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)

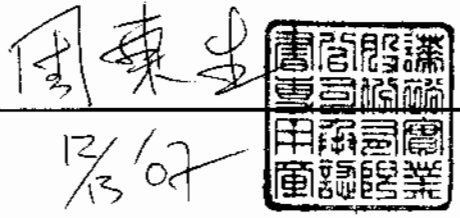
SPECIFICATION FOR APPROVAL

CUSTOMER: 中磊電子股份有限公司

PART NAME: *PIFA Antenna Assembly*

PART NO.: *REVISION:*

W. Y. P/NO.: *C147-510422-A(SSR-74152)* *REV.:* *X1*

	MANUFACTURER SIGNATURE	CUSTOMER SIGNATURE
APPROVED BY :		
DATE :	12/13/07	

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

Item	*Description*	*Page*
1.	天線規格表	1
2.	成品圖	2
3.	測試報告	3~6
4.	**Cable規格**	7~9
5.	**Connector材質特性**	10
6.	**SGS測試**	11~40
7.	**RoHS排外條款**	41

PIFA Antenna Assembly

Specification

1. Electrical Properties :

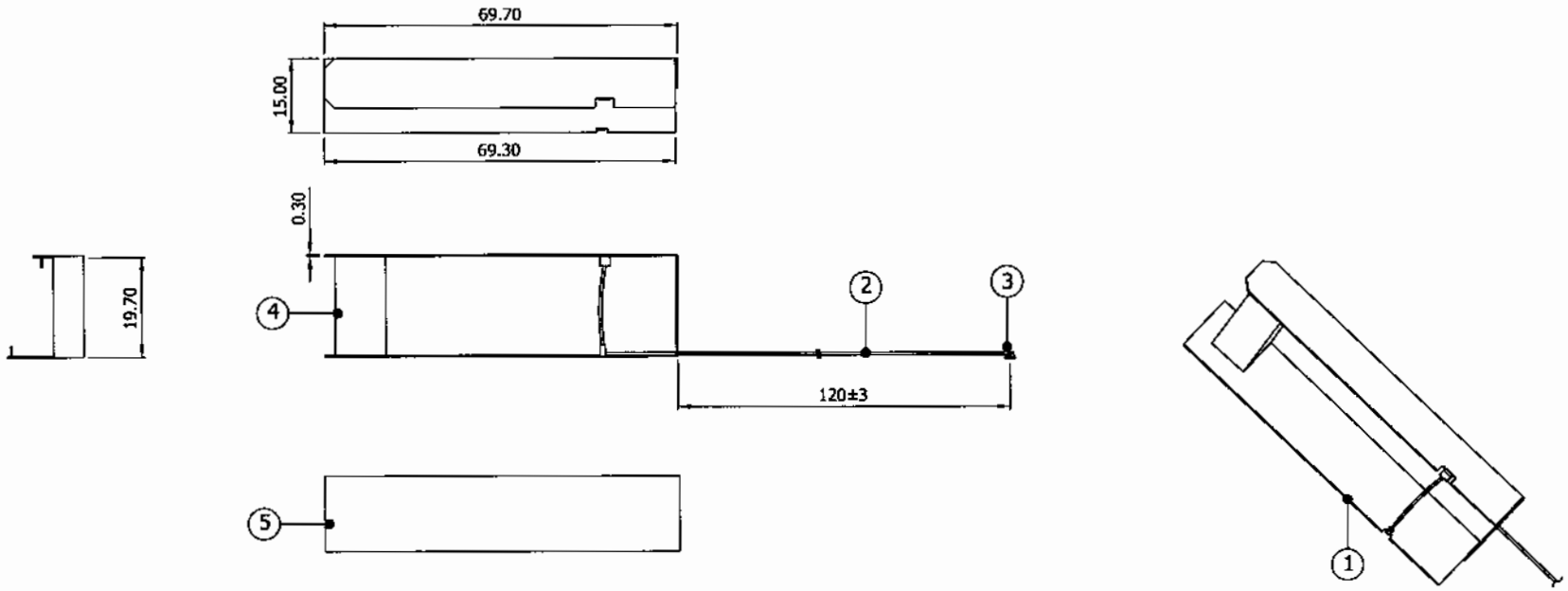
1.1 Frequency Range……868MHz ~ 908MHz
1.2 Impedance …… 50Ω Nominal
1.3 VSWR ……1.92 Max.
1.4 Return Loss…….-10 dB Max.
1.5 Efficiency……50%
1.6 Peak Gain……3.5dBi
1.7 Polarization……Linear
1.8 Admitted Power…… 1W

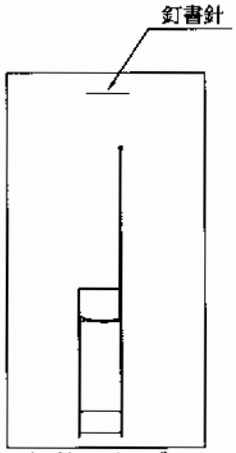
2. Physical Properties :

2.1 Cable……ϕ1.13mm Coaxial Cable
2.2 Operating Temp. ……-20℃ ~ +65℃
2.3 Storage Temp. ……-30℃ ~ +75℃
2.4 Connector…...…….MHF(I-PEX)

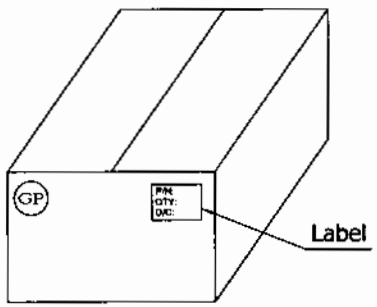
CG-

REV	DATE	DESCRIPTION
X1	12/13-2007	New Issue





Packing : 1 pcs/bag
(每10袋用釘書機訂起來)



GP標籤貼於外箱兩邊側麥左上角共2PCS
標示Label貼於外箱兩邊側麥共2PCS

NO	DESCRIPTION	QTY	REMARK
5	雙面膠	3M 467膠	1	
4	Sponge	EVA ; Black	1	
3	Connector	MHF Connector	1	
2	Cable	ø1.13 Coaxial Cable ; Gray	1	
1	PIFA	Copper	1	

