



WHA YU INDUSTRIAL CO., LTD.(HEAD OFFICE)  
 DONGGUAN AEON TECH CO.,LTD.(CHINA)  
 SUZHOU AEON TECH CO.,LTD.(CHINA)  
 AEON TECH (SHANGHAI) CO.,LTD(CHINA)  
 DONGGUAN PARNER TECH CO.,LTD.(CHINA)

## SPECIFICATION FOR APPROVAL

**CUSTOMER:** 明泰科技股份有限公司 產地: 大陸吳江市。東莞市  
**PART NAME:** RF Antenna Cable Assembly 產品單重:18270mg  
**PART NO.:** REVISION:  
**W. Y. P/NO.:** C037-511053-A (SSR-210189) REV.: X1

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
APPROVED BY :	陳遠英	
DATE :	10.2.3.	

### WHA YU GROUP

WHA YU INDUSTRIAL CO., LTD.(HEAD OFFICE)

譚裕實業股份有限公司

Address: No. 326, Sec. 2, Kung Tao 5 Road, Hsin Chu City, Taiwan, R.O.C.

Tel:+886-3-5714225(REP.) Fax:+ 886-3-5713853 · + 886-3-5723600

DONGGUAN AEON TECH CO.,LTD.(CHINA)

東莞台霖電子通訊有限公司

Address:Hupan Industrial District,Tai Ling Shan Town,Dong Guan City,Guangdong,China

Tel:+86-769-85655858 Fax:+86-769-85655258

SUZHOU AEON TECH CO.,LTD(CHINA)

蘇州華廣電通有限公司

Address:Limin North Road, LiLi Town,LiLi Industrial Park,LinHu Economic Zone

Wujiang City,Jiangsu Province,China

Tel:+86-512-63627980 Fax:+86-512-63627981

AEON TECH (SHANGHAI) CO.,LTD(CHINA)

普翔電子貿易(上海)有限公司

Address:Flat 501,5F,Build 27, NO.68,Guiqing Road, Huhui District, Shanghai,China

Tel:+86-21-64959151 Fax:+86-21-64959059

DONGGUAN PARNER TECH CO.,LTD.(CHINA)

東莞倍能電子有限公司

Address:Hupan Industrial District, Shida Road, Tai Ling Shan Town,

Dong Guan City, Guangdong, China

Tel:+86-769-81662366 Fax:+86-769-81602681

# *Contents*

<i>Item</i>	<i>Description</i>	<i>Page</i>
1. ....	規格表	..... 1
2. ....	成品圖	..... 2~3
3. ....	BOM List	..... 4
4. ....	測試報告	..... 5~7
5. ....	<b>Cable 規格/UL</b>	..... 8~12
6. ....	杆套及固定座材質特性/UL	..... 13~19
7. ....	熱縮套管材質特性/UL	..... 20~28
8. ....	樣品檢驗記錄表	..... 29
9. ....	樣品圖	..... 30

# RF Antenna Cable Assembly

## Specification

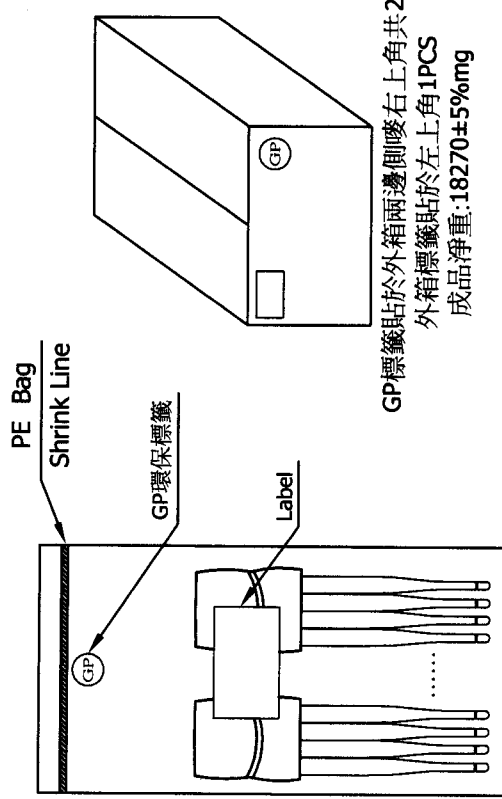
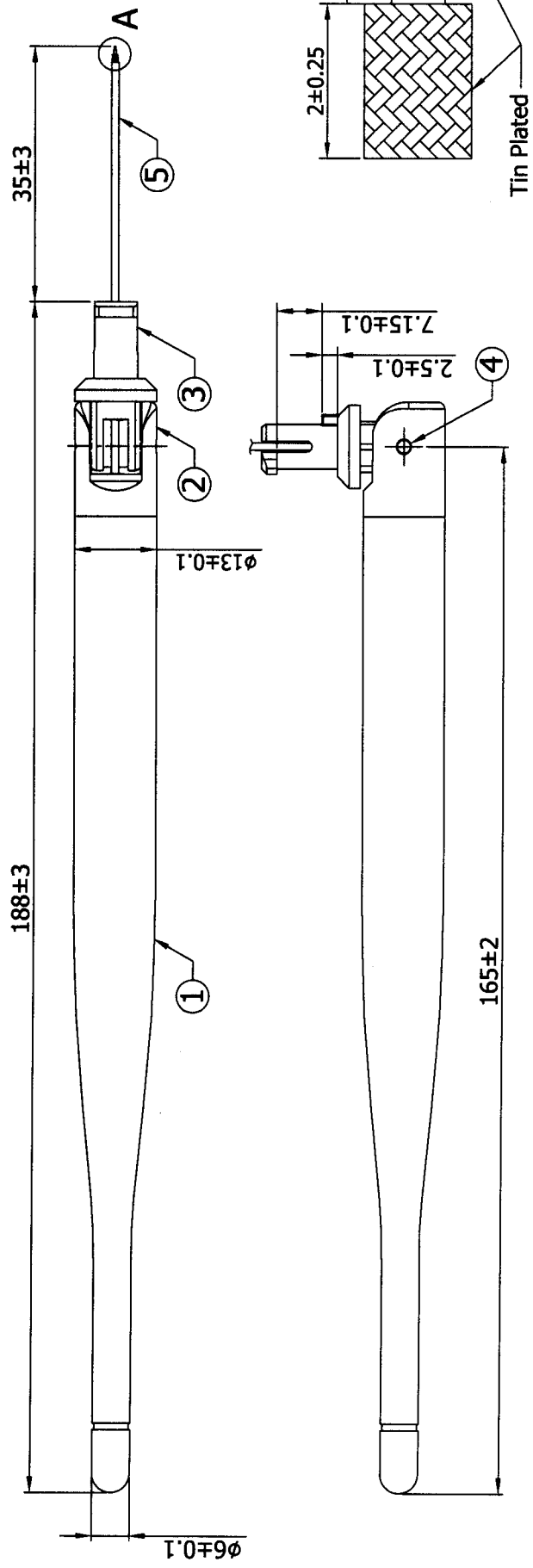
### 1. Electrical Properties :

- 1.1 Frequency Range..... 2.4GHz ~ 2.5GHz
- 1.2 Impedance ..... 50Ω Nominal
- 1.3 VSWR ..... 1.92:1 Max.
- 1.4 Return Loss..... -10 dB Max.
- 1.5 Radiation ..... Omni-directional
- 1.6 Gain(peak)..... 4dBi (excluding cable loss )
- 1.7 Cable Loss..... 0.3dB Max.
- 1.8 Polarization..... Linear ; Vertical
- 1.9 Admitted Power..... 1W
- 1.10 Cable..... 1.13mm Coaxial Cable

### 2. Physical Properties :

- 2.1 Antenna Body..... TPE
- 2.2 Antenna Base..... PC
- 2.3 Antenna Base..... PC
- 2.4 Operating Temp. .... -10°C ~ +60°C
- 2.5 Storage Temp. .... -10°C ~ +70°C
- 2.6 Color ..... Black

CG-	A	B	C	D	E	F	G
REV	DATE	DESCRIPTION					
X1	1/28-2010	New Issue					



GP標籤貼於外箱兩邊側邊右上角共2PCS  
 外箱標籤貼於左上角1PCS  
 成品淨重:18270±5%mg

NO	DESCRIPTION	QTY	REMARK
5	Φ1.13mm Cable,Gray,50Ω	1	
4	Rivet POM,Color:Black	2	
3	Antenna Base (CD-554)PC,Color:Black	1	
2	Antenna Base (CD-384)PC,Color:Black	1	
1	Antenna Body (CD-383)TPE,Color:Black	1	

CUSTOMER:	明泰	
PART NO :		
PART NAME:	RF Antenna Cable Assembly	
W.Y P/NO :	C037-511053-A	
REV	UNIT	FILE
X1	mm	SHEET : 1/1

APPROVED	±5.0	XX.
CHECKED	±3.0	X.
	±1.0	.X
	±0.5	.XX
	±0.1	.XXX

(5 pcs/bundle)  
 Packing : 10 pcs/bag

**Mogear** Wha Yu Group

THIS DRAWING, AND IT'S INHERANT DESIGN CONCEPTS, ARE THE PROPERTY OF WHA YU AND AS SUCH MAY NOT BE COPIED, REPRODUCED, OR GIVEN TO THIRD PARTIES WITHOUT THE WRITTEN CONSENT OF WHA YU.

