Antenna Measurement Report for NE+(Four antennas)

2021/09/15

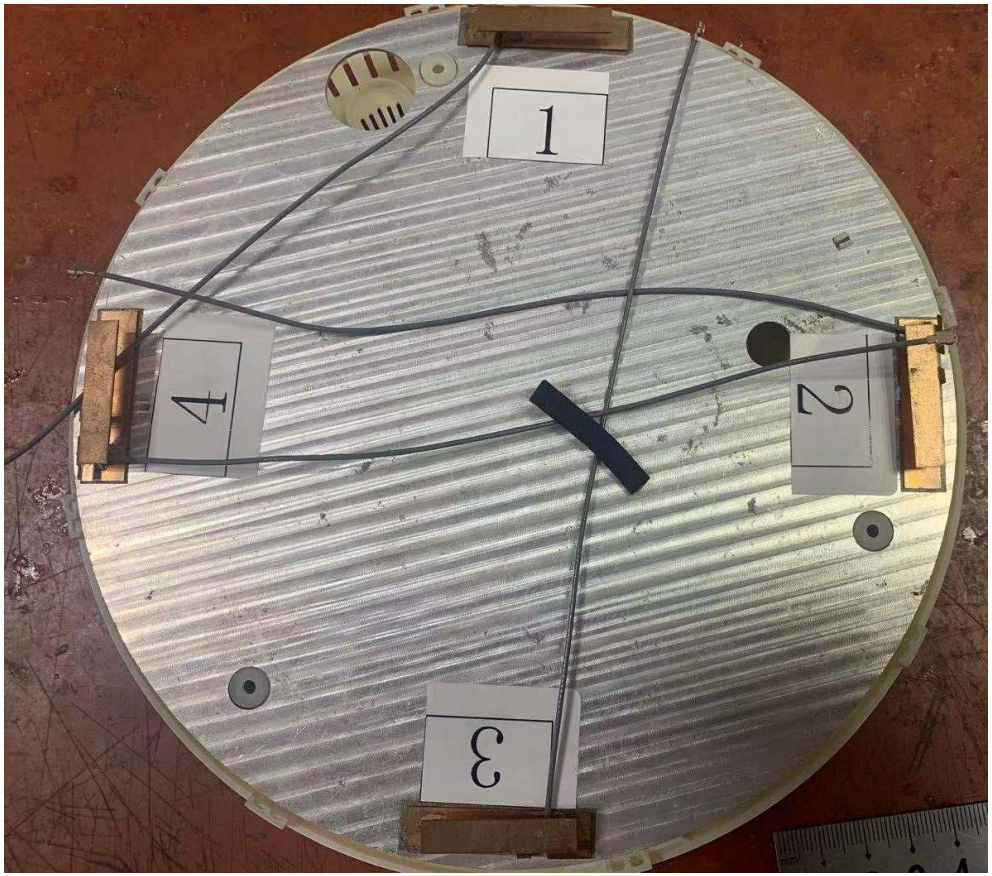
目　录

Antenna Introduction

整体天线布局

1 is for WIFI ANT 1，4 is for WIFI ANT 2，

2 is for BT module1 ANT，3 is for BT module2 ANT

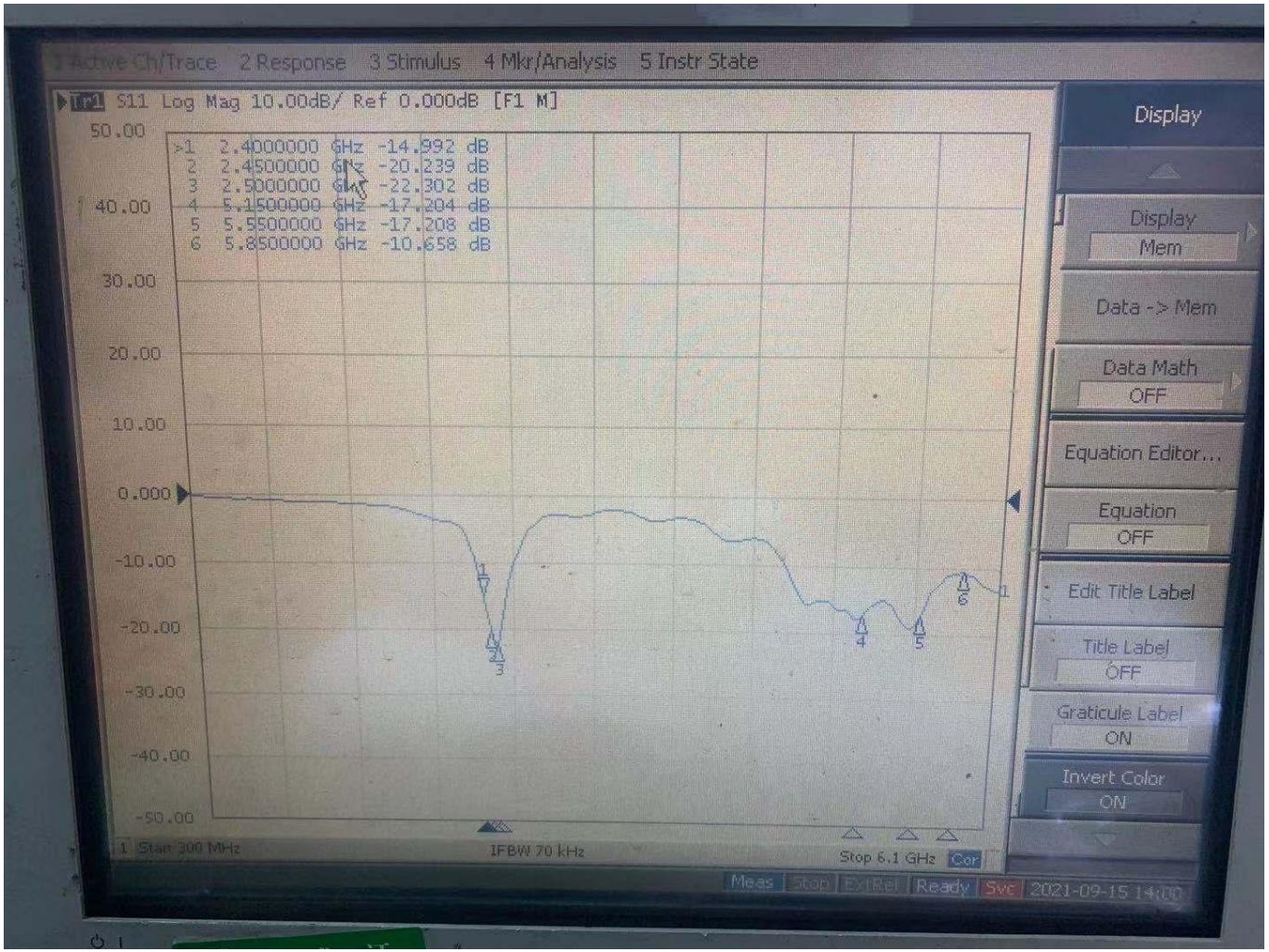


Test equipment

Test items	Standing wave ratio (return loss) Isolation
Test environment and equipment	Vector Network Analyzer 

