

# 承 认 书

## SPECIFICATION FOR APPROVAL

客户名称

CUSTOMER NAME: 磊科

产品名称

PRODUCT NAME: 2.4GHz 5dBi White Antenna L=70mm

客户料号

CUSTOMER P/N: WLAN05202

仁丰料号

Ren Feng P/N: RF21C00364A REV: A

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
CHECKED BY:	李小菊	
AUDITOR BY:	黄超	
APPROVED BY:	工程专用章 谢雨文	
DATE:	2014-2-12	

供应商: 东莞市仁丰电子科技有限公司  
地址: 东莞市塘厦镇科苑城沙苑一路3号BC栋3楼  
电话: 0769-38940168 传真: 0769-38940199

# Contents

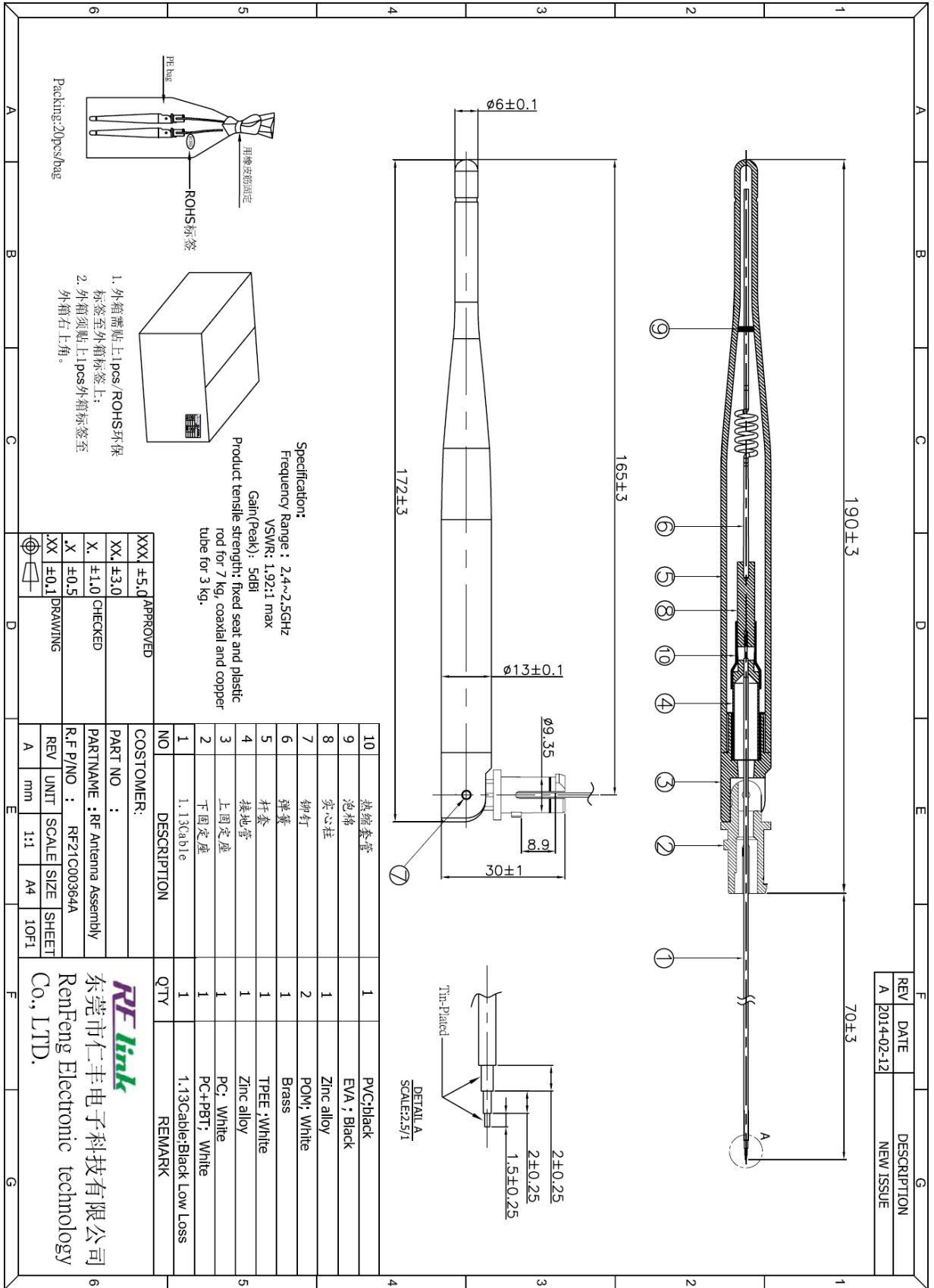
<i>Item</i>	<i>Description</i>
一、	规格表
二、	成品图
三、	测试报告
四、	材质证明
五、	SGS 报告

