

SHENZHEN TLT COMMUNICATION CO.,LTD

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H15W1P-7430U-Main antenna

The Product Recognition Letter

The Customer	yanghua	Band range	2.4/5.8
Model	H15W1P-7430U	Version	Latest version
Project code name	TLT5747	Approval	LOOP
RF Designer	Mao Hangzhou	RD Designer	Tang Chunzheng
Date of this	2026-5-15	Date of this	2026-5-15
Customer Information:			

Metric

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1.Antenna parameters

This report mainly provides test conditions and results for various electrical and structural properties in device tests,

An antenna designed by TLT.

Electrical parameters

1.1.1 Electrical Performance Assessment

The band range of the antenna is 2400MHz-2500MHz and 5000MHz~5800MHz. below are the basic parameters of the electrical performance of the antenna. This is designed antenna and produced by Tian Lu Tong.

1.1.2 distribution circuit diagram

Use the original matching circuit diagram on the PCB board

1.2 Structural parameters

1.2.1 antenna assembly

Antennas generally consisted of plastic supports and hardware pieces.

1.2.2 can test the requirements

Test item	description	Acceptance criteria
1. cryotemperature test	temperature:-20℃ Time: 24 hours	The 1. had no obvious damage The 2. electrical performance meets the standard
The 2. high-temperature test	temperature.: 80℃ Time: 24 hours	The 1. had no obvious damage The 2. electrical performance meets the standard
3. salt fog test	5 ± 0.1% salt mist PH-value: 6.5-7.2 temperature: 35±1℃ Time: 24 hours	1.No color was changed 2.There are no obvious cracks in the appearance
4. environmental adaptability test	Total value of Pb, Hg, Cr+6, Cd in packing materials is smaller than 50PPM Pb, Hg, Cr+6, PBBs, PBDEs in components are smaller than 500PPM, Cd is smaller than 50PPM	

2.The test

Antenna are installed in a customer provided phone for testing. describes the antenna in mobile) for the equipment (electrical performance test.

2.1The VSWR test

2.1.1Test the connection

Test VSWR order of device connections: Agilent E8753 network analyzer → test cable → customer-provided machine

2.1.2 voltage standing to wave ratio

The table below describes the values of the voltage resident wave ratio of the antenna at the two endpoints of the frequency band, involving drawings about the return impairment and resident wave ratio, please refer .

Main antenna	WIFI-2.4G		WIFI-5.0G	
Frequency (MHz)	2.4G	2.48G	5.15G	5.85G
VSWR	1.80	1.46	1.88	1.74
Return Loss	-10.88	-14.93	-10.23	-11.34

AUX antenna	WIFI-2.4G		WIFI-5.0G	
Frequency (MHz)	2.4G	2.48G	5.15G	5.85G
VSWR	1.64	2.03	1.33	1.92
Return Loss	-13.82	-9.50	-16.99	-10.01

2.2 GAIN & EFFICIENCY

2.2.1 test environment

Skyway microwave dark chamber: The test frequency range from 800MHz to 6GHz, in a 50cm diameter spherical area, and the dark chamber is reflected less than-50 dB. from 800MHz—6GHz

2.2.2 Test the equipment

Agilent 8960 (8753C) Wireless Communication Test Device, Dipole antenna, French Sa t imo Antenna Test System, Printer, etc.

Main antenna	2.40G	2.48G	5.20G	5.85G
Gain (dBi)	0.17	0.01	1.23	-1.95
Efficiency (%)	34.7	34.2	27.3	28.1

