

APPROVAL SHEET

Dipole ANTENNA
802.11 b/a Series
2.4/5.x GHz Dual Band Working Frequency
Halogens Free Product
P/N: RFDPA141000SBLB802

Customer : _____
Customer 's Part No. : _____
Approval No. : _____
Issue Date : _____

*Contents in this sheet are subject to change without prior notice.

ELECTRICAL CHARACTERISTICS

Item	Specification
Frequency Range	2.4~2.5GHz / 5.15~5.85GHz
Impedance	50 Ohm Nominal
VSWR	2.0 (Max)
Radiation	Omni-directional
Gain(peak)	2GHz:1.91dBi / 5GHz:4.04dBi
Polarization	Linear Vertical
Admitted Power	1W

*note: Electrical characteristics will depend on customer's final application.

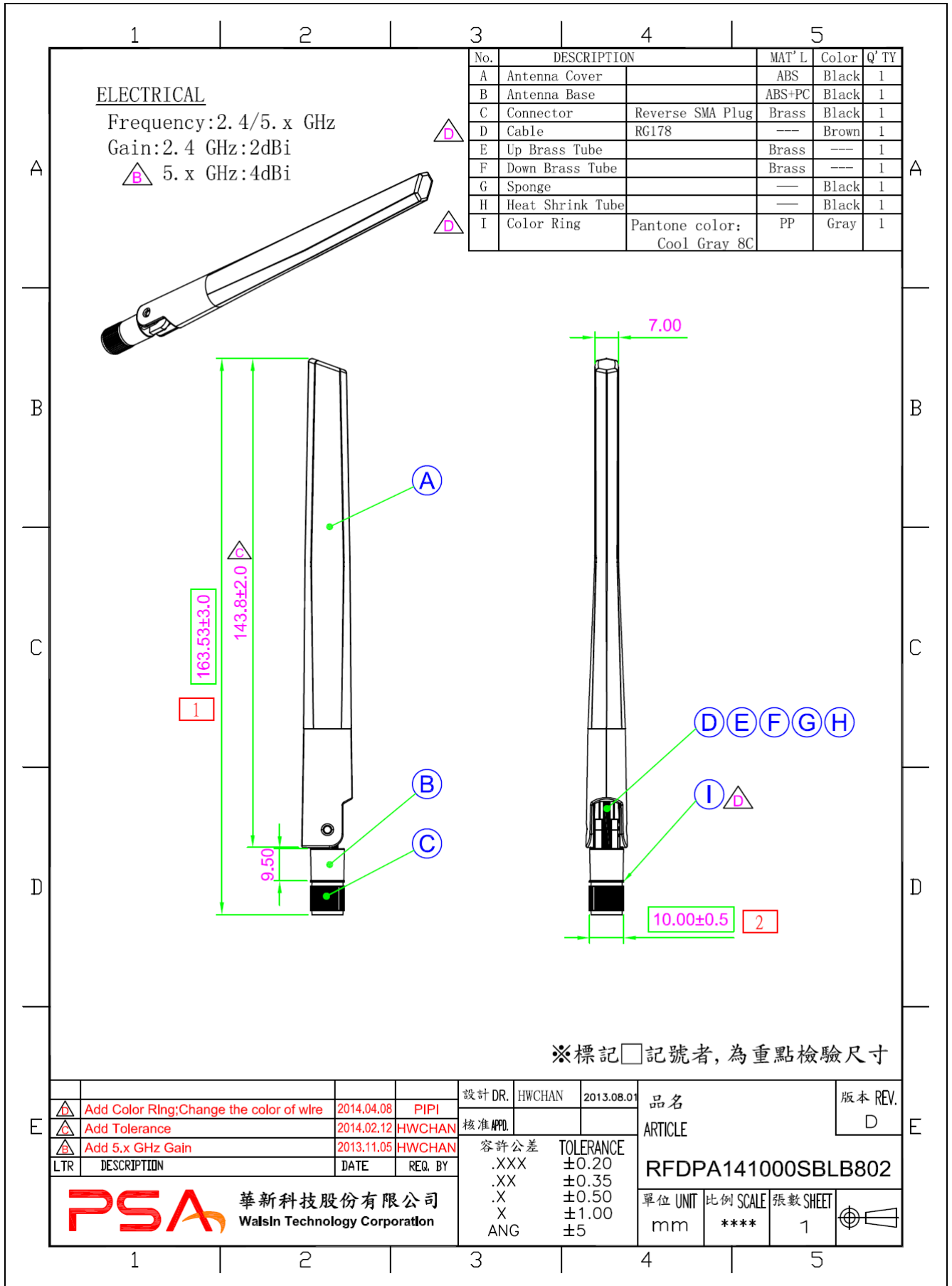
MATERIAL TABLE

Items	Description
Cable	RG178(Brown)
Antenna Cover	ABS(Black)
Antenna Base	ABS+PC(Black)
Connector	Reverse SMA Plug(Black)
Up Brass Tube	Brass
Down Brass Tube	Brass
Heat Shrink Tube	Black
Sponge	Black
Color Ring	PP(Gray)

ORDERING RULE

RF	DPA	1410	00	S	B	L	B	8	02
Type Code	Product Code	Dipole Dimension (Unit: mm)	Cable Length (unit: cm)	Connector Brand	Type of Connector	Application	Project status	Wire Diameter	Project
Walsin RF Device	DPA: Dipole Antenna	Per 2 digits of length, width e.g.: 1410 Length 143.8mm, Width 10mm	2 digits for cable length e.g.: 00 None Cable	A: N C:MCX D:IPEX III E: IPEX IV F: IPEX A13 H: Hirose I: IPEX M: MMCX S: SMA T: TNC U:MURATA N: None	A: Reverse Female B: Reverse Male F: Female M: Male N: None	0: 0GHz 3: 3GHz 6: 6GHz A: 2.4GHz ISM band B: GSM 900/1800 dual band G: GPS band L: 2.4/5.2/5.8 GHz tri-band N: NFC T: LTE band W: WCDMA band	B: MP T:Durin g Test X: Pile Run	0:None 1:∅ 0.81 3:∅ 1.13 6:RG316 7:∅ 1.37 8:RG178	01~99 series number

