深圳星源创科技有限公司
Shen Zhen Xing Yuan Chuang Technology Co., Ltd

规格承认书
Approval Sheet

客户名称 Customer	拓海	日期 Data	2024/10/17
产品名称 Product	三合一天线	客户机型 Models	A30
料号 P/N	T743A-13RB-060	客户料号 Customer P/N	
规格描述 Specifications	黑色FPC；RF0.81三代端子黑色同轴线，长度L=60mm		

供应商承认签印 Vender Approved By	客户承认签印 Customer Approved By
深圳市星源创科技有限公司 工程专用章	
Checked By:	Checked By:
Audit By:	Audit By:
Approval By:	Approval By:

文件修订履历表

版本 Version	修订内容 Revise The Content	修订人 Revused	核准 Approval	修订日期 Date	备注 Note

地址：深圳市宝安区福永镇福海街道塘尾股份商务大厦1506
Address:1506,Tangwei Business Building,Fuhai Street,Fuyong Town,Baoan District,Shenzhen
Tel：0755-82103639 QQ：487580356 Email：Stephdeng_Vis@126.com

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Specification

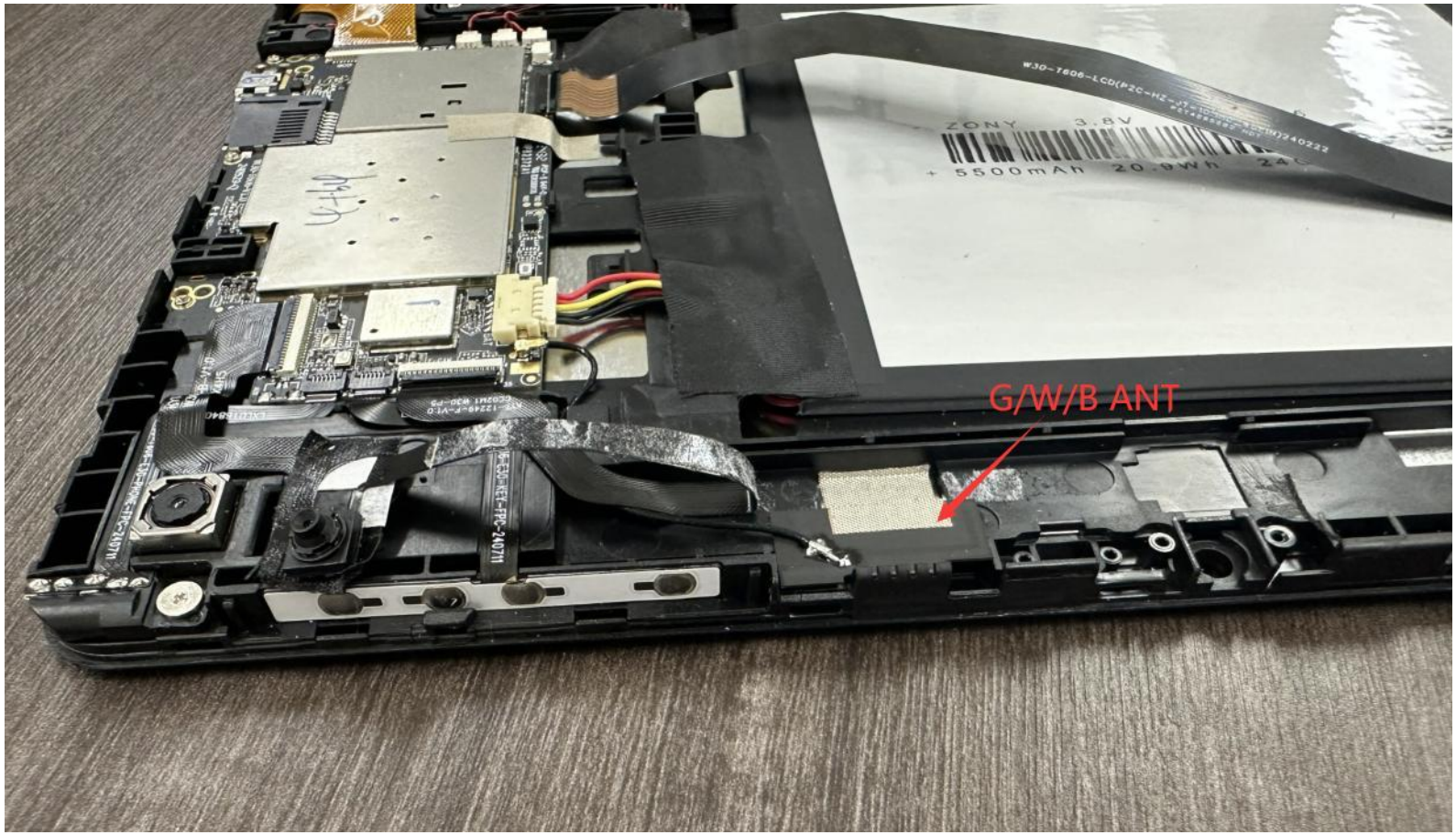
1.1 Electrical Properties

Characteristics	Specifications
Working Band	GPS 2.4G WiFi/BT 5G WiFi
Antenna From	PIFA
Impedance	50Ω
Polarization	Linear
Peak Effi	47%@GPS; 28%@2.4G; 34%@5G
