

Antenna Testing Report

Customer : apical Technology

Project Name : CJ1015

Report Number: SY20230179-A0

Manufacturer: Sunnyway Technology(CHINA)

Address: Floor 6, Building 5, Nam Tai Inno Park, Guangming District, Shenzhen

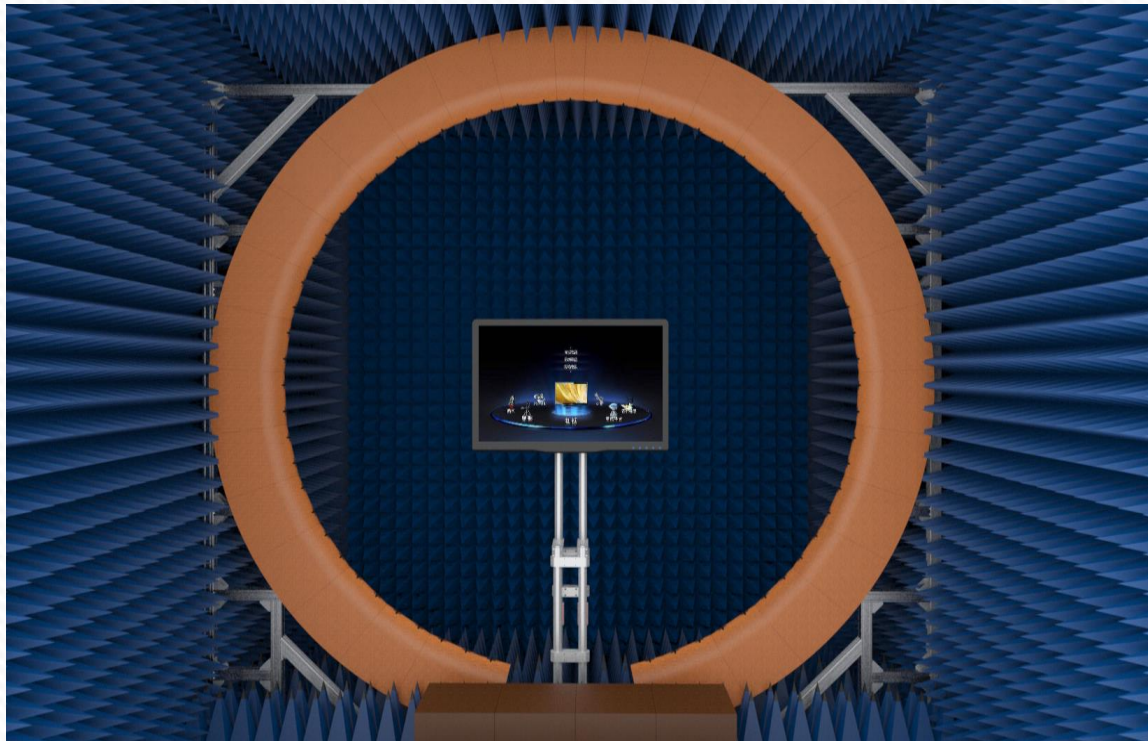
Report version: September 25, 2023

Author: Payne

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Prototype status	Debugging machine
Device type	car recorder
Number of antennas	WIFI antenna
Frequency band	802.11b/g/n
Structural style	FPC
Environment adjustment	No change
Matching modification	No change



