



公司地址：东莞市塘厦镇清湖头三坑工业区1号

东莞市仁丰电子科技有限公司

Dongguan RF Electronic Technology Co., Ltd

电话：0769-38940168 传真：0769-39010966 网址：http://rflink.net.cn

# 规格书

## SPECIFICATION FOR APPROVAL

客户名称

CUSTOMER NAME:

共进

产品名称

PRODUCT NAME:

5G 外置天线 L=90MM

客户料号

CUSTOMER

P/N:

8000000056952634

仁丰料号

RenFeng

P/N:

U00T01S039N06103

REV:A

|              | MANUFACTURER<br>SIGNATURE | CUSTOMER<br>SIGNATURE |
|--------------|---------------------------|-----------------------|
| CHECKED BY:  | 赵文天                       |                       |
| AUDITOR BY:  | 宋 俊                       |                       |
| APPROVED BY: | 姚定军                       |                       |
| DATE:        | 2024-04-12                |                       |

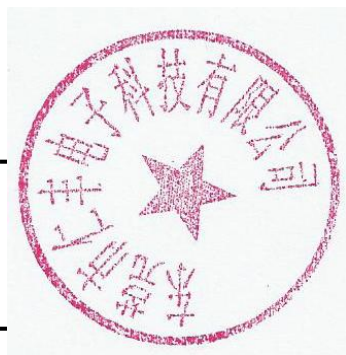


一、变更履历(Change resume)：

| 版本 | 日期         | 变更记录 |
|----|------------|------|
| A  | 2024-04-12 | 初版发行 |
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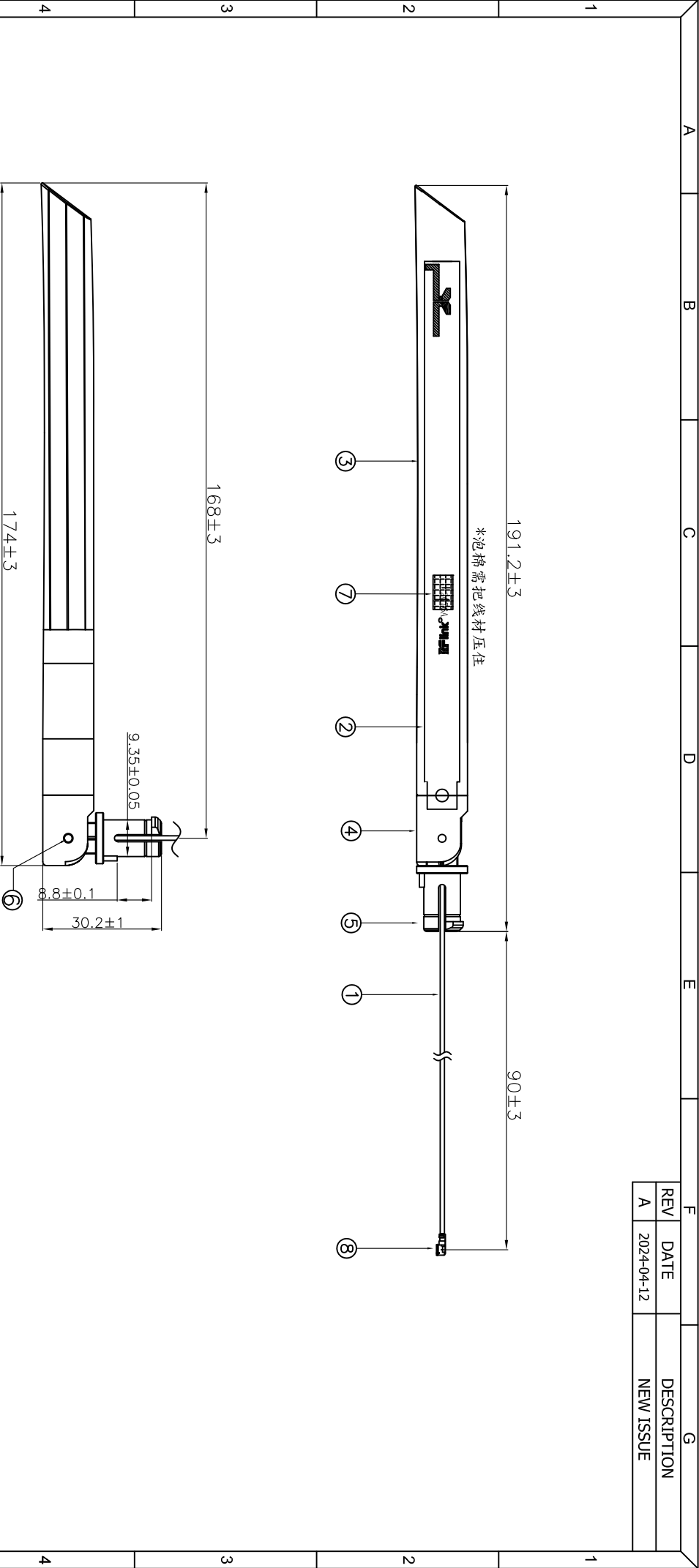
电话：0769-38940168 传真：0769-39010966 网址：<http://rflink.net.cn>

## 规格表:

### RF Cable Assembly Specification

| 主要技术指标           |            | Main technical specifications |                   |
|------------------|------------|-------------------------------|-------------------|
| 频率范围<br>(MHZ)    | 2400-2500  | Frequency Range<br>(MHZ)      | 2400-2500         |
| 特性阻抗( $\Omega$ ) | 50         | Impedance( $\Omega$ )         | 50                |
| 输出电压<br>驻波比      | $\leq 2.0$ | VSWR                          | $\leq 2.0$        |
| 极化方式             | 线极化        | Polarization                  | Linear            |
| 物理性能             |            | Physical Properties           |                   |
| 线材               | 1.37同轴线    | Cable                         | 1.37Coaxial Cable |
| 连接头              | 端子         | Connector                     | MHF Plug          |
| 保存温度             | -20℃~+70℃  | Storage Temp                  | -20℃~+70℃         |
| 工作温度             | -20℃~+60℃  | Operating Temp                | -20℃~+60℃         |

| F   |            | G           |  |
|-----|------------|-------------|--|
| REV | DATE       | DESCRIPTION |  |
| A   | 2024-04-12 | NEW ISSUE   |  |



规格Specification:

