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Antenna test report

Test report

2024.12.03

(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	TK806	RF	
Model Name	TK806-WiFi-AH	LTE:	
Antenna Type		Band	

Model pictures :

2、 (Passive and Matching)

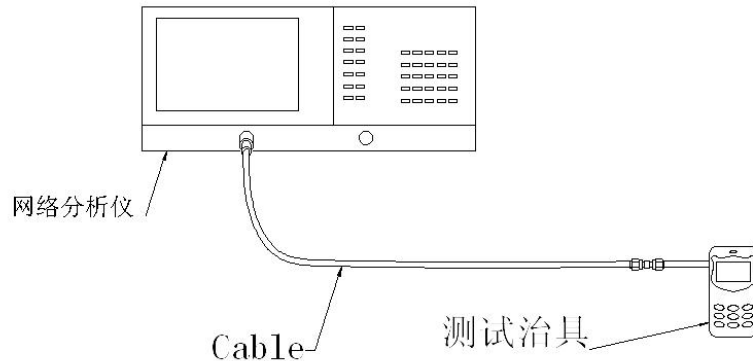
2.1A diagram of a passive test

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)

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

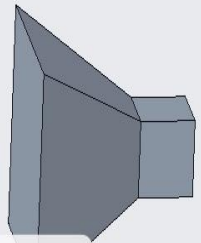
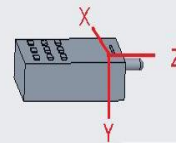
总全向辐射灵敏度 (TIRS)

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

E1: XZ的切面 PHI=0

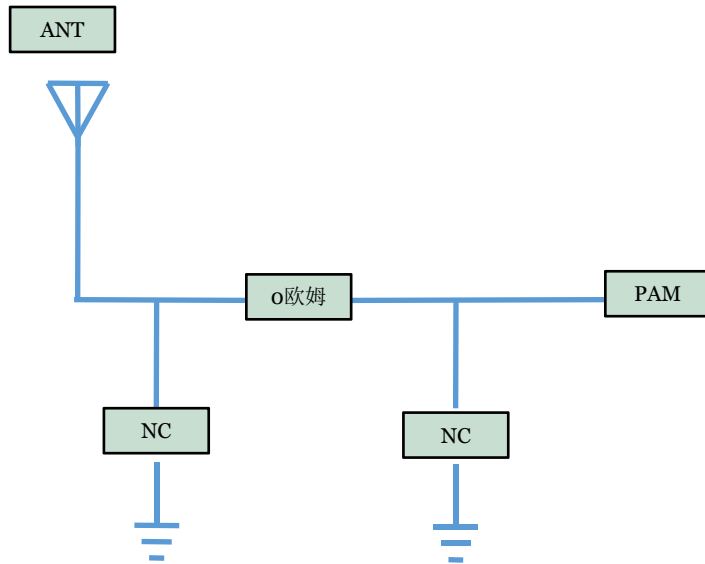
E2: YZ的切面 PHI=90

H: XY的切面 Theta=90



以喇叭天线为参考

2. 3 (Matching Circuit)



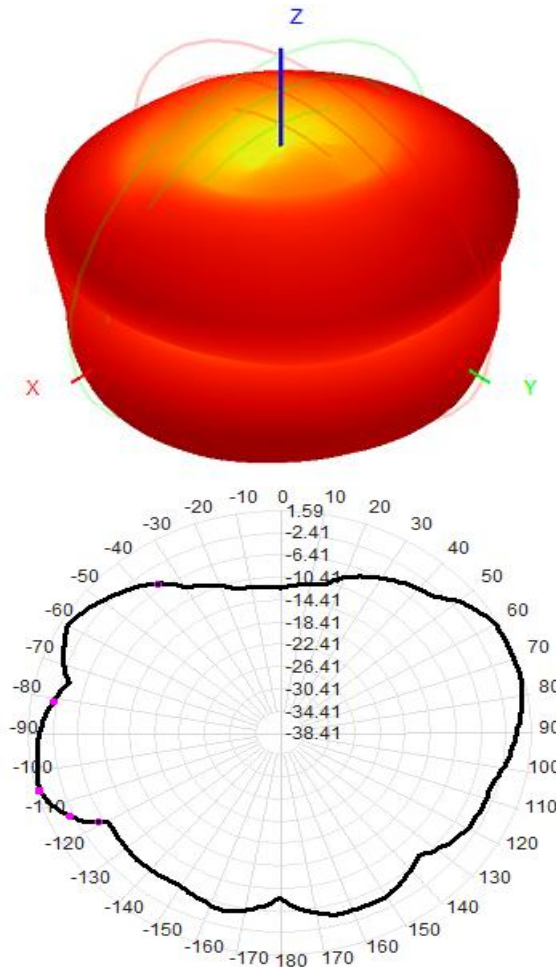
Motherboard matching
has not changed.

