



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: 长城

MN: LM1097P

RF: 关巍

MD: 黄清清

MP: 15112592483

Date: 2024. 3. 1.

REV :V1. 0



ANTENNA

深圳市星源创科技有限公司

SHENZHEN Xingyuanchuang TECHNOLOGY CO., LTD

测试信息

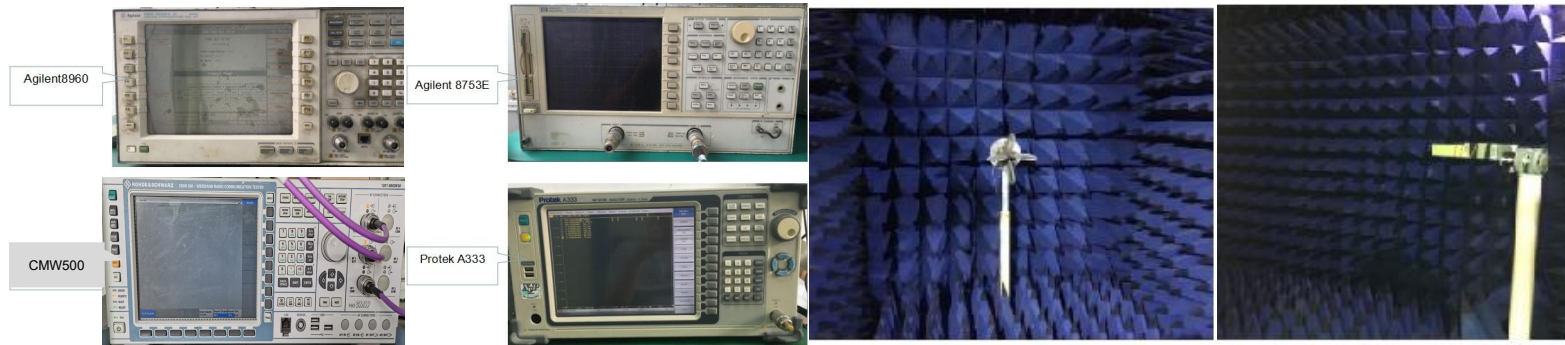
Test information

	Antenna band		Antenna state	Antenna form	Match changes	Note
Main ANT	2G	850/900/1800/1900				
	3G	2/4/5	FPC	PIFA	NO	
	4G	2/4/5/12/17/25/26/66/71/41				
AUX ANT	BT/WIFI	2.4G/5G	FPC	PIFA	NO	
	GPS	1.575G	FPC	PIFA	NO	
	DIV		FPC	PIFA	NO	

测试环境

Test environment

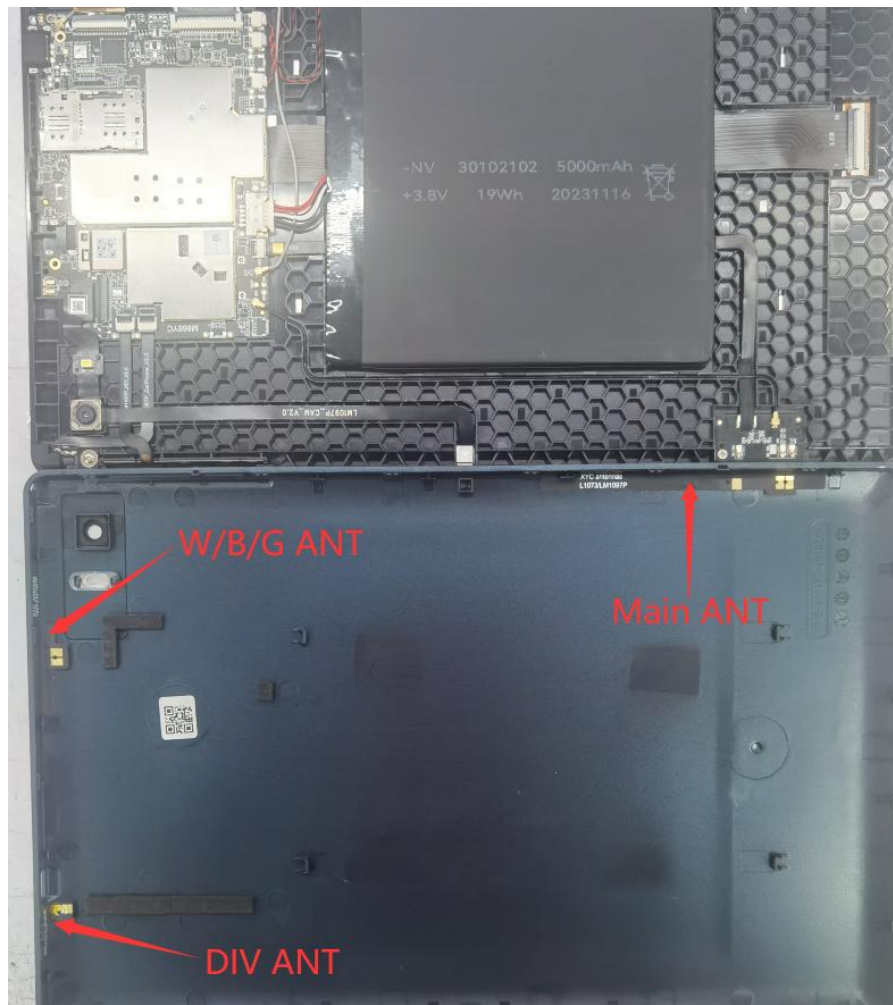
	测试项目	测试设备
S参数 (S-parameter)	1. 电压驻波比 (VSWR) 2. 回波损耗 (Rrtun Loss)	网络分析仪: Agilent8753ES
2. 有源测试 (Active)	1. 发射功率 (TRP) 2. 接收灵敏度 (TIS) 3. 屏灭/屏亮	1. 暗室: 5*3*3m (3D) Chamber 2. 综测仪: Agilent8960 CMW500
3. 无源测试 (Passive)	1. 天线增益 (Gain) 2. 天线效率 (Efficiency)	1. 暗室: 5*3*3m (3D) Chamber 2. 网络分析仪: Agilent 8753ES





天线位置

Antenna position





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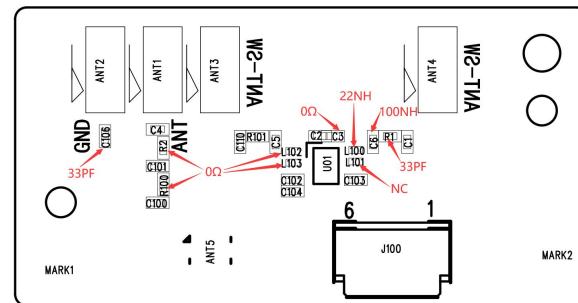
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匹配电路

