Shenzhen Tianlianling Technology Co., Ltd

Antenna Test Report

entry name: W49X

Item number: W49X.WIFI.C081.100B.2

Person in charge: Fang Zhengfeng

Version: V2

Date:2023-08-08

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http://www.tll-skylink.com

R&D environment

anechoic chamber

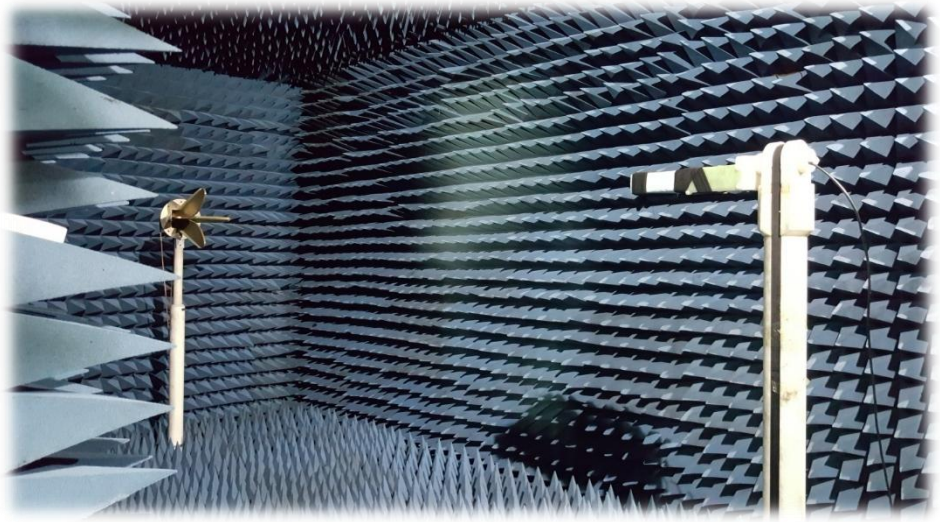
1. 2G/3G communication microwave anechoic chamber 2.4G microwave anechoic chamber communication products