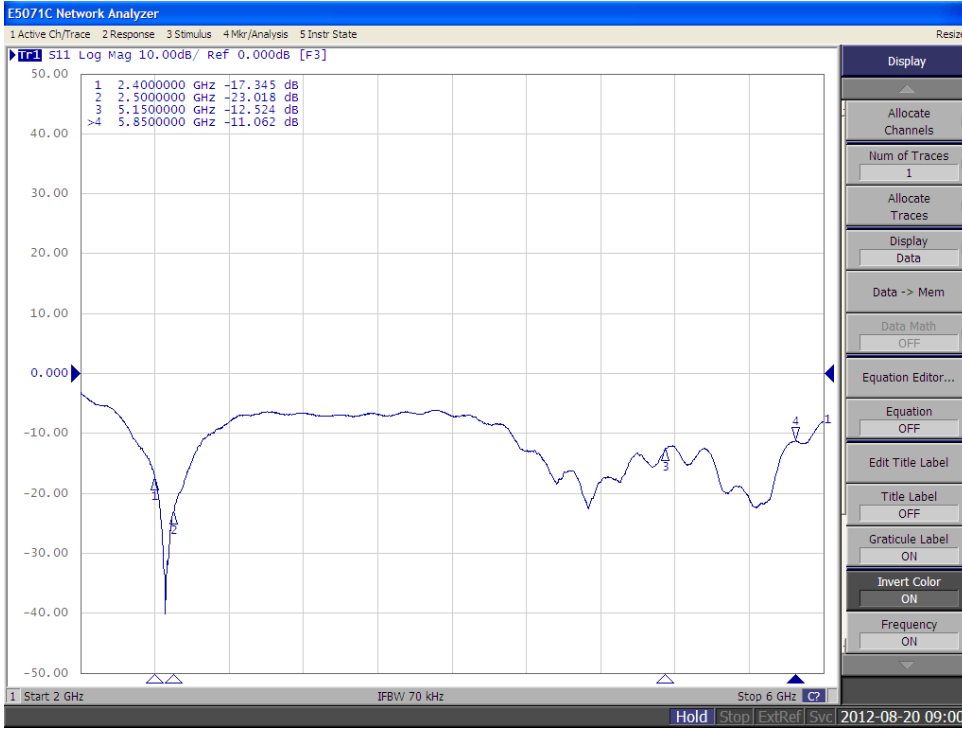
Appendix A: Dimensions



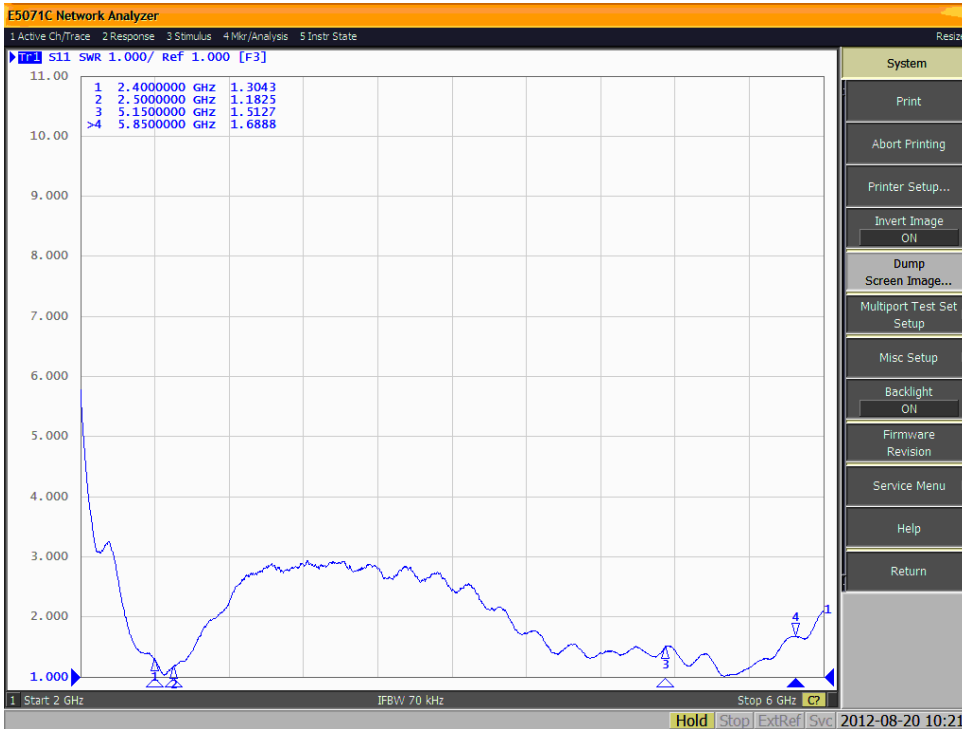
Test Report

ELECTRICAL CHARACTERISTICS

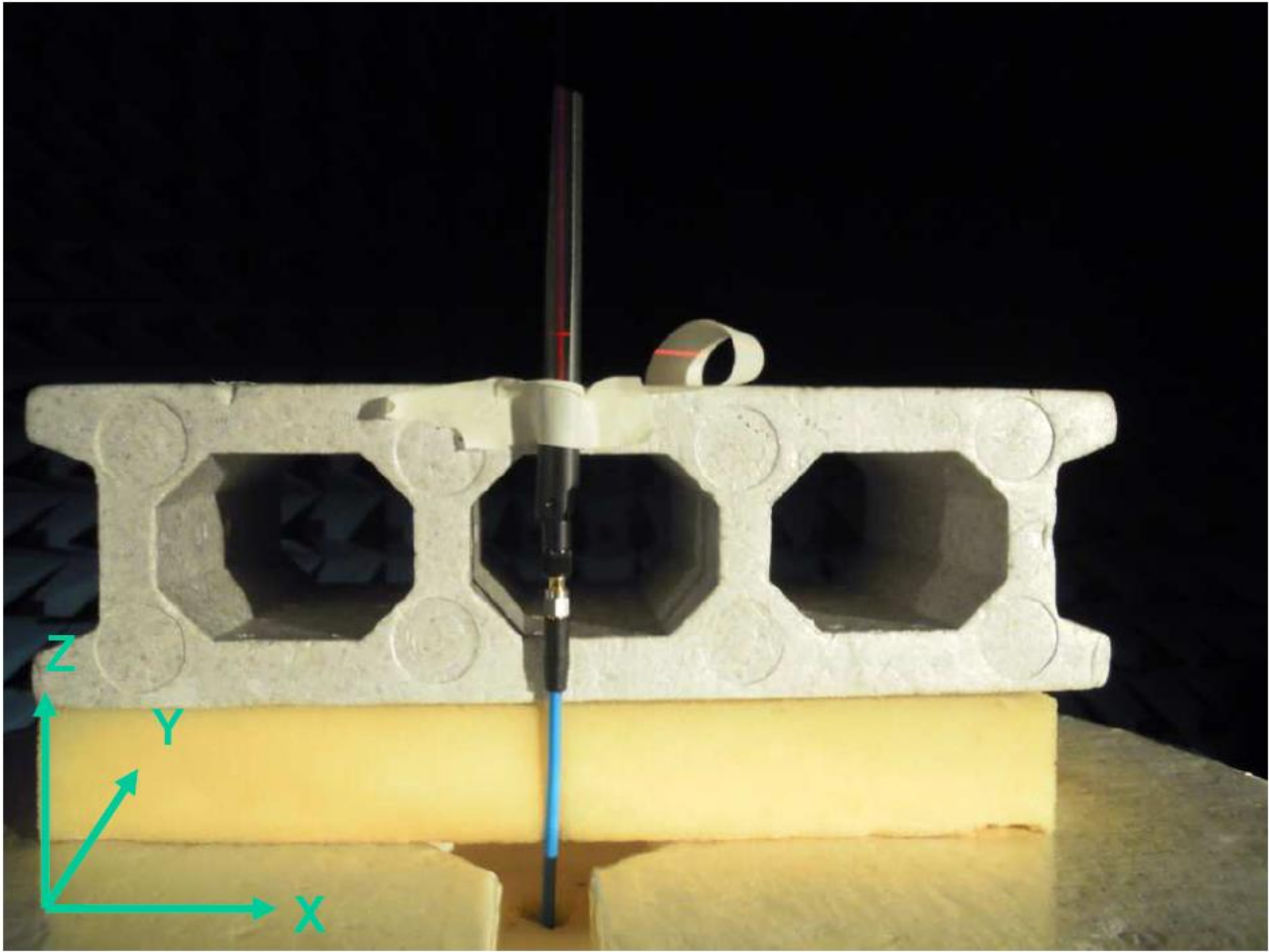
Return Loss



VSWR



