



电连技术股份有限公司

中国领先的 微型射频连接器制造商

股票代码 300679.SZ



科技 改变生活
连接 驱动未来

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Antenna Evaluation Report/天线评估报告

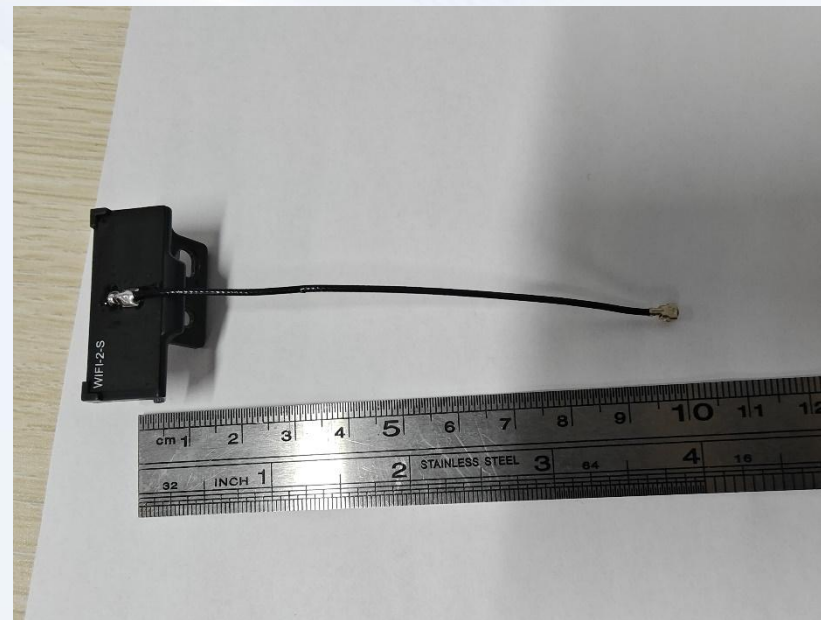
BT+2.4G/5.8G WiFi天线 & 2025.04.08

- ☐ Summary/摘要
- ☐ Antenna Picture/天线图片
- ☐ Matching Network/匹配网络
- ☐ Testing environment/测试环境
- ☐ The definition of coordinate system/坐标系定义
- ☐ Results/结果
 - Results – VSWR/驻波比
 - Results – Efficiency and Gain Table/效率和增益
 - Results – 2D and 3D Radiation Pattern /二维和三维辐射方向图
- ☐ Conclusion/总结
- ☐ Design history/设计记录

1. Antenna operating frequency band/天线工作频段: BT: 2400-2500MHz;
WiFi: 2400-2500MHz, 5150-5850MHz;
2. Antenna types/天线类型: FPC天线
3. Test project/测试项目: VSWR/电压驻波比, Efficiency/效率, Gain/增益



WiFi (仅更改线长, 短线68mm)

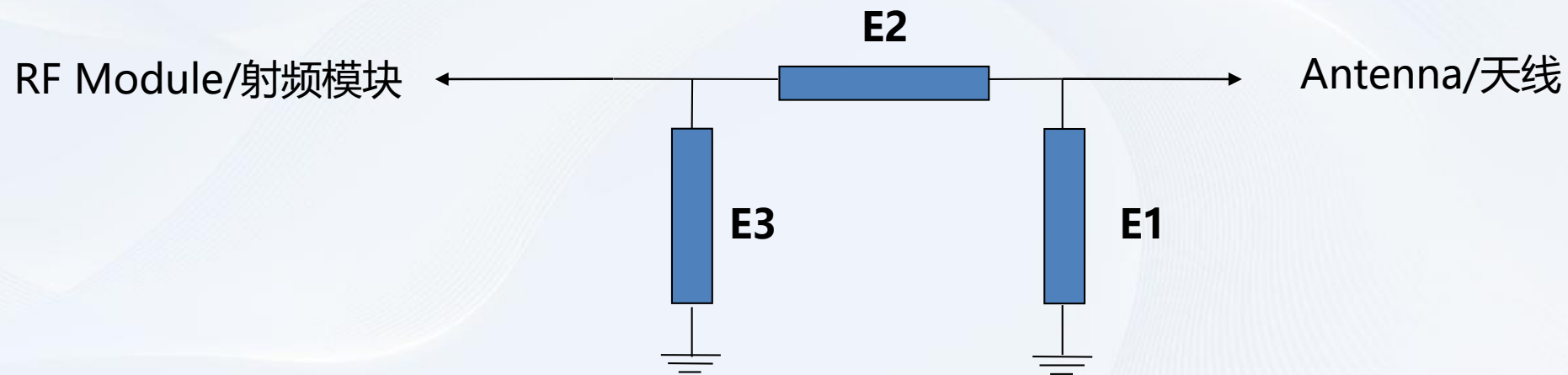


WiFi (仅更改线长, 长线99mm)