CUSTOMER'S SIGNATURE



**BILL OF MATERIAL**

CUSTOMER P/N: 明泰科技股份有限公司

DATE:2010.01.28

W.Y.P/N:C037-511053-A

PART NO:SSR-210189

PART NAME:RF Antenna Cable Assembly

REV:X1

序號	零件名稱	供應商	規格描述	UL 防火等級
1	Cable	EVERNEW	Φ1.13mm Coaxial Cable,Gray,50Ω,鍍錫線	60.80°C .30V
2	Antenna Body	YOSON	(CD-383);TPE:Black	HB
3	Antenna Base	CHI MEI	(CD384) PC-110;Black	V-2
4	Antenna Base	FORMOSA	(CD-554)PC IR2200;Black	V-2
5	Rivet	PTM	POM;Black	—
6	Signal Tube	SHIYANG	ψ4.5* 22mm;Brass;For Helixψ1.2線徑;Plating Tin	—
7	Ground Tube	SHIYANG	ψ6.8×23mm;底塞ψ7.2×0.5mm;Brass & POM;Plating Ni	—
8	Helix	QINGPU	ψ1.2× 3.5T;OD:5.9;F:30;B:51;P:4;Phosphor Bronze	—
9	泡棉	QIKE	ψ6.0*5.0mm . Black	—
10	H.S Tube	HAMBURG	H.S.Tube:W3F2 1/4" UL/CSA ID6.4*22mm	125°C .150V
11	H.S Tube	WOER	H.S.Tube:W3F2 1/4" UL/CSA ID6.4*22mm	125°C .600V

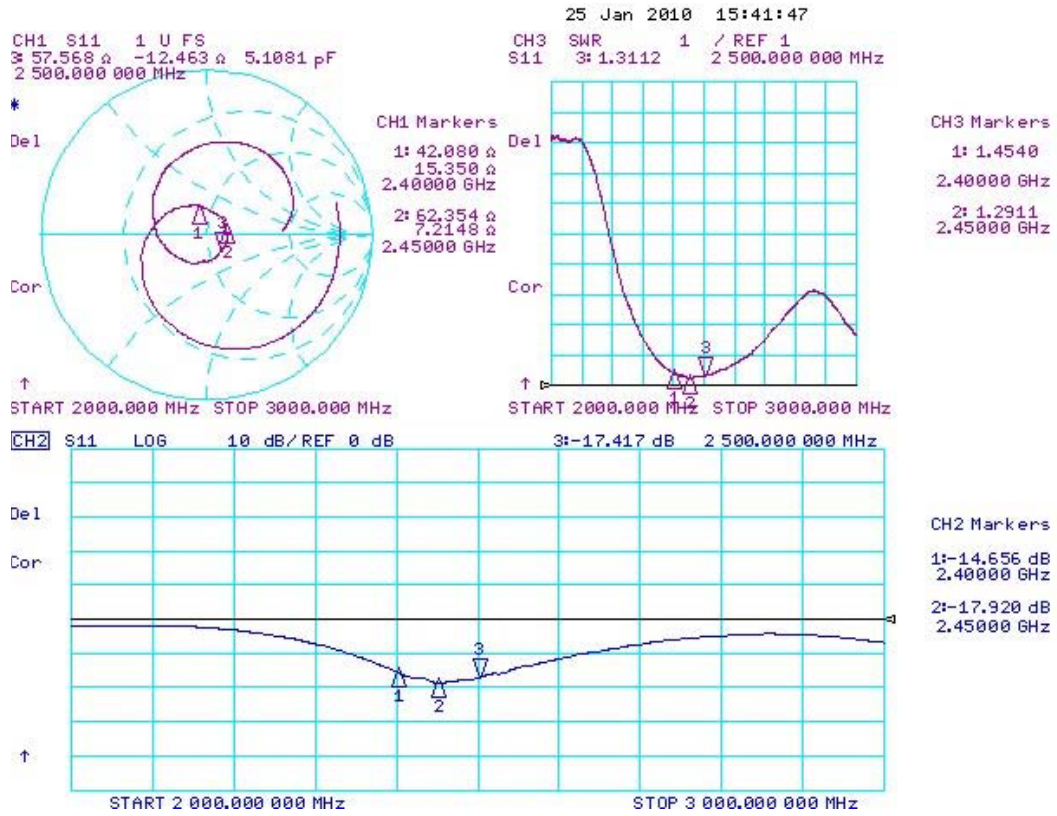
變更履歷:

序號	變更依據	變更內容	變更日期	版本

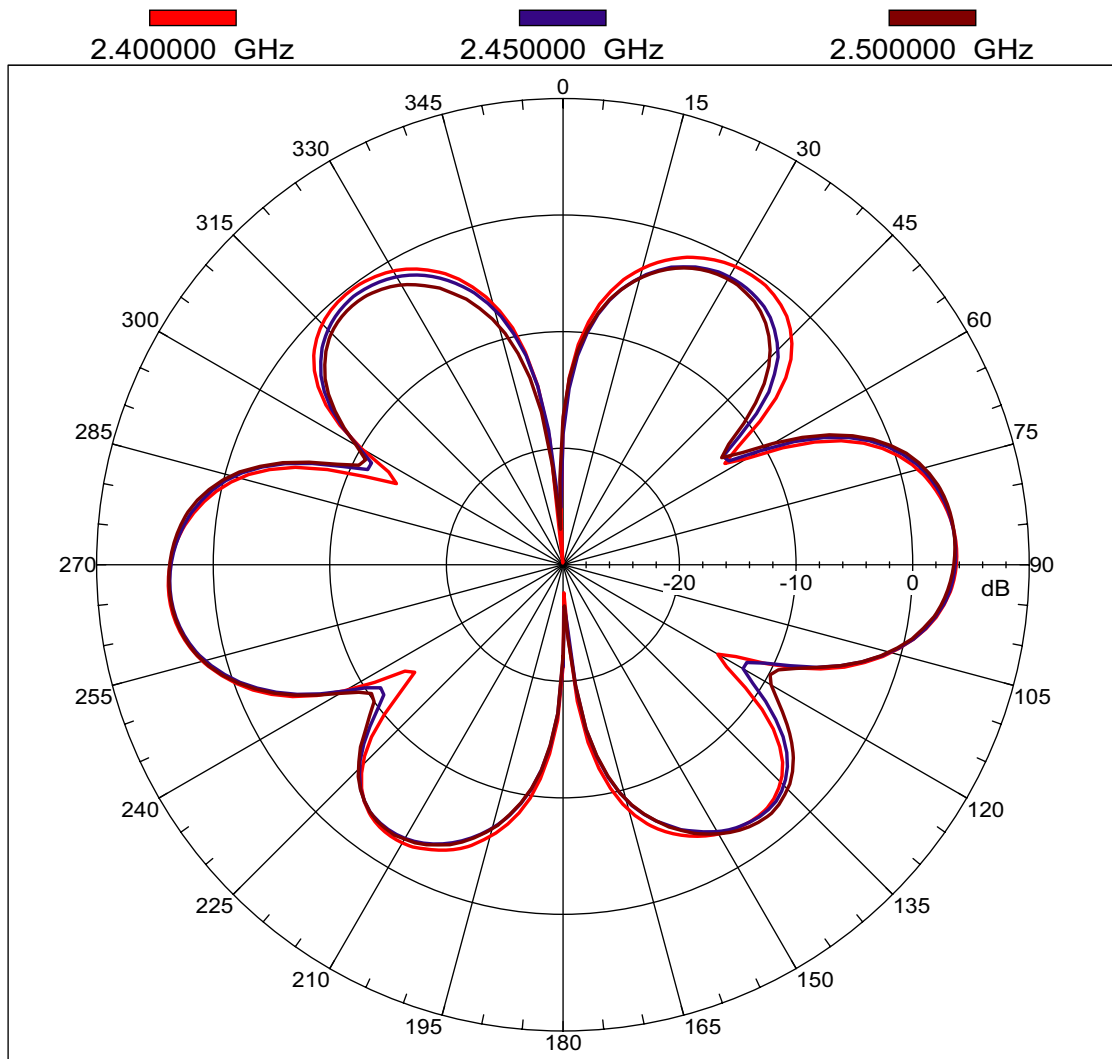
核 準		審 核		制 作	
--------	--	--------	--	--------	--

工程部"未經許可"不得複印"

