

Gaoke Ant Co.,Ltd.
No. 22, Shengang Guangcong South Road,
Taiping Town, Conghua District,
Guangzhou

WiFi antenna test report

Date: November 19, 2022

Sales Person: Wei Qiaoling 18927480411 gkzs2@gkzs.com.cn

Technical Director: Yang Jingsong 15915759775 gkzs9@gkzs.com.cn

一、 Project Introduction

Client Name: Tianpai Electronics (Shenzhen) Co., LTD

Machine type: vehicle navigation instrument

Project name: XXX

Antenna name: WIFI antenna

Antenna material: PCB

Antenna frequency: 2.4-2.4835GHz&5.170-5.850GHz

Antenna area: Inside the machine

Antenna status: Sample

Antenna size: 35mm*8mm

Lead length: 29CM.

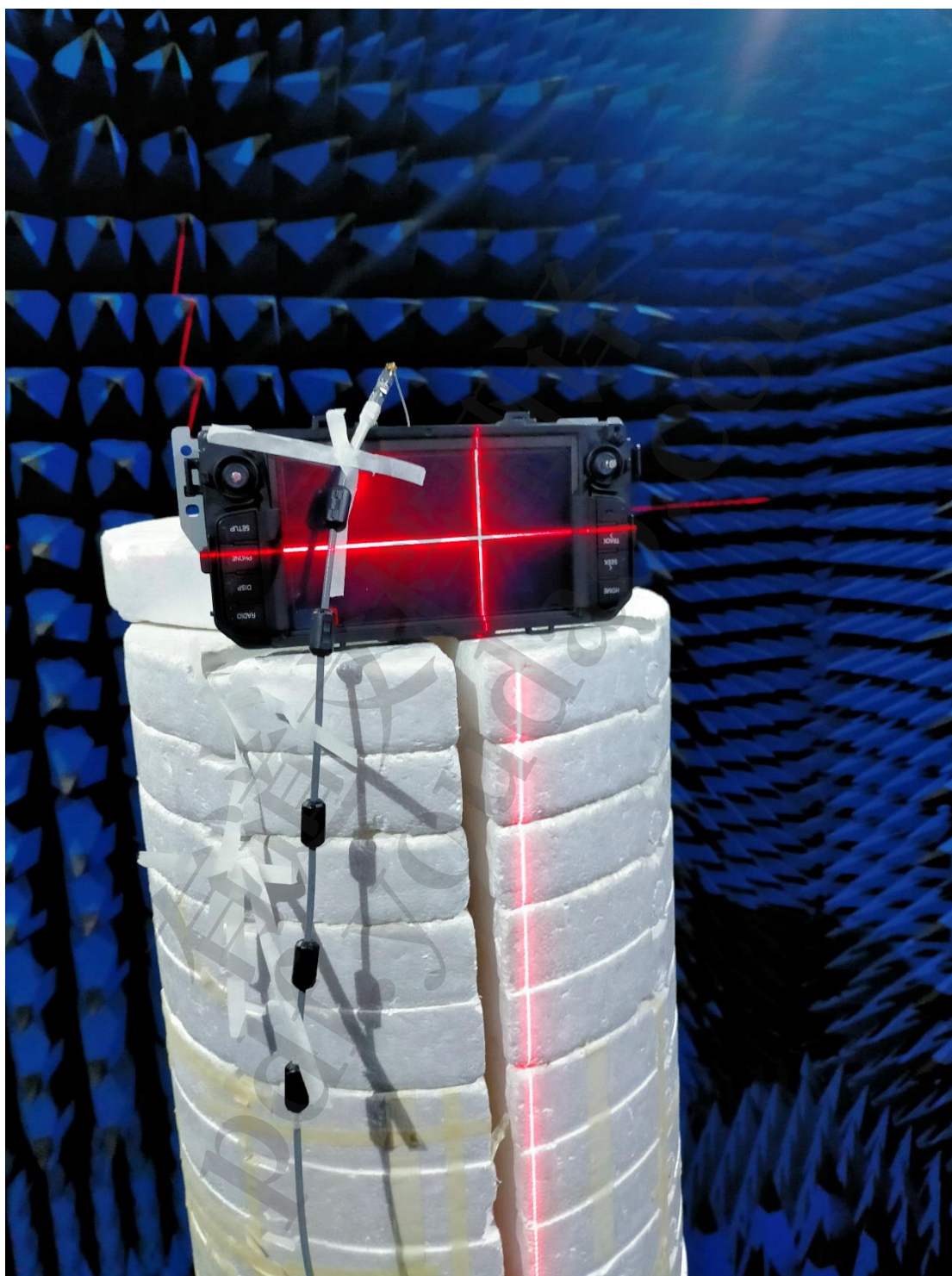
Antenna tpye: PCB antenna

Antenna model: GKZS-2.4&5.8G-AC358-RF1.13I-290

