

Product Number: AN2400-58L13RS
Product Name: Antenna



Specification For Approval

Date: 2012 / 12 / 11

File No.: 121211006

Version: 1.0

Customer : 盛達電業股份有限公司

Customer P/N : /

INVAX P/N : AN2400-58L13RS

Description : Antenna

Cortec Checked By:	
Customer Approved By:	



INVAX System Technology Corp.
4F. No. 815.Chung Hsiao East Rd.,Sec.5
Taipei, TAIWAN
TEL:886-2-2788-5218 FAX:886-2-2783-1658
<http://www.invaxsystem.com>



Cortec Technology Inc.
Xian-Xi Industrial, Sha-Tou Administration Zone,
Chang-An Town, Dong-Guan City, Guangdong
Province, China
TEL:86-769-85388261 FAX:86-769-85317869
<http://www.cortec.com.cn>

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Product Number: AN2400-58L13RS

Product Name: Antenna



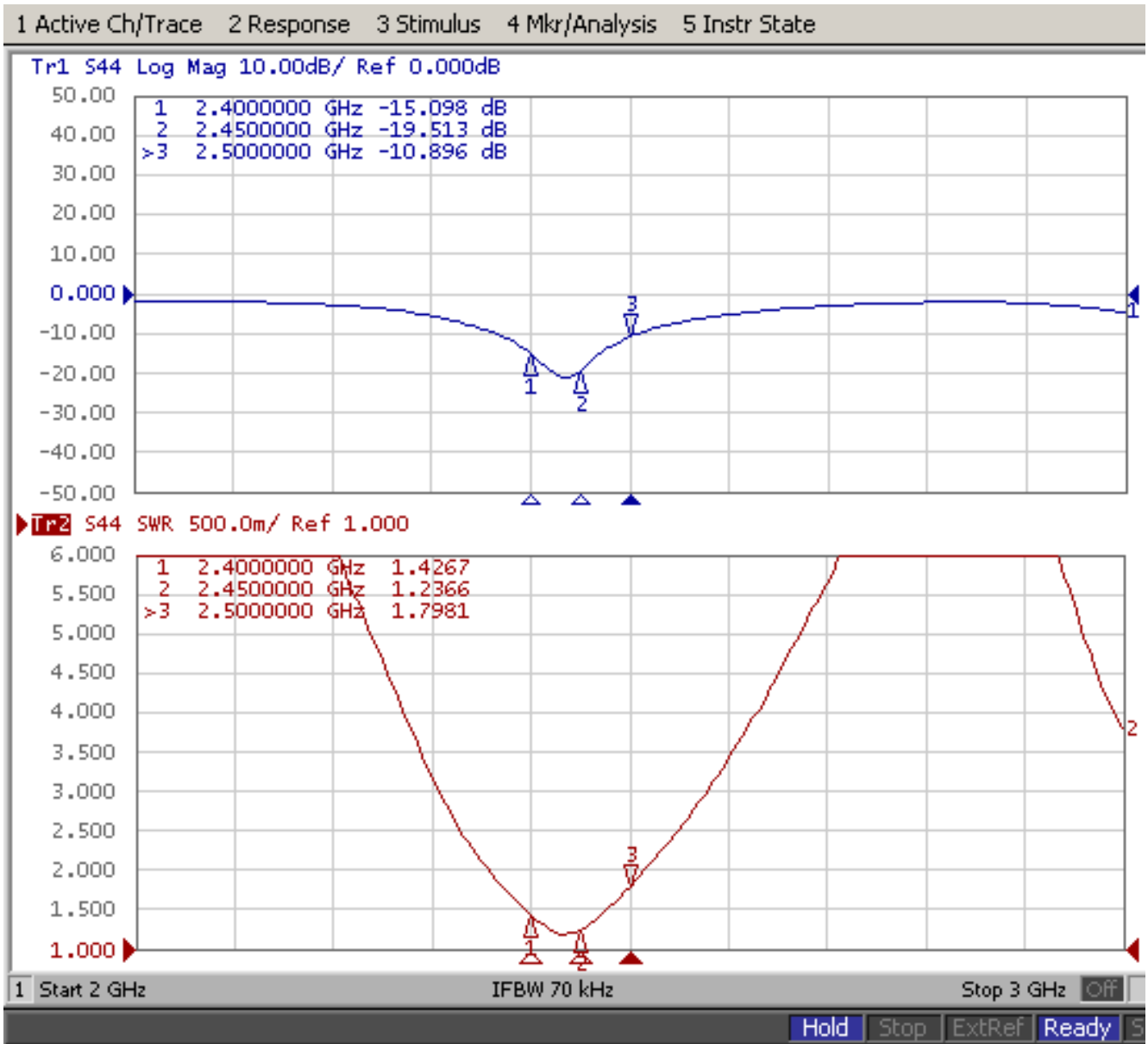
1. Specification

Sample Photo	
	
A. Electrical Characteristics	
Frequency	2400 ~ 2500 MHz
S.W.R.	≤ 2.0
Antenna Gain	4.0 dBi
Polarization	Linear
Impedance	50 Ohm
B. Material & Mechanical Characteristics	
Material of Radiator	Cu
Material of Plastic	Body: TPE Hinge: ABS Holder: POM
Cable Type	RG-178
Connector Type	SMA Male Reverse
Connector Pull Test	$\geq 3\text{Kg}$
C. Environmental	
Operation Temperature	- 40 °C ~ + 65 °C
Storage Temperature	- 40 °C ~ + 80 °C

2. Characteristics and Reliability Test

Test Items		Test Condition and Procedure	Requirements
C1	S.W.R.	Set DUT on Network Analyzer; make individual calibration to test	Directive DUT specification
C2	Antenna Gain	Set DUT on Antenna Chamber; make individual calibration to test	Directive DUT specification
M1	Vibration	GB / T2423 . 48-1997 Amplitude: 0.03 inch (1.5mm); Freq: 20 to 80 to 20 Hz 3 directions; 2 hours for each direction	1. No Visual Damage 2. Frequency Tol.<= 5%
M2	Random Drop	GB / T2423.8-1995 Height: 1.0 Meter; 3 directions; 1 time for each direction	1. No parts separated 2. Frequency Tol.<= 5%
M3	Solderability	GB 2423 . 28- 82 Solder iron: 260±5°C; Duration: 5 seconds	1. Mounted on PCB 2. No Visual Damage
M4	Terminal-Pull Test	Holding with individual specification; force applied to axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M5	Terminal-Torque Test	Holding with individual specification; applied clockwise and counterclockwise to the axis of terminal	1. Directive DUT specification 2. Frequency Tol.<= 5%
M6	Dimension	Inspection of dimension, color, material, package, surface process	Directive DUT specification
E1	Salt Spray	GB / T 2423 . 17- 93 Temp: 35°C; RH: >= 95%; NaCl solution: >= 5%; Time: 24 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E2	Humidity	GB / T 2423 . 4 - 93 Temp: 80°C / 12 H; -40°C / 12H RH: >= 90%; Time: 24 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E3	Thermal Shock	GB / T 2423 . 22 - 87 1 Cycle: - 40°C (30 minutes) to + 80°C (30 minutes) Cycles: 24	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
E4	Life (High Temp.)	GB /T 2423 . 2 - 89 Temp: 80°C; Time: 24 hours	After 2 Hours Recovery 1. No Visual Damage 2. Frequency Tol.<= 5%
R1	RoHS	With Reference to IEC 62321:2008 with flow chart	Directive RoHS 2002/95/EC
R2	PFOS	With Reference to USA EPA 3540C:1996 by LC/MS	Directive RoHS 2006/122/EC
R3	PFOA	With Reference to USA EPA 3540C:1996 by LC/MS	Directive RoHS 2006/122/EC

3. Antenna - S Parameter Test Data



Product Number: AN2400-58L13RS

Product Name: Antenna



4. Antenna - Radiation Pattern Test Data

Testing Equipment Specification:

Antenna Anechoic Chamber Dimension: 8 x 4 x 4 m

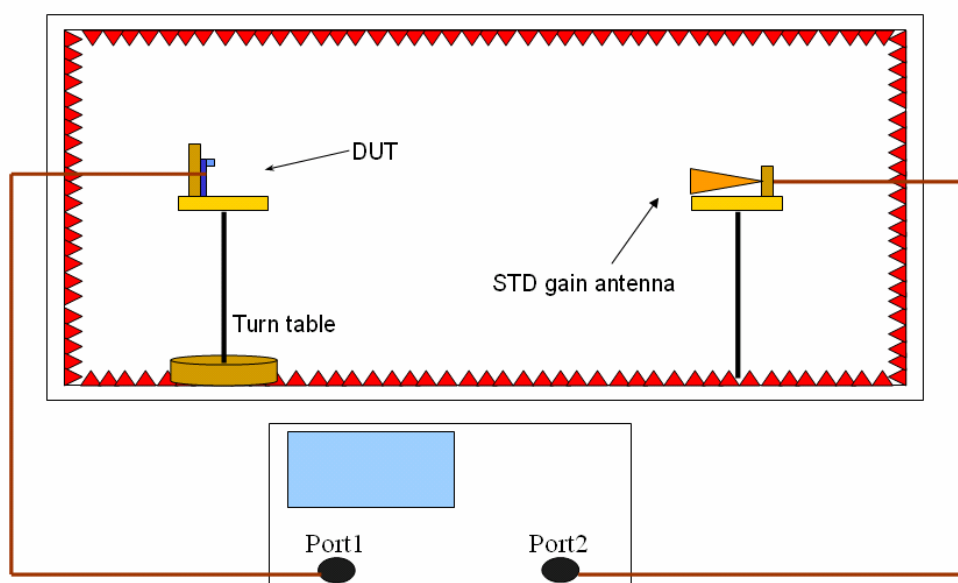
Quiet Zone: 600mm @1 GHz

Isolation: >100dB @ 1 MHz ~ 10 GHz

Testing Equipment: Agilent 5071B

Received Antenna: 0.7 ~ 6.0 GHz for Gain Calibration

Double Ridged Horn Antenna



5. Mechanical Drawing

See attached files

6. Material Description and RoHS Test Report

See attached files



Antenna : 2.4G Antenna
Remark : H-Plane // V-Pol
Tested by :CORTEC Antenna 3D Lab

