# 产品规格承认书

## Product Specification Acknowledgment

## 移动通信终端天线产品设计与制造

Design & Manufacturing of Mobile Terminal Antennas

**产品名称：** 瑞昱 300 万 3881-WiFi
**PRODUCT NAME** Realtek 3MP 3881-WiFi

**客户名称：** 看护家
**CUSTOMER NAME** Shenzhen Ehome Technology Co., Ltd

**客户料号：**
**MATERIAL CODE**

**景松料号：** 118-033-1A 118-033-1B
JINGSONG
**MATERIAL CODE**

| 客户 Customer | 深圳市景松科技有限公司 Shenzhen JINGSONG Technology Co., Ltd | | | |
|---|---|---|---|---|
| 客户确认 Customer Confirmation | 品质 Quality Dept. | 研 发 部 R&D Dept | 结 构 Structure Design | 核 准 Approval |
| | | | | |
| 日期Date： | 日期Date： 2023 年 12 月 20 日 | | | |

深 圳 市 景 松 科 技 有 限 公 司
Shenzhen JINGSONG Technology Co., LTD
地址:深圳市龙华区大浪街道梟龙路浩管嘉企业园 G 栋 4 楼
电话: 23744434 传真:23744434

# 1.目的 Purpose

对于深圳市景松科技有限公司出品的移动通信终端天线产品规格、测试方法进行规范，避免因测试条件，方法的不同引起误差。To standardize the product specifications and testing methods for the mobile communication terminal antennas produced by Shenzhen JINGSONG Technology Co., Ltd., and to avoid errors caused by differences in testing conditions and methods.

# 2.产品类别和产品型号概述 Overview of Product Categories and Product Models

## 2.1 产品型号概述 Overview of Product Models

这份报告主要概述的是瑞昱300万3881-WiFi项目所设计的天线的电气结果。此天线设计频段为：2.4G/ WIFI 段。This report primarily summarizes the electrical results of the antenna designed for the Realtek 3- megapixel 3881-WiFi project. The designed frequency band for this antenna is: 2.4G/WIFI band.

# 3.基本参数和实验设备说明 Basic Parameters and Experimental Equipment Description

## 3.1 基本参数 Basic Parameters

| 产品电气性能指标 Electrical Specification | |
|---|---|
| 工作频率范围Frequency range | 2400-2480MHz |
| 驻波比VSWR | 2400-2480 MHz: < 1.5 |
| 天线增益Antenna gain | 2400-2480 MHz: 1.5dBi ± 0.5dBi |
| 辐射效率Radiation efficiency | 2400-2480 MHz: > 50% |
| 阻抗Impedance | 50 ohm |
| 产品材料说明Product Material | |
| **PCB** | 同轴线 Coaxial cable |
| 壳料Shell material | |
| 产品环境说明Product Working Environment | |
| 工作温度Working temperature | - 30˚C ~ + 85 ˚C |
| 储藏温度Storage temperature | - 30˚C ~ + 85 ˚C |

## 3.2 实验设备说明Experimental Equipment

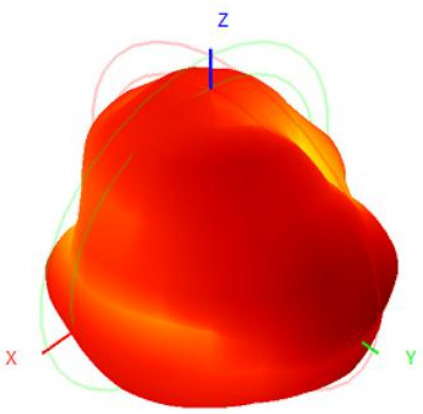
| List | Testing project | Equipment |
|---|---|---|
| 1. S Parameters | 1.Return loss<br>2. VSWR at | Network analyzer: Agilent 8753ES |
| 2. Coupling power test | 1. Transmission power<br>2. Receiving sensitivity | Comprehensive tester: Agilent 8960 E5515C |
| 3. Radiation pattern and gain | 1. Radiation pattern<br>2. Antenna gain | 1. Darkroom： 7x4x3 m (3D)<br>2. Network analyzer ：Agilent 8753ES |