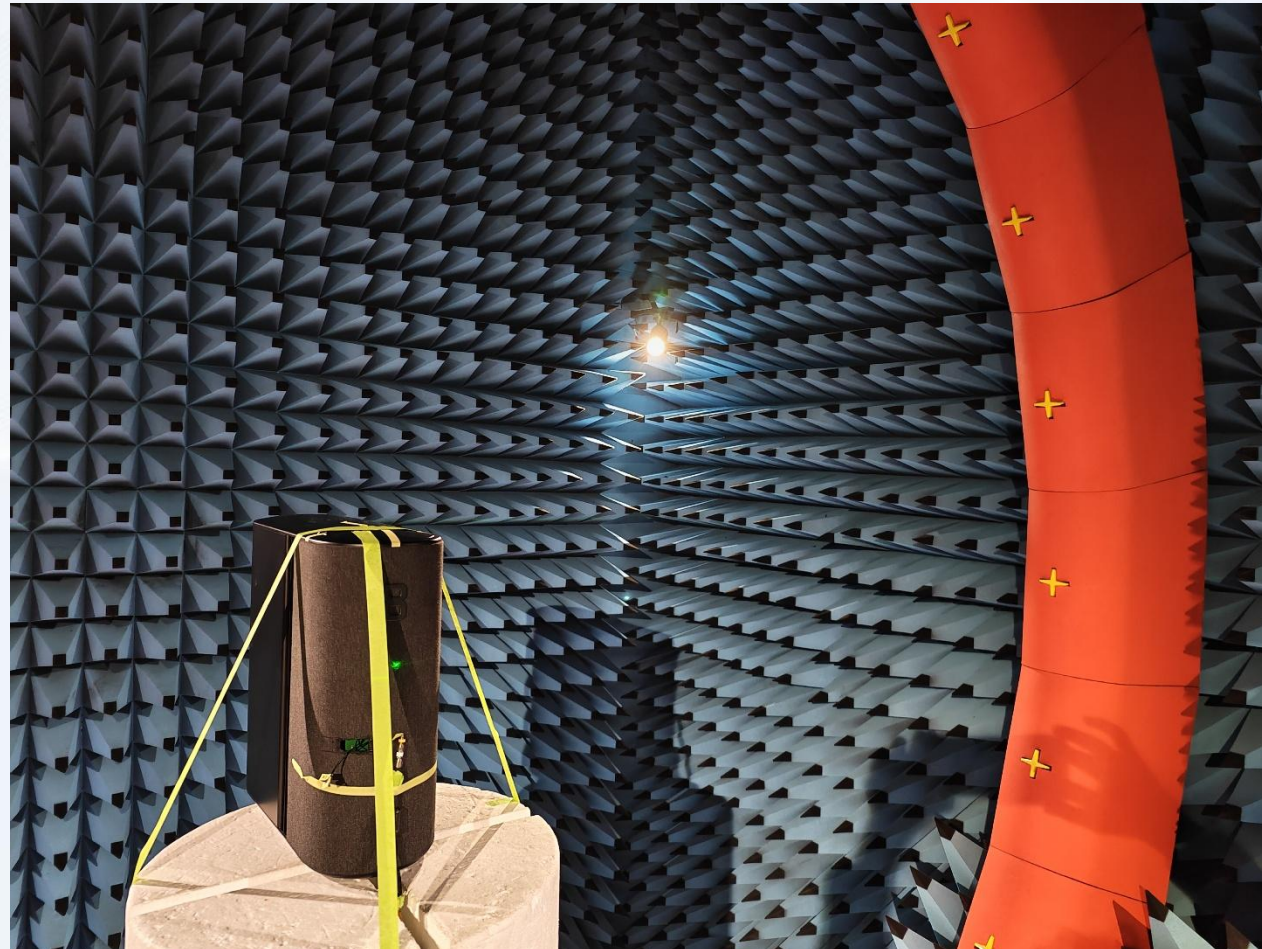


BT天线(线长50mm)

