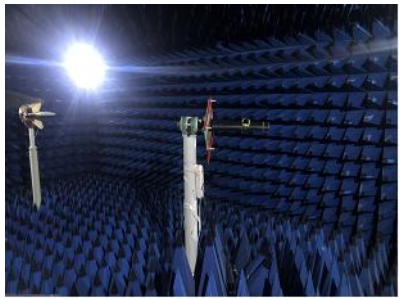
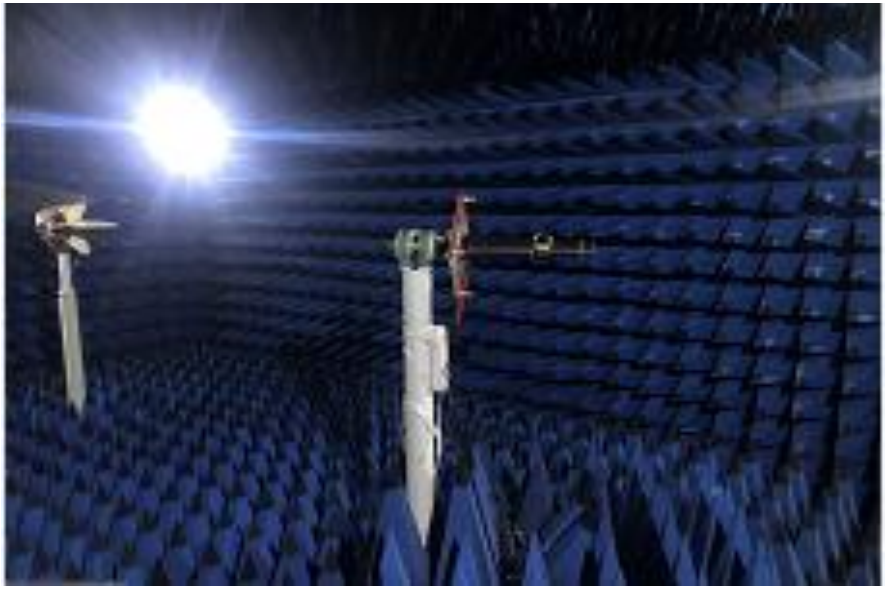
Commissioning report of the homogeneous BG1 antenna

Radio frequency: Chen Konghong
Date: 2024-01-29
Contact information: 19925137130



Project development environment

We are moving from the Internet era to the intelligent era, and the country is building a digital society and a smart city. In the next 5-10 years, there is a huge development potential in both the consumer electronics market and the Internet of Things market. The field of wireless communication is very diversified. In the future, relying on the customer platform advantages of the main antenna industry, Yusheng will strive to provide customers with professional product solutions with market competitiveness.



Yu Sheng communication products cover almost all wireless terminal equipment antenna applications, including car antenna, high precision surveying and mapping antenna, drone ground and satellite data navigation, high precision positioning antenna, medical equipment wireless transmission, consumer antenna (mobile phone antenna, PAD, laptop antenna), base station / indoor distribution antenna, smart wear antenna (smart watches, TWS headphones), security household antenna and a variety of wireless data transmission and wireless control of intelligent equipment antenna, etc.

1. Project commissioning brief
2. Outline of the report version
3. Antenna passive parameter
4. Antenna environment treatment and improvement
5. Match modification

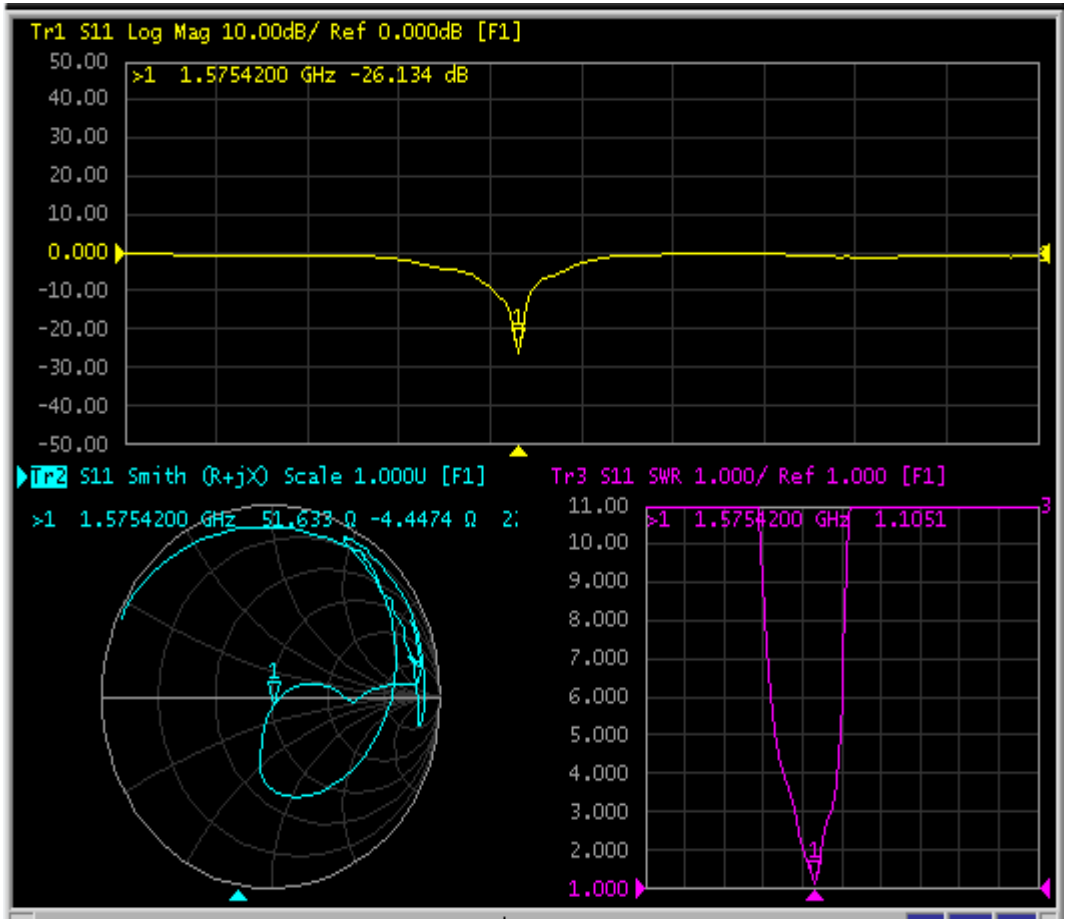
Project commissioning brief

type	cellphone			
template	motherboard			
Frequency band and antenna material	main antenna	frequency range		material quality
		GPS	L1:1575.42MHz/L5：1176.45MHz	LDS
	Other antennas	WIFI/BLE	1575.42MHz/2.450G	FPC
performance requirement	According to the customer's requirements			