Matching circuit

RF端口	位号	值	应用频段
ANT	C4	NC	
	R2	0 Ω	
	C101	NC	
	R100	0 Ω	
	C100	NC	
	C106	33PF	
	R1	33PF	
	C6	100NH	
	C3	0 Ω	
RF1	L102	0 Ω	GSM+W2/4+B2/4/25/66/41
RF2	L103	0 Ω	W5+B5/26
RF3	L100	22NH	B12/17
RF4	L101	NC	B71





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主板传导数据
Conduction data



4G FDD/TDD										
Band	B2	B4	B5	B12	B17	B25	B26	B66	B71	B41
TX(dBm)	20.6	20.8	21.6	21	21	20.4	21.5	20.6	20.8	23.5
RX(dBm)	-98	-97	-98	-97	-96	-98	-97	-97	-98	-90



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有源测试数据
OTA test data

2G												
Band	GSM850			GSM900			GSM-1800(DCS)			GSM-1900(PCS)		
Channel	128	192	251	1	62	124	512	698	885	512	660	810
TRP(dBm)	27. 53	27. 26	26. 37	25. 23	24. 26	24. 11	26. 28	25. 35	25. 36	26. 18	25. 64	25. 43
TIS(LCD OFF)			-103. 46			-103. 29			-105. 52			-105. 62
TIS(LCD ON)												
3G												
Band	WCDMA-2			WCDMA-4			WCDMA-5					
Channel	9662	9800	9938	1537	1675	1738	4357	4400	4458			
TRP(dBm)	17. 52	17. 57	17. 64	18. 26	18. 48	18. 53	18. 44	18. 28	18. 11			
TIS(LCD OFF)			-105. 34			-104. 48			-103. 38			
TIS(LCD ON)												
4G(FDD 10M)												
Band	FDD-Band 2			FDD-Band 4			FDD-Band 5			FDD-Band 12		
Channel	18650	18900	19150	20000	20175	23050	20450	20525	20600	23060	23095	23130
TRP(dBm)	17. 48	17. 37	17. 23	18. 42	18. 51	18. 44	18. 22	18. 27	18. 38	17. 48	17. 56	17. 71
TIS(LCD OFF)			-92. 37			-91. 57			-90. 36			-90. 43
TIS(LCD ON)												
Band	FDD-Band 17			FDD-Band25			FDD-Band 26			FDD-Band66		
Channel	23780	23790	23800	26090	26365	26640	26740	26865	26990	132022	132322	132622
TRP(dBm)	17. 19	17. 32	17. 54	17. 72	18. 15	18. 49	17. 46	17. 53	18. 16	17. 64	18. 14	18. 55
TIS(LCD OFF)			-89. 63			-92. 32			-89. 27			-91. 43
TIS(LCD ON)												
4G(FDD 10M)										4G(TDD 20M)		
Band	FDD-Band 71									FDD-Band 41		
Channel	133172	133297	133422							39750	40620	41490
TRP(dBm)	16. 52	17. 67	18. 35							19. 31	20. 17	18. 12
TIS(LCD OFF)			-89. 11									-90. 16
TIS(LCD ON)												



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有源测试数据

Active test data

802.11b	Frequency	TRP		TIS (LCD OFF)	
	2412	CH1 11Mbps	14.43	CH1 11Mbps	-82.55
	2437	CH6 11Mbps	14.58	CH6 11Mbps	-82.58
	2467	CH11 11Mbps	13.61	CH11 11Mbps	-81.32
802.11a		TRP		TIS	
	5180	CH36 6Mbps	10.43	CH36 54Mbps	-71.5
	5300	CH60 6Mbps	10.33	CH60 54Mbps	-71.44
	5805	CH161 6Mbps	11.23	CH161 54Mbps	-71.21



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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3+颗

CN值35以上7+颗

实际定位10+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





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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 :-40dBm 5G:-44dBm

测试结果如右图

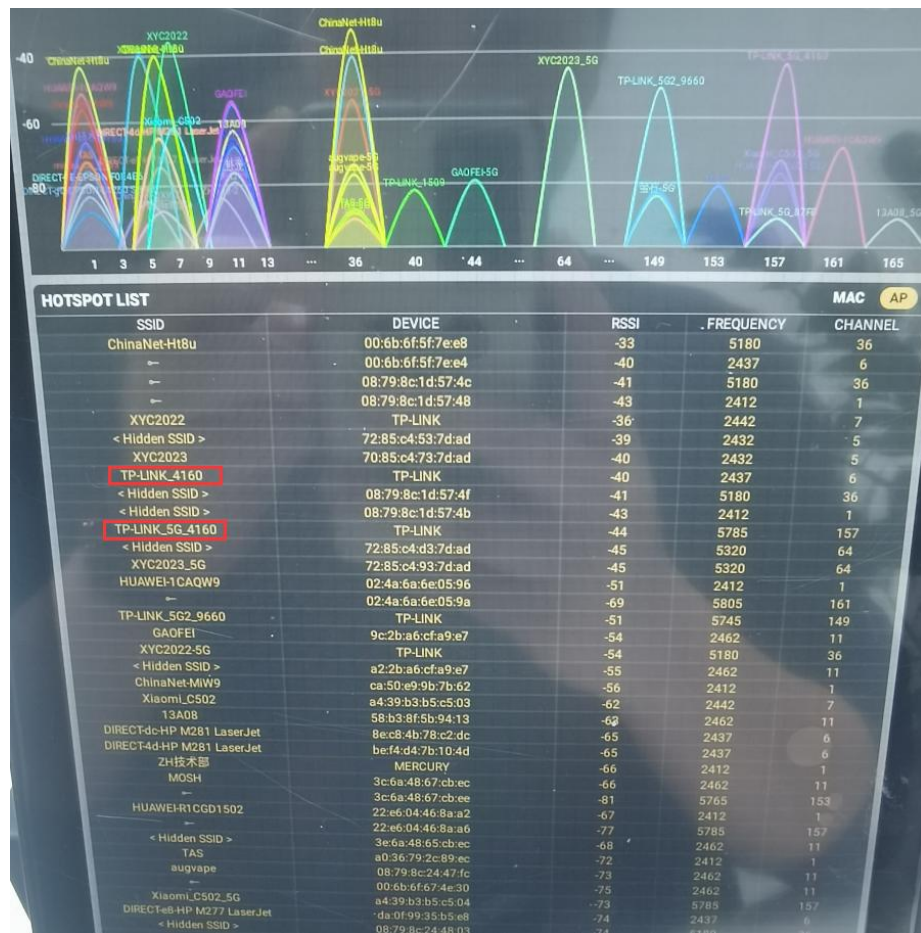
BT

测试环境：开放空间(通道)

