Mobile communication terminal antenna
Product design and manufacturing specifications

◆ Customer:

◆ Project: M13 (Qualcomm)

◆ Name: WIFI2.4G/5G Antenna

Shrapnel☐ FPC ■ Support ☐ Coaxial ☐

◆ Part no:

◆ Designer:

◆ Check:

◆ Approved:

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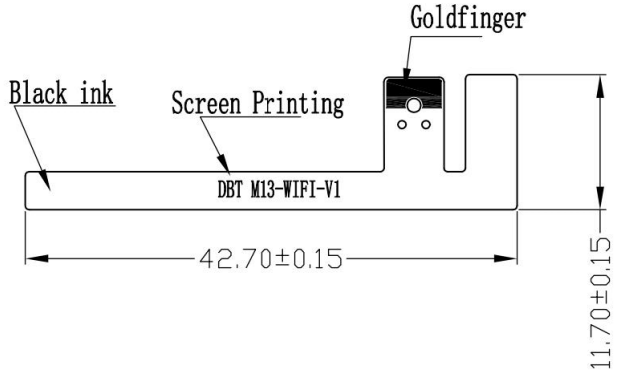
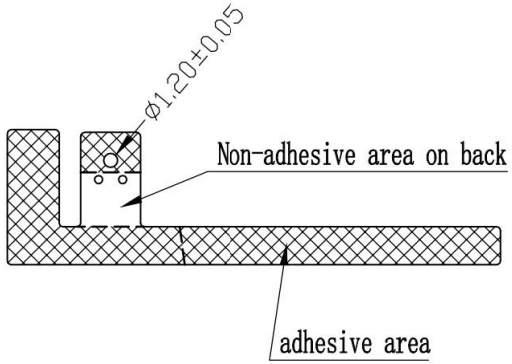
Content

1.Antenna finished product



Front



Back

Technical requirements:

1、Refer to 2D drawings for key dimensions, undimensioned;

2、Substrate 12.5 μm, copper 18 μm, nickel plating thickness 1.5-5.0 μm, gold plating thickness 0.0125-0.025 μm;

3、FPC surface ink should be uniform, can not have wrinkles and so on;

