





**M.gear**

**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

<b>CUSTOMER:</b>	明泰科技股份有限公司	產地: 大陸吳江市·東莞市
<b>PART NAME:</b>	RF Antenna Cable Assembly	產品單重:5900mg
<b>PART NO.:</b>		<b>REVISION:</b>
<b>W. Y. P/NO.:</b>	C037-511000-A(SSR-92258)	<b>REV.:</b> X1

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
<b>APPROVED BY :</b>	張達東 	
<b>DATE :</b>	09.07.30 	

### WHA YU GROUP

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# RF Antenna Cable Assembly

## Specification

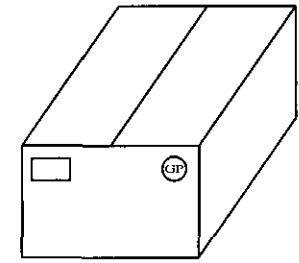
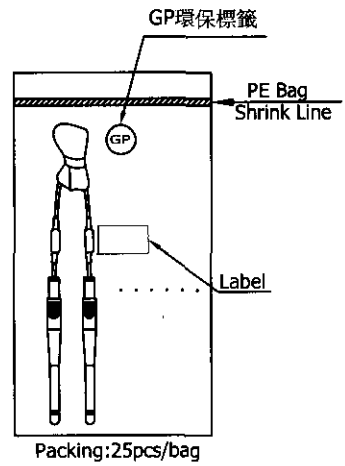
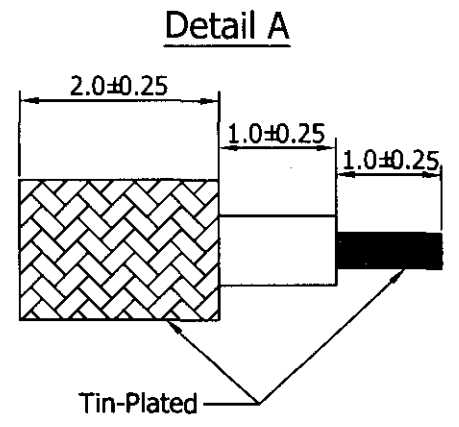
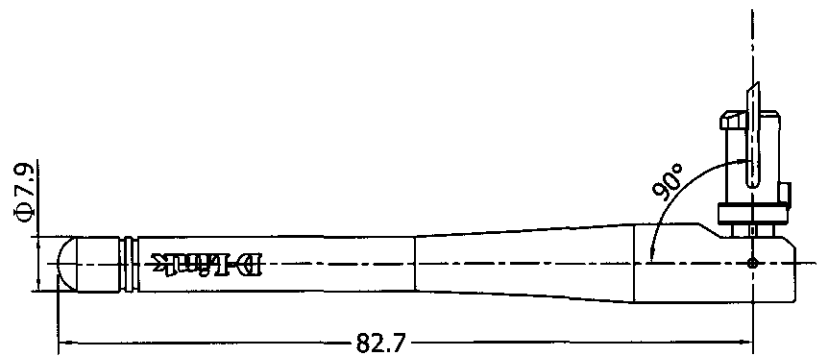
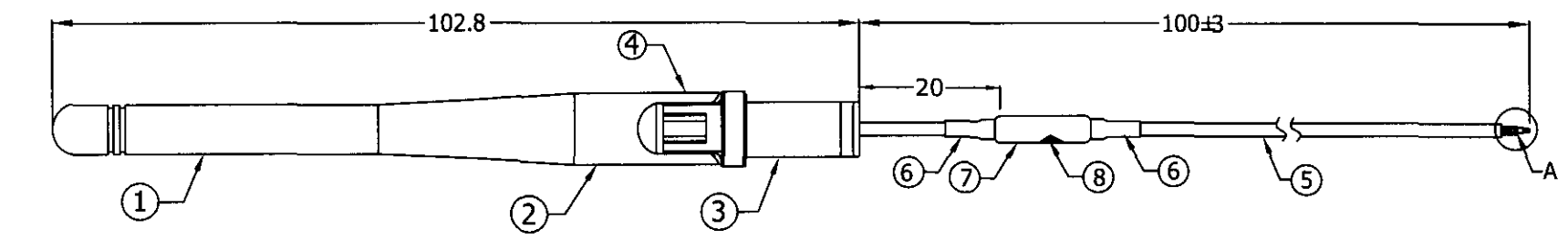
### 1. Electrical Properties :

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).....	1.8dBi (excluding cable loss )
1.7 Cable Loss.....	0.6dB Max.
1.8 Polarization.....	Linear ; Vertical
1.9 Admitted Power.....	1W
1.10 Cable.....	Φ1.13 Coaxial Cable
1.12 Core.....	RH 4.6*11*2mm

### 2. Physical Properties :

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

F		G
REV	DATE	DESCRIPTION
X1	07/27-2009	New Issue



GP標籤貼於外箱兩邊側唛右上角共2PCS  
 外箱標籤貼於左上角1PCS  
 成品淨重: 5900±5%mg.