Location: **Chamber**

Date: **2011/7/7**

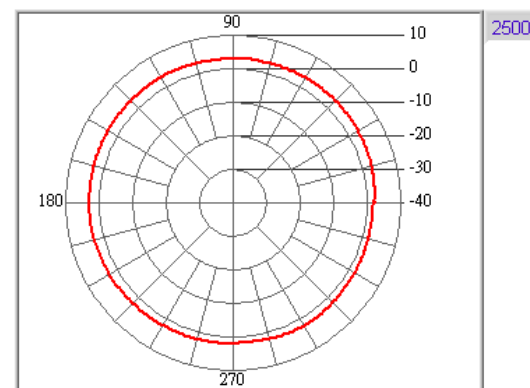
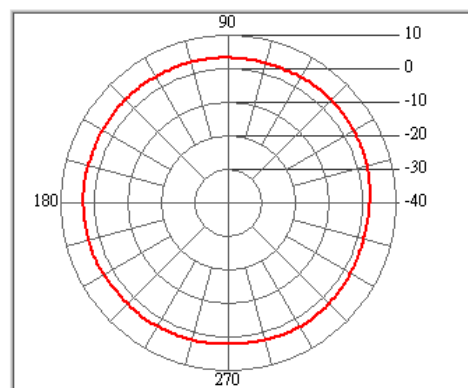
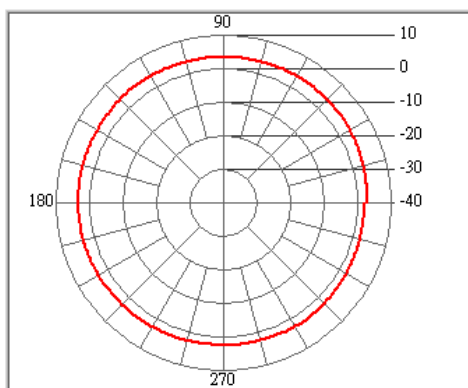
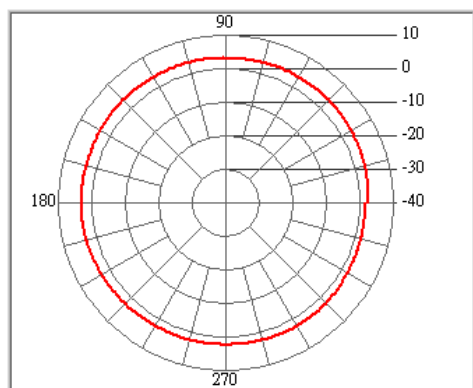
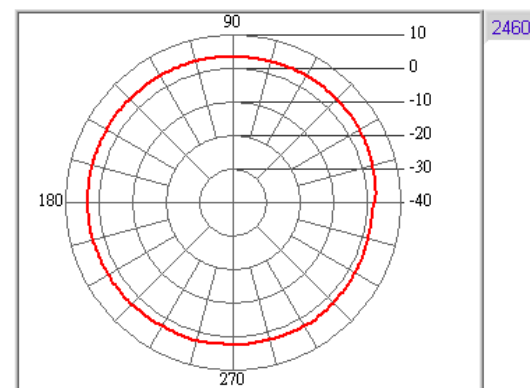
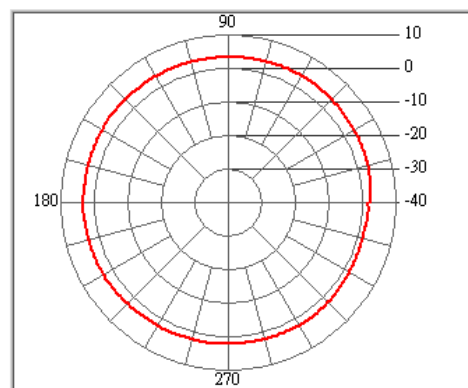
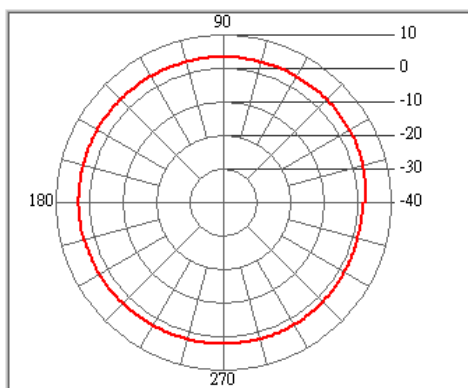
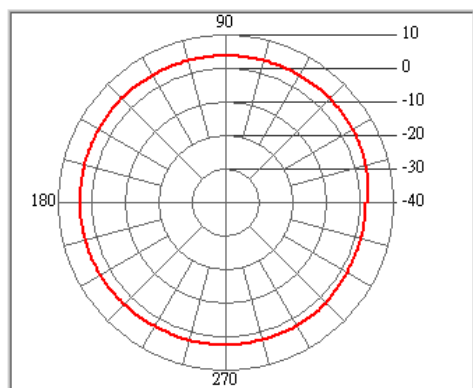
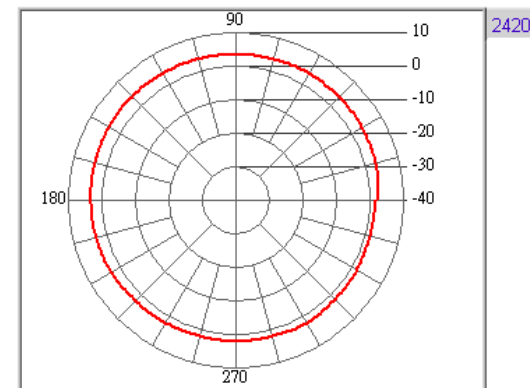
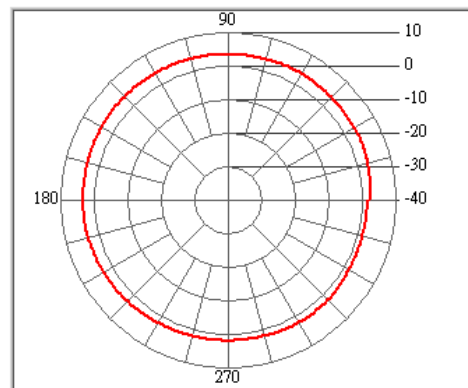
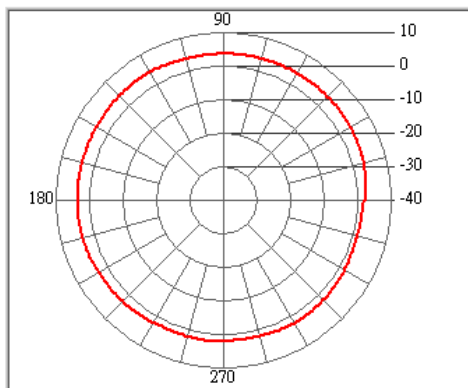
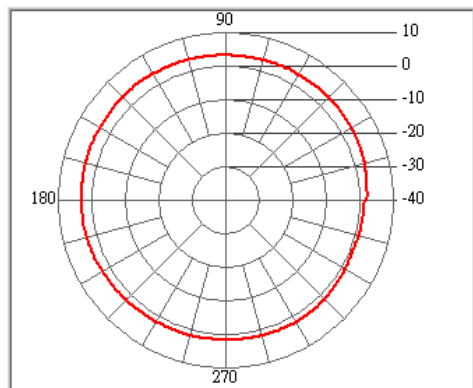
Time: **上午 10:35:03**

Temperatuer (°C): **25.00**

Humidity (%): **65.00**

Approved by:

Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	3.7	4.18	3.88	3.92	4.03	3.58	3.7	3.81	3.43	3.81	3.61	3.31
Peak Degree	129	119	129	140	129	130	140	56	46	129	130	119
AV Gain (dBi)	2.64	3.07	2.9	2.92	3.17	2.84	2.9	3.04	2.81	3.08	2.89	2.62





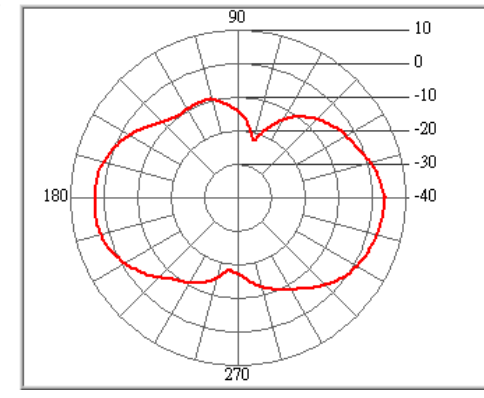
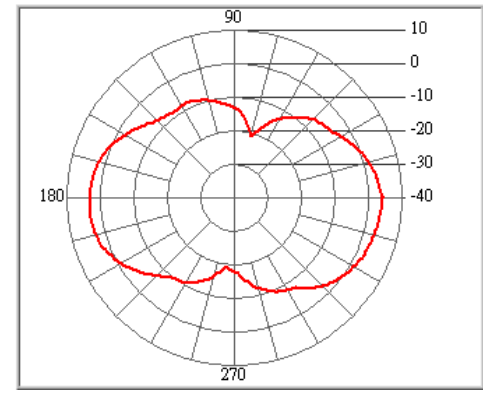
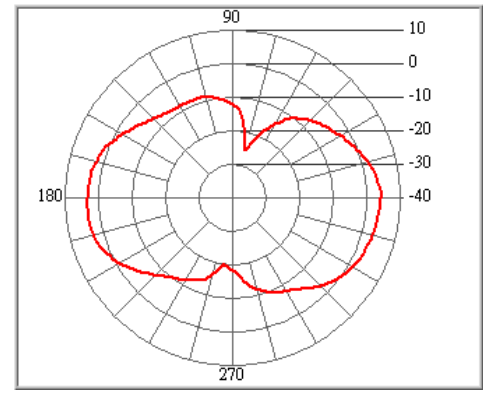
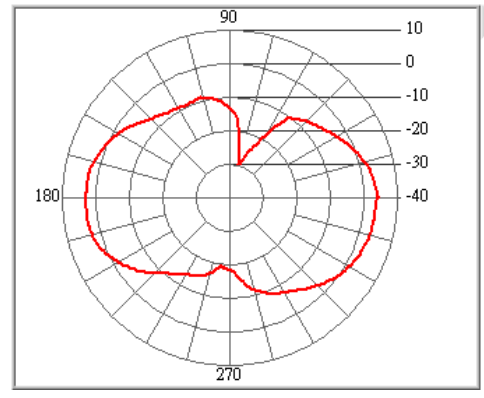
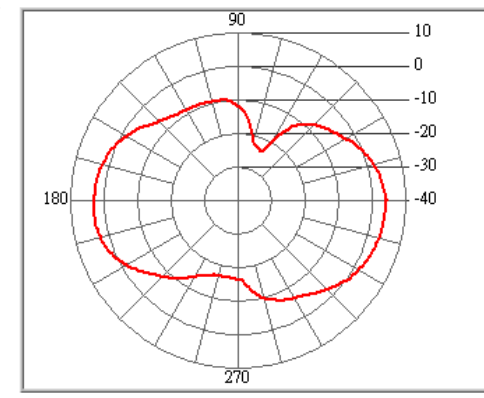
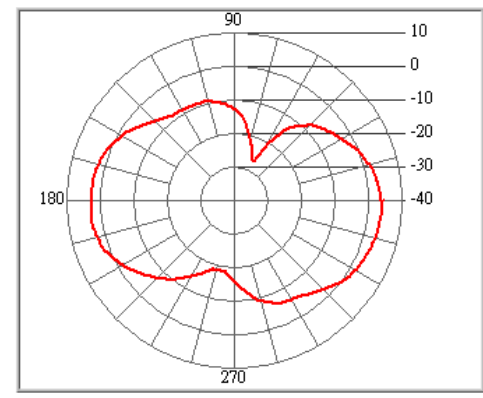
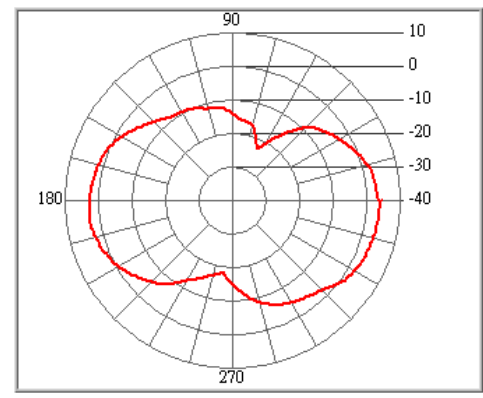
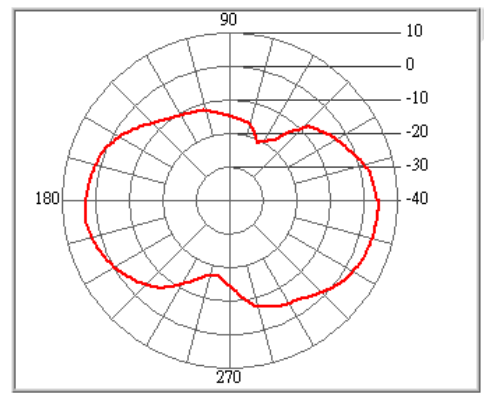
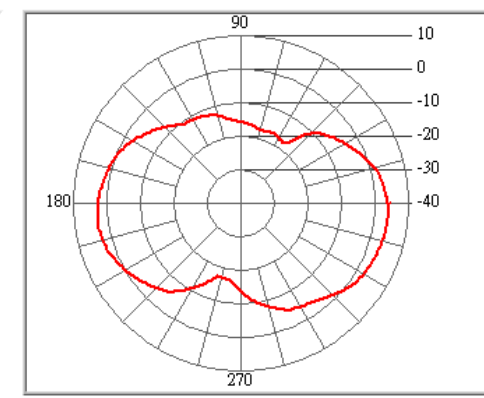
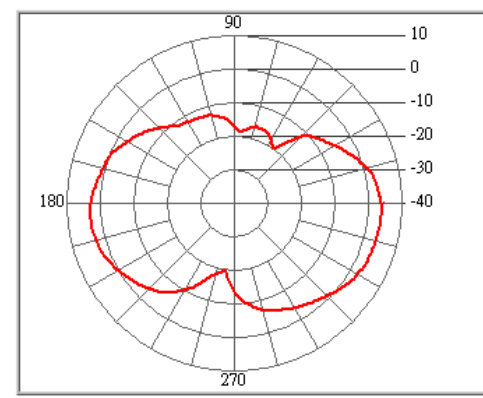
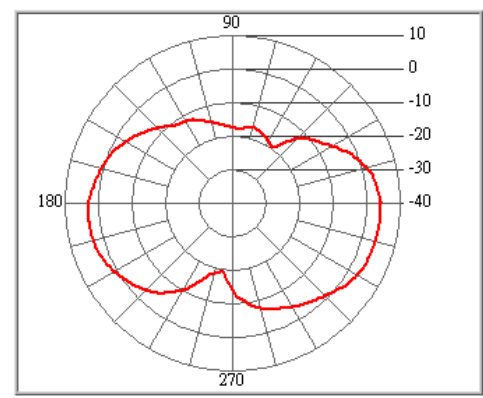
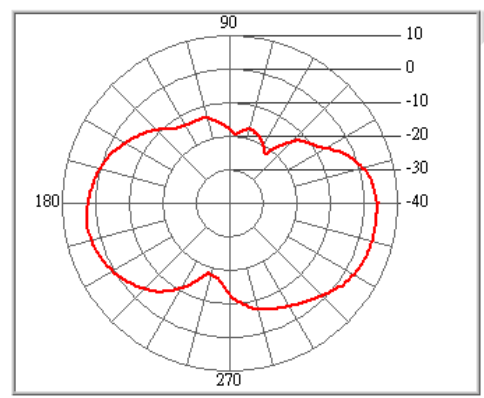
Antenna : 2.4G Antenna
Remark : E-Plane // H-Pol
Tested by :CORTEC Antenna 3D Lab