The industry's top 64 sensors OTA chamber

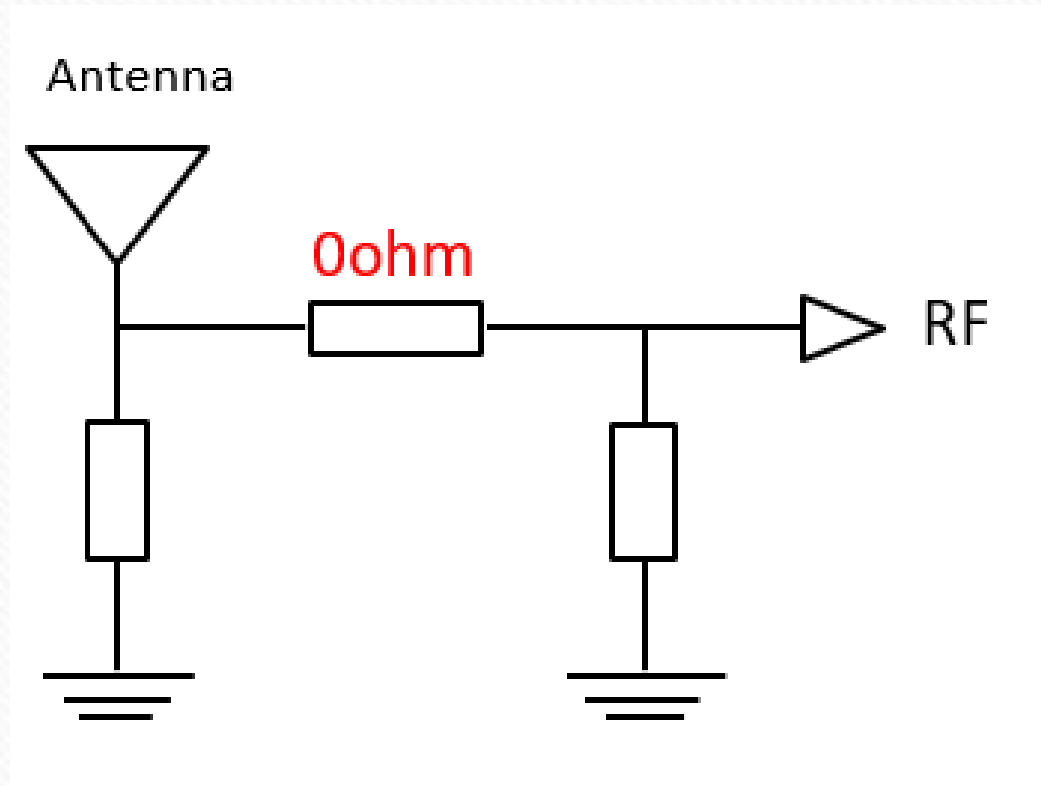
Frequency range: 400MHz-11GHz

Device Llimitation: 2M

Load-bearing limitation:100KG

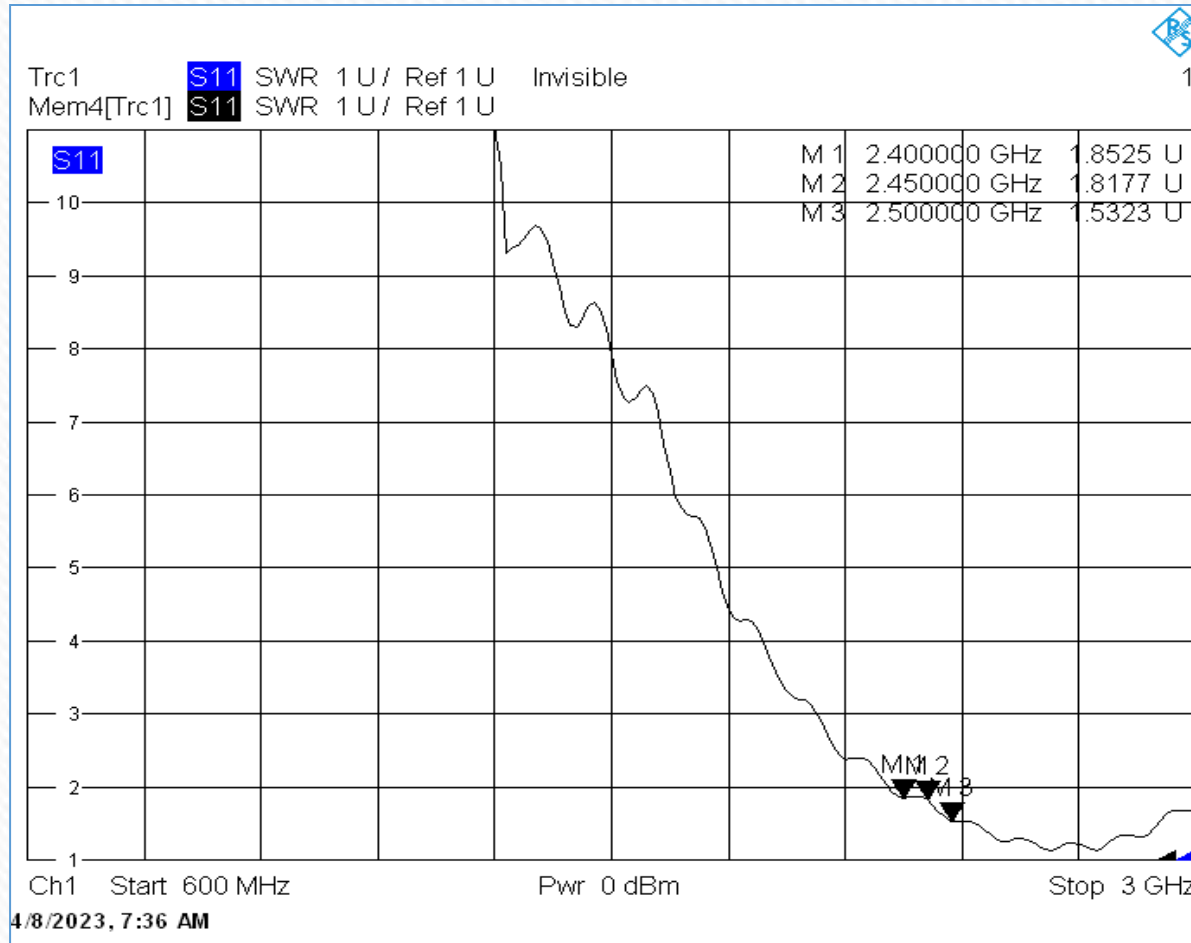
Equipments Items	Total Quantity	Quantity for Shanghai R&D	Quantity for Shenzhen R&D	Quantity for ChongQing R&D
OTA chamber	10	4	5	1
5G Tester (SP9500-CTS)	3	1	1	1
R&S Tester (high configuration CMW500)	6	3	2	1
Japan Anritsu Tester (Dual Channel 8820)	4	2	2	--
NB-IoT Tester (SP8315)	3	1	1	1
Agilent Tester (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

