



深圳市星源创科技有限公司
SHENZHEN Xingyuanchuang TECHNOLOGY CO., LTD

天线测试报告

Antenna Test Report

TC: 昱科

MN: T1561U

RF: 关巍

MD: 黄清清

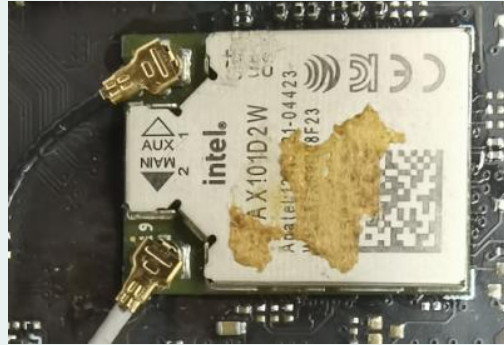
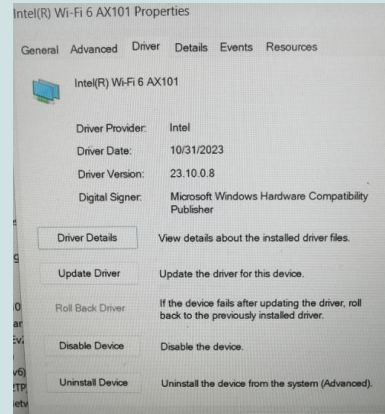
MP: 19918388579

Date: 2024. 3. 15.

REV :V1. 0

测试信息

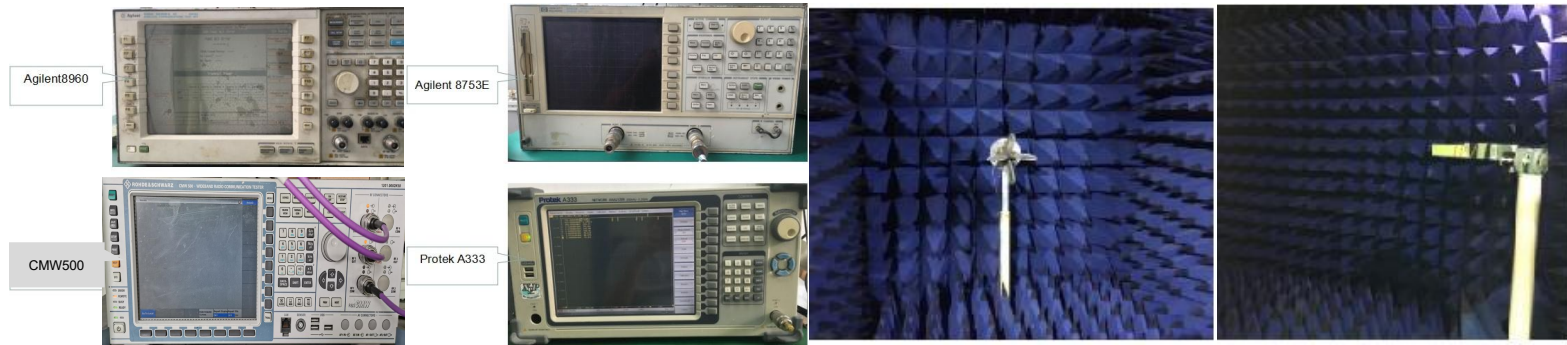
Test information

WIFI ANT Test information		
Frequency	2. 4G (2402~2483) Mhz	5G (5150~5850) Mhz
Module information		
Driver version information		

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





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天线位置

Antenna position



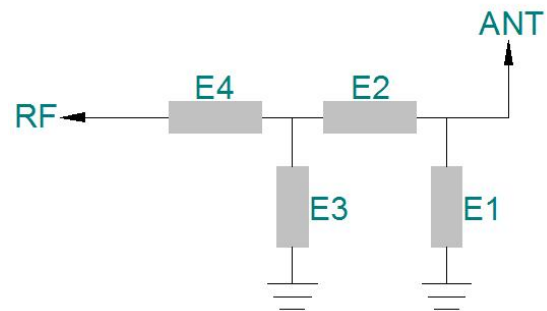


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匹配电路
Matching circuit



匹配电路原理图&位号图

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



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有源测试数据
Active test data

802.11b	Frequency	TRP		TIS	
	2412	CH1 11Mbps	11.4	CH1 11Mbps	-79.17
	2437	CH6 11Mbps	11.46	CH6 11Mbps	-79.48
	2467	CH11 11Mbps	11.57	CH11 11Mbps	-79.42
802.11a		TRP		TIS	
	5180	CH36 6Mbps	10.18	CH36 54Mbps	-69.54
	5300	CH60 6Mbps	10.26	CH60 54Mbps	-69.57
	5805	CH161 6Mbps	10.58	CH161 54Mbps	-69.62