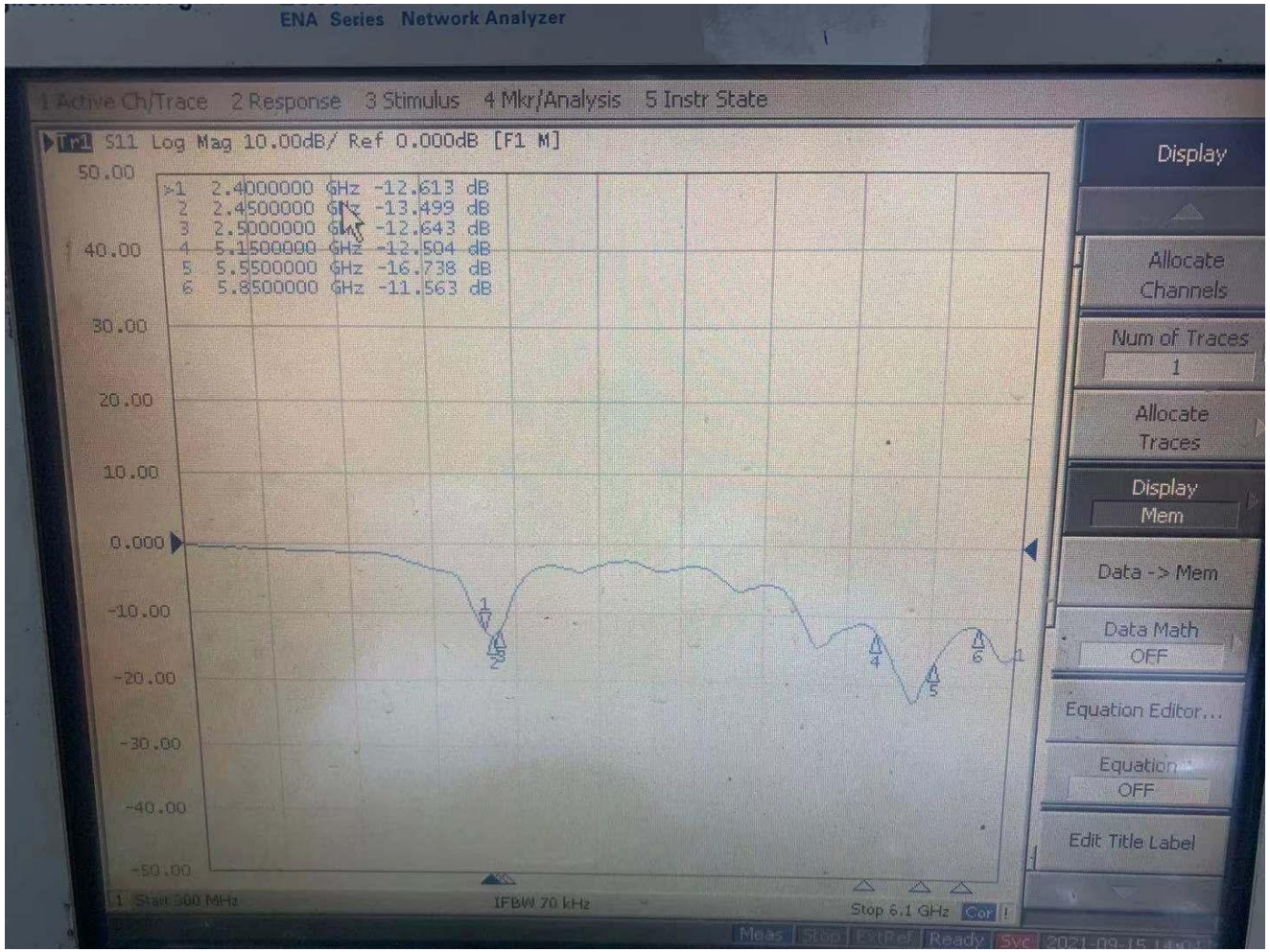
S-parameter test results WiFi

Test data No. 1



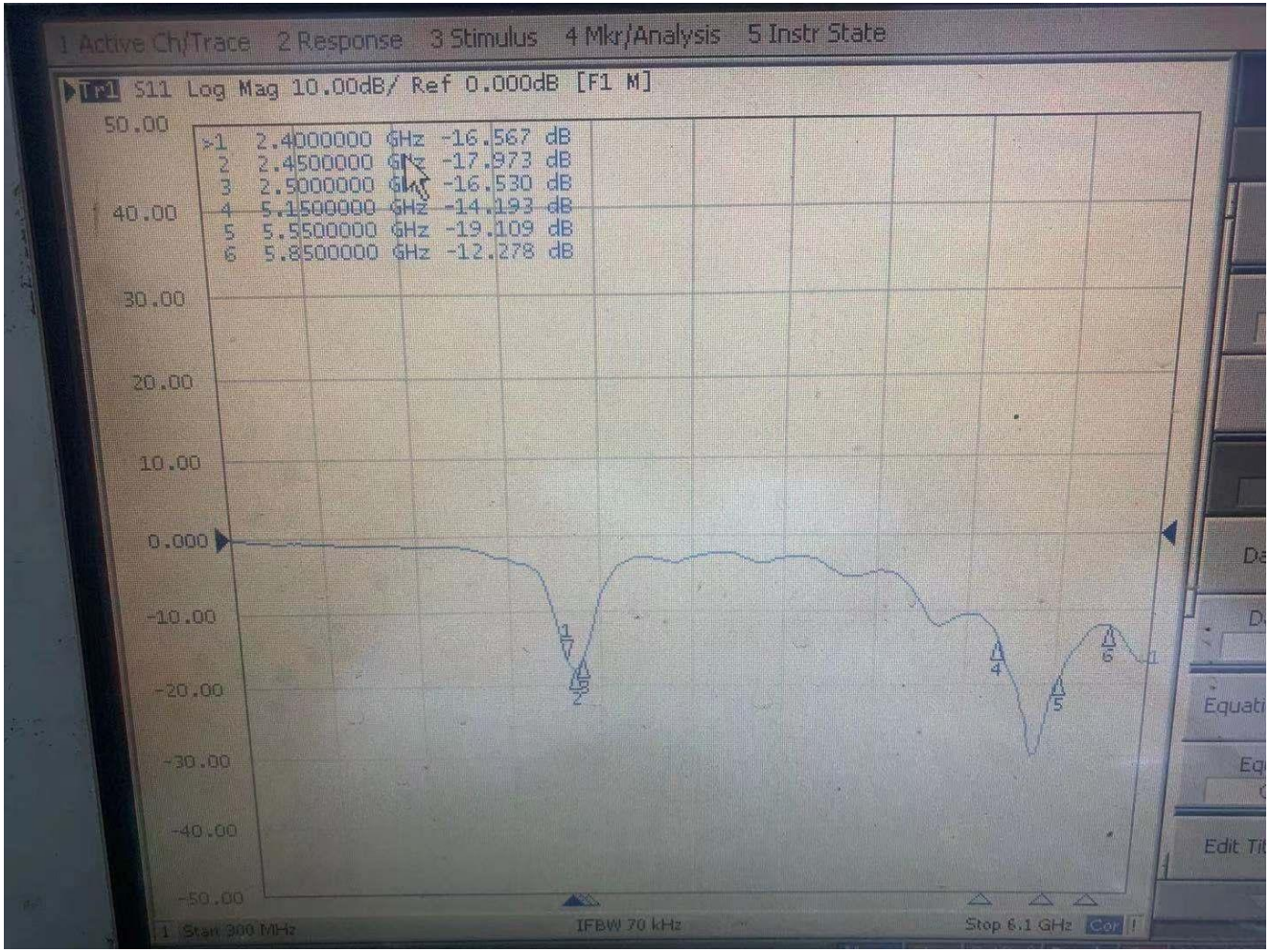
S-parameter test results WiFi

Test data No. 2



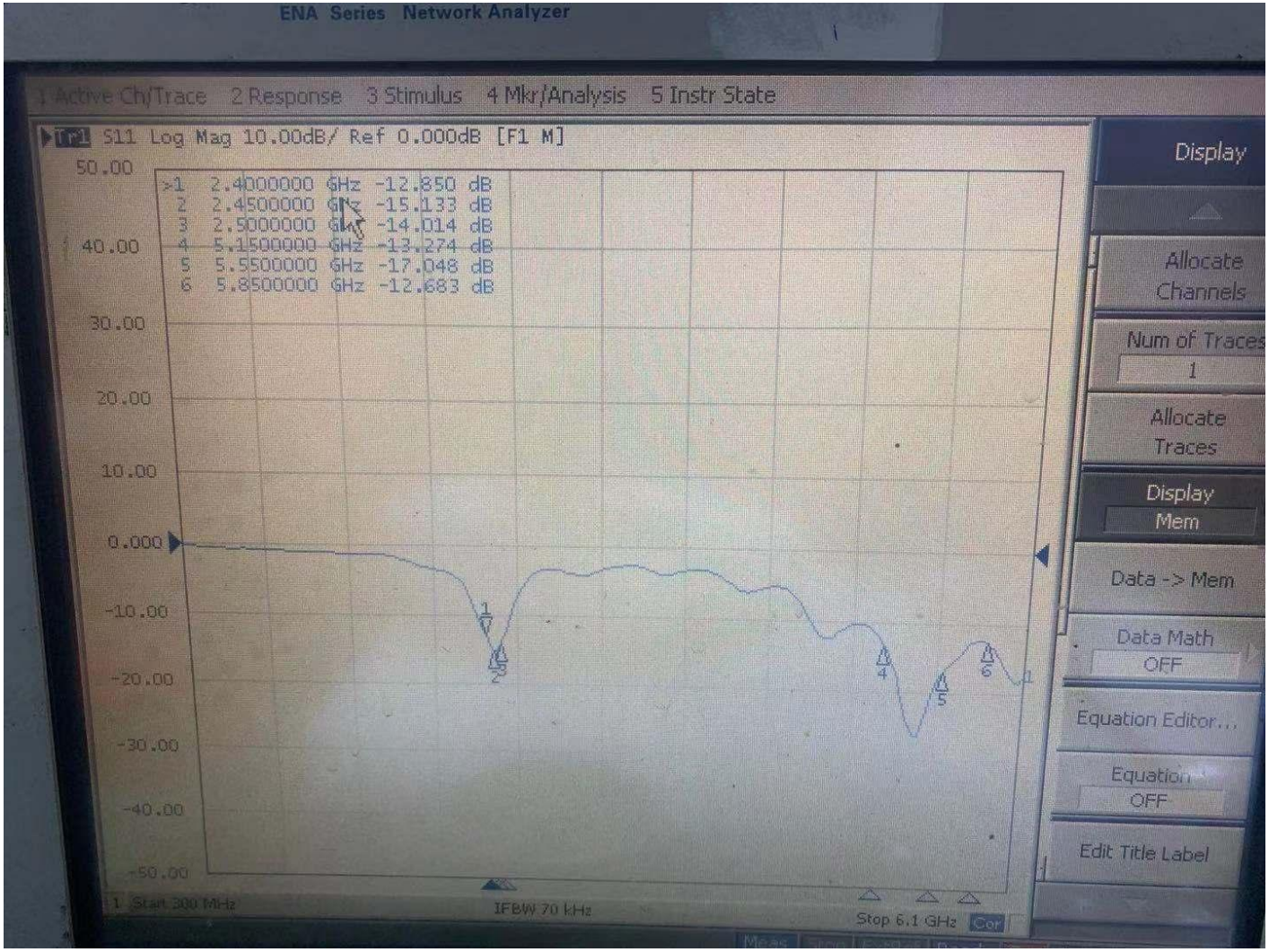
S-parameter test results WiFi

Test data No. 3



S-parameter test results WiFi

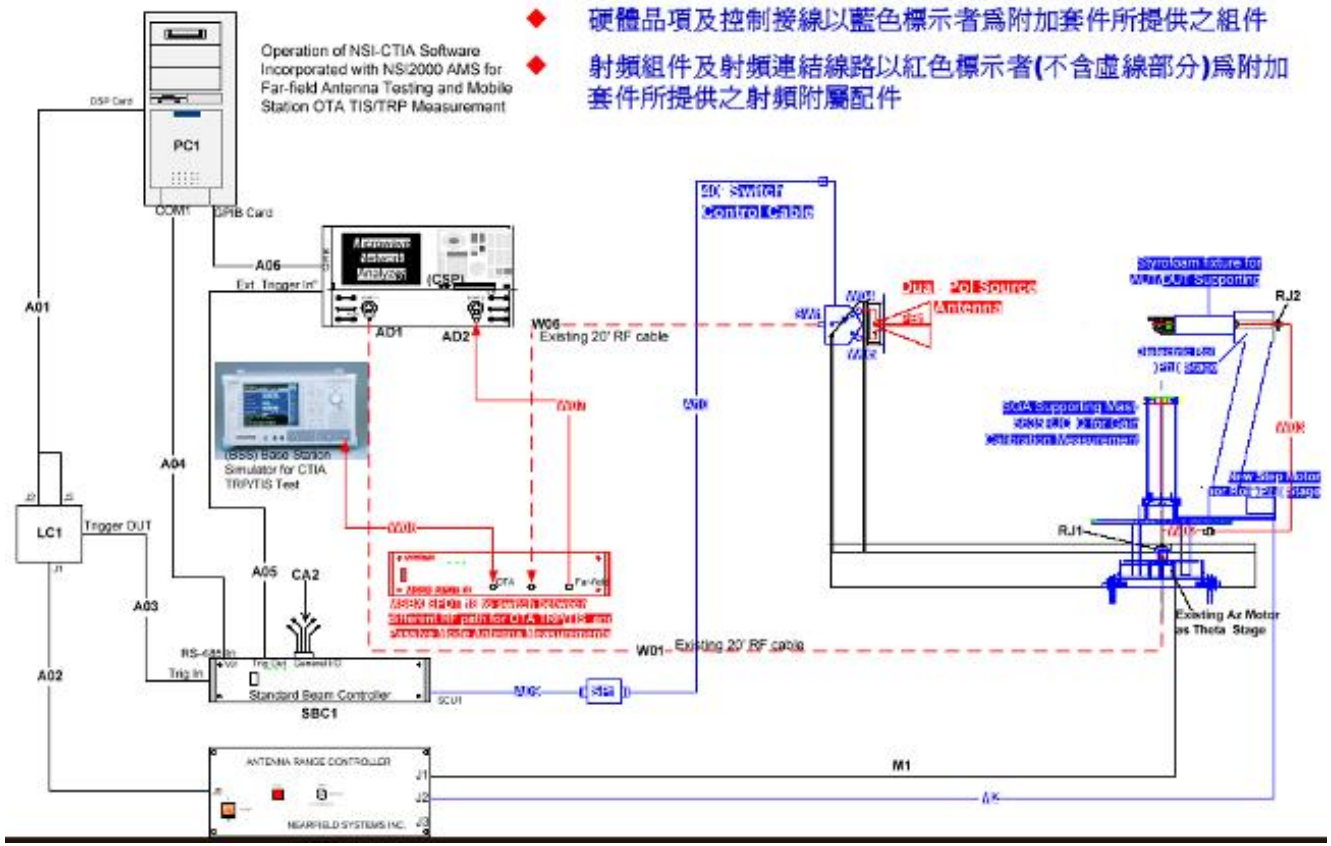
Test data No. 4



测试项目	测试对象	指标要求	测试频点（GHz）			
			2.4	2.5	5.15	5.825
回波损耗(dB)	1号	≥10	14.9	22.3	17.2	10.6
	2号		12.6	12.6	12.5	11.5
	3号		16.5	16.5	14.1	12.2
	4号		12.8	14.0	13.2	12.6

Gain & Patterns test results

testing environment



WiFi antenna gain Efficiency

1号测试数据

Test Point ID	Freq. (MHz)	Gain (dBi)	Efficiency (%)
1	2400.0	3.80	72.9%
2	2410.0	4.17	77.2%
3	2420.0	4.16	83.8%
4	2430.0	4.63	84.7%
5	2440.0	4.01	83.8%
6	2450.0	4.90	78.9%
7	2460.0	4.50	81.0%
8	2470.0	4.75	81.5%
9	2480.0	4.80	83.7%
10	2490.0	4.56	85.8%
11	2500.0	4.42	82.9%
12	5150.0	2.60	70.8%
13	5200.0	2.95	70.3%
14	5250.0	2.04	57.6%
15	5300.0	3.42	77.6%
16	5350.0	3.73	72.6%
17	5400.0	4.51	79.5%
18	5450.0	2.36	51.3%
19	5500.0	2.56	56.4%
20	5550.0	2.05	54.6%
21	5600.0	1.99	56.0%
22	5650.0	2.01	53.9%
23	5700.0	2.50	49.4%
24	5750.0	3.25	65.9%
25	5800.0	2.33	68.3%
26	5850.0	2.41	64.3%

