



Shenzhen Yusheng Communication Equipment Co., LTD

W112 project antenna material requirements specification

Customer name: _____ Siqu

Customer name: _____ W112

Product name: _____ LDS antenna

Product specification: Antenna assembly / DX11355 / copper plated nickel / black / radium carved plated / rear shell / LDS material / fine lines / black / injection molding (supplied)

Antenna line / copper nickel / copper plated nickel / gray / radium carved plating

material code: _____

Change Content CV:

order number	edition	state	availability date	person liable	page number	remarks
1	R:a	R:a	2022-09-20	Yuan Shujun	11	

The Supplier acknowledges its signature:

Responsible person / date		IQC/ date	Review / Date	Approval / Date
MD				
RF				

The demander acknowledged the signature (please send it back after the recognition):

Demander judgment result: ☐ qualified ☐ unqualified			
Development & Design Engineer / Date	SQE Engineer / Date	Purchasing Leader / Date	Development Manager approval / Date



catalogue

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1. Overview

1.1 Scope of application

This requirement specifies the antenna technical requirements and material requirements specifications for W112 products.

This requirement applies_W112 antenna type selection, test and acceptance.

1.2 Project basic information

Antenna name:	<u>W112</u>
Antenna band:	4G : LTEB1/2/3/4/5/7/8/12/20/28 GWB : 1575.42MHz/2.4G WIFI
Antenna material:	The LDS process of radium carving
Antenna version:	V1

2. Technical index requirements

2.1 Introduction of test items and equipment

inventory	test item	equipment
Active test	TRP,TIS	Comprehensive tester, microwave dark chamber

2.2 Active Reporting

2.2.1 Test Instructions

Test tools: Agilent8960 comprehensive detector, R & S CMW500, full electric wave far field ETS dark room, high precision positioning system and its controller and computer with automatic test program

Test environment: temperature $22^{\circ}\text{C} \pm 3^{\circ}\text{C}$, humidity $50\% \pm 15\%$

Test method: The DUT is fixed in the center of the turntable with the H surface, and on the same horizontal line as the center of the horn antenna.

The positioning system enables DUT to rotate in the whole sphere to satisfying high precision 3 D positioning. Each RF instrument and turntable controller communicate with the PC with automatic test software through the GPIB interface.

2.2.2 Antenna active parameters-the main antenna motherboard conduction parameters

Frequency band	Channel	POWER (dBm)	SENS (dBm)	Frequency band	Channel	POWER (dBm)	SENS (dBm)
				LTE-B4	LOW	21.0	-93
					MID	21.1	-94
					HIG	21.2	-94
LTE-B1	LOW	21.5	-94	LTE-B5	LOW	21.5	-95
	MID	21.3	-94		MID	21.3	-94
	HIG	21.3	-95		HIG	21.5	-93
LTE-B2	LOW	21.4	-93	LTE-B7	LOW	20.9	-94
	MID	21.5	-94		MID	20.8	-93
	HIG	21.43	-94		HIG	20.8	-93
LTE-B3	LOW	21.5	-94	LTE-B8	LOW	21.4	-93
	MID	21.4	-94		MID	21.6	-94
	HIG	21.5	-93		HIG	21.5	-93

Frequency band	Channel	POWER (dBm)	SENS (dBm)
LTE-B12	LOW	20.6	-93
	MID	21.1	-93
	HIG	21.3	-93
LTE-B20	LOW	20.8	-92
	MID	21.1	-94
	HIG	20.9	-93
LTE-B28A	LOW	20.8	-92
	MID	21.1	-94
	HIG	20.9	-93
LTE-B28B	LOW	21.0	-93
	MID	21.1	-93
	HIG	21.2	-93

2.3 Main antenna active parameters-ARM

Test	FDD B1			FDD B2		
TRP (dBm)	15.02	15.14	14.62	15.12	15.32	15.07
TIS (dBm)			-85.25			-85.86

Test	FDD B3			FDD B4		
TRP (dBm)	14.21	14.15	13.76	14.35	14.51	14.60
TIS (dBm)			-86.27			-85.47

Test	FDD B5			FDD B7		
TRP (dBm)	6.38	6.69	7.58	15.48	15.69	15.47
TIS (dBm)			-78.65			-85.60