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吞吐量测试

Throughput test

2.4G wifi 天吐量测试								
上行				下行				
图片	[388]	17.0-18.0 sec	10.1 MBytes	84.8 Mbits/sec	[348]	17.0-18.0 sec	13.4 MBytes	113 Mbits/sec
	[ID]	Interval	Transfer	Bandwidth	[ID]	Interval	Transfer	Bandwidth
	[388]	18.0-19.0 sec	10.8 MBytes	91.0 Mbits/sec	[348]	18.0-19.0 sec	12.8 MBytes	107 Mbits/sec
	[ID]	Interval	Transfer	Bandwidth	[ID]	Interval	Transfer	Bandwidth
	[388]	19.0-20.0 sec	9.58 MBytes	80.3 Mbits/sec	[348]	19.0-20.0 sec	12.8 MBytes	107 Mbits/sec
	[ID]	Interval	Transfer	Bandwidth	[ID]	Interval	Transfer	Bandwidth
	[388]	20.0-21.0 sec	9.79 MBytes	82.1 Mbits/sec	[348]	20.0-21.0 sec	13.0 MBytes	109 Mbits/sec
	[ID]	Interval	Transfer	Bandwidth	[ID]	Interval	Transfer	Bandwidth
	[388]	21.0-22.0 sec	10.2 MBytes	85.5 Mbits/sec	[348]	21.0-22.0 sec	13.2 MBytes	111 Mbits/sec
	[ID]	Interval	Transfer	Bandwidth	[ID]	Interval	Transfer	Bandwidth
	[388]	22.0-23.0 sec	4.43 MBytes	37.2 Mbits/sec	[348]	22.0-23.0 sec	13.4 MBytes	113 Mbits/sec
	[ID]	Interval	Transfer	Bandwidth	[ID]	Interval	Transfer	Bandwidth
	[388]	23.0-24.0 sec	4.45 MBytes	37.3 Mbits/sec	[348]	23.0-24.0 sec	12.7 MBytes	107 Mbits/sec
	[ID]	Interval	Transfer	Bandwidth	[ID]	Interval	Transfer	Bandwidth
	[388]	24.0-25.0 sec	8.84 MBytes	74.2 Mbits/sec	[348]	24.0-25.0 sec	12.7 MBytes	107 Mbits/sec
	[ID]	Interval	Transfer	Bandwidth	[ID]	Interval	Transfer	Bandwidth
	[388]	25.0-26.0 sec	9.97 MBytes	83.6 Mbits/sec	[348]	25.0-26.0 sec	13.3 MBytes	111 Mbits/sec
	[ID]	Interval	Transfer	Bandwidth	[ID]	Interval	Transfer	Bandwidth
	[388]	26.0-27.0 sec	9.13 MBytes	76.6 Mbits/sec	[348]	26.0-27.0 sec	13.0 MBytes	109 Mbits/sec
	[ID]	Interval	Transfer	Bandwidth	[ID]	Interval	Transfer	Bandwidth
[388]	27.0-28.0 sec	10.3 MBytes	86.2 Mbits/sec	[348]	27.0-28.0 sec	14.1 MBytes	118 Mbits/sec	
[ID]	Interval	Transfer	Bandwidth	[ID]	Interval	Transfer	Bandwidth	
[388]	28.0-29.0 sec	10.0 MBytes	84.0 Mbits/sec	[348]	28.0-29.0 sec	12.9 MBytes	108 Mbits/sec	
[ID]	Interval	Transfer	Bandwidth	[ID]	Interval	Transfer	Bandwidth	
[388]	29.0-30.0 sec	9.13 MBytes	76.6 Mbits/sec	[348]	29.0-30.0 sec	12.8 MBytes	108 Mbits/sec	
[ID]	Interval	Transfer	Bandwidth	[ID]	Interval	Transfer	Bandwidth	
[388]	0.0-30.1 sec	274 MBytes	76.5 Mbits/sec	[348]	0.0-30.0 sec	368 MBytes	103 Mbits/sec	
备注								



