Antenna test report
Test report

2023.07.11

（catalogue）：

（Model Information）

（Company profile）

(Passive and Matching)

(3D Active Test Data)

(Environmental treatment)

(Summary)

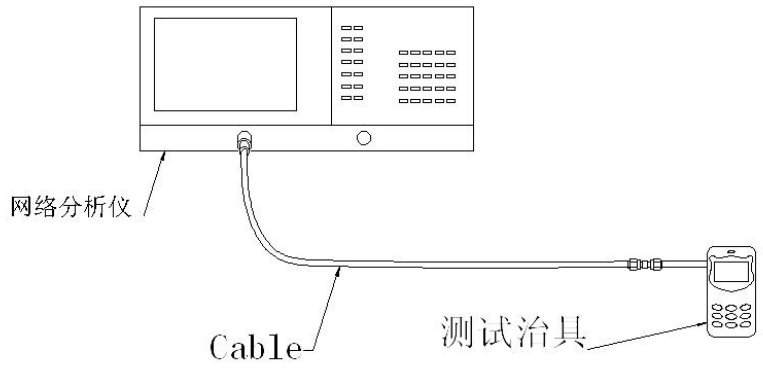
1、（Model Information）

Project name	P60	**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

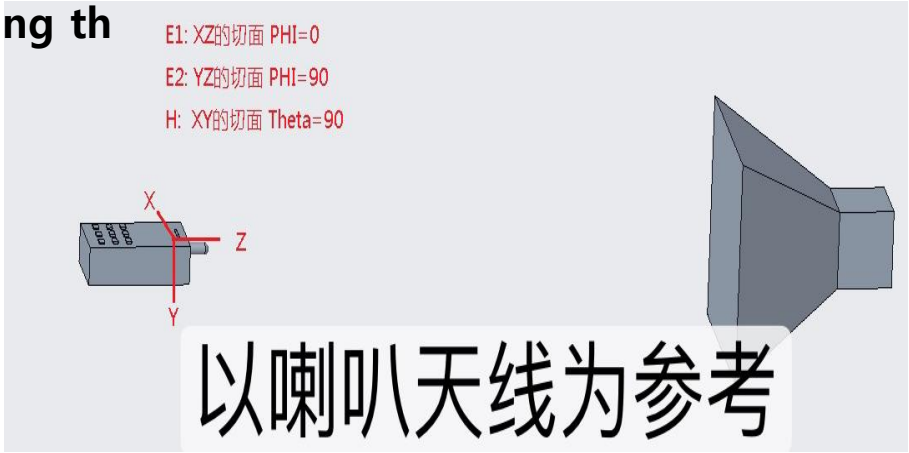
3D testing system: SHIELDED ANECHOIC chamber testing environment: temperature 22 ° C ± 3 ° C, humidity 50% ± 15% testing equipment: testing passive data, using the Network analyzer Agilent E5071C testing active data, using the synthesis instrument 8960cmw500

总全向辐射功率（TIRP）

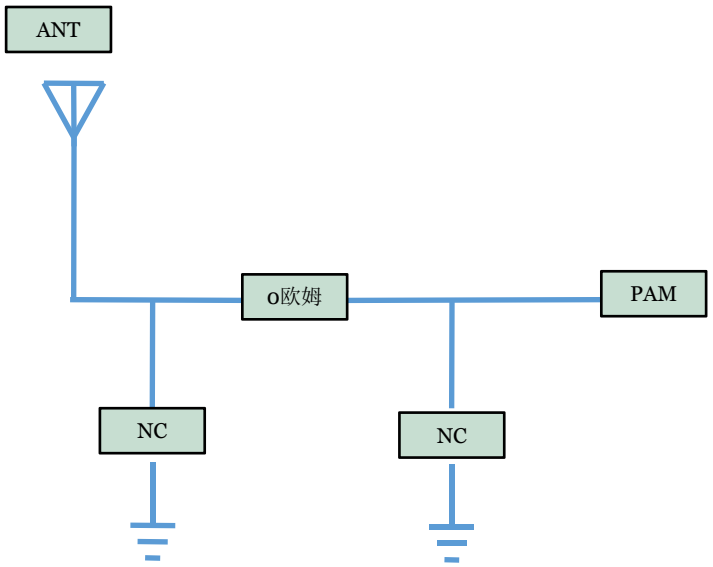
$$TIRP \cong \frac{\pi}{2NM}\sum_{i=1}^{N-1}\sum_{j=0}^{M-1}\left[Eirp_{\theta}(\theta_i,\phi_j)+Eirp_{\phi}(\theta_i,\phi_j)\right]\sin(\theta_i)$$