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

4. 1 Active test data

Frequency Band	2. 4GWIFI-B模			2. 4WIFI-G模		
channel	L	M	H	L	M	H
TRP	14. 25	14. 44	15. 31	13. 22	13. 41	13. 14
TIS	-80. 14	-81. 33	-81. 34	-68. 65	-68. 31	-69. 31
Frequency Band	2. 4WIFI-N模					
channel	L	M	H			
TRP	12. 45	13. 31	13. 34			
TIS	-67. 54	-67. 35	-67. 28			

5.1 Antenna passive data

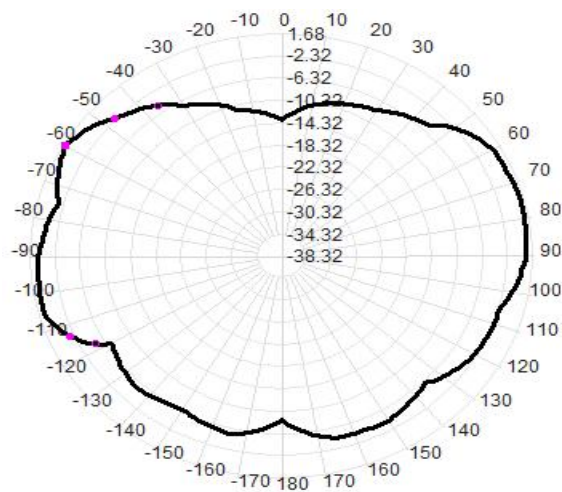
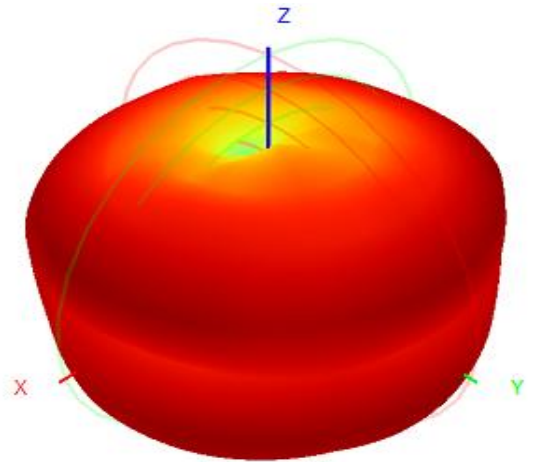


Test data:

WIFI 2.4G

Freq(MHz)	Efficiency (%)	Gain (dBi)
2400	54.85	1.25
2410	58.41	1.44
2420	59.65	1.59
2430	54.25	1.30
2440	55.32	1.25
2450	52.50	1.40
2460	53.54	1.55
2470	58.41	1.56
2480	57.49	1.41