测试工具：蓝牙音响

测试距离：10+m

结果：播放音乐流畅，无杂音。





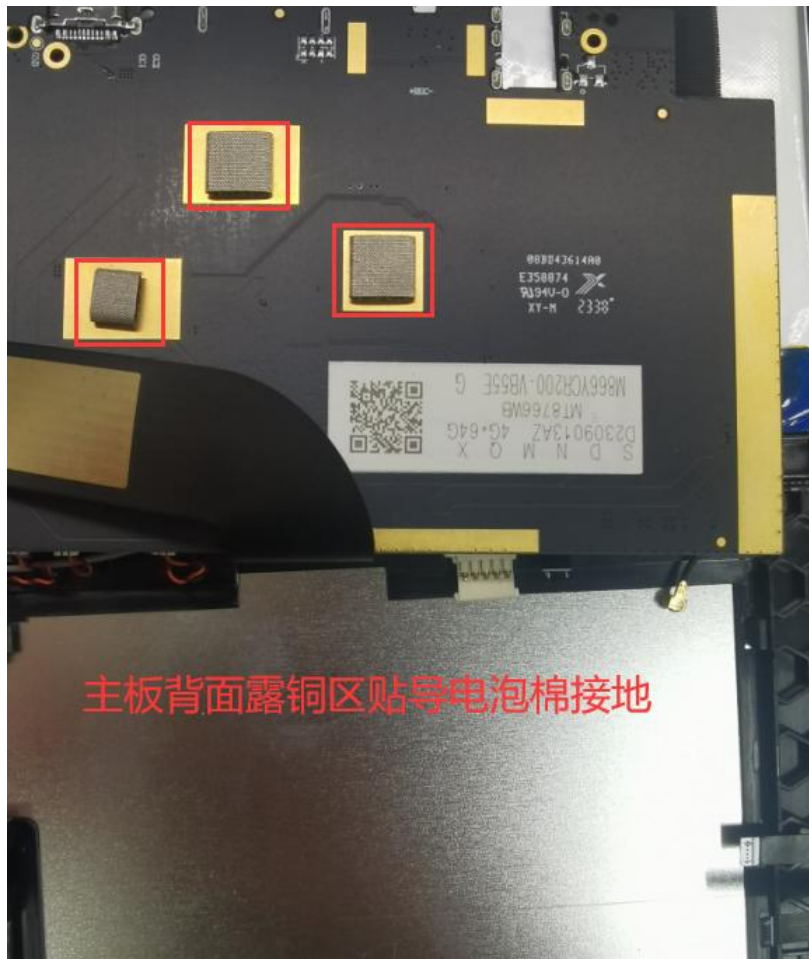
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环境处理

Environmental treatment



主板背面露铜区贴导电泡棉接地



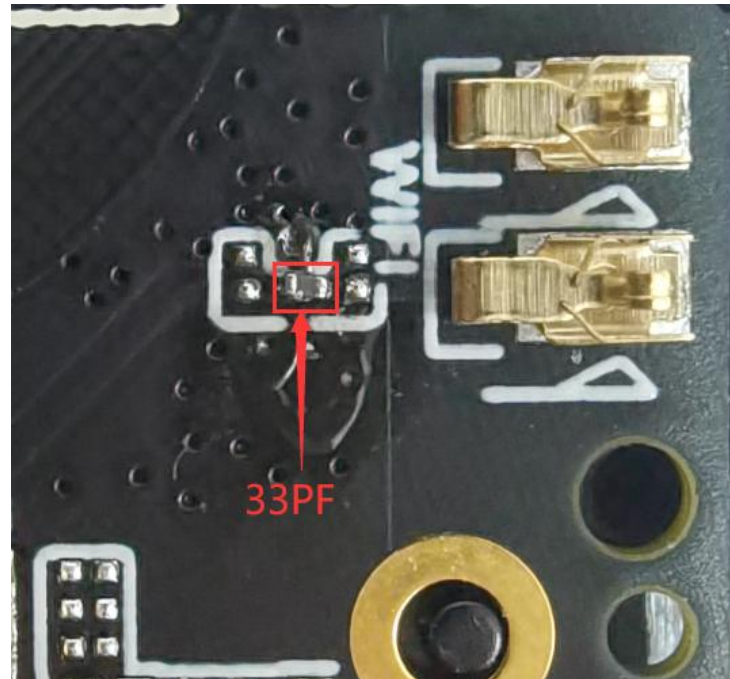
环境处理

Environmental treatment



环境处理

Environmental treatment





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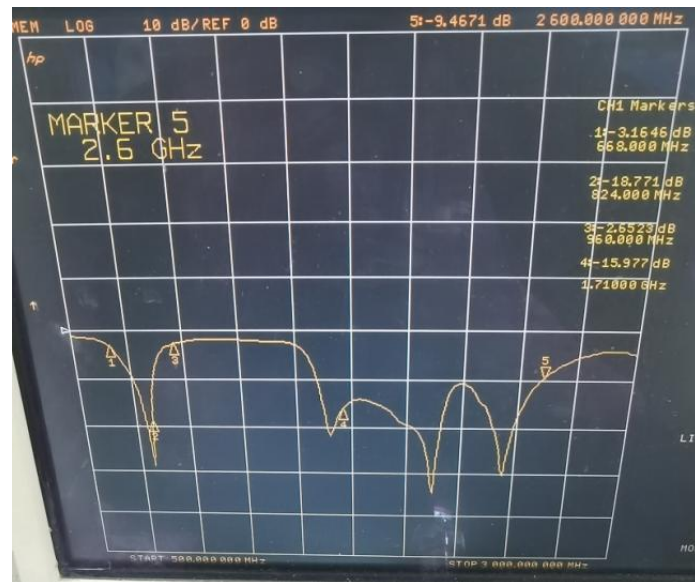
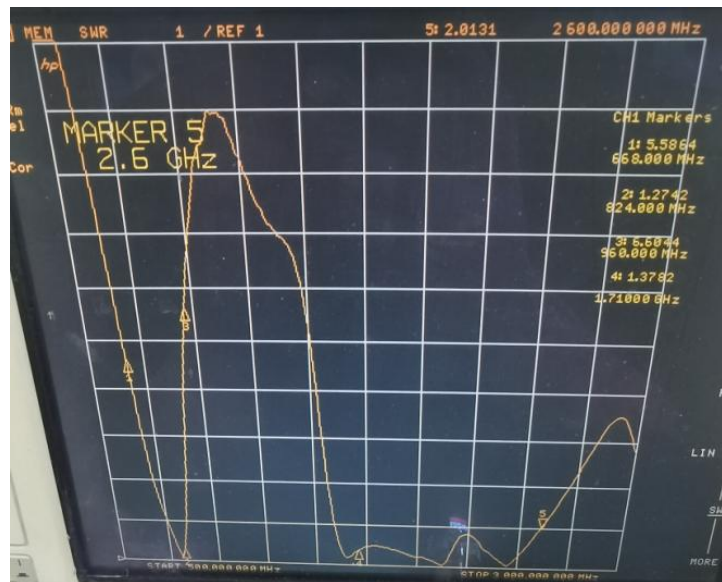
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Main ANT 无源测试数据