频率Frequency Range: 5.15~5.85GHz

回波损耗Return loss: -9.5dB or less

驻波比VSWR: 2.0 max

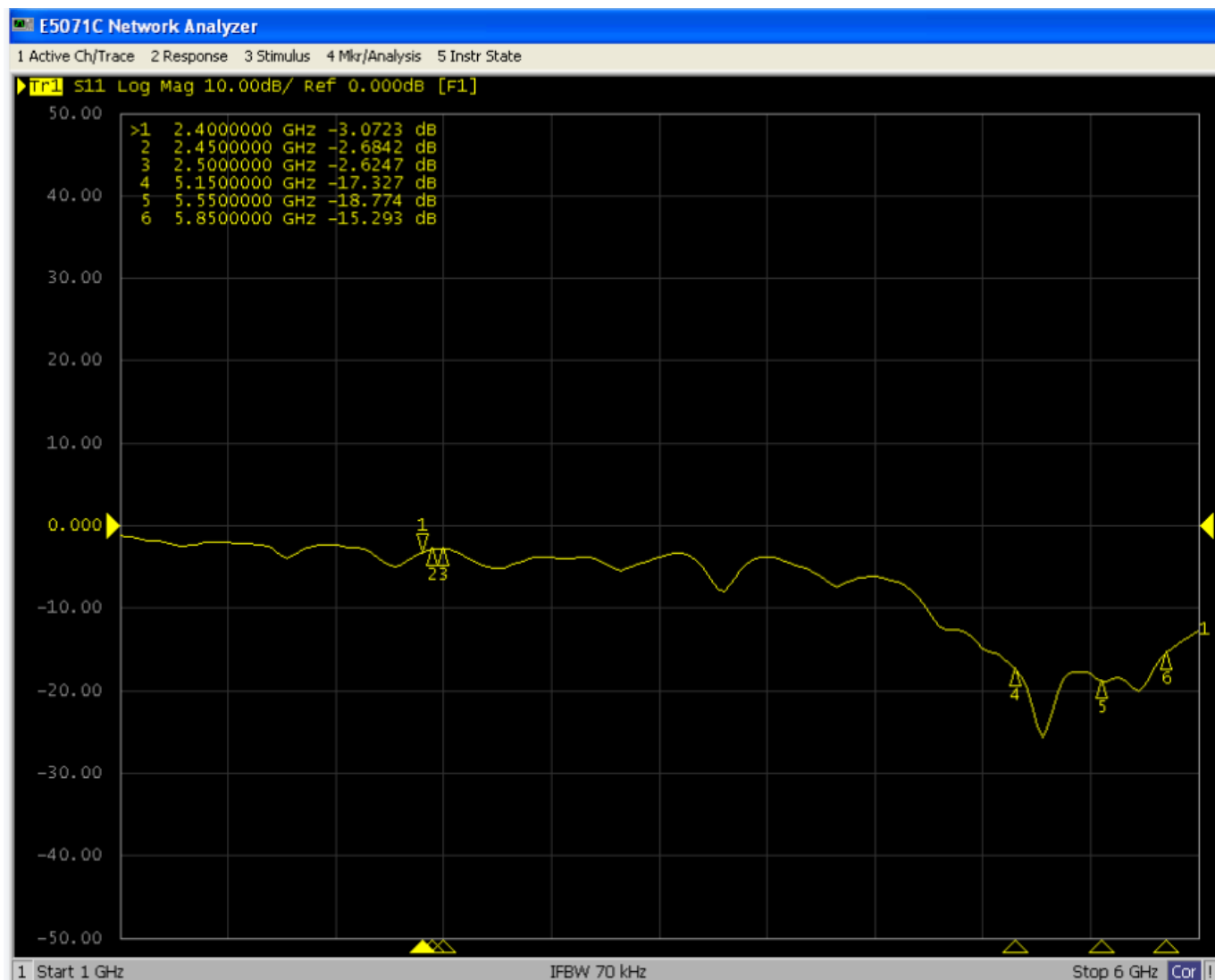
增益Gain (peak): 2dBi

|                               |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------------|--|--|--|--|--|--|--|--|--|--|--|
| 驻波比VSWR: 2.0 max              |  |  |  |  |  |  |  |  |  |  |  |
| 增益Gain (peak): 2dbi           |  |  |  |  |  |  |  |  |  |  |  |
| RF link                       |  |  |  |  |  |  |  |  |  |  |  |
| 东莞市仁丰电子科技有限公司                 |  |  |  |  |  |  |  |  |  |  |  |
| RenFeng Electronic technology |  |  |  |  |  |  |  |  |  |  |  |
| Co., LTD.                     |  |  |  |  |  |  |  |  |  |  |  |

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| A                |  | B           |  | C             |  | D      |  |  |  | E |  | F |  | G |  |
| 端子               |  | 1           |  | Copper        |  |        |  |  |  |   |  |   |  |   |  |
| 泡沫               |  | 1           |  | Eva: Black    |  |        |  |  |  |   |  |   |  |   |  |
| 铆钉               |  | 2           |  | POM; Black    |  |        |  |  |  |   |  |   |  |   |  |
| 下固定座             |  | 1           |  | PC; Black     |  |        |  |  |  |   |  |   |  |   |  |
| 上固定座             |  | 1           |  | PC+PBT; Black |  |        |  |  |  |   |  |   |  |   |  |
| 杆套               |  | 1           |  | TPEE; Black   |  |        |  |  |  |   |  |   |  |   |  |
| PCB              |  | 1           |  | FR-4; 无卤板材    |  |        |  |  |  |   |  |   |  |   |  |
| 线材               |  | 1           |  | φ1.37 灰色双锡线   |  |        |  |  |  |   |  |   |  |   |  |
| NO.              |  | DESCRIPTION |  | QTY           |  | REMARK |  |  |  |   |  |   |  |   |  |
| 带公差尺寸为检验尺寸       |  |             |  |               |  |        |  |  |  |   |  |   |  |   |  |
| 产品符合环保RoHS2.0之要求 |  |             |  |               |  |        |  |  |  |   |  |   |  |   |  |
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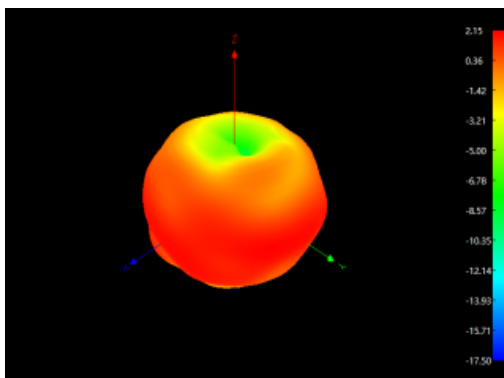
## 六、测试报告 ( Testingreport )：

