



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: 永洋科技股份有限公司

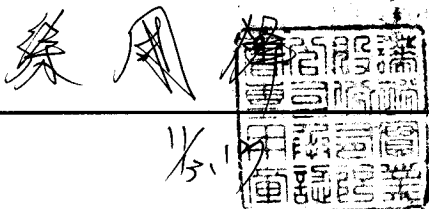
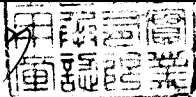
PART NAME: PIFA Antenna Assembly

PART NO.: 11320Y11145A1

REVISION:

W. Y. P/NO.: C381-510208-A(SRF2013364)

REV.: X2

	MANUFACTURER SIGNATURE	CUSTOMER
APPROVED BY :		
DATE :	1/5/17 	

WHA YU GROUP

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PIFA Antenna Assembly

Specification (With housing)

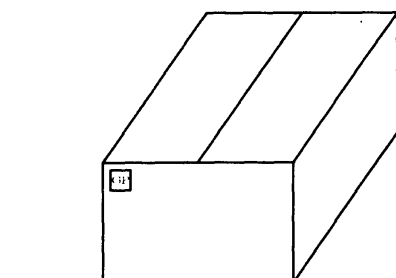
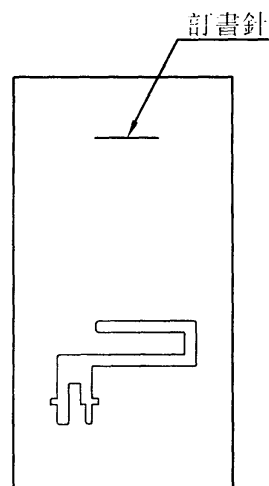
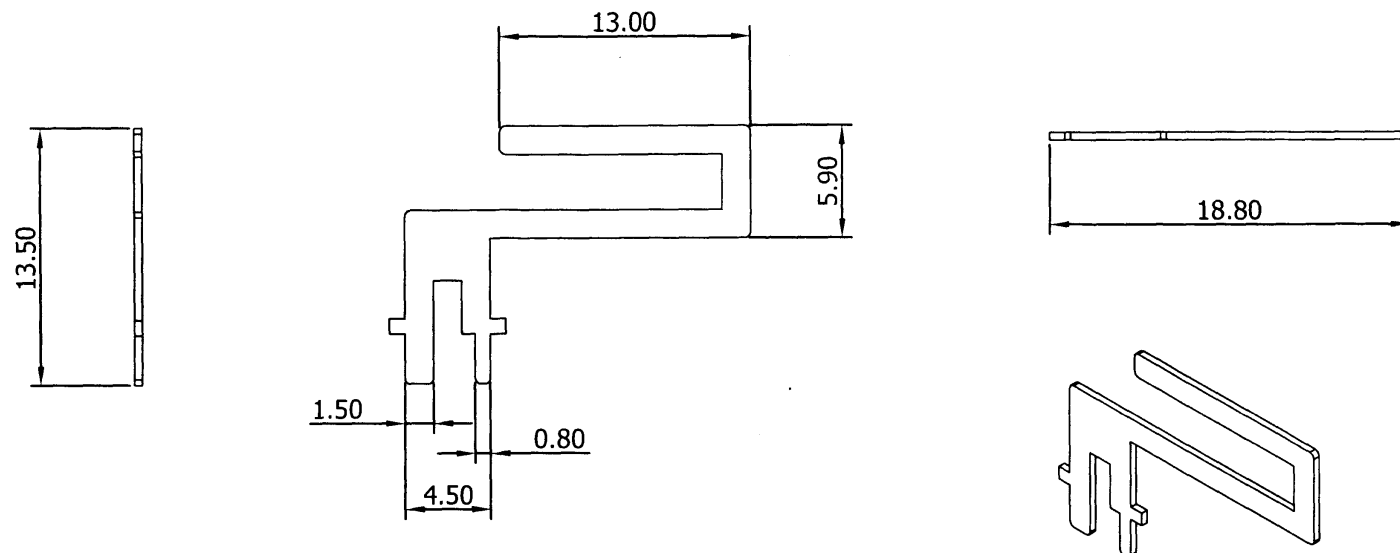
1. Electrical Properties :

- 1.1 Frequency Range.....2.4GHz ~ 2.5GHz
- 1.2 Impedance50Ω Nominal
- 1.3 VSWR1.92:1 Max.
- 1.4 Return Loss.....-10 dB Max.
- 1.5 RadiationOmni-directional
- 1.6 Gain(peak).....2.97dBi (With cable loss)
- 1.7 Cable Loss..... NONE
- 1.8 Polarization.....Linear ; Vertical
- 1.9 Admitted Power.....1W
- 1.10 Cable..... NONE
- 1.11 Connector.....NONE

2. Physical Properties :

- 2.1 Operating Temp.-10°C ~ +60°C
- 2.2 Storage Temp.-10°C ~ +70°C

REV	DATE	DESCRIPTION
X1	11/13-2012	New Issue
X2	11/13-2013	增加客戶料號



GP標籤貼於外箱兩邊側麥左上角

1	PIFA	SUS430 Ni-Plating	1	
NO	DESCRIPTION			QTY

Packing: 1pcs/bag
(每10袋用訂書機訂起來)

CUSTOMER'S SINGATURE

XX.	±5.0	APPROVED
X.	±3.0	CHECKED
.X	±1.0	
.XX	±0.5	
.XXX	±0.1	DRAWING

CUSTOMER: 永洋		
PART NO :	11320Y11145A1	
PART NAME:	PIFA Antenna Assembly	
W.Y P/NO :	C381-510208-A	
REV	UNIT	FILE :
X2	mm	SHEET : 1/1

M.gear Wha Yu Group

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Antenna Design For NE3-12112

V1.1

Document Number	NE3-12112
1st Released Date	08/22/12
Last Released Date	10/05/12
Author	Kevin Lin
Review by	Byron Chang

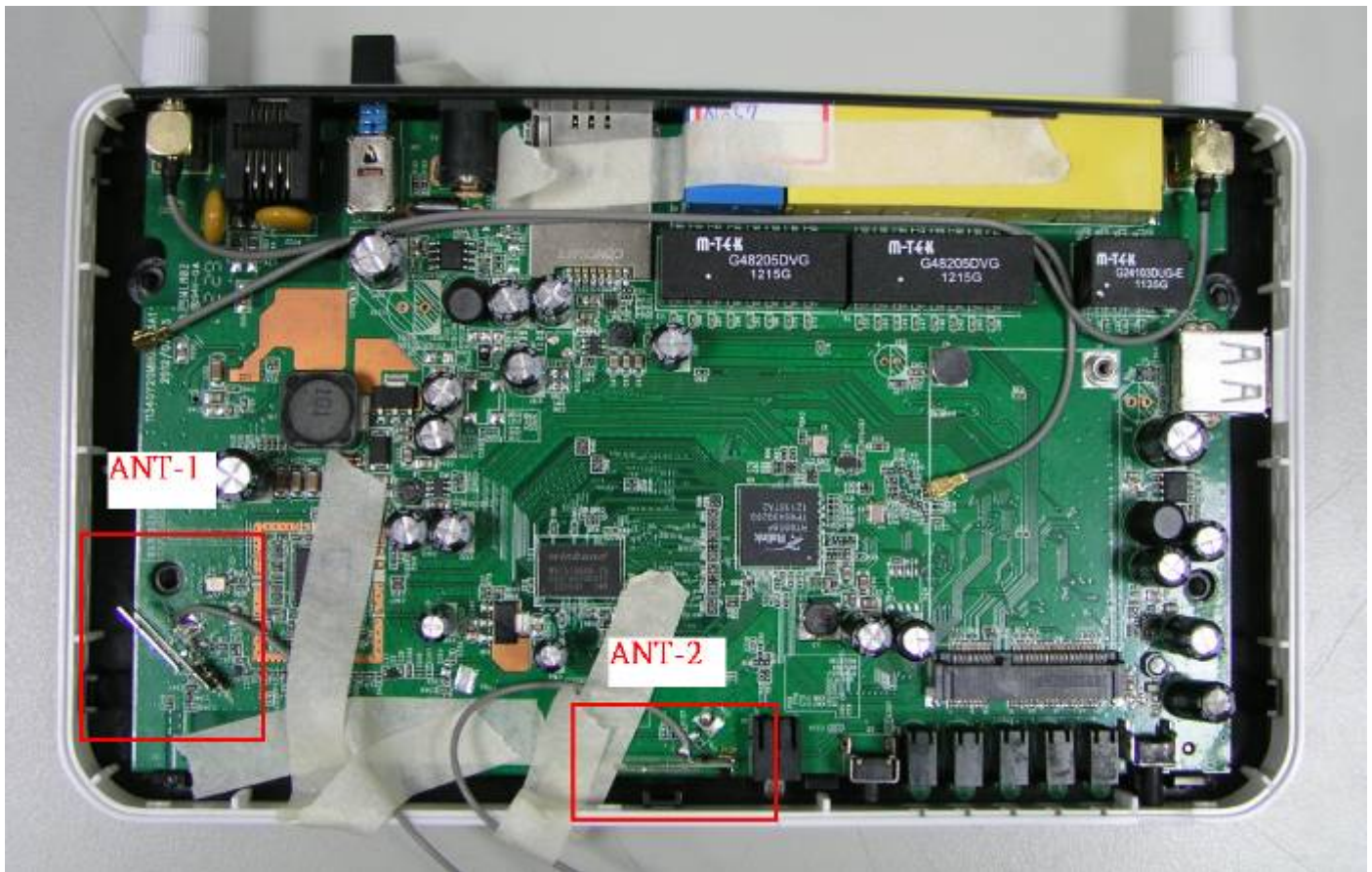
Revised History

[illegible]

Specification

Rough description		
Item	Initial Specification	Final Specification
Dimensions	(L)18X(W)0.3X(H)13.5 T=0.4mm	
Impedance	50Ω	
Test environment	With Housing	
Application	None	
Freq. Range	2.4GHz~2.5GHz	
Antenna type	PIFA	
Gain	2.97	
VSWR	1.92:1	
Radiation	None	
Polarization	Linear	
HPBW / H	None	
HPBW / E	None	
Rad. efficiency	>50%	
Connector type	NO Connector	
Cable type	None	

