



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: 忆博通

MN: S1000B1

RF: 关巍

MD: 黄清清

MP: 15112592483

Date: 2023. 08. 17

REV :V1. 0



ANTENNA

测试信息

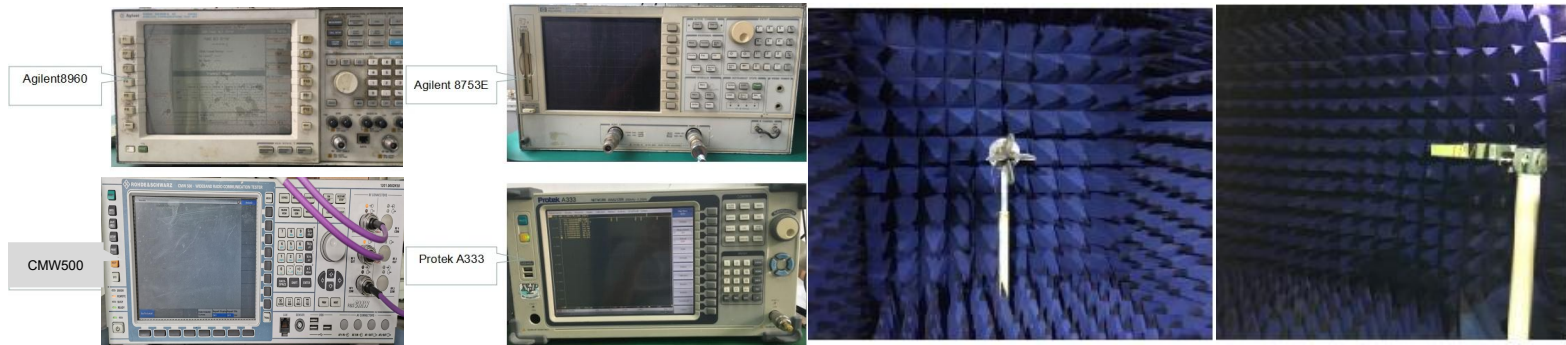
Test information

	Antenna band	Antenna state	Antenna form	Match changes	Note
Main ANT	2G	850/900/1800/1900			
	3G	2/4/5	FPC	PIFA	NO
	4G	2/4/5/12/13/25/26/66/71/41			
AUX ANT	BT/WIFI	2.4/5.8G	FPC	PIFA	NO
	GPS	1.575G	FPC	PIFA	NO
	DIV		FPC	PIFA	NO

测试环境

Test environment

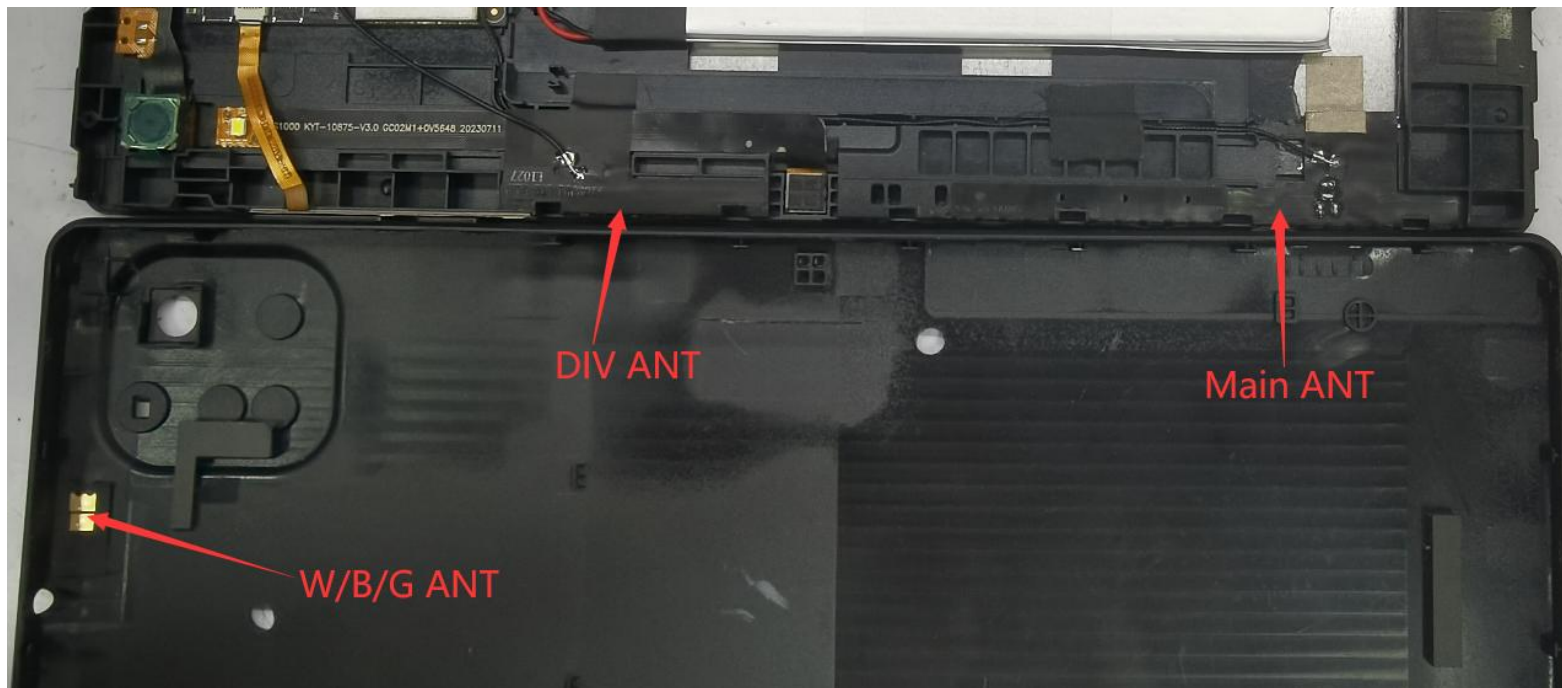
	测试项目	测试设备
S参数 (S-parameter)	1. 电压驻波比 (VSWR) 2. 回波损耗 (Rrtun Loss)	网络分析仪: Agilent8753ES
2. 有源测试 (Active)	1. 发射功率 (TRP) 2. 接收灵敏度 (TIS) 3. 屏灭/屏亮	1. 暗室: 5*3*3m (3D) Chamber 2. 综测仪: Agilent8960 CMW500
3. 无源测试 (Passive)	1. 天线增益 (Gain) 2. 天线效率 (Efficiency)	1. 暗室: 5*3*3m (3D) Chamber 2. 网络分析仪: Agilent 8753ES