NO	DESCRIPTION	QTY	REMARK
8	Core	RH 4.6*11*2mm	1
7	H.S Tube	Heat Shrink Tube	1
6	H.S Tube	Heat Shrink Tube	2
5	Cable	Φ 1.13mm Coaxial Cable	1
4	Rivet	POM,Color:Black	2
3	Antenna Base	CD-399 PC,Color:Black	1
2	Antenna Base	CD-373 PC,Color:Black	1
1	Antenna Body	CD-372 TPE,Color:Black	1

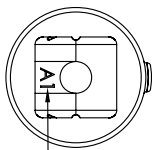
CUSTOMER'S SIGNATURE	XX. ±5	APPROVED	CUSTOMER: 明泰
	X. ±3.0	CHECKED	PART NO :
	.X ±1.0		PART NAME: RF Antenna Cable Assembly
	.XX ±0.5		W.Y P/NO : C037-511000-A
	.XXX ±0.1	DRAWING	REV UNIT FILE :SSR-92258
			X1 m/m SHEET : 1/1

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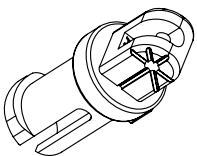
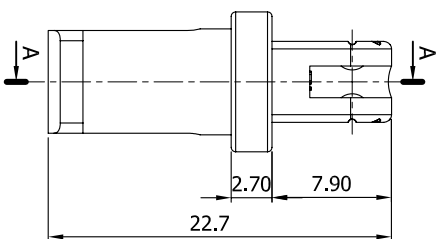
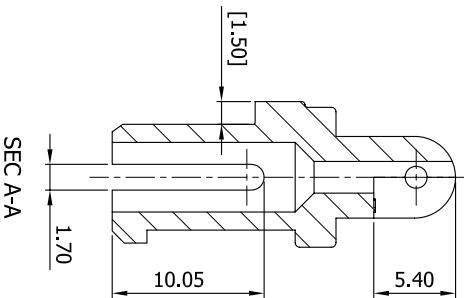
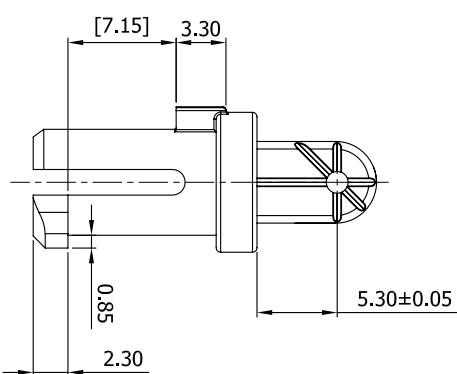
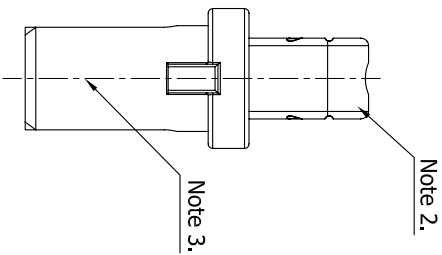
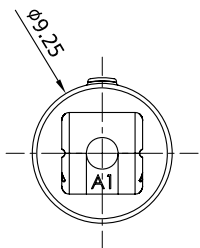
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CD-399

Note 4.



Mold Cave No.



- Note :
1. First Standard Color: Second Pantone No.
  2. Injected Position: Protrude Max 0.1mm.
  3. Parting Line.
  4. Mold Cave No.
  5. Product Can't Mix With Recycle Material.
  6. Critical To Function Dimension Are Mark With [X...].
  7. Material : PC.
  8. Texture : Follow MT-11010.

2	Bottom Fixed Base	PC	100-30013218-AZ	N/A	W-Y-058	Plain White
1	Bottom Fixed Base	PC	100-30013193-AZ	N/A	W-Y-002	Pantone Process Black C
NO	DESCRIPTION	MATERIAL	P/N	SPRAY PAINT COLOR	STD. COLOR	REMARK
XXX.	±2.0	APPROVED	VENDER			
XX.	±1.0	CHECKED	PART NO			
X.	±0.5	DRAWING	PART NAME	CD-399 Antenna Bottom Fixed Base		
.X	±0.2		W.Y P/NO	100-30013XXX-AZ		
.XX	±0.1		REV	A	SCALE	SIZE
			UNIT	mm	2 / 1	A 4
			SCALE			1 OF 2
			FILE NAME			

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PRODUCTION DRAWING



# 華裕實業股份有限公司

WHA YU INDUSTRIAL CO., LTD

## BILL OF MATERIAL

CUSTOMER P/N: 明泰科技股份有限公司

DATE:2009.07.28

W.Y.P/N:C037-511000-A

PART NO:SSR-92258

PART NAME:RF Antenan 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	60or80°C 30V
2	Antenna Body	YOSON	(CD-372)TPE,Black C(W.Y-002),印D-Link Logo	HB
3	Antenna Base	TEIJIN KASEI(HK)	(CD-373)PC;Pantone Process Black C(W.Y-002)	V-2
4	Antenna Base	TEIJIN KASEI(HK)	(CD-399)PC;Color:Black C(W.Y-002)	V-2
5	Rivet	YIKANG	POM,Color:Black	—
6	Ground Tube	SHIYANG	φ4.5*23mm.底塞φ5.2*0.5mm.Brass & POM.For φ1.13mm Cable.Plating Tin(抽芯式網管)	—
7	Core	BEAD&FERRITE	RH 4.6*11*2mm	—
8	H.S.Tube	HAMBURG	V4 ULCSA (T=0.15) φ5.0 L=20mm&H-2 (T=0.18) φ3.0 L=10mm ;收縮比例3:1,Black	125°C 150