### 6.1网络分析仪测试报告

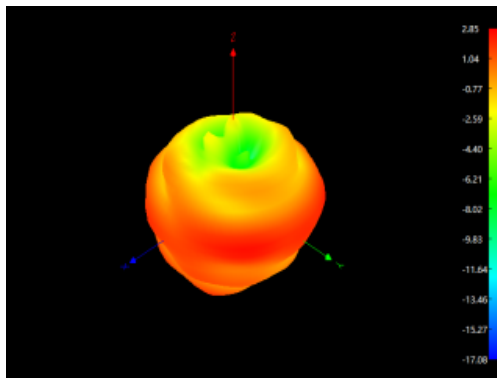


### 6.2 暗室3D、2DRadiationPattern

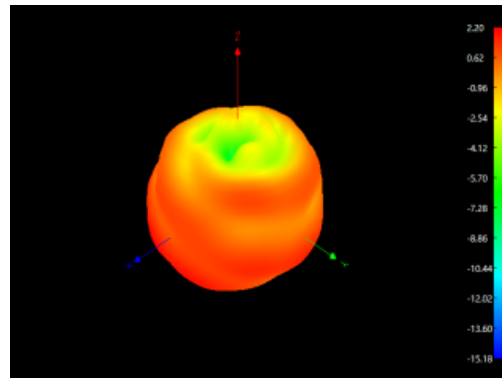
5150MHz



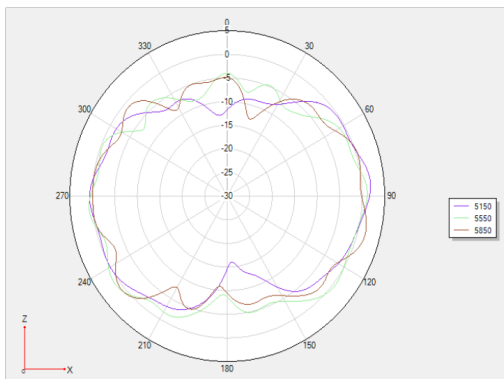
5550MHz



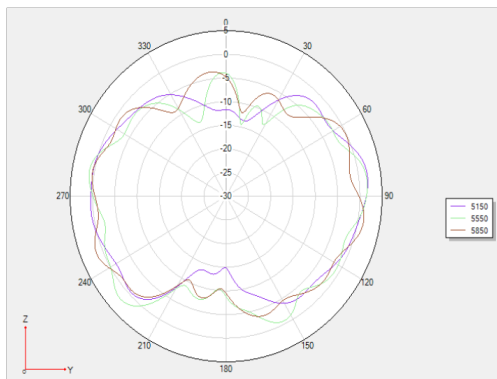
5850MHz



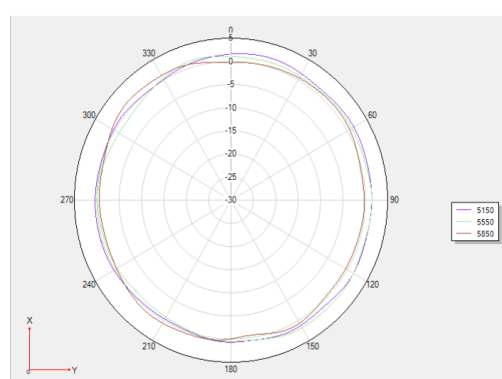
E1



E2



H





| 5G              |                |           |
|-----------------|----------------|-----------|
| Frequency / MHz | Efficiency / % | Gain/ dBi |
| 5150            | 74.51          | 2.15      |
| 5200            | 73.03          | 2.37      |
| 5250            | 73.51          | 2.16      |
| 5300            | 73.74          | 2.26      |
| 5350            | 73.34          | 2.68      |
| 5400            | 73.16          | 2.69      |
| 5450            | 74.01          | 2.19      |
| 5500            | 73.62          | 2.40      |
| 5550            | 70.68          | 2.85      |
| 5600            | 69.84          | 2.58      |
| 5650            | 67.76          | 2.51      |
| 5700            | 68.55          | 2.56      |
| 5750            | 67.30          | 2.48      |
| 5800            | 67.92          | 2.36      |
| 5850            | 67.12          | 2.20      |

## 深圳市海联通科技有限公司

## 产 品 规 格 书

## Product specification

物料 编码: /

Material code:

产品 名称: 同轴线缆

Product name:

产品 型号: RF1.37/P-TC

Product model:

规 格: 7/0.102SC

Specifications: \_

| 版本号<br>version<br>number | 修订日期<br>Revision date | 修订内容<br>revised contents                | 修订人<br>Revised  | 发行日期<br>date of<br>issue |
|--------------------------|-----------------------|-----------------------------------------|-----------------|--------------------------|
| A                        | 2009.10.06            | 新 增<br>new increase                     | 向明松             | 2009.10.10               |
| B                        | 2015.03.19            | 修订规格书格式<br>revised Specification Format | 杨道东             | 2015.03.20               |
| C                        | 2016.11.01            | 修订绝缘外径                                  | 秦荣新             | 2016.11.01               |
| D                        |                       |                                         |                 |                          |
| E                        |                       |                                         |                 |                          |
| F                        |                       |                                         |                 |                          |
| 制 作<br>Preparation       |                       | 审 核<br>auditor                          | 批 准<br>approver |                          |
| 杨道东                      |                       | 秦荣新                                     | 张立游             |                          |

## 1. 产品描述

## product description

- 1.1 本产品是 Teflon 绝缘系列柔软同轴电缆线，适用于微波设备、无线通信设备系统和设备。

This product is soft coaxial cables, Teflon insulation series is suitable for the microwave equipment, wireless communication systems and equipment.

产品特征：极好的柔软性，低驻波比，良好的屏蔽性能，精确的相位匹配。

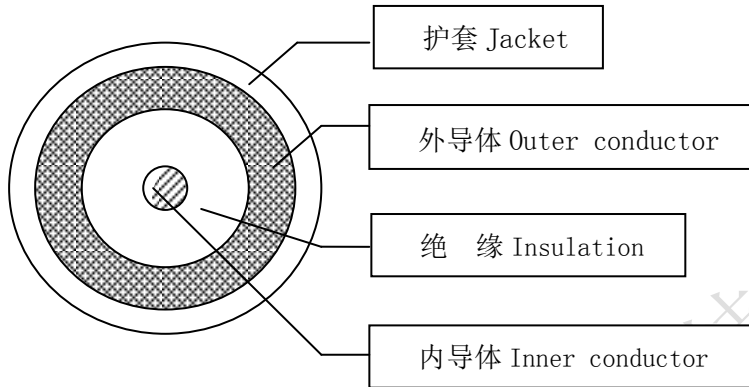
Product features: Excellent flexi-ability, good V.S.W.R, good shielding performance.

## 2. 电缆详细资料及结构图：

Cable with data and structure diagram:

## 2.1 结构图：

structure diagram



## 2.2 电缆规格：

Specification of cable:

| 项 目<br>Item            |                                     | 单位<br>Company | 材质及尺寸<br>Materials and size                                                                     |
|------------------------|-------------------------------------|---------------|-------------------------------------------------------------------------------------------------|
| 内导体<br>Inner conductor | 材 质<br>Material                     | /             | 镀银铜线<br>Silver plated copper wire                                                               |
|                        | 根数/直径<br>Diameter Of every wire     | 根/mm<br>Root  | 7/0.102±0.003                                                                                   |
|                        | 外径<br>Outer diameter                | mm            | Φ0.30                                                                                           |
| 绝 缘<br>Insulation      | 材 质<br>Material                     | /             | Teflon FEP(200 度 聚全氟乙烯-丙烯树脂)<br>Teflon FEP(200 degrees of fluorinated ethylene propylene resin) |
|                        | 厚度<br>Thickness                     | mm            | 0.275                                                                                           |
|                        | 完成外径<br>Complete the outer diameter | mm            | Φ0.90±0.05                                                                                      |
|                        | 颜色<br>Color                         | /             | 透明色<br>transparent color                                                                        |
| 外导体<br>Outer conductor | 材 质<br>Material                     | /             | 镀锡铜线<br>Tinned copper wire                                                                      |
|                        | 形 式<br>Form                         | /             | 编 织<br>Weave                                                                                    |
|                        | 编织结构<br>Woven structure             | %             | 93%(25 目 (Mesh); 80 编 (Coding 5*16/0.05mm))                                                     |
|                        | 完成外径<br>Complete the outer          | mm            | Φ1.12±0.05                                                                                      |