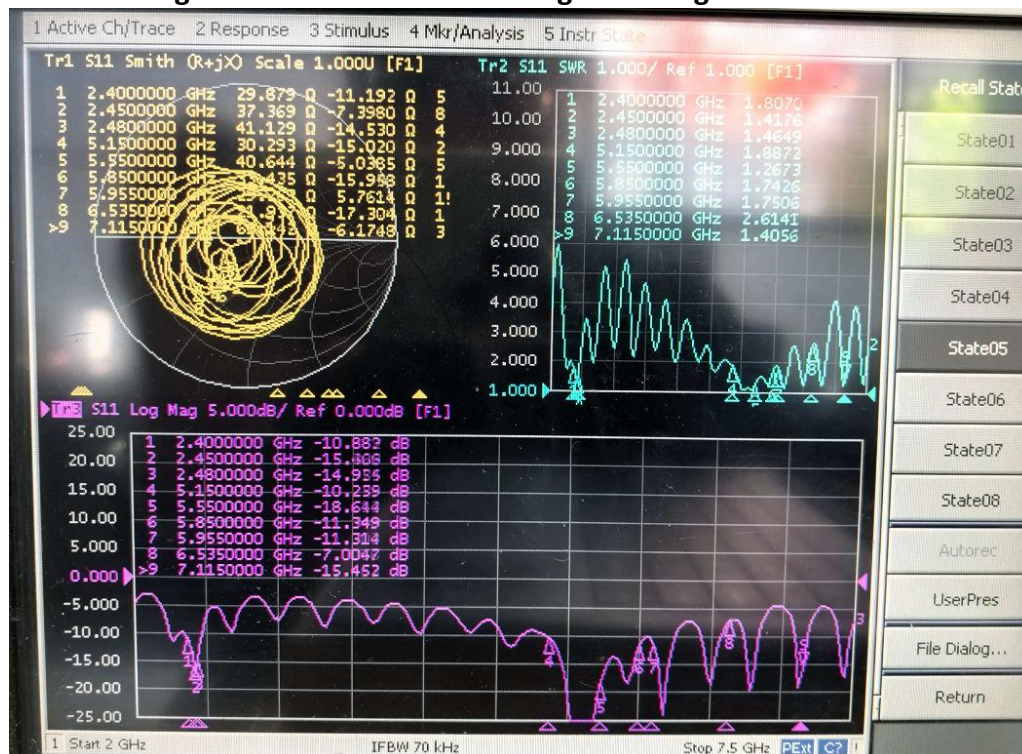
AUX antenna	2.40G	2.48G	5.20G	5.85G
Gain (dBi)	3.1	0.36	1.36	-0.23
Efficiency (%)	55.9	29.7	39.1	21.4

3. summary

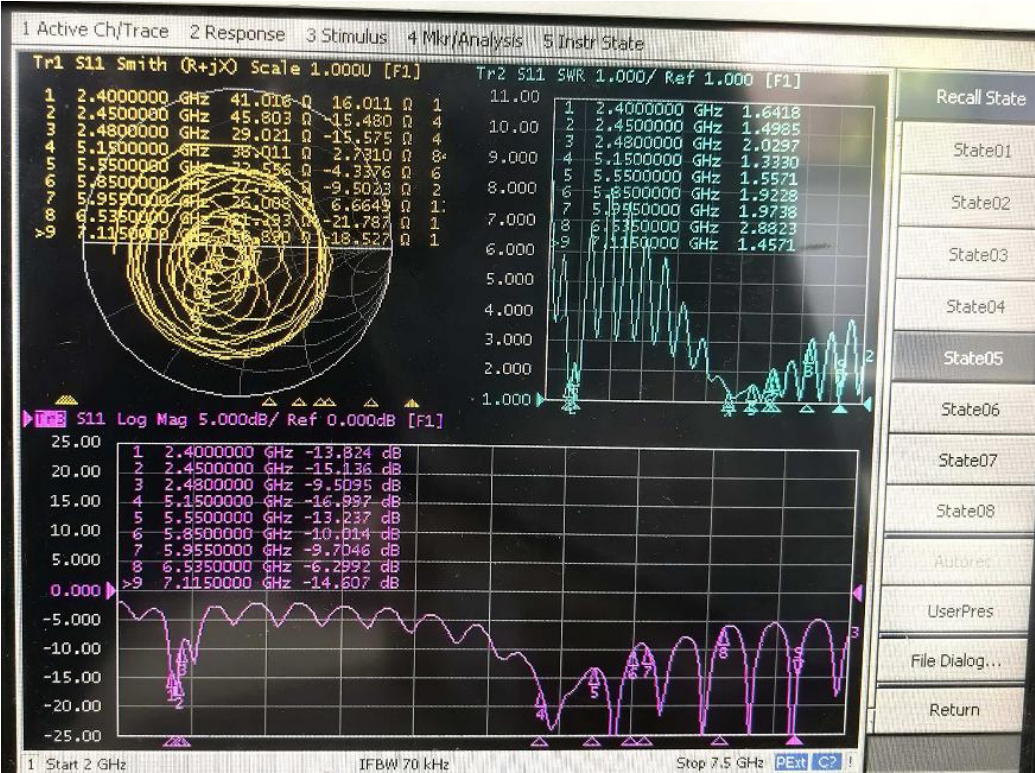
The antenna is designed according to the machine samples provided by the customer, and the electrical parameters and result performance of the antenna meet the standard, and we are sure to make you satisfied.