Peak Gain	-0.2dBi@GPS; -1.4dBi@2.4G; 1.3dBi@5G

1.2 Physical Properties

Characteristics	Specifications
Operating Temp	-10℃~+60℃
Storage Temp	-10℃~+70℃
Humidity	10~95%RH

Antenna Placement



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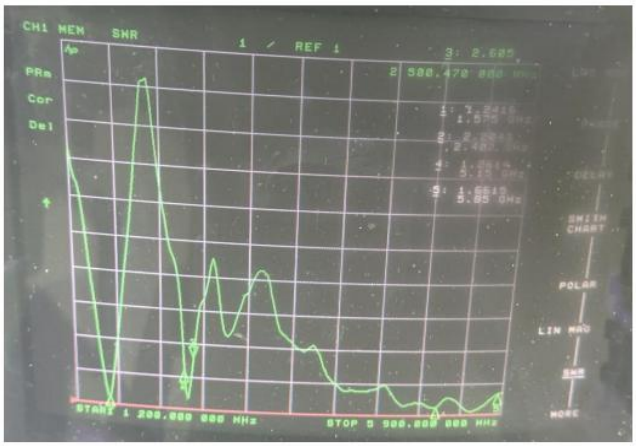
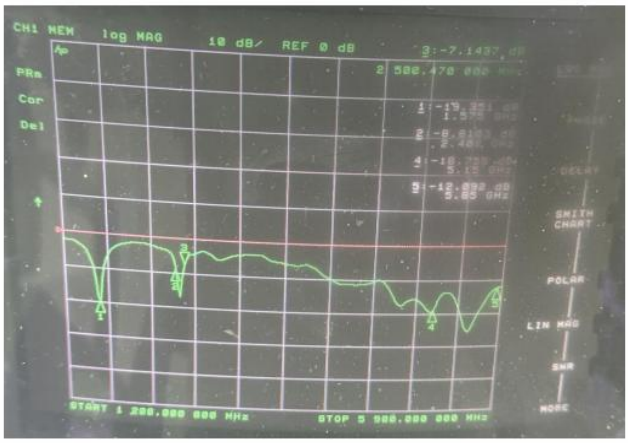
Test Data

S11 Parameter-VSWR





Frequency (MHZ)	1575	2400	2500	5150	5850
VSWR	1.24	2.2	2.6	1.26	1.66
Return Loss (DB)	-19.35	-8.81	-7.14	-18.75	-12.09

Efficiency Table(GPS)

Passive Test For GPS								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)
1560	42.73	-3.69	-0.21	-2.36	18.697	24.033	-0.21	-9.21
1565	42.77	-3.69	-0.22	-2.37	18.709	24.063	-0.22	-8.8
1570	42.64	-3.7	-0.32	-2.47	18.692	23.945	-0.32	-8.47
1575	43.93	-3.57	-0.26	-2.41	19.185	24.743	-0.26	-8.53
1580	45.42	-3.43	-0.21	-2.36	19.703	25.72	-0.21	-8.6
1585	46.46	-3.33	-0.2	-2.35	20.086	26.369	-0.2	-8.55
1590	47.15	-3.27	-0.17	-2.32	20.363	26.784	-0.17	-8.46

