

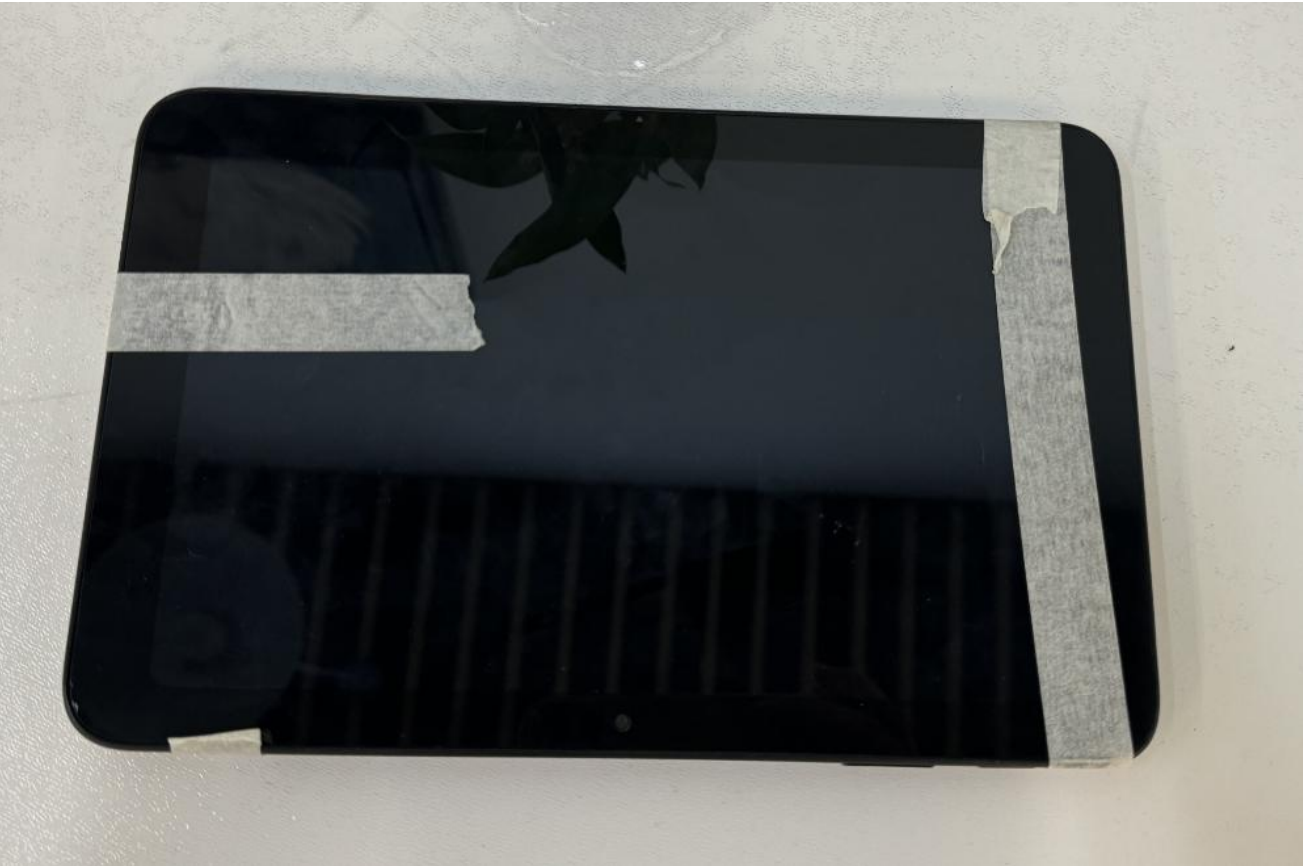
样品承认书

SAMPLE SPECIFICATION FOR APPROVAL

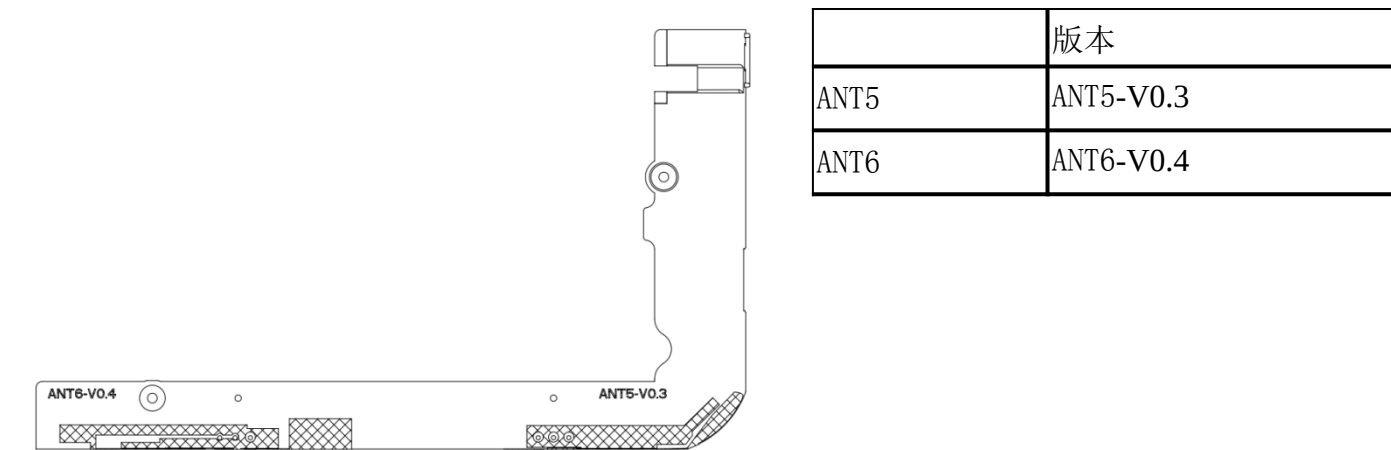
供应商名称 SUPPLIER	上海尚远通讯科技有限公司 Shanghai Shangyuan Communication Technology Co., Ltd.
客户名称 CUSTOMER	上海广翼智联科技有限公司 Shanghai Guangyi Zhilian Technology Co., Ltd
物料名称 DESCRIPTION	FT06
物料规格 SPECIFICATION	T30-FT06-ANTENNA-FRAME-2
物料编码 CUSTOMER PART NO	329900000139
供应商审核(公章) SUPPLIER APPROVAL	
客户审核 CUSTOMER APPROVAL	
承认日期 APPROVAL DATE	24.11.13

1. Project information

