Shenzhen unity wireless technology co., ltd
Address: Room 1002/1012, Building 7E, Hengda Fashion Valley, Dalang, Longhua District, Shenzhen
telephone: 0755-23285621 portraiture: 0755-23285621

承 认 书

customer name: Shenzhen Yijing Technology Co., LTD

Customer part number: _____

Client projects: THS52

Zhongcheng material number: 01.15.0004

product description: Copper tube diameter 2.5mm, copper tube length: 26mm, 1.13 black wire, L=240mm, first-generation terminal, copper tube end stripping wire 0*33*2, stripping 33mm, blow black heat shrink sleeve

date: 2025.9.15

R&D confirmation	SE: 薛明波	signature:
	RF: 温财慧	
approval	approval: 张志耿	

Customer feedback

department	Engineering Department:	signature:
	purchase department:	

catalogue

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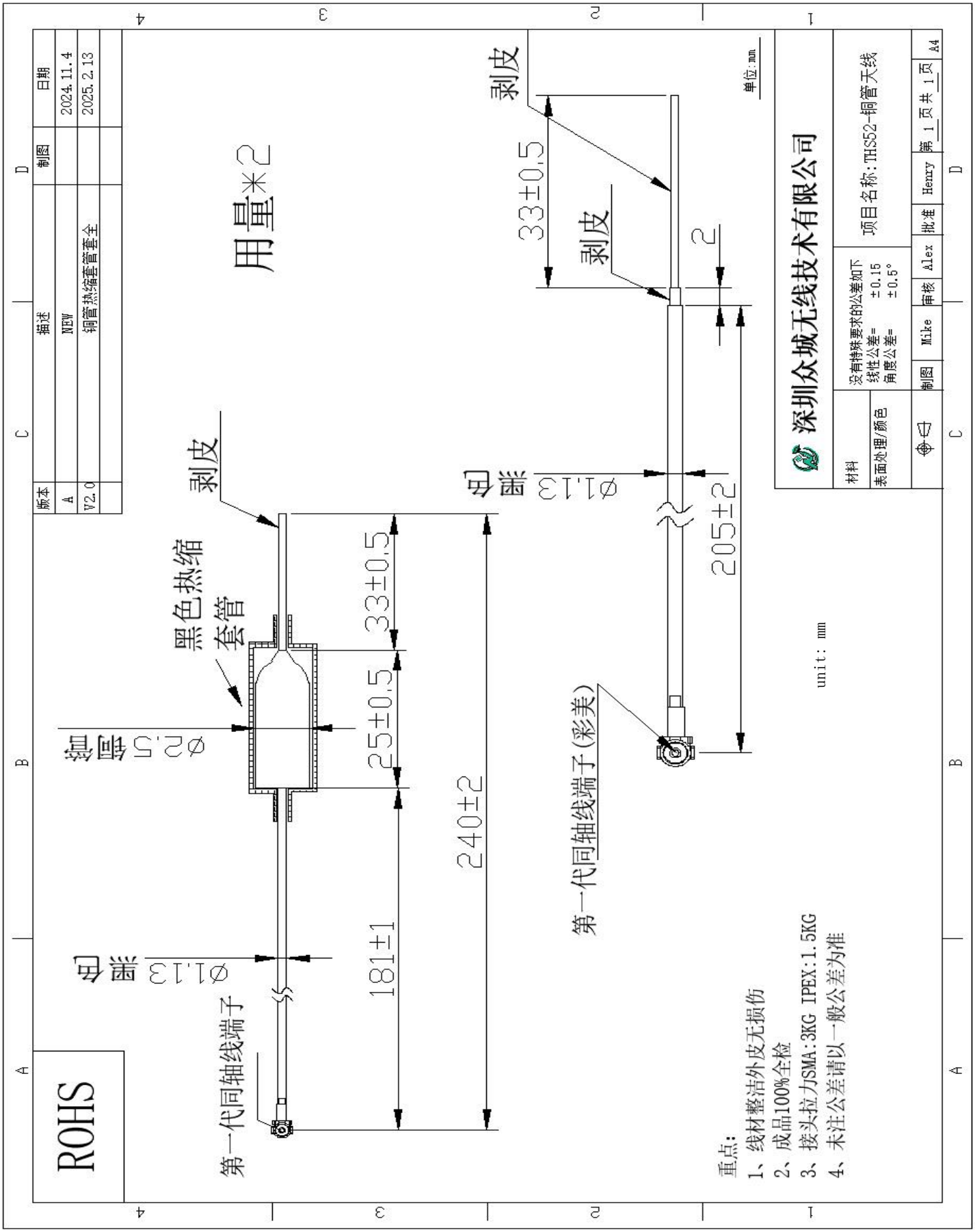
Creation/revision/cancellation of the resume form:

edition:	date	date Formulation/revision content	formulate	approval
V1.0	2024.11.4	First formulation	primary offering	

工程图纸：

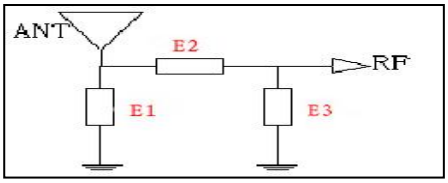

版本
描述
制图
日期
A
NEW
2024.11.4
V2.0
铜管热缩套管套全
2025.2.13
用量*2
剥皮
黑色热缩
套管
Ø2.0 铜管
25±0.5
33±0.5
181±1
240±2
Ø1.13 黑色
第一代同轴线端子
33±0.5
剥皮
剥皮
2
Ø1.13 黑色
205±2
第一代同轴线端子(彩美)
unit: mm
单位:mm
ROHS
重点:
1、线材整洁外皮无损伤
2、成品100%全检
3、接头拉力SMA:3KG IPEX:1.5KG
4、未注公差请以一般公差为准
深圳众城无线技术有限公司
材料
表面处理/颜色
没有特殊要求的公差如下
线性公差= ±0.15
角度公差= ±0.5°
项目名称:THS52-铜管天线
制图
MLike
审核
Alex
批准
Henry
第 1 页 共 1 页
A4

产品参数：

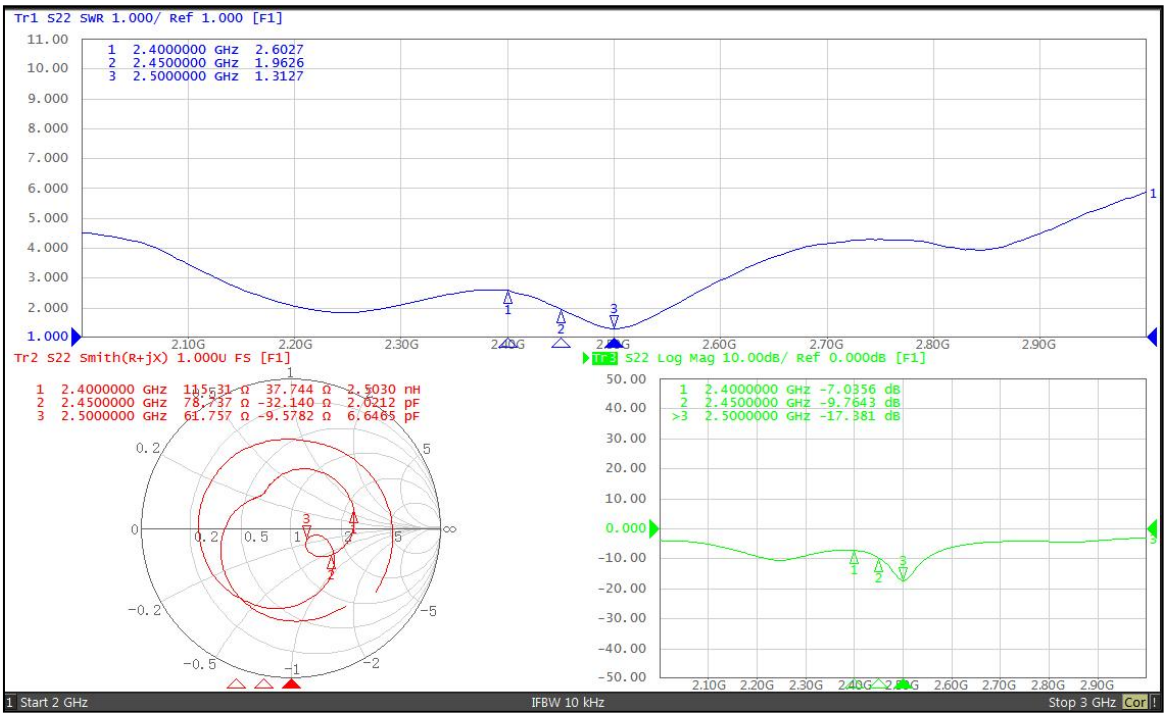
品名	铜管天线	Model	Copper tube antenna
频率范围（MHz）	2400-2500	Frequency	2400-2500
带宽（MHz）	100	Bandwidth（MHz）	100
极化方式	线极化	Polarization Type	linear polarization,
天线增益（dBi）	3.64	Gain（dBi）	3.64
电压驻波比	以实物样机为准	VSWR	Take the physical prototype as the standard
输入阻抗（Ω）	50	Input Impedance（Ω）	50
天线长度（mm）	240mm	Cable length （mm）	240mm
电缆线颜色	黑色	Cable Colour	black
接口形式	一代端子	Connector Type	IPEX1
工作温度（℃）	-40~+85	Operation temperature（℃）	-40~+85
存储温度（℃）	-40~+85	Store temperat （℃）	-40~+85

1. Antenna matching (original motherboard matching)

	E1	E2	E3



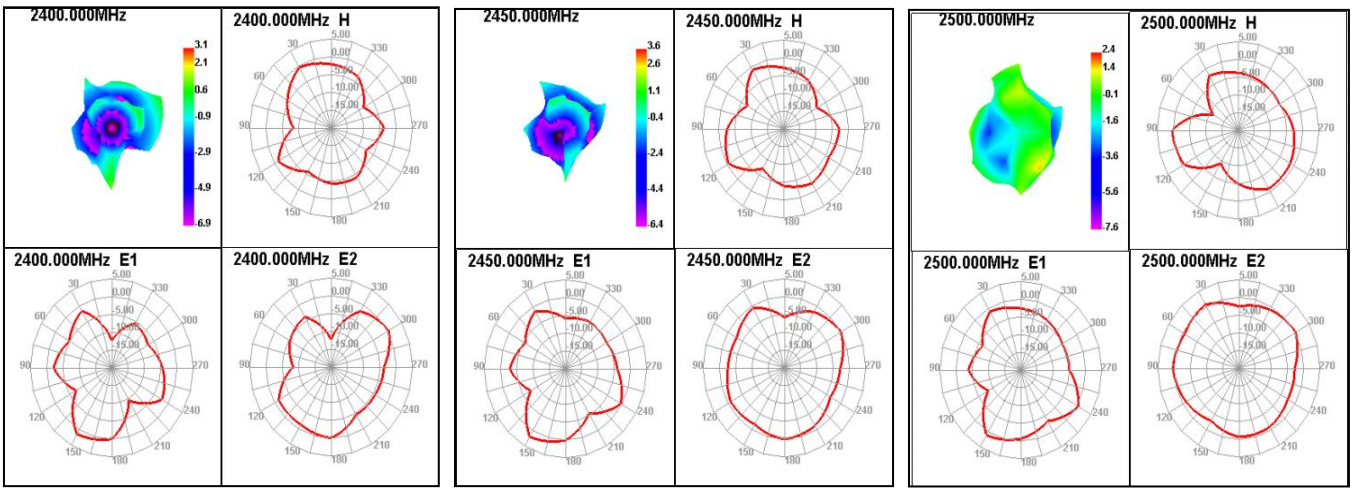
2. Antenna passive standing wave diagram (S11) :



3. OTA Unpowered test data:

Freq (MHz)	Effi (%)	Gain (dBi)
2400	46.69	3.08
2410	50.07	3.48
2420	50.07	3.53
2430	51.44	3.57
2440	53.61	3.64
2450	55.25	3.56
2460	57.15	3.43
2470	59.15	3.19
2480	59.01	2.91
2490	63.51	2.81
2500	61.98	2.39

antenna pattern:



4. Antenna installation location:

ROHS 限用物质成分调查表

所供产品信息

customer name	Material name/model	project name	manufacturer
The ultimate	01.15.0004	THS52	Shenzhen Zhongcheng Wireless Technology Co., LTD

Product composition information

order number	Part name	Third party inspection report		限用物质含量 PPM						备注
		date	number	铅（Pb)	镉 (Cd)	汞 (Hg)	六价铬	多溴联苯	多溴二苯醚	
1	copper tubing	2022/5/6	RP22-010226-SZ	○	○	○	○	○	○	
2	wire stock	2023/2/14	CANEC23000117904	○	○	○	○	○	○	
3	IPEX	2025/4/25	27322E20188R1M	○	○	○	○	○	○	

Note：

1.请以○、×表示六项限用物质含量合规与否；合规者以○表示；不合规以×表示。

testing facility

- Measuring instrument: microwave anechoic chamber, network analyzer, standard antenna.
- Micro-wave anechoic chamber description:

This is the microwave anechoic chamber set up in Shenzhen by our company. This microwave anechoic chamber belongs to a far-field measurement system. The size of the anechoic chamber is 7.0m x4.0m x3.0m, and the quiet zone size is 15cm x15cm x15cm.