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吞吐量测试

Throughput test

5G wifi 天吐量测试									
上行				下行					
图片	[384]	17.0-18.0 sec	38.9 MBytes	326 Mbits/sec	图片	[ID]	Interval Transfer Bandwidth		
	[ID]	Interval	Transfer	Bandwidth		[348]	18.0-19.0 sec	35.4 MBytes	297 Mbits/sec
	[384]	18.0-19.0 sec	40.1 MBytes	336 Mbits/sec		[ID]	Interval	Transfer	Bandwidth
	[ID]	Interval	Transfer	Bandwidth		[348]	19.0-20.0 sec	41.0 MBytes	344 Mbits/sec
	[384]	19.0-20.0 sec	40.4 MBytes	339 Mbits/sec		[ID]	Interval	Transfer	Bandwidth
	[ID]	Interval	Transfer	Bandwidth		[348]	20.0-21.0 sec	41.4 MBytes	347 Mbits/sec
	[384]	20.0-21.0 sec	40.3 MBytes	338 Mbits/sec		[ID]	Interval	Transfer	Bandwidth
	[ID]	Interval	Transfer	Bandwidth		[348]	21.0-22.0 sec	40.5 MBytes	340 Mbits/sec
	[384]	21.0-22.0 sec	40.3 MBytes	338 Mbits/sec		[ID]	Interval	Transfer	Bandwidth
	[ID]	Interval	Transfer	Bandwidth		[348]	22.0-23.0 sec	40.9 MBytes	343 Mbits/sec
	[384]	22.0-23.0 sec	40.9 MBytes	343 Mbits/sec		[ID]	Interval	Transfer	Bandwidth
	[ID]	Interval	Transfer	Bandwidth		[348]	23.0-24.0 sec	40.4 MBytes	338 Mbits/sec
	[384]	23.0-24.0 sec	40.3 MBytes	338 Mbits/sec		[ID]	Interval	Transfer	Bandwidth
	[ID]	Interval	Transfer	Bandwidth		[348]	24.0-25.0 sec	40.7 MBytes	341 Mbits/sec
	[384]	24.0-25.0 sec	39.4 MBytes	331 Mbits/sec		[ID]	Interval	Transfer	Bandwidth
	[ID]	Interval	Transfer	Bandwidth		[348]	25.0-26.0 sec	40.9 MBytes	343 Mbits/sec
	[384]	25.0-26.0 sec	39.9 MBytes	334 Mbits/sec		[ID]	Interval	Transfer	Bandwidth
	[ID]	Interval	Transfer	Bandwidth		[348]	26.0-27.0 sec	40.5 MBytes	340 Mbits/sec
	[384]	26.0-27.0 sec	40.3 MBytes	338 Mbits/sec		[ID]	Interval	Transfer	Bandwidth
	[ID]	Interval	Transfer	Bandwidth		[348]	27.0-28.0 sec	38.5 MBytes	323 Mbits/sec
	[384]	27.0-28.0 sec	40.0 MBytes	335 Mbits/sec		[ID]	Interval	Transfer	Bandwidth
	[ID]	Interval	Transfer	Bandwidth		[348]	28.0-29.0 sec	37.8 MBytes	317 Mbits/sec
	[384]	28.0-29.0 sec	36.0 MBytes	302 Mbits/sec		[ID]	Interval	Transfer	Bandwidth
	[ID]	Interval	Transfer	Bandwidth		[348]	29.0-30.0 sec	39.8 MBytes	334 Mbits/sec
	[384]	29.0-30.0 sec	35.6 MBytes	298 Mbits/sec		[ID]	Interval	Transfer	Bandwidth
	[ID]	Interval	Transfer	Bandwidth		[348]	0.0-30.0 sec	1.16 GBytes	332 Mbits/sec
	[384]	0.0-30.0 sec	1.15 GBytes	329 Mbits/sec					
备注									



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BT天线实测 BT Antenna test

测试环境：开放空间(通道)