Main ANT Passive test data

ANT S11-VSWR&Return Loss



Frequency(MHZ)	668	824	960	1710	2600
VSWR	5.58	1.27	6.6	1.37	2.01
Return Loss(DB)	-3.16	-18.77	-2.65	-15.97	-9.46



深圳市星源创科技有限公司

SHENZHEN Xingyuanchuang TECHNOLOGY CO., LTD

无源测试数据

Passive test data

ANT GAIN&Efficiency 650-2690MHZ

Passive Test For L												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dEd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	irectivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
650	12.42	-9.06	-4.01	-6.16	4.712	7.712	-4.01	-15.37	5.05	30	39.51	39.08
660	15.84	-8	-3.31	-5.46	6.745	9.095	-3.31	-16.04	4.7	30	39.76	39.23
670	20.37	-6.91	-2.92	-5.07	9.461	10.913	-2.92	-16.08	3.99	30	39.56	38.96
680	22.22	-6.53	-2.85	-5	10.403	11.82	-2.85	-14.34	3.68	30	38.97	38.54
690	22.4	-6.5	-2.81	-4.96	9.891	12.512	-2.81	-12.44	3.68	30	38.39	38.05
700	21.56	-6.66	-2.64	-4.79	8.633	12.927	-2.64	-12.99	4.02	30	37.95	37.71
710	25.38	-5.96	-1.35	-3.5	9.143	16.236	-1.35	-12.88	4.6	30	38.33	38.1
720	30.3	-5.19	-0.34	-2.49	11.013	19.286	-0.34	-11.65	4.85	30	38.12	37.78
730	33.04	-4.81	-0.12	-2.27	12.555	20.484	-0.12	-12.11	4.69	30	37.65	37.31
740	33.51	-4.75	-0.31	-2.46	12.526	20.588	-0.31	-12.4	4.44	30	37.61	36.99
750	36.9	-4.33	-0.01	-2.16	14.567	22.239	-0.01	-11.64	4.32	30	37.03	36.95
760	37.33	-4.28	0.15	-2	14.962	22.368	0.15	-10.89	4.43	30	36.73	36.72
770	29.63	-5.28	-0.55	-2.7	11.606	18.027	-0.55	-11.68	4.73	30	35.81	35.92
780	27.67	-5.58	-0.48	-2.63	10.552	17.116	-0.48	-12.8	5.1	30	35.67	35.88
790	29.97	-5.23	0.03	-2.12	11.443	18.524	0.03	-13.65	5.26	30	35.94	36.19
800	34.74	-4.59	0.64	-1.51	13.681	21.058	0.64	-14.47	5.24	30	36.77	36.98
810	33.39	-4.76	0.53	-1.62	13.09	20.303	0.53	-15.1	5.29	30	36.63	36.88
820	29.29	-5.33	-0.01	-2.16	11.46	17.826	-0.01	-15.54	5.33	30	36.69	36.92
830	29.11	-5.36	-0.44	-2.59	11.982	17.13	-0.44	-16.1	4.92	30	36.46	36.76
840	30.64	-5.14	-0.67	-2.82	13.19	17.452	-0.67	-16.08	4.47	30	36.63	37.05
850	28.72	-5.42	-1.13	-3.28	12.031	16.685	-1.13	-16.33	4.29	30	36.69	37.16
860	26.49	-5.77	-1.3	-3.45	10.326	16.161	-1.3	-16.86	4.47	30	36.82	37.25
870	23.13	-6.36	-1.57	-3.72	8.486	14.646	-1.57	-18.11	4.79	30	36.68	37.07
880	21.61	-6.65	-1.68	-3.83	7.917	13.697	-1.68	-19.5	4.98	30	36.82	37.19
890	23.27	-6.33	-1.29	-3.44	8.503	14.77	-1.29	-19.81	5.04	30	37	37.41
900	19.72	-7.05	-2.13	-4.28	7.144	12.571	-2.13	-20.15	4.92	30	37.06	37.58
910	17.82	-7.49	-2.75	-4.9	6.485	11.331	-2.75	-19.73	4.74	30	37.17	37.60
920	17.29	-7.62	-3.16	-5.31	6.455	10.839	-3.16	-18.54	4.46	30	37.7	38.16
930	15.98	-7.96	-3.7	-5.85	6.274	9.705	-3.7	-17.68	4.26	30	37.46	37.87
940	14.31	-8.44	-4.2	-6.35	5.744	8.562	-4.2	-18.21	4.25	30	37.44	37.81
950	12.38	-9.07	-4.64	-6.79	4.831	7.551	-4.64	-20.22	4.43	30	37.77	38.07
960	12.14	-9.16	-4.56	-6.71	4.445	7.099	-4.56	-20.67	4.59	90	37.78	37.92