RF Antenna Cable Assembly  
P/NO : C037-511053-A(SSR-210189) SPEC : 2.4~2.5GHz

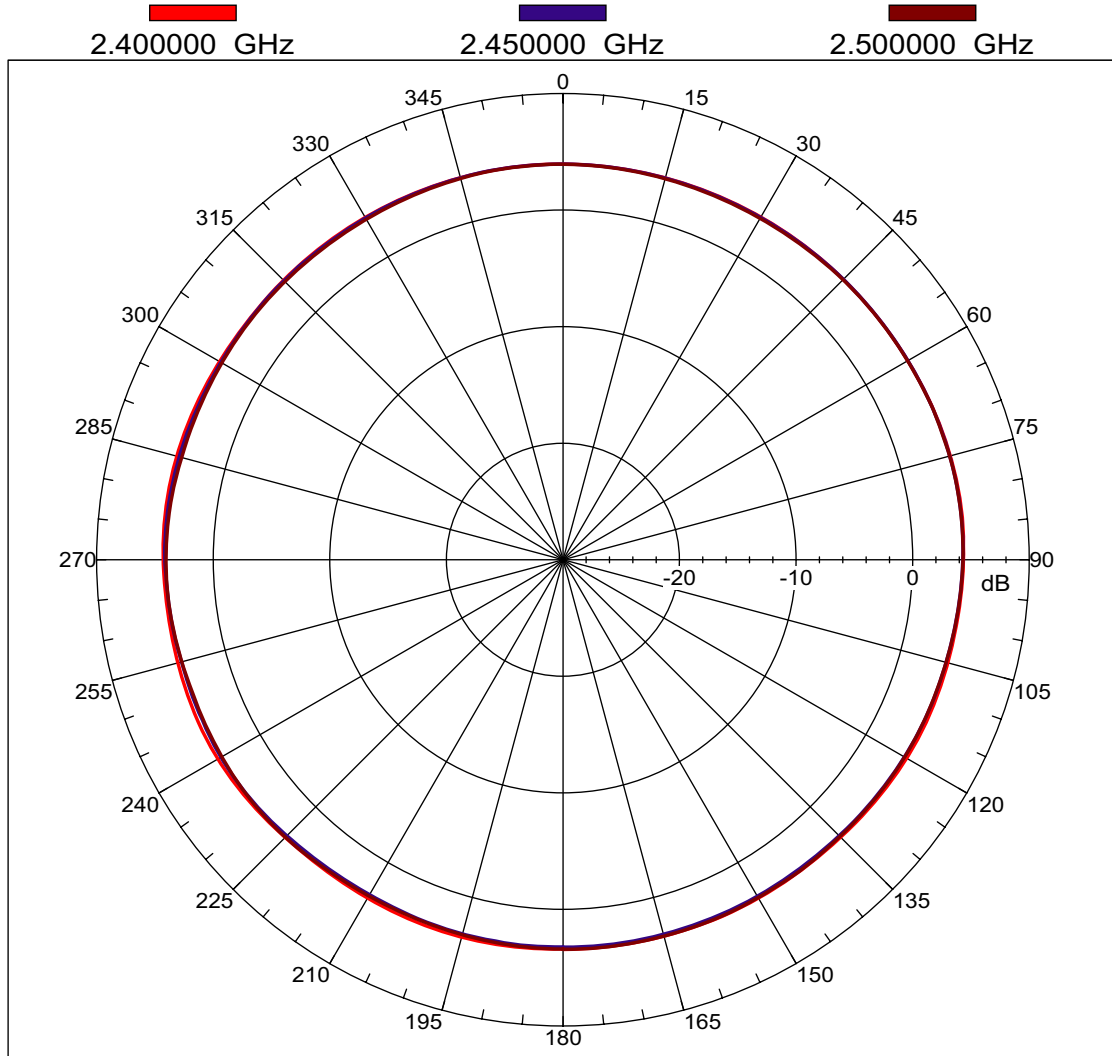


### Far-field amplitude of C037-511053-A-H.nsi





### Far-field amplitude of C037-511053-A-V.nsi





# EVERNEW WIRE & CABLE CO.,LTD.

6,Shang Shing Rd.,Shang Jeau Industrial District,  
Chang An Town,Dongguan,Guangdong,China  
Tel:86-769-5411045  
Fax:86-769-5540257

APPROVED	CHECKED	ENGINEER
ELI	QF	ZQY

APPROVED BY CUSTOMER: \_\_\_\_\_

DOCUMENT NO. RF

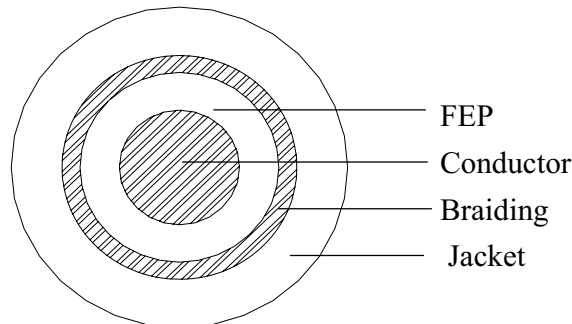
REVISION NO. B/0

## Product Specifications

DATE: 07-10-2009

Construction & Material		Guests Part No.	
Item	Unit	Specification	
Product		RF	
Conductor	Size	mm	32
	Number	C	1
	Material		Silver-Gilt Copper
	Construction	pcs / mm	7/0.084±0.005
	Diameter	mm	0.26
Insulation	Material		FEP
	Nom.thickness	mm	0.22
	Overall Diameter	mm	0.68±0.05
	Color		Transparent
Braiding	Material		Stranded Tinned Copper
	Construction	mm	4/0.05/16
Jacket	Material		FEP
	Nom.thickness	mm	0.12
	Overall Diameter	mm	1.13+0.1/-0.06
	Color		By Order
Marking	None Marking		

Cross - Section View :



NOTE : Please confirmed in two days , Or we will take it as confirmed.

FORM NO. EW-FOR-009C,C/1

電氣性能		
特性阻抗	50±2(TDR,250ps &500ps)	Ω
耐電壓 A.C	0.5/1	KV/min
最小絕緣電阻	1000(650V D.C)	MΩ-km
Attenuation(min)	Frequency(GHZ)	dB/m
	1.0	-2.2
	2.0	-3.0
	2.4~2.5	-3.3
	3.0	-3.9
	4.0	-4.8
	4.8~6.0	-5.3
反射損失(max)	2.4G~2.5G	-20dB/m
	4.8G~6.0G	-15.5dB/m



## AVLV2.E138922 Appliance Wiring Material - Component

Page Bottom

### Appliance Wiring Material - Component

[See General Information for Appliance Wiring Material - Component](#)

**EVERNEW WIRE & CABLE CO LTD**

E138922

5TH FL  
111 KEELUNG RD, SEC 2  
TAIPEI, TAIWAN

Table of Recognized Styles					
<b>Single-conductor, thermoplastic insulation.</b>					
1007	1185	1208	1365	1533	1792
1061	1195	1354	1503	1777	
<b>Multiple-conductor, thermoplastic insulation.</b>					
2464	2725	2854	2960	20276	
2562	2835	2919	2990		

Marking: Company name, voltage rating, temperature rating, conductor size, conductor material if other than copper, and use.  
Last Updated on 2008-10-23

[Questions?](#)[Notice of Disclaimer](#)[Page Top](#)

Copyright © 2009 Underwriters Laboratories Inc.®

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc." must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "Copyright © 2009 Underwriters Laboratories Inc.®"

An independent organization working for a safer world with integrity, precision and knowledge.





Standard	Appliance Wiring Material UL 758.
Marking	General.
Use	Internal wiring of Class 2 circuits of electronic equipment or as insulated single in jacketed multiconductor cables.

和台材料公司 TPE550



70-1 HNACHI-DONG, YEOSU-SI, JEOLLANAM-DO, KOREA HTTP://WWW.CHEMWIDE.COM

Fax : (061)680-6070

Tel : (061)680-1669,1594

### CERTIFICATE OF ANALYSIS

Customer	YOSON INTERNATIONAL CO.,LTD			
Product/Grade	Lot No.	Quantity(Kg)	Date of Issue	Shipment No.
PBT <span style="border: 1px solid red; padding: 2px;">KEYFLEX BT1055D</span> 25KG BAG	A7K0551	3000.000	2007.11.09	20216745

### TYPICAL VALUES

Test Item	Test Method	Remark	Unit	Spec	Results
Low Temp Imp'	ASTM D256	Izod Notched 1/4"	kg cm/cm	Min.8.0	15.6
Melt Flow Index	ASTM D1238	230°Cx 2.16kg	g/10min	20.00~28.00	26.43
Shore Hardness	ASTM D2240		shore-D	53.0~57.0	55.0
Yield strength	ASTM D638	250 mm/min	kg/cm <sup>2</sup>	130~190	142
Flexural Modulus	ASTM D790	15 mm/min	kg/cm <sup>2</sup>	1700~2300	1942
Density	ASTM D1622		kg/m <sup>3</sup>	1.1950~1.2050	1.1986
b	ASTM D2985	CIE(C,2°)b	%	9.00~13.00	9.30

WE HEREBY CERTIFY THAT ABOVE-MENTIONED TEST RESULTS ARE CORRECT AND MEET OUR SPECIFICATIONS.

YEOSU SPECIALTY POLYMERS PLANT

*Jae Seo Ke*

APPROVED BY D.H CHU

Q.A. MANAGER

**LG CHEMICAL LTD**

20 YOIDO-DONG, YONGDUNGPO-GU, SEOUL 150-721 KR

**BT-1055D****Thermoplastic Elastomer (TPE), "KEYFLEX", furnished as pellets**

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
NC, BK	1.5	HB	3	0	50	50	50
	3.0	HB	3	0	50	50	50

Comparative Tracking Index (CTI): **0**Dimensional Stability (%): **-**High-Voltage Arc Tracking Rate (HVTR): **0**High Volt, Low Current Arc Resis (D495): **5**Dielectric Strength (kV/mm): **-**Volume Resistivity (10xohm-cm): **-**

UL94 small-scale test data does not pertain to building materials, furnishings and related contents. UL94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by ULI.

