



深圳市星源创科技有限公司

SHENZHEN Xingyuanchuang TECHNOLOGY CO., LTD

ANTENNA Room 1506, Tangwei Stock Business Building, Tangwei
Community, Fuhai Street, Bao'an District, Shenzhen, China

天线测试报告

Antenna Test Report

TC: 美迪飞

MN: DT50

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MP: 19918388579

Date: 2023. 7. 6.

REV :V1. 0



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测试信息

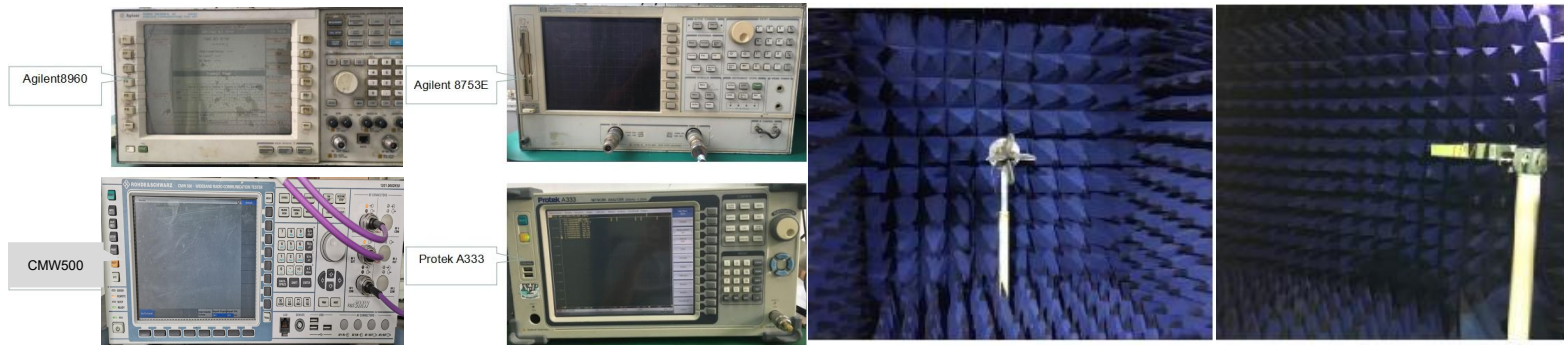
Test information

	Antenna band	Antenna state	Antenna form	Match changes	Note
Main ANT	2G				
	3G			NO	
	4G				
AUX ANT	BT/WIFI	2.4/5G	FPC	PIFA	NO
	GPS	1.575G	FPC	PIFA	NO
	DIV				NO

测试环境

Test environment

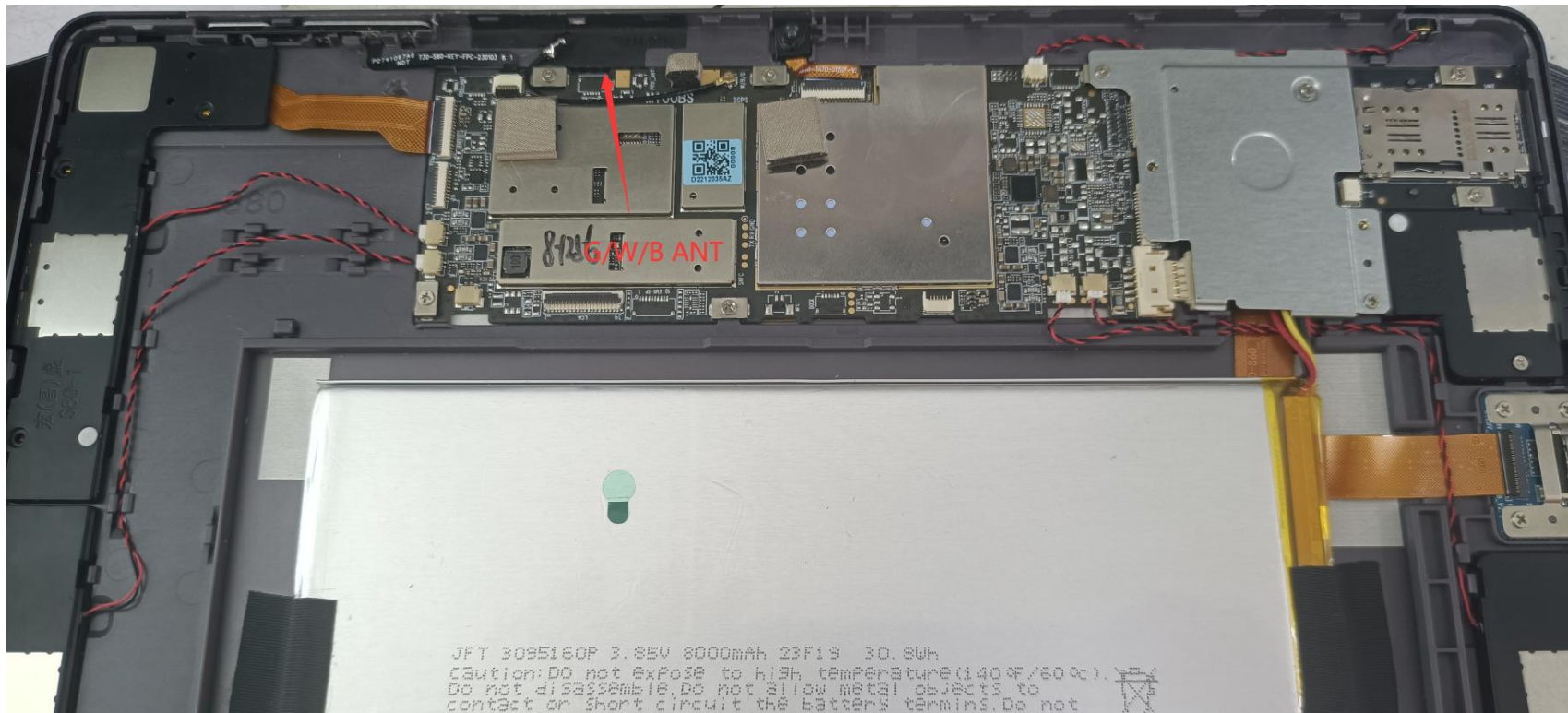
	测试项目	测试设备
S参数 (S-parameter)	1. 电压驻波比 (VSWR) 2. 回波损耗 (Rrtun Loss)	网络分析仪: Agilent8753ES
2. 有源测试 (Active)	1. 发射功率 (TRP) 2. 接收灵敏度 (TIS) 3. 屏灭/屏亮	1. 暗室: 5*3*3m (3D) Chamber 2. 综测仪: Agilent8960 CMW500
3. 无源测试 (Passive)	1. 天线增益 (Gain) 2. 天线效率 (Efficiency)	1. 暗室: 5*3*3m (3D) Chamber 2. 网络分析仪: Agilent 8753ES