Passive Test For 高频												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dEd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	irectivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2500	35.27	-4.53	-0.03	-2.18	15.415	19.859	-0.03	-16.83	4.5	30	46.47	46.86
2510	34.69	-4.6	-0.07	-2.22	15.275	19.417	-0.07	-16.96	4.53	30	46.13	46.49
2520	32.27	-4.91	-0.27	-2.42	14.368	17.906	-0.27	-16.67	4.64	30	46.06	46.36
2530	29.5	-5.3	-0.51	-2.66	13.332	16.172	-0.51	-16.11	4.79	30	45.99	46.31
2540	29.41	-5.32	-0.47	-2.62	13.365	16.041	-0.47	-15.56	4.85	30	45.89	46.15
2550	30.89	-5.1	-0.29	-2.44	14.153	16.733	-0.29	-14.98	4.81	30	46.08	46.33
2560	27.97	-5.53	-0.91	-3.06	12.866	15.106	-0.91	-15.37	4.62	30	46.01	46.24
2570	28.11	-5.51	-1.03	-3.18	12.886	15.226	-1.03	-15.17	4.48	30	46.03	46.19
2580	28.59	-5.44	-0.99	-3.13	13.127	15.463	-0.99	-15.03	4.45	0	46.01	46.21
2590	28.91	-5.39	-0.98	-3.13	13.358	15.556	-0.98	-15.01	4.41	0	45.73	45.95
2600	27.44	-5.62	-1.18	-3.33	12.825	14.613	-1.18	-15.31	4.44	0	46.04	46.24
2610	27.06	-5.68	-1.17	-3.32	12.843	14.22	-1.17	-14.98	4.5	0	45.99	46.22
2620	25.87	-5.87	-1.22	-3.37	12.438	13.436	-1.22	-14.78	4.65	30	45.99	46.17
2630	24.91	-6.04	-1.41	-3.56	12.021	12.889	-1.41	-14.93	4.62	30	45.98	46.18
2640	27.16	-5.66	-1.14	-3.29	13.039	14.123	-1.14	-14.98	4.52	30	46.5	46.72
2650	25.78	-5.89	-1.49	-3.64	12.308	13.471	-1.49	-15.8	4.39	30	46.45	46.68
2660	24.51	-6.11	-1.4	-3.55	11.736	12.77	-1.4	-16.08	4.71	0	46.66	46.86
2670	23.88	-6.22	-1.37	-3.52	11.47	12.409	-1.37	-17.23	4.85	0	46.65	46.9
2680	25.88	-5.87	-0.98	-3.13	12.545	13.331	-0.98	-18.27	4.89	0	46.69	46.87
2690	23.97	-6.2	-1.44	-3.59	11.717	12.254	-1.44	-20.53	4.77	30	46.47	46.69

Passive Test For 高频												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dEd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	irectivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
1690	33.41	-4.76	-1.61	-3.76	14.407	19.001	-1.61	-15.05	3.15	30	42.4	41.72
1700	37.07	-4.31	-1.09	-3.24	15.515	21.558	-1.09	-16.51	3.22	30	42.9	42.32
1710	32.51	-4.88	-1.78	-3.93	13.335	19.18	-1.78	-20.49	3.1	30	42.52	42.01
1720	30.68	-5.13	-2	-4.15	12.289	18.39	-2	-28.71	3.13	30	42.4	41.88
1730	34.33	-4.64	-1.54	-3.69	13.495	20.84	-1.54	-22.63	3.1	30	42.83	42.29
1740	33.16	-4.79	-1.55	-3.7	12.916	20.243	-1.55	-17.99	3.26	60	42.89	42.17
1750	30.33	-5.18	-1.73	-3.88	11.78	18.55	-1.73	-15.37	3.45	60	42.92	42.22
1760	30.31	-5.18	-1.62	-3.77	11.728	18.581	-1.62	-13.17	3.56	60	43.13	42.41
1770	35.64	-4.48	-0.73	-2.88	13.677	21.967	-0.73	-12.05	3.75	60	43.26	42.64
1780	36.2	-4.41	-0.47	-2.62	13.876	22.325	-0.47	-13.74	3.94	60	43.6	43.04
1790	30.13	-5.71	-1.17	-3.32	11.617	18.508	-1.17	-15.32	4.04	60	43.12	42.67
1800	29.63	-5.34	-1.39	-3.54	11.505	17.725	-1.39	-14.54	3.95	60	42.97	42.55
1810	30.01	-5.23	-1.47	-3.62	12.002	18.012	-1.47	-13.81	3.76	60	42.94	42.49
1820	30.04	-5.22	-1.53	-3.68	12.062	17.974	-1.53	-14.03	3.69	60	43.24	42.77
1830	29.53	-5.3	-1.71	-3.86	11.803	17.723	-1.71	-13.65	3.59	60	43.09	42.62
1840	29.72	-5.27	-1.71	-3.86	11.959	17.761	-1.71	-13.37	3.56	60	43.08	42.67
1850	31.42	-5.03	-1.51	-3.66	12.445	19.472	-1.51	-13.09	3.82	60	43.4	43.05
1860	30.39	-5.17	-1.64	-3.79	12.787	17.6	-1.64	-13.75	3.53	0	43.4	43.07
1870	28.59	-5.44	-1.81	-3.96	10.287	16.3	-1.81	-14.56	3.62	0	43.15	42.96
1880	28.85	-5.4	-1.76	-3.91	12.793	16.059	-1.76	-14.78	3.64	0	43.28	43.08
1890	24.77	-6.08	-2.31	-4.46	11.28	13.486	-2.31	-15.42	3.75	0	42.84	42.68
1900	22.53	-6.47	-2.82	-4.97	10.518	12.01	-2.82	-15.66	3.65	0	42.94	42.77
1910	24.11	-6.18	-2.51	-4.66	11.341	12.77	-2.51	-14.83	3.67	0	42.87	42.69
1920	23.05	-6.37	-2.53	-4.68	11.026	12.024	-2.53	-14.74	3.85	0	42.9	42.78
1930	22.52	-6.47	-2.48	-4.63	10.935	11.591	-2.48	-14.78	4	60	43.03	42.87
1940	22.25	-6.53	-2.31	-4.49	10.962	11.271	-2.31	-14.22	4.22	60	42.92	42.71
1950	21.23	-6.73	-2.4	-4.55	10.451	10.775	-2.4	-13.53	4.33	60	42.85	42.64
1960	21.63	-6.65	-2.01	-4.16	10.72	10.915	-2.01	-12.89	4.64	90	42.95	42.68
1970	21.29	-6.72	-1.88	-4.03	10.574	10.712	-1.88	-12.7	4.84	90	42.9	42.76
1980	22.19	-6.54	-1.51	-3.66	11.063	11.129	-1.51	-11.23	5.03	90	43.15	43.1
1990	21.91	-6.59	-1.51	-3.65	10.976	10.934	-1.51	-11.38	5.09	0	43.17	43.1
2000	22.91	-6.4	-1.26	-3.41	11.538	11.372	-1.26	-13.12	5.14	0	43.48	43.38
2010	23.99	-6.2	-1.13	-3.28	12.16	11.833	-1.13	-13.29	5.07	0	43.5	43.33
2020	21.8	-6.61	-1.8	-3.95	11.083	10.72	-1.8	-18.4	4.81	0	43.39	43.21
2030	21.03	-6.77	-2.45	-4.5	10.643	10.388	-2.45	-19.1	4.32	0	43.28	43.09
2040	22.14	-6.55	-2.73	-4.88	11.074	11.065	-2.73	-17.26	3.82	0	43.45	43.26
2050	22.04	-6.57	-2.54	-4.69	10.793	11.246	-2.54	-15.46	4.03	0	43.79	43.65
2060	21.97	-6.58	-2.28	-4.43	10.511	11.497	-2.28	-14.34	4.3	0	43.67	43.53
2070	21.57	-6.66	-1.97	-4.12	10.479	11.179	-1.97	-14.66	4.69	0	43.59	43.45
2080	23.25	-6.34	-1.38	-3.53	10.458	12.79	-1.38	-15.21	4.95	0	44.24	44.4



