

Antenna Testing Report

Customer : apical Technology

Project Name : SZ24046IB77

Report Number: SZ24046IB77

Manufacturer: Sunnyway Technology(CHINA)

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

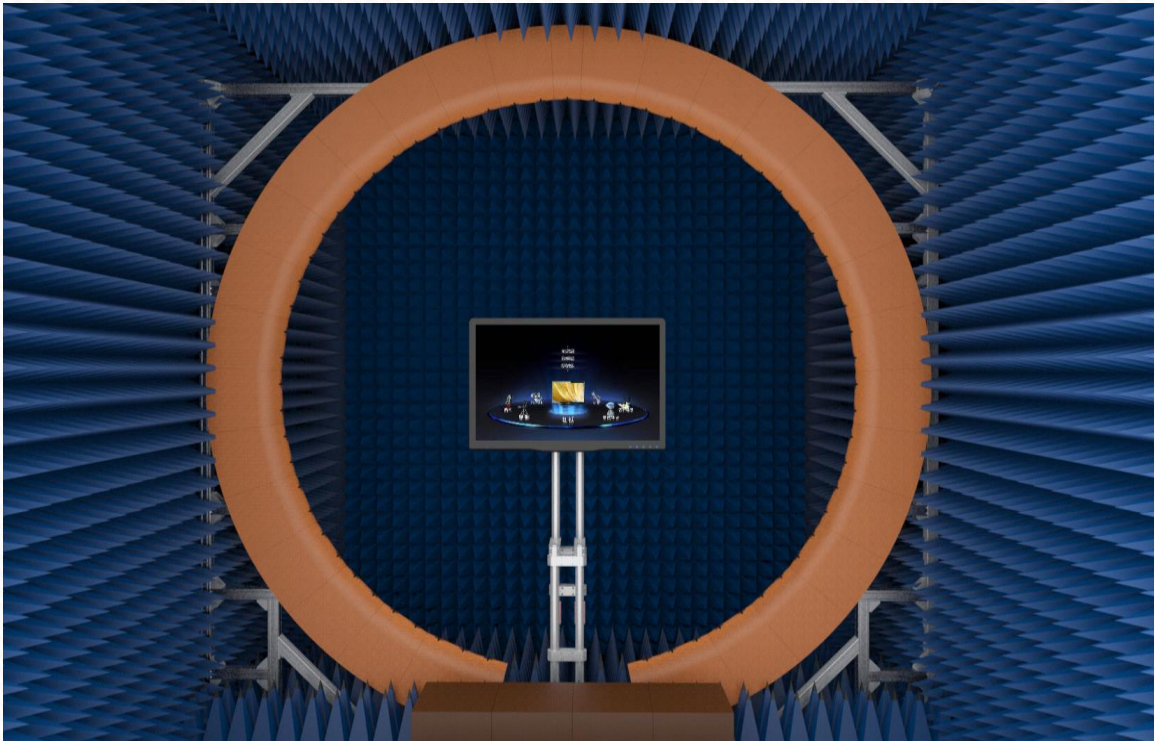
Report version: January 29, 2024

Author: Payne

Version	Report date	Remark
A0	2024.1.29	Active Testing Report
A1		
A2		
A3		
A4		
A5		
A6		
A7		
A8		
A9		

1. Record	2
2. Project Overview	4
3. Equipment List	5
4. Project pictures and Passive fixturs	6
5. Version Information	7
6. Matching Circuit	7
7. Passive parameters	1 2
8. Passive efficiency	1 6
9. Active data	1 9
10.Environment Specification	2 3
11. Directional pattern	2 4
12. Summary	2 8

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

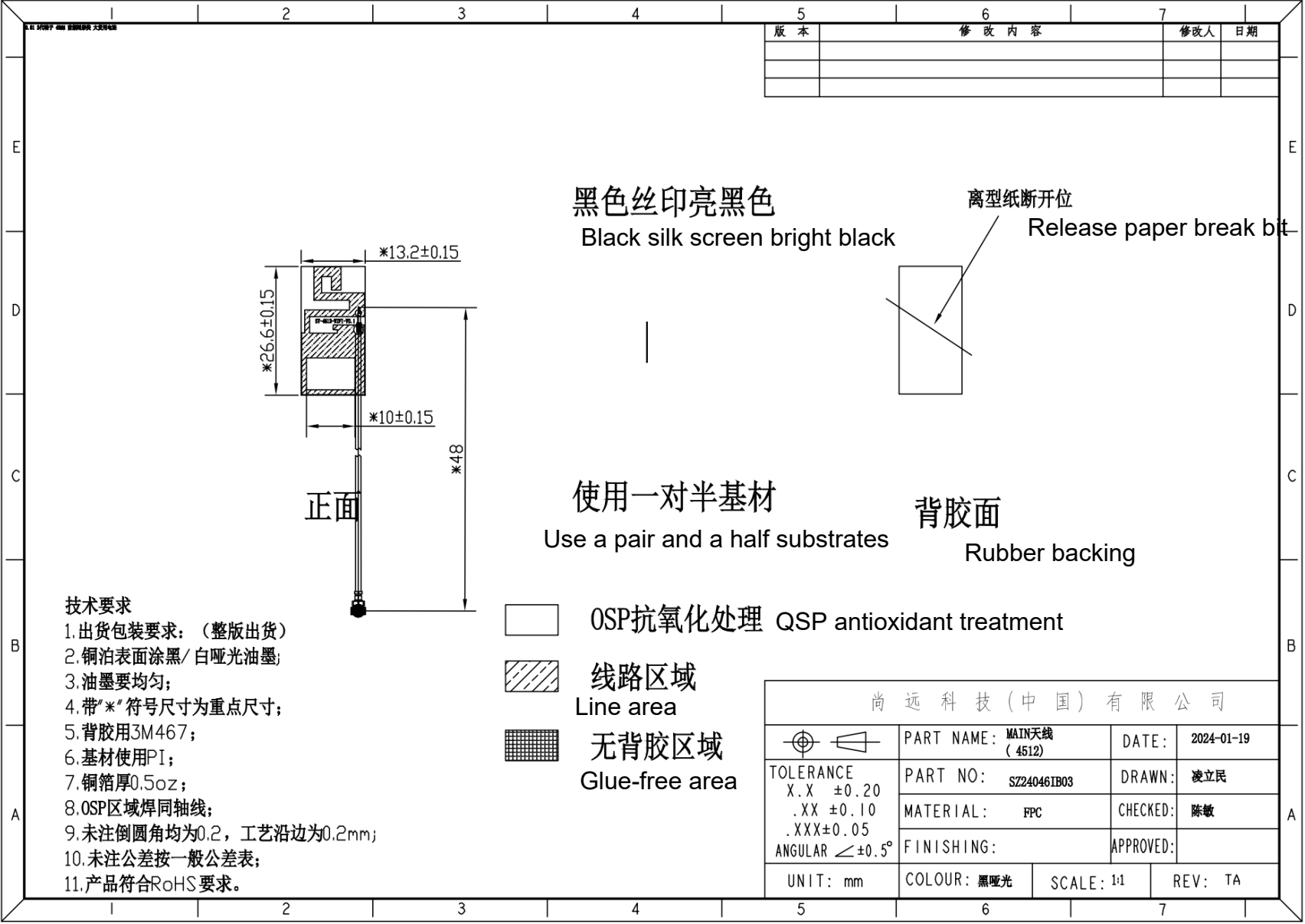
Frequency range: 400MHz-11GHz

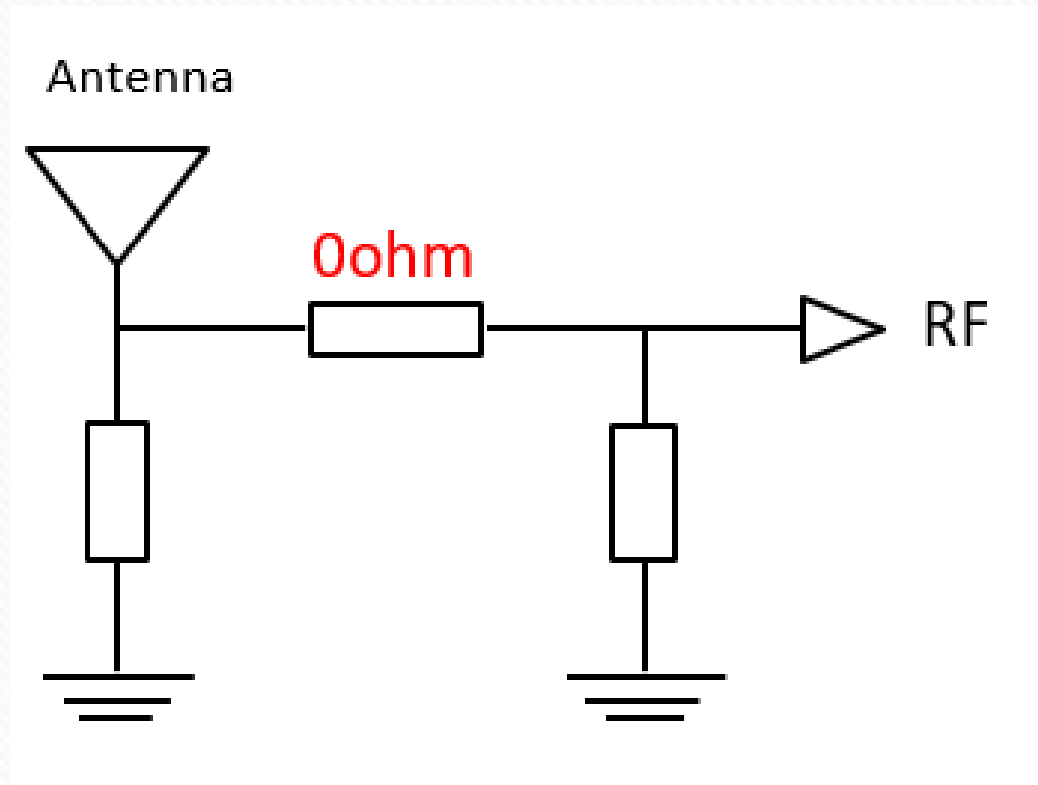
Device Llimitation: 2M

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

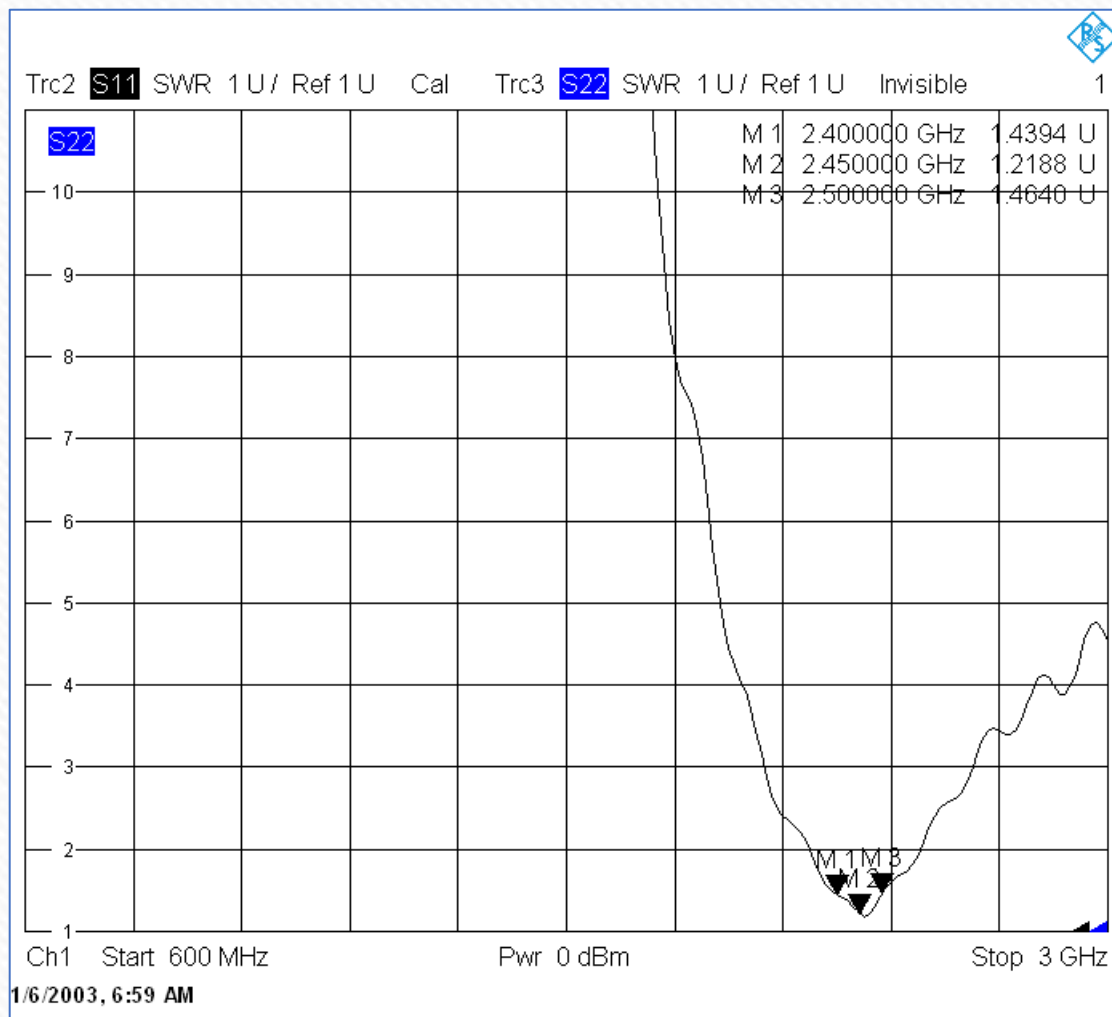




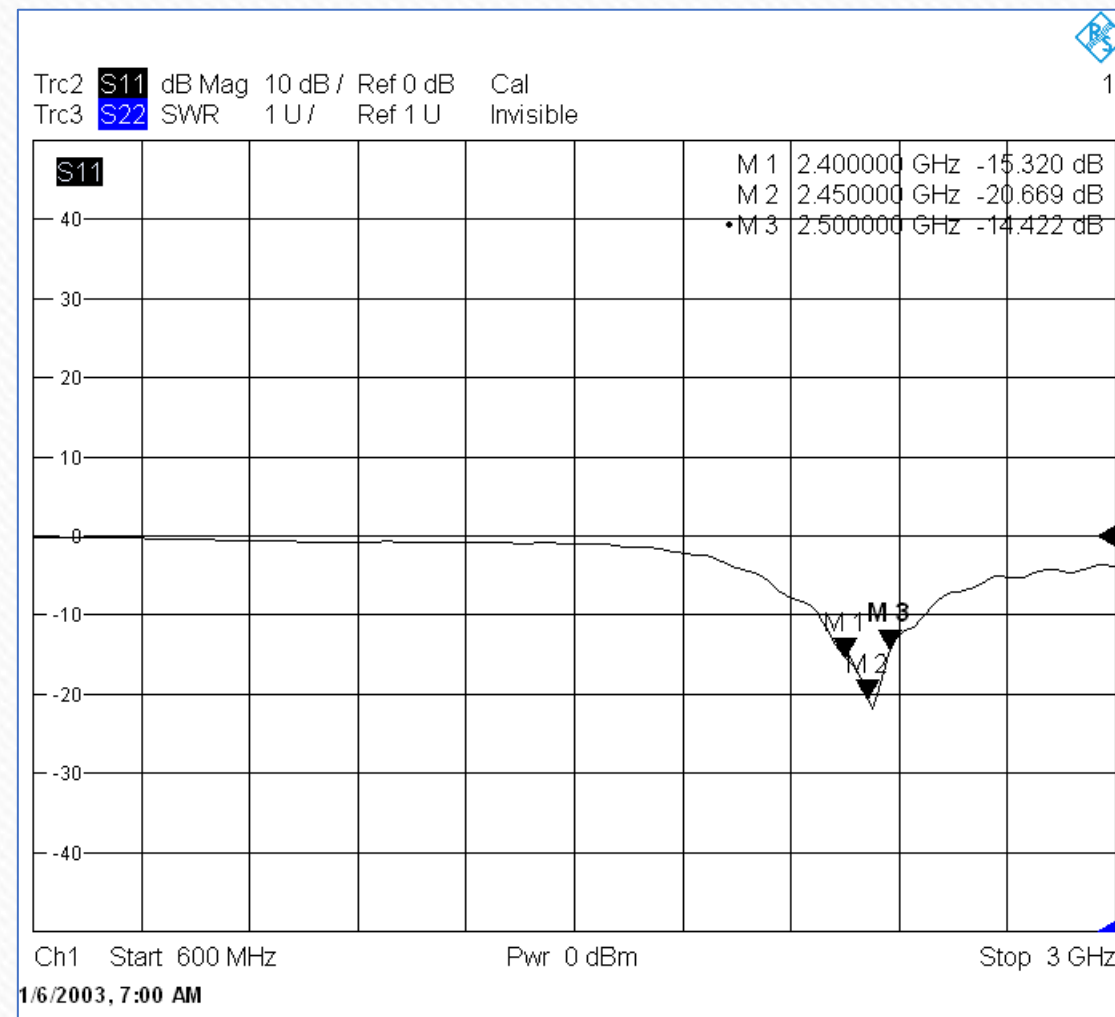


WIFI Antenna

VSWR



Return Loss



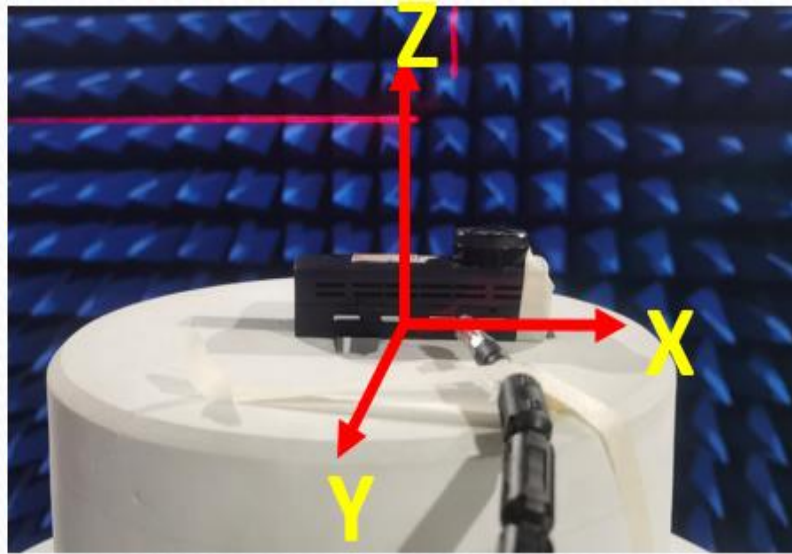
WIFI Antenna

Frequency/Mhz	Efficiency / %	MaxGain/dBi
2400	35.48	0.48
2410	36.06	0.57
2420	36.56	0.87
2430	39.08	1.2
2440	40.55	1.61
2450	41.59	1.81
2460	41.5	2.03
2470	42.66	2.17
2480	44.06	2.47
2490	44.06	2.46
2500	43.55	2.58

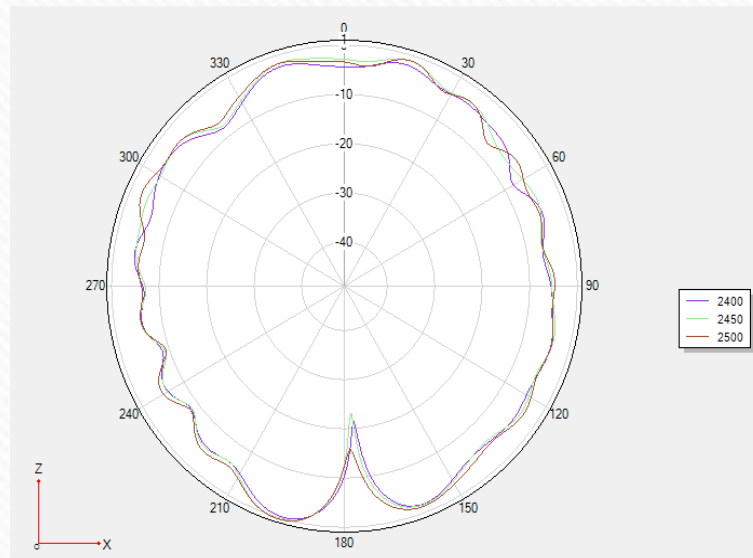
WIFI Antenna

Measurement	Standard	Band	Channel	Total
TRP	WIFI (Station)	WIFI_B (1M)	1	13.27
TRP	WIFI (Station)	WIFI_B (1M)	7	13.57
TRP	WIFI (Station)	WIFI_B (1M)	13	13.79
TIS(EIRP)	WIFI (Station)	WIFI_B (11M)	13	-75.55
TRP	WIFI (Station)	WIFI_G (6M)	1	13.11
TRP	WIFI (Station)	WIFI_G (6M)	7	13.83
TRP	WIFI (Station)	WIFI_G (6M)	13	13.29
TIS(EIRP)	WIFI (Station)	WIFI_G (54M)	13	-66.14
TRP	WIFI (Station)	WIFI_N_ISM (6.5M)	1	12.08
TRP	WIFI (Station)	WIFI_N_ISM (6.5M)	7	12.81
TRP	WIFI (Station)	WIFI_N_ISM (6.5M)	13	12.75
TIS(EIRP)	WIFI (Station)	WIFI_N_ISM (65M)	13	-63.4

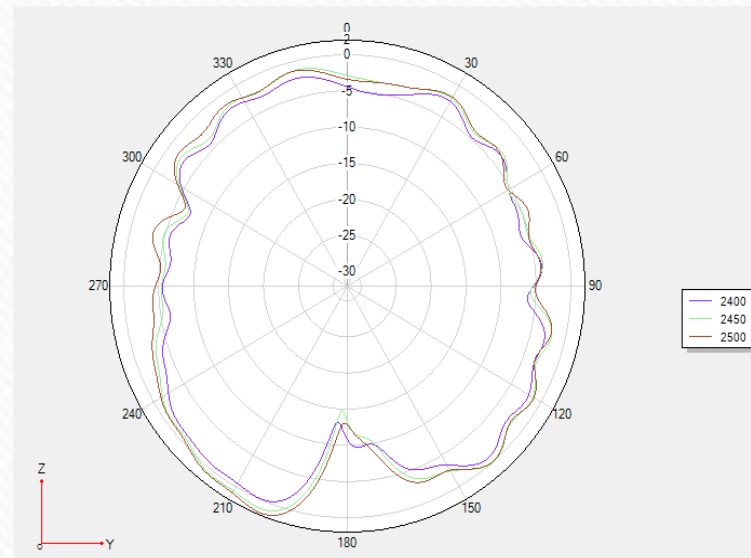
WIFI Antenna



phi 0°



phi 90°

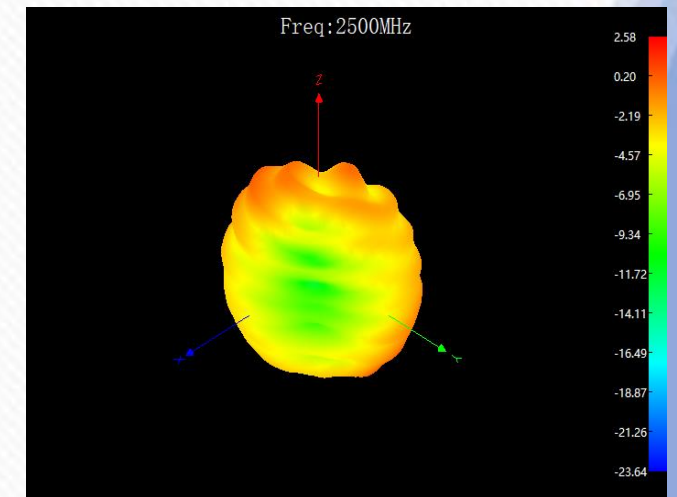
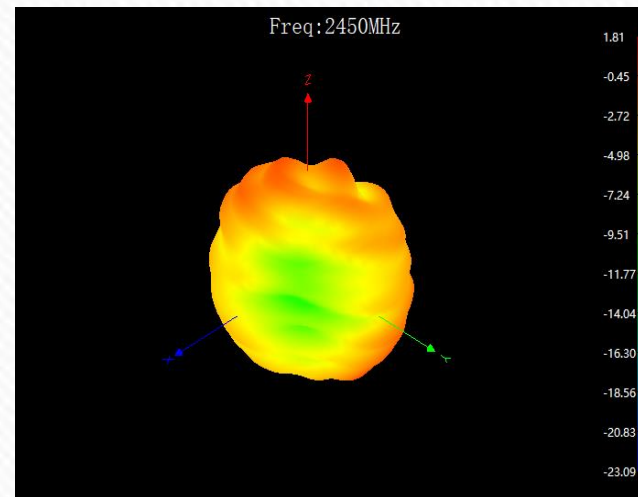
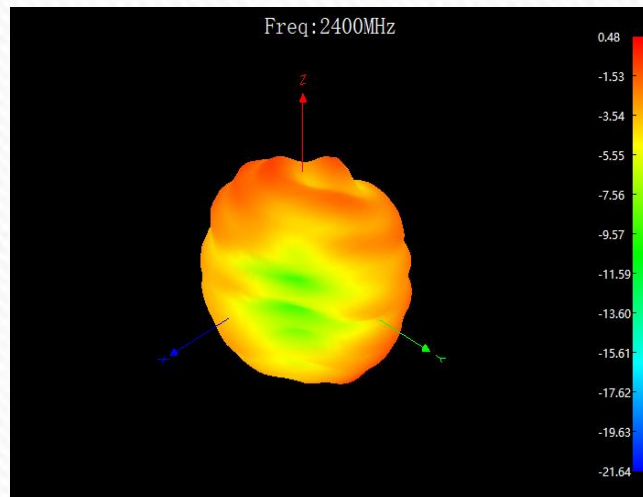
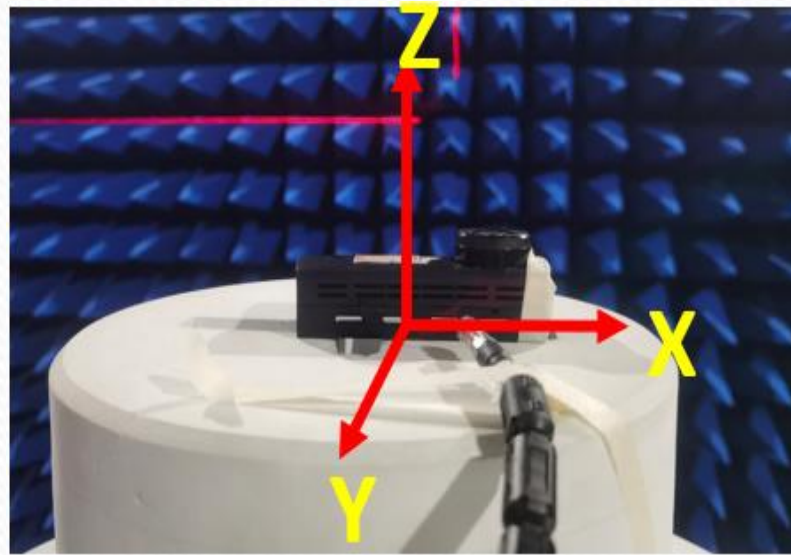


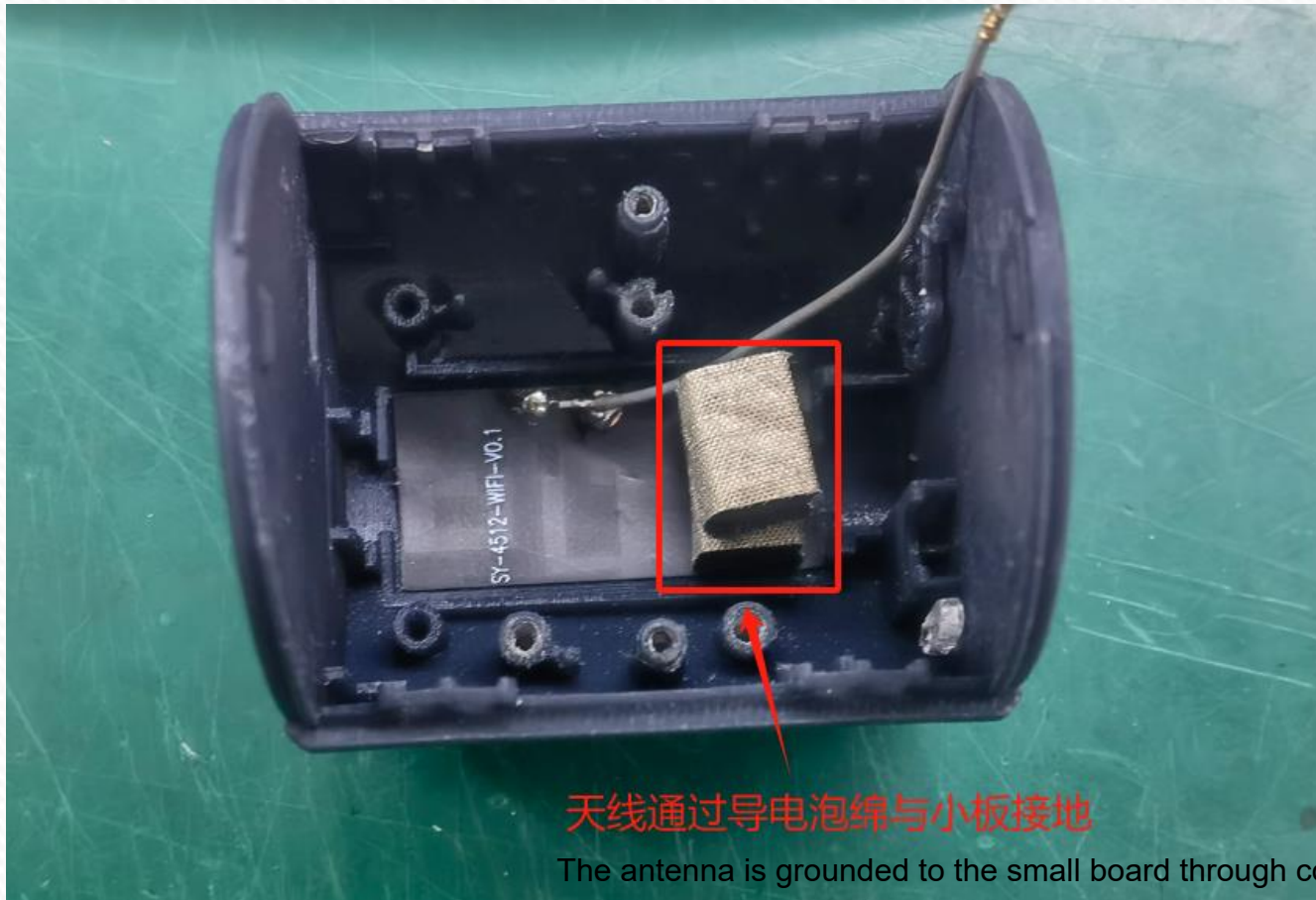
theta 90°



Directional pattern

WIFI Antenna





The GND of the 4512's antenna has to be connected to the motherboard via conductive foam.

Good antenna performance test results

Thank You

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

Shenzhen R&D Center: Floor 6, Building 5, Nam Tai Inno Park, Guangming District, Shenzhen, 518057, PRC

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

Huizhou Factory: F4-6, Building 8, Xiongtao Tech Park, No.15, Qingli 2nd Rd, Huicheng Dist, Huizhou City, 516255, PRC

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

www.sunnyway-iot.com