天线位置

Antenna position



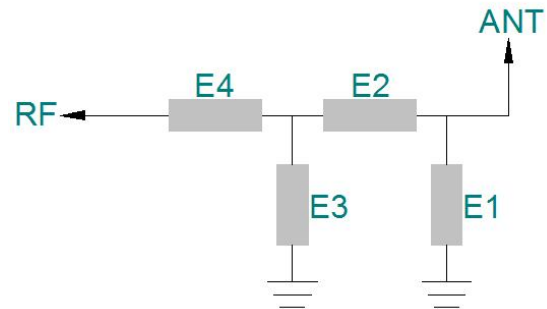


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匹配电路
Matching circuit



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

匹配电路原理图&位号图

主板传导数据
Conduction data

2G/3G									
Band	GSM850	GSM900	DCS1800	PCS1900	WCDMA1	WCDMA2	WCDMA4	WCDMA5	WCDMA8
TX(dBm)	31.6	31.8	28.8	27.5		20.3	21.2	21.5	
RX(dBm)	-108	-108	-108	-108		-108	-108	-108	
4G FDD/TDD									
Band	B1	B2	B3	B4	B5	B7	B8	B12	B13
TX(dBm)		21.6		21.8	22.7			22.3	22.3
RX(dBm)		-98		-96	-98			-96	-95
Band	B25	B26	B66	B71	B34	B38	B39	B40	B41
TX(dBm)	21.6	22.6	21.8	22.2					24.3
RX(dBm)	-98	-97	-97	-97					-93



有源测试数据 Active 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)	27.25	26.14	26.35	25.52	25.36	24.61	24.12	24.24	25.56	25.33	25.26	24.72
TIS(LCD OFF)	-103.22	-103.26	-103.34	-102.34	-102.51	-103.21	-104.33	-104.57	-105.37	-104.46	-105.27	-105.35
TIS(LCD ON)												
3G												
Band	WCDMA-1			WCDMA-4			WCDMA-2			WCDMA-5		
Channel	10562	10700	10838	1537	1675	1738	9662	9800	9938	4357	4400	4458
TRP(dBm)				16.54	17.15	17.36	18.24	18.46	18.21	17.35	16.56	16.24
TIS(LCD OFF)				-103.42	-102.64	-102.11	-104.41	-104.62	-105.21	-103.26	-103.38	-103.43
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)	18.12	18.16	18.26	17.54	17.66	18.28	17.49	17.34	17.28	17.45	17.57	17.73
TIS(LCD OFF)	-93.29	-93.44	-93.26	-93.4	-93.26	-93.44	-92.5	-92.42	-92.3	-92.24	-92.38	-92.55
TIS(LCD ON)												
Band	FDD-Band 13			FDD-Band25			FDD-Band 26			FDD-Band66		
Channel		23230		26090	26365	26640	26740	26865	26990	132022	132322	132622
TRP(dBm)		17.6		18.4	18.46	18.37	17.64	17.43	17.29	17.62	17.73	17.58
TIS(LCD OFF)		-92.22		-93.53	-93.48	-93.43	-92.28	-92.21	-92.22	-93.07	-93.26	-93.46
TIS(LCD ON)												
4G(FDD 10M)				4G(TDD 20M)								
Band	FDD-Band 71			FDD-Band 39			FDD-Band 40			FDD-Band 41		
Channel	133172	133297	133422	38350	38450	38550	38750	39150	39550	39750	40620	41490
TRP(dBm)	17.53	17.46	17.22							20.35	21.74	20.54
TIS(LCD OFF)	-91.2	-91.39	-91.54							-92.16	-92.43	-92.59
TIS(LCD ON)												

