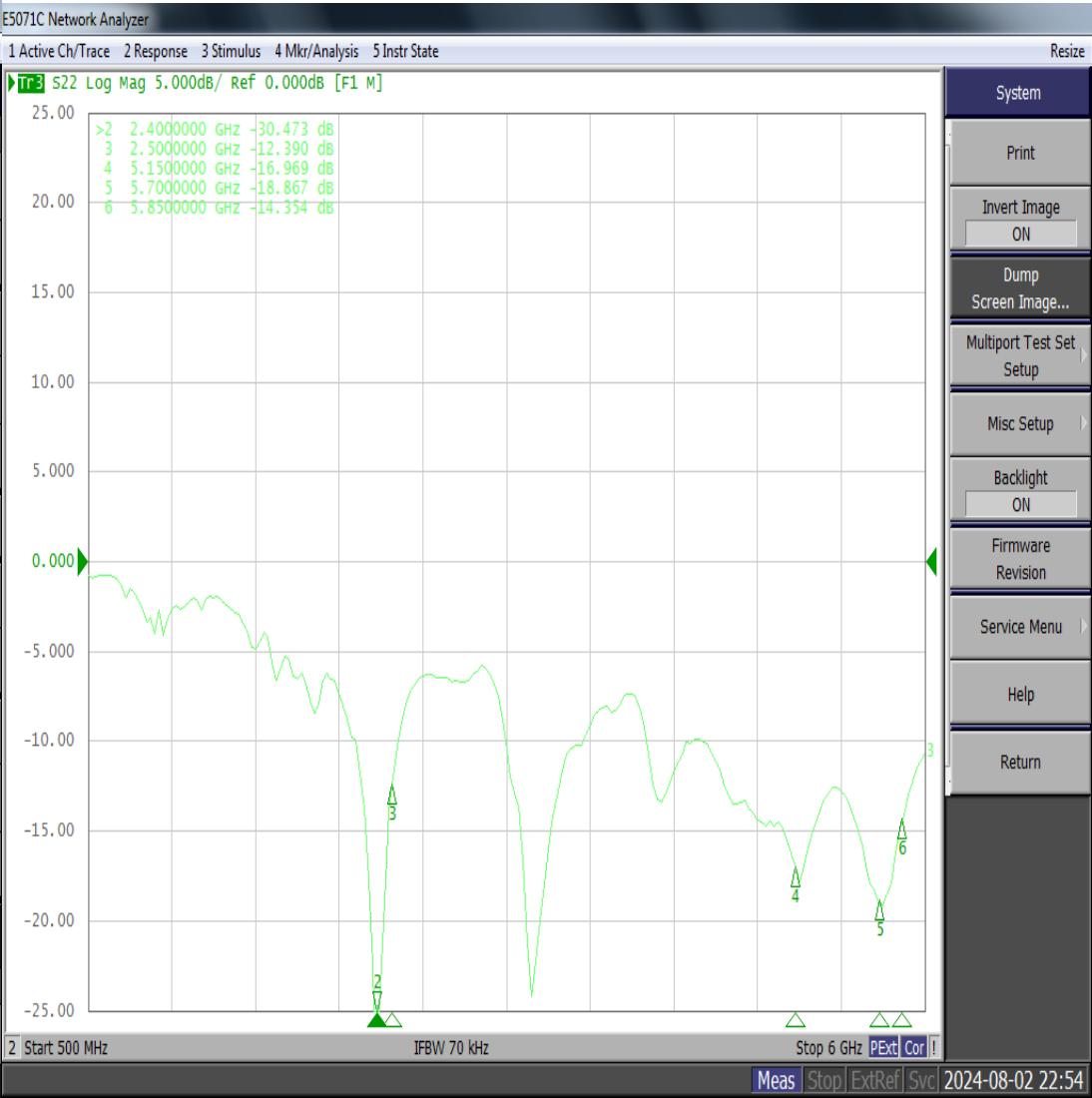
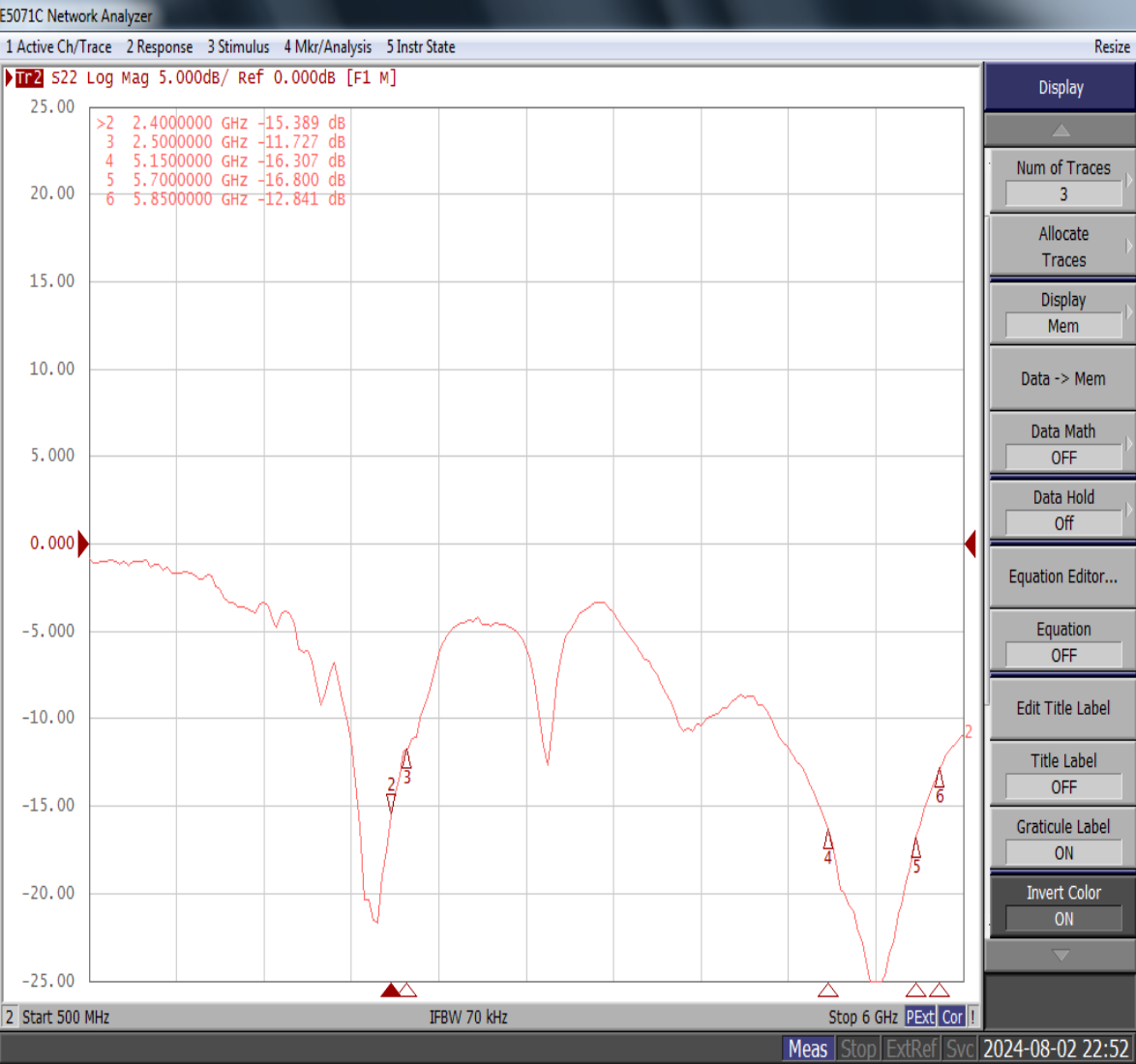