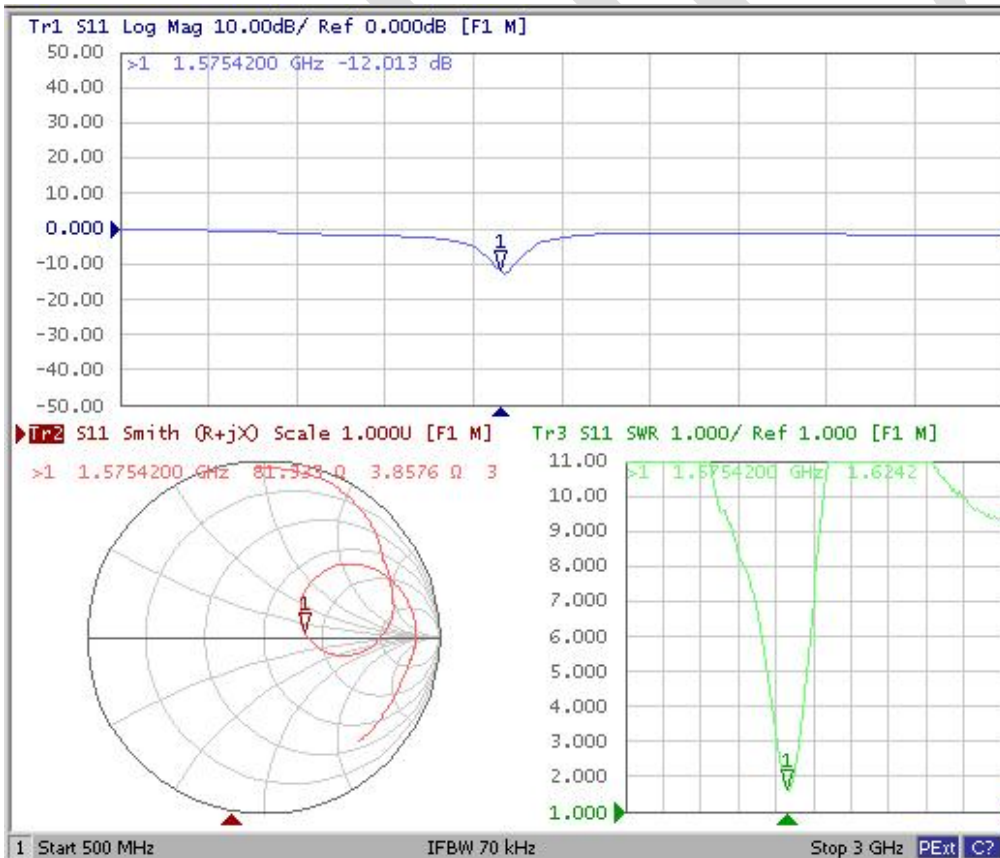
2.4 Active parameters of the main antenna

Test	FDD B8			FDD B12		
TRP (dBm)	8.15	8.42	8.65	3.42	4.25	4.51
TIS (dBm)			-79.88			-74.80

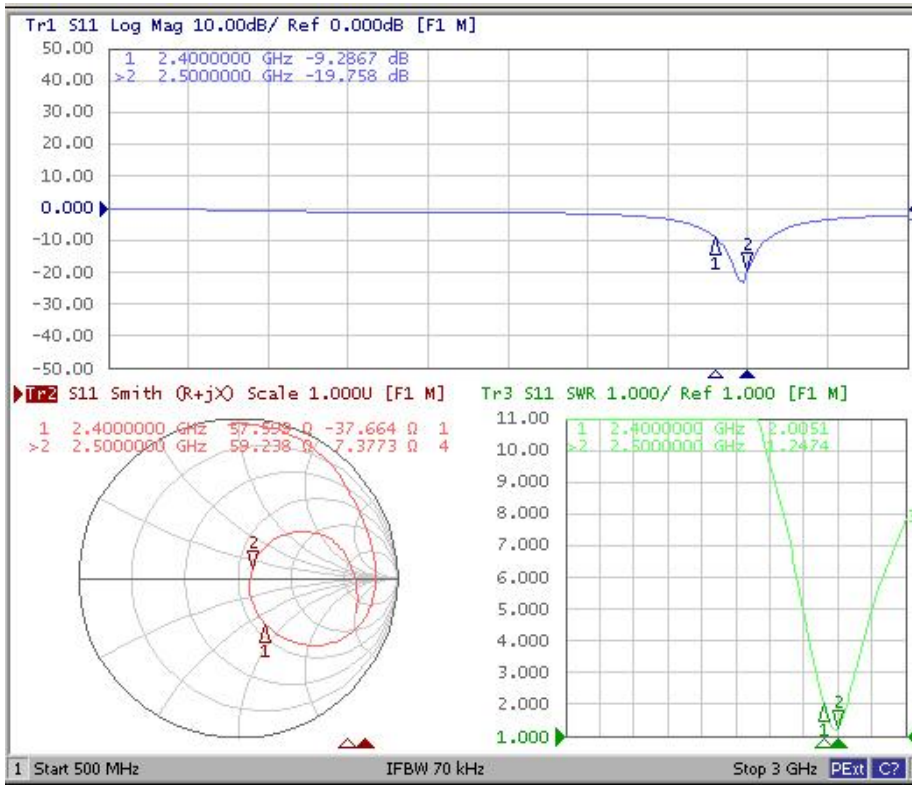
Test	FDD B20		
TRP (dBm)	6.52	7.32	7.41
TIS (dBm)			-78.14