4.Attachment diagram

4.1 Parameter diagram of return loss and voltage standing wave ratio



Main antenna



AUX antenna

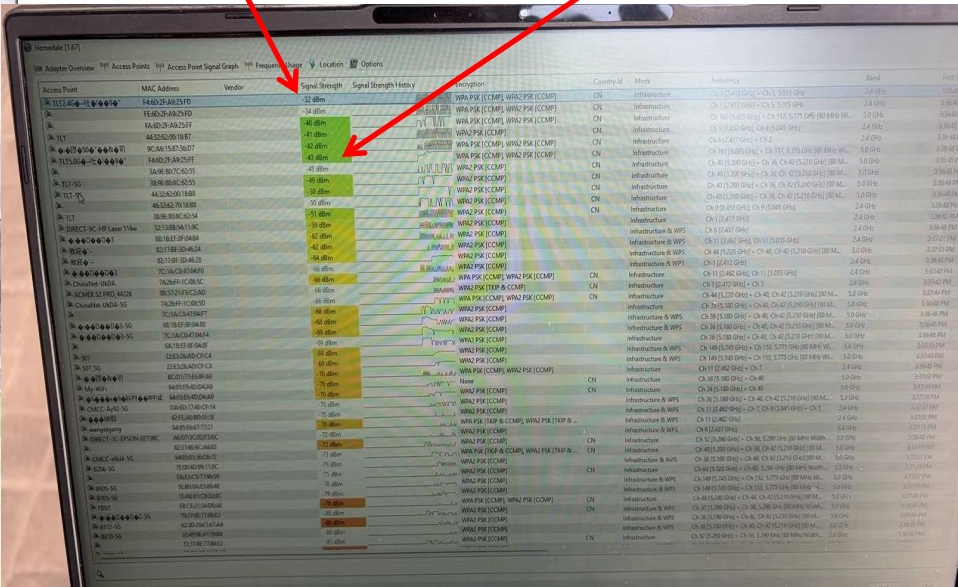
5. WIFI graphics and test data

5.1.1WIFI field test: Test environment: open environment, 15 meters away from our router. The test is as follows:



2.4G-WIFI display -32DBM , full signal

5G-WIFI display -43DBM , full signal



5.1.2 WIFI OTA test:

WIFI 2.4G RF Testing		11B(11Mbps)		
Channel		TCH 1	TCH 6	TCH 11
Frequency(Mhz)		2412	2437	2462
	TRP(dBm)	11.35	12.41	11.59
	TIS(dBm)	-72	-73	-72

WIFI 5G RF Testing		11A(6Mbps)		
Channel		TCH 36	TCH 100	TCH 157
Frequency(Mhz)		5180	5500	5785
	TRP(dBm)	10.59	11.28	11.37
	TIS(dBm)	-82	-83	-83

5.1.3 WIFI throughput test:

[ID]	Interval	Transfer	Bandwidth
[368]	17.0-18.0 sec	4.14 MBytes	34.7 Mbits/sec
[ID]	Interval	Transfer	Bandwidth
[368]	18.0-19.0 sec	4.22 MBytes	35.4 Mbits/sec
[ID]	Interval	Transfer	Bandwidth
[368]	19.0-20.0 sec	3.27 MBytes	27.5 Mbits/sec
[ID]	Interval	Transfer	Bandwidth
[368]	20.0-21.0 sec	5.20 MBytes	43.6 Mbits/sec
[ID]	Interval	Transfer	Bandwidth
[368]	21.0-22.0 sec	5.20 MBytes	43.6 Mbits/sec
[ID]	Interval	Transfer	Bandwidth
[368]	22.0-23.0 sec	5.56 MBytes	46.7 Mbits/sec
[ID]	Interval	Transfer	Bandwidth
[368]	23.0-24.0 sec	4.28 MBytes	35.9 Mbits/sec
[ID]	Interval	Transfer	Bandwidth
[368]	24.0-25.0 sec	3.77 MBytes	31.6 Mbits/sec
[ID]	Interval	Transfer	Bandwidth
[368]	25.0-26.0 sec	3.55 MBytes	29.8 Mbits/sec
[ID]	Interval	Transfer	Bandwidth
[368]	26.0-27.0 sec	3.75 MBytes	31.5 Mbits/sec
[ID]	Interval	Transfer	Bandwidth
[368]	27.0-28.0 sec	4.92 MBytes	41.3 Mbits/sec
[ID]	Interval	Transfer	Bandwidth
[368]	28.0-29.0 sec	4.45 MBytes	37.4 Mbits/sec
[ID]	Interval	Transfer	Bandwidth
[368]	29.0-30.0 sec	3.73 MBytes	31.3 Mbits/sec
[ID]	Interval	Transfer	Bandwidth
[368]	0.0-30.0 sec	137 MBytes	38.2 Mbits/sec