1 Antenna Introduction



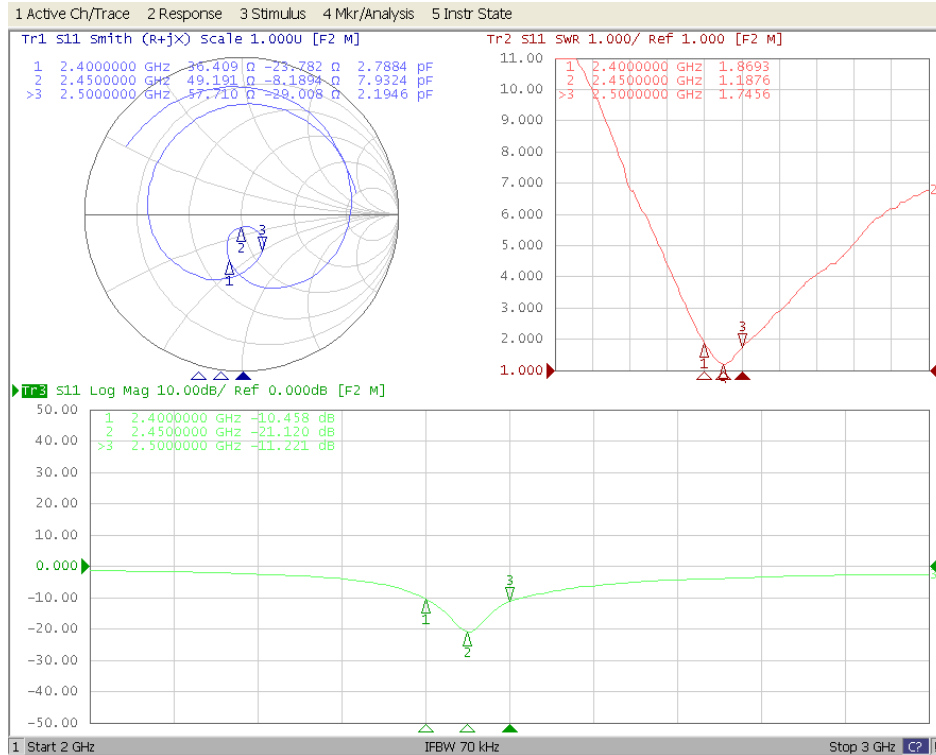
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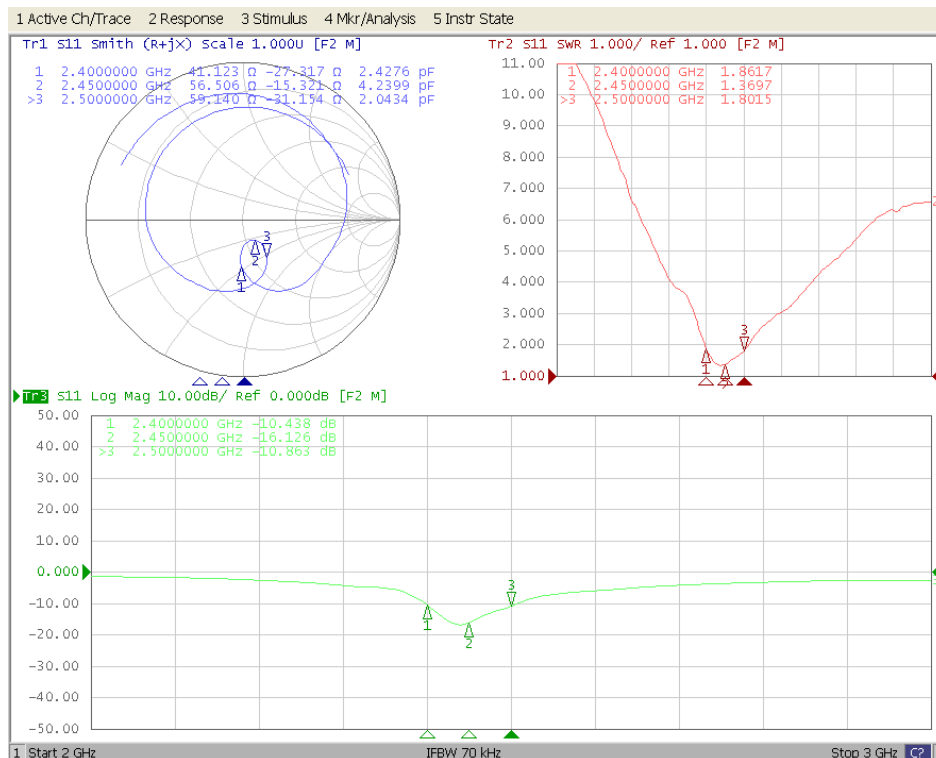
(ANT-2)