### 變更履歷:

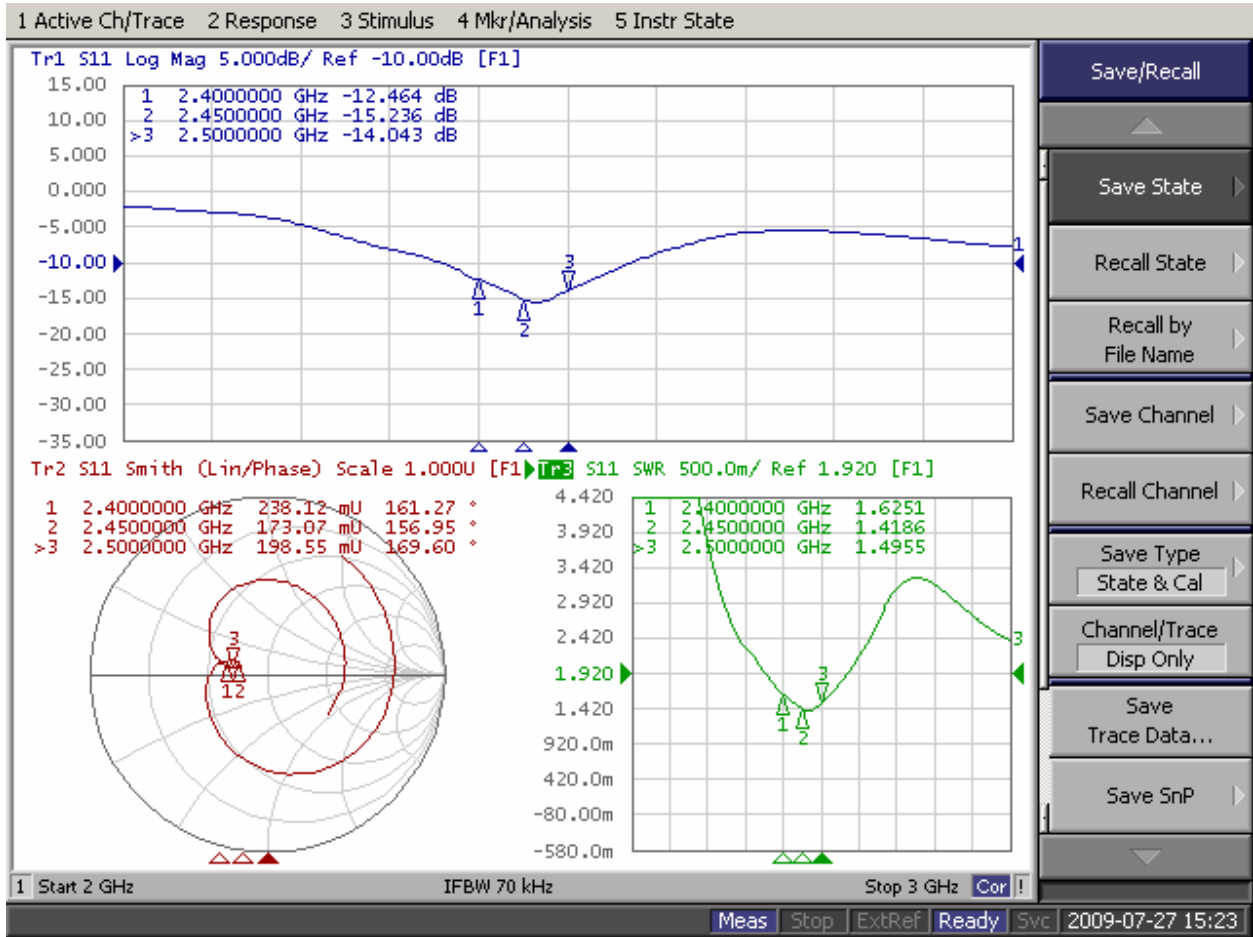
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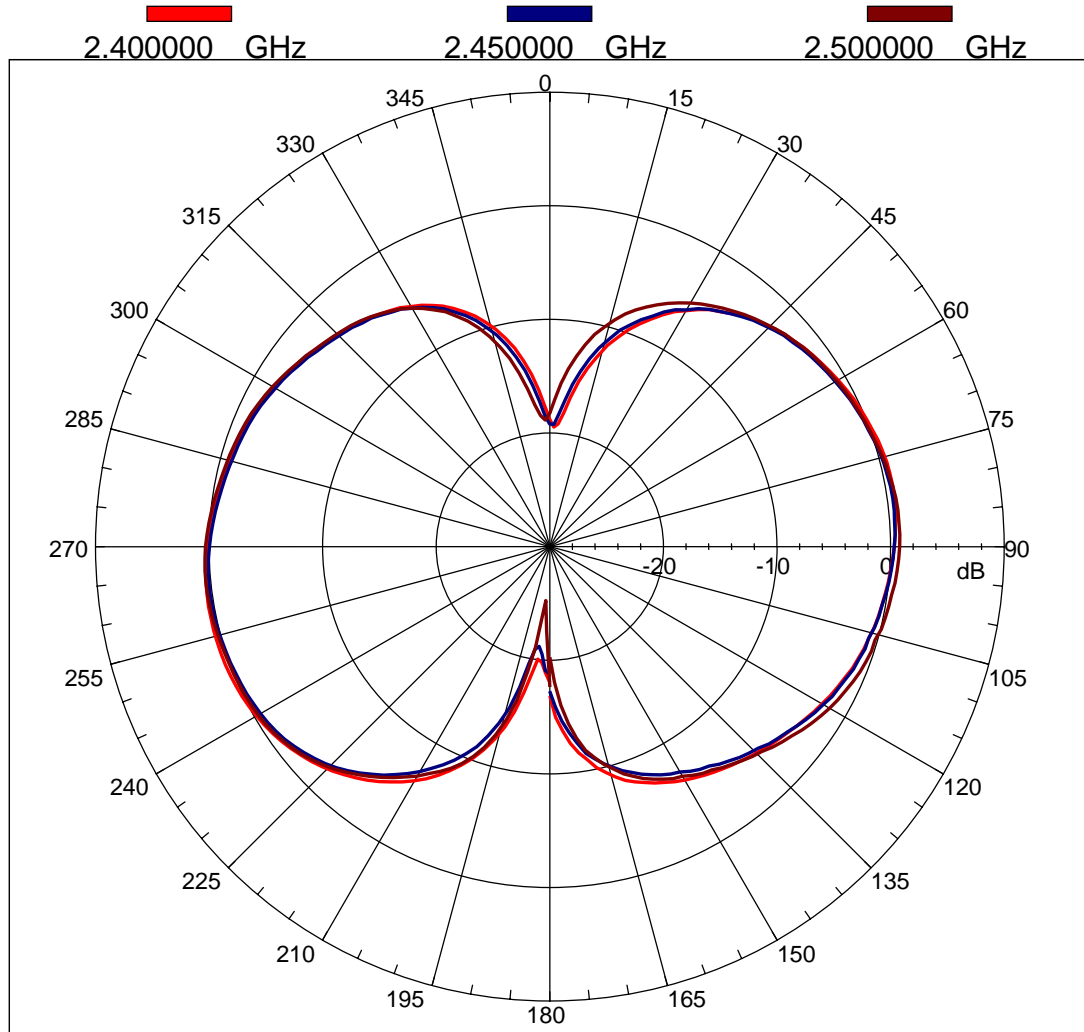
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RF Antenna Cable Assembly