5.1 Antenna passive data



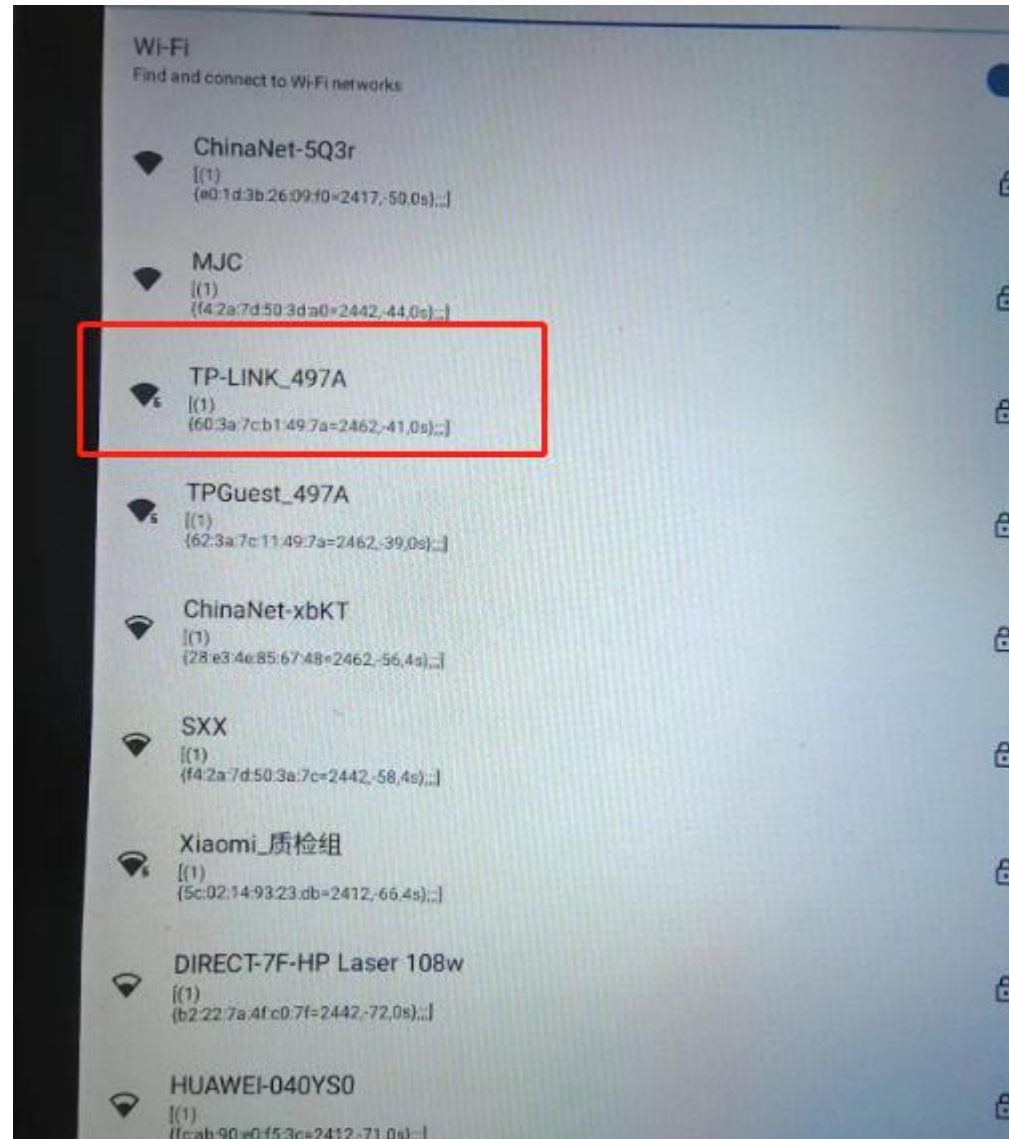
Test data:

WIFI 5.8G

Freq(MHz)	Efficiency (%)	Gain (dBi)
5000	57.55	1.40
5100	58.65	1.55
5200	59.14	1.68
5300	57.25	1.54
5400	55.25	1.28
5500	56.25	1.47
5600	54.15	1.32
5700	57.25	1.47
5800	59.63	1.58
5850	54.12	1.60