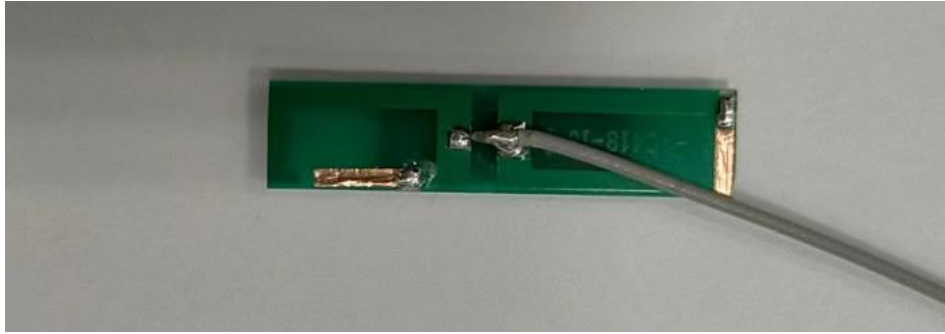
Second, the test environment

Test equipment: network analyzer, microwave anechoic room

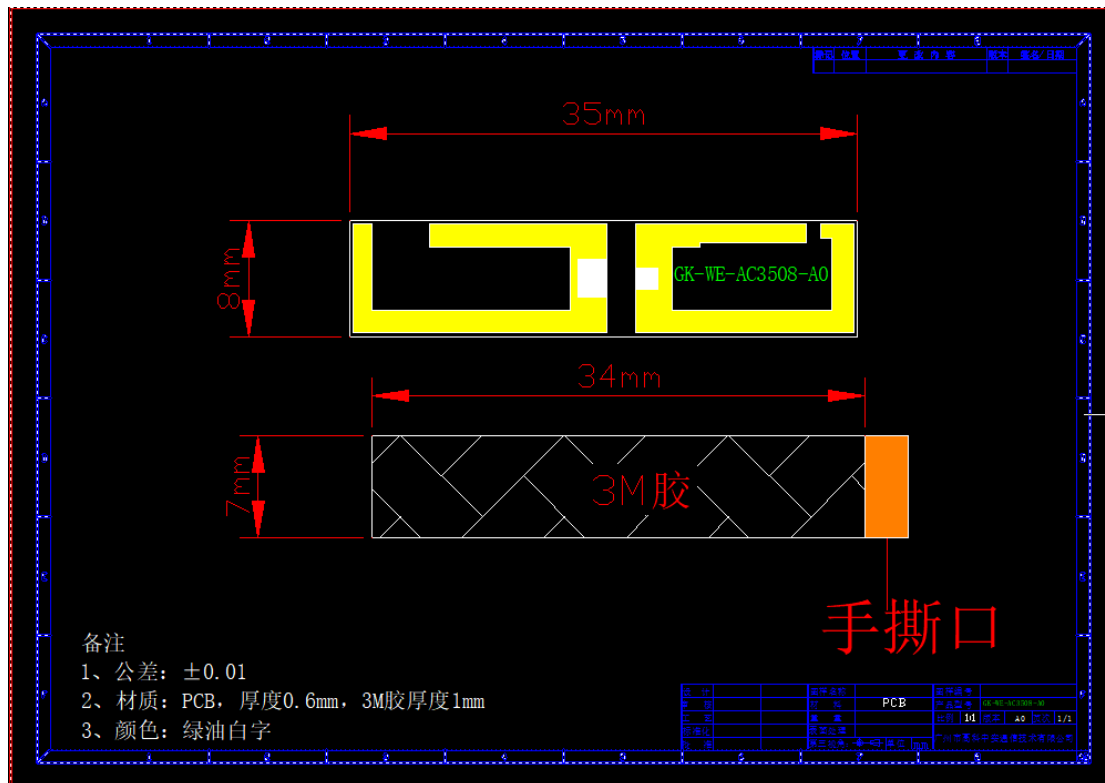
Tester: Yuming Huang



二、 Physical image of antenna



Antenna size diagram



Four, placing position

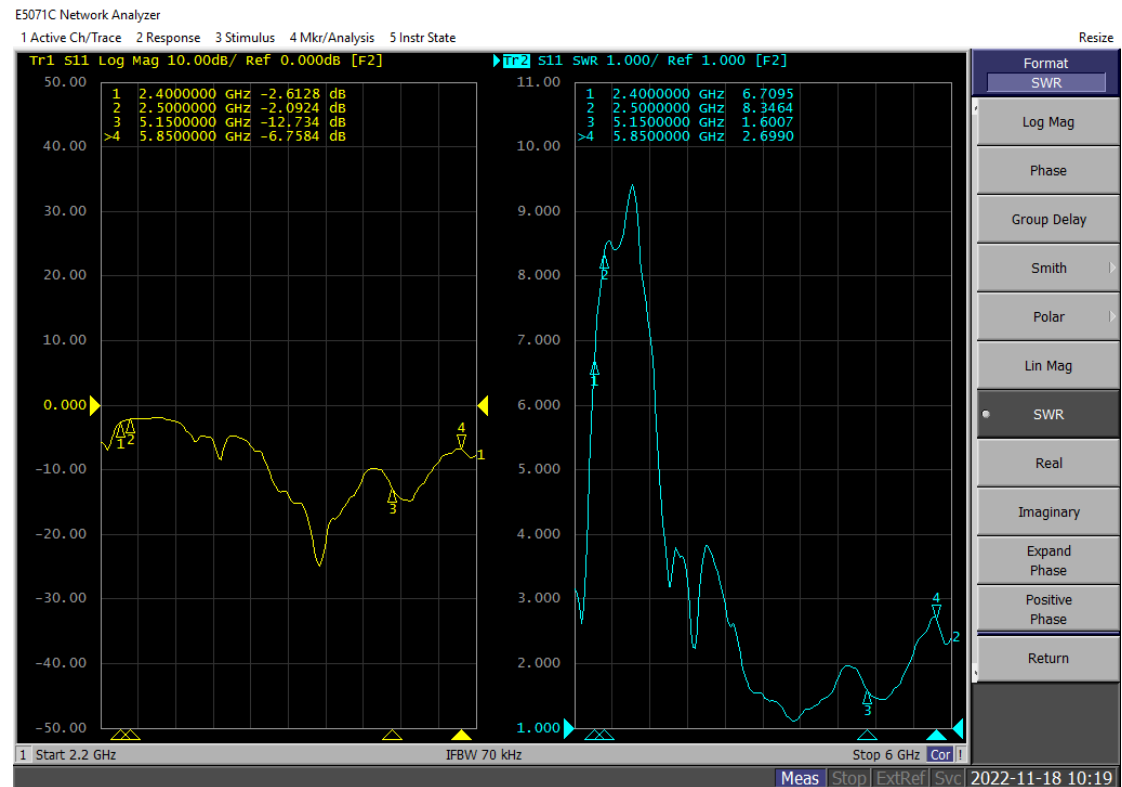
The picture of the antenna position of the prototype