一、规格表:

产品主要技术参数

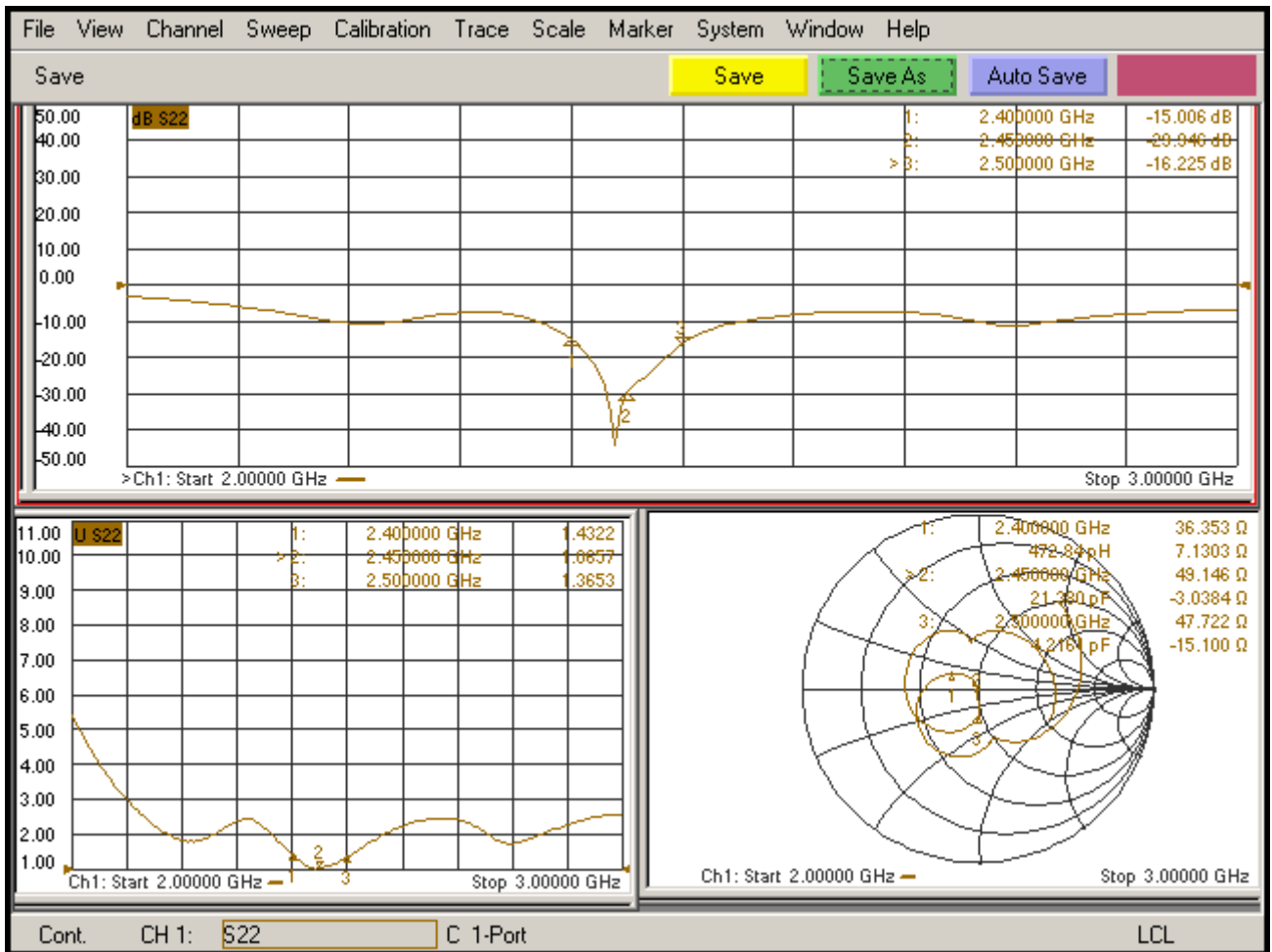
主要技术指标		Main technical specifications	
频率范围 (MHZ)	2400-2500	Frequency Range (MHZ)	2400-2500
特性阻抗( $\Omega$ )	50	Impedance( $\Omega$ )	50
增益(dBi)	5 $\pm$ 0.5	Peak Gain(dBi)	5 $\pm$ 0.5
输出电压 驻波比	$\leq$ 1.92	VSWR	$\leq$ 1.92
最大功率	10W	Admitted Power	10W
极化方式	垂直极化	Polarization	Linear, Vertical
方向性	全向性	Radiation	Omni-directional
连接方式	Cable	Connector Type	Cable
物理性能		Physical Properties	
天线外套材料	TPEE	Antenna cover	TPEE
工作温度	-20 $^{\circ}$ C ~+70 $^{\circ}$ C	Operating Temp	-20 $^{\circ}$ C ~+70 $^{\circ}$ C
保存温度	-20 $^{\circ}$ C ~+70 $^{\circ}$ C	Storage Temp	-20 $^{\circ}$ C ~+70 $^{\circ}$ C

