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1. Antenna parameters

This report mainly provides the testing of various electrical and structural properties in the testing of mobile phones

1.1 Electrical Parameters

1.1.1 Electrical performance evaluation

The frequency band of the antenna is 2.40G~5.8G. The following table shows the basic parameters of the electrical performance of the antenna.

WIFI Frequency Range			
Frequency Range	Frequency (MHz)	VSWR	Gain (dBi)
	TX		Free Space
WIFI	2.40G~5.8G	≤3	≥0dBi±0.5dBi

1.1.2 Matching circuit diagram

Use the original matching circuit diagram on the PCB board

1.2 Structural Parameters

The structure diagram file is appended below

1.2.1 Antenna Components

The antenna coaxial line is connected with FPC

1.2.2 Performance Test Requirements Step

test item	describe	Acceptance criteries
1.low temperature test	temperature: -20 °C time: 24 hours	1. No obvious damage 2. Electrical performance up to standard
2.high temperature test	temperature: 80 °C time: 24 hours	1. No obvious damage 2. Electrical performance up to standard
3.Salt Spray Test	5±0.1% Salt spray PH: 6.5-7.2temperature: 35±1 °C time:24 hours	1. No color change 2. No obvious cracks in appearance
4.Environmental adaptability test	Total value of Pb、Hg、Cr+6、Cd in packing materials is smaller thall 50PPM Pb、Hg、Cr+6、PBBs、PBDEs in components are smaller than 500PPM, Cd is smaller than 50PPM	

2. Test

The antenna is installed in the equipment provided by the customer for testing. Figure 3 depicts the antenna as installed in the device and tested for electrical performance

2.1 VSWR test

2.1.1 Testing the Connection

Device connection sequence for testing VSWR: AgilentE5062A network analyzer → Test cable → sample provided by customer

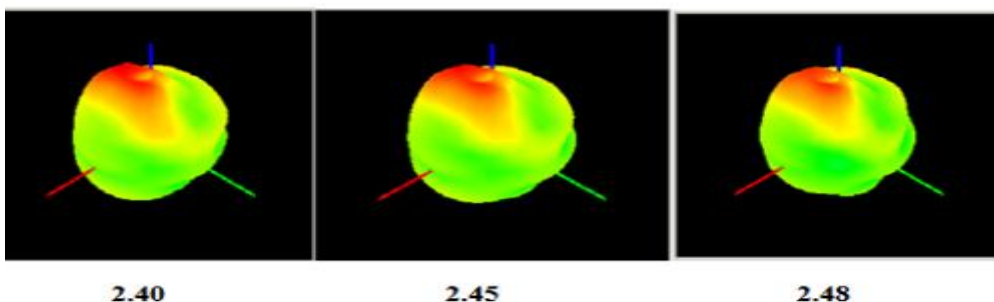
2.1.2 Voltage standing wave ratio

The following table describes the values of the voltage standing wave ratio of the antenna at both ends of the frequency band, with graphs relating to backloss and standing wave ratio.

	GPS	WIFI-2.4G		WIFI-5.0G	
Frequency (MHz)	1.575G	2.4G	2.48G	5.15G	5.85G
VSWR		1.73	1.69		
Return Loss		-11.2	-13.3		

2.2 Gain and power test

Test Point ID	Freq. (MHz)	TRP (dBm)	Gain (dBi)	Efficiency (%)	Efficiency (dB)
1	2400.0	2400.00	2.27	31.6%	-5.00
2	2405.0	2405.00	1.40	26.1%	-5.83
3	2410.0	2410.00	1.85	29.0%	-5.37
4	2415.0	2415.00	1.78	28.7%	-5.42
5	2420.0	2420.00	1.37	26.3%	-5.80
6	2425.0	2425.00	1.98	30.4%	-5.18
7	2430.0	2430.00	2.50	34.4%	-4.64
8	2435.0	2435.00	1.55	27.7%	-5.57
9	2440.0	2440.00	0.56	22.3%	-6.51
10	2445.0	2445.00	0.74	23.6%	-6.28
11	2450.0	2450.00	0.90	24.7%	-6.07
12	2455.0	2455.00	1.57	29.4%	-5.32
13	2460.0	2460.00	1.93	32.3%	-4.91
14	2465.0	2465.00	0.36	22.8%	-6.43
15	2470.0	2470.00	-0.19	19.9%	-7.00
16	2475.0	2475.00	1.06	26.2%	-5.81
17	2480.0	2480.00	1.51	28.9%	-5.40
18	2485.0	2485.00	0.84	24.5%	-6.10
19	2490.0	2490.00	0.74	23.9%	-6.21
20	2495.0	2495.00	1.52	28.6%	-5.44
21	2500.0	2500.00	1.86	31.0%	-5.09



2.2.1 Test Environment

Tianlu Microwave darkroom: The frequency range of the test is from 800MHz to 6GHz, and in the 50cm diameter spherical area, the darkroom reflects less than -50dB from 800MHz to 6GHz.

2.2.2 Testing Devices

Agilent 8960(5515C), Network analyzer (E5062A) communication test device, dipole antenna, French Satimo antenna test system, printer, etc.

3. Summarize

The antenna is designed according to the mobile phone sample provided by the customer. The electrical parameters and the result performance of the antenna meet the standard, we believe that you will be satisfied.

4.1. Test Environment

3.1WIFI 场测：测试环境：空旷环境，距离我司路由器 15 米，测试如下：



2.4G-WIFI 显示-30dbm，信号满格



3.2 WIFI OTA 测试:

WIFI 2.4G RF Testing		11B(11Mbps)		
Channel		TCH 1	TCH 6	TCH 11
Frequency(Mhz)		2412	2437	2462
	TRP(dBm)	11.32	12.61	11.91
	TIS(dBm)	-76	-77	-78

4.2 Antenna Placement Positions



4.3 2D Firing diagram file

