



深圳市美禾嘉科技有限公司

Shenzhen Meihejia Technology Co., Ltd.

天线测试报告

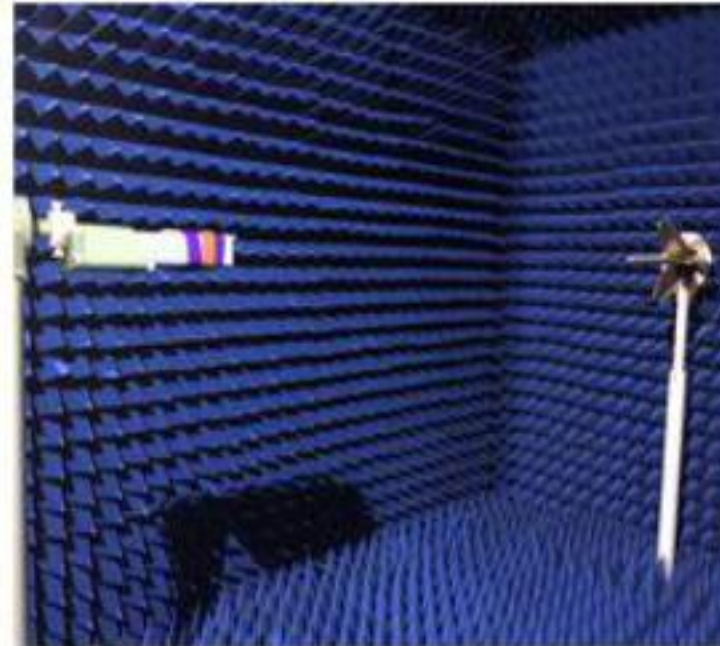


客户名称	拓海	项目名称	K11-7731E
调试频段	W/G/B	结构方式	FPC
射频工程师	曹工	结构工程师	梁工
天线类型	同轴线+FPC	日期	2025-03-19

测试环境
Test environment

	测试项目	设备
1. S参数 (S-parameter)	1. 回波损耗 (Return Loss) 2. 电压驻波比 (VSWR)	网络分析仪: Agilent E5071B HP 8753D
2. 有源测试 (Active)	1. 发射功率 (TRP) 2. 接收灵敏度 (TIS)	1. 暗室: ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2.综合测试仪: Agilent 8960 E5515B × 2 StarPoint SP6011
3.无源测试 (Passive)	1.天线增益 (Gain) 2.天线效率 (Efficiency)	1. 暗室: ETS 7x4x3 m (3D) Chamber ETS 5x3x3 m (3D) Chamber 2. 网络分析仪: Agilent E5071B HP 8753D