二、成品图:

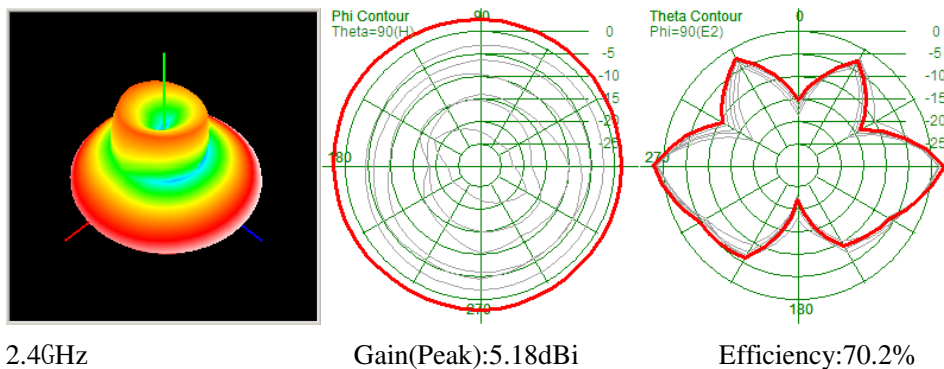


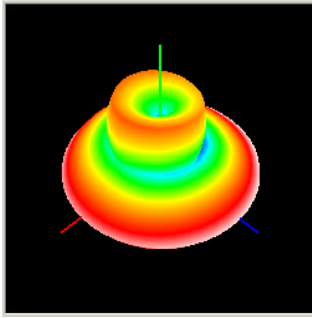
### 三、测试报告

#### 3.1: 网络分析仪测试报告

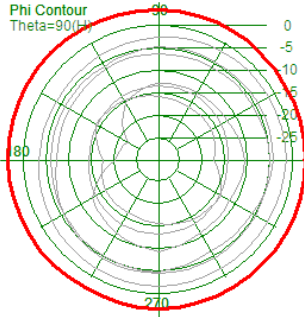


#### 3.2: 暗室 2D、3DRadiation Pattern

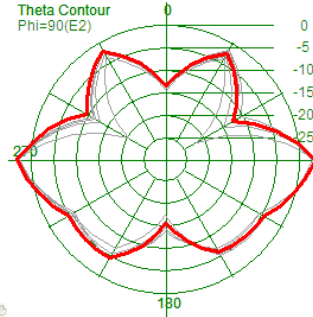




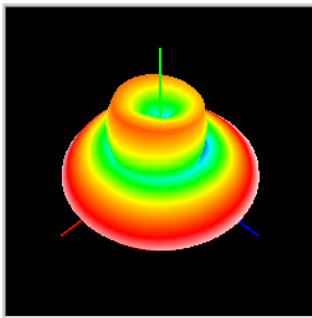
2.45GHz



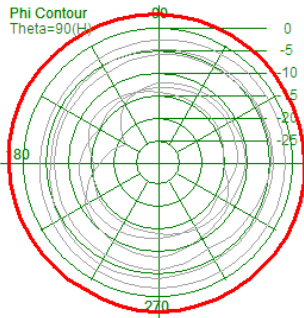
Gain(Peak): 5.21dBi



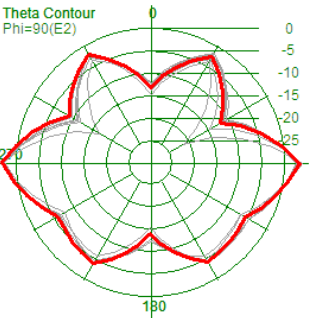
Efficiency: 71.3%



2.5GHz



Gain(Peak): 5.26dBi



Efficiency: 69.2%

四、材质证明：

# 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：热缩套管

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 Critria
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 Diphenl 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.	热缩套管	CANEC1217909302	2013.01.05	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）



# 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：EVA 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.	EVA	GZSL1302016503FW	2013.3.11	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）





## DongGuang Humen Shining Hardware factory

Tel: 86- 0769-81015727 Fax : 0769-81156163

### Zinc alloy Component testing Report

Products Name : 3# Zinc alloy (Eco-friendly material)