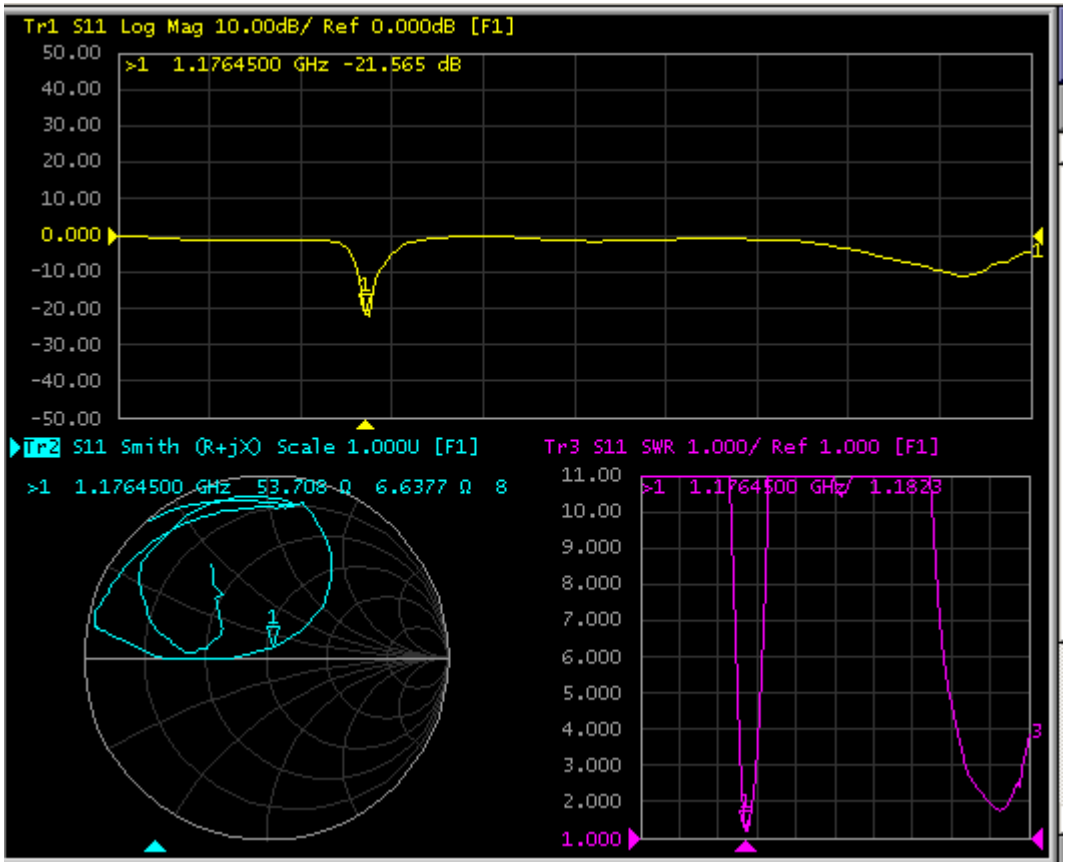
Outline of the report version

Report version	Report time	The antenna development solved the problem
V0.1	20240129	The whole machine is in the trial production prototype state