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

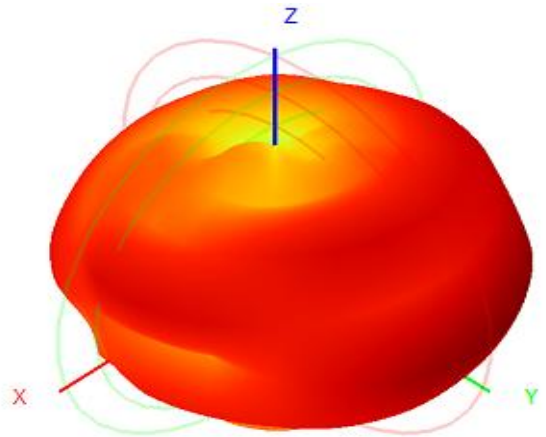
4. Antenna active test report

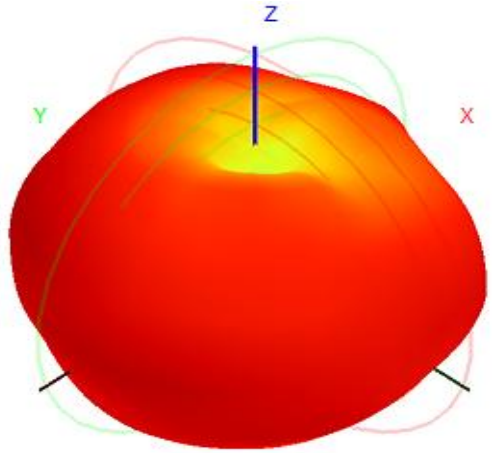
Frequency Band	2.4G-WIFI B			2.4G-WIFI G		
channel	L	M	H	L	M	H
TRP	10.56	10.36	10.96	8.33	8.18	8.76
TIS			-82.19			-68.63
Frequency Band	2.4G-WIFI N			5.8G-WIFI A		
channel	L	M	H	L	M	H
TRP	8.29	8.62	8.79	7.89	8.36	8.93
TIS			-67.52			67.86