测试设备 Test Equipment



天线位置 Antenna position

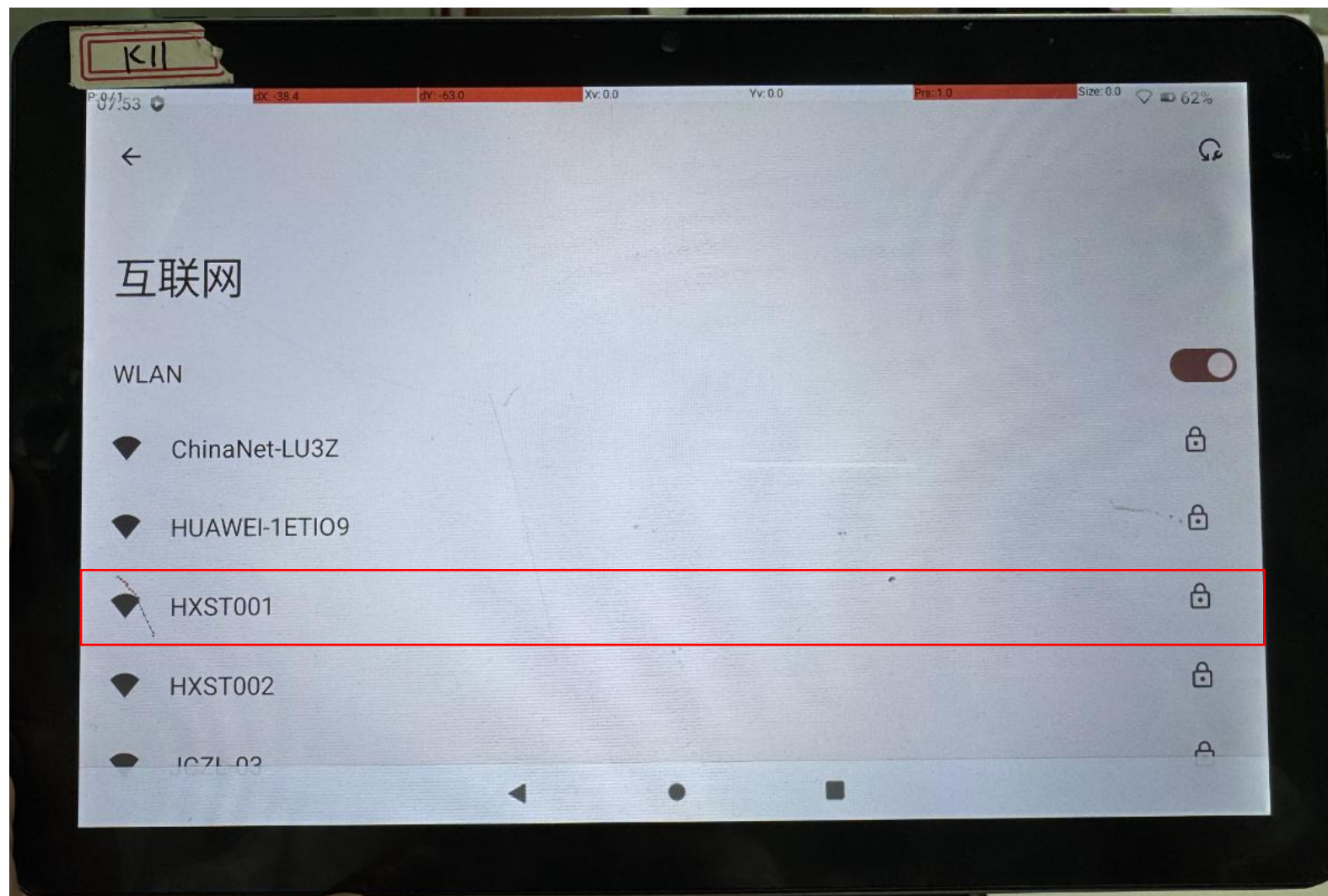
W/G/B天线



Wifi天线实测

Wifi Antenna test

测试环境：
办公室内
距离路由器距离：
约15米





有源数据
Active data

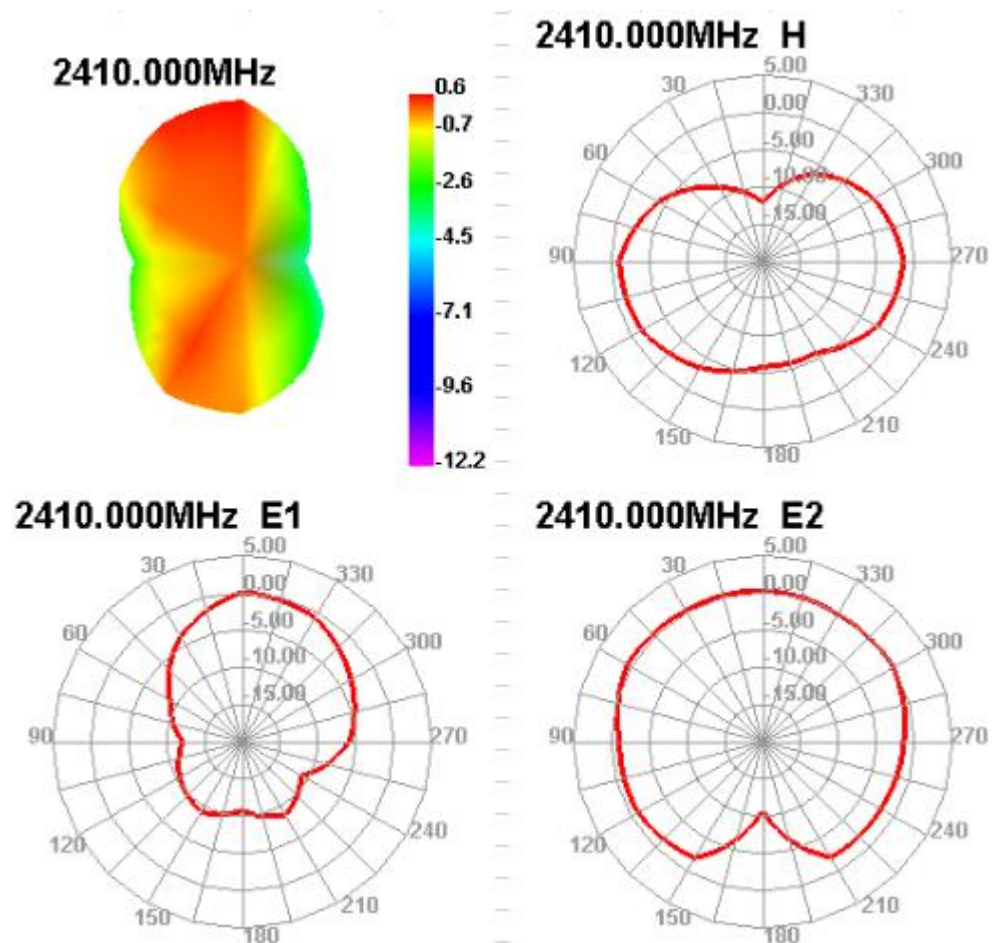
Band	channel	DataRate	TRP	DataRate	TIS	Band	channel	DataRate	TRP	DataRate	TIS
WIFI2. 4G 802. 11b	1	11Mbps	12. 3	11Mbps	-80. 2	WIFI-5G 802. 11A	/	54Mbps	/	54Mbps	
	7		13.1		-80. 9		/		/		
	11		12.5		-80. 6		/		/		/



效率与增益

Passive Test For WIFI2.4										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
2400	54.18	-2.66	0.78	-1.37	33.764	20.42	0.78	-12.85	52.03	53.99
2410	50.32	-2.98	0.63	-1.52	31.242	19.074	0.63	-12.18	51.99	53.84