Report Date: 2002-06-11

Last Revised: 2003-10-24

Underwriters Laboratories Inc®

**IEC and ISO Test Methods**

Test Name	Test Method	Units	Thickness Tested (mm)	Value
IEC Flammability	IEC 60695-11-10	Class (color)	1.5	HB75 (NC, BK)
			3.0	HB40 (NC, BK)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m2	-	-
ISO Izod Impact	ISO 180	kJ/m2	-	-
ISO Charpy Impact	ISO 179-2	kJ/m2	-	-

Underwriters Laboratories Inc®





## WONDERLITE® PC-110 代表物性：

June 9, 2004, v2.0

特性	試驗法	單位	試驗條件	PC-110
流動係數 Melt Flow Index	ASTM D1238	g/10min	300°C, 1.2 kg	10
比重 Specific Gravity	ASTM D792	-	23/23°C	1.20
吸水率 Water Absorption (immersion)	ASTM D570	%	24hr at 23°C	0.20
全光穿透率 Light Transmission	ASTM D1003	%	3 mm thick	89
濁度 Haze	ASTM D1003	%	3.2 mm thick	< 0.8
折射率 Refractive Index	ASTM D542	-	-	1.585
引張強度，降伏點 Tensile Strength at Yield	ASTM D638	Kg/cm <sup>2</sup>	23°C	630
延伸率 Tensile Elongation	降伏點 Yield 破斷點 Break	%	23°C	6
			23°C	110
彎曲強度 Flexural Strength	ASTM D790	Kg/cm <sup>2</sup>	23°C	920
彎曲模數 Flexural Modulus	ASTM D790	Kg/cm <sup>2</sup>	23°C	24000
Izod 缺口衝擊強度 Izod Impact Strength (Notched)	ASTM D256	Kg · cm/cm	1/4"	14.3
			1/8"	87
洛式硬度 Rockwell Hardness	ASTM D785	M Scale	-	M-77
壓縮強度 Compressive Strength	ASTM D695	Kg/cm <sup>2</sup>	-	780
熱變形溫度，未退火 Heat Distortion Temperature (unannealed)	ASTM D648	°C	4.6 Kg/cm <sup>2</sup> , 120°C/hr	136
			18.6 Kg/cm <sup>2</sup> , 120°C/hr	125
軟化點 Vicat Softening Temperature	ASTM D1525	°C	1 Kg, 50°C/hr	153
線膨脹係數 Coefficient of Linear Expansion	ASTM D696	x10 <sup>-3</sup> cm/cm/°C	40-100°C	6-8
熱傳導率 Thermal Conductivity	ASTM C177	W/m°C	-	0.2
成型收縮率 Mold Shrinkage	ASTM D955	%	流動方向 parallel	0.5-0.7
			垂直方向 across	0.5-0.7
燃燒率 Flammability	UL 94	1/16"	-	V-2
體積電阻率 Volume Resistivity	ASTM D257	x10 <sup>16</sup> Ω · cm	-	3
介電常數 Dielectric Constant	ASTM D150	-	60 Hz	2.95
			10 <sup>6</sup> Hz	2.9
介電損失 Dielectric Dissipation Factor (tan δ)	ASTM D150	-	60 Hz	0.0004
			10 <sup>6</sup> Hz	0.009
絕緣破壞強度 Dielectric Breakdown Strength	ASTM D149	kV/mm	1.6mm	30
耐電弧性 Arc Resistance (Tungsten electrode)	ASTM D495	sec	-	110
產品特性 / 主要應用 Characteristics/Principal Applications				中黏度 Medium Viscosity

請注意：上表數據僅供參考用。



QMFZ2 Component - Plastics

Wednesday, September 21, 2005

E214362

**CHIMEI-ASAHI CORPORATION**

36 KAIFA 4TH RD RENDE SHIANG TAINAN TW

Material Designation: **PC-110+**

Product Description: Polycarbonate (PC), designated "Wonderlite" furnished as pellets.

Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
ALL	1.5	V-2	2	4	125	105	125	-	-
ALL	2.5	V-2	2	3	125	105	125	-	-
ALL	3.0	HB	2	3	125	105	125	-	-

**CTI: 2 IEC CTI (V): - HVTR: 2 D495: 6 IEC Ball Pressure (°C): -**

**Dielectric Strength (kV/mm): - Volume Resistivity (10<sup>x</sup>ohm-cm): - Dimensional Stability(%): -**  
**ISO Tensile Strength (MPa): - ISO Flexural Strength (MPa): - ISO Heat Deflection (°C): -**  
**ISO Tensile Impact (kJ/m<sup>2</sup>): - ISO Izod Impact (kJ/m<sup>2</sup>): - ISO Charpy Impact (kJ/m<sup>2</sup>): -**

+ Prefix or suffix optional, may be used to denote 0-0.5 percent acid scavengers.

Report Date: 9/25/2001

Underwriters Laboratories Inc®

UL94 small-scale test data does not pertain to building materials, furnishings and related contents. UL 94 small-scale test data is intended solely for determining the flammability of plastic materials used in components and parts of end-product devices and appliances, where the acceptability of the combination is determined by ULI.

台化PC樹脂#2200符合UL及環保規定之檢驗規範

下載參考文件請點選：[加工建議參數](#) [物質安全資料表](#) [UL認證](#) [環保證明](#)



## 台化聚碳酸酯(PC)膠粒物性彙總表

TARFLON PC (Polycarbonate) general properties data sheet

項目 Property	試驗方法 Test Method	單位 Unit	# 2 2 0 0
<u>物理性質 Physical Properties</u>			
密度 Density	ISO1183	kg/m <sup>3</sup>	1.20 × 10 <sup>3</sup>
熔融指數 Melt Flow Index (300°C, 1.2kg)	ISO1133	g/10 min	12
吸水率 Water adsorption	ISO 62	%	0.23
<u>機械性質 Mechanical Properties</u>			
抗張強度 Tensile strength at Yield	ISO 527	Mpa	65
斷張強度 Tensile strength at break	ISO 527	Mpa	65
斷張率 Elongation at break	ISO 527	%	95
張力模數 Tensile modulus	ISO 527	Mpa	2000
彎曲強度 Flexural strength	ISO 178	Mpa	90
彎曲模數 Flexural modulus	ISO 178	Mpa	2300
Charpy衝擊強度 Charpy impact strength(1eA)	ISO 180	kJ/m	80
I洛氏硬度 Rockwell Hardness	ISO 2039-2	R, M-scale	R120, M50
<u>熱學性質 Thermal Properties</u>			
HDT 熱變形溫度 Heat deflection temperature (18.6 kg/cm <sup>2</sup> )	ISO 75-1	°C	125
成型收縮率 Mold Shrinkage	ASTM D 955	%	0.5~0.7
線膨脹係數 Linear expansion factor	ASTM D 696	cm/cm/°C	6.5 × 10 <sup>-5</sup>
<u>電氣性質 Electrical Properties</u>			
絕緣強度 Dielectric strength (1.6 mm)	IEC60243-1	kV/mm	30
體積固有阻抗 Volume resistivity	IEC60093	Ohm × cm	> 10 <sup>16</sup>
誘電率 Dielectric constant	IEC60250	-	2.91

(100 Hz) 誘電率 Dielectric strength	IEC60250	-	2.85
(106 Hz) 誘電正接因子 Dielectric dissipation factor	IEC60250	-	$6.6 \times 10^{-4}$
(100 Hz) 誘電正接因子 Dielectric dissipation factor	IEC60250	-	$9.2 \times 10^{-3}$
(106 Hz) 耐電弧性 Arc resistance	ASTM D 495	sec	110
光學性質 Optical Properties			
折射率 Refractive index (nD25)	ASTM D542	-	1.585
透光率 Light transmittance	ASTM D 1003	%	85~89
燃燒性 Flammability			
燃燒性 Flammability	UL-94	File No. 238753	V-2 (0.36mm) V-2 (1.5mm) HB (1.9mm) HB (3.0mm) HB (6.0mm)

以上數值係依照ISO及ASTM試驗方法所測得，僅供選擇用途品級之參考。

若有任何疑問請洽服務專線：

TEL： **+886-2-27122211** ext. 6617

FAX：+886-2- 2547-3133

E-mail：[kplinmailto:sales.plastic@fcfc.com.tw](mailto:kplinmailto:sales.plastic@fcfc.com.tw)

**FORMOSA IDEMITSU PETROCHEMICAL CORP**

5TH FL, ROOM 660, 201 TUNG HWAN RD, TAIPEI TW

**#2200+(f2), #2500+(f2)**

Polycarbonate (PC), furnished as pellets, powder, sheets, finished parts

Color	Min Thk (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str
ALL	0.36	V-2	-	-	130	125	130
	1.5	V-2	3	0	130	125	130
	2.9	V-2	3	0	130	125	130
	3.0	HB	2	0	130	125	130
	6.0	HB	1	0	130	125	130

Comparative Tracking Index (CTI): **2**Dimensional Stability (%): **0**High-Voltage Arc Tracking Rate (HVTR): **2**High Volt, Low Current Arc Resis (D495): **6**Dielectric Strength (kV/mm): **30**Volume Resistivity (10xohm-cm): **-**

UL94 small-scale test data does not pertain to building materials, furnishings and related contents. UL94 small-scale test data is intended solely for determining the flammability of plastic materials used in the components and parts of end-product devices and appliances, where the acceptability of the combination is determined by ULI.