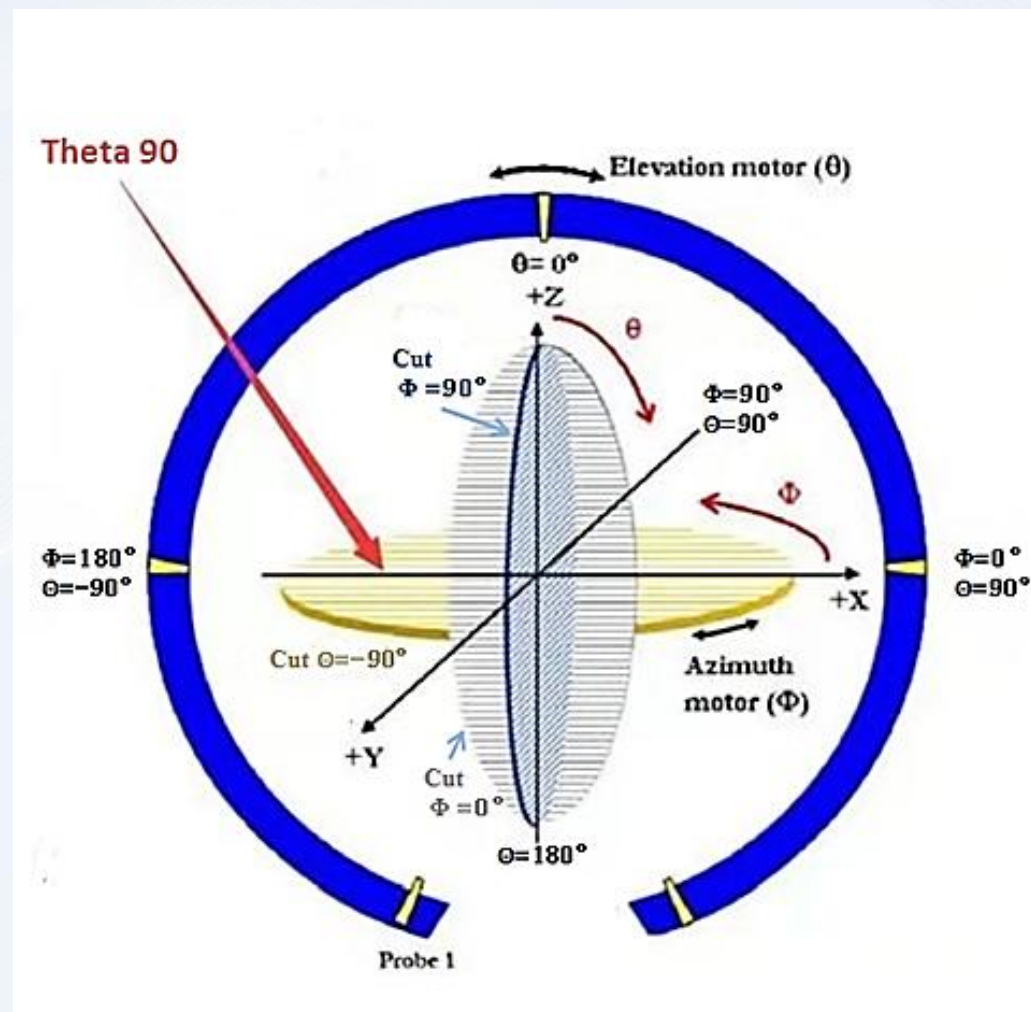
Matching Circuits/匹配电路



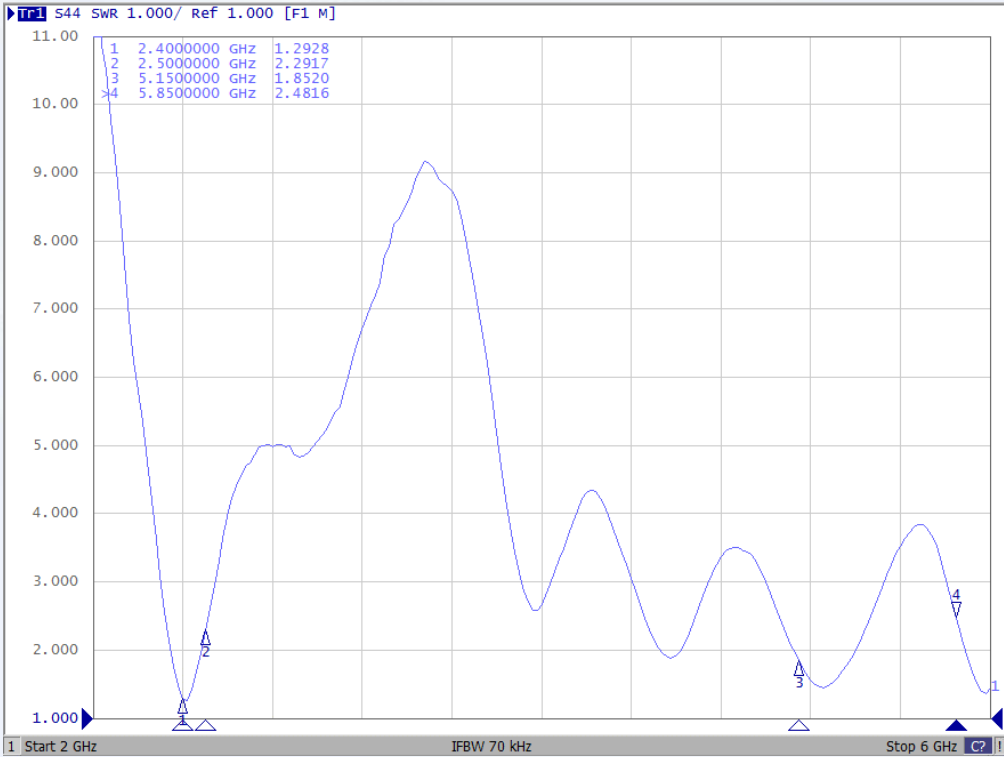
Element/元件	Value/值
E1	NC
E2	NC
E3	NC



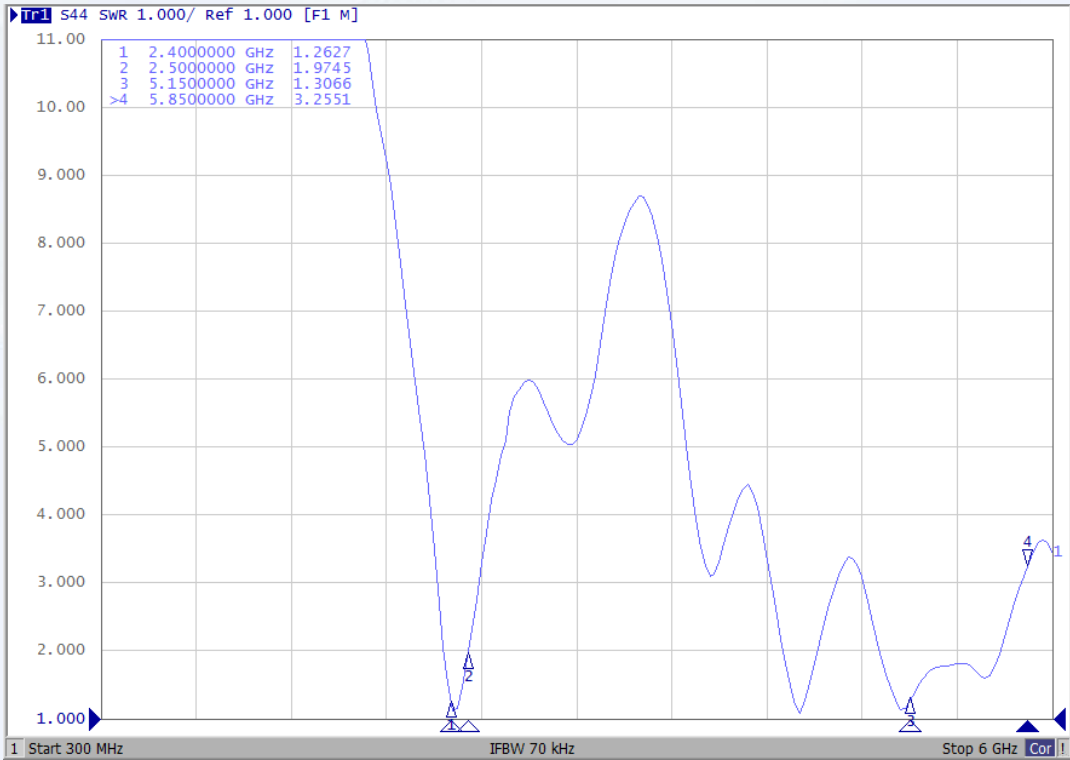
Position in the chamber during the test/测试时在暗室中摆放位置



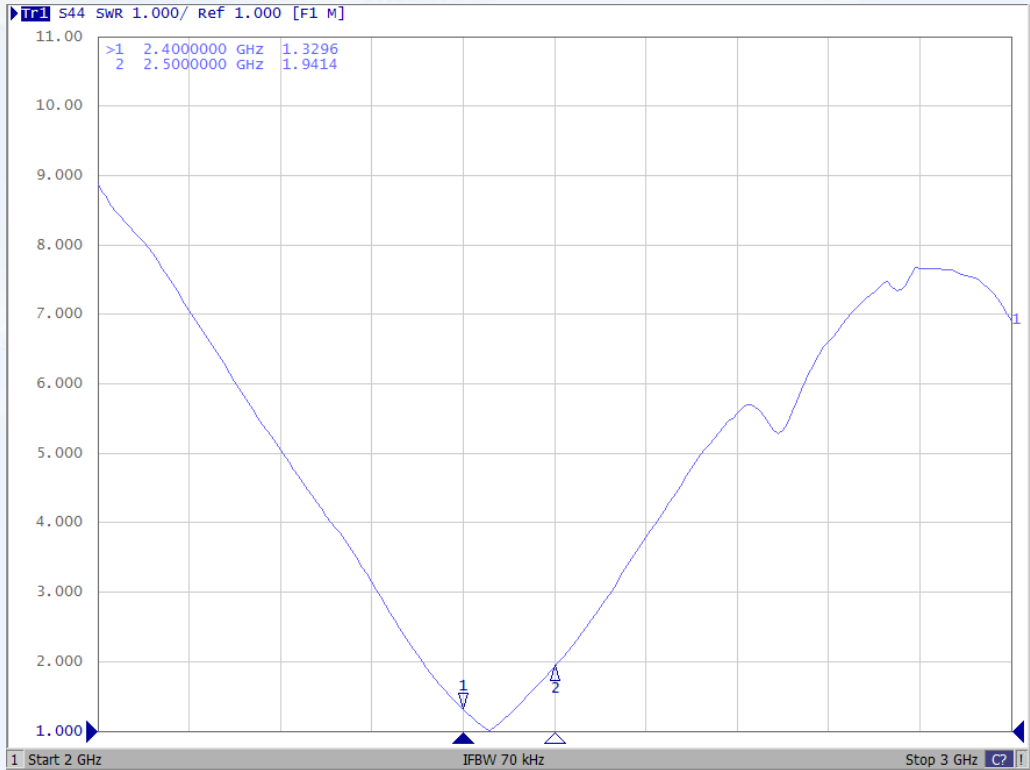
The coordinate system of chamber/暗室坐标系



WiFi (短线)	
Frequency	VSWR
2400MHz	1.3
2500MHz	2.3
5150MHz	1.9
5850MHz	2.5



WiFi (长线)	
Frequency	VSWR
2400MHz	1.3
2500MHz	2.0
5150MHz	1.4
5850MHz	3.3



BT天线	
Frequency	VSWR
2400MHz	1.4
2500MHz	2.0

Results – Efficiency and Gain Table/效率和增益

Frequency	短线Efficiency (%)	短线Gain(dBi)	长线Efficiency (%)	长线Gain(dBi)
2400MHz	64	4.66	65	3.80
2410MHz	62	4.47	65	3.69
2420MHz	60	4.18	63	3.54
2430MHz	56	3.85	61	3.73
2440MHz	55	3.75	62	4.04
2450MHz	55	3.73	62	4.18
2460MHz	59	3.85	66	4.53
2470MHz	58	3.77	67	4.69
2480MHz	55	3.66	65	4.66
2490MHz	52	3.62	62	4.72
2500MHz	49	3.34	59	4.67
AVG	57	3.90	63	4.21

