APPROVAL SHEET
承认书

CUSTOMER NAME 客户名称	深圳市华曦达科技股份有限公司 Shenzhen Huaxida Technology Co., LTD
CUSTOMER P/N 客户料号	
PART NAME 品　　名	WIFI-1 2.4G/5G 黑色内置天线（L=80mm） WIFI-1 2.4G/5G built-in antenna (L=80mm)
P/ N 料　　号	YJC-6N080-B112
APPROVAL REV. 版　　次	A0
DELIVERY DATE 送样日期	2024 年 11 月 07 日 November 07, 2024
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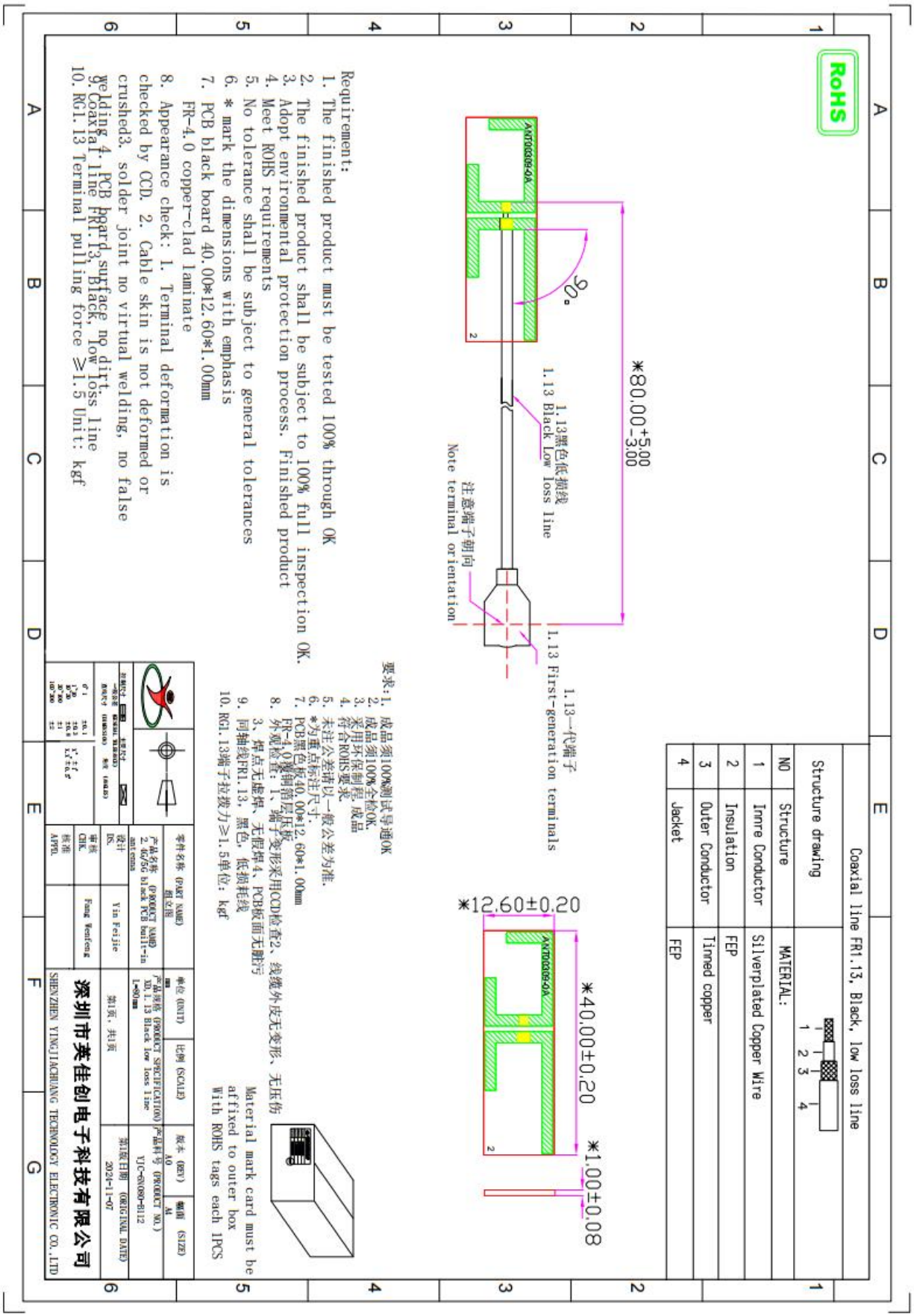
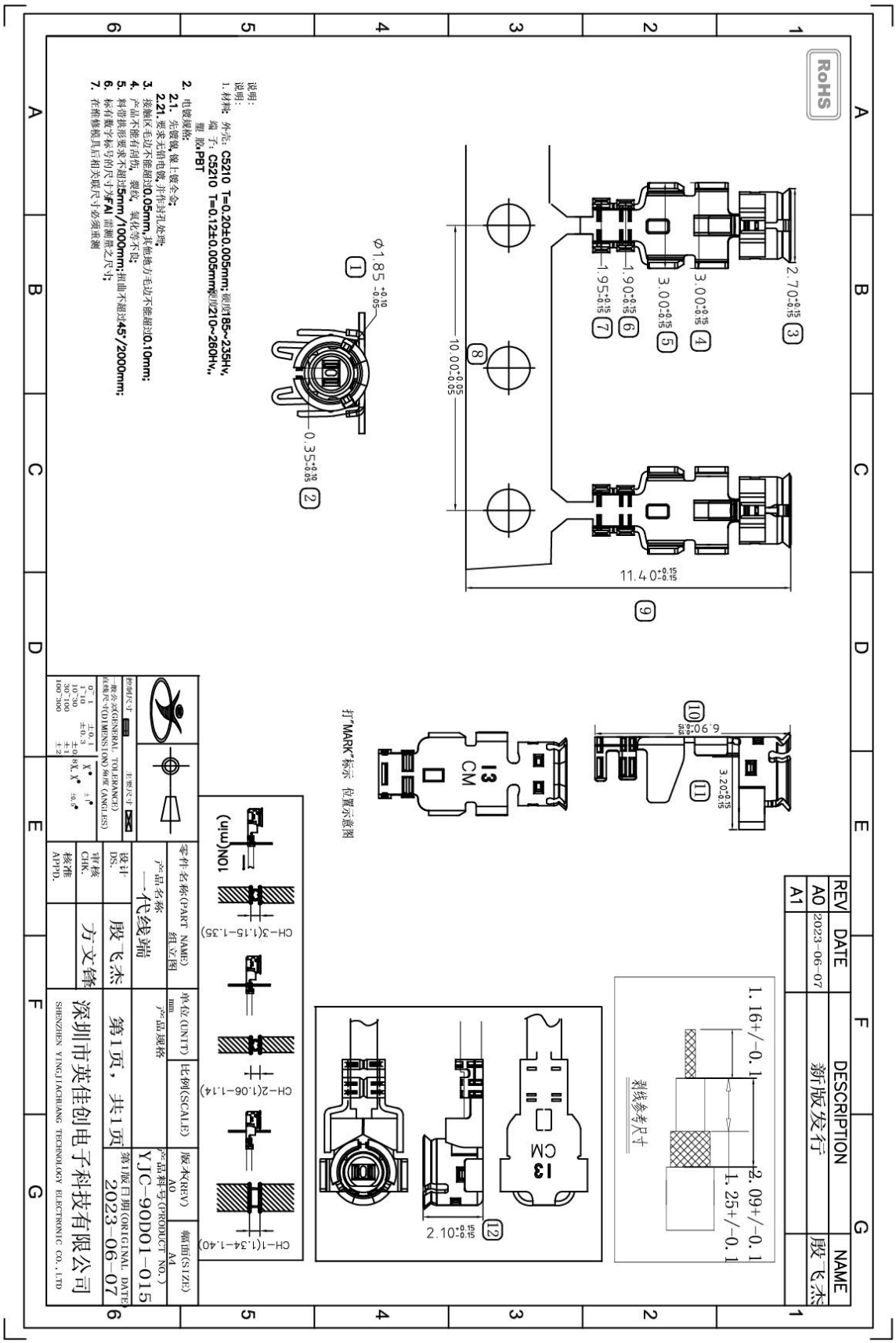
履历表(Resumer)：