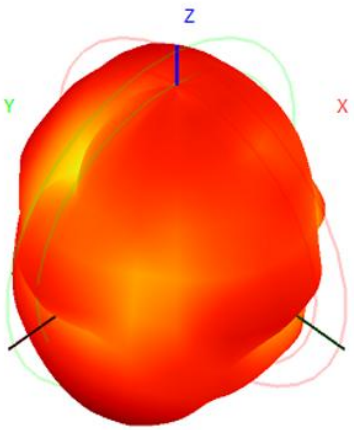
# 4.天线测试数据 Antenna Testing Data

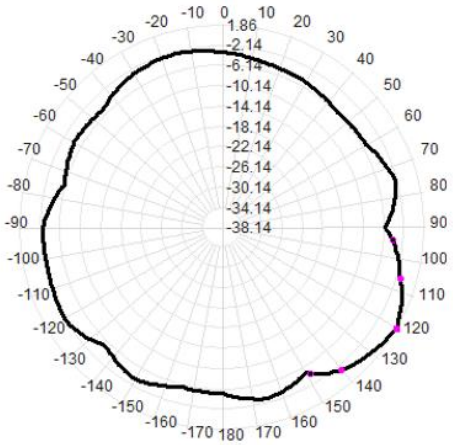
## 4.1 Wifi:2.4G 效率/增益 Frequency/Gain

| WIFI 测试数据 Testing data: | | |
|---|---|---|
| WIFI 2.4G | | |
| Freq(MHz) | Efficiency (%) | Gain (dBi) |
| 2400 | 50.1 | 1.75 |
| 2410 | 51.2 | 1.86 |
| 2420 | 50.6 | 1.66 |
| 2430 | 50.4 | 1.93 |
| 2440 | 51.1 | 1.77 |
| 2450 | 50.9 | 1.68 |
| 2460 | 50.8 | 1.86 |
| 2470 | 50.4 | 1.72 |
| 2480 | 50.7 | 1.91 |

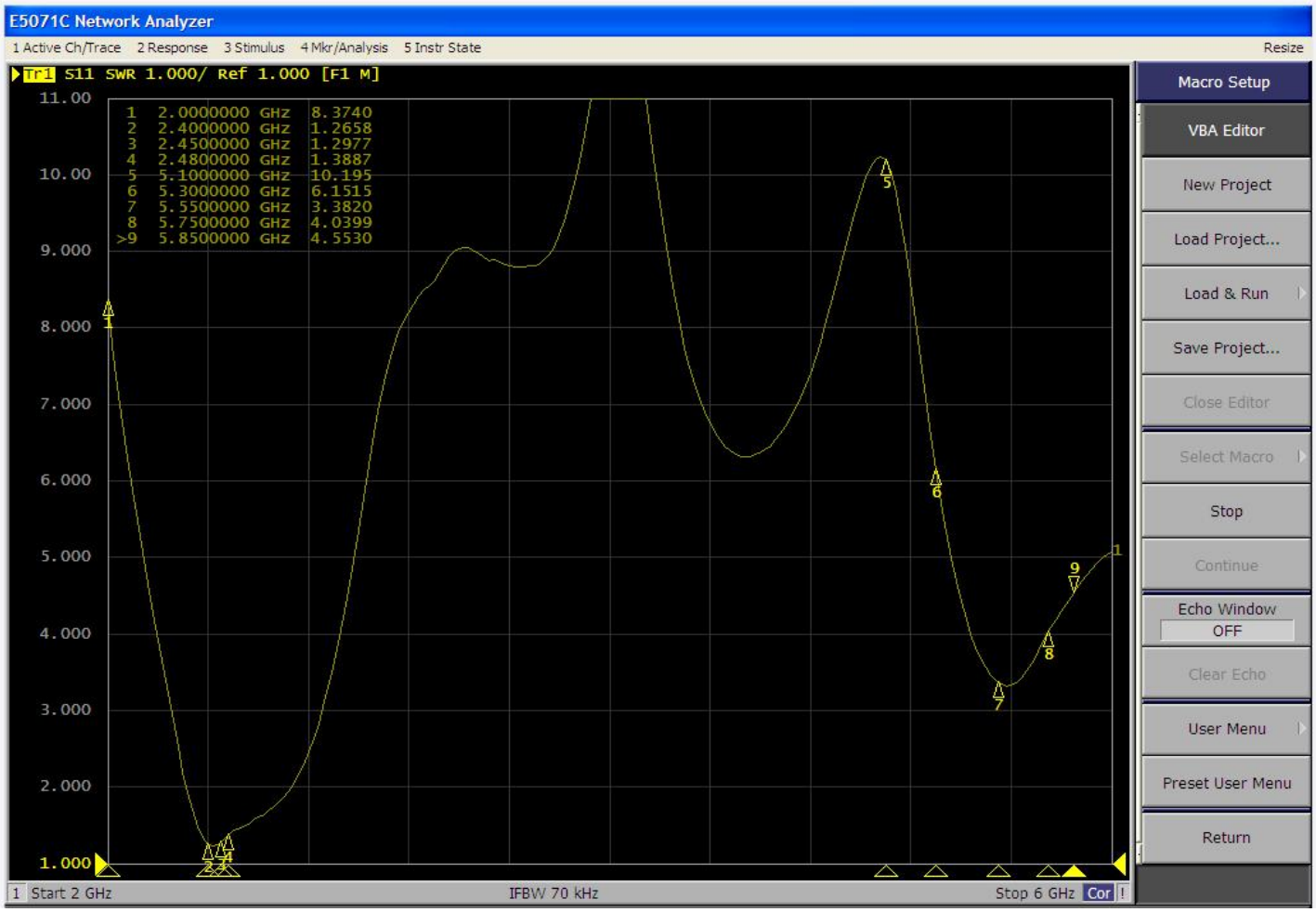
## 5.1 天线 2.4G 苹果图 2.4G Antenna Apple Diagram



