承　　認　　書

SPECIFICATION FOR APPROVAL

客　　戶 CUSTOMER	中磊電子股份有限公司
日　　期 DATE	2006/5/12
品　　名 DESCRIPTION	Swivel Type，1/4λ Dipole Antenna(white) RP-SMA (M)
客 戶 料 號 CUSTOMER P/N	61720085WS
成 品 編 號 Part No.	TWW1592A1

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

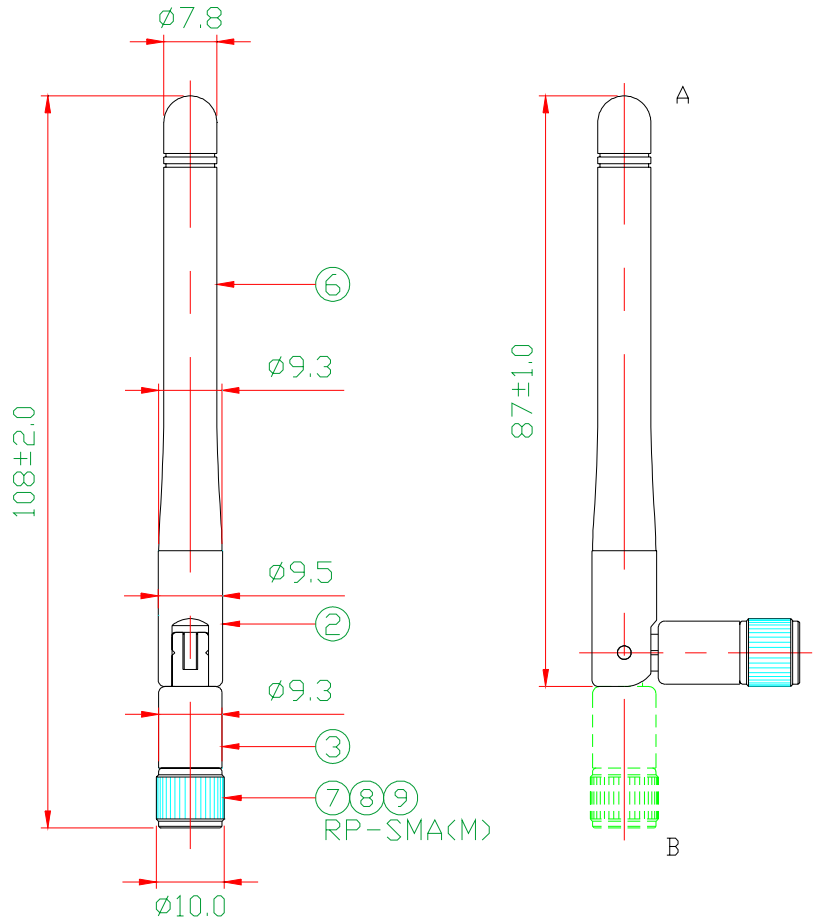
Table of Contents

SPECIFICATION

1.	Description	：The antenna is a Swivel Type, Dipole Antenna
2.	Customer	：中磊電子股份有限公司
3.	Model No.	：WSS002
4.	Part No.	：TWW1592A1
5.	Standard	：IEEE 802.11b/g Wireless LAN
6.	Antenna Profile	：108 mm (see Drawing)
7.	Color	: White , DuPont LS033
8.	Electrical Characteristics	
	Operating Frequency	：2.4~2.5GHz
	Antenna Type	：1/4λ Sleeve Dipole
	Polarization Type	：Linear
	Type of Radiation	：Toroidal
	Peak Gain	：2.0 dBi Typical
	Impedance	：50 Ohm nominal
	V.S.W.R.	：2.0:1 Max.
9.	Mechanical Characteristics	
	Connector	：RP-SMA(M)
	Core	：N/A
10.	Raw Material	
	Coaxial Cable	：MIL-C-17 RG-178 B/U
	Housing	：TPE
	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。

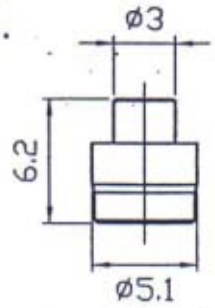
NO	材料名稱	環材	電腦編號	零件規格	顏色	切斷尺寸	用量	備註
9	Reverse SMA ψ10 本體	!	250202BA1000VD	0202B-A Body Reverse SMA ψ10 Connector	黑		1	或同級品
8	Reverse SMA φ 10 母 PIN絕緣		250062BB2000VD	0062B-B PIN+TEFLON Reverse SMA φ10			1	或同級品
7	Reverse SMA φ 10 連接軸		250202BC1000VD	0202B-C1 銀連接軸 Reverse SMA φ10 Connector	銀		1	或同級品
6	外套<白>	v	B093750L6790TM	@9.3φ*75L(67L) 外套白<DuPont LS033>TPE	白		1	或同級品
5	銅管 L25	v	B0520250L00TWQ	@5.2φ*25.0L*0.25T 銅管	銀		1	或同級品
4	固定鉚釘(亮鎳)		B02892200180ME	028922001-8 3.80*1.90φ固定鉚釘(小)(亮鎳)	銀		2	或同級品
3	9.3φ下座白		B093LS033190WT	9.3φ下座白<DuPont LS033>	白		1	或同級品
2	上座白	v	B093200LLS03WT	@9.5φ*20.0L上座白< DuPont LS033>	白		1	或同級品
1	RG-178 Coaxial Cable	v	19RG17800030AE	@RG-178 CABLE 105SV(萬泰)	橙	90	1	或同級品