天线位置

Antenna position



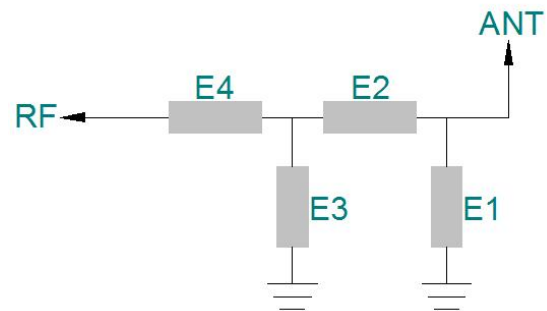


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匹配电路
Matching circuit



匹配电路原理图&位号图

	电容 (PF)	电感 (NH)
E1(0402)		
E2(0402)		
E3(0402)		
E4(0402)		



有源测试数据 Active test data

802.11b	Frequency	TRP		TIS	
	2412	CH1 11Mbps	11.39	CH1 11Mbps	-80.94
2437	CH6 11Mbps	12.66	CH6 11Mbps	-80.62	
2467	CH11 11Mbps	10.77	CH11 11Mbps	-80.99	
802.11a		TRP		TIS	
	5180	CH36 6Mbps	8.38	CH36 54Mbps	-69.36
	5300	CH60 6Mbps	8.78	CH60 54Mbps	-68.32
	5805	CH161 6Mbps	9.58	CH161 54Mbps	-69.16