V. Test data

5.1 Customer antenna test data

5.1.1 Return loss and standing wave ratio of customer's original band antenna

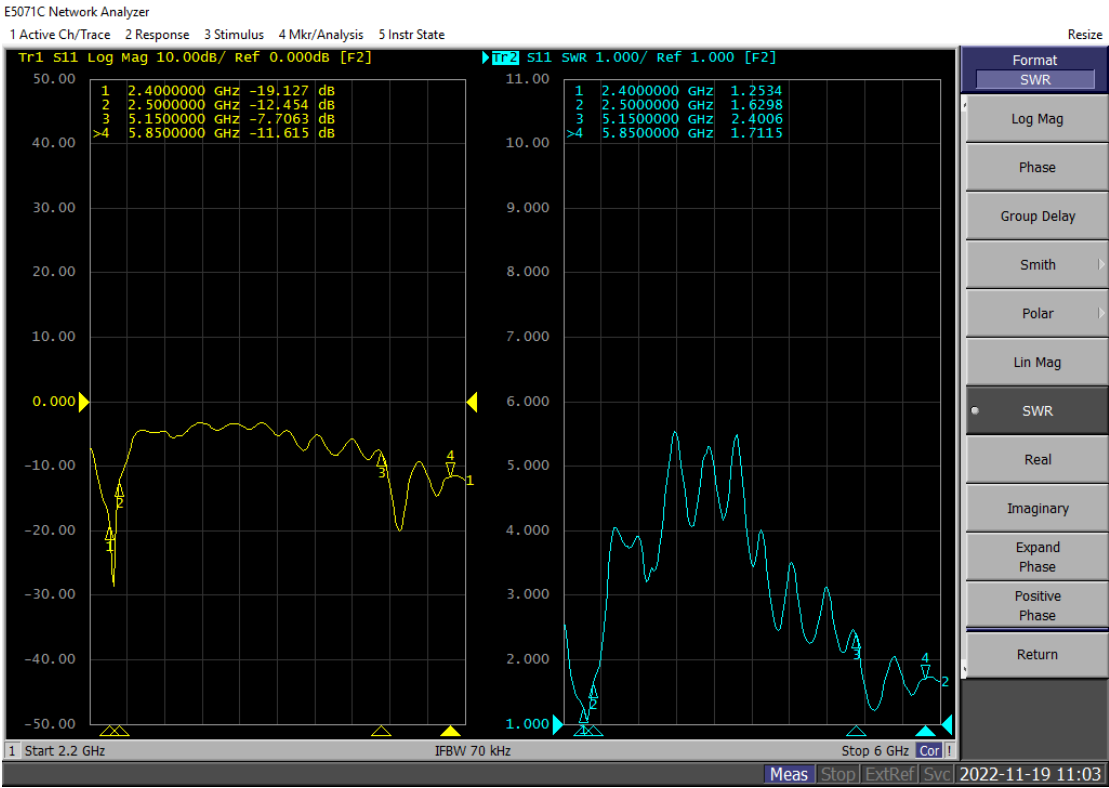


5.1.3 Customer original darkroom with antenna passive test data

Frequency ID	Frequency (MHz)	Efficiency (dBi)	Gain (dBi)	Efficiency (%)
1	2380.0	-14.39	-9.21	3.64
2	2390.0	-15.30	-9.41	2.95
3	2400.0	-13.93	-7.57	4.05
4	2410.0	-15.77	-9.15	2.65
5	2420.0	-16.65	-9.51	2.16
6	2430.0	-15.50	-8.19	2.82
7	2440.0	-15.15	-7.70	3.06
8	2450.0	-17.17	-9.78	1.92
9	2460.0	-16.57	-9.29	2.20
10	2470.0	-16.33	-9.22	2.33
11	2480.0	-18.12	-11.07	1.54
12	2490.0	-17.61	-10.43	1.73
13	2500.0	-16.77	-9.53	2.10
14	2510.0	-18.75	-11.44	1.33
15	2520.0	-19.58	-12.34	1.10
16	5150.0	-6.92	-0.57	20.34
17	5170.0	-6.66	-0.08	21.60
18	5190.0	-6.46	0.14	22.58
19	5210.0	-6.40	-0.04	22.91
20	5230.0	-6.48	0.21	22.48
21	5250.0	-6.02	0.44	24.98
22	5270.0	-6.15	0.65	24.28
23	5290.0	-5.82	0.95	26.16
24	5310.0	-5.44	1.19	28.59
25	5330.0	-6.28	0.21	23.57
26	5350.0	-6.78	-0.52	21.00
27	5370.0	-6.47	-0.28	22.55
28	5390.0	-7.21	-1.56	19.00
29	5410.0	-7.21	-1.25	18.99
30	5430.0	-7.21	-0.39	19.03
31	5450.0	-8.34	-0.84	14.67
32	5470.0	-8.63	-0.60	13.71
33	5490.0	-8.65	-0.44	13.63
34	5510.0	-9.63	-1.11	10.88
35	5530.0	-9.65	-1.32	10.83
36	5550.0	-9.66	-1.57	10.82
37	5570.0	-9.70	-1.98	10.70
38	5590.0	-9.45	-2.10	11.36
39	5610.0	-9.61	-2.47	10.93
40	5630.0	-9.47	-2.28	11.31
41	5650.0	-9.29	-2.14	11.79
42	5670.0	-8.86	-2.00	12.99
43	5690.0	-8.85	-2.28	13.02
44	5710.0	-9.49	-2.69	11.26
45	5730.0	-8.79	-1.71	13.20
46	5750.0	-8.41	-0.91	14.41
47	5770.0	-9.52	-1.95	11.17
48	5790.0	-8.86	-1.05	13.00
49	5810.0	-8.75	-1.41	13.35
50	5830.0	-9.29	-1.84	11.79
51	5850.0	-8.55	-1.41	13.97