2. CMW500

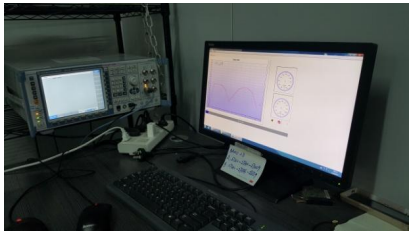
3. Agilent Network Analyzer

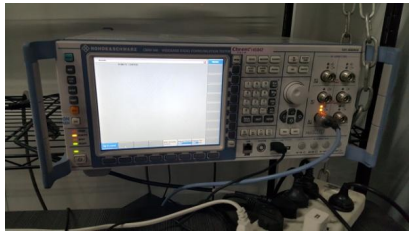
4. HP Network Analyzer

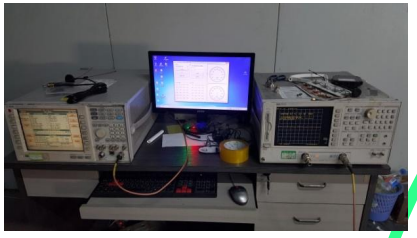
5. GPS101, etc

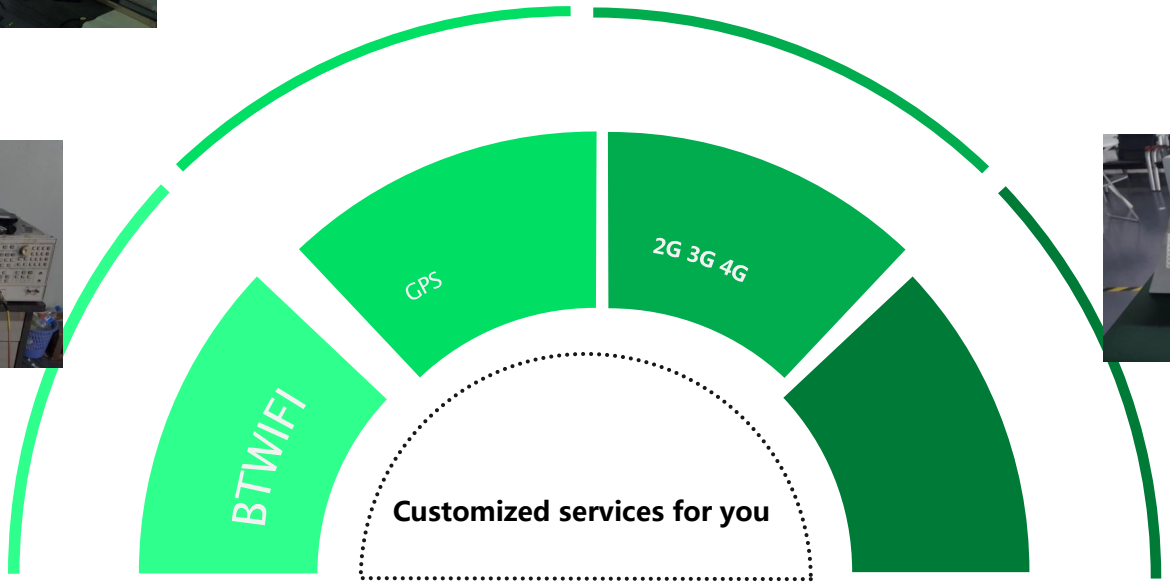


R&D equipment

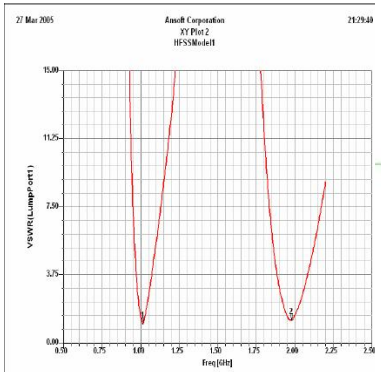


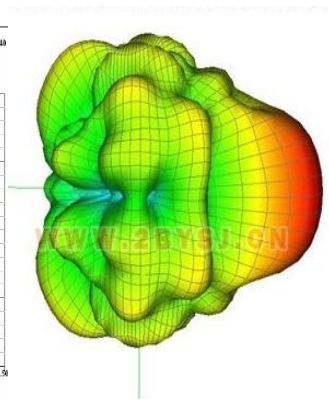






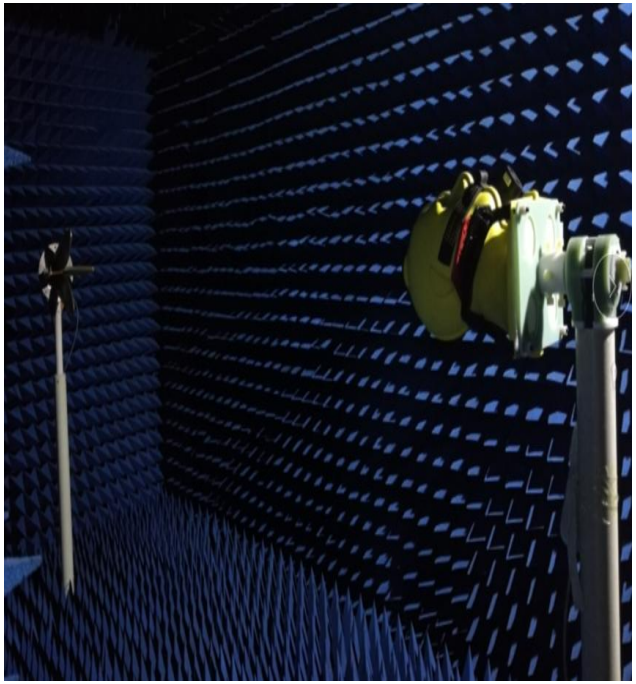
Testing Capability





Passive Test

- Impedance
- VSWR
- Gain
- Efficiency
- Direction map



Active testing

- 2G 3G 4G
- WIFI 2.4G&5.8G
- BT
- GPS
- NB-IOT
- TRP
- 0~7.5G

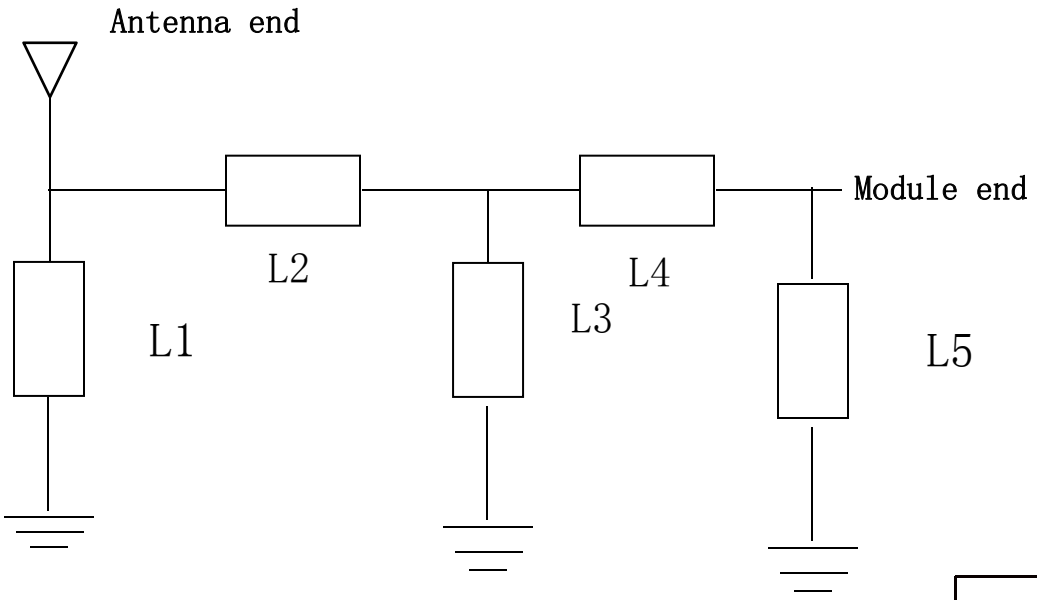
Conduction test & TRP&TIS

Conduction testing in
non signaling mode&
Scanning interference analysis

Information Description

Customer Name	model	Antenna mode
Weifu	W49X	FPC
frequency		
WIFI	2400MHz-2500MHz 5150MHz-5850MHz	