2 S11 test results

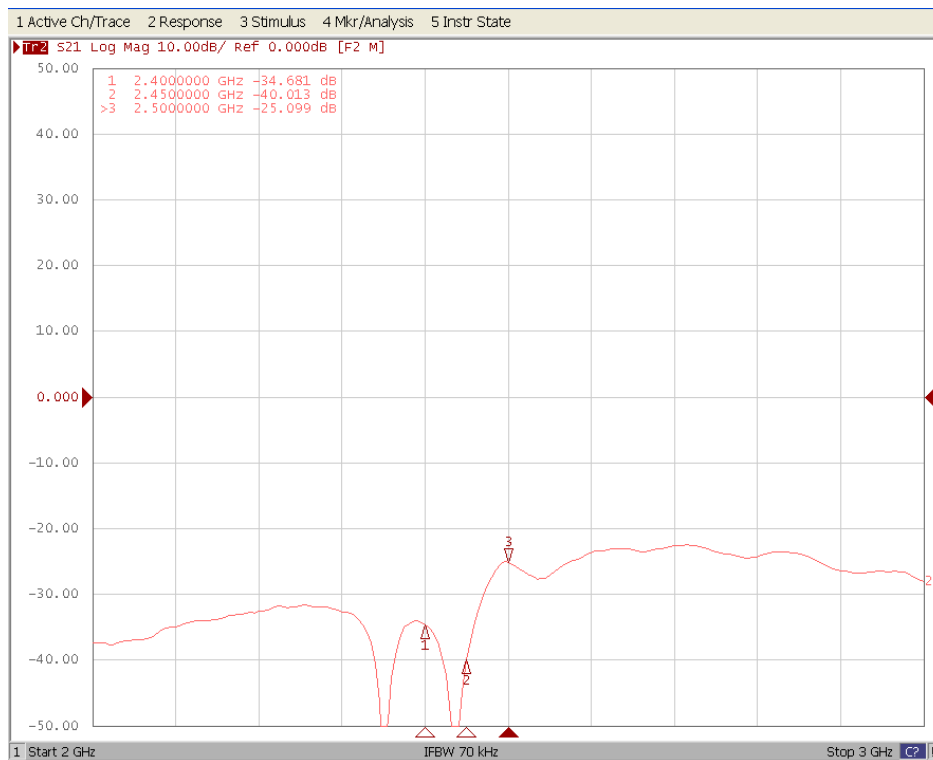
2.1 ANT1



ANT2

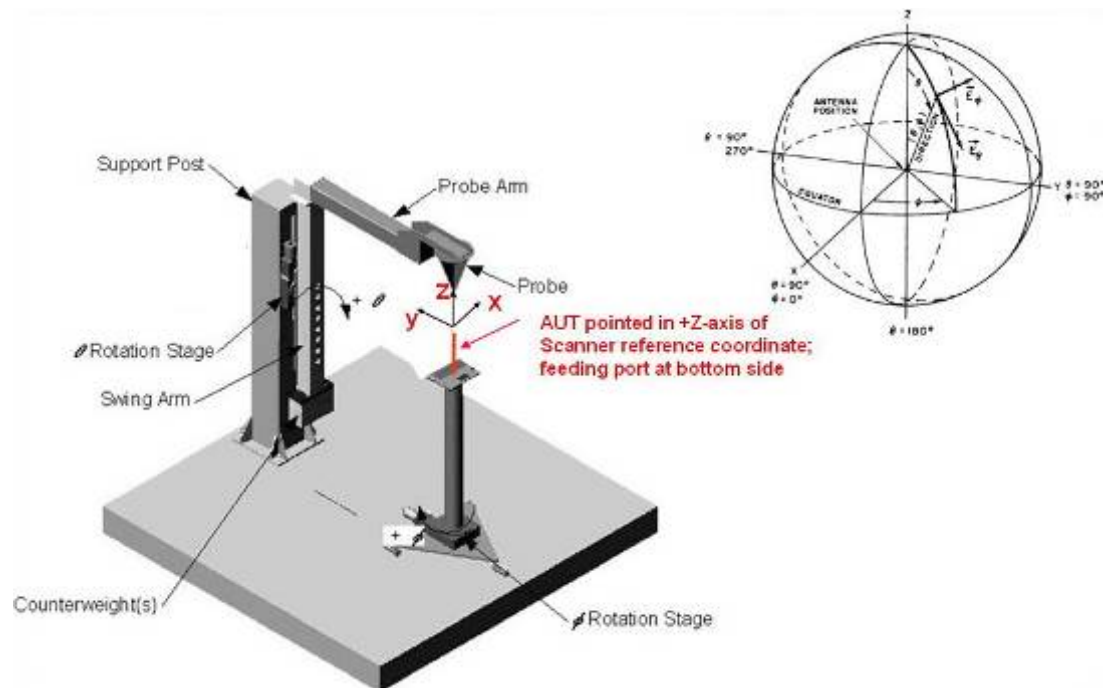


2.2 Isolation test results

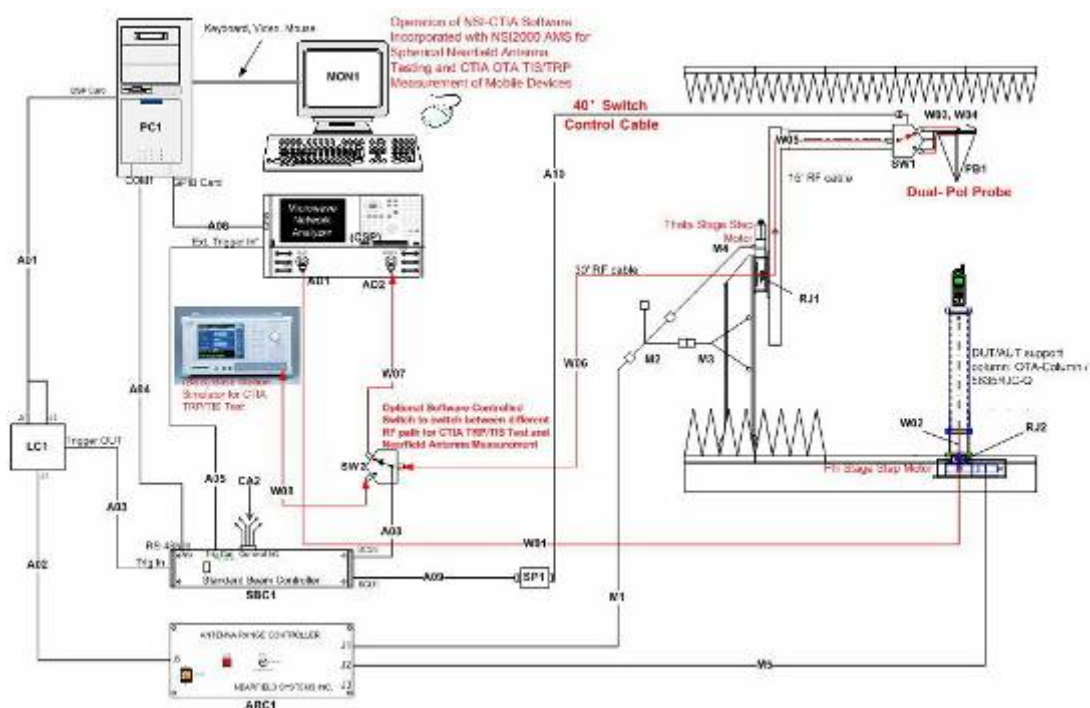


3 Gain & Patterns test results

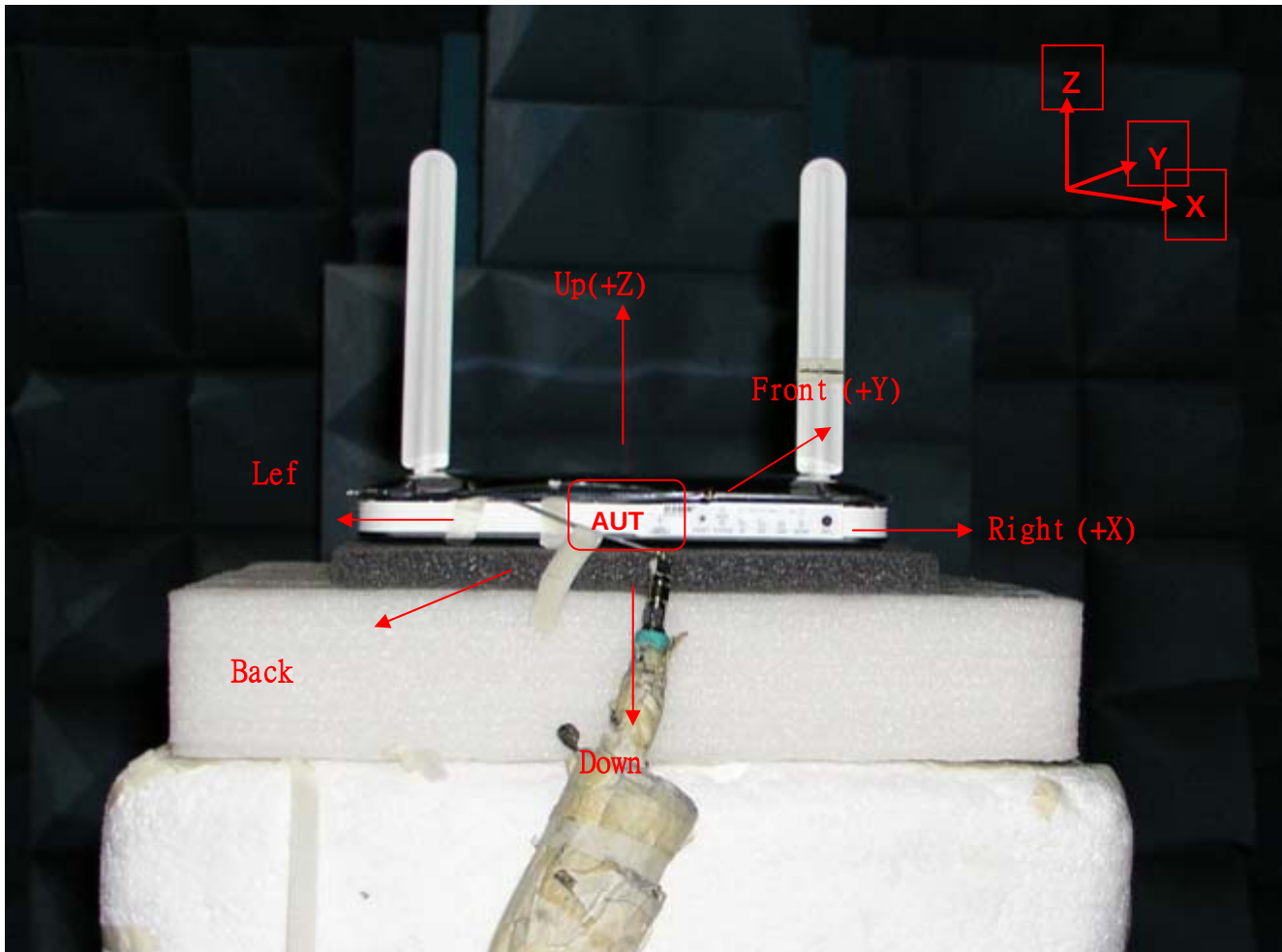
3.1 Measurement setting



NFC-500S 3D Chamber Coordinate System Definition

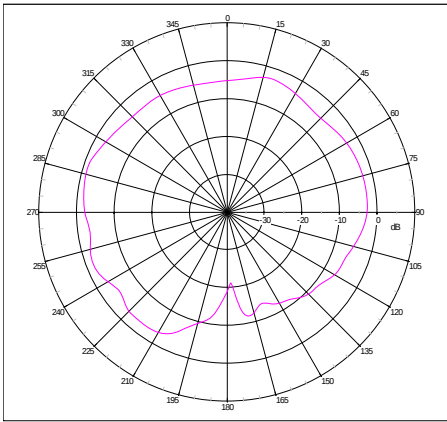


Configuration of NFC-500S 3D Chamber

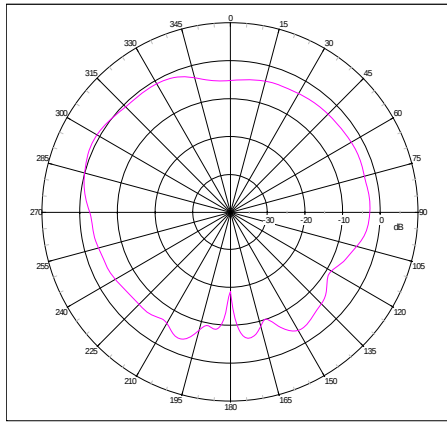


	XY	YZ	XZ
0°	Right	Up	Up
90°	Back	Back	Right
180°	Left	Down	Down
270°	Front	Front	Left

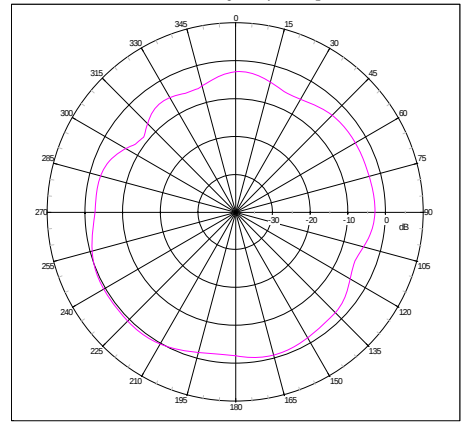
3.2 2D pattern 2400MHz (ANT-1)



X-Z Plane (E-total)

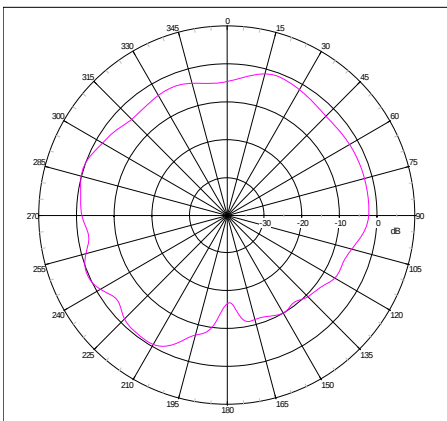


Y-Z Plane (E-total)

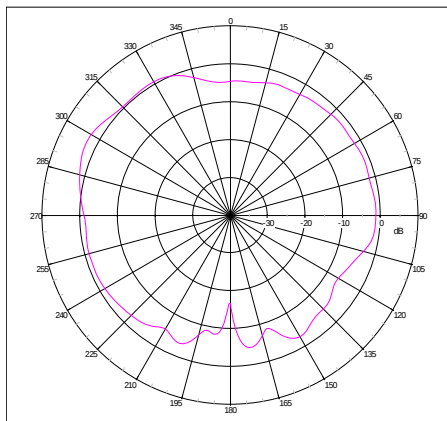


X-Y Plane (E-total)

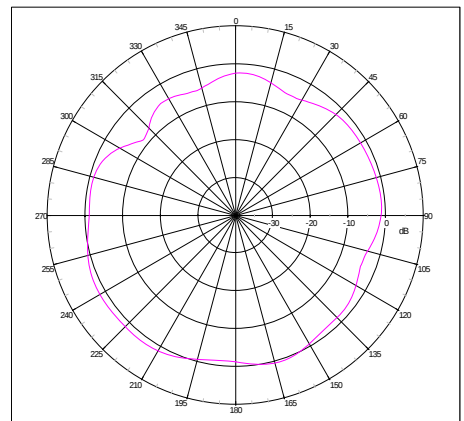
2450MHz



X-Z Plane (E-total)