修訂日期：	制訂日期：2006/05/11			承認圖號			
頁數：1/1	核 准	審 查	作 成	品 名	SWIVEL TYPE, 1/4λ DIPOLE ANTENNA RP- SMA (M) CONNECTOR (white)		
第三角法	Ryan	Lingo	郭雅珍	成品編號	TWW1592	REV A	VERSION 1
單位：mm							
比例：FREE							

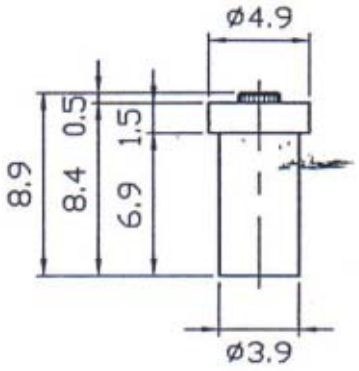
主件品名材質一覽表			
項次	品名	材質	處理
1	本體-1	銅	鍍黑鉻
2	本體-2	銅	鍍黑鋅
3	連接軸	銅	鍍銀
4	PIN	磷青銅	鍍金
5	絕緣	鐵氟龍	白色

圖號 0202B

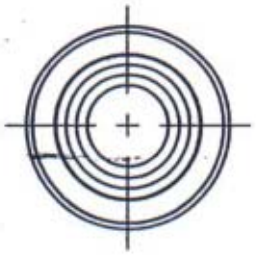
C.

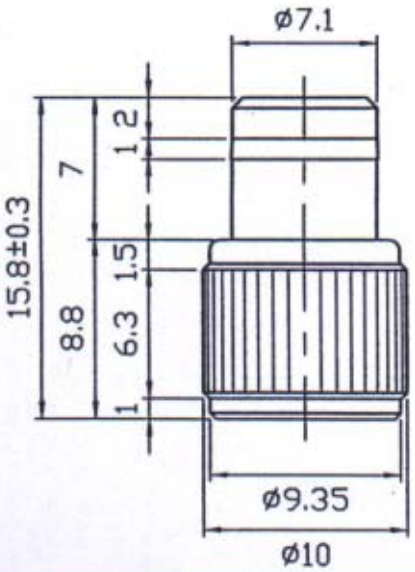


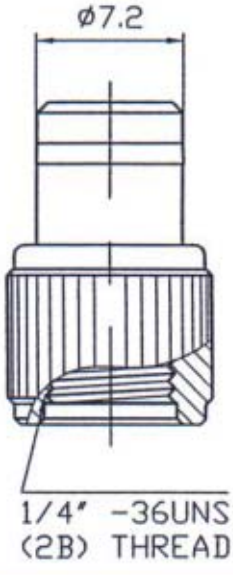
B. PIN與絕緣先行組合
PIN針需縮口處理



A.







REV DESCRIPTION	UNIT: MM	MATERIAL:	NAME: RP-SMA(M) ϕ10.0mm
△x	SCALE: 3/1	FINISH:	PART NO: 0202B-承認書用
△x	TOLERANCES:	DRAWN:	DATE:05.25.2003 REV:00
△x	X ±0.15 X.X ±0.1	DESIGN:	
△x	X.XX ±0.05 ANGULAR ±1.0°	APPROVE:	

Test Report

WANSHIH ELECTRONIC CO., LTD.
3F, 72, WU KONG 6TH RD., WU KU INDUSTRIAL DISTRICT,
TAIPEI HSIEN, TAIWAN, R.O.C.

報告號碼 : CE/2005/76240
日期 : 2005/08/09
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	:	SMA CONNECTOR
產品型號	:	RF接頭
收件日期	:	2005/07/28.
測試日期	:	2005/07/28 TO 2005/08/09

測試結果

測試部位 NO.1 : 混測金色金屬上有黑色鍍層(請參照附件圖片)

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,用感應藕合電漿原子發射光譜儀(ICP-AES)做分析	2	42.5
汞	ppm	依照 US EPA 3052 方法或其他酸消化方法,用感應藕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,用感應藕合電漿原子發射光譜儀(ICP-AES)做分析	2	22536.0

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.

Test Report

WANSHIH ELECTRONIC CO., LTD.
3F, 72, WU KONG 6TH RD., WU KU INDUSTRIAL DISTRICT,
TAIPEI HSIEN, TAIWAN, R.O.C.

報告號碼 : CE/2005/76240
日期 : 2005/08/09
頁數 : 2 of 2

SGS

Test Report

No. SH520814/CHEM Date: 4.15.2005

DYNAFLUO CO., LTD
4TH FLOOR, NO.94, PAO CHUNG ROAD, HSIN TIEN CITY, TAIPEI, TAIWAN 231

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

Sample Name	: WHITE PLASTIC
SGS Ref No.	: SHD252258
Item No.	: EXTRUSION STICK
Manufacturer	: DYNAFLUO
Exported to	: TAIWAN
Sample Receiving Date	: April 13, 2005
Testing Period	: April 13 to April 15, 2005
Test Requested	: 1) To determine the Cadmium, Lead, Mercury and Hexavalent Chromium Content of the submitted sample. 2) To determine the PBBs(Polybrominated biphenyls) PBBEs(PBDEs) (Polybrominated biphenyl ethers) Content of the submitted sample.
Test method	:1) In-house Method, Analysis was performed by Inductively Coupled Argon Plasma Spectrometry or Atomic Absorption Spectrometry. Hexavalent Chromium :With reference to US EPA3060A and US EPA7196A 2) With reference to US EPA 8081, Analysis was performed by GC/MS.
Test Results	: Please refer to next page