Antenna matching circuit

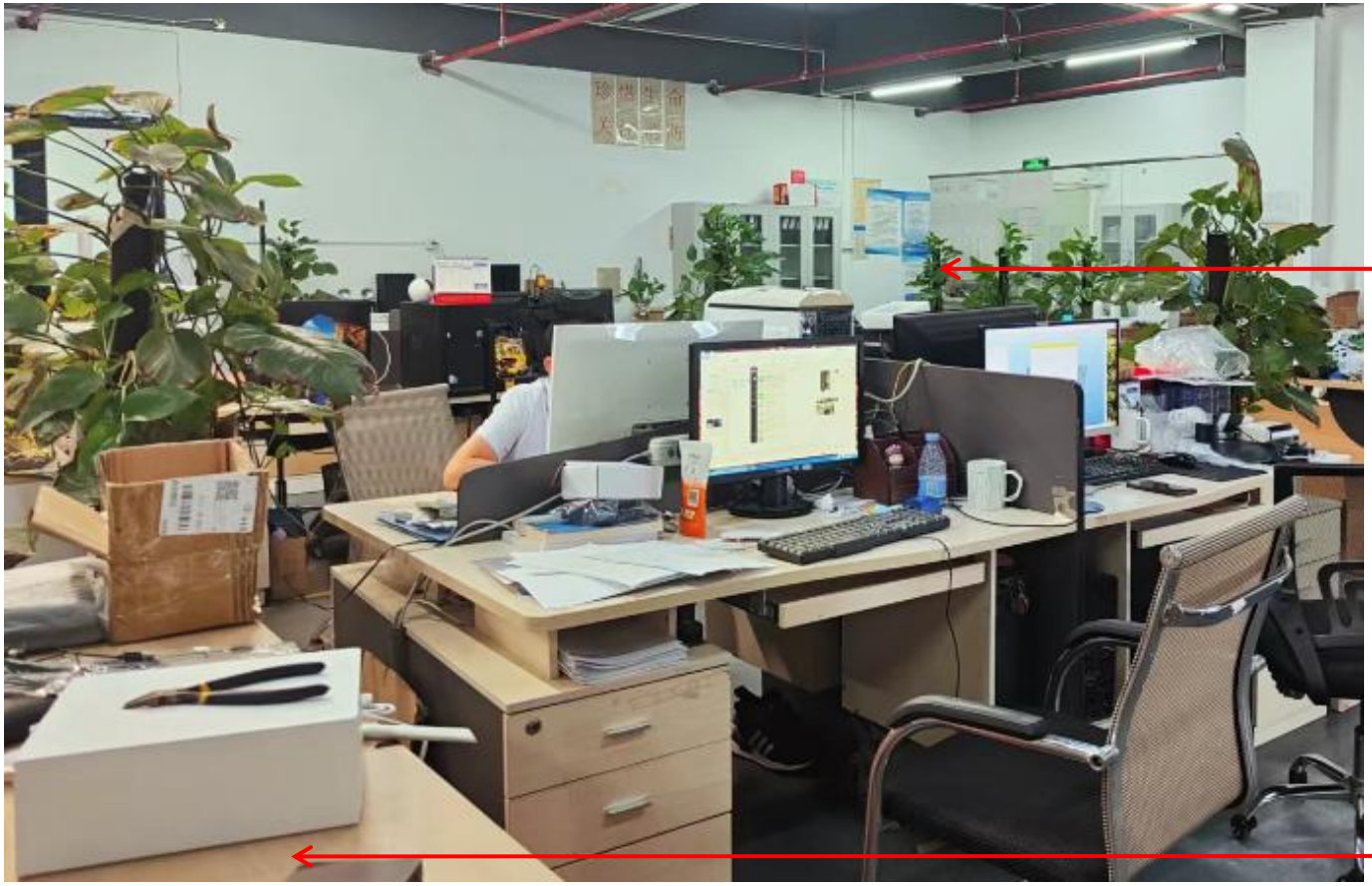


Original motherboard matching remains unchanged

	price
L1（0201）	/
L2（0201）	/
L3（0201）	/
L4（0201）	/
L5（0201）	/

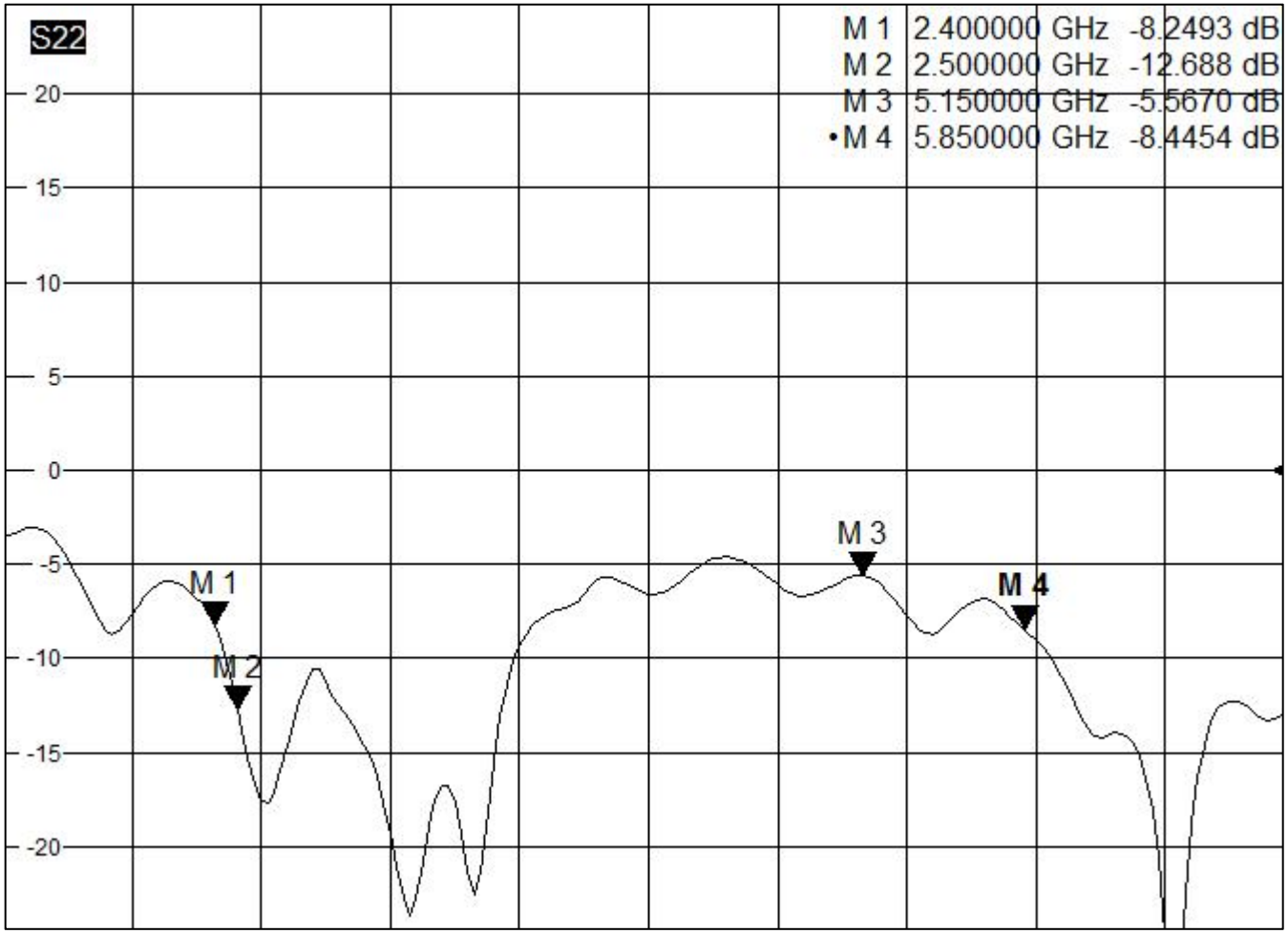
Customer equipment diagram

Photos of indoor antenna testing environment



Test the distance between the mobile phone position and the customer's machine position by 9 meters