5.2 High-Tech antenna test data

5.2.1 Return loss and standing wave ratio of high-tech antenna



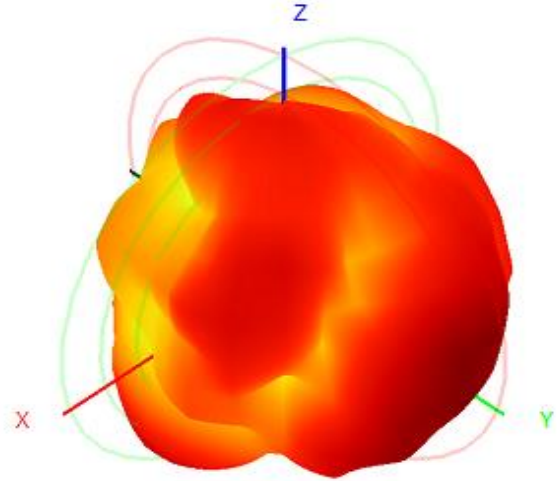
5.2.2 HKO antenna darkroom passive test data

Frequency ID	Frequency (MHz)	Efficiency (dBi)	Gain (dBi)	Efficiency (%)
1	2380.0	-3.84	3.49	41.34
2	2390.0	-3.88	3.54	40.89
3	2400.0	-3.86	3.76	41.15
4	2410.0	-3.85	3.84	41.25
5	2420.0	-3.68	4.04	42.88
6	2430.0	-3.61	4.30	43.51
7	2440.0	-3.64	4.52	43.29
8	2450.0	-3.85	4.41	41.18
9	2460.0	-3.93	4.27	40.50
10	2470.0	-4.07	4.06	39.21
11	2480.0	-4.11	3.74	38.80
12	2490.0	-4.09	3.65	38.96
13	2500.0	-4.26	3.46	37.53
14	2510.0	-4.38	3.27	36.51
15	2520.0	-4.48	3.12	35.64
16	5150.0	-3.19	3.31	48.02
17	5170.0	-3.23	2.99	47.53
18	5190.0	-3.39	2.74	45.86
19	5210.0	-3.37	3.05	45.99
20	5230.0	-3.10	2.93	48.94
21	5250.0	-2.93	3.63	50.90
22	5270.0	-2.99	4.11	50.20
23	5290.0	-2.89	4.17	51.41
24	5310.0	-2.84	4.09	52.02
25	5330.0	-2.96	3.60	50.52
26	5350.0	-3.22	3.24	47.68
27	5370.0	-3.65	2.97	43.16
28	5390.0	-3.53	3.21	44.33
29	5410.0	-3.57	3.39	43.95
30	5430.0	-3.67	3.63	42.93
31	5450.0	-3.93	3.27	40.44
32	5470.0	-3.96	3.74	40.17
33	5490.0	-3.84	4.21	41.32
34	5510.0	-3.75	4.46	42.16
35	5530.0	-3.75	4.35	42.19
36	5550.0	-3.55	4.39	44.12
37	5570.0	-3.23	4.56	47.51
38	5590.0	-3.12	4.83	48.78
39	5610.0	-3.23	4.50	47.50
40	5630.0	-3.15	4.36	48.47
41	5650.0	-2.92	4.39	51.03
42	5670.0	-2.90	4.68	51.27
43	5690.0	-2.98	4.54	50.37
44	5710.0	-3.00	4.20	50.09
45	5730.0	-2.86	4.30	51.72
46	5750.0	-2.88	3.95	51.48
47	5770.0	-2.94	3.88	50.77
48	5790.0	-2.92	3.67	51.03
49	5810.0	-2.90	3.63	51.28
50	5830.0	-2.87	3.79	51.65
51	5850.0	-3.16	3.50	48.30

