

Antenna Testing Report

Customer : Apical Technology

Project Name : CJ2031

Antenna version:SY-CJ2031-WIFI-V0.3

Antenna type:PIFA

Antenna Manufacturer: Sunnyway Technology(CHINA)

Address: The 6th floor, Building 5, Nantaiyun Innovation Valley Center,
Guangming District, Shenzhen City

Report version: June 6, 2024 A0
Author: KaiYu Chen

Version	Report date	Remark
A0	2024.6.6	Antenna test report
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1.Record·····

2.Project Overview ·····

3.Equipment List·····

4. Antenna mounting position·····

5.Project picture and test Device·····

6.Matching modification·····

7.Passive parameters ·····

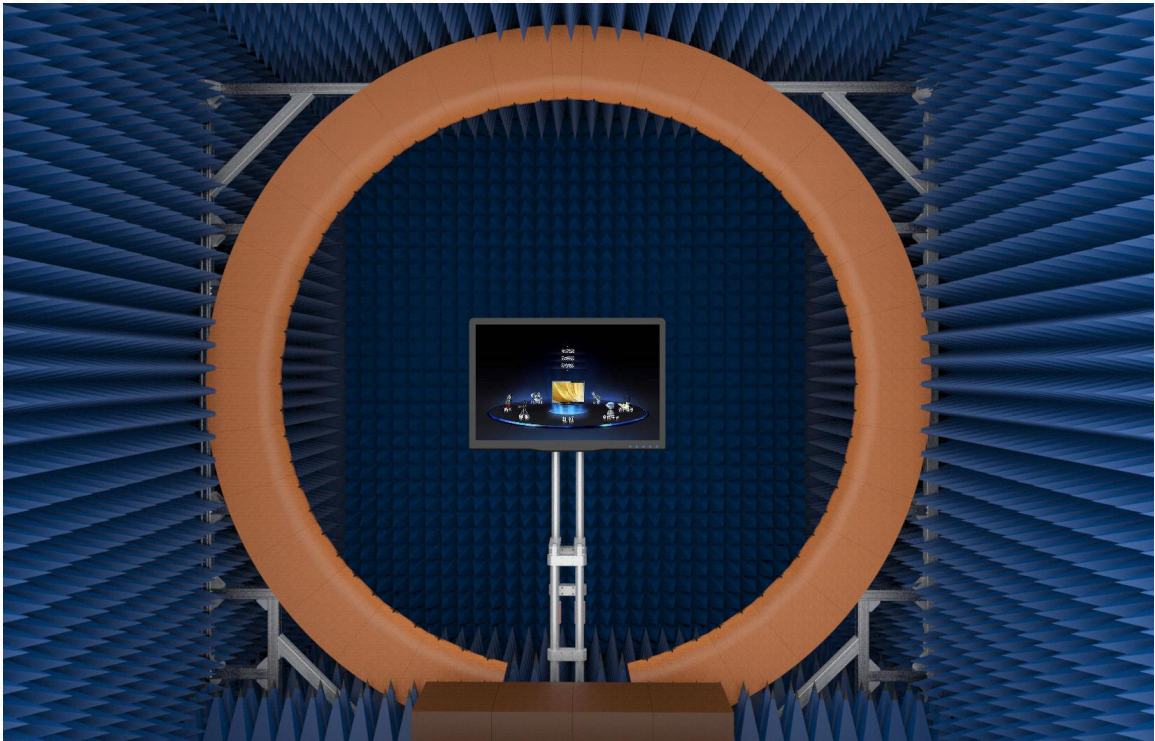
8.Passive efficiency and gain ·····

9.OTA test data ·····

10.Directiona pattern ·····

11.Summary·····

Prototype status	Debugging machine	Project pictures 
Device type	tachograph	
Number of antennas	WIFI antenna	
Frequency band	2G: N/A	
	3G: N/A	
	4G-LTE: N/A	
	5G-NR: N/A	
	WIFI 802.11 a/b/g/n (2400-2500/5150-5850MHz)	
Structural style	FPC	
Environment adjustment	Have change	
Matching modification	No changed	