4、Products meet the RoHS requirements。

Date	Modify the content	Version	Notes

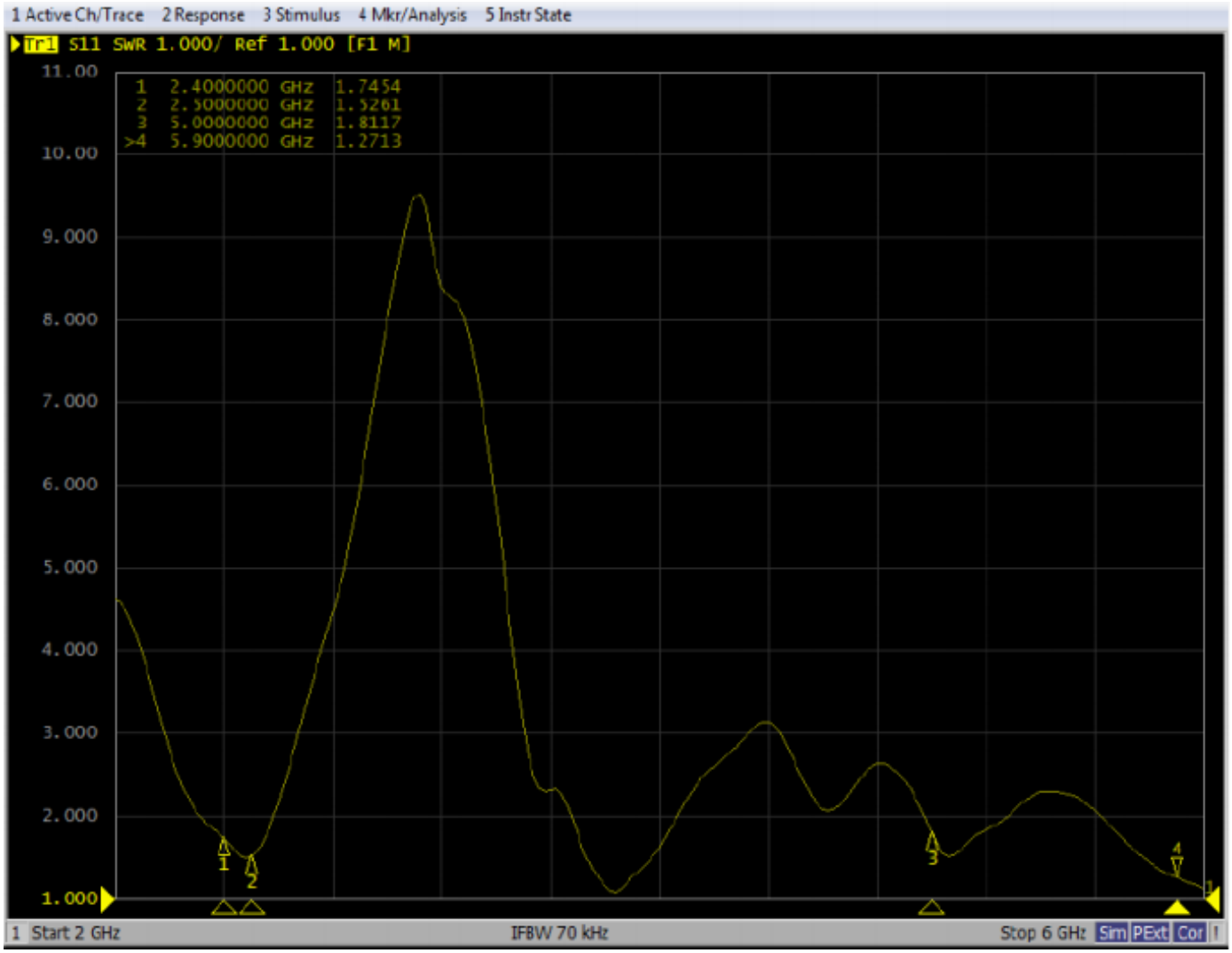
SHENGZHEN DIBITONG TELECOMMUNICATION TECHNOLOGY CO.,LTD.

Trigonometry				Model	M13-Qualcomm	Date	2025/04/09	Page	1/1
Margin tolerance standard		○	0.02	Name	WIFI	Design	YCQ		
Under 10	±0.10	◎	ø0.03	Part No		Check	Engineering		
10~20	±0.12	⊥	0.02	Material	PI		RF engineer	QB	
20~40	±0.15	▱	0.04	Die surface treatment		Verify			
40以上	±0.20	⌭	0.02	Appearance treatment		Unit	mm	Scale FIT	Version R:A

