



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: 拓海

MN: K12E

RF: 刘磊确

MD: 黄清清

MP: 13005478517

Date: 2024. 10. 31

REV :V1. 0



测试信息

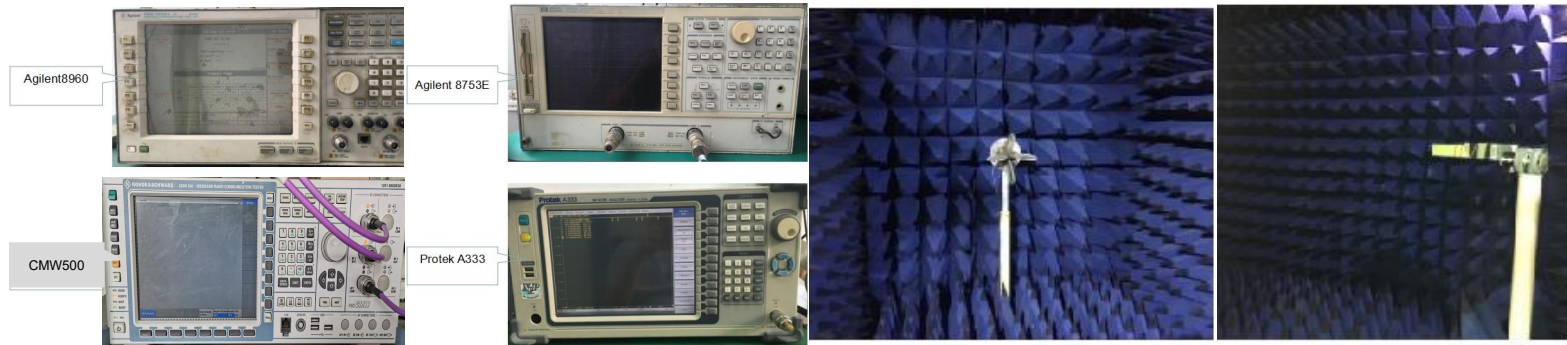
Test information

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				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





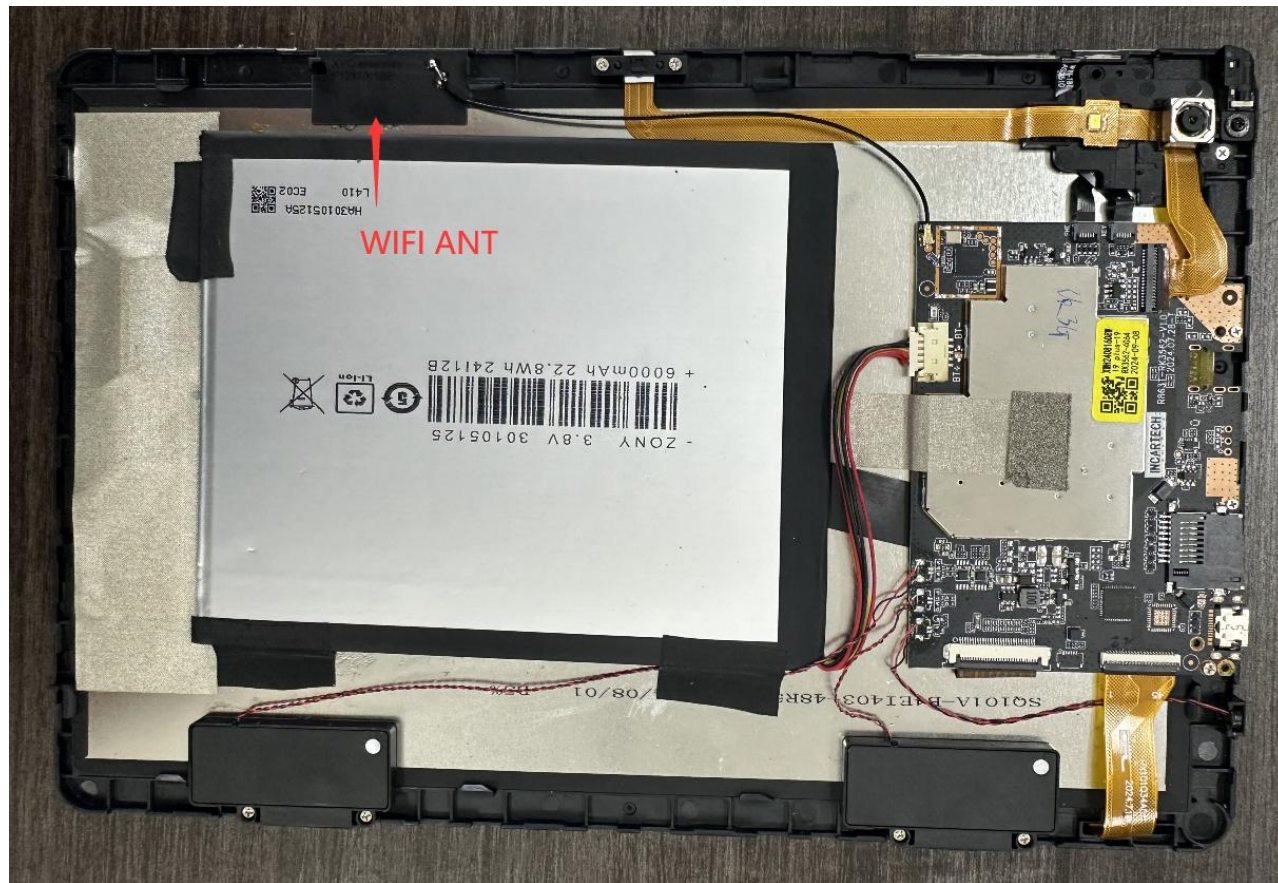
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天线位置