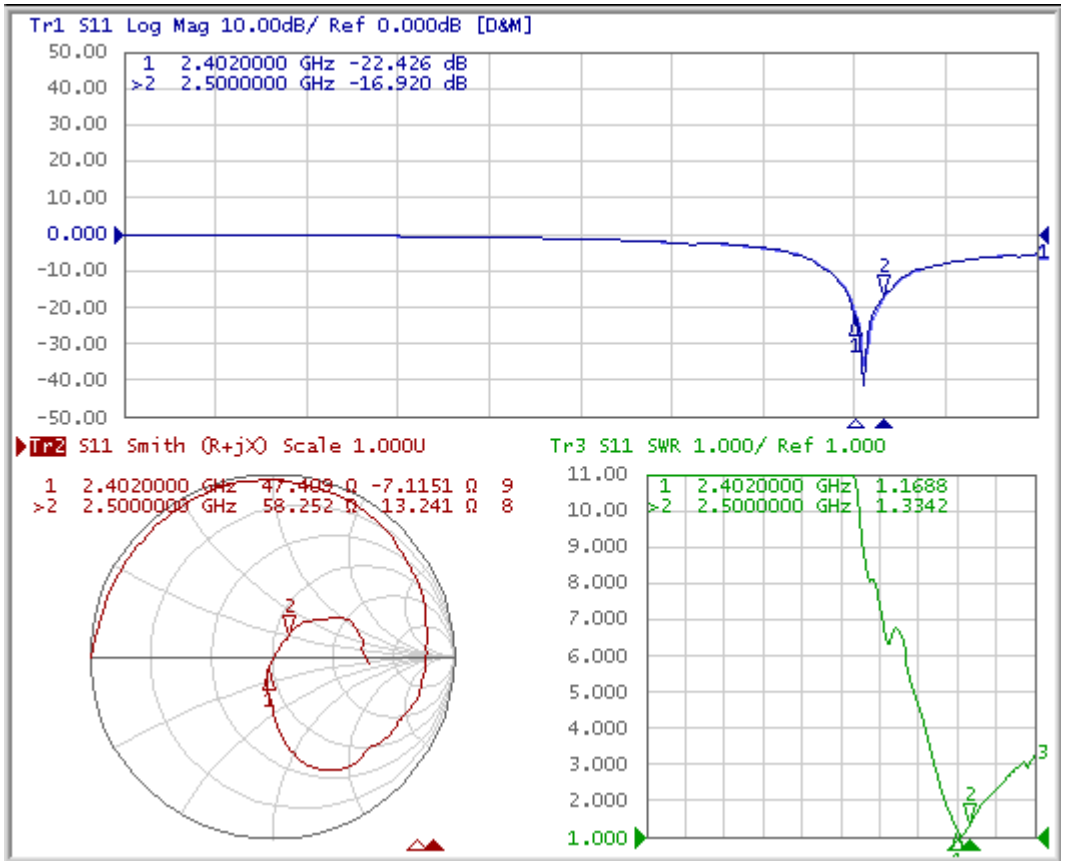
Antenna passive parameters: GPS-L1



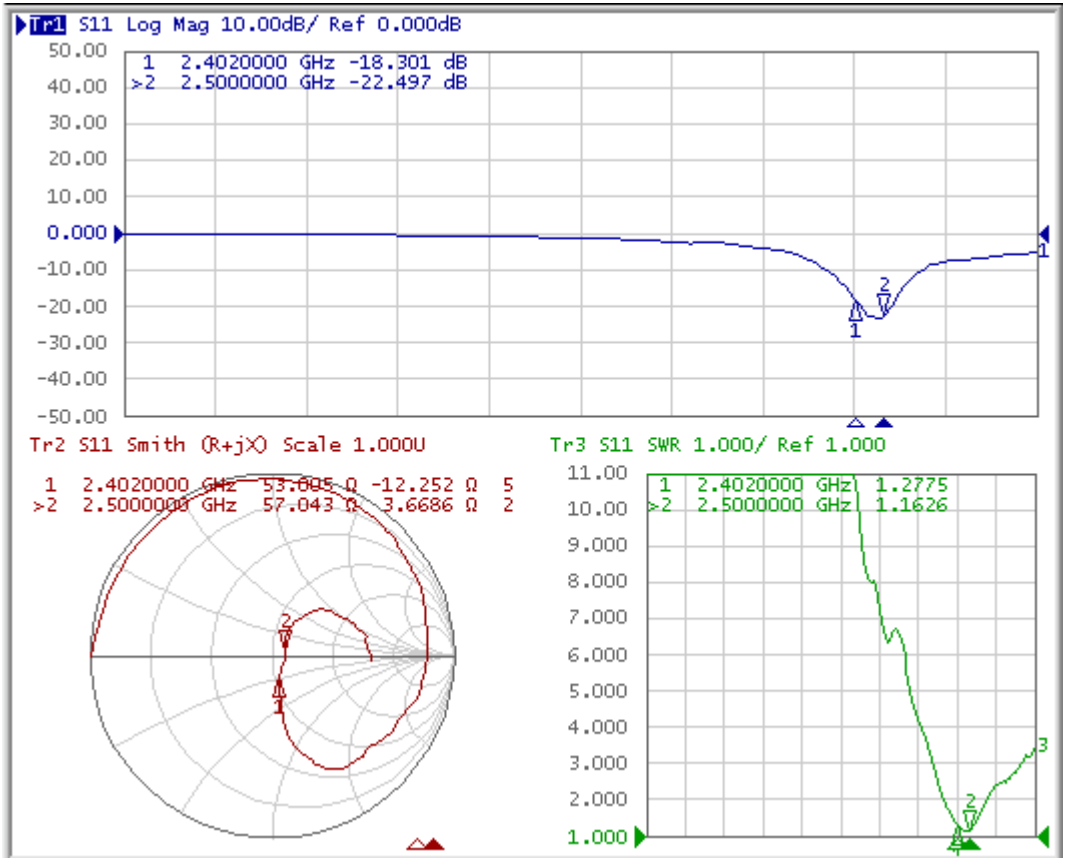
Antenna passive parameters: GPS-L5



Antenna passive parameters: WIFI



Antenna passive parameters: BLE



Antenna passive parameter

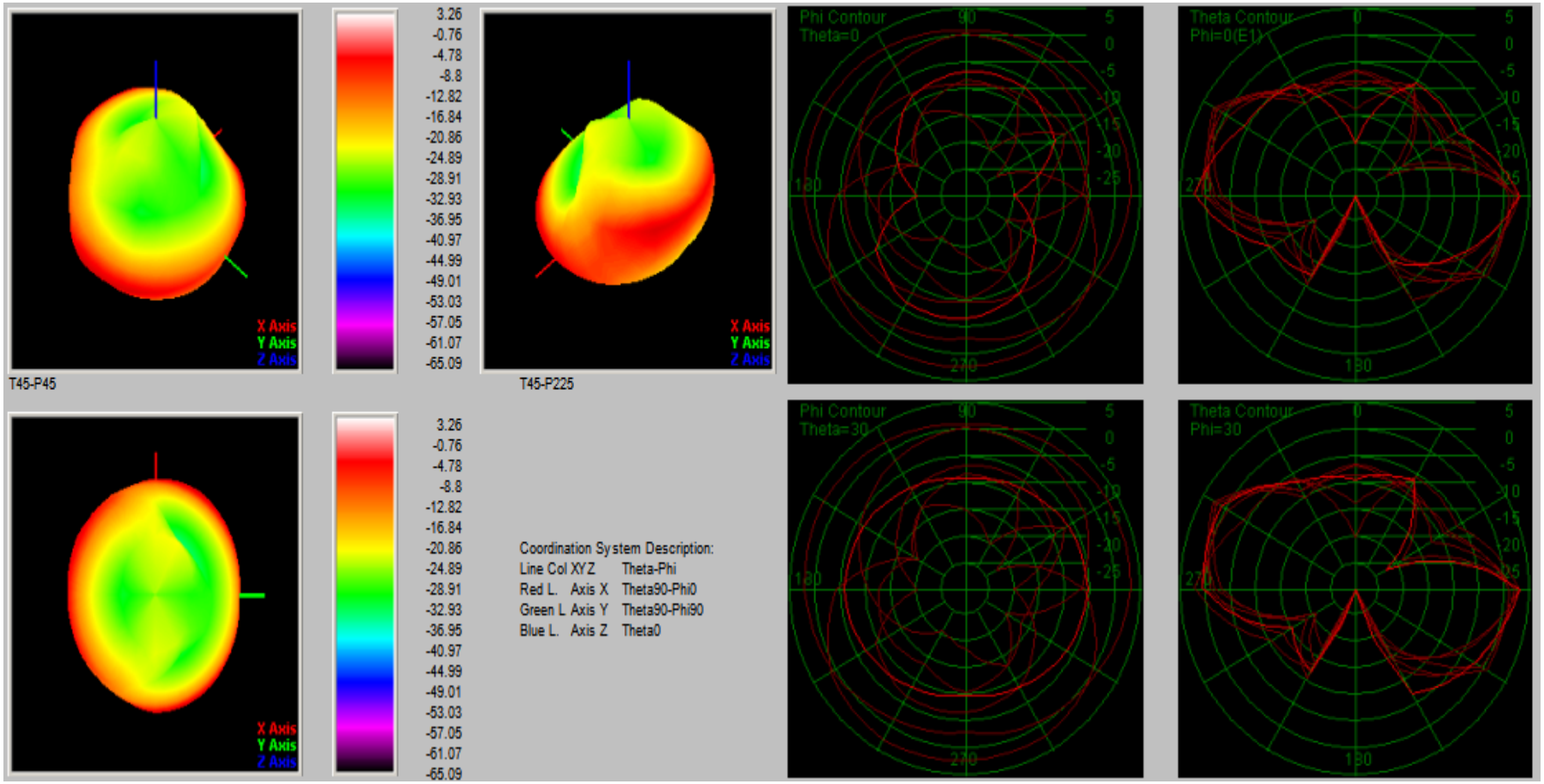
Freq(L1/L5)	Effi(%)	Gain （dbi ）
1550MHZ	43	1.3
1560MHZ	44	1.4
1570MHZ	46	1.3
1580MHZ	45	1.4
1590MHZ	43	1.2
1160MHZ	38	1.1
1165MHZ	39	1.2
1170MHZ	42	1.3
1175MHZ	43	1.2
1180MHZ	42	1.2
1185MHZ	40	1.0

Freq(WIFI)	Effi(%)	Gain （dbi ）
2400MHZ	35	1.3
2410MHZ	36	1.4
2420MHZ	37	1.5
2430MHZ	40	1.6
2440MHZ	43	1.8
2450MHZ	45	1.7
2460MHZ	46	1.7
2470MHZ	42	1.5
2480MHZ	40	1.5
2490MHZ	38	1.3
2500MHZ	34	1.0

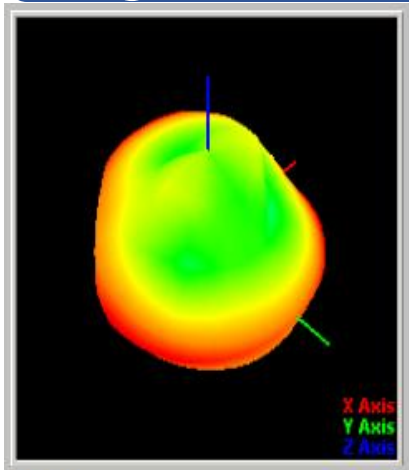
Antenna passive parameter

Freq(BLE	Effi(%)	Gain （dbi ）
2400MHZ	34	0.9
2410MHZ	36	1.1
2420MHZ	38	1.3
2430MHZ	42	1.5
2440MHZ	43	1.4
2450MHZ	46	1.5
2460MHZ	45	1.6
2470MHZ	43	1.5
2480MHZ	42	1.4
2490MHZ	39	1.3
2500MHZ	38	1.3
2400MHZ	36	1.0
2410MHZ	35	0.9