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GPS搜星测试

GPS star search test

GPS冷启动实测效果以下：

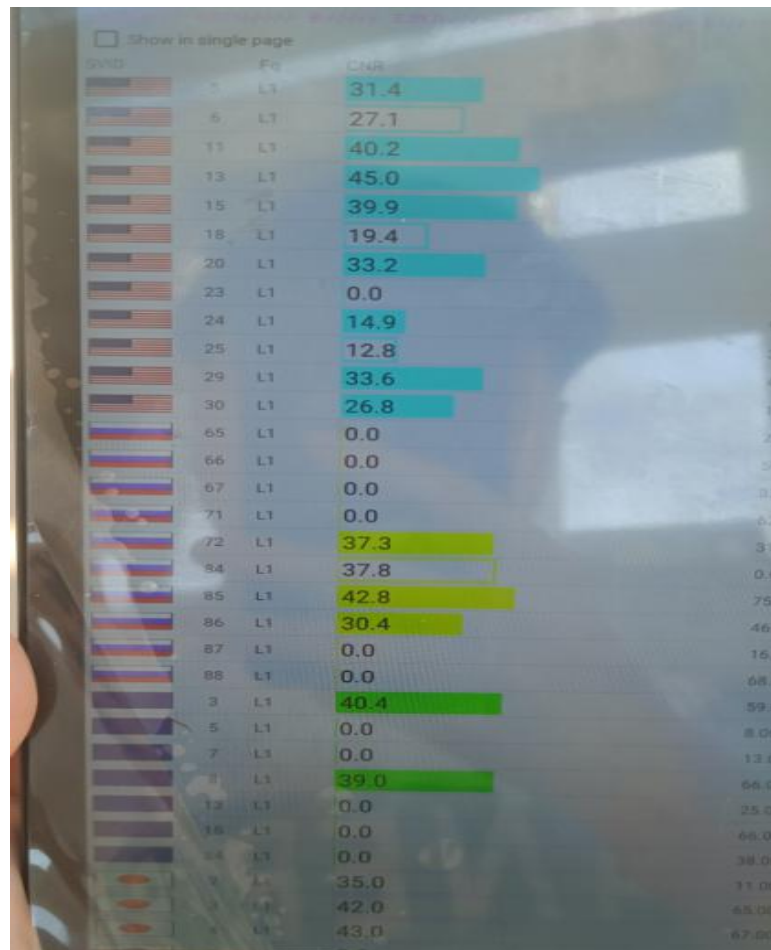
CN值40以上4+颗

CN值35以上3+颗

实际定位13颗

备注：

GPS搜星测试。会因时间段及地域而存在差异。以上数据为我司测试（空旷地带）最佳数据



Wifi/BT天线实测

Wifi Antenna test

WIFI

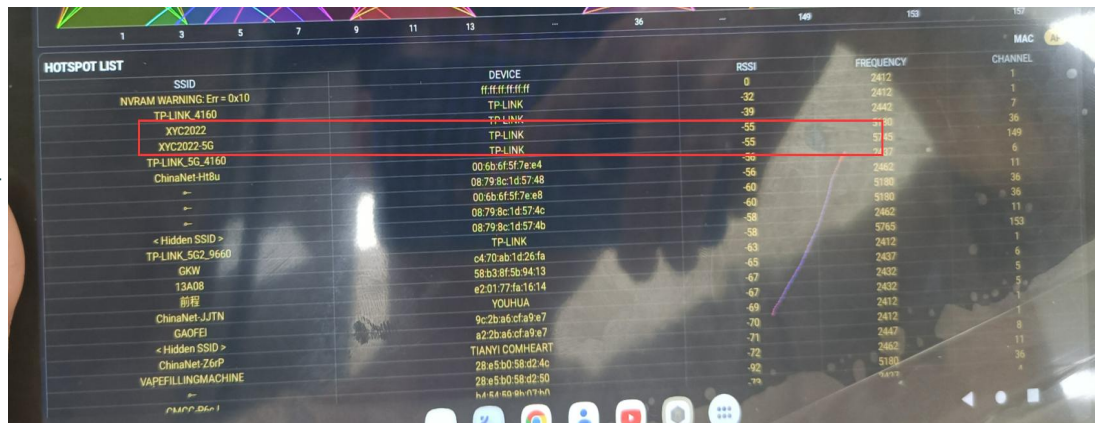
测试环境：开放空间

测试工具：Wifi Analytical Assistant

测试距离：10m

信号强度：2.4G :-55dBm 5G:-55dBm

测试结果如右图



BT

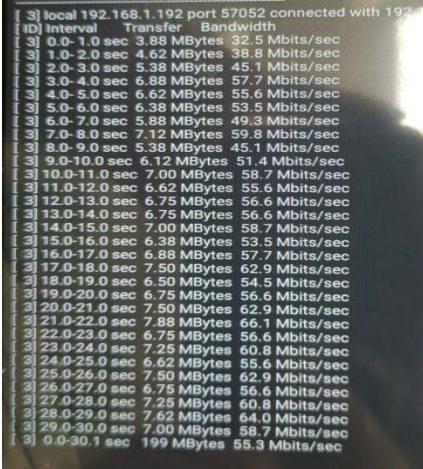
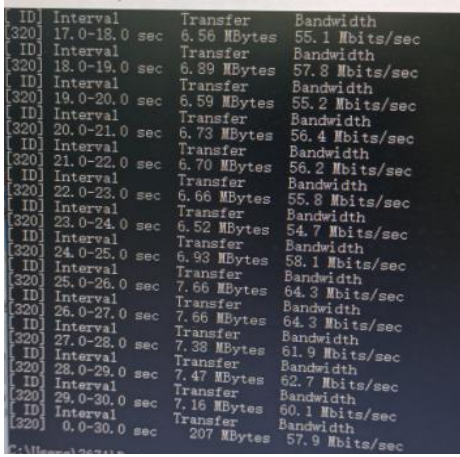
测试环境：开放空间(通道)