CUSTOMER'S SINGATURE

XX.	±5
X.	±3.0
.X	±1.0
.XX	±0.5
.XXX	±0.1

APPROVED Andrew 12/13
CHECKED 12/13/2007
DRAWING 程 96.12.13 淑娟

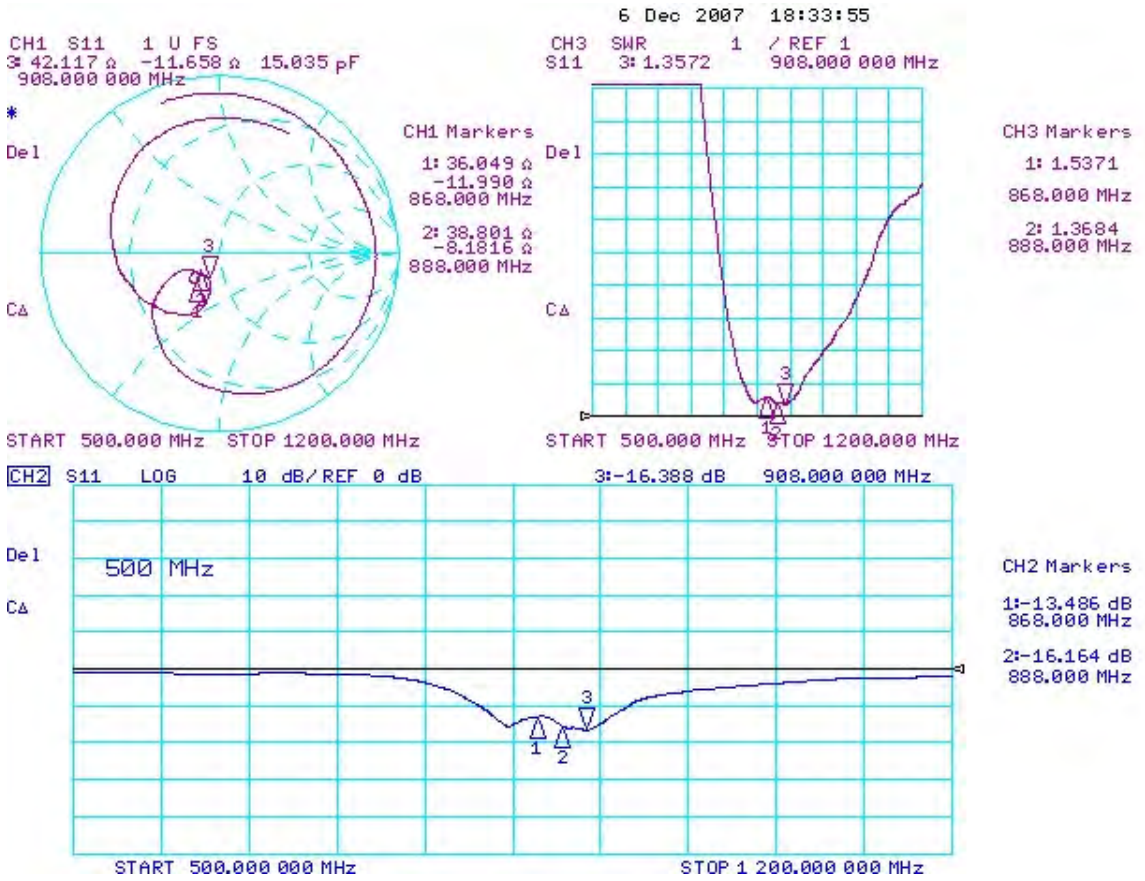
CUSTOMER:	中磊
PART NO :	
PARTNAME:	PIFA Antenna
W.Y P/NO :	C147-510422-A

REV	UNIT	FILE :	SSR-74152
X1	m/m	SHEET :	1/1

M.gear Wha Yu Group

PIFA Antenna Assembly(With housing)

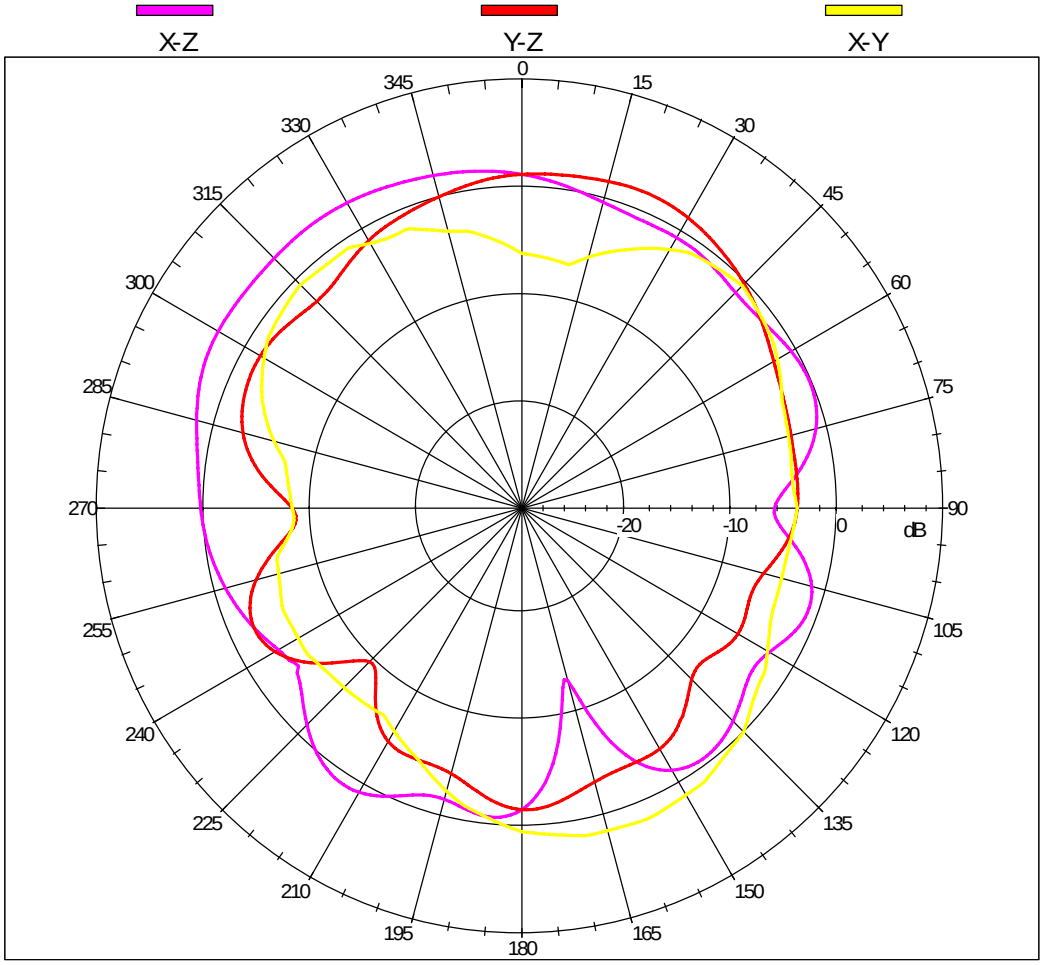
中磊C147-510422-A(SSR-74152)SPEC:868MHz~908MHz



12/7/2007

Far-field Power Distribution on X-Z Plane(E-Plane of L3 Pol Sense)