According to USA ASTM B240—95 Standard

Element Test				
Element Name	International standard %	Test results %		
		N=1	N=2	AVE
Int		0.62050	0.63301	0.62675
铝 (AL)	3.9~4.3	3.900200	3.900000	3.900100
镁 (MG)	0.025~0.05	0.030000	0.032000	0.031000
铜 (CU)	≤0.10	0.062000	0.052400	0.052200
铅 (PB)	≤0.006	0.002040	0.002100	0.002070
镉 (CD)	≤0.003	0.001460	0.001720	0.001590
铁 (FE)	≤0.03	0.001400	0.001610	0.001500
锡 (SN)	≤0.002	0.001200	0.001400	0.001300
锂 (LI)	≤0.006	0.005800	0.005790	0.005970
锰 (MN)	≤0.002	0.001240	0.001360	0.001200
锌 (ZN)	余量	余量	余量	余量



TQC-P1-02:02, 5.0 版

O.N.: O7K05X

**POLYPLASTICS TAIWAN CO., LTD.**

9F., No. 26,  
Sec. 2, Min-Chuan E. Road  
Taipei, Taiwan 104

To whom it may concern :

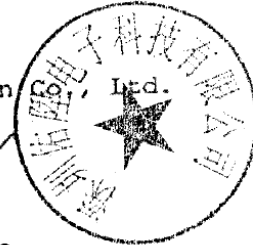
CERTIFICATE OF ANALYSIS

We hereby certify that the undermentioned goods have been duly inspected by us and the results of the routine inspection are as follows (inspected by ISO methods);

POM

GRADE & COLOR :	DURACON M90-44 & CF2001
LOT NO. :	962111 ( 8 tons )
M.F.R. (g/10min.) :	8.5
T. Strength (MPa) :	62.8
T. Elongation (%) :	38.5
VICAT (°C) :	159.3

Polyplastics Taiwan, Ltd.



*A.C. [Signature]*

17000700

东莞市华雨金属材料有限公司  
Dongguan City YuYu Metals Material Co., Ltd.