2.4G TX: 38.2M

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C:\Users\3\Desktop\吞吐量测试方法与软件最新\WIFI吞吐量测试工具>iperf -s
Server listening on TCP port 5001
TCP window size: 64.0 KByte (default)

[384] local 192.168.1.3 port 5001 connected with 192.168.1.2 port 62717
[ ID] Interval      Transfer    Bandwidth
[384] 0.0-30.2 sec  166 MBytes  46.1 Mbits/sec
[400] local 192.168.1.3 port 5001 connected with 192.168.1.2 port 62718
[ ID] Interval      Transfer    Bandwidth
[400] 0.0-30.2 sec  173 MBytes  48.0 Mbits/sec
[412] local 192.168.1.3 port 5001 connected with 192.168.1.2 port 62721
[ ID] Interval      Transfer    Bandwidth
[412] 0.0-30.2 sec  182 MBytes  50.6 Mbits/sec
[424] local 192.168.1.3 port 5001 connected with 192.168.1.2 port 62722
[ ID] Interval      Transfer    Bandwidth
[424] 0.0-30.2 sec  166 MBytes  46.2 Mbits/sec
[432] local 192.168.1.3 port 5001 connected with 192.168.1.2 port 62724
[ ID] Interval      Transfer    Bandwidth
[432] 0.0-30.1 sec  185 MBytes  51.5 Mbits/sec
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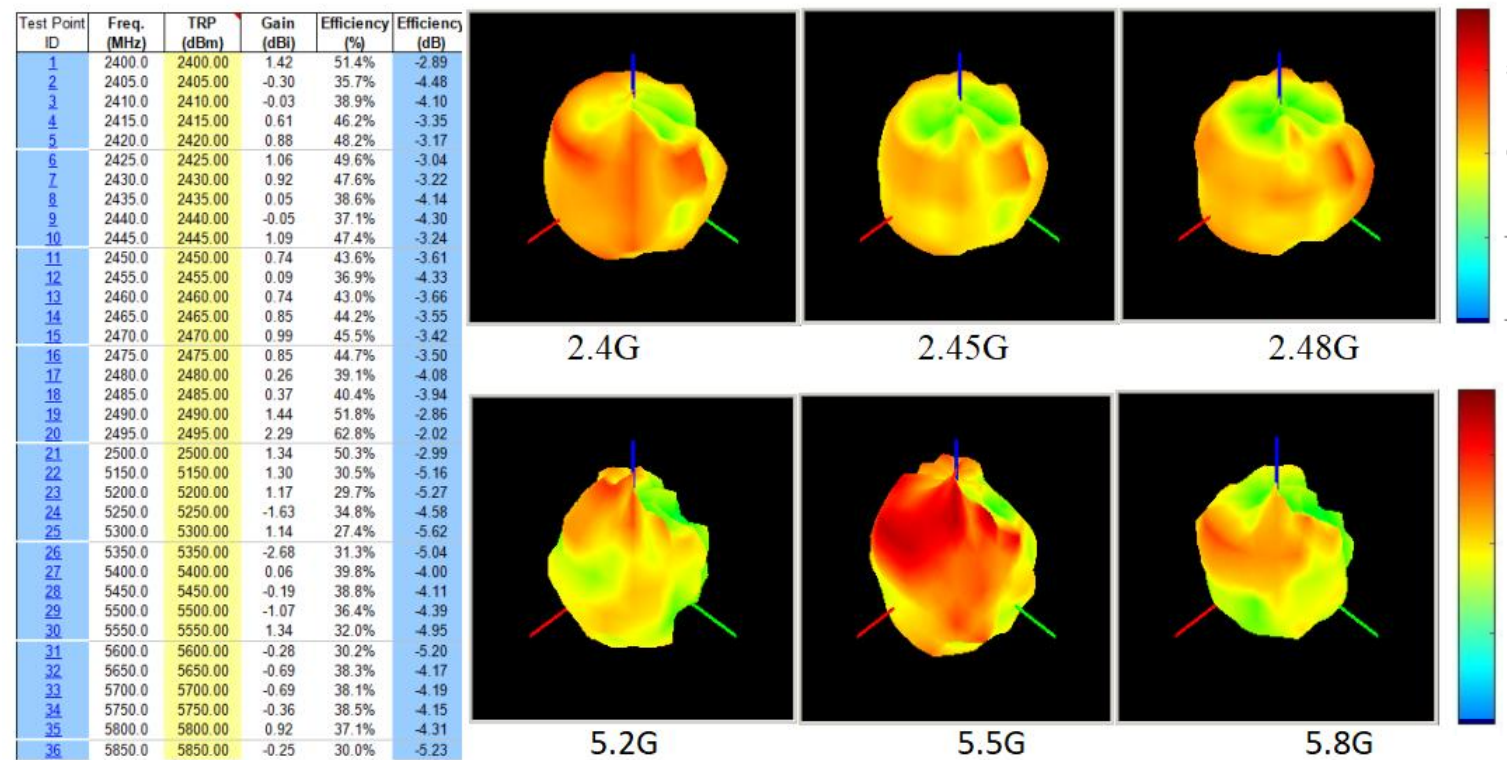
2.4G RX:51.5M