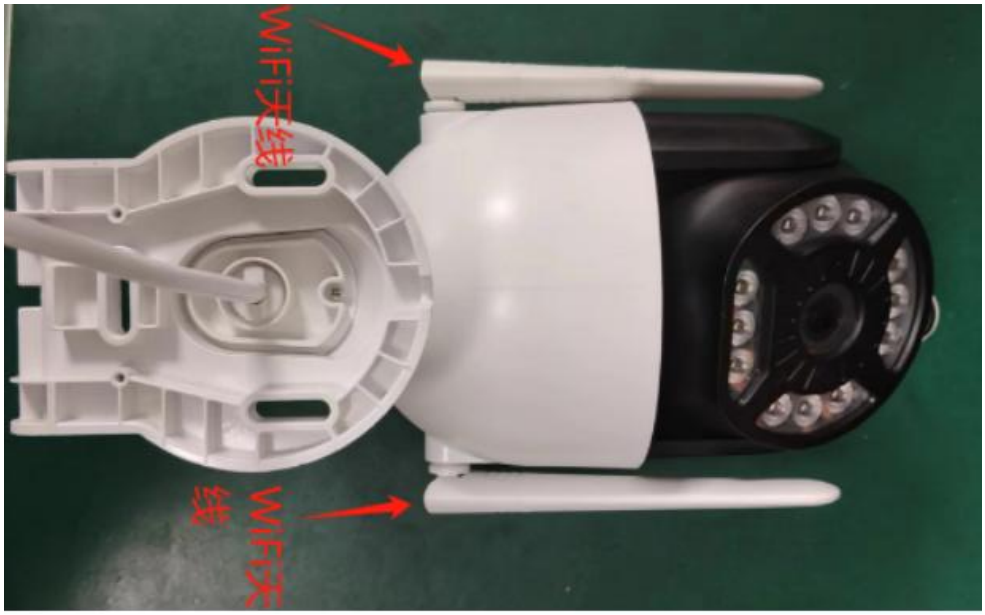



# 6.1 驻波比VWSR


E5071C Network Analyzer
1 Active Ch/Trace 2 Response 3 Stimulus 4 Mkr/Analysis 5 Instr State
Resize
Tr1 S11 SWR 1.000/ Ref 1.000 [F1 M]
1 2.0000000 GHz 8.3740
2 2.4000000 GHz 1.2658
3 2.4500000 GHz 1.2977
4 2.4800000 GHz 1.3887
5 5.1000000 GHz 10.195
6 5.3000000 GHz 6.1515
7 5.5500000 GHz 3.3820
8 5.7500000 GHz 4.0399
>9 5.8500000 GHz 4.5530
11.00
10.00
9.000
8.000
7.000
6.000
5.000
4.000
3.000
2.000
1.000
1 Start 2 GHz
IFBW 70 kHz
Stop 6 GHz
Cor
Macro Setup
VBA Editor
New Project
Load Project...
Load & Run
Save Project...
Close Editor
Select Macro
Stop
Continue
Echo Window
OFF
Clear Echo
User Menu
Preset User Menu
Return