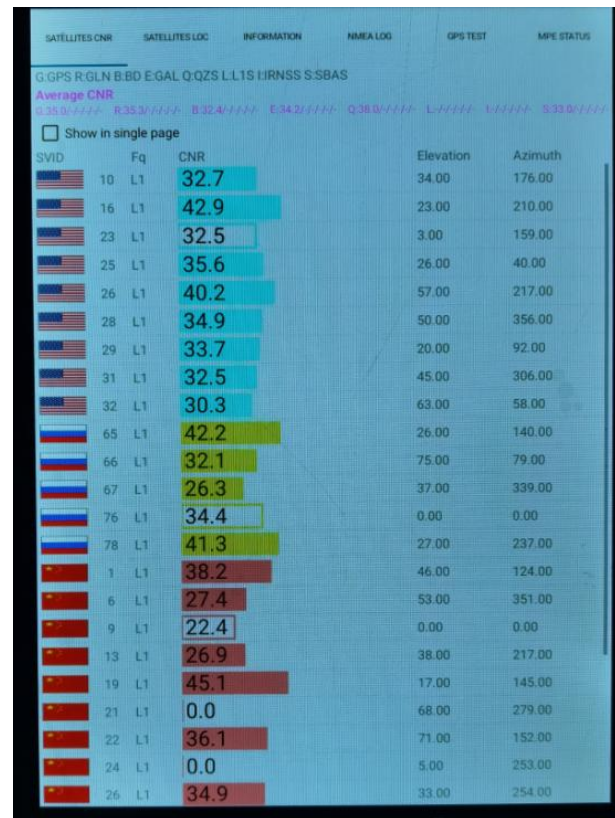


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GPS搜星测试 GPS star search test

GPS冷启动实测效果以下：
 CN值40以上5颗
 CN值35以上8颗
 实际定位18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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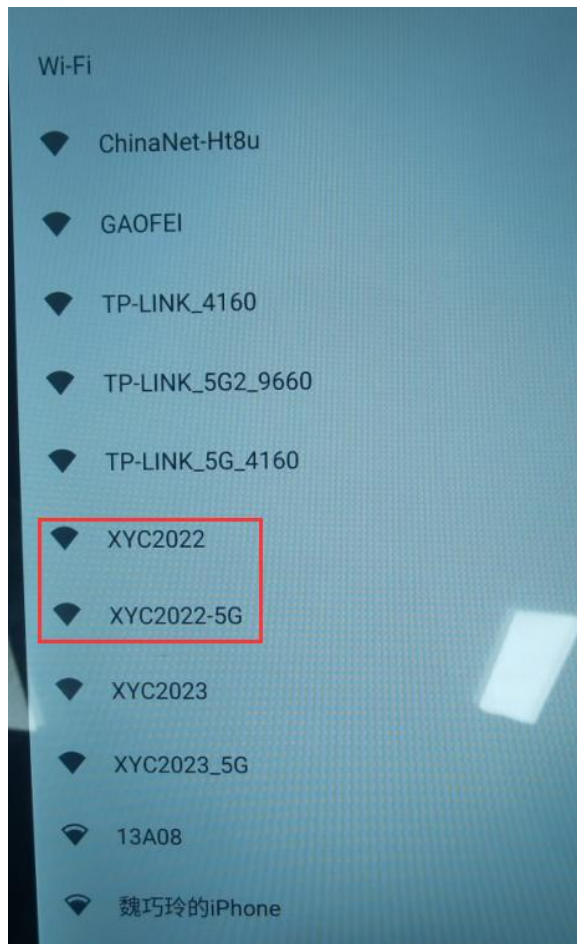
Wifi天线实测

