Shenzhen Aihui Technology Co. , Ltd.

Antenna test report

Test report

2023.05.31

（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

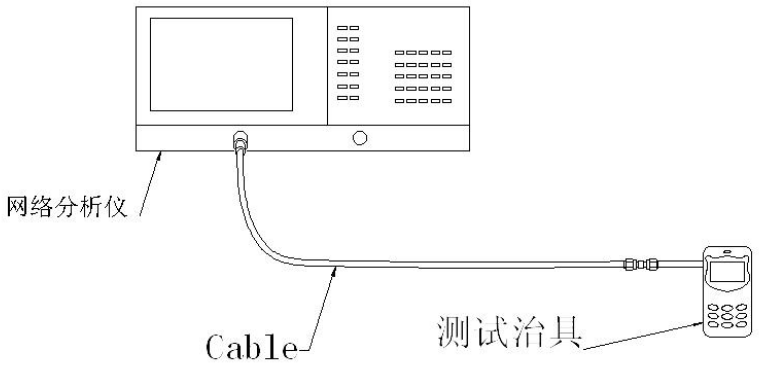
1、（Model Information）

Project name	P40	**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.



2.2Active test schematic

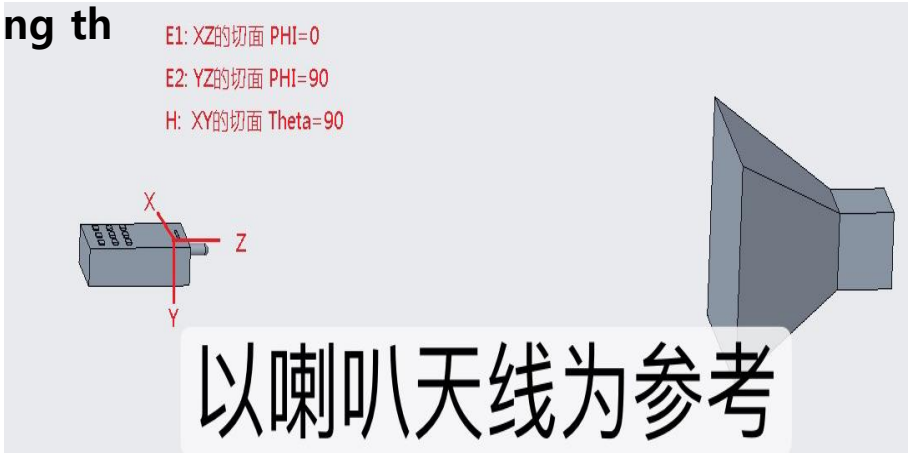
3D testing system: SHIELDED ANECHOIC chamber testing environment: temperature 22 ° C ± 3 ° C, humidity 50% ± 15% testing equipment: testing passive data, using the Network analyzer Agilent E5071C testing active data, using the synthesis instrument 8960cmw500

总全向辐射功率（TIRP）

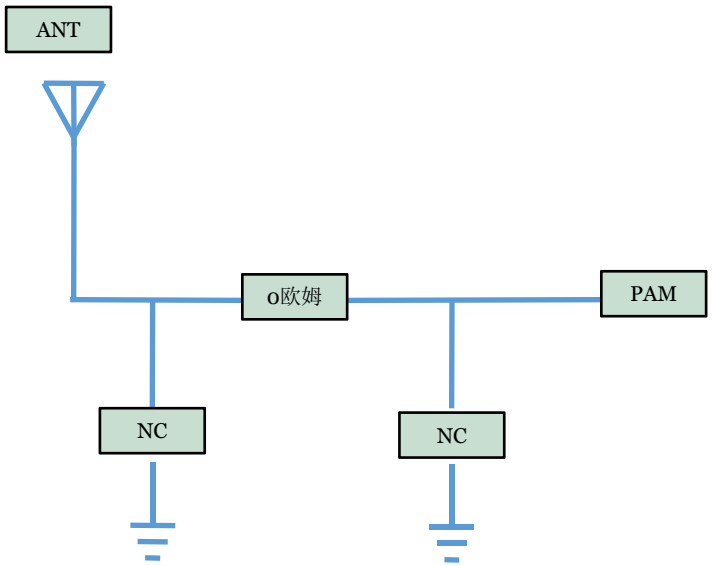
$$TIRP \cong \frac{\pi}{2NM}\sum_{i=1}^{N-1}\sum_{j=0}^{M-1}\left[Eirp_{\theta}(\theta_i,\phi_j)+Eirp_{\phi}(\theta_i,\phi_j)\right]\sin(\theta_i)$$

总全向辐射灵敏度（TIRS）

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



2. 3（Matching Circuit）



Motherboard matching has not changed.