2.Technical indicators

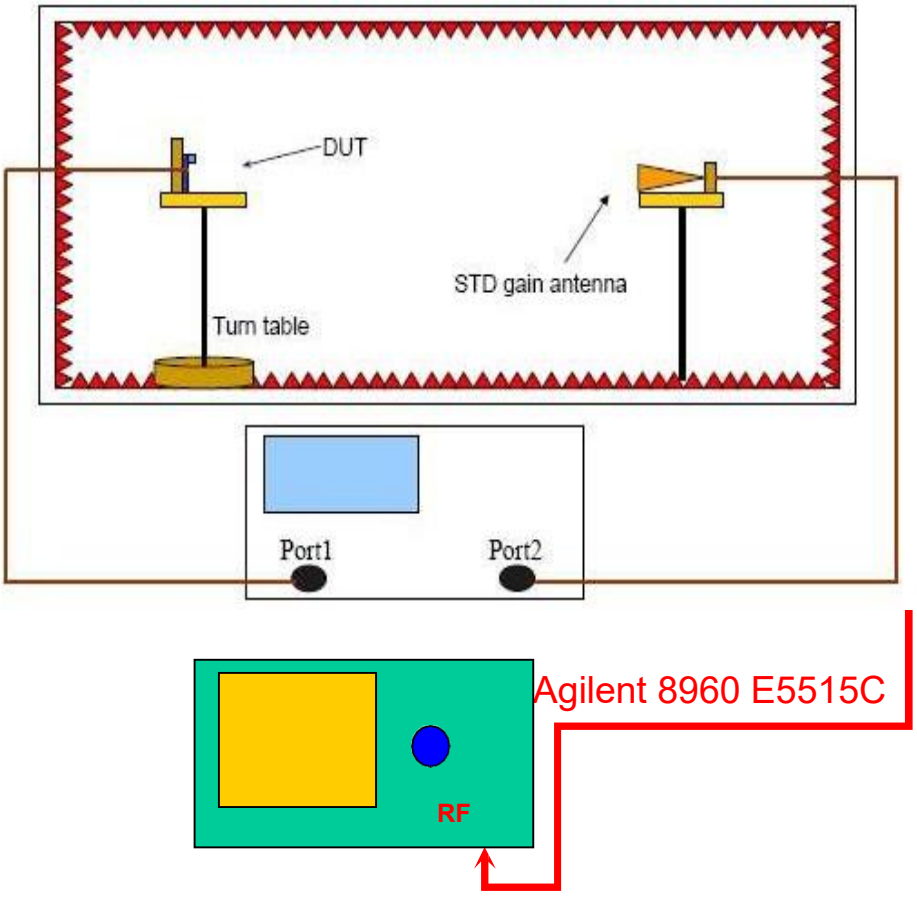
A. Electrical properties	
Operating frequency range	**2400~ 2500 MHz** **5000 ~ 5900 MHz**
Standing wave ratio	**2400~ 2500 MHz: ≤ 2.0** **5000 ~ 5900 MHz: ≤2.0**
Antenna gain(MAX)	**2400~ 2500 MHz: 0.82 dBi** **5000 ~ 5900 MHz: 2.14 dBi**
Antenna efficiency(average)	**2400~ 2500 MHz : 33.8 %** **5000 ~ 5900 MHz: 31.4 %**
Impedance	**50 ohm**
B. Material	
FPC	
C. Environment	
Operating temperature	**- 30˚C ~ + 85 ˚C**
Stored temperature	**- 30˚C ~ + 85 ˚C**