|               |                                     |    |                                                                                                  |
|---------------|-------------------------------------|----|--------------------------------------------------------------------------------------------------|
|               | diameter                            |    |                                                                                                  |
| 护 套<br>Jacket | 材 质<br>Material                     | /  | Teflon FEP (200 度聚全氟乙烯-丙烯树脂)<br>Teflon FEP (200 degrees of fluorinated ethylene propylene resin) |
|               | 厚度<br>Thickness                     | mm | 0.115                                                                                            |
|               | 完成外径<br>Complete the outer diameter | mm | $\Phi 1.37 \pm 0.05$                                                                             |
|               | 护套颜色<br>color of sheath             | /  | 灰色或黑色 (也可按客户要求加工)<br>Gray or black (Can also be processed according to customer requirements)    |

## 3. 电缆特性

The cable properties

## 3.1 电气性能

Electrical properties

| 测试项目<br>test project                   | 标准要求<br>Standard value                                       |                          | 备注<br>Note                                                      |
|----------------------------------------|--------------------------------------------------------------|--------------------------|-----------------------------------------------------------------|
| 额定温度/电压<br>Rated temperature / voltage | $-55^{\circ}\text{C} \sim +200^{\circ}\text{C} / 30\text{V}$ |                          | /                                                               |
| 绝缘电阻<br>Insulation resistance          | $3000\text{M}\Omega \cdot \text{Km}$                         |                          | 电阻测试仪<br>Resistance tester                                      |
| 导体电阻<br>Conductor resistance           | $335\Omega / \text{Km } 20^{\circ}\text{C}$                  |                          | /                                                               |
| 耐 压<br>Pressure                        | 2KV                                                          |                          | 耐压测试仪<br>Withstand voltage tester                               |
| 绝 缘<br>Insulation                      | 未老化前<br>Unaged                                               | 抗拉强度<br>Tensile Strength | 2500 PSI MIN. ( $1.76\text{Kg}/\text{mm}^2$ )                   |
|                                        |                                                              | 延伸率<br>Elongation        | 200% MIN                                                        |
|                                        | 老化后<br>Aged                                                  | 抗拉强度<br>Tensile Strength | 2500 PSI*75% (168HRS*232°C)                                     |
|                                        |                                                              | 延伸率<br>Elongation        | 200% MIN*75% (168HRS*232°C)                                     |
| 护 套<br>Jacket                          | 未老化前<br>Unaged                                               | 抗拉强度<br>Tensile Strength | 2500 PSI MIN. ( $1.76\text{Kg}/\text{mm}^2$ )                   |
|                                        |                                                              | 延伸率<br>Elongation        | 200% MIN                                                        |
|                                        | 老化后<br>Aged                                                  | 抗拉强度<br>Tensile Strength | 2500 PSI*75% (168HRS*232°C)                                     |
|                                        |                                                              | 延伸率<br>Elongation        | 200% MIN*75% (168HRS*232°C)                                     |
| 特性阻抗<br>characteristic impedance       | $50 \pm 3\Omega$                                             |                          | 网析分析仪、TRK 测试仪<br>Analysis of network analyzer<br>The TRK tester |
| 电容<br>Capacitance                      | 95.8 PF/M                                                    |                          | 数字电容仪<br>Digital capacitance meter                              |
| 传输速率<br>Velocity                       | 69%                                                          |                          | 网析分析仪<br>Analysis of network analyzer                           |

|                                  |                        |                                              |
|----------------------------------|------------------------|----------------------------------------------|
| 传输延迟<br>Propagation Delay        | 4. 8ns/m               | /                                            |
| 屏蔽率减<br>Shielding<br>attenuation | 100dB                  | /                                            |
| 弯曲半径<br>Bending radius           | 7mm                    | /                                            |
| 阻燃性 (UL)<br>Flame retardant      | passed                 | VW-1 提供材料报告<br>VW-1 provides material report |
| 屏蔽衰减 (dB/m)<br>Attenuation(dB/m) | 测试频率<br>test frequency | 衰减<br>Attenuation                            |
|                                  | 0.1GHz                 | 0.47                                         |
|                                  | 0.4GHz                 | 0.93                                         |
|                                  | 1GHz                   | 1.48                                         |
|                                  | 2GHz                   | 2.15                                         |
|                                  | 3GHz                   | 2.65                                         |
|                                  | 4GHz                   | 3.56                                         |
|                                  | 5GHz                   | 4.10                                         |
|                                  | 6GHz                   | 4.75                                         |
| 驻波比<br>VSWR                      | 0.3—3GHz               | ≤1.30                                        |
|                                  | 3—6GHz                 | ≤1.40                                        |

海平面 20℃测试  
Sea level to 20 DEG C test

#### 4. 包装要求

Packaging requirements

##### 4.1 包装长度: 1000 米

Package length:1000 meters

包装方式: 轴,

The way of packing: Volume

最短线长度: ≥30 米

The stub length: 30 meters

最短线比例: 15%

The proportion of short-term: 15%

##### 4.2 包装标识:标准或按客户要求.

Packaging and labeling: standard or according to customer requirements.

### Material Safety Data Sheet (物质安全资料表)

#### \*\*物品与厂商资料

物品名称: 同轴高频线

物品编号: RF1.37/P-TC 系列

#### \*\*成分辨识资料

纯物质:

中英文名称: 氟树脂 Teflon/镀银线 Silver Plated Copper/镀锡铜线 Tinned Plated Copper 同义名称:  
FEP/SC/TC

化学文摘社登记号码(CAS No.):

危害物质成分(成分百分比):

● \*\*混合物: (4.860mg/Km)

| N | 部件名称 | 所 | 重量 | 材质成 | 组成成份 | 重量 (mg) | 材质成 | 化学号 CAS NO |
|---|------|---|----|-----|------|---------|-----|------------|
|---|------|---|----|-----|------|---------|-----|------------|