化学成份测试及物理性能测试报告  
Chemical composition test and the physical performance test report

客户名称 Customer Name		订单号 Order Number	/	出货日期 Shipping date	2012-10-24
国标标准 GB standards	JIS H3250:2006	材料品名 Test material name	C3604	材料规格 Test materials specifications	
仪器名称 Instrument name	瑞士ARLMA 直读光谱仪 The Swiss ARLMA direct reading light Pu-yi	化学试验 Chemical tests	生产日期 Production date	炉号 Furnace number	201298C3604
			2012-9-16	批次 Batch	

化学成分(%) 测试SGS编号: CANEC1213021201  
Chemical Composition (%) test SGS Code: CANEC1213021201

元素名称 Element names	铜 (Cu)	锌 (Zn)	铅 (Pb)	铝 (Al)	锰 (Mn)	锡 (Sn)	铁 (Fe)	硅 (Si)	铋 (Sb)	镉 (Cd)	铋 (Bi)	磷 (P)	镍 (Ni)
标准含量% Standard content%	57-61	余量 Margin	1.8-3.7	≤0.1	≤0.01	≤0.5	≤0.5	≤0.10	≤0.10	≤0.0050	/	≤0.19	/
试样含量% Specimen content%	58.95	余量 Margin	2.9602	0.09	0.0017	0.191	0.278	0.0045	0.031	0.0011	0.0328	0.0084	0.092

物理性能测试

Physical performance test

机械试验 Mechanical tests	Mechanical Testing														
仪器名称 Instrument name	WD-50B电子式万能试验WD-50B electronic universal testing														
物理性质 Physical properties	抗拉强度 (Tensile Strength)												延伸率 (Elongation)		
实际数值 The actual value	445	> 335 [N/mm <sup>2</sup> ]										12	≥10 [%]	140	HV
单位主管 Unit heads													分析员 Analyst	陈佳梅	





長春人造樹脂廠股份有限公司

台北市 10477 松江路三零一號七樓

CHANG CHUN PLASTICS CO.,LTD.

NO.301 SONGKIANG ROAD, 7FL., TAIPEI, TAIWAN, R.O.C.

TEL: 886-2-25038131

FAX:886-2-25033378

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材質證明

MATERIAL FORMULATION CONFIDENTIAL REPORT

\*\*\*\*\*

材質名稱 Type of Material : TPEE(Thermoplastic Polyether-ester Elastomer)  
熱塑性聚醚酯彈性體

規格 Grade : TPEE 1140, 1155, 1163, 1172

說明 Description :

TPEE 1140, 1155, 1163, 1172 熱塑性聚醚酯彈性體包含 TPEE 純樹脂及添加劑。TPEE 1140, 1155, 1163, 1172 完全符合 RoHS 指令的規定。且所有組成都包含在中國 IECSC 化學資料庫中。The raw material of TPEE 1140, 1155, 1163, 1172 contains TPEE pure resin and a few of additives. We certify that our TPEE1140, 1155, 1163, 1172 can be according with RoHS regulation. Moreover, all the components of this product is list in the China chemical inventory IECSC.

TPEE 1140, 1155, 1163, 1172 成分表

Chemical Composition of TPEE 1140, 1155, 1163, 1172

規格 Grade				
TPEE 1140, 1155, 1163, 1172				
組成 Chemical Composition		Molecular formula	CAS Number	含量(%) Content (%)
1	TPEE樹脂 TPEE resin	(1) Chemical formula (C <sub>10</sub> H <sub>10</sub> O <sub>4</sub> ·C <sub>4</sub> H <sub>10</sub> O <sub>2</sub> ·(C <sub>4</sub> H <sub>8</sub> O) <sub>n</sub> H <sub>2</sub> O) <sub>x</sub>	9078-71-1	>99%
2	添加劑 Additives	NA	NA	0.2-1%

TPEE Grade	Component 單體組成	Ratio 組成比例
1140	DMT/BDO/PTMEG	1 : 1 : 1.3
1155	DMT/BDO/PTMEG	1 : 1 : 1.0
1163	DMT/BDO/PTMEG	1 : 1 : 0.7
1172	DMT/BDO/PTMEG	1 : 1 : 0.4

DMT: Dimethyl Terephthalat 對苯二甲酸二甲酯

BDO: 1,4-Butanediol 1,4-丁二醇

PTMEG: PolyTetramethylene-ether-Glycol 聚四氫呋喃

MATERIAL SUPPLIER

Company: CHANG CHUN PLASTICS CO., LTD KAOHSIUNG FACTORY

Signature: Ching-Neng Tseng / Chief Manager / Technical Section

Address: No.14 KUNG-YEH 1ST ROAD. JEN-WU INDUSTRIES DISTRICT  
KAOHSIUNG, TAIWAN, ROC.