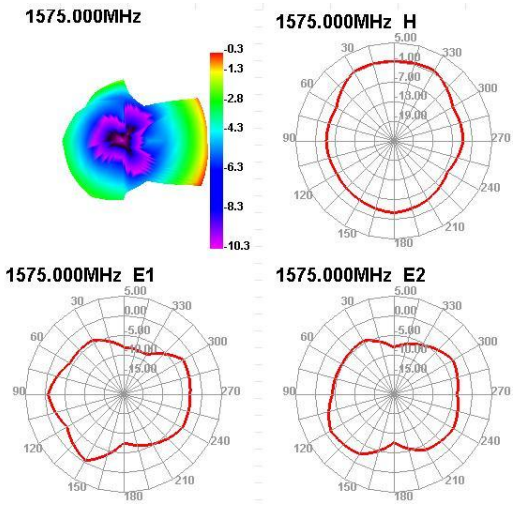
Efficiency Table(2.4G)

Passive Test For WIFI2.4								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)
2400	21.2	-6.74	-2.58	-4.73	7.944	13.257	-2.58	-17.8
2410	20.2	-6.95	-2.97	-5.12	7.515	12.685	-2.97	-15.78
2420	24.06	-6.19	-2.22	-4.37	9.048	15.011	-2.22	-13.3
2430	25.92	-5.86	-1.79	-3.94	9.871	16.052	-1.79	-12.89
2440	28.15	-5.5	-1.44	-3.59	10.931	17.223	-1.44	-12.82
2450	28.65	-5.43	-1.5	-3.65	11.491	17.155	-1.5	-12.96
2460	27.73	-5.57	-1.93	-4.08	11.544	16.188	-1.93	-13.04
2470	28.26	-5.49	-2.18	-4.33	12.241	16.017	-2.18	-12.93
2480	28.09	-5.51	-2.16	-4.31	12.48	15.609	-2.16	-13.25
2490	27.24	-5.65	-2.22	-4.37	12.444	14.791	-2.22	-13.5
2500	20.72	-6.84	-3.32	-5.47	9.753	10.968	-3.32	-15.11

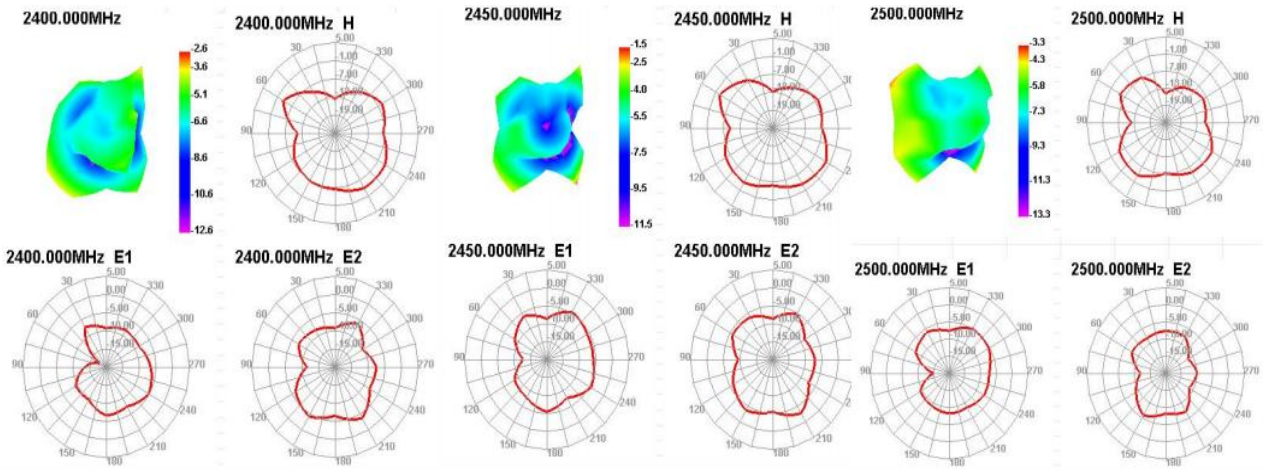
Efficiency Table(5G)