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| 0 |                 | 在<br>部<br>位 | (mg<br>) | 份                          |                              |         | 份占比<br>(%) |                                                                           |
|---|-----------------|-------------|----------|----------------------------|------------------------------|---------|------------|---------------------------------------------------------------------------|
| 1 | RF1.37/P-<br>TC | 导<br>体      | 509      | Silver<br>Jackte<br>d Wire | Cu                           | 492     | 96.66      | 7440-50-8                                                                 |
| 2 |                 |             |          |                            | Ag                           | 11.92   | 2.34       | 7440-22-4                                                                 |
| 3 |                 |             |          |                            | Sb./Fe./PB/SE/AS/<br>AG/BI/S | 5.08    | 1.00       | 7440-36-0/7439-89-6/7439-92-1/7782-49-2/0744-38-2<br>/7440-22-4/7440-69-9 |
| 4 |                 | 绝<br>缘      | 1160     | Teflon                     | FEP                          | 116.00  | 100        | 25067-11-2                                                                |
| 5 |                 | 外<br>导<br>体 | 2020     | Tinned<br>wire             | CU                           | 1924.46 | 95.66      | 7440-50-8                                                                 |
| 6 |                 |             |          |                            | Sn                           | 66.22   | 2.34       | 7440-31-5                                                                 |
| 7 |                 |             |          |                            | Sb./Fe./PB/SE/AS/<br>AG/BI/S | 20.2    | 1.00       | 7440-36-0/7439-89-6/7439-92-1/7782-49-2/0744-38-2<br>/7440-22-4/7440-69-9 |
| 8 |                 | 护<br>套      | 1170     | Teflon                     | FEP                          | 1165.32 | 99.96      | 25067-11-2                                                                |
| 9 |                 |             |          | 灰色色<br>母                   |                              | 4.68    | 0.4        | 8062-14-4                                                                 |

## \*\*化学性质:

| 有害物质成分之中英文名称                                           | 浓度或浓度范围(成分百分比) | 有害物质分类及图式 |
|--------------------------------------------------------|----------------|-----------|
| 铅及其化合物 (Pb)Lead and Lead compound                      | ≤90PPM         |           |
| 镉及其化合物 (Cd)Cadmium and Cadmium compound                | ≤75PPM         |           |
| 汞及其化合物 (Hg)Mercury and Mercury compound                | ≤1000PPM       |           |
| 六价铬及其化合物(Cr <sup>6+</sup> )Hexvalent Chromium compound | ≤1000PPM       |           |
| 溴(Br)Bromine                                           | ≤900PPM        |           |
| 氯(Cl)Chlorine                                          | ≤900PPM        |           |
| 溴+氯(Br+Cl) Bromine and Chlorine                        | ≤1500PPM       |           |
| 全氟辛烷硫磺酸 (PFOS)                                         | ≤1000PPM       |           |
| 四溴双酚 A (TBBPA)                                         | ≤1000PPM       |           |
| 六溴环十二烷 (HBCDD)                                         | ≤1000PPM       |           |
| 其他限用物资等                                                | 禁止使用           |           |

## \*\*危害辨识数据

|                                 |                                              |
|---------------------------------|----------------------------------------------|
| 最<br>重<br>要<br>危<br>害<br>效<br>应 | 健康危害效应: 在 260℃ 以上, 可能会有吸入分解气体的危险. 一定要安装排气装置. |
|                                 | 环境影响: 要按废弃物处理及清扫法律法规处理, 绝对不可燃烧.              |
|                                 | 物理性及化学性危害: 物理化学性能极其稳定, 不易降解, 不得擅自填埋 .        |
|                                 | 特殊危害: 无                                      |
| 主要症状: 对人的神经系统产生损害               |                                              |
| 物品危害分类: 大气和水源                   |                                              |

## \*\*急救措施

|                 |  |
|-----------------|--|
| 不同暴露途径之急救方法:    |  |
| · 吸入: 到空气流通处换气. |  |
| · 皮肤接触: 无       |  |
| · 眼睛接触: 无       |  |
| · 食入: 不消化, 排出.  |  |
| 最重要症状及危害效应:     |  |



# 金安国纪科技(珠海)有限公司

GOLDENMAX INTERNATIONAL TECHNOLOGY (ZHUHAI) LTD.

## 物质成份表

|           |                |                       |               |                                           |                |                                |                                                 |                        |                        |                         |    |
|-----------|----------------|-----------------------|---------------|-------------------------------------------|----------------|--------------------------------|-------------------------------------------------|------------------------|------------------------|-------------------------|----|
| 供应商名称:    | 金安国纪科技(珠海)有限公司 |                       |               | 填写人:                                      | 林威             | 联系电话:                          | 0756-7638610                                    | EMAIL: GDMZHQA@163.COM |                        |                         |    |
| 物料名称 (成品) | 重量 (单位: 克)     | 组成原材料名称               | 原材料重量 (单位: 克) | 化学成分名称 (此层需要写到化学物质而非原材料, 如化学物质为聚合物则需写到单体) | 化学成分重量 (单位: 克) | 化学成分CAS编号 (无CAS编号, 则需提供其他识别代码) | 化学成分EINECS编号 (无EINECS编号, 则需提供其他识别代码, 如ELINCS代码) | 化学成分占原材料百分比 (K=H/F)    | 化学成分占总体物料重量百分比 (L=H/C) | 是否有检测报告 (如第三方检测报告、MSDS) | 备注 |
| FR-4覆铜层压板 | 1000           | 环氧树脂<br>Epoxy Resin   | 450           | 溴化环氧树脂                                    | -              | 26265-08-7                     | /                                               | 99.97%                 | 35-75%                 | SGS                     |    |
|           |                | 电解铜箔<br>Copper Foil   | 150           | 铜                                         | 149.85         | 7440-50-8                      | 231-159-6                                       | 99.90%                 | 9-30%                  | SGS                     |    |
|           |                | 电子级玻璃布<br>Fiber Glass | 400           | 玻璃纤维                                      | 398            | 14808-60-7                     | 238-878-4                                       | 99.50%                 | 30-65%                 | SGS                     |    |
|           |                |                       |               | 硅烷偶联剂                                     | 2              | 2530-83-8                      | /                                               | 0.50%                  | 0.20%                  |                         |    |



# Mitsubishi Engineering-Plastics Corp.

Shiodome Sumitomo-Bldg, 25F, 9-2, Higashi-shinbashi  
1-Chome, Minato-ku, Tokyo 105-0021, Japan

To whom it may concern

Date : 20-OCT-12

Mitsubishi Engineering-Plastics Corp.  
Quality Assurance Department  
THAI POLYCARBONATE CO.,LTD.  
QC - RD Department

## CERTIFICATE OF ANALYSIS

### 1. Product(Iupilon)

|                  |            |
|------------------|------------|
| Grade Name       | : S-2000VR |
| Color Name(Note) | : ICE      |
| Color No.        | : 5313     |
| Lot No.          | : 29E291T0 |

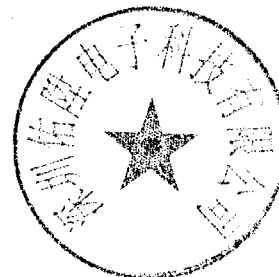
### 2. Results of Testing

| Inspection Item                    | Test Result | Standard         |
|------------------------------------|-------------|------------------|
| Molecular Weight ( $\times 10^4$ ) | 2.3         | Viscosity Method |
| MVR (mL/10 min)                    | 10.2        | ISO 1133         |
| Color                              | PASS        | Visual Judgement |

We hereby certify that this material passes all TPCC's internal quality control requirements

THAI POLYCARBONATE CO., LTD.  
QC -RD Department  
Padaeng Industrial Estate 1 Padaeng Road,  
Map-Ta-Phut, Rayong 21150  
Tel : (038) 684816-7, (038) 685613-23  
Fax : (038) 685625