版本 Version	变更内容及更改原因 Changes and reasons	发行 publish	发行 publish
A/0	初版发行（Issued）	2024 年 11 月 07 日 (November 07, 2024）	

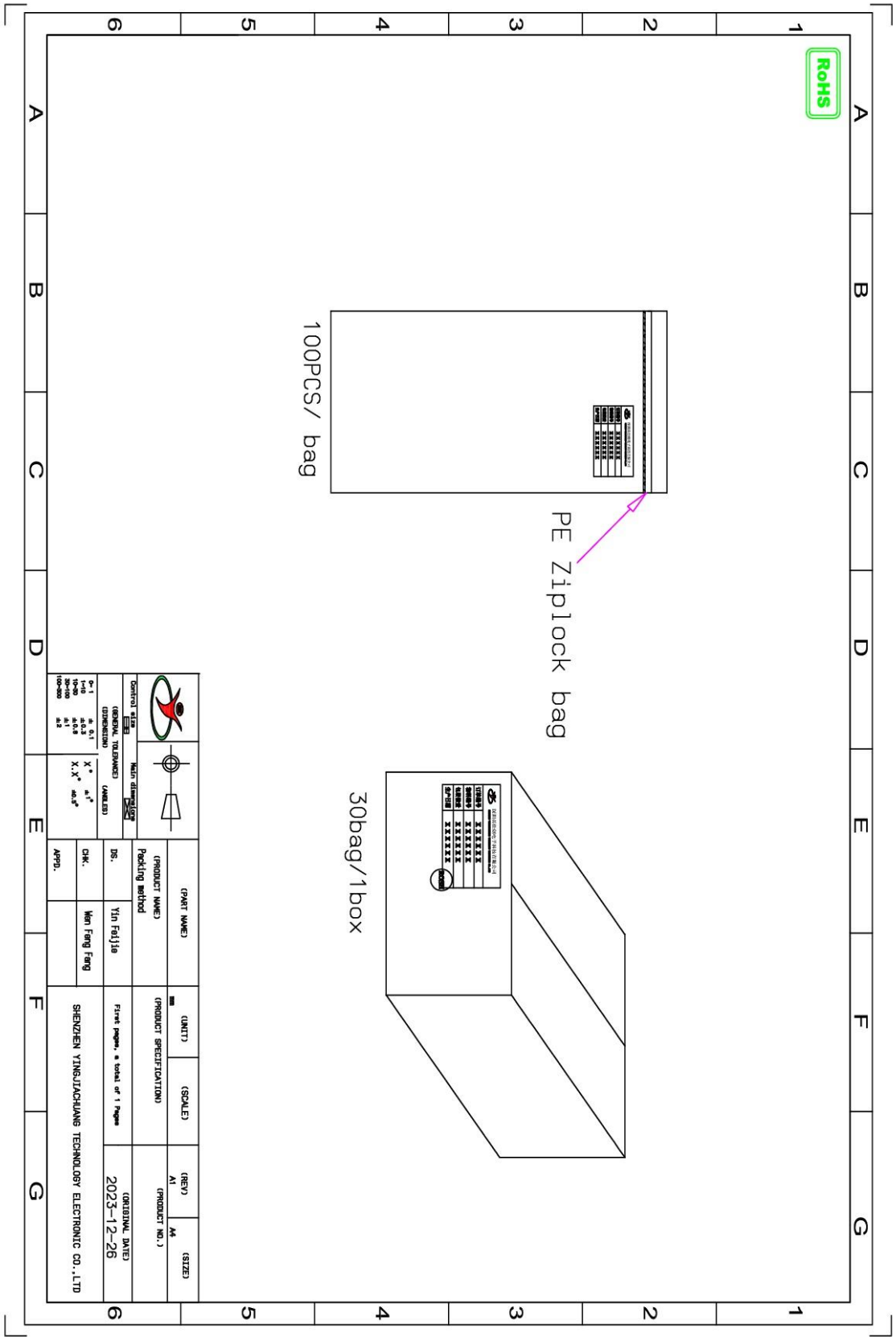
产品平面图(Product plan)：



端子平面图：


RoHS
REV
DATE
DESCRIPTION
NAME
A0
2023-06-07
新版发行
殷飞杰
A1
打"MARK"标示 位置示意图
裂线参考尺寸
1.16+/-0.1
2.09+/-0.1
1.25+/-0.1
2.70
3.00
3.00
1.90
1.95
10.00
11.40
Ø1.85
0.35
6.90
3.20
2.10
CH-1(1.34-1.40)
CH-2(1.06-1.14)
CH-3(1.15-1.35)
10N(min)
说明：
1.材料：外壳：C5210 T=0.20±0.005mm;硬度185~235Hv,
端 子：C5210 T=0.12±0.005mm硬度210~260Hv,,
塑 胶:PBT
2. 电镀规格:
2.1. 先镀镍,镍上镀全金;
2.21.要求无铅电镀,并作封孔处理;
3. 接触区毛边不能超过0.05mm,其他地方毛边不能超过0.10mm;
4. 产品不能有刮伤, 裂纹, 氧化等不良;
5. 料带拱形要求不超过5mm/1000mm;扭曲不超过45°/2000mm;
6. 标有数字标号的尺寸为FAI 需测量之尺寸;
7. 在维修模具后相关联尺寸必须重测
零件名称(PART NAME)
组立图
产品名称
一代线端
设计
DS.
殷飞杰
审核
CHK.
方文锋
核准
APPD.
单位(UNIT)
mm
比例(SCALE)
产品规格
第1页，共1页
版本(REV)
A0
幅面(SIZE)
A4
产品料号(PRODUCT NO.)
YJC-90D01-015
第1版日期(ORIGINAL DATE)
2023-06-07
深圳市英佳创电子科技有限公司
SHENZHEN YINGJIACHUANG TECHNOLOGY ELECTRONIC CO.,LTD