Antenna position



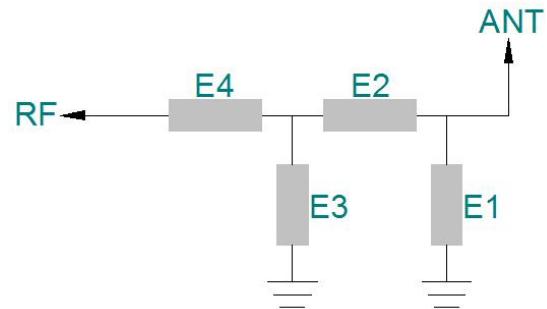


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匹配电路
Matching circuit



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	18.27	CH1 11Mbps	-83.45
	2437	CH6 11Mbps	18.36	CH6 11Mbps	-83.76
	2467	CH11 11Mbps	18.47	CH11 11Mbps	-83.45
802.11a		TRP		TIS	
	5180	CH36 6Mbps	17.52	CH36 54Mbps	-73.37
	5300	CH60 6Mbps	17.11	CH60 54Mbps	-73.66
	5805	CH161 6Mbps	16.46	CH161 54Mbps	-73.76



Wifi/BT天线实测

Wifi Antenna test

WIFI

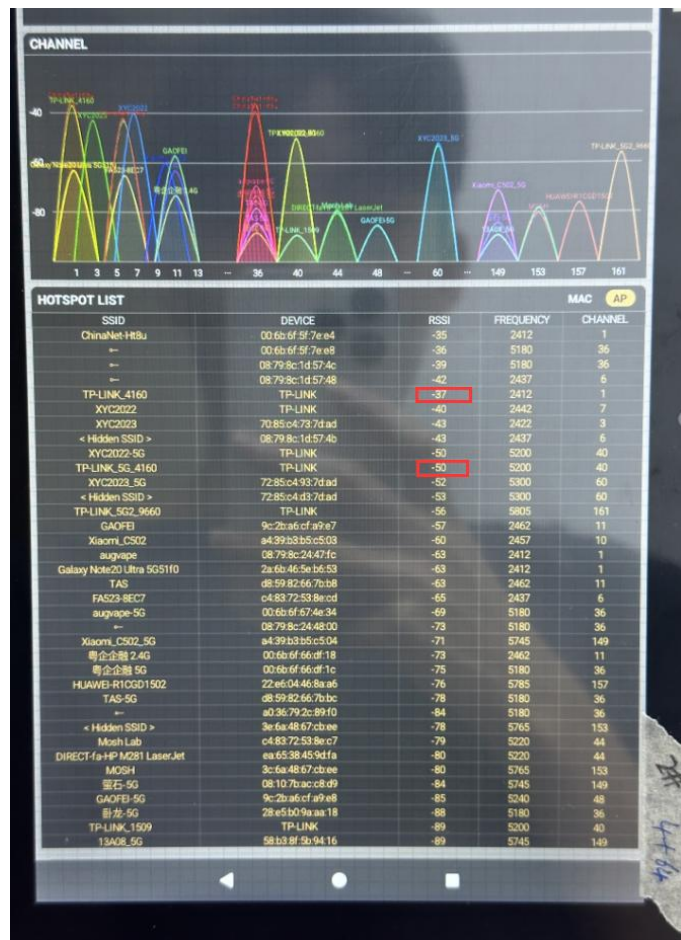
测试环境：开放空间

测试工具：Wifi Analytical Assistant

测试距离：10m

信号强度：2.4G :-37dBm 5G:-50dBm

测试结果如右图



BT

测试环境：开放空间(通道)

