



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: 中磊電子股份有限公司

PART NAME: SMB Antenna

PART NO.:

REVISION:

W. Y. P/NO.: C147-510430-A(SSR-80641)

REV.: X3

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
APPROVED BY :	周東生	
DATE :	3/10/08	

WHA YU GROUP

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SMB Antenna

Specification

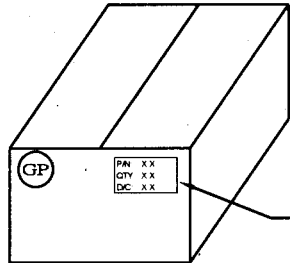
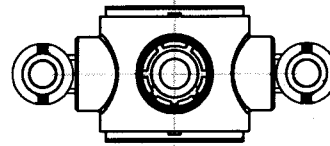
1. Electrical Properties :

- 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)... .. 2dBi (excluding cable loss)Free Space
- 1.7 Cable loss... .. 0.8dB
- 1.8 Polarization... .. Linear; Vertical
- 1.9 Admitted Power... .. 1W
- 1.10 Cable... .. RG-178 Coaxial Cable
- 1.11 Cable... .. $\Phi 1.13$ Cable
- 1.12 Connector..... .. SMA Plug Reverse
- 1.13 Connector..... .. SMA Jack Reverse

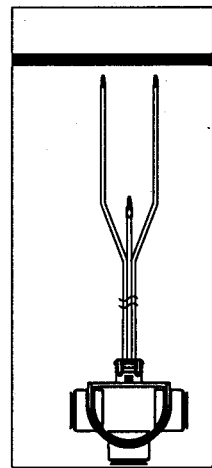
2. Physical Properties :

- 2.1 Antenna Cap... .. TPE
- 2.2 Antenna Base... .. PC
- 2.3 Antenna Base... .. PBT
- 2.4 Operating Temp. $-10^{\circ}\text{C} \sim +60^{\circ}\text{C}$
- 2.5 Storage Temp. $-10^{\circ}\text{C} \sim +70^{\circ}\text{C}$
- 2.6 Color Black

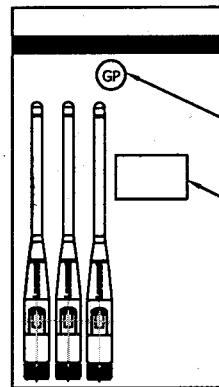
REV	DATE	DESCRIPTION
X4	2/19-08	HRS改剥皮鍍錫



GP標籤貼于外箱側面2PCS
標示Label貼於外箱兩邊側面共2PCS

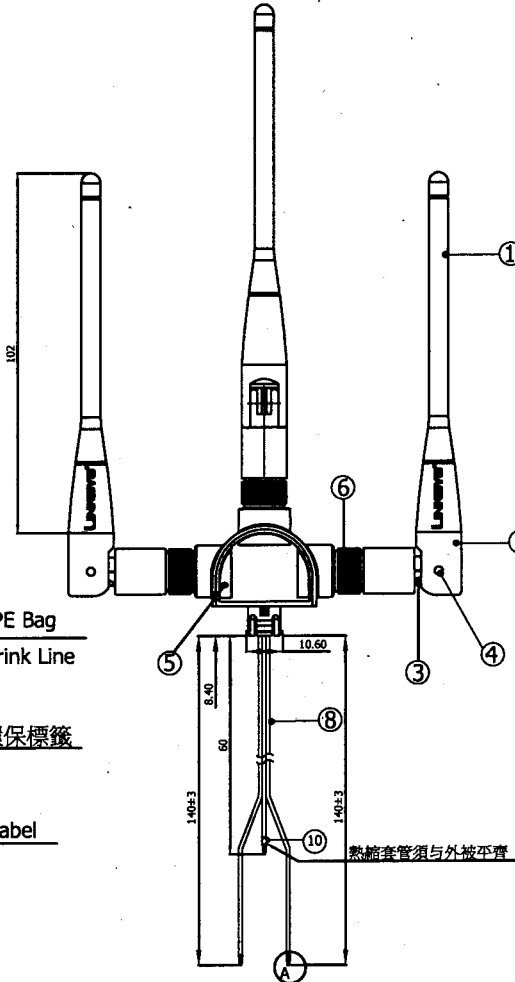


Packing:1pcs/bag

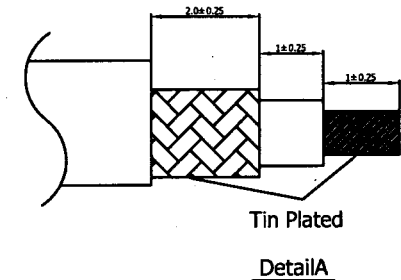
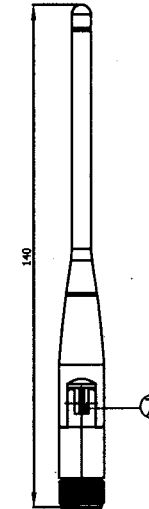