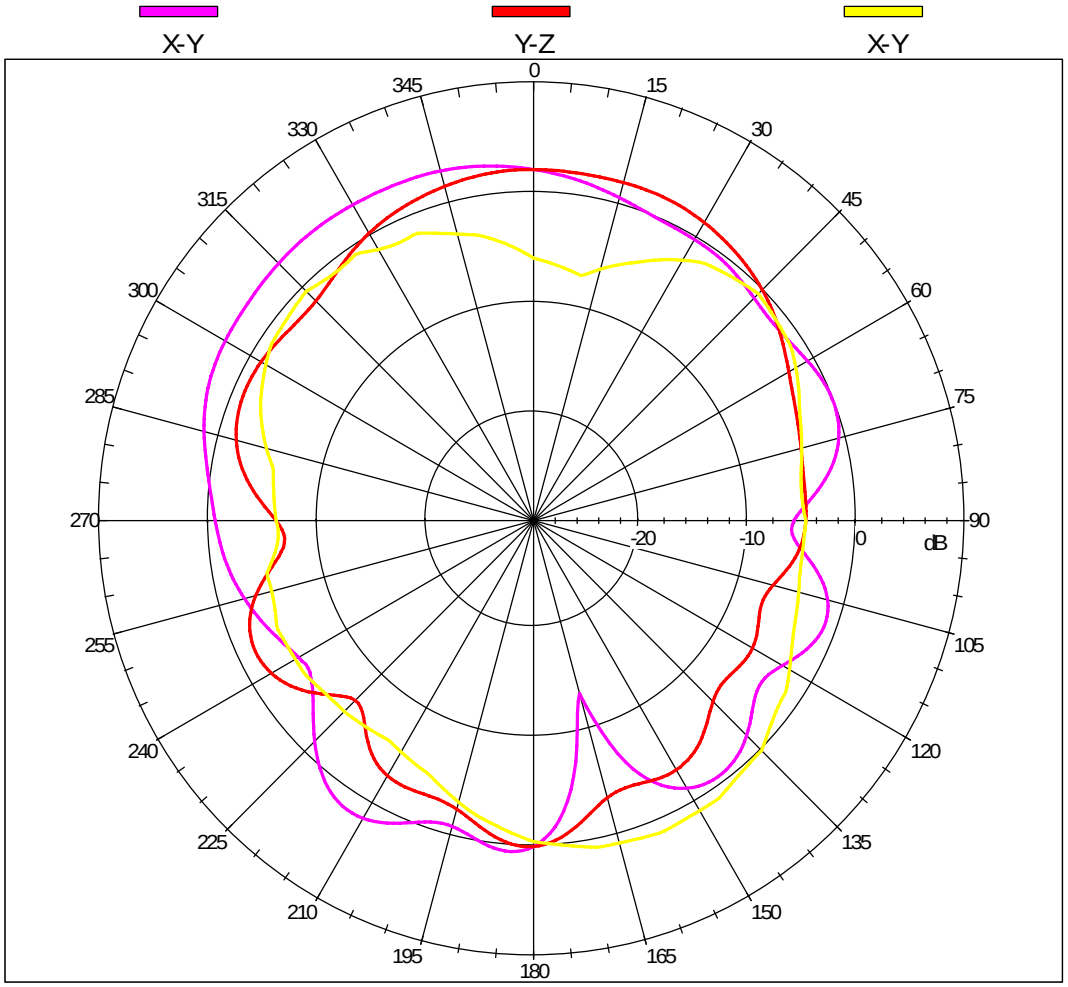
Gain=1.879 dBi; Efficiency: 82.268% @0.86800 GHz(SSR-74152) With housing



2007/12/13

Far-field Power Distribution on X-Z Plane(E-Plane of L3 Pol Sense)

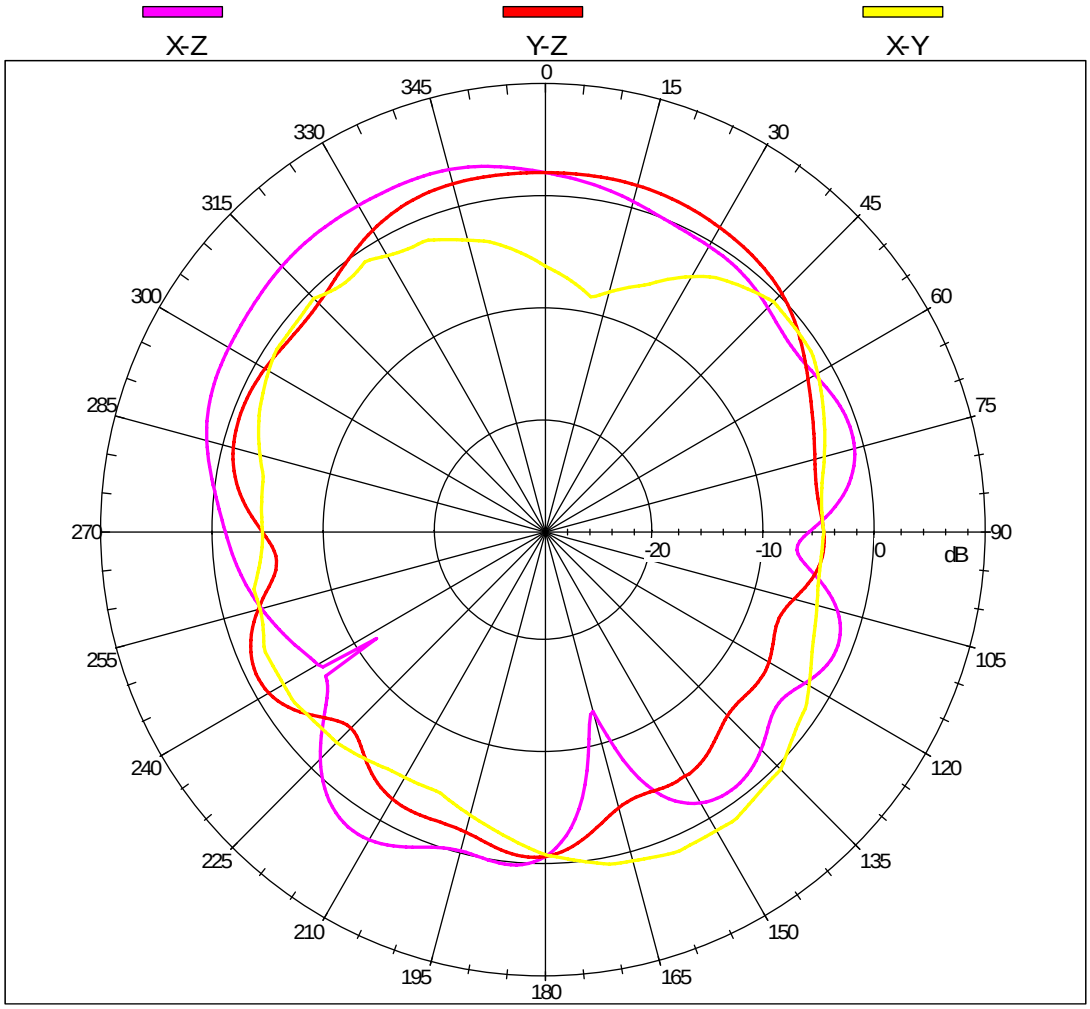
Gain=2.680 dBi; Efficiency: 96.403% @0.88800 GHz(SSR-74152) With housing



2007/12/13

Far-field Power Distribution on X-Z Plane(E-Plane of L3 Pol Sense)

Gain=3.558 dBi; Efficiency: 90.050% @0.90800 GHz(SSR-74152) With housing



2007/12/13

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
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℃) Max. 520　(at 20℃)
絶縁抵抗 Insulation Resistance	MΩkm	1,500 以上（DC 500V 1 分間充電後,20℃） Min. 1,500 (After charge DC 500V for 1 min. at 20℃)
耐電圧 Dielectric Strength	-	絶縁体：AC.1.5kV/0.15 秒間（ｽﾊﾟｰｸﾃｽﾄ） Dielectric core : No breakdown at AC.1.5kV for 0.15sec by spark test.
		シース：AC.1.5kV/0.15 秒間（ｽﾊﾟｰｸﾃｽﾄ） 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℃±5℃＊3 sec.