2420	45.19	-3.45	0.22	-1.93	28.056	17.136	0.22	-11.92	52.04	53.98
2430	46.29	-3.35	0.15	-2	28.37	17.919	0.15	-12.14	52.23	54.02
2440	50.34	-2.98	0.79	-1.36	30.629	19.708	0.79	-11.94	52.54	54.25
2450	46.55	-3.32	0.42	-1.73	28.409	18.142	0.42	-12.27	52.64	54.11
2460	45.61	-3.41	0.34	-1.81	27.523	18.084	0.34	-11.46	52.59	54.02
2470	46.74	-3.3	0.51	-1.64	28.255	18.489	0.51	-11.54	52.66	54.04
2480	49.63	-3.04	1.01	-1.14	30.102	19.524	1.01	-12.38	53.06	54.43
2490	51.42	-2.89	0.99	-1.16	31.49	19.931	0.99	-14.8	53.33	54.57
2500	47.42	-3.24	0.5	-1.65	29.123	18.293	0.5	-17.82	53.11	54.29

效率与增益



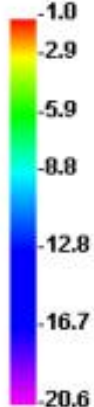
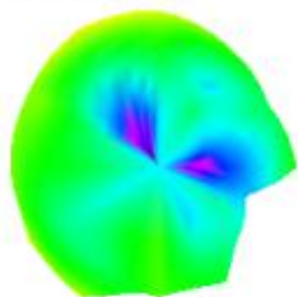