Packing:3pcs/bag

PE Bag
Shrink Line
GP環保標籤
Label



熱縮套管須與外殼平齊



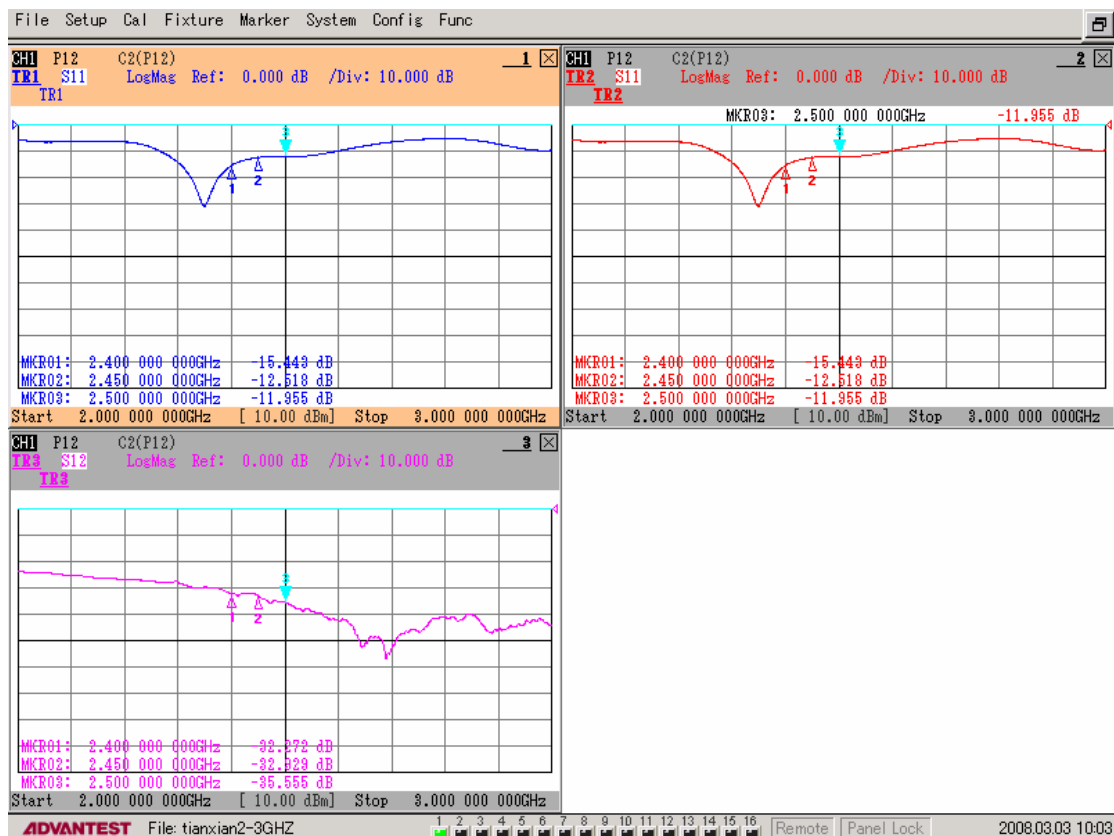
9	H.S Tube	Heat Shrink Tube	1	
8	Cable	Φ1.13 Coaxial Cable	3	
7	Cable	RG-178 Cable	3	
6	Connector	SMA Plug Reverse	3	
5	Antenna Fixed Base	PC+ABS FColor : Black	1	
4	Rivet	POM ; Color : Black	6	
3	Antenna Base	PC; Color : Black	3	
2	Antenna Base	PBT ; Color : Black	3	
1	Antenna Cap	TPE ; Color : Black	3	
NO	DESCRIPTION		QTY	REMARK

