

Shenzhen Aihui Technology Co. ,
Ltd.

Antenna test report

Test report

2025.07.01

(catalogue) :



(Model Information)

(Company profile)

(Passive and Matching)

(3D Active Test Data)



(Environmental treatment)

(Summary)

Shenzhen Aihui Technology Co. , Ltd.-specializing in antenna research and development, manufacturing, sales

1、 (Model Information)

Project name	G140	RF	
Model Name		LTE:	
Antenna Type		Band	
Model pictures :			

2、 (Passive and Matching)

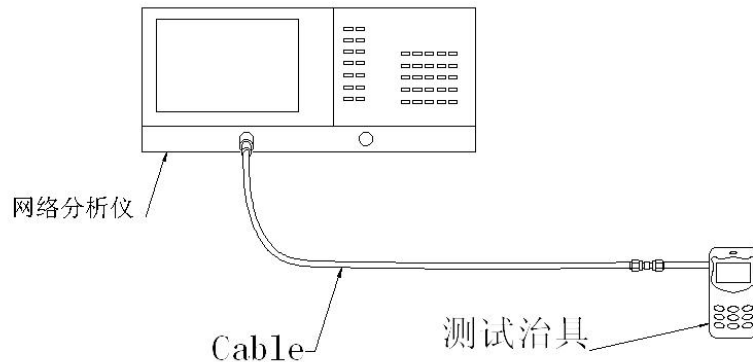
2.1A diagram of a passive test

S11 test method description

Testing equipment:

Network analyzer(E5071C 30k-8.5Ghz)

Test method: a 50 ohm CABLE is used to export from the instrument test port. After calibration, the sample machine and SMA joint of the instrument are connected.



2.2 Active test schematic

3D testing system: SHIELDED ANECHOIC chamber
testing environment: temperature 22 ° C ± 3 ° C, humidity 50% ± 15%
testing equipment: testing passive data, using the Network analyzer Agilent E5071C testing active data, using the synthesis instrument 8960cmw500

总全向辐射功率 (TIRP)

$$TIRP \equiv \frac{\pi}{2NM} \sum_{i=1}^{N-1} \sum_{j=0}^{M-1} [Eirp_{\theta}(\theta_i, \phi_j) + Eirp_{\phi}(\theta_i, \phi_j)] \sin(\theta_i)$$

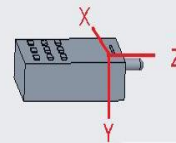
总全向辐射灵敏度 (TIRS)

$$TIRS \equiv \frac{2NM}{\pi \sum_{i=1}^{N-1} \sum_{j=0}^{M-1} \left[\frac{1}{EIS_{\theta}(\theta_i, \phi_j)} + \frac{1}{EIS_{\phi}(\theta_i, \phi_j)} \right]} \sin(\theta_i)$$

E1: XZ的切面 PHI=0

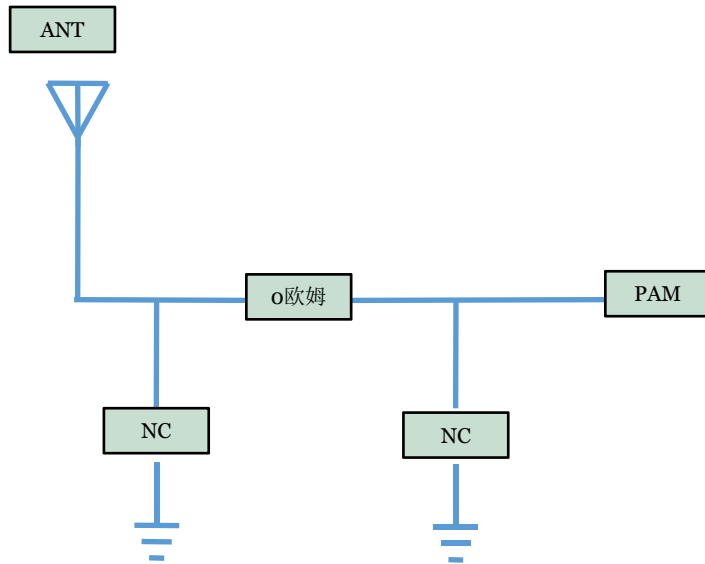
E2: YZ的切面 PHI=90

H: XY的切面 Theta=90



以喇叭天线为参考

2.3 (Matching Circuit)