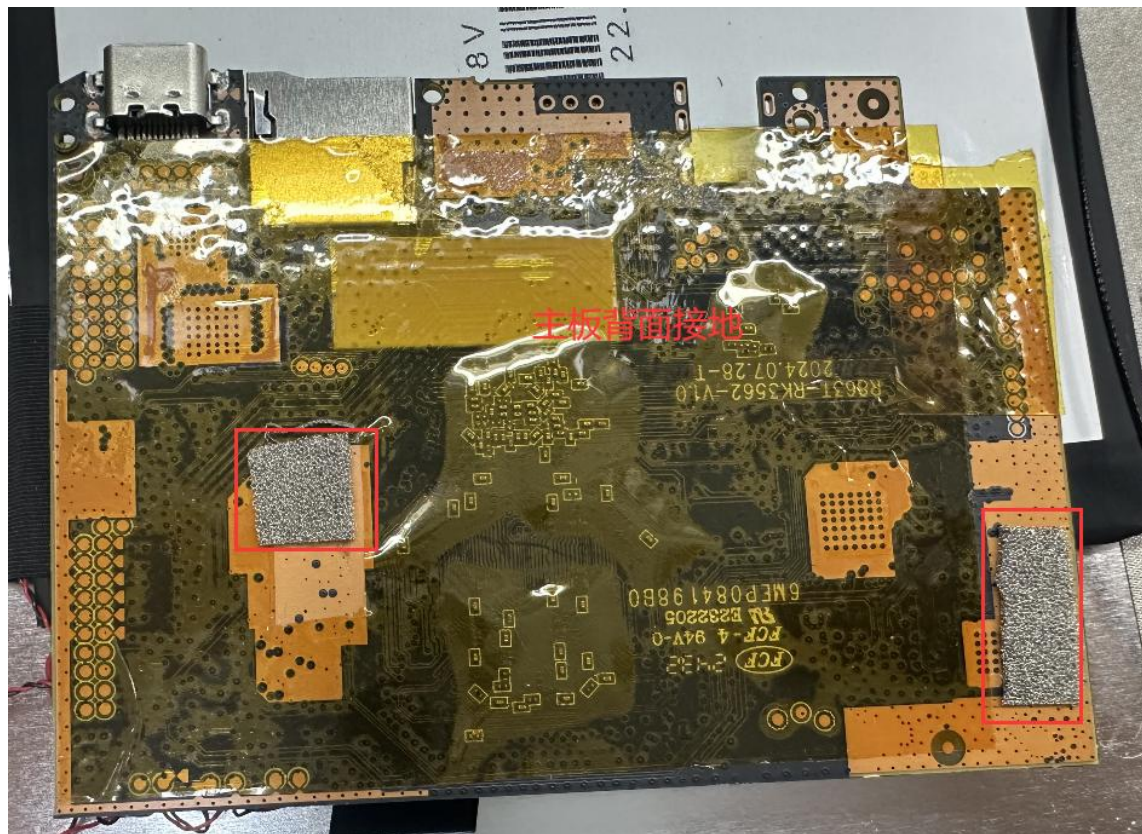
测试工具：蓝牙音响

测试距离：10m

结果：播放音乐流畅，无杂音。

环境处理

Environmental treatment



环境处理

Environmental treatment

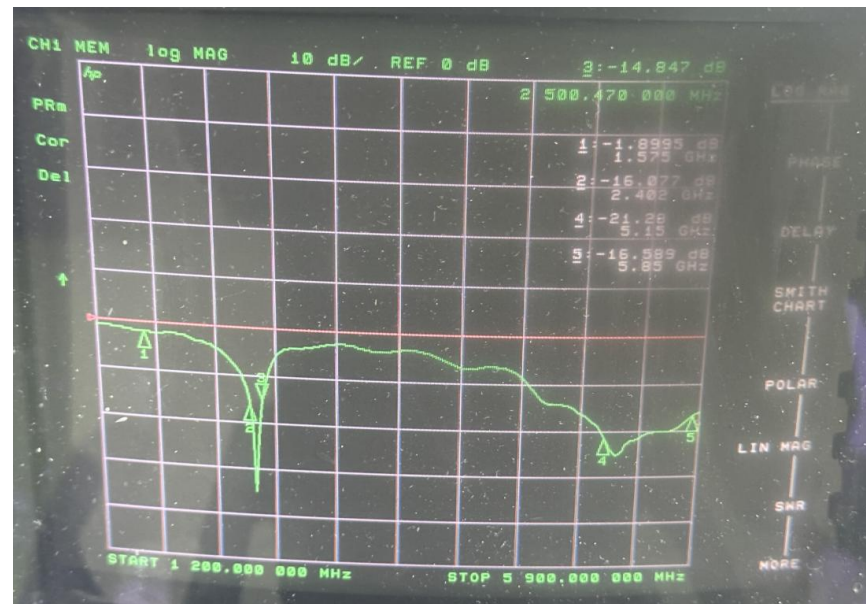




无源测试数据

Passive test data

ANT1 S11-VSWR&Return Loss



Frequency (MHZ)	2400	2450	5150	5850
VSWR	1.38	1.46	1.18	1.34
Return Loss (DB)	-16.07	-14.84	-21.28	-16.58



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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	45.52	-3.42	0.81	-1.34	24.076	21.441	0.81	-10.11
2410	43.79	-3.59	0.64	-1.51	23.445	20.348	0.64	-10.19
2420	45.59	-3.41	0.72	-1.43	24.737	20.854	0.72	-10.25
2430	43.57	-3.61	0.7	-1.45	23.949	19.621	0.7	-10.59
2440	45.36	-3.43	0.89	-1.26	25.129	20.231	0.89	-10.34
2450	46.13	-3.36	1.01	-1.14	25.826	20.301	1.01	-10.16
2460	45.94	-3.38	1.12	-1.03	25.881	20.056	1.12	-9.89