Machine information



Antenna information

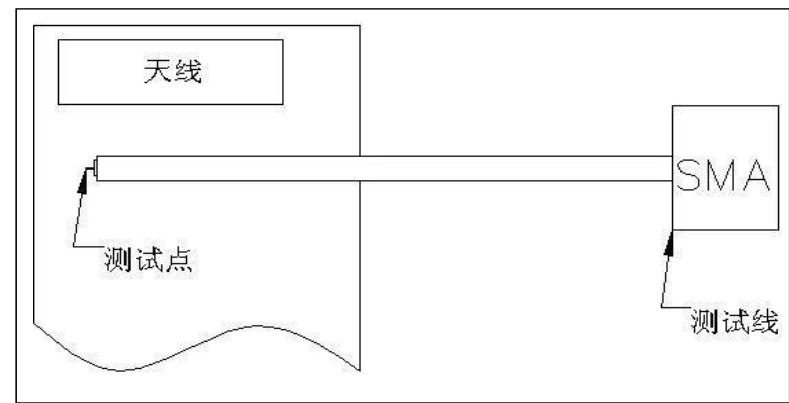


Note: The customer finally verified that the antenna performance prototype was retained in our company for at least one year, which is convenient for analysis and solution to abnormal situations in antenna mass production.
Ensure antenna shipment quality.

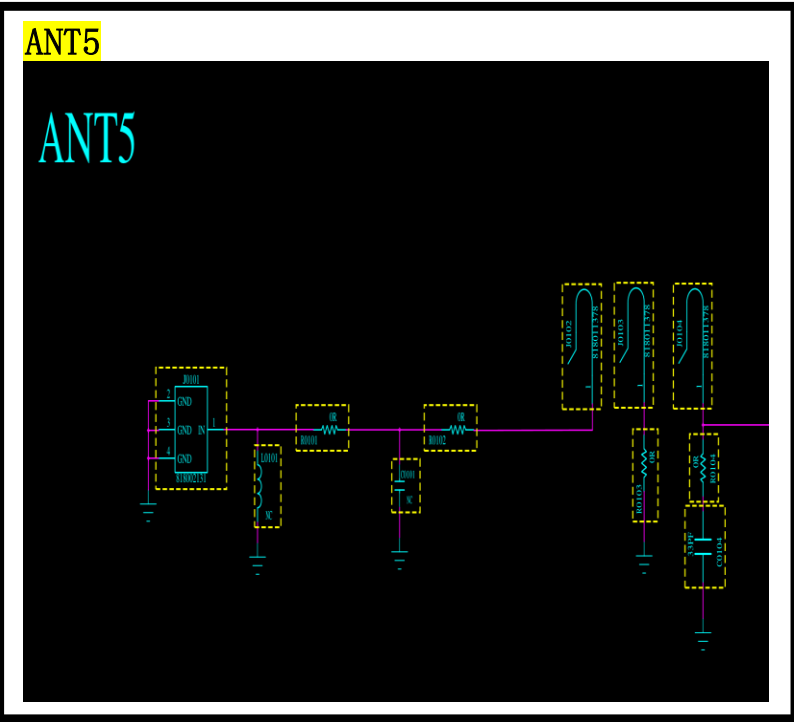
2. Test fixtures

Purpose: To test the passive parameters of the antenna as accurately as possible.