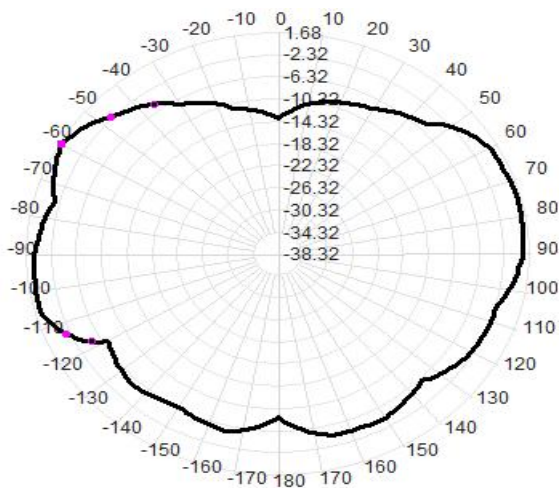
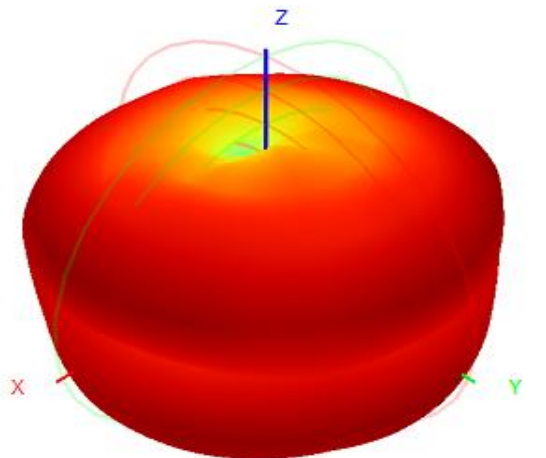
Motherboard matching
has not changed.

Note: original string 0 ohm from
antenna string 0 ohm resistor pa




Frequency Band	802. 11B			802. 11G		
channel	L	M	H	L	M	H
TRP	13. 52	13. 44	14. 82	12. 52	12. 11	13. 61
TIS	-79. 54	-80. 55	-81. 41	-68. 41	-69. 41	-69. 31
Frequency Band	802. 11N			802. 11A		
channel	L	M	H	L	M	H
TRP	12. 61	12. 05	12. 60	12. 32	12. 41	12. 16
TIS	-67. 45	-68. 44	-67. 64	-69. 45	-70. 11	-69. 16