## 7.1 天线装配图 Antenna Assembly Chart

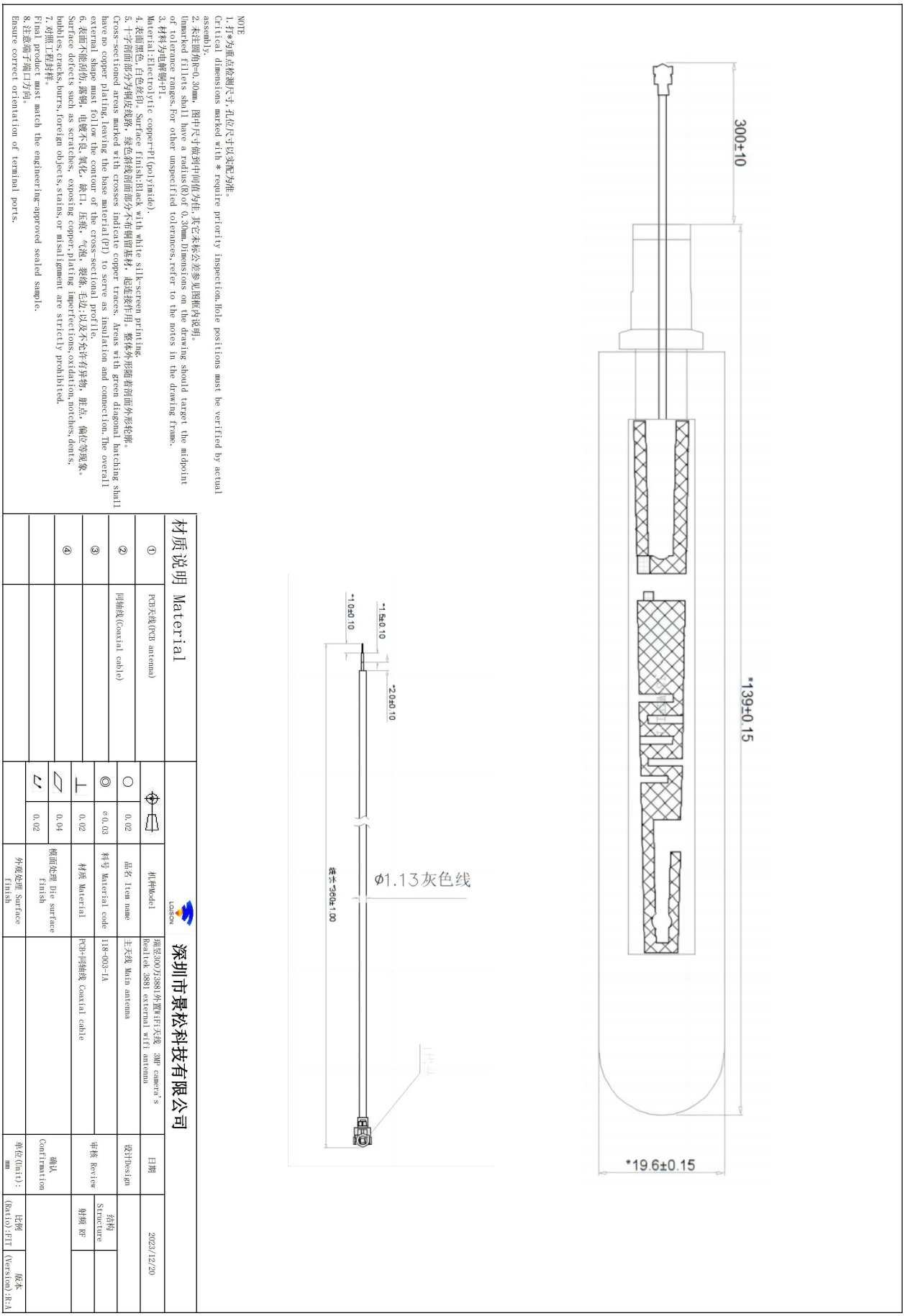



## 8.1 有源数据 Active Data

| 天线测试报告 | 802. 11B Antenna Performance Table | | | 802. 11G Antenna Performance Table | | |
|---|---|---|---|---|---|---|
| Channel | CH 1 | CH 6 | CH11 | CH 1 | CH 6 | CH 11 |
| Max Power(dBm) | 20. 7 | 21. 4 | 20. 1 | 20. 6 | 21. 2 | 21. 3 |
| TRP(dBm) | 17. 3 | 18. 1 | 17. 5 | 17. 5 | 18. 1 | 18. 6 |
| Sensitivity(dBm) | -86. 2 | -87. 7 | -86. 9 | -75. 3 | -75. 4 | -75. 6 |
| TIS(dBm) | -83. 1 | -84. 2 | -83. 4 | -72. 5 | -72. 6 | -72. 1 |

| 天线测试报告 | 802. 11N Antenna Performance Table | | |
|---|---|---|---|
| Channel | CH 1 | CH 6 | CH 11 |
| Max Power(dBm) | 16. 1 | 17. 5 | 17. 3 |
| TRP(dBm) | 13. 3 | 14. 1 | 14. 6 |
| Sensitivity(dBm) | -70. 4 | -69. 5 | -70. 1 |
| TIS(dBm) | -67. 8 | -66. 2 | -67. 6 |

# 9.1 产品 2D 结构图和备注说明 2D Product Layout Drawing & Technical Notes



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# Dummy Antenna