Test	FDD B28A			FDD B28B		
TRP (dBm)	3.48	4.08	4.50	3.68	4.15	4.52
TIS (dBm)			-74.98			-75.09

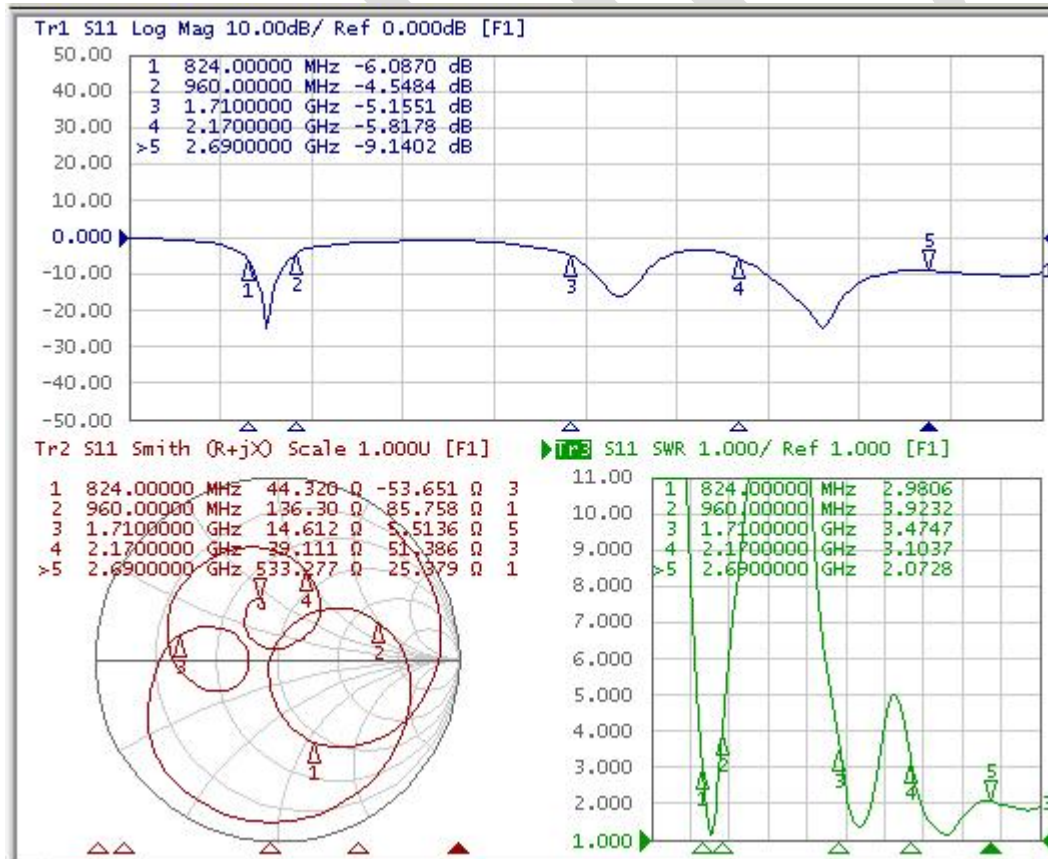
2.5 Antenna s11 parameter GPS



WIF I



MAIN ANT

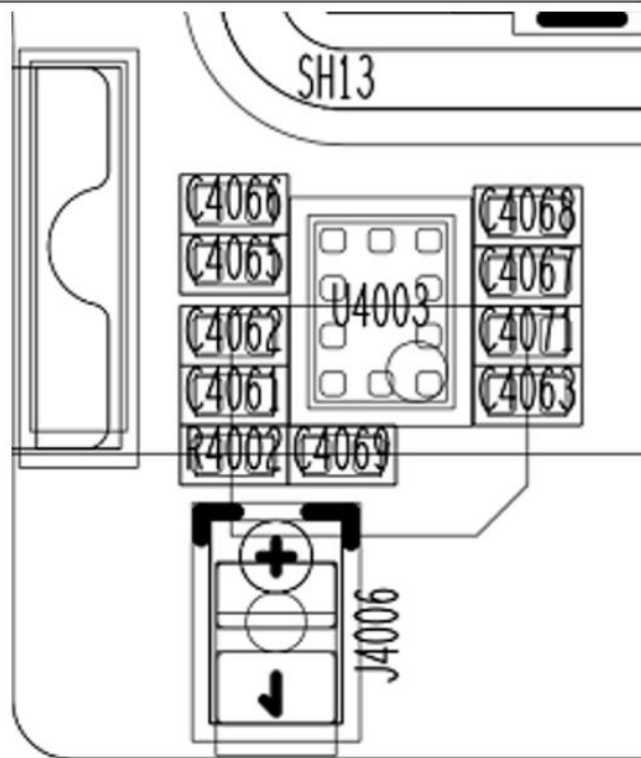


2.6 Antenna switch logic and matching

天线开关逻辑与匹配

RF1:C4063 2.2NH B1/B2/B3/B4
 RF2:C4071 5.6NH B5
 RF3:C4061 6.2NH B20
 常驻位:27NH B12/B28AB/B7
 R4002:27NH C4062:22PF
 RF4:C4062 5.6NH B8/W8