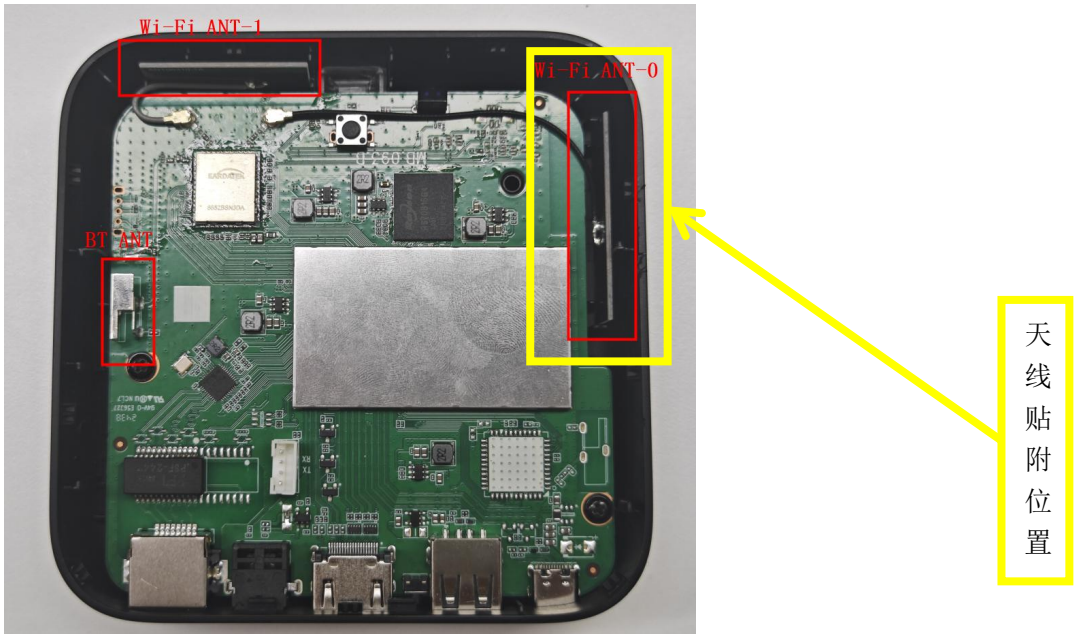
包装方式图（Packing pattern drawing）：



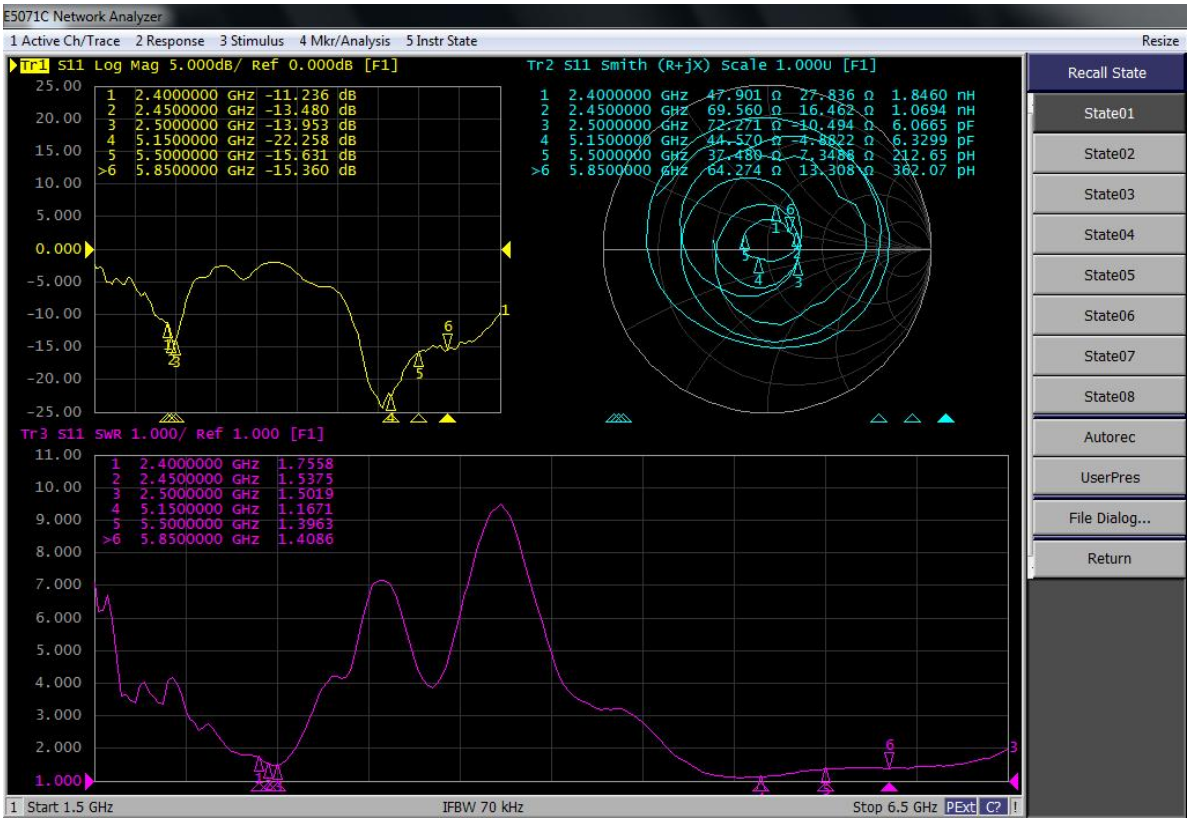
环境性能测试(Environmental performance testing)：

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℃~+85℃ 1.温度为-45℃~+85℃ 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 ℃ and -45 ℃ for 5 loops, then 1-2 h under normal conditions, check the appearance quality. 在85℃与-45℃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 ℃. 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±3%，试验温度：40℃.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