Signed for and on behalf of
SGS-CSTC Technical Laboratory

CSTC CONSUMER SGS SHANGHAI

Ella Zha
Supervisor

SGS-CSTC Standards Technical Services Co., Ltd. Shanghai Branch Testing Center Chemical Laboratory
1/F, 7/F, 9/F & 10/F, the 3rd Building, No. 889, Yishan Road, Xuhui District, Shanghai, China 200233 t +86 21 6495 1616*2822 f +86 21 5450 0314
中国·上海·徐汇区宜山路889号3号楼1楼, 7楼, 9楼, 10楼 邮编: 200233 t +86 21 6495 1616*2822 f +86 21 5450 0314 www.cn.sgs.com

SGS

Test Report

No. SH520814/CHEM Date: 4.15.2005

Test Results :

No.	Item	Unit	MDL	A
1	Cadmium (Cd)*	ppm	5	N.D.
	Lead (Pb)	ppm	5	N.D.
	Mercury (Hg)*	ppm	2	N.D.
	Hexavalent Chromium (Cr VI)*	ppm	2	N.D.
2	PBBs(Polybrominated biphenyls)*	—	—	—
	PBBs(Bromobiphenyl)	ppm	5	N.D.
	PBBs(Dibromobiphenyl)	ppm	5	N.D.
	PBBs(Tribromobiphenyl)	ppm	5	N.D.
	PBBs(Tetrabromobiphenyl)	ppm	5	N.D.
	PBBs(Pentabromobiphenyl)	ppm	5	N.D.
	PBBs(Hexabromobiphenyl)	ppm	5	N.D.
	PBBs(Heptabromobiphenyl)	ppm	5	N.D.
	PBBs(Octabromobiphenyl)	ppm	5	N.D.
	PBBs(Nonabromobiphenyl)	ppm	5	N.D.
	PBBs(Polybrominated biphenyls)	ppm	5	N.D.
	PBBEs(PBDEs)(Polybrominated biphenyl ethers)*	—	—	—
	PBBEs(PBDEs)(Monobromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Dibromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Tribromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Tetrabromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Pentabromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Hexabromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Heptabromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Octabromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Nonabromobiphenyl ether)	ppm	5	N.D.
	PBBEs(PBDEs)(Decabromobiphenyl ether)	ppm	5	N.D.

(Result shown is of the total weight of sample)

Sample Description:

A. White solid stick

Note : ppm=mg/kg

MDL= Method Detection Limit

N.D. = Not detected.(<MDL)

*The test results are taken from report No. SH512038/CHEM, Date: 23/03/2005

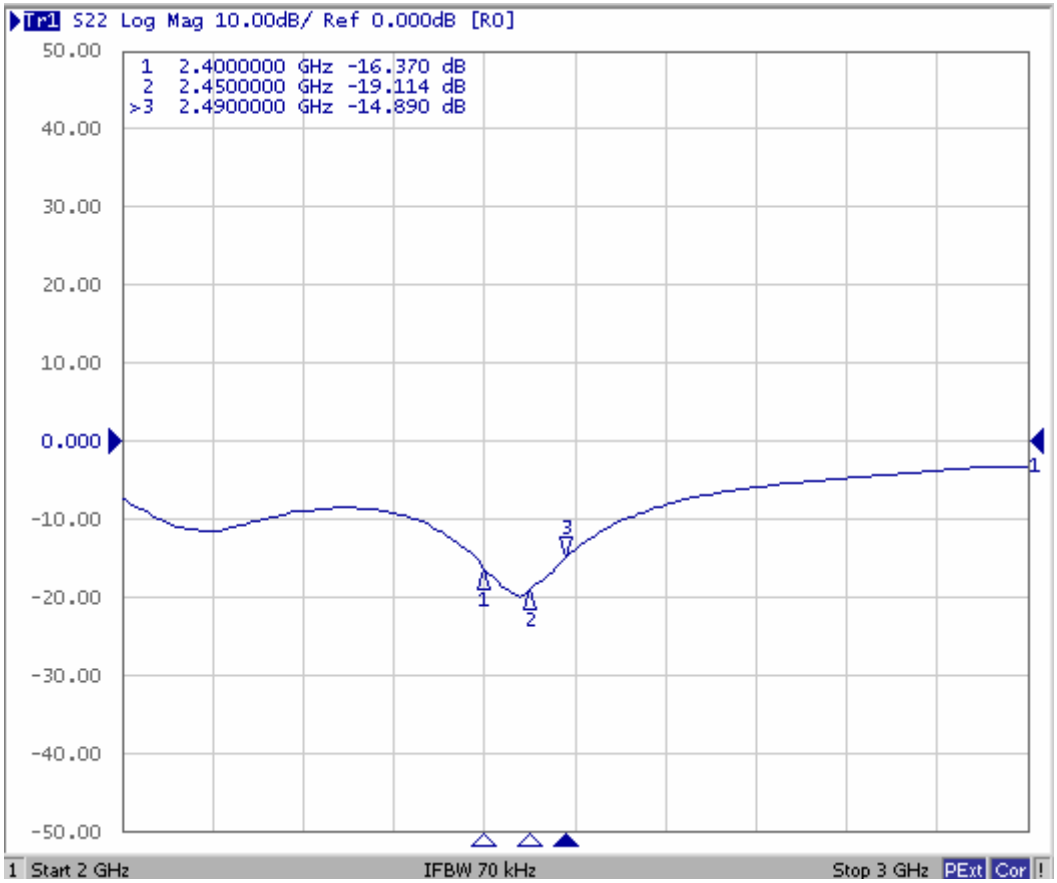
*** End of Report ***

SHCH 249640

1/F, 7/F, 9/F & 10/F, the 3rd Building, No. 889, Yishan Road, Xuhui District, Shanghai, China 200233 t +86 21 6495 1616*2822 f +86 21 5450 0314
中国.上海.徐汇区宜山路889号3号楼1楼.7楼.9楼.10楼 邮编: 200233 t +86 21 6495 1616*2822 f +86 21 5450 0314 www.cn.sgs.com