测试工具：蓝牙音响

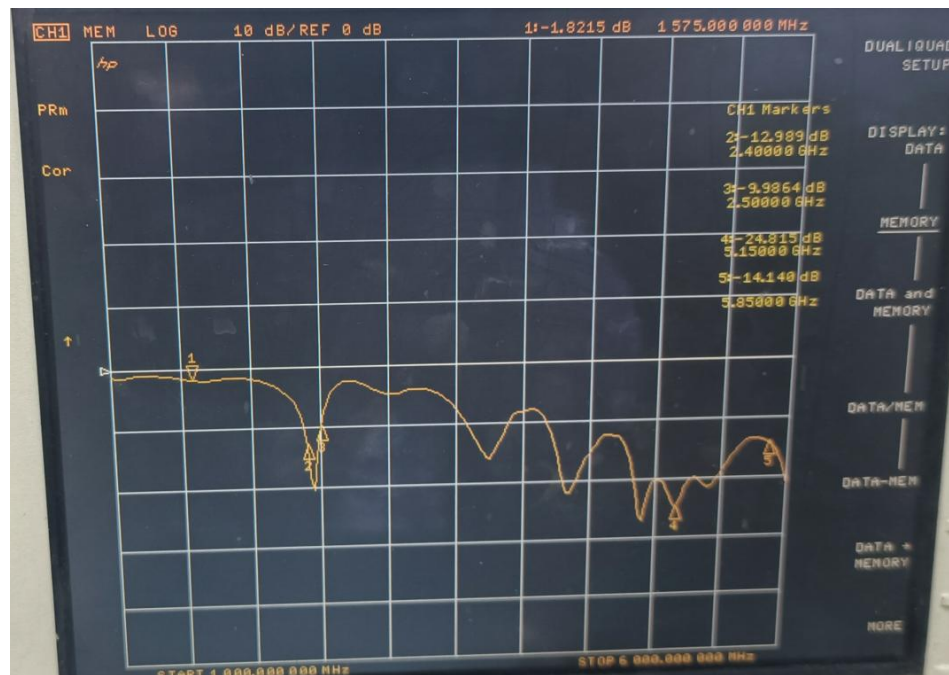
测试距离：10+m

结果：播放音乐流畅，无杂音。



无源测试数据
Passive test data

ANT1 S11-VSWR&Return Loss



Frequency (MHZ)	2400	2500	5150	5850
Return Loss (DB)	-12.98	-9.98	-24.81	-14.14



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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 (%)	DHIS (%)	Max (dB)	Min (dB)
2400	49.13	-3.09	2.09	-0.06	22.011	27.124	2.09	-14.33
2410	49.61	-3.04	2.18	0.03	22.166	27.443	2.18	-16.12
2420	53.65	-2.7	2.6	0.45	23.914	29.732	2.6	-16.42
2430	54.79	-2.61	2.53	0.38	24.512	30.278	2.53	-15.87
2440	56.47	-2.48	2.5	0.35	25.599	30.868	2.5	-13.81
2450	58.56	-2.32	2.39	0.24	26.745	31.816	2.39	-12.94
2460	56.55	-2.48	2.09	-0.06	26.012	30.538	2.09	-12.84
2470	58.78	-2.31	2.2	0.05	27.135	31.641	2.2	-13.26
2480	59.83	-2.23	2.3	0.15	27.61	32.217	2.3	-13.81
2490	56.51	-2.48	2.25	0.1	25.73	30.776	2.25	-15.88
2500	48.11	-3.18	1.71	-0.44	21.578	26.527	1.71	-20.98



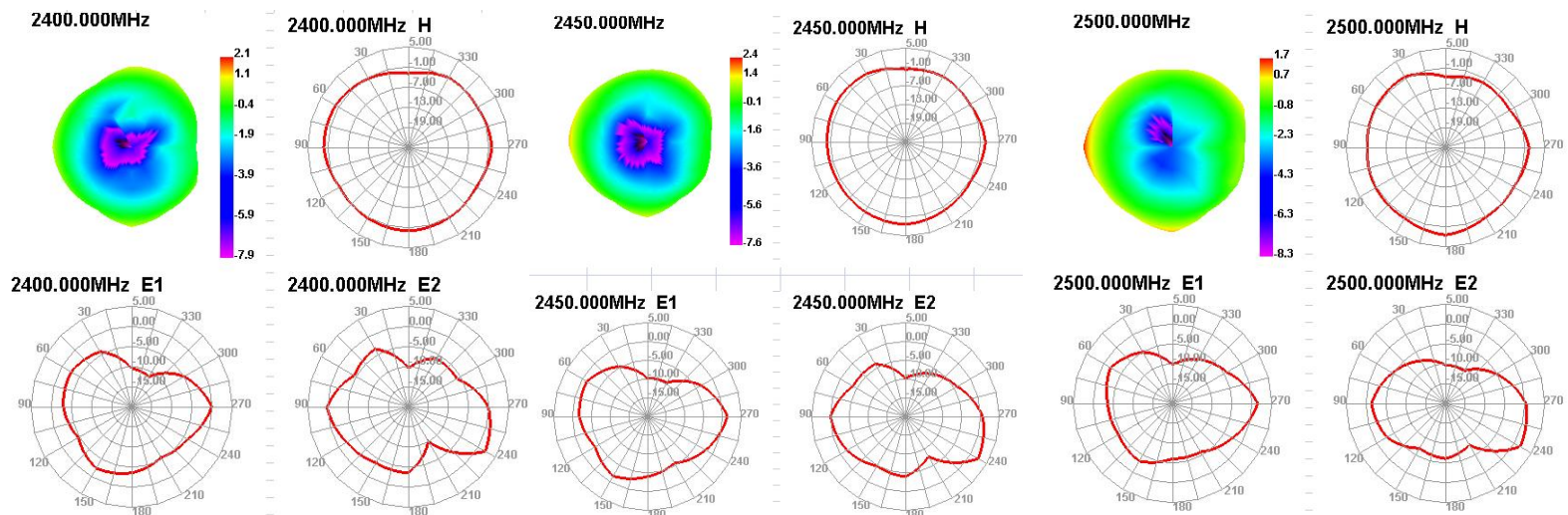
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无源测试数据
Passive test data