passive antenna test data

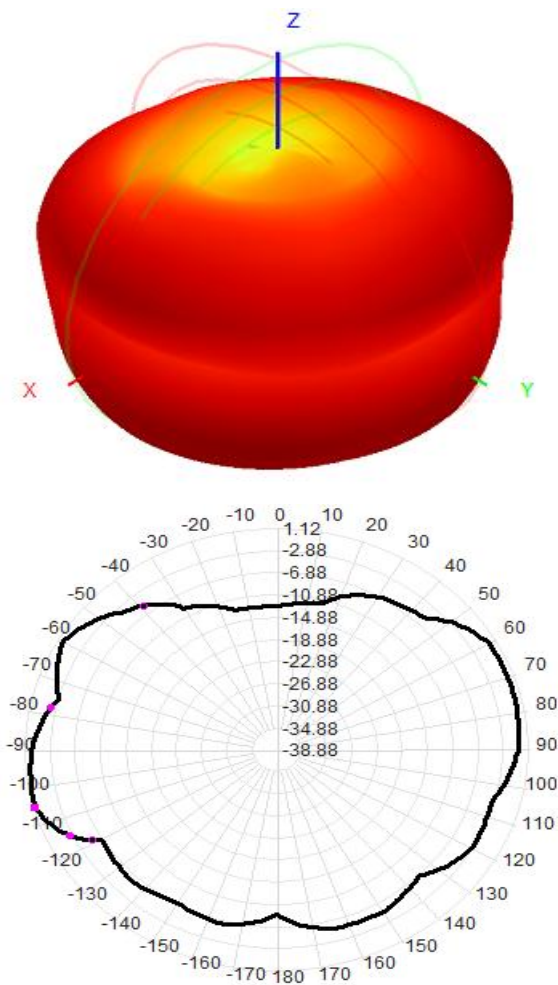


测试数据:

WIFI 2.4G

Freq(MHz)	Efficiency (%)	Gain (dBi)
2400	54.30	1.54
2410	57.11	1.22
2420	56.30	1.30
2430	54.19	1.41
2440	58.44	1.68
2450	57.63	1.52
2460	54.16	1.14
2470	55.30	1.47
2480	54.11	1.30

passive antenna test data

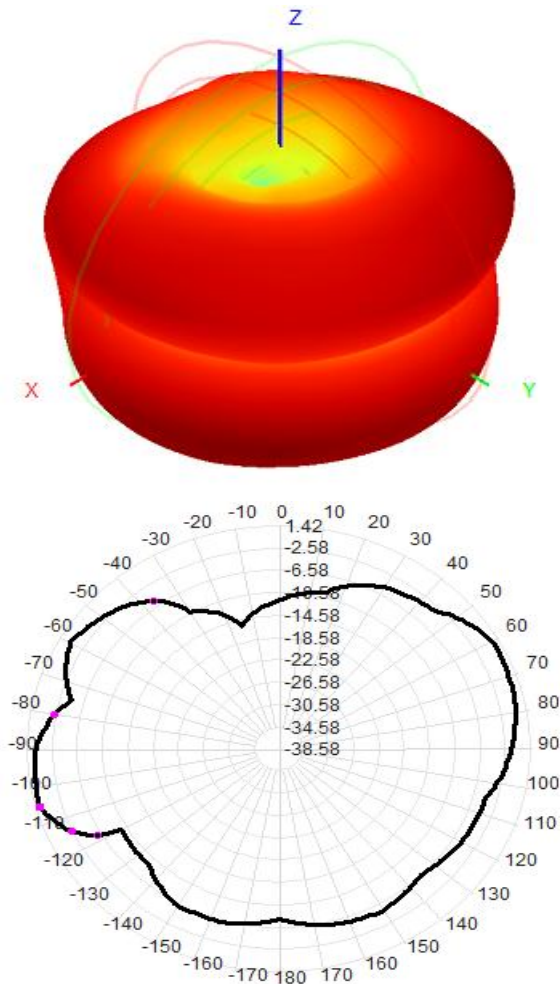


测试数据:

WIFI 5.8G

Freq(MHz)	Efficiency (%)	Gain (dBi)
5000	54.25	0.61
5100	55.63	1.10
5200	54.95	1.04
5300	57.49	1.06
5400	58.32	1.12
5500	57.16	1.05
5600	59.33	1.03
5700	54.12	0.98
5800	55.72	0.88
5850	52.30	0.74

