



惠州硕贝德无线科技股份有限公司
HUIZHOU SPEED WIRELESS TECHNOLOGY CO., LTD.

样品承认书

Sample acceptance

样品粘贴处 Sample sticking place

样品名称 Sample name:黑色分体天线 Black split antenna
样品料号 Sample number: _____
版本号 Edition number: _____ S02
日期 Day period: 2024 年 08 月 23 日 August 23rd, 2024

The contents of the letter of acceptance 承认书内容	☒ 样品 sample ☒ 受控图纸 Controlled drawing
	☒ 尺寸报告 Dimensional report ☒ 材料清单 Bill of materials
	☒ 功能性检测报告 Functional test report
	☒ 信赖性实验报告 Reliability test report
	☒ 工艺流程图 Process flow chart
	☒ 环保证明 Environmental protection certificate
	☒ 包装规范 Packing specification

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APPROVAL SHEET

承认书

CUSTOMER NAME 客户名称	硕贝德 Sobede	
CUSTOMER P/N 客户料号		
PART NAME 品 名	2. 4G/5G 黑色分体天线 2. 4G/5G black split antenna	
P/ N 料 号	YJC-60301-B52	
APPROVAL REV. 版 次	S02	
DELIVERY DATE 送样日期	2024 年 08 月 23 日 August 23rd, 2024	
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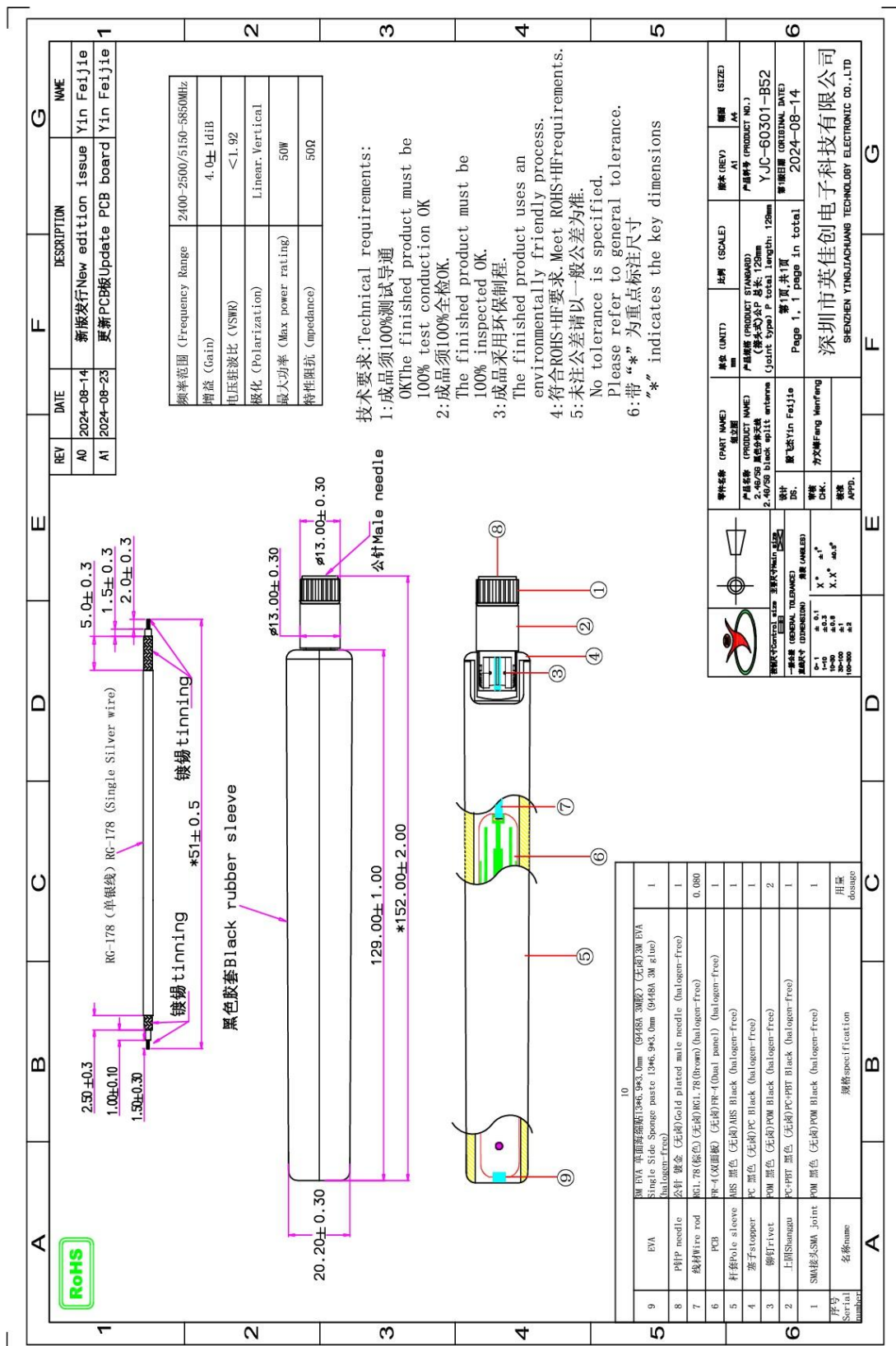


履历表 resume:

版本 edition	变更内容及更改原因 Content of change and reasons for change	日期 date	发行 release
S01	初版发行 Initial release	2024 年 08 月 14 日 August 14th, 2024	
S02	更新 PCB 板子 Update the PCB board	2024 年 08 月 23 日 August 23rd, 2024	