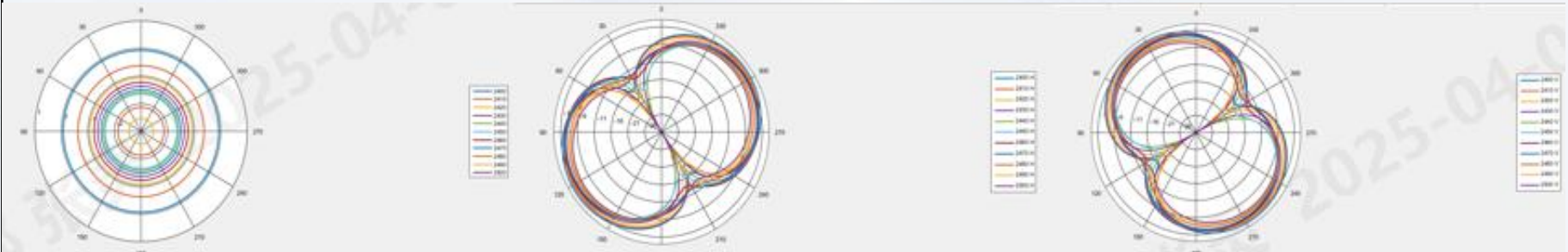
Results – Efficiency and Gain Table/效率和增益

Frequency	短线Efficiency (%)	短线Gain(dBi)	长线Efficiency (%)	长线Gain(dBi)
5150MHz	50	5.79	52	5.49
5200MHz	48	5.87	49	5.26
5250MHz	50	5.54	48	5.03
5300MHz	48	5.10	47	4.82
5350MHz	42	4.85	43	4.46
5400MHz	43	5.43	46	5.29
5450MHz	41	5.29	47	5.53
5500MHz	34	4.65	43	5.33
5550MHz	35	4.51	47	5.58
5600MHz	33	4.28	47	4.90
5650MHz	33	3.97	44	4.45
5700MHz	33	4.11	42	4.30
5750MHz	33	3.51	37	3.83
5800MHz	37	3.80	35	3.57
5850MHz	37	4.41	32	3.34
AVG	40	4.74	44	4.75

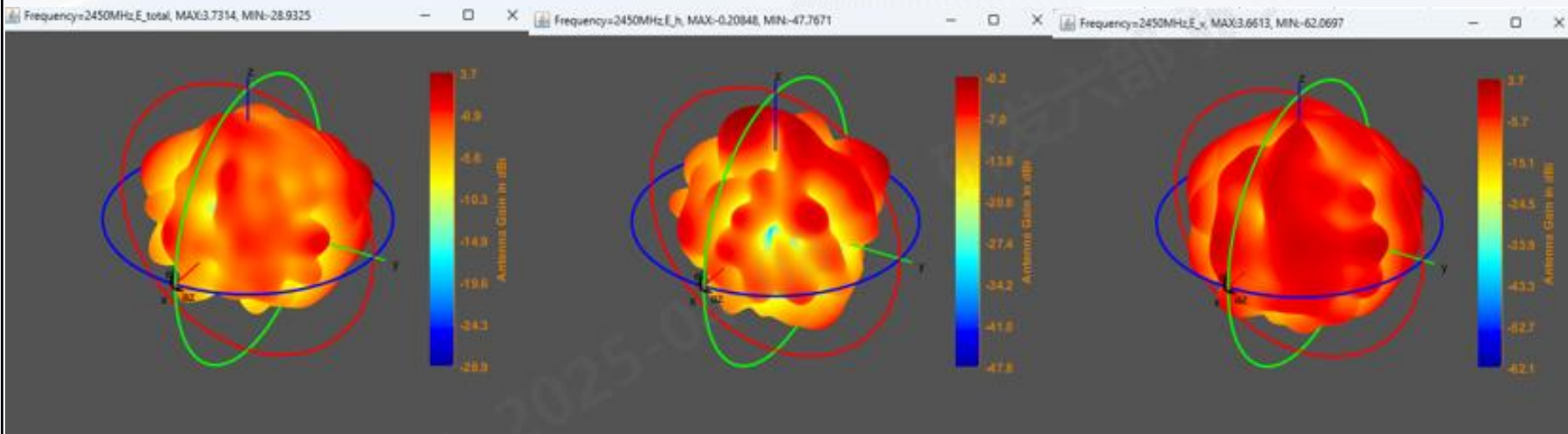
Frequency	BT天线 Efficiency (%)	BT天线 Gain(dBi)
2400MHz	68	5.50
2410MHz	67	5.50
2420MHz	65	5.43
2430MHz	62	5.15
2440MHz	61	5.09
2450MHz	62	5.17
2460MHz	67	5.54
2470MHz	67	5.53
2480MHz	65	5.40
2490MHz	62	5.21
2500MHz	59	5.08
AVG	64	5.33

