

承 認 書  
SPECIFICATION FOR APPROVAL

客 戶  
CUSTOMER

易通達科技股份有限公司

---

日 期  
DATE

2008/3/17

---

品 名  
DESCRIPTION

WSS006 2.4GMHz Dipole Antenna  
with RP-SMA(M)(Silver)(Dupont LS033)

---

客 戶 料 號  
CUSTOMER P/N

---

成 品 編 號  
Part No.

YSW1900A1

---



萬旭電業股份有限公司

WANSHIH ELECTRONIC CO., LTD.

台北縣五股鄉五工六路 72 號 3 樓

3F 72 WU KONG 6TH RD., WU KU INDUSTRIAL DISTRICT

TAIPEI HSIEN, TAIWAN, R.O.C.

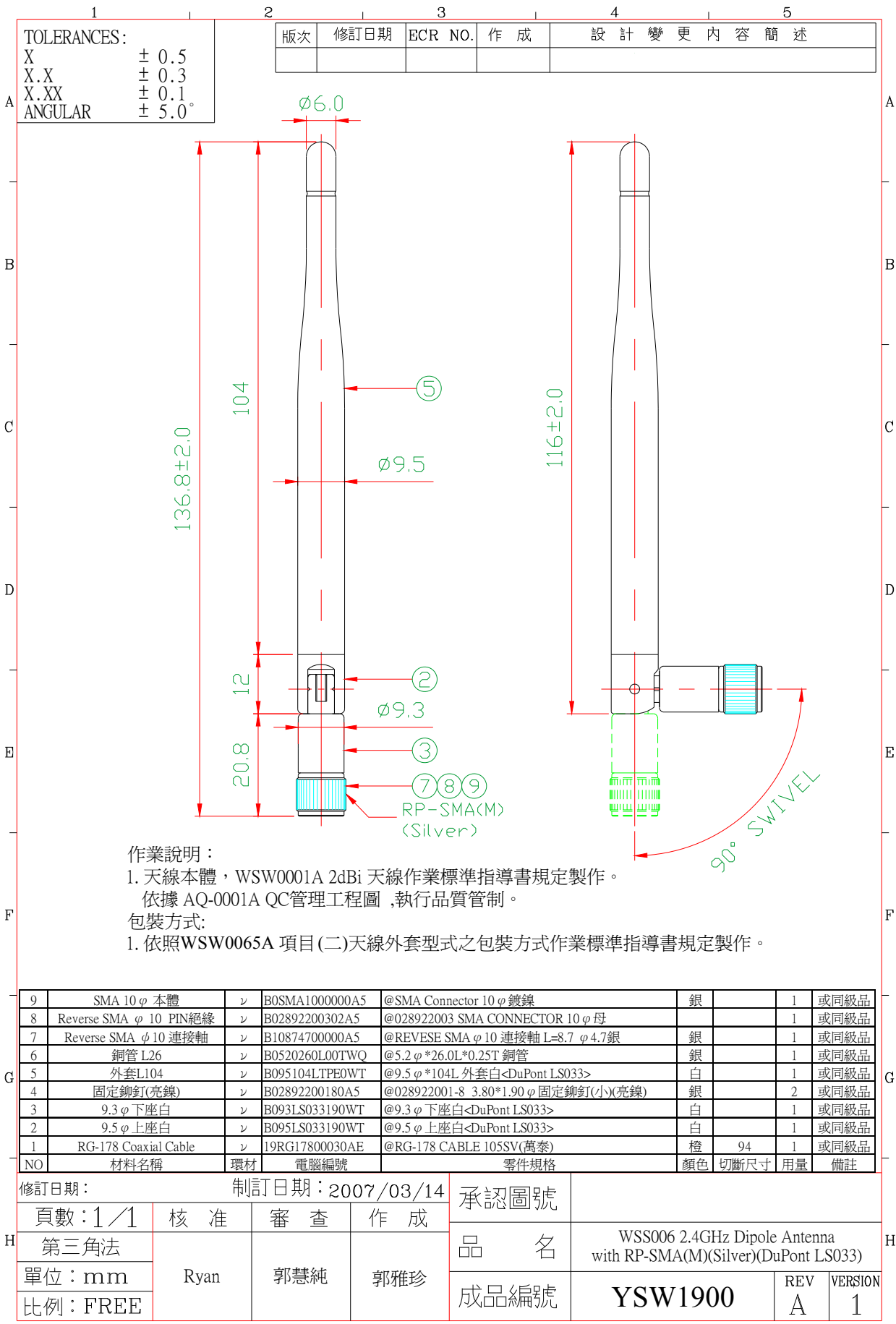
TEL : (02) 22988066 (5 LINE) FAX : (02)22981102

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## SPECIFICATION

- |                               |                                |
|-------------------------------|--------------------------------|
| 1. Description                | : WSS006 2.4GHz Dipole Antenna |
| 2. Customer                   | : 易通達科技股份有限公司                  |
| 3. Model No.                  | : WSS006                       |
| 4. Part No.                   | : YSW1900A1                    |
| 5. Standard                   | : IEEE 802.11b/g Wireless LAN  |
| 6. Antenna Profile            | : 108 mm length (see Drawing)  |
| 7. Color                      | : White , Dupont LS033         |
| 8. Electrical Characteristics |                                |
| Operating Frequency           | : 2.4~2.5GHz                   |
| Antenna Type                  | : $1/4\lambda$ Dipole Sleeve   |
| Polarization Type             | : Linear                       |
| Type of Radiation             | : Toroidal                     |
| Peak Gain                     | : 2.27 dBi Max                 |
| Impedance                     | : 50 Ohm nominal               |
| V.S.W.R.                      | : 2.0:1 Max.                   |
| 9. Mechanical Characteristics |                                |
| Action                        | : Swivel Type                  |
| Connector                     | : RP-SMA(M) (Silver)           |
| Core                          | : N/A                          |
| 10. Raw Material              |                                |
| Coaxial Cable                 | : RG-178                       |
| Housing                       | : TPU                          |
| Hinge                         | : PC+ALLOY                     |



TOLERANCES:

X	± 0.5
X.X	± 0.3
X.XX	± 0.1
ANGULAR	± 5.0°

版次	修訂日期	ECR NO.	作成	設計變更內容簡述

作業說明：  
 1. 天線本體，WSW0001A 2dBi 天線作業標準指導書規定製作。  
 依據 AQ-0001A QC管理工程圖，執行品質管制。  
 包裝方式：  
 1. 依照WSW0065A 項目(二)天線外套型式之包裝方式作業標準指導書規定製作。

9	SMA 10 φ 本體	√	B0SMA1000000A5	@SMA Connector 10 φ 鍍銀	銀	1	或同級品	
8	Reverse SMA φ 10 PIN絕緣	√	B02892200302A5	@028922003 SMA CONNECTOR 10 φ 母		1	或同級品	
7	Reverse SMA φ 10 連接軸	√	B10874700000A5	@REVESE SMA φ 10 連接軸 L=8.7 φ 4.7銀	銀	1	或同級品	
6	銅管 L26	√	B0520260L00TWQ	@5.2 φ *26.0L*0.25T 銅管	銀	1	或同級品	
5	外套L104	√	B095104LTPE0WT	@9.5 φ *104L 外套白<DuPont LS033>	白	1	或同級品	
4	固定鉚釘(亮鍍)	√	B02892200180A5	@028922001-8 3.80*1.90 φ 固定鉚釘(小)(亮鍍)	銀	2	或同級品	
3	9.3 φ 下座白	√	B093LS033190WT	@9.3 φ 下座白<DuPont LS033>	白	1	或同級品	
2	9.5 φ 上座白	√	B095LS033190WT	@9.5 φ 上座白<DuPont LS033>	白	1	或同級品	
1	RG-178 Coaxial Cable	√	19RG17800030AE	@RG-178 CABLE 105SV(萬泰)	橙	94	或同級品	
NO	材料名稱	環材	電腦編號	零件規格	顏色	切斷尺寸	用量	備註

修訂日期：		制訂日期：2007/03/14			承認圖號	
頁數：1/1	核准	審查	作成	品名		
單位：mm	Ryan	郭慧純	郭雅珍	WSS006 2.4GHz Dipole Antenna with RP-SMA(M)(Silver)(DuPont LS033)		
比例：FREE				成品編號	YSW1900	REV A

# Connector/Rivet



## 测试报告

编号: GZ0701002987/CHEM

日期: 2007年1月10日 页码 1 of 3

佛山市南海信兴铜业有限公司  
佛山市南海区大沥奇槎铺前工业区

以下测试之样品是由申请者所提供及确认: 3604 快削铜条

SGS 参考编号 : GC070100011-1  
收板日期 : 2007年1月4日  
测试日期 : 2007年1月4日至2007年1月10日

测试要求 : 按照 RoHS 指令 2002/95/EC 及其修订文件要求进行测试。

测试方法 : 参照 IEC 62321 Ed.1 111/54/CDV 电子电器产品中限用物质含量的测定程序  
(1) 用 ICP 测定镉的含量  
(2) 用 ICP 测定铅的含量  
(3) 用 ICP 测定汞的含量  
(4) 用比色法测定六价铬的含量

测试结果 : 请参见下一页

测试结论 : 基于所送样品进行的测试, 测试结果与欧盟 RoHS 指令 2002/95/EC 以及后续修正指令的要求不相符。

Signed for and on behalf of  
SGS-CSTC Ltd.