5. WiFi measurements

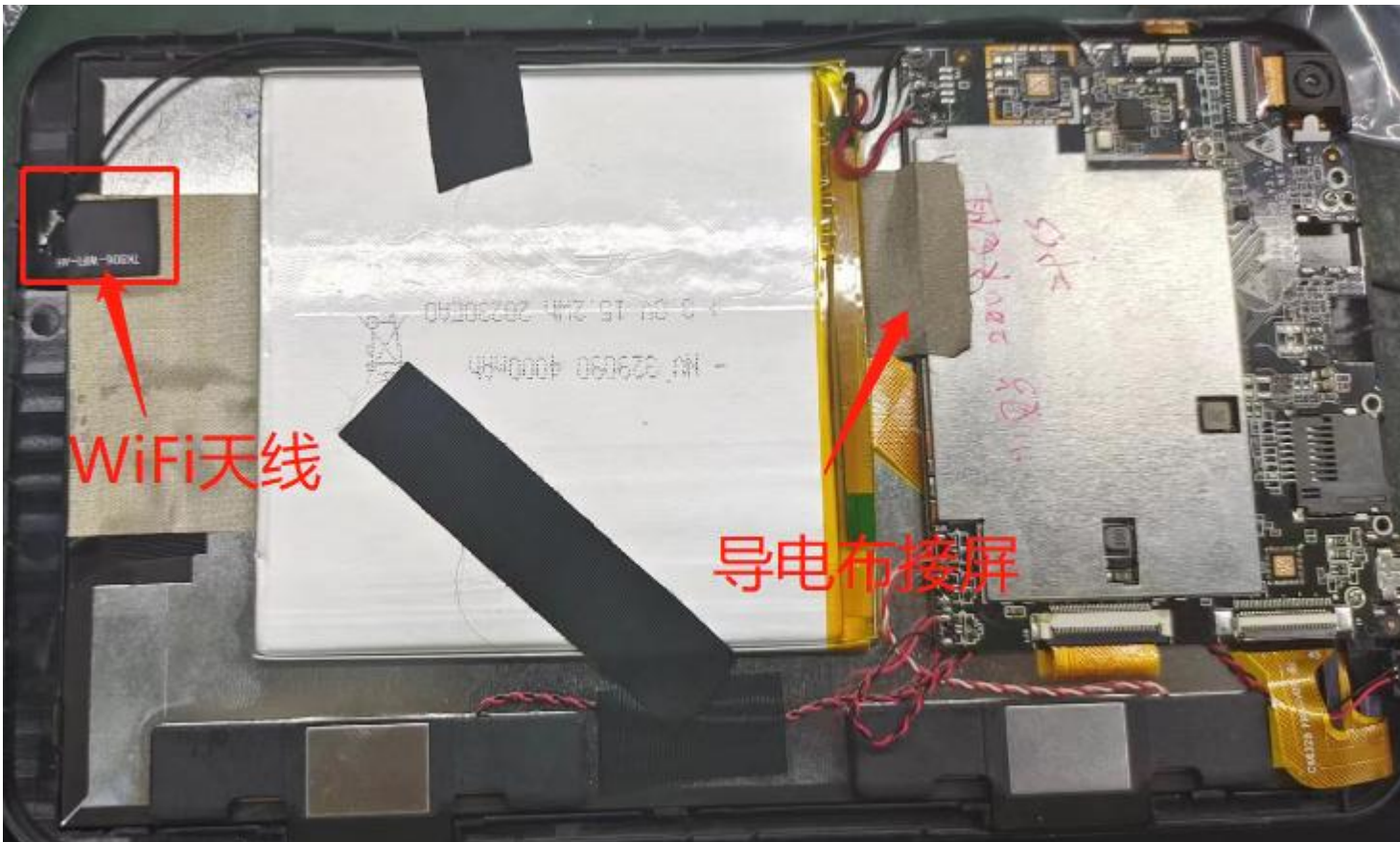
Distance
router 10
meters,
signal full
grid, internet
normal