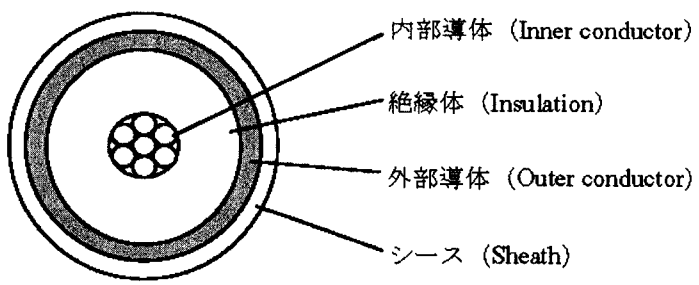


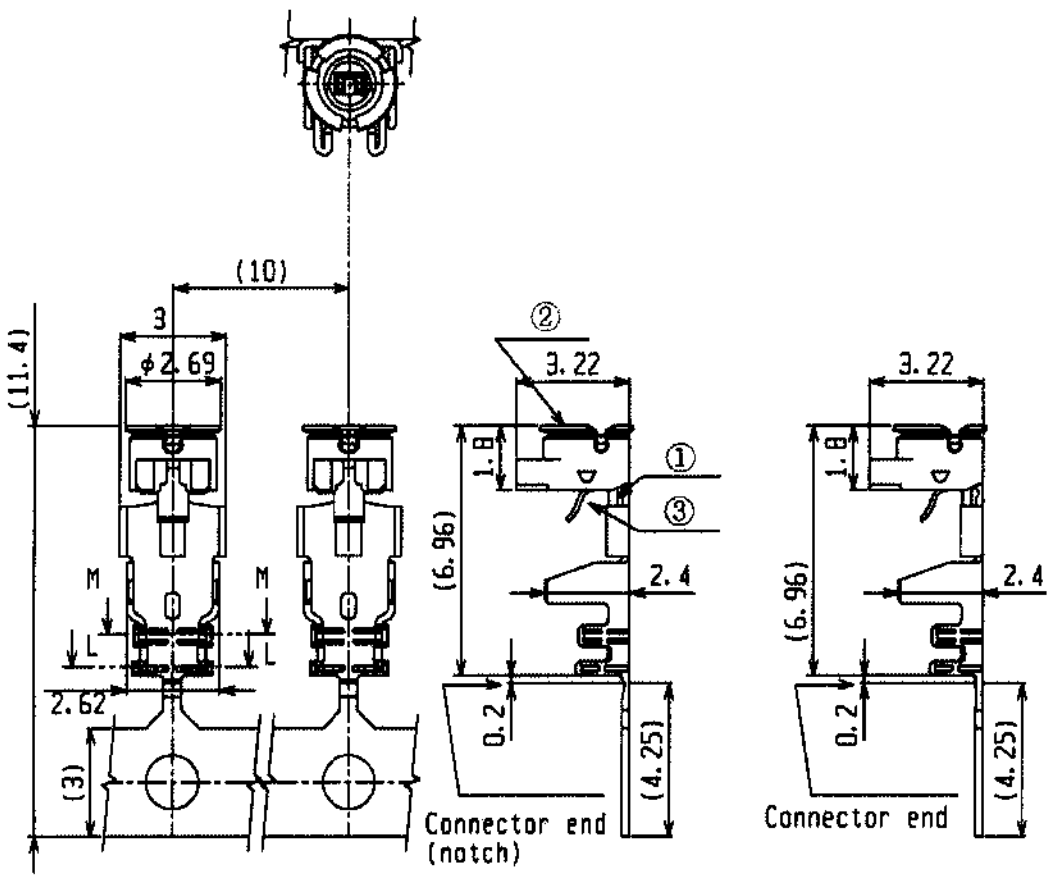
図１.ケーブル構造図

Fig.1. Cable Cross-Section

譁裕實業股份有限公司
WHA YU INDUSTRIAL CO., LTD
Connector 材質證明書

譁裕料號 Whayu P/N	Z101-02110002-A1	產品名稱 Product Name	MHF Plug for φ 1.13 Coaxial Cable

結構圖面



材質成份									表面處理
1	絕緣	PBT	Polybutylene Terephthalte(UL 94V-0)						Black
2	外殼	Phos. Bronze	Cu	Sn	P	Zn	Pb		鍍金 0.05 μm
3	中心夾持	Phos. Bronze	Cu	Sn	P	Zn	Pb		鍍金 0.1 μm

Remark：插拔次數 30 次

SGS Test Report

Product：PIFA Antenna Assembly

Contents

No	Description		Report No.	Page
1	Cable	φ 1.13mm Cable	CE/2007/C0427	P.12~16
2	PIFA	洋白銅	CE/2007/11769	P.17~19
3	Connector	MHF	CE/2007/46149 CE/2007/46124 CE/2007/46148	P.20~32
4	Sponge	EVA	GZ0703036357/CHEM	P.33~35
5	雙面膠	3M 467 膠	CE/2006/72382B	P.36~40

Result for RoHS：PASS

Test Report

No. : CE/2007/C0427 Date : 2007/12/06 Page : 1 of 5

SWCC SHOWA DEVICE TECHNOLOGY CO., LTD.
NO. 1-8, TORANOMON 1-CHOME, MINATO-KU, TOKYO 105-8444

The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description	:	ANTENNA COAXIAL CABLE UL-STYLE 11032
Style/Item No.	:	FOR KHCX-30AWG-SB-TA / KHCX-32AWG-SB-TA / KHCX-36AWG-SB-TA / KHCX-32AWG-WSB-TA GRAY
Sample Receiving Date	:	2007/12/03
Testing Period	:	2007/12/03 TO 2007/12/06

==========

Test Requested : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

Test Method : With reference to IEC 62321, Ed.1 111/54/CDV Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products.

(1) Determination of Cadmium by ICP-AES.
(2) Determination of Lead by ICP-AES.
(3) Determination of Mercury by ICP-AES.
(4) Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry.
(5) Determination of Hexavalent Chromium for metallic samples by Spot test / Colorimetric Method.
(6) Determination of PBB and PBDE by GC/MS.

Test Result(s) : Please refer to next page(s).

Chenyu Kung / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.
Chemical Laboratory – Taipei