天线实物图与位置图：Antenna physical diagram and location diagram



天线性能测试图:Antenna performance test diagram

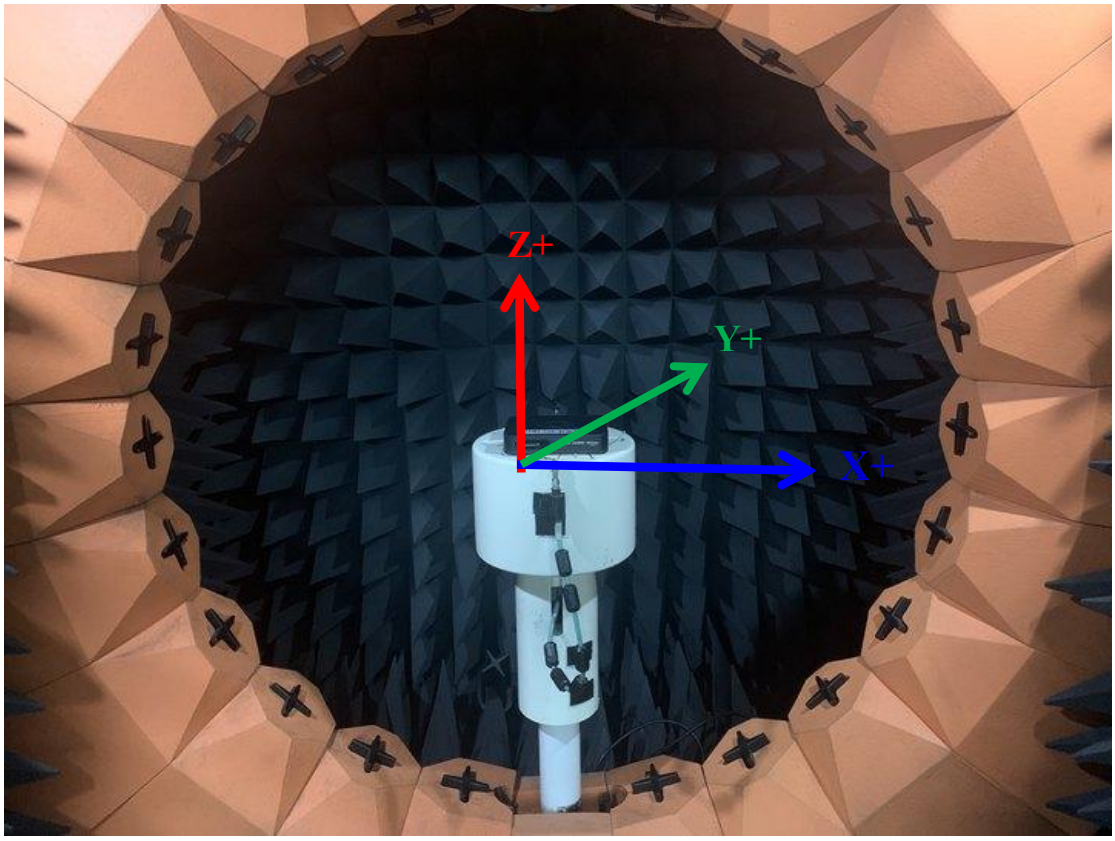


Freq/GHz	2.4	2.45	2.5	5.15	5.5	5.85
VSWR	1.7	1.5	1.5	1.1	1.3	1.4

隔离度测试图 WIFI-1&WIFI-2Isolation test diagram

Freq/GHz	2.4	2.45	2.5	5.15	5.5	5.85
S21/ dB	-25	-31	-36	-31	-39	-36

参考坐标系 Reference Coordinate System

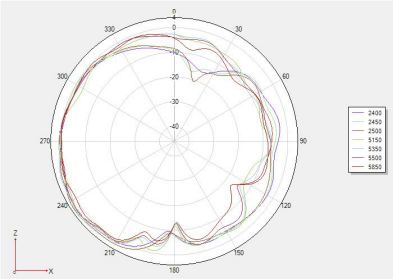


	XY	XZ	YZ
0°	Right	Up	Up
90°	Front	Right	Front
180°	Left	Down	Down
270°	Back	Left	Back

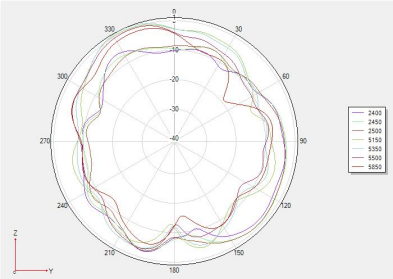
2D、3D 测试数据(WIFI-1)：2D and 3D test data (WIFI-1) :

Efficiency & Gain of WIFI-1		
Frequency/Mhz	Efficiency / %	MaxGain/dBi
2400	67.14	2.5
2410	67.61	2.89
2420	69.82	2.94
2430	70.96	2.72
2440	73.62	3.19
2450	73.11	3.47
2460	74.64	3.56
2470	76.03	3.23
2480	75.51	3.23
2490	71.61	3.19
2500	68.87	3.08
5150	57.28	2.6
5200	59.29	2.54
5250	57.28	2.77
5300	59.29	2.79
5350	58.34	3.19
5400	57.54	3.24
5450	65.31	2.92
5500	63.68	3.38
5550	63.24	3.54
5600	64.42	3.91
5650	68.39	4.32
5700	63.53	4.05
5750	63.24	4
5800	60.67	3.47
5850	63.1	3.2