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 (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)
5150	41.01	-3.87	1.94	-0.21	23.319	17.695	1.94	-21.9
5170	40.53	-3.92	2.11	-0.04	22.84	17.689	2.11	-20.88
5190	41.85	-3.78	2.5	0.35	23.883	17.971	2.5	-19.23
5210	42.42	-3.72	2.84	0.69	24.386	18.036	2.84	-17.88
5230	43.21	-3.64	3.16	1.01	24.849	18.363	3.16	-17.74
5250	44.39	-3.53	3.48	1.33	25.319	19.073	3.48	-22.73
5270	47.19	-3.26	3.83	1.68	26.857	20.332	3.83	-18.31
5290	45.76	-3.4	3.62	1.47	26.091	19.664	3.62	-19.83
5310	44.4	-3.53	3.55	1.4	25.059	19.343	3.55	-19.57
5330	46.82	-3.3	3.73	1.58	25.857	20.96	3.73	-20.57
5350	49.38	-3.06	3.63	1.48	26.769	22.606	3.63	-19.57
5370	47.52	-3.23	2.92	0.77	25.587	21.93	2.92	-17.88
5390	42.91	-3.67	2.28	0.13	22.799	20.116	2.28	-17.26
5410	51.48	-2.88	2.68	0.53	26.8	24.684	2.68	-15.94
5430	45.65	-3.41	2.15	0	23.315	22.333	2.15	-17.09
5450	49.03	-3.1	2.95	0.8	24.628	24.406	2.95	-17.15
5470	45.93	-3.38	2.94	0.79	22.591	23.337	2.94	-16.07
5490	46.13	-3.36	3.01	0.86	22.168	23.963	3.01	-15.09
5510	48.59	-3.13	3.34	1.19	22.831	25.758	3.34	-15.4
5530	47.65	-3.22	3.44	1.29	21.907	25.746	3.44	-16.38
5550	51.26	-2.9	3.84	1.69	23.052	28.204	3.84	-15.6
5570	44.83	-3.48	3.17	1.02	19.95	24.883	3.17	-15.27
5590	48.89	-3.11	3.56	1.41	21.491	27.4	3.56	-14.94
5610	43.09	-3.66	3.06	0.91	18.886	24.208	3.06	-17.23
5630	48.48	-3.14	3.5	1.35	21.225	27.256	3.5	-18.16
5650	40.35	-3.94	2.29	0.14	17.777	22.571	2.29	-17.4
5670	44.95	-3.47	2.32	0.17	19.884	25.068	2.32	-15.49
5690	39.35	-4.05	1.71	-0.44	17.557	21.791	1.71	-17.81
5710	42.04	-3.76	2.03	-0.12	18.7	23.336	2.03	-18.11
5730	43.08	-3.66	2.01	-0.14	19.289	23.788	2.01	-20.65
5750	39.84	-4	1.49	-0.66	18.083	21.754	1.49	-21.04
5770	41.12	-3.86	1.62	-0.53	18.802	22.319	1.62	-19.3
5790	38.98	-4.09	1.57	-0.58	17.699	21.283	1.57	-19.79
5810	39.67	-4.02	1.73	-0.42	17.869	21.796	1.73	-20.35
5830	39.1	-4.08	1.64	-0.51	17.594	21.502	1.64	-20.22
5850	39.35	-4.05	1.67	-0.48	17.84	21.506	1.67	-19.24