VSWR



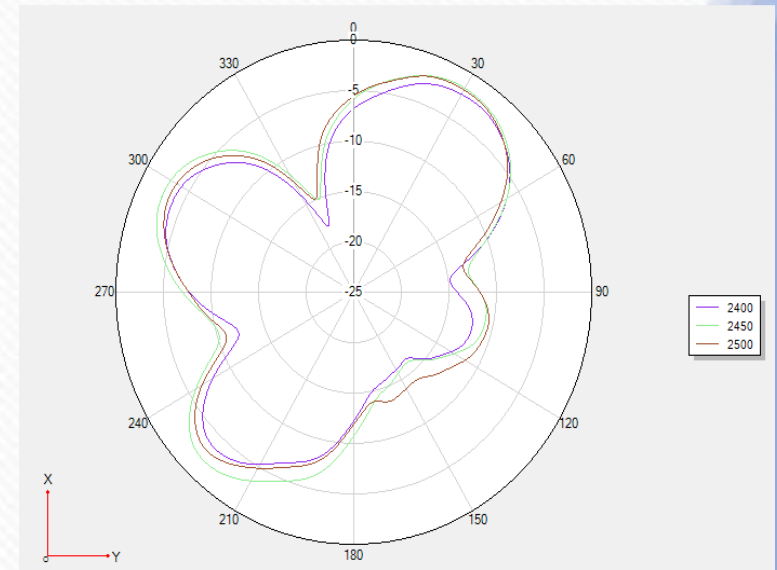
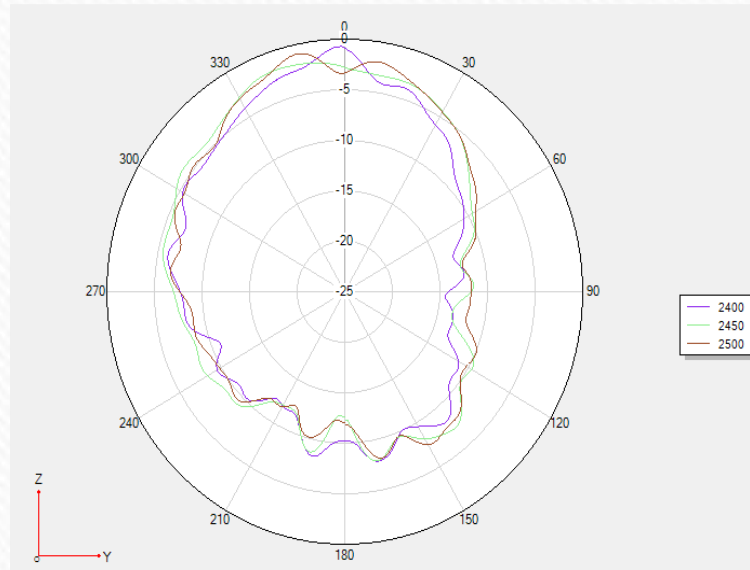
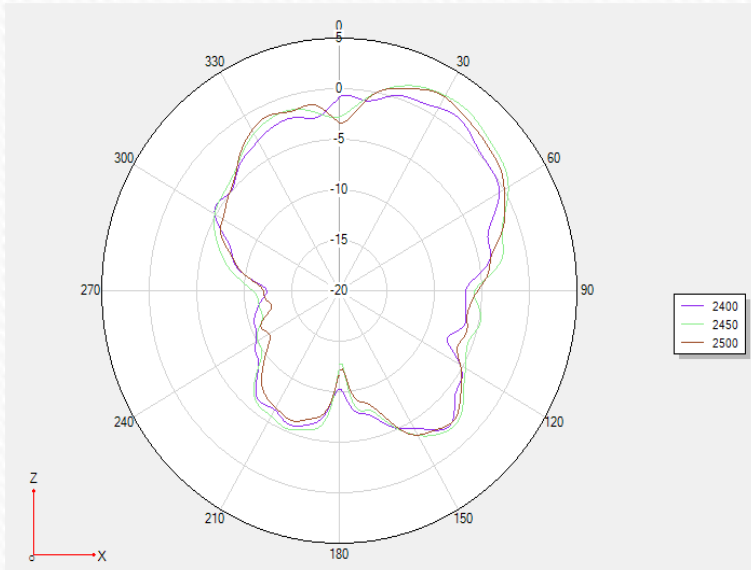
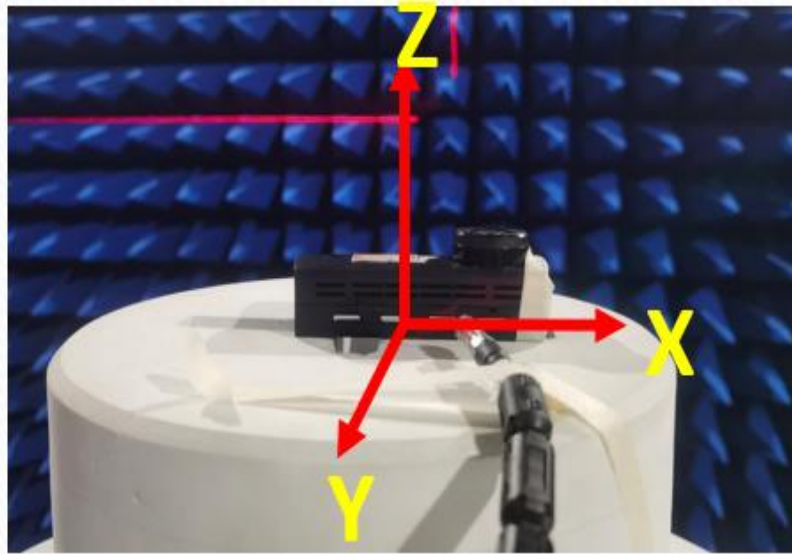
WIFI Antenna

Frequency/Mhz	Efficiency / %	MaxGain/dBi
2400	47.54	1.51
2410	47.26	0.13
2420	48.27	1.5
2430	49.21	1.84
2440	49.78	1.15
2450	50.95	2.64
2460	47.54	1
2470	48.27	2.02
2480	46.46	1.58
2490	48.36	1.09
2500	48.09	2.32

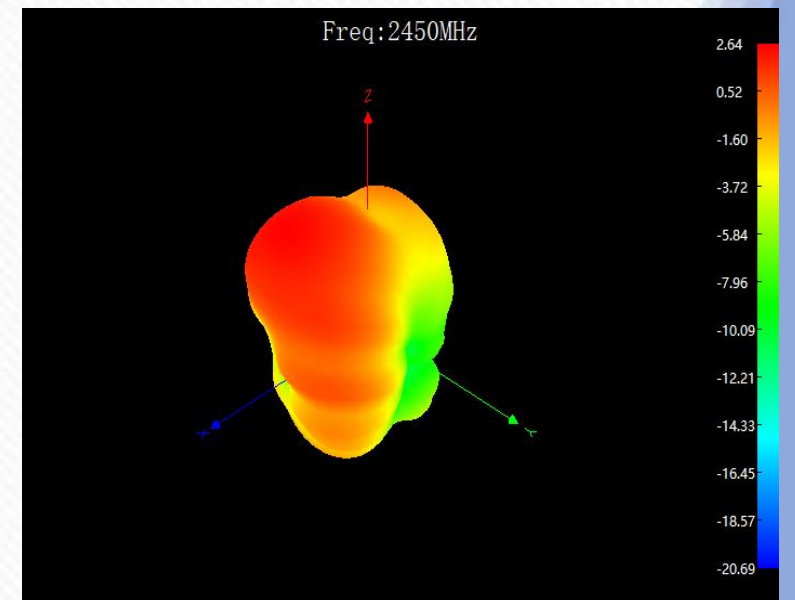
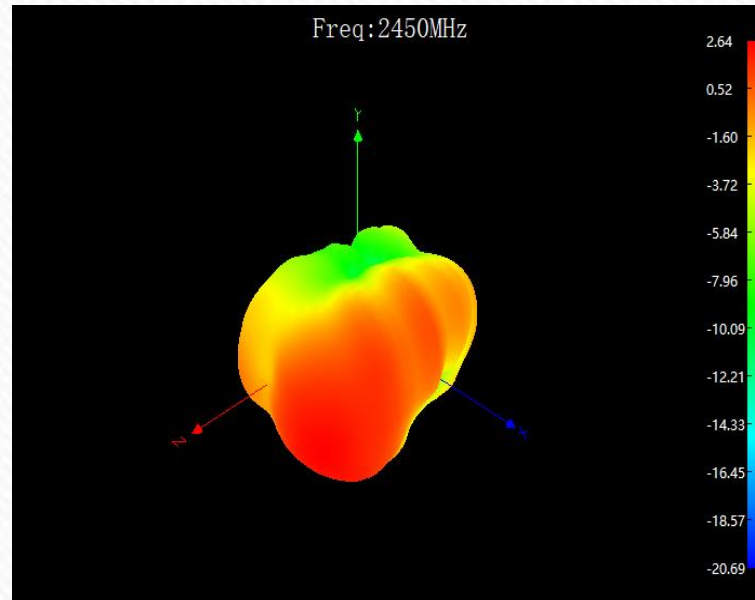
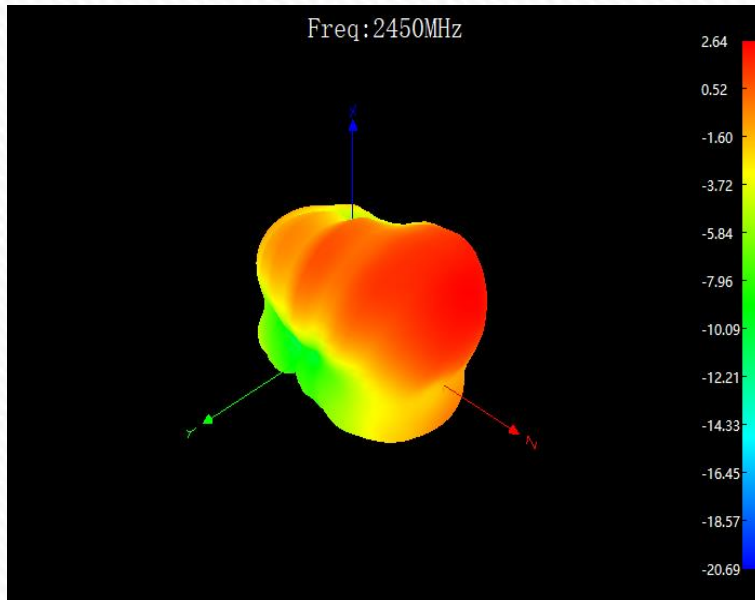
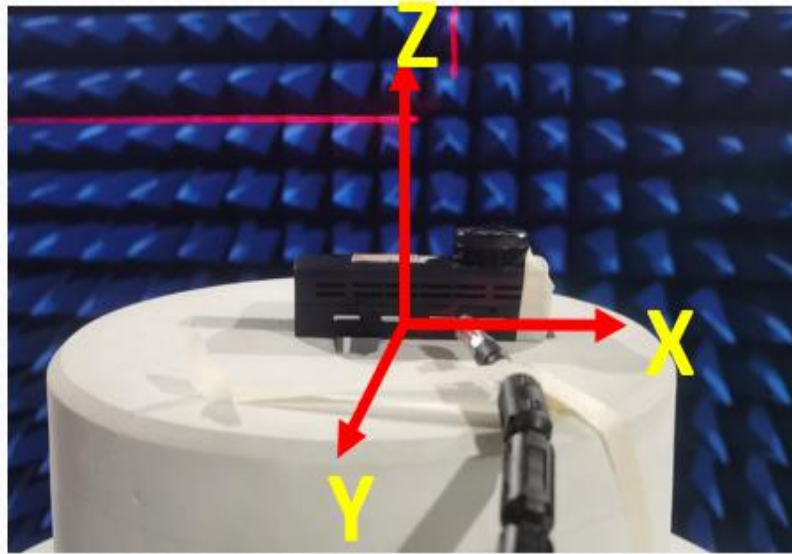
WIFI Antenna

Item	Measurement	Band	Channel	1#	2#
				Total	Total
1	TRP	WIFI_B (11M)	1	13.59	13.81
2	TRP	WIFI_B (11M)	7	13.45	13.86
3	TRP	WIFI_B (11M)	11	13.78	14.03
4	TIS(EIRP)	WIFI_B (11M)	11	-80.59	-80.33
5	TRP	WIFI_G (54M)	1	12.13	12.25
6	TRP	WIFI_G (54M)	7	12.23	12.41
7	TRP	WIFI_G (54M)	11	12.19	12.44
8	TIS(EIRP)	WIFI_G (54M)	11	-65.95	-65.68
9	TRP	WIFI_N_ISM (65M)	1	11.34	11.74
10	TRP	WIFI_N_ISM (65M)	7	10.88	10.99
11	TRP	WIFI_N_ISM (65M)	11	11.52	11.65
12	TIS(EIRP)	WIFI_N_ISM (65M)	11	-64.3	-64.19