Date: June. 07, 2010

**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

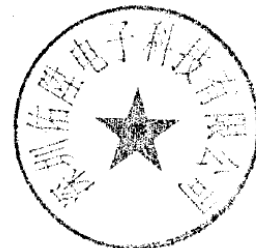
## 1. Product(Iupilon)

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

## 2. Results of Testing

<u>Inspection Item</u>	<u>Test Result</u>	<u>Standard</u>
Molecular Weight (x10 <sup>4</sup> )	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) 685625Anusak 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 )

EC SAFETY DATA SHEET

COMPANY Shinkong Synthetic Fibers Corporation,  
Engineering Plastic Division,  
8F, 123, Sec. 2, Nanking East Road,  
Taipei, Taiwan

PHONE 02-2507-1251, 03-493-2131

FAX 02-2507-7594, 03-491-5763

COMMERCIAL PRODUCT NAME : SHINITE A724

1.1 Chemical Characterization : Blends of polycarbonate(CAS#25971-63-5) and Polybutylene Terephthalate ( PBT )  
CAS# 30965-26-5

1.2 Physical State : Solid

1.3 Odor and Form : Pellet with slight odor

2 Physical Data and Safety Data

2.1 Melting Point ( °C ) : -(because of PC/PBT alloy is Alloy type)

2.2 Density @ 25°C : 1.10~1.30 g/cm<sup>3</sup> ASTM D 1505

2.3 Vapor Pressure : Not applicable

2.4 Viscosity : Not applicable

2.5 Solubility in Water : Insoluble

2.6 PH value : Not applicable

2.7 Flash Point : Not applicable

2.8 Ignition Temperature ( °C ) : 450°C, estimated

2.9 Explosion : Not sensitive to impact and static discharge.

2.10 Thermal Decomposition : None under 400°C

2.11 Hazardous Decomposition Products : Processing fumes evolved at recommended processing conditions contain trace levels of carbon monoxide, carbon dioxide ,aromatic and aliphatic hydrocarbons and may also contain trace levels of THF ( tetrahydrofuran )..

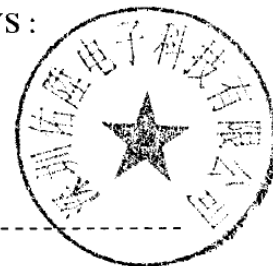
2.12 Stability : Stable under recommended conditions of storage and handling.

2.13 Reactivity : Not reactive under recommended conditions of storage, handling, processing and use.

2.14 Conditions to Avoid : Do not exceed temperature recommended. Purgings should be collected in small shapes to allow for rapid cooling.

3 Transport GGVSEE/IMDG Code : UN No. : None  
ICAO/IATA-DGR : Not Regulated GGVE/GGVS :  
RID/ADR : ADNR :

DOT Hazard Class : Not Regulated  
Proper Shipping Name : Not Regulated  
Identification Number : Not Listed  
TDGA : Not Listed



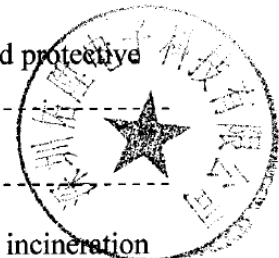
4 Regulations

TSCA Status : This product complies with Chemical Substance Inventory requirements of the US EPA Toxic Substances Control Act ( TSCA ).

WHMIS Classification : Not a controlled product.