Location: **Chamber**
Temperatuer (°C): **25.00**

Date: **2011/7/7**
Humidity (%): **65.00**

Time: **上午 10:32:53**
Approved by:

Freq. (MHz)	2390	2400	2410	2420	2430	2440	2450	2460	2470	2480	2490	2500
Peak Gain (dBi)	4.07	4.38	4.16	4.28	4.48	4	4.18	4.24	4.09	4.45	4.13	3.73
Peak Degree	346	356	356	356	356	357	356	0	1	1	360	356
AV Gain (dBi)	-1.58	-1.3	-1.52	-1.54	-1.3	-1.6	-1.57	-1.51	-1.71	-1.47	-1.64	-1.94

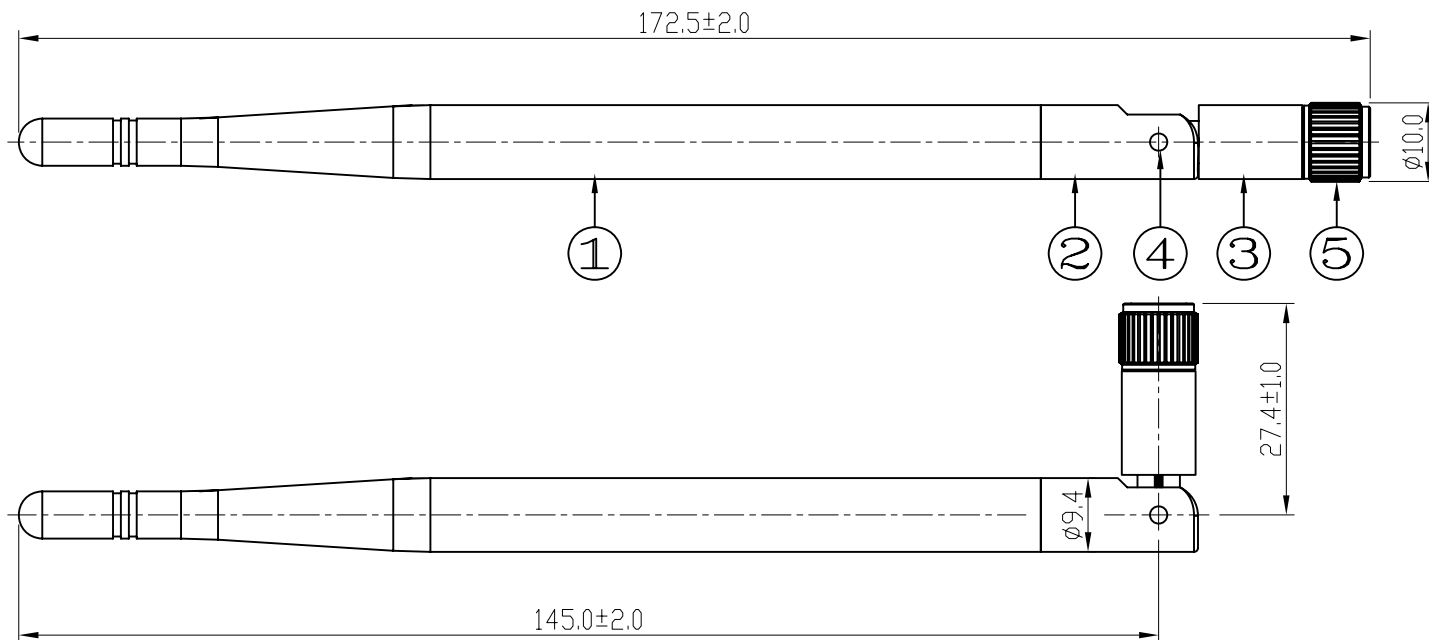


RoHS

Compatible



SIGN	DATE	DESCRIPTION	APPROVER
△			
△			
△			



Note:

1. Dimension: Take * is the important dimension.
2. Tolerance: Unmarked tolerance refer to the standard tolerance please.

5	SMA804-ZCR5A56	SMA Male Reverse	Zn Alloy	Eletrodeposition	1
4	AN01-1215-P-1	Hinge Pin	POM	Black	2
3	AN57-12B-1	Body3	POM	Black	1
2	AN58L-06B	Body2	ABS	Black	1
1	AN58L-01B	Body1	TPEE	Black	1
No.	Part Number	Description	Material	Finish	Q'ty

Invax System Group.

Cortec

Cortec Technology Inc.

Http://www.invaxsystem.com
E-mail:info@invax.com.tw

Tel :886-2-27885218
Fax:886-2-27831658

PART NAME: ANTENNA-2.4GHz

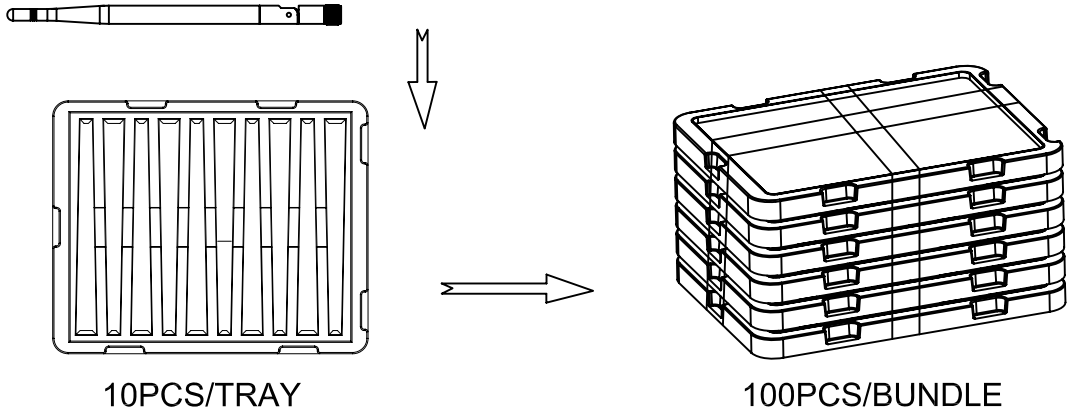
PART NO.: AN2400-58L13RS

DWG NAME: AN2400-58L13RS.dwg

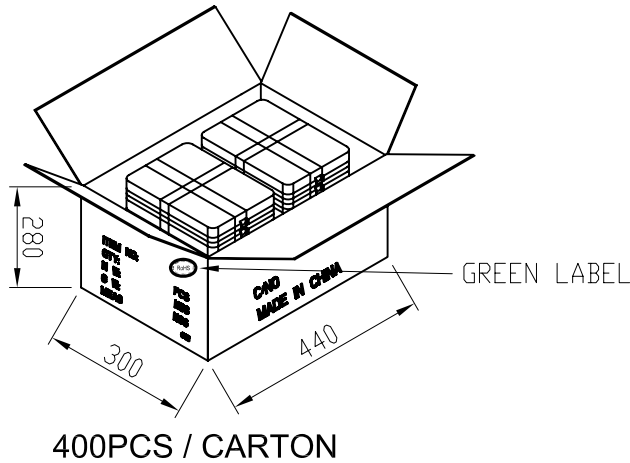
APP BY	CHK BY	RF BY	DES BY		Tolerance
Grant 2012.09.04	Jack 2012.09.04		HXT 2012.09.04		X.X ±0.30
					X.XX ±0.15
					X° ±3°
					UNITS: mm
					SCALE: 1/1
					REVISION: A

Part Number : AN2400-58L13RS	Revision : A
Name: Antenna-2.4GHz	Customer : ALL

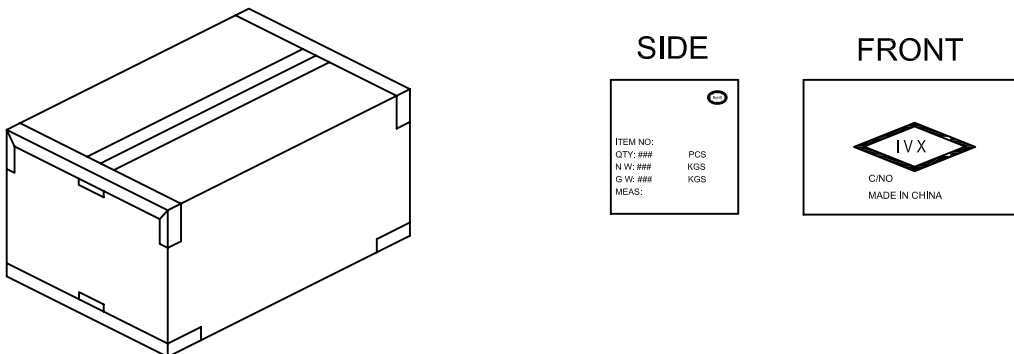
一. PUT ANT INTO PLASTIC TRAY



二. PACKING



三. SEALING



請輸入以下報告正確資料及檢查碼以便查核

1. 報告編號
2. 報告日期 (YYYY/MM/DD)
3. 產品名稱 (輸入前 10 個字不含空白)
4. 圖示檢查碼 (依指示畫面)



物料中HSF對象物質含量調查表

康捷電子有限公司	
填表：	黃柳英
部門：	研發部
職務：	文員

物料名稱：AN2400-58L13RS

序號	物料型號	物料各構成名稱	各構成物料的材質	測試報告裡RoHS對應物質測試結果						檢測報告編號	測試日期	測試名稱	測試機構名稱
				Cd	Pb	Hg	Cr(VI)	PBBs	PBDEs				
1	AN58L-01B	Body1	TPEE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	RLSZD001081200002C	2012.10.10	TPEE	CTI
2	AN58L-06B	Body2	ABS	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	KA/2011/C1889	2012.01.02	ACRYLONITRILE	SGS
3	AN57-12B-1	Body3	POM	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	RLSZE001229340002	2012.04.05	POM	CTI
4	AN01-1215-P-1	Hinge Pin	POM	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	RLSZE001229340002	2012.04.05	POM	CTI
5	SMA804-ZCR5A56	Male Reverse	鋅合金	N.D.	13	N.D.	Negative	N.D.	N.D.	A001C11122704902-1	2011.12.30	鋅合金	AVO
6	R-RG-178U	Cable (RG178)	PTFE	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	RLSHE001125120001C	2012.08.21	电线电缆料	CTI
			FEP	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	RLSHE001125120002C	2012.08.21	电线电缆料	CTI
			鍍銀銅絲	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	RLSHE001125120003C	2012.08.21	电线电缆料	CTI
7	R-AN9402S R-AN1901-06	Tube Spring	銅	51	28156	N.D.	Negative			CANEC1112556702	2012.01.04	BRASS(IN CHINESE AS	SGS