Results – 2D and 3D Radiation Pattern /二维和三维辐射方向图

2D
2400MHz-2500MHz
短线WiFi



3D
2450MHz



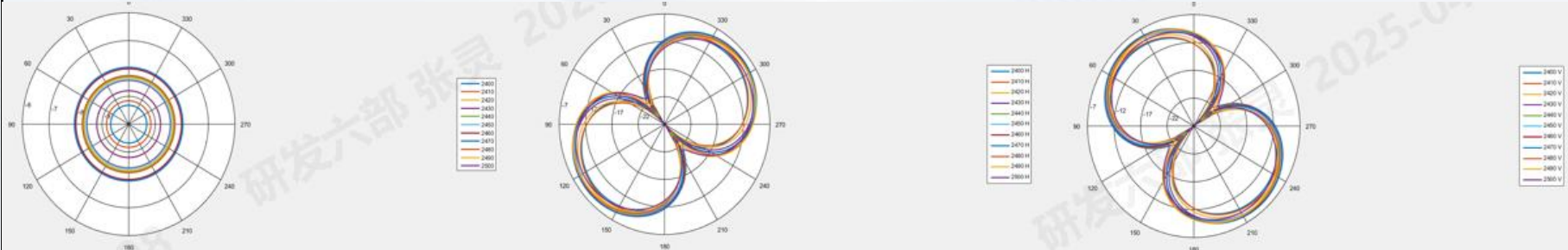
Total

H面

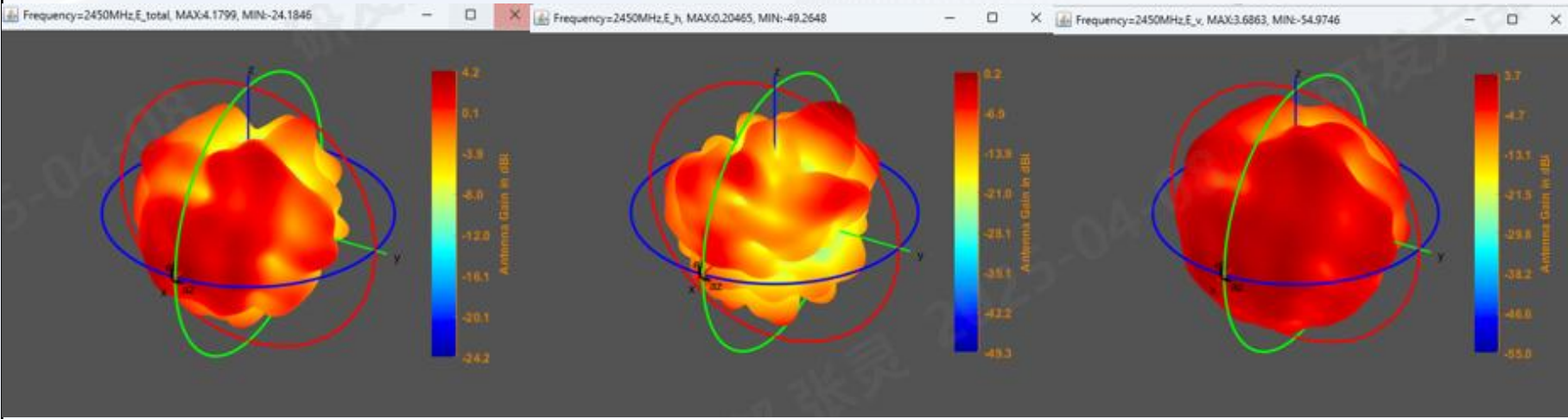
V面

Results – 2D and 3D Radiation Pattern /二维和三维辐射方向图

2D
2400MHz-2500MHz
长线WiFi



3D
2450MHz



Total

H面

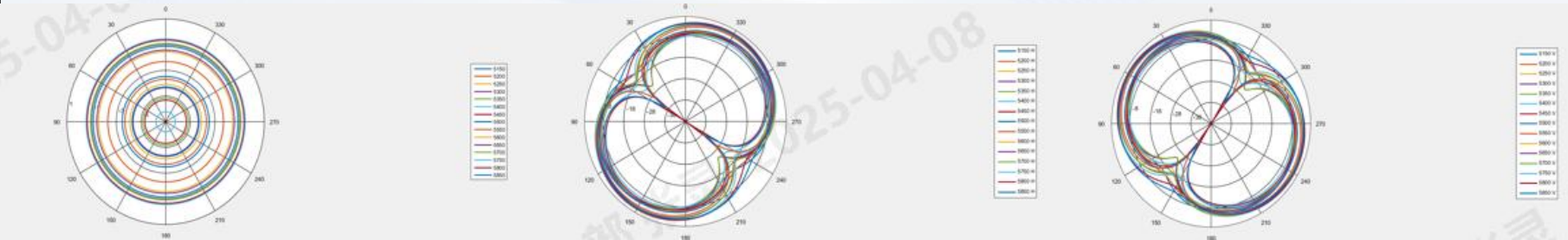
V面

Results – 2D and 3D Radiation Pattern /二维和三维辐射方向图

2D

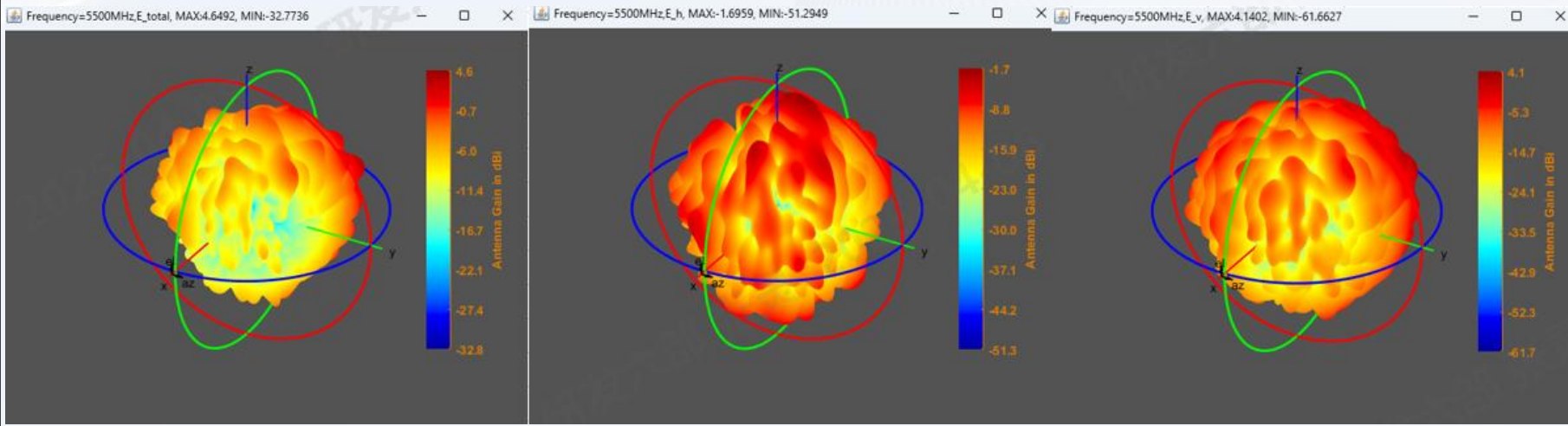