Wifi Antenna test

测试环境：开放空间

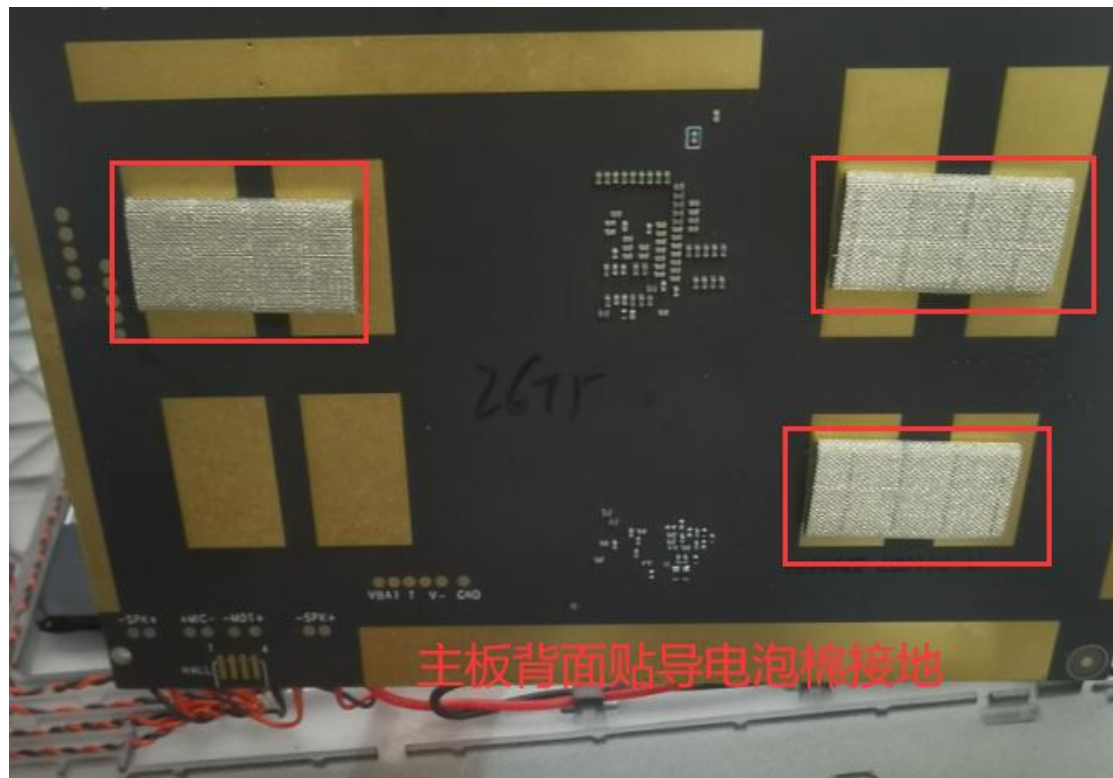
测试距离：10m

测试结果如右图



环境处理

Environmental treatment





环境处理

Environmental treatment

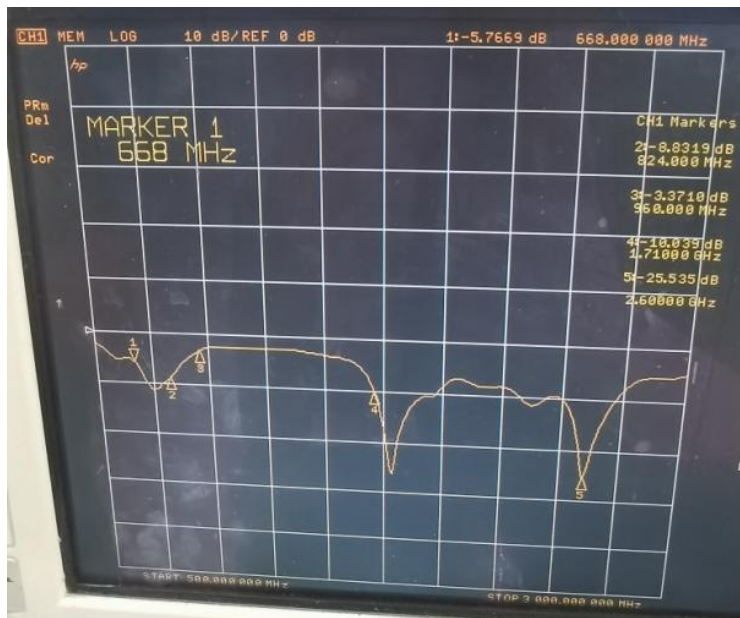




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Main ANT 无源测试数据 Main ANT Passive test data

ANT S11-VSWR&Return Loss



Frequency(MHZ)	668	824	960	1710	2600
VSWR	3.12	2.13	5.22	1.92	1.11
Return Loss(DB)	-5.76	-8.83	-3.37	-10.03	-25.53