How to make: The prototyping mechanism is made of a 50 ohm coaxial cable, one end is connected to the test point at the back of the matching circuit of the prototype motherboard (the front of the RF test hole), and the other end is connected to the SMA connector. The schematic diagram is as follows:

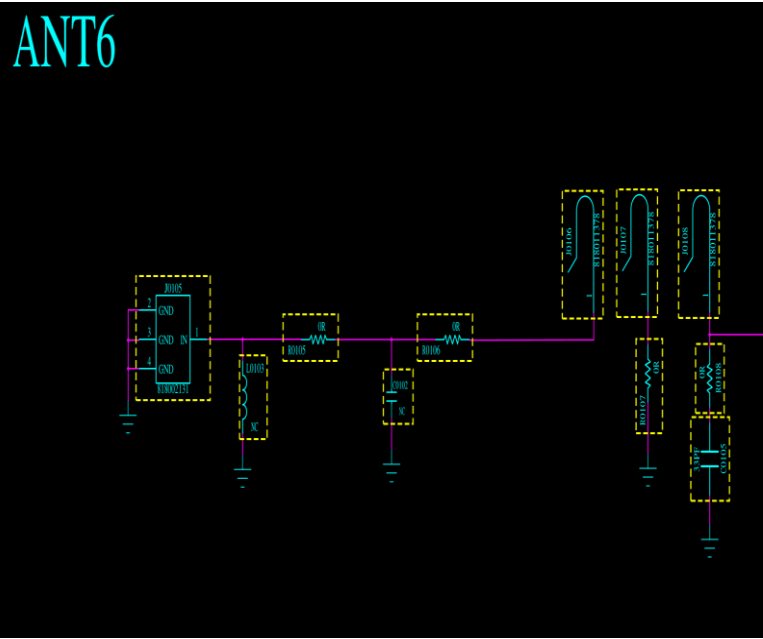


3. Matching circuits



ANT5		
位号	值	备注
J0101	818004607	cablе座
L0101	NC	主并
R0101	0Ω	主串
C0101	NC	主并
R0102	0Ω	主路隔直电容
R0103	0Ω	寄生匹配
R0104	NC	下地匹配
C0104	NC	sar隔直电容
J0102	818023697	主馈弹片
J0103	818023697	寄生弹片
J0104	NC	sar弹片

ANT6



ANT6		
位号	值	备注
J0105	818004607	connector
L0103	NC	main parallel
R0105	0Ω	main series
C0102	NC	main parallel
R0106	0Ω	main path DC capacitor
R0107	0Ω	parasitic matching
R0108	NC	ground matching
C0105	NC	sar DC capacitor
J0106	818023697	main feed spring
J0107	818023697	parasitic spring
J0108	NC	sar spring

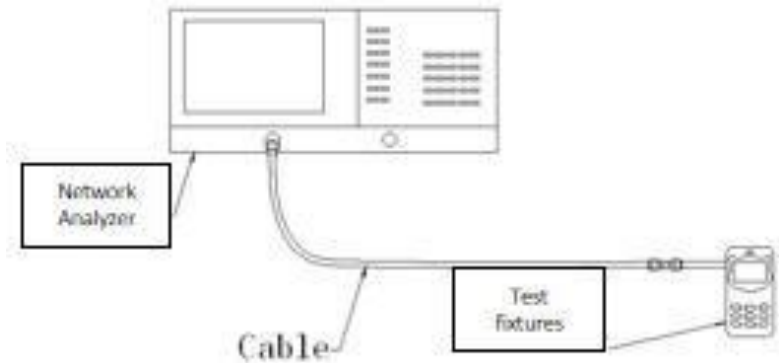
4. S11 test

1. S11 Test Method Description

Test Equipment: Network Analyzer (E5071C)

Test method: A 50 ohm CABLE cable is derived from the instrument test port, and the SMA connector of the prototype is connected after calibration using the calibrator to record the return loss and standing wave ratio corresponding to the relevant frequency point.

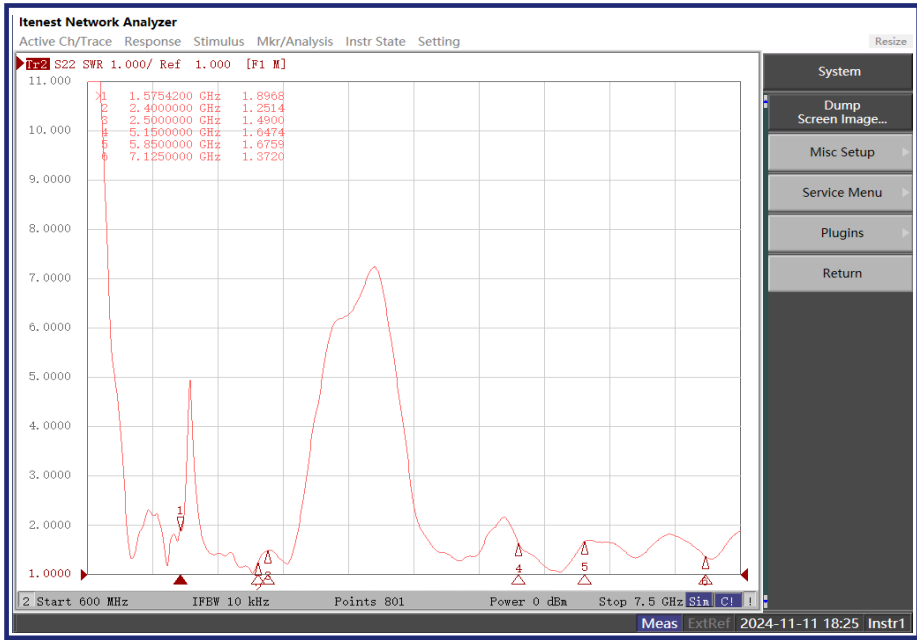
The test diagram is as follows:



Test the schematic

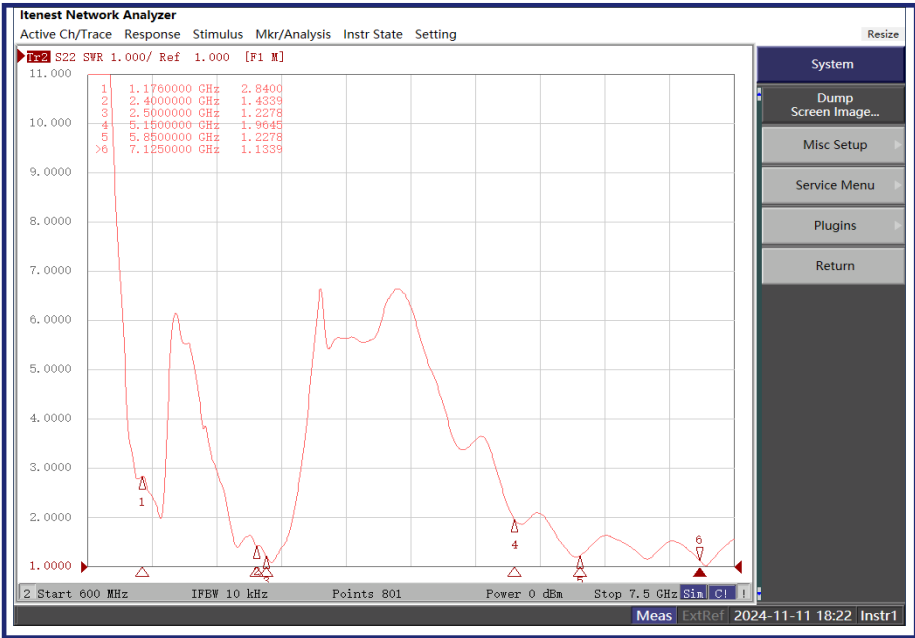
4.2 S11 parameter

ANT5天线



	ANT5天线
频率 (MHz)	SWR
1575.42	1.8
2400	1.2
2500	1.4
5150	1.6
5850	1.6
7120	1.3

ANT6天线



	ANT6天线
频率（MHz）	SWR
1176	2.8
2400	1.4
2500	1.2
5150	1.9
5850	1.2
7120	1.1

5 Darkroom test data

Test system: Shielded darkroom
Test environment: temperature
22°C±3°C, humidity
50%±15%
Test equipment: When testing passive
data, use the
Network Analyzer
Agilent E5062C When testing
active data, the Comprehensive
Tester Agilent 8960
/CMW500/E4438C is used

5.1Passive test data

Antenna ANT5 passive efficiency

Freq.	Effi	Effi	Gain	5150	-5.21	30.13	1.65
(MHz)	(dB)	(%)	(dBi)	5200	-5.03	31.41	2.25
1550	-5.96	25.35	0.08	5300	-5.09	30.97	1.34
1560	-6.2	23.99	0.04	5400	-4.86	32.66	1.75
1570	-6.48	22.49	-0.19	5500	-4.93	32.14	1.54
1580	-6.8	20.89	-0.65	5600	-5.23	29.99	1.05
1590	-7.1	19.5	-1.05	5700	-5.05	31.26	1.12
1600	-7.3	18.62	-1.46	5800	-4.9	32.36	2.95
				5900	-5.12	30.76	2.36
2400	-5.37	29.04	-0.26	6000	-5.37	29.04	1.45
2410	-5.49	28.25	-0.29	6100	-5.46	28.44	1.27
2420	-5.49	28.25	-0.19	6200	-5.46	28.44	1.52
2430	-5.42	28.71	-0.12	6300	-5.62	27.42	1.68
2440	-5.46	28.44	-0.21	6400	-5.39	28.91	1.41
2450	-5.25	29.85	-0.08	6500	-5.34	29.24	1.44
2460	-5.32	29.38	-0.22	6600	-5.5	28.18	1.81
2470	-5.09	30.97	-0.03	6700	-5.4	28.84	2.01
2480	-5.11	30.83	-0.01	6800	-5.74	26.67	1.92
2490	-5.03	31.41	0.25	6900	-5.84	26.06	1.19
2500	-5.07	31.12	0.33	7000	-5.94	25.47	1.2