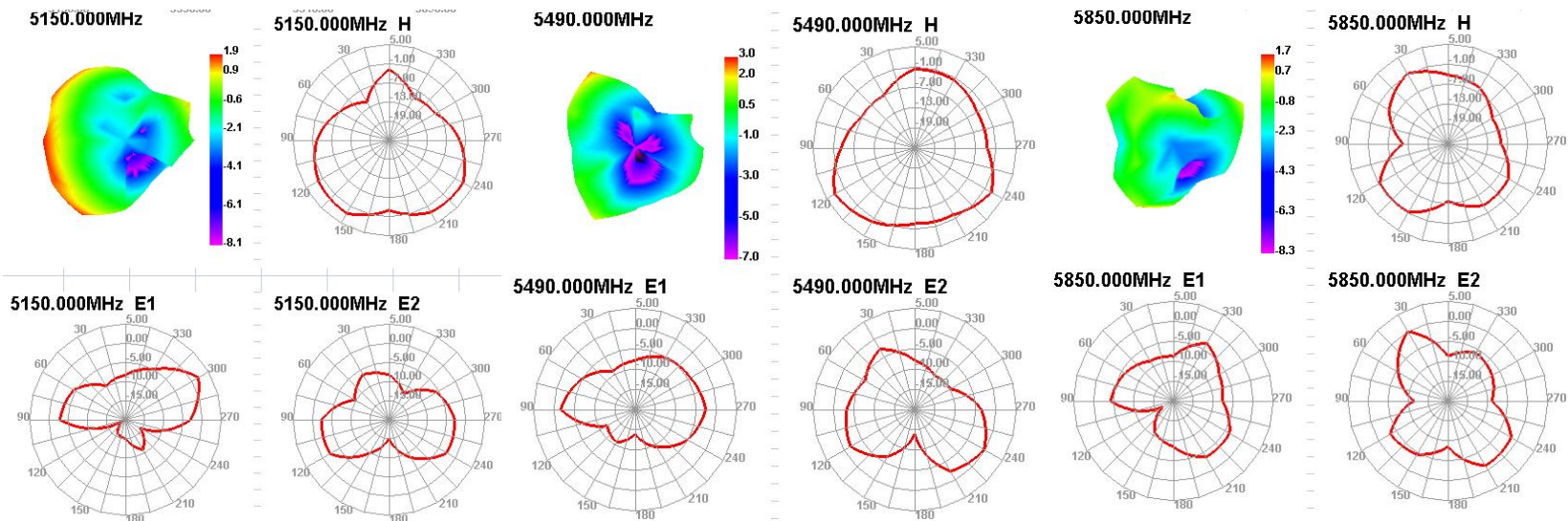
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无源测试数据
Passive test data

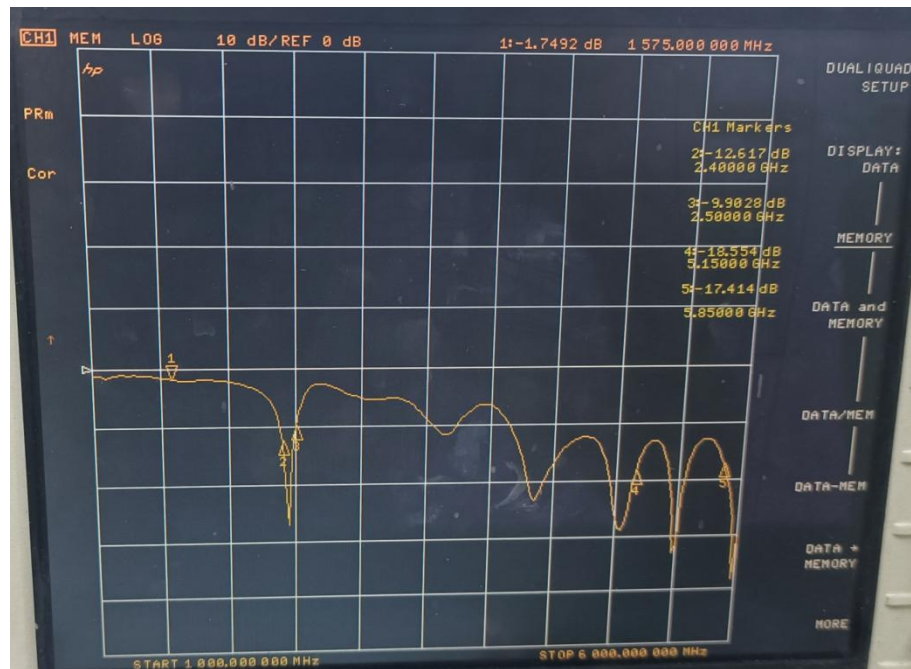
ANT1 Direction of figure(5G)