DATE : 2013/6/19

- Commercial Product Name : Shinite A724
- 5 Protective Measures, Storage and Handling
- 5.1 Storage :  
Store in a cool and dry place. Keep containers tightly closed to prevent moisture absorption and contamination.
- 5.2 Handling :  
Follow recommendations in processing guide. Prevent contact with skin and eyes. Provide adequate ventilation.
- 5.3 Personal Protective Equipment :  
Respiratory protection - dust mask  
Eye protection - safety glasses  
Hand protection - thermal protective gloves should be worn around molten plastic
- 5.4 Industrial Hygiene :  
A continuous supply of fresh air to the workplace together with removal of processing fumes through exhaust systems is recommended.
- 5.5 Protection Against Fire and Explosion :  
Large, molten masses of plastic may ignite spontaneously in air.  
Water quenching of plastic fires is recommended.
- 5.6 Disposal :  
Product is not a RCRA hazardous waste. Recycling is encouraged. Dispose of using good manufacturing practices under local regulations for your area.
- 6 Measures in Case of Accidents and Fires
- 6.1 After Spillage/Leakage/Gas Leakage :  
Sweep up and dispose in proper containers to prevent slipping hazards.
- 6.2 Fire Extinguishing Media :  
Suitable - water spray and foam. Water is the best.  
Not recommended - carbon dioxide and dry chemicals.
- 6.3 First Aide :  
If molten polymer contacts the skin or eyes, cool rapidly with cold water. DO NOT use solvent for removal.  
DO NOT attempt to remove the polymer from the skin!  
Obtain IMMEDIATE medical attention.
- 6.4 Fire Fighting : Approved pressure demand breathing apparatus and protective clothing should be used for all fires.
- 7 Information on Toxicity TOXIC : N/A  
Product not considered primary eye and skin irritant.
- 8 Information on Ecological Effects  
We recommend this material be disposed of by properly scrubbed incineration or recycling. Not expected to present any significant ecological problems.
- 9 Further Information  
SHINITE is a registered trademark of the SHINKONG SYNTHETIC FIBERS CO..





江阴凯博通信科技有限公司  
环境有关物质材质证明书

Certification of the Raw Material of Environment Substance

公司名称 Company Name	江阴凯博通信科技有限公司	制造商名称 Manufacturer	江阴凯博通信科技有限公司	产品重量 Product Weight	3.017 g/m
产品料号 Part No.	KB113/50-021D	产品名称 Product Name	RF1.13	客户料号 P/N	
填写人姓名/部门 Name / Dept.	陈凯/综合办	联系电话 Telephone	(0510-86070002)	E-Mail	kaibo@kaibocable.com

兹证明向贵公司销售的成品和半成品中, 使用之原材料, 包装材料以及生产工程中, 不含有贵公司规定的有害禁止使用物质。  
另, 向贵公司报告成品、半成品中使用的原材料、包装材料以及生产工程中的添加剂成分如下所述:

项次 Item	零件名称 Material Name	原料 Vendor	材质 Substance	重量(g) Weight	组成成份 Substance Composition	百分比 (%Substance Amount)	化验报告NO. Test Report No.	禁用物质含量 (单位: PPM)										其它项目 Other substance								
								铅 (Pb)	镉 (Cd)	汞 (Hg)	六价铬 (Cr+6)	PBB	PBDE	SONY	PFOA	PVC	卤素 (Cl, Br)									
1.	导体	恒丰	镀银 铜线	0.319	铜 银	9.85% 0.73%	SHAEC1307968211	ND	ND	ND	Nega tive	ND	ND	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A				
2.	绝缘	大金	FEP	0.757	FEP	24.31%	SHAEC1301126805	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
3.	编织	久通	镀锡 铜线	1.198	铜 锡	36.49% 5.26%	RLSHF001391890001C	ND	ND	ND	Nega tive	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	ND	ND		
4.	护套	大金 大日 精化	FEP	0.676	FEP	21.45%	SHAEC1301126805	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	
			FEP	0.067	FEP	1.91%	HKGEC1201335503	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	

使用材料请贴图示于此栏, 并标项次:



五、SGS 报告: (SGS 报告以电子档形式传给贵司)