Jiang YongPing, Terry  
Sr. Engineer

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## 测试报告

编号: GZ0701002987/CHEM

日期: 2007年1月10日 页码 2 of 3

测试结果 (单位: 毫克/千克):

测试项目	参考方法	No.1	MDL	RoHS 限值
镉 (Cd)	(1)	31	2	100
铅 (Pb)	(2)	30648*	2	1000
汞 (Hg)	(3)	N.D.	2	1000
点测试法测六价铬(Cr VI)	(4)	Negative	参见 注释 4	#

### 测试部件描述:

No.1 金色金属棒

注释: 1. 毫克/千克 = ppm

2. N.D.= 未检出 (< MDL)

3. MDL = 方法检测限

4. 点测试:

Negative = 未检测到六价铬, Positive = 检测到六价铬;

(如果点测试结果不能确认, 测试样品将进一步由沸水萃取法进行测试)。

沸水萃取法:

Negative = 未检测到六价铬

Positive = 检测到六价铬; 每 50 cm<sup>2</sup> 表面积的被测试样品的沸水萃取液中六价铬的浓度等于或大于 0.02mg/kg。

5. # Positive = 阳性, 表示结果与 RoHS 要求相抵触

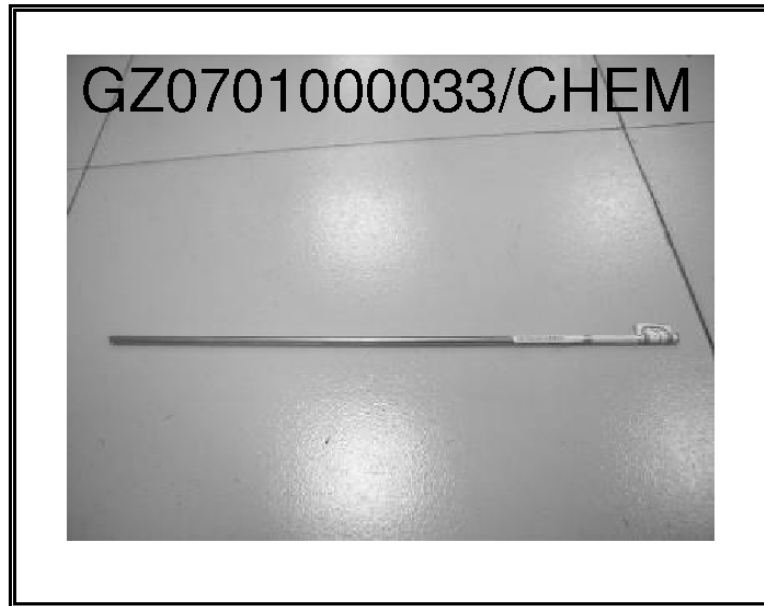
Negative = 阴性, 表示结果与 RoHS 要求不相抵触

6. \*: 表示超过限值

7. 本测试报告内容是参照报告编号为 GZ0701000033/CHEM 的中文译本, 中英文版本如有歧异, 概以英文版为准。

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样品照片：



此图片仅限于随 SGS 正本报告使用

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## Test Report

No.: GZ0612183017/CHEM

Date: DEC 15, 2006

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SHENZHEN CITY LIANFENG METAL PLASTIC PRODUCE CO., LTD. 1129 WORKSHOPS  
LIULIAN LAOWEI VILLAGE INDUSTRIAL AREA, PINGDI TOWN, LONGGANG DISTRICT, SHENZHEN

Report on the submitted sample said to be 镀金产品

SGS Ref No. : GZ10173051EC-3.3  
Sample Receiving Date : DEC 11, 2006  
Testing Period : DEC 11, 2006 TO DEC 15, 2006

Test Requested : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

Test Method : With reference to IEC 62321 Ed.1 111/54/CDV  
Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products  
(1) Determination of Cadmium by ICP.  
(2) Determination of Lead by ICP.  
(3) Determination of Mercury by ICP.  
(4) Determination of Hexavalent Chromium by Colorimetric Method.

Test Results : Please refer to next page.

Conclusion : Based on the performed tests on submitted sample(s), the results **comply with** the RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of  
SGS-CSTC Ltd.

Jiang YongPing, Terry  
Sr. Engineer

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## Test Report

No.: GZ0612183017/CHEM

Date: DEC 15, 2006

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Test results by chemical method (Unit: mg/kg)

Test Item(s):	Method (refer to)	No.1	MDL	RoHS Limit
Cadmium(Cd)	(1)	N.D.	2	100
Lead (Pb)	(2)	N.D.	2	1000
Mercury (Hg)	(3)	N.D.	2	1000
Hexavalent Chromium (CrVI) by Spot test	(4)	Negative	See Note 4	#

### Test Part Description:

No.1 Golden plated metal

Note : 1. mg/kg = ppm

2. N.D. = Not Detected (< MDL)

3. MDL = Method Detection Limit

4. **Spot-test:**

Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;

(The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.)

**Boiling-water-extraction:**

Negative = Absence of CrVI coating

Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.

5. # = Positive indicates the presence of CrVI on the tested areas and result be regarded as conflict with RoHS requirement.

Negative indicates the absence of CrVI on the tested areas and result be regarded as no conflict with RoHS requirement.

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Sample photo :



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测试报告

编号: GZ0602010845/CIEM

日期: 2006年2月27日 页码 1 of 1

深圳市联丰五金塑胶制品有限公司 1129 车间  
深圳市龙岗区坪地镇六联老围海天工业区

本报告是基于所提供的名称为“硬药水”的样品所做的测试

SGS 参考编号 : GZ060203016EC-4.1  
收板日期 : 2006年2月23日  
测试日期 : 2006年2月23日至2006年2月27日

测试要求 : 委托测试样品中的铅、镉、汞和六价铬含量。

测试方法 : 铅含量 - 参照 EPA 方法 3050B:1996/其它酸消解。  
镉含量 - 参照 BS EN1122:2001 方法 B/其它酸消解。  
汞含量 - 参照 EPA 方法 3052:1996/7473:1996/其它酸消解。  
六价铬含量 - 参照 EPA 方法 3060A:1996 和 7195A:1992。  
分析仪器为火焰原子吸收光谱仪(AAS)/电感耦合等离子体发射光谱仪(ICP-AES)/测汞仪/紫外分光光度计(UV-Vis)。

测试结果

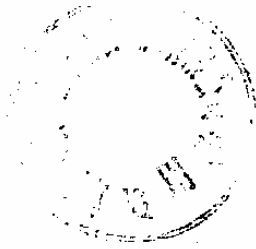
项目	单位	测试	颜色备注
铅 (Pb)	ppm	2	N.D.
镉 (Cd)	ppm	2	N.D.
汞 (Hg)	ppm	2	N.D.
六价铬 [Cr(VI)]	ppm	2	N.D.

说明: -N.D.=未检出 (<MDL)  
-MDL=方法检测限  
-ppm=毫克/千克

\*\*\* 报告完 \*\*\*

Signed for and on behalf of  
SGS-CSTC Ltd.

Huang Fang, Sunny  
Sr. Engineer



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GZCM 475427

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**Test Report**

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**Test Method**

- 1) In house method,  
Analysis was performed by Inductively Coupled Argon Plasma-Atomic Emission Spectrometry (ICP-AES) or Atomic Absorption Spectrometry.
- 2) In house method,  
Analysis was performed by Inductively Coupled Argon Plasma - Atomic Emission Spectrometry (ICP-AES) or US EPA7473 Analysis was performed by Hg Analyzer.
- 3) With reference to EPA Method 3060A & 7196A.  
The samples were alkaline digested by using EPA Method 3080A, and then analyzed by using Colorimetric method 7196A.
- 4)With reference to USEPA 8081A/8270D/3540C/3550C, Analysis was performed by GC/MS.
- 5) With reference to US EPA 8082, Analysis was performed by GC/MS.
- 6) With reference to US EPA 8081, Analysis was performed by GC/MS.
- 7) With reference to US EPA 8081, Analysis was performed by GC/MS.
- 8) With reference to US EPA 8081, Analysis was performed by GC/MS.
- 9)\*\*As per NIOSH 9000 method. Analysis was performed by XRD.
- 10\*\*\*As per EN14382-2:2003 & § 35 LMBG 82.02.Z (July 2004) -Extraction test on coloured textile - Detection of the use of certain azo colorants are accessible to reducing agents without extraction with the use of Gas Chromatographic Mass Spectrometry (GC-MS)/Thin Layer Chromatography (TLC) Technique.