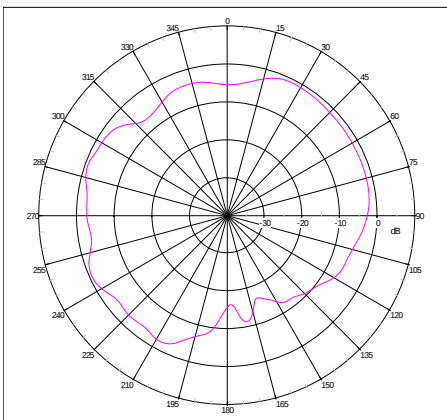


Y-Z Plane (E-total)

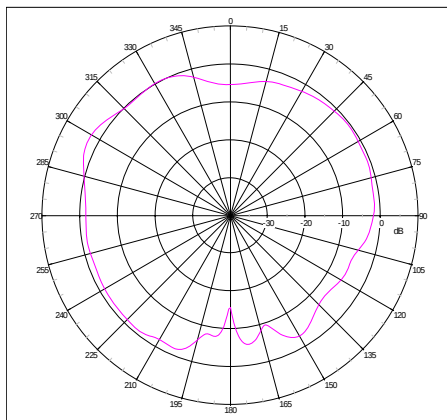


X-Y Plane (E-total)

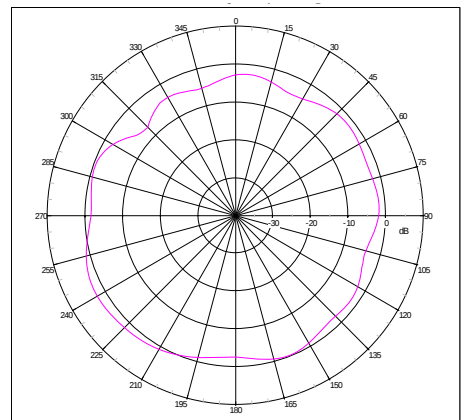
2500MHz



X-Z Plane (E-total)

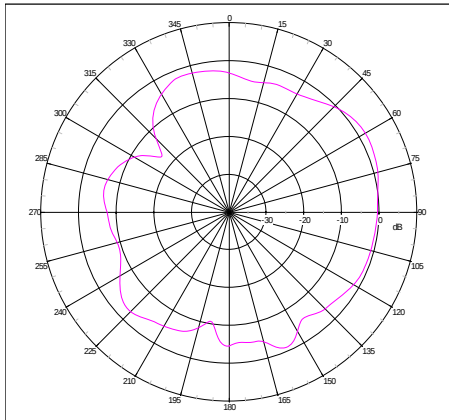


Y-Z Plane (E-total)

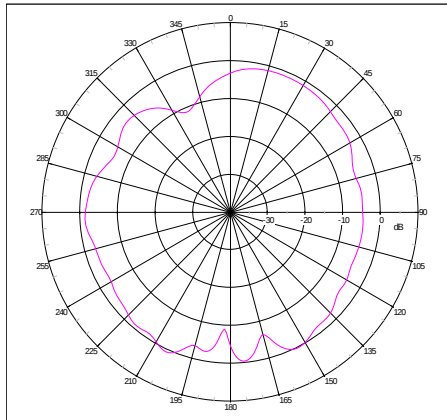


X-Y Plane (E-total)

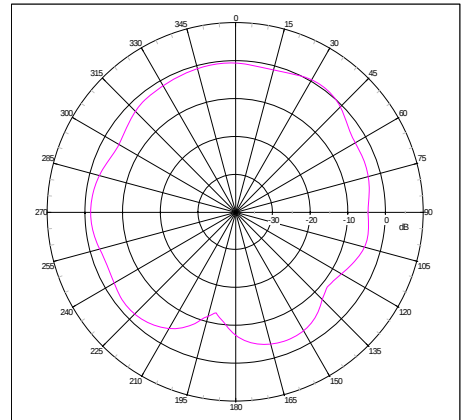
3.3 2D pattern 2400MHz (ANT-2)



X-Z Plane (E-total)

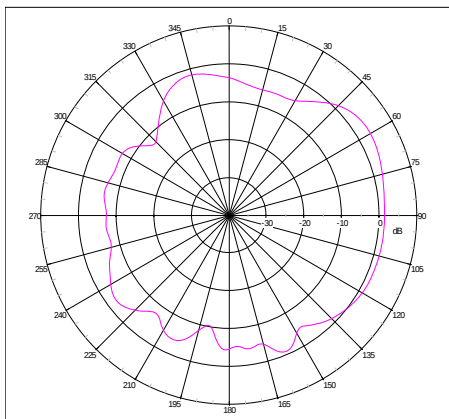


Y-Z Plane (E-total)

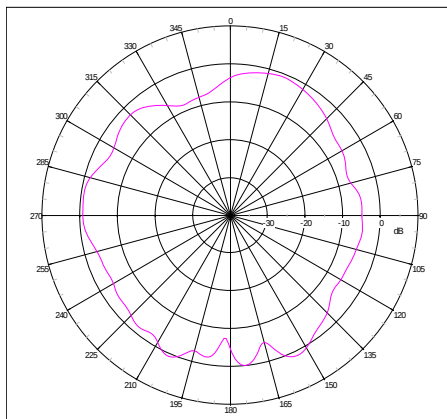


X-Y Plane (E-total)

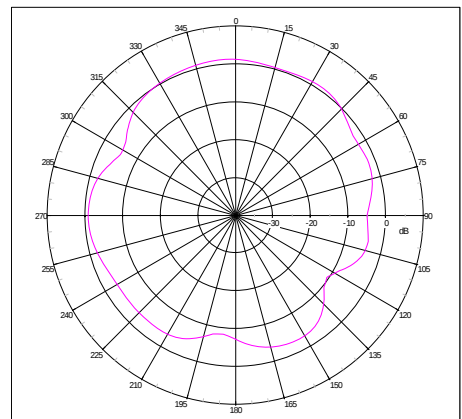
2450MHz



X-Z Plane (E-total)

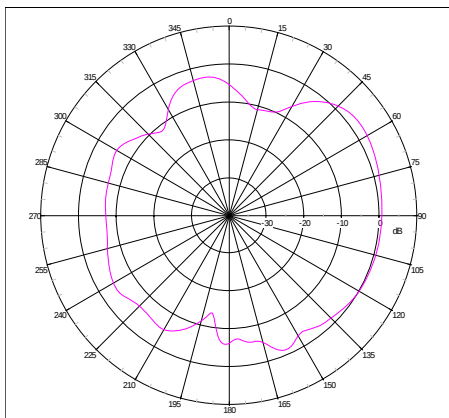


Y-Z Plane (E-total)

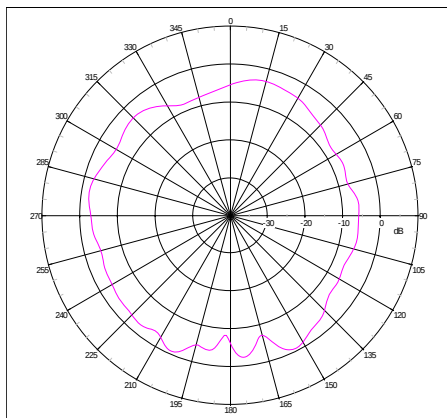


X-Y Plane (E-total)

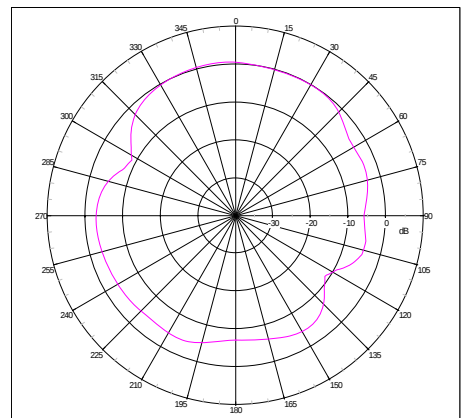
2500MHz



X-Z Plane (E-total)



Y-Z Plane (E-total)



X-Y Plane (E-total)

4 Summary

4.1 Return Loss

Frequency	Ant 1	Ant 2
2400MHz	-10.45	-10.43
2450MHz	-21.12	-16.12
2500MHz	-11.22	-10.86

4.2 Isolation

Frequency	Ant 1 to Ant 2(dB)
2400 MHz	-34.68
2450 MHz	-40.01
2500 MHz	-25.09

4.3 3D total Peak Gain & Efficiency

Frequency	Ant 1		Ant 2	
	Peak Gain (dBi)	Efficiency (%)	Peak Gain (dBi)	Efficiency (%)
2400MHz	1.57	54.96	2.74	61.49
2450MHz	2.51	61.70	2.97	62.49
2500MHz	2.56	60.48	2.69	61.22

SGS Test Report

Product : PIFA Antenna Assembly

Content

No	Description		Report No.	Page
1	PIFA	SUS430 鍍銀	KA/2012/C1135 HX201301338-3E	P.15~32

Result for RoHS : PASS

測試報告

Test Report

號碼(No.) : KA/2012/C1135 日期(Date) : 2013/01/02 頁數(Page) : 1 of 14

嘉發實業工廠股份有限公司

CHIA FAR INDUSTRIAL FACTORY CO., LTD.

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2F, NO. 83, TAIYUAN RD., TAIPEI, TAIWAN

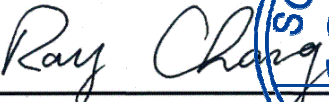
以下測試樣品係由客戶送樣，且由客戶聲稱並經客戶確認如下

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

樣品名稱(Sample Description)	: 冷軋不銹鋼材
樣品型號(Style/Item No.)	: SUS 430
收件日期(Sample Receiving Date)	: 2012/12/17
測試期間(Testing Period)	: 2012/12/17 TO 2013/01/02
送樣廠商(Sample Submitted By)	: 嘉發實業工廠股份有限公司 (CHIA FAR INDUSTRIAL FACTORY CO., LTD.)