Passive Test For WIFI5G								
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHIS (%)	DHIS (%)	Max (dB)	Min (dB)
5150	26.52	-5.76	-1.81	-3.96	15.342	11.176	-1.81	-18.34
5170	28.64	-5.43	-1.49	-3.64	16.405	12.234	-1.49	-16.19
5190	28.6	-5.44	-1.51	-3.66	16.127	12.475	-1.51	-14.97
5210	32.49	-4.88	-0.62	-2.77	18.142	14.345	-0.62	-14.94
5230	29.26	-5.34	-1.11	-3.26	16.148	13.112	-1.11	-16.25
5250	33.13	-4.8	-0.29	-2.44	18.028	15.099	-0.29	-14.22
5270	32.32	-4.91	0	-2.15	17.211	15.109	0	-13.2
5290	33.98	-4.69	0.52	-1.63	17.858	16.121	0.52	-14.12
5310	28.13	-5.51	-0.17	-2.32	14.721	13.404	-0.17	-15.39
5330	27.73	-5.57	-0.06	-2.21	14.35	13.377	-0.06	-14.44
5350	27.3	-5.64	0.27	-1.88	13.735	13.562	0.27	-14.86
5370	27.4	-5.62	0.47	-1.68	13.488	13.909	0.47	-15.02
5390	22.94	-6.39	-0.26	-2.41	11.19	11.746	-0.26	-16.83
5410	27.79	-5.56	0.72	-1.43	13.381	14.41	0.72	-17.34
5430	23.82	-6.23	0.29	-1.86	11.207	12.614	0.29	-18.41
5450	28.01	-5.53	0.9	-1.25	13.053	14.962	0.9	-17.61
5470	25.27	-5.97	0.39	-1.76	11.681	13.591	0.39	-19.51
5490	27.13	-5.67	0.78	-1.37	12.497	14.632	0.78	-19.81
5510	27.2	-5.65	0.88	-1.27	12.448	14.756	0.88	-17.37
5530	29.04	-5.37	0.99	-1.16	13.088	15.949	0.99	-17.02
5550	29.69	-5.27	0.75	-1.4	13.266	16.423	0.75	-14.67
5570	29.08	-5.36	0.75	-1.4	12.735	16.345	0.75	-14.77
5590	31.13	-5.07	1.03	-1.12	13.337	17.797	1.03	-14.74
5610	28.74	-5.42	0.68	-1.47	12.049	16.691	0.68	-16.29
5630	31.04	-5.08	0.8	-1.35	12.845	18.196	0.8	-17.75
5650	29.17	-5.35	0.34	-1.81	11.919	17.254	0.34	-18.54
5670	31.8	-4.98	0.51	-1.64	12.883	18.916	0.51	-16.84
5690	30.94	-5.09	0.04	-2.11	12.578	18.366	0.04	-14.76
5710	31.99	-4.95	-0.3	-2.45	13.123	18.864	-0.3	-15.85
5730	34.23	-4.66	0.61	-1.54	14.101	20.129	0.61	-17.51
5750	31.32	-5.04	0.38	-1.77	12.947	18.371	0.38	-19.01
5770	32.82	-4.84	0.58	-1.57	13.746	19.079	0.58	-18.53
5790	30.06	-5.22	0.53	-1.62	12.925	17.132	0.53	-19.38
5810	31.85	-4.97	1.15	-1	13.994	17.86	1.15	-20.7
5830	31.29	-5.05	1.2	-0.95	14.055	17.238	1.2	-17.73
5850	32.28	-4.91	1.31	-0.84	14.738	17.542	1.31	-15.95