| 材质说明 Material | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| ① | PCB天线(PCB antenna) | | | 机种Model | 瑞昱300万3881外置WiFi天线 3MP camera's Realtek 3881 external wifi antenna | 日期 | 2023/12/20 | |
| ② | 同轴线(Coaxial cable) | ○ | 0.02 | 品名 Item name | 主天线 Main antenna | 设计Design | | |
| ③ | | ◎ | ⌀0.03 | 料号 Material code | 118-003-IA | 审核 Review | 结构 Structure | |
| ④ | | ⊥ | 0.02 | 材质 Material | PCB+同轴线 Coaxial cable | | 射频 RF | |
| | | ▱ | 0.04 | 模面处理 Die surface finish | | 确认 Confirmation | | |
| | | ∠ | 0.02 | | | | | |
| | | | | 外观处理 Surface finish | | 单位(Unit): mm | 比例 (Ratio):FIT | 版本 (Version):R:A |

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## 10.1 Environmental Characteristic

| Test Item | Test description |
|---|---|
| 1. Low Temperature | Temp.: -20 ℃<br>Time: 24 hours |
| 2. High Temperature | Temp.: 80℃<br>Time: 24 hours |
| 3. Salt Fog | 5±0.1% Nad salt fog<br>PH Value: 6.5-7.2<br>Temp: 35±1℃<br>Time:24 hours |