根據測試報告如實填寫鉛、鎘、汞、六價鉻、PBBs和PBDEs六項禁用物質的含量

包裝材料中鉛、鎘、汞、六價鉻總含量不超過100ppm，鎘的允許濃度為5ppm

歐盟ROHS指令豁免條款2009/95/BC、鋼中合金元素中的鉛含量達0.35%、鋁含量達0.4%、銅合金中的鉛含量達4%

检测报告

报告编号 RLSZD001081200002C

第 1 页 共 4 页

申请单位 东莞市樟木头龙宇塑胶原料经营部
地 址 东莞市樟木头镇塑胶市场三期B61号

样品信息
样品名称 TPEE
样品描述 黑色固体颗粒
样品型号 45D. 50D. 55D. 63D. 70D. 74D
样品颜色 黑色
样品接收日期 2012. 10. 07
样品检测日期 2012. 10. 07 - 2012. 10. 10

检测要求 根据客户要求，测定所提交样品中的铅(Pb)，镉(Cd)，汞(Hg)，六价铬(Cr(VI))，多溴联苯(PBBs)，多溴二苯醚(PBDEs)的含量。

检测依据

测试项目	测试方法	测试仪器	方法检测限
铅(Pb)	IEC 62321:2008 Ed. 1 Sec. 8	ICP-OES	2 mg/kg
镉(Cd)	IEC 62321:2008 Ed. 1 Sec. 8	ICP-OES	2 mg/kg
汞(Hg)	IEC 62321:2008 Ed. 1 Sec. 7	ICP-OES	2 mg/kg
六价铬(Cr(VI))	IEC 62321:2008 Ed. 1 Annex C	UV-Vis	2 mg/kg
多溴联苯(PBBs)	IEC 62321:2008 Ed. 1 Annex A	GC-MS	5 mg/kg
多溴二苯醚(PBDEs)	IEC 62321:2008 Ed. 1 Annex A	GC-MS	5 mg/kg

检测结果 请参见下页

主 检:

签 发:



审 核:

签发日期:

Vargas

2012. 10. 10

No. 13933400

检测报告

报告编号 RLSZD001081200002C

第 2 页 共 4 页

检测结果

测试项目	含量
铅(Pb)	N. D.
汞(Hg)	N. D.
镉(Cd)	N. D.
六价铬(Cr(VI))	N. D.

测试项目	含量
多溴联苯(PBBs)	
一溴联苯	N. D.
二溴联苯	N. D.
三溴联苯	N. D.
四溴联苯	N. D.
五溴联苯	N. D.
六溴联苯	N. D.
七溴联苯	N. D.
八溴联苯	N. D.
九溴联苯	N. D.
十溴联苯	N. D.

测试项目	含量
多溴二苯醚(PBDEs)	
一溴二苯醚	N. D.
二溴二苯醚	N. D.
三溴二苯醚	N. D.
四溴二苯醚	N. D.
五溴二苯醚	N. D.
六溴二苯醚	N. D.
七溴二苯醚	N. D.
八溴二苯醚	N. D.
九溴二苯醚	N. D.
十溴二苯醚	N. D.

注释: 对于检测铅, 镉, 汞之样品已完全溶解。

-N.D. = 未检出 (小于方法检测限)

-mg/kg = ppm = 百万分之几

备注: 报告编号中“C”表示此报告为中文版本。

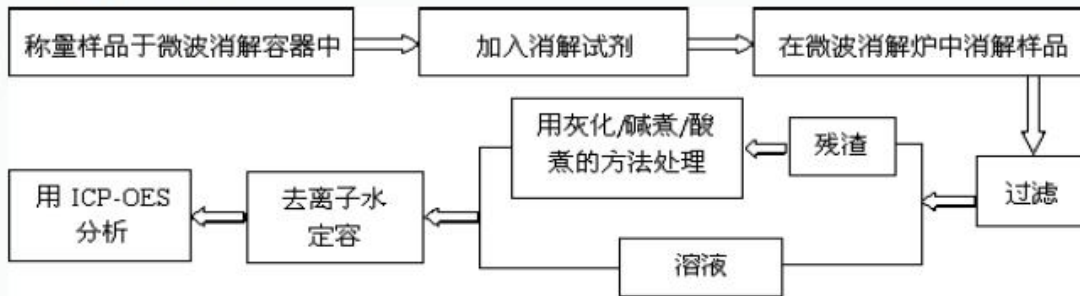
检测报告

报告编号 RLSZD001081200002C

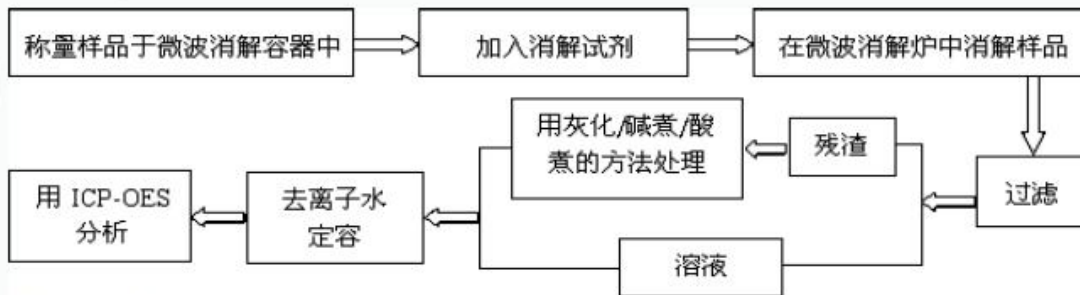
第 3 页 共 4 页

检测流程

1. 铅(Pb), 镉(Cd)



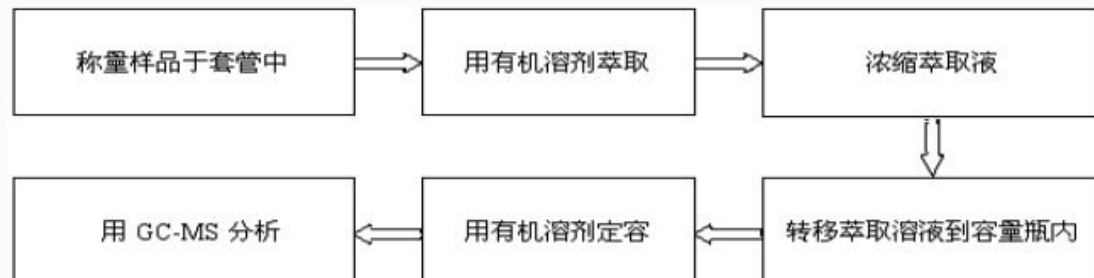
2. 汞(Hg)



3. 六价铬(Cr(VI))



4. 多溴联苯(PBBs), 多溴二苯醚(PBDEs)



检测报告

报告编号 RLSZD001081200002C

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样品图片



报告结束

本报告无CTI盖章无效。本报告不得修改、增加或删除。此结果只对本次受测样品的结果负责。未经CTI书面同意，不得部分复制本报告，亦不可作为宣传品使用。

深圳市宝安区70区鸿威工业园C栋

Test Report

No. : KA/2011/C1889

Date : 2012/01/02

Page: 1 of 6

CHI MEI CORPORATION
59-1 SAN CHIA, JEN TE, TAINAN CITY 71702, TAIWAN

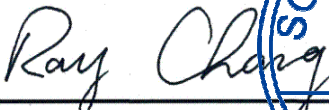
The following sample(s) was/were submitted and identified by/on behalf of the client as:

Sample Description : ACRYLONITRILE-BUTADIENE-STYRENE COPOLYMER
Style/Item No. : POLYLAC[®] PA-757
Sample Receiving Date : 2011/12/26
Testing Period : 2011/12/26 TO 2012/01/02
Sample Submitted By : CHI MEI CORPORATION

Test Requested : In accordance with the RoHS Directive 2011/65/EU Annex II

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

Conclusion : Based on the performed tests on submitted samples, the test results of Cadmium, Lead, Mercury, Hexavalent Chromium Cr(VI), PBBs and PBDEs comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.


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



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Test Report

No. : KA/2011/C1889

Date : 2012/01/02

Page: 2 of 6

CHI MEI CORPORATION
59-1 SAN CHIA, JEN TE, TAINAN CITY 71702, TAIWAN

Test Result(s)

PART NAME No.1 : NATURE AYLONITRILE-BUTADIENE-STYRENE COPOLYMER

Test Item (s):	Unit	Method	MDL	Result	Limit
				No.1	
Cadmium (Cd)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.	100
Lead (Pb)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.	1000
Mercury (Hg)	mg/kg	With reference to IEC 62321: 2008 and performed by ICP-AES.	2	n.d.	1000
Hexavalent Chromium Cr(VI)	mg/kg	With reference to IEC 62321: 2008 and performed by UV-VIS.	2	n.d.	1000
Sum of PBBs	mg/kg	With reference to IEC 62321: 2008 and performed by GC/MS.	-	n.d.	1000
Monobromobiphenyl	mg/kg		5	n.d.	-
Dibromobiphenyl	mg/kg		5	n.d.	-
Tribromobiphenyl	mg/kg		5	n.d.	-
Tetrabromobiphenyl	mg/kg		5	n.d.	-
Pentabromobiphenyl	mg/kg		5	n.d.	-
Hexabromobiphenyl	mg/kg		5	n.d.	-
Heptabromobiphenyl	mg/kg		5	n.d.	-
Octabromobiphenyl	mg/kg		5	n.d.	-
Nonabromobiphenyl	mg/kg		5	n.d.	-
Decabromobiphenyl	mg/kg		5	n.d.	-
Sum of PBDEs	mg/kg		-	n.d.	1000
Monobromodiphenyl ether	mg/kg		5	n.d.	-
Dibromodiphenyl ether	mg/kg		5	n.d.	-
Tribromodiphenyl ether	mg/kg		5	n.d.	-
Tetrabromodiphenyl ether	mg/kg		5	n.d.	-
Pentabromodiphenyl ether	mg/kg		5	n.d.	-
Hexabromodiphenyl ether	mg/kg		5	n.d.	-
Heptabromodiphenyl ether	mg/kg		5	n.d.	-
Octabromodiphenyl ether	mg/kg		5	n.d.	-
Nonabromodiphenyl ether	mg/kg	5	n.d.	-	
Decabromodiphenyl ether	mg/kg	5	n.d.	-	

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Test Report

No. : KA/2011/C1889

Date : 2012/01/02

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CHI MEI CORPORATION
59-1 SAN CHIA, JEN TE, TAINAN CITY 71702, TAIWAN

Note :

1. mg/kg = ppm ; 0.1wt% = 1000ppm
2. n.d. = Not Detected
3. MDL = Method Detection Limit
4. " - " = Not Regulated

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SGS Taiwan Ltd.
台灣檢驗科技股份有限公司

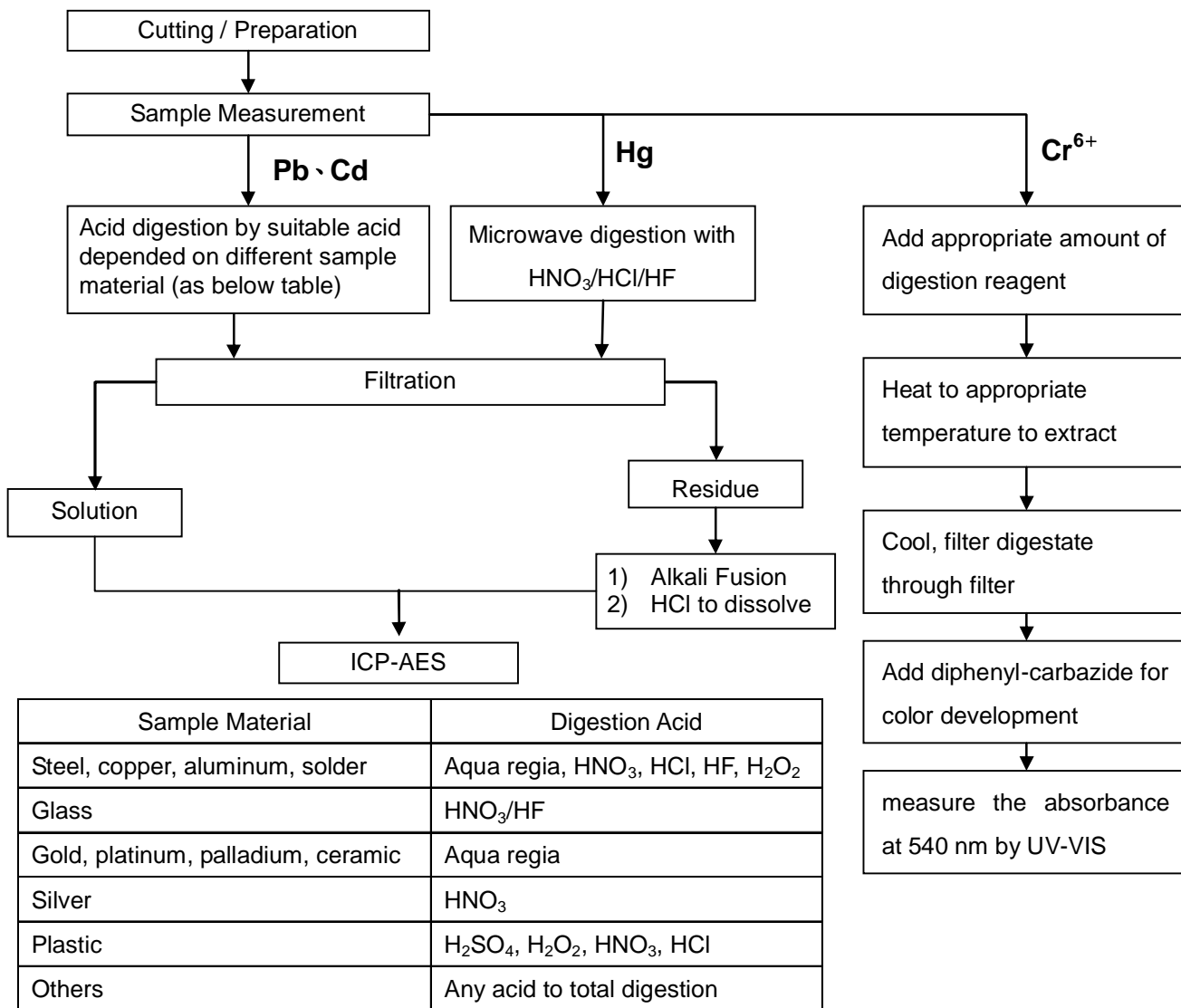
No. 61, Kai-Fa Road, Nanzih Export Processing Zone, Kaohsiung, Taiwan /
t + 886 (07)301 2121