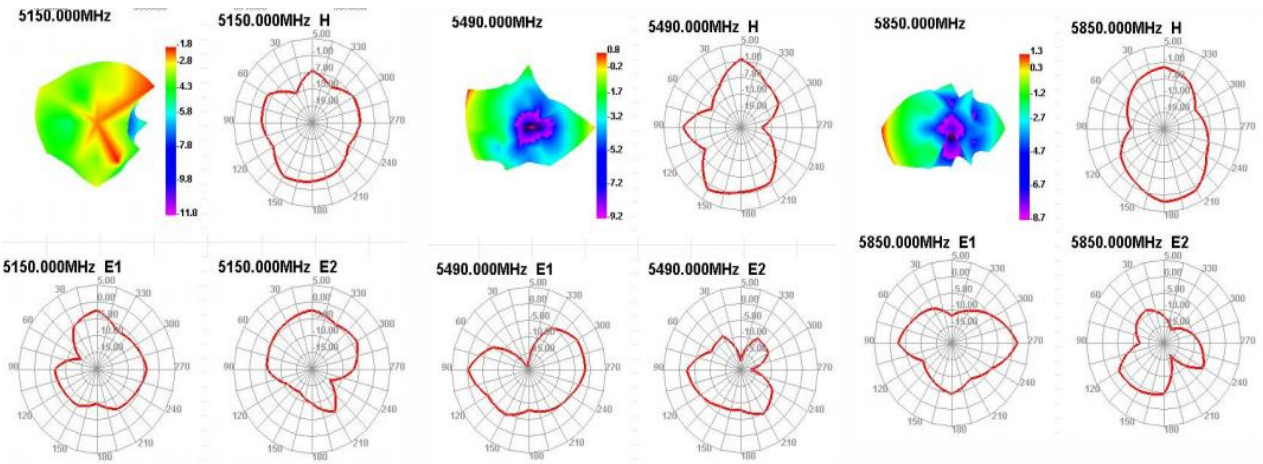
Radiation Pattern（GPS）



Radiation Pattern（2.4G）



Radiation Pattern（5G）



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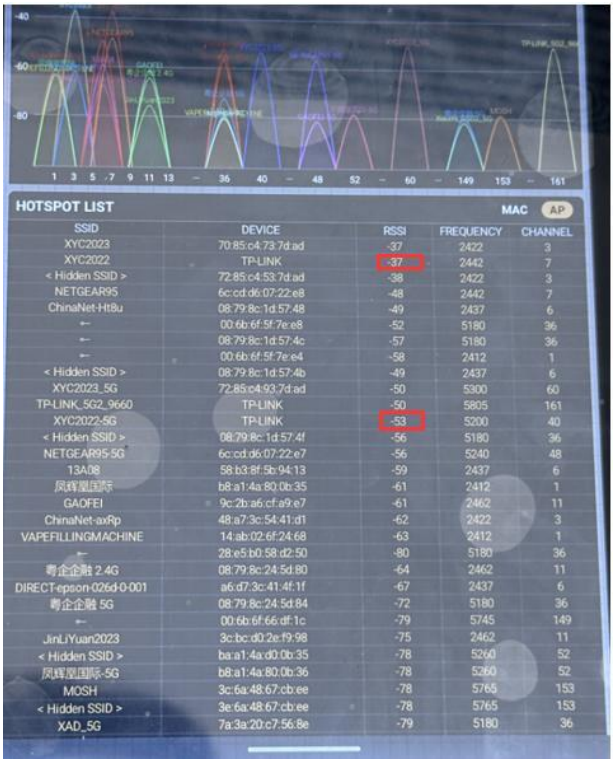
WiFi/BT Measured

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:-53dBm
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。