passive antenna test data

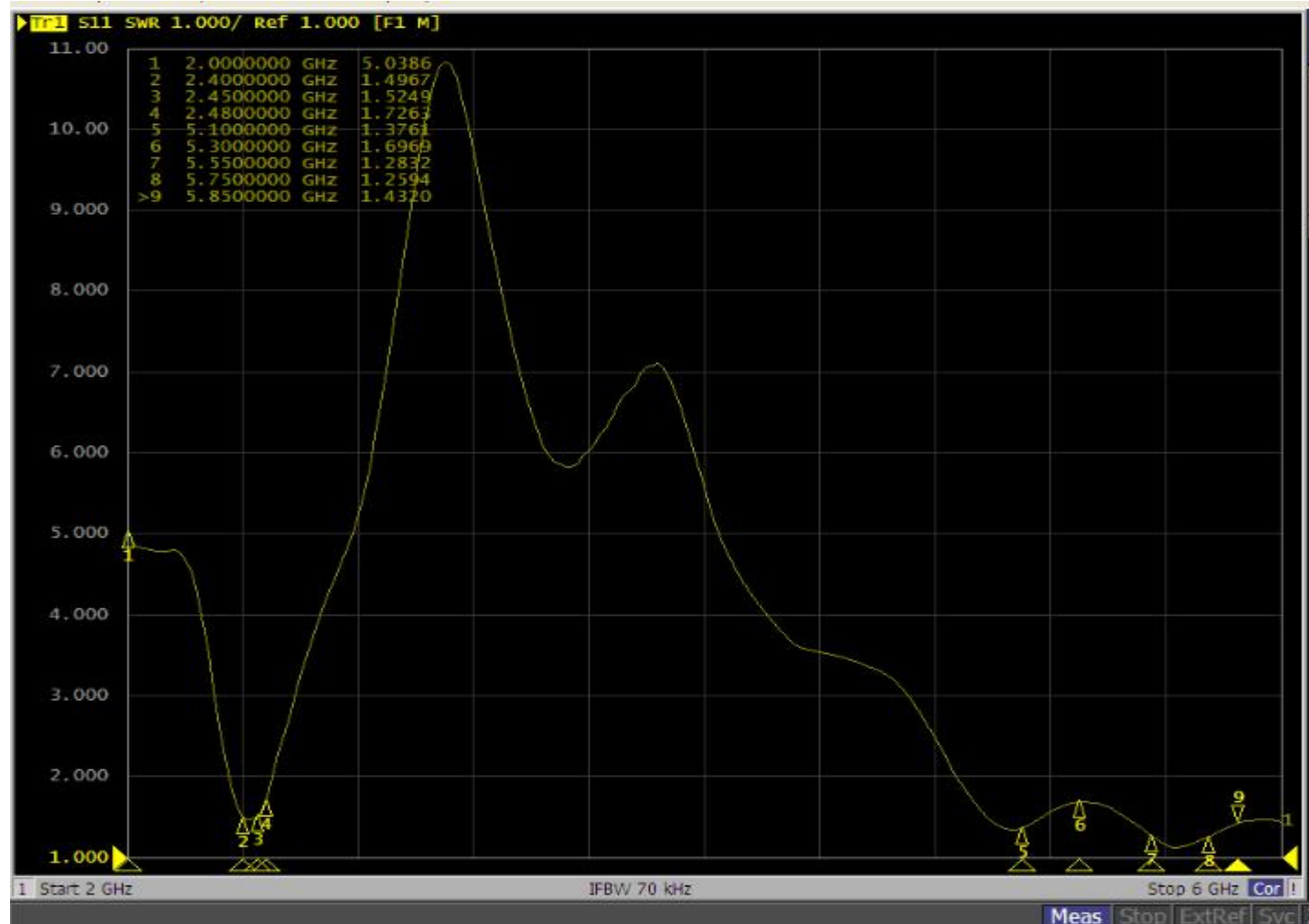


测试数据:

bt 2.4G

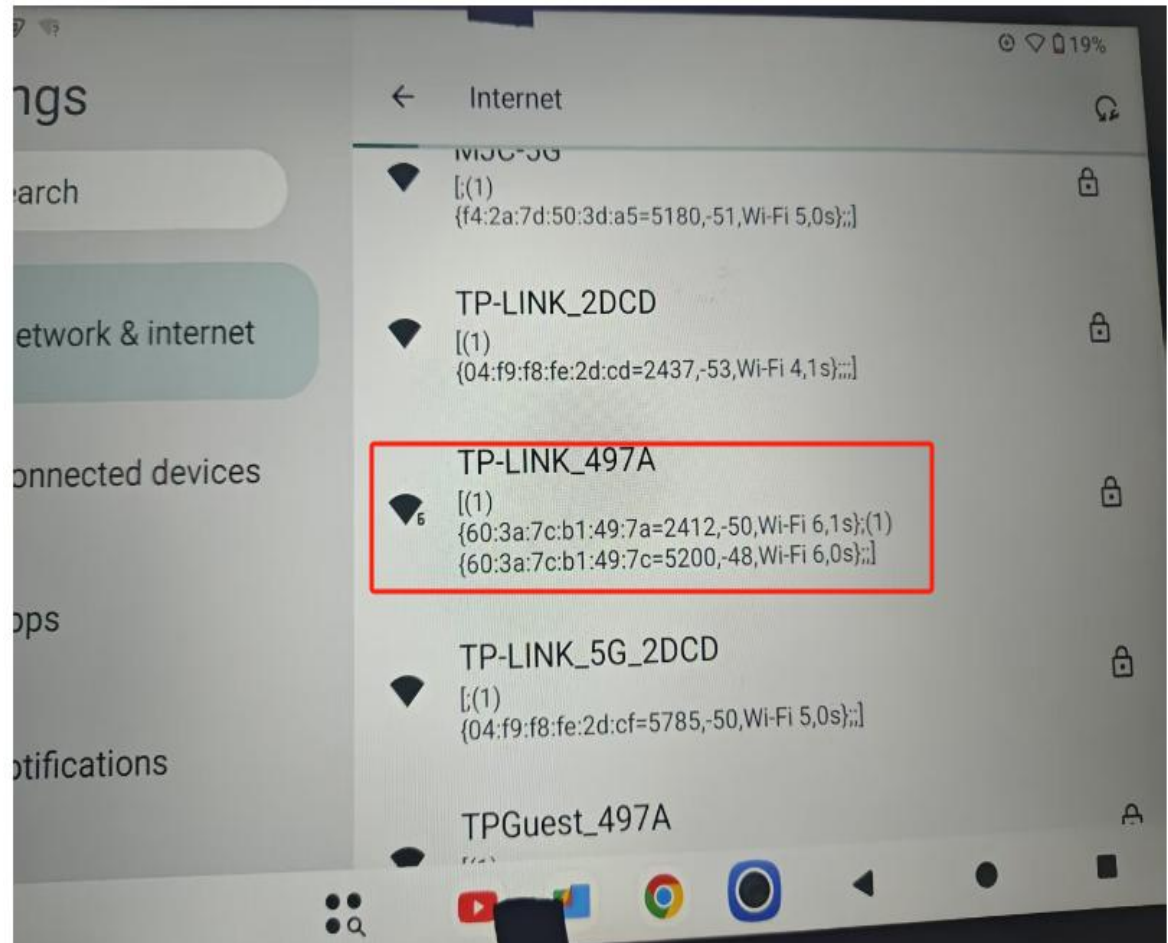
Freq(MHz)	Efficiency (%)	Gain (dBi)
2400	54.22	1.25
2410	52.36	1.30
2420	54.91	1.55
2430	58.11	1.42
2440	56.30	1.01
2450	54.19	1.05
2460	52.30	1.25
2470	54.19	1.19
2480	55.12	1.22