高雄市楠梓加工出口區開發路61號
f + 886 (07)3010867
www.tw.sgs.com

Member of the SGS Group

CHI MEI CORPORATION
59-1 SAN CHIA, JEN TE, TAINAN CITY 71702, TAIWAN

- 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: Alex Chang
- 3) Name of the person in charge of measurement: Ray Chang

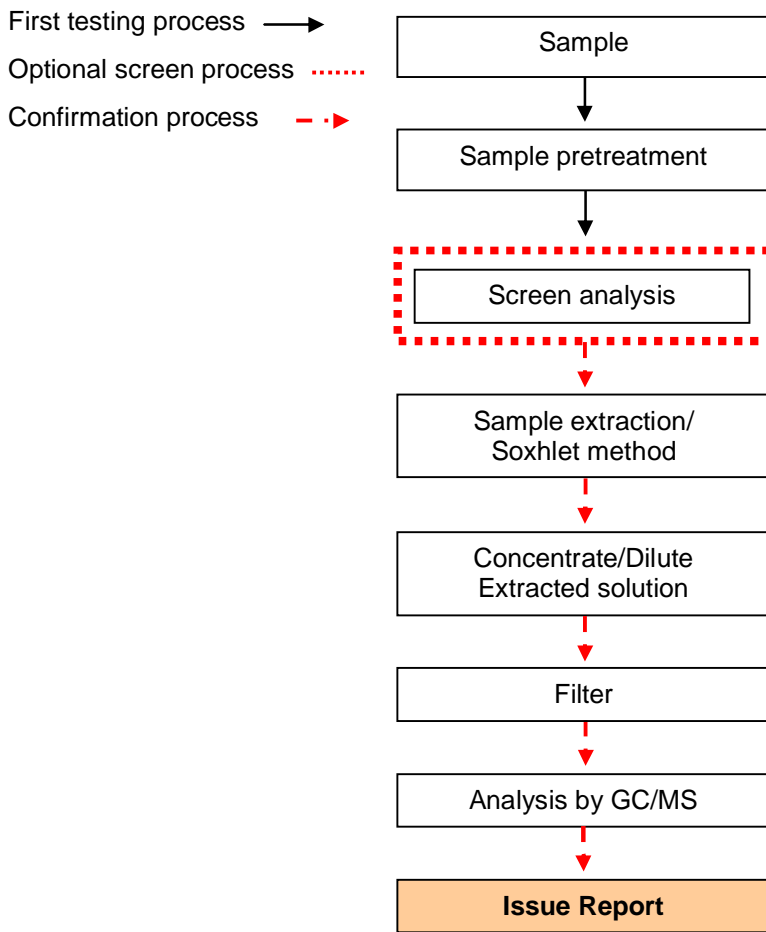


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59-1 SAN CHIA, JEN TE, TAINAN CITY 71702, TAIWAN

PBB/PBDE analytical FLOW CHART

- Name of the person who made measurement: Anson Tsao
- Name of the person in charge of measurement: Ray Chang



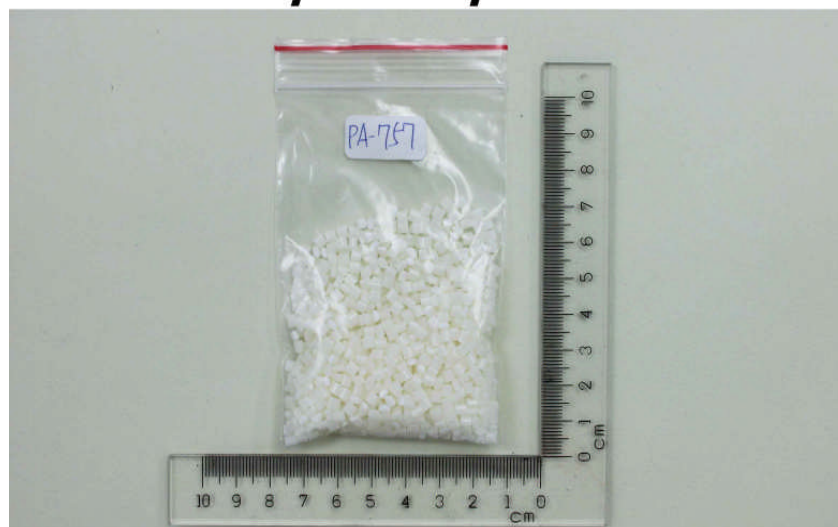
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59-1 SAN CHIA, JEN TE, TAINAN CITY 71702, TAIWAN

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

KA/2011/C1889



** End of Report **

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Test Report

Report No. RLSZE001229340002

Page 1 of 4

Applicant DONGGUAN CITY ZHANGMUTOU LONG YU PLASTIC MATERIALS
MANAGEMENT DEPARTMENT

Address NO. B61, THREE PLASTIC RAW MATERIALS MARKET, ZHANGMUTOU TOWN,
DONGGUAN CITY, GUANGDONG PROVINCE

Report on the submitted sample(s) said to be

Sample Name POM
Sample Description White plastic grains
Part No. 100AL..M90-44
Sample Received Date Mar. 31, 2012
Testing Period Mar. 31, 2012 to Apr. 5, 2012

Test Requested As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg),
Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs),
Polybrominated Diphenyl Ethers(PBDEs) in the submitted sample(s).

Test Method

Test Item(s)	Test Method	Measured Equipment(s)	MDL
Lead(Pb)	IEC 62321:2008 Ed.1 Sec.8	ICP-OES	2 mg/kg
Cadmium(Cd)	IEC 62321:2008 Ed.1 Sec.8	ICP-OES	2 mg/kg
Mercury(Hg)	IEC 62321:2008 Ed.1 Sec.7	ICP-OES	2 mg/kg
Hexavalent Chromium(Cr(VI))	IEC 62321:2008 Ed.1 Annex C	UV-Vis	2 mg/kg
Polybrominated Biphenyls(PBBs)	IEC 62321:2008 Ed.1 Annex A	GC-MS	5 mg/kg
Polybrominated Diphenyl Ethers(PBDEs)	IEC 62321:2008 Ed.1 Annex A	GC-MS	5 mg/kg

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

Tested by Rick Inspected by Vargas
Approved by Dupl Date Apr. 5, 2012
Technical Manager



No. 15504779

Test Report

Report No. RLSZE001229340002

Page 2 of 4

Test Result(s)

Tested Item(s)	Content
Lead(Pb)	N.D.
Cadmium (Cd)	N.D.
Mercury(Hg)	N.D.
Hexavalent Chromium(Cr(VI))	N.D.

Tested Item(s)	Content
Polybrominated Biphenyls(PBBs)	
Monobromobiphenyl	N.D.
Dibromobiphenyl	N.D.
Tribromobiphenyl	N.D.
Tetrabromobiphenyl	N.D.
Pentabromobiphenyl	N.D.
Hexabromobiphenyl	N.D.
Heptabromobiphenyl	N.D.
Octabromobiphenyl	N.D.
Nonabromobiphenyl	N.D.
Decabromobiphenyl	N.D.

Tested Item(s)	Content
Polybrominated Diphenyl Ethers(PBDEs)	
Monobromodiphenyl ether	N.D.
Dibromodiphenyl ether	N.D.
Tribromodiphenyl ether	N.D.
Tetrabromodiphenyl ether	N.D.
Pentabromodiphenyl ether	N.D.
Hexabromodiphenyl ether	N.D.
Heptabromodiphenyl ether	N.D.
Octabromodiphenyl ether	N.D.
Nonabromodiphenyl ether	N.D.
Decabromodiphenyl ether	N.D.

Note: The sample had been dissolved totally tested for Lead, Cadmium, Mercury.

-MDL = Method Detection Limit

-N.D. = Not Detected (<MDL)

-mg/kg = ppm = parts per million

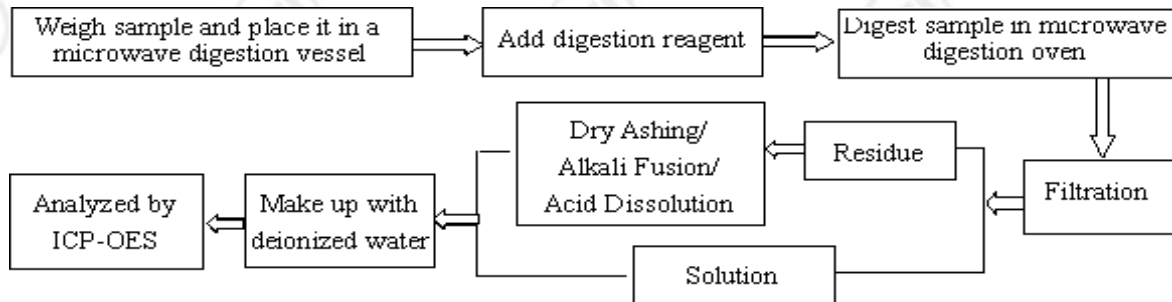
Test Report

Report No. RLSZE001229340002

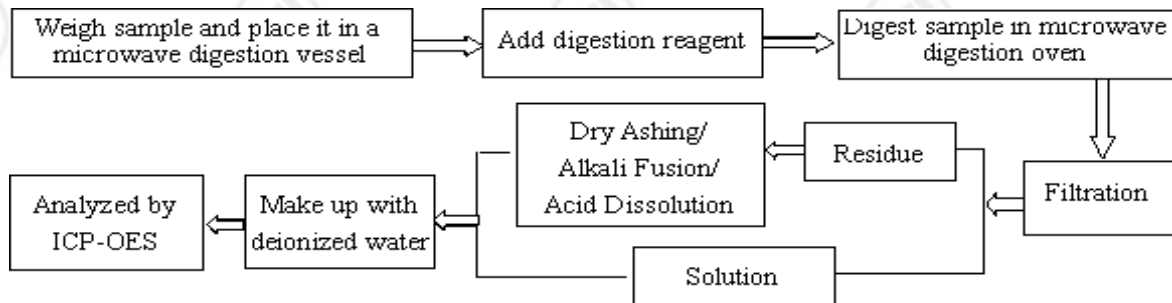
Page 3 of 4

Test Process

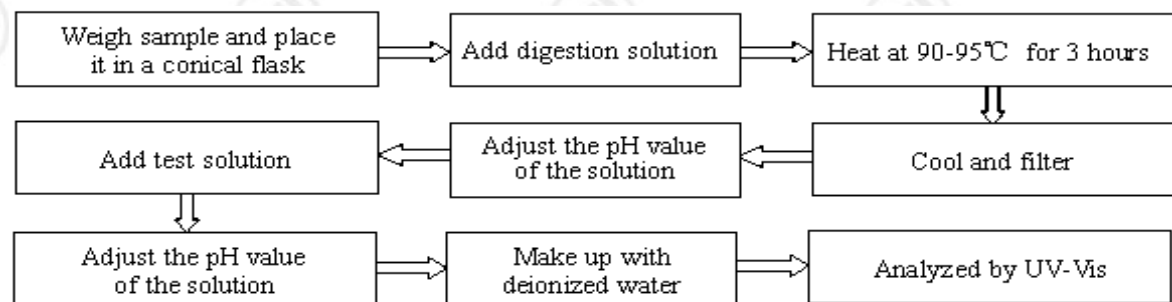
1. Lead(Pb), Cadmium(Cd)