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

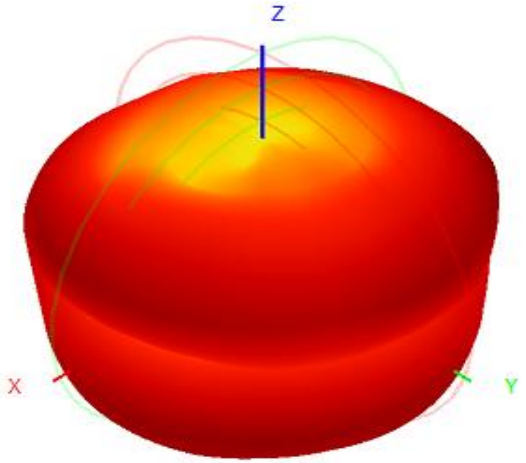
Frequency Band	802.11B			802.11G		
channel	L	M	H	L	M	H
TRP	10.16	10.24	10.18	8.58	8.76	8.81
TIS			-78.13			-66.23

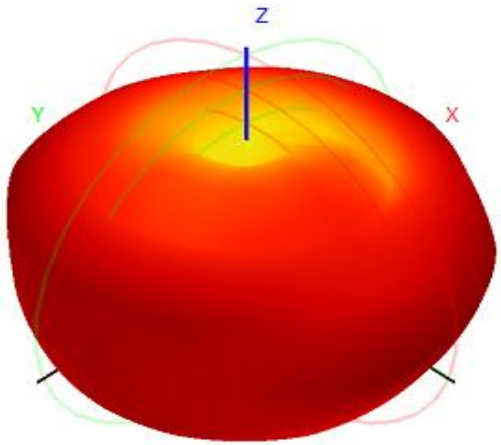
Frequency Band	802.11N			802.11A		
channel	L	M	H	L	M	H
TRP	8.66	8.82	8.73	8.56	8.46	8.36
TIS			-67.44			68.43

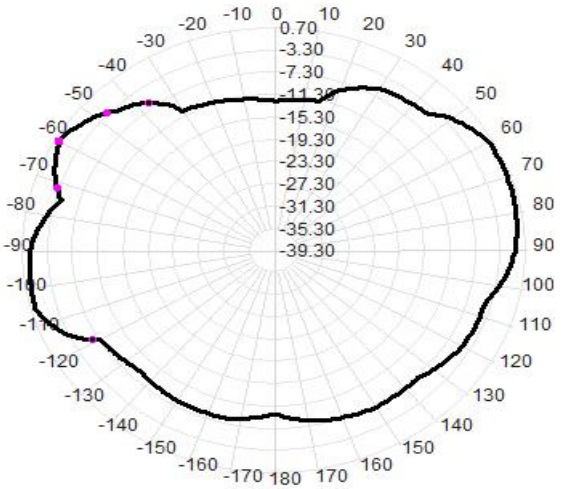
4.2 passive antenna test data

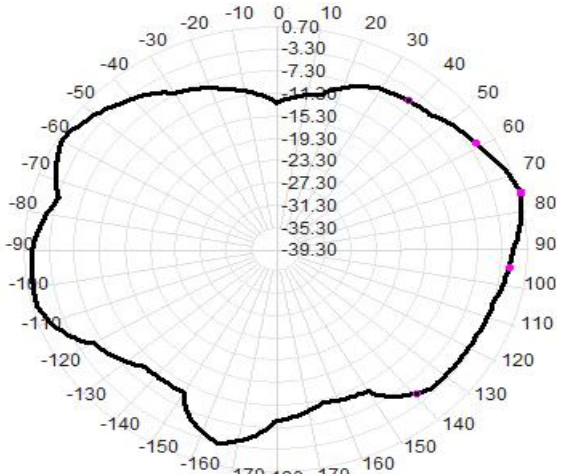
WIFI 2.4G		
Freq(MHz)	Efficiency (%)	Gain (dBi)
2400	38.4	0.52
2410	39.5	0.63
2420	40.2	0.77
2430	41.5	0.48
2440	43.5	0.36
2450	41.5	0.88
2460	39.6	0.41
2470	38.7	0.31
2480	39.3	0.25