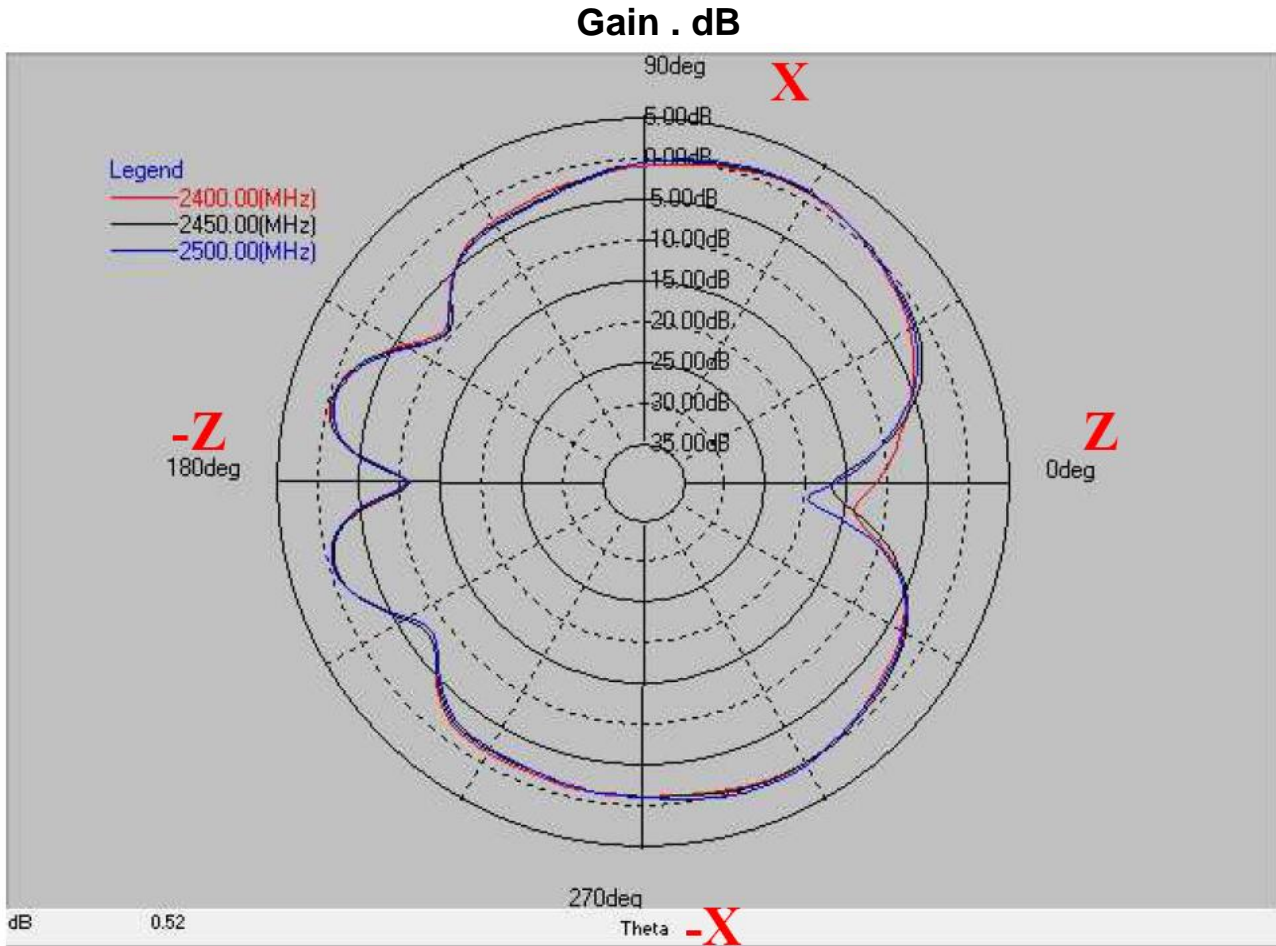
■ EXPERIMENTAL SETUP



RADIATION PATTERN

2400~2500 MHz

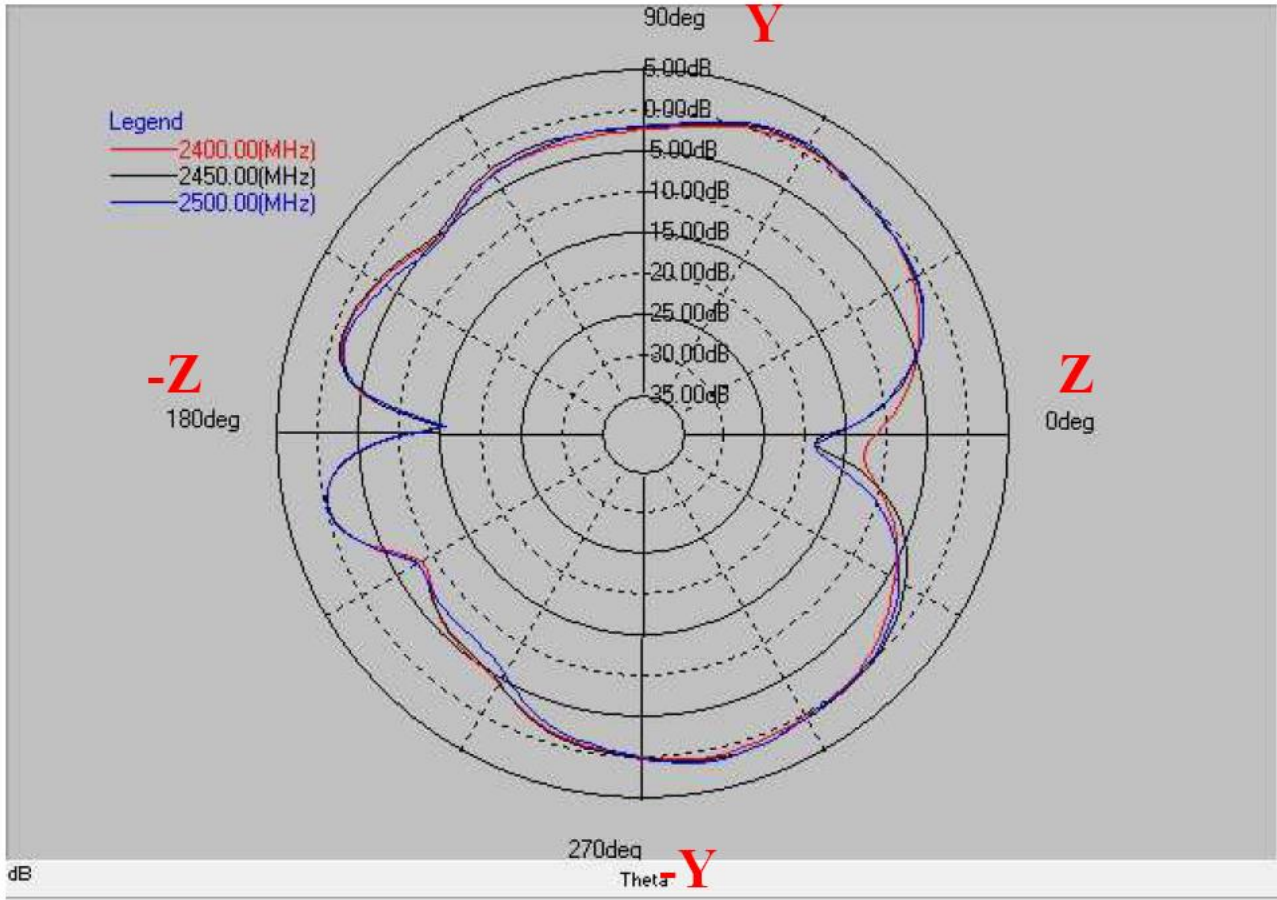
Phi=0.00deg



Layer	Max Value	Min Value
2400(MHz)	1.41	-14.41
2450(MHz)	1.91	-16.01
2500(MHz)	1.79	-18.11