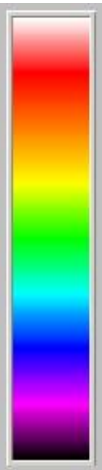
Direction diagram GPS-L1

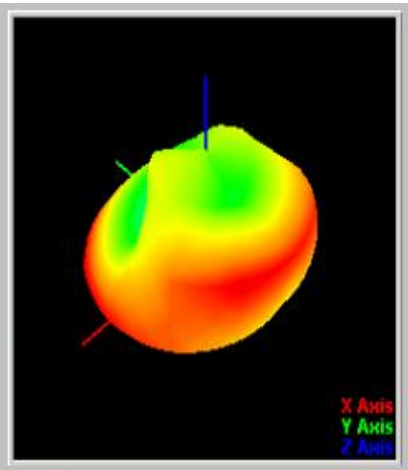


Direction diagram GPS-L5

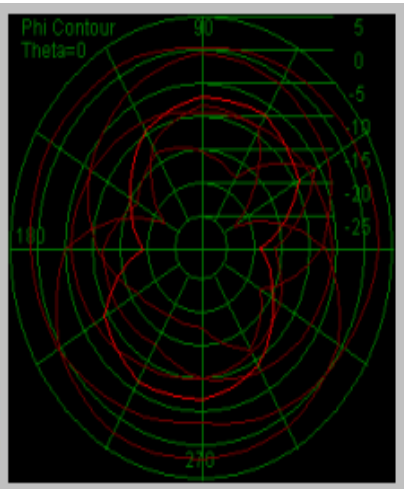


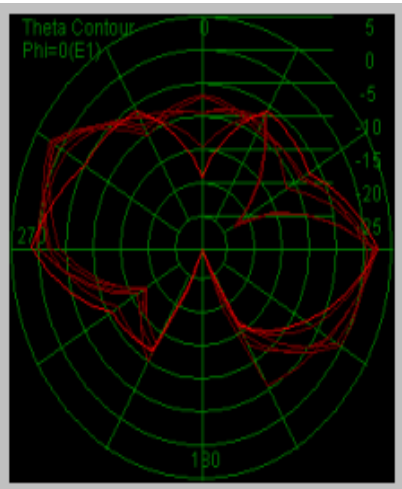
T45-P45

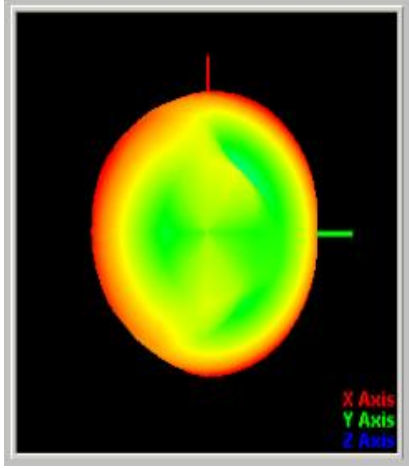


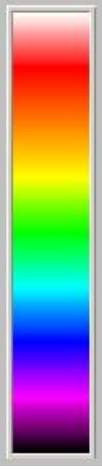


T45-P225



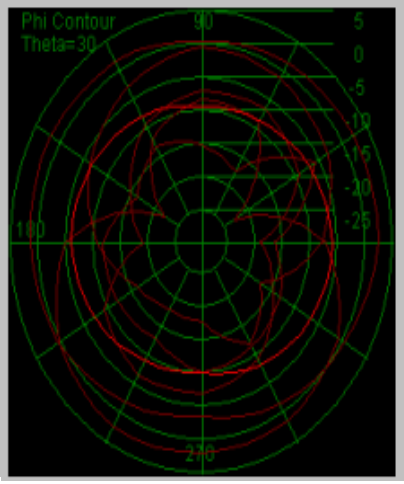


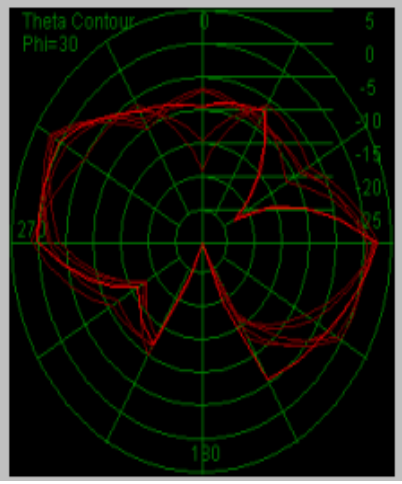




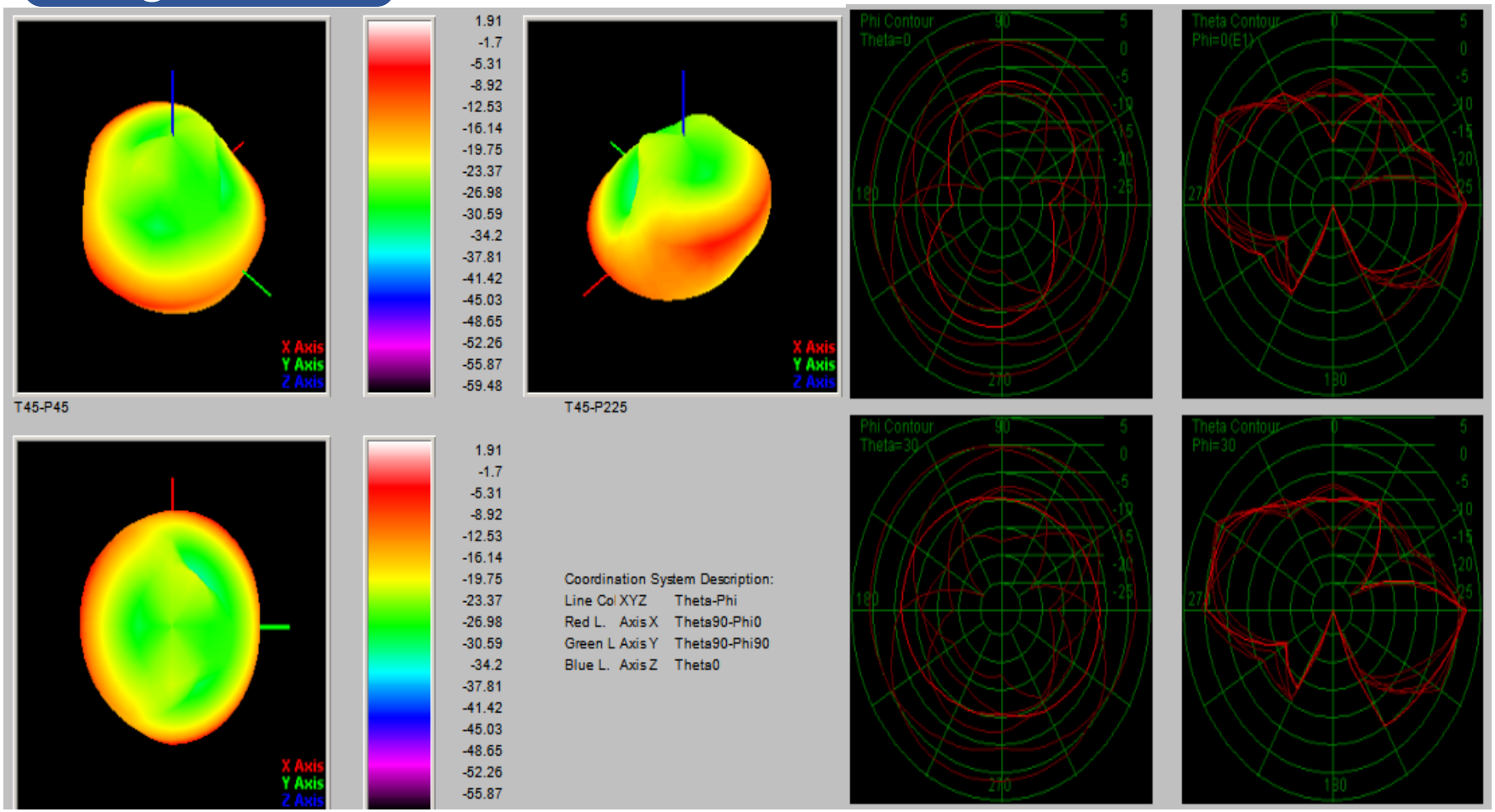
Coordination System Description:

Line Col	XYZ	Theta-Phi
Red L.	Axis X	Theta90-Phi0
Green L	Axis Y	Theta90-Phi90
Blue L.	Axis Z	Theta0

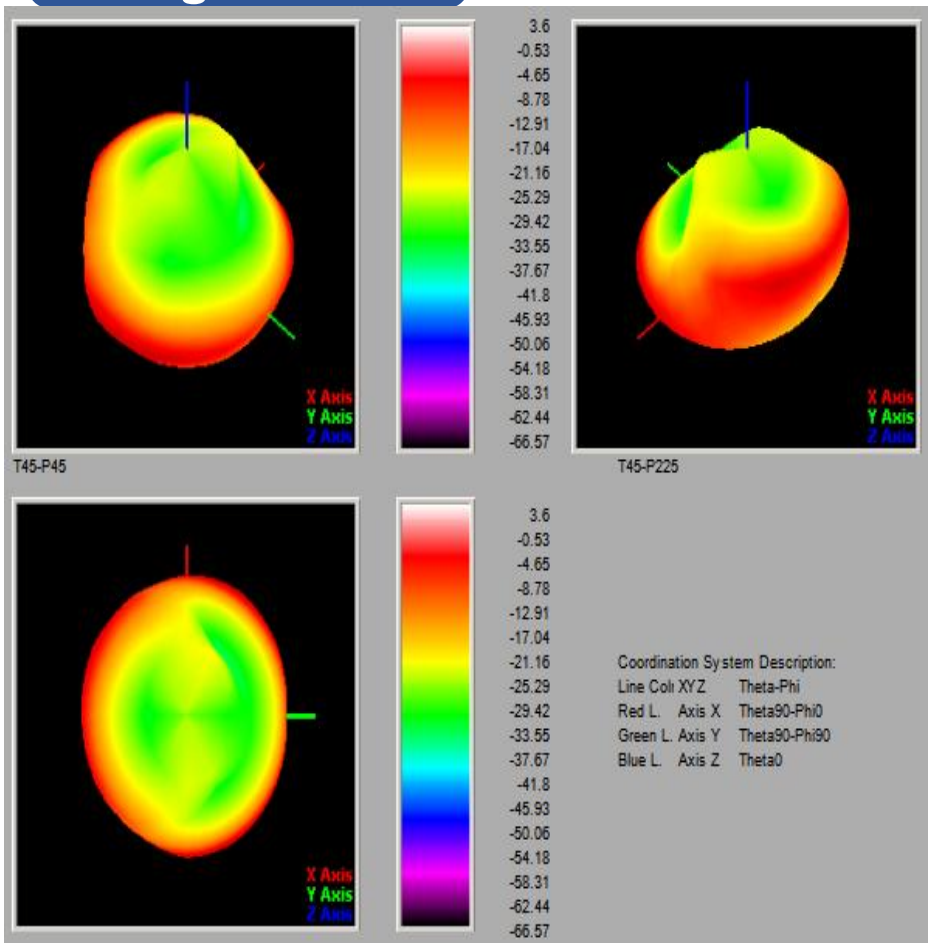


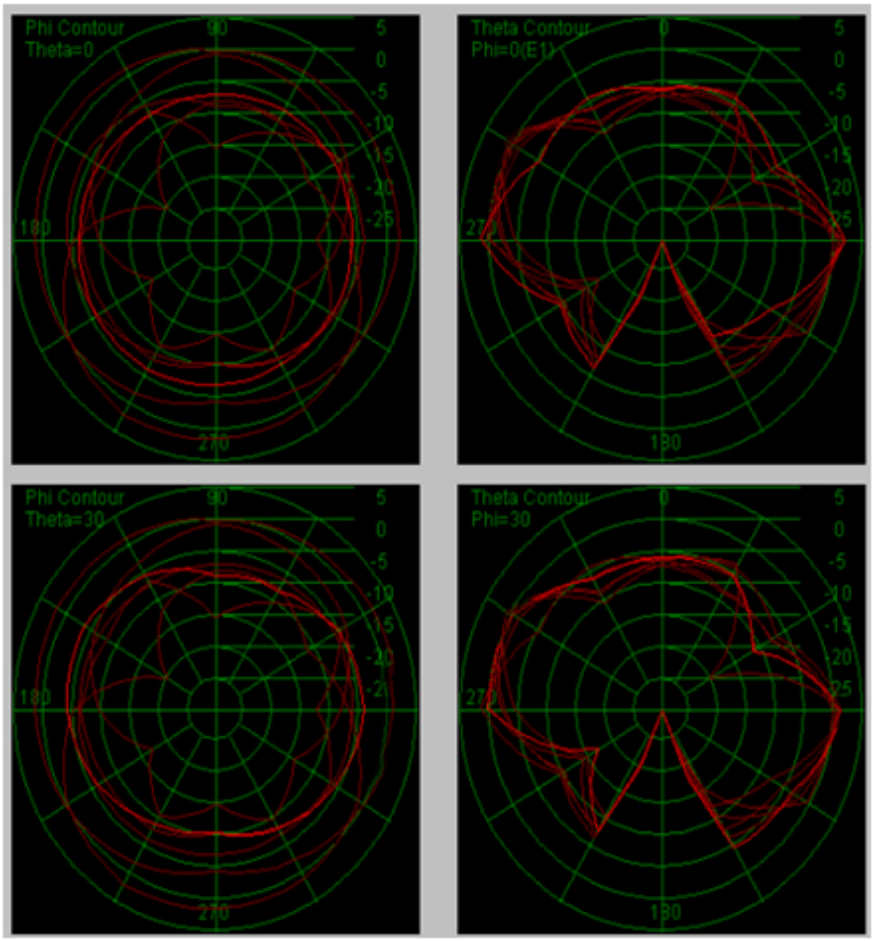


directional diagram WIFI



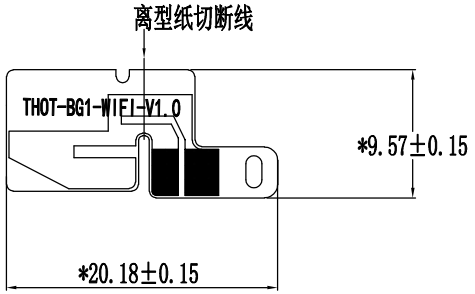
directional diagram BLE





标记	签　名	修改内容	日 期

WIFI Antenna size



技术要求：			
1. FPC基材规格：	PI基材：	电解铜 1对半	
	电解铜(单面板)：	0.5oz(ED)	
	双面胶：	TESA 68532	
2. 电镀规格：	镀镍：3~8um；	镀金：0.075UM	
3. 表面油墨要求：	表面油墨颜色：	亚光黑色	其它要求
	印刷字体颜色：	亮黑	
	印刷字体高度：	按图纸要求	
4. 可靠性要求：	1. 可靠性测试:盐水喷雾试验\橡皮摩擦测试\耐醇性测试\恒温恒湿试验\冷热冲击试验. 2. 正面油墨，油墨表面要求对折不开裂,不可划伤等.		
5. 公差要求：	1. 外形公差±0.15; 2. 铜箔线路公差±0.05; 3. 铜箔到外形的位置±0.15; 4. 孔对孔位置公差±0.10； 孔到外形位置公差±0.15; 5. 金手指尺寸公差±0.20. 6. 其它未标注尺寸参照2D图纸.		
6. 重点管控尺寸：	标有数字的尺寸做为重要尺寸，其它参照2D图纸		
7. RoHS要求：	涉及物料必须符合ROHS要求		
8. 包装要求：	用PE袋包装，每袋数量100PCS,包装袋外有标识		

深圳市昱晟通讯设备 有限公司

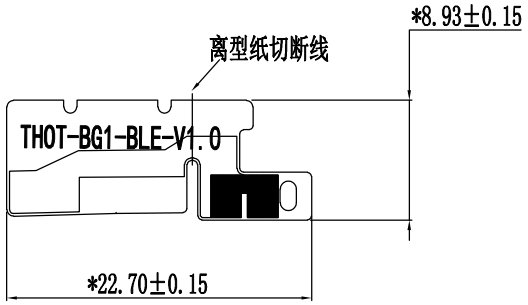
第三视角			
0~3	±0.08	⌖	0.03
3~30	±0.10	○	0.03
30~50	±0.12	◎	∅0.02
50~80	±0.15	⊥	0.02
角度	±1°	▱	0.05

第 1 页，共 1 页

项目名称	BG1	日期	20240130
		设计	FJW
产品名称	WIFI-FPC	审核	MD FJW
			RF tql
产品料号	641001-IC-TA	批准	
材料	FPC	单位 mm	比例 FIT 版本 R:A

标记	签　名	修改内容	日 期

BLE Antenna Size



技术要求：			
1. FPC基材规格：	PI基材：	电解铜 1对半	