无源测试数据
Passive test data

ANT2 S11-VSWR&Return Loss



Frequency (MHZ)	2400	2500	5150	5850
Return Loss (DB)	-12.61	-9.90	-18.55	-17.41



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无源测试数据

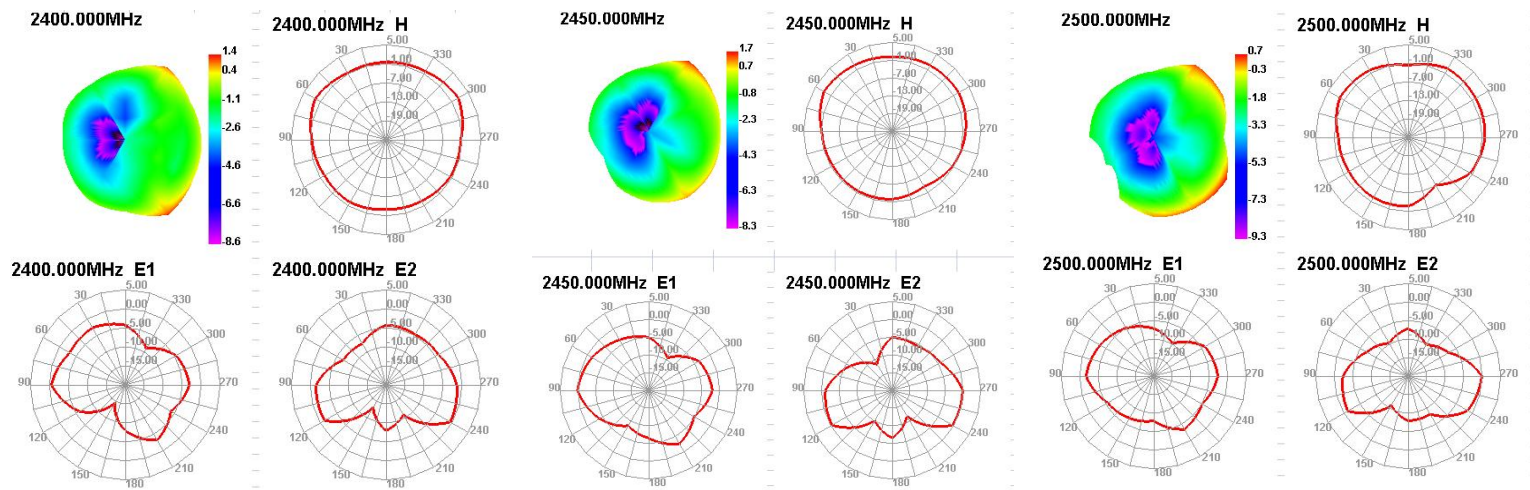
Passive test data

ANT2 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	47.21	-3.26	1.36	-0.79	24.739	22.468	1.36	-14.57
2410	46.91	-3.29	1.26	-0.89	24.43	22.481	1.26	-14.76
2420	51.95	-2.84	1.57	-0.58	26.677	25.269	1.57	-13.86
2430	52.52	-2.8	1.54	-0.61	26.739	25.777	1.54	-12.7
2440	52.58	-2.79	1.57	-0.58	26.903	25.677	1.57	-12.68
2450	54.25	-2.66	1.67	-0.48	27.789	26.465	1.67	-12.59
2460	54.63	-2.63	1.59	-0.56	27.905	26.72	1.59	-12.77
2470	55.91	-2.53	1.54	-0.61	28.299	27.612	1.54	-13.01
2480	56.56	-2.47	1.48	-0.67	28.46	28.105	1.48	-13.29
2490	53.68	-2.7	1.27	-0.88	26.587	27.089	1.27	-13.44
2500	45.82	-3.39	0.67	-1.48	22.457	23.36	0.67	-13.41

无源测试数据 Passive test data

ANT2 Direction of figure (2.4/BT)





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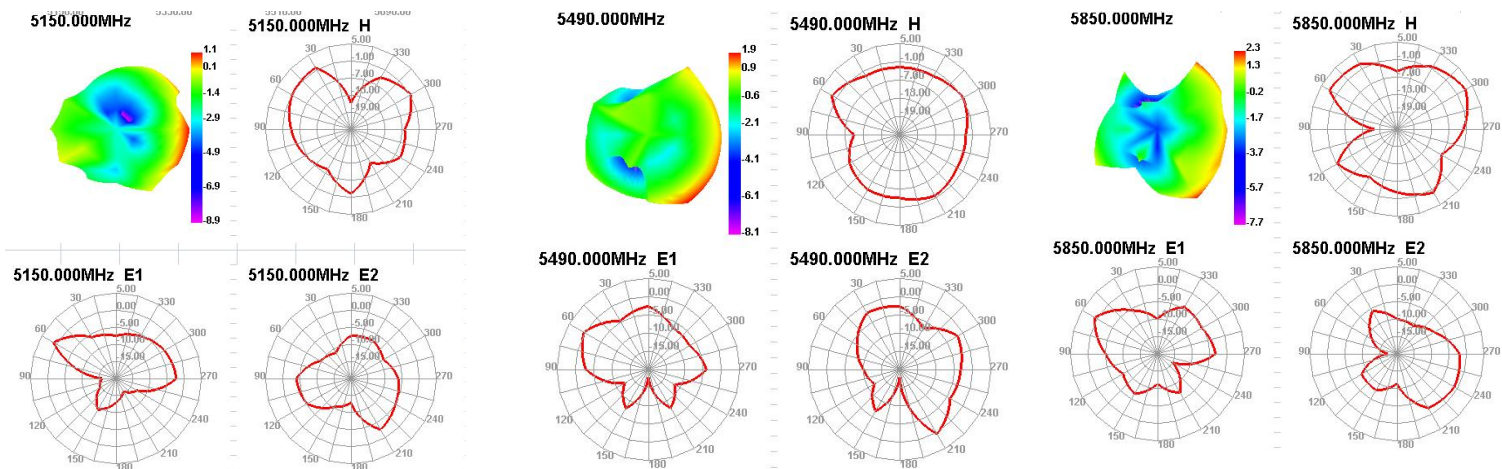
无源测试数据
Passive test data