5150MHz-5850MHz

短线WiFi



3D

5500MHz



Total

H面

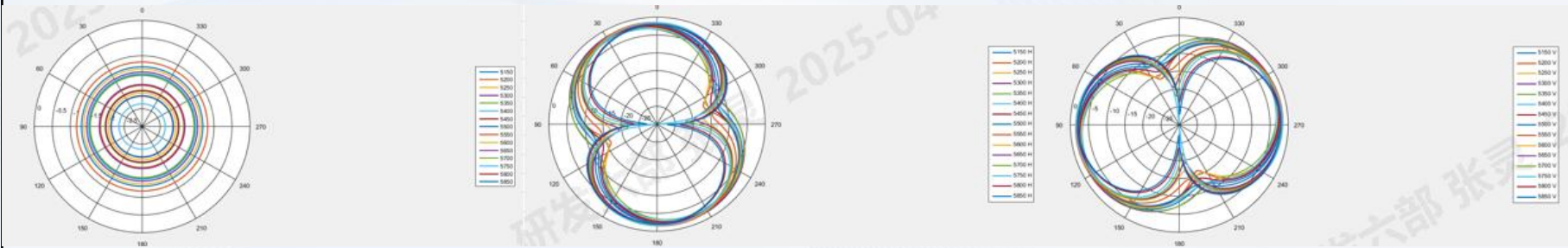
V面

Results – 2D and 3D Radiation Pattern /二维和三维辐射方向图

2D

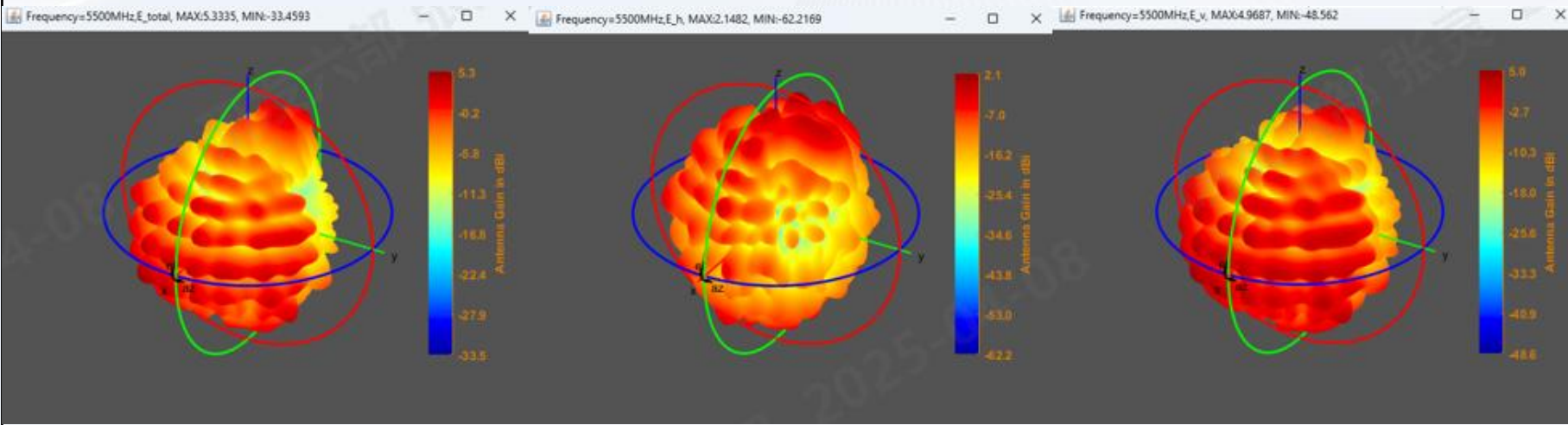
5150MHz-5850MHz

长线WiFi



3D

5500MHz



Total

H面

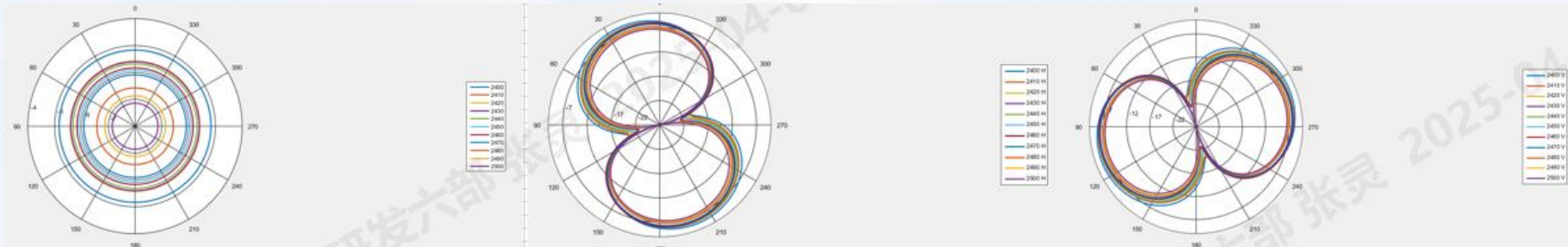
V面

Results – 2D and 3D Radiation Pattern /二维和三维辐射方向图

2D

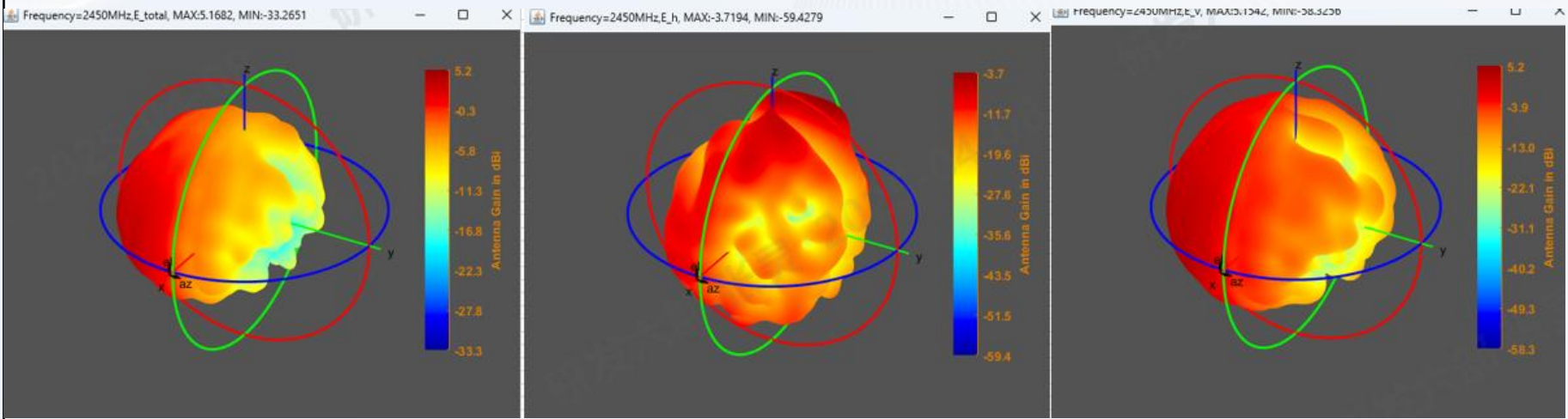
2400MHz-2500MHz

BT天线



3D

2450MHz



Total

H面

V面

一. 天线无源数据:

天线类型	Frequency (MHz)	Efficiency (%)	Peak Gain(dBi)
双频WiFi (短线)	2400-2500	57	4.66
	5150-5850	40	5.87
双频WiFi (长线)	2400-2500	63	4.72
	5150-5850	44	5.58
BT天线	2400-2500	64	5.54

二、结论:

- 1、在协调使用暗室测试，在两WiFi天线仅更改线缆长度、BT天线更改安装位置的情况下，两款WiFi天线的VSWR小于4.0，存在频率偏移。BT天线的VSWR小于2.0，性能OK;
- 2、两款WiFi天线和BT天线性能变化不大;

两个暗室测试数据存在细微差异，待我司暗室组装校准完成会进行对比测试

[illegible]



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