**Test Results**

No.	Item	Unit	DL	A
1	Cadmium (Cd)*	mg/kg	2	N.D.
	Lead (Pb)*	mg/kg	2	N.D.
2	Mercury (Hg)*	mg/kg	2	N.D.
3	Hexavalent Chromium (Cr VI)	mg/kg	2	N.D.
4	Polybrominated biphenyls (PBBs)	---	---	---
	Monobromobiphenyl	mg/kg	5	N.D.
	Dibromobiphenyl	mg/kg	5	N.D.
	Tribromobiphenyl	mg/kg	5	N.D.
	Tetrabromobiphenyl	mg/kg	5	N.D.
	Pentabromobiphenyl	mg/kg	5	N.D.
	Hexabromobiphenyl	mg/kg	5	N.D.
	Heptabromobiphenyl	mg/kg	5	N.D.
	Octabromobiphenyl	mg/kg	5	N.D.
	Nonabromobiphenyl	mg/kg	5	N.D.
	Decabromobiphenyl	mg/kg	5	N.D.
	Polybrominated biphenyl ethers ( PBBEs(PBDEs) )	---	---	---
Monobromobiphenyl ether	mg/kg	5	N.D.	

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	Dibromobiphenyl ether	mg/kg	5	N.D.
	Tribromobiphenyl ether	mg/kg	5	N.D.
	Tetrabromobiphenyl ether	mg/kg	5	N.D.
	Pentabromobiphenyl ether	mg/kg	5	N.D.
	Hexabromobiphenyl ether	mg/kg	5	N.D.
	Heptabromobiphenyl ether	mg/kg	5	N.D.
	Octabromobiphenyl ether	mg/kg	5	N.D.
	Nonabromobiphenyl ether	mg/kg	5	N.D.
	Decabromobiphenyl ether	mg/kg	5	N.D.

No.	Item	Unit	DL	A
5	PCBs(Polychlorinated Biphenyls) Content	---	---	---
	2,4,4'-Trichlorobiphenyl (PCB 28) CAS 7012-37-5	mg/kg	0.5	N.D.
	2,2',5,5'-Tetrachloro-biphenyl (PCB 52) CAS 35693-99-3	mg/kg	0.5	N.D.
	2,2',4,5,5'-Pentachloro-biphenyl (PCB 101) CAS 37680-73-2	mg/kg	0.5	N.D.
	2,3',4,4',5-Pentachlorobiphenyl (PCB 118) CAS 31508-00-6	mg/kg	0.5	N.D.
	2,2',3,4,4',5'-Hexachloro-biphenyl (PCB 138) CAS 35065-28-2	mg/kg	0.5	N.D.
	2,2',4,4',5,5'-Hexachloro-biphenyl (PCB 153) CAS 35065-27-1	mg/kg	0.5	N.D.
	2,2',3,4,4',5,5'-Heptachlorobiphenyl (PCB 180) CAS 35065-29-3	mg/kg	0.5	N.D.
6	Polychlorinated Naphthalene Content	---	---	---
	2-Chlorinated Naphthalene	mg/kg	5	N.D.
	1,4-Dichlorinated Naphthalene	mg/kg	5	N.D.
	1,5-Dichlorinated Naphthalene	mg/kg	5	N.D.
	1,2-Dichlorinated Naphthalene	mg/kg	5	N.D.
	1,8-Dichlorinated Naphthalene	mg/kg	5	N.D.
	1,2,3,4-Tetrachlorinated Naphthalene	mg/kg	5	N.D.
	Octa-chlorinated Naphthalene	mg/kg	5	N.D.
7	Short Chain Chlorinated Paraffin	mg/kg	30	N.D.
8	Mirex	mg/kg	0.5	N.D.

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No.	Test Item(s)	Unit	DL	Result
	Asbestos			A
9**	Anthrophyllite(CAS NO.017068-78-9)	%	1	Negative
	Crocidolite(CAS NO.012001-28-4)	%	1	Negative
	Amosite(CAS NO.012172-73-5)	%	1	Negative
	Tremolite(CAS NO.014567-73-8)	%	1	Negative
	Chrysotile(CAS NO.012001-29-5)	%	1	Negative
	Actinolite(CAS NO.013768-00-8)	%	1	Negative

Note: Negative =<1.0%, Positive= >1.0%

10\*\*\*To detection and determination of certain listed aromatic amines derived from Azo Colorants.

No.	Forbidden Amines Substances	CAS-No.	Result
			A
1.	4-aminodiphenyl/xenylamine/ Biphenyl-4-ylamine	92-67-1	N.D.
2.	Benzidin	92-87-5	N.D.
3.	4-chlor-o-toluidine	95-69-2	N.D.
4.	2-naphthylamine	91-59-8	N.D.
5.	o-aminoazotoluene/ 4-o-tolylazo-o-toluidine/ 4-amino-2',3-dimethylazobenzene	97-56-3	N.D.
6.	2-amino-4-nitrotoluol/5-nitro-o-toluidine	99-55-8	N.D.
7.	p-chloranilin/4-chloroaniline	106-47-8	N.D.
8.	2,4-diaminoanisol/ 4-methoxy-m-phenylenediamine	615-05-4	N.D.
9.	4,4'-diaminodiphenylmethane/ 4,4-methylenedianiline	101-77-9	N.D.
10.	3,3'-dichlorobenzidine/ 3,3'dichlorobiphenyl-4,4'-ylenediamine	91-94-1	N.D.
11.	3,3'-dimethoxybenzidine/o-dianisidine	119-90-4	N.D.
12.	3,3'-dimethylbenzidine/4,4'-bi-o-Toluidine	119-93-7	N.D.
13.	3,3'-dimethyl-4,4'-diaminodiphenylmethane/ 4,4'-methylenedi-o-toluidine	838-88-0	N.D.
14.	p-cresidin/6-methoxy-m-toluidine	120-71-8	N.D.
15.	4,4'-methylen-bis-(2-chloro-aniline)/ 2,2'-dichloro-4,4'methylene-dianiline	101-14-4	N.D.
16.	4,4'-oxydianiline	101-80-4	N.D.
17.	4,4'-thiodianiline	139-85-1	N.D.
18.	o-toluidine/2-aminotoluene	95-53-4	N.D.
19.	2,4-toluylendiamin/ 4-methyl-m-phenylenediamine	95-80-7	N.D.
20.	2,4,5-trimethylaniline	137-17-7	N.D.
21.	4-aminoazobenzene ♦	60-09-3	N.D.
22.	o-anisidine/ 2-methoxyaniline	90-04-0	N.D.
23.	2,4-Xylidin	95-68-1	N.D.
24.	2,6-Xylidin	87-62-7	N.D.

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SGS Standards Technical Services Co. Ltd.  
Shanghai Laboratory

10/F, 3rd Building, No. 889, Yishan Road, Shanghai, China 200233  
中国·上海·宜山路889号3号楼10层 邮编:200233

t (86-21)61402666-2720  
f (86-21)61402553

SHCHEM 739091

f (86-21)54500314 www.cn.sgs.com  
\* sgs.china@sgs.com



Test Report

No. SH6060096/CHEM

Date: Jun. 2, 2006

Page 5 of 5

Overall Rating

Relevant Requirement (2002/61EC)

No relevant amine exceeding 30 ppm (mg/kg).

Note: N.D. = not detectable

Detection Limit = 5 ppm (mg/kg)

# Remark: For textiles no relevant amine exceeding 30ppm (mg/kg) is required, the test method is a applicable for textile and the result is only for client information.

- ◆ the En 14362-2 method will enable further cleavage of 4-aminoazobenzene to non-forbidden amines: aniline and 1-4-phenylenediamine, therefore, the test method of § 35 LMBG 82.02.Z was employed to verify the presence of 4-aminoazobenzene

Forbidden Arylamines for Azo Dye Regulations

No, 1-22-Commission of the European Communities: Directive 2002/61/EC adopted by the Council on 19 July 2002

No, 1-20, 22-24- Client requirement

Sample Appearance Description(Photo see appendix):

A. White plastic bar

Note : 1mg/kg=1ppm=0.0001%

DL= Detection Limit

N.D. = Not detected

Not Detected is reported when the reading is less than detection limit value.