P/No.C037-511000-A SSR-92258 Spec:2.4~2.5GHz

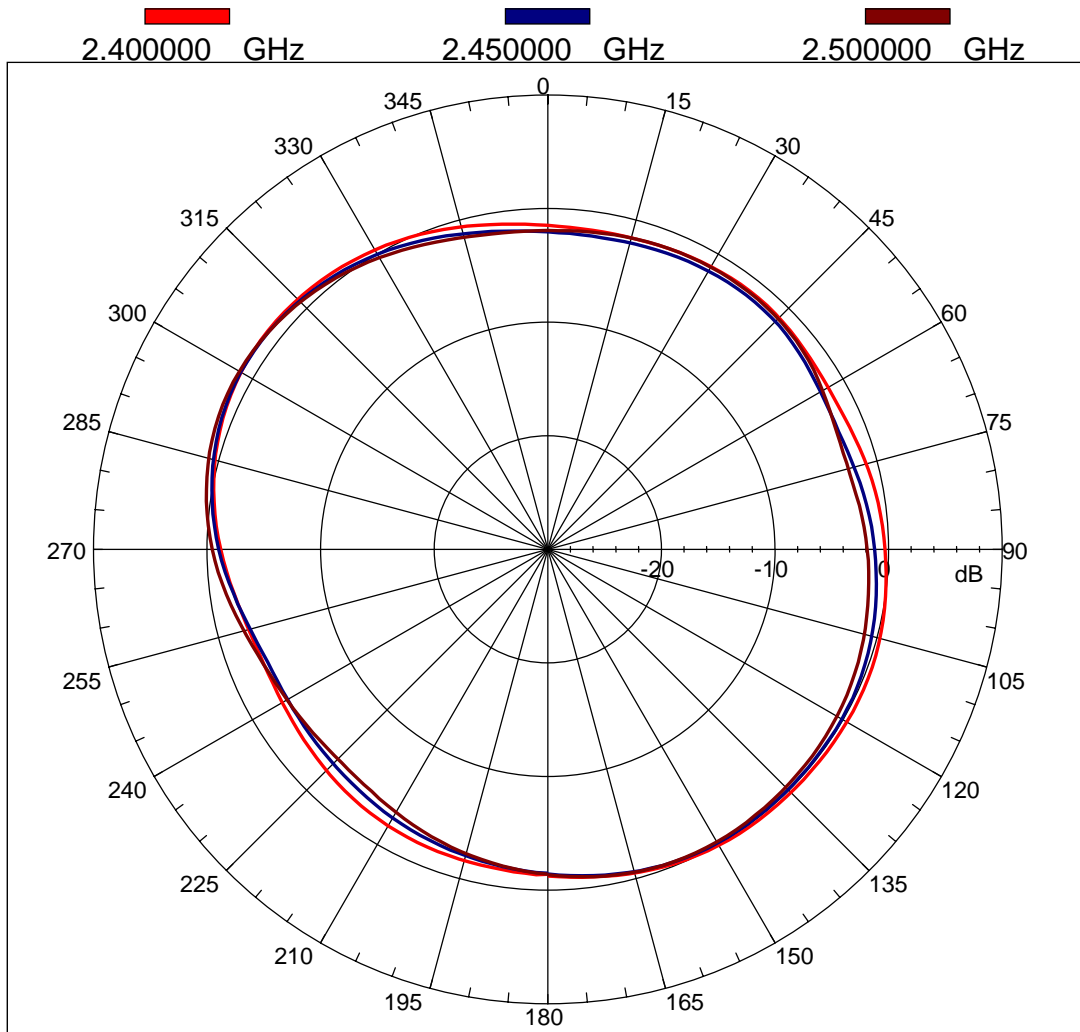


Far-field amplitude of C037-511000-A SSR-92258H E-PLANE.nsi





Far-field amplitude of C037-511000-A SSR-92258 V H-PLANE.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  
5TH FL  
111 KEELUNG RD, SEC 2  
TAIPEI, TAIWAN

E138922

Table of Recognized Styles					
Single-conductor, thermoplastic insulation.					
1007	1185	1208	1365	1533	1792
1061	1195	1354	1503	1777	
Multiple-conductor, thermoplastic insulation.					
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?](#)

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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.

776:37 材質記用



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

Fax : (081)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 KEYFLEX BT1063D 25KG BAG	A7F0631	9000.000	2007.11.09	20216745

## TYPICAL VALUES

Test Item	Test Method	Remark	Unit	Spec	Results
Low Temp Imp <sup>1</sup>	ASTM D256	Izod Notched 1/4"	kg cm/cm	Min.3.0	5.9
Melt Flow Index	ASTM D1238	230℃ x 2.16kg	g/10min	21.00~27.00	26.29
Shore Hardness	ASTM D2240		shore-D	59.0~64.0	60.9
Yield strength	ASTM D838	250 mm/min	kg/cm <sup>2</sup>	180~240	189
Flexural Modulus	ASTM D790	15 mm/min	kg/cm <sup>2</sup>	2800~3600	3270
DSC	LSYQAYD032		℃	211.0~217.0	213.4
Yellow Index	ASTM D1925	CIE(C,2°)YI	%	Max.50.00	23.00

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

YEOSU SPECIALTY POLYMERS PLANT

*Jae Seo Ko*

APPROVED BY D.H CHU

Q.A. MANAGER

1054610

**LG CHEMICAL LTD**

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

**BT-1063D****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	2	0	50	50	50
	3.0	HB	2	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): **4**

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: 2004-11-05  
Last Revised: 2004-11-05

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®