測試結果(Test Results)

: 請見下一頁 (Please refer to next pages).


 Ray Chang / Asst. Manager
 Signed for and on behalf of
 SGS Taiwan Limited



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Member of the SGS Group

測試報告

Test Report

號碼(No.) : KA/2012/C1135 日期(Date) : 2013/01/02 頁數(Page) : 2 of 14

嘉發實業工廠股份有限公司

CHIA FAR INDUSTRIAL FACTORY CO., LTD.

台北市太原路83號2樓

2F, NO. 83, TAIYUAN RD., TAIPEI, TAIWAN

測試結果(Test Results)

測試部位(PART NAME) NO.1 : 銀色 冷軋不銹鋼材 (SILVER 冷軋不銹鋼材)

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result) NO.1
鎘 / Cadmium (Cd)	mg/kg	參考 IEC 62321: 2008 方法, 用感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
鉛 / Lead (Pb)	mg/kg	參考 IEC 62321: 2008 方法, 用感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
汞 / Mercury (Hg)	mg/kg	參考 IEC 62321: 2008 方法, 用感應耦合電漿原子發射光譜儀檢測. / With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.
六價鉻 / Hexavalent Chromium Cr(VI) by boiling water extraction#	**	參考 IEC 62321: 2008 方法, 用 Boiling water extraction 方法檢測. / With reference to IEC 62321: 2008 and performed by boiling water extraction Method.	0.02mg/kg with 50 cm ² surface area	Negative
多溴聯苯總和 / Sum of PBBs	mg/kg	參考 IEC 62321: 2008 方法, 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
一溴聯苯 / Monobromobiphenyl			5	n.d.
二溴聯苯 / Dibromobiphenyl			5	n.d.
三溴聯苯 / Tribromobiphenyl			5	n.d.
四溴聯苯 / Tetrabromobiphenyl			5	n.d.
五溴聯苯 / Pentabromobiphenyl			5	n.d.
六溴聯苯 / Hexabromobiphenyl			5	n.d.
七溴聯苯 / Heptabromobiphenyl			5	n.d.
八溴聯苯 / Octabromobiphenyl			5	n.d.
九溴聯苯 / Nonabromobiphenyl			5	n.d.
十溴聯苯 / Decabromobiphenyl			5	n.d.

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SGS Taiwan Ltd.
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測試報告

Test Report

號碼(No.) : KA/2012/C1135 日期(Date) : 2013/01/02 頁數(Page) : 3 of 14

嘉發實業工廠股份有限公司

CHIA FAR INDUSTRIAL FACTORY CO., LTD.

台北市太原路83號2樓

2F, NO. 83, TAIYUAN RD., TAIPEI, TAIWAN

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result) NO.1
多溴聯苯醚總和 / Sum of PBDEs	mg/kg	參考IEC 62321: 2008方法, 以氣相層析儀/質譜儀檢測. / With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.
一溴聯苯醚 / Monobromodiphenyl ether			5	n.d.
二溴聯苯醚 / Dibromodiphenyl ether			5	n.d.
三溴聯苯醚 / Tribromodiphenyl ether			5	n.d.
四溴聯苯醚 / Tetrabromodiphenyl ether			5	n.d.
五溴聯苯醚 / Pentabromodiphenyl ether			5	n.d.
六溴聯苯醚 / Hexabromodiphenyl ether			5	n.d.
七溴聯苯醚 / Heptabromodiphenyl ether			5	n.d.
八溴聯苯醚 / Octabromodiphenyl ether			5	n.d.
九溴聯苯醚 / Nonabromodiphenyl ether			5	n.d.
十溴聯苯醚 / Decabromodiphenyl ether			5	n.d.
四溴雙酚-A / Tetrabromobisphenol A (TBBP-A) (CAS No.: 79-94-7)	mg/kg	參考DIN 53313方法, 以氣相層析儀/質譜儀檢測. / With reference to DIN 53313 method. Analysis was performed by GC/MS.	10	n.d.
全氟辛酸(鉍) / PFOA (CAS No.: 000335-67-1)	μg/m ²	參考US EPA 3550C: 2007方法, 以液相層析質譜儀檢測全氟辛烷磺酸含量. / With reference to US EPA 3550C: 2007 method for PFOS Content. Analysis was performed by LC/MS.	1	n.d.
全氟辛酸(鉍) / PFOA (CAS No.: 335-67-1)	mg/kg	參考US EPA 3540C: 1996方法, 以液相層析質譜儀檢測全氟辛酸(鉍)含量. / With reference to US EPA 3540C: 1996 method for PFOA Content. Analysis was performed by LC/MS.	10	n.d.
全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS) PFOS — Acid PFOS — Metal Salt PFOS — Amide	μg/m ²	參考US EPA 3550C: 2007方法, 以液相層析質譜儀檢測全氟辛烷磺酸含量. / With reference to US EPA 3550C: 2007 method for PFOS Content. Analysis was performed by LC/MS.	1	n.d.

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測試報告

Test Report

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嘉發實業工廠股份有限公司
CHIA FAR INDUSTRIAL FACTORY CO., LTD.
台北市太原路83號2樓
2F, NO. 83, TAIYUAN RD., TAIPEI, TAIWAN

測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result)
				NO.1
銻 / Antimony (Sb)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿原子發射光譜儀檢測銻含量. / With reference to US EPA Method 3052 for Antimony Content. Analysis was performed by ICP-AES.	2	n.d.
三氧化二銻 / Antimony trioxide (Sb ₂ O ₃)* (CAS No.: 1309-64-4)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿原子發射光譜儀檢測銻含量. / With reference to US EPA Method 3052 for Antimony Content. Analysis was performed by ICP-AES.	-	n.d.
砷 / Arsenic (As)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿原子發射光譜儀 (ICP-AES) 檢測砷含量. / With reference to US EPA Method 3052 for Arsenic Content. Analysis was performed by ICP-AES.	2	n.d.
鋇 / Barium (Ba)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿原子發射光譜儀檢測鋇含量. / With reference to US EPA Method 3052 for Barium Content. Analysis was performed by ICP-AES.	2	n.d.
硒 / Selenium (Se)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿原子發射光譜儀檢測硒含量. / With reference to US EPA Method 3052 for Selenium Content. Analysis was performed by ICP-AES.	2	n.d.
鎳 / Nickel (Ni)	mg/kg	參考US EPA 3052方法, 用感應耦合電漿原子發射光譜儀檢測鎳含量. / With reference to US EPA Method 3052 for Nickel Content. Analysis was performed by ICP-AES.	2	2040

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台北市太原路83號2樓

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測試項目 (Test Items)	單位 (Unit)	測試方法 (Method)	方法偵測 極限值 (MDL)	結果 (Result) NO.1
鹵素 / Halogen				
鹵素 (氟) / Halogen-Fluorine (F) (CAS No.: 14762-94-8)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析. / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
鹵素 (氯) / Halogen-Chlorine (Cl) (CAS No.: 22537-15-1)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析. / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
鹵素 (溴) / Halogen-Bromine (Br) (CAS No.: 10097-32-2)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析. / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.
鹵素 (碘) / Halogen-Iodine (I) (CAS No.: 14362-44-8)	mg/kg	參考BS EN 14582:2007, 以離子層析儀分析. / With reference to BS EN 14582:2007. Analysis was performed by IC.	50	n.d.

EDXRF				
序號 (No.)	樣品照片 (Picture)	方法偵測極限類別 (MDL Category)	元素 (Element)	數據 (Data)
1		金屬 (Metals)	溴(Br)	n.d.
			鎘(Cd)	n.d.
			鉻(Cr)	161000
			汞(Hg)	n.d.
			鉛(Pb)	n.d.

測試項目 (Test Item)	方法偵測極限值(MDL) (mg/kg)				測試方法 (Test method)
XRF (X光螢光光譜儀 / X-ray fluorescence)	類別(Category)	高分子 (Polymers)	複合材料 (Composite Material)	金屬 (Metals)	參考 IEC 62321: 2008 (With reference to IEC 62321: 2008)
	元素(Element)				
	鉛(Pb)	50	100	100	
	鎘(Cd)	50	50	50	
	汞(Hg)	50	100	100	
	鉻(Cr)	50	100	100	
	溴(Br)	50	100	n.a.	

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備註(Note) :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected (未檢出)
3. MDL = Method Detection Limit (方法偵測極限值)
4. "-" = Not Regulated (無規格值)
5. # =
 - a. Positive means the presence of CrVI on the tested areas
(Positive表示測試區域偵測到六價鉻)
 - b. Negative means the absence of CrVI on the tested areas
(Negative表示測試區域未偵測到六價鉻)

The detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm² tested areas . / 該溶液濃度 $\geq$ 0.02 mg/kg with 50 cm² (tested areas)

6. ** = Qualitative analysis (No Unit) 定性分析(無單位)
7. ***: 該物質是由"三丁基錫", "三苯基錫"或各別元素(例如: 銻、鉍、矽、鋅或磷)之測試結果計算得知. 其MDL是針對"三丁基錫", "三苯基錫"或元素(例如: 銻、鉍、矽、鋅或磷)之評估. (The substance was calculated by the test results of Tributyl Tin, Triphenyl Tin or element (Ex. Antimony, Beryllium, Silicon, Zinc or Phosphorus respectively). The MDL is evaluated for Tributyl Tin, Triphenyl Tin or element (Ex. Antimony, Beryllium, Silicon, Zinc or Phosphorus respectively).)
8. The XRF result of Br for metal sample is conducted from semi-quantitative method of polymer.
(金屬樣品中溴元素的XRF分析結果是來自於塑膠半定量分析方法。)

PFOS參考資訊(Reference Information) : 持久性有機污染物 POPs - (EU) 757/2010

PFOS濃度在物質或製備中不得超過0.001%(10ppm), 在半成品、成品或零部件中不得超過0.1%(1000ppm), 在紡織品或塗層材料中不得超過1 μ g/m²。(Outlawing PFOS as substances or preparations in concentrations above 0.001% (10ppm), in semi-finished products or articles or parts at a level above 0.1%(1000ppm), in textiles or other coated materials above 1 μ g/m².)