SWCC SHOWA DEVICE TECHNOLOGY CO., LTD.
NO. 1-8, TORANOMON 1-CHOME, MINATO-KU, TOKYO 105-8444

Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result				MDL
		No.1	No.2	No.3	No.4	
Cadmium (Cd)	(1)	n.d.	n.d.	n.d.	n.d.	2
Lead (Pb)	(2)	n.d.	n.d.	n.d.	n.d.	2
Mercury (Hg)	(3)	n.d.	n.d.	n.d.	n.d.	2
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	n.d.	---	---	2
Hexavalent Chromium Cr(VI) by Spot test / boiling water extraction	(5)	---	---	Negative	Negative	See Note 5
Sum of PBBs	(6)	n.d.	n.d.	---	---	-
Monobromobiphenyl		n.d.	n.d.	---	---	5
Dibromobiphenyl		n.d.	n.d.	---	---	5
Tribromobiphenyl		n.d.	n.d.	---	---	5
Tetrabromobiphenyl		n.d.	n.d.	---	---	5
Pentabromobiphenyl		n.d.	n.d.	---	---	5
Hexabromobiphenyl		n.d.	n.d.	---	---	5
Heptabromobiphenyl		n.d.	n.d.	---	---	5
Octabromobiphenyl		n.d.	n.d.	---	---	5
Nonabromobiphenyl		n.d.	n.d.	---	---	5
Decabromobiphenyl		n.d.	n.d.	---	---	5
Sum of PBDEs (Mono to Nona) (Note 4)		n.d.	n.d.	---	---	-
Monobromobiphenyl ether		n.d.	n.d.	---	---	5
Dibromobiphenyl ether		n.d.	n.d.	---	---	5
Tribromobiphenyl ether		n.d.	n.d.	---	---	5
Tetrabromobiphenyl ether		n.d.	n.d.	---	---	5
Pentabromobiphenyl ether		n.d.	n.d.	---	---	5
Hexabromobiphenyl ether		n.d.	n.d.	---	---	5
Heptabromobiphenyl ether		n.d.	n.d.	---	---	5
Octabromobiphenyl ether		n.d.	n.d.	---	---	5
Nonabromobiphenyl ether		n.d.	n.d.	---	---	5
Decabromobiphenyl ether		n.d.	n.d.	---	---	5
Sum of PBDEs (Mono to Deca)		n.d.	n.d.	---	---	-

SWCC SHOWA DEVICE TECHNOLOGY CO., LTD.
NO. 1-8, TORANOMON 1-CHOME, MINATO-KU, TOKYO 105-8444

TEST PART DESCRIPTION:

NO.1	:	GRAY PLASTIC JACKET
NO.2	:	TRANSPARENT PLASTIC
NO.3	:	SILVER COLORED METAL WIRE
NO.4	:	SILVER COLORED METAL FOIL

Note : 1. mg/kg = ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. According to 2005/717/EC DecaBDE is exempt.
5. Spot-test:
Negative = Absence of Cr(VI) coating / surface layer,
Positive = Presence of Cr(VI) coating / surface layer;
(The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.)
Boiling-water-extraction:
Negative = Absence of Cr(VI) coating / surface layer.
Positive = Presence of Cr(VI) coating / surface layer;
the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm^2 sample surface area.
6. "-" = Not Regulated
7. "--" = Not Conducted

SWCC SHOWA DEVICE TECHNOLOGY CO., LTD.
NO. 1-8, TORANOMON 1-CHOME, MINATO-KU, TOKYO 105-8444

SWCC SHOWA DEVICE TECHNOLOGY CO., LTD.
NO. 1-8, TORANOMON 1-CHOME, MINATO-KU, TOKYO 105-8444

** End of Report **

測試報告

號碼 : CE/2007/11769　　日期 : 2007/01/15　　頁數 : 1 of 3

青棋五金有限公司
PRO BRASS METAL CO., LTD.

以下測試樣品係由客戶送樣，且由客戶聲稱並經客戶確認如下(The following sample(s) was/were submitted and identified by/on behalf of the client as)：

樣品名稱	:	洋白板
Sample Description	:	NICKEL SILVER
樣品型號(Style/Item No.)	:	C7701
收件日期(Sample Receiving Date)	:	2007/1/8
測試期間(Testing Period)	:	2007/1/8　TO 2007/01/15

==========

測試需求 / Test Requested : 參照 RoHS 2002/95/EC 及其修定指令要求. / In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

測試方法 / Test Method : 參考IEC 62321, Ed. 1 111/54/CDV方法檢測. / With reference to IEC 62321, Ed.1 111/54/CDV. Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products.

(1) 用感應藕合電漿原子發射光譜儀檢測鎘含量 / Determination of Cadmium by ICP-AES.

(2) 用感應藕合電漿原子發射光譜儀檢測鉛含量 / Determination of Lead by ICP-AES

(3) 用感應藕合電漿原子發射光譜儀檢測汞含量. / Determination of Mercury by ICP-AES

(4) 針對金屬材質之樣品, 用Spot test / Colorimetric方法檢測六價鉻含量. / Determination of Hexavalent Chromium for metallic samples by Spot test / Colorimetric Method.

測試結果 / Test Result(s) : 請見下一頁.

Daniel Yeh, M.R. / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.

青棋五金有限公司
PRO BRASS METAL CO., LTD.

測試結果 (單位: mg/kg) / Test Result(s)

測試項目 / Test Item (s):	測試方法 Method (Refer to)	結果 / Result No.1	方法偵測極限值 (MDL)
鎘 / Cadmium (Cd)	(1)	n.d.	2
鉛 / Lead (Pb)	(2)	22.8	2
汞 / Mercury (Hg)	(3)	n.d.	2
六價鉻 / Hexavalent Chromium Cr(VI) by Spot test / boiling water	(4)	Negative	See Note 4

測試部位描述 / TEST PART DESCRIPTION:

NO.1　　:　銀色金屬 / SILVER COLORED METAL

Note: 1. mg/kg = ppm
2. n.d. = Not Detected / 未檢出
3. MDL = Method Detection Limit / 方法偵測極限值
4. Spot-test:
Negative = Absence of CrVI coating / surface layer,
Positive = Presence of CrVI coating / surface layer;
(The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed.)
Negative=鍍層中偵測不到六價鉻, Positive= 鍍層中偵測到六價鉻;
當該測項無法確認時, 測試樣品可藉由boiling-water-extraction測試方法進一步確認
Boiling-water-extraction:
Negative = Absence of CrVI coating / surface layer,
Positive = Presence of CrVI coating / surface layer; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm^2 sample surface area.
Negative=鍍層中偵測不到六價鉻, Positive=鍍層中偵測到六價鉻;
該濃度溶液≧0.02 mg/kg with 50 cm^2 (sample surface area)

測試報告

號碼 : CE/2007/11769　　日期 : 2007/01/15　　頁數 : 3 of 3

青棋五金有限公司

PRO BRASS METAL CO., LTD.

** 報告結尾 **

Test Report

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013 JAPAN

No. : CE/2007/46149
Date : 2007/05/02

The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description	:	MHF PLUG GROUND CONTACT
Style/Item No.	:	1927-231
Sample Receiving Date	:	2007/04/25
Testing Period	:	2007/04/25 TO 2007/05/02

==========

Test Result(s) : Please refer to next page(s).

Daniel Yeh, M.R. / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.