Phi=90.00deg

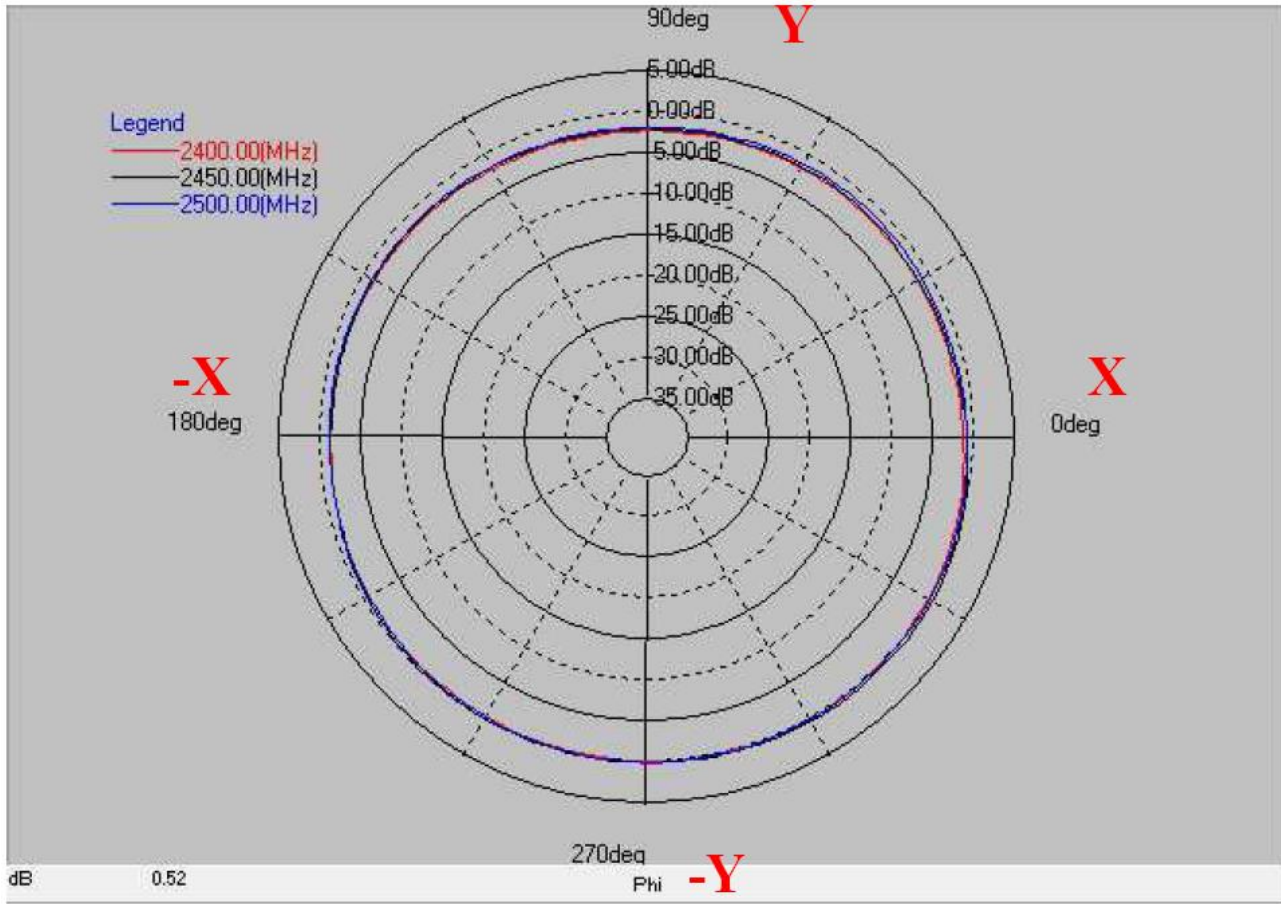
Gain . dB



Layer	Max Value	Min Value
2400(MHz)	1.42	-20.22
2450(MHz)	1.51	-20.14
2500(MHz)	1.25	-17.55

Theta=90.00deg

Gain . dB

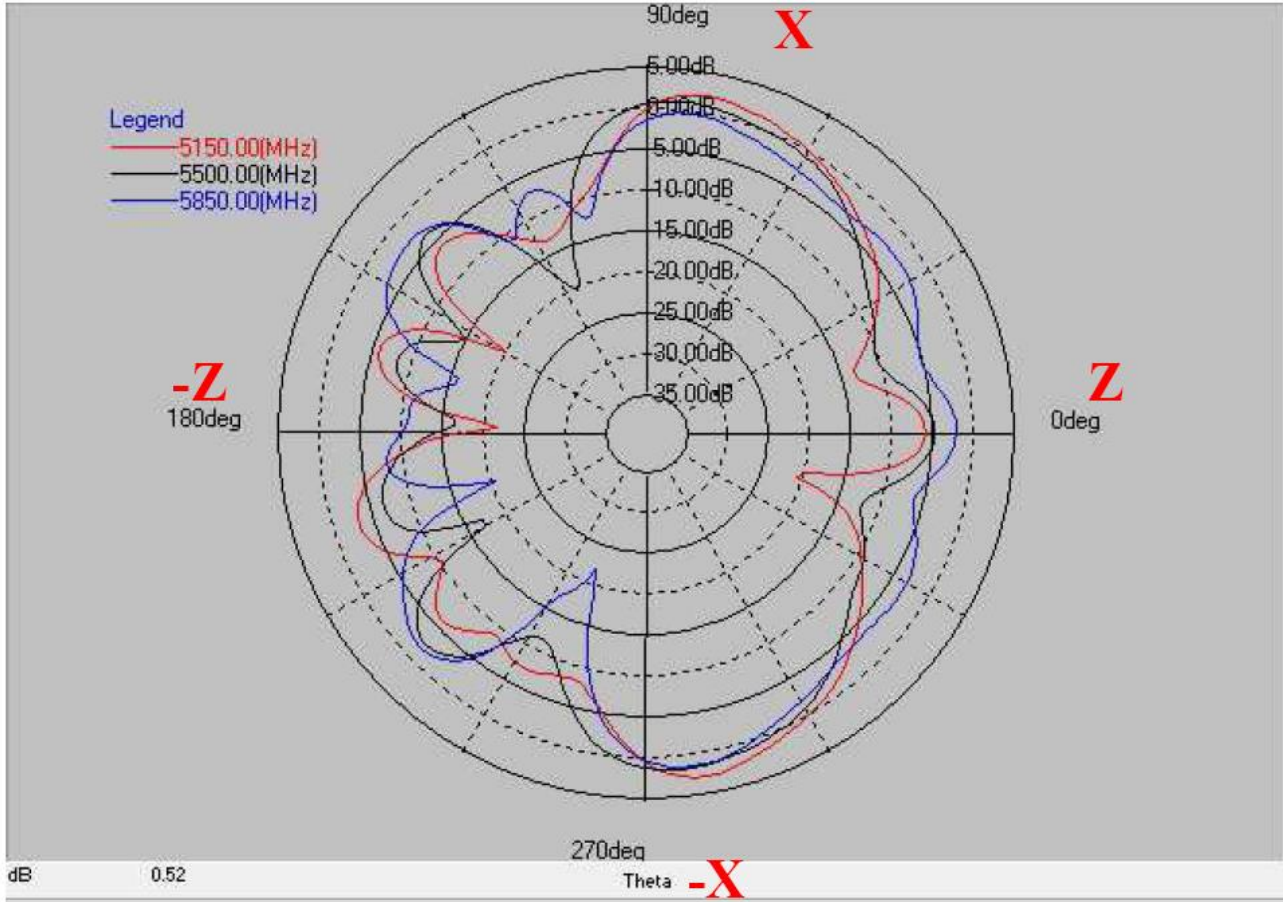


Layer	Max Value	Min Value
2400(MHz)	1.52	0.44
2450(MHz)	1.60	0.25
2500(MHz)	1.25	0.15