天线平面图 Antenna plan:





天线技术参数 Antenna technical parameter

电气技术参数 Electrical technical parameter			
电 性 能 指 标		Electrical Specifications	
频率范围	2400-2500/5150-5850MHz	Frequency Range	2400-2500/5150-5850MHz
电压驻波比	<1.92	VSWR	<1.92
输入阻抗	50 Ω	Input Impedance	50 Ω
方向	全向	Direction	All
Maxgain	4.32 dBi	Maxgain	4.32 dBi
机 械 指 标		Mechanical Specifications	
天线颜色	黑色	Antenna Color	Black
接口形式	SMA	Input connector	SMA
天线长度	152mm	Antenna length	152mm
工作温度	-20℃~+70℃	Working Temperature	-20℃~+70℃
工作湿度	20%~80%	Working Humidity	20%~80%



环境性能测试Environmental performance test:

项目 (Project)	测试条件 (Test condition)	规格 (Specification)
储存环境 Storage Conditions	In the absence of specified test temperature, humidity, air pressure is as follows: 在没有指定的情况下测试温度、湿度、气压如下: 1. Temperature is $-45^{\circ}\text{C}\sim+85^{\circ}\text{C}$ 1. 温度为 $-45^{\circ}\text{C}\sim+85^{\circ}\text{C}$ 2. Relative humidity of 20~80% 2. 相对湿度为20~80% 3. Air pressure is 86 kpa to 106 kpa 3. 气压为86kpa-106kpa	Electrical and mechanical properties is normal 电气机械性能正常
高低温试验 high and low temperature test	Between 85°C and -45°C for 5 loops, then 1-2 h under normal conditions, check the appearance quality. 在 85°C 与 -45°C 之间进行5次循环, 然后在正常条件下1-2H, 检查外观质量。	Size should meet the requirements and should satisfy the content with the electrical and mechanical properties 尺寸应满足规定并应满足于机械、电气性能
耐恒定 湿热试验 Constant damp and hot resistance test	80 + / - 3% relative humidity, temperature test: 40°C . Lasts 2 h after, try to take out the determination of electrical properties, within 5 min after try 1-2 h under article normal thing, check the appearance quality 相对湿度 $80\pm3\%$, 试验温度: 40°C . 持续2H作用后, 试品取出后5min之内测定电气性能, 试品在正常条件下1-2H, 检查外观质量	Size should meet the requirements and should satisfy the content with the electrical and mechanical properties 尺寸应满足规定并应满足于机械、电气性能
振动试验 vibration test	10-55 hz, vibration frequency range of displacement amplitude: 0.35 MM, acceleration amplitude: 50.0 M/S, sweep cycles: 30 times 振频范围10-55HZ, 位移幅值: 0.35MM, 加速度幅值: 50.0M/S, 扫频循环次数: 30次	Electrical and mechanical properties is normal 电气机械性能正常
跌落试验 fall down test	1 m high altitude in accordance with the perpendicular axis free drop 3 times 1M高空按照互相垂直的轴方向自由跌落3次	Electrical and mechanical properties is normal 电气机械性能正常



天线实物图 Antenna diagram:



天线性能测试图 Antenna performance test diagram:

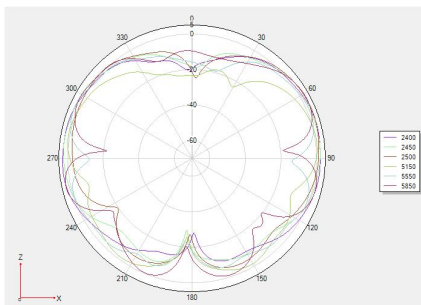




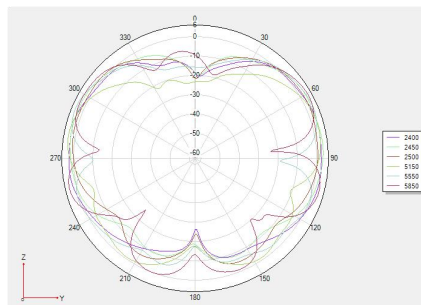
2D.3D(2.4G/5G)测试数据 2D.3D(2.4G/5G) test data:

Frequency	Efficiency (%)	Gain. (dBi)
2400MHz	67.92	3.31
2410MHz	68.31	3.26
2420MHz	66.03	3.48
2430MHz	68.23	3.47
2440MHz	69.78	3.16
2450MHz	68.71	3.37
2460MHz	68.79	3.30
2470MHz	68.63	3.05
2480MHz	69.66	3.29
2490MHz	67.76	3.37
2500MHz	68.39	3.23
5150MHz	60.82	3.8
5250MHz	59.08	4.16
5350MHz	56.46	4.03
5450MHz	59.98	4.10
5550MHz	58.61	4.32
5650MHz	57.24	4.23
5750MHz	56.88	4.18
5850MHz	56.99	4.14