■ Panlite L-1250Z

Category	Unit	Test Method	Condition	L-1250Z 100
Melt volume flow rate	cm <sup>3</sup> /10min	ISO 1133	300°C load 1.2kg	8
Density	kg/m <sup>3</sup>	ISO 1183	—	1200
Water absorption rate	%	ISO 62	in water 23°C24h	0.2
Light transmission	%	ASTM D 1003	thickness 3mm	88
Refractive index	—	ASTM D 542	—	1.585
Tensile modulus	MPa	ISO 527-1 and ISO 527-2	1mm/min	2400
Tensile stress at yield	MPa		50mm/min	61
Tensile strain at yield	%		50mm/min	6
Nominal tensile strain at break	%		50mm/min	>50
Flexural modulus	MPa	ISO 178	2mm/min	2350
Flexural strength	MPa		2mm/min	93
Charpy impact strength	KJ/m <sup>2</sup>	ISO 179	unnotched	NB
			notched	76
Heat deflection temperature	°C	ISO 75-1 and ISO 75-2	1.80MPa	129
			0.45MPa	142
Vicat softening temperature	°C	ISO 306	50°C/h 50N	149
Mold shrinkage	%	In-house method	parallel	0.5~0.7
			vertical	0.5~0.7
Coefficient of linear expansion	× 10 <sup>-4</sup> /°C	ISO 11359-2	parallel	0.7
			vertical	0.7
Specific inductive capacity	—	IEC 60250	100Hz	3.1
	—		1MHz	3
Dielectric loss tangent	× 10 <sup>-4</sup>	IEC 60250	100Hz	10
	× 10 <sup>-4</sup>		1MHz	90
Volume resistivity	Ω·m	IEC 60093	—	>1 × 10 <sup>13</sup>
Surface resistivity	Ω	IEC 60093	—	>1 × 10 <sup>15</sup>
Withstand voltage	MV/m	IEC 60243-1	short time test	30
Tracking resistance	—	IEC 60112	—	250
Flammability	—	UL 94	—	V-2(0.40mm) HB(1.5mm)
Temperature index	°C	UL 746B	electric 1.47mmt	125
			impact 1.47mmt	115
			non-impact 1.47mmt	125

※The values listed are specification values, not certified values.

## ■ Molding

### 1. Predrying

The water content of Parlite is about 0.2% at room temperature. In order to obtain good molding results, reduce the product moisture content to 0.02% or below. This will also avoid problems with deterioration in physical properties, foaming and silver streaking caused by hydrolysis.