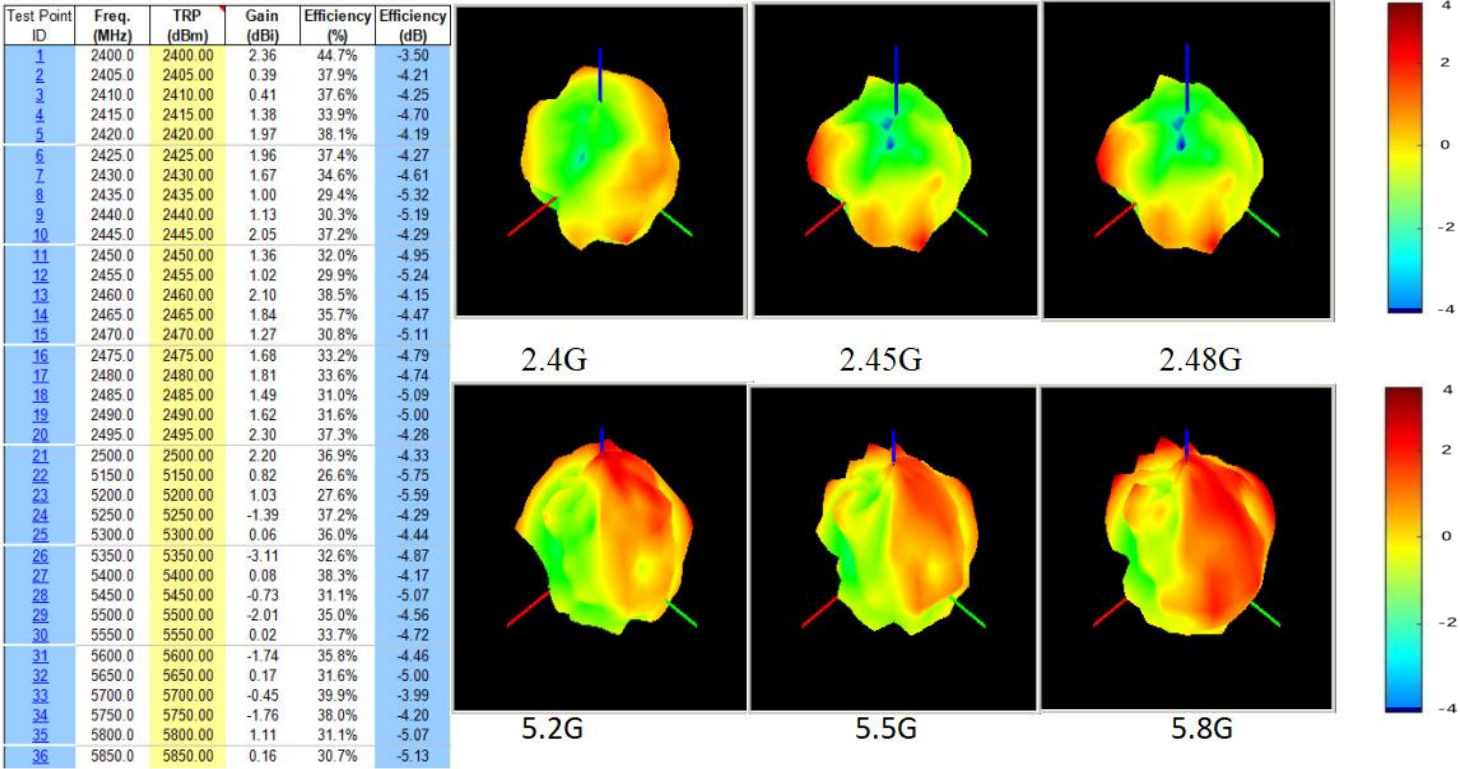
5G TX: 212M

5G RX: 275M

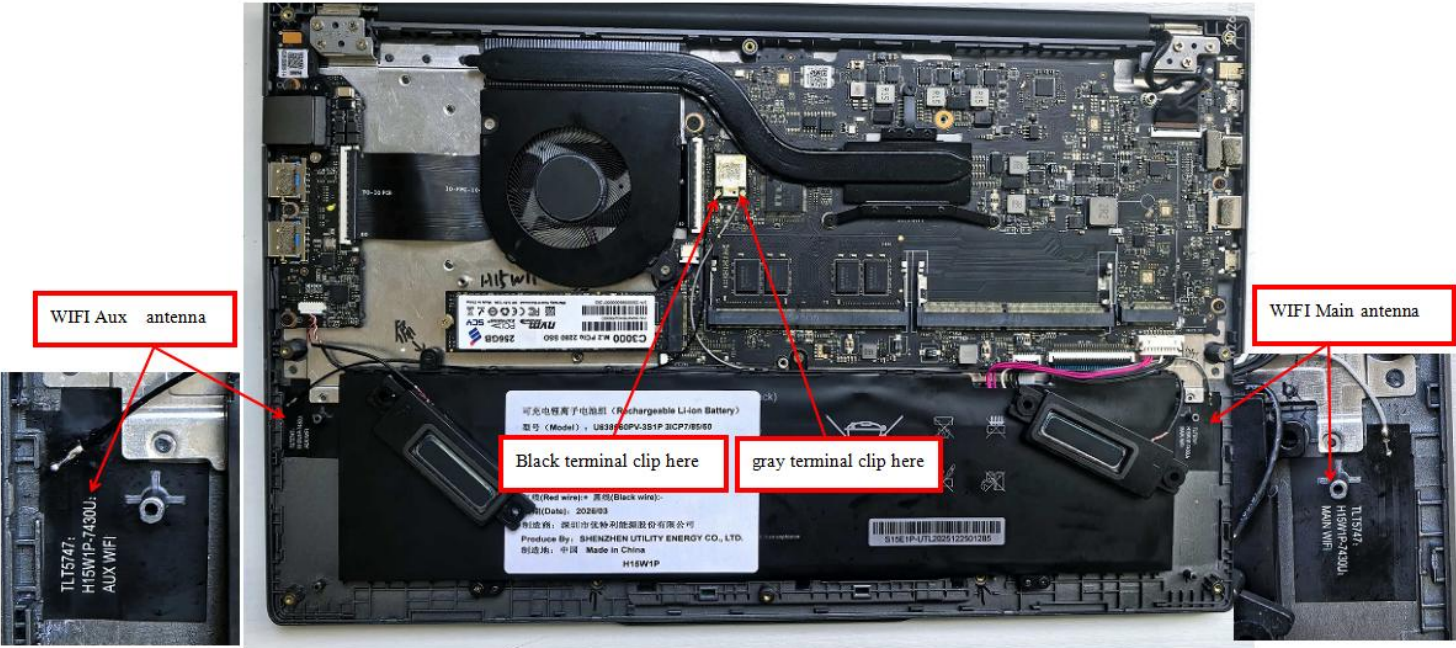
5.2 WIFI gain and efficiency test:
Main antenna



AUX antenna



6.Antenna assembly and processing drawing file



7. Antenna 2D profile