CUSTOMER'S SINGATURE

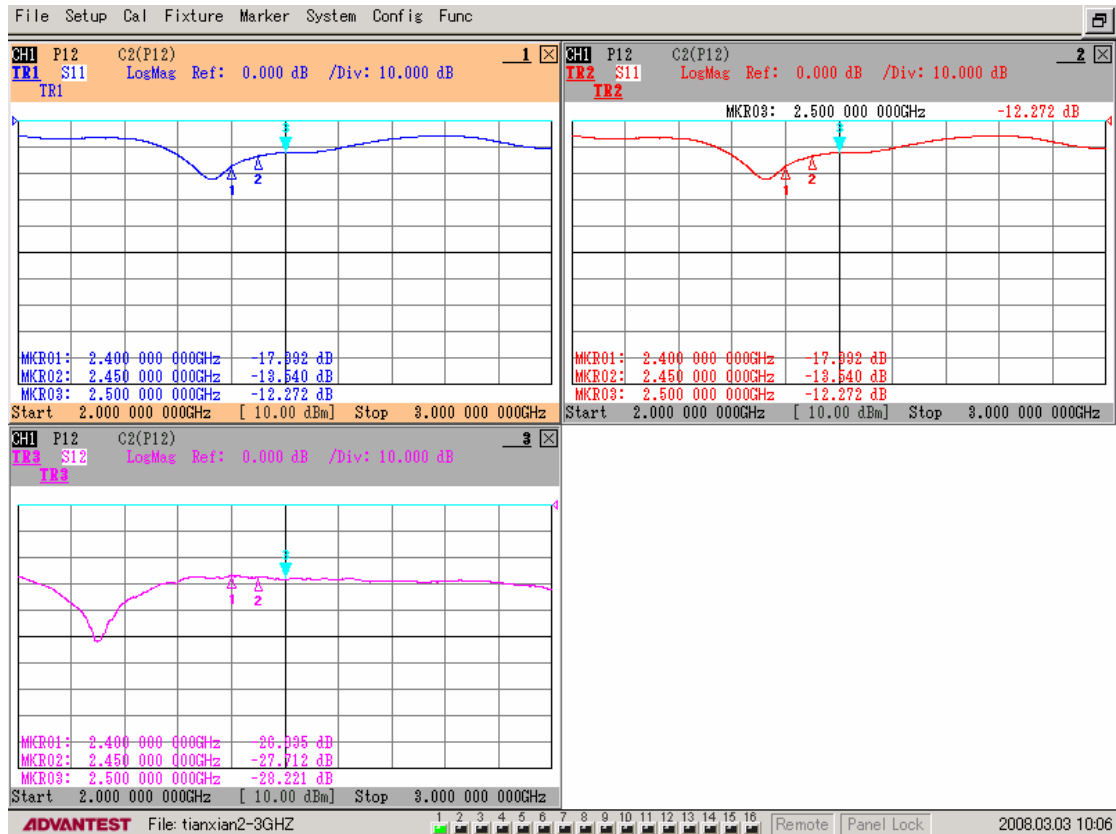
XX.	±5	APPROVED
X.	±3.0.	CHECKED
.X	±1.0	DRAWING
.XX	±0.5	
.XXX	±0.1	

CUSTOMER: 中磊	
PART NO :	
PARTNAME: SMB Antenna	
W.Y P/NO : C147-510430-A	
REV	UNIT
X4	m/m
FILE : SSR-80641	SHEET : 1/1

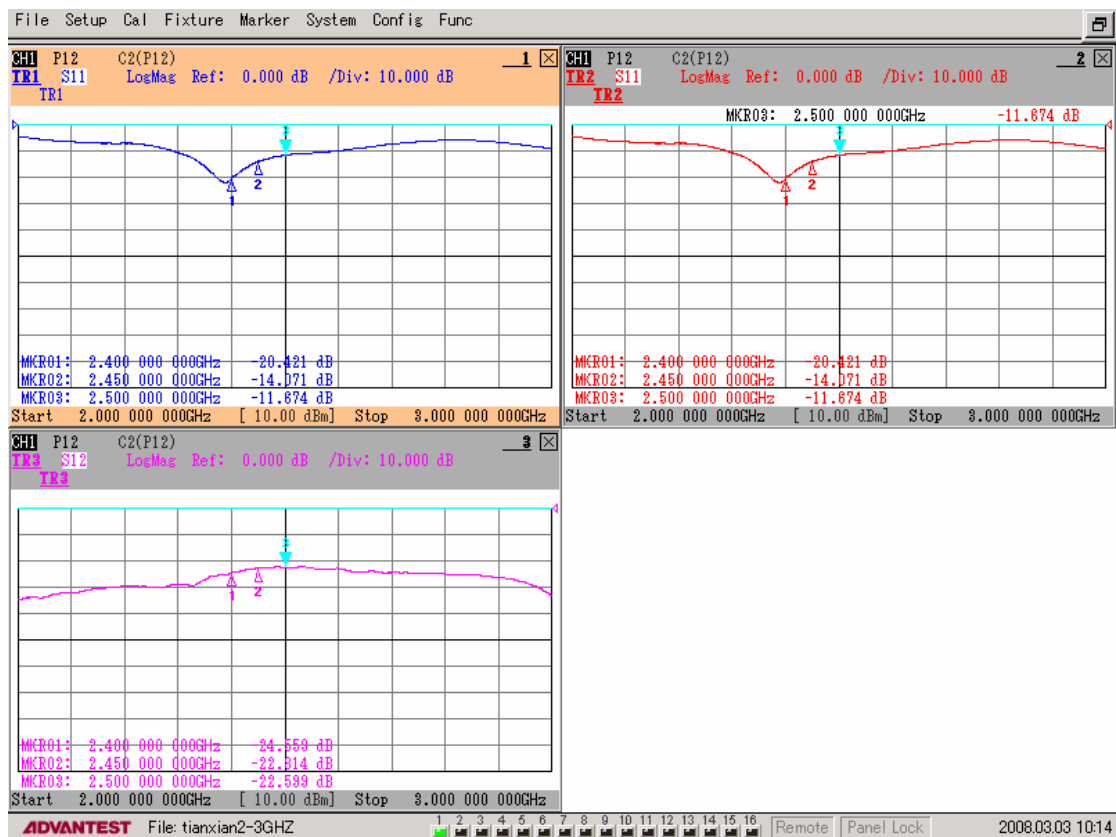
M.gear Wha Yu Group
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B-1-2

