

承 認 書

SPECIFICATION FOR APPROVAL

客 戶  
CUSTOMER

正文科技股份有限公司

日 期  
DATE

93 年 12 月 09 日

品 名  
DESCRIPTION

WSS003 Dual Band  
Dipole Antenna (Black)

客 戶 料 號  
CUSTOMER P/N

成 品 編 號  
Part No.

SDW0935A1



萬旭電業股份有限公司

WANSHIH ELECTRONIC CO., LTD.

台北縣五股鄉五工六路 72 號 3 樓

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

TAIPEI HSIEN, TAIWAN, R.O.C.

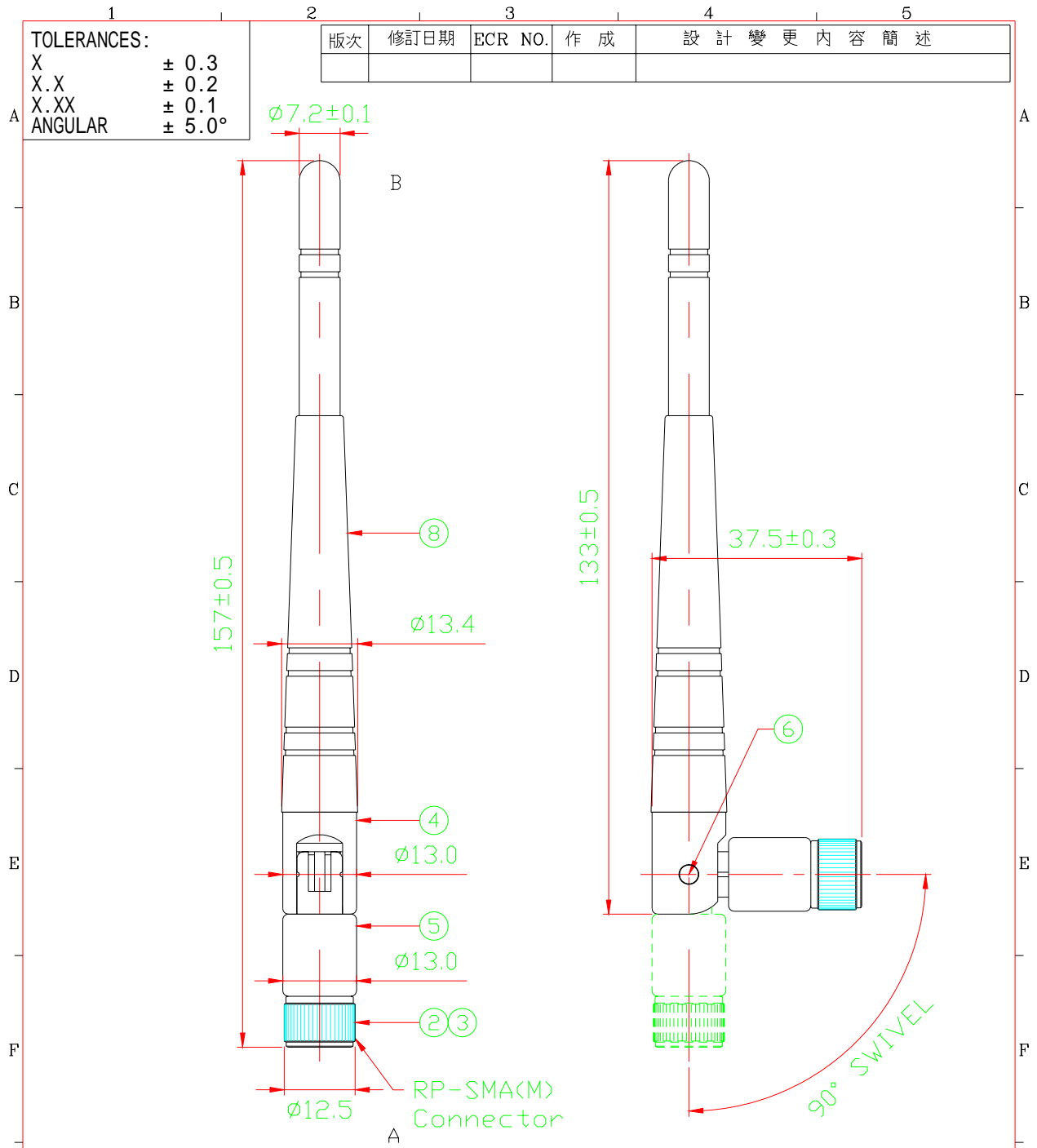
TEL : (02) 22988066 (5 LINE) FAX : (02)22981102