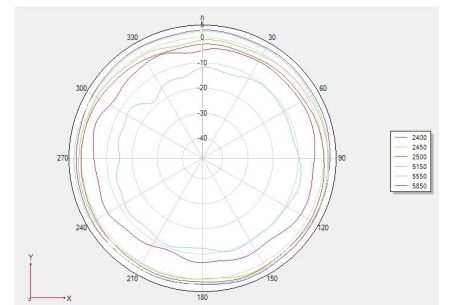
Phi 0 2D



Phi 90 2D

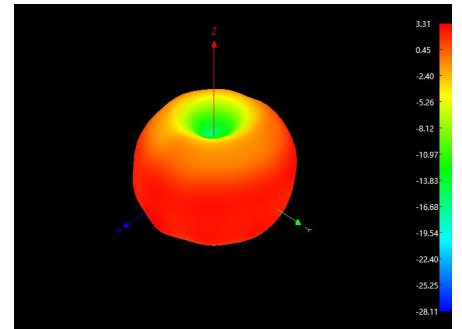
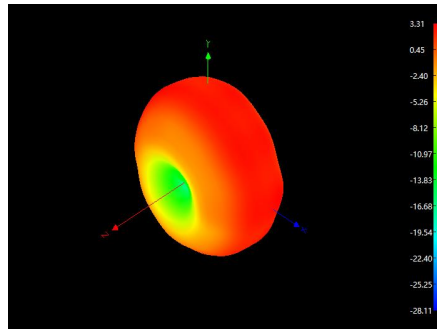
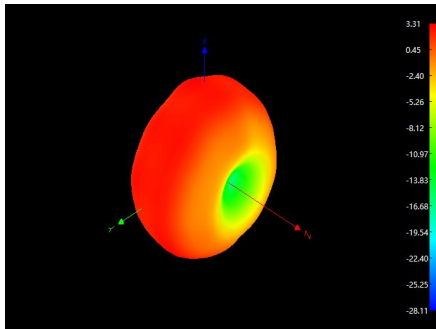


Theta 90 2D

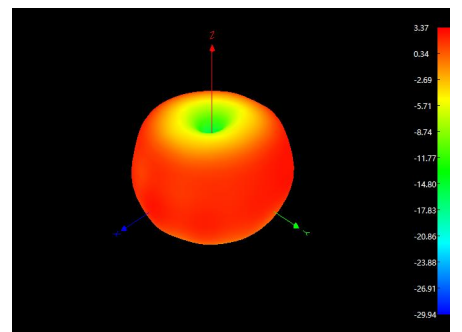
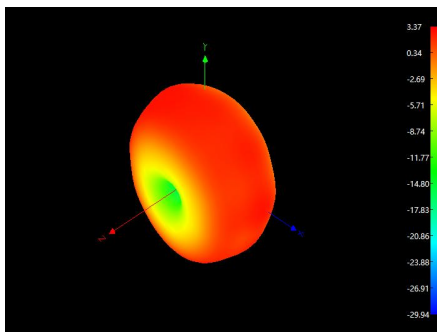
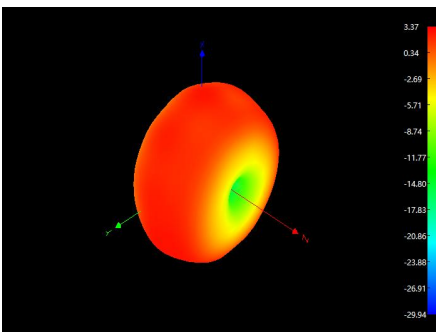




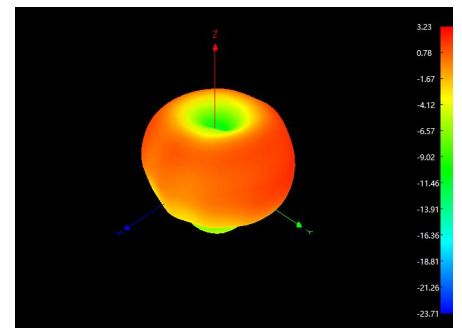
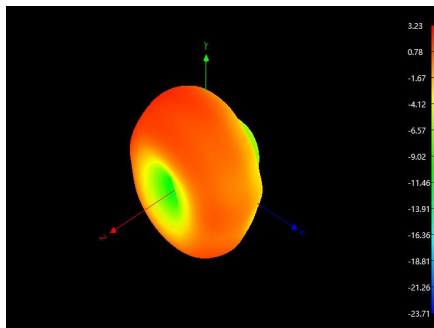
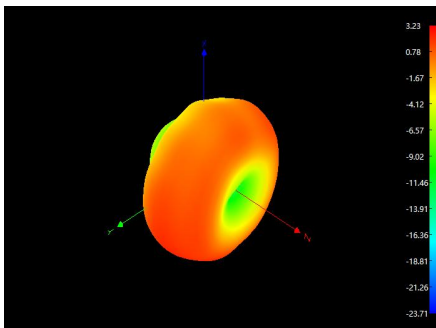
3D 2400



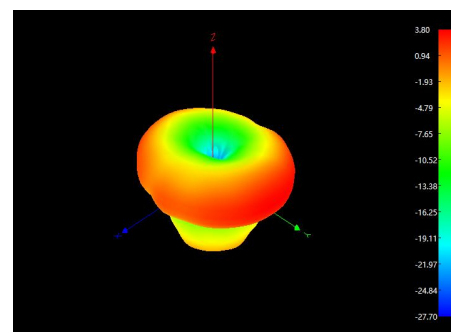
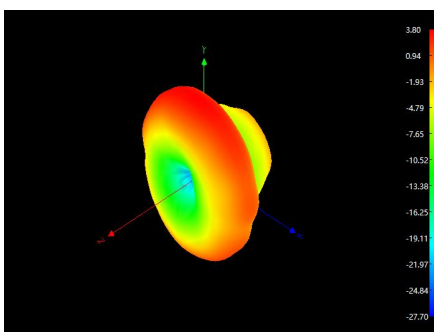
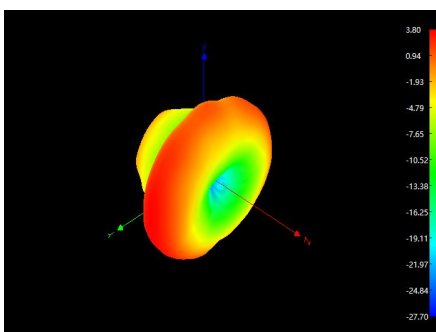
3D 2450