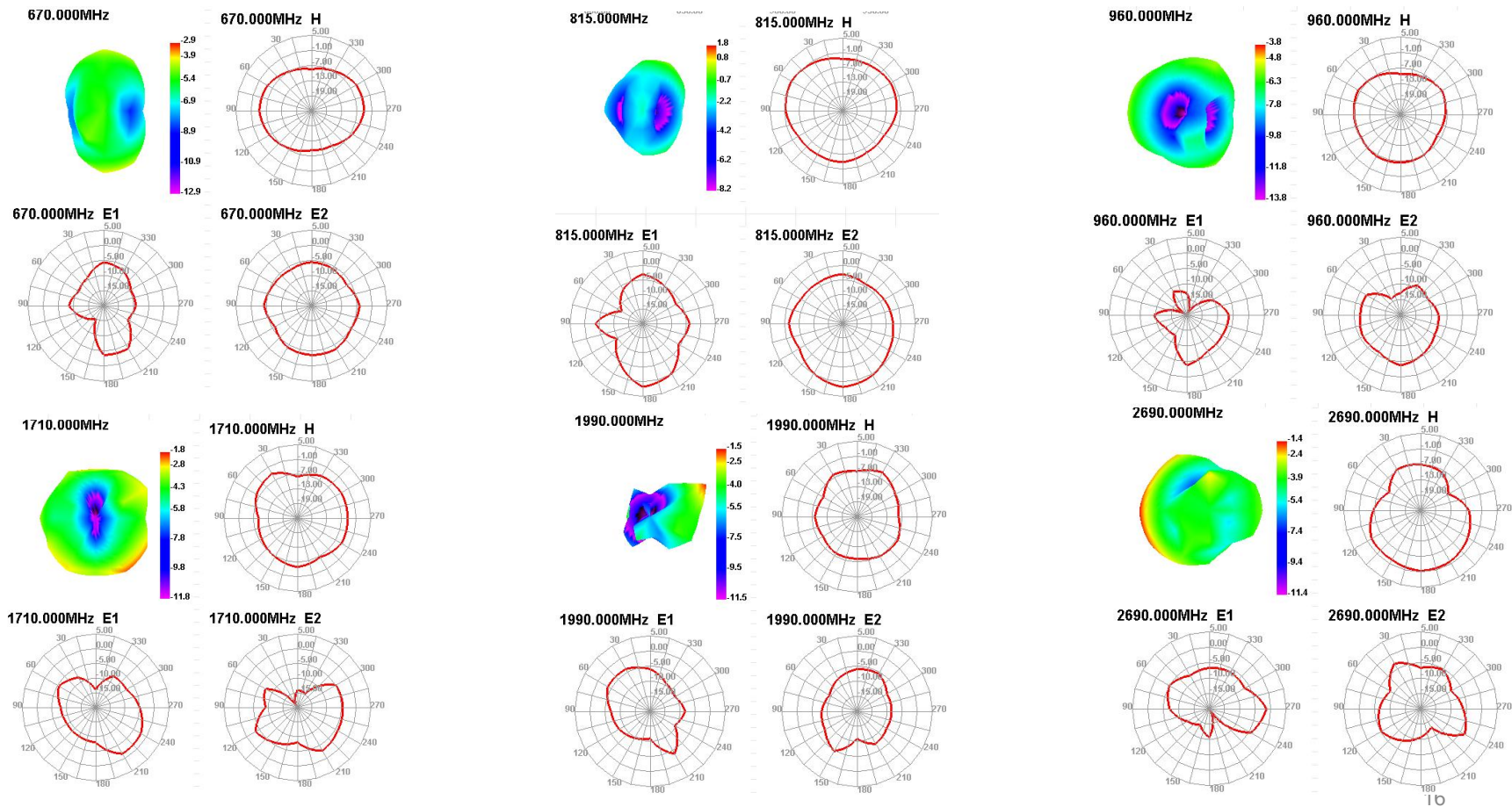
ANTENNA

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无源测试数据
Passive test data

ANT Direction of figure 650-2690MHz

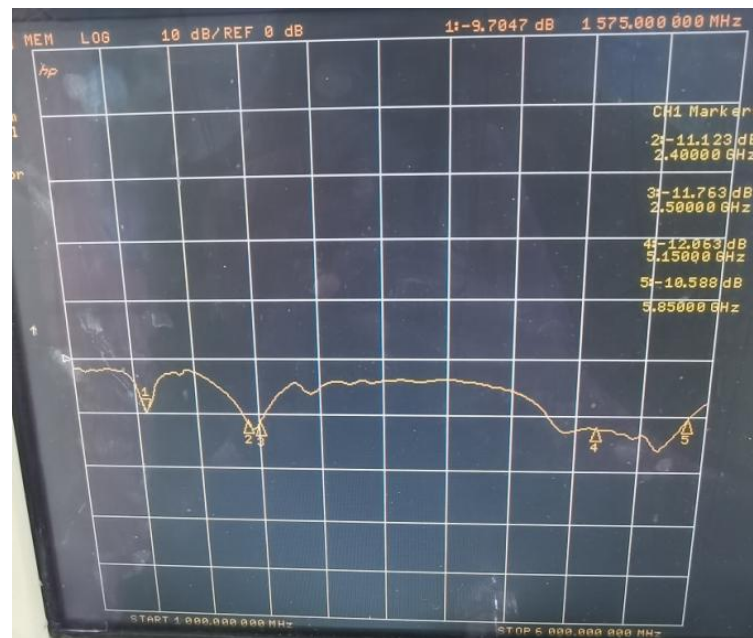




无源测试数据

Passive test data

ANT S11-VSWR&Return Loss



Frequency (MHZ)	1575	2400	2500	5150	5850
VSWR	1.97	1.76	1.69	1.66	1.83
Return Loss (DB)	-9.70	-11.12	-11.76	-12.-6	-10.58



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无源测试数据

Passive test data

ANT1 GAIN&Efficiency-GPS

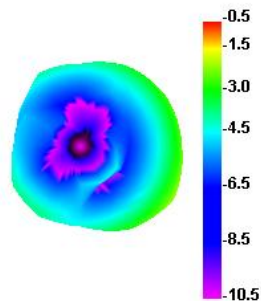
Passive Test For GPS

Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Directivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
1570	28.23	-5.49	-0.71	-2.86	9.599	18.633	-0.71	-16.44	4.78	0	41.5	41.03
1575	28.64	-5.43	-0.55	-2.7	9.564	19.077	-0.55	-15.52	4.88	0	41.68	41.23
1580	29.04	-5.37	-0.32	-2.47	9.527	19.514	-0.32	-14.73	5.05	0	41.78	41.35