效率与增益

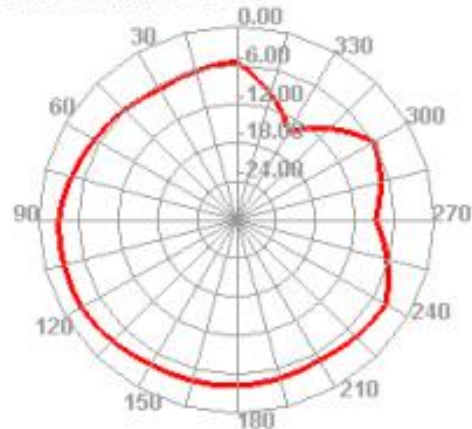
Passive Test For WIFI5.8										
Freq (MHz)	Effi (%)	Effi (dB)	Gain (dBi)	Gain (dBd)	UHS (%)	DHIS (%)	Max (dB)	Min (dB)	Attenut Hor	Attenut Ver
5150	23.45	-6.3	-0.97	-3.12	10.716	12.729	-0.97	-20.64	67.1	67.06
5200	28.62	-5.43	-0.75	-2.9	12.947	15.669	-0.75	-18.08	66.82	66.31
5250	35.67	-4.48	0.15	-2	14.146	21.524	0.15	-16.76	66.81	66.91
5300	34.22	-4.66	-0.43	-2.58	14.334	19.886	-0.43	-16.55	67.46	67.1
5350	43.1	-3.66	0.41	-1.74	16.438	26.661	0.41	-15.91	67.85	68.05
5400	48.62	-3.13	1.05	-1.1	19.726	28.899	1.05	-13.75	68.31	68.3
5450	45.82	-3.39	1.99	-0.16	16.624	29.198	1.99	-20.82	68.63	69.56
5500	38.87	-4.1	1.32	-0.83	14.642	24.229	1.32	-17.87	69.22	69.75
5550	37.57	-4.25	0.35	-1.8	13.182	24.391	0.35	-16.87	70.49	71.74
5600	39.86	-3.99	2.97	0.82	13.852	26.013	2.97	-15.01	70.64	72.39
5650	33.7	-4.72	1.72	-0.43	10.928	22.776	1.72	-19.27	70.41	70.91
5700	35.58	-4.49	1.72	-0.43	12.142	23.436	1.72	-15.5	70.26	71.01
5750	32.33	-4.9	1.92	-0.23	12.275	20.058	1.92	-15.51	69.85	70.95
5800	34.86	-4.58	1.32	-0.83	13.086	21.771	1.32	-16.35	69.93	71.14
5850	30.01	-5.23	0.77	-1.38	13.087	16.922	0.77	-17.65	70.26	70.23

效率与增益

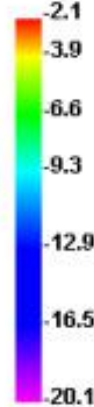
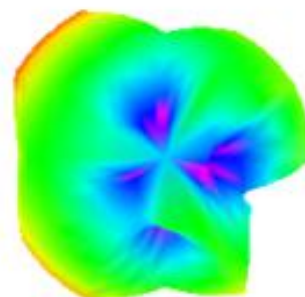
5150.000MHz