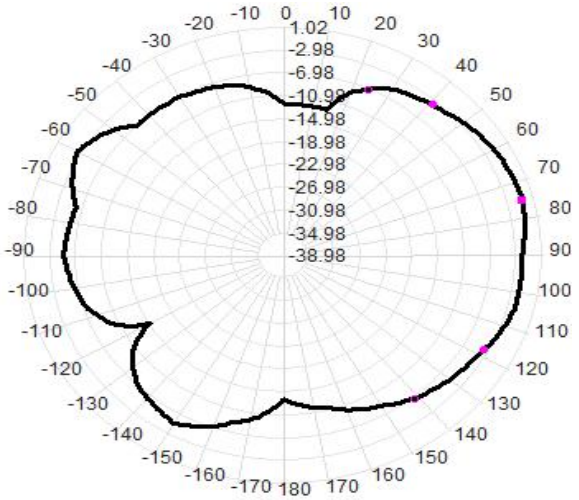
4.2 passive antenna test data

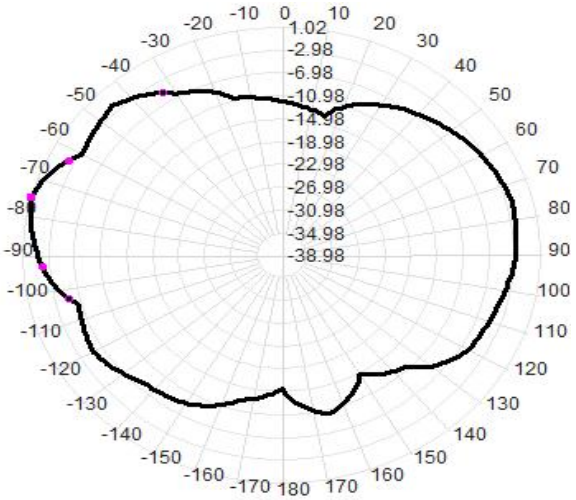
WIFI 2.4G		
Freq(MHz)	Efficiency (%)	Gain (dBi)
2400	47.1	0.73
2410	48.3	0.86
2420	49.7	1.02
2430	47.8	0.59
2440	48.6	0.89
2450	49.3	0.97
2460	46.1	0.66
2470	44.5	0.74
2480	46.8	0.43

4.2 passive antenna test data





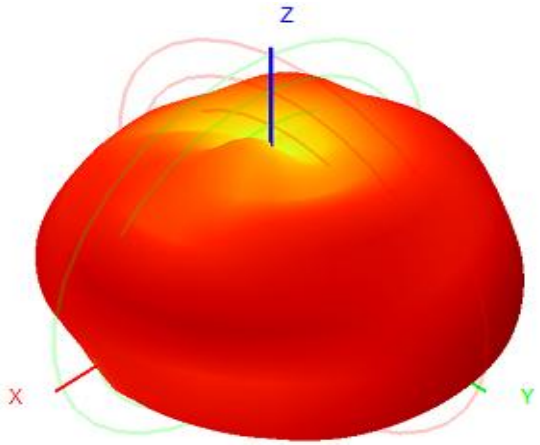


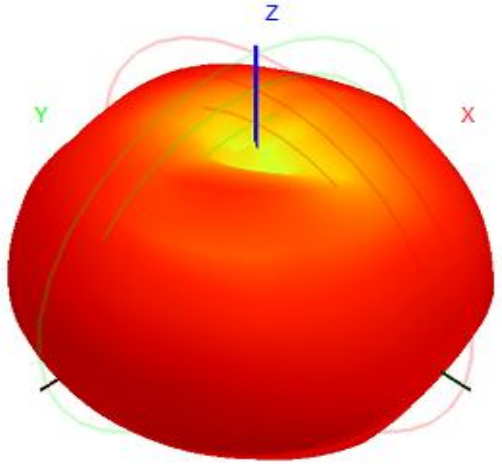


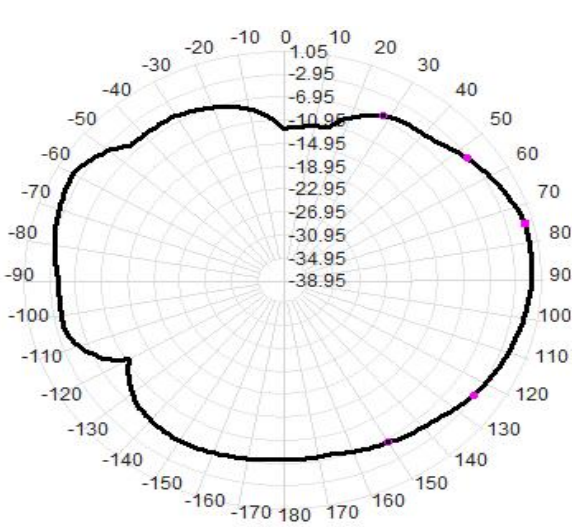
4.2 passive antenna test data

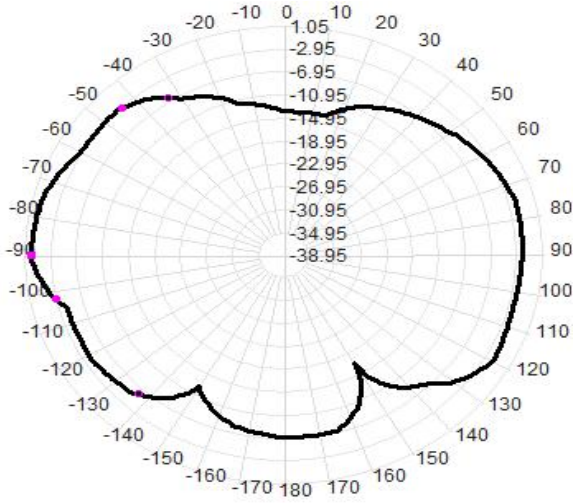
WIFI 5.8G		
Freq(MHz)	Efficiency (%)	Gain (dBi)
5000	43.3	0.61
5100	44.7	0.72
5200	46.1	0.81
5300	48.5	0.55
5400	45.8	0.92
5500	47.5	0.87
5600	46.2	0.66
5700	46.8	0.83
5800	48.7	0.99
5850	49.1	1.05

4.2 passive antenna test data



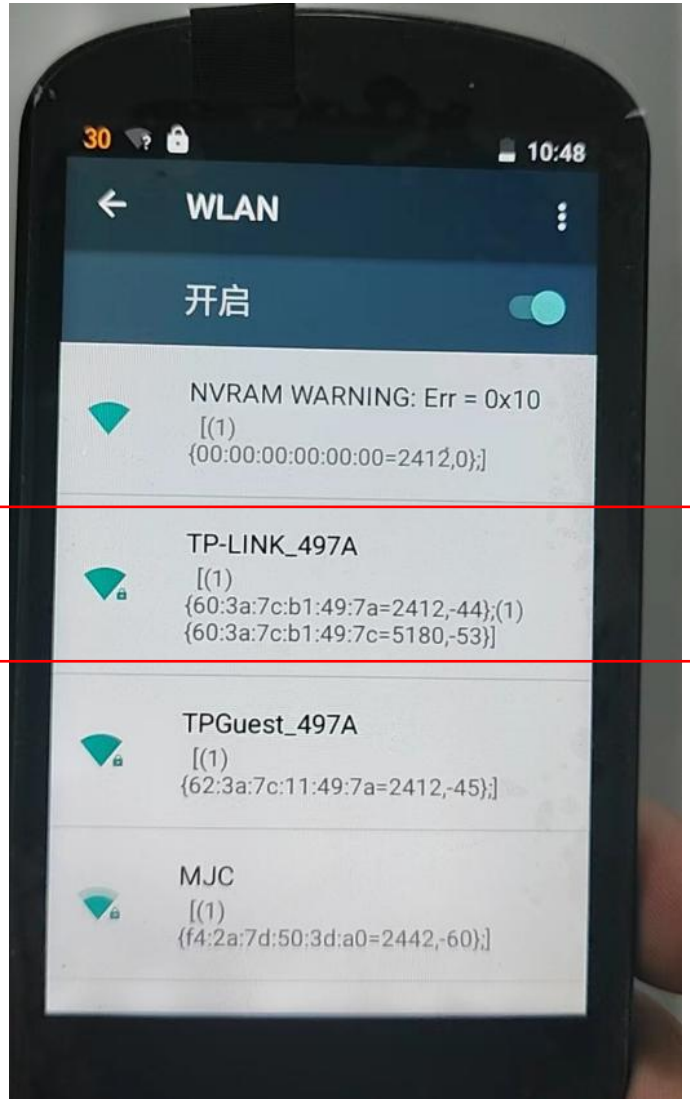






5. WiFi measurements

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.

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