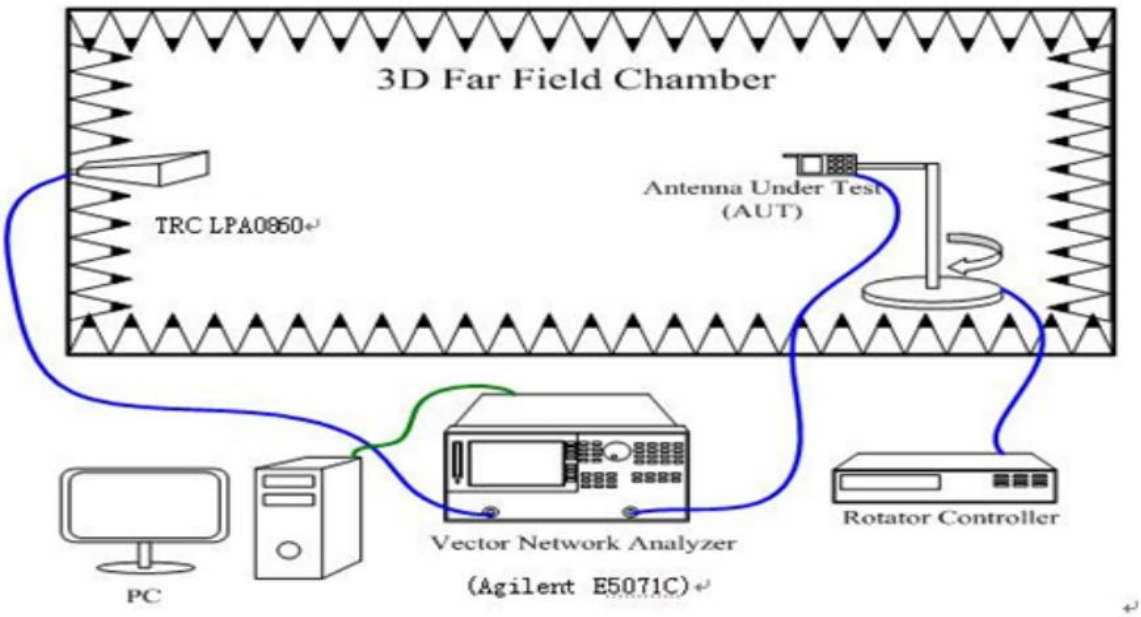


图. 1. 微波暗室内部仪器设置 r.

图. 1. Configuration diagram for instruments in the microwave anechoic chamber and network analyzer connection: The transmitting antenna (TRC LPA0860 800MHz-6GHz model used in this chamber) is positioned 1.35 meters from the test antenna (AUT), which is mounted on a rotating platform. By adjusting the rotation angle of the platform, both preliminary and precise measurements can be performed on the test antenna.

The antenna under test is mounted on a rotating platform to collect 360-degree field strength data across its two planes (ZY and ZX). The antenna is then reconfigured as a standard dipole antenna (specifically the TRC AD series dipole antenna operating in the 800MHz-2500MHz frequency range used in this anechoic chamber) to measure its 360-degree field strength data. These measurements serve as the reference for calculating conversion gain values. Through Equation 1, the antenna's gain value and radiation pattern can be determined

$$G_{AUT} = G_{stand} + P_{AUT} - P_{stand}$$

G_{AUT} : Gain of AUT

G_{stand} : Gain of Standard Gain Antenna

P_{AUT} : Measured Power of AUT

P_{stand} : Measured Power of Standard Gain Antenna

Environmental and Reliability Testing

project	Reference standards, and experimental conditions	Judgment basis	Sample quantity / bad quantity (PCS)	Test / test the equipment
collide	GB/T 2423.6-1995 Acceleration: 200m / s2 Collision pulse duration: 6ms Number of collisions per minute: 40~80 times Total collisions: 400 vertical direction, front and back Left and right horizontal direction each 300 times, a total of 1000 times.	It should meet the requirements of electrical characteristics, and the mechanical properties are normal, but the appearance of touch marks, whitening and bending in the allowable range.	5/0	Collision experiment machine
vibrate	GB/T2423.10-1995 Test the FcFrequency: 10~30; 30~50Hz; Resonance point amplitude: 0.35mm Amplitude: 0.75mm Duration: X, Y & Z, 0.5 hours per direction. Cycle: 1min; Test for 1 hour after completing the experiment.	And firmware without loose, parts without rupture or fatigue; No original fall off, no solder point fracture; The electrical performance index meets the requirements of the technical specifications;	5/0	Vibration test machine