Anusak Kaewhom  
( QC-RD Dept. Manager )



Order No. 1209GZ056  
Customer (: To whom it may concern)

PHONE:03-6274-9000 FAX:03-6274-9086

( For COA printing only )

# TPEE 物性参数

规格级别：注塑级 1163

| 性能项目 |           | 试验条件[状态]                     | 测试方法          | 测试数据      | 数据单位           |
|------|-----------|------------------------------|---------------|-----------|----------------|
| 基本性能 | 熔体流动速率    | 2.16kg at 220C               | ASTM D-1238   | 8.5       | g/10min        |
|      | 泊松比       |                              | ASTM E-132    | 0.45      |                |
| 机械性能 | 弯曲模量      | -40C (-40F)                  | ASTM D-790 IB | 172 (25)  | MPa (kpsi)     |
|      | 弯曲模量      | 100C (212F)                  | ASTM D-790 IB | 28 (4.1)  | MPa (kpsi)     |
|      | 硬度        |                              | ASTM D-2240   | 40        |                |
|      | IZOD 冲击强度 | 23C (73F), 6.35mm (0.25in)   | ASTM D-256-A  | NB        | J/m (ft lb/in) |
|      | 撕裂强度      |                              | ASTM D-1004   | 95 (550)  | KN/m (lb/in)   |
|      | 断裂伸长率     |                              | ASTM D-638    | 700       | %              |
|      | 拉伸应力      | 张力 10%                       | ASTM D-638    | 3.5 (0.5) | MPa (kpsi)     |
|      | IZOD 冲击强度 | -40C (-40F), 6.35mm (0.25in) | ASTM D-256-A  | NB        | J/m (ft lb/in) |
|      | 拉伸应力      | 张力 5%                        | ASTM D-638    | 2.4 (0.4) | MPa (kpsi)     |
|      | 断裂抗拉强度    |                              | ASTM D-638    | 20 (2.9)  | MPa (kpsi)     |
|      | 弯曲模量      | 23C (73F)                    | ASTM D-790 IB | 55 (8.0)  | MPa (kpsi)     |
|      | 热变形温度     | 0.45MPa (66psi)              | ASTM D-648    | 55 (131)  | °C (° F)       |
| 热性能  | 维卡软化点     |                              | ASTM D-1525-B | 134 (273) | °C (° F)       |
|      | 熔点        |                              | ASTM D-3418   | 193 (379) | °C (° F)       |
| 其它性能 | 厚度等级      |                              | UL 94         | HB        |                |
|      | 厚度测试      |                              | UL 94         | 1.56      | mm             |
|      | 比重        |                              | ASTM D-792    | 1.11      |                |

| PC/ABS 合金性能表                                                                                           |                          |      |      |                |              |      |      |      |        |      |                  |                 |       |                  |       |         |         |       |
|--------------------------------------------------------------------------------------------------------|--------------------------|------|------|----------------|--------------|------|------|------|--------|------|------------------|-----------------|-------|------------------|-------|---------|---------|-------|
| PC/ABS 是聚碳酸酯（PC）与 ABS 的合金材料，它不仅具有 PC 的耐冲击性、优良的耐候性，还同时具备了 ABS 的高流动性。因此，在做薄壁及复杂形状的制品时，仍旧保持着它优异的物理特性及成型性。 |                          |      |      |                |              |      |      |      |        |      |                  |                 |       |                  |       |         |         |       |
| 适用范围                                                                                                   | 汽车内外部件、电脑及周边设备、通讯器材、家电…… |      |      |                |              |      |      |      |        |      |                  |                 |       |                  |       |         |         |       |
|                                                                                                        |                          | 物理性能 |      |                | 机械性能         |      |      |      |        | 热性能  |                  | 电气性能            |       |                  |       |         |         |       |
|                                                                                                        | 比重                       | 比重   | 吸水率  | 模具收缩率<br>3.2mm | 拉伸率<br>(断裂点) | 拉伸模量 | 弯曲强度 | 弯曲模量 | 冲击强度缺口 |      | 热变形温度<br>0.45Mpa | 热变形温度<br>1.8Mpa | 维卡软化点 | UL 长期使用温度<br>含冲击 | 阻燃性   | 体积电阻    | 表面电阻    | 耐候性   |
|                                                                                                        |                          |      |      |                |              |      |      |      | 23℃    | -40℃ |                  |                 |       |                  |       |         |         |       |
|                                                                                                        |                          |      |      |                |              |      |      |      | J/m    |      | ℃                | ℃               | ℃     | ℃                | 1.5mm | Ohm-cm  | Ohm-cm  |       |
| 高流动                                                                                                    | ASTM                     | D792 | D570 | D955           | D638         | D638 | D790 | D790 | D256   |      | D648             | D648            | D1525 | UL748B           | UL94  | D257    | D257    |       |
|                                                                                                        | 单位                       |      | %    | E-3            | %            | Mpa  | Mpa  | Mpa  | J/m    |      | ℃                | ℃               | ℃     | ℃                | 1.5mm | Ohm-cm  | Ohm-cm  |       |
|                                                                                                        |                          |      |      |                |              |      |      |      |        |      |                  |                 |       |                  |       |         |         |       |
| 耐低温                                                                                                    | CB100                    | 1.12 | 0.2  | 5-7            | 150          | 2300 | 90   | 2300 | 400    |      | 105              | 93              |       | 90               | HB    |         |         |       |
|                                                                                                        | CB642                    | 1.14 | 0.2  | 5-7            | 80           | 2400 | 85   | 2400 | 530    |      | 120              | 105             |       | 100              | HB    |         |         |       |
|                                                                                                        | CB1110HF                 | 1.14 | 0.2  | 5-7            | 76           | 2200 | 85   | 2200 | 630    |      | 125              | 110             |       | 110              | HB    |         |         |       |
| 耐高温                                                                                                    | CB1200                   | 1.15 | 0.2  | 5-7            | 140          | 2200 | 86   | 2300 | 640    |      | 130              | 112             |       | 115              | HB    |         |         |       |
| 耐寒                                                                                                     | CB2000                   | 1.18 | 0.2  | 5-8            | 150          | 2200 | 86   | 2200 | 900    | 750  | 120              | 105             |       | 105              | HB    |         |         |       |
| 环保阻燃                                                                                                   | CB2800                   | 1.17 | 0.2  | 4-6            | 50           | 2600 | 95   | 2600 | 420    |      | 105              | 90              |       | 75               | V0    | 1.0E+17 | 1.0E+14 |       |
| 有卤阻燃                                                                                                   | CB6200                   | 1.21 | 0.2  | 5-7            | 50           | 2500 | 100  | 2500 | 530    |      | 125              | 110             |       | 90               | V0    | 1.0E+17 | 1.0E+14 | UV 稳定 |

# Duracon® M90-44

聚甲醛 ( POM ) 共聚物  
Polyplastics Co., Ltd.