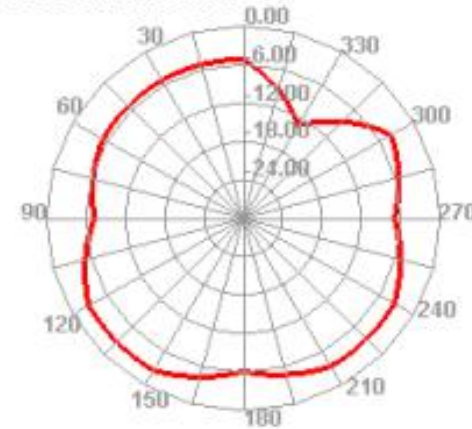
5150.000MHz H



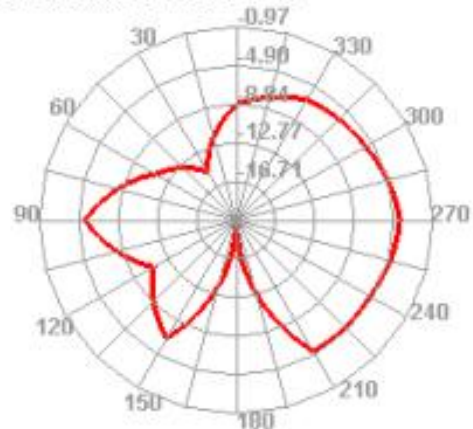
5160.000MHz



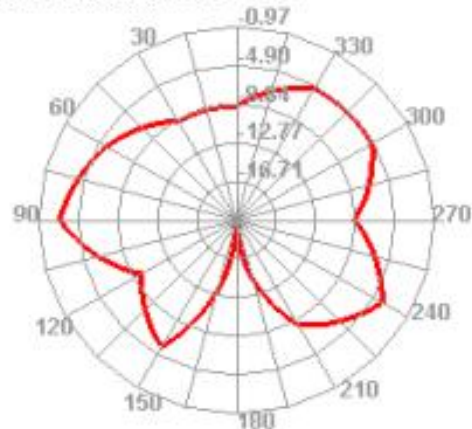
5160.000MHz H



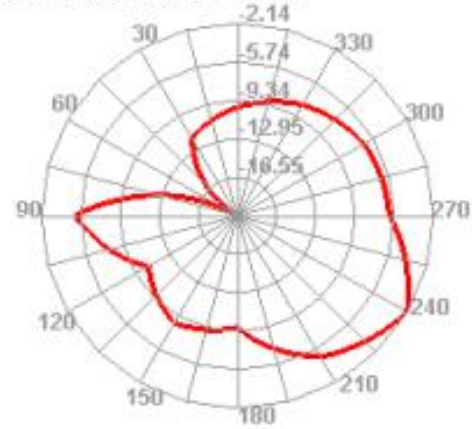
5150.000MHz E1



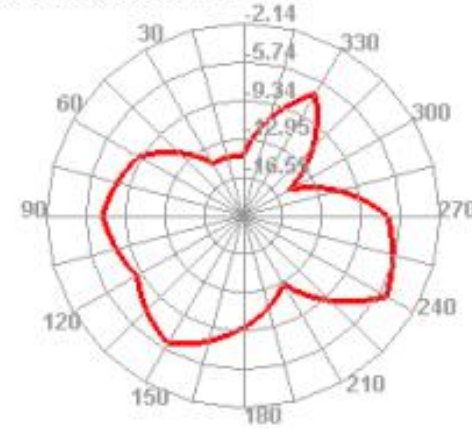
5150.000MHz E2



5160.000MHz E1



5160.000MHz E2





吞吐量测试 Throughput test

型号	距离	WIFI	单位	sender数据			平均值
K11-7731E	1M	2.4G	Mbits/sec	47.0	50.0	49.4	48.8
				receiver数据			平均值
				47.0	50.0	49.4	48.5
型号	距离	WIFI	单位	sender数据			平均值
K11-7731E	5M	2.4G	Mbits/sec	39.2	42.3	41.0	40.75
				receiver数据			平均值
				39.2	42.3	41.0	40.75
型号	距离	WIFI	单位	sender数据			平均值
K11-7731E	10M	2.4G	Mbits/sec	37.4	35.2	37.1	36.3
				receiver数据			平均值
				37.4	35.2	37.1	36.3