WIFI Active test data

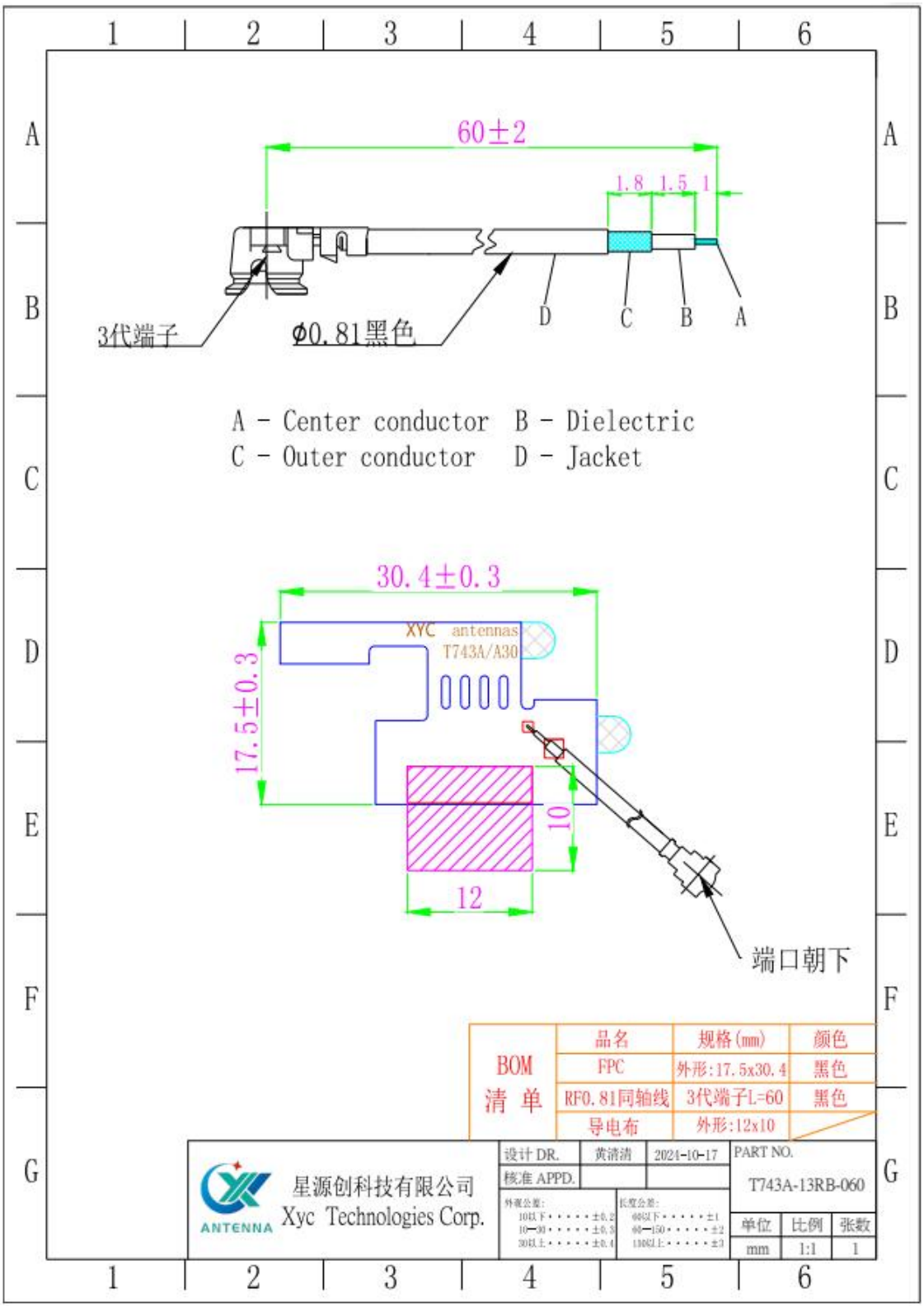
	Frequency	TRP		TIS	
802.11b	2412	CH1 11Mbps	14.86	CH1 11Mbps	-81.44
	2437	CH6 11Mbps	14.27	CH6 11Mbps	-81.61
	2467	CH11 11Mbps	13.81	CH11 11Mbps	-80.42
802.11a		TRP		TIS	
	5180	CH36 6Mbps	11.31	CH36 54Mbps	-71.88
	5300	CH60 6Mbps	11.78	CH60 54Mbps	-70.46
	5805	CH161 6Mbps	11.13	CH161 54Mbps	-70.68

GPS Measured

GPS冷启动实测效果以下：
CN值40以上3颗
CN值35以上5+颗
实际定位9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