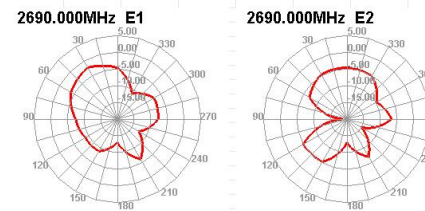
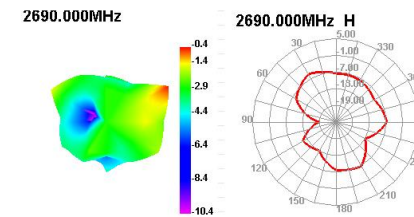
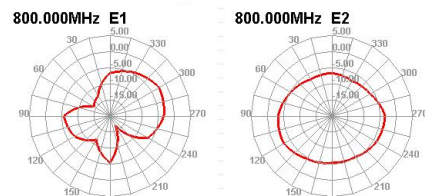
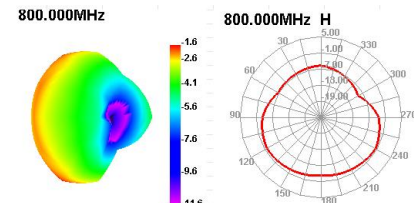
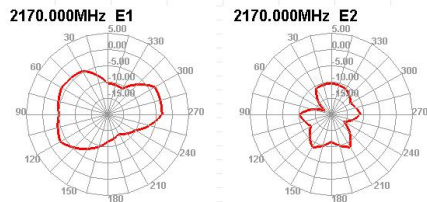
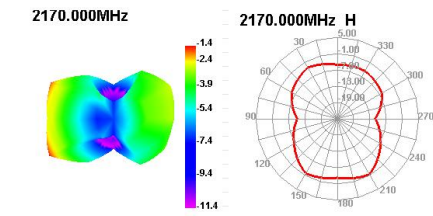
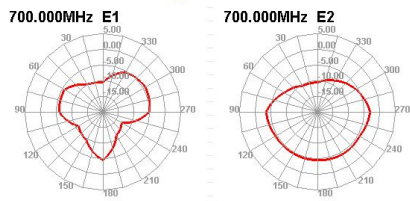
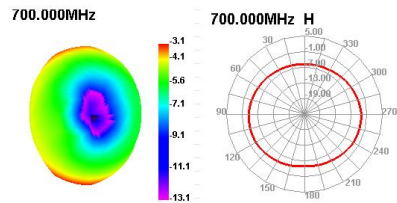
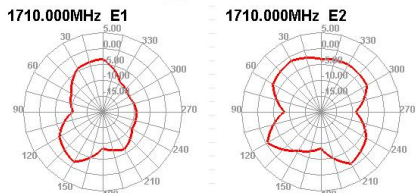
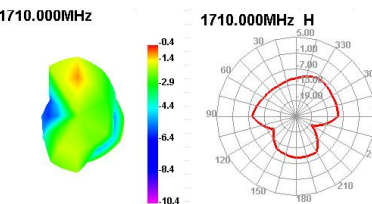
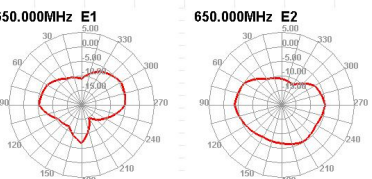
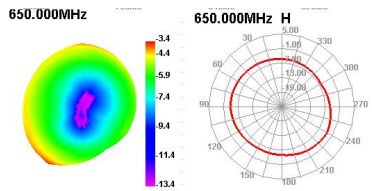
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无源测试数据 Passive test data

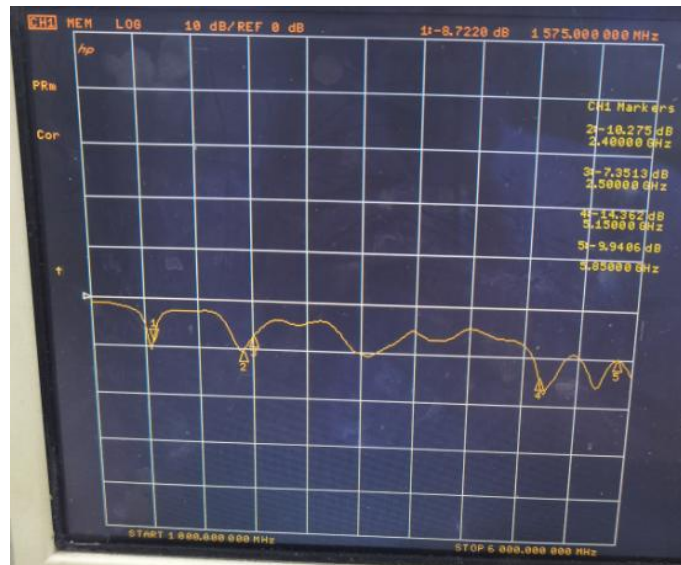
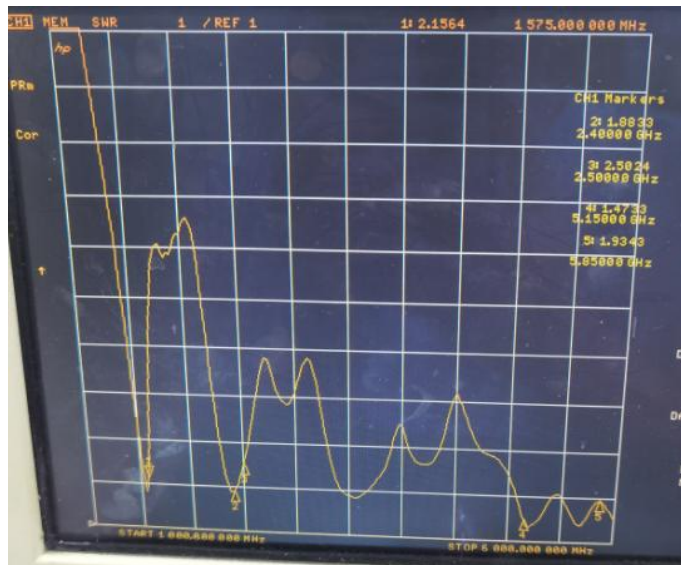
ANT Direction of figure 690-2690MHz