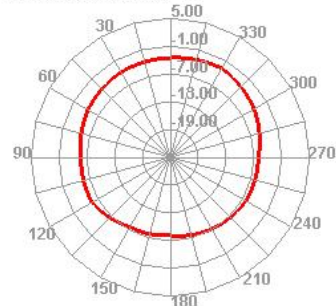
无源测试数据
Passive test data

ANT1 Direction of figure(GPS)

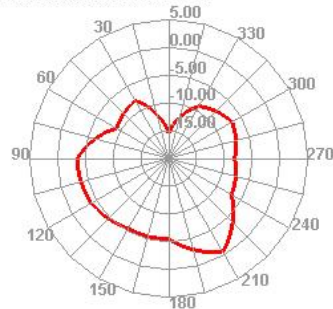
1575.000MHz



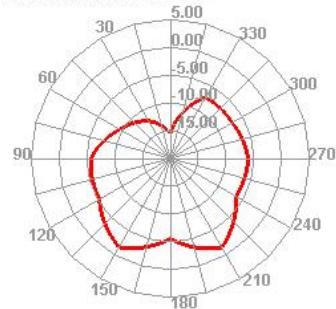
1575.000MHz H



1575.000MHz E1



1575.000MHz E2



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)	Directivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
2400	34.68	-4.6	0.79	-1.36	17.42	17.262	0.79	-12.69	5.39	90	45.78	46.01
2410	32.98	-4.82	0.62	-1.53	16.214	16.769	0.62	-13.94	5.43	90	46.01	46.29
2420	33.19	-4.79	0.63	-1.52	15.87	17.321	0.63	-14.53	5.42	120	45.73	46
2430	33.39	-4.76	0.71	-1.44	15.551	17.835	0.71	-14.74	5.48	120	46.01	46.36
2440	35.2	-4.53	1	-1.15	16.088	19.111	1	-13.76	5.53	120	46.12	46.48
2450	35.15	-4.54	1.06	-1.09	15.962	19.184	1.06	-12.46	5.6	120	46.12	46.54
2460	33.51	-4.75	0.88	-1.27	15.166	18.346	0.88	-13.33	5.62	120	46.14	46.52
2470	33.86	-4.7	0.95	-1.2	15.184	18.678	0.95	-13.93	5.65	120	46.4	46.8
2480	34.57	-4.61	0.9	-1.25	15.286	19.286	0.9	-14.45	5.51	120	46.26	46.64
2490	34.66	-4.6	0.66	-1.49	15.014	19.644	0.66	-14.14	5.26	90	46.51	46.91
2500	31.89	-4.96	0.03	-2.12	13.435	18.458	0.03	-14.78	4.99	90	46.47	46.86