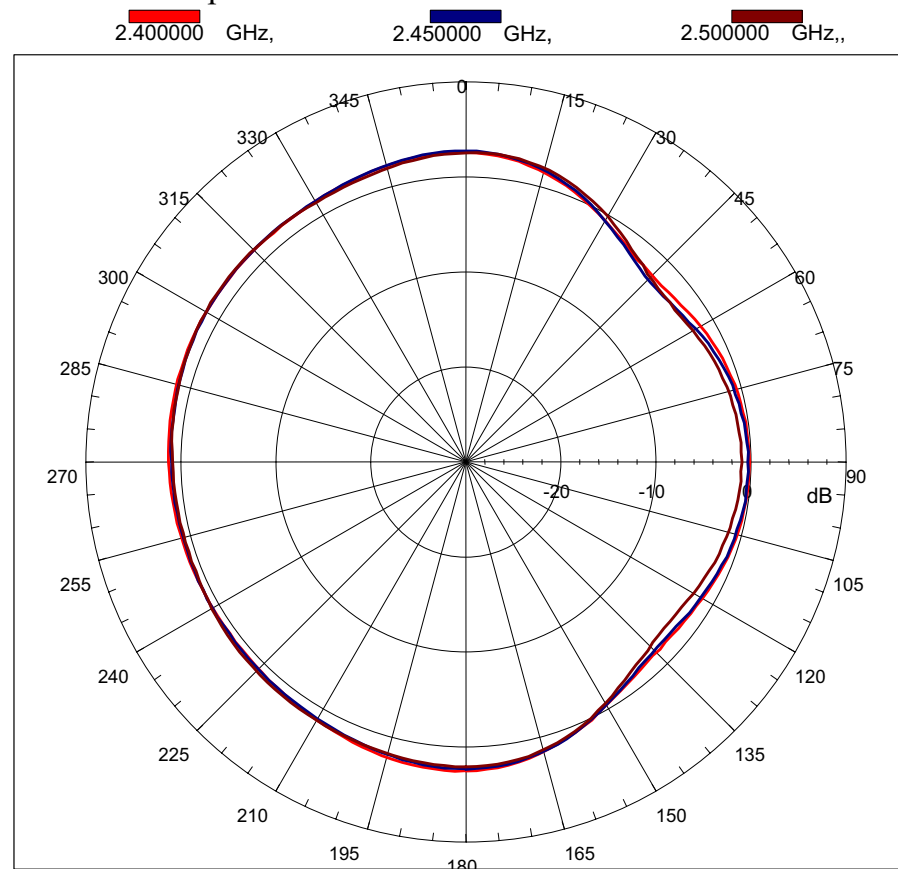


C-1-2



RF Antenna Assembly
P/NO :C147-510430-A SPEC : 2.4~2.5GHz NO:SSR-80641

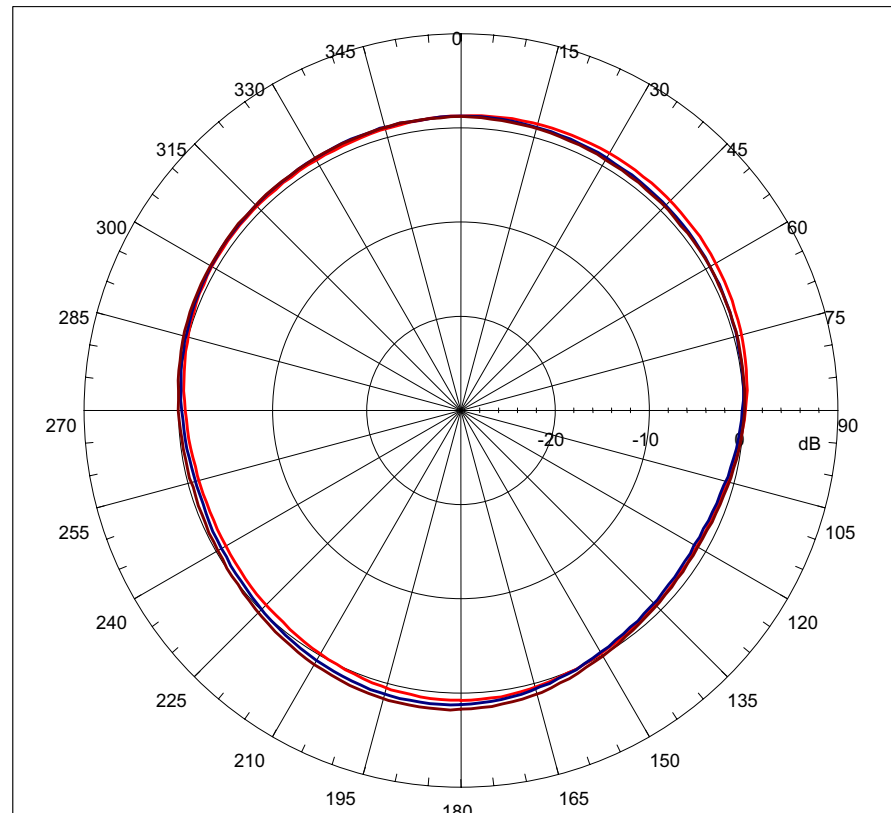
Far-field amplitude of C147-510430-A SSR-80495Left.nsi