WiFi antenna gain Efficiency

2号测试数据

Test Point ID	Freq. (MHz)	Gain (dBi)	Efficiency (%)
1	2400.0	4.65	74.3%
2	2410.0	4.76	79.6%
3	2420.0	5.15	76.8%
4	2430.0	4.73	80.2%
5	2440.0	4.15	74.6%
6	2450.0	4.36	75.9%
7	2460.0	4.70	71.7%
8	2470.0	4.13	74.1%
9	2480.0	4.23	72.1%
10	2490.0	4.33	72.3%
11	2500.0	4.13	70.3%
12	5150.0	3.94	72.6%
13	5200.0	3.77	65.6%
14	5250.0	4.10	79.5%
15	5300.0	4.15	85.3%
16	5350.0	4.79	76.6%
17	5400.0	3.77	83.1%
18	5450.0	4.42	75.0%
19	5500.0	4.71	71.7%
20	5550.0	3.62	79.9%
21	5600.0	4.66	78.8%
22	5650.0	4.18	79.5%
23	5700.0	3.35	71.6%
24	5750.0	4.46	70.1%
25	5800.0	4.69	80.5%
26	5850.0	4.90	81.5%

WiFi antenna gain Efficiency

3号测试数据

Test Point ID	Freq. (MHz)	Gain (dBi)	Efficiency (%)
1	2400.0	3.46	79.1%
2	2410.0	4.27	80.5%
3	2420.0	4.26	84.7%
4	2430.0	3.96	81.3%
5	2440.0	4.90	78.7%
6	2450.0	4.46	75.0%
7	2460.0	5.16	75.7%
8	2470.0	4.11	78.9%
9	2480.0	5.20	77.5%
10	2490.0	3.91	75.8%
11	2500.0	4.62	74.2%
12	5150.0	4.63	71.9%
13	5200.0	3.93	70.6%
14	5250.0	3.53	59.5%
15	5300.0	6.05	78.8%
16	5350.0	5.24	74.6%
17	5400.0	5.02	72.1%
18	5450.0	2.96	50.8%
19	5500.0	3.11	54.1%
20	5550.0	3.01	49.8%
21	5600.0	1.63	51.8%
22	5650.0	2.77	55.7%
23	5700.0	2.99	64.2%
24	5750.0	3.51	63.5%
25	5800.0	3.70	65.4%
26	5850.0	4.06	63.5%

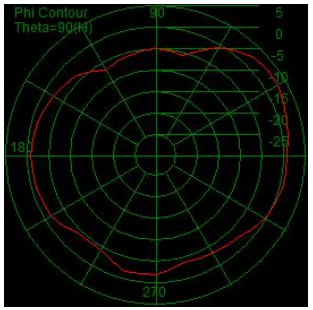
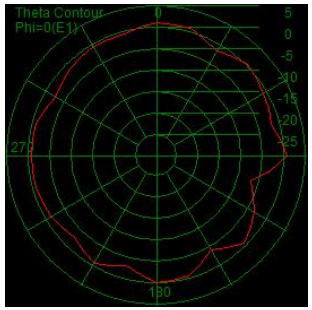
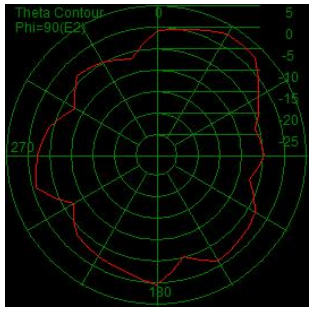
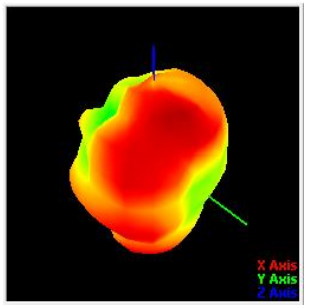
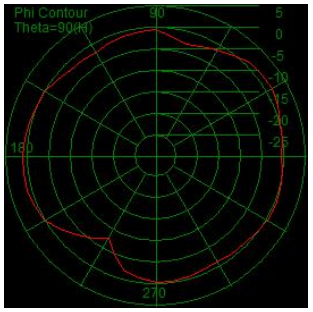
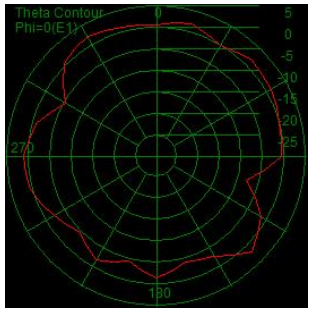
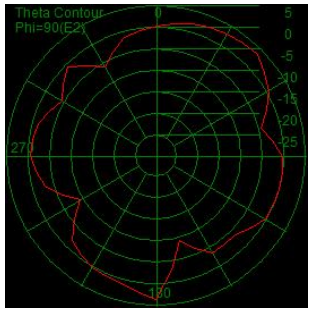
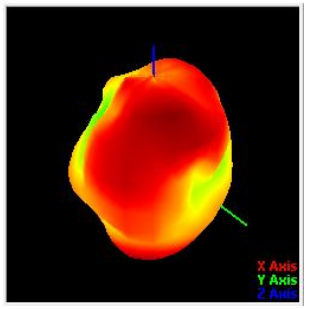
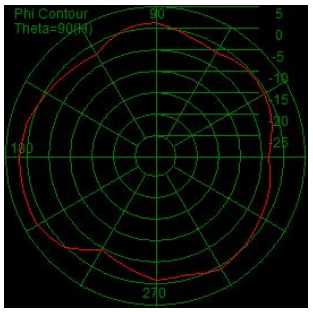
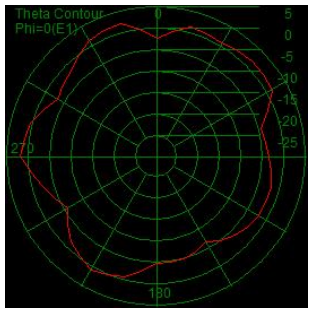
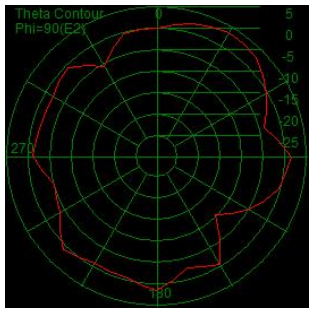
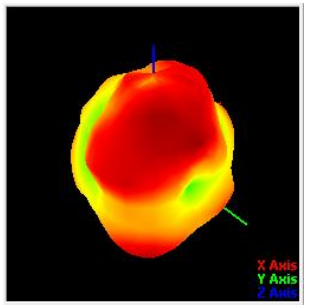
WiFi antenna gain Efficiency

4号测试数据

Test Point ID	Freq. (MHz)	Gain (dBi)	Efficiency (%)
1	2400.0	3.53	75.5%
2	2410.0	4.60	74.3%
3	2420.0	3.56	79.9%
4	2430.0	4.81	80.2%
5	2440.0	3.89	77.7%
6	2450.0	5.02	80.9%
7	2460.0	4.33	71.4%
8	2470.0	4.43	80.4%
9	2480.0	4.93	69.3%
10	2490.0	2.97	76.0%
11	2500.0	4.33	68.1%
12	5150.0	4.19	73.3%
13	5200.0	3.60	70.4%
14	5250.0	2.75	62.7%
15	5300.0	5.92	75.7%
16	5350.0	4.91	74.7%
17	5400.0	5.33	87.9%
18	5450.0	4.79	60.1%
19	5500.0	3.65	56.6%
20	5550.0	2.22	66.9%
21	5600.0	2.78	57.5%
22	5650.0	2.00	54.8%
23	5700.0	1.79	53.5%
24	5750.0	4.66	60.0%
25	5800.0	4.60	59.3%
26	5850.0	4.46	59.1%