Negative = Undetectable / Positive = Detectable.

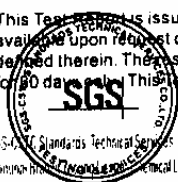
\*Only for reference.

\*\*These tests were subcontracted to SGS Taiwan Ltd (Date of testing: 2006/05/24-06/02).

\*\*\*These tests were subcontracted to SGS-SHSL TEXTLIE LAB (Date of testing: 2006/05/22-06/02).

\*\*\* End of Report \*\*\*

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SGS-CTC Standards Technical Services Co. Ltd  
Technical Laboratory

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中国·上海·宜山路889号3号楼10层

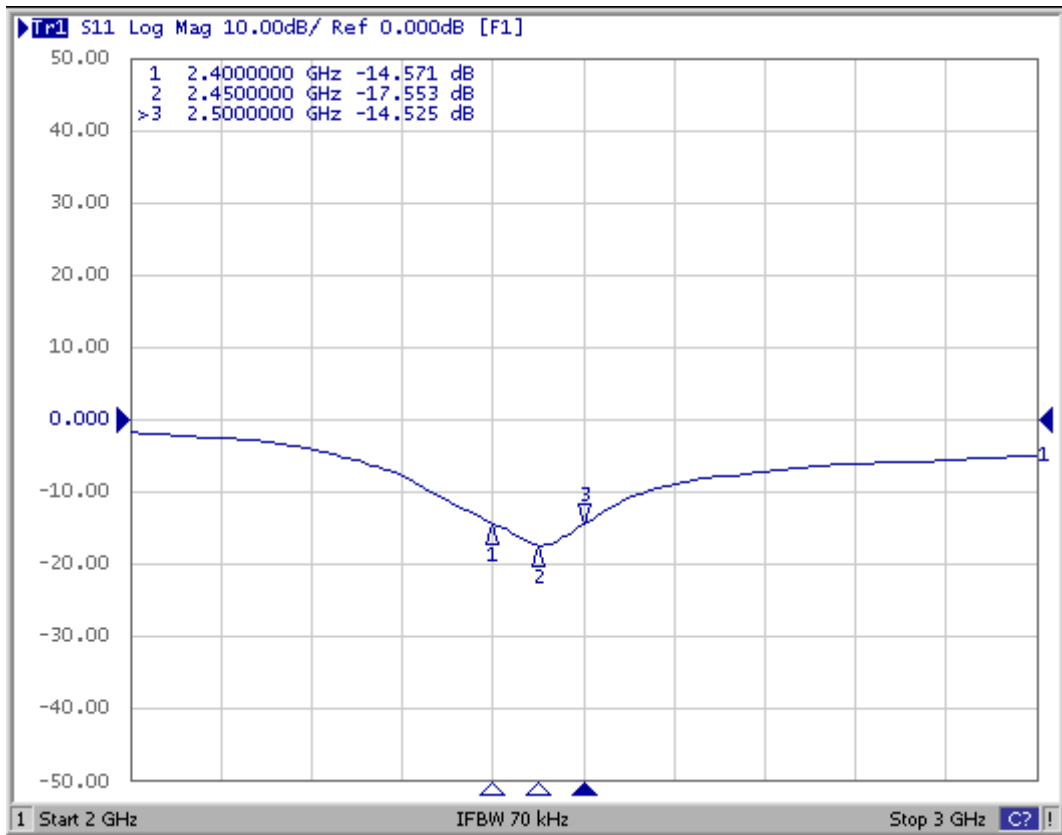
t (86-21)61402666 / 2720  
t (86-21)61402553

f (86-21)54500314  
f (86-21)54500314  
www.cn.sgs.com  
sgs.china@sgs.com

SHCHEM 739090

# Electrical Properties

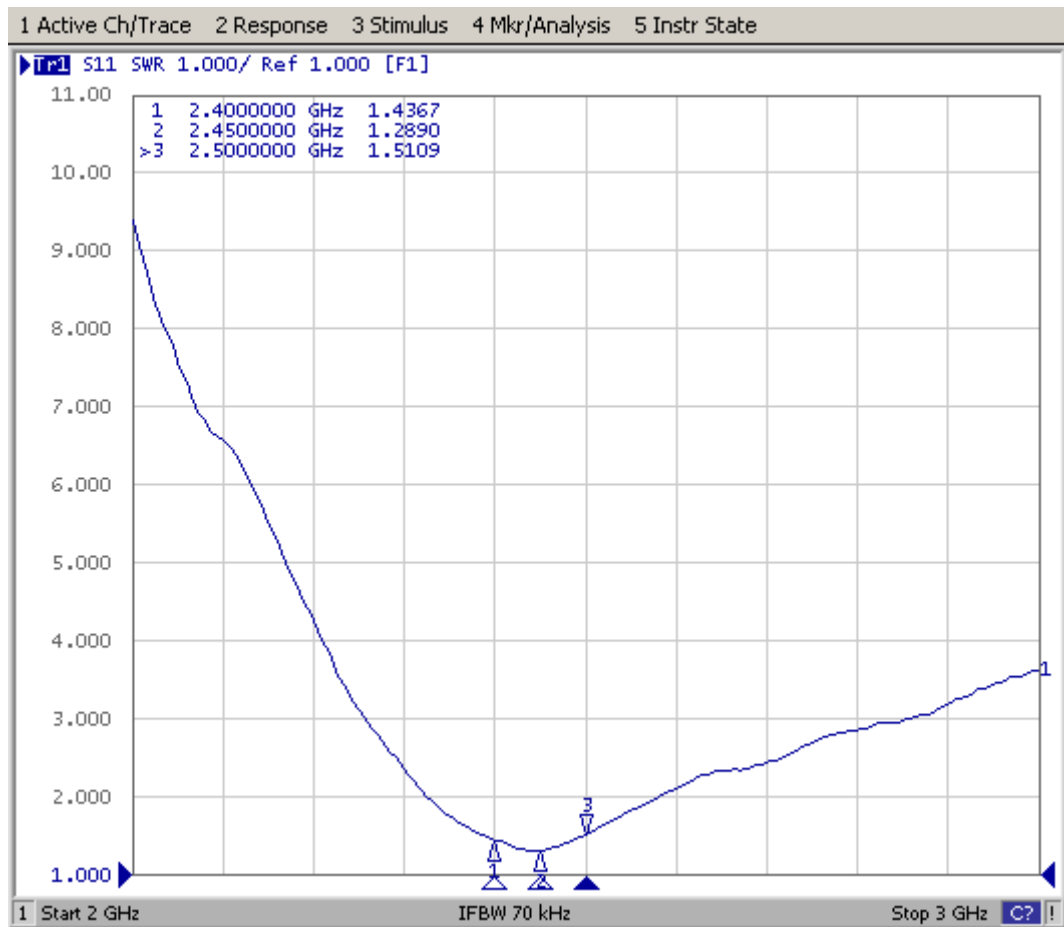
## Return Loss





# Electrical Properties

## V.S.W.R



# Electrical Properties

## Radiation Pattern – H Plane

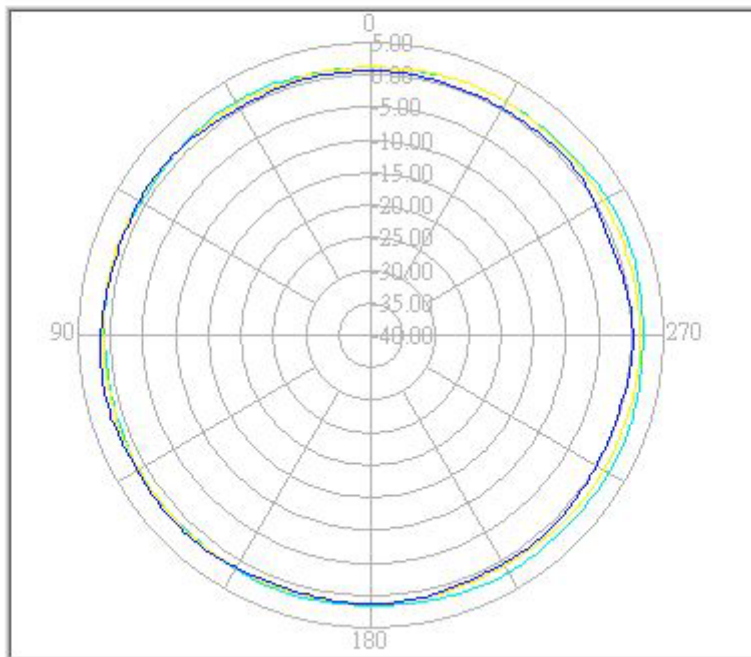


萬旭電業股份有限公司

Model No: 2.4-2.5-白色

Antenna Position: Vertical

Test Mode: H-Plane



Freq(MHz)	peak(dBi)	Angle(o)	Avg(dBi)
2400.00	2.27	117.15	1.56
2450.00	1.46	104.95	1.24
2500.00	1.87	255.05	0.81