#### Predrying conditions

Type of drying machine	Box type hot blast drying machine	Hopper dryer
Drying temperature	120°C	120°C
Drying time	5 hours or more	5 hours or more
Remark	The thickness of pellet layer should be 3 cm or less. The hopper of the molding machine should be heated to maintain the pellet temperature between 100°C and 120°C, and to avoid moisture absorption.	For continuous molding, use a machine with a continuous molding capacity of 5 hours or more. If a dehumidifying type machine is used, more efficient drying will be performed.

## ■ Injection Molding

#### Table of Standard injection conditions

Predrying		120°C × 5 hours or more. Ensure thorough drying to reduce the moisture content to 0.02% or below.
Injection Molding machine		Select a molding machine with a shot capacity of 1.5–3 times as that of the weight of the molded product.
Molding Condition	Molding Temperature	270–320°C
	Mold Temperature	80–120°C
	Screw Revolution	40–100rpm
	Injection Speed	medium–high
	Injection Pressure	98.1MPa–147.1MPa
	Back Pressure	10MPa or less

TEIJIN CHEMICALS LTD

HIBIYA DAIBIRU BLDG 2-2 UCHISAIWAI-CHO 1-CHOME CHIYODA-KU TOKYO 100-0011 JAPAN

Material Designation: **L-1250#(f2), L-1250U#, L-1250V#, L-1250Z#(f1)**

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

Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
ALL	0.40	V-2	4	3	80	80	80	-	-
	0.84	V-2	4	3	80	80	80	-	-
	1.5	HB	4	0	125	115	125	-	-
	3.0	HB	1	0	125	115	125	-	-
	6.0	HB	1	0	125	115	125	-	-

CTI: 2

HVTR: 4

D495: 5

IEC Ball Pressure (°C): -

Dielectric Strength (kV/mm): 24

Volume Resistivity (10<sup>8</sup>ohm-cm): 16

Dimensional Stability(%): 0

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>): -

# Material designation may be suffixed with any one or two letters.

(f1) Suitable for outdoor use with respect to exposure to Ultraviolet Light, Water Exposure and Immersion in accordance with UL 746C.

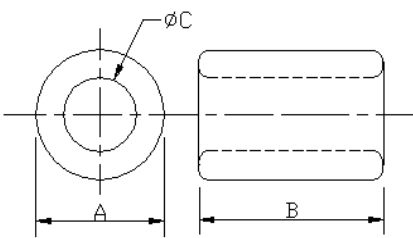
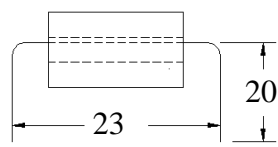
(f2) Subjected to one or more of the following tests: Ultraviolet Light, Water Exposure or Immersion in accordance with UL 746C, where the acceptability for outdoor use is to be determined by UL Inc.

Report Date: 9/24/1990

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.

# SPECIFICATION FOR APPROVAL

<b>CUSTOMER:</b>		<b>CUST.P/N:</b>	
<b>ITEM:</b>	<b>K5B RH 4.6*11*2</b>	<b>K.C.P/N:</b>	PS0410PA
<p>(1) SHAPE: <input type="checkbox"/> 平面 <input type="checkbox"/> C角 <input checked="" type="checkbox"/> R角</p> 		<b>A</b>	4.60±0.20 m/m
		<b>B</b>	11.00±0.40 m/m
		<b>C</b>	2.00±0.15 m/m
		<b>D</b>	m/m
		<b>E</b>	m/m
		<b>F</b>	m/m
		<b>G</b>	m/m
		<b>H</b>	m/m
		<b>I</b>	m/m
		<b>J</b>	m/m
<p>(2) ELECTRICAL REQUIREMENTS:</p> <p>Z<sub>1</sub>= 45<sup>-0</sup> OHM AT 25 MHz</p> <p>Z<sub>2</sub>= 60<sup>-0</sup> OHM AT 100 MHz</p>		<p>(3) TEST CONDITIONS:</p> <p>1. LCR METER: HP4286A</p> <p>TEST FIXTURE: HP16092A</p> <p>2. WIRE: 0.65T.C.W*63m/m 1/2Ts</p> <p>3. DRAWING:</p> 	
<p>(4) PACKING</p> <p><input checked="" type="checkbox"/> IN BULK <input type="checkbox"/> VACUUM <input type="checkbox"/> INSERTION</p> <p>PCS/BAGS* BAG/INNER BOX* BOXES/CARTON = PCS</p> <p>PCS/PLATE* PLATES/CARTON= PCS</p> <p>PCS/TRAY* TRAYS/CARTON= PCS</p>		<p>(5) APPEARANCE</p> <p>缺角 ≤ 端面1/3面積為合格</p> <p>深度 ≤ 壁厚1/2為合格</p>	
<p>(6) REMARK:</p> <p>尊敬的客戶:</p> <p>請確認好此份承認書后及時回簽一份與我司; 若未簽回, 后續訂單以此份承認書為出貨檢驗標準。謝謝!</p>		<p>Approved by</p> <p>Checked by</p> <p>Drawn by 楊曉花</p> <p>DWG.NO. 20043002A</p>	