GPS搜星测试

GPS star search test

GPS冷启动实测效果以下：
CN值40以上2颗
CN值35以上5颗 实际定位20颗

备注：
GPS搜星测试会因时间段及地区
而存在差异，以上数据为我司户外
测试最佳数据

K11

05:46

状态

1		L1	39.0	AEU	32°	35°
2		L1	36.0	AEU	11°	41°
3		L1	40.0	AEU	41°	86°
6		L1	22.0	AEU	29°	234°
7		L1	29.0	AEU	19°	183°
8		L1	29.0	AEU	3°	85°
14		L1	29.0	AEU	70°	344°
17		L1	35.0	AEU	45°	333°
22		L1	31.0	AEU	49°	332°
30		L1	24.0	AEU	37°	218°
10		E1	31.0	AEU	77°	277°
11		E1	14.0	AEU	51°	235°
12		E1	24.0	AEU	68°	13°
31		E1	27.0	AE		
194		L1	32.0	AE		
195		L1	31.0	AEU	62°	53°
196		L1	28.0	AEU	27°	139°
6		B1	33.0	AEU	37°	205°
8		B1	23.0	AEU	34°	170°
10		B1	28.0	AEU	54°	333°
16		B1	38.0	AEU	32°	196°
29		B1	32.0	AEU	54°	346°
30		B1	41.0	AEU	22°	47°
32		B1	30.0	AEU	8°	66°
36		B1	27.0	AEU	53°	178°