5150~5850 MHz

Phi=0.00deg

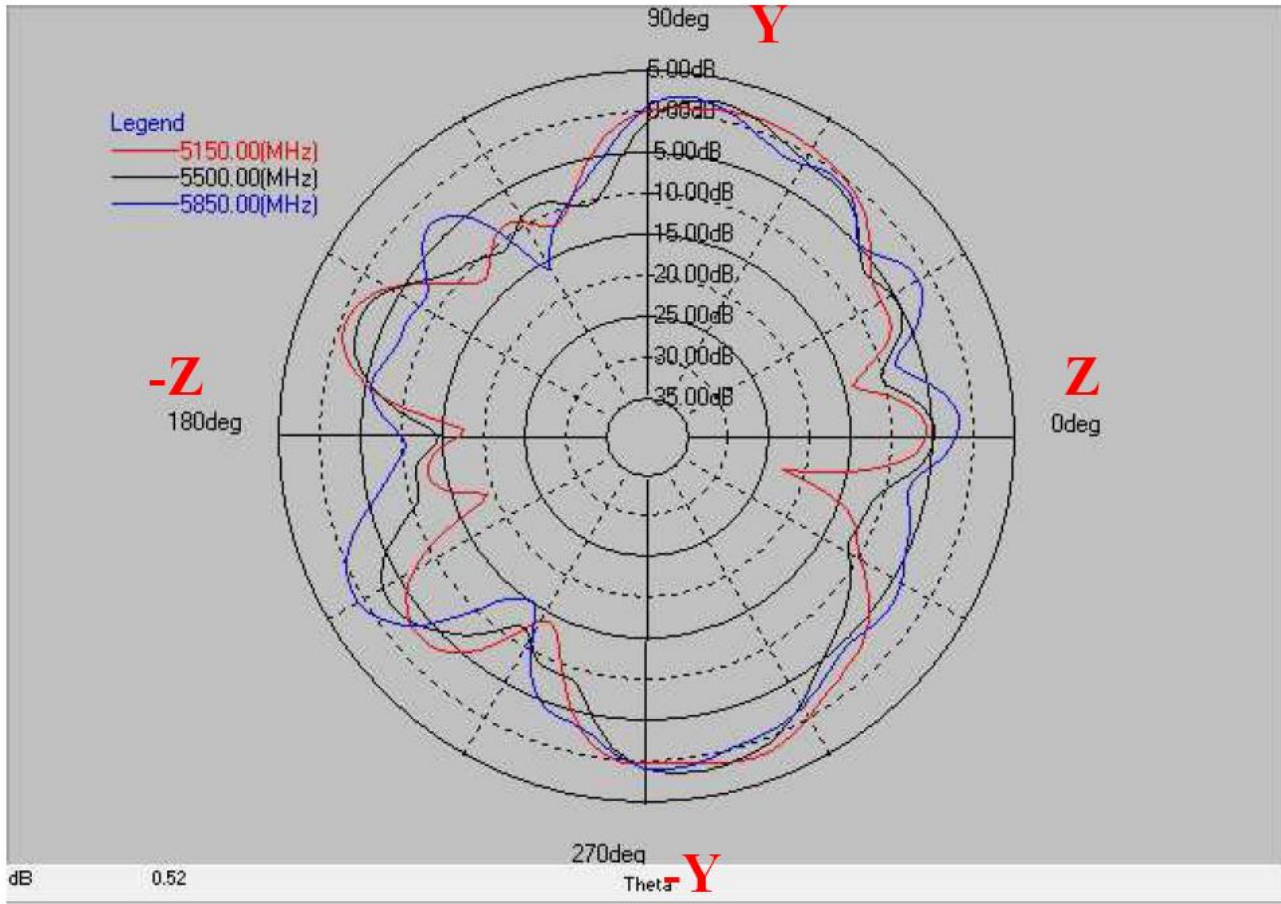
Gain . dB



Layer	Max Value	Min Value
5150(MHz)	4.04	-22.06
5500(MHz)	3.54	-20.13
5850(MHz)	3.48	-27.01

Phi=90.00deg

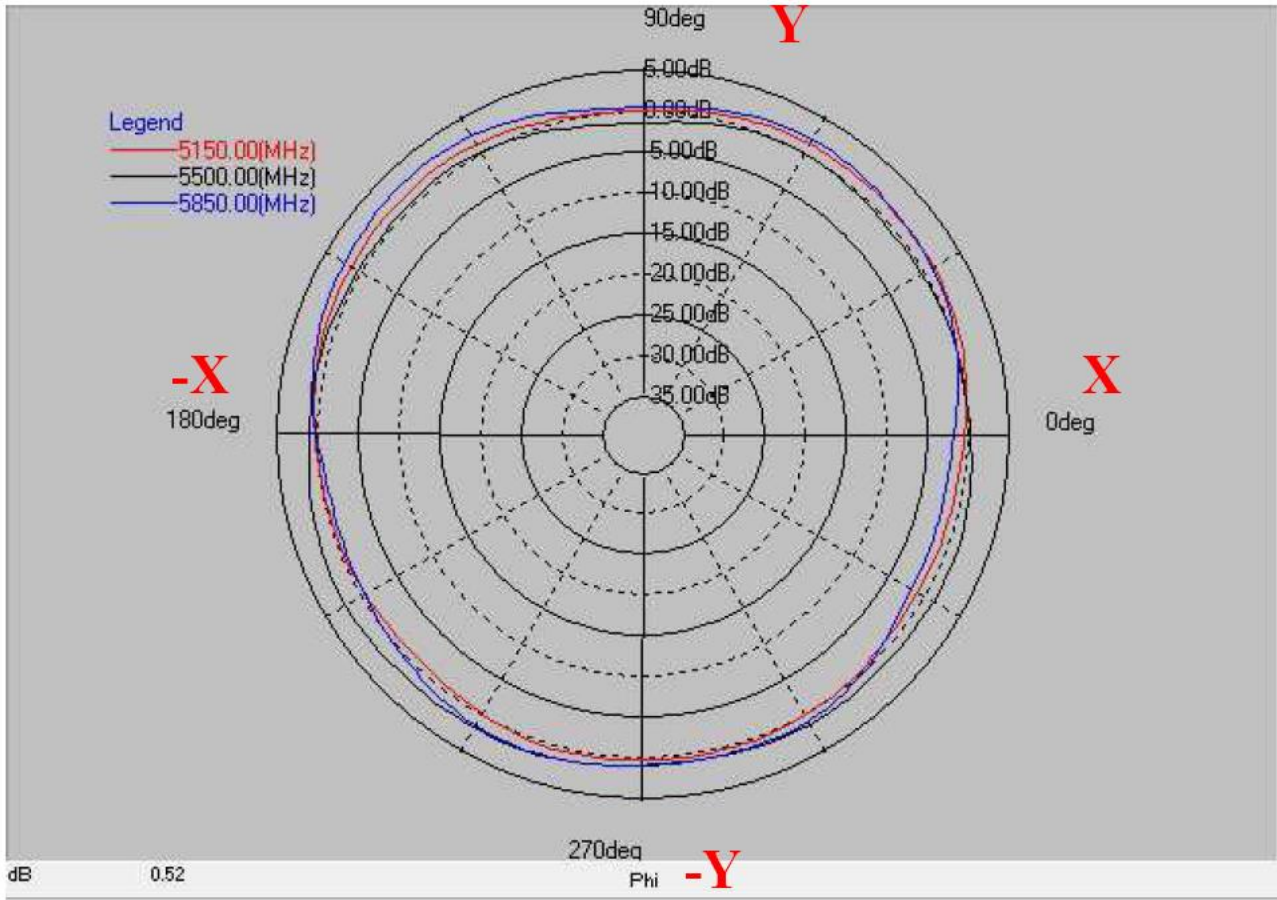
Gain . dB



Layer	Max Value	Min Value
5150(MHz)	3.88	-23.01
5500(MHz)	3.76	-15.03
5850(MHz)	3.50	-16.25