2470	47.1	-3.27	1.1	-1.05	26.609	20.493	1.1	-9.56
2480	47.48	-3.23	0.92	-1.23	26.821	20.662	0.92	-9.95
2490	48.64	-3.13	1.06	-1.09	27.573	21.067	1.06	-10.23
2500	43.39	-3.63	0.77	-1.38	24.776	18.613	0.77	-10.89



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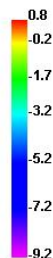
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无源测试数据

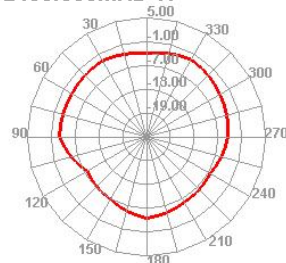
Passive test data

ANT1 Direction of figure(2.4/BT)

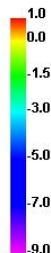
2400.000MHz



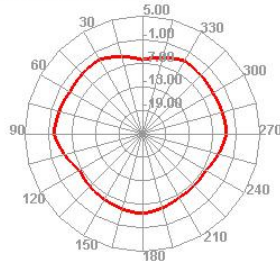
2400.000MHz H



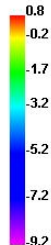
2450.000MHz



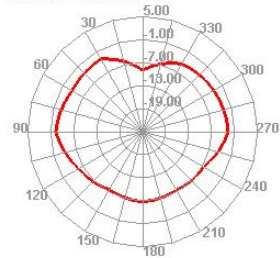
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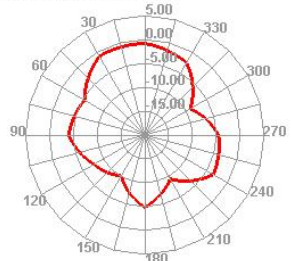
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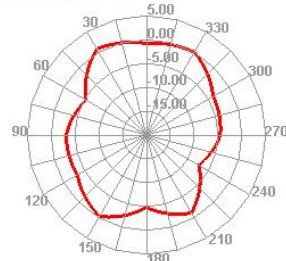
2500.000MHz H