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WiFi measurements

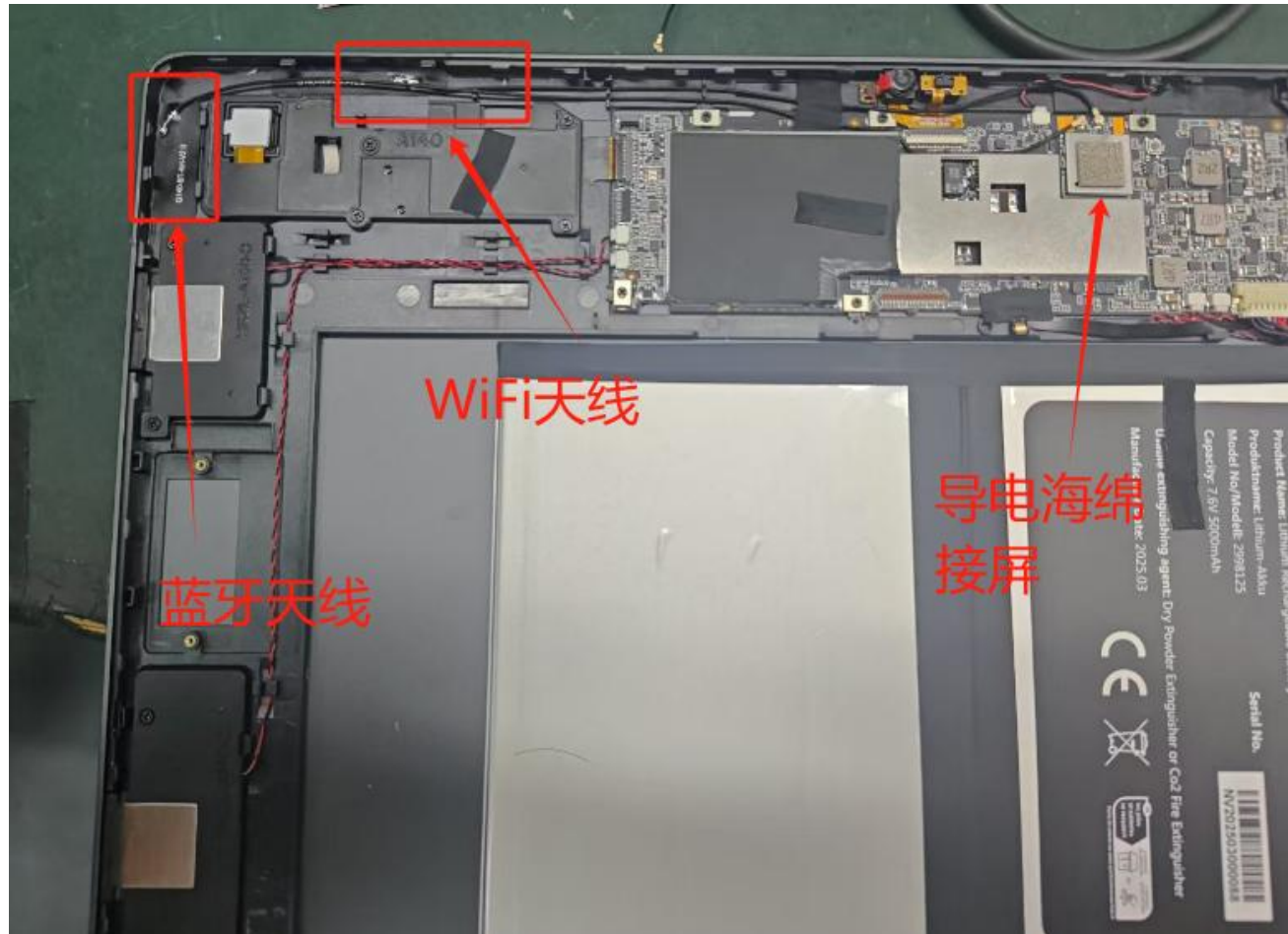
Distance
router 10
meters,
signal full
grid, internet
normal