	电解铜(单面板)：	0.5oz(ED)	
	双面胶：	TESA 68532	
2. 电镀规格：	镀镍：3~8um；	镀金：0.075UM	
3. 表面油墨要求：	表面油墨颜色：	亚光黑色	其它要求
	印刷字体颜色：	亮黑	
	印刷字体高度：	按图纸要求	
4. 可靠性要求：	1. **可靠性测试:盐水喷雾试验\橡皮摩擦测试\耐醇性测试\恒温恒湿试验\冷热冲击试验.** 2. 正面油墨，油墨表面要求对折不开裂,不可划伤等.		
5. 公差要求：	1. 外形公差±0.15; 2. 铜箔线路公差±0.05; 3. 铜箔到外形的位置±0.15; 4. 孔对孔位置公差±0.10； 孔到外形位置公差±0.15; 5. 金手指尺寸公差±0.20. 6. 其它未标注尺寸参照2D图纸.		
6. 重点管控尺寸：	**标有数字的尺寸做为重要尺寸，其它参照2D图纸**		
7. RoHS要求：	涉及**物料必须符合ROHS要求**		
8. 包装要求：	用PE袋包装，每袋数量100PCS,包装袋外有标识		

深 圳 市 昱 晟 通 讯 设 备 有 限 公 司

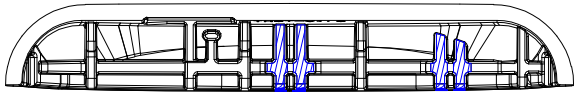
第三视角			
0~3	±0.08	⌖	0.03
3~30	±0.10	○	0.03
30~50	±0.12	◎	∅0.02
50~80	±0.15	⊥	0.02
角度	±1°	▱	0.05

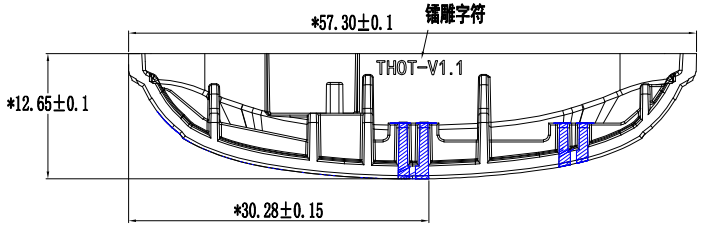
第 1 页，共 1 页

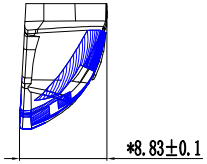
项目名称	BG1	日期	20240227
		设计	FJW
产品名称	BLE-FPC	审核	MD FJW
			RF tql
产品料号	641001-IB-TA	批准	
材料	FPC	单位 mm	比例 FIT 版本 R:A

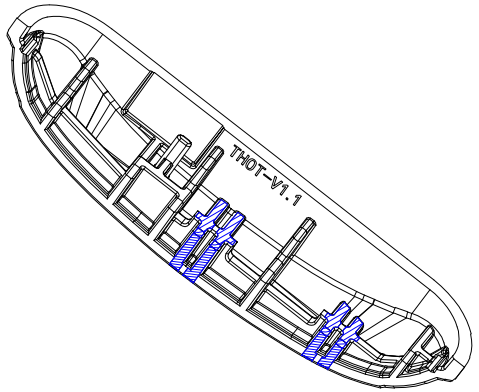
标记	签　名	修改内容	日 期

GPS Antenna Size









技术要求：

1 **带*号尺寸与带公差尺寸为重点管控尺寸，**未标注公差参
考标题栏侧边图框等级公差表；
2 材料: 黑色: LDS材质 （必须使 用100%纯原料)
3.参数要求: CU 8-12 UM NI 2-4UM
4.成品平面度小于等于0.50;
5..标带* 符号的尺寸为重点尺寸，标示CPK需要做CPK,CPK值1.33-1.67之间
6.化镀后天线不可开裂和脱落.明显划伤 溢镀缺镀等不良现象.
7.**天线产品需要百分之百电性能测试.**
8.符合ROHS2.0/HF/Reach/GP环保要求