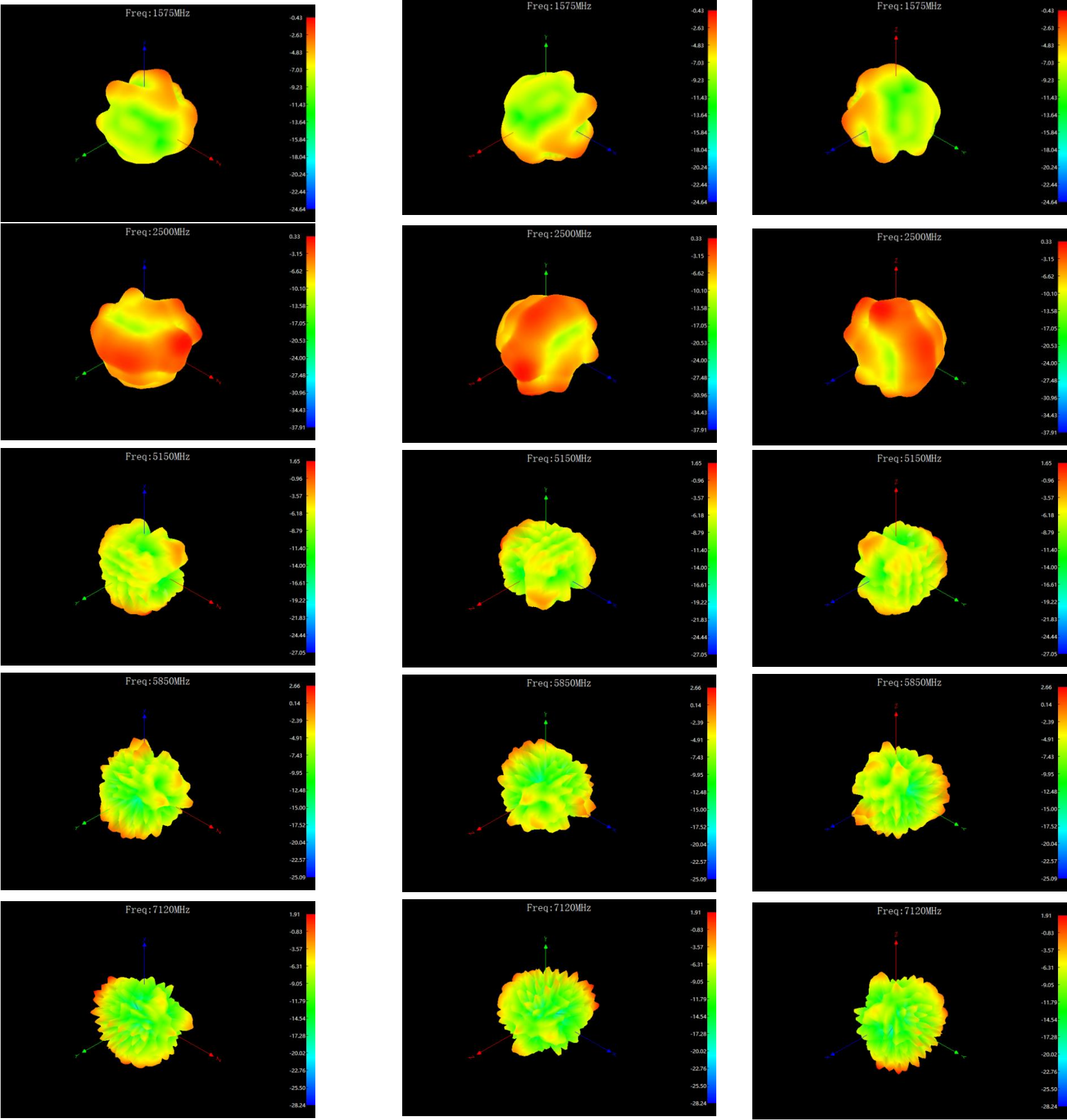
5.1Passive test data

Antenna ANT6 passive efficiency

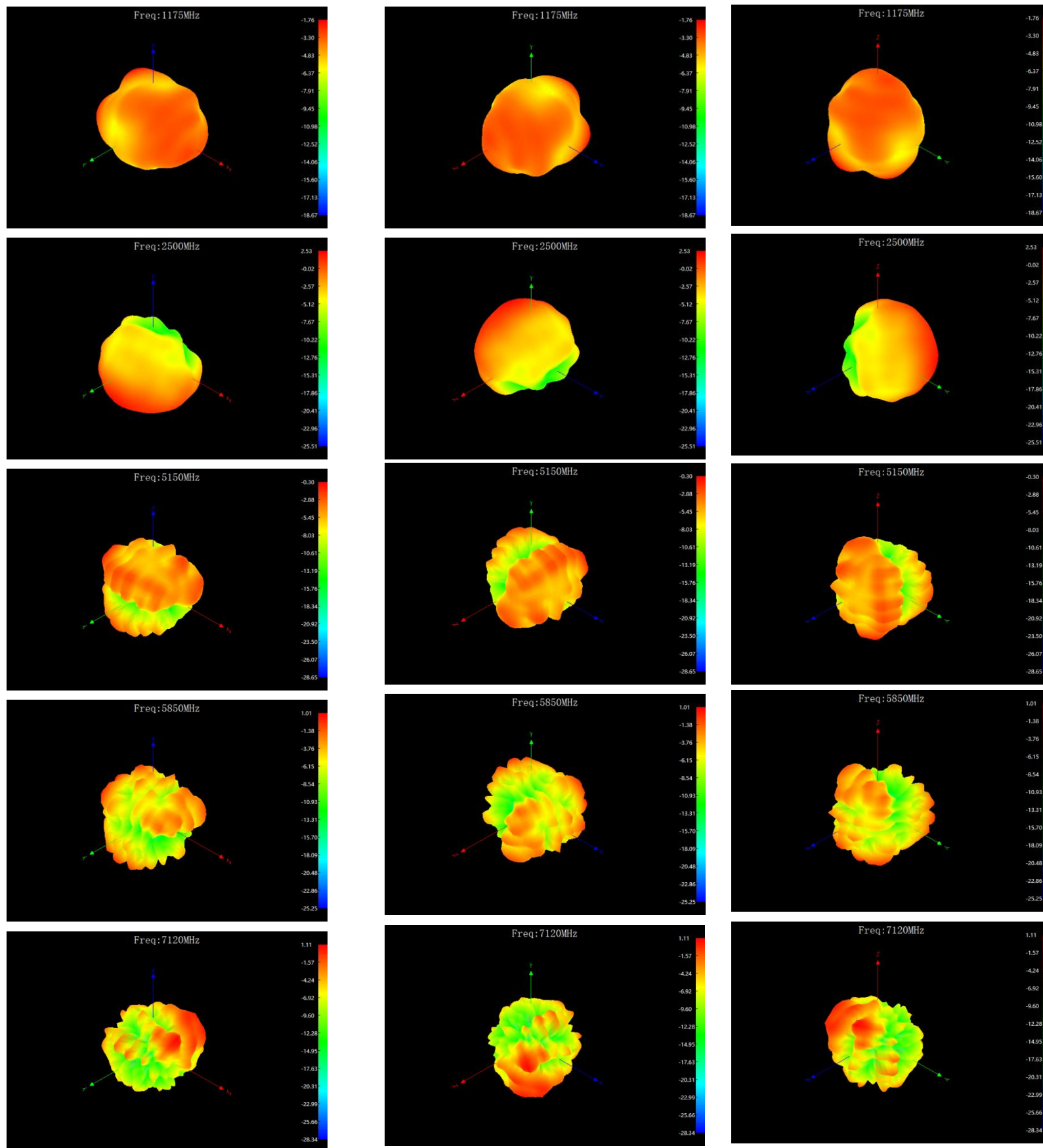
Freq	Effi	Effi	Gain	5150	-5.72	26.79	-0.3
(MHz)	(dB)	(%)	(dBi)	5200	-5.53	27.99	-0.16
1170	-6.61	21.83	-1.48	5300	-5.26	29.79	1.25
1171	-6.64	21.68	-1.54	5400	-4.68	34.04	2.22
1172	-6.66	21.58	-1.59	5500	-4.56	34.99	2.54
1173	-6.67	21.53	-1.64	5600	-4.93	32.14	2.12
1174	-6.68	21.48	-1.69	5700	-4.97	31.84	1.1
1175	-6.69	21.43	-1.76	5800	-4.9	32.36	1.41
1176	-6.7	21.38	-1.78	5900	-5.14	30.62	0.99
1177	-6.71	21.33	-1.83	6000	-5.29	29.58	0.94
1178	-6.73	21.23	-1.88	6100	-5.15	30.55	1.12
1179	-6.76	21.09	-1.92	6200	-5.22	30.06	1.25
1180	-6.78	20.99	-1.95	6300	-5.71	26.85	0.95
				6400	-5.72	26.79	1.33
2400	-3.64	43.25	1.4	6500	-5.75	26.61	2.23
2410	-3.68	42.85	1.35	6600	-5.7	26.92	2.31
2420	-3.59	43.75	1.45	6700	-5.35	29.17	2.37
2430	-3.48	44.87	1.58	6800	-5.29	29.58	1.48
2440	-3.49	44.77	1.73	6900	-5.33	29.31	0.7
2450	-3.25	47.32	2.05	7000	-5.52	28.05	0.68
2460	-3.25	47.32	2.1				
2470	-3	50.12	2.26				
2480	-3	50.12	2.36				
2490	-2.88	51.52	2.53				
2500	-2.91	51.17	2.53				