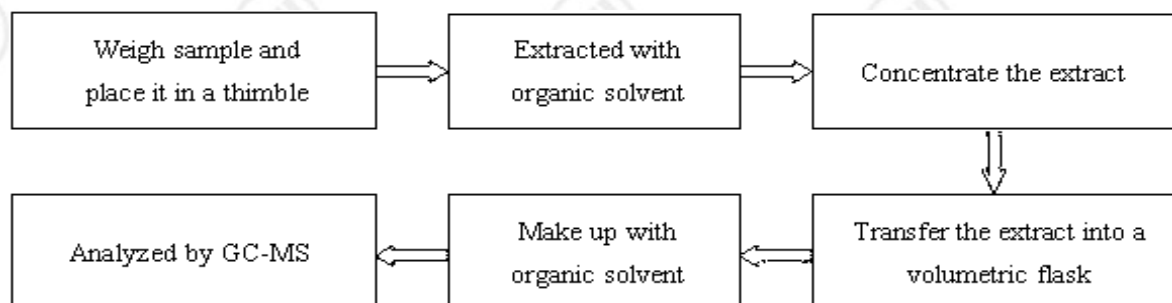
2. Mercury(Hg)



3. Hexavalent Chromium(Cr(VI))



4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers(PBDEs)



Test Report

Report No. RLSZE001229340002

Page 4 of 4

Photo(s) of the sample(s)



*** End of report ***

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Building C, Hongwei Industrial Zone, Baoan 70 District, Shenzhen

检测报告

编号.: A001C11122704902-1

日期: 2011-12-30

第 1 页共 4 页

客户/申请商: 肇庆市永业金属实业有限公司
地址: 肇庆市高新区大旺工业园环市西路
委托检验的样品及申请者对样品的说明如下:

样品名称: 锌合金

型号: 3#

批号: /

材料: /

客户: /

供应商: /

制造商: /

样品接收日期: 2011-12-27

样品测试日期: 2011-12-27 至 2011-12-30

测试要求:

依据客户要求, 按照欧盟 RoHS 指令 2011/65/EU, 测定委托样品中的铅、镉、汞、六价铬、多溴联苯 (PBBs) 和多溴联苯醚 (PBDEs) 的含量。

测试方法:

参照 IEC 62321:2008 电子电器产品中限用物质含量的测定程序

测试项目	前处理方法	测试仪器	MDL
铅 (Pb)	IEC 62321, 第 9 部分	ICP-OES	5 mg/kg
镉 (Cd)	IEC 62321, 第 9 部分	ICP-OES	5 mg/kg
汞 (Hg)	IEC 62321, 第 7 部分	CV-AAS	2 mg/kg
六价铬 (CrVI)	IEC 62321, 附件 B	UV-VIS	/
多溴联苯 (PBBs) 及多溴联苯醚 (PBDEs)	IEC 62321, 附件 A	GC-MS	5 mg/kg

结论:

依照委托对指定样品进行测试, 测试结果表明指定样品符合欧盟 RoHS 指令 2011/65/EU 的要求。

*****更多详细信息请查阅下页*****

谨代表

深圳市安姆特检测技术有限公司

编写:

赵丽, Macy
报告文员

审核:

刘林文, Lewis
实验室主管

签发:

吕杰华, Jeewah
技术总监

检测报告

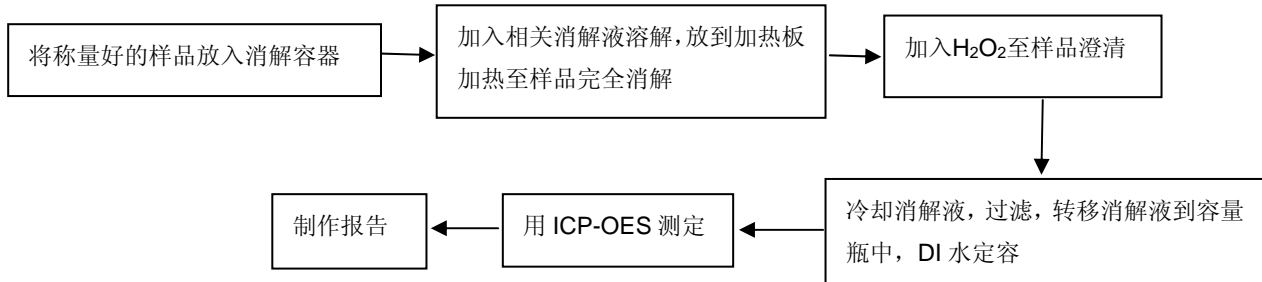
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日期: 2011-12-30

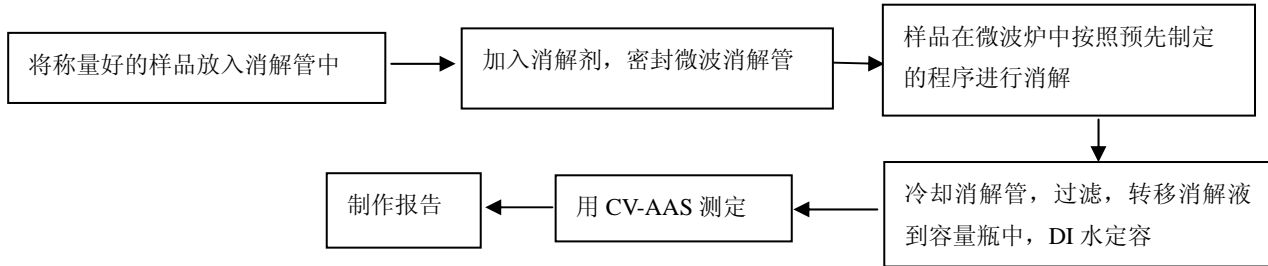
第 2 页共 4 页

检测流程:

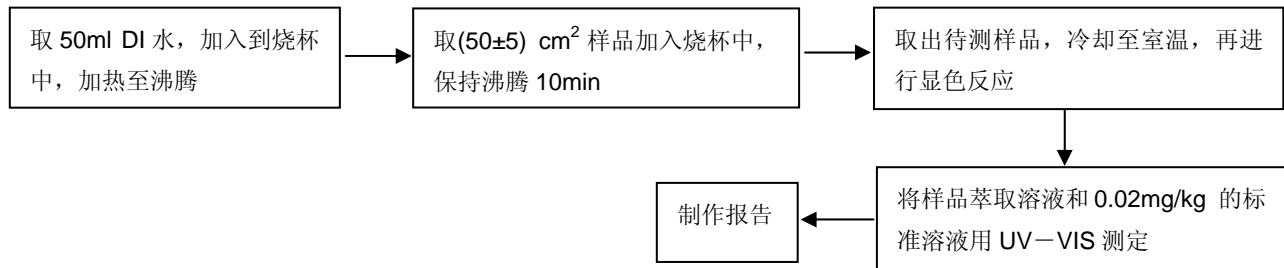
1. 测定铅,镉含量



2. 测定汞含量



3. 测定六价铬含量 (沸水萃取法):



4. 测定 PBBs&PBDEs 的含量



检测报告

编号.: A001C11122704902-1

日期: 2011-12-30

第 3 页共 4 页

测试结果:

项目	单位	RoHS 限值	结果
			A
铅 (Pb)	mg/kg	1000	13
镉 (Cd)	mg/kg	100	N.D.
汞(Hg)	mg/kg	1000	N.D.
沸水萃取法测六价铬(CrVI)	/	/	**阴性

阻燃剂	单位	RoHS 限值	结果
			A
多溴联苯	mg/kg	1000	N.D.
一溴联苯	mg/kg	/	N.D.
二溴联苯	mg/kg	/	N.D.
三溴联苯	mg/kg	/	N.D.
四溴联苯	mg/kg	/	N.D.
五溴联苯	mg/kg	/	N.D.
六溴联苯	mg/kg	/	N.D.
七溴联苯	mg/kg	/	N.D.
八溴联苯	mg/kg	/	N.D.
九溴联苯	mg/kg	/	N.D.
十溴联苯	mg/kg	/	N.D.
多溴联苯醚	mg/kg	1000	N.D.
一溴联苯醚	mg/kg	/	N.D.
二溴联苯醚	mg/kg	/	N.D.
三溴联苯醚	mg/kg	/	N.D.
四溴联苯醚	mg/kg	/	N.D.
五溴联苯醚	mg/kg	/	N.D.
六溴联苯醚	mg/kg	/	N.D.
七溴联苯醚	mg/kg	/	N.D.
八溴联苯醚	mg/kg	/	N.D.
九溴联苯醚	mg/kg	/	N.D.
十溴联苯醚	mg/kg	/	N.D.

样品描述:

A: 银色金属

检测报告

编号.: A001C11122704902-1

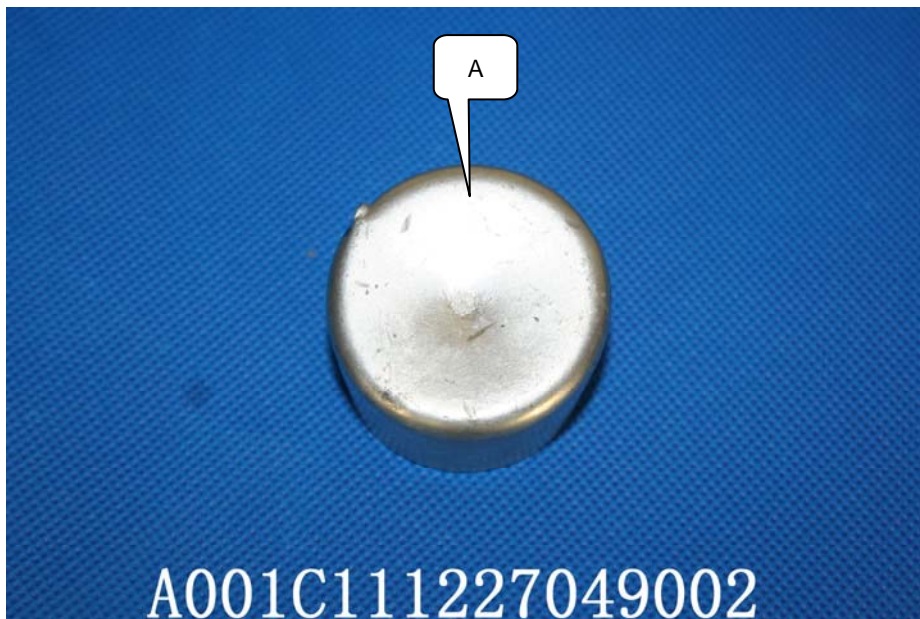
日期: 2011-12-30

第 4 页共 4 页

备注:

- 对于检测铅、镉、汞的样品已完全溶解
- mg/kg=ppm
- N.D. =未检出 (<MDL)
- MDL=方法检测限
- **沸水萃取法:
阴性=未检测出六价铬
阳性=检测出六价铬; 每 50cm² 表面积的被测试样品的沸水萃取液中六价铬的浓度等于或大于 0.02mg/kg。
- 由于未获知样品的存储条件和生产日期, 样品的六价铬测试结果仅能代表测试时样品含六价铬的状态。
- 附相片

样品相片



锌合金

报告结束

检测报告

报告编号 RLSHE001125120002C

第 1 页 共 4 页

申请单位 苏州市华诺线缆科技有限公司

地 址 苏州市相城区太平镇太平大街

以下测试之样品及样品信息由申请者提供并确认

样品名称 电线电缆料

样品型号 FEP

样品接收日期 2012.08.17

样品检测日期 2012.08.17—2012.08.21

检测要求 根据客户要求,对所提交样品中的铅(Pb),镉(Cd),汞(Hg),六价铬(Cr(VI)),多溴联苯(PBBs),多溴二苯醚(PBDEs)进行测试。

检测依据

测试项目	测试方法	测试仪器	方法检测限
铅(Pb)	IEC 62321:2008 Ed.1 Sec.8	ICP-OES	2mg/kg
镉(Cd)	IEC 62321:2008 Ed.1 Sec.8	ICP-OES	2mg/kg
汞(Hg)	IEC 62321:2008 Ed.1 Sec.7	ICP-OES	2mg/kg
六价铬(Cr(VI))	IEC 62321:2008 Ed.1 Annex C	UV-Vis	2mg/kg
多溴联苯(PBBs)	IEC 62321:2008 Ed.1 Annex A	GC-MS	5mg/kg
多溴二苯醚(PBDEs)	IEC 62321:2008 Ed.1 Annex A	GC-MS	5mg/kg

检测结果 请参见下页。

主 检

陈利娟

批 准

苏红伟

苏红伟

实验室高级经理

深圳市华测检测技术股份有限公司上海分公司

审 核

钟泽

日 期

2012.08.21

No.83402154

上海市浦东新区新金桥路 1996 号

检测报告

报告编号 RLSHE001125120002C

第 2 页 共 4 页

检测结果

测试项目	含量
铅 (Pb)	N. D.
镉 (Cd)	N. D.
汞 (Hg)	N. D.
六价铬 (Cr (VI))	N. D.