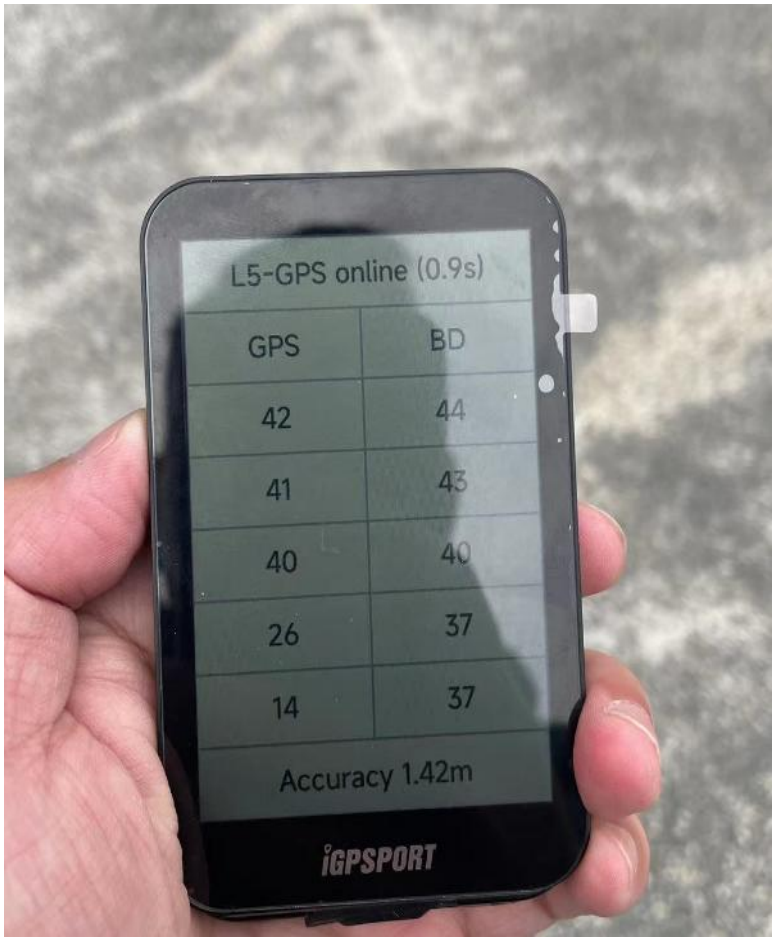
深 圳 市 昱 晟 通 讯 设 备 有 限 公 司

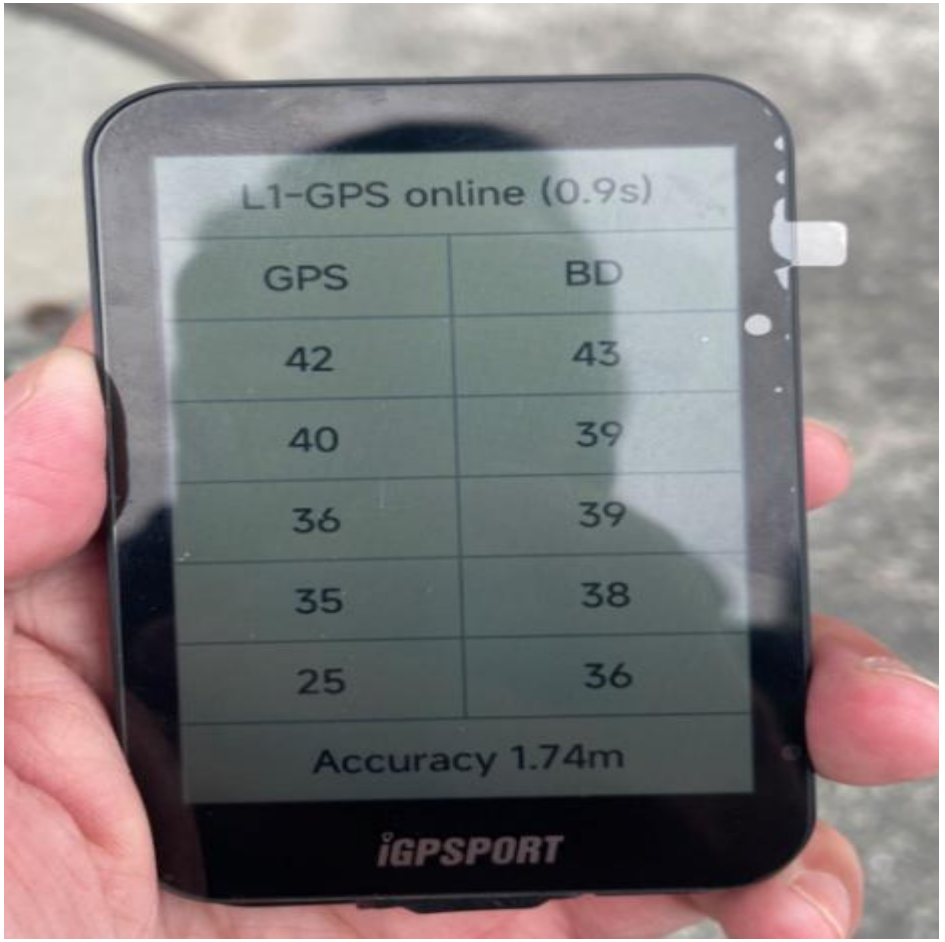
第三视角			
0~3	±0.08	⌖	0.03
3~30	±0.10	○	0.03
30~50	±0.12	◎	∅0.02
50~80	±0.15	⊥	0.02
角度	±1°	▱	0.05

第 1 页，共 1 页

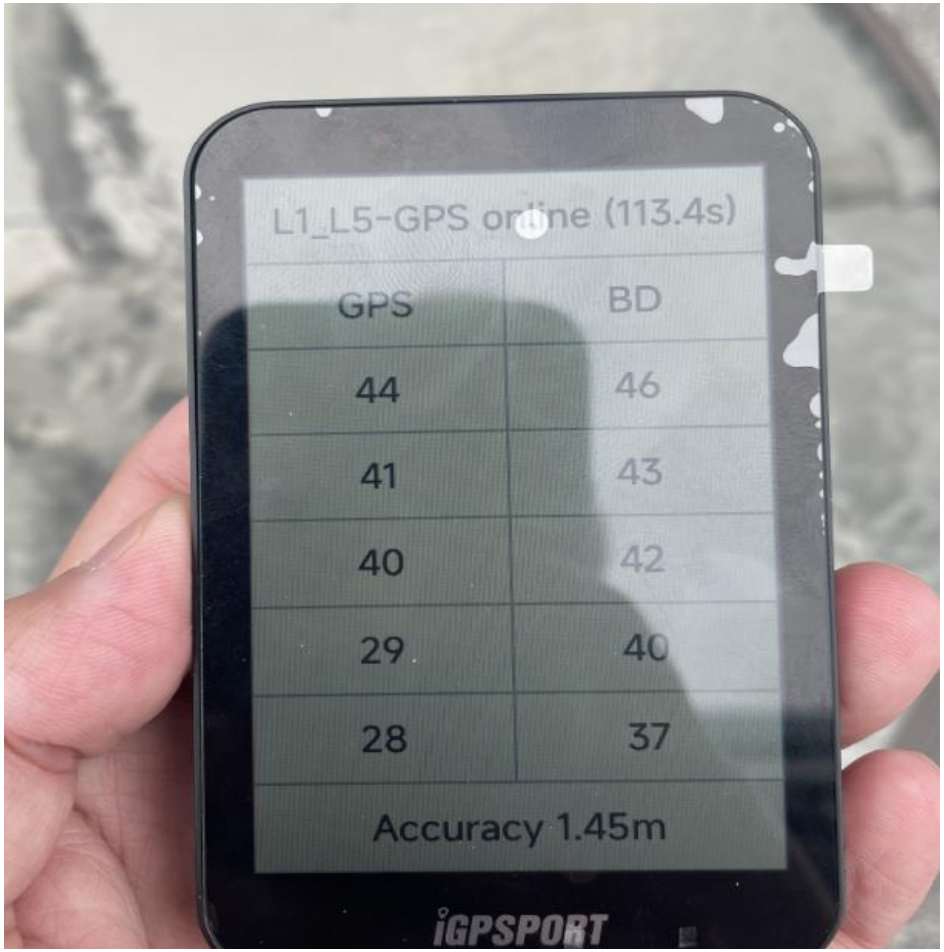
项目名称	BG1	日期		2024.3.8	
		设计		BYZ	
产品名称	天线LDS组件	审核	MD	FJW	
			RF	XJB	
产品料号	641001-IA-TA	批准			
材料		单位	mm	比例 FIT	版本 R:A