Test Report

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013 JAPAN

No. : CE/2007/46149
Date : 2007/05/02

Test Result(s)

PART NAME NO.1 : GOLDEN COLORED METAL

Test Item (s):	Unit	Method	MDL	Result No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Cadmium by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Lead by ICP-AES.	2	11
Mercury (Hg)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Mercury by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI) by alkaline extraction	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Hexavalent Chromium by UV/Vis Spectrometry.	2	n.d.
Copper (Cu)	%	With reference to US EPA Method 3050B for Copper Content. Analysis was performed by ICP-AES.	0.0002	91.845
Gold (Au)	mg/kg	With reference to US EPA Method 3050B for Gold Content. Analysis was performed by ICP-AES.	2	2305
Nickel (Ni)	%	With reference to US EPA Method 3050B for Nickel Content. Analysis was performed by ICP-AES.	0.0002	3.005

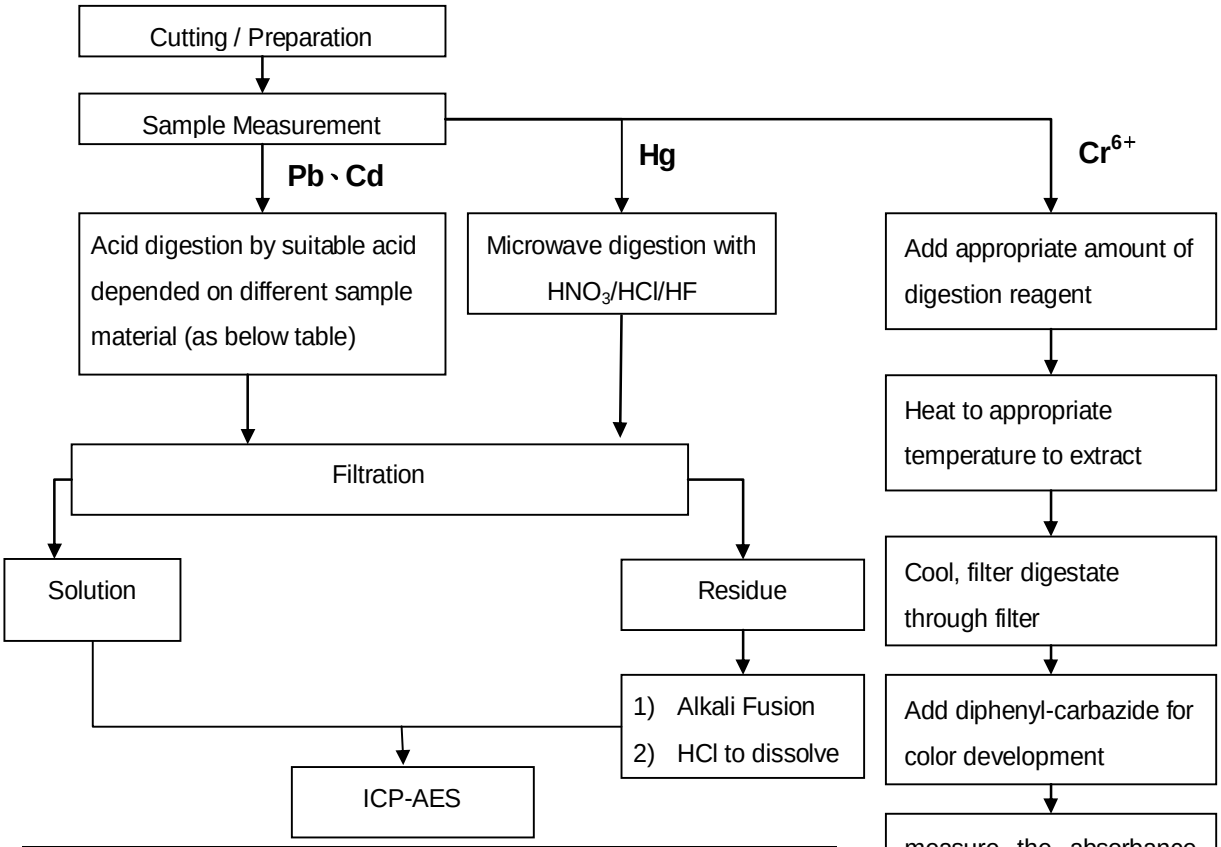
Note： 1. mg/kg = ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit

Test Report

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013 JAPAN

No. : CE/2007/46149
Date : 2007/05/02

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
（Cr6+ test method excluded）
2) Name of the person who made measurement: Troy Chang
3) Name of the person in charge of measurement: Daniel Yeh



Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO_3, HCl, HF, H_2O_2
Glass	HNO_3/HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO_3
Plastic	H_2SO_4, H_2O_2, HNO_3, HCl
Others	Any acid to total digestion

Test Report

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013 JAPAN

No. : CE/2007/46149
Date : 2007/05/02

** End of Report **

Test Report

No. : CE/2007/46124 Date : 2007/04/30 Page : 1 of 5

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013 JAPAN

The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description	:	MHF PLUG HOUSING
Style/Item No.	:	1844-011
Sample Receiving Date	:	2007/04/25
Testing Period	:	2007/04/25 TO 2007/04/30

==========

Test Requested : In accordance with the RoHS Directive 2002/95/EC, and its amendment directives.

Test Method : With reference to IEC 62321, Ed.1 111/54/CDV Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products.

(1) Determination of Cadmium by ICP-AES.
(2) Determination of Lead by ICP-AES.
(3) Determination of Mercury by ICP-AES.
(4) Determination of Hexavalent Chromium for non-metallic samples by UV/Vis Spectrometry.
(5) Determination of PBB and PBDE by GC/MS.

Test Result(s) : Please refer to next page(s).

Daniel Yeh, M.R. / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.

Test Report

No. : CE/2007/46124 Date : 2007/04/30 Page : 2 of 5

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013 JAPAN

Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result No.1	MDL
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	23	2
Mercury (Hg)	(3)	n.d.	2
Hexavalent Chromium Cr(VI) by alkaline extraction	(4)	n.d.	2
Sum of PBBs	(5)	n.d.	-
Monobromobiphenyl		n.d.	5
Dibromobiphenyl		n.d.	5
Tribromobiphenyl		n.d.	5
Tetrabromobiphenyl		n.d.	5
Pentabromobiphenyl		n.d.	5
Hexabromobiphenyl		n.d.	5
Heptabromobiphenyl		n.d.	5
Octabromobiphenyl		n.d.	5
Nonabromobiphenyl		n.d.	5
Decabromobiphenyl		n.d.	5
Sum of PBDEs (Mono to Nona) (Note 4)		n.d.	-
Monobromobiphenyl ether		n.d.	5
Dibromobiphenyl ether		n.d.	5
Tribromobiphenyl ether		n.d.	5
Tetrabromobiphenyl ether		n.d.	5
Pentabromobiphenyl ether		n.d.	5
Hexabromobiphenyl ether		n.d.	5
Heptabromobiphenyl ether		n.d.	5
Octabromobiphenyl ether		n.d.	5
Nonabromobiphenyl ether		n.d.	5
Decabromobiphenyl ether		n.d.	5
Sum of PBDEs (Mono to Deca)		n.d.	-