测试项目	含量
多溴联苯 (PBBs)	
一溴联苯	N. D.
二溴联苯	N. D.
三溴联苯	N. D.
四溴联苯	N. D.
五溴联苯	N. D.
六溴联苯	N. D.
七溴联苯	N. D.
八溴联苯	N. D.
九溴联苯	N. D.
十溴联苯	N. D.

测试项目	含量
多溴二苯醚 (PBDEs)	
一溴二苯醚	N. D.
二溴二苯醚	N. D.
三溴二苯醚	N. D.
四溴二苯醚	N. D.
五溴二苯醚	N. D.
六溴二苯醚	N. D.
七溴二苯醚	N. D.
八溴二苯醚	N. D.
九溴二苯醚	N. D.
十溴二苯醚	N. D.

测试样品/部位描述 白色半透明塑料粒子

注释: 对于检测铅, 镉, 汞之样品已完全溶解。

-N.D. = 未检出 (小于方法检测限)

-mg/kg = ppm = 百万分之几

备注: 报告编号中“C”表示此报告为中文版本。

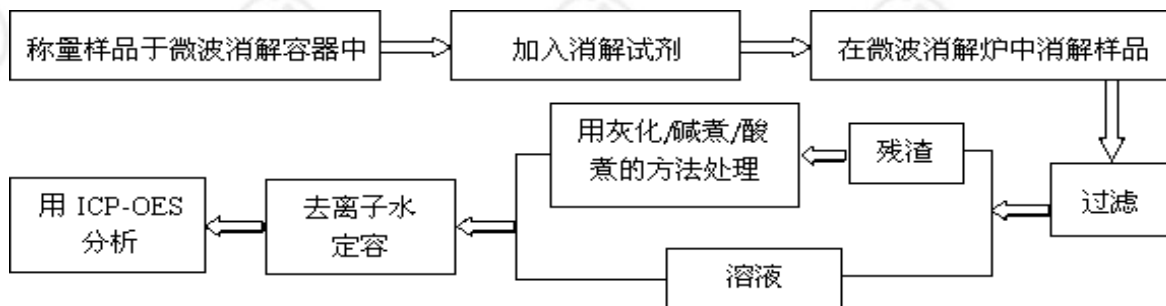
检测报告

报告编号 RLSHE001125120002C

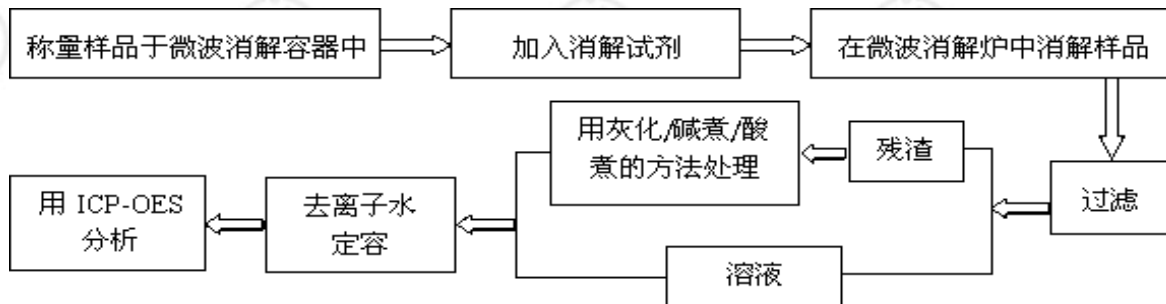
第 3 页 共 4 页

检测流程

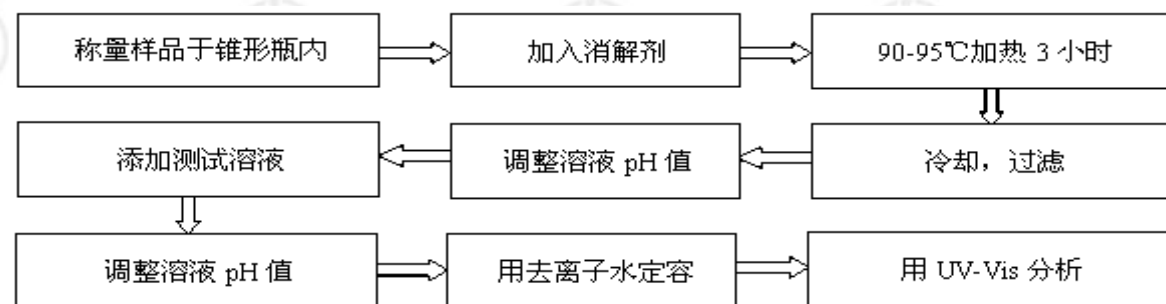
1. 铅(Pb), 镉(Cd)



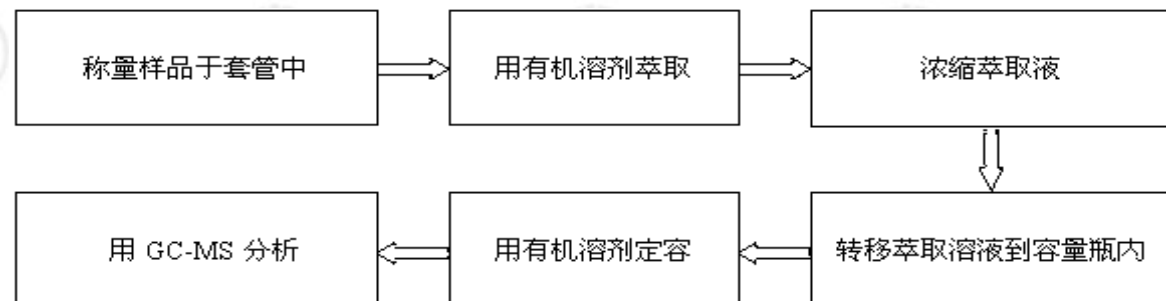
2. 汞(Hg)



3. 六价铬(Cr(VI))



4. 多溴联苯(PBBs), 多溴二苯醚(PBDEs)

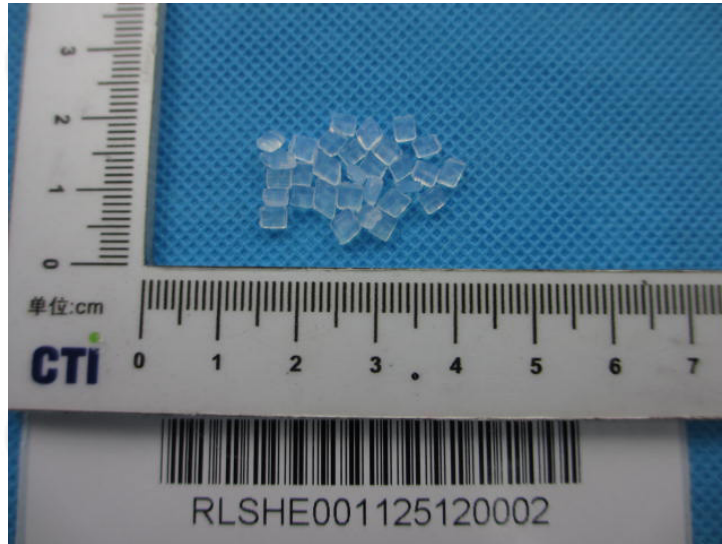


检测报告

报告编号 RLSHE001125120002C

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样品图片



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检测报告

报告编号 RLSHE001125120001C

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申请单位 苏州市华诺线缆科技有限公司

地 址 苏州市相城区太平镇太平大街

以下测试之样品及样品信息由申请者提供并确认

样品名称 电线电缆料
 样品型号 PTFE
 样品接收日期 2012.08.17
 样品检测日期 2012.08.17—2012.08.21

检测要求 根据客户要求, 对所提交样品中的铅 (Pb), 镉 (Cd), 汞 (Hg), 六价铬 (Cr (VI)), 多溴联苯 (PBBs), 多溴二苯醚 (PBDEs) 进行测试。

检测依据

测试项目	测试方法	测试仪器	方法检测限
铅 (Pb)	IEC 62321:2008 Ed.1 Sec.10	ICP-OES	2mg/kg
镉 (Cd)	IEC 62321:2008 Ed.1 Sec.10	ICP-OES	2mg/kg
汞 (Hg)	IEC 62321:2008 Ed.1 Sec.7	ICP-OES	2mg/kg
六价铬 (Cr (VI))	IEC 62321:2008 Ed.1 Annex C	UV-Vis	2mg/kg
多溴联苯 (PBBs)	IEC 62321:2008 Ed.1 Annex A	GC-MS	5mg/kg
多溴二苯醚 (PBDEs)	IEC 62321:2008 Ed.1 Annex A	GC-MS	5mg/kg

检测结果 请参见下页。

主 检

陈利娟

批 准

苏红伟

苏红伟
实验室高级经理

深圳市华测检测技术股份有限公司上海分公司

审 核

钟泽

日 期

2012.08.21

No.83402154

上海市浦东新区新金桥路 1996 号

检测报告

报告编号 RLSHE001125120001C

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检测结果

测试项目	含量
铅 (Pb)	N. D.
镉 (Cd)	N. D.
汞 (Hg)	N. D.
六价铬 (Cr (VI))	N. D.

测试项目	含量
多溴联苯 (PBBs)	
一溴联苯	N. D.
二溴联苯	N. D.
三溴联苯	N. D.
四溴联苯	N. D.
五溴联苯	N. D.
六溴联苯	N. D.
七溴联苯	N. D.
八溴联苯	N. D.
九溴联苯	N. D.
十溴联苯	N. D.

测试项目	含量
多溴二苯醚 (PBDEs)	
一溴二苯醚	N. D.
二溴二苯醚	N. D.
三溴二苯醚	N. D.
四溴二苯醚	N. D.
五溴二苯醚	N. D.
六溴二苯醚	N. D.
七溴二苯醚	N. D.
八溴二苯醚	N. D.
九溴二苯醚	N. D.
十溴二苯醚	N. D.