测试工具：蓝牙音响

测试距离：15m

结果：播放音乐流畅，无杂音。

吞吐量测试 Throughput test

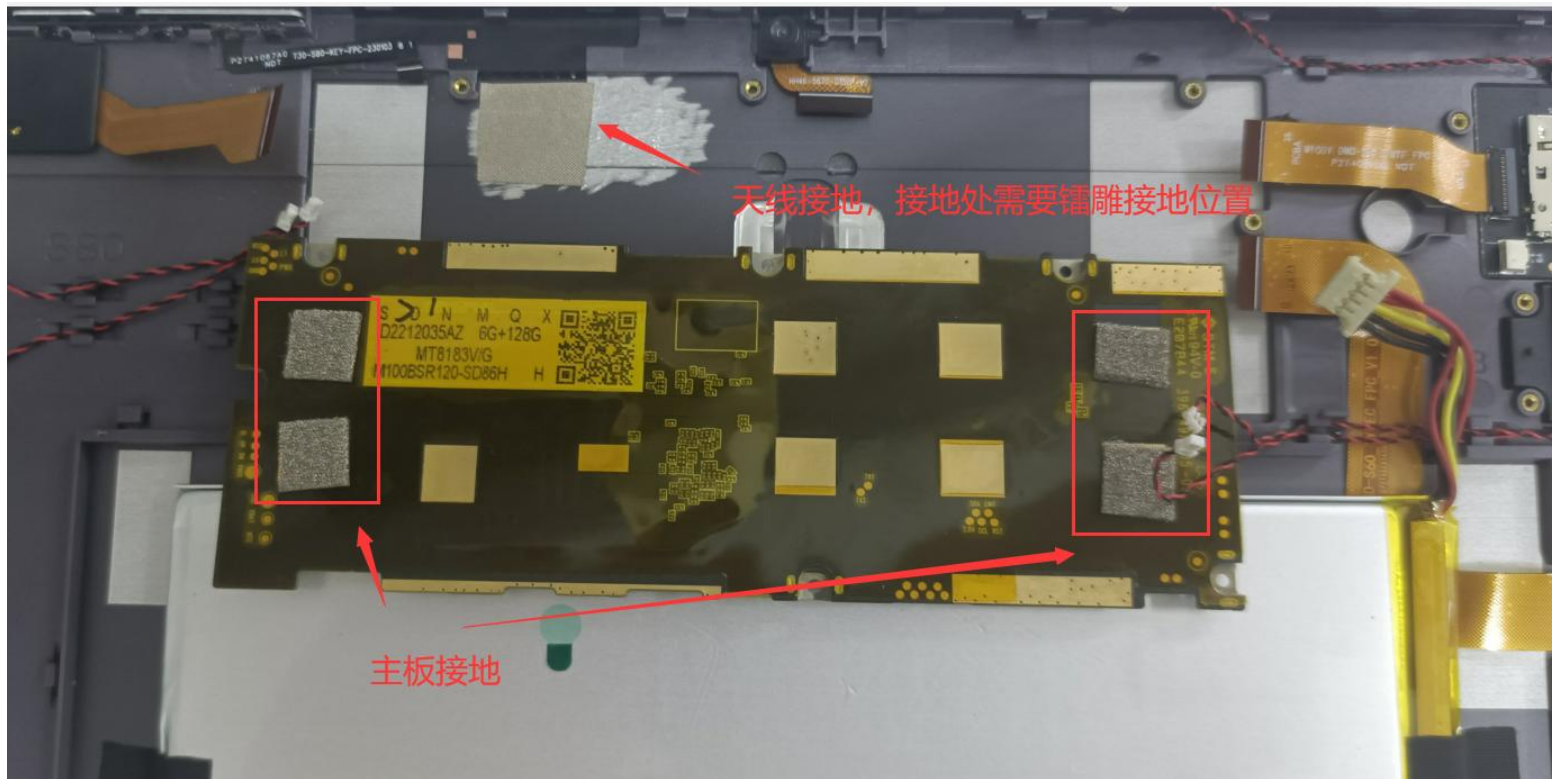
2.4G wifi 吞吐量测试			
上行	55.3M	下行	57.9M
图片		图片	
备注			