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# SPECIFICATION

- |                               |                                       |
|-------------------------------|---------------------------------------|
| 1. Description                | : WSS003 Dual Band<br>Dipole Antenna  |
| 2. Customer                   | : 正文科技股份有限公司.                         |
| 3. Model No.                  | : WSS003                              |
| 4. Part No.                   | : SDW0935A1                           |
| 5. Standard                   | : IEEE 802.11b/g Wireless LAN         |
| 6. Antenna Profile            | : 157 mm (see Drawing)                |
| 7. Color                      | : Black                               |
| 8. Electrical Characteristics |                                       |
| Operating Frequency           | : 2.4~2.5 & 5.15~5.35 & 5.725~5.85GHz |
| Antenna Type                  | : PCB                                 |
| 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                       | : TPU                                 |
| Hinge                         | : Polycarbonate                       |



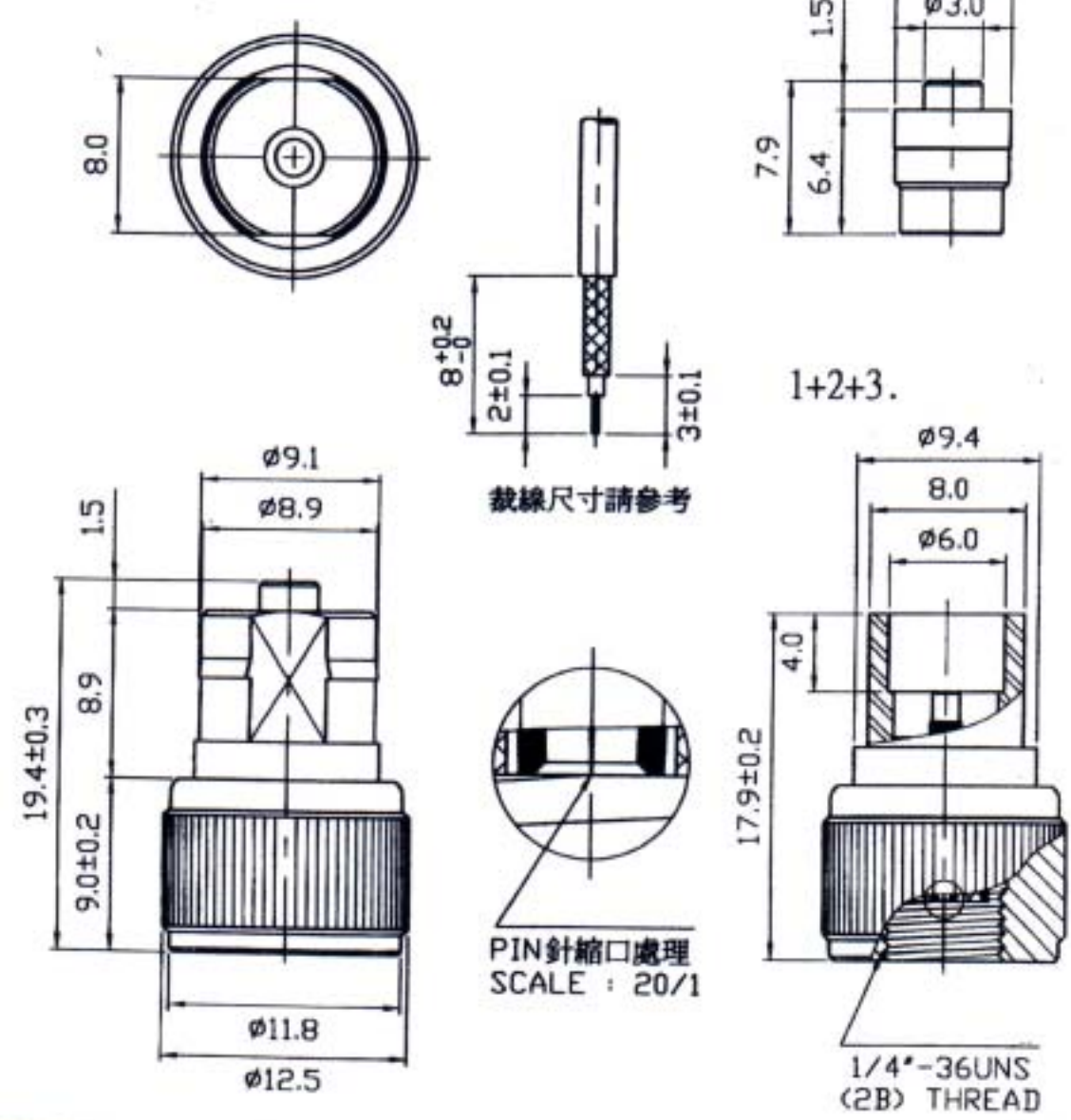
NO	材料名稱	環材	電腦編號	零件規格	顏色	切斷尺寸	用量	備註
8	外套 L115 <黑>		B9WSL031150CWA	WSL003 13.4 *115L外套<黑>	黑		1	或同級品
7	PCB		B9PCB4505016WL	PCB tri-band 45*5*1.6	綠		1	或同級品
6	大固定鉚釘鍍黑		692315848L00SM	23-15-8 1.95*2.1*4.8	黑		2	或同級品
5	下座 25.5L PC+PBT<黑>		B913255LPC00WA	13 下座*25.5L黑 PC+PBT<天線用>	黑		1	或同級品
4	13 上座*28L黑		B6IY174B0000WA	IY 174B0000 13 上座黑*28L 孔15.2*7.25	黑		1	或同級品
3	RP-SMA 12.5 連接軸		B0249AB1250TVD	0249A-B Connector RP-SMA(M) 12.5	銀		1	或同級品
2	RP-SMA 12.5 本體		B0249AA1250TVD	0249A-A Body RP-SMA(M) 12.5 Connector	黑		1	或同級品
1	RG-178 Coaxial Cable		19RG17800030AE	RG-178 CABLE 105SV(萬泰)	橙		1	或同級品

修訂日期：		制訂日期：93/12/09		承認圖號			
頁數：1/1	核准	審查	作成	品名		WSS003 Dual Band Dipole Antenna	
第三角法	Eddie	Arthur	郭雅珍	成品編號		REV	VERSION
單位：mm				SDW0935		A	1
比例：FREE							