Theta=90.00deg

Gain . dB



Layer	Max Value	Min Value
5150(MHz)	3.91	-1.85
5500(MHz)	4.00	-3.25
5850(MHz)	3.94	-5.11

Cable Specification

江苏源达线缆科技有限公司

JIANGSU YUANDA OF CABLE TECHNOLOGY CO., LTD.

中国江苏省建湖县航空路 5 号
Aviation Road No. 5 Jianhu ,Jiangsu, China

1. 适用范围:

Scope

本规格书制定了 50Ω FEP 绝缘射频电缆 YD178 系列的结构和电气特性。

This specification covers the construction and the electrical properties of YD178 series of 50Ω FEP Insulation Coaxial Cable.

2. 结构/Construction:

单位/Unit:mm

项目/Item		详细资料/Details
导体/Conductor	材料/Material	镀银铜线/Silver-coated Copper Wire
	构成(根/mm) Composition(No./mm)	7/0.102
	标称直径/Nom. O. D (mm)	0.306±0.03
绝缘层 /Insulation	材料/Material	聚全氟乙丙烯(自然色) /FEP(Natural)
	标称绝缘厚度/Nom. Thick(mm)	0.275
	标称外径/Nom. O. D (mm)	0.86±0.03
屏蔽层/Shield	材料/Material	镀银铜线/Silver-coated annealed copper wire
	构成/Composition	0.10 单线编织/Single Braid of 0.10
护套/Jacket	材料/Material	聚全氟乙丙烯(*颜色)/FEP(*color)
	标称护套厚度/Nom. Thick(mm)	0.25
	标称外径/Nom. O. D(mm)	1.80±0.08
	颜色/Color	按与客户确认的颜色/According to corresponding have approved by the suppliers and customers

3. 电气特性(20℃时)/Electrical Properties(at 20℃)

项目/Item	单位/Unit	详细资料/Details	
导体电阻/Conductor Resistance	Ω/km	Max. 320	
绝缘电阻/Insulation Resistance	MΩ.km	Min. 500	
耐压强度/Dielectric Strength	V(AC)/min	1000	
静电容/Capacitance	pF/m	105(1kHz)	
特性阻抗 /Characteristic Impedance	Ω	50±2.0	
衰减/Attenuation	dB/m	1GHz	1.70
		2GHz	2.42

江苏源达线缆科技有限公司

JIANGSU YUANDA OF CABLE TECHNOLOGY CO., LTD.

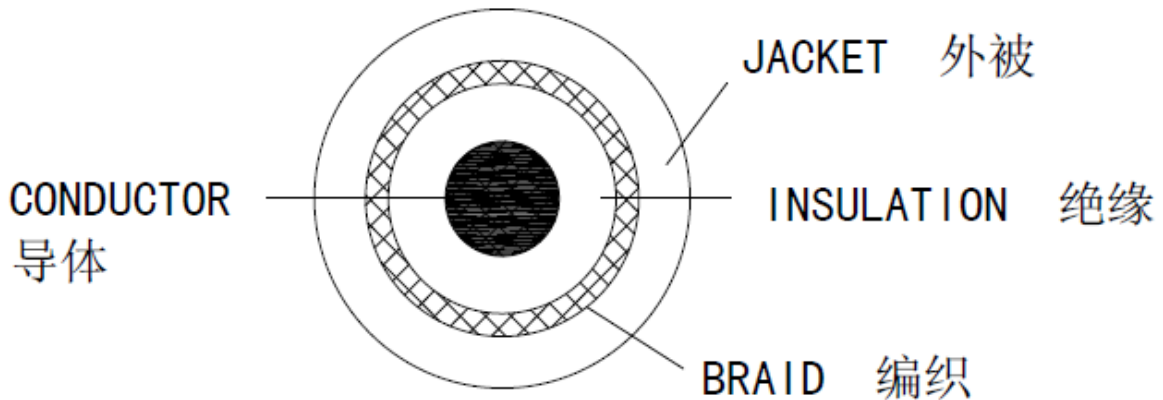
中国江苏省建湖县航空路 5 号
Aviation Road No. 5 Jianhu ,Jiangsu, China

		3GHz	3.08
		4GHz	3.63
		5GHz	4.15
		6GHz	4.80
驻波比/Standing wave (0-6GHz)	/	≤1.35	

4. 包装 Packing






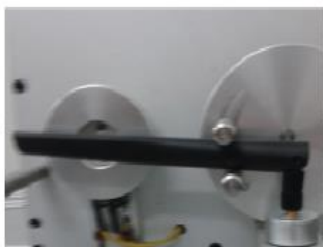


标准单位包装长度为 500 米/盘, 每盘最多允许 3 个接头, 接头最短长度 20 米, 在搬运过程中不能损坏包装.

Standard unit length of finished cable shall be 400m on reel, frequency of joint max.3/reel, the mini length is 20m. The finished cable shall be packed not be damaged during transportation



 本产品有时不适合车载用途的情况也有,所以使用前请先和本公司业务部门进行商谈.
 This product is not suitable for automobile application in some cases.Please contact with our sales department before you use this product.

RELIABILITY TEST

 蘇州華科電子有限公司		日期	2013/9/12	
實 驗 報 告		核 準	審 核	作 成
		何耀輝	張濤	章焯
實驗名稱:	RFDPA141000SBLB802天線搖擺實驗.			
實驗目的:	驗證RFDPA141000SBLB802天線經搖擺實驗后外觀是否會發生破裂和鉚釘凸出.			
實驗設備:	搖擺實驗機, Sample			
實驗人員:	章焯			
實驗日期:	2013/9/12			
實驗步驟:	<p>1. 將產品夾在搖擺儀上, 下固定座固定不動;上固定座和外罩活動為標準</p> <p>2. 將產品固定好後, 在搖擺儀上來回旋轉90度搖擺1000次取下.</p> <p>3. 經1000次搖擺結束後, 產品無破裂, 鉚釘無凸出為OK</p> <p>4. 詳細如下圖所示</p> <p style="margin-left: 20px;">4.1 實驗前</p> <div style="text-align: center;">  ⇒  </div> <p style="margin-left: 20px;">4.2 實驗中</p> <div style="text-align: center;">  ⇒  ⇒  </div> <p style="margin-left: 20px;">4.3 實驗後</p> <div style="text-align: center;">  ⇒  </div>			
實驗結論:	1. 經搖擺實驗後, 產品無外觀異常(破裂; 鉚釘凸出; 變形), 判定為OK			
FORM NO : KEGR004-A				