吞吐量测试 Throughput test

5G wifi 吞吐量测试			
上行	281M	下行	290M
图片	 <pre> [3] local 192.168.1.194 port 34234 connected with 192.16 [ID] interval Transfer Bandwidth [3] 0.0-1.0 sec 30.1 MBytes 253 Mbits/sec [3] 1.0-2.0 sec 28.5 MBytes 239 Mbits/sec [3] 2.0-3.0 sec 28.9 MBytes 242 Mbits/sec [3] 3.0-4.0 sec 28.2 MBytes 237 Mbits/sec [3] 4.0-5.0 sec 30.2 MBytes 254 Mbits/sec [3] 5.0-6.0 sec 32.2 MBytes 271 Mbits/sec [3] 6.0-7.0 sec 36.0 MBytes 302 Mbits/sec [3] 7.0-8.0 sec 34.9 MBytes 293 Mbits/sec [3] 8.0-9.0 sec 33.6 MBytes 282 Mbits/sec [3] 9.0-10.0 sec 36.1 MBytes 303 Mbits/sec [3] 10.0-11.0 sec 34.9 MBytes 293 Mbits/sec [3] 11.0-12.0 sec 33.8 MBytes 283 Mbits/sec [3] 12.0-13.0 sec 32.8 MBytes 275 Mbits/sec [3] 13.0-14.0 sec 36.6 MBytes 307 Mbits/sec [3] 14.0-15.0 sec 34.1 MBytes 286 Mbits/sec [3] 15.0-16.0 sec 33.9 MBytes 284 Mbits/sec [3] 16.0-17.0 sec 34.5 MBytes 289 Mbits/sec [3] 17.0-18.0 sec 35.9 MBytes 301 Mbits/sec [3] 18.0-19.0 sec 34.9 MBytes 293 Mbits/sec [3] 19.0-20.0 sec 33.4 MBytes 280 Mbits/sec [3] 20.0-21.0 sec 33.1 MBytes 278 Mbits/sec [3] 21.0-22.0 sec 31.8 MBytes 266 Mbits/sec [3] 22.0-23.0 sec 33.8 MBytes 283 Mbits/sec [3] 23.0-24.0 sec 34.8 MBytes 292 Mbits/sec [3] 24.0-25.0 sec 33.4 MBytes 280 Mbits/sec [3] 25.0-26.0 sec 35.9 MBytes 301 Mbits/sec [3] 26.0-27.0 sec 33.2 MBytes 279 Mbits/sec [3] 27.0-28.0 sec 33.2 MBytes 279 Mbits/sec [3] 28.0-29.0 sec 34.8 MBytes 292 Mbits/sec [3] 29.0-30.0 sec 36.8 MBytes 308 Mbits/sec [3] 0.0-30.0 sec 1004 MBytes 281 Mbits/sec </pre>	图片	 <pre> [ID] Interval Transfer Bandwidth [320] 17.0-18.0 sec 35.7 MBytes 299 Mbits/sec [ID] Interval Transfer Bandwidth [320] 18.0-19.0 sec 35.2 MBytes 296 Mbits/sec [ID] Interval Transfer Bandwidth [320] 19.0-20.0 sec 35.5 MBytes 298 Mbits/sec [ID] Interval Transfer Bandwidth [320] 20.0-21.0 sec 34.8 MBytes 292 Mbits/sec [ID] Interval Transfer Bandwidth [320] 21.0-22.0 sec 34.5 MBytes 289 Mbits/sec [ID] Interval Transfer Bandwidth [320] 22.0-23.0 sec 34.8 MBytes 292 Mbits/sec [ID] Interval Transfer Bandwidth [320] 23.0-24.0 sec 36.0 MBytes 302 Mbits/sec [ID] Interval Transfer Bandwidth [320] 24.0-25.0 sec 35.9 MBytes 301 Mbits/sec [ID] Interval Transfer Bandwidth [320] 25.0-26.0 sec 34.6 MBytes 290 Mbits/sec [ID] Interval Transfer Bandwidth [320] 26.0-27.0 sec 35.8 MBytes 300 Mbits/sec [ID] Interval Transfer Bandwidth [320] 27.0-28.0 sec 34.2 MBytes 287 Mbits/sec [ID] Interval Transfer Bandwidth [320] 28.0-29.0 sec 31.4 MBytes 263 Mbits/sec [ID] Interval Transfer Bandwidth [320] 29.0-30.0 sec 30.0 MBytes 252 Mbits/sec [ID] Interval Transfer Bandwidth [320] 0.0-30.0 sec 1.01 GBytes 290 Mbits/sec </pre>
备注			