RF Antenna Assembly
P/NO :C147-510430-A SPEC : 2.4~2.5GHz NO:SSR-80641

Far-field amplitude of C147-510430-A SSR-80495Middle.nsi

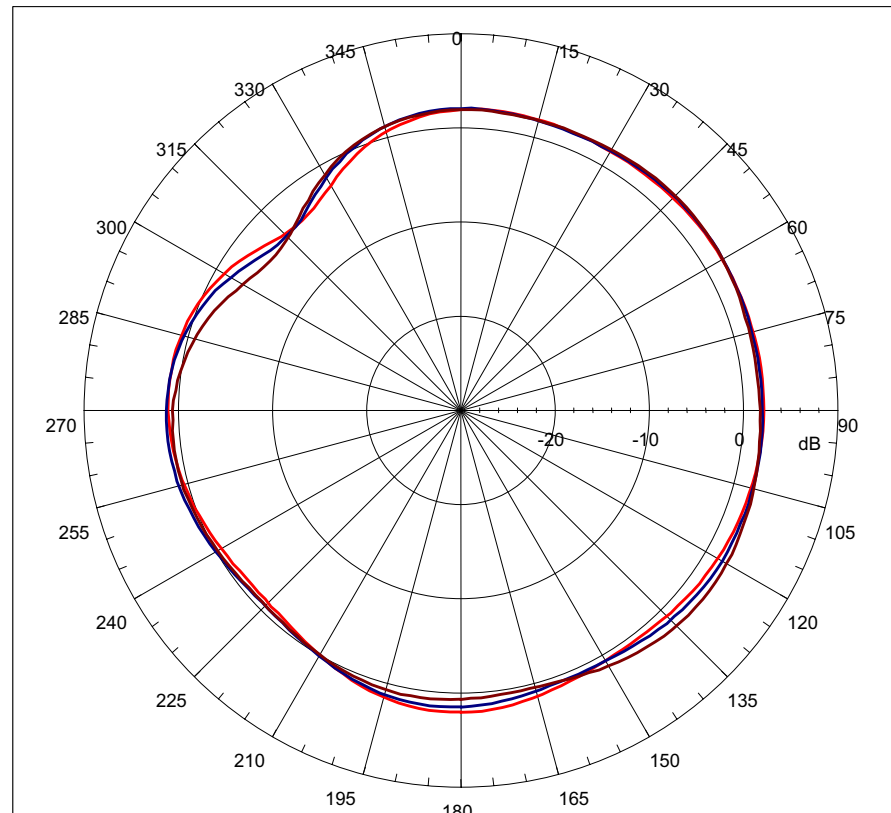
2.400000 GHz, 2.450000 GHz,, 2.500000 GHz,,