GPS test data

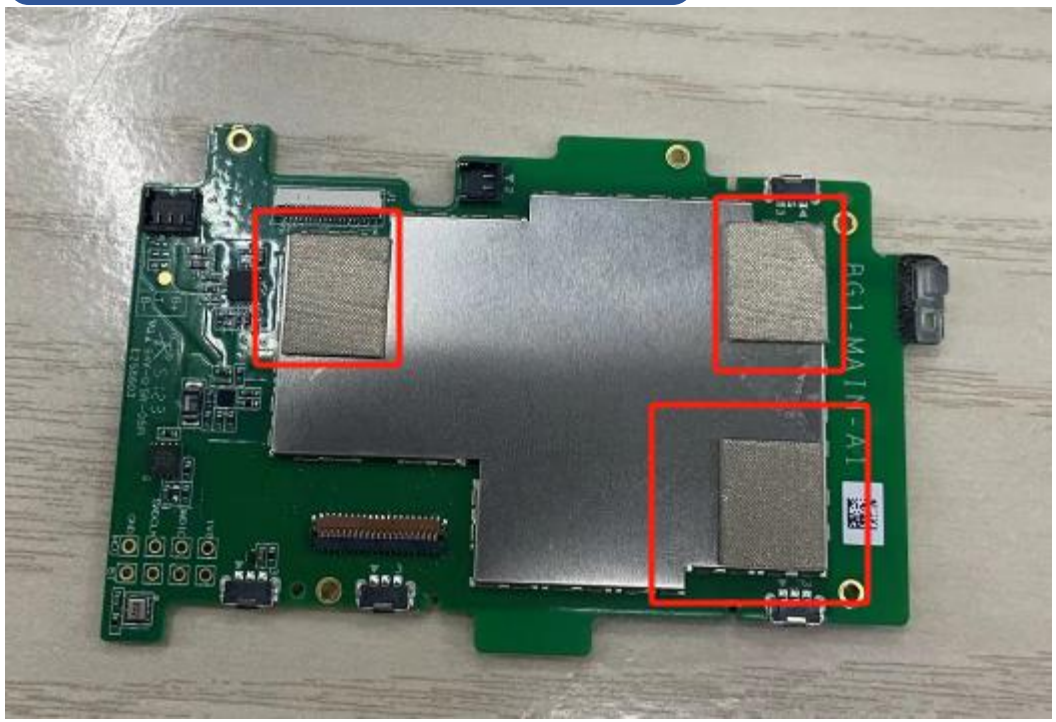




Antenna environment treatment and improvement

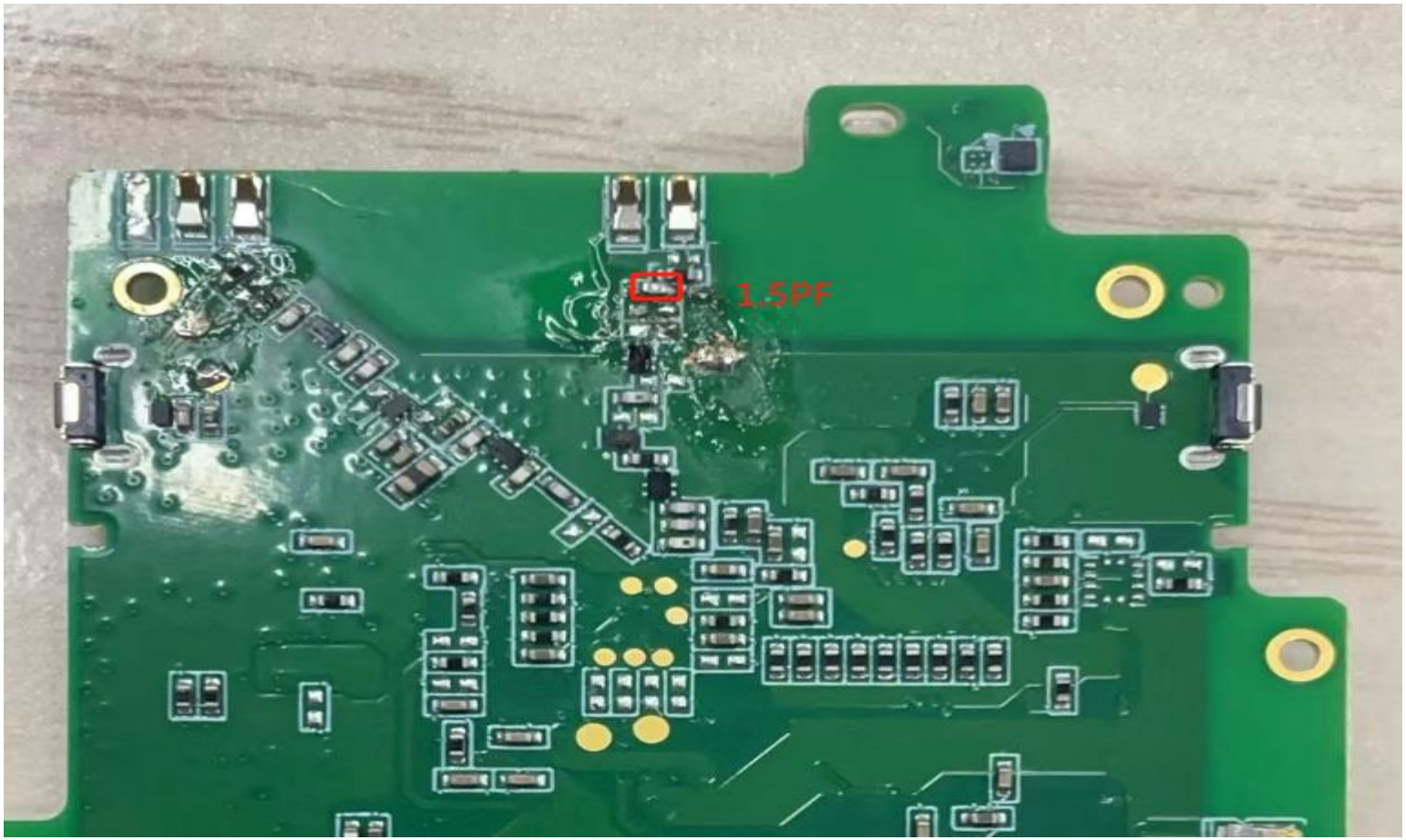


Antenna environment treatment and improvement



Treatment according to the trial production environment

Antenna matching: match the trial production prototype



Thank you!

Shenzhen address: 4th floor, Building 2, South Taiyun Chuanggu, Guangming Avenue, Guangming New District, Shenzhen

Tel.: 0755-23984257

Fax: 0755-86090455