Antenna position

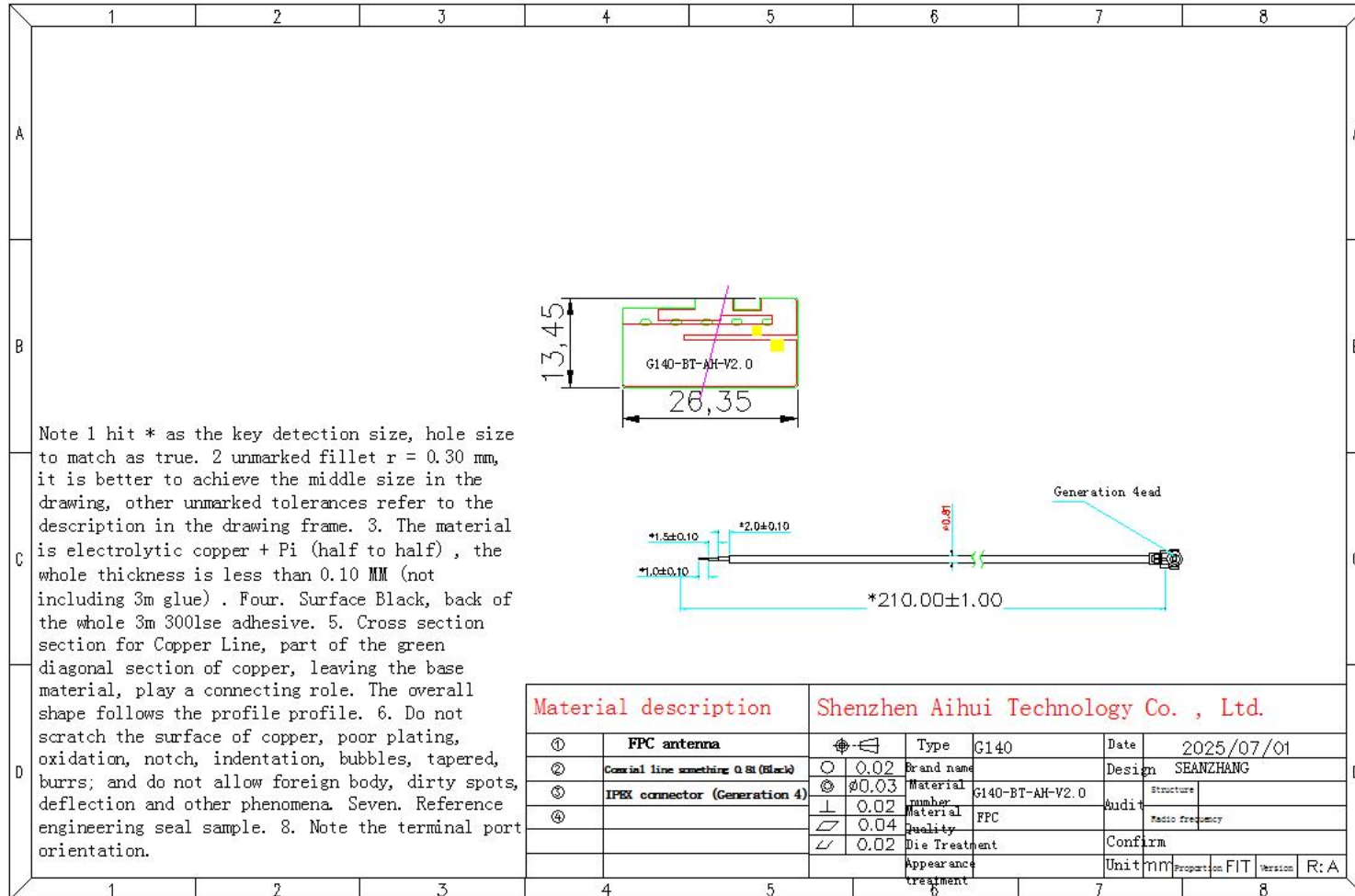


Environmental treatment





Antenna 2D dimension drawing



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(Summary)



Combined with the active, passive antenna, measured results, have reached the best state.

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Note: 1. This report is based on the actual debugging and testing of the prototype, in which the environment processing, antenna position and the assembly position of each component can not be changed at will. 2. If there is any change in the materials used in the prototype, we need to make a timely feedback to revalidate. 3. List of sensitive devices: TP (material, coating, wiring, etc.) screen (amplifier circuit, LED, wiring design, etc.) shell material (antenna assembly mode, structural interference, shell material, antenna position height and area, etc.) motherboard (motherboard conduction, RF circuit matching, PA, dual-power, filter, LNA, power circuit, etc.) camera, battery, motor, MIC, fingerprint identification module, etc. 4. Because there are few or only one prototype, some probability problems can not be found out completely. It is suggested to check the problem points in small batch before mass production (such as flashing screen, loudspeaker noise, TP Jump Point, black screen death, signal diving, etc.)

Thank you