萬旭電業股份有限公司 [54] 文件編號：FMT-0513-C7

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

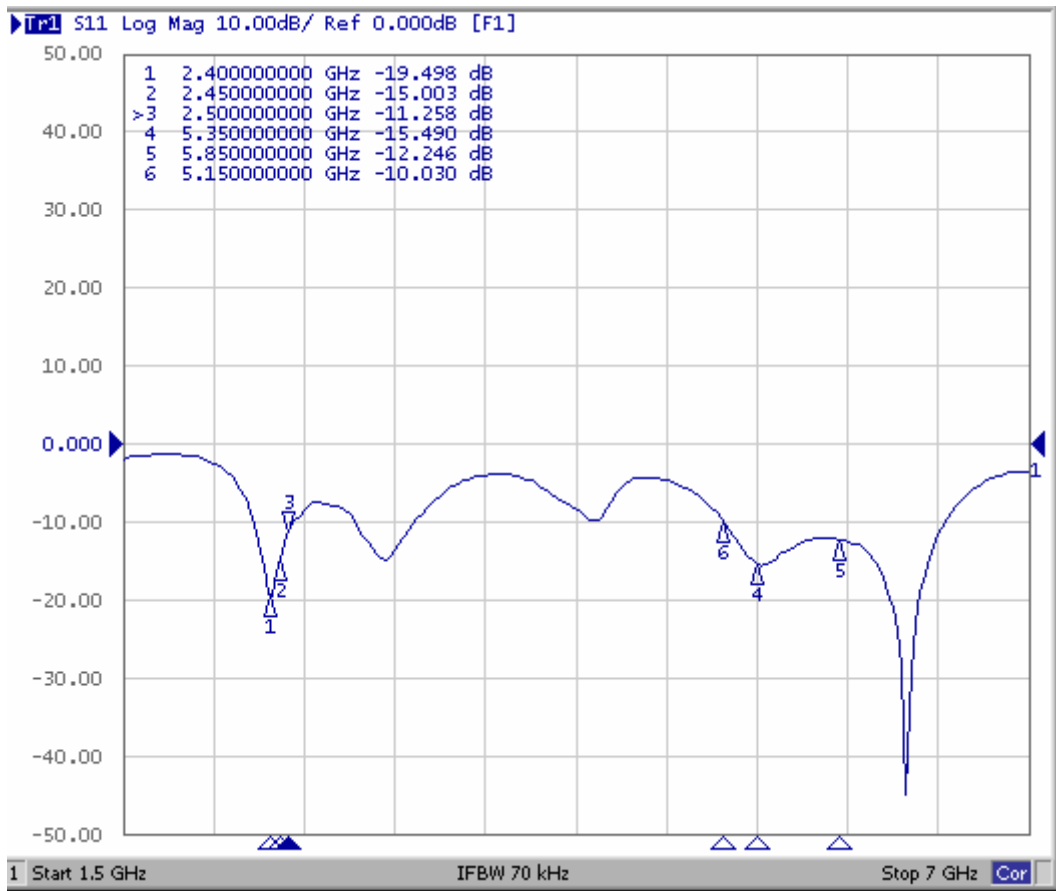
圖號 0249A



REV	DESCRIPTION	UNIT:	MM	MATERIAL:	NAME:
△x		SCALE:	3/1	FINISH:	RP-SMA(M) φ12.5mm
△x		TOLERANCES:		DESIGN:	PART NO: 0249A (承認書用)
△x		X	±0.15	DATE:	11.06.2003
△x		X.X	±0.1	DESIGN:	REV: 01
△x		X.XX	±0.05	APPROVE:	萬旭電業股份有限公司
△x		ANGULAR	±1.0		