ides.com/prospector

## Technical Data

### 产品说明

Standard, Standard  
Color No.: CF2001/CD3068

### 总体

|                    |                                                                                                                                                                       |          |        |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------|
| 材料状态               | • 已商用：当前有效                                                                                                                                                            |          |        |
| 资料 <sup>1</sup>    | • Processing - Molding (English)<br>• Processing - Troubleshooting Guide (English)<br>• Technical Datasheet - ASTM (English)<br>• Technical Datasheet - ISO (English) |          |        |
| UL 黄卡 <sup>2</sup> | • E45034-100337529<br>• E45034-235766                                                                                                                                 |          |        |
| 搜索 UL 黄卡           | • Polyplastics Co., Ltd.<br>• Duracon®                                                                                                                                |          |        |
| 供货地区               | • 北美洲                                                                                                                                                                 | • 欧洲     | • 亚太地区 |
| UL 档案号             | • E45034                                                                                                                                                              | • E45034 |        |
| 部件标识代码 (ISO 11469) | • >POM<                                                                                                                                                               |          |        |

| 物理性能                               | 额定值                    | 单位制 | 测试方法                  |
|------------------------------------|------------------------|-----|-----------------------|
| 比重                                 | 1.41 g/cm <sup>3</sup> |     | ASTM D792<br>ISO 1183 |
| 吸水率 (23°C, 24 hr)                  | 0.50 %                 |     | ISO 62                |
| 机械性能                               | 额定值                    | 单位制 | 测试方法                  |
| 抗张强度                               |                        |     |                       |
| --                                 | 60.0 MPa               |     | ASTM D638             |
| --                                 | 62.0 MPa               |     | ISO 527-2             |
| 伸长率                                |                        |     |                       |
| 断裂                                 | 60 %                   |     | ASTM D638             |
| 断裂                                 | 35 %                   |     | ISO 527-2             |
| 弯曲模量                               |                        |     |                       |
| --                                 | 2580 MPa               |     | ASTM D790             |
| --                                 | 2500 MPa               |     | ISO 178               |
| 弯曲强度                               |                        |     |                       |
| --                                 | 90.0 MPa               |     | ASTM D790             |
| --                                 | 87.0 MPa               |     | ISO 178               |
| 摩擦系数                               |                        |     | JIS K7218             |
| vs. Unknown - Dynamic <sup>4</sup> | 0.37                   |     |                       |
| 与钢 - 动态 <sup>5</sup>               | 0.46                   |     |                       |
| 与钢 - 动态 <sup>6</sup>               | 0.40                   |     |                       |
| 冲击性能                               | 额定值                    | 单位制 | 测试方法                  |
| 简支梁缺口冲击强度                          | 6.0 kJ/m <sup>2</sup>  |     | ISO 179/1eA           |
| 悬壁梁缺口冲击强度                          | 63 J/m                 |     | ASTM D256             |
| 反向缺口冲击                             | 760 J/m                |     | ASTM D256             |
| 热性能                                | 额定值                    | 单位制 | 测试方法                  |
| 热变形温度                              |                        |     |                       |
| 1.8 MPa, 未退火                       | 110 °C                 |     | ASTM D648             |
| 1.8 MPa, 未退火                       | 95.0 °C                |     | ISO 75-2/A            |
| 线形膨胀系数                             |                        |     |                       |
| 流动 <sup>7</sup>                    | 0.00010 cm/cm/°C       |     | ASTM D696             |
| 流动: 23 到 55°C                      | 0.00012 cm/cm/°C       |     | No Standard           |
| 横向 <sup>7</sup>                    | 0.00010 cm/cm/°C       |     | ASTM D696             |
| 横向: 23 到 55°C                      | 0.00012 cm/cm/°C       |     | No Standard           |

| 电气性能                 | 额定值 单位制                                         | 测试方法        |
|----------------------|-------------------------------------------------|-------------|
| 表面电阻率                | 1.0E+16 ohm                                     | IEC 60093   |
| 体积电阻率                |                                                 |             |
| 3.00 mm              | 1.0E+14 ohm·cm                                  | ASTM D257   |
| --                   | 1.0E+14 ohm·cm                                  | IEC 60093   |
| 介电强度                 |                                                 |             |
| 2.00 mm <sup>8</sup> | 24 kV/mm                                        | ASTM D149   |
| 3.00 mm              | 19 kV/mm                                        | IEC 60243-1 |
| 可燃性                  | 额定值 单位制                                         | 测试方法        |
| UL 阻燃等级              | HB                                              | UL 94       |
| 补充信息                 | 额定值 单位制                                         | 测试方法        |
| Specific Wear        |                                                 | JIS K7218   |
| -- 9                 | < 0.0100 10 <sup>-3</sup> mm <sup>3</sup> /N·km |             |
| -- 10                | < 0.0100 10 <sup>-3</sup> mm <sup>3</sup> /N·km |             |
| -- 11                | 65.0 10 <sup>-3</sup> mm <sup>3</sup> /N·km     |             |
| -- 12                | 35.0 10 <sup>-3</sup> mm <sup>3</sup> /N·km     |             |
| -- 13                | 0.650 10 <sup>-3</sup> mm <sup>3</sup> /N·km    |             |
| -- 14                | 0.300 10 <sup>-3</sup> mm <sup>3</sup> /N·km    |             |

备注

<sup>1</sup> 通过这些链接您能够访问供应商资料。我们尽量保证及时更新资料；不过您可以从供应商处了解最新资料。

<sup>2</sup> UL 黄卡含有 UL 验证的易燃性和电气特性。UL IDES 持续努力在 Prospector 中将黄卡链接至单个塑料材料，然而此列表可能未包括所有相应链接。重要的是，我们对 Prospector 中找到的这些黄卡和塑料材料之间的关联进行验证。如需完整的黄卡列表，请访问 UL 黄卡搜索。

<sup>3</sup> 一般属性：这些不能被视为规格。

<sup>4</sup> vs. M90-44; Pressure 0.06MPa, 15cm/s

<sup>5</sup> Pressure 0.49MPa, 30cm/s

<sup>6</sup> Pressure 0.98MPa, 30cm/s

<sup>7</sup> @ Room Temperature

<sup>8</sup> Short-time test

<sup>9</sup> vs. C-Steel, Steel Side, Pressure 0.49 MPa, 30 cm/s

<sup>10</sup> vs. C\_Steel, steel side, pressure 0.98MPa, 30cm/s

<sup>11</sup> vs. M90-44, M90-44 side, pressure 0.06MPa, 15cm/s

<sup>12</sup> vs. M90-44, material side, pressure 0.06MPa, 15cm/s

<sup>13</sup> vs. C\_Steel, material side, pressure 0.49MPa, 30cm/s

<sup>14</sup> vs. C\_Steel, material side, pressure 0.98MPa, 30cm/s

购买地点

供应商

Polyplastics Co., Ltd.  
Tokyo, Japan  
电话: (81)3-3593-2441  
Web: <http://www.polyplastics.com/>