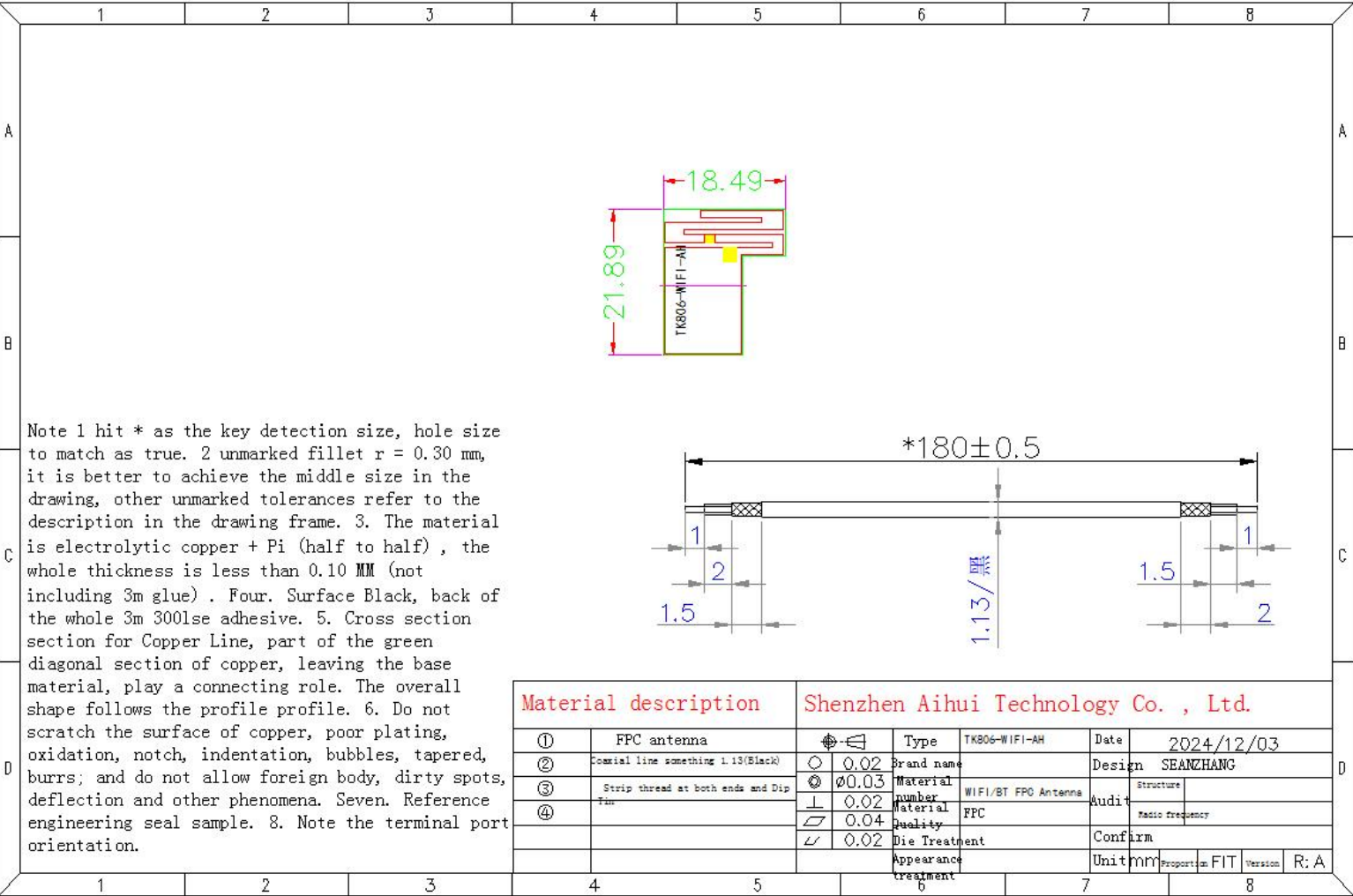
6. Antenna position



6. Antenna position



7. Antenna 2D drawing





6、 (Summary)

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

Shenzhen Aihui Technology Co. , Ltd.



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