3.S11 VSWR/Impedance Test Results

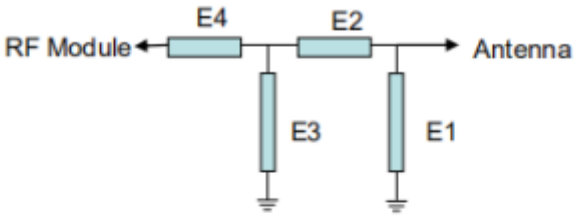


4.Dynamic test data

Test instrument: Agilent 8960 E5515B+ Shield Box



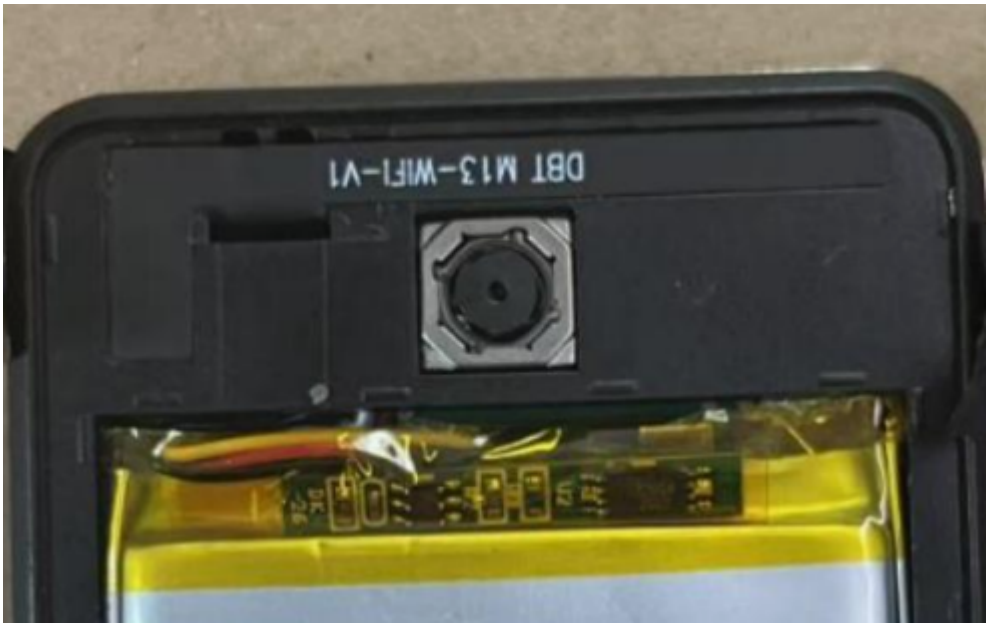
5.Antenna matching circuit diagram



Element	MAIN	GPS/WIFI /BT	AUX
E1(0201)	N/A		
E2(0201)	0Ω		
E3(0201)	N/A		
E4(0201)	0Ω		

(The original match is not modified)