Shanghai Shangyuan Communication Technology Co., Ltd. antenna recognition

ANT5 antenna Apple chart



Shanghai Shangyuan Communication Technology Co., Ltd. antenna recognition
ANT6 antenna Apple chart

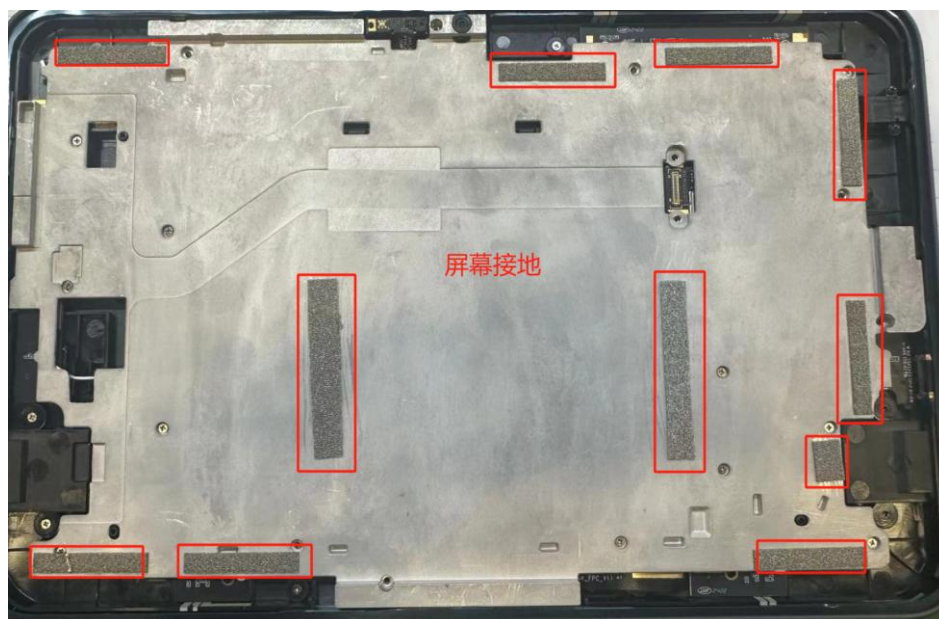


5.2 Active test data

Triple three in one triad ternion active test data (Free space, screen off)

Band		Channel	FREQ (MHz)	OTA (dBm)合路		
				SPEC (dBm)	TRP (dB)	TIS (dB)
11b 11M (2.4G)		1	2412	TRP ≥14dBm TIS ≤-82dBm	15.26	
		6	2437		15.53	
		11	2462		15.86	-83.59
11a 54M (5G)		36	5150	TRP ≥11dBm TIS ≤-69.5dBm	13.85	
		149	5500		14.36	
		169	5850		14.28	-71.25
11g 54M (2.4G)		1	2412	TRP ≥12dBm TIS ≤-69dBm	13.82	
		6	2437		14.16	
		11	2462		14.39	-72.25
11n MCS7 (2.4G)		1	2412	TRP ≥11dBm TIS ≤-63dBm	14.33	
		6	2437		14.62	
		11	2462		14.72	-69.13
GPS-L1	多星追踪		1575.42	TIS	-149.08	