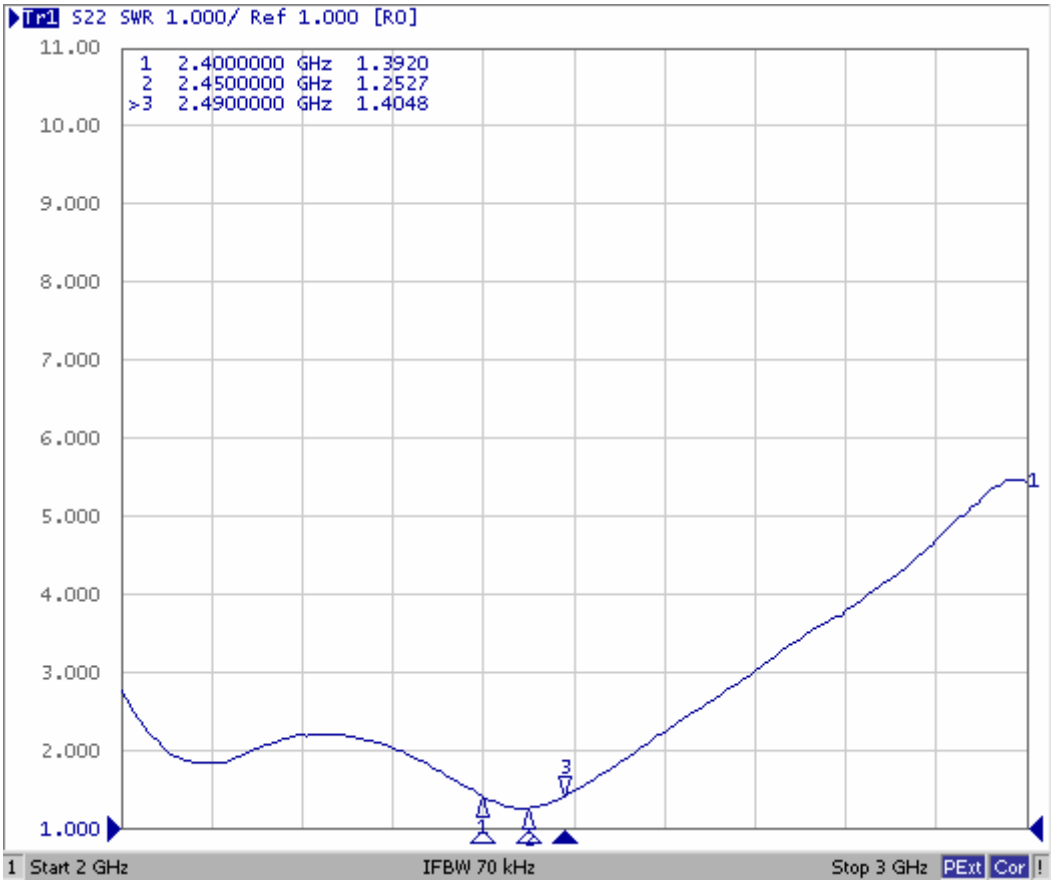
Electrical Properties

Return Loss (Test on board)



Electrical Properties

V.S.W.R (Test on board)



Electrical Properties

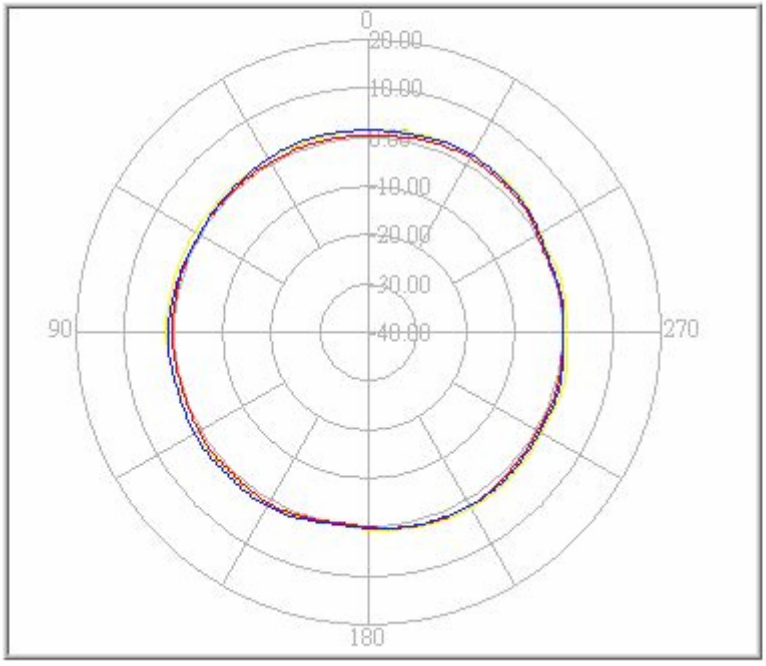
Radiation Pattern – H Plane

(Test on board)

萬旭電業股份有限公司

Model No: cl-060427-sma **Antenna Position**: Vertical

Test Mode: H-Plane



Freq(MHz)	peak(dBi)	Angle(o)	Avg(dBi)
2400.00	2.10	25.63	1.20
Freq(MHz)	peak(dBi)	Angle(o)	Avg(dBi)
2450.00	1.28	29.29	0.40
Freq(MHz)	peak(dBi)	Angle(o)	Avg(dBi)
2490.00	1.97	28.07	0.95