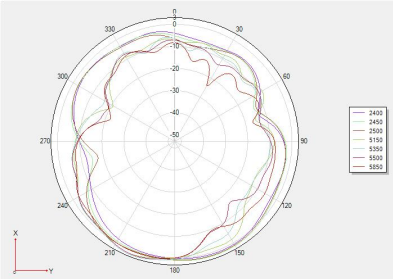
Phi =0 freq=2400MHz



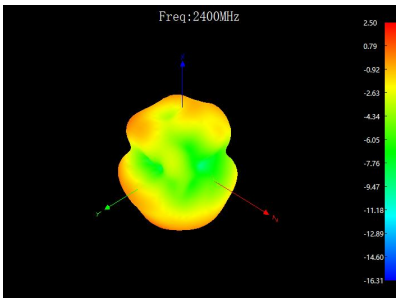
Phi =90 freq=2400MHz



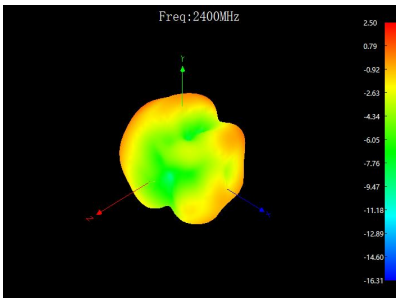
Theta =90 freq=2400MHz



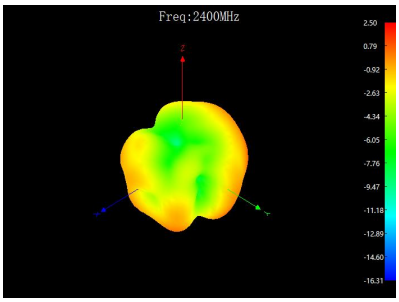
ZXY face @2400MHz



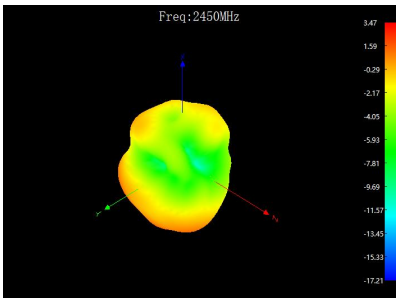
XYZ face @2400MHz



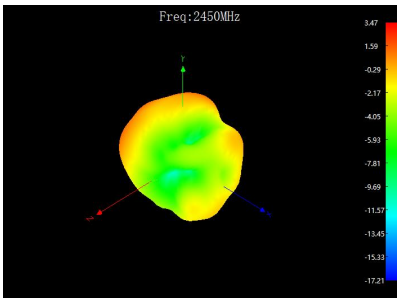
YZX face @2400MHz



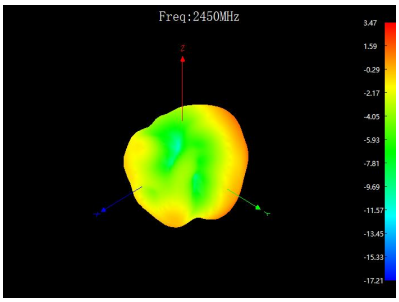
ZXY face @2450MHz



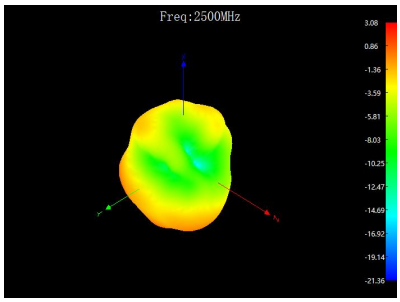
XYZ face @2450MHz



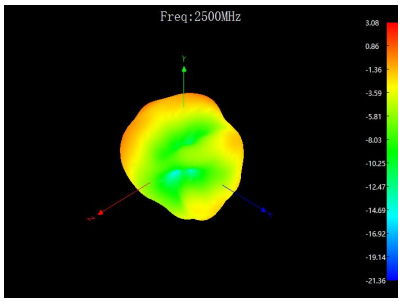
YZX face @2450MHz



ZXY face @2500MHz



XYZ face @2500MHz



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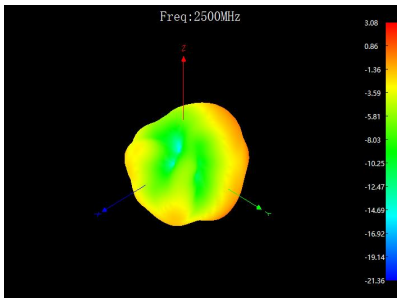

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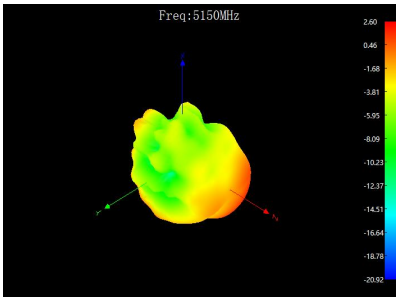
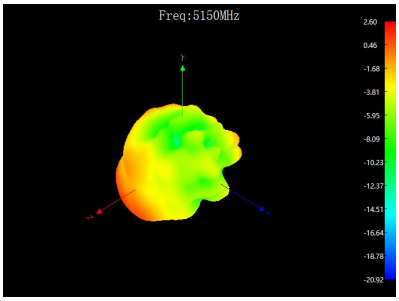
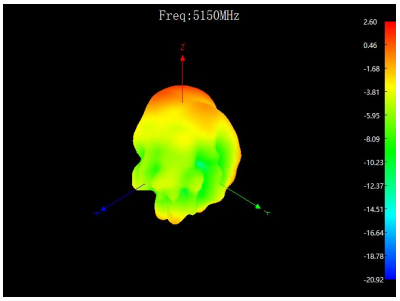


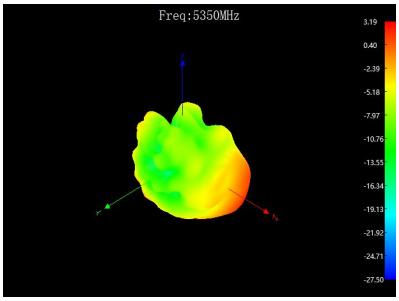
XYZ face @5150MHz



YZX face @5150MHz



ZXY face @5350MHz



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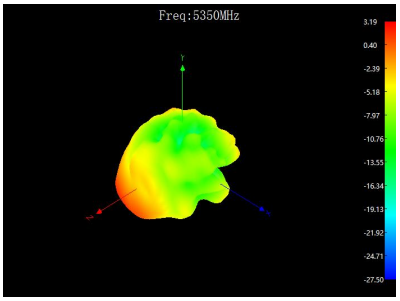
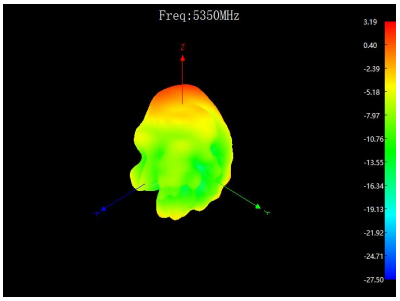
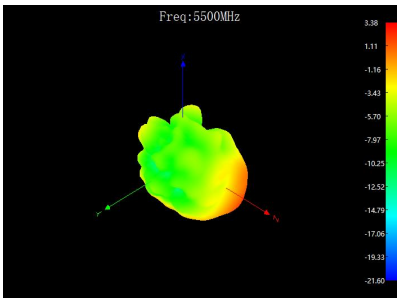


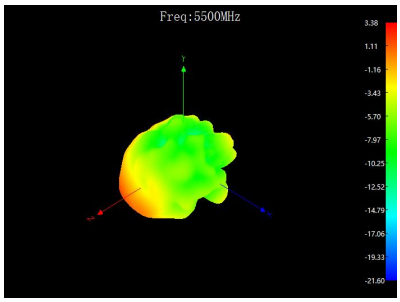
YZX face @5350MHz



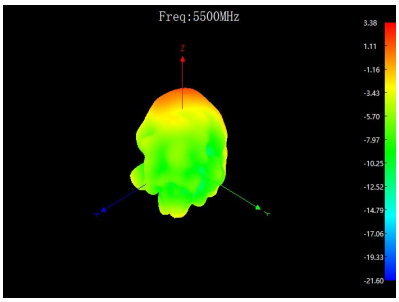
ZXY face @5550MHz



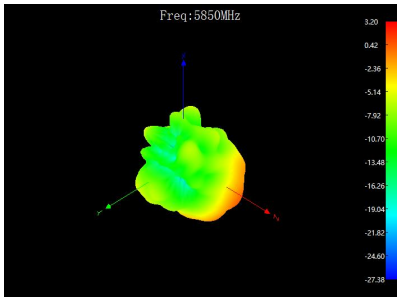
XYZ face @5550MHz



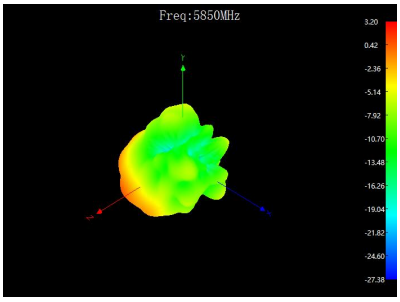
YZX face @5550MHz



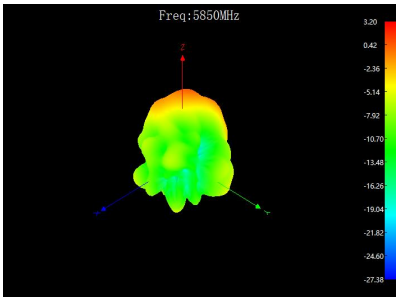
ZXY face @5850MHz



XYZ face @5850MHz



YZX face @5850MHz



测试报告单 Tension test report

报告编号：NY20241107

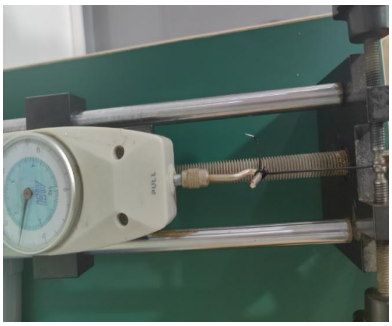
客户代码 Customer code	1028	客户料号 Customer material number		客户描述 Customer description	2.4G/5G 内置天线（L=80mm） 2.4G/5G built-in antenna (L=80mm)
试验数量 Number of tests	5pcs	我司料号 Ourcompany's material number	YJC-6N080-B112	我司描述 Company description	1.13 线端拉力 1.13 Wire end tension
检验标准 Inspection standard	线端测试参照行业标准 Line end test with reference to industry standards				

序号 Serial number	**试验项目** Test item	**要求** requirement	**测试数据记录** Test data recording	**试验设备** Test equipment	**结果判定** Result decision
1	线端拉力测试 Wire end tension test	F≥1.5kgf	1.65kgf	NK-50	合格 qualified
2	线端拉力测试 Wire end tension test	F≥1.5kgf	1.63kgf	NK-50	合格 qualified
3	线端拉力测试 Wire end tension test	F≥1.5kgf	1.62kgf	NK-50	合格 qualified
4	线端拉力测试 Wire end tension test	F≥1.5kgf	1.60kgf	NK-50	合格 qualified
5	线端拉力测试 Wire end tension test	F≥1.5kgf	1.58kgf	NK-50	合格 qualified

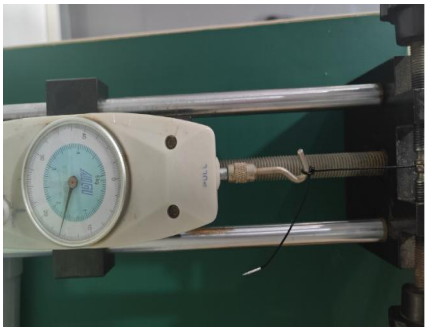
1

2

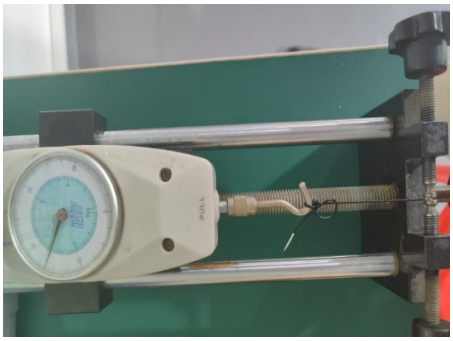
3



4



5



测试/日期 Test/date	陈黎明 20241107 Chen Liming 20241107	审核/日期:李湘东 Reviewed/Dated: Xiangdong 20241107	结论 conclusion	合格 qualified

深 圳 市 英 佳 创 电 子 科 技 有 限 公 司

Shenzhen Yingjiachuang Electronic Technology.,Ltd

端子测试报告单 Terminal test report

报告编号：NY20241107

客户代码 Customer code	1028	客户料号 Customer material number		客户描述 Customer description	2.4G/5G 内置天线（L=80mm） 2.4G/5G built-in antenna (L=80mm)
试验数量 Number of tests	5pcs	我司料号 Our company's material number	YJC-6N080-B112	我司描述 Company description	**1.13 一代线端** 1.13 generation wire end
检验标准 Inspection standard	端子测试参照行业标准 The terminals are tested according to industry standards				

序号 Serial number	**试验项目** Test item	**要求** requirement	**测试数据记录** Test data recording					**试验设备** Test equipmen	**结果判定** Result decision
			1#	**2#**	**3#**	**4#**	**5#**		
1	成 型 尺 寸 Molding size	大脚：1.30-1.50 Bigfoot: 1.30-1.50	1.46	1.43	1.46	1.41	1.42	Tension meter	合格 qualified
2	成 型 尺 寸 Molding size	编织：1.00-1.25 Weaving:1.00-1.25	1.10	1.12	1.12	1.15	1.13	Tension meter	合格 qualified
3	成型尺寸 Molding size	线皮：1.20-1.35 Thread cover: 1.20-1.35	1.27	1.26	1.29	1.27	1.25	Tension meter	合格 qualified
4	线端拉力 Wire end tension	≥1.5kgf	1.65	1.63	1.62	1.60	1.58	Tension meter	合格 qualified
5	膜厚测试 Film thickness test	≥0.5U "	0.61	0.58	0.63	0.63	0.60	Film thickness meter	合格 qualified
Test/date	Liming Chen 20241107		Review/Date: Li Xiangdong 20241107					conclusio	合格 qualified

产品规格 Product Type	RF1.13 低损线
结构图 Structure Drawing	

结构特性 Structure Characteristics

结构 Structure	项目 Item	标准值 Standard Value
内导体 Inner Conductor	材质 Material	镀银铜线 Silverplated Copper Wire
	结构 Construction(mm)	7/0.083
	标称外径 Nom.Dia(mm)	0.249±0.02
绝缘层 Insulation	材质 Material	聚全氟乙丙烯 FEP
	标称外径 Nom.Dia(mm)	0.735±0.02
外导体 Outer Conductor	材质 Material	铜塑箔 Cu-Plastic Composite Tape
	标称外径 Nom.Dia(mm)	0.759±0.02
	材质 Material	镀锡铜线 TC Wire 16*4/0.05
	标称外径 Nom.Dia(mm)	0.96±0.05
	编织覆盖率 Coverage Ratio(%)	90±5
护套 Jacket	材质 Material	聚全氟乙丙烯 FEP
	标称外径 Nom.Dia(mm)	1.15±0.05

电气性能 Electrical Characteristics

项目 Item	标准值 Standard Value	项目 Item	频率 Frequency	标准值 Standard Value
阻抗 Impedanc（Ω）	50±2	衰减 Attenuation@20℃ (dB/m)	1GHz	1.88
电容 Capacitance(pF/m)	98		2GHz	2.55
速率 Velocity(%)	70		3GHz	3.05
驻波比 VSWR	≤1.30@DC-6GHz		4GHz	3.52
最大工作电压 Max.Operating Voltage(V)	1000		5GHz	4.05
最大工作频率 Max.Operating Frequency(GHz)	8		6GHz	4.40

可靠性 Dependability

最小弯曲半径(单次)Min.Bending Radius/Single	mm	5
最小弯曲半径（重复）Min.Bending Radius/Repeated	mm	10
工作温度范围 Operating Temperature	℃	-55-+200

包装 Packing

包装方式 Packing Mode	纸盘 Papery Reel
包装长度 The Length of Each Reel(m)	1000
每盘段数 The Joints of Each Reel	≤5
最小段长 Min. Segment Length(m)	≥10

使用提示 Trips for Use

存储环境 Storage Environment	温度：30℃以下，湿度：20-65%
最佳保存周期 The Best Save Cycle	2 个月，2 个月以上上锡效果变差，但电性能不受影响，夏季高温高湿环境开剥后需尽快流转
加工温度 Processing Temperature	可短时承受 260℃的高温，300℃以上易发生分解，400℃以上发生显著的热分解
铁氟龙收缩 Teflon Shrink	材料的固有属性，绝缘 0.2mm 以下，护套 0.3mm 以下
护套窜动 Jacket Taaverse	加工长度（护套残留长度）低于 5CM 时易发生

ROHS 物料控制报告(ROHS Material control report)

兹证明向贵司交货的零組件、辅助材料所使用的原材料、以及生产工程中的添加剂等均符合 RoHS 限制使用有害物质指令的环保要求（RoHS 指令 2011/65/EC)
This is to certify that the components delivered to your company, the raw materials used for auxiliary materials, and the additives used in the production project all meet the environmental requirements of the RoHS directive on limiting the use of hazardous substances . （RoHS 指令 2011/65/EC)

关于零组件、辅助材料所使用的原材料、包装材料以及和产过程中使用的添加剂等的构成成份报告如下：
The report on the composition of raw materials, packaging materials, and additives used in the manufacturing process for component auxiliary materials is as follows

组成物料名称 Component /Part Name	组成材料 Material Composition	ICP 报告编号 ICP report #	测试机构 Test Org.	测试时间 Test Date	有 害 物 质 含 量(ppm)						是否合格? PASS?
					Cd	Pb	Hg	Cr^{6+}	PBB	PBDE	PASS
PCB	PCB	TAOEC24001815302	SGS	24/04/07	ND	15	ND	ND	ND	ND	PASS
线材(wire rod)	铁氟龙同轴线缆 Teflon coaxial cable	CANEC24002746206	SGS	24/02/23	ND	ND	ND	ND	ND	ND	PASS
锡条(tin rod)	环保锡丝 Green solder wire	SHAEC24006459102	SGS	24/04/10	ND	78	ND	ND	ND	ND	PASS
端子（terminal）	铜 cuprum	CANEC24000977302	SGS	24/01/22	ND	6	ND	ND	ND	ND	PASS
	金镀层 gold plate	A2240410234101001E	CTI	24/07/16	ND	ND	ND	ND	ND	ND	PASS
	胶芯 rubber core	A2240126395101003E	CTI	24/03/16	ND	ND	ND	ND	ND	ND	PASS
EVA	EVA	CANEC24000276902	SGS	24/01/12	ND	ND	ND	ND	ND	ND	PASS

MSDS：

物 质 安 全 资 料 表

MATERIAL SAFETY DATA SHEET

1、产品及公司名称	PRODUCT AND COMPANY IDENTIFICATION
产品名称： Product Name:	FR-4.0 覆铜箔层压板、半固化片 FR-4.0 Copper Clad Laminate、Prepreg
产品用途： Product Use:	线路板、多层线路板 Substrate for printed circuitry, Multilayer Boards
公司名称及地址： Name of company and Address:	金安国纪科技（杭州）有限公司 浙江杭州临安大康路 188 号 GOLDENMAX INTERNATIONAL TECHNOLOGY (HZ) LTD. NO. 188 DA KANG ROAD, LIN' AN, HANG ZHOU, ZHE JIANG P.R. CHINA
如需更多信息，请致电。 For more information call: In case of emergency call:	**0571-58688788**

2、产品的成分/	COMPOSITION/INFORMATION ON INGREDIENTS	
原料名称：原料 INGREDIENT MAME	重量% WEIGHT%	CAS 代码 CAS#
玻璃纤维 Fibrous Glass	30-60	65997-17-3
铜箔 Copper	8-40	7440-50-8
溴化环氧树脂 Bromined Epoxy Resin	20-40	68928-70-1

3、 危害性	HAZARDS INDENTIFICATION
潜在的危害健康的危险品： POTENTIAL HEALTH HAZARDS	
皮肤： Skin :	粉末将导致中等程度皮肤过敏。 Dust may cause moderate skin allergy
眼睛： Eyes:	粉末将导致中等程度眼睛过敏。 Dust may cause moderate skin allergy. Fomes may irritate eyes.
吸入物： Inhalation:	当生产时，玻璃纤维粉末会从玻璃基板中分散出。 Fibrous glass dust may be released from the fiber-glass cloth Substrate when Machined.