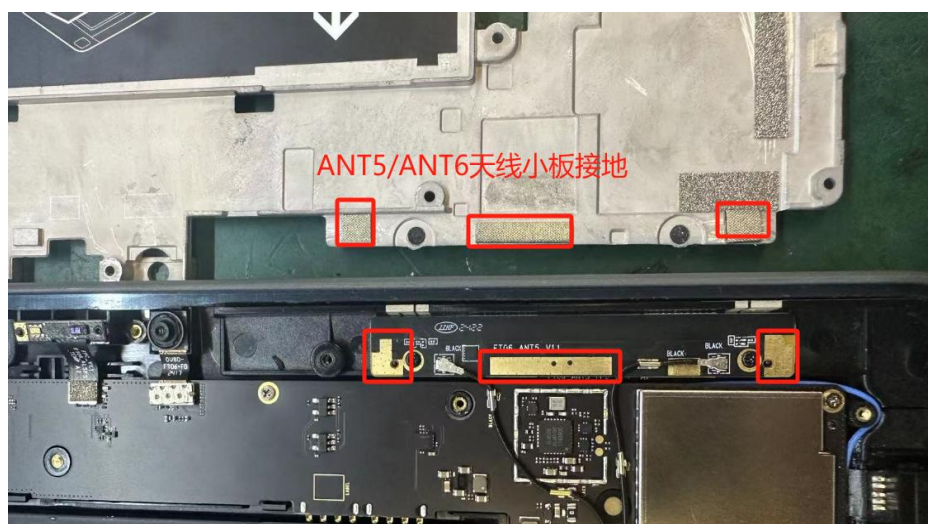
6.Environmental treatment



Screen steel plate grounding



Grounding between the middle frame and the motherboard



ANT5/6 small board grounding

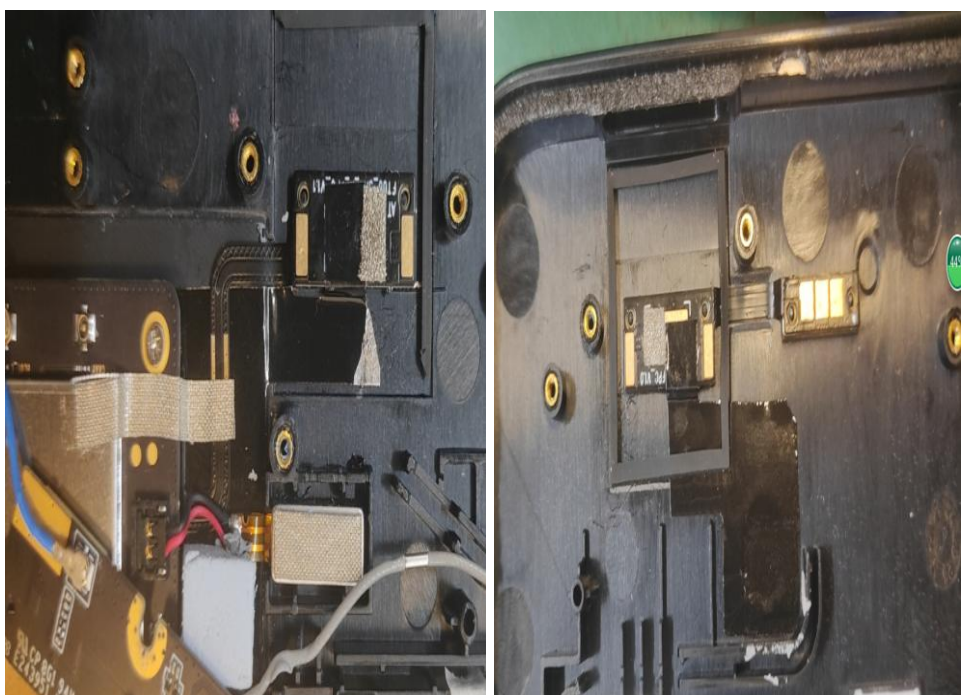
6.Environmental treatment



Speaker and motherboard grounding



Add conductive sponge and small board USB grounding



Horn and small board grounding

7. Mass production antenna indicators

When the antenna is mass-produced, the standing wave ratio is used as the mass production test standard. According to the differences in the project itself, the following criteria are given:

frequency (MHz)	量产标准
ANT5	VSWR (Mass production performance) <VSWR(Acknowledge performance)+1
ANT6	VSWR (Mass production performance) <VSWR(Acknowledge performance)+1

ROHS, REACH

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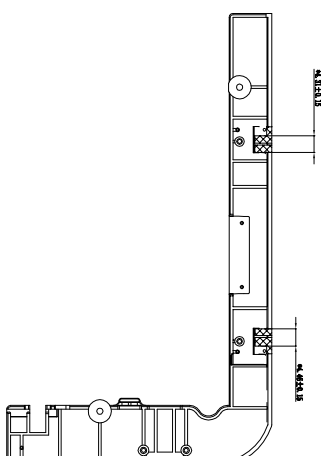
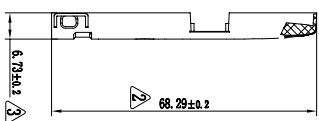
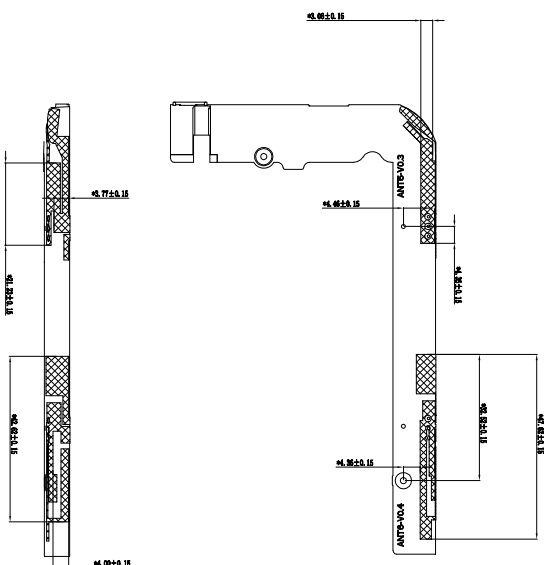
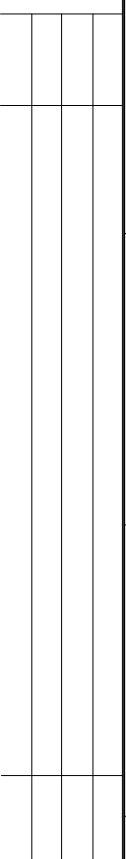
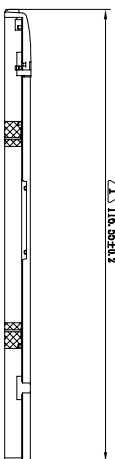
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