# Electrical Properties

## Radiation Pattern – E Plane

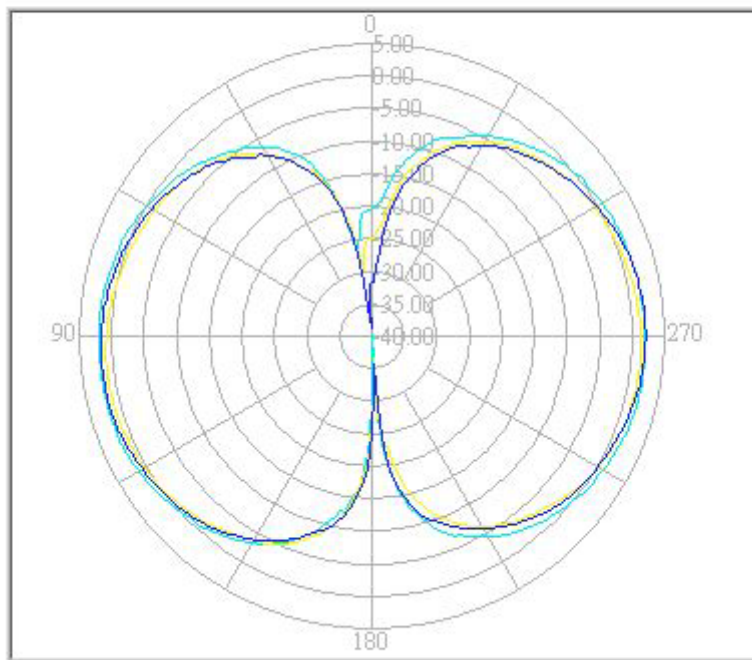


# 萬旭電業股份有限公司

**Model No:** 2.4-2.5-白色

**Antenna Position:** Horizontal

**Test Mode:** E-Plane



Freq (MHz)	peak (dBi)	Angle (o)	Avg (dBi)
2400.00	2.12	101.29	-1.01
2450.00	1.43	95.19	-2.08
2500.00	2.08	89.08	-1.64

Coaxial Cable Data Sheet  
RG-178

**SPECIFICATION FOR APPROVAL**

DOCUMENT: A30178B001

---

STYLE : 105°C 30V  
RG-178B/U

---

SIZE: 7/0.102 SCCS

---

RECOGNIZED: UL 1979

---



WONDERFUL HI-TECH CO.,LTD

OFFICE : 72WU KONG 6TH ROAD,  
WU KU IND. DISTRICT  
TAIPEI HSIEN, TAIWAN

TEL : (02)22988033  
FAX : (02)22988031-2

FACTORY : 17 PEI YUAN ROAD,  
CHUNG-LI IND. PARK  
TAIWAN, R.O.C.

TEL : (03)4527777  
FAX : (03)4517214

 **WONDERFUL HI-TECH CO., LTD**  
**SPECIFICATION**

STYLE	105°C 30V UL1979	DOCUMENT NO : A30178B001	
SIZE	RG-178B/U	ESTABLISHED DATE: 2004/03/22	
STANDARD : MIL-C-17			
Conductor	Size	AWG	30
	Material	----	Silver-Coated Copper Clad Steel
	Conductors No.	----	7
	Conductors Size	mm	0.102
	O.D.	mm	0.30
Insulation	Average Thickness	mm	0.28
	Diameter	mm	0.86 ±0.03
	Material	----	FEP
	Color	----	Clear
Braid	Material	----	Silver-Coated Copper
	Construction	mm	16 / 3 / 0.10
	Coverage	%	95
Jacket	Average Thickness	mm	0.25
	Diameter	mm	1.80 ±0.05
	Material	----	FEP
	Color	----	Brown
Marking			
Drawing			

AK001/210X297/1.0

PAGE : 1

EDITION : 1.2

MAKER : C.Y.CHEN

CONFIRM : S.N.WONG

APPROVAL : W.J.WANG

 **WONDERFUL HI-TECH CO., LTD.**  
**SPECIFICATION**

Electrical & Physical Properties						
Item		RG-178B/U				
Rating Temp Voltage		105°C 30V				
Conductor Resistance		838 OHM/KM/20°C MAX.				
Insulation Resistance		3000 MEGA OHM/KM MIN.				
Dielectric Strength		AC 500V/Minute				
Spark Test		2.5 KV				
Insulation	Unaged	Tensile Strength	2500 PSI MIN.( 1.76 Kg / m m <sup>2</sup> )			
		Elongation	200% MIN.			
	Aged	Tensile Strength	<b>UNAGED MIN 75%(168HRS×232°C)</b>			
		Elongation	<b>UNAGED MIN 75%(168HRS×232°C)</b>			
Jacket	Unaged	Tensile Strength	2500 PSI MIN.( 1.76 Kg / m m <sup>2</sup> )			
		Elongation	200% MIN.			
	Aged	Tensile Strength	<b>UNAGED MIN.75%(168HRS×232°C)</b>			
		Elongation	<b>UNAGED MIN.75%(168HRS×232°C)</b>			
Nom. Impedance		50 Ohms				
Nom. Capacitance		95.8 pF/m				
Nom. Vel. of Prop.		69.5%				
VSWR (0 – 6 GHZ)		UNDER 1.3				
Attenuation (dB/100m)	100MHz	1GHz	1.8GHz	2.4GHz	5.2GHz	6GHz
	46	155	295	340	505	550

AK001/210X297/1.0

PAGE : 2

EDITION : 1.2

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CONFIRM : S.N.WONG

APPROVAL : W.J.WANG



## Survey Report

WONDERFUL HI-TECH CO., LTD.  
NO. 17, PEI-YUAN ROAD, CHUNG-LI IND, PARK,  
TAOYUAN TAIWAN, R. O. C.

Report No. : CS/2006/60408  
Date : 2006/06/21  
Page : 1 of 5

**The following merchandise was (were) submitted and identified by the client as :**

Type of Product : RF COAXIAL CABLE  
Style/Item No : RG-316/U, RG-179/U, RG-178B/U, RF405A

=====  
**Test Result** : - Please see the next page -

\* This report is combined with reports of CE/2006/64545 & CE/2006/10628 \*

  
Daniel Yeh, M.R. / Operation Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.

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t(886-2) 22993939 f(886-2) 2299-3237 www.sgs.com.tw



## Survey Report

WONDERFUL HI-TECH CO., LTD.  
NO. 17, PEI-YUAN ROAD, CHUNG-LI IND, PARK,  
TAOYUAN TAIWAN, R. O. C.

Report No. : CS/2006/60408  
Date : 2006/06/21  
Page : 2 of 5

### Test Result

PART NAME NO.1 : ORANGE PLASTIC JACKET (CE/2006/64545)  
PART NAME NO.2 : SILVER COLORED METAL WIRE (CE/2006/10628 NO.1)  
PART NAME NO.3 : TRANSPARENT PLASTIC INSULATION (CE/2006/10628 NO.2)  
PART NAME NO.4 : SILVER COLORED METAL WIRE (WEAVED) (CE/2006/10628 NO.3)