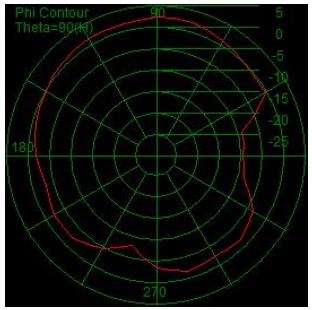
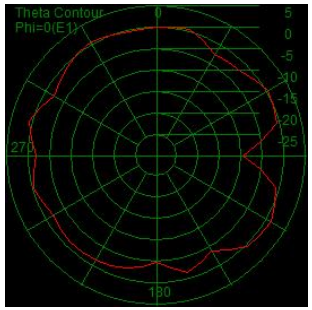
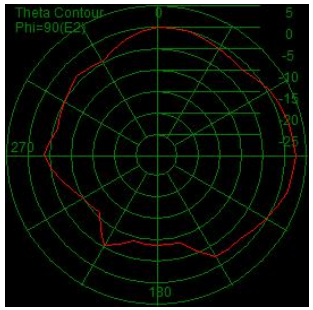
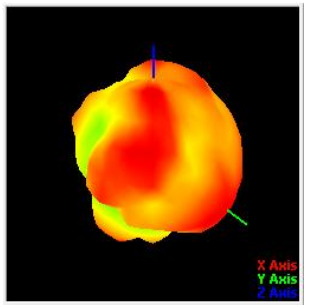
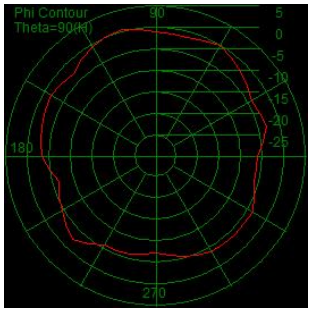
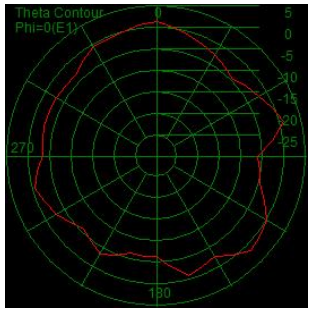
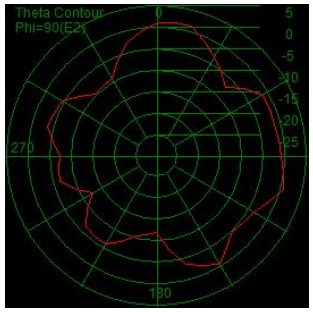
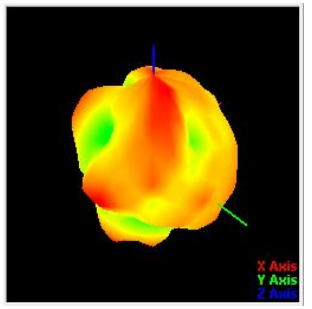
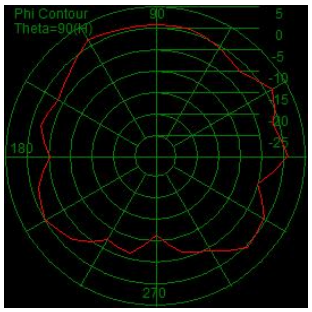
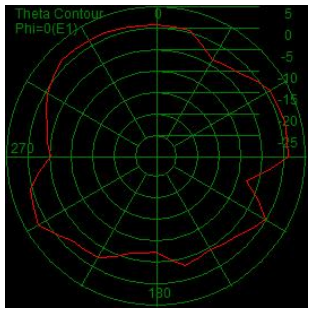
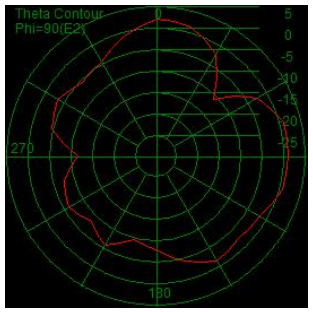
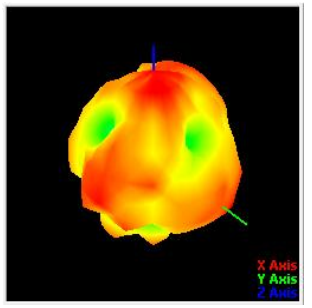
Gain & Patterns test results 3D patterns

1号 2.4G

	XoY	XoZ	YoZ	3D
2400				
2450				
2500				

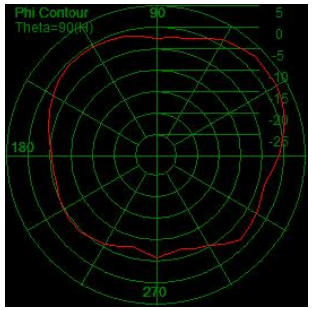
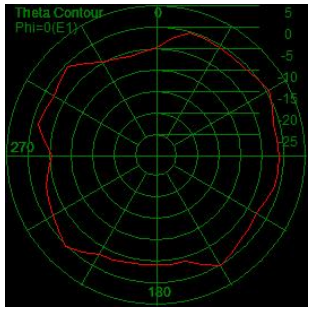
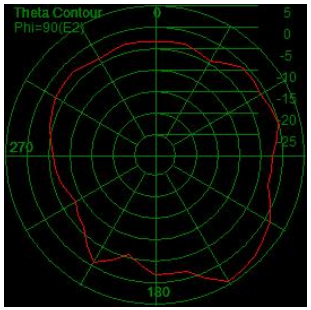
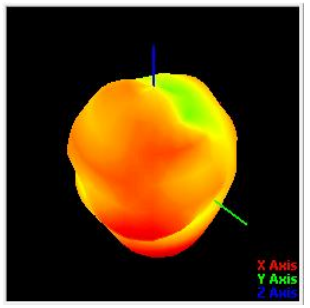
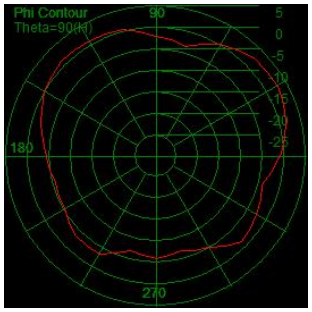
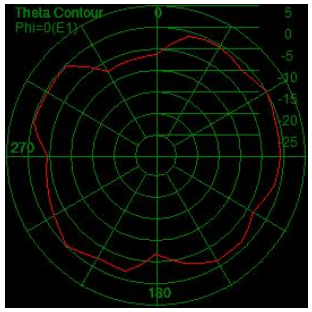
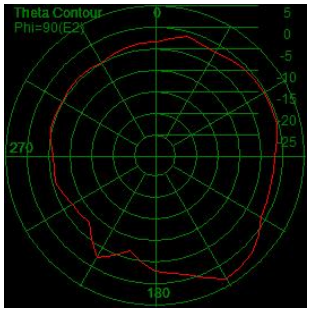
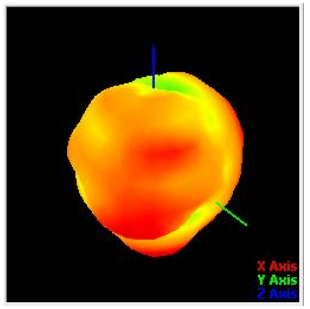
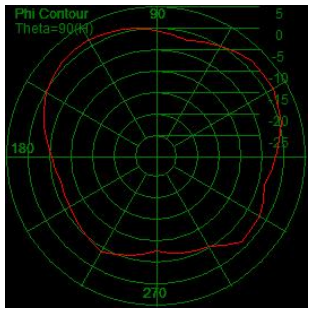
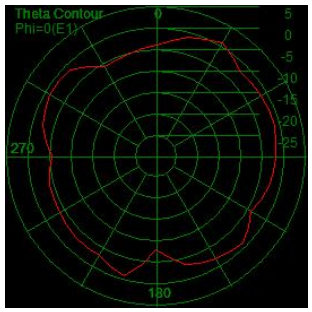
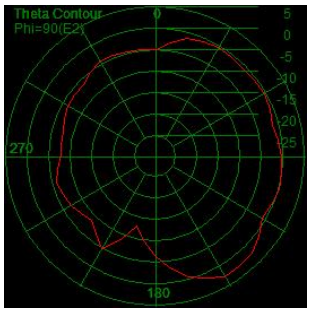
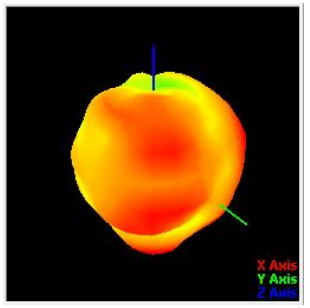
Gain & Patterns test results 3D patterns