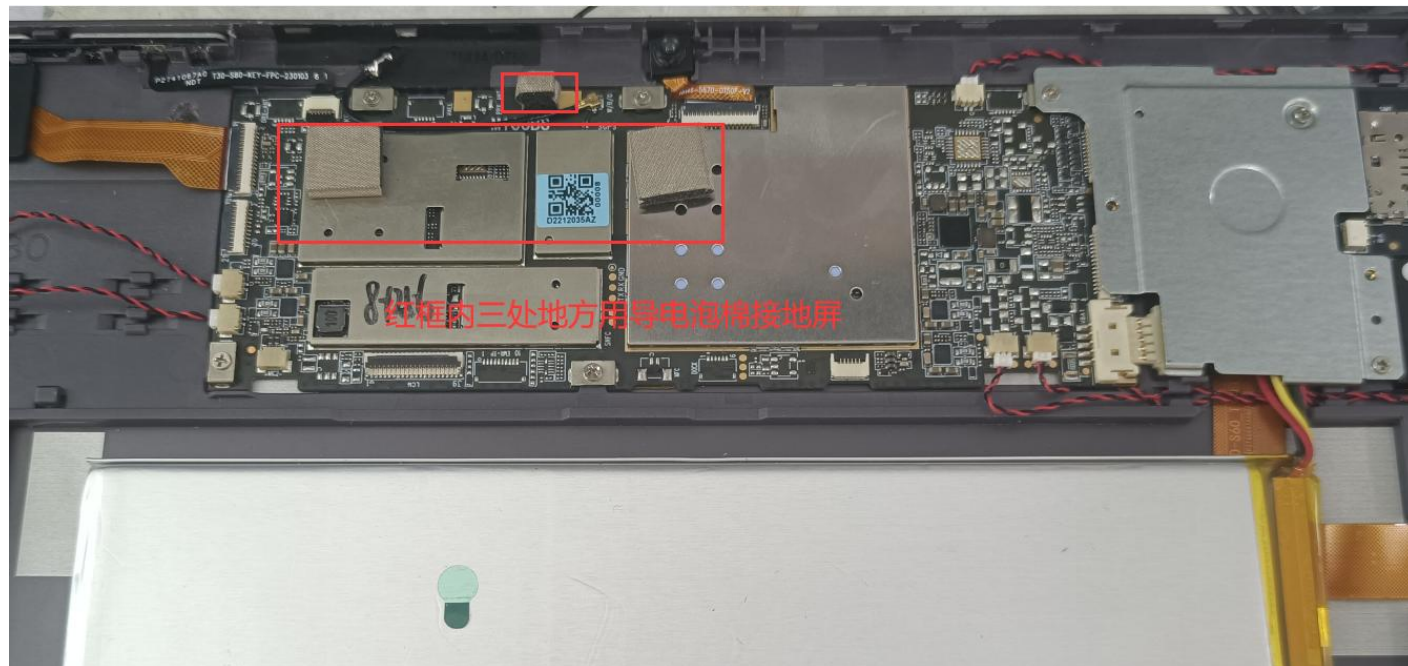
环境处理

Environmental treatment



环境处理

Environmental treatment





环境处理

Environmental treatment

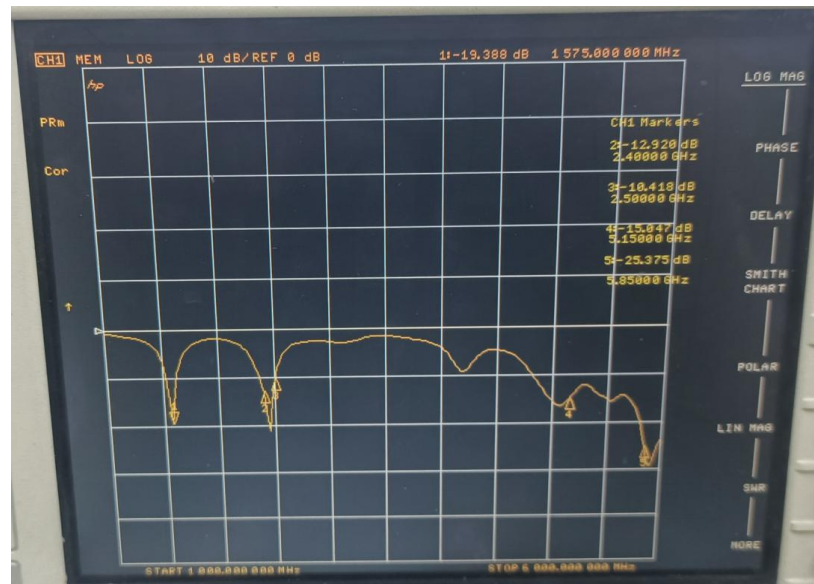
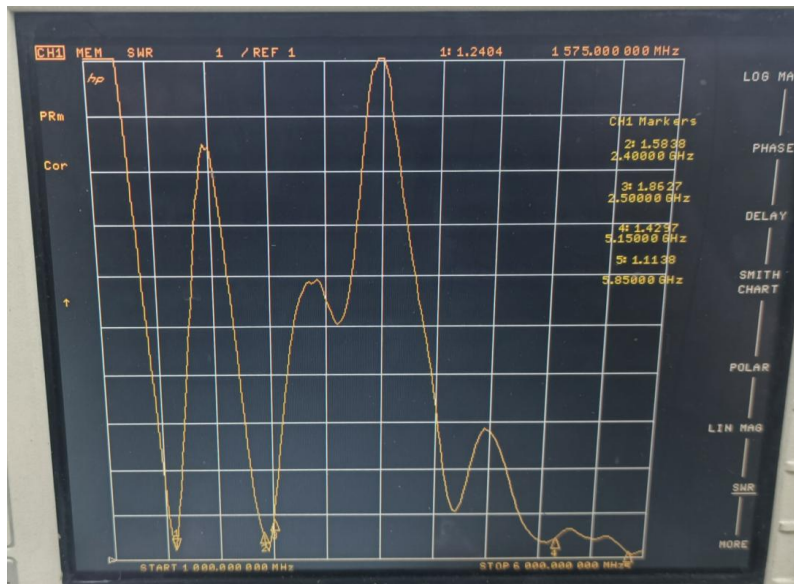




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无源测试数据
Passive test data

ANT1 S11-VSWR&Return Loss



Frequency (MHZ)	1575	2400	2500	5150	5850
VSWR	1.24	1.50	1.86	1.42	1.11
Return Loss (DB)	-19.38	-12.92	-10.41	-15.04	-25.37



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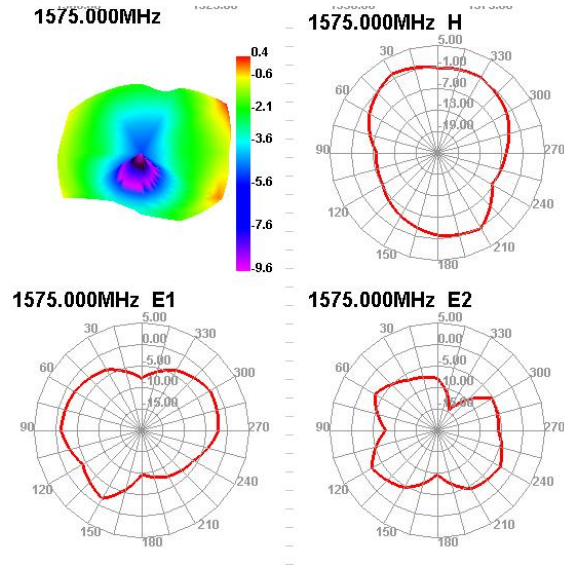
无源测试数据
Passive test data