4.2 passive antenna test data





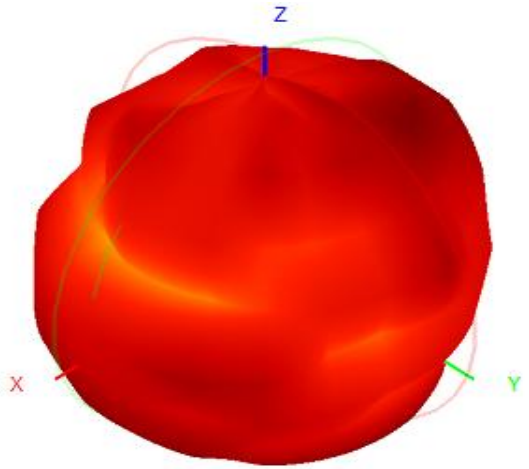


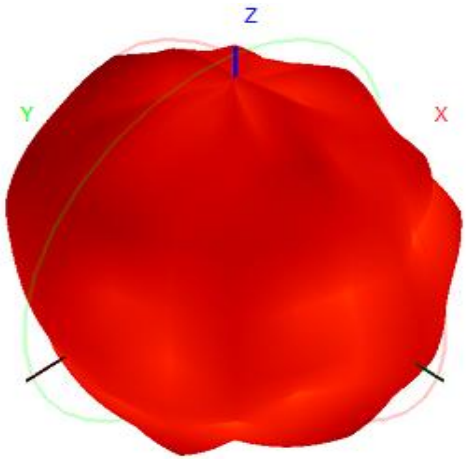


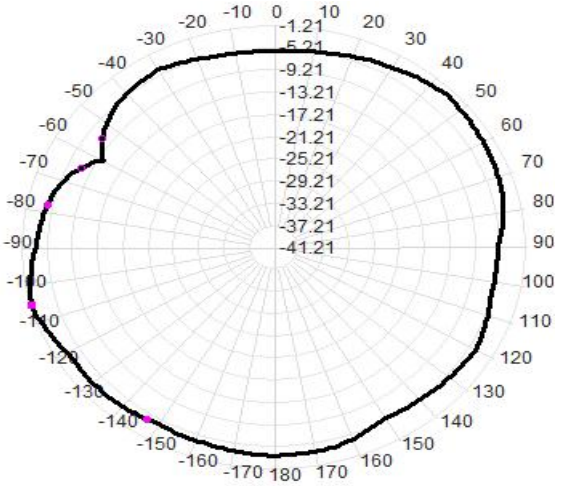
4.2 passive antenna test data

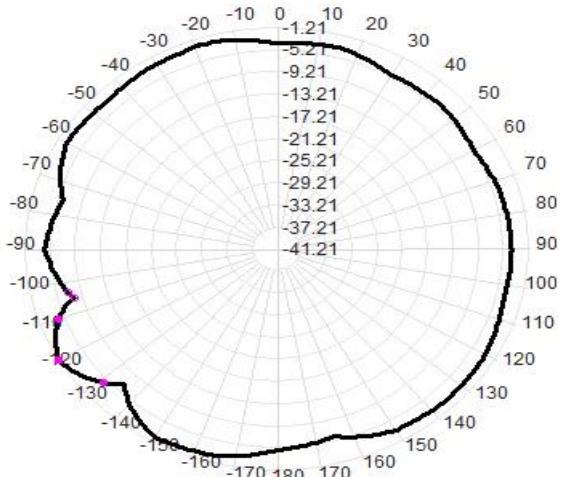
WIFI 5.8G		
Freq(MHz)	Efficiency (%)	Gain (dBi)
5000	45.2	0.54
5100	44.5	0.60
5200	46.3	0.87
5300	47.5	0.98
5400	39.8	1.31
5500	39.6	1.25
5600	38.7	1.31
5700	41.2	1.05
5800	42.5	1.14
5850	43.1	0.98

4.2 passive antenna test data









5. WiFi measurements

Distance router 10 meters, signal full grid, internet normal

6. Antenna position

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