ANT2 GAIN&Efficiency-WIFI 5G

Passive Test For WIFI5G								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)
5150	33.77	-4.72	1.05	-1.1	19.569	14.198	1.05	-22.02
5170	32.79	-4.84	0.91	-1.24	18.767	14.022	0.91	-20.04
5190	34.72	-4.59	1.04	-1.11	20.115	14.606	1.04	-21.16
5210	34.96	-4.56	0.86	-1.29	20.516	14.44	0.86	-22.81
5230	36.41	-4.39	1.04	-1.11	21.48	14.926	1.04	-19.94
5250	37.88	-4.22	1.39	-0.76	22.195	15.683	1.39	-18.12
5270	40.72	-3.9	1.66	-0.49	23.694	17.028	1.66	-16.72
5290	40.22	-3.96	1.14	-1.01	23.416	16.809	1.14	-18.67
5310	40.16	-3.96	0.87	-1.28	23.029	17.132	0.87	-18.16
5330	42.04	-3.76	1.11	-1.04	23.536	18.499	1.11	-16.64
5350	44.19	-3.55	1.24	-0.91	24.218	19.977	1.24	-17.36
5370	42.8	-3.69	0.96	-1.19	23.423	19.376	0.96	-18.31
5390	39.27	-4.06	0.76	-1.39	21.719	17.549	0.76	-18.96
5410	47.22	-3.26	1.87	-0.28	26.124	21.092	1.87	-18.16
5430	41.32	-3.84	1.48	-0.67	22.96	18.359	1.48	-18.98
5450	46.71	-3.31	1.8	-0.35	26.272	20.44	1.8	-19.71
5470	43.99	-3.57	1.81	-0.34	25.302	18.69	1.81	-19.1
5490	45.46	-3.42	1.91	-0.24	26.325	19.131	1.91	-21.2
5510	47.47	-3.24	1.8	-0.35	27.32	20.146	1.8	-18.14
5530	49.53	-3.05	2.03	-0.12	28.515	21.012	2.03	-18.98
5550	53.09	-2.75	2.67	0.52	30.776	22.315	2.67	-22.61
5570	48.11	-3.18	2.45	0.3	27.998	20.116	2.45	-19.41
5590	51.14	-2.91	3.02	0.87	29.477	21.667	3.02	-16.86
5610	48.88	-3.11	2.99	0.84	28.098	20.785	2.99	-18.09
5630	52.94	-2.76	3.11	0.96	30.55	22.394	3.11	-20.19
5650	49.87	-3.02	2.57	0.42	28.967	20.907	2.57	-17
5670	50.19	-2.99	2.78	0.63	29.291	20.904	2.78	-16.31
5690	51.23	-2.91	2.79	0.64	29.934	21.292	2.79	-17.41
5710	47.83	-3.2	2.46	0.31	27.885	19.95	2.46	-16.63
5730	54.58	-2.63	3.31	1.16	31.889	22.694	3.31	-18.1
5750	47.29	-3.25	2.75	0.6	27.708	19.577	2.75	-21.28
5770	50.38	-2.98	2.83	0.68	29.43	20.954	2.83	-24.27
5790	45.39	-3.43	2.29	0.14	26.396	18.998	2.29	-18.99
5810	47.37	-3.25	2.61	0.46	27.126	20.243	2.61	-20.65
5830	45.62	-3.41	2.48	0.33	25.838	19.779	2.48	-18.66
5850	46.69	-3.31	2.26	0.11	26.077	20.608	2.26	-19.76

无源测试数据 Passive test data

ANT2 Direction of figure(5G)



1

2

3

4

5

6

A

A

B

B

C

C

D

D

E

E

F

F

G

G

295±3

1.8

1.4

1

4代端子

ø0.81黑色

D

C

B

A

A - Center conductor

B - Dielectric

C - Outer conductor

D - Jacket

37±0.3

25±0.3

手撕耳仔

XYC antennas
F1028/T1561/Aux

BOM 清单	品名	规格(mm)	颜色
	FPC	外形:25x37	黑色
	RF0.81同轴线	4代端子L=290	黑色
	导电布	无	



星源创科技有限公司
Xyc Technologies Corp.

设计 DR.

黄清清

2024-03-20

PART NO.

核准 APPD.

F1028-14MB-295

外观公差:

10以下.....±0.2

10--30.....±0.3

30以上.....±0.4

长度公差:

60以下.....±1

60--150.....±2

150以上.....±3

单位

比例

张数

mm

1:1

1

1

2

3

4

5

6

合作共赢