Test Item (s):	Unit	Method	MDL	Result			
				No.1	No.2	No.3	No.4
Monobromobiphenyl	%	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.	---	N.D.	---
Dibromobiphenyl	%		0.0005	N.D.	---	N.D.	---
Tribromobiphenyl	%		0.0005	N.D.	---	N.D.	---
Tetrabromobiphenyl	%		0.0005	N.D.	---	N.D.	---
Pentabromobiphenyl	%		0.0005	N.D.	---	N.D.	---
Hexabromobiphenyl	%		0.0005	N.D.	---	N.D.	---
Heptabromobiphenyl	%		0.0005	N.D.	---	N.D.	---
Octabromobiphenyl	%		0.0005	N.D.	---	N.D.	---
Nonabromobiphenyl	%		0.0005	N.D.	---	N.D.	---
Decabromobiphenyl	%		0.0005	N.D.	---	N.D.	---
<b>Total PBBs (Polybrominated biphenyls)/Sum of above</b>	%		-	N.D.	---	N.D.	---
Monobromobiphenyl ether	%		With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	0.0005	N.D.	---	N.D.
Dibromobiphenyl ether	%	0.0005		N.D.	---	N.D.	---
Tribromobiphenyl ether	%	0.0005		N.D.	---	N.D.	---
Tetrabromobiphenyl ether	%	0.0005		N.D.	---	N.D.	---
Pentabromobiphenyl ether	%	0.0005		N.D.	---	N.D.	---
Hexabromobiphenyl ether	%	0.0005		N.D.	---	N.D.	---
Heptabromobiphenyl ether	%	0.0005		N.D.	---	N.D.	---
Octabromobiphenyl ether	%	0.0005		N.D.	---	N.D.	---
Nonabromobiphenyl ether	%	0.0005		N.D.	---	N.D.	---
Decabromobiphenyl ether	%	0.0005		N.D.	---	N.D.	---
<b>Total PBBEs(PBDEs) (Polybrominated biphenyl ethers)/Sum of above</b>	%	-		N.D.	---	N.D.	---
<b>Total of Mono to Nonabrominated biphenyl ether. (Note 4)</b>	%	-		N.D.	---	N.D.	---

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SGS TAIWAN LIMITED NO. 136-1, Wu Kung Road, WuKu Industrial Zone, Taipei county, Taiwan.  
t(886-2) 22993939 f(886-2) 2299-3237 www.sgs.com.tw





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Report No. : CS/2006/60408  
Date : 2006/06/21  
Page : 3 of 5

Test Item (s):	Unit	Method	MDL	Result			
				No.1	No.2	No.3	No.4
Chromium VI (Cr+6)	ppm	UV-VIS(US EPA 7196A) after reference to US EPA 3060A.	2	N.D.	N.D.	N.D.	N.D.
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122, method B:2001 or other acid digestion.	2	N.D.	N.D.	N.D.	N.D.
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	N.D.	N.D.	N.D.	N.D.
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	N.D.	N.D.	N.D.	N.D.

- NOTE: (1) N.D. = Not detected (<MDL)  
(2) ppm = mg/kg  
(3) MDL = Method Detection Limit  
(4) Decabromodiphenyl ether (DecaBDE) in polymeric applications is exempted by Commission Decision of 13 Oct 2005 amending Directive 2002/95/EC notified under document 2005/717/EC.  
(5) PBBEs=PBDEs=Polybrominated Diphenyl Ethers=PBDOs=PBBOs.  
(6) " - " = Not Regulation  
(7) " --- " = Not Applicable

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t(886-2) 22993939 f(886-2) 2299-3237 www.sgs.com.tw

## Survey Report

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Report No. : CS/2006/60408  
Date : 2006/06/21  
Page : 4 of 5

PART NAME NO.1:



PART NAME NO.2:



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PART NAME NO.3:



PART NAME NO.4:



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# Housing Material Data Sheet

## • Housing - TPU

**TPU** 熱塑性聚胺酯



Desmopan®

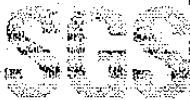
Items 項目	Test Methods 試驗方法		Unit 單位	192	385	588	KU 2-8600
	DIN	ISO		8092	8085		
<b>Mechanical Properties 機械特性</b>							
Tensile Yield Strength 拉伸屈服強度	53504	37	MPa	45	40	30	40
Elongation at Break 延伸率	53504	37	%	450	450	500	500
Compression Set 壓縮變形 70 hr st 22°C	53517	-	%	25	30	30	25
	53517	-	%	60	55	65	42
<b>Physical Properties 物理特性</b>							
Shore A Hardness 硬度	53505	868	-	94	85	88	82
Shore D Hardness 硬度	53505	868	-	42	32	33	31
Modulus of Elasticity	53455	-	MPa	45	15	30	12
Abrasion Resistance(Loss)	53516	4649	mm <sup>3</sup>	30	30	60	20
Rebound Resilience	53512	4662	%	30	42	36	45
Tear Propagation Resistance	53515	-	kN/m	90	70	55	50
Density 密度	53479	1183	g/cm <sup>3</sup>	1.23	1.20	1.15	1.11
<b>Electrical Properties 電氣特性</b>							
Dielectric Strength 耐電率 (50Hz,0.5kV/s)	EC 243. VDE 0303/part 2		kV/mm	14.8	17.5	20.2	NA
	95mm Ø-1mm						
	1. Dry						
Surface Resistivity 1,000V, 1-minute Value	IEC 93. VDE 0303/part 3		Ohm	1•10 <sup>12</sup>	5•10 <sup>11</sup>	6•10 <sup>11</sup>	NA
	Standard test piece						
	1. Dry						
Insulation Between Plug Electrodes 1,000V, 1-minute Value	IEC 167. VDE 0303/part 3		Ohm	5•10 <sup>12</sup>	4•10 <sup>11</sup>	1•10 <sup>12</sup>	NA
	Standard test piece						
	1. Dry						
Volume Resistivity 1,000V, 1-minute Value	IEC 93. VDE 0303/part 3		Ohm-cm	5•10 <sup>12</sup>	8•10 <sup>11</sup>	3•10 <sup>12</sup>	NA
	95mm Ø-1mm						
	1. Dry						
Dielectric Constant	IEC 250. VDE 0303/part 4			6.6	6.5	6.3	NA
	95mm and 50mmØ-1mm			6.3	6.4	6.1	NA
	1. At 50Hz			5.1	5.6	5.0	NA
	4. At 1GHz			3.6	3.8	3.4	NA
Dissipation factor tan	IEC 250. VDE 0303/part 4			0.025	0.029	0.024	NA
	95mm and 50mmØ-1mm			0.034	0.018	0.025	NA
	1. At 50Hz			0.075	0.060	0.084	NA
	4. At 1GHz			0.022	0.032	0.024	NA
Comparative Tracking Index(CTI) (test solution A)	IEC 112. VDE 0303/part 1 20mm•15mm•4mm		Grading	600	600	600	NA
Raw Material Groups 原料分類				Ester		Special Ether	Ether

UL File No.:E41613(M)

The data are intended as a general guide only makes no guarantee of results and assumes no obligation or liability. 上列數據僅供參考，並不為此承擔任何責任和保證。

011-7

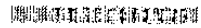
To: 程子良 高子



# Test Report

No: CE/2006/B4274 Date: 2006/11/24 Page: 1 of 3

NAN YA PLASTICS CORPORATION  
65, WEIWANG ST., SHU LIN, TAIPEI, TAIWAN, R. O. C.



Report on the submitted sample said to be TPU.

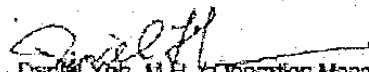
Style/Item No : T195AP  
 Sample Receiving Date : 2006/11/17  
 Testing Period : 2006/11/17 TO 2006/11/24

Test Requested : in accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

Test Method : (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES.  
 (2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES.  
 (3) With reference to US EPA Method 3062 for Mercury Content. Analysis was performed by ICP-AES.  
 (4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium for non-metallic samples. Analysis was performed by UV/Vis Spectrometry.  
 (5) With reference to US EPA 3540C for PBBs/PBDEs Content. Analysis was performed by GC/MS.

Test Result(s) : Please refer to next page(s).

Conclusion : Based on the performed tests on submitted samples, the test results are compliant with the limits of RoHS Directive 2002/95/EC and its subsequent amendments.

  
 Daniel Yeh, M.H. / Operation Manager  
 Signed for and on behalf of  
 SGS TAIWAN LTD.

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# Test Report

No : CE/2006/B4274 Date : 2006/11/24 Page: 2 of 3

NAN YA PLASTICS CORPORATION  
66, WEI WANG ST., SHU LIN, TAIPEI, TAIWAN, R. O. C.