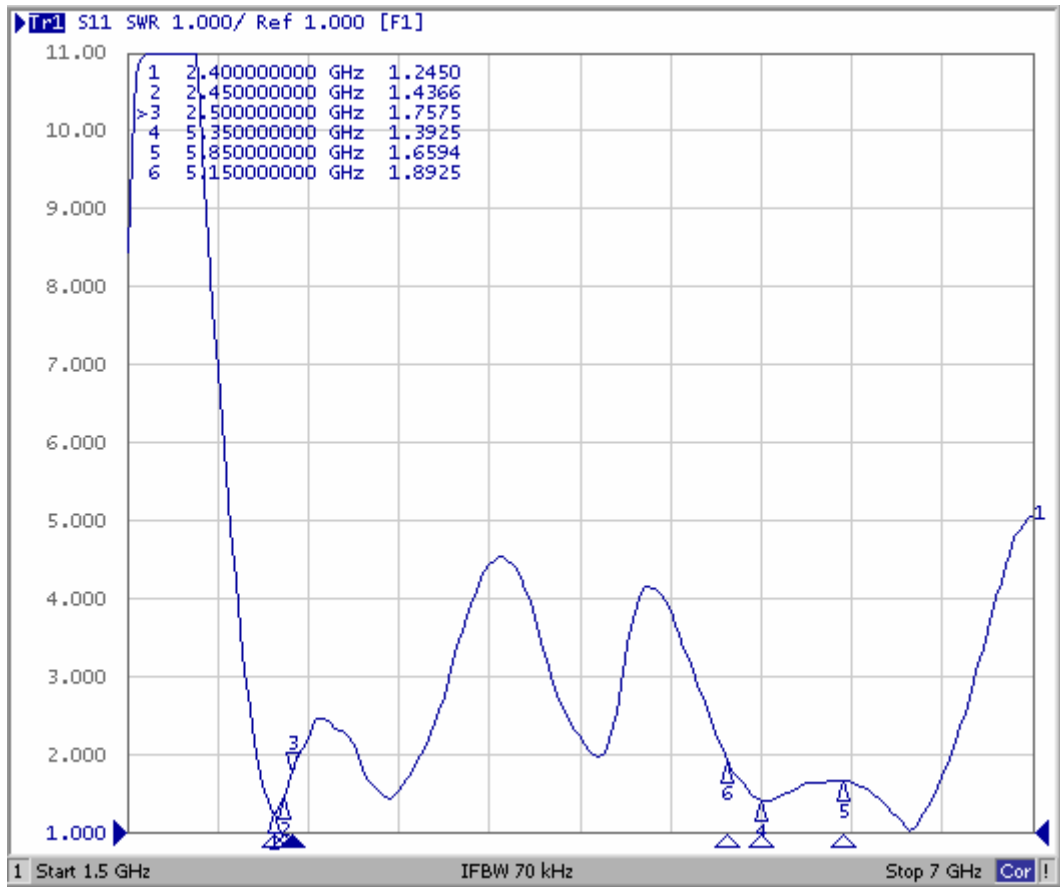
# Electrical Properties

## Return Loss



# Electrical Properties

## V.S.W.R



# Electrical Properties

## Radiation Pattern – H Plane

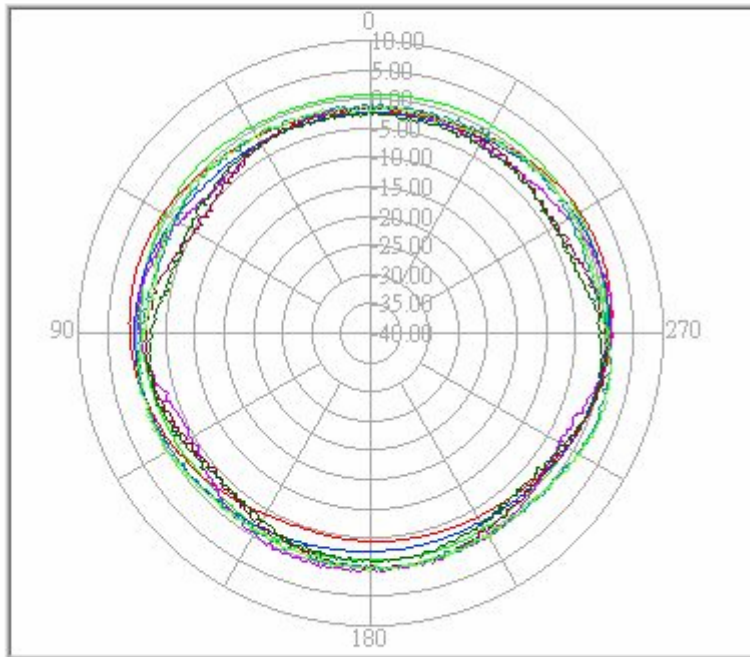


# 萬旭電業股份有限公司

**Model No:** TRI

**Antenna Position:** Vertical

**Test Mode:** H\_PLANE



Freq(MHz)	peak(dBi)	Angle(o)	Avg(dBi)
2400.00	1.14	29.37	-0.14
2450.00	1.69	73.12	-0.77
2490.00	0.96	77.50	-1.06
4920.00	1.48	85.00	-1.06
5250.00	0.66	97.50	-1.80
5350.00	0.32	101.25	-2.41
5800.00	1.75	98.75	-0.42
5850.00	2.08	108.12	-0.32