蘇州華科電子有限公司 實驗報告	編號	日期	頁次									
			1/1									
	核準	審核	制定									
	何耀輝	張濤	章煒									
實驗名稱:	RFDPA141000SBLB802接頭本體與主體的扭力測試											
實驗目的:	驗證RFDPA141000SBLB802接頭本體與主體的扭力值											
實驗設備:	扭力測試機											
實驗人員:	章煒											
實驗日期:	2013/9/10											
實驗步驟:	1.取10PCS組裝好的RFDPA141000SBLB802進行扭力測試，步驟如下：											
	<p>組裝后產品</p>											
	2. 扭力測試數據如下：											
扭力測試規格：200~500 (gmf)												
NO	1	2	3	4	5	6	7	8	9	10	average	判定
測試值	310	320	350	320	300	350	300	320	310	330	321	OK

PACKAGING

PSA 蘇州華科電子有限公司


規格書 (包裝圖)

版別：A


客戶	----	品名	RFDPA141000SBLB802	發行編號	頁次	4/5
----	------	----	--------------------	------	----	-----

產品包裝圖示：


圖一



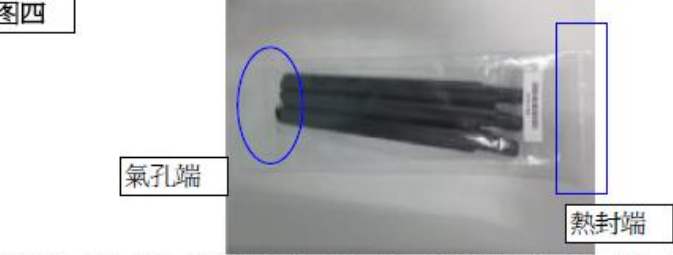
圖二



圖三



圖四



1. 裝成品時接頭在PE袋的熱封端 (氣孔 端的對面)


2. 標籤須在PE袋環保標識的背面粘貼

3. 標籤須從PE袋上方粘貼

產品包裝規範：

- 將每3PCS產品裝入1PE袋中,產品接頭需在PE袋熱封端(如圖示一,圖四) 客標應貼在環保標識的反面,PE袋上需有兩個環保回收標識,
- 將珍珠棉放入外箱中(如圖示二)
- 將裝好的成品(如圖示三)放入外箱中,每箱放600pcs產品,上下各放1片珍珠棉。
- 外箱上需粘貼客標,製造標以及客戶要求相關標籤,

客標圖示：



核 准： 何耀輝 審 核： 張濤 制 定： 章煒

FORM NO:

BOM LIST

No.	Item	Material	Supplier	UL No.	UL Type	
1	Antenna Cover	ABS	CHI MEI	E56070	PA-757	
		Pigment	TEKNOR			
2	Antenna Base	ABS+PC	CHI MEI	E56070	PA-757	
		Pigment	KASEI	E107536	A724	
3	Connector	Brass	TONG LING			
		Plated Ni layer	SHENZHEN			
		Insulation	CHANG JIE			
		O-Ring	Silicone Rubber	ORIENTAL		
			Pigment	Dainichiseika Color		
		Cover	POM	XIANG XIN	E173318	FM090
Pigment	Dainichiseika Color					
4	Cable	Jacket	JUHUA	E216252	11149	
		Outer Conductor	Heng Feng			
		Inner Conductor	Zhen Xiong			
		Insulation	Daikin			
5	Brass Tube	Brass Tube	WEI CHENG			
6	Sponge	EVA	FUAN			
7	Heat Shrink Tube	Heat Shrink Tube	WOER	E203950	SBRS	
8	Solder	Lead-Free solder	FUAN			

Antenna Cover UL

QMFZ2 Component - Plastics

Friday, October 24, 2003

E56070

CHI MEI CORPORATION

59-1 SAN CHIA JEN TE TAINAN HSIEN TAIWAN

Material Designation: **PA-757 (+)**

Product Description: Acrylonitrile Butadiene Styrene (ABS), designated "Polylac" furnished as pellets.

Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
ALL	1.5	HB	4	0	85	80	85	-	-
	3.0	HB	3	0	85	80	85	-	-
CTI: 0	IEC CTI: -	HVTR: 1			D495: 1			IEC Ball Pressure (°C): -	
Dielectric Strength (kV/mm): -		Volume Resistivity (10 ⁹ ohm-cm): -				Dimensional Stability(%): -			
ISO Tensile Strength (MPa): -		ISO Flexural Strength (MPa): -				ISO Heat Deflection (°C): -			
ISO Tensile Impact (kJ/m ²): -		ISO Izod Impact (kJ/m ²): -				ISO Charpy Impact (kJ/m ²): -			

(+) Optional prefix or suffix may be used to denote 0-0.5% acid scavengers.

Report Date: 6/23/1983

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.

Antenna Base UL

QMFZ2 Component - Plastics		Wednesday, September 14, 2005						E107536	
SHINKONG SYNTHETIC FIBERS CORP 223 YEN PING RD SEC 3 PIN CHENG TAOYUAN HSIEN 324 TW Material Designation: A724									
Product Description: Polybutylene Terephthalate/Polycarbonate (PBT/PC), furnished as pellets.									
Color	Min. Thick. (mm)	Flame Class	HWI	HAI	RTI Elec	RTI Imp	RTI Str	IEC GWIT	IEC GWFI
NC	0.8	HB	4	1	75	75	75	-	-
	1.6	HB	4	1	75	75	75	-	-
	3.2	HB	2	1	75	75	75	-	-
CTI: -	IEC CTI (V): -	HVTR: 2		D495: -		IEC Ball Pressure (°C): -			
Dielectric Strength (kV/mm): 38		Volume Resistivity (10 ¹⁰ ohm-cm): 17				Dimensional Stability(%): -			
ISO Tensile Strength (MPa): -		ISO Flexural Strength (MPa): -				ISO Heat Deflection (°C): -			
ISO Tensile Impact (kJ/m ²): -		ISO Izod Impact (kJ/m ²): -				ISO Charpy Impact (kJ/m ²): -			
Report Date: 4/6/1992		Underwriters Laboratories Inc®							
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Connector UL


ONLINE CERTIFICATIONS DIRECTORY

QMFZ8.E173318 Plastics Certified for Canada - Component

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Plastics Certified for Canada - Component

[See General Information for Plastics Certified for Canada - Component](#)

FORMOSA PLASTICS CORP

E173318

HSIN KANG POM PLANT
 3 CHUNG YANG INDUSTRIAL PARK
 HSIN KANG HSIANG
 CHIA-YI, 616 TAIWAN

		Min.		H	H	H	R T I			C
		Thk	Flame	W	A	V	Elec	Mech		T
Mtl Dsg	Color	mm	Class	I	I	A		Imp	Str	I
Acetal "Polyoxymethylene" (POM), furnished as pellets.										
FM025, FM090, FM270										
	ALL	0.8	HB	5	0	-	110	90	90	0
		3.0	HB	3	0	-	110	90	100	
FM130, FM350, FM450										
	ALL	0.8	HB	5	0	-	110	90	90	0
		3.0	HB	3	0	-	110	90	100	

Marking: Company name or tradename "FORMOCON", material designation, generic polymer identification, color number where appropriate and batch or lot number or date of manufacture on container, wrapper or molded on finished part.

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Cable UL



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Camas, WA 98607-8542
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FAX No. (360) 817-6000
<http://www.ul.com>

File E216252

Vol. 1

Issued: 6-4-01

FOLLOW-UP SERVICE PROCEDURE
(TYPE L)

COMPONENT - APPLIANCE WIRING MATERIAL
(AVLV2)

Manufacturer: (118711-001) JIANGYIN YUANDA ELECTRICAL MATERIAL CO LTD
QINGYANG TOWN
NANCHEN VILLAGE
JIANGYIN
JIANGSU 214401 CHINA

Applicant: (118711-001) SAME AS MANUFACTURER

Recognized Company: (118711-001) SAME AS MANUFACTURER

This Procedure authorizes the above Manufacturer to use the marking specified by Underwriters Laboratories Inc. only on products covered by this Procedure, in accordance with the applicable Follow-Up Service Agreement.