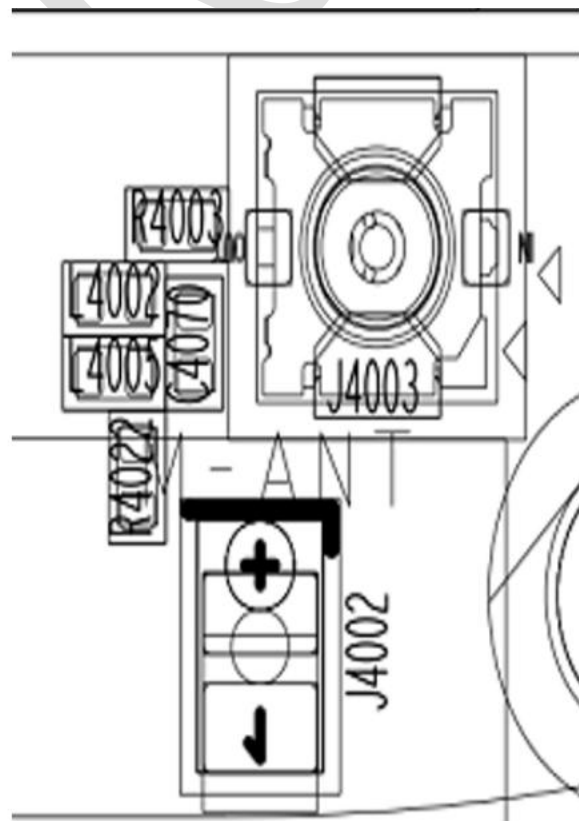
备注：黄色部分为更改了的部分，B8（w8）单独为RF4路



2.7 Main Road Matching

主路匹配

R4003:2.2nh
 L4002:NC
 C4070:0欧姆
 L4005:0.5PF
 R4022:0欧姆



2.8GPS / BT efficiency-ARM

Freq (天线效率)	Effi (%)	EFF (DB)	Gain
1550MHZ	12.3	-9.2	-3.2
1555MHZ	12.2	-8.6	-3.6
1560MHZ	13.5	-8.4	-3.7
1565MHZ	13.7	-8.3	-3.6
1570MHZ	14.5	-8.2	-3.3
1575MHZ	13.6	-8.1	-3.4
1580MHZ	13.1	-8.6	-3.2
1585MHZ	12.6	-8.5	-3.3