# Electrical Properties

## Radiation Pattern – E Plane

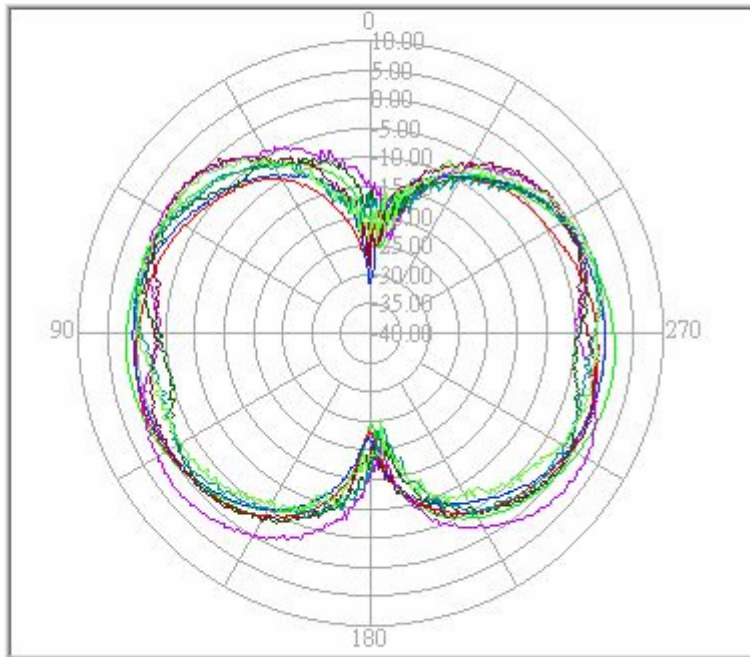


# 萬旭電業股份有限公司

**Model No:** TRI

**Antenna Position:** Horizontal

**Test Mode:** E\_PLANE



Freq(MHz)	peak(dBi)	Angle(o)	Avg(dBi)
2400.00	2.02	101.87	-1.80
2450.00	0.89	253.75	-3.40
2490.00	0.61	266.87	-3.02
4920.00	2.90	125.62	-1.43
5250.00	0.80	306.25	-2.91
5350.00	0.02	123.75	-3.89
5800.00	1.06	284.37	-3.44
5850.00	1.04	288.12	-3.35

# Material Data Sheet

RG-178 Coaxial Cable

## SPECIFICATION FOR APPROVAL

DOCUMENT: A30178B001

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STYLE : 200 30V  
RG-178B/U

---

SIZE: 7/0.102 SCCS

---

RECOGNIZED:

---

### WONDERFUL WIRE CABLE CO.,LTD

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

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

TEL : (02)22988033

FAX : (02)22988031-2

TEL : (03)4527777

FAX : (03)4517214

# WONDERFUL HI-TECH CABLE CO., LTD SPECIFICATION

<b>STYLE</b>	200 30V COAXIAL	<b>DOCUMENT NO :</b> A30178B001	
<b>SIZE</b>	RG-178B/U	<b>ESTABLISHED DATE:</b> 2003/02/13	
<b>STANDARD: MIL-C-17</b>			
<b>Conductor</b>	Size	AWG	30
	Material	----	Silver-Coated Copper Clad Steel
	Conductors No.	----	7
	Conductors Size	mm	0.102
	O.D.	mm	0.30
<b>Insulation</b>	Average Thickness	mm	0.28
	Diameter	mm	0.86
	Material	----	FEP
	Color	----	Clear
<b>Braid</b>	Material	----	Silver-Coated Copper
	Construction	mm	16 / 3 / 0.10
	Coverage	%	95
<b>Jacket</b>	Average Thickness	mm	0.25
	Diameter	mm	1.80 ±0.05
	Material	----	FEP
	Color	----	Brown
<b>Marking</b>			
<b>Drawing</b>			