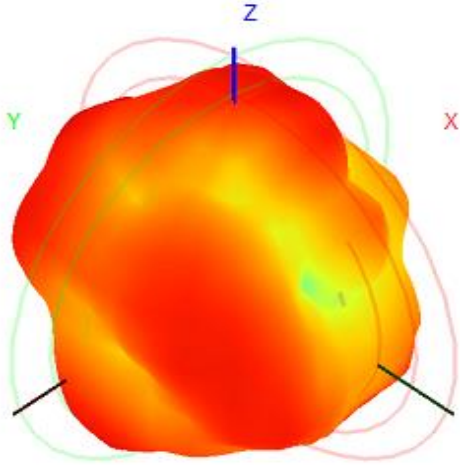
Vi. Test Conclusion:

Compared with the customer's original WIFI antenna, the gain and efficiency of the WIFI antenna designed by Gaoke have been significantly improved, which can fully meet the customer's normal use.

2380.0MHz H+V, Eff: 41.3%

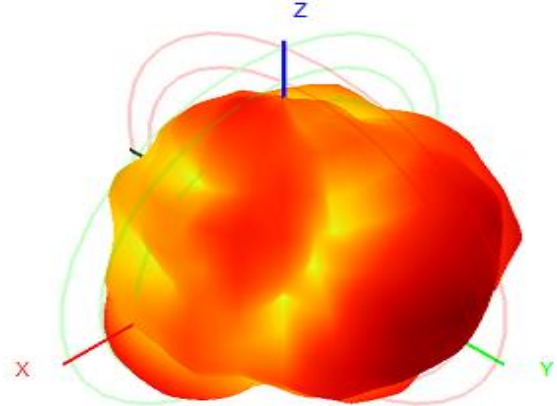


Back View

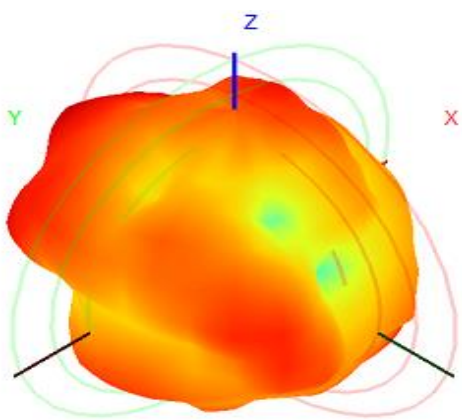


3.49
1.65
-0.19
-2.03
-3.88
-5.72
-7.56
-9.4
-11.24
-13.09
-14.93
-16.77
-18.61
-20.46
-22.3
-24.14
-25.98
-27.82

2440.0MHz H+V, Eff: 43.3%

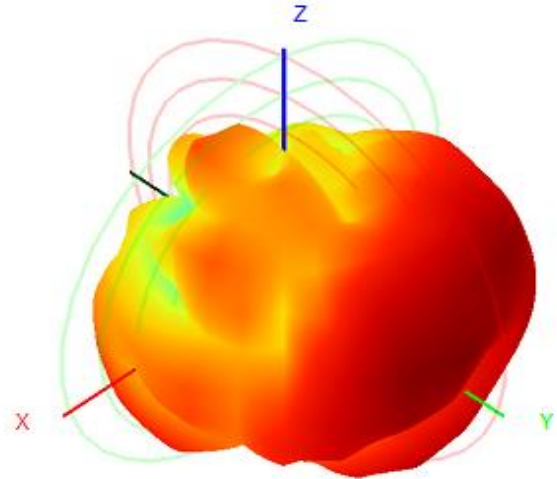


Back View

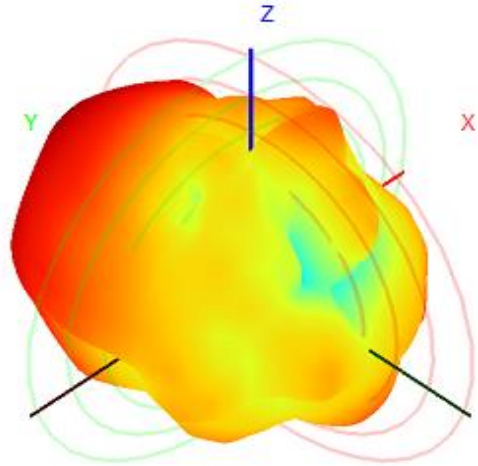


4.52
2.68
0.84
-1.01
-2.85
-4.69
-6.53
-8.37
-10.22
-12.06
-13.9
-15.74
-17.59
-19.43
-21.27
-23.11
-24.95
-26.8