Return Loss

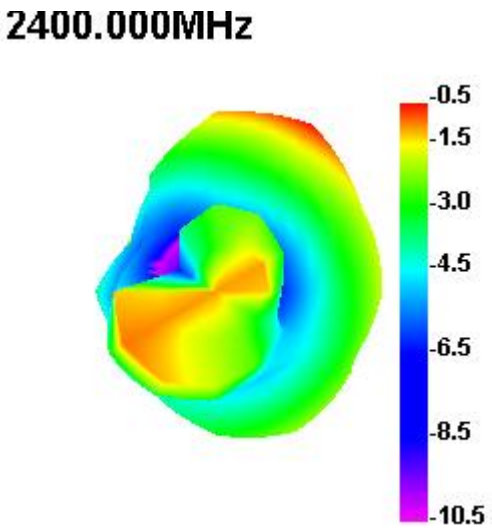

S22
M 1 2.400000 GHz -8.2493 dB
M 2 2.500000 GHz -12.688 dB
M 3 5.150000 GHz -5.5670 dB
•M 4 5.850000 GHz -8.4454 dB
20
15
10
5
0
-5
-10
-15
-20
M 1
M 2
M 3
M 4

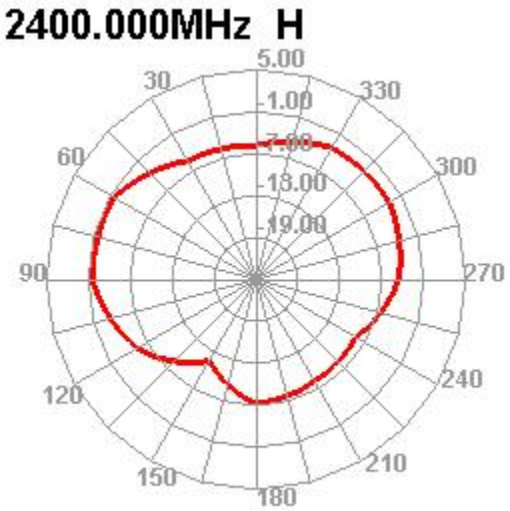
Efficiency/Gain

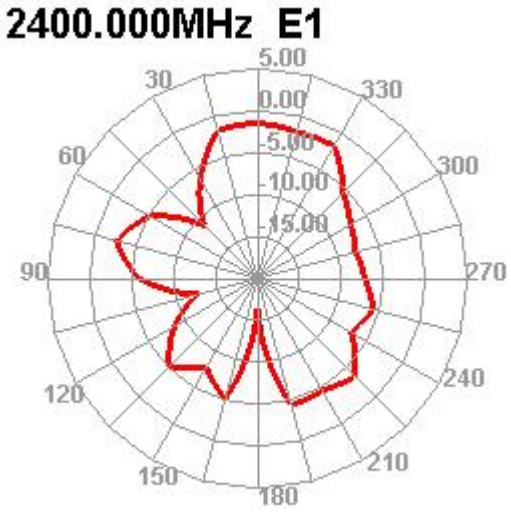
Freq (MHz)	Effi (%)	Gain (dBi)
2400	29.47	-0.52
2410	30.66	-0.57
2420	32.03	-0.49
2430	32.33	-0.39
2440	32	-0.53
2450	30.38	-0.68
2460	31.94	-0.34
2470	31.2	-0.3
2480	32	-0.14
2490	32.08	-0.1
2500	33.01	0.05

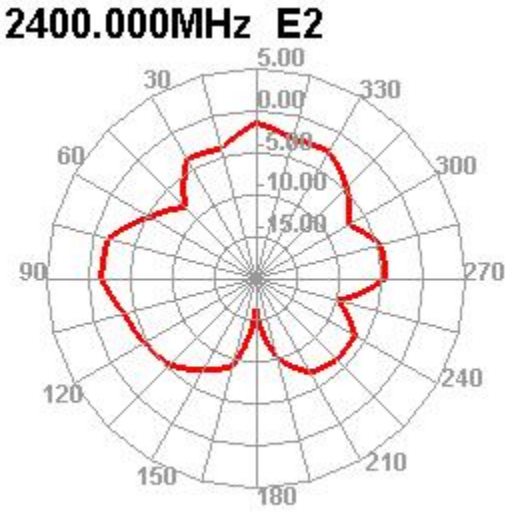
Freq (MHz)	Effi (%)	Gain (dBi)
5150	24.42	-3.48
5200	20.25	-1.64
5250	23.43	-0.55
5300	25.23	-0.38
5350	31.87	0.8
5400	34.97	1.05
5450	27.56	1.39
5500	32.9	1.91
5550	25.56	2.34
5600	29.47	2.78
5650	30.22	2.64
5700	27.48	2.28
5750	26.1	2.23
5800	32.87	1.89
5850	25.38	2.31

Direction map (2.4G)