AK001/210X297/1.0

EDITION : 1.0

MAKER : C.Y.CHEN

PAGE : 1

REVISED DATE :

CONFIRM : S.N.WONG

APPROVAL : W.J.WANG

# WONDERFUL HI-TECH CO., LTD

## SPECIFICATION

Electrical & Physical Properties						
Item		RG-178B/U				
Rating Temp Voltage		200 30V				
Conductor Resistance		335.0 OHM/KM/20 MAX.				
Insulation Resistance		3000 MEGA OHM/KM MIN.				
Dielectric Strength		AC 1.0 KV/Minute				
Spark Test		2.0 KV				
Insulation	Unaged	Tensile Strength	2500 PSI MIN.( 1.76 Kg / m m <sup>2</sup> )			
		Elongation	200% MIN.			
	Aged	Tensile Strength	<b>UNAGED MIN.75%(168HRS×232 )</b>			
		Elongation	<b>UNAGED MIN.75%(168HRS×232 )</b>			
Jacket	Unaged	Tensile Strength	2500 PSI MIN.( 1.76 Kg / m m <sup>2</sup> )			
		Elongation	200% MIN.			
	Aged	Tensile Strength	<b>UNAGED MIN.75%(168HRS×232 )</b>			
		Elongation	<b>UNAGED MIN.75%(168HRS×232 )</b>			
Nom. Impedance		50 Ohms				
Nom. Capacitance		95.8 pF/m				
Nom. Vel. of Prop.		69.5%				
VSWR (0-6GHz)		UNDER 1.3				
Attenuation (dB/100m)	100MHz	900MHz	1.8GHz	2.4GHz	5.2GHz	6GHz
	46	155	295	340	505	550

AK001/210X297/1.0

PAGE : 2

EDITION : 1.1

REVISED DATE :

MAKER : C.Y.CHEN

CONFIRM : S.N.WONG

APPROVAL : W.J.WANG

# Housing Material Data Sheet

## • Housing(外套)- TPU

Elastogran GmbH  
Geschäftsbereich TPU-Elastomere

**Elastogran**



Elastogran GmbH · Postfach 1140 · 49440 Lemförde · Germany  
WGJ COMPANY LTD.

P.O. BOX 36 - 431  
RC TAOYUAN HSIEN

**BASF** Gruppe

Date 18.07.2001  
No. 62046

### Inspection Certificate EN 10 204-3.1 B (DIN 50049)

Product : ES 95 A 50 000 S No.: 15002939  
Batch : 207672  
Basic-Batch 207673

Property	Test method	Unit	Value
Dichte	DIN 53479	g/cm <sup>3</sup>	1,24
Shore-Haerte D	DIN 53505	-	50
Zugfestigkeit	DIN 53504	MPa	53
Reißdehnung	DIN 53504	%	550
Abrieb	DIN 53516	mm <sup>3</sup>	22

Dichte = Density/Densité, Shore Härte = Shore hardness/Shore Dureté, Zugfestigkeit = Tensile strength/Resistance traction,  
Reißdehnung = Elongation at break/Allongement rupture, Weiteiswiderstand = Tear strength, Abrieb = Abrasion loss/Abrasion

The stated values are measured from a representative batch (basic-batch) of every product campaign.

Test plattens are injection moulded from dry granulate with less than 0,06 % water content. Test plattens tempered 20 hrs. at 100 °C,  
then cooled to 23 °C / 50 % RH before testing. Test specimen cut from test plattens.

We hereby certify, that the material described above complies with the terms of the order contract

Hübner Schoote

Works inspector

The above information is derived from our quality checks. It does not relieve the purchaser from examining the product upon delivery  
and gives no assurance of suitability of the product for any particular purpose.