\*\*\*\*\*

Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL	RoHS Limit
		No.1		
Cadmium (Cd)	(1)	n.d.	2	100
Lead (Pb)	(2)	n.d.	2	1000
Mercury (Hg)	(3)	n.d.	2	1000
Hexavalent Chromium (CrVI)	(4)	n.d.	2	1000
Sum of PBBs		n.d.	-	1000
Monobromobiphenyl		n.d.	5	-
Dibromobiphenyl		n.d.	5	-
Trisbromobiphenyl		n.d.	5	-
Tetrabromobiphenyl		n.d.	5	-
Pentabromobiphenyl		n.d.	5	-
Hexabromobiphenyl		n.d.	5	-
Heptabromobiphenyl		n.d.	5	-
Octabromobiphenyl		n.d.	5	-
Nonabromobiphenyl		n.d.	5	-
Decabromobiphenyl		n.d.	5	-
Sum of PBDEs (Mono to Nona) (Note 4)	(5)	n.d.	-	1000
Monobromobiphenyl ether		n.d.	5	-
Dibromobiphenyl ether		n.d.	5	-
Trisbromobiphenyl ether		n.d.	5	-
Tetrabromobiphenyl ether		n.d.	5	-
Pentabromobiphenyl ether		n.d.	5	-
Hexabromobiphenyl ether		n.d.	5	-
Heptabromobiphenyl ether		n.d.	5	-
Octabromobiphenyl ether		n.d.	5	-
Nonabromobiphenyl ether		n.d.	5	-
Decabromobiphenyl ether		n.d.	5	-
Sum of PBDEs (Mono to Deca)		n.d.	-	-

Test Part Description:

NO.1 : TRANSPARENT PLASTIC PELLETS

Note : 1 mg/kg = ppm

2 n.d. = Not Detected

3. MDL = Method Detection Limit

4. Sum of Mono to NonaBDE & according to 2005/717/EC DecaBDE is exempt.

5. \* = Not Regulated

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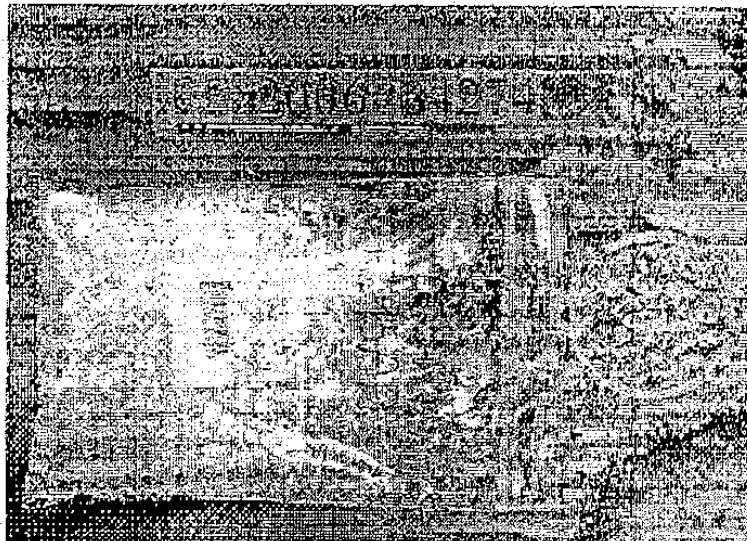
TPS (Taiwan) Co., Ltd. No. 128-1, W. Kung Road, Industrial Zone, Taipei County, Taiwan.  
Tel: (886-2) 2258-9629 Fax: (886-2) 2258-3227 www.tps.com.tw



# Test Report

No : CE/2006/S4274 Date : 2006/11/24 Page: 3 of 3

NAN YA PLASTICS CORPORATION  
65, WEIWANG ST., SHU LIN, TAIPEI, TAIWAN, R. O. C.



~ End of Report ~

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NO. 135-1, Wu Kang Road, Kwei-San Industrial Zone, Taipei, Taiwan, Republic of China  
TEL: 886-2-2599-9999 FAX: 886-2-2599-9999 www.sgs.com.tw

• Hinge(Base/Holder)- PC+ALLOY

<b>SHINBLEND®</b> <b>ALLOY</b> ENGINEERING PLASTIC DIVISION	<b>SHINKONG SYNTHETIC FIBERS CORPORATION</b> 新光合成纖維股份有限公司
	8th Fl., 123, Sec.2, Nanking East Road, Taipei, Taiwan
	Tel: 886-2-2507-0131, 886-2-2507-1257, 30 Lines; 886-3-4932131-1730
	Fax: 886-2-2506-8847, 886-3-491-5763

Technical Data

**SHINBLEND®**  
**A724NA**  
 High Impact Grade / 超韌級 AD4011

		Unit	Test Method	Values
<b>Mechanical properties</b>		<b>機械性質</b>		
Izod Impact(Notched) 23°C	衝擊強度	Kg-cm/cm	ASTM D256	85
-20°C	衝擊強度	Kg-cm/cm	ASTM D256	70
-40°C	衝擊強度	Kg-cm/cm	ASTM D256	65
Tensile Strength	拉伸強度	Kg/cm <sup>2</sup>	ASTM D638	540
Elongation	拉伸率	%	ASTM D638	100
Flexural Strength	彎曲強度	Kg/cm <sup>2</sup>	ASTM D790	800
Flexural Modulus	彎曲模數	Kg/cm <sup>2</sup>	ASTM D790	20000
<b>Thermal properties</b>		<b>熱性質</b>		
Heat Deflection Temperature	熱變形溫度		ASTM D648	
66psi		°C		-
264psi		°C		100
Flammability	防火性	-	UL94	-
Melting Point	熔點	°C	DSC	223
<b>Electrical properties</b>		<b>電氣性質</b>		
Dielectric Strength	介電強度	KV/MM	ASTM D149	-
Dielectric Constant	介電常數	...	ASTM D150	-
Volume Resistivity	體積電阻	Ω-CM	ASTM D257	-
<b>Other properties</b>		<b>其它性質</b>		
Specific Gravity	比重	-	ASTM D792	1.19
Water Absorption	吸水率	%	ASTM D570	0.14
Mold Shrinkage	成形收縮率		ASTM D955	
Flow	流動方向	%		0.4~0.6
Cross Flow	垂直方向	%		0.5~0.7

"Nothing in this information shall be construed as a recommendation for any use that may infringe on any patent right or as an endorsement of any material supplied by Shinkong Synthetic Fibers Corporation. We do not guarantee the applicability or the accuracy of this information or the performance of our products in any specific situation. We recommend each user of our products make its own tests to determine if the material is suitable for a particular use. The data show here are within the normal range of product properties, but they are NOT SPECIFICATION LIMITS. Additives of any kind alter some or all of the properties."

2002/6





# Test Report

No. : CE/2007/12587

Date : 2007/01/17

Page : 1 of 4

SHINKONG SYNTHETIC FIBERS CORPORATION



The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description : THERMOPLASTIC ALLOY RESIN  
Style/Item No. : SHINBLEND<sup>®</sup> ALLOY A724NA  
Manufacturer/Vendor : SHINKONG SYNTHETIC FIBERS CORPORATION  
Sample Receiving Date : 2007/1/10  
Testing Period : 2007/1/10 TO 2007/01/17

=====

**Test Requested** : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

**Test Method** : With reference to IEC 62321, Ed.1 111/54/CDV Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products.

- (1) Determination of Cadmium by ICP-AES.
- (2) Determination of Lead by ICP-AES.
- (3) Determination of Mercury by ICP-AES.
- (4) Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry.
- (5) Determination of PBB and PBDE by GC/MS.

**Test Result(s)** : Please refer to next page(s).

  
Daniel Yen, M.R. / Operation Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.

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# Test Report

No. : CE/2007/12587

Date : 2007/01/17

Page : 2 of 4

SHINKONG SYNTHETIC FIBERS CORPORATION



Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	n.d.	2
Mercury (Hg)	(3)	n.d.	2
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	2
<b>Sum of PBBs</b>	(5)	n.d.	-
Monobromobiphenyl		n.d.	5
Dibromobiphenyl		n.d.	5
Tribromobiphenyl		n.d.	5
Tetrabromobiphenyl		n.d.	5
Pentabromobiphenyl		n.d.	5
Hexabromobiphenyl		n.d.	5
Heptabromobiphenyl		n.d.	5
Octabromobiphenyl		n.d.	5
Nonabromobiphenyl		n.d.	5
Decabromobiphenyl		n.d.	5
<b>Sum of PBDEs (Mono to Nona) (Note 4)</b>		n.d.	-
Monobromobiphenyl ether		n.d.	5
Dibromobiphenyl ether		n.d.	5
Tribromobiphenyl ether		n.d.	5
Tetrabromobiphenyl ether		n.d.	5
Pentabromobiphenyl ether		n.d.	5
Hexabromobiphenyl ether		n.d.	5
Heptabromobiphenyl ether		n.d.	5
Octabromobiphenyl ether		n.d.	5
Nonabromobiphenyl ether		n.d.	5
Decabromobiphenyl ether		n.d.	5
<b>Sum of PBDEs (Mono to Deca)</b>		n.d.	-