Report Date: 2003-10-10

Last Revised: 2003-10-24

Underwriters Laboratories Inc®

**IEC and ISO Test Methods**

Test Name	Test Method	Units	Thickness Tested (mm)	Value
IEC Flammability	IEC 60695-11-10	Class (color)	0.36	V-2 (ALL)
			1.5	V-2 (ALL)
			2.9	V-2 (ALL)
			3.0	HB40 (ALL)
			6.0	HB40 (ALL)
Glow-Wire Flammability (GWFI)	IEC 60695-2-12	C	-	-
Glow-Wire Ignition (GWIT)	IEC 60695-2-13	C	-	-
IEC Comparative Tracking Index	IEC 60112	Volts (Max)	-	-
IEC Ball Pressure	IEC 60695-10-2	C	-	-
ISO Heat Deflection (1.80 MPa)	ISO 75-2	C	-	-
ISO Tensile Strength	ISO 527-2	MPa	-	-
ISO Flexural Strength	ISO 178	MPa	-	-
ISO Tensile Impact	ISO 8256	kJ/m2	-	-
ISO Izod Impact	ISO 180	kJ/m2	-	-
ISO Charpy Impact	ISO 179-2	kJ/m2	-	-

Underwriters Laboratories Inc®



## PRODUCT SPECIFICATION

### HAMBURG H-2(CB) 環保阻燃熱收縮套管(薄品)

Environmentally friendly, flexible, ultra thin-wall, flame-retardant polyolefin tubing

#### ■ 應用

HAMBURG H-2(CB)系柔軟、阻燃、輻照交聯聚烯烴復合物制成之環保超薄型熱收縮套管，通過 UL 及 CSA 認證。H-2(CB)系超薄設計，快速收縮，特別適用於空間緊張和對溫度敏感の場合。例如，高密度連接器的應力解除，輕、薄、小、熱敏元件的絕緣保護等。H-2(CB)不含 PCBs、PCPs、PBBs、PBBOs、PBBEs、PBDEs 等對環境有害的物質、符合環保要求。

#### ■ 特點

- ◎收縮比 2 : 1
- ◎低溫收縮、快速收縮
- ◎柔軟、高阻燃
- ◎優異的物理、化學及電學性能
- ◎不含 PCBs、PCPs、PBBs、PBBOs、PBBEs、PBDEs 等對環境有害的物質，符合歐洲 RoHS 環保指令及 SONY SS00259 標準的要求。
- ◎可提供多種規格及顏色

#### ■ 溫度範圍

- ◎連續使用溫度：-55°C~125°C
- ◎最低起始收縮溫度：60°C
- ◎最低完全收縮溫度：100°C

#### ■ 認證 / 符合標準

- ◎UL224 E255394 125°C 300V VW-1
- ◎CSA C22.2 229705 125°C 150V VW-1

#### ■ Application

HAMBURG H-2(CB) is environmentally friendly, flexible, ultra thin-wall, flexible, flame-retardant, irradiated crosslinking heat-shrinkable modified polyolefin tubing. It is designed for applications that require an ultra thin wall for rapid shrinking and space saving. Low shrink temperature further reduces installation time and the risk of damage to temperature-sensitive components.

#### ■ Features/Benefits

- ◎Shrink ration:2:1
- ◎Low shrink temperature
- ◎Ultra thin-wall, rapid shrinking.
- ◎Very flexible, flame-retardant
- ◎Free of PCBs, PCPs, polybrominated biphenyls (PBBs), polybrominated biphenyl oxides and others (PBBOs, PBBEs, and PBDEs) and toxic heavy metal (Pb, Cd, Hg, Cr6+) compounds, which are classified as environmentally hazardous substances. Conforms to European RoHS environmental directive.
- ◎Wide range of sizes and colors

#### ■ Operation Temperature Range

- ◎Operating temperature range: -55°C~125°C
- ◎Minimum shrink temperature: 60°C
- ◎Minimum full recovery temperature: 100°C

#### ■ Standards/Approvals

- ◎UL224 E255394 125°C 300V VW-1
- ◎CSA C22.2 229705 125°C 150V VW-1

HAMBURG H-2 (CB)

For further information, please contact:

Tel: 886 2 2662 8882 Fax: 886 2 2662 7201~2 E-mail: [Taipei@hamburg.com.tw](mailto:Taipei@hamburg.com.tw) URL: <http://www.hamburg.com.tw>



# HAMBURG INDUSTRIES CO.,LTD

6FL, No.12, Lane 270, Sec.3, Pei Shen Rd., Shen Keng Hsiang, Taipei Hsien, Taiwan 222

## ■ 性能指標 Specification values

特性	項目 Property	指標要求 Requirement	測試方法 Test method	曲型值 Typical data
物理特性 Physical	軸向收縮率	5%max	ASTM D 2671	≤5%
	同心度 Concentricity	70%min	ASTM D 2671	≥70%
	抗張強度 Tensile strength	10.4Mpa min	ASTM D 638	≥14.0MPa
	斷裂伸長率 Elongation	200%min	ASTM D 638	≥400%
	熱沖擊 Heat shock	無裂痕 No cracking	ASTM D 2671	通過 Pass
	低溫柔軟性(-55°C,4小時) Low temperature flexibility-55°C,4hrs	無裂痕 No cracking	ASTM D 2671	通過 Pass
	熱老化 158°C,168 小時			通過 Pass
	老化后抗張強度 Tensile strength after aging	初始值的 70%以上 70% of original min	ASTM D 638	≥90%
	老化后斷裂伸長率 Elongation after aging	100%min	ASTM D 638	≥300%
電學特性 Electrical	絕緣耐壓和擊穿 Dielectric voltage withstand	2500V,60sec,不擊穿 No Breakdown	UL224	通過 Pass
	絕緣強度 Dielectric strength	19.7KV/mm min	ASTM D 2671	25KV/mm
	體積電阻率 Volume resistivity	10 <sup>14</sup> Ω.cm min	ASTM D 876	≥10 <sup>14</sup> Ω.cm
化學特性 Chemical	銅腐蝕 Corrosion	無裂痕 No cracking	ASTM D 2671	通過 Pass
	銅穩定性	伸長率≥100%	ASTM D 2671	通過
	阻燃性 Flammability	VW-1	UL224	通過 Pass

HAMBURG H-2 (CB)

For further information, please contact:

Tel: 886 2 2662 8882 Fax: 886 2 2662 7201~2 E-mail: [Taipei@hamburg.com.tw](mailto:Taipei@hamburg.com.tw) URL: <http://www.hamburg.com.tw>



# HAMBURG INDUSTRIES CO.,LTD

6FL, No.12, Lane 270, Sec.3, Pei Shen Rd., Shen Keng Hsiang, Taipei Hsien, Taiwan 222

## 規格尺寸 Product sizes

規格 Size(mm)	收縮前(mm) As supplied		收縮后(mm) After recovery		包裝 Standard length (M/卷)
	內徑 Inside diameter	壁厚 Wall thickness	內徑 Inside diameter (max.)	壁厚 Wall thickness (min.)	
Φ0.8	1.0 ± 0.2	0.10 ± 0.03	0.5	0.20	200
Φ1.0	1.4 ± 0.2	0.10 ± 0.03	0.6	0.20	200
Φ1.5	1.9 ± 0.2	0.10 ± 0.03	0.75	0.20	200
Φ2.0	2.4 ± 0.2	0.12 ± 0.03	1.0	0.20	200
Φ2.5	2.8 ± 0.3	0.13 ± 0.05	1.25	0.25	200
Φ3.0	3.4 ± 0.3	0.13 ± 0.05	1.5	0.25	200
Φ3.5	3.9 ± 0.3	0.13 ± 0.05	1.75	0.25	200
Φ4.0	4.4 ± 0.3	0.15 ± 0.05	2.0	0.25	200
Φ5.0	5.5 ± 0.3	0.15 ± 0.05	2.5	0.25	100
Φ6.0	6.5 ± 0.3	0.15 ± 0.05	3.0	0.28	100
Φ7.0	7.5 ± 0.3	0.15 ± 0.05	3.5	0.28	100
Φ8.0	8.6 ± 0.4	0.15 ± 0.05	4.0	0.28	100
Φ9.0	9.6 ± 0.4	0.15 ± 0.05	4.5	0.28	100
Φ10.0	10.6 ± 0.4	0.15 ± 0.05	5.0	0.28	100
Φ11.0	11.6 ± 0.4	0.18 ± 0.05	5.5	0.28	100
Φ12.0	12.6 ± 0.4	0.20 ± 0.05	6.0	0.28	100
Φ13.0	13.6 ± 0.4	0.20 ± 0.05	6.5	0.30	100
Φ14.0	14.6 ± 0.4	0.20 ± 0.05	7.0	0.30	100
Φ15.0	15.6 ± 0.5	0.20 ± 0.05	7.5	0.32	100
Φ16.0	16.6 ± 0.5	0.20 ± 0.05	8.0	0.36	100
Φ18.0	18.6 ± 0.5	0.22 ± 0.05	9.0	0.36	100
Φ20.0	21.0 ± 1.0	0.25 ± 0.05	10.0	0.36	50
Φ22.0	23.0 ± 1.0	0.25 ± 0.05	11.0	0.40	50
Φ25.0	26.0 ± 1.0	0.25 ± 0.05	12.5	0.40	50

HAMBURG H-2 (CB)

### Ordering Information

#### ◎Color

Standard: Black (-BK), White(-WH),Red(-RD), Blue(-BL), Yellow(-YL), Green(-GR),  
Nonstandard: Available upon request.