Electrical Properties

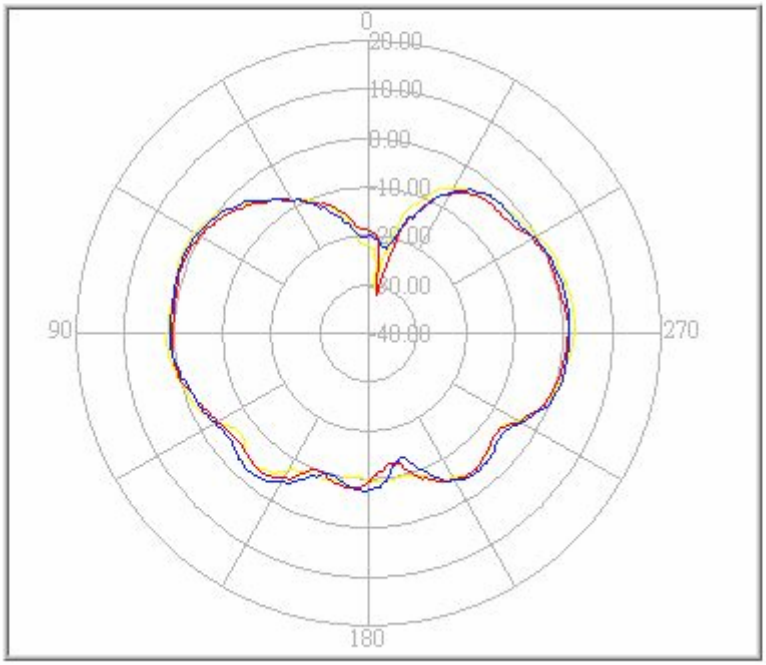
Radiation Pattern – E Plane

(Test on board)

萬旭電業股份有限公司

Model No: cl-060427-sma **Antenna Position**: Horizontal

Test Mode: E-Plane



Freq(MHz)	peak(dBi)	Angle(o)	Avg(dBi)
2400.00	2.27	86.64	-2.35
Freq(MHz)	peak(dBi)	Angle(o)	Avg(dBi)
2450.00	1.00	87.86	-3.15
Freq(MHz)	peak(dBi)	Angle(o)	Avg(dBi)
2490.00	1.30	85.42	-2.61

Material Data Sheet

RG-178 Coaxial Cable

SPECIFICATION FOR APPROVAL

DOCUMENT: A30178B001

STYLE : 105℃ 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℃ 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			

WONDERFUL HI-TECH CO., LTD.
SPECIFICATION

Electrical & Physical Properties			
Item			RG-178B/U
Rating Temp Voltage			105℃ 30V
Conductor Resistance			838 OHM/KM/20℃ 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 / mm²)
		Elongation	200% MIN.
	Aged	Tensile Strength	**UNAGED MIN 75%(168HRS×232℃)**
		Elongation	**UNAGED MIN 75%(168HRS×232℃)**
Jacket	Unaged	Tensile Strength	2500 PSI MIN.(1.76 Kg / mm²)
		Elongation	200% MIN.
	Aged	Tensile Strength	**UNAGED MIN.75%(168HRS×232℃)**
		Elongation	**UNAGED MIN.75%(168HRS×232℃)**
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

Test Report

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

Report No. : CE/2004/C1637
Date : 2004/12/16
Page : 1 of 3

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

Type of Product	:	RG-178 B/U 36AWG SERIES
Sample Received	:	2004/12/09
Testing Date	:	2004/12/09 TO 2004/12/16

==========

Test Result : - Please see the next page -

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

Test Report

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

Report No. : CE/2004/C1637
Date : 2004/12/16

Test Result

PART NAME NO.1 : WHITE FEP JACKET(PLEASE REFER TO THE PHOTO ATTACHED)

Test Item (s):	Unit	Method	MDL	Result			
				No.1			
PBBs(Polybrominated biphenyls)(CAS NO:059536-65-1)	%	With reference to USEPA3540 or USEPA3550. 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.			
PBBEs(PBDEs)(Polybrominated biphenyl ethers)	%	With reference to USEPA3540 or USEPA3550. 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.			

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

NOTE• •(1) N.D. = Not detected (<MDL)
(2) ppm = mg/kg
(3) MDL = Method Detection Limit

Test Report

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

Report No. : CE/2004/C1637
Date : 2004/12/16

Housing Material Data Sheet

- Housing(外套)- TPE

KEYFLEX BT-1055D

Ester type TPE

LG Chem

Item	Test method	Test Condition	Unit	Value
PHYSICAL				
Specific Gravity	ASTM D297	23°C		1.19
Melt Index	ASTM D1238	200°C/2.16kg	g/10min	28
Density	ASTM D1505	Density Gradient Tube	g/10min	
Water Absorbance	ASTM D570	23°C	%	0.5
Mold Shrinkage	ASTM D955		%	1.2
MECHANICAL				
Tensile Strain at Break	ASTM D412	500mm/min	kg/cm²	340
			MPa	33.3
Tensile Elongation	ASTM D412	500mm/min	%	650
Tensile Strength	ASTM D638	500mm/min	kg/cm²	140
			MPa	13.7
5% Tensile Stress	ASTM D638	500mm/min	kg/cm²	65
			MPa	6.4
Flexural Modulus(Initial)	ASTM D790	15mm/min	kg/cm²	2,100
			MPa	206
Tear Strength	ASTM D624	JIS B type	kg/cm	150
Izod Impact Strength (Notched)	ASTM D256	23°C	kg·cm/cm	NB
			J/m	NB
		-40 °C	kg·cm/cm	20
			J/m	NB
Elongation	ASTM D395		%	
Compression Set	ASTM D395	25°C x 22hr	%	
		70°C x 22hr	%	54
Hardeness	ASTM D2240	shore A		
		shore D		55

*Note : 1)The values of properties in the above table have been obtained by the test pieces(natural color) manufactured under certain of injection.