retentivity	Verification conditions: both ends of the joint and wire are fixed on the drawing machine fixture, and the pulling force returns to zero Verification method: manually pull to the product IPEX connector and wire fall off	>10N	5/0	Pull force test machine
decline	GB/T2423.8-95 From 100cm height to the floor 10 times.GB/T2423.8-95	1. No significant abnormality in appearance 2. After the test, the electrical performance shall meet the requirements of the electrical characteristics, and the mechanical performance shall be normal, but the external collision marks, whitening and bending shall be in the allowable range.	5/0	Drop test machine
high-temperature storage	GB/T 2423.2-2001 trial B Ambient conditions: + 85 ± 3℃ for 96H The experiment was completed 24 hours after room temperature.	The surface coating shall have no peeling, crack, wrinkle and separation; the non-metallic structures have no permanent deformation, cracking, bonding; the mobile components are not stuck or detached; the electrical performance indexes meet the requirements of technical specifications	10/0	Temperature and humidity cycle test box

Low temperature storage	The gb / t 2423.1-2001 test a ambient conditions: -40 ± 3℃ for 96h was tested 24 hours after the experiment was at room temperature.	The surface coating shall have no peeling, crack, wrinkle and separation; the non-metallic structures have no permanent deformation, cracking, bonding; the mobile components are not stuck or detached; the electrical performance indexes meet the requirements of technical specifications	10/0	Temperature and humidity cycle test box
High and low temperature cycle	gb/t2423.22-2002 Test n: Place the antenna in t1=-40℃ incubator for 30 minutes, then raise the temperature for 60 minutes to t2=80℃, then keep the temperature for 30 minutes, relative humidity at 50% rh, and the cycle is repeated 20 times.	The surface coating shall have no peeling, crack, wrinkle and separation; the non-metallic structures have no permanent deformation, cracking, bonding; the mobile components are not stuck or detached; the electrical performance indexes meet the requirements of technical specifications	10/0	Temperature and humidity cycle test box
humid heat test;	Test gb / t 2423.3-1993 ca: ambient conditions: 40 ± 2℃, relative humidity 80 ~90% for 96 hours. The experiment was completed 24 hours after room temperature.	2. After the test, the electrical performance meets the specification requirements, and the electrical performance meets the specification range.	10/0	Temperature and humidity cycle test box
salt spray test	The gb / t 2423.18-2000 test kb places the test in a salt spray chamber with saline injection concentration (5 ± 1)%, 35℃± 1℃, sedimentation rate (1-2) ml / 50mm2 * h, 48 hours, check the appearance.	No rust phenomenon, mechanical performance and electrical performance to meet the range of specification.	5/0	Saline spray machine

Packaging specifications

Product material number：01.15.0004

size of product, specifications of the products:Copper tube diameter 2.5mm, copper tube length: 26mm, 1.13 black wire, L=240mm, first-generation terminal, copper tube end stripping wire 0*33*2, stripping 33mm, blow black heat shrink sleeve

1. Labeling requirements (according to the customer name reference corresponding finished product label production requirements, no requirements, according to the ordinary label requirements)

2. The inner label is about 8cm long and 5.5cm wide

众城无线 UNITY WIRELESS 深圳众城无线技术有限公司			
SHENZHEN UNITY WIRELESS TECHOLOGY.,LTD			
客户		规格型号	
订单号		送货数量	
客户料号		众城无线料号	
日期		生产批次	
TEL:0755-23285621		FAX:0755-23285621	

The outer label is about 8cm long and 5.5cm wide

众城无线 UNITY WIRELESS 深圳众城无线技术有限公司			
SHENZHEN UNITY WIRELESS TECHOLOGY.,LTD			
客户		规格型号	
订单号		送货数量	
客户料号		众城无线料号	
日期		生产批次	
TEL:0755-23285621		FAX:0755-23285621	

二、The packing requirements

job description:

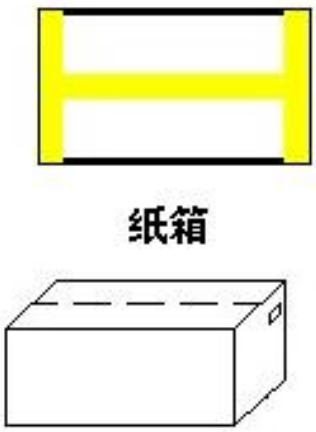
1. inner packing:

Product according to actual packaging quantity pcs / pouch,

Quantity of pcs / large bag according to the actual package

2. Packaging:

Quantity / box according to the actual packing



matters need attention:

1. Whether to add a partition board, pearl cotton;

2. Labbel, such as rohs, etc.;