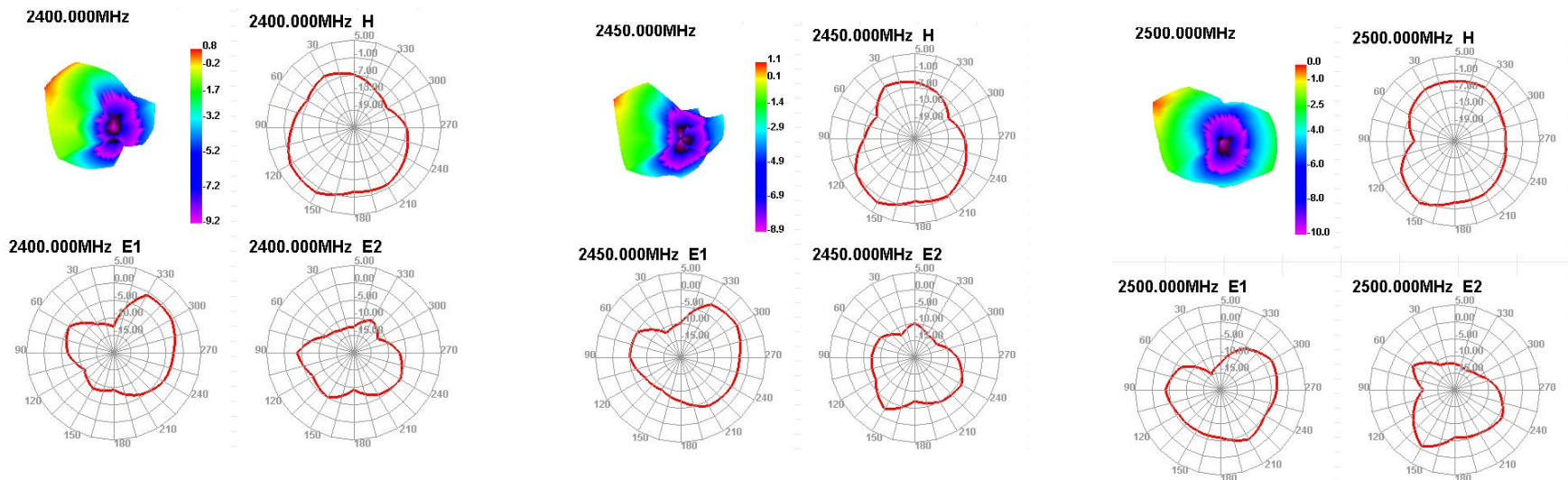
ANTENNA

深圳市星源创科技有限公司

SHENZHEN Xingyuanchuang TECHNOLOGY CO., LTD

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

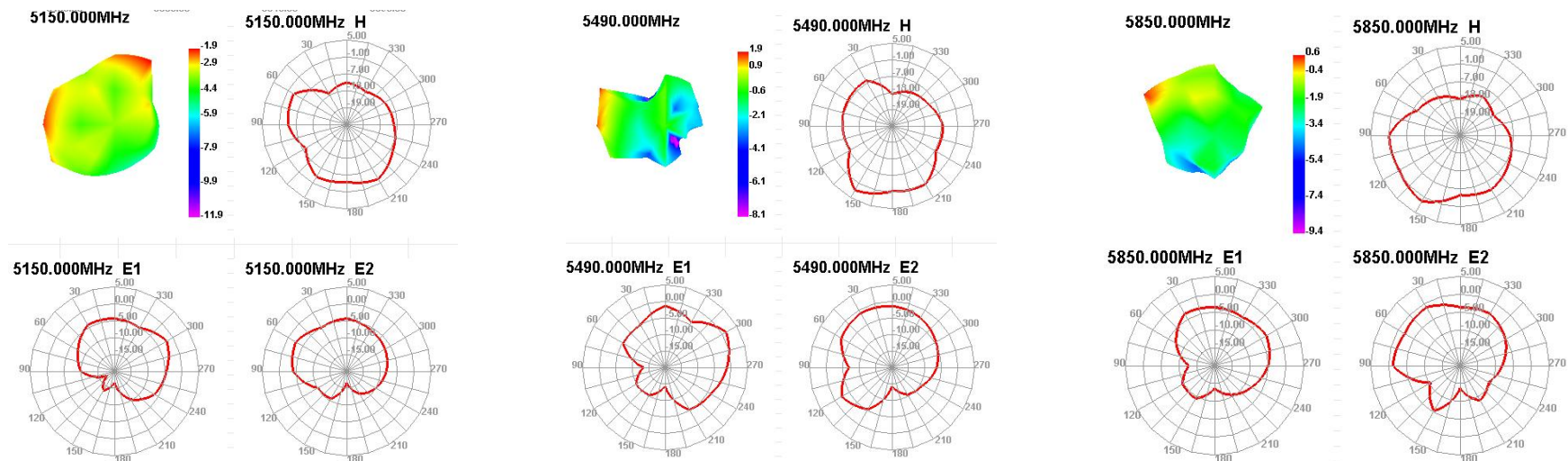
Passive test data

ANT1 GAIN&Efficiency-WIFI 5G

Passive Test For WIFI5G												
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	irectivity (dBi)	Beamwidth (3dB)	AttH (dB)	AttV (dB)
5150	23.2	-6.35	-1.88	-4.03	16.09	7.107	-1.88	-17.47	4.47	30	49.82	49.4
5170	27.04	-5.68	-1.36	-3.51	18.686	8.357	-1.36	-16.12	4.32	120	50.13	49.77
5190	25.12	-6	-1.6	-3.75	17.302	7.813	-1.6	-16.63	4.4	120	50.42	49.95
5210	32.23	-4.92	-0.35	-2.5	21.99	10.238	-0.35	-17.47	4.57	90	50.88	50.49
5230	27.94	-5.54	-0.83	-2.98	18.967	8.969	-0.83	-18.52	4.7	90	50.42	50.08
5250	35.71	-4.47	0.42	-1.73	24.162	11.553	0.42	-17.79	4.89	90	51.02	50.72
5270	32.17	-4.93	0.2	-1.95	21.585	10.585	0.2	-18.87	5.12	90	50.85	50.6
5290	39.23	-4.06	1.34	-0.81	25.951	13.277	1.34	-16.12	5.41	90	51.34	51.12
5310	33.21	-4.79	0.83	-1.32	21.815	11.398	0.83	-16.21	5.62	30	50.44	50.36
5330	36.09	-4.43	1.38	-0.77	23.55	12.541	1.38	-15.29	5.8	30	51.08	51.01
5350	34.79	-4.59	1.33	-0.82	22.435	12.353	1.33	-17.62	5.91	30	51.02	51.01
5370	35.02	-4.56	1.53	-0.62	22.293	12.732	1.53	-17.91	6.09	30	50.91	50.95
5390	31.72	-4.99	1.2	-0.95	19.912	11.812	1.2	-16.08	6.18	30	50.46	50.43
5410	38.79	-4.11	2.2	0.05	24.095	14.698	2.2	-14.7	6.31	30	51.18	51.09
5430	33.69	-4.73	1.54	-0.61	20.558	13.131	1.54	-15.22	6.27	30	50.69	50.7
5450	37.07	-4.31	1.94	-0.21	22.235	14.83	1.94	-14.04	6.25	30	50.71	50.85
5470	35.09	-4.55	1.82	-0.33	20.821	14.267	1.82	-14.44	6.37	30	50.93	50.83
5490	35.71	-4.47	1.92	-0.23	20.998	14.709	1.92	-14.36	6.39	30	50.92	50.79
5510	38.24	-4.17	2.23	0.08	22.616	15.625	2.23	-13.57	6.4	30	51.18	51.16
5530	39.2	-4.07	2.29	0.14	23.528	15.67	2.29	-13.04	6.36	30	51.44	51.3
5550	42.8	-3.69	2.64	0.49	25.934	16.871	2.64	-12.35	6.32	30	51.89	51.76
5570	38.82	-4.11	2.08	-0.07	23.791	15.028	2.08	-13.63	6.19	30	51.42	51.33
5590	43.47	-3.62	2.39	0.24	27.095	16.376	2.39	-14.02	6.01	30	51.71	51.76
5610	40.06	-3.97	2.01	-0.14	25.471	14.591	2.01	-12.95	5.98	120	51.17	51.22
5630	43.77	-3.59	2.19	0.04	28.12	15.654	2.19	-13.31	5.78	120	51.78	51.77
5650	38.91	-4.1	1.57	-0.58	25.185	13.722	1.57	-13.27	5.67	120	51.47	51.55
5670	40.29	-3.95	1.7	-0.45	26.267	14.019	1.7	-13.93	5.64	120	52.12	52.28
5690	37.94	-4.21	1.31	-0.84	25.008	12.932	1.31	-14.8	5.52	120	52.12	52.25
5710	37.33	-4.28	1.05	-1.1	24.737	12.594	1.05	-15.37	5.33	90	51.95	52.05
5730	37.78	-4.23	1.13	-1.02	24.902	12.881	1.13	-14.37	5.36	90	51.59	51.69
5750	33.6	-4.74	0.69	-1.46	22.143	11.455	0.69	-13.92	5.42	90	51.12	51.15
5770	34.05	-4.68	0.73	-1.42	22.508	11.538	0.73	-14.28	5.4	90	51.02	51.06
5790	30.94	-5.1	0.37	-1.78	20.472	10.464	0.37	-15.71	5.46	90	51.08	51.16
5810	31.58	-5.01	0.6	-1.55	20.981	10.603	0.6	-14.68	5.6	120	51.36	51.43
5830	29.93	-5.24	0.54	-1.61	19.764	10.17	0.54	-13.53	5.78	120	51.65	51.66
5850	31.04	-5.08	0.59	-1.56	20.4	10.637	0.59	-13.68	5.67	120	51.88	52.05

无源测试数据
Passive test data

ANT1 Direction of figure(5G)





附加说明

Additional instructions

01

报告中天线匹配电路是否改动，天线有关的环境处理是否增加，将直接影响天线性能，请仔细确认查看。

02

贵司如有最新试产或更新产品（如软件，**ESD**，物料等）请尽快提供我司进行验证，以确认天线性能是否有变化影响。

03

倘若贵司需要送第三方检测机构复测或客户测试，请务必先与我司进行天线相关测试确认，因主板•装配的一致性，以及天线组装的差异等因素，均可能导致天线参数的偏差。

合作共赢