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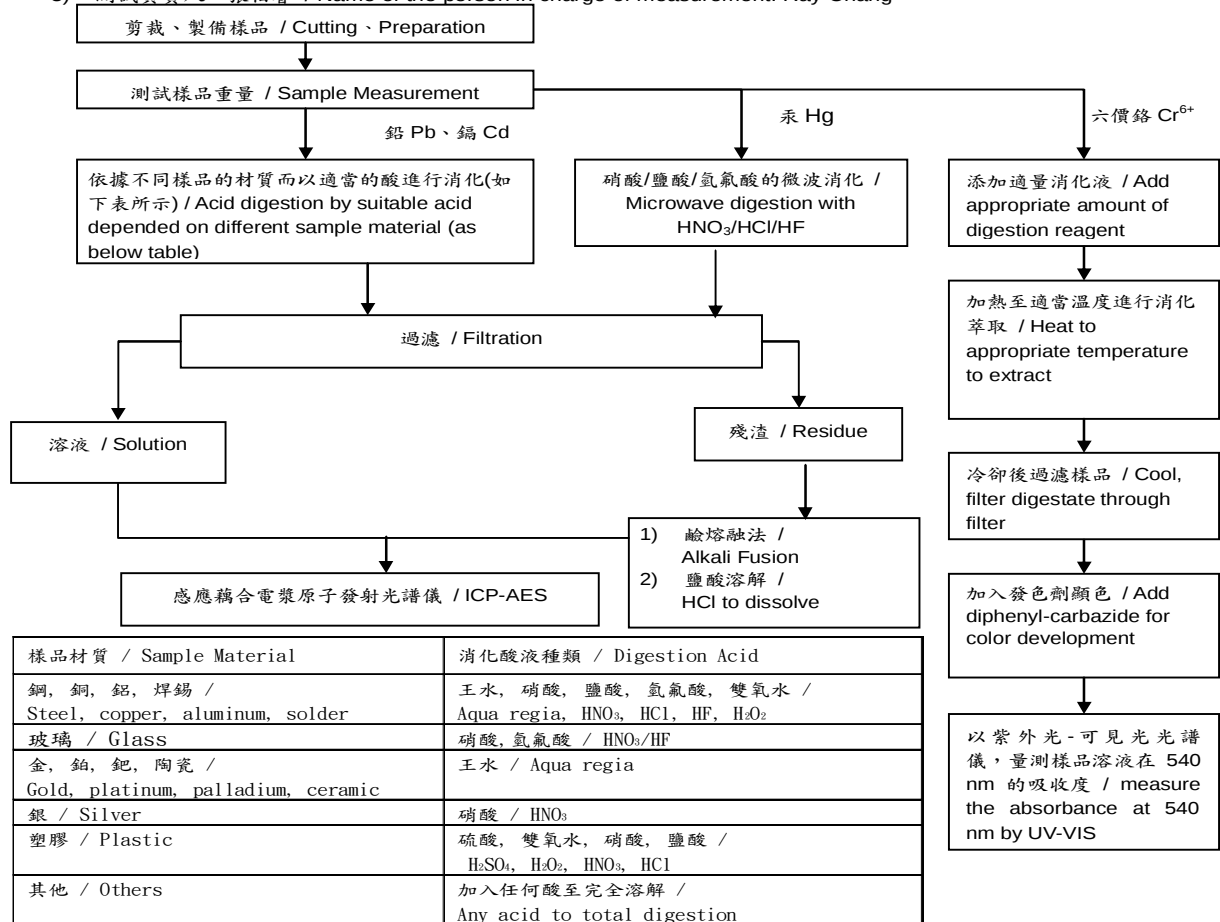
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1) 根據以下的流程圖之條件，樣品已完全溶解。(六價鉻測試方法除外) / These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr⁶⁺ test method excluded)

2) 測試人員：張俊雄 / Name of the person who made measurement: Alex Chang

3) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



Note :** (1) 針對非金屬材料加入鹼性消化液，加熱至 90~95℃ 萃取。 / For non-metallic material, add alkaline digestion reagent and heat to 90~95℃.

(2) 針對金屬材料加入純水，加熱至沸騰萃取。 / For metallic material, add pure water and heat to boiling.

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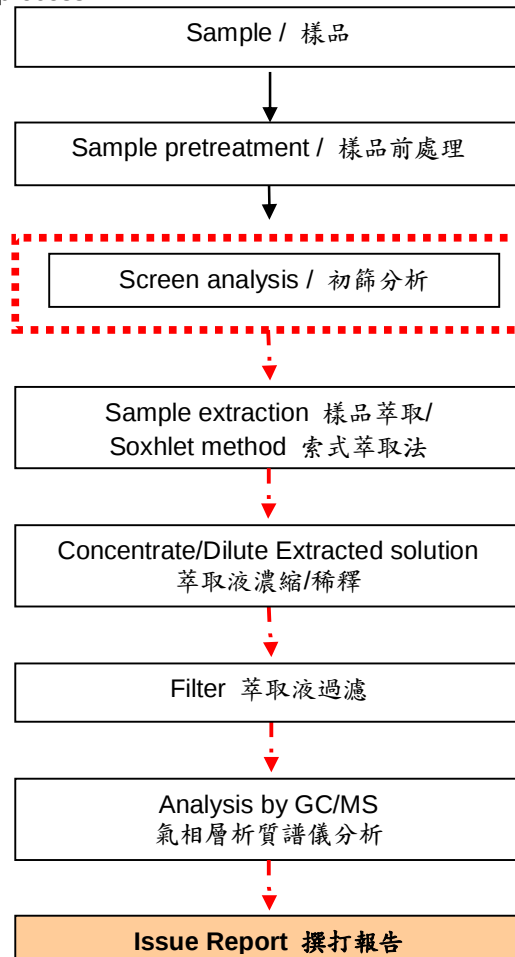
多溴聯苯/多溴聯苯醚 分析流程圖 / PBB/PBDE analytical FLOW CHART

- 1) 測試人員：曹嘉琪 / Name of the person who made measurement: Anson Tsao
2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang

初次測試程序 / First testing process —————→

選擇性篩檢程序 / Optional screen process→

確認程序 / Confirmation process - - - - -→



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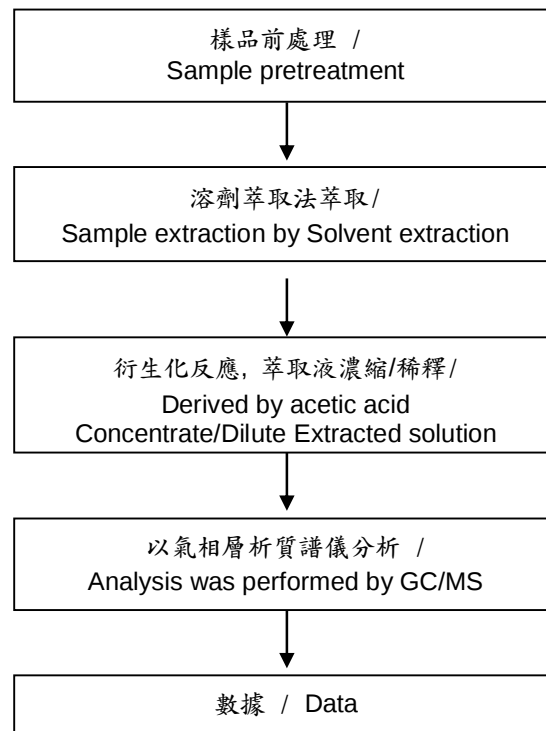
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四溴雙酚A 分析流程圖 / TBBP-A analytical flow chart

- 測試人員：曹嘉琪 / Name of the person who made measurement: Anson Tsao
- 測試負責人：張博睿 / Name of the person in charge of measurement: Ray Chang



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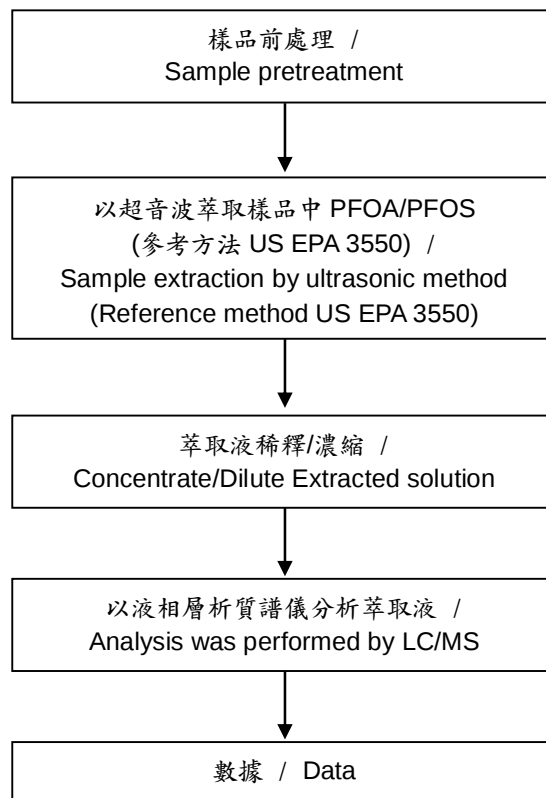
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全氟辛酸(銨)/ 全氟辛烷磺酸分析流程圖 / Analytical flow chart of PFOA/PFOS content

1)測試人員：曹嘉琪 / Name of the person who made measurement: Anson Tsao

2)測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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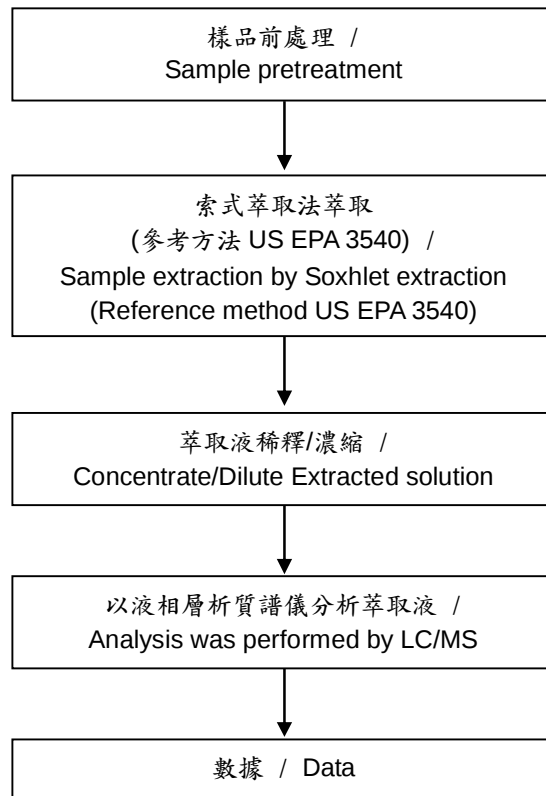
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全氟辛酸(銨)/ 全氟辛烷磺酸分析流程圖 /

Analytical flow chart of PFOA/PFOS content

1)測試人員：曹嘉琪 / Name of the person who made measurement: Anson Tsao

2)測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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測試報告 Test Report

號碼(No.) : KA/2012/C1135 日期(Date) : 2013/01/02 頁數(Page) : 12 of 14

嘉發實業工廠股份有限公司

CHIA FAR INDUSTRIAL FACTORY CO., LTD.