RF Antenna Assembly
P/NO :C147-510430-A SPEC : 2.4~2.5GHz NO:SSR-80641

Far-field amplitude of C147-510430-A SSR-80495 Right.nsi

2.400000 GHz, 2.450000 GHz, 2.500000 GHz,,

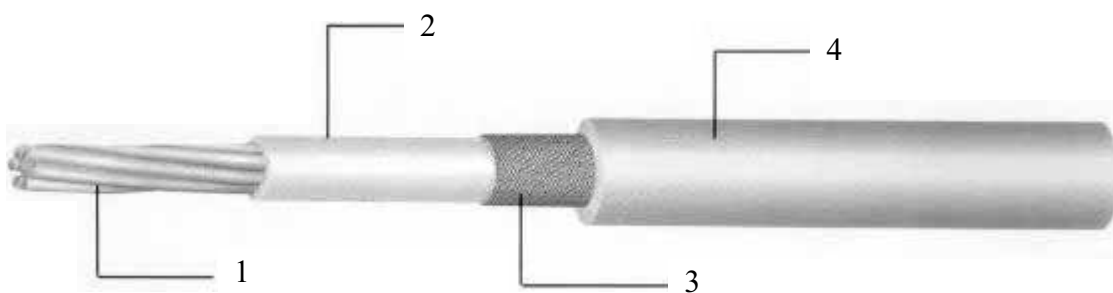


RG 178 B/U	FEP INSULATED HIGH-FREQUENCY COAXIAL CABLE	PAGE	1 / 2
PRODUCT STANDARD		ISSUED	16. Oct. 2003
		REVISED	

I - Scope

This specification presents a FEP insulated high-frequency coaxial cable AWG 30, 1.8 mm O.D. for internal wiring of electronic equipment, such as Computer / Notebook with wireless communication systems.

II - Construction



Item		Unit	Details
1. Inner Conductor	Material	—	CP-AG
	Composition	No./mm	AWG 30 or 7 ×0.1
	Dia. (approx.)	mm	0.305
2. Dielectric	Material	—	Extruded FEP
	Nom. O.D.	mm	0.84 ± 0.05
	Color	—	Natural
3. Outer Conductor	Material	—	Silver coated copper
	Composition	—	Braided (16 / 3 / 0.1)
	Dia. (approx)	mm	1.29 ±0.01
4. Jacket	Material	—	Extruded FEP
	Dia.	mm	1.80 ±0.1
	Color	—	Standard color is Light Orange

Note :	MADE BY	
	APPROVALS	

RG 178 B/U	FEP INSULATED HIGH-FREQUENCY COAXIAL CABLE	PAGE	2 / 2
PRODUCT STANDARD		ISSUED	16. Oct. 2003
		REVISED	

III – Characteristics

Item	Unit	Specified Value	Note
Temperature Rating	°C	-55 ~ +200	
Voltage Lasting	V	1000	
Dielectric strength	—	Dielectric core: No breakdown at AC 3 kv for 0.2 sec.	Spark test
		Jacket: No breakdown at AC 3 kv for 0.2 sec.	Spark test
Characteristic Impedance	Ω	50 ± 2	TDR method
Capacitance	pF / m	29.4	at 1 kHz
Attenuation. (Max.)	dB / 30m	52.0	1.0 GHz
		94.0	3.0 GHz
		-	5.0 GHz
		16.0	100.0 GHz
		33.0	400.0 GHz
Approx. Weight	g / m	7.68	

Note :	MADE BY	
	APPROVALS	

Date : 2005/02/02

Our Spec. No. WS05-M016

MESSRS.