无源测试数据
Passive test data

ANT S11-VSWR&Return Loss



Frequency (MHZ)	1575	2400	2500	5150	5850
VSWR	2.15	1.88	2.50	1.47	1.93
Return Loss (DB)	-8.77	-10.27	-7.35	-14.36	-9.94



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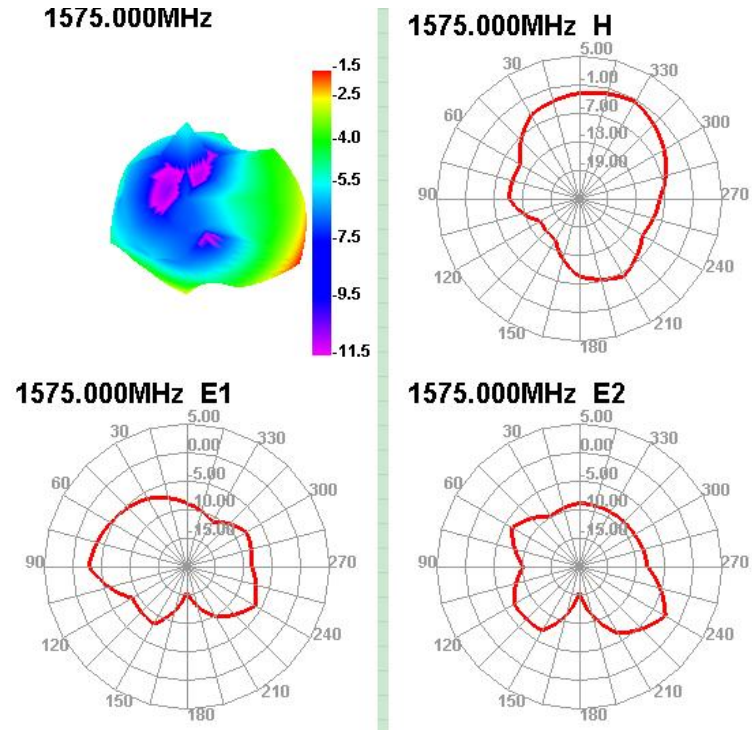
无源测试数据
Passive test data

ANT GAIN&Efficiency-GPS

1570	19.75	-7.04	-1.57	-3.72	8.484	11.263	-1.57	-16.03	5.47	30	41.12	40.65
1575	20.4	-6.9	-1.5	-3.65	8.893	11.508	-1.5	-15.59	5.4	30	41.25	40.8
1580	20.57	-6.87	-1.53	-3.68	9.038	11.532	-1.53	-15.47	5.34	30	41.33	40.9

无源测试数据
Passive test data

ANT Direction of figure(GPS)