Freq (天线效率)	Effi (%)	EFF (DB)	Gain
2400MHZ	11.1	-9.2	-3.2
2410MHZ	12.9	-8.8	-3.6
2420MHZ	14.6	-8.6	-3.4
2430MHZ	15.5	-8.5	-3.3
2440MHZ	14.5	-8.4	-3.2
2450MHZ	13.7	-8.2	-3.5
2460MHZ	13.6	-8.3	-2.6
2470MHZ	12.4	-8.7	-3.7
2480MHZ	11.3	-9.1	-3.3

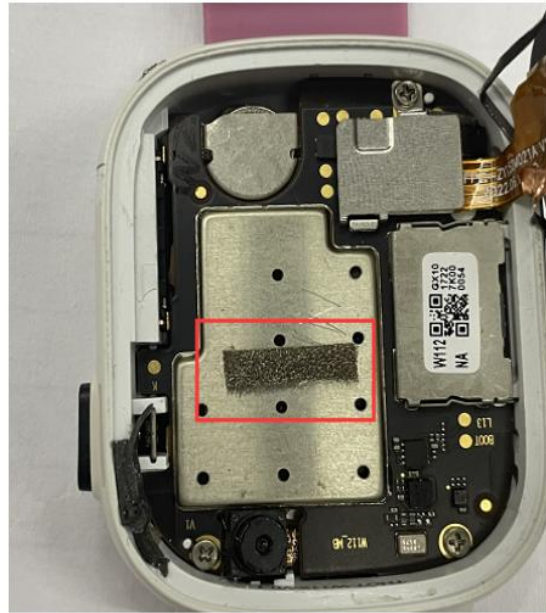
2.9 The actual G P S star search is shown in Fig