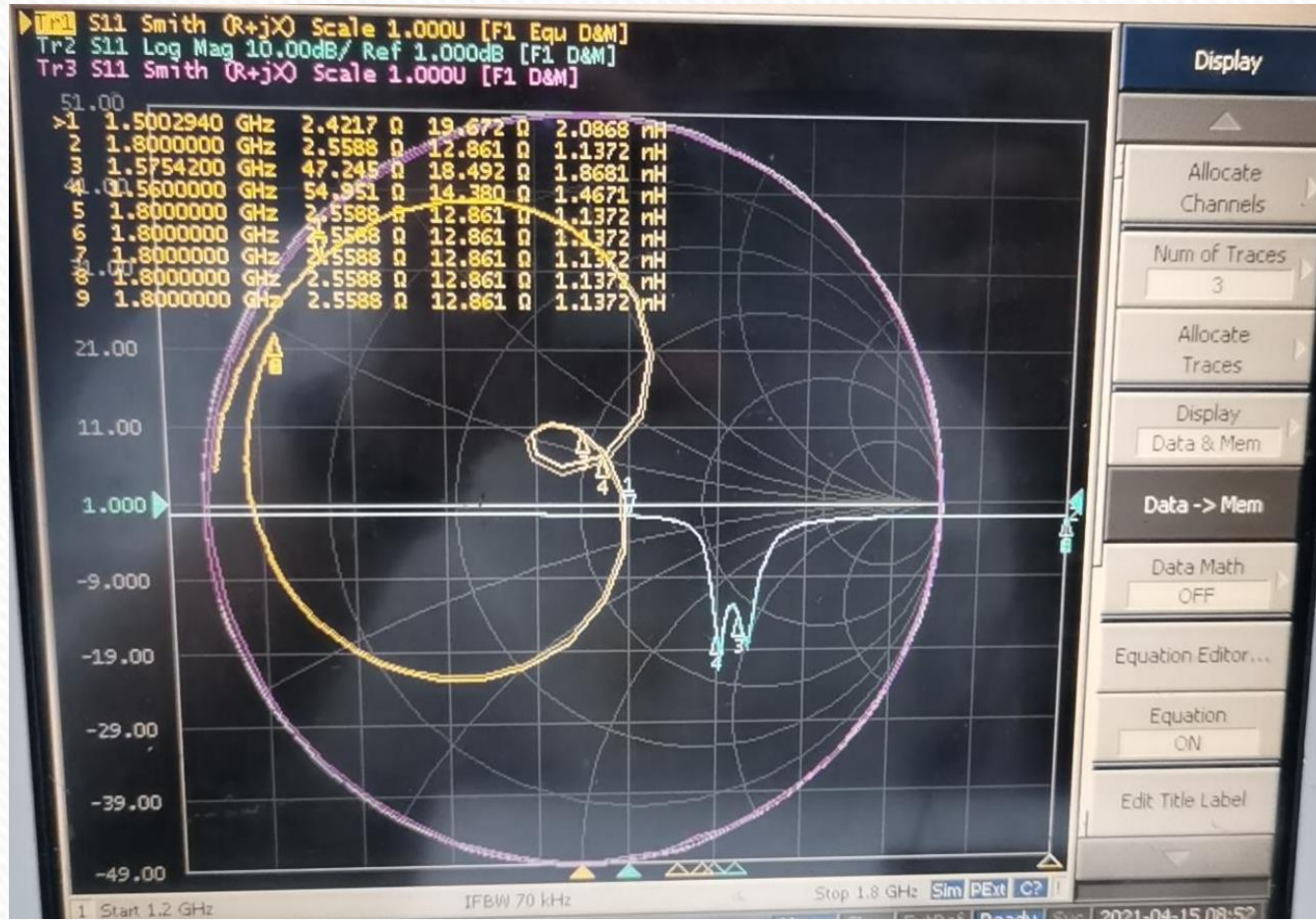
WIFI Antenna



WIFI Antenna



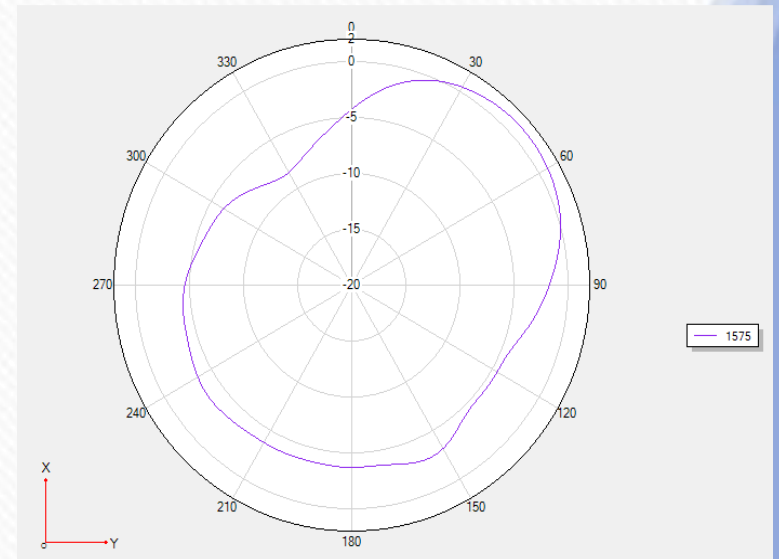
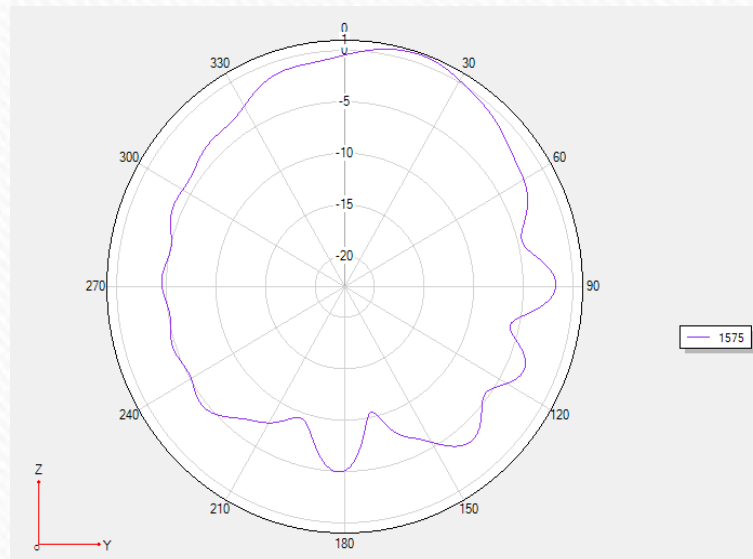
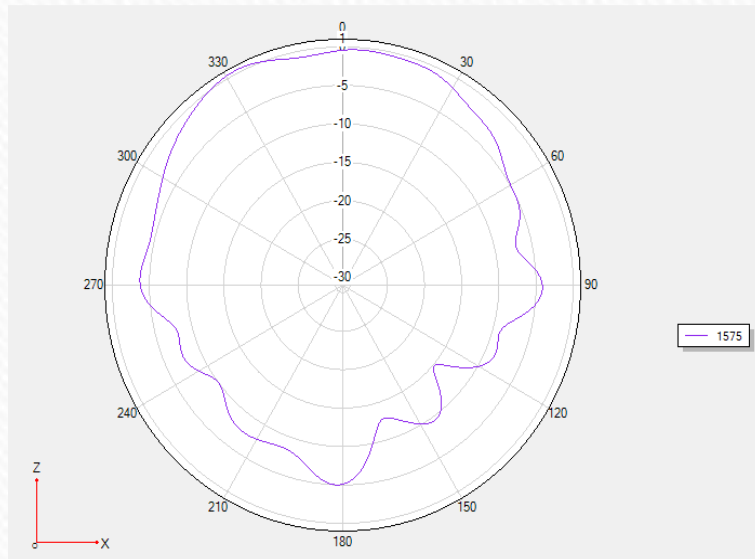
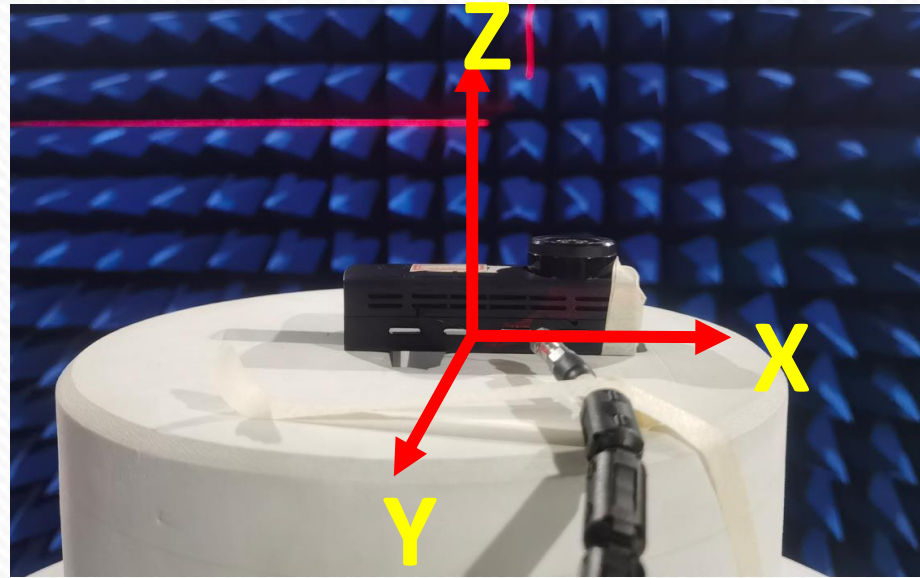
GPS Antenna:



Frequency/Mhz	Efficiency / dB	Efficiency / %	TopHalfEff / %	MaxGain/dBi
1560	-3.21	47.75	34.43	1.45
1561	-3.2	47.86	34.59	1.46
1562	-3.19	47.97	34.67	1.46
1563	-3.18	48.08	34.75	1.48
1564	-3.16	48.31	34.91	1.49
1565	-3.14	48.53	34.99	1.51
1566	-3.09	49.09	35.4	1.66
1567	-3.06	49.43	35.65	1.73
1568	-3.05	49.55	35.65	1.73
1569	-3.08	49.2	35.48	1.65
1570	-3.13	48.64	35.08	1.51
1571	-3.17	48.19	34.83	1.37
1572	-3.2	47.86	34.59	1.27
1573	-3.21	47.75	34.51	1.23
1574	-3.18	48.08	34.67	1.28
1575	-3.13	48.64	35.08	1.4
1576	-3.12	48.75	35.16	1.37
1577	-3.1	48.98	35.24	1.37
1578	-3.08	49.2	35.4	1.38
1579	-3.08	49.2	35.32	1.36
1580	-3.07	49.32	35.4	1.33

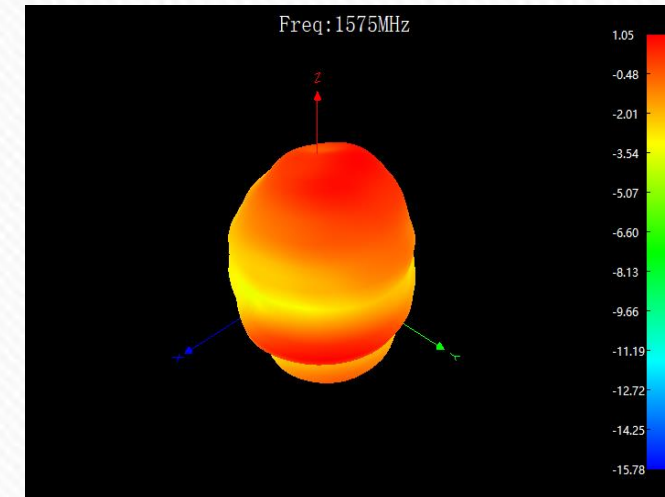
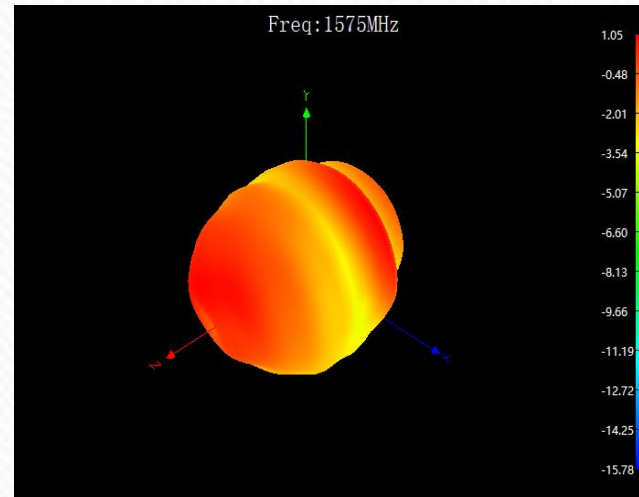
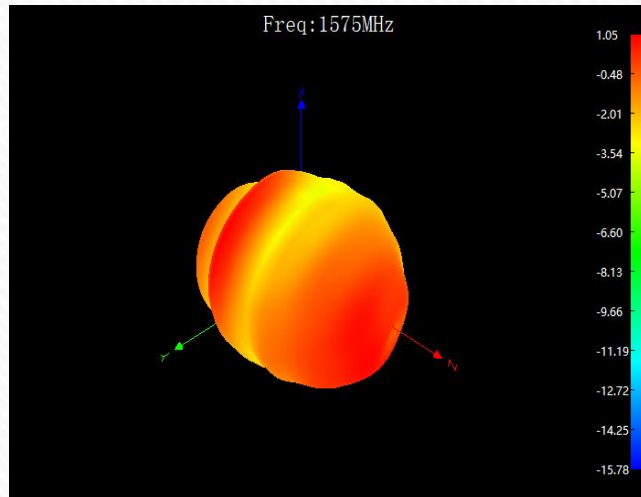
Directional pattern

GPS Antenna:



GPS Antenna:

3D for 1575MHz



The CJ1015 project only needs to install the antenna to achieve good antenna performance without other environmental changes.

Good antenna performance test results

Thank You

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

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