Landwehrweg  
49448 Lemförde  
Deutschland  
Telefon (0 54 43) 12 - 0  
Telefax (0 54 43) 12 - 25 55

Bankverbindung: Commerzbank AG, Cenabrück  
(BLZ 285 400 70) Kto.-Nr. 53 56001/00  
IBAN: DE 36 2554 0070 0535 6001 00  
S.W.I.F.T.-Code: Cobadeff 285  
Postbank München  
(BLZ 700 100 80) Kto.-Nr. 1532 91 - 803

Sitz der Gesellschaft: 49448 Lemförde  
Geschäftsführer:  
Gerhard H.-J. Hellmann (Sprecher);  
Reinhard Leppkes  
Registergericht: Amtsgericht Diepholz  
Eintragungsnummer: HRB 2163

• Hinge(上座/下座)- PC

DYNACHEN

**TEIJIN POLYCARBONATE SINGAPORE PTE LTD.**

152 BEACH ROAD #17-03/04  
GATEWAY EAST SINGAPORE 189721

TELEPHONE: 298-8381  
FAX : 298-6652

Date: OCT. 28, 2002

Att: To Whom it May Concern

**CERTIFICATE OF ANALYSIS**

COMMODITY: TEIJIN PANLITE ( Polycarbonate Resin)

Grade No: L1250Y  
Colour No: NAT  
Lot No: S4E02911

ITEM	UNIT	TEST METHOD	TEIJIN POLYCARBONATE QUALITY STANDARD	TEST RESULT
IMPACT STRENGTH (IZOD NOTCHED 3.2mm thick)	K gfcm / cm	ASTM D256	≥80	PASS
FLEXURAL MODULUS	K gf / cm <sup>2</sup>	ASTM D790	22,700±1,500	PASS
TENSILE STRENGTH (AT BREAK)	K gf / cm <sup>2</sup>	ASTM D638	830±140	PASS

NOTE: ALL FIGURES ENTERED IN THIS LIST ARE SUBJECT TO OUR STANDARD TEST METHOD AND MAY NOT BE APPLICABLE FOR PRODUCTS THAT ARE USED UNDER DIFFERENT CONDITIONS.

Teijin Polycarbonate Pte Ltd

*Chia Ling Chen*

Y. SUZUKI  
LOGISTICS MANAGER (SALES)

萬旭電業股份有限公司  
冰醋酸實驗記錄  
APPROVAL SHEET

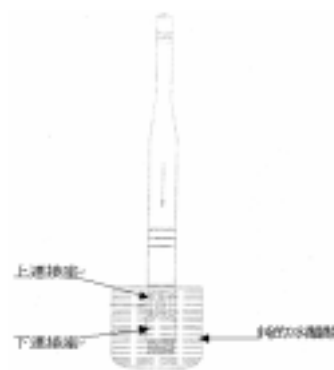
試驗日期： 93.12.08

客戶名稱： 正文科技股份有限公司	上、下座材質:PC+PBT
品 名： SDW0935A1	使用儀器:顯微鏡

(一)目的:  
確保所使用之材質可在酸性環境中使用，而不影響其外觀，及加工過程中所造成塑膠件之內應力對材質結構的破壞，如白霧狀、應力紋、龜裂等現象。

(二)冰醋酸實驗內容:  
關於冰醋酸試驗，其測試條件為：  
成品上下座置於冰醋酸中，如右圖所示，5 分鐘後，用自來水沖洗乾淨，拭乾後於 20X 顯微鏡下檢驗，不得有白霧狀，白色應力紋、龜裂現象。

測  
試  
方  
法  
如



(三)測試結果:

A 確認項目	實際檢驗									
	1	2	3	4	5	6	7	8	9	10
無白霧	√	√	√	√						
無痕裂	√	√	√	√						

說 明:

(四)判定標準:適用於各種顏色，下圖以灰色為例

合標準如圖:

無白霧



無裂痕



不合標準如圖:

有白霧:



有裂痕:



判定	品管單位		技術單位	
( V )合格	單位主管	承辦	單位主管	承辦
( )不合格	劉建勝	周 弘	Eddie	易姿岑

文件編號：FMC-0629