4、 首要援助措施	FIRST AID MEASURES

皮肤： Skin:	脱下已污染衣服，用流动水冲洗。 Wash in flowing water or shower, Remove contaminated clothing
眼睛： Eyes:	用流动水冲洗 15 分钟，如过敏现象持续发生，请求助医生。 Irrigate with flowing water fix 15 minutes If irritation persists Consult a Physician.
吸入： Inhalation:	如粉末烟尘太多请转移到有新鲜空气的地方，如没有呼吸，请进行人工呼吸，并致电医生。 If overcome by dust or smoke, move to fresh air If not Breathing, give mouth-To-mouth resuscitation, call physician.
摄食： Ingestion :	如吸入大量，致电医生 If Large amount ingested, Consult physician.

5、 火灾测试： FIRE FIGHTING MEASURES

易燃烧性： Flammable Properties:	不适用 N/A
闪点： Flash Point	不适用 N/A
闪点方式： Flash Point Method:	不适用 N/A
自燃点温度： Autoignition Temperature:	无规定 N/A
燃烧上限： Upper Flame Limit: 燃烧下限： Lower Flame Limit: 燃烧等级： Flame Propagation Rate:	不适用 N/A 不适用 N/A 94V-0
OSHA 燃烧级别： OSHA burn Glass 灭火介质： put out a fire Media 不正常火灾及爆炸危险： Unusual fire and blast	不适用 N/A 水、CO_2、及化学品 Water, CO_2 , and dry chemical 当发生热分解时可能会释放出有毒的液态溴化物 May give off toxic hydrogen bromide when hot decomposed
特别火灾指导： Special firefighting precautions/Instruction	消防员须穿保护装置及正压呼吸设施。 Firemen should wear proper protective equipment and positive pressure self-contained breathing

6、 意外事故的应变措施 ACCIDENTAL RELEASE MEASURES

如有泄漏或其它释放： Lucase of spill or Other release	（通常需穿所荐的保护设施）有泄漏应报告当地政府。 (always wear recommended personal protection equipment) Spills and releases may have to be reported to local government
7、处置及储存：	**HANDLING AND STORAGE**
正常处置： Normal handling	通常使用所建议的个人保护装置 Always wear recommended personal protective equipment
存储建议： Storage recommendations	不适用 N/A
8、泄漏控制/个人保护	**EXPOSUER CONTROLS/PERSONAL PROTECTION**
工程控制： Engineering controls:	使用防尘通风设施。 Use local exhaust ventilation to control dust
个人保护措施： Personal protective equipment	
皮肤保护： Skin protection	对于短暂的接触粉末，需要清洗身体或衣服，无预防措施，当接触时间延长或者接触重复发生时可戴手套或围裙。 For brief contact to dust, no prevention other than clean Body-covering clothing should be needed.
眼睛保护： Eye protection	当使用有关的材料时使用眼睛保护装置。 Use appropriate eye protection when machining material
呼吸保护： Respiratory protection	大气中的玻璃纤维、铜箔粉尘颗粒必须低于暴露标准。当进行某种操作时使用规范的粉尘防毒面罩。 Atmospheric levels of Fibrous glass and copper Dust should Be maintained below exposure guidelines. When respirator Protection is required for certain operations. Use a NIOSH-approved dust respirator.
其它建议： Additional recommendations	不适用 N/A

暴露标准：
EXPOSURE GUIDELINES

成分名称： Ingredient name:	CAS.NO.	ACCOITLV	OSHAPEL	其它极限 Other Limit
环氧树脂粉尘： Epoxy dust:	35948-25-5	10mg/m^3	15mg/m^3	N/A
玻璃纤维粉尘： Fibrous glass dust:	65997-17-3	10mg/m^3	15mg/m^3	N/A
铜箔粉尘（Copper dust）	35948-25-5	1mg/m^3	1 mg/m^3	N/A

9、物理及化学性能	**PHYSICAL AND CHEMICAL PROPERTIES**

外观： Appearance	不适用 N/A
物理性： Physical	固体 Solid
分子重量： Molecular weight	不适用 N/A
化学配方： Chemical formal	不适用 N/A
气味： Odor	无味，除非加热 None, unless heated
比重： Specific gravity	（水=1.0）-1.6±0.40 (Water=1.0) - 1.6±0.40
水溶性： Solubility in water	（重量%） 在水中可忽略 (weight%) ignore in water
PH 值： PH :	不适用 N/A
沸点： Boiling point:	不适用 N/A
溶点： Melting point	不适用 N/A
气压： Vapor pressure	不适用 N/A
气密度： Vapor density:	不适用 N/A
气化率： Evaporation rate :	不适用 N/A
%挥发性： %Volatiles:	不适用 N/A
闪点： Flash point :	不适用 N/A
10、稳定性及反应性能	**STABILITY AND REACTIVETY**
通常稳定？ Normality stable?	稳定 Stable
不兼容性： Incompatibilities:	不稳定 Not determined
危险的腐化产品： Hazardous decomposition Products	CO CO_2 HBD NOX (当加热超过 300℃) CO CO_2 HBD NOX(If heated in excess of 300 deg C)
危险聚合物？ Hazardous polymerization	无 None

11、毒物学的资料	TOXICOLOGICAL INFORMATION
敏感反应： Immediate (Acute) effects:	灰尘将导致眼、皮肤中等程度过敏。 Dust may cause moderate eye, skin and respire Irritation
慢性反应： Delayed (Subebronic & Chromic) Effects	不知 None know

12、生态学资料	ECOLOGICAL INFORMATION
非生物厚解散	Not biodegradable

13、排放程度及废物处置	SPILL PROCEDURES AND WASTE DISPOSA L
排放程度：	如果材料不被污染，将其装入清洁的容器中再使用，如果被污染，将其装入容器中等待处置。 If material is not contaminated, scoop it into clean Containers for use. If it is contaminated, scoop it into Containers for disposal.
废物处置方法： Waste disposal method	根据当地法规，将加工处理出来的废物由合格的清理商进行可接受的处置方法。 Landfill of cured material in a licensed facility in Accordance with local regulations in acceptable disposal method

14、运输信息	TRANSPORT INFORMATION
特殊运输方式及注意事项： Special conveyance method and announcements	For additional information on shipping regulation affecting this material ,contact the information number found on the first page . 附带资料是当运输规则影响到物料时，请按第一页报提供的方式联系

15、法规信息	REGULATORY INFORMATION
适用法规 suitable laws	无 None

16、其它资料 OTHER INFORMATION

以上 MSDS 资料用于我司 FR-4.0 材料。

The above mentioned MSDS documents are suitable for the products such as FR-4.0.

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