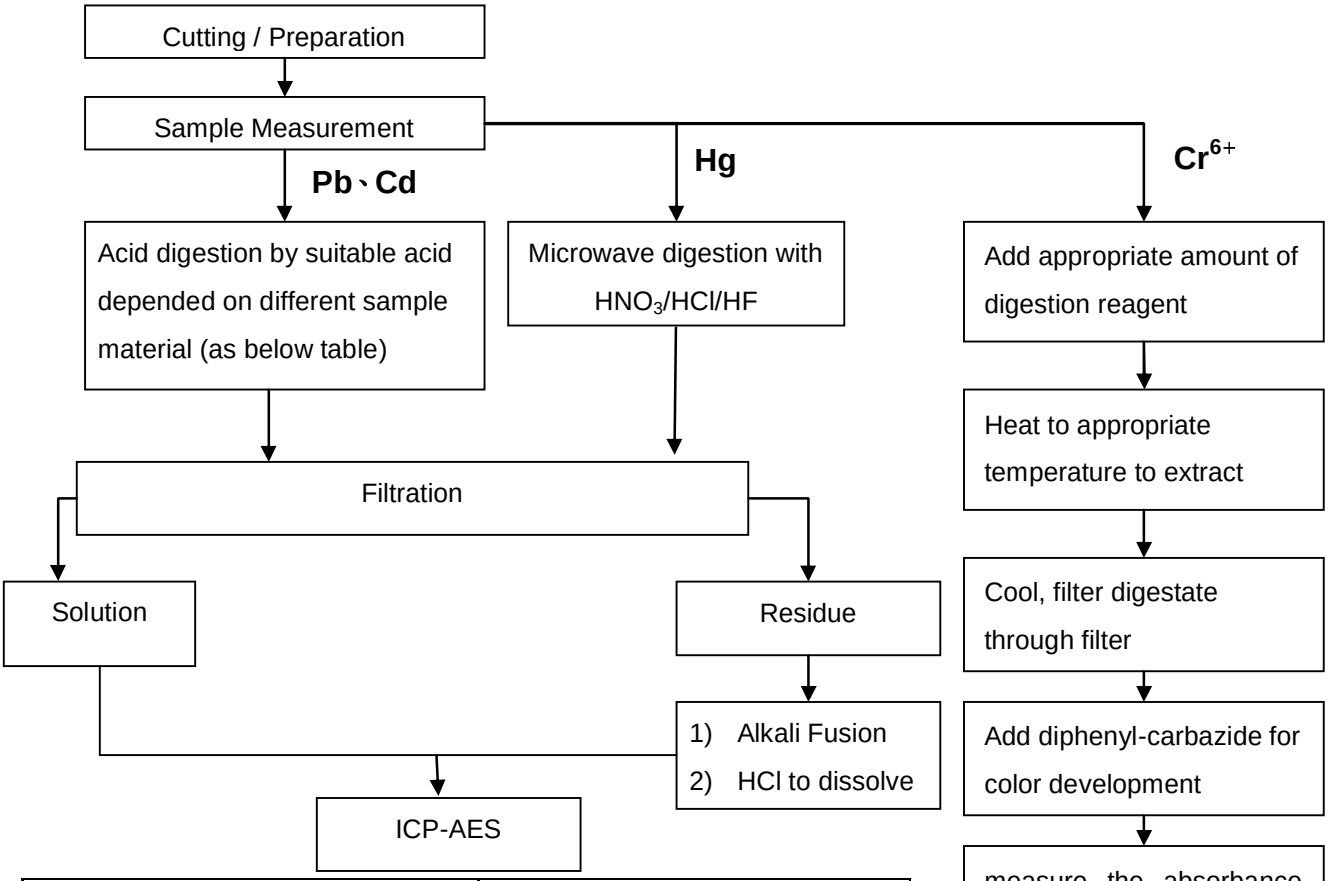
TEST PART DESCRIPTION:

NO.1 : BLACK PLASTIC

Note : 1. mg/kg = ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. According to 2005/717/EC DecaBDE is exempt.
5. "-" = Not Regulated

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013 JAPAN

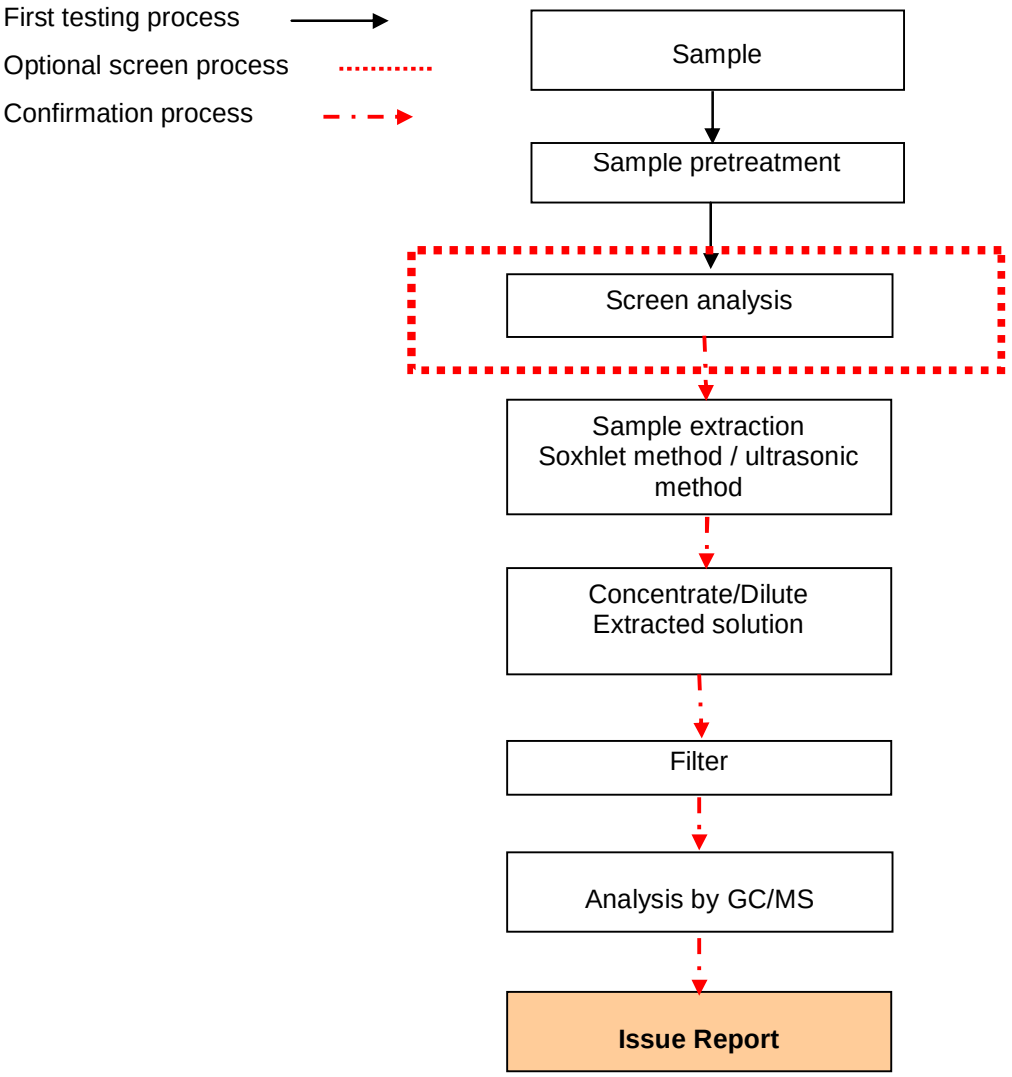
1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
（Cr6+ test method excluded）
2) Name of the person who made measurement: Troy Chang
3) Name of the person in charge of measurement: Daniel Yeh



Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO_3, HCl, HF, H_2O_2
Glass	HNO_3/HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO_3
Plastic	H_2SO_4, H_2O_2, HNO_3, HCl
Others	Any acid to total digestion

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013 JAPAN

PBB/PBDE analytical FLOW CHART



Test Report

No. : CE/2007/46124 Date : 2007/04/30 Page : 5 of 5

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013 JAPAN

** End of Report **

Test Report

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013 JAPAN

No. : CE/2007/46148
Date : 2007/05/02

The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description	:	MHF PLUG CONTACT
Style/Item No.	:	1845-011
Sample Receiving Date	:	2007/04/25
Testing Period	:	2007/04/25 TO 2007/05/02

==========

Test Result(s) : Please refer to next page(s).