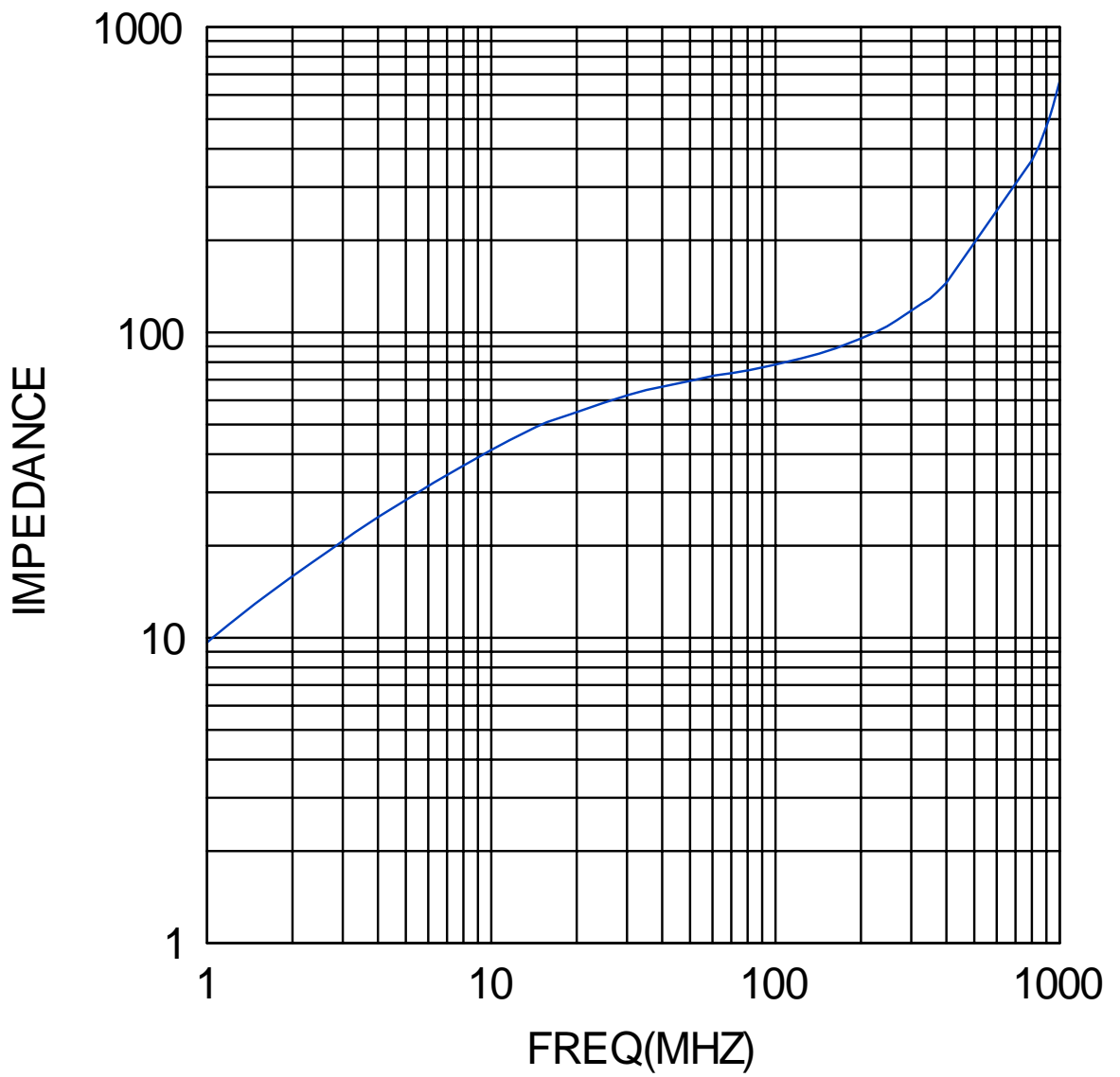
## TEST DATA FOR PREPRODUCTION SAMPLES

CUSTOMER				CUST. P/N		
ITEM	<b><i>K5B RH 4.6*11*2</i></b>			K.C. P/N	<b><i>PS0410IA</i></b>	
TEMP.	<b>25 °C</b>	RH	<b>56 %</b>	DWG.NO.	<b>20043002A</b>	
WIRE	<i>0.65T.C.W*63m/m</i>	WINDING	<b>1/2 Ts</b>	QTY		
Test Instruments		<b>LCR METER 4286A</b>				
Meas. Item.	<b><i>Z (OHM)</i></b>	<b><i>Z (OHM)</i></b>	<b><i>A m/m</i></b>	<b><i>B m/m</i></b>	<b><i>C m/m</i></b>	
Spec./ Yours.						
Spec./Suggest.	<b>45<sup>-0</sup></b>	<b>60<sup>-0</sup></b>	<b>4.60±0.20</b>	<b>11.00±0.40</b>	<b>2.00±0.15</b>	
Test Freq.	<b>25 MHz</b>	<b>100 MHz</b>				
<b>1</b>	<b>58</b>	<b>78</b>	<b>4.60</b>	<b>11.01</b>	<b>1.98</b>	
<b>2</b>	<b>59</b>	<b>79</b>	<b>4.60</b>	<b>10.98</b>	<b>2.00</b>	
<b>3</b>	<b>59</b>	<b>79</b>	<b>4.59</b>	<b>11.05</b>	<b>1.98</b>	
<b>4</b>	<b>60</b>	<b>79</b>	<b>4.60</b>	<b>10.95</b>	<b>1.98</b>	
<b>5</b>	<b>58</b>	<b>78</b>	<b>4.60</b>	<b>11.00</b>	<b>2.00</b>	
<b>6</b>						
<b>7</b>						
<b>8</b>						
<b>9</b>						
<b>10</b>						
<b><math>\bar{X}</math></b>	<b>59</b>	<b>79</b>	<b>4.60</b>	<b>11.00</b>	<b>1.99</b>	
<b>R</b>	<b>2</b>	<b>1</b>	<b>0.01</b>	<b>0.1</b>	<b>0.02</b>	
Your Sample.						
REMARK:				Approved by:		
				Checked by:		
				Drawn by: 楊曉花		