3D 2500

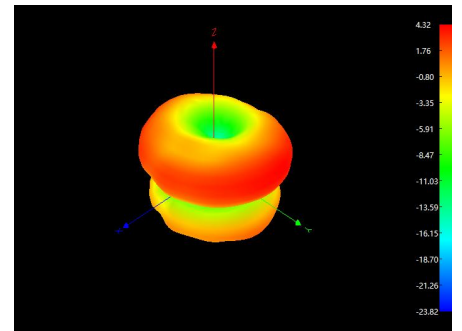
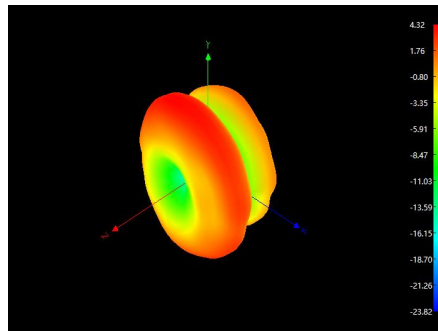
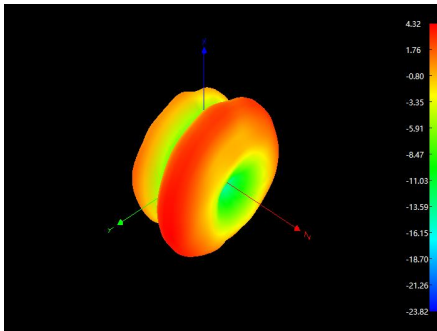


3D 5150

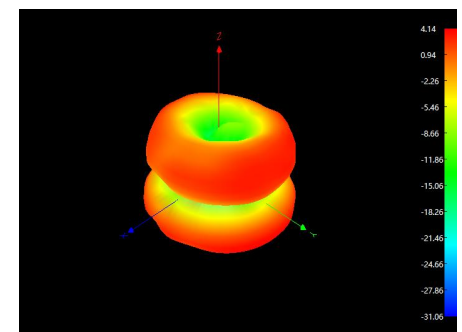
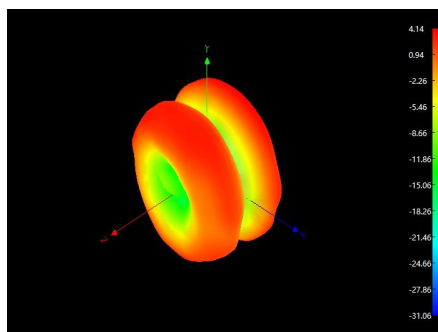
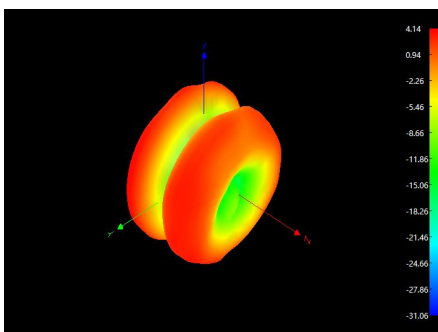




3D 5550



3D 5850





产品包装规范 Productpackagingspecification

报告日期：2024 年 08 月 23 日

报告编号：20240823

Report date: August 23, 2024

Report number: 20240823

成品名称：外置天线 Product name: External antenna

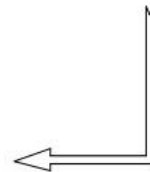
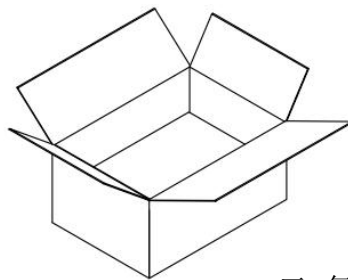
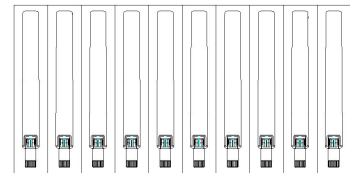
版本：A Version: A

客户：1072C ustomer: 1072

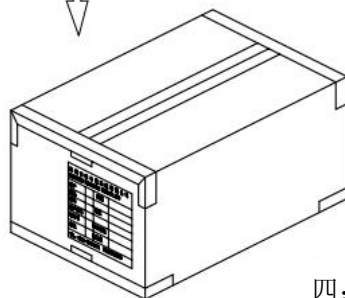
一：成品天线 Finished antenna



二：排袋 Bag drain



三：每袋摆放整齐装箱（以实际出货包装为准）。
Each bag is neatly packed (the actual shipping package shall prevail).



四：封箱（整箱数量以实际出货为准）

Four: sealing (the quantity of the whole box is subject to the actual shipment)

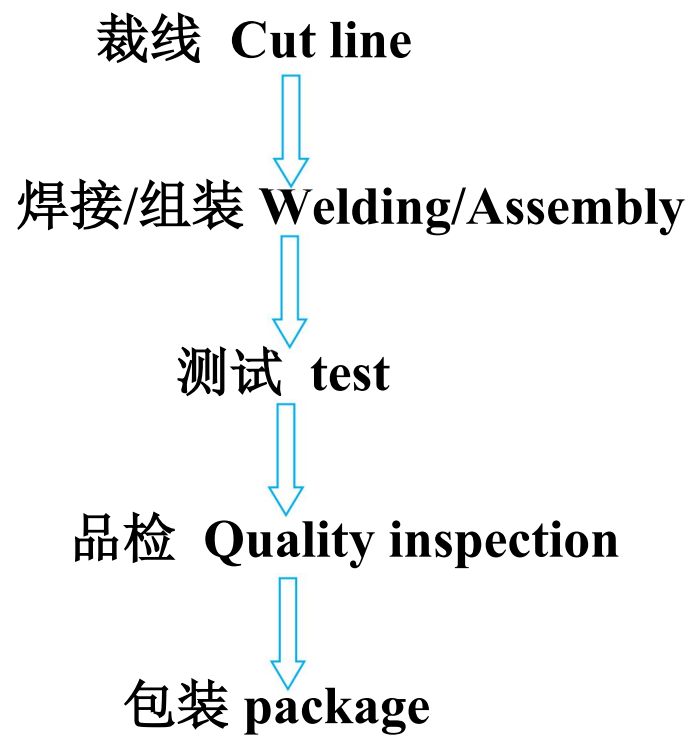
批准：肖汉 Approved: Xiao Ha

确认：方文锋 Confirmed: Fang Wenfeng

拟制：殷飞杰 Written by Yin Feijie



工艺流程图 Process flow chart:





型式试验报告

type test report

报告日期：2024 年 08 月 23 日

Report date: August 23, 2024



客户代码: Customer code:	1072	外置天线 External antenna
产品料号 1: Product material number 1:	YJC-60301-B52	产品规格 1: 2.4G/5G 黑色分体天线 Product specification 1: 2.4G/5G black split antenna
产品料号 2: Product material number 2:		产品规格 2: Product Specification 2:
产品料号 3: Product material number 3:		产品规格 3: Product Specification 3:
产品料号 4: Product material number 4:		产品规格 4: Product Specification 4:
报告类别: Type of report:	☒ 新产品开发 Develop new products	☐ 质量评定 Quality assessment

测试项目 Test item	测试方法 Test method	判定标准 Decision criteria	结果判定 Result decision
结构匹配性检查 Structure matching check	重复弯折外置天线的上下固定座；弯折次数不少于 50 次；Repeatedly bend the upper and lower fixed base of the external antenna; Bending times not less than 50 times;	1、转轴与套杆间匹配良好，无间隙导致的晃动。1, the rotating shaft and sleeve rod match well, no clearance caused by shaking. 2、折部与套杆间匹配良好，无间隙导致的晃动。2. The folding part matches well with the sleeve bar, without the sloshing caused by the gap. 3、铆钉匹配良好，铆钉无脱出，无间隙导致的晃动。3, the rivet match is good, no rivet out, no gap caused by shaking. 4、摇晃天线，外壳或其他配件无松动、无异响。4, shake the antenna, shell or other accessories are not loose, no noise.	弯折 50 次 合格 Bend it 50 times qualified



线缆拉力测试 Cable tension test	夹具固定天线根部，拉力计一端拉住线缆，拉力值控制在 $15 \pm 1\text{N}$ ，停留 5S The fixture fixes the root of the antenna and pulls the cable with one end of the tension meter. The tension value is controlled at $15 \pm 1\text{N}$ and the cable stays for 5S	1、内部固定 PCB 不能松动。1, the internal fixed PCB can not be loose. 2、线缆不能断裂。2. Do not break the cable.	The force is greater than 15N
	1、离天线转轴 80mm 处，垂直天线杆施加 5N 的力测试。1. Apply 5N force test to the vertical antenna pole 80mm away from the rotating axis of the antenna. 2、将天线档位转动 10 次后，离天线转轴 80mm 处，垂直天线杆施加 0.15N 的力进行测试。2. After rotating the antenna gear for 10 times, apply 0.15N force to the vertical antenna pole 80mm away from the antenna rotation axis for testing.	1、设计可旋转角度旋转到位（常规档位按 $0^\circ / 45^\circ / 90^\circ$ ）；1. The designed rotating Angle can be rotated in place (conventional gear is $0^\circ / 45^\circ / 90^\circ$); 2、在无外力作用情况下，天线应在任何设计角度保持停留；2. In the case of no external force, the antenna should stay at any design Angle; 3、杆套在 5N 的推力测试时，天线要能顺利转动，在 0.15N 的推力测试时天线不可转动；3. When the rod sleeve is tested at 5N thrust, the antenna should be able to rotate smoothly; when it is tested at 0.15N thrust, the antenna should not rotate;	5N 正常转动, 0.15N 不转动合格 5N rotates normally and 0.15N does not rotate qualified
侧压测试 Side pressure test	1、天线长度：<15cm，压力大小：10N 或者弯曲角度 30 度（先达到任一条件截止）1. Antenna length: < 15cm, pressure: 10N or bending Angle: 30 degrees (reach any condition cutoff first)	1. 天线不可有物理损坏。测试后，转动式天线应能停在转动范围内的任意位置。1. The antenna cannot be physically damaged. After the test, the rotating antenna should be able to stop at any position within the rotating range.	5N 侧压力合格 5N lateral pressure qualified
	2、天线长度：≥15cm，压力大小：5N 或者弯曲角度 30 度（先达到任一条件截止）2, antenna length: ≥ 15cm, pressure: 5N or bending Angle 30 degrees (reach any condition cut-off first)	2. 天线线缆不能断裂或丧失功能，PCB 不能脱出或损坏。2. The antenna cable should not be broken or lose its function, and the PCB should not be removed or damaged.	
	2、作用时间：5 秒（拉杆天线为 1 秒）2, action time: 5 seconds (pull rod antenna for 1 second)	3. 测试后不能有常规晃动异响。3. There should be no conventional shaking abnormal sound after the test.	
	3、测试次数：天线弯折状态 3 个角度（ $0^\circ / 45^\circ / 90^\circ$ ），在这 3 个方向各测试 10 次，共 60 个往复循环；3, test times: antenna bending state 3 angles ($0^\circ / 45^\circ / 90^\circ$), in the three directions of each test 10 times, a total of 60 reciprocating cycles;	4、试样样品数量：不少于 3pcs。4. Sample quantity: no less than 3pcs.	

	4、测试受力点距离天线顶端 5mm（上下固的远端），天线侧面受力方向本处指：平行于铆钉方向受力； 4. The test stress point is 5mm from the top of the antenna (the upper and lower fixed far end). The side stress direction of the antenna refers to the force direction parallel to the rivet;		
耐久测试 Durability test	1) 采用新测试样品，插入机壳，天线绕固定头旋转至左右极限位置(或旋转一圈)回到原位置计 1 次，30-40 次/min，每 100 次间歇 5min，重复 1000 次； 1) The new test sample was used, and the antenna was inserted into the housing. The antenna was rotated around the fixed head to the left and right limit position (or rotated once) and returned to the original position meter once, 30-40 times /min. The interval was 5min every 100 times and 1000 times were repeated;	1. 天线不可有物理损坏。测试后，转动式天线应能停在转动范围内的任意位置。1. The antenna cannot be physically damaged. After the test, the rotating antenna should be able to stop at any position within the rotating range.	NA
	2) 天线绕弯头旋转至极限位置，一个往复计 1 次，30-40 次/min，每 100 次间歇 5min，重复 500 次； 2) Rotate the antenna around the bending head to the limit position, one reciprocating meter, 30-40 times /min, interval of 5 minutes every 100 times, repeat 500 times;	2. 天线线缆不能断裂或丧失功能，PCB 不能脱出或损坏。2. The antenna cable should not be broken or lose its function, and the PCB should not be removed or damaged.	
		3. 测试后不能有常规晃动异响。3. There should be no conventional shaking abnormal sound after the test.	
		4、试样样品数量：不少于 3pcs。4. Sample quantity: no less than 3pcs.	
抗拉测试 Tensile test	1) 采用新测试样品，固定在整机外壳，在天线转轴处（平行于铆钉方向受力）施加 5kgf 的拉力，力量达到 5kgf 时保持 2S；1) Adopt the new test sample, fix it on the shell of the whole machine, apply 5kgf tension at the rotating axis of the antenna (force parallel to the direction of the rivet), and keep 2S when the force reaches 5kgf;	1. 天线不可有物理损坏。测试后，转动式天线应能停在转动范围内的任意位置。1. The antenna cannot be physically damaged. After the test, the rotating antenna should be able to stop at any position within the rotating range.	5kgf 保持 2S 合格 5kgf holds for 2S qualified
	2) 固定整机，在天线端沿轴向施加 5kgf 拉力，在 5kgf 保持 2S，20 次 2) To fix the whole machine, apply 5kgf tension along the axial direction at the antenna end, and maintain 2S at 5kgf for 20 times	2. 天线线缆不能断裂或丧失功能，PCB 不能脱出或损坏。2. The antenna cable should not be broken or lose its function, and the PCB should not be removed or damaged.	
		3. 测试后不能有常规晃动异响。3. There should be no conventional shaking abnormal sound after the test.	
丝印粘接强	1) 使用 3M 600#测试胶带压平粘贴丝印部位，静置	1、胶带剥离后丝印不应出现脱落、断线问	NA

度测试 Screen printing bonding strength test	1min; 1) Use 3M 600# test tape to flatten and paste the silk screen and let it stand for 1min; 2) 拉起胶带与测试面成 90°，迅速拉开胶带，检查丝印脱落情况 2) Pull the tape up to 90° with the test surface, and quickly pull away the tape to check the silk-screen falling off	题 1. The silk screen printing shall not fall off or break the line after the tape is peeled off	
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测试项目 Test item	测试方法 Test method	判定标准 Decision criteria	结果判定 Result decision
涂层附着力测试 Coating adhesion test	1、用百格刀在产品测试点表面划破（每一条划线应深及涂层的底层），形成 10×10 个 1mm×1mm 小网格，用毛刷将测试点脱落的涂层刷掉； 2、1, with 100 grid knife on the surface of the product test point (each line should be deep and the bottom layer of the coating), the formation of 10×10 1mm×1mm small grid, brush the test point off the coating;	1、无大面积涂层脱落； 2、1. No large area of coating shedding;	NA
	3、再使用粘附力 350~400gf/cm ² 的胶带（3M600#测试胶带或等同）牢牢粘贴住被测试小网格，停留 90s 后，拿住胶带悬空的一端，拉起胶带与测试面 60° 的角度，在 0.5~1.0s 内平稳地撕离胶带； 4、2. Then use adhesive tape with adhesive force of 350 ~ 400gf/cm ² (3M600# test tape or equivalent) to firmly paste the small grid under test. After 90s, hold the suspended end of the tape, pull the tape up to 60° Angle with the test surface, and tear the tape away smoothly within 0.5 ~ 1.0s;	3、脱落面积累计 $\Sigma S \leq 10\%$ 总面积 S； 4、2. Total area of shed area $\Sigma S \leq 10\%$;	
涂层丝印耐磨性测试 Wear resistance test of coating screen printing	用直径为 6mm 左右的绘图专用橡皮，置于产品涂层表面，施加 500g 负荷，以每分钟 30 来回的速度，20mm 左右的行程，反复擦拭同一位置。With a diameter of about 6mm drawing special eraser, placed on the surface of the product coating, apply 500g load, at a speed of 30 back and forth per minute, about 20mm stroke, repeatedly wipe the same position.	1、丝印无断线、喷涂及电镀等表面无露底； 1, screen printing without broken line, spraying and electroplating surface without exposed bottom;	NA

	1、涂层……………100 来回； 1, coating …………… 100 back and forth;		
	2、丝印……………50 来回； 2, silk screen …………… 50 round trip;		
涂层丝印耐化学溶剂测试 Coating screen printing resistance to chemical solvent test	用纯棉布（专用）蘸满无水酒精（浓度≥99.5%），包在专用的测试头上（包4层纯棉布后测试头的面积约为1平方厘米），置于产品涂层表面，施加500g的载荷，以每分钟30来回的速度，60mm左右的行程，反复擦拭同一位置 With pure cotton cloth (special) dipped in anhydrous alcohol (concentration ≥ 99.5%), wrapped in a special test head (four layers of pure cotton cloth after the test head area is about 1 square cm), placed on the surface of the product coating, apply 500g load, at the speed of 30 back and forth per minute, 60mm or so travel, repeatedly wipe the same position	1、丝印无断线、喷涂及电镀等表面无露底 2、1, screen printing without broken line, spraying and electroplating surface without exposed bottom	NA
	1、表面涂层……………200 来回； 1, surface coating…… 200 round trip;		
	2、表面的丝印层…50 来回； 2, the surface of the silk screen layer… 50 round trip;		
SMA 接头拉力测试 SMA joint tension test	上下固与大 SMA 接头的拉力 Tension between the upper and lower joint and the large SMA	≥5kgf	NA
	上下固与小 SMA 接头的拉力 The tension of the small SMA joint	≥3kgf	实测 5.0kgf 合格 Measured dynamic 450gf.cm qualified
扭力测试 Torsion test	大 SMA 接头扭力矩 Large SMA joint torque	动态 400-1200gf.cm /Dynamic 400-1200gf.cm / 静态 ≥350-1100gf.cm Static ≥ 350-1100gf.cm	NA
	小 SMA 接头扭力矩 Small SMA joint torque	锁口结构: Lock structure: 简易结构: Simple structure:	NA

客户特定动态≥ 400-1200gf.cm Customer specific dynamic ≥ 400-1200gf.cm	静态≥350-1100gf.cm Static ≥ 350-1100gf.cm	客户特定动态 ≥ 400-1200gf.cm Customer specific dynamic ≥ 400-1200gf.cm	静态≥ 350-1100gf.cm Static ≥350-1100gf.cm	实测动态 450gf.cm 合格 Measured dynamic 450gf.cm qualified
端子拉拔力测试 Terminal pulling force test	针对 IPEX 线端与同轴线缆之拔出力 Pull force for IPEX wire end and coaxial cable	按企标 Q/YJC01-2022 （与我司板端适配） According to the enterprise standard Q/YJC01-2022 (suitable for our board end)		NA
端子拔出力测试 Terminal pull-out test	针对 IPEX 线端和板端之拔出力 Pull force for IPEX wire end and plate end	按企标 Q/YJC01-2022 （与我司板端适配） According to the enterprise standard Q/YJC01-2022 (suitable for our board end)		NA
环保测试 Environmental protection test	采用 ROHS 测试仪测试 ROHS tester was used for testing	铜合金满足豁免条款，允收值≤4%； Copper alloy meets the exemption clause, the acceptable value is less than 4%;		铜合金： Pb=15000ppm，满足豁免条款
		按《有害物质管理规定》或 ROHS2.0 标准执行； In accordance with the Hazardous Substances Management Regulations or ROHS2.0 standards;		Copper alloy: Pb=15000ppm, meet the exemption clause
		无卤要求满足 CL<1000ppm, Br<1000ppm, 总溴<1500ppm Halogen-free CL < 1000ppm, Br < 1000ppm, total bromine < 1500ppm		分解测试内部件合格 Decompose test internals qualified

产品全尺寸检测报告 Product full size inspection report									
SUPPLIER 供方: 深圳市英佳创电子科技有限公司 Shenzhen Yingjia Chuang electronic technology Co., LTD			文件记录编号 File record number: YJC-60301-B52 QC-007/2024082301						
PART NUMBER 零件料号: YJC-60301-B52			PART NAME 零件名称: 2.4G/5G 黑色分体天线 2.4G/5G black split antenna						
ITEM 项 目	DIMENSION / SPECIFICATION 尺寸/规范 (mm)	测量工具 Measuri ng tool	SUPPLIER MEASUREMENT RESULTS 测量结果 (mm)					OK 合格	NOT OK 不合格
1	杆套加塞子长度 129.00±1.00mm Rod sleeve plug length 129.00±1.00mm	游标卡尺 Vernier calipers	129.20	129.45	129.10	129.20	129.30	OK	
2	天线总长度 152.00±2.00mm Total antenna length 152.00±2.00mm	游标卡尺 Vernier calipers	152.35	152.60	152.50	152.25	152.40	OK	
3	下固直径 13.00±0.30mm Lower solid diameter 13.00±0.30mm	游标卡尺 Vernier calipers	12.97	13.05	13.08	13.03	13.04	OK	
4	SMA 直径 13.00±0.30mmSMA diameter 13.00±0.30mm	游标卡尺 Vernier calipers	13.06	13.04	13.02	13.06	13.05	OK	
5	杆套端部宽度 20.20±0.30mmRod sleeve end width 20.20±0.30mm	游标卡尺 Vernier calipers	20.13	20.15	20.12	20.11	20.15	OK	
结论 Conclusion: OK		检验: 殷飞杰 Test: Yin Feijie 日期 date: 2024-08-23							