Antenna Assembly



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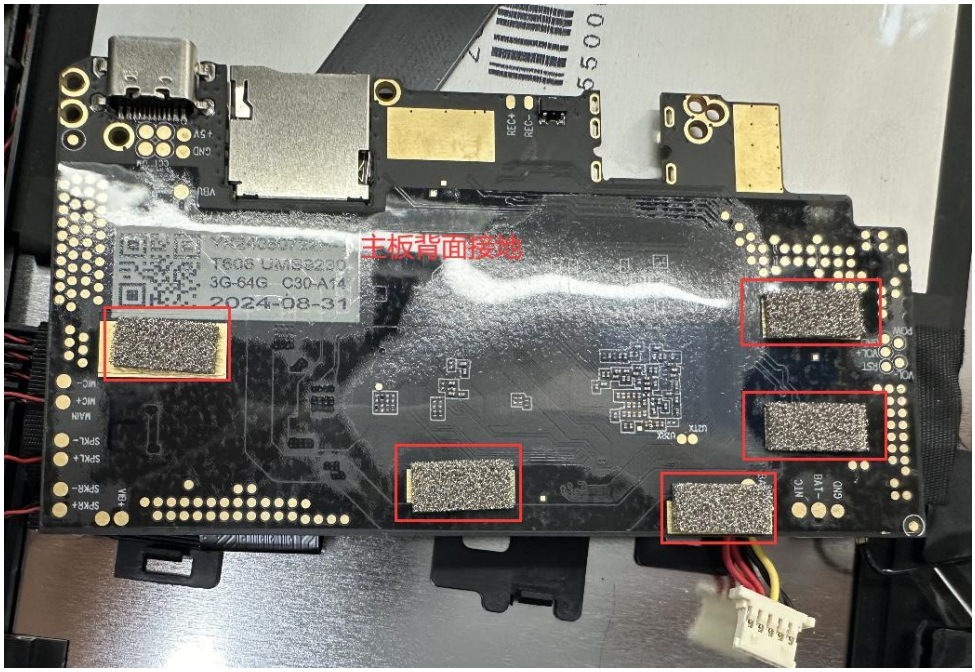

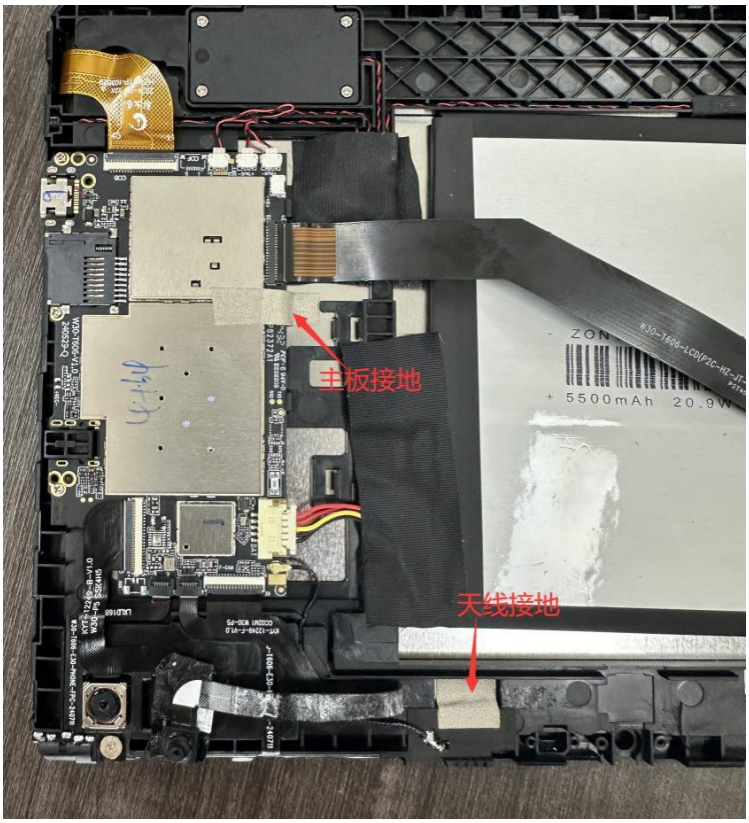

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