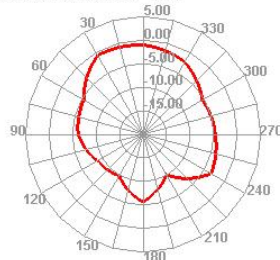
2400.000MHz E1



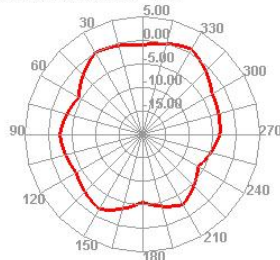
2400.000MHz E2



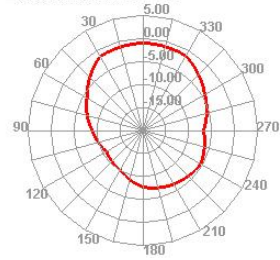
2450.000MHz E1



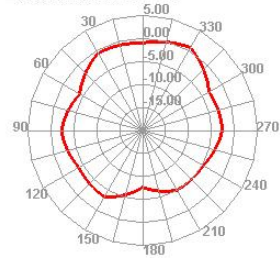
2450.000MHz E2



2500.000MHz E1



2500.000MHz E2





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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	33.25	-4.78	-0.16	-2.31	17.119	16.132	-0.16	-11.52
5170	33.8	-4.71	-0.17	-2.32	17.619	16.176	-0.17	-11.67
5190	34.02	-4.68	0.01	-2.14	17.93	16.086	0.01	-11.09
5210	37.22	-4.29	0.61	-1.54	19.675	17.544	0.61	-9.64
5230	33.2	-4.79	0	-2.15	17.652	15.549	0	-11.32
5250	38.2	-4.18	0.45	-1.7	20.265	17.933	0.45	-11.17
5270	36.17	-4.42	0.37	-1.78	19.35	16.823	0.37	-11.42
5290	40.08	-3.97	1.11	-1.04	21.602	18.474	1.11	-11.87
5310	34.81	-4.58	0.34	-1.81	18.866	15.947	0.34	-13.8
5330	34	-4.69	-0.05	-2.2	18.351	15.648	-0.05	-14.09
5350	35.27	-4.53	-0.04	-2.19	18.919	16.355	-0.04	-13.21
5370	33.9	-4.7	0.04	-2.11	18.39	15.514	0.04	-13.14
5390	33.04	-4.81	-0.2	-2.35	18.088	14.956	-0.2	-15.12
5410	37.61	-4.25	0.28	-1.87	20.771	16.837	0.28	-15.08
5430	37.75	-4.23	0.71	-1.44	20.804	16.942	0.71	-14.43
5450	38.75	-4.12	1.09	-1.06	21.443	17.305	1.09	-12.97
5470	37.24	-4.29	1.13	-1.02	20.713	16.526	1.13	-14.27
5490	35.45	-4.5	1.36	-0.79	19.814	15.633	1.36	-15.46
5510	36.88	-4.33	1.63	-0.52	20.565	16.314	1.63	-15.96
5530	37.16	-4.3	1.45	-0.7	20.634	16.527	1.45	-16.47
5550	39.65	-4.02	1.42	-0.73	21.904	17.747	1.42	-16.37
5570	37.79	-4.23	1.38	-0.77	20.789	17.005	1.38	-15.49
5590	39.35	-4.05	1.81	-0.34	21.621	17.726	1.81	-14.12
5610	35.88	-4.45	1.24	-0.91	19.802	16.08	1.24	-14.22
5630	36.72	-4.35	1.04	-1.11	20.107	16.618	1.04	-13.61
5650	34.12	-4.67	0.92	-1.23	18.685	15.436	0.92	-14.1
5670	38.87	-4.1	1.46	-0.69	21.376	17.498	1.46	-14.42
5690	33.29	-4.78	0.58	-1.57	18.447	14.847	0.58	-15.1
5710	37.57	-4.25	0.84	-1.31	20.705	16.861	0.84	-13.66
5730	35.83	-4.46	0.41	-1.74	19.649	16.182	0.41	-12.78
5750	34.09	-4.67	0.27	-1.88	18.858	15.229	0.27	-13.79
5770	35.65	-4.48	0.67	-1.48	19.802	15.843	0.67	-13.45
5790	32.6	-4.87	0.26	-1.89	18.109	14.487	0.26	-12.93
5810	34.76	-4.59	0.58	-1.57	19.368	15.388	0.58	-13.24
5830	35.72	-4.47	0.61	-1.54	19.986	15.738	0.61	-14.28
5850	39.8	-4	1.04	-1.11	22.335	17.461	1.04	-17.08