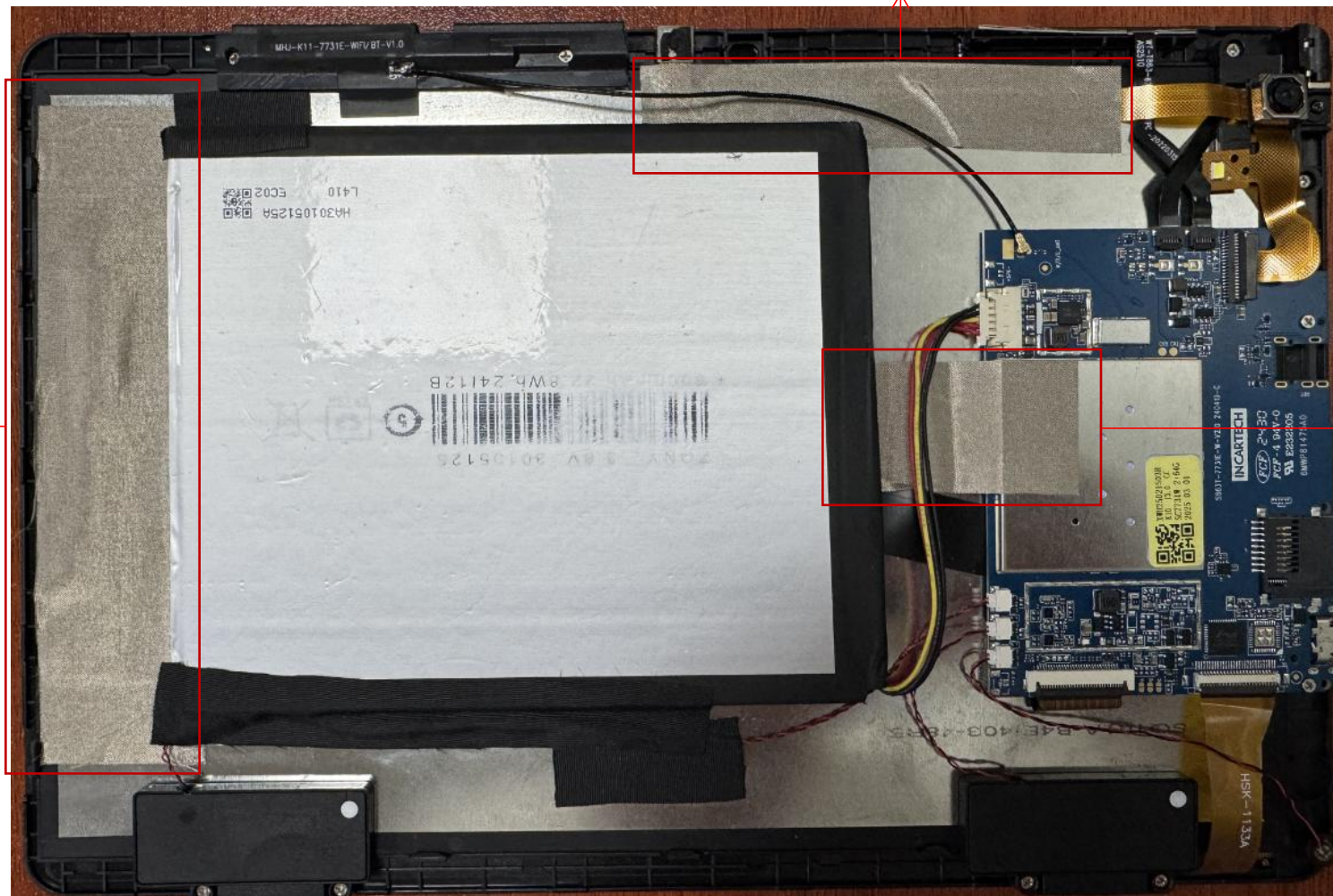


环境处理 Environmental treatment

1.摄像头排线贴导电布屏蔽并接地

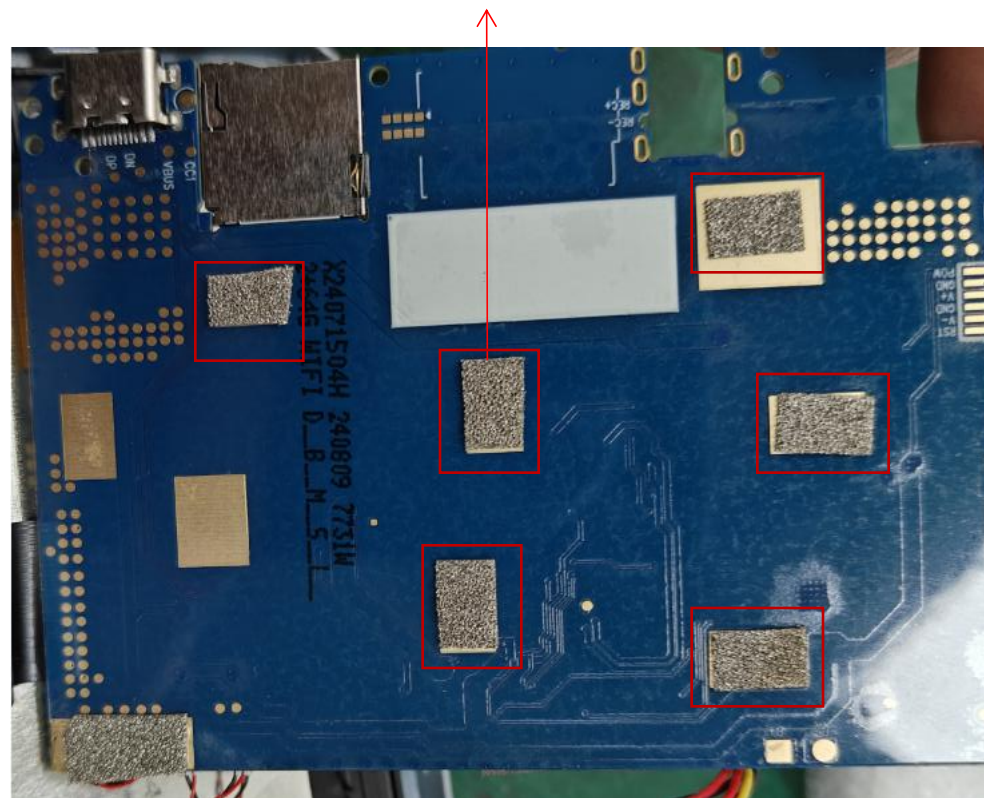
2.屏IC部位贴导电布
屏蔽并接地

3.主板贴导电布
与屏接地



环境处理 Environmental treatment

4.主板背面此6个位置贴导电棉与屏接地





为客户提供更佳服务

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