SPECIFICATION
FOR
HIGH FREQUENCY COAXIAL CABLE
" KHCX - 32AWG - SB - TA " GRAY

SHOWA ELECTRIC WIRE & CABLE CO., LTD.

TORANOMON

TOKYO JAPAN

T. Mori

T. Mori
Manager, Engineering Section
Engineering Dept.
Electronic Wire Business Unit

1. 適用(SCOPE)

本仕様書は電子機器などの内部配線に使用される細径同軸“KHCX-32AWG-SB-TA”の構造と特性について定める。

This specification covers the construction and characteristics of coaxial cable “KHCX-32AWG-SB-TA” for internal wiring of electronic equipment.

2. ケーブル型名の説明 (EXPLANATION OF CABLE TYPE)

KHCX-32AWG-SB-TA

(1) (2) (3) (4)

(1) ケーブル略称 (Cable Abbreviation)

(2) 導体サイズ (Conductor Size)

(3) Inner Conductor Type (4) Outer Conductor Type.

3. 構造(CONSTRUCTION)

項目 Item		要求特性 Requirement
内部導体 Inner conductor	材質 Material	銀めっき軟銅線 Silver coated annealed copper wire
	構成 Stranding	7/0.08mm
	外径 Diameter	標準 0.24mm Nom. 0.24mm
絶縁体 Insulation	材質 Material	FEP
	色別 Color	自然色 Natural
	厚さ Thickness	標準 0.22mm Nom. 0.22mm
	外径 Diameter	0.68 +0.04/ -0.02mm
外部導体 Outer conductor	材質 Material	錫めっき銅合金線編組 Tinned copper alloy wire braid shield
	構成 Stranding	16/4/0.05 mm
	編組密度 Coverage	Approx. 90%
シース Sheath	材質 Material	FEP
	色別 Color	灰・白・黒 Gray・White・Black
	厚さ Thickness	標準 0.10mm Nom. 0.10mm
仕上外径 Overall diameter		1.13mm +0.08/ -0.05mm
概算質量 Approximate mass		3 kg/km

4. 特性 (CHARACTERISTICS)

項目 Item	単位 Unit	要求特性 Requirements
導体抵抗 Conductor Resistance	Ω/km	597 以下 (20°C) Max. 520 (at 20°C)
絶縁抵抗 Insulation Resistance	$\text{M}\Omega\text{km}$	1,500 以上 (DC 500V 1 分間充電後, 20°C) Min. 1,500 (After charge DC 500V for 1 min. at 20°C)
耐電圧 Dielectric Strength	-	絶縁体 : AC.1.5kV/0.15 秒間 (スパークテスト) Dielectric core : No breakdown at AC.1.5kV for 0.15sec by spark test. シース : AC.1.5kV/0.15 秒間 (スパークテスト) Jacket : No breakdown at AC.1.5kV for 0.15sec by spark test. 内部導体-外部導体間 : AC.500V/1 分間 No breakdown at AC.500V for 1 min between outer conductor and inner conductor.
静電容量 Capacitance	pF/m	標準 98 (at 1kHz) Nom. 98 (at 1kHz)
特性インピーダンス Characteristic Impedance	Ω	50 ± 2 (at TDR)
減衰量 Attenuation	dB/m	2.0GHz : 2.9 以下 Max.2.9 2.4GHz : 3.2 以下 Max.3.2 3.0GHz : 3.7 以下 Max.3.7 4.0GHz : 4.3 以下 Max.4.3 5.0GHz : 4.8 以下 Max.4.8 6.0GHz : 5.3 以下 Max.5.3
VSWR	--	2.4~2.5GHz : 1.20 以下 Max.1.20 4.8~6.0GHz : 1.40 以下 Max.1.40
耐はんだ性 Heat resistance for solder	--	絶縁体およびシースの寸法変化は 0.2mm 以下のこと。 Shrink and expansion of dielectric core or jacket should not be more than 0.2mm. 試験条件(test condition) : $255^\circ\text{C} \pm 5^\circ\text{C} * 3 \text{ sec.}$