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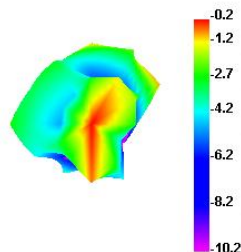
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无源测试数据

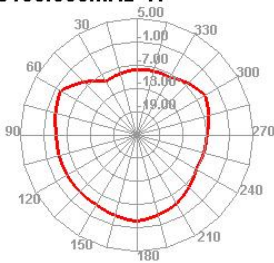
Passive test data

ANT1 Direction of figure(5G)

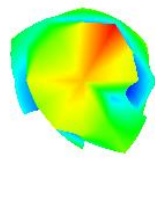
5150.000MHz



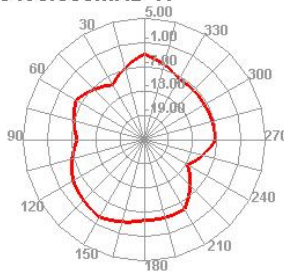
5150.000MHz H



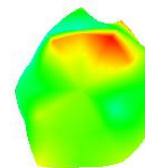
5490.000MHz



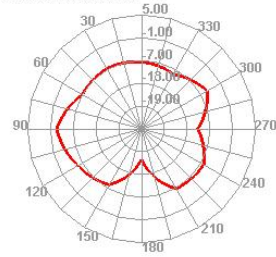
5490.000MHz H



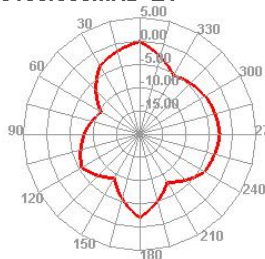
5850.000MHz



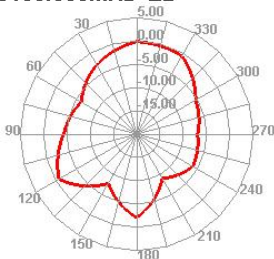
5850.000MHz H



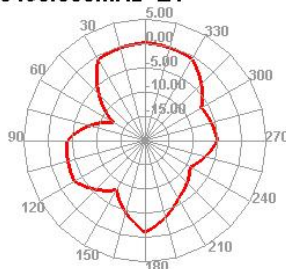
5150.000MHz E1



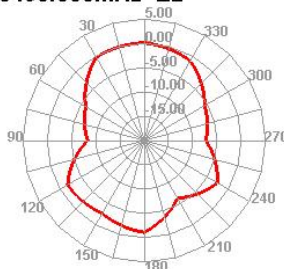
5150.000MHz E2



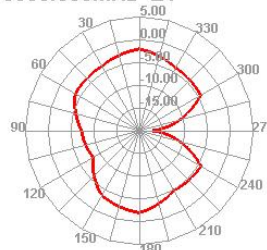
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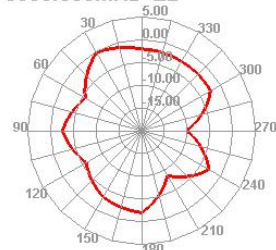
5490.000MHz E2



5850.000MHz E1



5850.000MHz E2



合作共赢