### TEST PART DESCRIPTION:

NO.1 : WHITE PLASTIC PELLETS

Note : 1. mg/kg = ppm

2. n.d. = Not Detected

3. MDL = Method Detection Limit

4. Sum of Mono to NonaBDE & according to 2005/717/EC DecaBDE is exempt.

5. "-" = Not Regulated

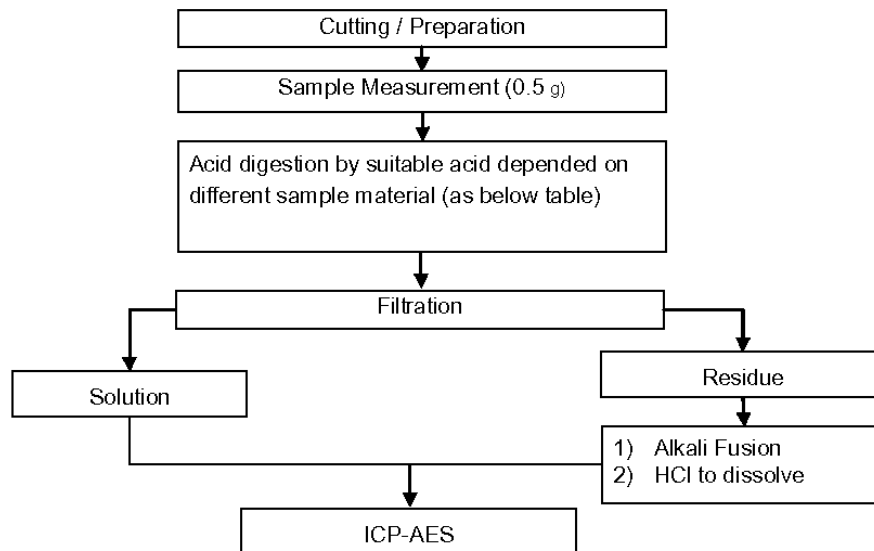
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- 1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) Name of the person who made measurement: Troy Chang
- 3) Name of the person in charge of measurement: Daniel Yeh

### Method 1: Flow Chart of Digestion for Cd · Pb analysis



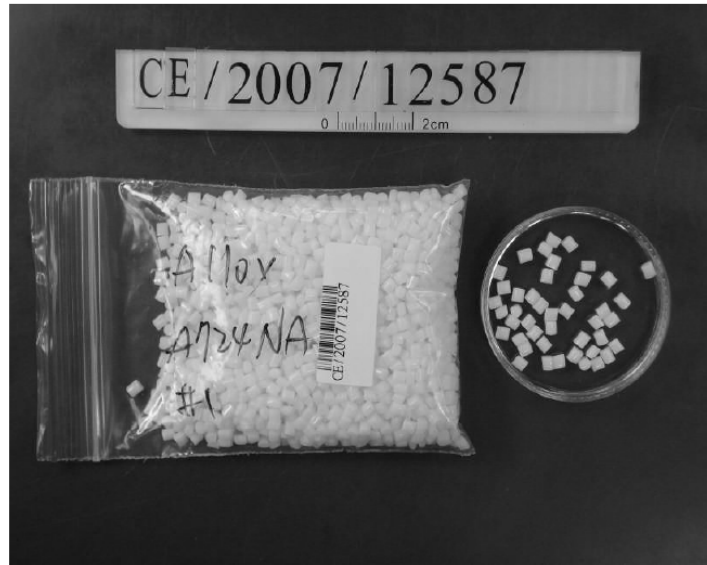
Steel, copper, aluminum, solder	Aqua regia, HNO <sub>3</sub> , HCl, HF, H <sub>2</sub> O <sub>2</sub>
Glass	HNO <sub>3</sub> /HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO <sub>3</sub>
Plastic	H <sub>2</sub> SO <sub>4</sub> , H <sub>2</sub> O <sub>2</sub> , HNO <sub>3</sub> , HCl
Others	Any acid to total digestion

## Test Report

No. : CE/2007/12587 Date : 2007/01/17

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SHINKONG SYNTHETIC FIBERS CORPORATION



\*\* End of Report \*\*

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# Sleeve



## Test Report

唐正企業有限公司  
235台北縣中和市中正路861巷11號

報告號碼 : CE/2006/63729  
日期 : 2006/06/19  
頁數 : 1 of 2

以下測試樣品乃供應廠商所提供及確認：

樣品名稱 : 空心圓針, 實心圓針之黃銅材質(裸針)  
產品型號 : Ø0.6-12.0  
收件日期 : 2006/06/12.  
測試日期 : 2006/06/12 TO 2006/06/19

### 測試結果

測試部位 NO.1 : 黃銅色金屬

測試項目	單位	測試方法	偵測極限值	結果
				NO.1
六價鉻	ppm	依照US EPA 3060A方法,用UV-VIS(US EPA 7196A)做分析	2	N.D.
鎘	ppm	依照 EN1122 方法B:2001或其他酸消化方法,用感應耦合電漿原子發射光譜儀(ICP-AES)做分析	2	N.D.
汞	ppm	依照 US EPA 3052 方法或其他酸消化方法,用感應耦合電漿原子發射光譜儀(ICP-AES)做分析	2	N.D.
鉛	ppm	依照 US EPA 3050B 方法或其他酸消化方法,用感應耦合電漿原子發射光譜儀(ICP-AES)做分析	2	15.8

備註：(1) N.D. = Not detected.(<MDL) / 未檢出(低於偵測極限值)  
(2) ppm = mg/kg / 百萬分之一  
(3) MDL= Method Detection Limit(偵測極限值)

  
Daniel Yen, M.R. / Operation Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.

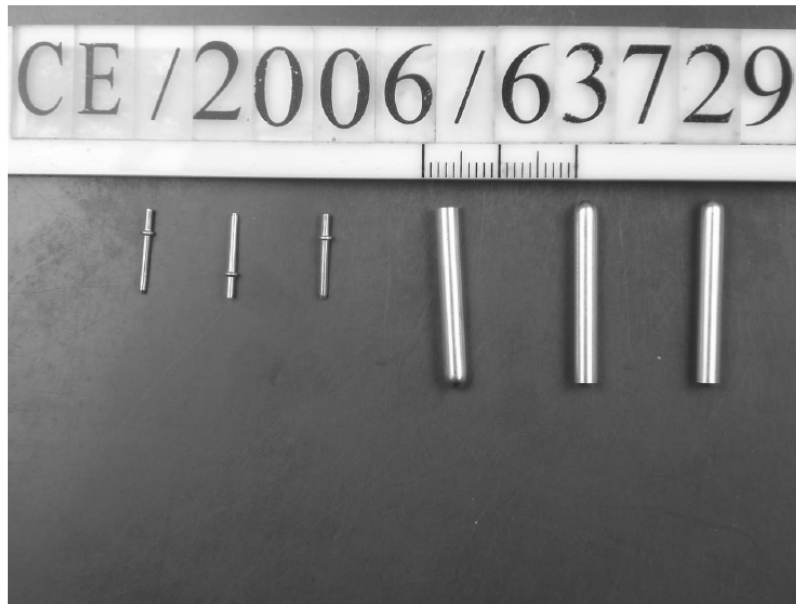
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## Test Report

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235 台北縣中和市中正路861巷11號

報告號碼 : CE/2006/63729  
日期 : 2006/06/19  
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## Test Report

唐正企業有限公司  
235台北縣中和市中正路861巷11號

報告號碼 : CE/2006/63730  
日期 : 2006/06/19  
頁數 : 1 of 2

以下測試樣品乃供應廠商所提供及確認：

樣品名稱 : 空心圓針, 實心圓針之黃銅材質表面鍍錫處理  
產品型號 : Ø0.6-12.0  
收件日期 : 2006/06/12.  
測試日期 : 2006/06/12 TO 2006/06/19

### 測試結果

測試部位 NO.1 : 銀色金屬

測試項目	單位	測試方法	偵測極限值	結果
				NO.1
六價鉻	ppm	依照US EPA 3060A方法, 用UV-VIS(US EPA 7196A)做分析	2	N.D.
鎘	ppm	依照 EN1122 方法B:2001或其他酸消化方法, 用感應耦合電漿原子發射光譜儀(ICP-AES)做分析	2	N.D.
汞	ppm	依照 US EPA 3052 方法或其他酸消化方法, 用感應耦合電漿原子發射光譜儀(ICP-AES)做分析	2	N.D.
鉛	ppm	依照 US EPA 3050B 方法或其他酸消化方法, 用感應耦合電漿原子發射光譜儀(ICP-AES)做分析	2	24.7

備註：(1) N.D. = Not detected. (<MDL) / 未檢出(低於偵測極限值)  
(2) ppm = mg/kg / 百萬分之一  
(3) MDL= Method Detection Limit(偵測極限值)

  
Daniel Yeh, M.R. / Operation Manager  
Signed for and on behalf of  
SGS TAIWAN LTD.

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