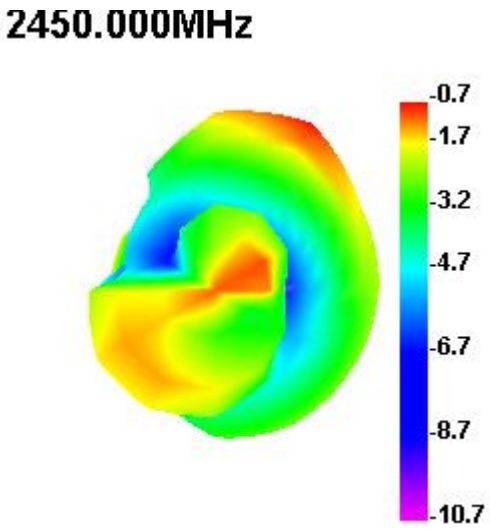


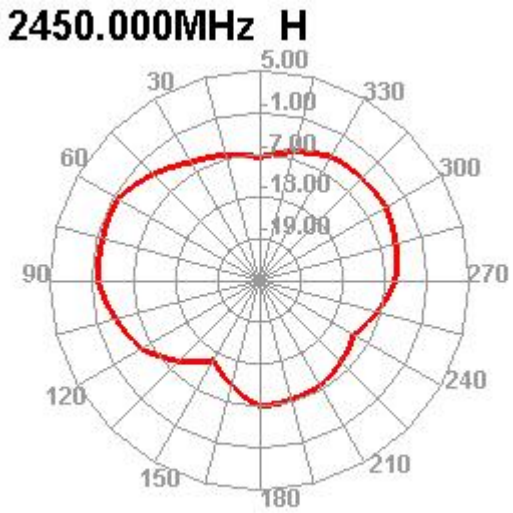


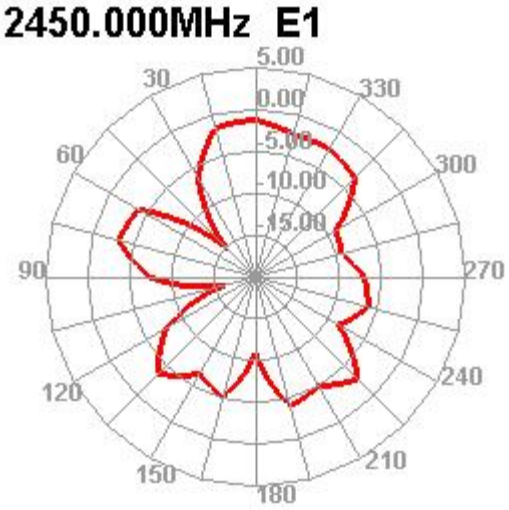


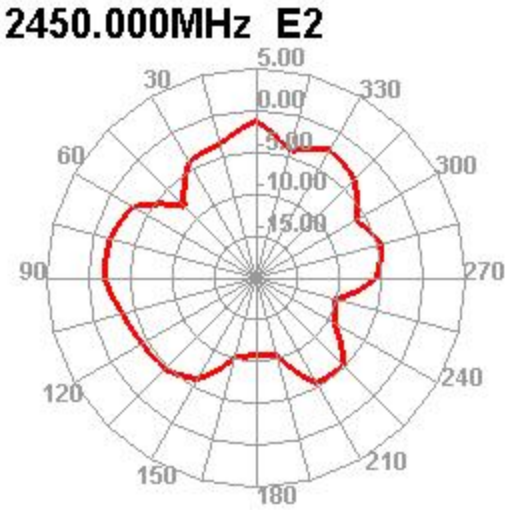


Directional pattern

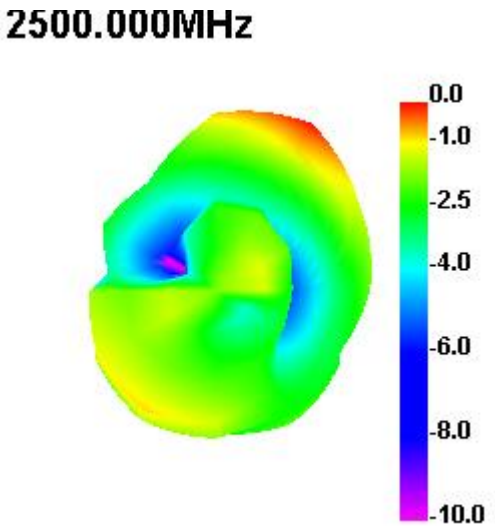


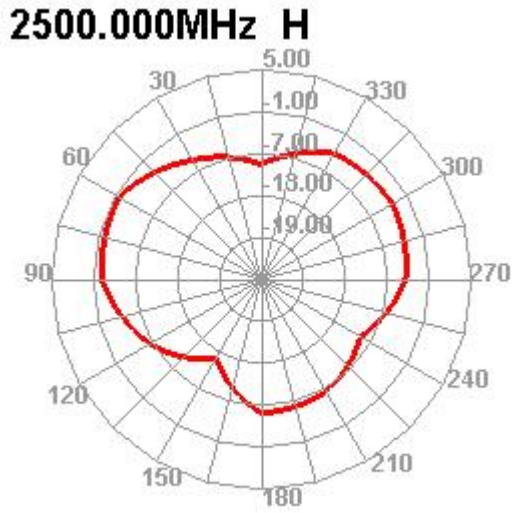