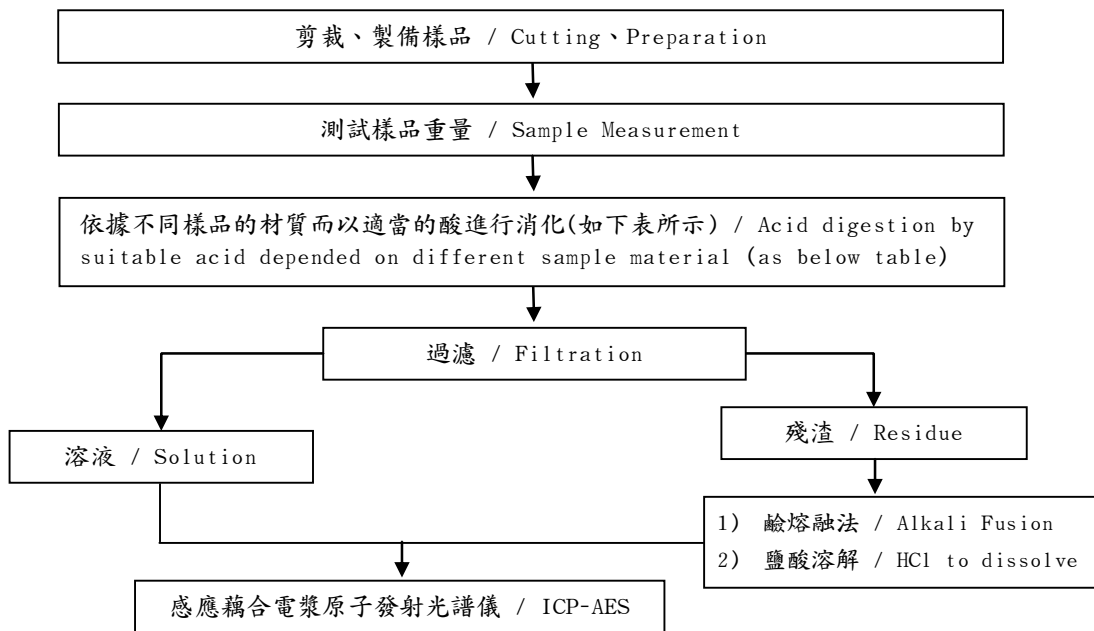
台北市太原路83號2樓

2F, NO. 83, TAIYUAN RD., TAIPEI, TAIWAN

- 1) 根據以下的流程圖之條件，樣品已完全溶解。 / These samples were dissolved totally by pre-conditioning method according to below flow chart.
- 2) 測試人員：張俊雄 / Name of the person who made measurement: Alex Chang
- 3) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang

元素以 ICP-AES 分析的消化流程圖

(Flow Chart of digestion for the elements analysis performed by ICP-AES)



鋼,銅,鋁,焊錫 / Steel, copper, aluminum, solder	王水,硝酸,鹽酸,氫氟酸,雙氧水 / Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂
玻璃 / Glass	硝酸,氫氟酸 / HNO ₃ /HF
金,鉑,鈀,陶瓷 / Gold, platinum, palladium, ceramic	王水 / Aqua regia
銀 / Silver	硝酸 / HNO ₃
塑膠 / Plastic	硫酸,雙氧水,硝酸,鹽酸 / H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCl
其他 / Others	加入任何酸至完全溶解 / Any acid to total digestion

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Test Report

號碼(No.) : KA/2012/C1135 日期(Date) : 2013/01/02 頁數(Page) : 13 of 14

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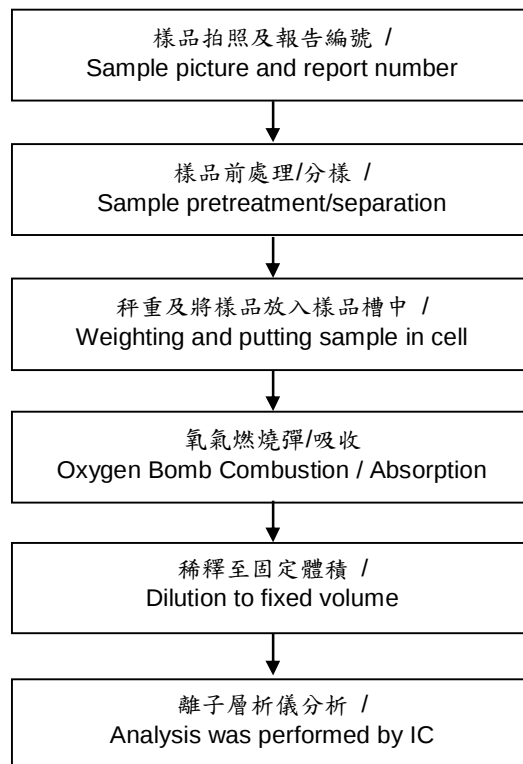
CHIA FAR INDUSTRIAL FACTORY CO., LTD.

台北市太原路83號2樓

2F, NO. 83, TAIYUAN RD., TAIPEI, TAIWAN

鹵素分析流程圖 / Analytical flow chart of halogen content

- 1) 測試人員：洪秀真 / Name of the person who made measurement: Jean Hung
- 2) 測試負責人：張伯睿 / Name of the person in charge of measurement: Ray Chang



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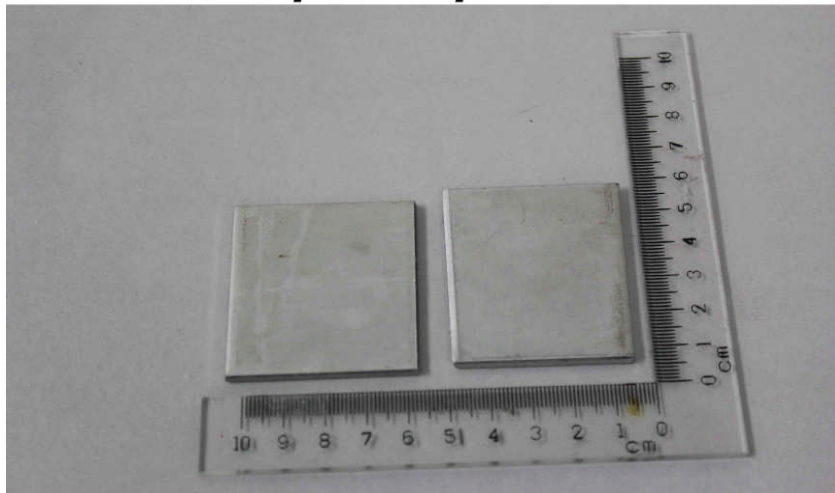
台北市太原路83號2樓

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* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。 *

(The tested sample / part is marked by an arrow if it's shown on the photo.)

KA/2012/C1135



** 報告結尾(End of Report) **

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TEST REPORT

Report No.: HX201301338-3E

Applicant: Hui Zhou City Chuang Long Precision Assembly Co., Ltd.
Address: Building 18, Da Tian Industrial Park, San Xin Industrial District, Jiang Bei, Hui Zhou City

Report on the submitted sample(s) said to be:

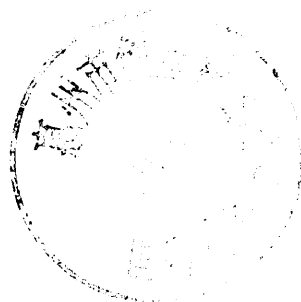
Name: Nickel-plated
Type/Model: -----
Buyer: -----
Supplier: -----

Date of Receipt: Feb.27, 2013 **Test period:** Feb.27, 2013 – Mar.5, 2013

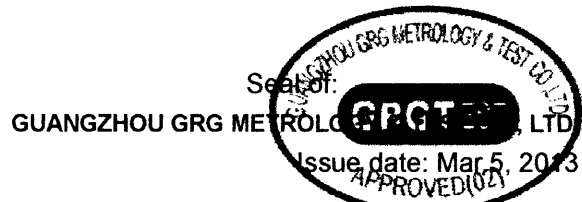
Test Request: In accordance with RoHS Directive 2011/65/EU and its amendment directives

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

Conclusion: Based on the performed test on submitted sample, the result(s) comply with the RoHS Directive 2011/65/EU and its amendment directives.



Tested by Zoe Tang Reviewed by Kevin Ren Approved by Hailan Wang



This test report is responsible for the tested samples only. Without permission of the test center this test report is not permitted to be duplicated or extracts. The test report is invalid without the official stamp of GUANGZHOU GRG METROLOGY & TEST CO., LTD. The test report is invalid if altered. Objections to the test report must be submitted to GUANGZHOU GRG METROLOGY & TEST CO., LTD. within 15 days.

GUANGZHOU GRG METROLOGY & TEST CO., LTD.