2520.0MHz H+V, Eff: 35.6%

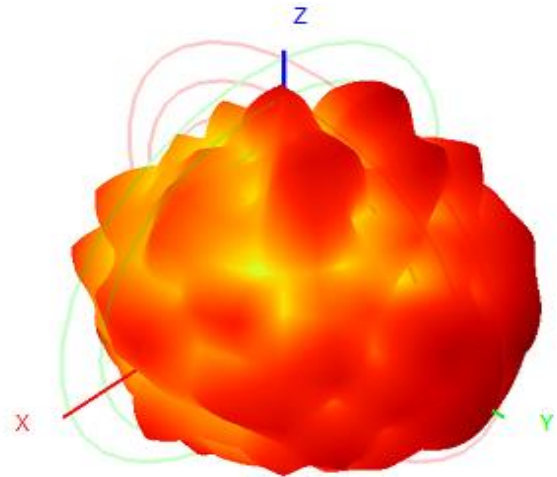


Back View

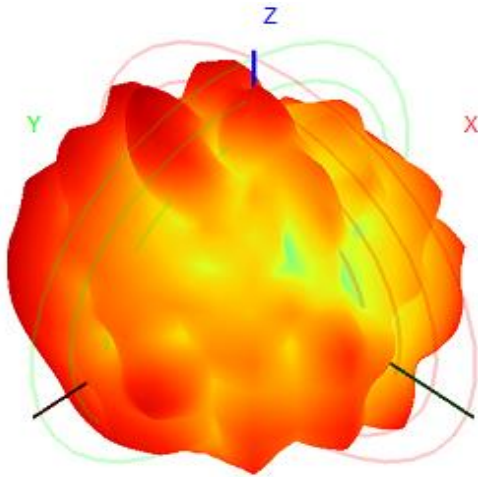


3.12
1.28
-0.56
-2.4
-4.24
-6.09
-7.93
-9.77
-11.61
-13.45
-15.3
-17.14
-18.98
-20.82
-22.67
-24.51
-26.35
-28.19

5150.0MHz H+V, Eff: 48.0%

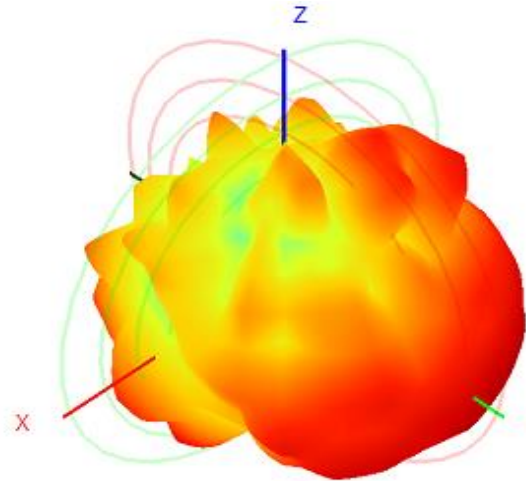


Back View

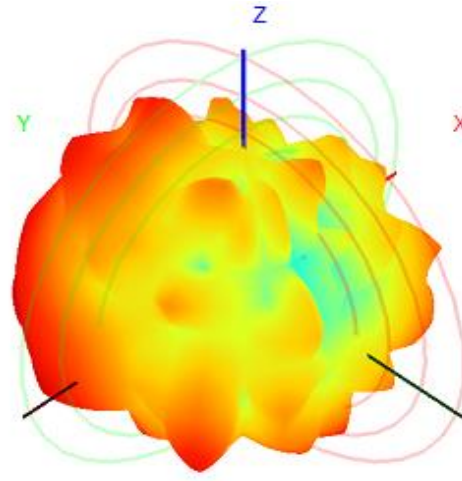


- 3.31
- 1.47
- 0.38
- 2.22
- 4.06
- 5.9
- 7.74
- 9.59
- 11.43
- 13.27
- 15.11
- 16.95
- 18.8
- 20.64
- 22.48
- 24.32
- 26.16
- 28.01