matches are unchanged



WIFI 1

WIFI 2



1. 无源效率：超过45%，天线性能基本达标。(Passive efficiency: over 45%, antenna performance basically meets the standard)

2400 ~ 2500MHz(WIFI2.4G)

WIFI 1					WIFI 2			
Freq(MHz)	Effi(dB)	Effi (%)	Max(dBi)		Freq(MHz)	Effi(dB)	Effi (%)	Max(dBi)
2400	-2.57	55.34	3.05		2400	-2.94	50.82	2.3
2410	-2.59	55.08	3.17		2410	-3.02	49.89	2.42
2420	-2.53	55.85	2.94		2420	-2.92	51.05	2.28
2430	-2.45	56.89	3.13		2430	-2.99	50.23	2.34
2440	-2.61	54.83	2.94		2440	-3.1	48.98	2.22
2450	-2.47	56.62	3.02		2450	-3.1	48.98	2.15
2460	-2.83	52.12	2.73		2460	-3.4	45.71	1.89
2470	-2.56	55.46	2.97		2470	-3.31	46.67	1.91
2480	-2.71	53.58	2.97		2480	-3.53	44.36	1.85
2490	-2.57	55.34	3.15		2490	-3.4	45.71	1.99
2500	-2.81	52.36	2.94		2500	-3.69	42.76	1.84
Avg	-2.61	54.86	3.00		Avg	-3.22	47.74	2.11

● T104_ Efficiency & Gain (效率和增益)

1. 无源效率: 范围25%~ 40%, 天线性能基本达标。(Passive efficiency : range25%~ 40%, antenna performance basically meets the standard)

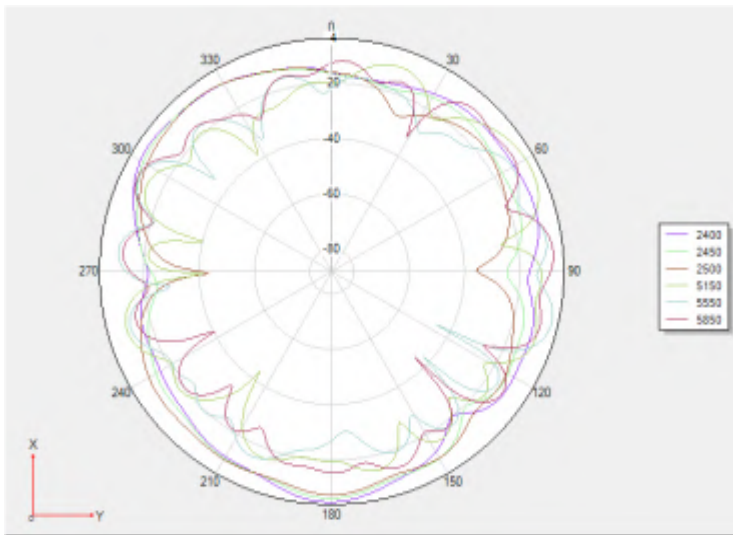
5150~ 5850MHz(WIFI5.8G)

WIFI1					WIFI2			
Freq(MHz)	Effi(dB)	Effi (%)	Max(dBi)		Freq(MHz)	Effi(dB)	Effi (%)	Max(dBi)
5150	-3.42	45.5	5.04		5150	-5.18	30.34	3.86
5170	-3.53	44.36	5.1		5170	-5.36	29.11	3.93
5190	-3.41	45.6	5.32		5190	-5.12	30.76	4.29
5210	-3.65	43.15	5.19		5210	-5.33	29.31	4.29
5230	-3.63	43.35	5.23		5230	-5.29	29.58	4.6
5250	-3.5	44.67	5.53		5250	-5.14	30.62	5
5270	-3.68	42.85	5.34		5270	-5.26	29.79	4.95
5290	-3.53	44.36	5.56		5290	-5.09	30.97	5.13
5310	-3.45	45.19	5.66		5310	-4.96	31.92	5.21
5330	-3.66	43.05	5.48		5330	-5.24	29.92	4.93
5350	-3.46	45.08	5.73		5350	-4.99	31.7	5.23
5370	-3.5	44.67	5.77		5370	-5.08	31.05	5.32
5390	-3.55	44.16	5.57		5390	-5.08	31.05	5.34
5410	-3.66	43.05	5.31		5410	-5.21	30.13	5.23
5430	-3.55	44.16	5.25		5430	-5.16	30.48	5.33
5450	-3.96	40.18	4.75		5450	-5.6	27.54	4.92
5470	-3.89	40.83	4.67		5470	-5.54	27.93	5.09
5490	-3.79	41.78	4.66		5490	-5.54	27.93	5.17
5510	-4.1	38.9	4.17		5510	-5.93	25.53	4.81
5530	-4.01	39.72	4.22		5530	-5.98	25.23	4.91
5550	-3.88	40.93	4.3		5550	-5.96	25.35	5.14
5570	-4.16	38.37	4		5570	-6.37	23.07	4.83
5590	-3.97	40.09	4.14		5590	-6.29	23.5	5.07
5610	-3.88	40.93	4.16		5610	-6.37	23.07	4.93
5630	-3.77	41.98	4.22		5630	-6.38	23.01	4.94
5650	-3.9	40.74	4.07		5650	-6.58	21.98	4.92
5670	-3.83	41.4	4.15		5670	-6.59	21.93	5.04
5690	-4.29	37.24	3.77		5690	-7.08	19.59	4.69
5710	-4.09	38.99	4.03		5710	-6.87	20.56	4.9
5730	-4.18	38.19	4.12		5730	-6.98	20.04	4.98
5750	-4.36	36.64	4.06		5750	-7.1	19.5	4.89
5770	-4.27	37.41	4.35		5770	-6.99	20	5.03
5790	-4.18	38.19	4.58		5790	-6.81	20.84	5.13
5810	-4.5	35.48	4.35		5810	-7.05	19.72	4.93
5830	-4.16	38.37	4.72		5830	-6.56	22.08	5.29
5850	-4.31	37.07	4.64		5850	-6.62	21.78	5.37
Avg	-3.85	41.30	4.76		Avg	-5.91	26.03	4.93

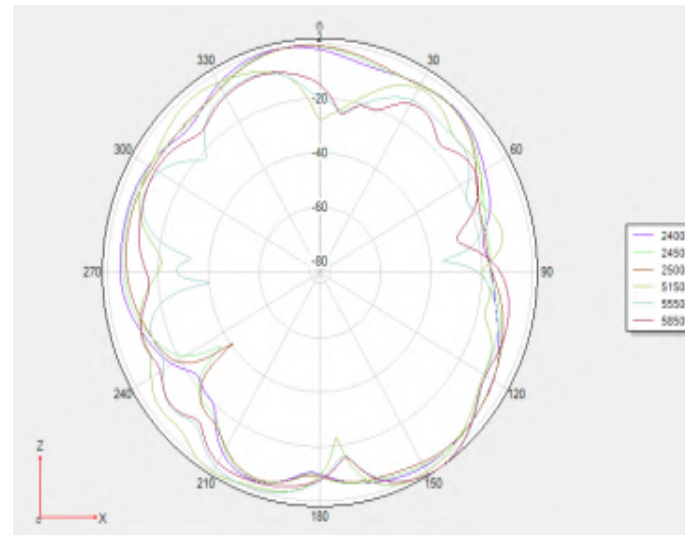
● T104-WIFI1_ 2D Radiation Pattern (2D辐射方向图)

1. Azimuth Pattern H-Plane (水平方向图为H平面) : "H", X-Y plane
2. Elevation Pattern E1, E2-Plane (垂直方向图为E1, E2-平面) : "E1", "E2", X-Z plane(E1), Y-Z plane(E2)
3. It is a structure that supplements the distortion of the horizontal plane in the vertical plane and has a gentle sphere shape in three dimensions. (它是三维球面方向图, 在二维水平和垂直的剖面)

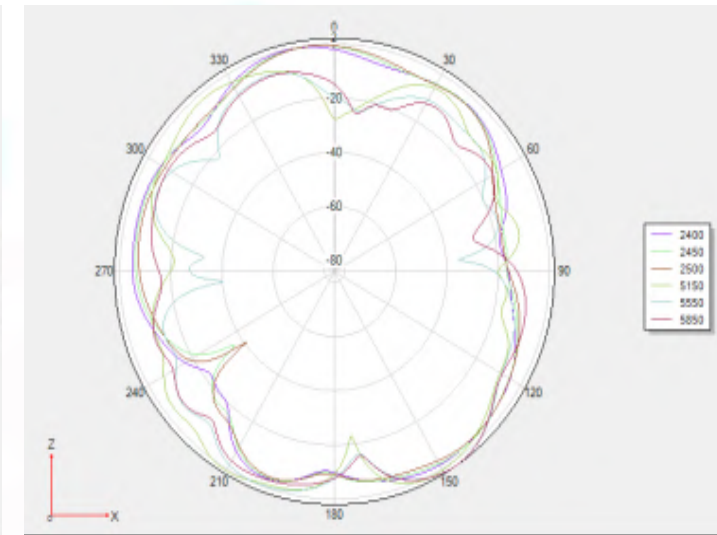
H



E1



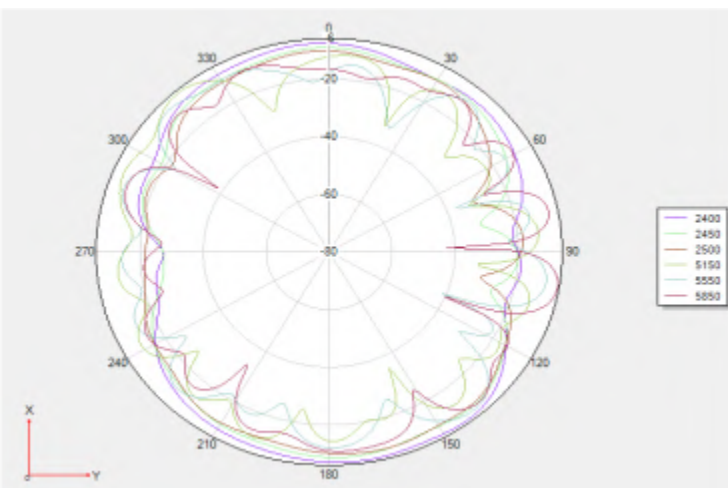
E2



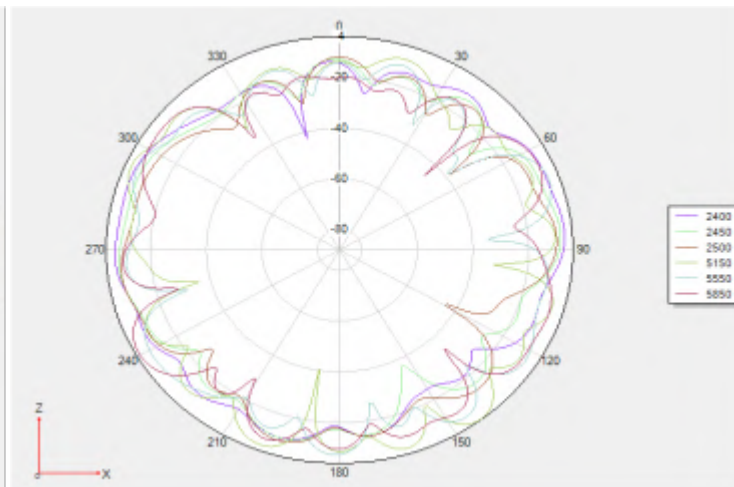
● T104-WIFI2_ 2D Radiation Pattern (2D辐射方向图)

1. Azimuth Pattern H-Plane (水平方向图为H平面) : "H", X-Y plane
2. Elevation Pattern E1, E2-Plane (垂直方向图为E1, E2-平面) : "E1", "E2", X-Z plane(E1), Y-Z plane(E2)
3. It is a structure that supplements the distortion of the horizontal plane in the vertical plane and has a gentle sphere shape in three dimensions. (它是三维球面方向图，在二维水平和垂直的剖面)

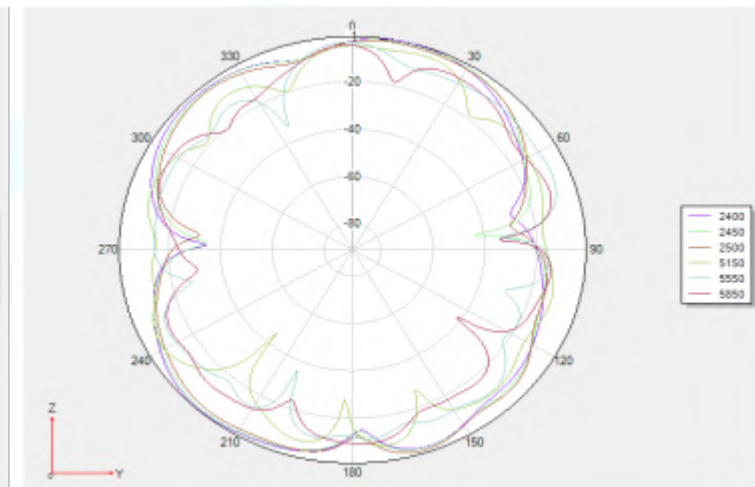
H



E1

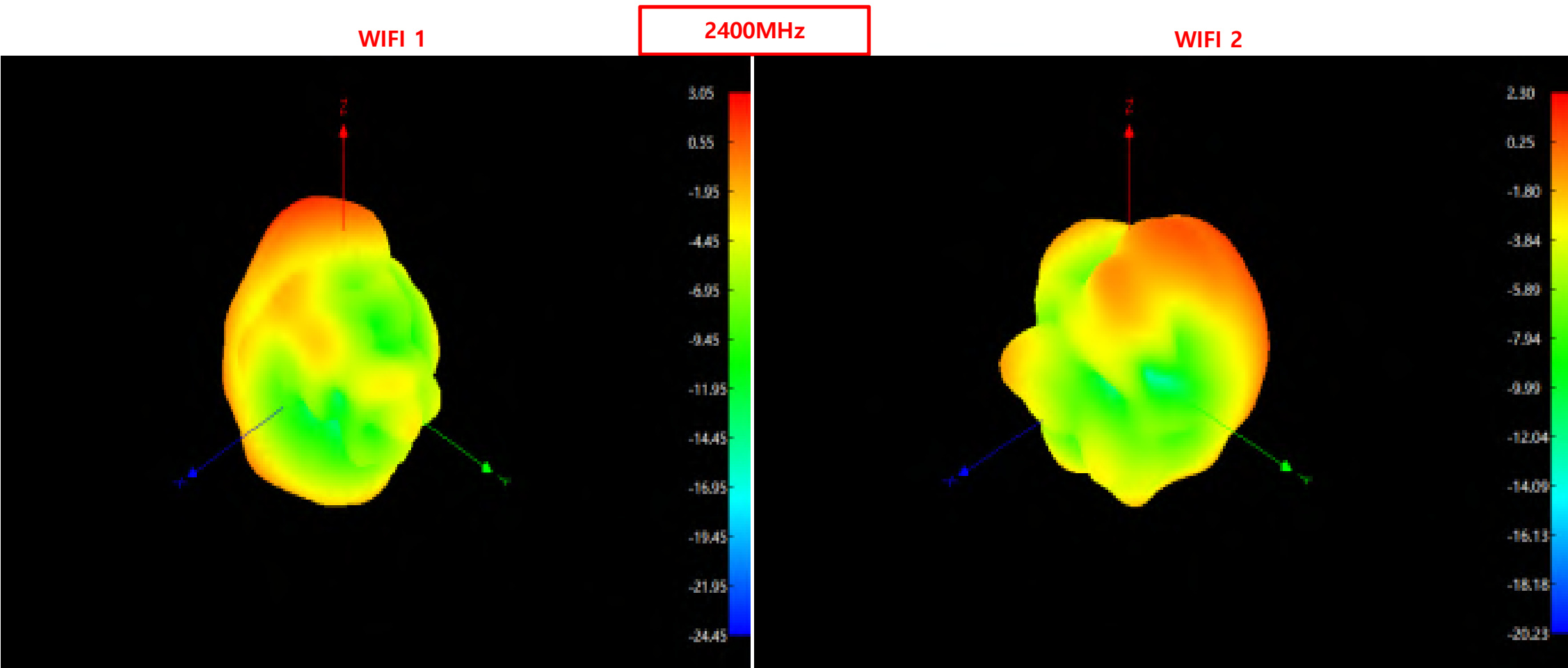


E2



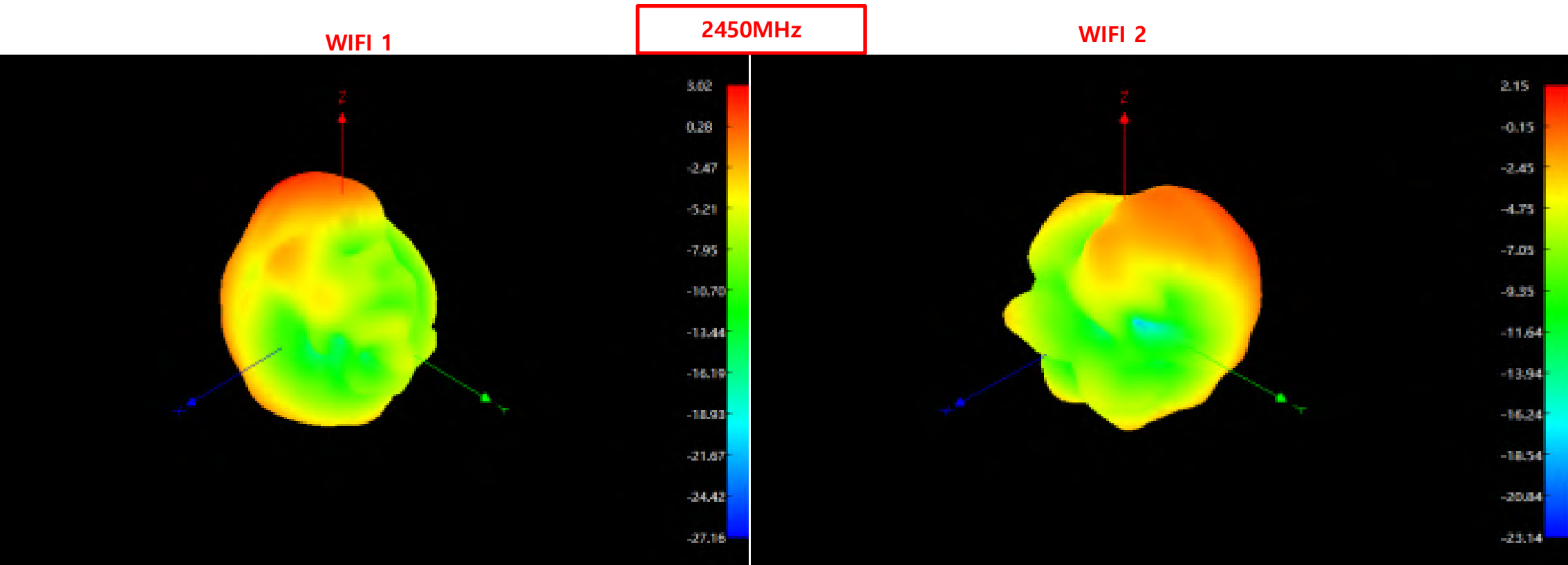
● T104_ Performance : 3D Radiation Pattern (3D辐射方向图)

1. This 3D Radiation Pattern shows the response of each angle antenna gain on the sphere. (此3D辐射图显示了每个角度天线增益在球体上的反应)
2. The objects corresponding to the X-Y-Z axes are shown in the left picture. (与X-Y-Z轴相对应的方向如左图所示)



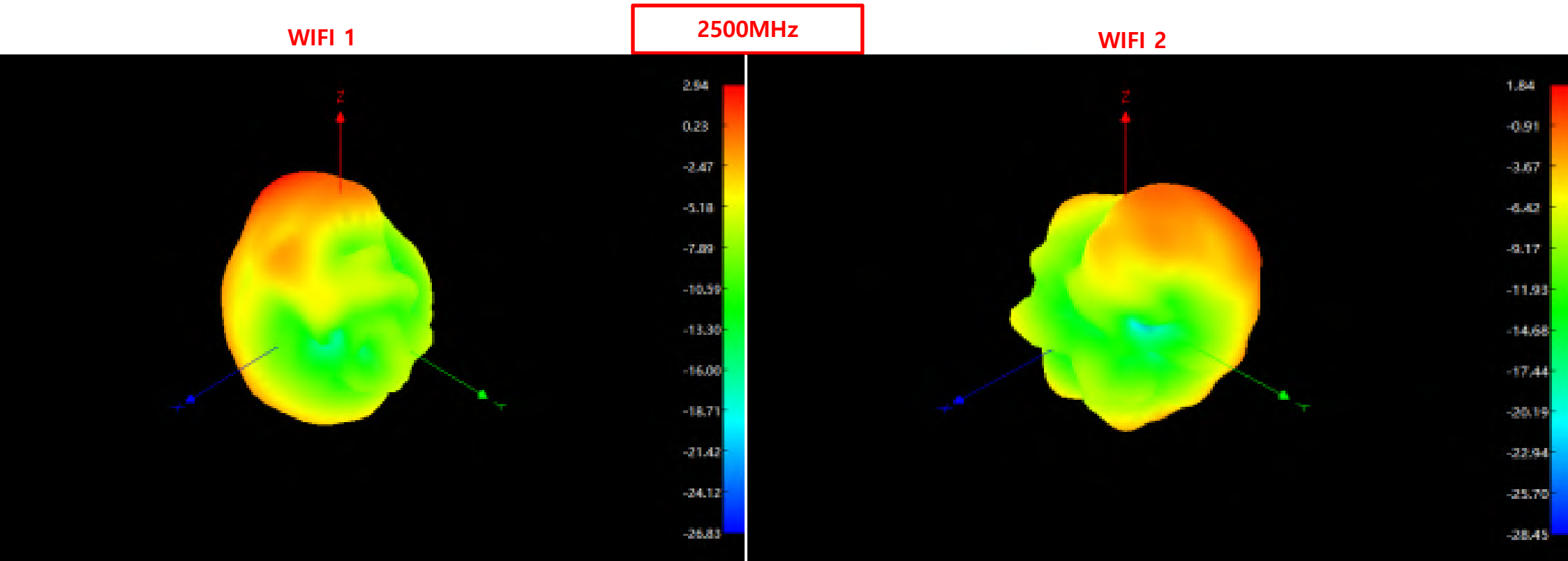
● T104_ Performance : 3D Radiation Pattern (3D辐射方向图)

1. This 3D Radiation Pattern shows the response of each angle antenna gain on the sphere. (此3D辐射图显示了每个角度天线增益在球体上的反应)
2. The objects corresponding to the X-Y-Z axes are shown in the left picture. (与X-Y-Z轴相对应的方向如左图所示)



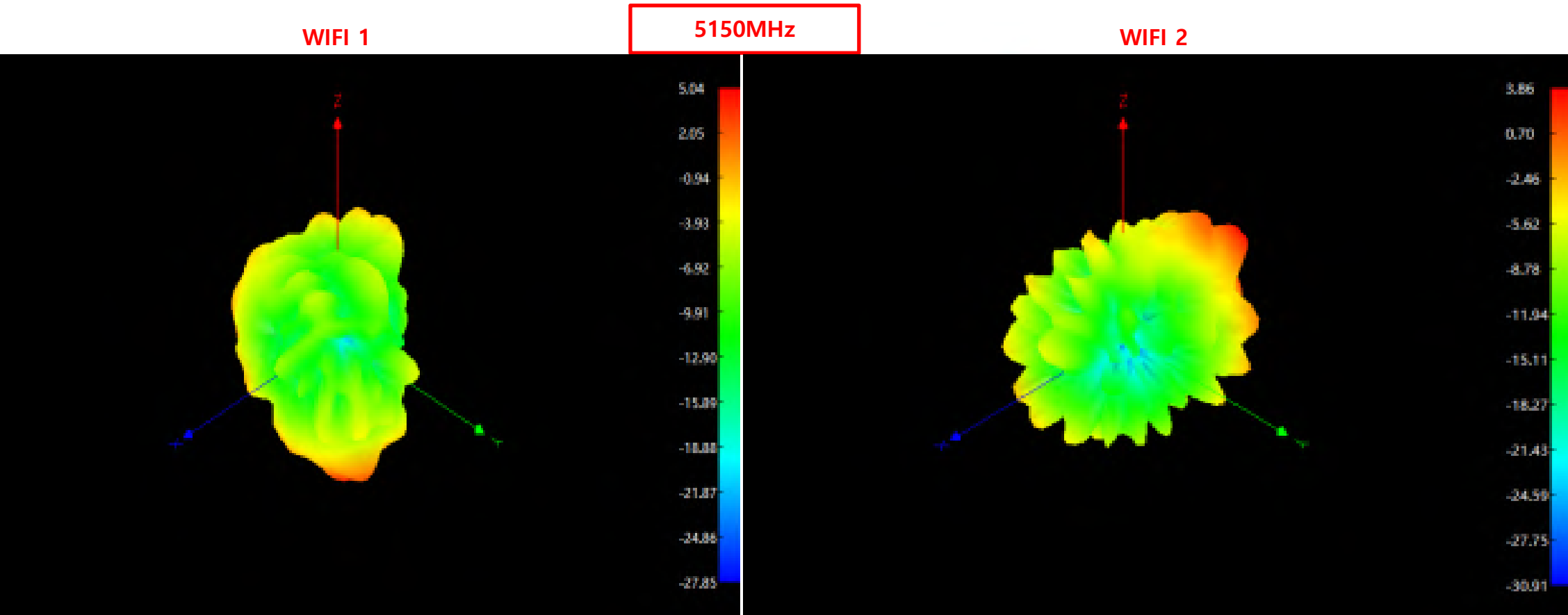
● T104_ Performance : 3D Radiation Pattern (3D辐射方向图)

1. This 3D Radiation Pattern shows the response of each angle antenna gain on the sphere. (此3D辐射图显示了每个角度天线增益在球体上的反应)
2. The objects corresponding to the X-Y-Z axes are shown in the left picture. (与X-Y-Z轴相对应的方向如左图所示)



● T104_ Performance : 3D Radiation Pattern (3D辐射方向图)

1. This 3D Radiation Pattern shows the response of each angle antenna gain on the sphere. (此3D辐射图显示了每个角度天线增益在球体上的反应)
2. The objects corresponding to the X-Y-Z axes are shown in the left picture. (与X-Y-Z轴相对应的方向如左图所示)



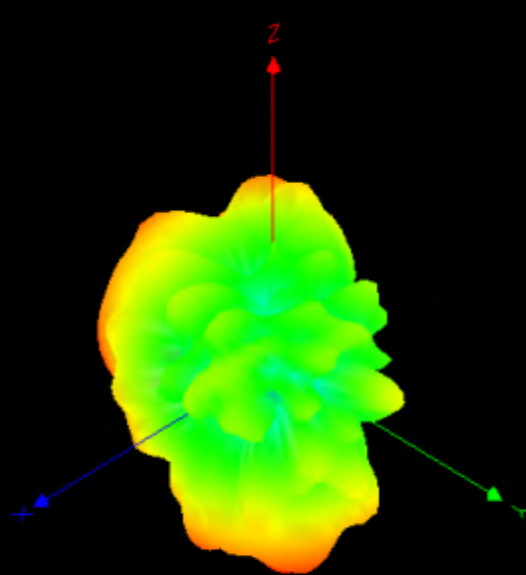
● T104_ Performance : 3D Radiation Pattern (3D辐射方向图)