分销商

请联系供应商以便为 Duracon® M90-44 查找分销商

# 材质证明书

鹏升 (厂商名称) 承制东莞市仁丰电子科技有限公司之  
产品品名: 泡棉

材质符合仁丰电子 ROHS 相关条件之要求, 需检测项目如下, 达各项检测标准。特此证明。

| 含有物质 Content Substance                     | 含量标准 Criteria           |
|--------------------------------------------|-------------------------|
| 镉 (Cd) Cadmium                             | 均质材料中重量浓度<0.01%(100ppm) |
| 铅 (Pb) Lead                                | 均质材料中重量浓度<0.1%(1000ppm) |
| 汞 (Hg) Mercury                             | 均质材料中重量浓度<0.1%(1000ppm) |
| 六价铬 (Cr6+) Hexavalent Chromium             | 均质材料中重量浓度<0.1%(1000ppm) |
| 多溴联苯(PBB)poly brominated Biphenyls         | 均质材料中重量浓度<0.1%(1000ppm) |
| 多溴二苯醚(PBDE)polybrominated Diphenyl Ethers) | 均质材料中重量浓度<0.1%(1000ppm) |

检测项目:

| 项次 | 材质 (检测品) | 第三公证单位检验报告编号    | 检测报告生效日期 | 检测报告有效日期 |
|----|----------|-----------------|----------|----------|
| 1  | 泡棉       | CANEC1805496305 | 2018.4.4 | 1 年      |
|    |          |                 |          |          |
|    |          |                 |          |          |
|    |          |                 |          |          |
|    |          |                 |          |          |
|    |          |                 |          |          |
|    |          |                 |          |          |
|    |          |                 |          |          |
|    |          |                 |          |          |
|    |          |                 |          |          |

若提报之第三公证单位检验报告内容内未申请检测上述要求之基本六大有害物质中之任何一项者, 请另行提出相关证明或保证宣告, 以兹证明!

(请加盖公司章)



由 扫描全能王 扫描创建

苏州宏祥金属材料有限公司  
HONG CHIANG (SUZHOU) METAL CO.,LTD.  
苏州市相城区东桥镇石弄堂 1 号  
Dongqiao Town Xiang Cheng District Suzhou China  
Tel: 0512-65378296~9 Fax: 0512-65378299

## 产 品 质 量 证 明 书

### CERTIFICATE OF INSPECTION

国标: JIS

| 客 户    | 批 号        | 品 名      | 种 类       | 状 态    | 规 格       | 数 量(公斤)  |
|--------|------------|----------|-----------|--------|-----------|----------|
| Client | Lot No.    | Type No. | Alloy No. | Temper | Size (mm) | Quantity |
| 诚哲     | 1307297018 | 磷青铜      | C5210     | H      | 0.2*12.5  | 503.8Kg  |

化学成分 (Chemical Composition(%))

| 分析元素 | Cu | Zn    | Fe    | Sn   | P     | Pb     | Cu+Sn+P≥ |
|------|----|-------|-------|------|-------|--------|----------|
| 分析数据 | 余量 | 0.009 | 0.002 | 7.74 | 0.117 | <0.001 | 99.99    |

物理性能 (Physical Properties):

| 抗拉强度 N/mm <sup>2</sup> | 延伸率 (%)        | 屈服强度           | 硬度值 HV        |
|------------------------|----------------|----------------|---------------|
| Tensile Strength       | Elongation (%) | Yield Strength | Hardness Test |
| 633                    | 28.9           | —              | 199           |

尺寸偏差 (Size Deviation):

| 厚 度 (mm)       | 宽 度 (mm)   | 长 度 (mm)    | 侧 弯 (mm)       |
|----------------|------------|-------------|----------------|
| Thickness (mm) | Width (mm) | Length (mm) | Bend Test (mm) |
| +/-0.01        | +/-0.1     | —           | ≥2             |

核准: 范平平

品管: 宋朋飞

制表: 张文真



## Technical Data

SHINITE®

F202G30 NA(Halogen free)

FR/GF Grade / 防火 / 玻纖強化級 : DH6006

|                             |       | Unit               | Test Method |      | Preliminary Values                                 |
|-----------------------------|-------|--------------------|-------------|------|----------------------------------------------------|
| Mechanical properties       | 機械性質  |                    |             |      |                                                    |
| Izod Impact(Notched)        | 衝擊強度  | Kg-cm/cm           | ASTM        | D256 | 9.3                                                |
| Tensile Strength            | 拉伸強度  | Kg/cm <sup>2</sup> | ASTM        | D638 | 930                                                |
| Elongation                  | 拉伸率   | %                  | ASTM        | D638 | 2.5                                                |
| Flexural Strength           | 彎曲強度  | Kg/cm <sup>2</sup> | ASTM        | D790 | 1440                                               |
| Flexural Modulus            | 彎曲模數  | Kg/cm <sup>2</sup> | ASTM        | D790 | 80380                                              |
| Thermal properties          | 熱性質   |                    |             |      |                                                    |
| Heat Deflection Temperature | 熱變形溫度 |                    | ASTM        | D648 |                                                    |
| 66psi                       |       | °C                 |             |      | -                                                  |
| 264psi                      |       | °C                 |             |      | 204                                                |
| Flammability                | 防火性   | -                  | UL94        |      | V0                                                 |
| Melting Point               | 熔點    | °C                 | DSC         |      | 223                                                |
| Electrical properties       | 電氣性質  |                    |             |      |                                                    |
| Dielectric Strength         | 介電強度  | KV/MM              | ASTM        | D149 | 22                                                 |
| Dielectric Constant         | 介電常數  | ...                | ASTM        | D150 | -                                                  |
| Volume Resistivity          | 體積電阻  | Ω-CM               | ASTM        | D257 | 1.00E+15                                           |
| Other properties            | 其它性質  |                    |             |      |                                                    |
| Specific Gravity            | 比重    | -                  | ASTM        | D792 | 1.53                                               |
| Water Absorption            | 吸水率   | %                  | ASTM        | D570 | 0.07                                               |
| Mold Shrinkage              | 成形收縮率 |                    | ASTM        | D955 |                                                    |
| Flow                        | 流動方向  | %                  |             |      | -                                                  |
| Cross Flow                  | 垂直方向  | %                  |             |      | -                                                  |
| Injection Molding           | 成型條件  |                    |             |      |                                                    |
| INJECTION MACHINE           | 成型機台  | OZ                 |             |      | 3                                                  |
| DRYING                      | 乾燥    |                    |             |      | 2 HR ×140 (°C)<br>4 HR ×130 (°C)<br>6 HR ×120 (°C) |
| BARREL TEMPERATURE          | 成型溫度  | °C                 |             |      |                                                    |
| REAR                        |       |                    |             |      | 240-230                                            |
| MIDDLE                      |       |                    |             |      | 245-235                                            |
| FRONT                       |       |                    |             |      | 250-240                                            |
| NOZZLE                      |       |                    |             |      | 260-250                                            |
| MOLD TEMPERATURE            | 模溫    | °C                 |             |      | 50-70                                              |
| INJECTION PRESSURE          | 射出壓力  | kg/cm <sup>2</sup> |             |      | 600-1000                                           |
| INJECTION SPEED             | 射出速度  | -                  |             |      | FAST                                               |

UL file number : E107536

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