## 11.1 可靠性测试报告 Characteristics and Reliability Test

| Test Items 測試項目 | | Test Condition and Procedure 測試方法 | Requirements 要求 | Result 結果 |
|---|---|---|---|---|
| C1 | V.S.W.R. 電壓駐波比 | Set DUT on Network Analyzer; make individual calibration to test 設置網路分析儀參數進行測試 | Directive DUT specification 符合待測物規範 | PASS |
| C3 | Antenna Gain 天線增益 | Set DUT on Antenna Chamber; make individual calibration to test 設置天線暗室參數進行測試 | Directive DUT specification 符合待測物規範 | PASS |
| M1 | Vibration 震動 | GB / T2423.48-2008 Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 to 20 Hz 3 directions; 2 hours for each direction 振幅 1.5mm；頻率 20~80~20Hz；3 個方向各 2H | 1. No Visual Damage 2. Frequency Tol. ≤5%無明顯外觀不良 ;頻率偏移≤ 5% | PASS |
| M4 | Pull Test 拉力 | Holding with individual specification; force applied to axis of Connector .單獨定義產品端子拉力 | 1. Directive DUT specification 2. Frequency Tol. ≤5%符合待測物規範 ;頻率偏移≤ 5% | PASS |
| M5 | Magnetic force 磁力 | The separate definition of retention product magnetic surface magnets and adsorption on the iron 單獨定義產品磁鐵表面磁力及吸附鐵板上保持力 | 1. Directive DUT specification 2. Frequency Tol. ≤ 5%符合待測物規範 ;頻率偏移 ≤5% | PASS |
| M6 | Sway test 搖擺測試 | Holding with individual specification; the swing joint and wire, wire and plastic body test. 單獨定義接頭與線材、線材與塑膠本體的搖擺測試 . | 1. Directive DUT specification 2. Frequency Tol. ≤ 5%符合待測物規範 ;頻率偏移 ≤5% | PASS |
| M7 | Dimensio n 尺寸 | Inspection of dimension, color, material, package, surface process. 檢查尺寸 ,顏色,材料,包裝,表面處理 | Directive DUT specification 符合待測物規範 | PASS |
| E2 | Salt Spray 鹽霧 | GB / T 2423.17-2008 Temp: 35°C; RH: ≥ 95%; NaCl solution: ≥ 5%;Time: 24H 溫度 35°C；濕度≥95%;鹽水濃度≥5% ；測試 24H | 1. No Visual Damage 2. Frequency Tol. ≤5%無明顯外觀不良 ;頻率偏移≤ 5% | PASS |
| E3 | Temperature and Humidity Chamber 恒溫恒濕 | GB / T 2423.3-2006 Temp: 80°C / 12 H; -40°C / 12H RH: ≥ 90%; Time: 24H 溫度 80°C 測試 12H 轉-40°C 測試 12H；濕度 ≥ 90% ；時間 24H | After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol. ≤5%恢復 2H 后,無明顯外觀不良 ; 頻率偏移≤5% | PASS |
| E4 | Thermal Shock 冷熱衝擊 | GB / T 2423.22 - 2008 - 40°C (30 minutes) to + 80° C (30 minutes)；Cycles: 24 | After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol. ≤5% | PASS |

# 产品包装规范 Code for product packaging

## 产品名称/规格 Product Name/Specification

一、标签要求 Label requirement

| | | | |
|---|---|---|---|
| 客户名称 Customer | **** | | |
| 供应商名称 Supplier | *** | 采购订单号 PO No. | *** |
| 物料编号 Material code | *** | 物料名称 Material | *** |
| 物料规格 Material Specification | *** | 数量 Quantity | *** |
| 生产日期 Production date | *** | 检验员 Inspector | *** |

| 物料标签 Material label | | | |
|---|---|---|---|
| 供应商 Supplier | *** | | |
| 项目名 Project | *** | | |
| 物料编码 Material code | *** | | |
| 物料规格 Material specification | *** | | |
| 送货日期 Delivery date | *** | 送货数量 Delivery QTY | *** |

二、装箱要求 Packaging requirement

作业说明 Packaging instructions:

1. 内包装 Inner pack:

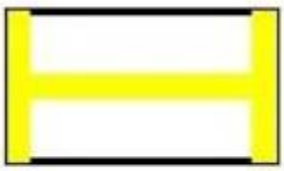
产品 200 PCS 一小袋 product:200pcs/small bag

PE bag

2. 外包装 Outer pack:

根据实际数量定数量/箱

Set quantity/box based on actual quantity



纸箱 Carton

注意事项:

1. 是否要增设隔板、珍珠棉

Whether to add dividers and EPE foam;

2. 标签的贴附, 如 ROHS 等

Label attachment ,such as ROHS labels;