Daniel Yeh, M.R. / Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.

Test Report

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013 JAPAN

No. : CE/2007/46148
Date : 2007/05/02

Test Result(s)

PART NAME NO.1 : GOLDEN COLORED METAL

Test Item (s):	Unit	Method	MDL	Result No.1
Cadmium (Cd)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Cadmium by ICP-AES.	2	n.d.
Lead (Pb)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Lead by ICP-AES.	2	16
Mercury (Hg)	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Mercury by ICP-AES.	2	n.d.
Hexavalent Chromium Cr(VI) by alkaline extraction	mg/kg	With reference to IEC 62321, Ed.1 111/54/CDV. Determination of Hexavalent Chromium by UV/Vis Spectrometry.	2	n.d.
Copper (Cu)	%	With reference to US EPA Method 3050B for Copper Content. Analysis was performed by ICP-AES.	0.0002	90.56
Gold (Au)	mg/kg	With reference to US EPA Method 3050B for Gold Content. Analysis was performed by ICP-AES.	2	3320
Nickel (Ni)	%	With reference to US EPA Method 3050B for Nickel Content. Analysis was performed by ICP-AES.	0.0002	3.525

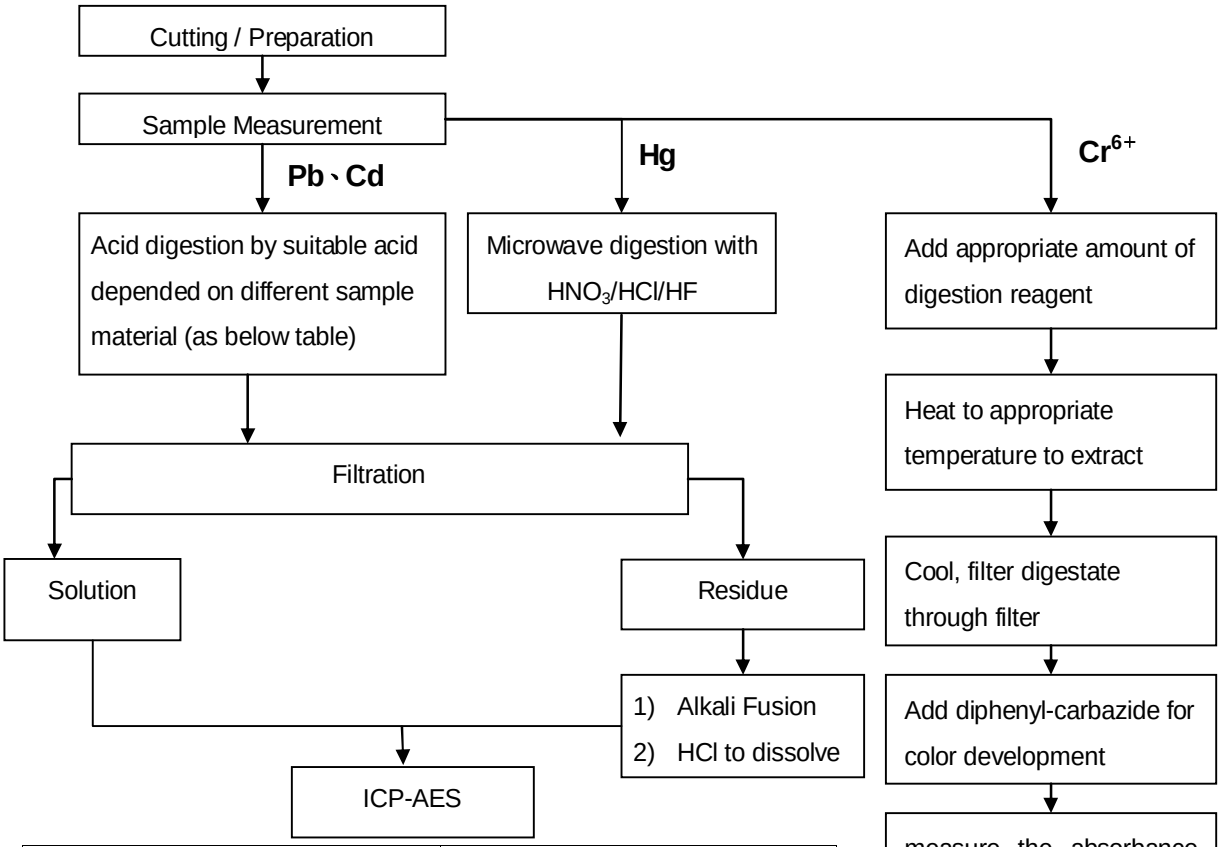
Note： 1. mg/kg = ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit

Test Report

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013 JAPAN

No. : CE/2007/46148
Date : 2007/05/02

1) These samples were dissolved totally by pre-conditioning method according to below flow chart.
（Cr6+ test method excluded）
2) Name of the person who made measurement: Troy Chang
3) Name of the person in charge of measurement: Daniel Yeh



Sample Material	Digestion Acid
Steel, copper, aluminum, solder	Aqua regia, HNO_3, HCl, HF, H_2O_2
Glass	HNO_3/HF
Gold, platinum, palladium, ceramic	Aqua regia
Silver	HNO_3
Plastic	H_2SO_4, H_2O_2, HNO_3, HCl
Others	Any acid to total digestion

Test Report

I-PEX JP CO., LTD.
6-27-19 HARAMACHIDA MACHIDA-CITY TOKYO 194-0013 JAPAN

No. : CE/2007/46148
Date : 2007/05/02

** End of Report **

鹏达

DONG GUAN CITY DAO JIAO YUXIN SHOES MATERIAL FACTORY
YUAN JIANG ROAD, BAI LU VILLAGE, CAI BAI MANAGEMENT AREA, DAOJIAO TOWN, DONG GUAN CITY OF GUANG DONG

The following sample(s) was/were submitted and identified on behalf of the applicant as 黑 EVA

SGS Ref No.	: SZ10294148-2.1
Sample Receiving Date	: MAR 16, 2007
Testing Period	: MAR 16, 2007 TO MAR 22, 2007

Test Requested : To determine the Cadmium, Lead, Mercury, Hexavalent Chromium, PBBs (Polybrominated Biphenyls) & PBDEs (Polybrominated Diphenylethers) content in the submitted sample.

Test Method : With reference to IEC 62321 Ed.1 111/54/CDV
Procedures for the Determination of Levels of Regulated Substances in Electrotechnical Products
(1) Determination of Cadmium by ICP.
(2) Determination of Lead by ICP.
(3) Determination of Mercury by ICP.
(4) Determination of Hexavalent Chromium by Colorimetric Method.
(5) Determination of PBBs and PBDEs by GC-MS.

Test Results : Please refer to next page.

Signed for and on behalf of
SGS-CSTC Ltd.

Huang Fang, Sunny
Sr. Engineer

GZCM 1212666

SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch Chemical Laboratory | 198 Kezhu Road, SCIENTECH Park Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075125 www.cn.sgs.com
中国・广州・经济技术开发区科学城科珠路198号 邮编：510663 t (86-20) 82155555 f (86-20) 82075125 e sgs.china@sgs.com