◎Nonstandard size: Special sizes are available upon request.

◎Standard packaging: On spools, Cut pieces are available upon request.

◎Ordering description: Specify product type, size(mm or inch)and color.

For further information, please contact:

Tel: 886 2 2662 8882 Fax: 886 2 2662 7201~2 E-mail: [Taipei@hamburg.com.tw](mailto:Taipei@hamburg.com.tw) URL: <http://www.hamburg.com.tw>



# UL Online Certifications Directory

## YDPU2.E255394 Tubing, Extruded Insulating - Component

Page Bottom

### Tubing, Extruded Insulating - Component

See General Information for Tubing, Extruded Insulating - Component

**HAMBURG INDUSTRIES CO LTD**

E255394

6TH FL

12 LANE 270 PEI SHEN RD, SEC 3

SHEN KENG HSIANG, TAIPEI HSIEN 222 TAIWAN

Cat. No.	Max V	Max Oper Temp	Shrinkdown Class	Col Recognized	Max Temp Rated Oil Resistance * C	VW-1 Rated #
<b>Flexible Heat Shrinkable Polyolefin tubing.</b>						
H-2(+)	600	125	I	All except CL	None	Yes##
H-2 (CB)	150	125	I	Black and White	None	Yes

#Tubing is considered to comply with the optional VW-1 flammability requirements only if it is so marked.

## VW-1 flammability rating limited to Black color only.

+ in the designation represents CTMS/TMS.

(CB) - Indicates 150V rated thin-walled tubing with a wall thickness in accordance with UL 224.

Marking: Company name Recognized Component Mark, the catalog designation, temperature rating in degrees C, and voltage rating appear on tags attached to both ends of the tubing or on the shipping spool label or smallest unit container.

Last Updated on 2006-06-30

[Questions?](#)

[Notice of Disclaimer](#)

[Page Top](#)

Copyright © 2006 Underwriters Laboratories Inc.®

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc." must appear adjacent to the extracted material. In addition, the reprinted material must include a copyright notice in the following format: "Copyright © 2006 Underwriters Laboratories Inc.®"

An independent organization working for a safer world with integrity, precision and knowledge





# Certificate of Compliance

Certificate: 229705

Project: 1661899M

Date Issued: April 28, 2005

Issued to: Hamburg Industries Co., Ltd.  
6F., No. 12, Lane 270, Sec. 3,  
Pei Shen Rd., Shen Keng Hsiang,  
Taipei Hsien, Taiwan

*The products listed below are eligible to bear the CSA Mark shown*



Authorized by:  Fred Mark  
Director, Far East Operation

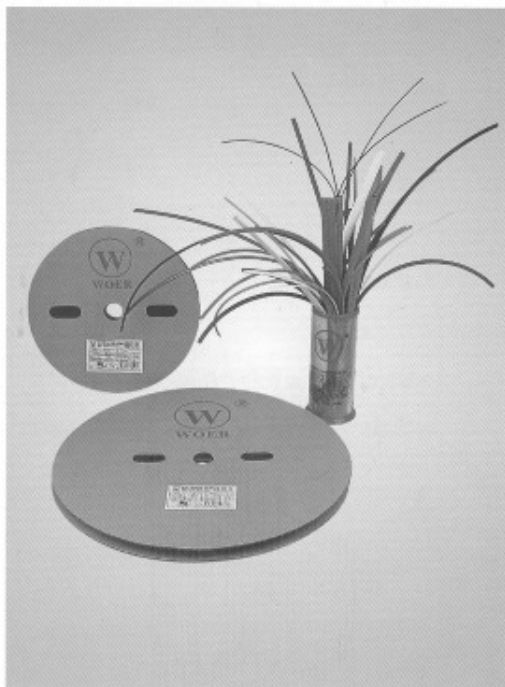
## PRODUCTS

CLASS 9032 01 - INSULATING DEVICES AND MATERIALS Insulating Tubing and Sleeving

- Flexible, heat-shrinkable, Cross-linked polyolefin tubing:

Cat No	Voltage Rating (V)	Temp Rating (C)	Trade Size (mm)	Notes
HAMBURG H-2	600	125	1.0-30	1

Note: In all colours except clear or translucent.



安规标准: UL224 VW-1  
C-UL CSA C 22.2 OFT

**WOER RSFR (H) 系列** H无卤环保阻燃热收缩套管采用优质高聚物, 经科学配方、机械共混成高聚物合金, 产品成型后经电子加速器辐照交联、连续扩张而成。产品具有环保、柔软、阻燃、收缩快、性能稳定等优点。广泛应用于电线连接、焊点保护、电线端部、线束及电子元器件的防护和绝缘处理; 健身器材零部件和钢结构表面防护; 相关产品的防锈、防腐处理; 电线和其它产品的标识等。

特点:

- ①八大有害元素、卤素元素通过SGS检测;
- ②不含有机锡化合物(三丁基锡类/三苯基锡类)、石棉(Asbestos)、烟雾剂(AzoCompounds)及限制其释放的物质-甲醛;
- ③适用范围:  $-55^{\circ}\text{C} \sim 125^{\circ}\text{C}$ ;
- ④起始收缩温度 $70^{\circ}\text{C}$ , 超薄型完全收缩温度 $110^{\circ}\text{C}$ , 普通型完全收缩温度 $120^{\circ}\text{C}$ , 轴向收缩率 $\leq 5\%$ ;
- ⑤柔软、阻燃;
- ⑥规格齐全,  $\phi 0.6 \sim \phi 180$ , 并可定制特殊规格;
- ⑦使用方便, 用烘箱和热风枪加热即可收缩。
- ⑧环保性能符合Sony与欧盟RoHS等环保标准。

标准颜色: 见标准颜色表, 其中“+”表示比色卡颜色偏深, “-”表示比色卡颜色偏浅。黑、白、红、黄、绿、蓝色为基本颜色, 常备库存, 其它颜色不备库存, 需定做。

## H管标准颜色

标准颜色	黑色	白色	红色	黄色	绿色	蓝色	紫色	灰色	棕色	铁红
产品颜色标识			186U	114U	3288U	646U	2735U	427U	483U <sup>-</sup>	484U <sup>-</sup>
H管彩色颜色色标										

## 性能特性

性能		测试方法	性能指标	
物理特性	拉伸强度 (MPa)	GB/T1040	$\geq 10.4$	
	断裂伸长率 (%)	GB/T1040	$\geq 200$	
	热老化后拉伸强度 (MPa)	UL 224 $158^{\circ}\text{C} \times 168\text{hr}$	$\geq 7.3$	
	热老化后断裂伸长率 (%)	UL 224 $158^{\circ}\text{C} \times 168\text{hr}$	$\geq 100$	
	耐热冲击	UL 224 $250^{\circ}\text{C} \times 4\text{hr}$	不发粘 不龟裂	
	抗冷弯曲	UL 224 $-30^{\circ}\text{C} \times 4\text{hr}$	不龟裂	
电气特性	击穿强度 (kv/mm)	GB/T1408	$\geq 15$	
	耐压	150V	UL 224	1500V不击穿
		600V	UL 224	2500V不击穿
	体积电阻率 ( $\Omega \cdot \text{cm}$ )	GB/T1410	$\geq 1 \times 10^{14}$	
化学特性	抗腐蚀性	UL 224 $158^{\circ}\text{C} \times 168\text{hr}$	PASS	
	铜安定性	UL 224 $158^{\circ}\text{C} \times 168\text{hr}$	PASS	
	阻燃性	UL 224	VW-1	

## 环保特性

有害元素名称	测试方法	指标(mg/kg)	有害元素名称	测试方法	指标(mg/kg)
镉 (Cd)	EN1122:2001Method B	$\leq 5$	硒 (Se)	EPA 3052	$\leq 25$
铅 (Pb)	EPA 3050 B	$\leq 90$	氟 (F)	EN 14582 Method B	$\leq 200$
锑 (Sb)	EPA 3050 B	$\leq 60$	氯 (Cl)	EN 14582 Method B	$\leq 800$
钡 (Ba)	EPA 3050 B	$\leq 1000$	溴 (Br)	EN 14582 Method B	$\leq 800$
铬 (Cr)	EPA 3050 B	$\leq 5$	碘 (I)	EN 14582 Method B	$\leq 200$
汞 (Hg)	EPA 3052	$\leq 5$	其中多溴联苯 (PBB)	EPA3540C或3550C	禁用
砷 (As)	EPA 3052	$\leq 50$	多溴联苯醚 (PBDE)	EPA3540C或3550C	禁用