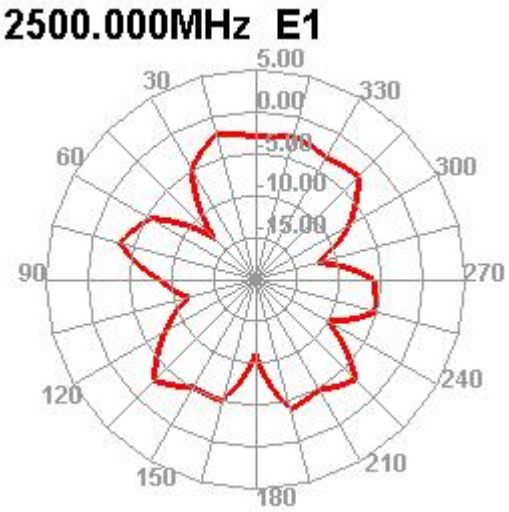


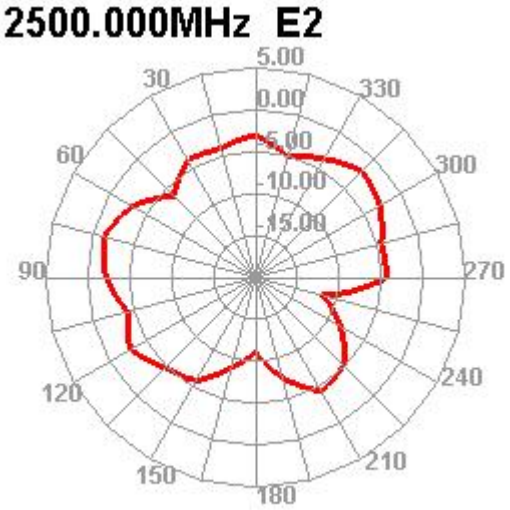


Directional pattern

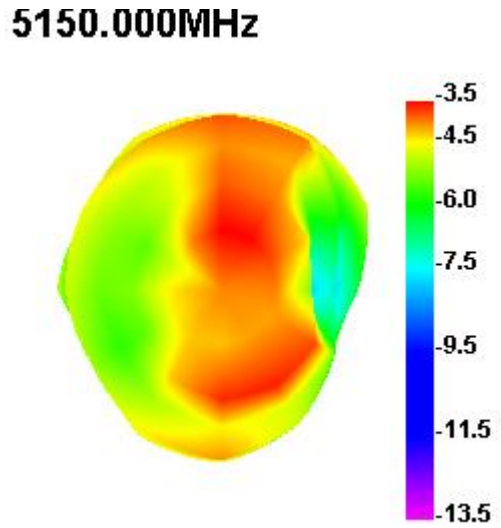


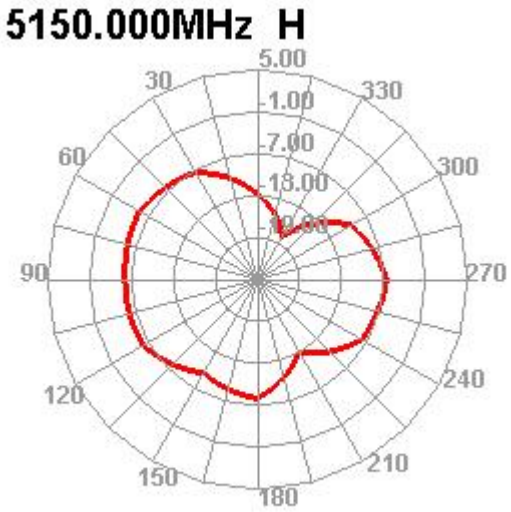


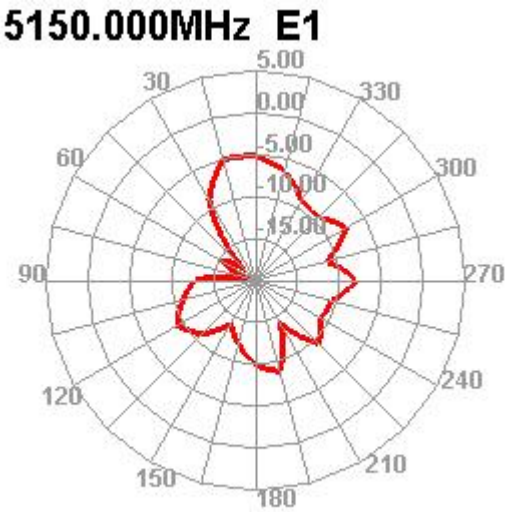


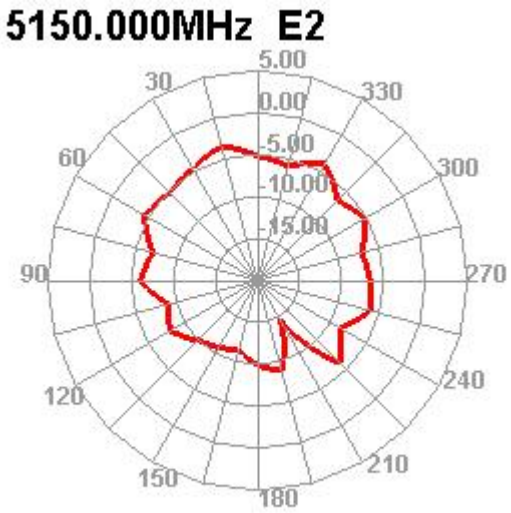


Directional pattern(5.8)