ANT1 GAIN&Efficiency-GPS

Passive Test For GPS								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)
1565	43.87	-3.58	0.3	-1.85	22.467	21.407	0.3	-13.42
1570	42.54	-3.71	0.19	-1.96	21.912	20.629	0.19	-14
1575	43.63	-3.6	0.37	-1.78	22.595	21.036	0.37	-14.72
1580	45.7	-3.4	0.6	-1.55	23.849	21.854	0.6	-15.2

无源测试数据
Passive test data

ANT1 Direction of figure (GPS)





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无源测试数据

Passive test data

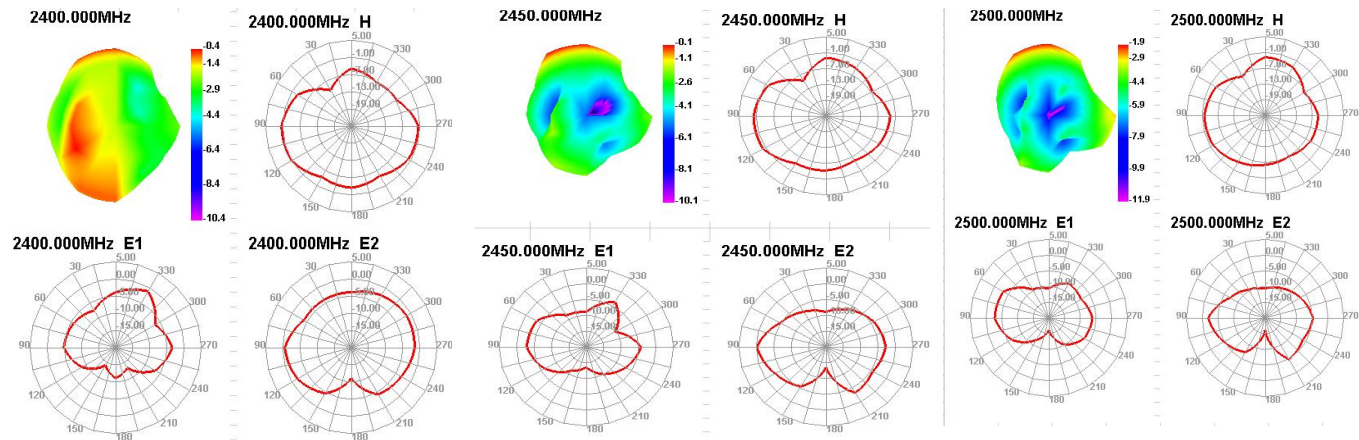
ANT1 GAIN&Efficiency-WIFI2.4G/BT

Passive Test For WIFI2.4								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)
2400	35.01	-4.56	-0.43	-2.58	19.246	15.762	-0.43	-26.23
2410	34.84	-4.58	-0.16	-2.31	18.881	15.963	-0.16	-24.49
2420	31.36	-5.04	-0.28	-2.43	16.718	14.637	-0.28	-21.44
2430	28.69	-5.42	-0.5	-2.65	15.019	13.67	-0.5	-19.66
2440	30.82	-5.11	-0.21	-2.36	15.643	15.176	-0.21	-17.8
2450	32.23	-4.92	-0.07	-2.22	15.871	16.363	-0.07	-17.17
2460	27.98	-5.53	-0.72	-2.87	13.585	14.397	-0.72	-17.26
2470	26.63	-5.75	-1.07	-3.22	12.882	13.753	-1.07	-17.57
2480	29.16	-5.35	-0.93	-3.08	14.256	14.906	-0.93	-17.51
2490	32.3	-4.91	-0.67	-2.82	15.737	16.56	-0.67	-15.8
2500	25.2	-5.99	-1.92	-4.07	12.132	13.067	-1.92	-16.07



无源测试数据 Passive test data

ANT1 Direction of figure(2.4/BT)