H管(无卤环保阻燃热缩套管)产品规格

规格 (mm)	收缩前尺寸 (mm)		收缩后尺寸 (mm)		标准包装			适用范围 (mm)
	内径	壁厚	内径	壁厚	米/盘	盘/箱	包装箱规格(cm)	
Φ0.6	0.9±0.2	0.15±0.05	≤0.40	0.22±0.10	200	23	31×31×44.5	0.5~0.7
Φ0.8	1.1±0.2	0.15±0.05	≤0.50	0.22±0.10	200	23	31×31×44.5	0.6~0.8
Φ1.0	1.5±0.2	0.15±0.05	≤0.65	0.28±0.10	200	16	31×31×44.5	0.75~0.9
Φ1.5	2.0±0.2	0.18±0.05	≤0.85	0.32±0.10	200	12	31×31×44.5	0.95~1.4
Φ2.0	2.5±0.2	0.18±0.05	≤1.00	0.35±0.10	200	15	46×46×44.5	1.1~1.8
Φ2.5	3.0±0.2	0.18±0.05	≤1.30	0.38±0.10	200	13	46×46×44.5	1.4~2.3
Φ3.0	3.5±0.2	0.18±0.05	≤1.50	0.40±0.10	200	11	46×46×44.5	1.6~2.7
Φ3.5	4.0±0.2	0.22±0.05	≤1.80	0.42±0.10	200	9	46×46×44.5	1.9~3.2
Φ4.0	4.5±0.2	0.25±0.05	≤2.00	0.45±0.10	200	7	46×46×44.5	2.1~3.6
Φ4.5	5.0±0.2	0.25±0.05	≤2.30	0.50±0.10	100	10	46×46×44.5	2.4~4.0
Φ5.0	5.5±0.2	0.25±0.05	≤2.5	0.55±0.10	100	9	46×46×44.5	2.6~4.5
Φ5.5	6.0±0.2	0.25±0.05	≤2.75	0.55±0.10	100	8	46×46×44.5	2.85~5.0
Φ6.0	6.5±0.2	0.28±0.05	≤3.0	0.55±0.10	100	7	46×46×44.5	3.1~5.4
Φ7.0	7.5±0.3	0.28±0.05	≤3.5	0.55±0.10	100	14	46×46×31	3.7~6.3
Φ8.0	8.5±0.3	0.28±0.05	≤4.0	0.60±0.10	100	13	46×46×31	4.2~7.2
Φ9.0	9.5±0.3	0.30±0.08	≤4.5	0.60±0.10	100	12	46×46×31	4.7~8.0
Φ10	10.5±0.3	0.30±0.08	≤5.0	0.60±0.10	100	11	46×46×31	5.2~9.0
Φ11	11.5±0.3	0.30±0.08	≤5.5	0.60±0.10	100	11	46×46×31	5.7~10
Φ12	12.5±0.3	0.30±0.08	≤6.0	0.60±0.10	100	10	46×46×31	6.2~11
Φ13	13.5±0.3	0.35±0.10	≤6.5	0.65±0.10	100	9	46×46×29.5	6.7~12
Φ14	14.5±0.3	0.35±0.10	≤7.0	0.65±0.10	100	9	46×46×31	7.3~13
Φ15	15.5±0.4	0.40±0.12	≤7.5	0.70±0.10	100	8	46×46×29.5	7.8~14
Φ16	16.5±0.4	0.40±0.12	≤8.0	0.70±0.10	100	8	46×46×31	8.3~15
Φ17	17.5±0.4	0.40±0.12	≤8.5	0.70±0.10	100	7	46×46×29.5	8.8~16
Φ18	19.0±0.5	0.40±0.15	≤9.0	0.80±0.15	100	7	46×46×29.5	9.3~17
Φ20	21.0±0.5	0.40±0.15	≤10.0	0.80±0.15	100	6	46×46×29.5	10.4~19
Φ22	23.0±0.5	0.40±0.15	≤11.0	0.80±0.15	100	6	46×46×31	11.4~21
Φ25	26.0±0.5	0.50±0.15	≤12.5	0.90±0.15	50	6	46×46×31	12.9~24
Φ28	29.0±0.5	0.50±0.15	≤14.0	0.90±0.15	50	5	46×46×29.5	14.4~27
Φ30	31.5±1.0	0.50±0.15	≤15.0	0.95±0.15	50	5	46×46×31	16~29
Φ35	36.5±1.0	0.50±0.15	≤17.5	1.00±0.15	50	4	46×46×29.5	18~34
Φ40	41.5±1.0	0.55±0.15	≤20.0	1.00±0.15	50	4	46×46×31	21~39
Φ45	46.5±1.0	0.55±0.15	≤22.5	1.00±0.15	25	5	31×31×40.5	23.5~44
Φ50	≥50	0.55±0.15	≤25.0	1.00±0.15	25	5	31×31×44.5	26~49
Φ60	≥60	0.60±0.15	≤31.0	1.30±0.20	25	4	31×31×42	35~55
Φ70	≥70	0.65±0.15	≤36.0	1.30±0.20	25	3	31×31×37	40~65
Φ80	≥80	0.65±0.15	≤41.0	1.46±0.20	25	3	31×31×42	45~75
Φ90	≥90	0.65±0.15	≤46.0	1.46±0.20	25	2	31×31×32	50~85
Φ100	≥100	0.65±0.20	≤51.0	1.46±0.20	25	2	31×31×34.5	55~95
Φ120	≥120	0.65±0.20	≤61.0	1.56±0.20	15	2	31×31×40.5	65~115
Φ150	≥150	0.65±0.20	≤76.0	1.56±0.20	15	2	31×31×49.5	80~145
Φ180	≥180	0.65±0.30	≤91.0	1.56±0.20	15	1	31×31×31	95~175

H管(无卤环保阻燃热缩套管)产品规格(英制)

英寸 Inch	规格 (mm)	收缩前尺寸 (mm)		收缩后尺寸 (mm)		标准包装			适用范围 (mm)
		内径	壁厚	内径	壁厚	米/盘	盘/箱	包装箱规格(cm)	
3/64	Φ0.8	1.1±0.2	0.15±0.05	≤0.50	0.22±0.10	200	23	31×31×44.5	0.6~0.8
1/16	Φ1.0	1.5±0.2	0.15±0.05	≤0.65	0.28±0.10	200	16	31×31×44.5	0.75~0.9
3/32	Φ2.0	2.5±0.2	0.18±0.05	≤1.00	0.35±0.10	200	15	46×46×44.5	1.1~1.8
1/8	Φ3.0	3.5±0.2	0.18±0.05	≤1.50	0.40±0.10	200	11	46×46×44.5	1.6~2.7
3/16	Φ4.5	5.0±0.2	0.25±0.05	≤2.30	0.50±0.10	100	10	46×46×44.5	2.4~4.0
1/4	Φ6.0	6.5±0.2	0.28±0.05	≤3.0	0.55±0.10	100	7	46×46×44.5	3.1~5.4
3/8	Φ9.0	9.5±0.3	0.30±0.08	≤4.5	0.60±0.10	100	12	46×46×31	4.7~8.0
1/2	Φ12	12.5±0.3	0.30±0.08	≤6.0	0.60±0.10	100	10	46×46×31	6.2~11
3/4	Φ18	19.0±0.5	0.40±0.15	≤9.0	0.80±0.15	100	7	46×46×29.5	9.3~17
1	Φ25	26.0±0.5	0.50±0.15	≤12.5	0.90±0.15	50	6	46×46×31	12.9~24
1-1/4	Φ28	29.0±0.5	0.50±0.15	≤14.0	0.90±0.15	50	5	46×46×29.5	14.4~27
1-1/2	Φ40	41.5±1.0	0.55±0.15	≤20.0	1.00±0.15	50	4	46×46×31	21~39
2	Φ50	≥50	0.55±0.15	≤25.0	1.00±0.15	25	5	46×46×44.5	26~49
3	Φ80	≥80	0.65±0.15	≤41.0	1.46±0.20	25	3	31×31×42	45~75
4	Φ100	≥100	0.65±0.20	≤51.0	1.46±0.20	25	2	31×31×34.5	55~95
5	Φ120	≥120	0.65±0.20	≤61.0	1.56±0.20	15	2	31×31×40.5	65~115