2)The listed values should be used for referential purposed only.

Test Report

WGJ COMPANY LTD.
NO. 5, TING FU 5 TH STREET, KWEI SHAN HSIANG,
TAOYUAN HSIEN, TAIWAN

Report No. : CE/2005/70439
Date : 2005/07/11
Page : 1 of 4

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

Type of Product	:	LG KEYFLEX TPEE
Style/Item No	:	BT1055DNC, BT1063DNC
Sample Received	:	2005/07/04
Testing Date	:	2005/07/04 TO 2005/07/11

Conclusion : The test results of Pb, Cd, Hg, Cr+6, PBB and PBDE for the submitted sample comply with the requirements of RoHS (2002/95/EC).

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

Test Report

WGJ COMPANY LTD.
NO. 5, TING FU 5 TH STREET, KWEI SHAN HSIANG,
TAOYUAN HSIEN, TAIWAN

Report No. : CE/2005/70439
Date : 2005/07/11

Test Result

PART NAME NO.1 : WHITE PLASTIC PELLETS (PLEASE REFER TO THE PHOTO ATTACHED)

PASS

Test Item (s):	Unit	Method	MDL	Result	Limit of ROHS
				No.1	
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.	-
Dibromobiphenyl	%		0.0005	N.D.	-
Tribromobiphenyl	%		0.0005	N.D.	-
Tetrabromobiphenyl	%		0.0005	N.D.	-
Pentabromobiphenyl	%		0.0005	N.D.	-
Hexabromobiphenyl	%		0.0005	N.D.	-
Heptabromobiphenyl	%		0.0005	N.D.	-
Octabromobiphenyl	%		0.0005	N.D.	-
Nonabromobiphenyl	%		0.0005	N.D.	-
Decabromobiphenyl	%		0.0005	N.D.	-
Total PBBs (Polybrominated biphenyls)/Sum of above	%		-	N.D.	0.1
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.	-
Dibromobiphenyl ether	%		0.0005	N.D.	-
Tribromobiphenyl ether	%		0.0005	N.D.	-
Tetrabromobiphenyl ether	%		0.0005	N.D.	-
Pentabromobiphenyl ether	%		0.0005	N.D.	-
Hexabromobiphenyl ether	%		0.0005	N.D.	-
Heptabromobiphenyl ether	%		0.0005	N.D.	-
Octabromobiphenyl ether	%		0.0005	N.D.	-
Nonabromobiphenyl ether	%		0.0005	N.D.	-
Decabromobiphenyl ether	%		0.0005	N.D.	-
Total PBBEs(PBDEs)(Polybrominated biphenyl ethers)/Sum of above	%		-	N.D.	0.1

Test Report

WGJ COMPANY LTD.
NO. 5, TING FU 5 TH STREET, KWEI SHAN HSIANG,
TAOYUAN HSIEN, TAIWAN

Report No. : CE/2005/70439
Date : 2005/07/11

PASS

Test Item (s):	Unit	Method	MDL	Result No.1	Limit of ROHS
Chromium VI (Cr+6)	ppm	UV-VIS after reference to US EPA 3060A.	2	N.D.	1000
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122, method B:2001 or other acid digestion.	2	N.D.	100
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	N.D.	1000
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	N.D.	1000

NOTE: (1) N.D. = Not detected (<MDL)
(2) ppm = mg/kg
(3) MDL = Method Detection Limit
(4) " - " = No Regulation

Test Report

WGJ COMPANY LTD.
NO. 5, TING FU 5 TH STREET, KWEI SHAN HSIANG,
TAOYUAN HSIEN, TAIWAN

Report No. : CE/2005/70439
Date : 2005/07/11

- Hinge(上座/下座)- PC+ALLOY

SHINBLEND®
ALLOY
ENGINEERING PLASTIC DIVISION

SHINKONG SYNTHETIC FIBERS CORPORATION
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 886-2-2507-1[illegible]0Lines) 886-3-4932131-1780
Fax : 886-2-2506-8047 886-3-491-5763

Technical Data

SHINBLEND® A724NA
High Impact Grade / 超韌級 AD4011

		Unit	Test Method	Values
Mechanical properties	**機械性質**			
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^2	ASTM D638	540
Elongation	拉伸率	%	ASTM D638	100
Flexural Strength	彎曲強度	Kg/cm^2	ASTM D790	800
Flexural Modulus	彎曲模數	Kg/cm^2	ASTM D790	20000
Thermal properties	**熱性質**			
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
Electrical properties	**電氣性質**			
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	-
Other properties	**其它性質**			
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

SGS

Test Report

SHINKONG SYNTHETIC FIBERS CORPORATION
8F., NO.123, SEC. 2, NANKING E. RD., TAIPEI, TAIWAN

Report No. : CE/2006/13401
Date : 2006/01/19
Page : 1 of 5

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

Type of Product	:	THERMOPLASTIC POLYESTER RESIN
Style/Item No	:	A724NA
Manufacturer/Vendor	:	SHINKONG SYNTHETIC FIBERS CORPORATION
Sample Received	:	2006/01/12
Testing Date	:	2006/01/12 TO 2006/01/19

Test Result : - Please see the next page -

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

SGS TAIWAN LTD. | No. 134, Wu Kung Road, Wu Kou Industrial Zone, Taipei county, Taiwan
(886-2) 2299-3939 f (886-2) 2298-7237 www.sgs.com.tw

100

17/09 2013 18:10 FAX

SGS

Test Report

SHINKONG SYNTHETIC FIBERS CORPORATION
8F., NO.123, SEC. 2, NANKING E. RD., TAIPEI, TAIWAN

Report No. : CE/2006/13401
Date : 2006/01/19
Page : 2 of 5

Test Result

PART NAME NO.1 : WHITE PLASTIC PELLETS

Test Item (s):	Unit	Method	MDL	Result No.1
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.
Dibromobiphenyl	%		0.0005	N.D.
Tribromobiphenyl	%		0.0005	N.D.
Tetrabromobiphenyl	%		0.0005	N.D.
Pentabromobiphenyl	%		0.0005	N.D.
Hexabromobiphenyl	%		0.0005	N.D.
Heptabromobiphenyl	%		0.0005	N.D.
Octabromobiphenyl	%		0.0005	N.D.
Nonabromobiphenyl	%		0.0005	N.D.
Decabromobiphenyl	%		0.0005	N.D.
Total PBBs (Polybrominated biphenyls)/Sum of above	%		-	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.
Dibromobiphenyl ether	%		0.0005	N.D.
Tribromobiphenyl ether	%		0.0005	N.D.
Tetrabromobiphenyl ether	%		0.0005	N.D.
Pentabromobiphenyl ether	%		0.0005	N.D.
Hexabromobiphenyl ether	%		0.0005	N.D.
Heptabromobiphenyl ether	%		0.0005	N.D.
Octabromobiphenyl ether	%		0.0005	N.D.
Nonabromobiphenyl ether	%		0.0005	N.D.
Decabromobiphenyl ether	%		0.0005	N.D.
Total PBBEs(PBDEs) (Polybrominated biphenyl ethers)/Sum of above	%		-	N.D.
Total of Mono to Nona-brominated biphenyl ether. (Note 4)	%		-	N.D.

SGS

Test Report

SHINKONG SYNTHETIC FIBERS CORPORATION
8F., NO.123, SEC. 2, NANKING E. RD., TAIPEI, TAIWAN

Report No. : CE/2006/13401
Date : 2006/01/19
Page : 3 of 5

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

No. 136-1, Wu Kung Road, Wuku Industrial Zone, Taipei county, Taiwan
(886-2) 2299-3279 www.sgs.com.tw

SGS

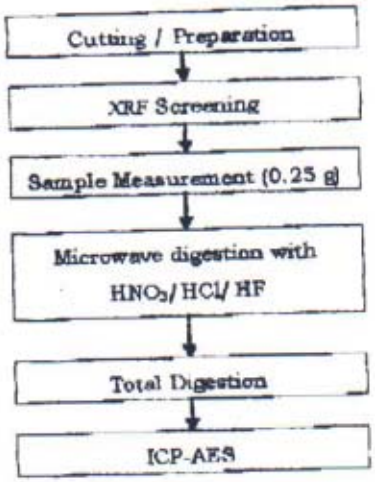
Test Report

SHINKONG SYNTHETIC FIBERS CORPORATION
8F., NO.123, SEC. 2, NANKING E. RD., TAIPEI, TAIWAN

Report No. : CE/2006/13401
Date : 2006/01/19
Page : 4 of 5

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

Flow Chart of Digestion for Plastic -EPA3052 for Pb、Cd (without residual)



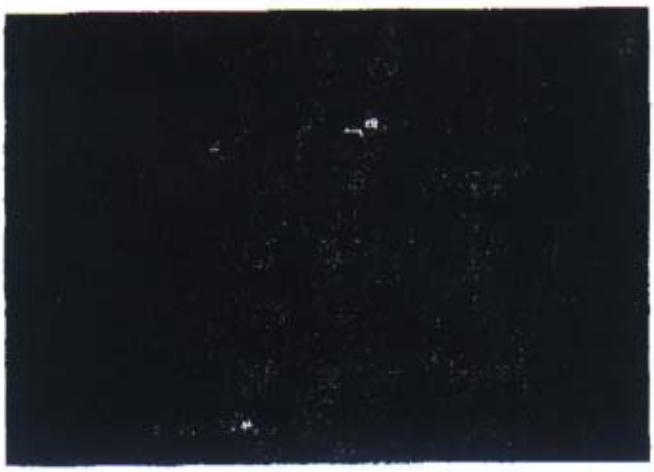
NO. 135-1, Wu-Kuang Road, Wu-Gu Industrial Zone, Taipei county, Taiwan.
(886-2) 22993939 (886-2) 2299-3237 www.sgs.com.tw

SGS

Test Report

SHINKONG SYNTHETIC FIBERS CORPORATION
8F., NO.123, SEC. 2, NANKING E. RD., TAIPEI, TAIWAN

Report No. : CE/2006/13401
Date : 2006/01/19



SGS TAIWAN LTD. | NO. 136-1, Wu Kung Road, Wuku Industrial Zone, Taipei county, Taiwan
t(886-2) 23893939 f(886-2) 2299-2237 www.sgs.com.tw

Sleeve

SGS

Test Report No.: GZSCR051191892/LP Date: NOV 29, 2005 Page 1 of 2

NEW-MINGTAI ELECTRONIC HARDWARE ELECTROPLATE FACTORY
OLD VILLAGE HALL (LAOXIANGFU), TONG-LE VILLAGE, LONG-GANG TOWN, SHENZHEN

Report on the submitted sample said to be 冲压件/GP Sn

SGS Ref. No.	SZD51125313EC-3.1
Sample Receiving Date	NOV 23, 2005
Testing Period	NOV 23, 2005 TO NOV 29, 2005

Test Requested (1) As specified by client, to determine the Lead, Cadmium, Mercury & Hexavalent Chromium content in the submitted sample.
(2) Determination of PBBs (polybrominated biphenyls), PBDEs (Polybrominated diphenylethers) of the submitted sample.

Test Method (1) Lead content - With reference to EPA method 3050B: 1996 / other acid digestion.
Cadmium content - With reference to BS EN1122: 2001 method B / other acid digestion.
Mercury content - With reference to EPA 7473: 1998 / other acid digestion.
Hexavalent Chromium content - With reference to ISO 3613: 2000 (Clause 6 & 8)
Analysis was performed by Atomic Absorption Spectrometer / Inductively Coupled Plasma Atomic Emission Spectrometer (ICP-AES), UV-VIS Spectrophotometer
(2) With reference to EPA 3540C / 3550C. Analysis was performed by GC/MS

RESULTS Please refer to next page

Signed for and on behalf of
SGS-CSTC Ltd

Zhang Li Amy
Sr. Engineer

GZCM 370029

FROM : XiangXin PHONE NO. : 84232867 JUN. 21 2006 09:

SGS

Test Report

No.: GZSCR051191692/LP Date: NOV 29, 2005 Page 2 of 2

Results :

(1)

Item	Unit	MDL	Silvery metal part
Lead Content (Pb)	ppm	2	28
Cadmium Content (Cd)	ppm	2	N.D.
Mercury Content (Hg)	ppm	2	N.D.
Hexavalent Chromium (Cr VI)	$\mu g/cm^2$	0.02	N.D.

Note : - N.D. = Not Detected (< MDL)
- MDL = Method Detection Limit
- ppm = mg/kg

(2)

	Silvery metal part
Flame Retardants	
Polybrominated Biphenyls (PBBs)	
Monobromobiphenyl	N.D.
Dibromobiphenyl	N.D.
Tribromobiphenyl	N.D.
Tetrabromobiphenyl	N.D.
Pentabromobiphenyl	N.D.
Hexabromobiphenyl	N.D.
Heptabromobiphenyl	N.D.
Octabromobiphenyl	N.D.
Nonabromobiphenyl	N.D.
Decabromobiphenyl	N.D.
Polybrominated Diphenylethers (PBDEs)	
Monobromodiphenyl ether	N.D.
Dibromodiphenyl ether	N.D.
Tribromodiphenyl ether	N.D.
Tetrabromodiphenyl ether	N.D.
Pentabromodiphenyl ether	N.D.
Hexabromodiphenyl ether	N.D.
Heptabromodiphenyl ether	N.D.
Octabromodiphenyl ether	N.D.
Nonabromodiphenyl ether	N.D.
Decabromodiphenyl ether	N.D.

Note : - N.D. = Not Detected (< 5 ppm)
- ppm = mg/kg

GZCM 370028

2006sgs (825x1169x24b jpeg)

SGS

Test Report

No.: GZ060213169/CHEM Date: FEB 17, 2006 Page 1 of 1

SHEN ZHEN HUEYNITEH CO., LTD
5/F BUILDING, BAI SHI ZHOU YUAN ZINENG INDUSTRIAL ZONE, SHAHE TOWN, SHEN ZHEN CITY

Report on the submitted sample said to be WIRE

SGS Ref No.	: SZ060204487RS-4.1
Material	: Cu
Buyer	: SONY
Sample Receiving Date	: FEB 13, 2006
Testing Period	: FEB 13, 2006 TO FEB 17, 2006

Test Requested : As specified by client, to determine the Lead, Cadmium, Mercury & Hexavalent Chromium content in the submitted sample.

Test Method : Lead content - With reference to EPA method 3050B: 1996 / other acid digestion
Cadmium content - With reference to BS EN1122: 2001 method B / other acid digestion
Mercury content - With reference to EPA 3052: 1996 / 7473: 1998 / other acid digestion
Hexavalent Chromium content - With reference to EPA 3060A : 1996 & EPA 7196A : 1992
Analysis was performed by Atomic Absorption Spectrometer / Inductively Coupled Plasma Atomic Emission Spectrometer (ICP-AES) / Direct Mercury analyzer / UV-VIS Spectrophotometer.

Results

Item	Unit	MDL	Golden metal
Lead Content (Pb)	ppm	2	186
Cadmium Content (Cd)	ppm	2	N.D.
Mercury Content (Hg)	ppm	2	N.D.
Hexavalent Chromium (Cr VI)	ppm	2	N.D.

Note : - N.D. = Not Detected (< MDL)
- MDL= Method Detection Limit
- ppm = mg/kg

*** End of Report ***

Signed for and on behalf of
SGS-CSTC Ltd.

Huang Fang, Sunny
Sr. Engineer

SGS
GZCM 621660
中国·广州·经济技术开发区科学城科珠路198号 邮编:510663 t (86-20)82155555 f (86-20)82075125
Member of the SGS Group (SGS SA)

Rivet

Test Report

WANSHIH ELECTRONIC CO., LTD.
3F 72 WU KONG 6TH RD., WU KU INDUSTRIAL DISTRICT
TAIPEI HSIEN, TAIWAN. R. O. C.

報告號碼 : CE/2005/B4807
日期 : 2005/11/28
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 : 固定鉚釘（黑鎳）
收件日期 : 2005/11/21.
測試日期 : 2005/11/21 TO 2005/11/28

測試結果

測試部位 NO.1 : 黑色鉚釘

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	39.5

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.

SGS TAIWAN LIMITED | NO. 136-1, Wu Kung Road, Wu Ku Industrial Zone, Taipei county, Taiwan
t(886-2) 2299-3939 f(886-2) 2299-3237 www.sgs.com.tw

Test Report

WANSHIH ELECTRONIC CO., LTD.
3F 72 WU KONG 6TH RD., WU KU INDUSTRIAL DISTRICT
TAIPEI HSIEN, TAIWAN. R. O. C.

報告號碼 : CE/2005/B4807
日期 : 2005/11/28
頁數 : 2 of 2

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