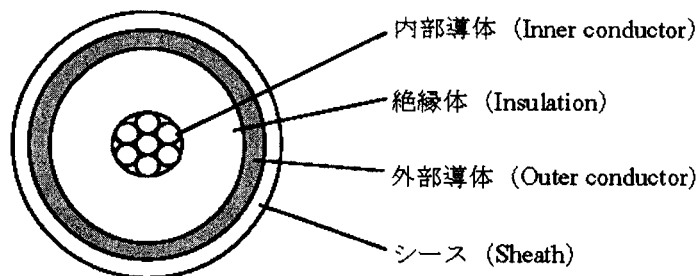


図 1. ケーブル構造図

Fig.1. Cable Cross-Section



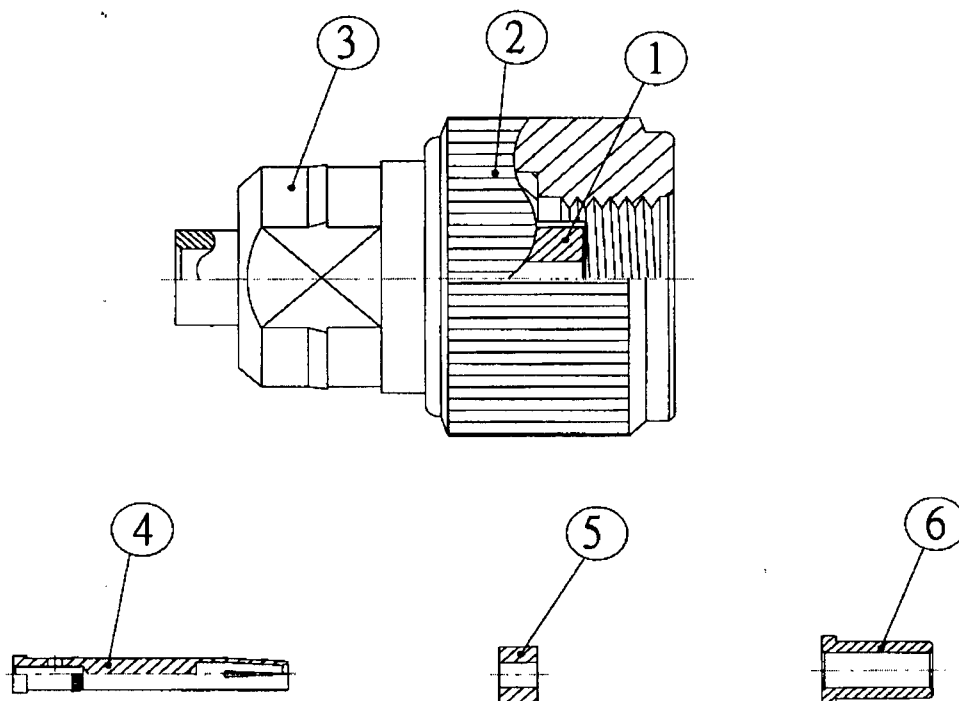
華裕實業股份有限公司

WHA YU INDUSTRIAL CO., LTD

Connector Material Data Sheet

華裕料號 Whayu P/N	100-2001192-AZ	產品名稱 Product Name	SMA Plug Reverse Straight For RG-178
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Structural Drawing



Material								Surface
1	Dielectric	Teflon	PTFE					N/A
2	Shell	Plastic	PBT+FB					Black
3	Bady	Brass	Cu	Pb	Fe	Fe+Sn	Zn	Nickel Plated
4	Pin	Phosphor Bronze;	Cu	Sn	P	Zn	Pb	Gold Plated
5	Dielectric	Teflon	PTFE					N/A
6	Ferrule	Brass	Cu	Pb	Fe	Fe+Sn	Zn	Nickel Plated

Remark :





譚裕實業股份有限公司

WHA YU INDUSTRIAL CO., LTD

Connector 材質證明書

譚裕料號 Whayu P/N		100-2001080-AZ		產品名稱 Product Name		SMA Straight Jack Reverse for 1.13 Cable			
結構圖面									
1. ASSEMBLY BODY 4. Ferrule 3. PIN 2. DIELECTRIC									
材質成份								表面處理	
1	絕緣	Teflon	PTFE						N/A
2	本體	Zinc Alloy	Zn	Fe	Al	Mg	Cu	Pb	鍍金 (Gold Flash)
3	尾管	Brass	Cu	Pb	Fe	Fe+Sn	Zn		鍍金 (Gold Flash)
4	中心針	Brass	Cu	Pb	Fe	Fe+Sn	Zn		鍍金 (5 μ")
5	絕緣	Teflon	PTFE						N/A
Remark :									請蓋公司章

ET-QA-0017-A2