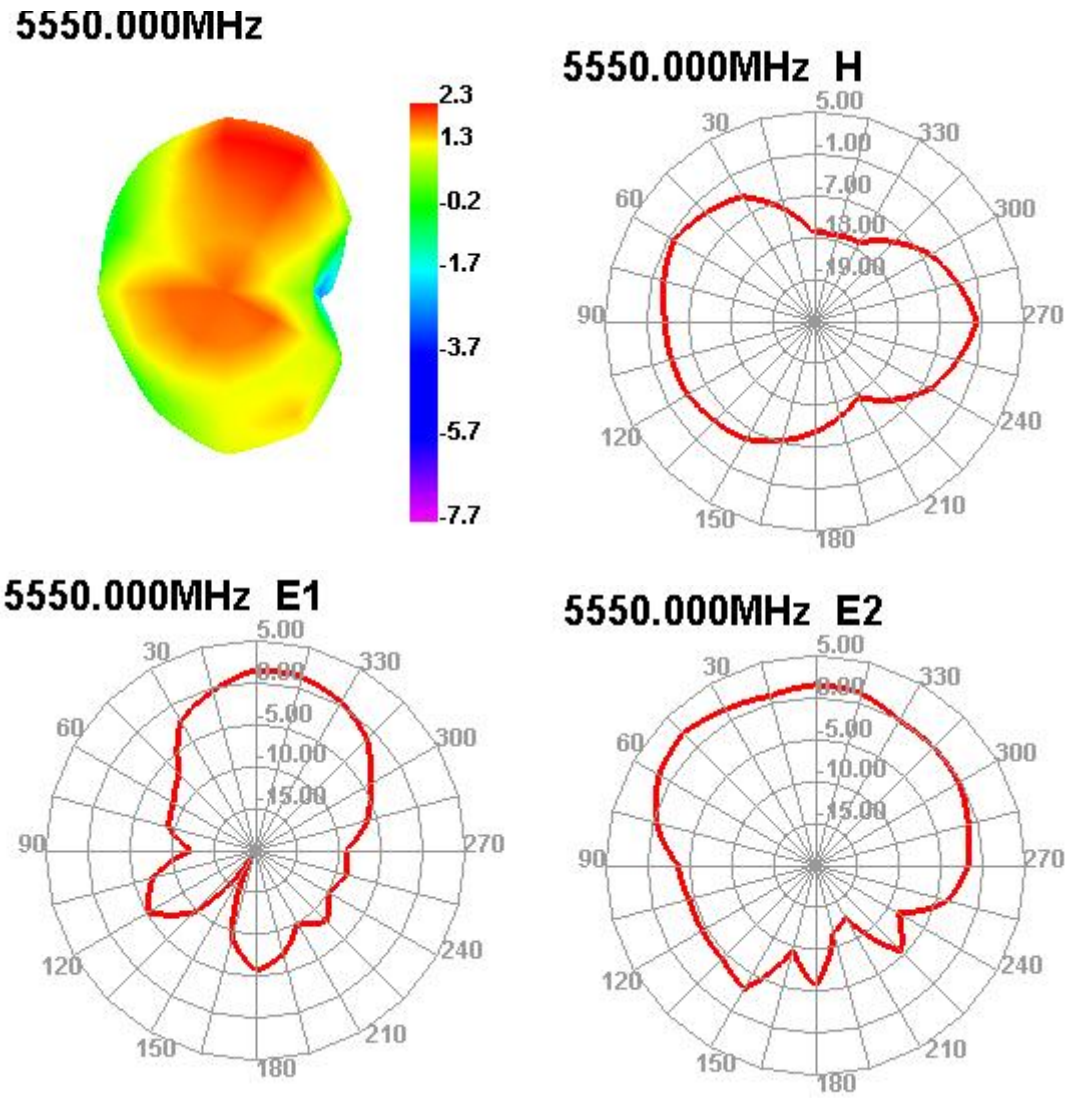




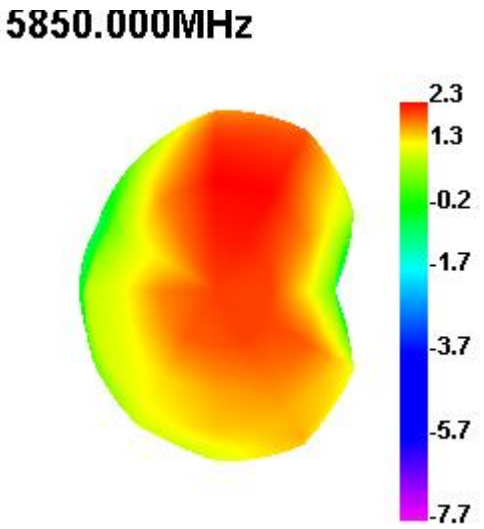


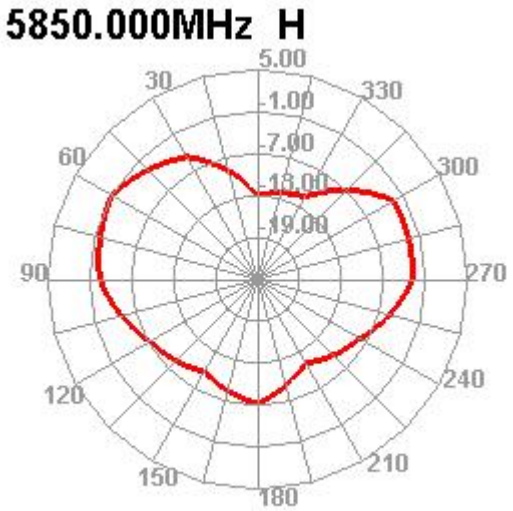


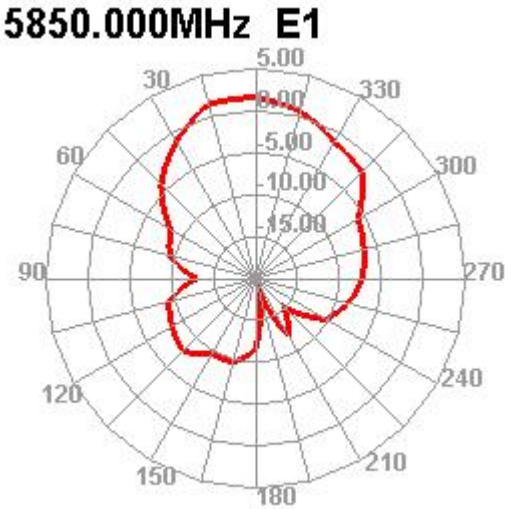
Directional pattern

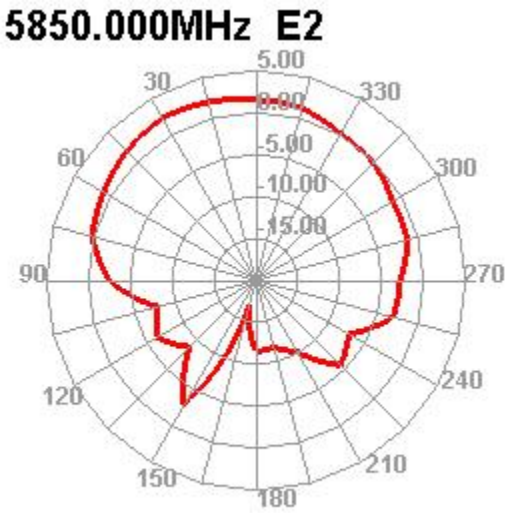


Directional pattern

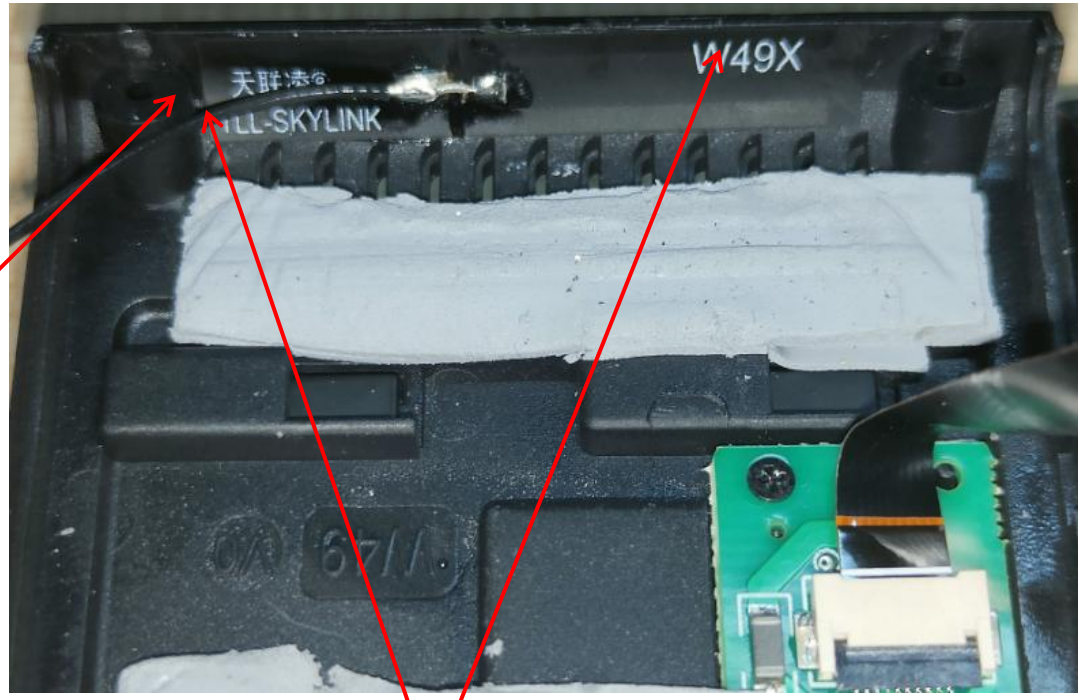






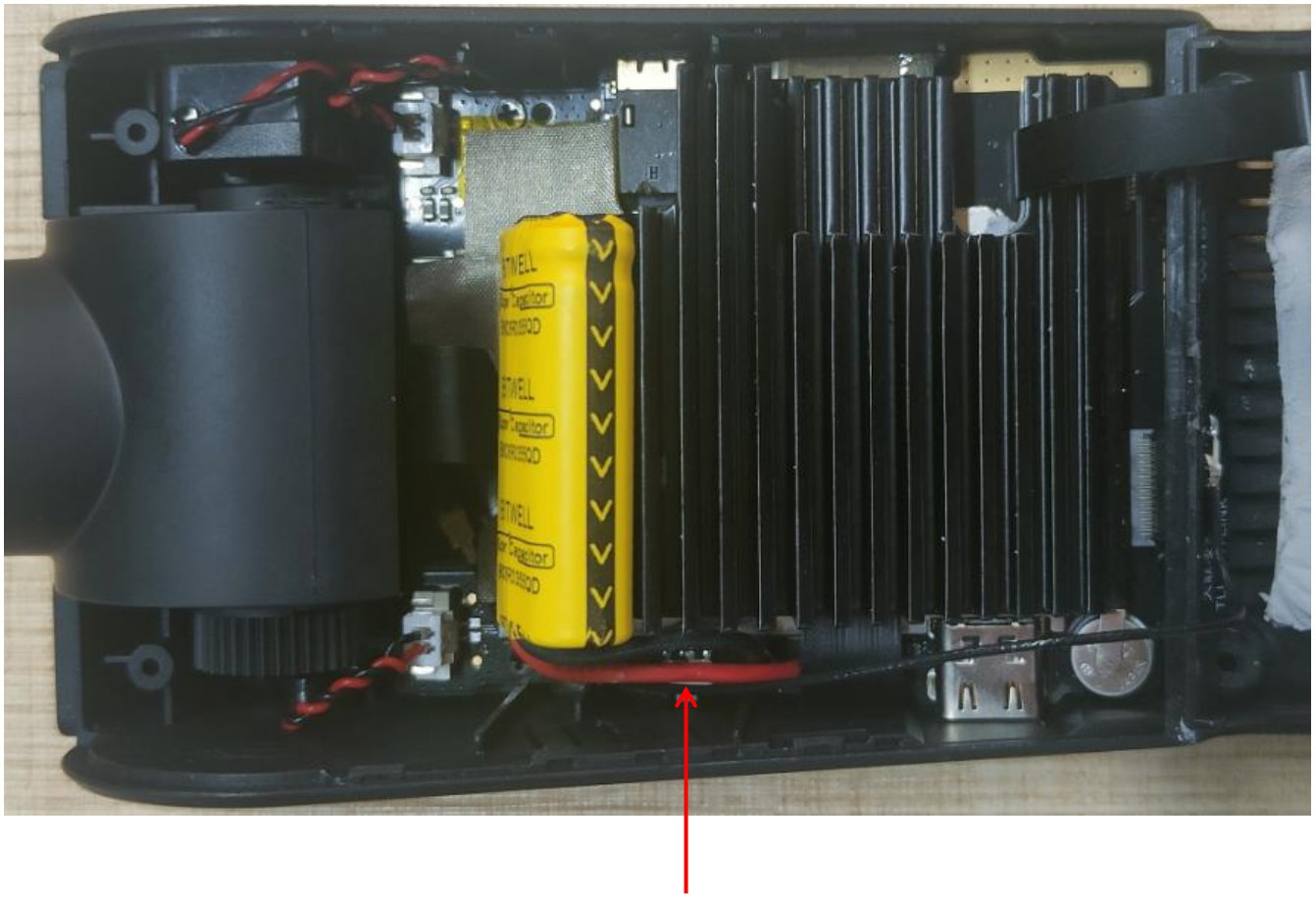


Antenna positioning diagram



The antenna is aligned and tightly attached to the bone position along the arrow direction, and the antenna screen is finally changed to W49X.WIFI.

RF cable routing diagram



The RF cable runs in the direction shown in the figure above

Summarize

1: During passive testing of the entire machine, the antenna is affected by the metal heat dissipation plate, resulting in low overall efficiency, ranging from 20% to 35%.

2: The antenna assembly position and RF wiring have been marked in the above figure. Please strictly follow our company's requirements for assembly and wiring; (Illustrated on pages 17 and 18).

3: Through testing with OPPO mobile phones, there was no jamming phenomenon up to 9 meters in our indoor environment; The download speed can reach 2.5M/s within 3 meters; Now the antenna has been debugged to meet the requirements and can be used normally.

4: The actual testing distance is based on the customer, and if there are any issues, please provide feedback to our company.


THANK
YOU