**KING CORE ELECTRONICS (SU ZHOU) CO.,LTD**

**KC-02-23A**

# K5B RH 4.6\*11\*2



鈞寶工程



## 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的場合。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 ~125  
最低起始收縮溫度：60  
最低完全收縮溫度：100

#### 認證 / 符合標準

UL224 E255394 125 300V VW-1  
CSA C22.2 229705 125 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 ~125  
Minimum shrink temperature: 60  
Minimum full recovery temperature: 100

#### Standards/Approvals

UL224 E255394 125 300V VW-1  
CSA C22.2 229705 125 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 ,4 小時) Low temperature flexibility-55 ,4hrs	無裂痕 No cracking	ASTM D 2671	通過 Pass
	熱老化 158 ,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	$10^{14}$ .cm min	ASTM D 876	$10^{14}$ .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.)	
0.8	1.0 ± 0.2	0.10 ± 0.03	0.5	0.20	200
1.0	1.4 ± 0.2	0.10 ± 0.03	0.6	0.20	200
1.5	1.9 ± 0.2	0.10 ± 0.03	0.75	0.20	200
2.0	2.4 ± 0.2	0.12 ± 0.03	1.0	0.20	200
2.5	2.8 ± 0.3	0.13 ± 0.05	1.25	0.25	200
3.0	3.4 ± 0.3	0.13 ± 0.05	1.5	0.25	200
3.5	3.9 ± 0.3	0.13 ± 0.05	1.75	0.25	200
4.0	4.4 ± 0.3	0.15 ± 0.05	2.0	0.25	200
5.0	5.5 ± 0.3	0.15 ± 0.05	2.5	0.25	100
6.0	6.5 ± 0.3	0.15 ± 0.05	3.0	0.28	100
7.0	7.5 ± 0.3	0.15 ± 0.05	3.5	0.28	100
8.0	8.6 ± 0.4	0.15 ± 0.05	4.0	0.28	100
9.0	9.6 ± 0.4	0.15 ± 0.05	4.5	0.28	100
10.0	10.6 ± 0.4	0.15 ± 0.05	5.0	0.28	100
11.0	11.6 ± 0.4	0.18 ± 0.05	5.5	0.28	100
12.0	12.6 ± 0.4	0.20 ± 0.05	6.0	0.28	100
13.0	13.6 ± 0.4	0.20 ± 0.05	6.5	0.30	100
14.0	14.6 ± 0.4	0.20 ± 0.05	7.0	0.30	100
15.0	15.6 ± 0.5	0.20 ± 0.05	7.5	0.32	100
16.0	16.6 ± 0.5	0.20 ± 0.05	8.0	0.36	100
18.0	18.6 ± 0.5	0.22 ± 0.05	9.0	0.36	100
20.0	21.0 ± 1.0	0.25 ± 0.05	10.0	0.36	50
22.0	23.0 ± 1.0	0.25 ± 0.05	11.0	0.40	50
25.0	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

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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.

樣品檢驗記錄表

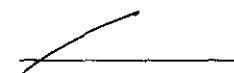
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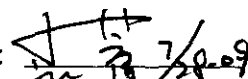
譚裕料號/ 專案代號		C037-511000-A		品名/規格		RF Antenna Cable Assembly		數量		5 pcs		日期		09.7.28		
檢驗 項目	Item		公差	樣品編號										量測 工具	判定	
				1	2	3	4	5	6	7	8	9	10		OK	
尺寸	1	100	±3	100	100	100	100	100							<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
	2														<input type="checkbox"/> OK <input type="checkbox"/> NG	
	3														<input type="checkbox"/> OK <input type="checkbox"/> NG	
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外觀	1	咬花	樣品或規格											目視	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
	2	配色	樣品或規格											目視	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
	3	印刷	樣品或規格											目視	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
	4	亮霧度	樣品或規格											目視	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
電氣 特性	1	VSWR		1.6261										NA	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
	2	S11	S21	-16.236dB										NA	<input checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
	3	Gain												chamber	<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 checked="" type="checkbox"/> OK <input type="checkbox"/> NG	
材料選 用確認		是否依照成 品圖之材料													<input checked="" 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: 

審核: 

工程師: 

QE-R/D-0036B