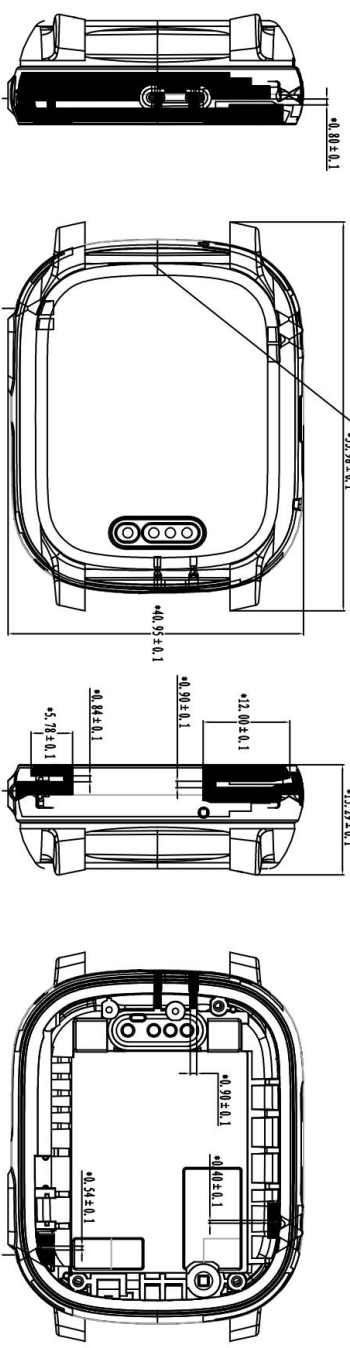
3.0 Environmental treatment

环境处理

目前环境处理在之前环境
处理之上增加如图显示屏
接地



3.engineering drawing

A		由 Autodesk 教育版产品制作		D																																	
Revise : TH07-W112-V0.2  Dimensions: $\pm 0.8 \pm 0.1$, $\pm 5.3 \pm 0.1$, $\pm 0.9 \pm 0.1$, $\pm 12.0 \pm 0.1$, $\pm 0.8 \pm 0.1$, $\pm 5.7 \pm 0.1$, $\pm 0.9 \pm 0.1$, $\pm 0.4 \pm 0.1$, $\pm 0.5 \pm 0.1$																																					
skills requirement: 1 With * Size and with tolerance size for the key control size, not marked the tolerance reference, refer to the title Bar side frame level tolerance table; 2 MATERIAL: Black: LDS 3.Parameter requirement : CU8-12 UM NI 2-4UM 4.Flatness of the finished product is less than or equal to 0.50; 5.Ds Antenna can not crack and fall off after electroless plating. Obvious scratch, overflow plating, such as lack of plating, bad phenomenon. 6.LDS antenna products require 100% test conduction. 7.Parts meet ROHS2.0/HF/Reach/GP environmental protection requirements																																					
1	2	3	4	5	6																																
Shenzhen Yu Sheng Communication Equipment Co., Ltd. <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Model</th> <th>W112</th> <th>DATE</th> <th>20220922</th> </tr> </thead> <tbody> <tr> <td>Name</td> <td>antenna</td> <td>Design</td> <td>JFB</td> </tr> <tr> <td>Part NO</td> <td>540001-1A</td> <td>Review</td> <td>JFB</td> </tr> <tr> <td>Material quality</td> <td>CU 8-12 um NI 2-4 um</td> <td>RF</td> <td>CKH</td> </tr> <tr> <td>Weld surface treatment</td> <td></td> <td>confirm</td> <td></td> </tr> <tr> <td>Appearance treatment</td> <td></td> <td>UNIT</td> <td>mm</td> </tr> <tr> <td>位置</td> <td></td> <td>proportion</td> <td>FIT</td> </tr> <tr> <td></td> <td></td> <td>Revise</td> <td>R: A</td> </tr> </tbody> </table>						Model	W112	DATE	20220922	Name	antenna	Design	JFB	Part NO	540001-1A	Review	JFB	Material quality	CU 8-12 um NI 2-4 um	RF	CKH	Weld surface treatment		confirm		Appearance treatment		UNIT	mm	位置		proportion	FIT			Revise	R: A
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		Revise	R: A																																		
Autodesk 教育版产品制作																																					

4. Bill Of Material

Shenzhen Yu Sheng Communication Equipment Co., Ltd.

540001 (W112) –BOM

File No

Edition: R:A

client:540

Model: 540001

Established date: 20220922

Item	Part No	Name	Types of	version	specification	Material quality	colour	unit	Quantity	Craft
1	540001-IA	antenna Subassembly	Z	R:A	53.98*40.95*15.29mm			PCS	1	
1.1	540001-IA-01	Shell materials	W	R:A	53.98*40.95*15.29mm	LDS	black	PCS	1	
1.2	540001-IA-02	antenna	W	R:A	CU 8-12um NI 2-4um	CU NI	Gray	PCS	1	

The above parts meet the environmental requirements of ROHS2.0 HF Reach GP

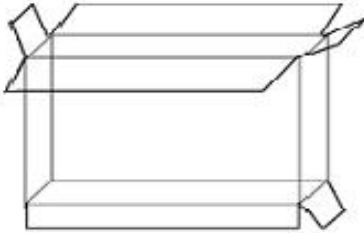
Type: W. Outsourcing B. Semi-finished products Z. Finished products C. Customer supply

Confirmation:

Review:

Production: JFB

5. Packaging diagram

Packaging method diagram																
product name	LDS antenna															
P / N																
Project model	W112															
File details	Carton Size 1: 270*260*200MM Carton Size 2: 260*200*200MM Carton Size 3: Depending on the order quantity / volume															
	Boating method	The minimum package of 100 bags, in turn with waterproof bags, a waterproof bag with up to 1,000 materials														
	Total number of binning	Package by order quantity														
labeling requirement	Tag Size 1: Universal purpose 100 * 100mm Tag Size 2: According to customer requirements	深圳市昱晟通讯设备有限公司 <table><tr><td>客户名称</td><td>*****</td></tr><tr><td>订单编号</td><td>*****</td></tr><tr><td>项目名称</td><td>*****</td></tr><tr><td>物料编码</td><td>*****</td></tr><tr><td>数 量</td><td>****pcs</td></tr><tr><td>出货日期</td><td>****年**月**日</td></tr><tr><td colspan="2">地址：深圳市光明新区光明大道南太云创谷园区2栋4楼4A</td></tr></table>	客户名称	*****	订单编号	*****	项目名称	*****	物料编码	*****	数 量	****pcs	出货日期	****年**月**日	地址：深圳市光明新区光明大道南太云创谷园区2栋4楼4A	
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matters need attention																
1. Due to the limit of order quantity, the packing method of each material is the box size according to the total order quantity or physical volume																
2. Storage temperature: room temperature																
3. Preservation conditions: store them in a cool and dry place																

(This figure is only a packaging diagram, subject to the actual mass production)