无源测试数据
Passive test data

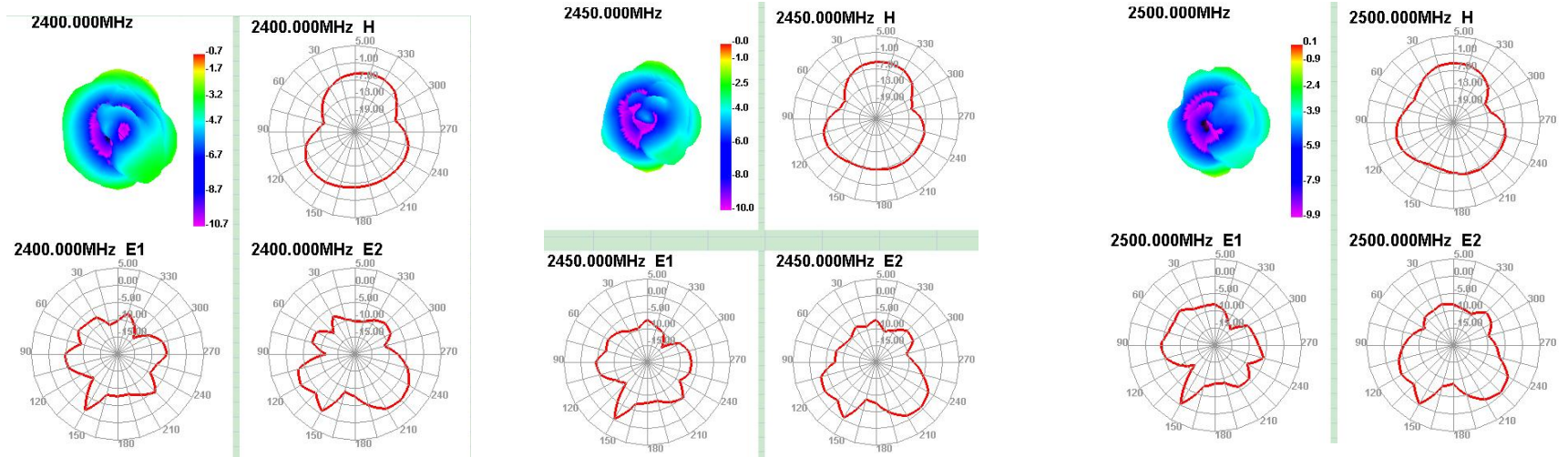
ANT GAIN&Efficiency-WIFI2.4G/BT

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	25.25	-5.98	-0.69	-2.84	8.093	17.16	-0.69	-17.1	5.29	0	45.79	46.02
2410	25.23	-5.98	-0.53	-2.68	8.068	17.16	-0.53	-16.74	5.45	0	46	46.28
2420	24.39	-6.13	-0.49	-2.64	7.743	16.648	-0.49	-17.71	5.64	0	45.66	45.93
2430	24.12	-6.18	-0.42	-2.57	7.633	16.487	-0.42	-18.29	5.76	0	45.82	46.17
2440	24.72	-6.07	-0.19	-2.34	7.84	16.876	-0.19	-17.23	5.88	0	45.92	46.28
2450	25.46	-5.94	-0.04	-2.19	8.136	17.328	-0.04	-15.99	5.9	0	45.95	46.38
2460	25.83	-5.88	0.03	-2.12	8.335	17.49	0.03	-15.44	5.91	0	45.93	46.31
2470	25.6	-5.92	-0.01	-2.16	8.347	17.257	-0.01	-15	5.91	0	46.24	46.64
2480	25.78	-5.89	0.07	-2.08	8.469	17.309	0.07	-14.76	5.96	0	46.17	46.56
2490	26.3	-5.8	0.23	-1.92	8.726	17.573	0.23	-15.17	6.04	0	46.38	46.78
2500	24.91	-6.04	0.12	-2.03	8.32	16.591	0.12	-15.36	6.15	0	46.26	46.65

无源测试数据
Passive test data

ANT Direction of figure(2.4/BT)