The industry's top 64 sensors OTA chamber

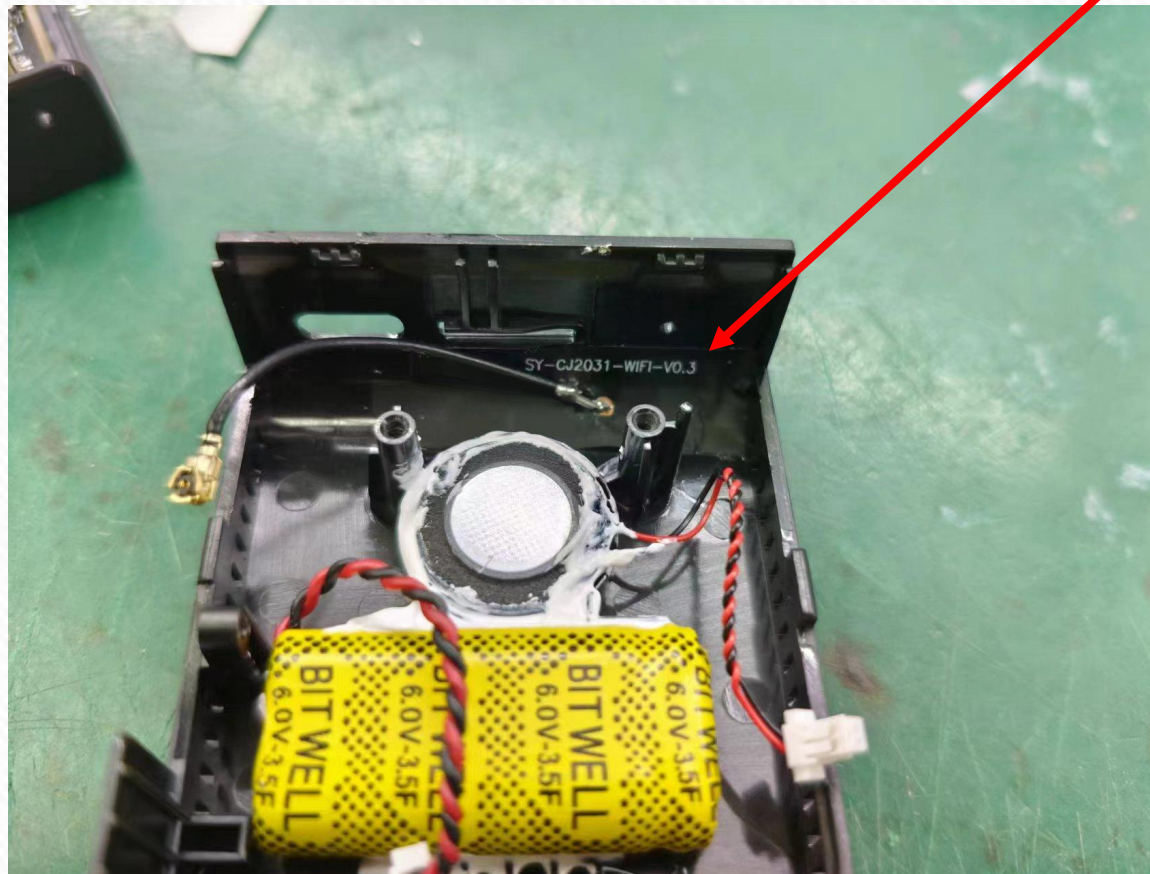
Frequency range: 400MHz-11GHz

Device Llimitation: 2M

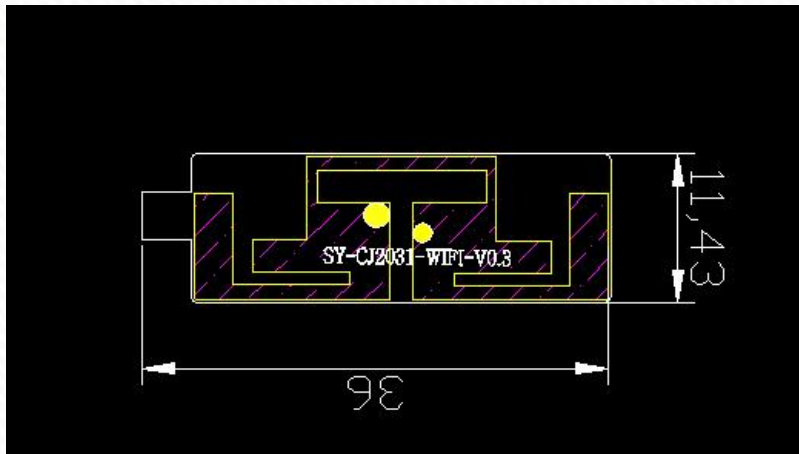
Load-bearing limitation:100KG

Equipments Items	Total Quantity	Quantity for Shanghai R&D	Quantity for Shenzhen R&D	Quantity for ChongQing R&D
OTA chamber	10	4	5	1
5G Tester (SP9500-CTS)	3	1	1	1
R&S Tester (high configuration CMW500)	6	3	2	1
Japan Anritsu Tester (Dual Channel 8820)	4	2	2	--
NB-IoT Tester (SP8315)	3	1	1	1
Agilent Tester (8960)	9	4	4	--
Agilent Network Analyzer (E5062A)	7	3	3	1
Agilent Network Analyzer (E5071C 8.5GHZ)	11	5	5	1
Agilent Network Analyzer (E5071B 8.5GHZ)	7	3	3	1
R&S Network Analyzer (ZND)	9	4	4	1
R&S Network Analyzer (ZVB)	3	1	1	1
OTA head hand / ear hand / arm hand	5	2	2	1
GPS/WIFI active test equipment	5	2	2	1