Address: 163 Pingyun Road West of Huangpu Avenue Tianhe District Guangzhou City, 510656, P. R. China
Tel: +86-020-38699572 FAX: +86-020-38698685 <http://www.grgtest.com>

TEST REPORT

Report No.: HX201301338-3E

Sample description

1. Silver-grey plated metal

Test method:

Test Item(s)	Test method	Measuring instrument	MDL
Lead (Pb)	IEC 62321:2008,section 9	ICP-OES	2mg/kg
Cadmium (Cd)	IEC 62321:2008,section 9	ICP-OES	2mg/kg
Mercury (Hg)	IEC 62321:2008,section 7	ICP-OES	2mg/kg
Hexavalent Chromium [Cr(VI)]	IEC 62321:2008,Annex B	UV-VIS	---

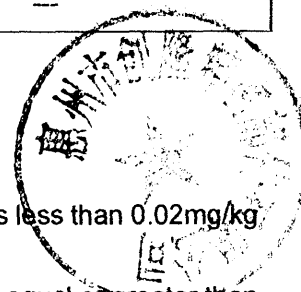
Test result:

Test Item	Result (mg/kg)	RoHS Limit (mg/kg)
	1	
Lead (Pb)	N.D.	1000
Cadmium (Cd)	N.D.	100
Mercury (Hg)	N.D.	1000
Hexavalent Chromium [Cr(VI)]	Negative	---

Remark: 1) mg/kg = ppm

2) MDL = Method Detection Limit

3) "N.D." = Not Detected (Below Method Detection Limit)

4) Negative = The detected Cr(VI) concentration in boiling solution is less than 0.02mg/kg with 50 cm² sample surface area.Positive = The detected Cr(VI) concentration in boiling solution is equal or greater than 0.02mg/kg with 50 cm² sample surface area.**GUANGZHOU GRG METROLOGY & TEST CO., LTD.**

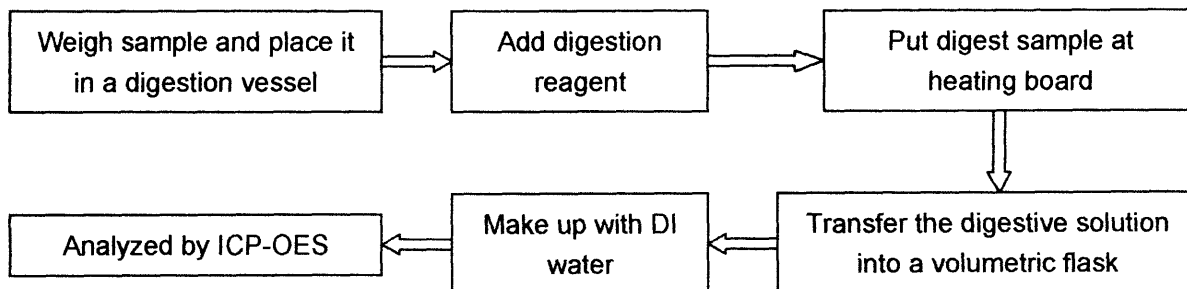
Address: 163 Pingyun Road West of Huangpu Avenue Tianhe District Guangzhou City, 510656, P. R. China

Tel: +86-020-38699572 FAX: +86-020-38698685 <http://www.grgtest.com>

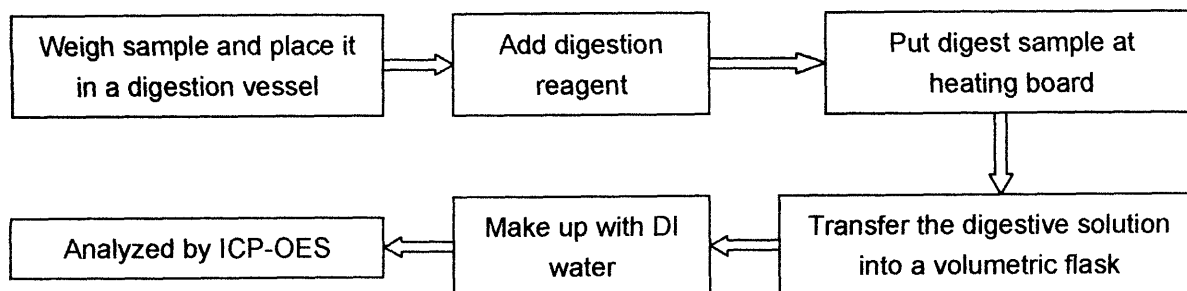
TEST REPORT

Report No.: HX201301338-3E

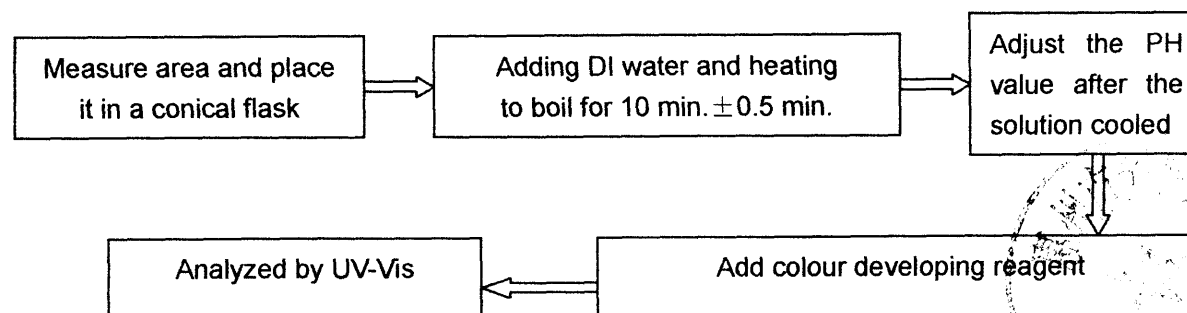
Test Process for Pb / Cd



Test Process for Hg



Test Process for Cr (VI)



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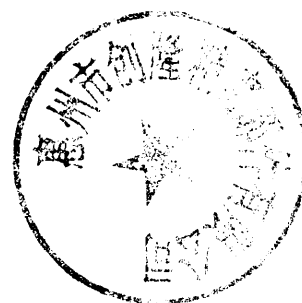
TEST REPORT

Report No.: HX201301338-3E

Photo of Sample



-----End of Report-----

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華裕實業股份有限公司
WHA YU INDUSTRIAL CO., LTD

RoHS 排外條款說明
RoHS Exclusive item Hazardous Substance

本公司保證，本產品均屬環保產品，皆符合 RoHS 法規要求，並適用於 RoHS 規定之排除條款。

We hereby confirm and assure that all parts and sub-materials delivered to your company comply with RoHS Standard and apply to RoHS Exclusive item.

RoHS 合金類排除條款要求如下：

RoHS Exclusive item :

合金種類 alloys item	鉛允許含量(ppm) Lead acceptance concentration
鋼材 steel	<3,500ppm
鋁合金 aluminium alloys	<4,000ppm
銅合金 copper alloys	<40,000ppm
焊錫 solder	<1,000ppm

立承諾書人

公司名稱：華裕實業股份有限公司
company name: WHA YU INDUSTRIAL CO., LTD

公司地址：新竹市公道五路二段 326 號
company address: No.326. Sec 2. Kung Tao 5 Road. Hsin Chu City, Taiwan

聯絡電話：03-5714225
TEL: +886-3-5714225

負責人：_____ 林祺生 _____ 董事長
sign by

立約日期：西元 2006 年 9 月 05 日
Date: 2006. 09. 05



Product Hazardous Substance Report

Model Name: PIFA Antenna Assembly
 Part Number: 11320Y11145A1

Date: 2013/11/12

RoHS Directive 2011/65/EC & PFOS D

Item 項目	Part Number 料號	Description 品名	Component Suppliers (First & 2nd Source) 原廠名稱	Component Model Number 原廠型號	Q'ty 零件數量	Location 零件位置	Weight (mg) 零件重量	Sub-Item 分離材質 項目	Sub-parts Homogeneous Material 分離之均勻材質名稱	原材料顏色 (塑膠、油墨及漆料必填) The color of raw material (Required for plastic, ink and paint)	鍍層存在與否/鍍層材質說明 If the plating layer exist or not?(Y/N)/If yes, please describe the material of the plating layer	分離之 均勻材質 重量(mg)	Effective date 報告生效日			
														800	80	800
														Pb 鉛	Cd 鎘	Hg 汞
1	11320Y11145A1	PIFA	CHUANG LONG	100-4012601-AZ	1	PIFA-SUS 430	230		SUS 430	NA	N	230	2013/1/2	N.D	N.D	N.D
						PIFA-Ni Plated			Ni	NA			2013/2/27	N.D	N.D	N.D

Directive 2006/122/EC										REACH Regulation (EC) No 1907/2006				Halogen Free IEC 61249-2-21						備註 Remark		
Control Substance; mg/kg=ppm									Laboratory 實驗室名稱	Analysis report No. 實驗室分析報告號碼	Laboratory Test Report (Hyperlink) 第三公證單位化學 分析報告	Material Declaration/ Exception Declaration 物質宣告書或排外宣 告證明(Hyperlink)	物質成份元素表		Contanted Substance of SVHC	Candidate List Update Date by	SVHC Contanted List (Hyperlink)	1500ppm 900 900 Concerned			Laboratory Test Report (Hyperlink) 第三公證單位化學 分析報告	Material Declaration (Hyperlink) 物質宣告書
800 Cr+6 六價鉻	800 PBB	800 PBDE	HBCDD	DEHP	BBP	DBP	PFOA	PFOS					元素/化合物 名稱	元素/化合物 比重 (%)				Cl 氯	Br 溴			
Concerned																						
Negative	N.D	N.D	-	-	-	-	N.D	N.D	SGS	KA/2012/C1135	SGSPIFA- KA_2012_C1135.pdf		Fe	79.36	No			N.D	N.D	 SUS430不銹鋼材料 證書.pdf		
									Cr	18	No											
									Mn	1.7	No											
									Si	0.75	No											
									C	0.12	No											
									P	0.04	No											
									S	0.03	No											
Negative	-	-	-	-	-	-	-	-	GRG	HX201301338-3E	SGSPIFA- HX201301338-3E.pdf	Ni	100	No	-	-						