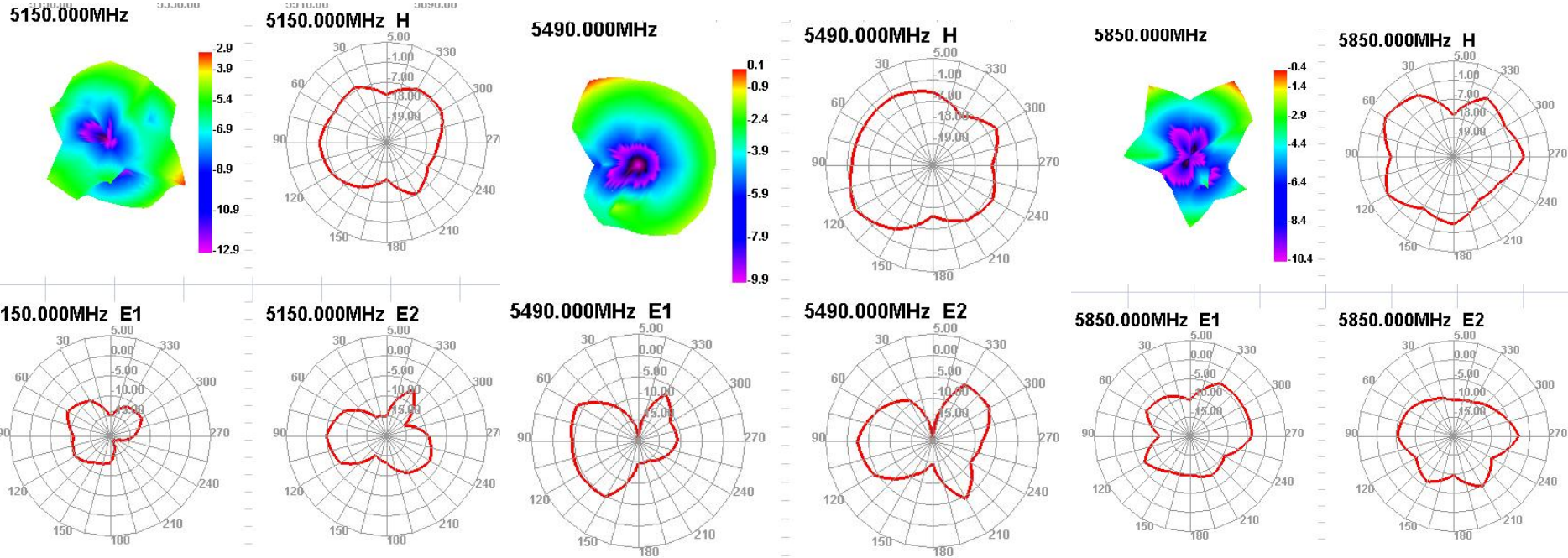
无源测试数据
Passive test data

ANT GAIN&Efficiency-WIFI 5G

Passive Test For WIFI5G								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)
5150	14.21	-8.48	-2.92	-5.07	7.417	6.788	-2.92	-21.94
5170	14.03	-8.53	-2.45	-4.6	7.51	6.521	-2.45	-20.13
5190	17.7	-7.52	-1.44	-3.59	9.259	8.441	-1.44	-19.27
5210	16.77	-7.76	-1.99	-4.14	8.492	8.275	-1.99	-21.42
5230	18.97	-7.22	-1.84	-3.99	9.681	9.292	-1.84	-23.64
5250	17.31	-7.62	-2.99	-5.14	9.189	8.118	-2.99	-23.39
5270	21.19	-6.74	-2.27	-4.42	11.595	9.599	-2.27	-20.68
5290	18.76	-7.27	-2.53	-4.68	10.506	8.259	-2.53	-18.4
5310	19.57	-7.08	-2.32	-4.47	11.219	8.353	-2.32	-18.86
5330	20.35	-6.91	-2.38	-4.53	11.96	8.387	-2.38	-19.52
5350	23.62	-6.27	-1.83	-3.98	13.93	9.687	-1.83	-18.58
5370	23.87	-6.22	-1.57	-3.72	14.02	9.848	-1.57	-19.55
5390	22.86	-6.41	-1.62	-3.77	13.443	9.413	-1.62	-19.09
5410	29.22	-5.34	-0.01	-2.16	16.9	12.32	-0.01	-16.25
5430	27.03	-5.68	0.46	-1.69	15.208	11.82	0.46	-19.37
5450	29.96	-5.23	1.3	-0.85	16.709	13.255	1.3	-20.7
5470	27.01	-5.68	0.57	-1.58	14.866	12.145	0.57	-21.45
5490	27.76	-5.57	0.07	-2.08	14.668	13.087	0.07	-19.69
5510	27.41	-5.62	-0.34	-2.49	13.684	13.726	-0.34	-17.92
5530	26.82	-5.72	-0.28	-2.43	12.916	13.9	-0.28	-18.17
5550	25.89	-5.87	-0.65	-2.8	12.421	13.467	-0.65	-17.89
5570	22.83	-6.41	-1.78	-3.93	10.777	12.055	-1.78	-17.84
5590	20.29	-6.93	-2.72	-4.87	9.198	11.091	-2.72	-19
5610	18.7	-7.28	-2.41	-4.56	8.366	10.336	-2.41	-22.37
5630	17.34	-7.61	-2.39	-4.54	8.002	9.341	-2.39	-29.38
5650	18.55	-7.32	-1.97	-4.12	8.787	9.764	-1.97	-24.36
5670	15.58	-8.07	-2.71	-4.86	7.387	8.192	-2.71	-19.01
5690	16.93	-7.71	-1.89	-4.04	8.228	8.706	-1.89	-17.98
5710	11.37	-9.44	-3.43	-5.58	5.699	5.674	-3.43	-21.8
5730	13.49	-8.7	-2.45	-4.6	6.746	6.742	-2.45	-23.05
5750	11.07	-9.56	-3.44	-5.59	5.442	5.625	-3.44	-24.25
5770	15.63	-8.06	-2.15	-4.3	7.542	8.086	-2.15	-19.98
5790	16.06	-7.94	-2.18	-4.33	7.737	8.324	-2.18	-17.1
5810	20.28	-6.93	-1.37	-3.52	9.937	10.341	-1.37	-16.19
5830	20.53	-6.88	-1.32	-3.47	10.299	10.226	-1.32	-14.63
5850	23.63	-6.27	-0.43	-2.58	12.298	11.328	-0.43	-14.48

无源测试数据
Passive test data

ANT 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