**H-CB管(无卤环保阻燃超薄型热缩套管)产品规格**

规格 (mm)	收缩前尺寸 (mm)		收缩后尺寸 (mm)		标准包装			适用范围 (mm)
	内径	平均壁厚	最大内径	平均壁厚	米/盘	盘/箱	包装箱规格(cm)	
Φ1.0CB	1.40±0.2	0.13±0.05	≤0.65	0.20±0.10	200	19	31×31×44.5	0.7~1.0
Φ1.5CB	1.90±0.2	0.13±0.05	≤0.85	0.20±0.10	200	13	31×31×44.5	0.9~1.4
Φ2.0CB	2.40±0.2	0.13±0.05	≤1.00	0.22±0.10	200	18	46×46×44.5	1.1~1.8
Φ2.5CB	2.90±0.2	0.13±0.05	≤1.30	0.25±0.10	200	15	46×46×44.5	1.4~2.3
Φ3.0CB	3.40±0.2	0.13±0.05	≤1.50	0.28±0.10	200	13	46×46×44.5	1.6~2.7
Φ3.5CB	3.90±0.2	0.13±0.05	≤1.80	0.28±0.10	200	10	46×46×44.5	1.9~3.2
Φ4.0CB	4.40±0.2	0.15±0.05	≤2.00	0.30±0.10	200	8	46×46×44.5	2.1~3.6
Φ4.5CB	4.90±0.2	0.15±0.05	≤2.30	0.30±0.10	100	10	46×46×44.5	2.4~4.0
Φ5.0CB	5.50±0.2	0.15±0.05	≤2.5	0.32±0.10	100	10	46×46×44.5	2.6~4.5
Φ6.0CB	6.50±0.2	0.15±0.05	≤3.0	0.32±0.10	100	8	46×46×44.5	3.1~5.4
Φ7.0CB	7.5±0.3	0.15±0.05	≤3.5	0.32±0.10	100	20	31×31×44.5	3.7~6.3
Φ8.0CB	8.5±0.3	0.15±0.05	≤4.0	0.32±0.10	100	18	31×31×44.5	4.2~7.2
Φ9.0CB	9.5±0.3	0.15±0.05	≤4.5	0.35±0.10	100	18	31×31×44.5	4.7~8.0
Φ10CB	10.5±0.3	0.15±0.05	≤5.0	0.35±0.10	100	16	31×31×44.5	5.2~9.0
Φ11CB	11.5±0.3	0.18±0.05	≤5.5	0.40±0.10	100	15	31×31×44.5	5.7~10.0
Φ12CB	12.5±0.3	0.20±0.05	≤6.0	0.40±0.10	100	10	46×46×31	6.2~11.0
Φ13CB	13.5±0.3	0.20±0.05	≤6.5	0.40±0.10	100	9	46×46×29.5	6.7~12.0
Φ14CB	14.5±0.3	0.20±0.05	≤7.0	0.40±0.10	100	9	46×46×29.5	7.3~13.0
Φ15CB	15.5±0.4	0.20±0.05	≤7.5	0.40±0.10	100	8	46×46×29.5	7.8~14.0
Φ16CB	16.5±0.4	0.22±0.05	≤8.0	0.40±0.10	100	8	46×46×31	8.3~15.0
Φ17CB	17.5±0.4	0.22±0.05	≤8.5	0.40±0.10	100	8	46×46×29.5	8.8~16.0
Φ18CB	18.5±0.4	0.22±0.05	≤9.0	0.42±0.10	100	7	46×46×29.5	9.3~17.0
Φ20CB	20.5±0.5	0.25±0.05	≤10.0	0.45±0.10	100	6	46×46×29.5	10.5~19.0
Φ22CB	22.5±0.5	0.25±0.05	≤11.0	0.45±0.10	100	6	46×46×29.5	11.5~20.5
Φ25CB	25.5±0.5	0.25±0.05	≤12.5	0.45±0.10	50	6	46×46×31	13.0~24.0

**H-CB管(无卤环保阻燃超薄型热缩套管)产品规格(英制)**

英寸 Inch	规格 (mm)	收缩前尺寸 (mm)		收缩后尺寸 (mm)		标准包装			适用范围 (mm)
		内径	平均壁厚	内径	平均壁厚	米/盘	盘/箱	包装箱规格(cm)	
1/16	Φ1.0 CB	1.40±0.20	0.13±0.05	≤0.65	0.20±0.10	200	19	31×31×44.5	0.7~1.0
3/32	Φ2.0 CB	2.40±0.20	0.13±0.05	≤1.00	0.22±0.10	200	18	46×46×44.5	1.1~1.8
1/8	Φ3.0 CB	3.40±0.20	0.13±0.05	≤1.50	0.28±0.10	200	13	46×46×44.5	1.6~2.7
3/16	Φ4.5 CB	4.90±0.20	0.15±0.05	≤2.30	0.30±0.10	100	10	46×46×44.5	2.4~4.0
1/4	Φ6.0 CB	6.50±0.20	0.15±0.05	≤3.0	0.32±0.10	100	8	46×46×44.5	3.1~5.4
3/8	Φ9.0 CB	9.50±0.30	0.15±0.05	≤4.5	0.35±0.10	100	18	31×31×44.5	4.7~8.0
1/2	Φ12.0 CB	12.5±0.30	0.20±0.05	≤6.0	0.40±0.10	100	10	46×46×31	6.2~11.0
3/4	Φ18.0 CB	18.5±0.40	0.22±0.05	≤9.0	0.42±0.10	100	7	46×46×29.5	9.3~17.0
1	Φ25.0 CB	25.5±0.50	0.25±0.05	≤12.5	0.45±0.10	50	6	46×46×31	12.5~25.5



**YDPU8.E203950**

**Tubing, Extruded Insulating Certified for Canada - Component**

[Page Bottom](#)

**Tubing, Extruded Insulating Certified for Canada - Component**

[See General Information for Tubing, Extruded Insulating Certified for Canada - Component](#)

**SHENZHEN WOER HEAT-SHRINKABLE MATERIAL CO LTD**

E203950

XINWEI INDUSTRIAL PARK, WOER MANSION  
NANSHAN DISTRICT, XILI  
SHENZHEN, GUANGDONG 518052 CHINA


Cat. No.	Max V	Max Temp C	Col Recognized	Max Temp Rated Oil Resistance C	VW-1 Rated #
<b>Heat-Shrinkable Polyolefin Tubing</b>					
RSFR-x	600	125	Black	None	Yes
RSFR-x	600	125	White	None	Yes
WKZM-x-yz	600	125	White	None	No
RSFR-H	600	125	All except Clear	None	Yes
RSFR(CB)	300	125	All except Clear	None	Yes
<b>Not Heat-Shrinkable PTFE Tubing</b>					
WF	600	200	Natural	None	Yes
<b>Heat-Shrinkable Polyolefin Tubing with Meltable Liner</b>					
SBRS	600	105	All except Clear	None	Yes
<b>Not Heat-Shrinkable Standard Wall Silicone Tubing</b>					
WST-600	600	150	White	None	@

x - Designated tubing expanded ID. For Black color tubing, x represents expanded ID of 2 mm - 8 mm. For White color tubing, x represents expanded ID of 1mm - 50 mm.

yz - Represents any alpha and/or numeric combination for internal client code.

# - Tubing is considered to comply with the optional VW-1 flammability requirements only if it is so marked.

@ - VW-1 rated for internal diameter sizes 6.50 - 15.00 mm only.

Marking: Company name or file number "E203950", catalog number, voltage rating, temperature rating in degrees C, inside diameter (before and after recovery), date of manufacture and the Recognized Component Mark for Canada  on tags attached to both ends of the tubing or on the shipping spool label or smallest unit container.

Last Updated on 2007-09-25

[Questions?](#)

[Notice of Disclaimer](#)

[Page Top](#)

Copyright © 2007 Underwriters Laboratories Inc.®

The appearance of a company's name or product in this database does not in itself assure that products so identified have been manufactured under UL's Follow-Up Service. Only those products bearing the UL Mark should be considered to be Listed and covered under UL's Follow-Up Service. Always look for the Mark on the product.

UL permits the reproduction of the material contained in the Online Certification Directory subject to the following conditions: 1. The Guide Information, Designs and/or Listings (files) must be presented in their entirety and in a non-misleading manner, without any manipulation of the data (or drawings). 2. The statement "Reprinted from the Online Certifications Directory with permission from Underwriters Laboratories Inc."

## 樣品檢驗記錄表

編號: SSR- 210189

檢驗項目	詳裕料號/ 專案代號	品名/規格	RF Antenna	數量	5	樣品編號								日期	判定	
						1	2	3	4	5	6	7	8			9
尺寸	1	35	34	3		35	36	35.5	34.5							<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG
	2															<input type="checkbox"/> OK <input type="checkbox"/> NG
	3															<input type="checkbox"/> OK <input type="checkbox"/> NG
	4															<input type="checkbox"/> OK <input type="checkbox"/> NG
	5															<input type="checkbox"/> OK <input type="checkbox"/> NG
	6															<input type="checkbox"/> OK <input type="checkbox"/> NG
	7															<input type="checkbox"/> OK <input type="checkbox"/> NG
	8															<input type="checkbox"/> OK <input type="checkbox"/> NG
外觀	1	咬花		樣品或規格												<input type="checkbox"/> OK <input type="checkbox"/> NG
	2	配色		樣品或規格												<input type="checkbox"/> OK <input type="checkbox"/> NG
	3	印刷		樣品或規格												<input type="checkbox"/> OK <input type="checkbox"/> NG
	4	亮霧度		樣品或規格												<input type="checkbox"/> OK <input type="checkbox"/> NG
電氣特性	1	VSWR		1.92												<input type="checkbox"/> OK <input type="checkbox"/> NG
	2	S11														<input type="checkbox"/> OK <input type="checkbox"/> NG
	3	Gain		4												<input type="checkbox"/> OK <input type="checkbox"/> NG
零件組配性		各零件組配性狀況		樣品或規格												<input type="checkbox"/> OK <input type="checkbox"/> NG
材料選用確認		是否依照成品圖之材料														<input type="checkbox"/> OK <input type="checkbox"/> NG

備注:

※量測工具: a游標卡尺 b塞規 c深度規 d工具顯微鏡 e厚薄規 f分厘卡 g扭力計 h拉拔測試機 i組配

尺寸檢驗:標注在附圖Mark表示

核 準: Denok  
2011.28

審 核: o

工 程 師: 林志平