1. This 3D Radiation Pattern shows the response of each angle antenna gain on the sphere. (此3D辐射图显示了每个角度天线增益在球体上的反应)
2. The objects corresponding to the X-Y-Z axes are shown in the left picture. (与X-Y-Z轴相对应的方向如左图所示)

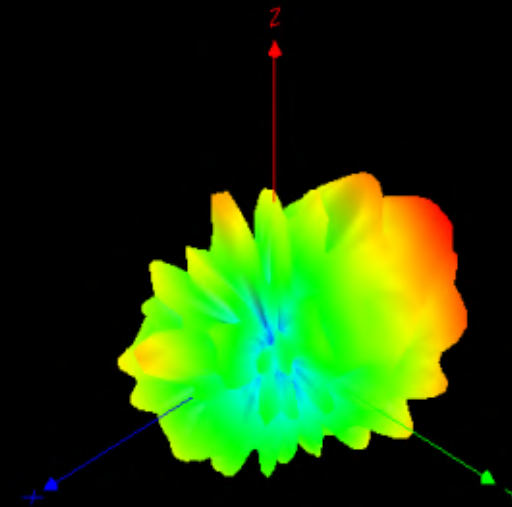
WIFI 1

5550MHz

WIFI 2



4.30
1.26
-1.78
-4.82
-7.86
-10.90
-13.93
-16.97
-20.01
-23.05
-26.09
-29.13



5.14
1.76
-1.63
-5.01
-8.39
-11.77
-15.16
-18.54
-21.92
-25.30
-28.69
-32.07

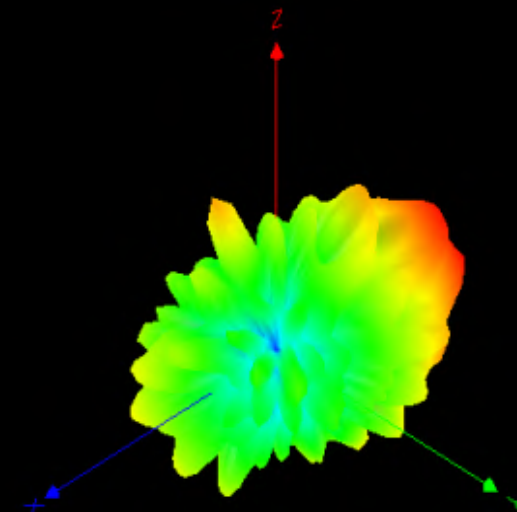
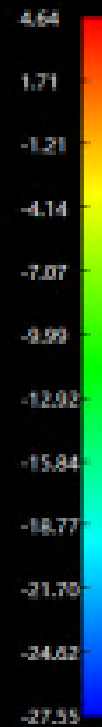
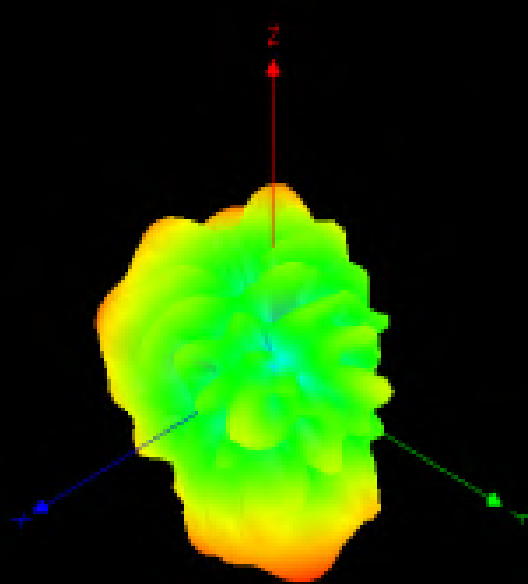
● T104_ Performance : 3D Radiation Pattern (3D辐射方向图)

1. This 3D Radiation Pattern shows the response of each angle antenna gain on the sphere. (此3D辐射图显示了每个角度天线增益在球体上的反应)
2. The objects corresponding to the X-Y-Z axes are shown in the left picture. (与X-Y-Z轴相对应的方向如左图所示)

WIFI 1

5850MHz

WIFI 2



FS	Channel	TRP (dBm)	TIS (dBm)
2.4G WiFi- 11B(11M)	1	13.26	
	6	13.44	
	11	13.39	-82.1
5.8G WiFi- 11A(54M)	36	15.75	
	149	15.45	
	165	15.42	-72.58

● T104_ Antenna Summary (天线总结)

1. The antenna meets the basic performance requirements. (天线满足基本的性能要求)

*** Please let me know if there is a change in the device. And if have any questions, please communicate promptly***

*** (如果机器有变化, 请通知我司; 如果有任何问题, 请及时沟通) ***

Thank You!!