深圳市英佳创电子科技有限公司 Shenzhen Yingjia Chuang electronic technology Co., LTD

CPK Report

CUSTOMER 客户名称	1072		MOLD. NO 模具编号		YJC-60301-B52		CAVITY QUANTITY 型腔数量		32 pcs		
MODEL 机型	外置天线 External antenna		DATE-MEASURING 检测时间		2024/08/14		检测时温度 25℃ 相对湿度 60 % The temperature was 25℃ and the relative humidity was 60%				
DESCRIPTION 样品名称	2. 4G/5G 黑色分体天 线 2. 4G/5G black split antenna		Sample craft 样品工艺		素材 material	喷涂 spray	HSF 要求 HSF requirements		是 is		否 no
Dim. Designator(尺寸序 号)	#1	#2	#3	#4	#5						
Nominal (公称尺寸)	152.00	129.00	20.20	13.00	13.00						
+ Tolerance(正公差)	2.00	1.00	0.30	0.30	0.30						
- Tolerance(负公差)	2.00	1.00	0.30	0.30	0.30						
Upper Limit(规格上限)	154.00	130.00	20.50	13.30	13.30	0.00	0.00	0.00	0.00	0.00	0.00
Lower Limit(规格下限)	150.00	128.00	19.90	12.70	12.70	0.00	0.00	0.00	0.00	0.00	0.00
1	152.40	129.30	20.28	13.11	13.08						
2	152.50	129.20	20.31	12.92	12.94						
3	151.70	129.15	20.29	13.08	13.10						
4	151.80	129.18	20.32	13.02	13.03						
5	152.60	128.85	20.25	13.08	13.05						
6	152.30	129.25	20.29	12.94	13.06						
7	152.50	129.16	20.15	13.10	13.08						
8	151.90	129.29	20.24	13.03	13.02						
9	152.30	129.35	20.28	13.05	13.03						
10	152.40	128.90	20.23	13.06	12.95						
11	152.50	128.88	20.29	13.08	12.97						

12	152.60	129.41	20.31	13.02	12.96						
13	152.30	129.36	20.30	13.03	12.93						
14	152.45	129.33	20.33	12.95	13.09						
15	151.50	129.28	20.27	12.97	13.12						
16	151.60	129.39	20.12	12.96	13.07						
17	152.70	129.38	20.28	12.93	12.90						
18	151.40	129.27	20.32	13.09	12.95						
19	152.80	129.22	20.31	13.11	12.97						
20	152.60	129.18	20.30	13.04	13.02						
21	152.70	128.82	20.27	13.05	13.01						
22	152.60	129.17	20.25	13.09	13.05						
23	151.80	129.24	20.26	13.06	12.92						
24	152.60	129.22	20.17	13.07	12.94						
25	152.40	129.36	20.18	12.90	13.08						
26	152.60	129.35	20.22	12.95	13.11						
27	152.40	129.28	20.19	12.97	12.93						
28	152.70	128.92	20.18	13.02	13.09						
29	152.40	129.20	20.19	13.01	13.07						
30	152.60	129.39	20.23	13.05	13.06						
31	152.30	129.24	20.25	12.92	13.05						
32	152.40	129.28	20.18	13.06	13.02						
Specification center	152.000	129.000	20.200	13.000	13.000	0.000	0.000	0.000	0.000	0.000	0.000
MAX.	152.800	129.410	20.330	13.110	13.120	0.000	0.000	0.000	0.000	0.000	0.000
MIN.	151.400	128.820	20.120	12.900	12.900	0.000	0.000	0.000	0.000	0.000	0.000
Mean value	152.323	129.213	20.251	13.023	13.020	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
STDEV	0.381	0.165	0.056	0.062	0.064	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Ca Process accuracy	0.16	0.21	0.17	0.08	0.07	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
CpProcess precision	1.75	2.01	1.78	1.60	1.56	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Cpk	1.47	1.59	1.48	1.48	1.45	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Result (Grade)	B	B	B	B	B	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
A	Cpk>1.67		Process capacity is too full, continue to maintain.								
B	1.33< Cpk ≤ 1.67		Full process capability, can be improved to A level.								
C	1.0 < Cpk ≤ 1.33		Process capability is acceptable, process improvement must be carried out to reduce output variation and improve quality.								
D	0.67< Cpk≤1		The process capacity is insufficient, and it is necessary to conduct a comprehensive review and take measures to stop production if necessary.								
E	Cpk ≤ 0.67		The process capacity is seriously insufficient, immediately stop production, trace the cause and take measures to comprehensively improve.								
Measure 测量	殷飞杰 Yin Feijie			Table 制表		殷飞杰 Yin Feijie					
Check 审核	方文锋 Fang Wenfeng			Date 日期		2024/08/23					