1号 5.8G

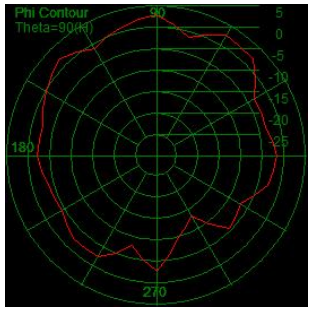
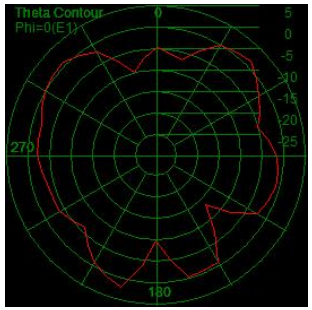
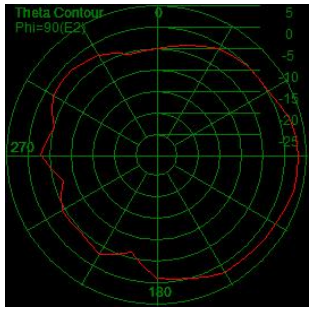
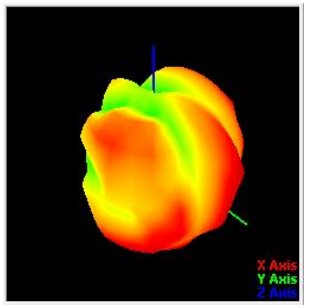
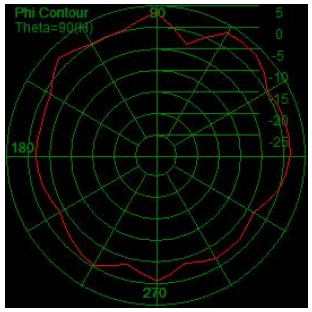
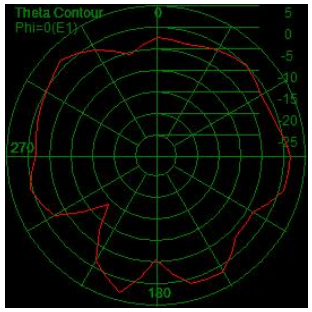
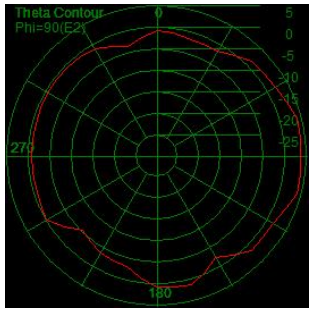
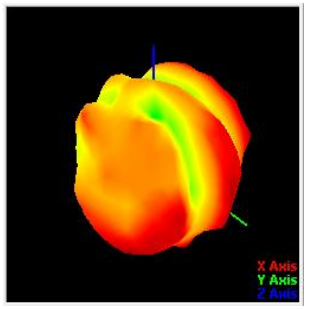
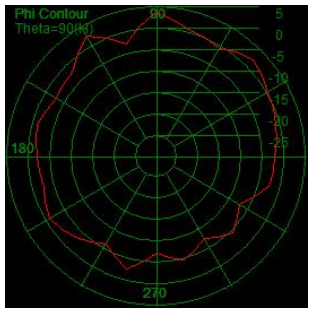
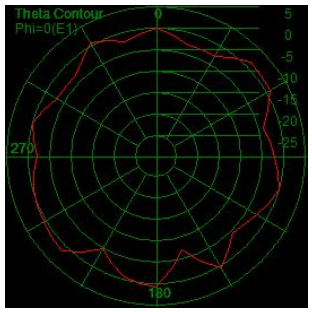
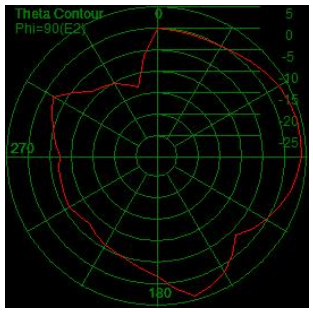
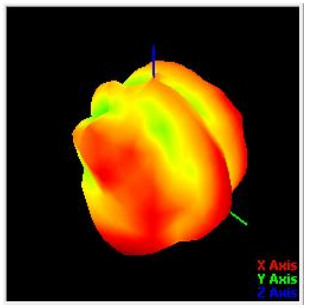
	XoY	XoZ	YoZ	3D
5150				
5550				
5850				

Gain & Patterns test results 3D patterns

2号 2.4G

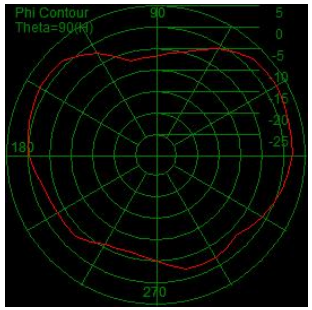
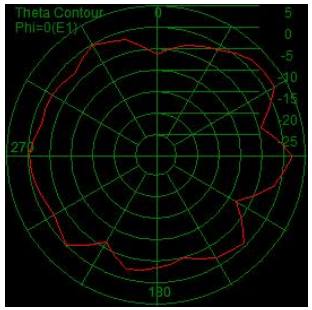
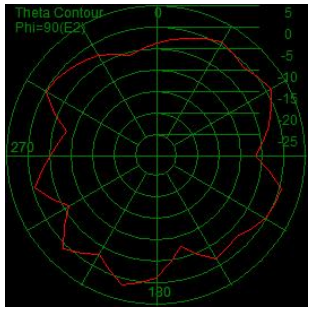
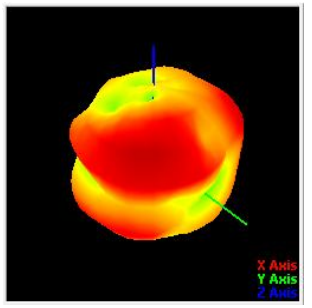
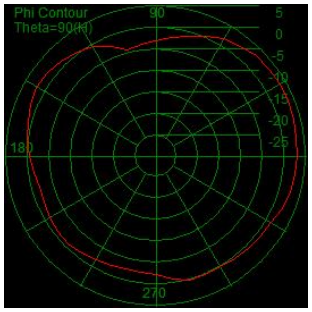
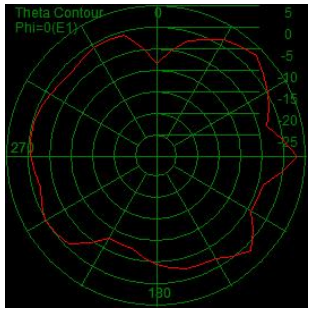
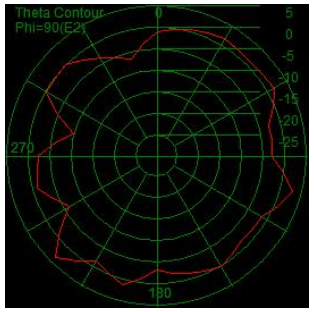
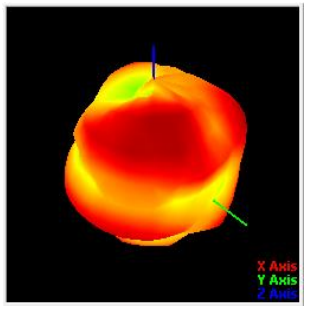
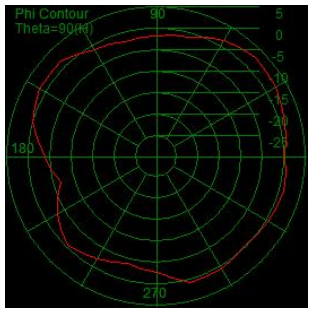
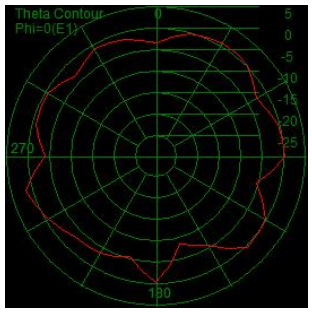
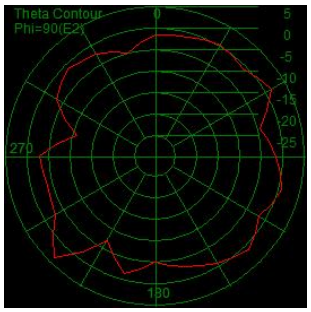
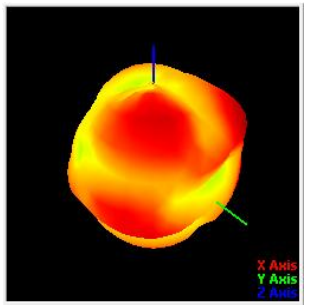
	XoY	XoZ	YoZ	3D
2400				
2450				
2500				

Gain & Patterns test results 3D patterns 2号 5.8G

	XoY	XoZ	YoZ	3D
5150				
5550				
5850				

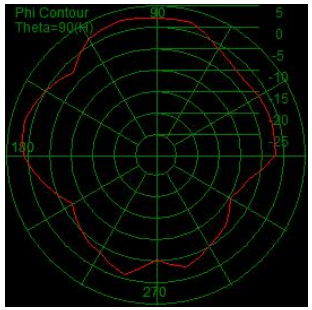
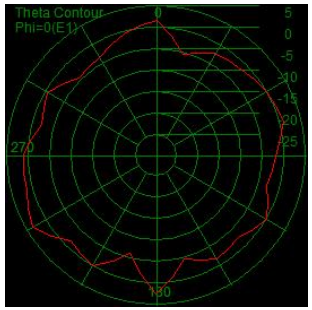
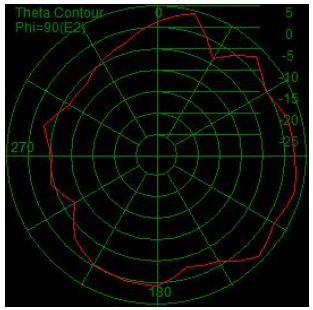
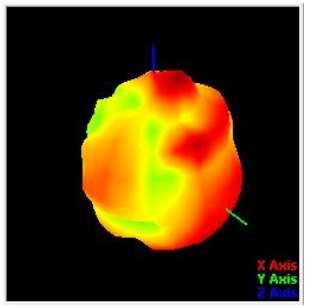
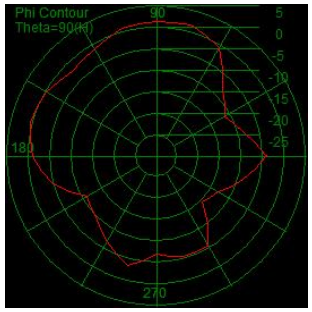
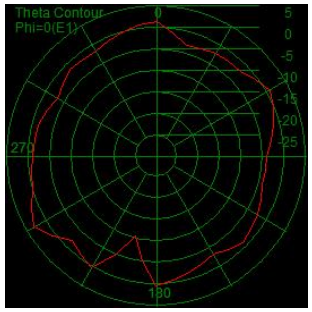
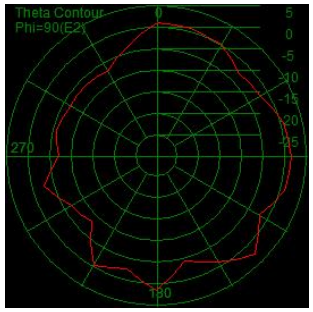
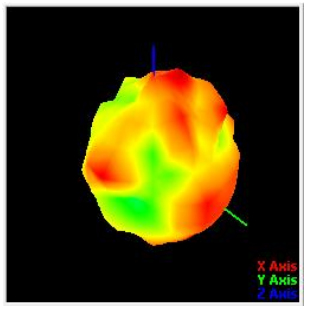
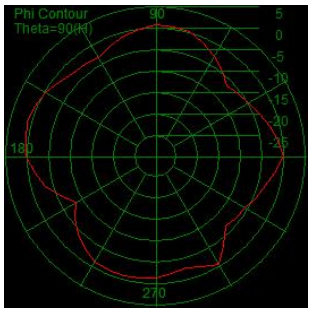
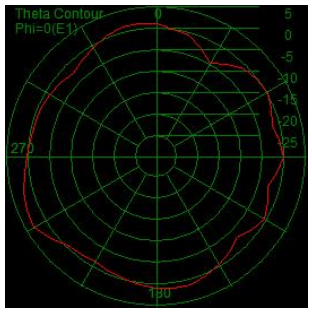
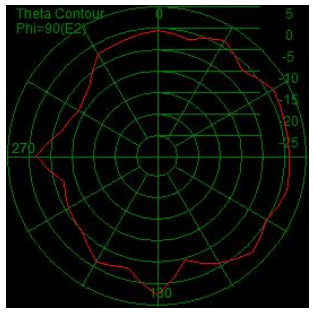
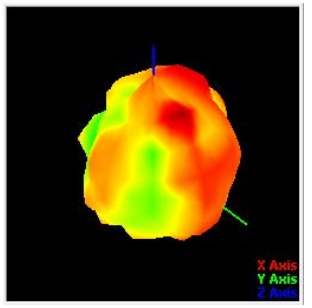
Gain & Patterns test results 3D patterns

3号 2.4G

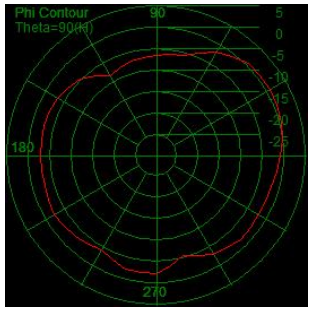
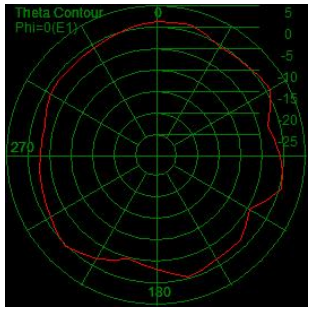
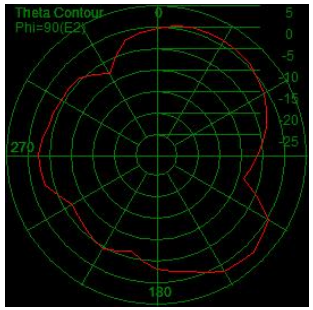
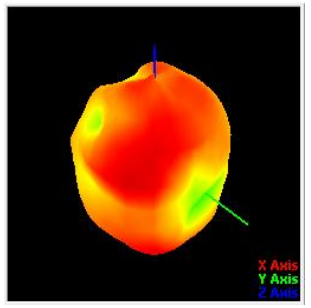
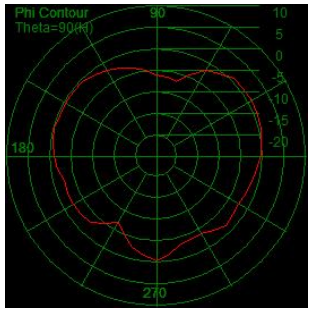
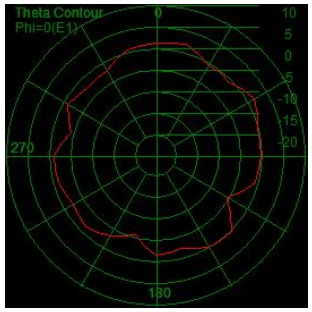
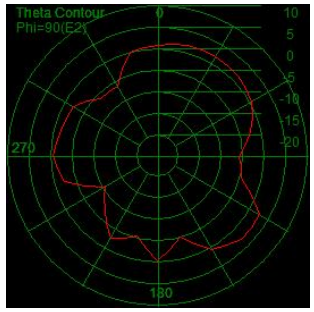
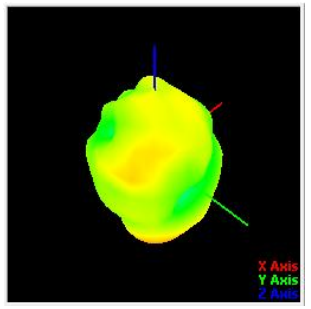
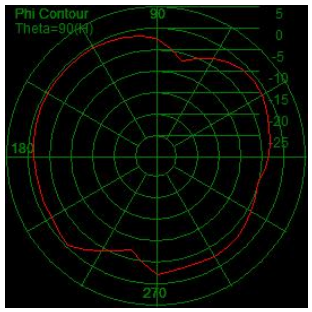
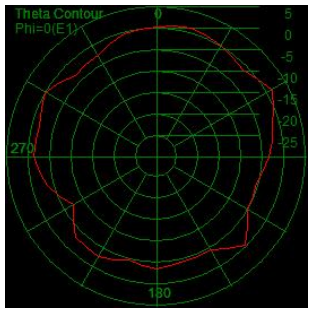
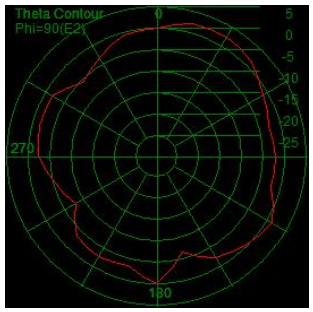
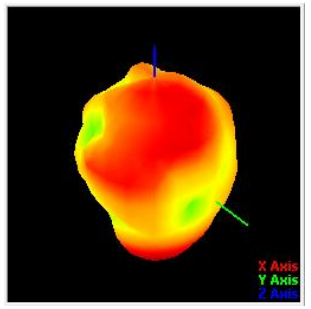
	XoY	XoZ	YoZ	3D
2400				
2450				
2500				