WIFI Antenna

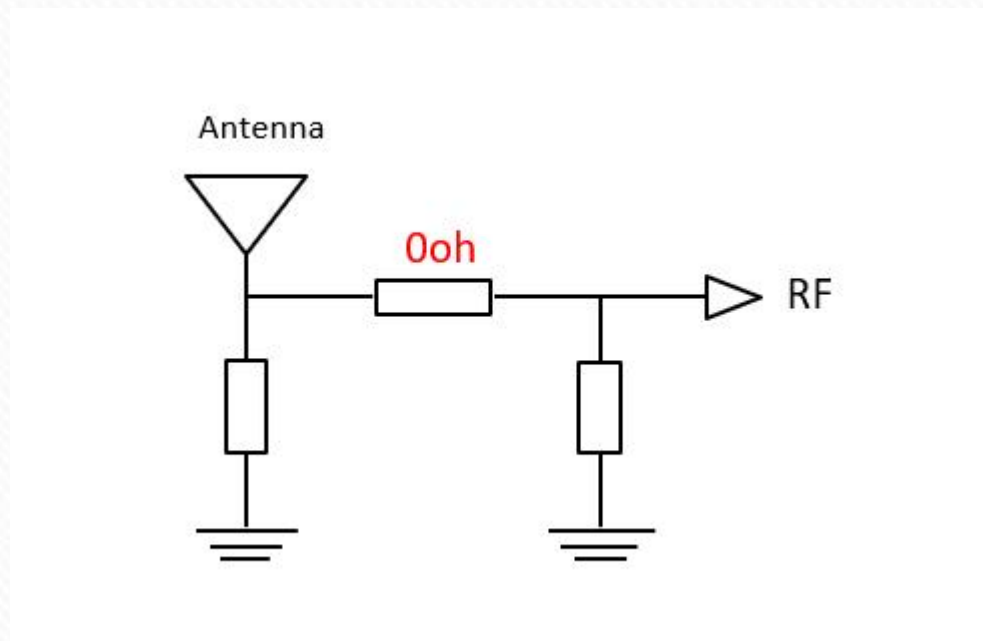


2D pictures

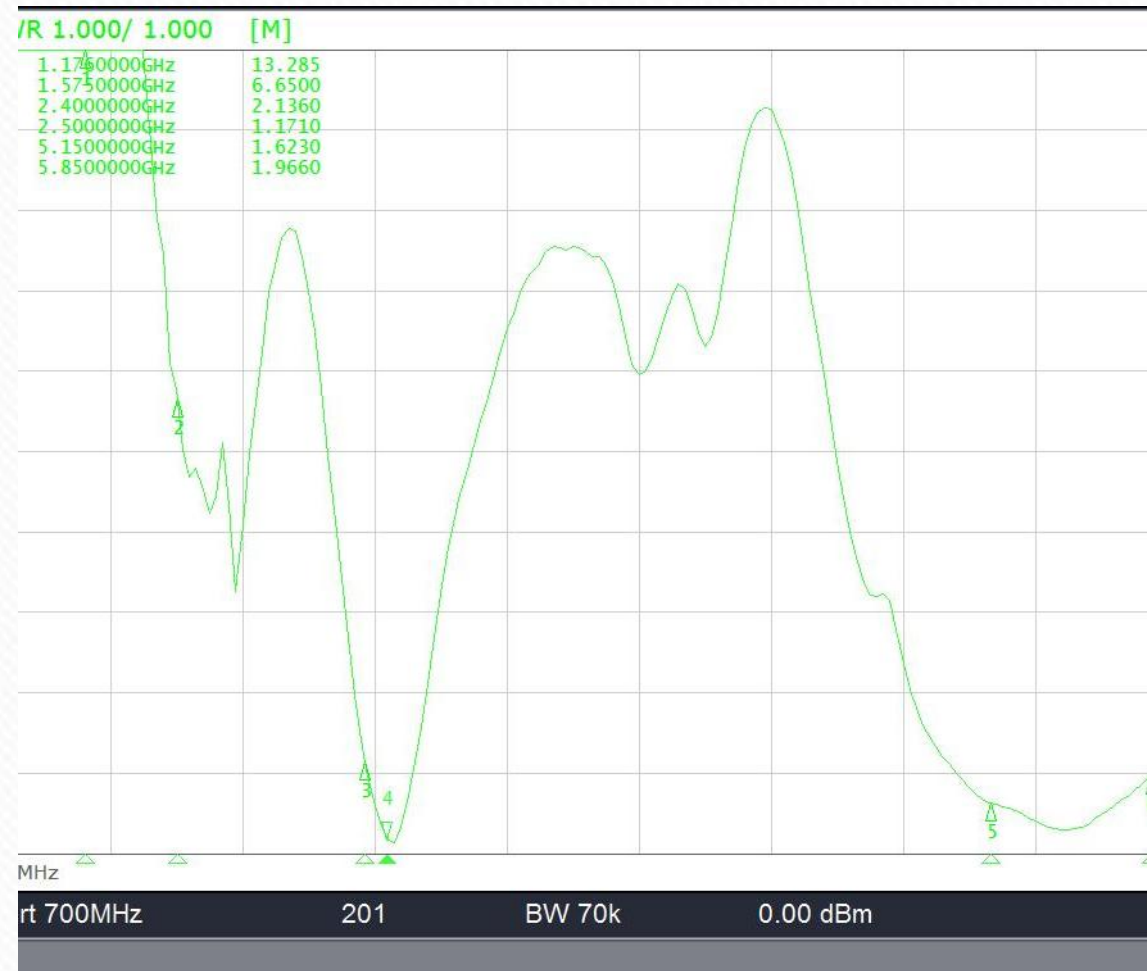


Antenna pictures





VSWR

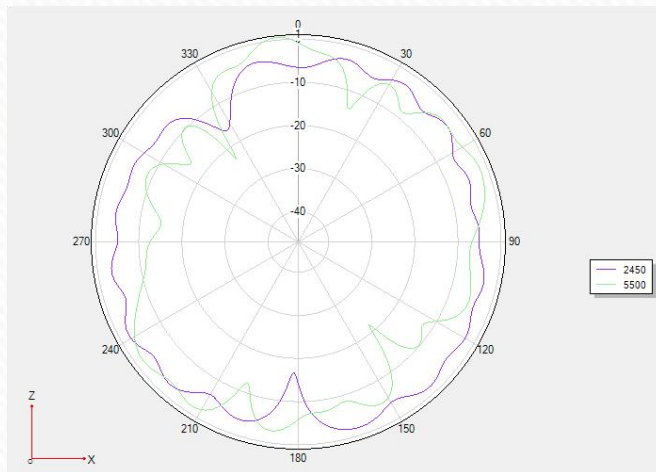


Frequency/Mhz	MaxGain/dBi	Efficiency / %	Frequency/Mhz	MaxGain/dBi	Efficiency / %
2400	1.36	35.99	5150	2.21	30.51
2410	1.35	36.1	5200	2.71	30.64
2420	1.3	35.55	5250	3.15	33.55
2430	1.54	37.18	5300	3.53	35.27
2440	1.59	37.35	5350	3.42	34.96
2450	1.53	37.29	5400	3.66	38.39
2460	1.42	37.12	5450	3.77	39.36
2470	1.2	36.6	5500	3.76	40.27
2480	1.11	36.55	5550	3.82	40.25
2490	0.88	35.99	5600	3.57	40.65
2500	0.61	34.59	5650	3.83	43.56
			5700	4.14	43.43
			5750	3.92	42.19
			5800	3.78	42.13
			5850	4.25	41.32

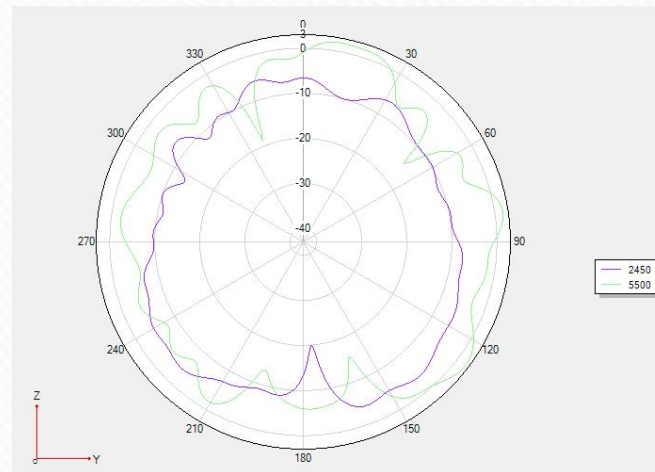
Measurement	Band	Channel	Total
TRP	WIFI_B (1M)	1	13.43
TRP	WIFI_B (1M)	7	14.52
TRP	WIFI_B (1M)	13	13.89
TIS(EIRP)	WIFI_B (11M)	13	-80.44
TRP	WIFI_G (6M)	1	12.07
TRP	WIFI_G (6M)	7	12.77
TRP	WIFI_G (6M)	13	12.75
TIS(EIRP)	WIFI_G (54M)	13	-65.25
TRP	WIFI_N_ISM (6.5M)	1	10.77
TRP	WIFI_N_ISM (6.5M)	7	11.02
TRP	WIFI_N_ISM (6.5M)	13	11.42
TIS(EIRP)	WIFI_N_ISM (65M)	13	-62.12
TRP	WIFI_A (6M)	36	10.18
TRP	WIFI_A (6M)	149	11.42
TRP	WIFI_A (6M)	165	10.54
TIS(EIRP)	WIFI_A (6M)	165	-68.51
TRP	WIFI_N_UNII (6.5M)	36	8.67
TRP	WIFI_N_UNII (6.5M)	149	9.37
TRP	WIFI_N_UNII (6.5M)	165	8.55
TIS(EIRP)	WIFI_N_UNII (6.5M)	165	-63.54

2D:

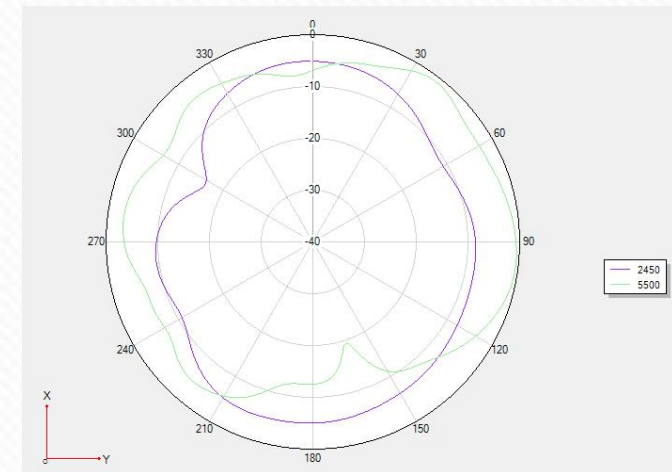
phi 0°



phi 90°

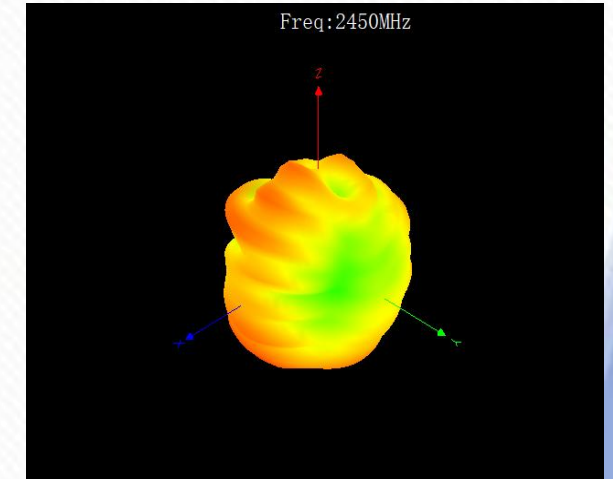
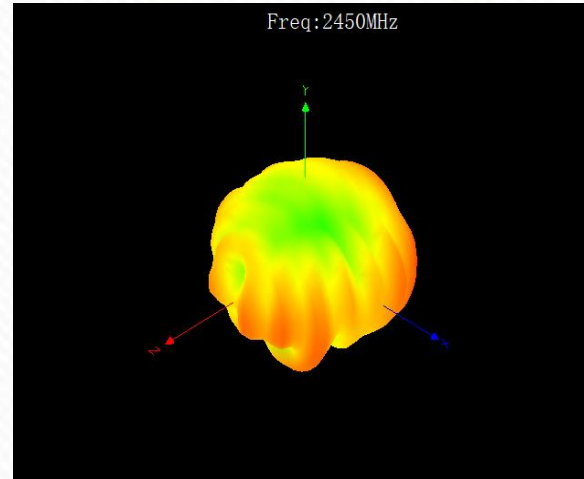
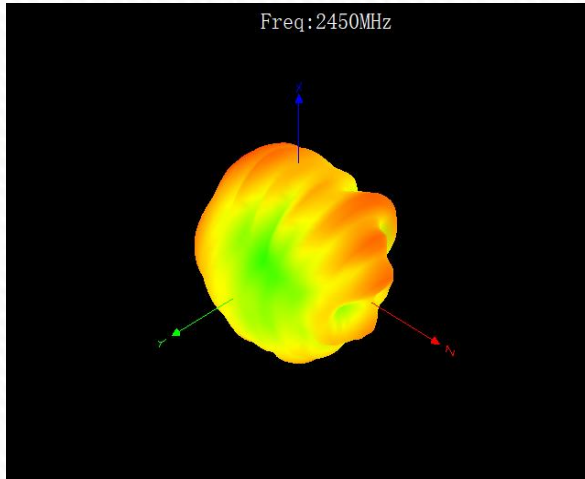


theta 90°

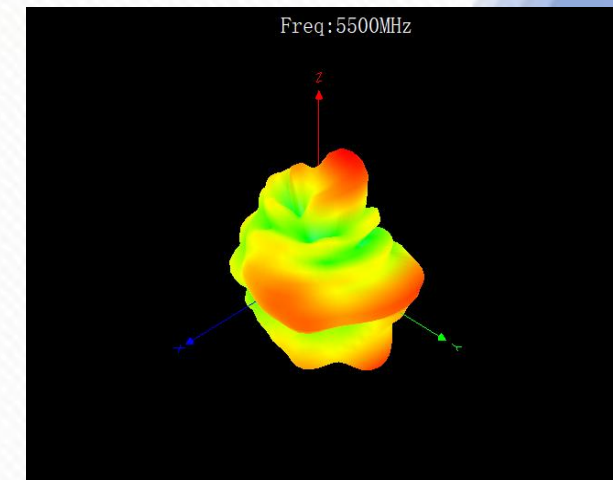
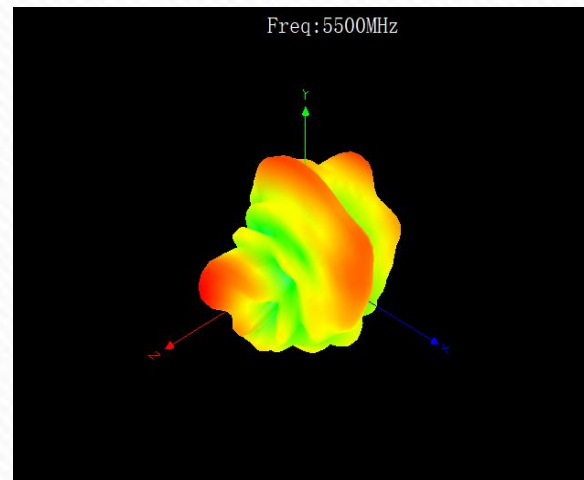
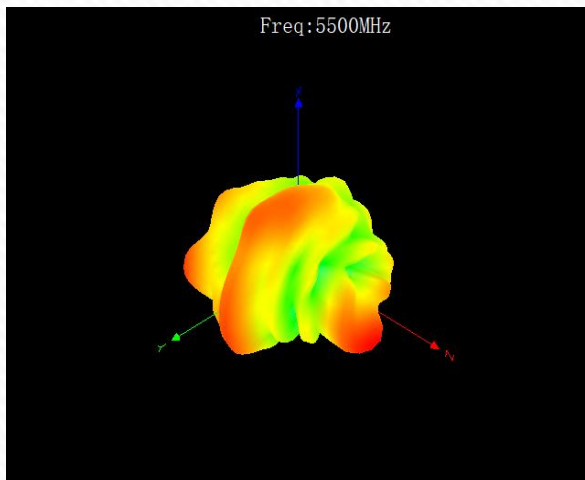


3D:

2450MHz:



5500MHz:



1. The antenna matching is have changed.
2. The antenna environment is not increased.
3. The antenna performance test is OK.

Thank You

Shanghai R&D Center: 1F, Building 4, No.99, Lane 215, Gaoguang Road, Qingpu District, Shanghai, 201799, PRC

Shenzhen R&D Center: The 6th floor, Building 5, Nantaiyun Innovation Valley Center, Guangming District, Shenzhen City

ChongQing R&D Center: 1F, ARM Ecological Industrial Park, 19 East Datugu Road, Xiantao, Yubei District, Chongqing, 401120, PRC

Huizhou Factory: 4-5F, No.1, Central Village Road, Longhu Industrial Zone, Shuikou Town, Huicheng District, Huizhou, 516255, PRC

TEL: 021-60835368 E-mail: sales@sunnyway-iot.com

www.sunnyway-iot.com