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无源测试数据

Passive test data

ANT1 GAIN&Efficiency-WIFI 5G

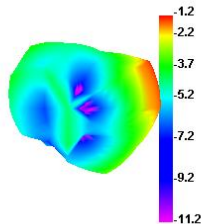
Passive Test For WIFI5G								
Freq (MHz)	Effi (%)	Effi (dBi)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)
5150	20.78	-6.82	-1.18	-3.33	10.783	9.998	-1.18	-18.32
5170	24.24	-6.15	-0.73	-2.88	12.493	11.749	-0.73	-17.98
5190	21.54	-6.67	-1.43	-3.58	11.025	10.519	-1.43	-19.7
5210	27.75	-5.57	-0.29	-2.44	14.089	13.665	-0.29	-16.93
5230	22.23	-6.53	-1.34	-3.49	11.131	11.102	-1.34	-16.56
5250	28.96	-5.38	0	-2.15	14.323	14.636	0	-15.1
5270	24.65	-6.08	-0.83	-2.98	12.047	12.605	-0.83	-15.58
5290	29.96	-5.23	0.04	-2.11	14.614	15.343	0.04	-14.26
5310	25.59	-5.92	-0.54	-2.69	12.456	13.138	-0.54	-14.11
5330	27.87	-5.55	-0.05	-2.2	13.54	14.327	-0.05	-13.67
5350	27.41	-5.62	-0.04	-2.19	13.425	13.984	-0.04	-13.87
5370	26.55	-5.76	-0.41	-2.56	13.152	13.395	-0.41	-16.23
5390	24.03	-6.19	-0.82	-2.97	12.104	11.927	-0.82	-17.69
5410	29.5	-5.3	0.15	-2	15.068	14.435	0.15	-16.22
5430	26.64	-5.75	-0.15	-2.3	13.662	12.973	-0.15	-15.83
5450	28.86	-5.4	0.21	-1.94	14.811	14.049	0.21	-16.11
5470	27.18	-5.66	-0.12	-2.27	14.106	13.071	-0.12	-17.52
5490	27.41	-5.62	-0.13	-2.28	14.34	13.066	-0.13	-20.63
5510	30.66	-5.13	0.29	-1.86	16.021	14.638	0.29	-17.81
5530	30.39	-5.17	0.29	-1.86	15.776	14.614	0.29	-18.07
5550	34.29	-4.65	0.8	-1.35	17.785	16.506	0.8	-18.08
5570	28.95	-5.38	0	-2.15	15.15	13.795	0	-17.17
5590	33.02	-4.81	0.37	-1.78	17.356	15.659	0.37	-16.33
5610	29.32	-5.33	-0.23	-2.38	15.288	14.036	-0.23	-17.5
5630	34.55	-4.62	0.26	-1.89	17.953	16.595	0.26	-17.32
5650	29.63	-5.28	-0.38	-2.53	15.576	14.055	-0.38	-17.55
5670	32.29	-4.91	0.11	-2.04	17.312	14.977	0.11	-16.4
5690	31.26	-5.05	0.39	-1.76	17.052	14.211	0.39	-16.68
5710	30.39	-5.17	0.34	-1.81	16.538	13.856	0.34	-17.38
5730	34.7	-4.6	1.13	-1.02	19.109	15.596	1.13	-17.11
5750	30.01	-5.23	0.8	-1.35	16.897	13.116	0.8	-17.26
5770	34.5	-4.62	1.52	-0.63	19.767	14.733	1.52	-17.08
5790	31.38	-5.03	1.13	-1.02	18.05	13.327	1.13	-17.49
5810	34.87	-4.58	1.56	-0.59	20.109	14.758	1.56	-17.11
5830	34.11	-4.67	1.4	-0.75	19.988	14.126	1.4	-18.76
5850	38.9	-4.1	2.07	-0.08	23.21	15.694	2.07	-17.74



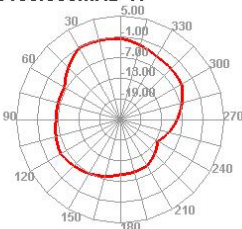
无源测试数据 Passive test data

ANT1 Direction of figure (5G)

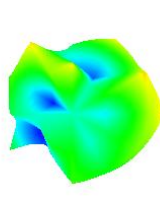
5150.000MHz



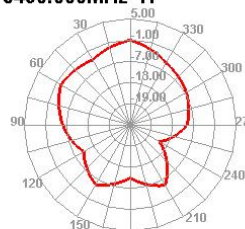
5150.000MHz H



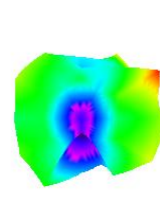
5490.000MHz



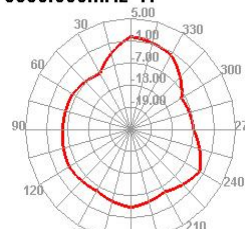
5490.000MHz H



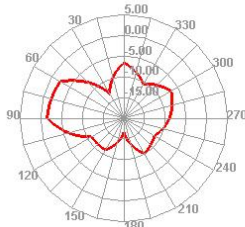
5850.000MHz



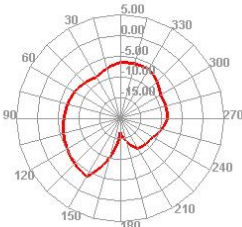
5850.000MHz H



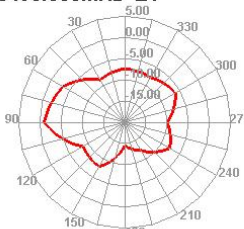
5150.000MHz E1



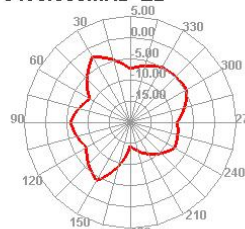
5150.000MHz E2



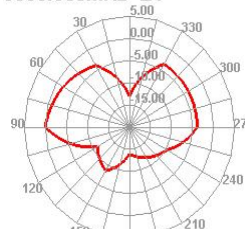
5490.000MHz E1



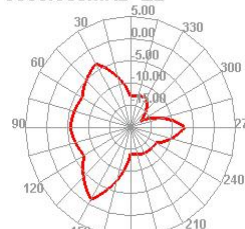
5490.000MHz E2



5850.000MHz E1



5850.000MHz E2



合作 共赢