Gain & Patterns test results 3D patterns

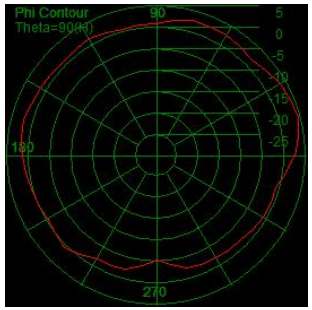
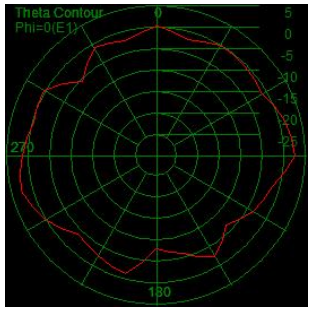
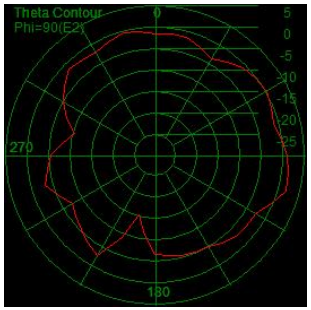
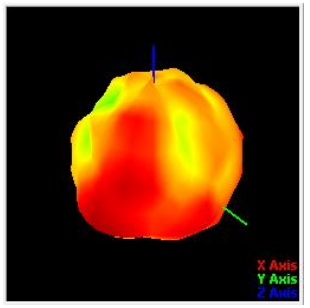
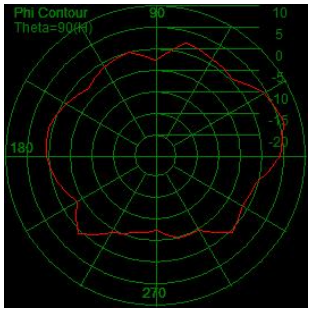
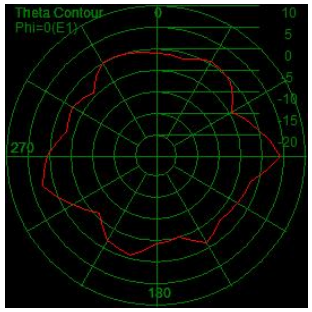
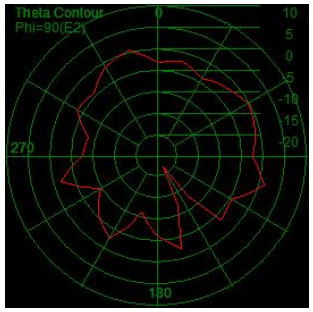
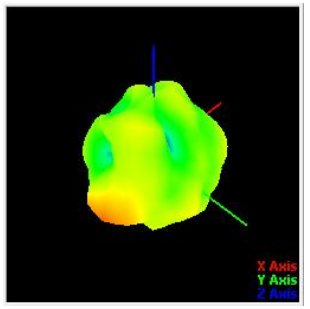
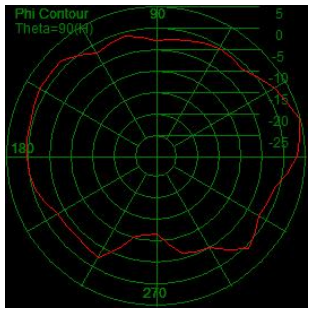
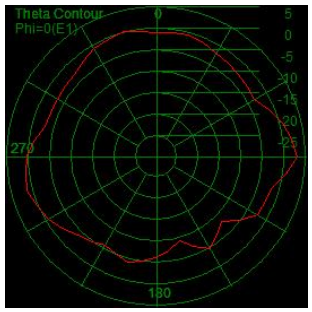
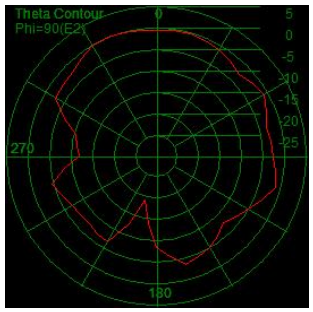
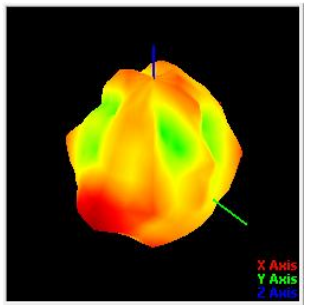
3号 5.8G

	XoY	XoZ	YoZ	3D
5150				
5550				
5850				

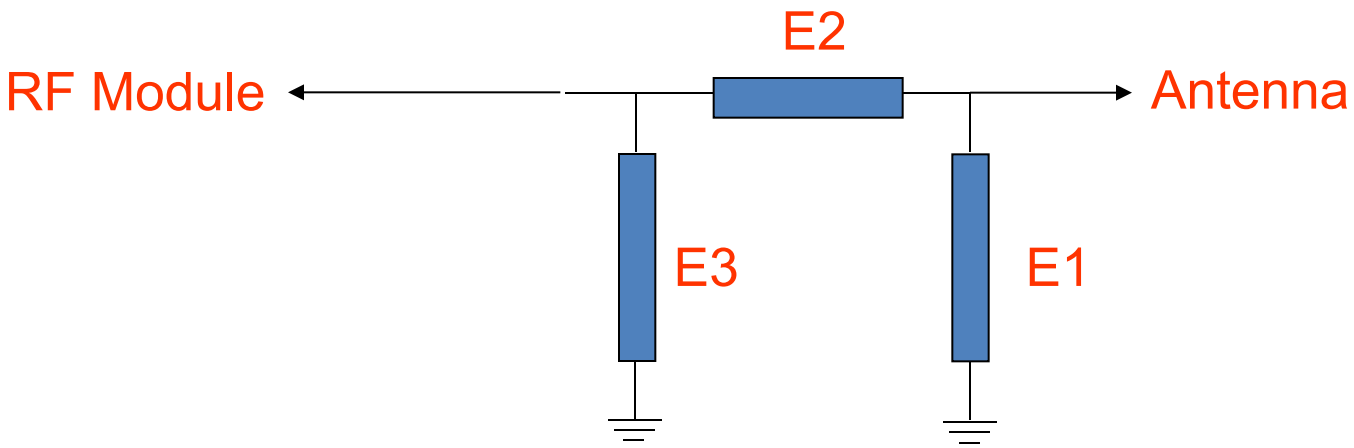
Gain & Patterns test results 3D patterns 4号 2.4G

	XoY	XoZ	YoZ	3D
2400				
2450				
2500				

Gain & Patterns test results 3D patterns 4号5.8G

	XoY	XoZ	YoZ	3D
5150				
5550				
5850				

Antenna Matching



Element	Value
E1(0402)	NC
E2(0402)	0 OHM
E3(0402)	NC

匹配未做更改

summary

天线的回波损耗满足指标要求；且隔离度满足指标要求

•The antenna return loss meets the index requirements; and the isolation meets the index requirements.


Thank you for your guidance
DONGGUAN SENLING INDUSTRIAL CO.LTD