6.Diagram of Antenna Assembly

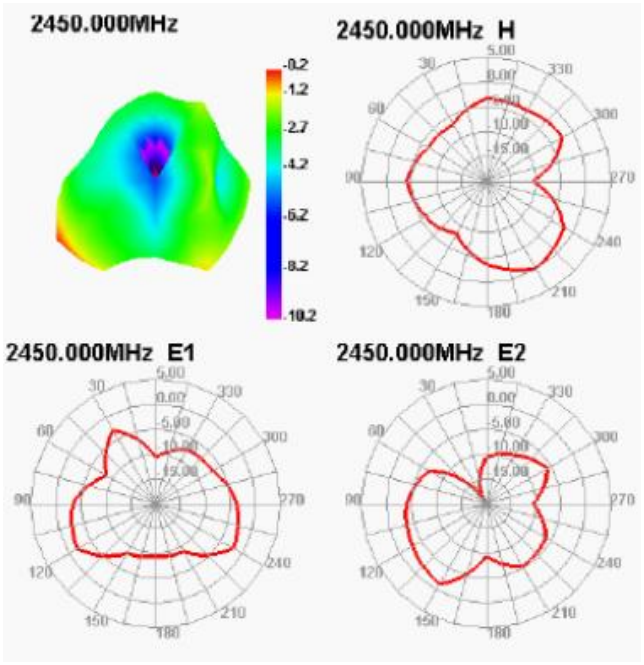


7.Antenna actual test data

7.1) Passive Efficiency/Gain/Pattern

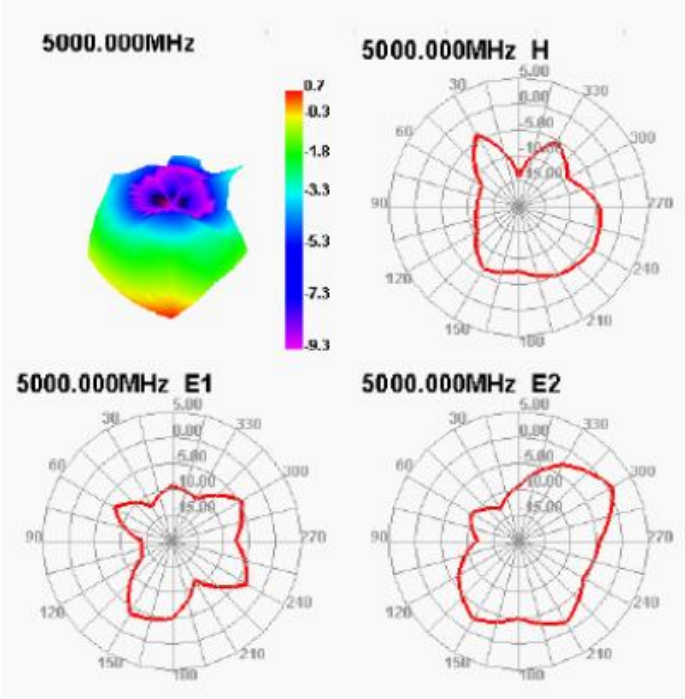
2.4G

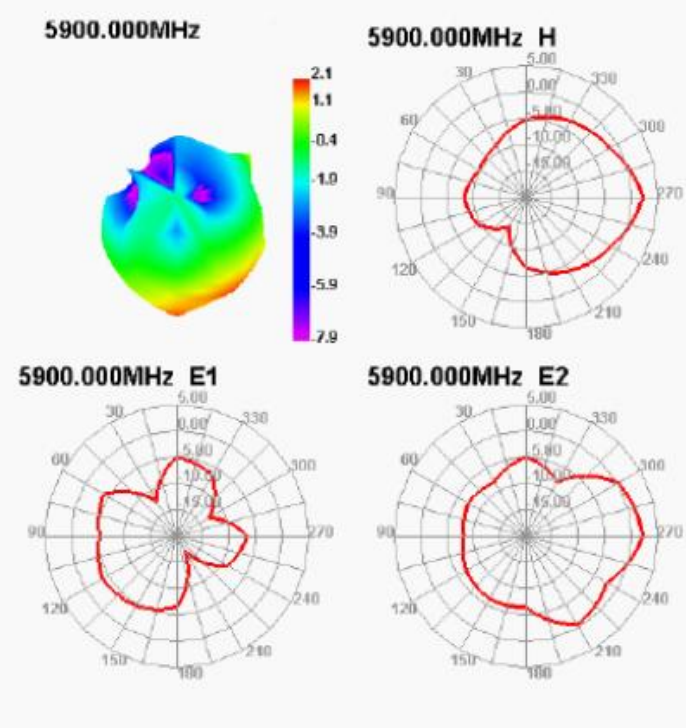
Freq (MHz)	Effi (%)	Gain (dBi)
2400	31.82	0.27
2410	29.17	-0.45
2420	30.77	-0.62
2430	29.73	-1.13
2440	33.25	-0.58
2450	32.85	-0.18
2460	34.98	0.29
2470	34.6	0.17
2480	39.49	0.8
2490	34	-0.02
2500	41.57	0.82



5.8G

Freq (MHz)	Effi (%)	Gain (dBi)
5000	30.79	0.74
5100	32.72	0.24
5200	28.94	-1.15
5300	24.36	-1.22
5400	27.23	-0.03
5500	31.35	0.87
5600	35.96	0.74
5700	31.63	-0.11
5800	34.64	1.83
5900	36.44	2.14





7.2) Ant field measurement

At the DBT office area, the signal is full at a distance of 12 meters, and no 5.8G Wi-Fi has been detected。

Note:

1. **The above test results are limited to the test prototype**
2. **Changes in the overall casing material process, software version, accessories (camera FPC, speakers, earpieces, motors, batteries, etc.), and chips will lead to changes in the performance of the overall antenna.**
3. **Changes in the environmental processing of the whole machine (such as grounding position, size, shielding method, etc.) lead to changes in the performance of the whole machine**

Solemnly declare:

The intellectual property rights of this antenna design and research and development are owned by our company. If we find that the same products are supplied to your company without our permission, our company will investigate the corresponding legal responsibilities according to law. Please respect the intellectual property rights. Your support is our unlimited power. , thank you for your cooperation!