5510.0MHz H+V, Eff: 42.2%

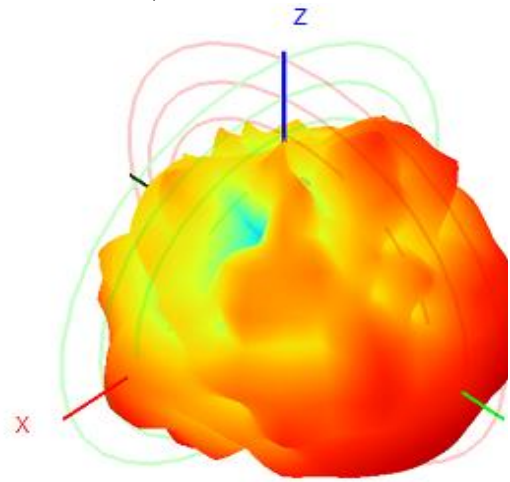


Back View

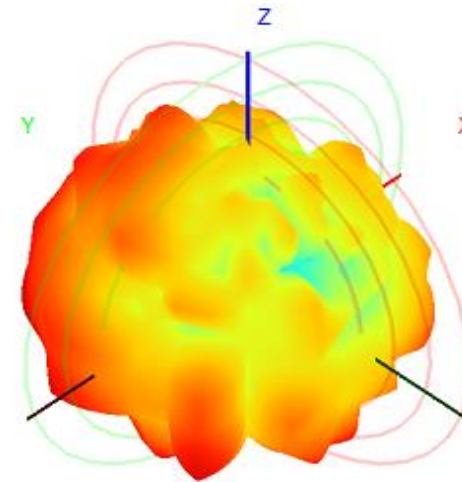


- 4.46
- 2.61
- 0.77
- 1.07
- 2.91
- 4.75
- 6.6
- 8.44
- 10.28
- 12.12
- 13.97
- 15.81
- 17.65
- 19.49
- 21.33
- 23.18
- 25.02
- 26.86

5590.0MHz H+V, Eff: 48.8%

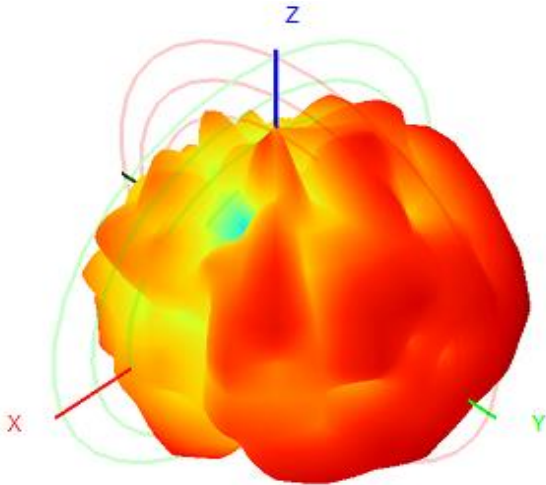


Back View

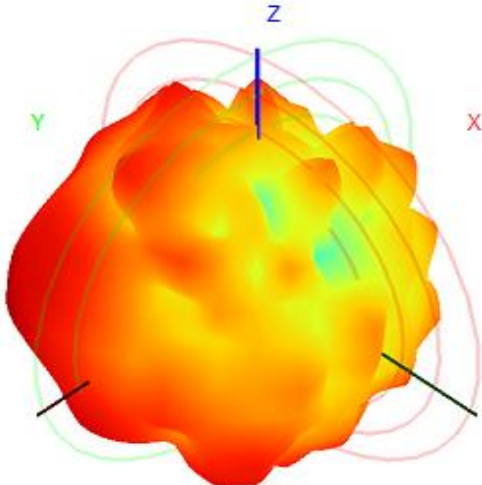


- 4.83
- 2.98
- 1.14
- 0.7
- 2.54
- 4.38
- 6.23
- 8.07
- 9.91
- 11.75
- 13.6
- 15.44
- 17.28
- 19.12
- 20.96
- 22.81
- 24.65
- 26.49

5850.0MHz H+V, Eff: 48.3%



Back View



- 3.5
- 1.66
- 0.19
- 2.03
- 3.87
- 5.71
- 7.55
- 9.4
- 11.24
- 13.08
- 14.92
- 16.76
- 18.61
- 20.45
- 22.29
- 24.13
- 25.98
- 27.82