The Prescribed Mark or Marking shall be used only at the above manufacturing location on such products which comply with this Procedure and any other applicable requirements.

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J. J. Ritchie
Vice President
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AVLV8.E216252

Appliance Wiring Material Certified for Canada - Component

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Appliance Wiring Material Certified for Canada - Component

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

JIANGYIN YUANDA ELECTRICAL MATERIAL CO LTD
QINGYANG TOWN
NANCHEN VILLAGE
JIANGYIN, JIANGSU 214401 CHINA

E216252

Appliance wiring material, AWM Class I, Group A, B or A/B.

Type(s) Class I, II or I/II, Group A, B or A/B.

Marking: Company name or trademark  and Recognized Component Mark for Canada,  on the attached tag, the reel or the smallest unit container in which the product is packaged.
Last Updated on 2010-11-25

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Appliance Wiring Material - Component

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Appliance Wiring Material - Component

See General Information for Appliance Wiring Material - Component

JIANGYIN YUANDA ELECTRICAL MATERIAL CO LTD
 QINGYANG TOWN
 NANCHEN VILLAGE
 JIANGYIN, JIANGSU 214401 CHINA

E216252

Table of Recognized Styles							
Single-conductor, thermoplastic insulation.							
1330	1332	1726	1857	1859	10362		
1331	1333	1727	1858	1860	11149		
Single-conductor, thermoset insulation.							
3068	3123	3137	3212	3265	3321	3398	3569
3069	3125	3138	3213	3266	3323	3410	3604
3071	3126	3139	3215	3268	3342	3505	3644
3074	3129	3140	3219	3271	3350	3512	
3075	3132	3172	3223	3312	3367	3529	
3122	3135	3173	3231	3316	3385	3530	


 Marking: Company name or trademark , voltage rating, temperature rating, conductor size, conductor material if other than copper, and use.

Last Updated on 2010-11-25

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

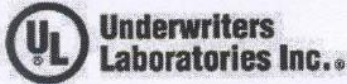
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Heat Shrink Tube

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San Jose, CA 95131-1230 USA
www.ul.com
tel: 1 408 754 6500
fax: 1 408 689 6500

06SC04380
E203950 - YDPU2/YDPU8

January 11, 2006

SHENZHEN WOER HEAT SHRINKABLE MATERIAL CO LTD.
Shenzhen, CHINA

Attention: Mr. Yorway Shore
Subject: Flexible Heat Shrinkable Polyolefin tubing with liner - Cat. No. SBRS, using modified grade liner grade, rated 105C, 600V, All Colors Except Clear, VW-1 Flame, 1.0 to 42.0 mm recovered ID.

Dear Mr. Shore:

NOTICE OF AUTHORIZATION TO APPLY THE UL RECOGNITION MARK

Any information and documentation involving UL Mark services are provided on behalf of Underwriters Laboratories Inc. (UL) or any authorized licensee of UL.

UL's investigation of your product has been completed under project number 06SC04380 and the product was determined to comply with the applicable requirements.

This fax temporarily supplements the UL Follow-Up Services Inspection Procedure and serves as authorization to apply the UL Recognized Marking only at the factories under UL's Follow-Up Service Program to the products which are constructed as described below:

Identical to Cat. No. SBRS, as described above and in the attached Description pages which were submitted for this investigation. The UL Records covering the initial testing of this product can be found in the UL Follow-Up Services Inspection Procedure, File E203950, Volume 2, Section 3.

This authorization is effective from the date of this Notice and only for products at the indicated manufacturing locations. Records in the Follow-Up Services Procedure covering the product are now being prepared and will be sent to the indicated manufacturing locations in the near future. Please note that Follow-Up Services Procedures are sent to the manufacturers only unless the Applicant specifically requests this document.

Products that bear the UL Recognition Mark shall be identical to those that were evaluated by UL and found to comply with UL's requirements. If changes in construction are discovered, appropriate action will be taken for products not in conformance with UL's requirements and continued use of the UL Recognition Mark may be withdrawn.

Very truly yours,

Reviewed by:

CELESTE CAPULONG (x 56567)
Project Handler
Conformity Assessment Services

JANEANN MATULICH (x 56654)
Lead Engineering Associate
Conformity Assessment Services

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File E203950

Vol. 2

Sec. 3
and Report

Page 1

Issued: 2006-02-08
Revised: DRAFT

DESCRIPTION

PRODUCT COVERED:

USR, CNR: Component - Extruded Electrical Tubing, Flexible Heat-Shrinkable Polyolefin Tubing with meltable liner, are Recognized with the following ratings:

Cat. No.	Colors	Recovered ID of jacket#, mm	Temp. Rating, Deg. C	Voltage Rating, V	Flame Rating
SBRS	All colors except clear	1.0 - 42.0	105	600	VW-1

- Excluding liner.


USR: United States Standard Recognized.
 CNR: Canadian National Standard Recognized.

GENERAL:

The tubing contained in this Report is constructed in accordance with the Bi-National Standard for Extruded Insulating Tubing, UL 224, Fifth Edition, and with the Canadian Standard for Insulating Tubing, CSA 22.2, No. 198.1, Second Edition.

MARKING:

Full Recognized company name, or File Number "E203950", catalog number, voltage rating, temperature rating in degrees C, inside diameter (before and after recovery) and date of manufacture shall be marked on tags attached to both ends of the tubing, on the shipping spool label, or on the smallest unit container.

The markings of the tubing shall include the Recognized Component Mark for Canada, , in order to be considered UL Canadian Certified.

OPTIONAL MARKING:

May be marked "VW-1".

File E203950

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App. B

Page 2

Issued: 2001-03-29

Revised: DRAFT

EXTRUDED TUBING, ELECTRICAL (YDPU2/YDPU8)

Group	Cat. No.	Colors	Procedure Section	Compound	Oil Resistance Temperature Rating	VW-1 Rated
Flexible Heat Shrinkable Polyolefin -						
1	RSFR-x	BK	1	Beijing Chemical EVA (14-2)	None	Yes
	RSFR-x	WT	1	Beijing Chemical EVA (14-2)	None	Yes
	WKZM-x-yz	WT	1	Beijing Chemical EVA (14-2) with Huiyuan ChemicalCo., Ltd. KY-405	None	No
1	RSFR-H	All except CL	1	See Table II	None	Yes
Not Heat Shrinkable PTFE -						
2	WF	NC	2	See Table I	<u>None</u>	Yes
Flexible Heat Shrinkable Polyolefin with Meltable Liner						
3	SBRS	All except CL	3	See Table III	<u>None</u>	Yes
Not Heat-Shrinkable Standard Wall Silicone Rubber Tubing						
4	WST-600	WT	4	See Table IV	<u>None</u>	#

x - Designated tubing expanded ID.

Note: for RSFR-x only, Black color tubing - x represents expanded ID of 2 mm - 8 mm.

Note: for RSFR-x only, White color tubing - x represents expanded ID of 1 mm - 50 mm.

Note: for WKZM-x-yz, - x represents expanded ID of 1 mm - 50 mm and -yz represents any alpha and/or numeric combination for internal Client code

- VW-1 rated for sizes 6.50 mm to 15.00 mm only.

Recovery time and temperature: