

深圳市昱晟通讯设备有限公司 SHENZHEN YUSHENG COMMUNICATION EQUIPMENT CO., LTD 承认书 acknowledgement				
客户名称 customer name	深圳市科奈信科技有限公司 Shenzhen CANNICE Technology Co., Ltd.			
产品名称 product name	A1391, 左耳机, FPC 天线 A1391 left headset, FPC antenna			
客户料号 Customer material number	300012000348			
项目名称 project name	左耳机天线 Left headset antenna			
产品品牌 Product brand	深圳市昱晟通讯设备有限公司 SHENZHEN YUSHENG COMMUNICATION EQUIPMENT CO., LTD			
产品型号 product model	615013-IA-TA			
附件 appendix	封面 Cover	图纸 drawing	FAI 报告 FAI report	CPK 报告 CPK report
	规格书 specification	可靠性测试报告 Reliability test report	环保 environmental protection	其他 3D 文件 <u>Other 3D files</u>
供应商签核 supplier sign	制作 make	审核 check		批准 approve
客户 签核 client sign	制作 make	审核 check		批准 approve
承认条件 condition of recognition	☐ 承认 admit		☐ 拒绝承认 disallow	
	☐ 条件承认 Conditional recognition 需满足条件 Need to meet the conditions:			
	☐ 临时承认 限量 _____ PCS			
供应商信息 Supplier information				
名称: 深圳市昱晟通讯设备有限公司 联系人: 邓成雨 Name: Shenzhen Yusheng Communication Equipment Co., LTD. Contact person: Deng Chengyu				
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A1391 项目天线物料需求规格书

A1391 Project antenna material requirements specification

客户名称：深圳市科奈信科技有限公司

customer name : Shenzhen CANNICE Technology Co., Ltd.

项目型号 Project model A1391

产品名称：A1391,左耳机,FPC 天线

product name : A1391, left headset, FPC antenna

产品规格 Product specification: : 21.70*12.02*0.12mm , 2.4-2.5GHz , V11 ,

A1391-L-FPC (昱晟)

物料编码 Material code: 300012000348

变更内容履历 Change Content CV: :

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V2	TA	V01 版本	2025-08-14	李洁仪 Lijieyi	16	

以下为认签页：

The following is the signature page:

供方承认签字

The supplier acknowledges the signature

责任人/日期 Responsible person / date		IQC/日期 IQC/ date	审核/日期 Review / Date	核准/日期 Approval / Date
MD	闭业智	苏观凤	贺磊	
RF	何诗吟			

需方承认签字（认签后请寄回）：

The Demander acknowledges the signature (please send it back after the confirmation):

需方判定结果： ☐ 合格 ☐ 不合格			
The demander the result: ☐ qualified ☐ unqualified			
开发设计工程师/日期 Development & Design Engineer / Date	SQE 工程师/日期 SQE Engineer / Date	采购负责人/日期 Purchasing Leader / Date	开发部经理批准/日期 Development Manager approval / date

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1.概述 Overview

1.1 适用范围 scope of application

本要求规定了 A1391 产品的天线技术要求和物料需求规范。

This requirement specifies the antenna technical requirements and material requirements specifications for A1391 products.

本要求适用于 A1391 产品的天线选型、测试和验收。

This requirement is applicable to the antenna selection, testing and acceptance of A1391 products.

1.2 项目基础信息 Basic information of the project

天线名称： Antenna name:	<u>A1391</u>
天线频段： Antenna band:	BT
天线材质： Antenna material:	FPC

2.技术指标要求 Technical index requirements

2.1 测试项目及设备介绍 Introduction of the test items and the equipment

清单 inventory	测试项目 test item	设备 equipment
有源测试 Active test	TRP,TIS	综合测试仪、微波暗室 Integrated tester, microwave darkroom

2.2 有源报告 Active Reporting

2.2.1 测试说明 test specification

测试工具：Agilent8960综测仪、R&SCMW500、全电波远场ETS暗室，高精度定位系统及其控制器和带自动测试程序的电脑

测试环境：温度 $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$ ，湿度 $50\% \pm 15\%$

测试方法：DUT以H面放于转台中心位置固定，与喇叭天线中心位置在同一个水平线上。

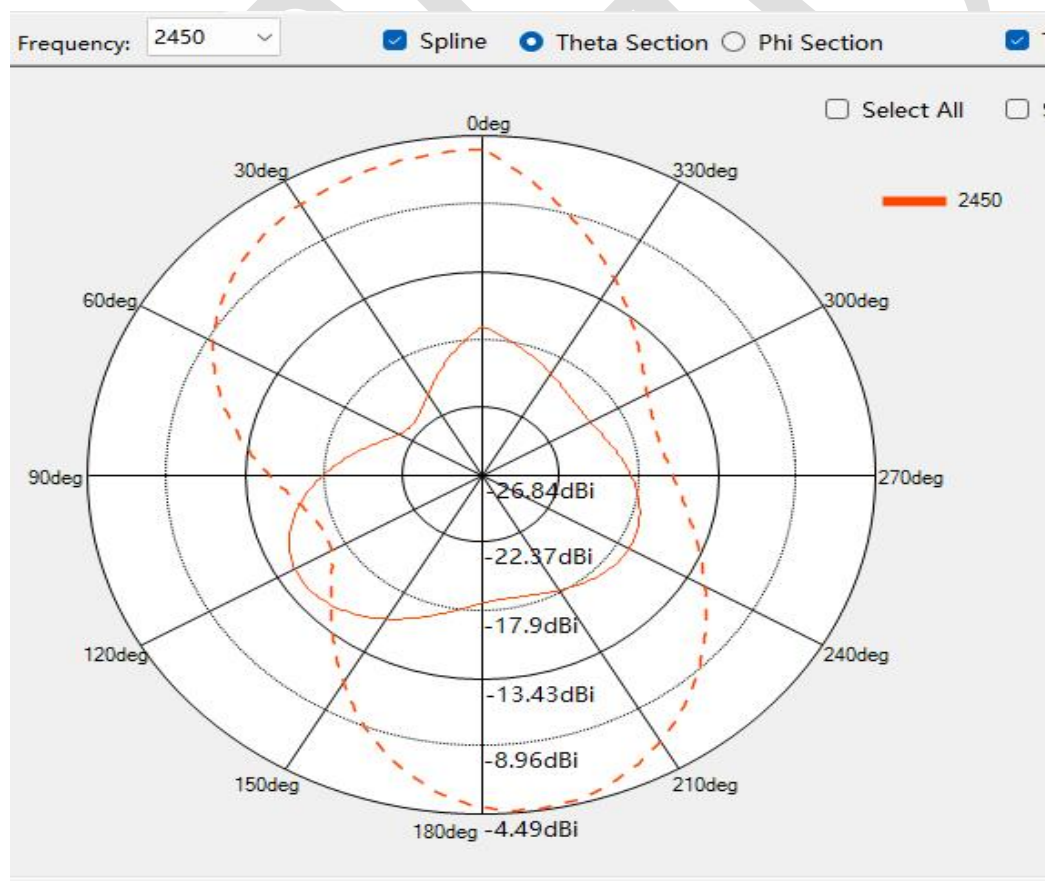
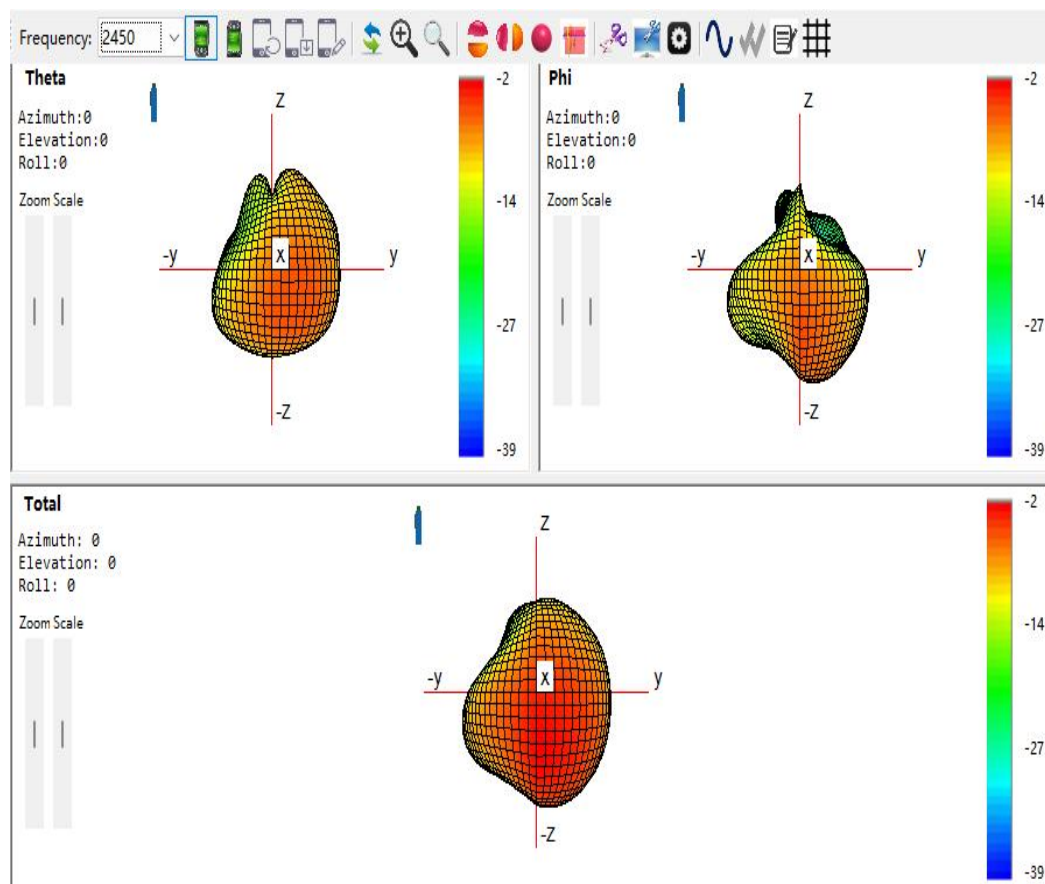
定位系统使 DUT 在整个球面进行旋转，满足高精度的三维定位。各射频仪器、转台控制器与带自动测试软件的 PC 通过 GPIB 接口进行通信

2.2.2 天线无源数据 Antenna passive parameters



Freq	Effi (%)	Gain
2400.0	21.5	-3.15
2410.0	21.46	-2.94
2420.0	21.56	-2.67
2430.0	21.15	-2.5
2440.0	20.21	-2.48
2450.0	19.18	-2.47
2460.0	18.15	-2.54
2470.0	17.24	-2.71
2480.0	16.05	-3.01

2.2.3 L 天线方向图苹果图 L antenna direction diagram Apple diagram

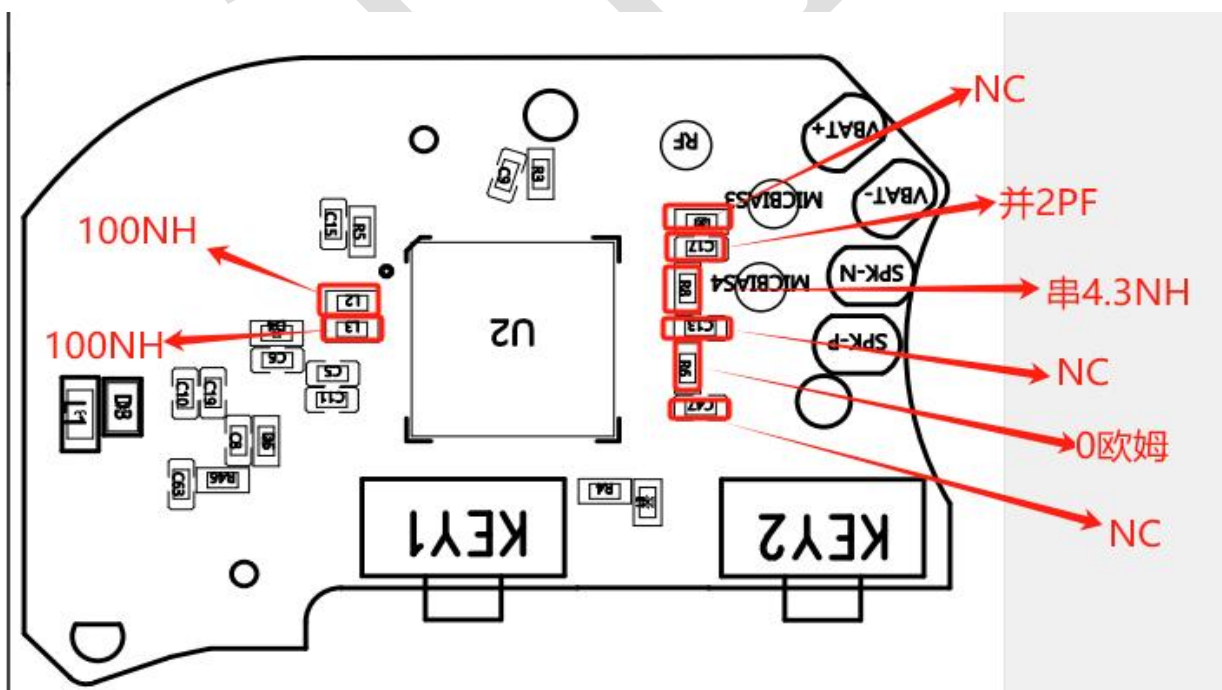


2.2.4 天线 OTA 数据 Antenna OTA

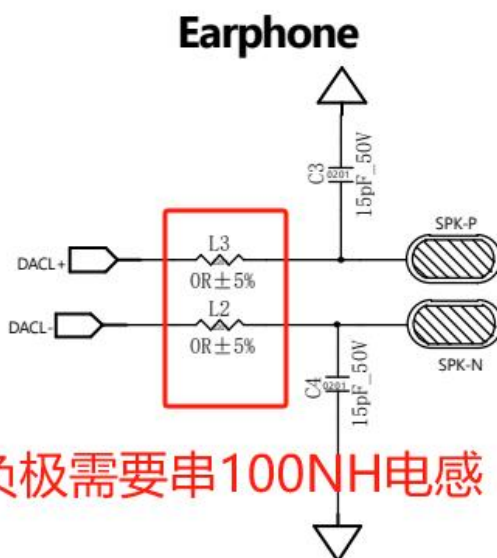
Channel No.	Free space test data/L	
	TRP (dBm)	TIS (dBm)
0	2.81	-85.21
39	3.62	-85.43
78	3.91	-86.16

Channel No.	Free space test data/R	
	TRP (dBm)	TIS (dBm)
0	3.55	-85.18
39	3.64	-85.26
78	4.02	-85.69

2.2.5 天线匹配更改-左耳 Antenna matching changed-left ear



phone



左右耳喇叭正负极需要串100NH电感

2.2.6 天线环境处理-左/右耳同步 Antenna environment processing-left/right ear synchronization



Note: In order to ensure the consistency of the later assembly of the whole machine (as shown in the figure above), the battery wire and speaker wire should be wound clockwise twice, and the excess length of the wire should be pressed under the board.

2.2.7 天线环境处理-左耳 Antenna environment processing-left ear



Note: In order to ensure the consistency of the later assembly of the whole machine (as shown in the figure above), the battery wire and speaker wire should be wound clockwise twice, and the excess length of the wire should be pressed under the board.

2.2.8 天线场测数据 Antenna field measurement data

test method	1. Distance Test: Connect the phone to a Bluetooth headset and place it on a non-metallic stand 60cm high. The tester wears the headset and walks backward while rotating 360 degrees. Measure the maximum distance where call and music playback remain uninterrupted in the headset.	
	2. Proximity test: The tester carries a mobile phone (preferably in the back pocket of the pants with the main ear of the Bluetooth headset) to test whether there is any jamming or breaking during human rotation.	
	3. Hand covering test: The tester wears headphones and connects with the mobile phone to play music. The test is carried out in two states: 1) Test with fingertips facing up to check whether the music is interrupted; 2) Test with fingertips facing back to check whether the music is interrupted.	
Test site	In the open area outside our office	
testing facility	Iphone6	
test result	listen to music	1. When both ears are the main ears, test 360 degrees within 11m without jamming,
		2. Single ear pull distance test: 360 degrees without lag in the left ear within 8m
		3. Single ear pull distance test: 360 degrees without lag within 8.5m of the right ear

3.结构图纸 structural drawings

3.1 左耳机图纸 left headset drawings

1		2		3		4		5		6		7		8	
A															
*12.02±0.15															
*21.70±0.15															
THOT A1391-L-V11															
B															
skills requirements:															
1.PC substrate specifications:		PI substrate:		1.0 mil											
		Electrolytic copper:		0.5x(0D)											
		Double-sided tape:		3M-9471LSE											
2.Electroplating specifications:		Nickel plating: 30um		4H, 0.05um											
		Surface ink color:		Matt black											
		Printing font color:		White											
3.Surface ink requirements:		Printing font height:		According to drawings											
		1. Reliability test: salt spray test/rubber friction test/alcohol resistance test/100 grid test.													
		2. The front ink, the surface of the ink is required to be folded in half without cracking, scratching, etc.													
C															
4.Reliability requirements:		1. Shape tolerance ±0.15;													
		2. Copper foil circuit tolerance ±0.05;													
		3. The position of the copper foil to the shape is ±0.15;													
		4. Hole-to-hole position tolerance ±0.10; hole-to-shape position tolerance ±0.15;													
		5. The size tolerance of gold finger is ±0.20;													
		6. For other numerical dimensions, refer to 2D drawings.													
5.Tolerance requirements:		The dimensions marked with numbers are regarded as important dimensions, and the others refer to 2D drawings													
6.Key control size:															
7.Environmental requirements:		Parts meet MIL-STD-883C environmental protection requirements													
8.Packaging requirements:		Keep Cut Protective Film in Roll Form													
D															
DATE		Modify the content		Version		Revise									
1		2		3		4									
1		2		3		4									
ShenZhen Yu Sheng Communication Equipment Co., Ltd.															
Gold plated Area															
D															
D															

4.可靠性测试报告 Reliability test report

冷热冲击测试报告 Hot and cold shock test report

consumer	科奈信 CANNICE	日期 date	2025-6-19	厂内编号 Factory number	/
P / N	615013	数量 quantity	各 5PCS	测试时间 testing time	48H
材料规格 material specification	单面半对半有胶电解铜 Single face half to half glue electrolytic copper	供应商 supplier	昱晟 THOT	参考标准 reference standard	MIL-SDT-202Method017IEC60749-25 JEDEC JESD22-A104-B IEC68-2-1MIL-STD-2168-85

测试目的：检测产品的可靠性及镀层的结合力、镀层抗氧化及抗腐蚀能力。

Test purpose: To test the reliability of products and coating binding force, coating and oxidation resistance and corrosion resistance.

设备名称：高低温测试箱

Equipment name: high and low temperature test box

实验室环境 laboratory environment

温度 temperature	22-26℃	相对湿度 relative humidity	65-75%	大气压 atmos	1MPA
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测试参数 test parameter

温度 temperature	高温 high temperature		80℃	低温 low temperature	负 40℃ minus forty °C	温度公差 Temperature tolerance	2℃	
时间 time	恒温	高温 high temperature	0.30H	高温升温 High temperature heating	10min	备注 remarks	1、高温升温是从常温升至设定高温 2、低温降温是指从设定高温降至设定低温 1. High temperature heating up rises from room temperature to set high temperature 2. Low temperature cooling refers to falling from the set high temperature to the set low temperature	
		低温 low temperature	0.30H	低温降温 Low temperature cooling	10min			
循环次数 ycle index	32 次 32 Times		其它 else	相对湿度 relative humidity	95%			
外观检验 visual inspection	分层 lamination	ACC	氧化 oxidize	ACC	起泡 blister	ACC	油墨脱落 The ink fell off	ACC
测试 test	抗剥离 antistripping	≥0.8kgf/cm2	点焊 spot welding	ACC	百格测试 Wear-resistant experiment	ACC	耐磨实验 Wear-resistant experiment	ACC

测试记录 test record:

产品编号 NO	产品测试结果 identification of product	判定 judge
	实验结束后，产品无起翘，无溢胶。 After the experiment, the product has no warping and no glue overflow.	ACC

深圳市昱晟通讯设备有限公司

Shenzhen Yusheng Communication Equipment Co., LTD

盐雾测试报告 Salt mist test report

客户 consumer:	科奈信 CANNICE	型号 model : A1391
试样情况 Sample condition	试样数量 Number of samples : 5PCS	
	材料 : 单面半对半有胶电解铜 Material: single side half to half glue electrolytic copper	镀层 : 镀金 Plated layer: gold plated
实验起止时间: 2025 年 6 月 16 号 09 时 25 分至 2025 年 6 月 18 日 09 时 25 分 共 48 小时 Start time of the experiment: 09.25 on May 19, 2024 to 09.25 on May 21, 2025		
实验类型 Type of experiment	☒ NSS ☐ ASS ☐ CASS	
实验条件 experimental condition	盐溶液 Salt solution : 5%	PH:7.0
	箱内温度 Temperature in the box 35°C	相对湿度 relative humidity : 85%℃
	喷雾方式 : ☒ 连续 ☐ 间歇 Spray method: ☒ Continuous ☐ interval	压缩空气压力 Compressed air pressure : : 1kg / m ²
	盐雾沉降率 precipitation rate of salt spray :	雾液收集 Fog collection : PH7.0anc
	实验周期 : 1--个循环 Experimental period: 1- -cycle	喷雾时间 Spray time : 48H 放置时间 storage period : 2H
每 16 小时观察结果 The results were observed every 16 hours	试验温度 test temperature : 36°C	压力桶温度 storage period : 47.5°C
实验结果 experimental result	实验后的外观 : 外观完整无损 , 无明显变化 Appearance after the experiment: the appearance is intact and intact, no obvious change	
	镀层 : 无剥落 , 无锈蚀 Plating: no peeling, no corrosion	
	表面喷涂 , 丝印 : 无脱落 , 无气泡 Surface spraying, screen printing: no shedding, no bubbles	



5.物料清单 BOM



Shenzhen Yusheng Communication Equipment Co., LTD

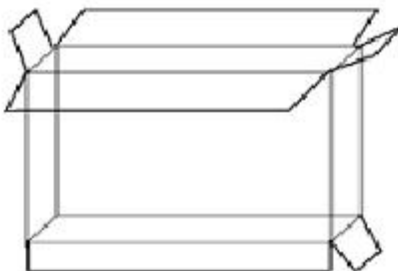
615013 (A1391) BOM

edition: T:A client: 615 Type of aircraft: 615013 Set a date: 2025/06/18

Item	*Material code	*Material name	name	*Machine type	Specification and model	colour	*UNIT.	dosage	remark
1	615013-IA-TA	L ANTENNA		A1391	Black L-FPC Substrate: Gold-Plated Cathode Copper, Two-Ply, 12.02×21.7×0.12 mm	black	PCS	1	
1.1	615013-IA-01-TA	L-FPC		A1391	Black L-FPC Substrate: Gold-Plated Cathode Copper, Two-Ply, 12.02×21.7×0.12 mm	black	PCS	1	
verify:			examine:			manufacture: BYZ			



6.包装示意图 Schematic diagram of packaging

包装方式图 Packing pattern drawing																				
产品名称 Product name	天线组件 Antenna module																			
料号 Material number	615013																			
项目型号 Project model	A1391																			
装箱明细 Packing details	纸箱尺寸 1Carton Size 1: 270*260*200MM 纸箱尺寸 2Carton Size 2: 260*200*200MM 纸箱尺寸 3Carton Size 3: 根据订单数量/体积而定 Subject to order quantity/volume																			
	装箱方式 Packing method	按订单数量包装 Packing as per order quantity																		
	装箱总数 Total number of cases	按订单数量包装 Packing as per order quantity																		
标签要求 Label requirement	标签尺寸 Label Size 1: 通用 100*100mm Universal 100*100mm 标签尺寸 2Label Size 2: 根据客户要求 According to customer requirements	<table border="1"> <thead> <tr> <th colspan="2">深圳市昱晟通讯设备有限公司</th> </tr> <tr> <th colspan="2">SHENZHEN YUSHENG COMMUNICATION EQUIPMENT CO., LTD</th> </tr> </thead> <tbody> <tr> <td>Customer name 客户名称</td> <td>*****</td> </tr> <tr> <td>Order reference 订单编号</td> <td>*****</td> </tr> <tr> <td>Project name 项目名称</td> <td>*****</td> </tr> <tr> <td>Material code 物料编码</td> <td>*****</td> </tr> <tr> <td>Quantity 出货数量</td> <td>****PCS</td> </tr> <tr> <td>Date 出货日期</td> <td>*****</td> </tr> <tr> <td colspan="2">Address: 407-411, Floor 4, Building 2, Yuntai Chuanggu Park, southeast of the intersection of Guangming Avenue and Dongchang Road, Guangming District, Shenzhen</td> </tr> </tbody> </table>	深圳市昱晟通讯设备有限公司		SHENZHEN YUSHENG COMMUNICATION EQUIPMENT CO., LTD		Customer name 客户名称	*****	Order reference 订单编号	*****	Project name 项目名称	*****	Material code 物料编码	*****	Quantity 出货数量	****PCS	Date 出货日期	*****	Address: 407-411, Floor 4, Building 2, Yuntai Chuanggu Park, southeast of the intersection of Guangming Avenue and Dongchang Road, Guangming District, Shenzhen	
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注意事项 Matters needing attention 1.因订单数量限制，每款物料的装箱方式根据订单总数量或者实物体积选择箱子大小 Due to the quantity limitation of the order, the packing method of each item shall be based on the total quantity of the order or the physical volume 2.保存温度：常温 Storage temperature: normal temperature 3. 保存条件：贮藏在阴凉干燥处 Storage condition: Store in a cool and dry place																				