测试样品/部位描述 白色粉末

注释: 对于检测铅, 镉, 汞之样品已完全溶解。

-N.D. = 未检出 (小于方法检测限)

-mg/kg = ppm = 百万分之几

备注: 报告编号中“C”表示此报告为中文版本。

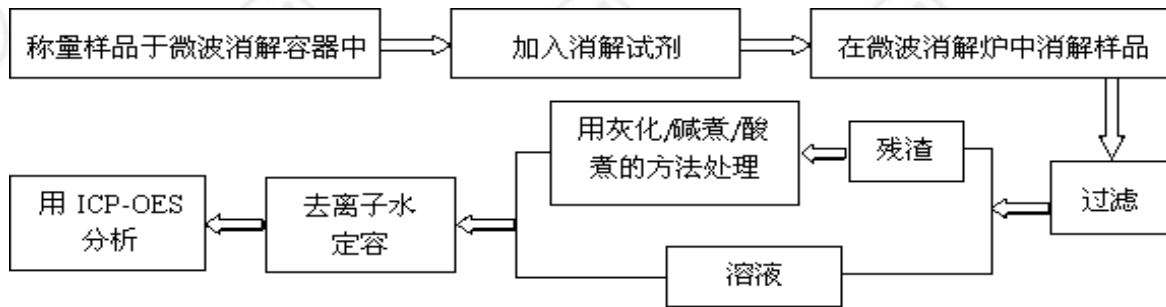
检测报告

报告编号 RLSHE001125120001C

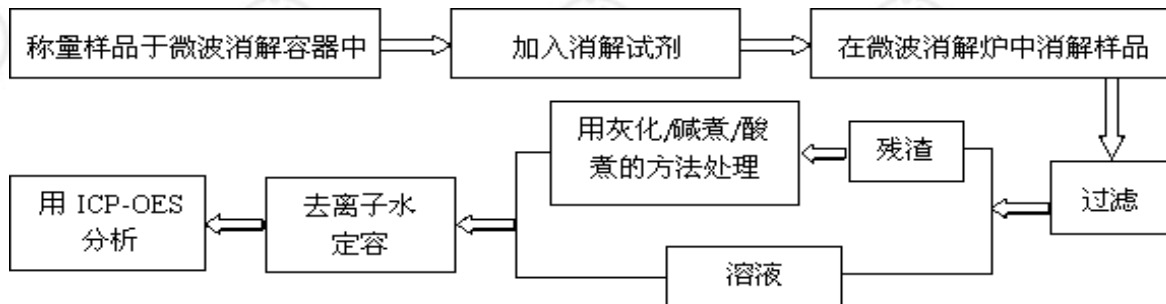
第 3 页 共 4 页

检测流程

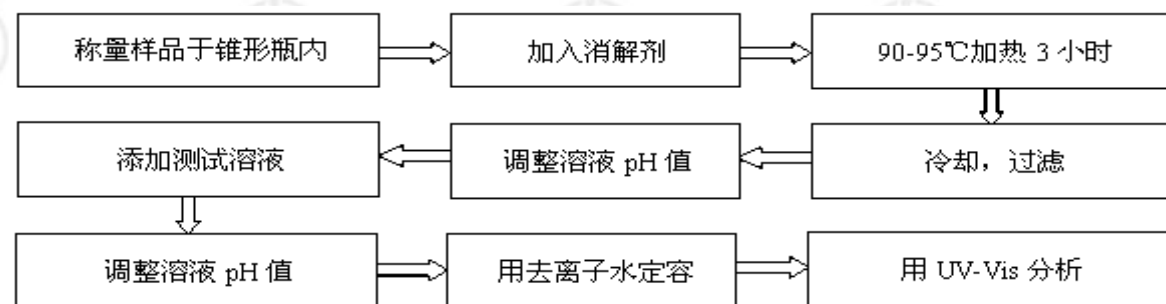
1. 铅(Pb), 镉(Cd)



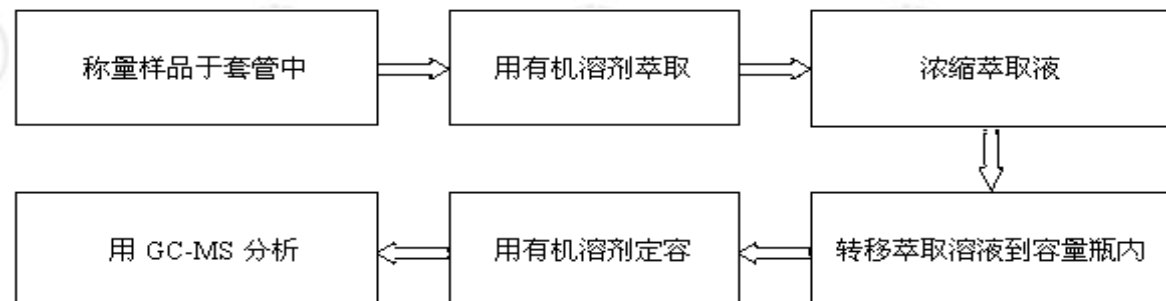
2. 汞(Hg)



3. 六价铬(Cr(VI))



4. 多溴联苯(PBBs), 多溴二苯醚(PBDEs)



检测报告

报告编号 RLSHE001125120001C

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样品图片



报告结束

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检测报告

报告编号 RLSHE001125120003C

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申请单位 苏州市华诺线缆科技有限公司

地 址 苏州市相城区太平镇太平大街

以下测试之样品及样品信息由申请者提供并确认

样品名称 电线电缆料

样品型号 镀银铜丝

样品接收日期 2012.08.17

样品检测日期 2012.08.17—2012.08.21

检测要求 根据客户要求,对所提交样品中的铅(Pb),镉(Cd),汞(Hg),六价铬(Cr(VI)),多溴联苯(PBBs),多溴二苯醚(PBDEs)进行测试。

检测依据

测试项目	测试方法	测试仪器	方法检测限
铅(Pb)	IEC 62321:2008 Ed.1 Sec.9	ICP-OES	2mg/kg
镉(Cd)	IEC 62321:2008 Ed.1 Sec.9	ICP-OES	2mg/kg
汞(Hg)	IEC 62321:2008 Ed.1 Sec.7	ICP-OES	2mg/kg
六价铬(Cr(VI))	IEC 62321:2008 Ed.1 Annex B	UV-Vis	/
多溴联苯(PBBs)	IEC 62321:2008 Ed.1 Annex A	GC-MS	5mg/kg
多溴二苯醚(PBDEs)	IEC 62321:2008 Ed.1 Annex A	GC-MS	5mg/kg

检测结果 请参见下页。

主 检

陈利娟

批 准

苏红伟

苏红伟

实验室高级经理

审 核

钟泽

日 期

2012.08.21

No.83402154

深圳市华测检测技术股份有限公司上海分公司

上海市浦东新区新金桥路 1996 号

检测报告

报告编号 RLSHE001125120003C

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检测结果

测试项目	含量
铅 (Pb)	N. D.
镉 (Cd)	N. D.
汞 (Hg)	N. D.
六价铬 (Cr (VI))	Negative

测试项目	含量
多溴联苯 (PBBs)	
一溴联苯	N. D.
二溴联苯	N. D.
三溴联苯	N. D.
四溴联苯	N. D.
五溴联苯	N. D.
六溴联苯	N. D.
七溴联苯	N. D.
八溴联苯	N. D.
九溴联苯	N. D.
十溴联苯	N. D.

测试项目	含量
多溴二苯醚 (PBDEs)	
一溴二苯醚	N. D.
二溴二苯醚	N. D.
三溴二苯醚	N. D.
四溴二苯醚	N. D.
五溴二苯醚	N. D.
六溴二苯醚	N. D.
七溴二苯醚	N. D.
八溴二苯醚	N. D.
九溴二苯醚	N. D.
十溴二苯醚	N. D.

测试样品/部位描述 有银白色镀层的金属丝

注释: 对于检测铅, 镉, 汞之样品已完全溶解。

-N.D. = 未检出 (小于方法检测限)

-mg/kg = ppm = 百万分之几

-Negative表示阴性

阴性=不含有六价铬, 由表面积为50cm²的样品所萃取出来的溶液中的六价铬的浓度小于0.02mg/kg

备注: 报告编号中“C”表示此报告为中文版本。

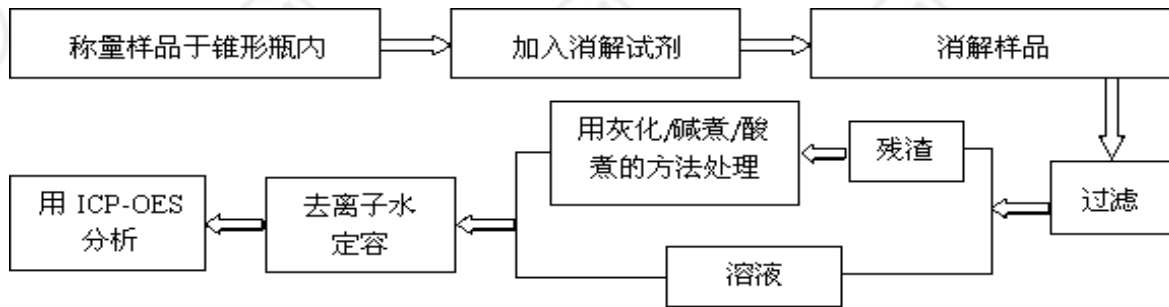
检测报告

报告编号 RLSHE001125120003C

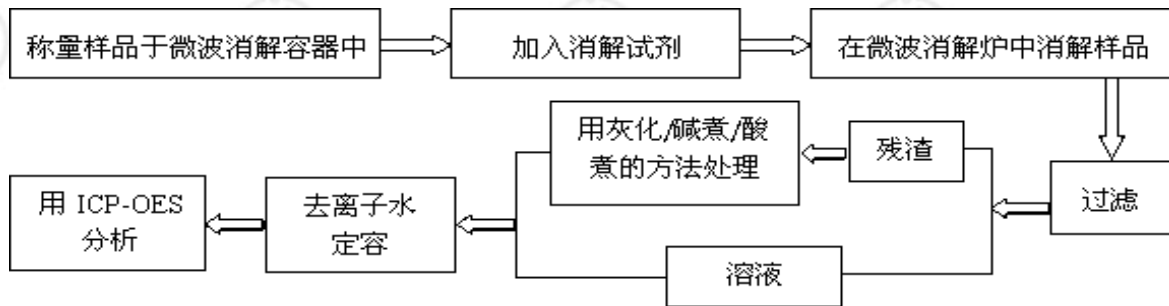
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检测流程

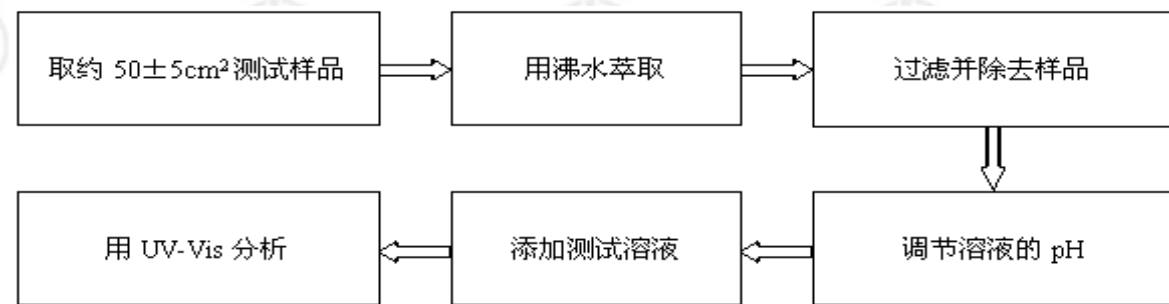
1. 铅(Pb), 镉(Cd)



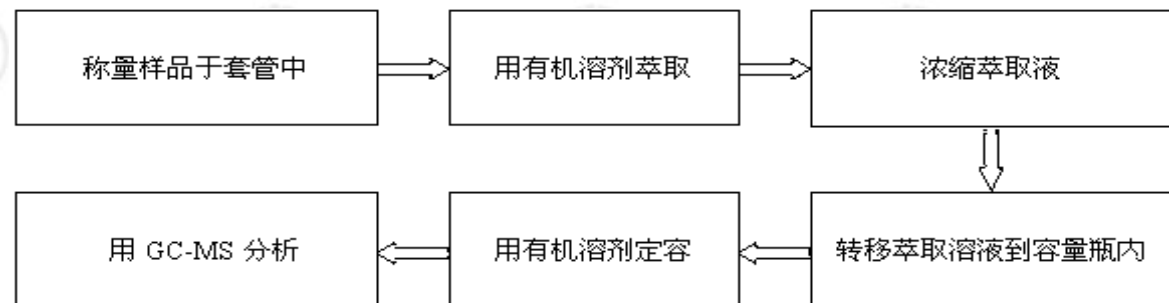
2. 汞(Hg)



3. 六价铬(Cr(VI))



4. 多溴联苯(PBBs), 多溴二苯醚(PBDEs)



检测报告

报告编号 RLSHE001125120003C

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样品图片



报告结束

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Test Report

No. CANEC1112556702

Date: 04 Jan 2012

Page 1 of 4

SHUN WEI HARDWARE LIMITED COMPANY HESHAN CITY
NO1 BLOCK A JIANTAO DISTRICT 2 TAO YUAN TOWN

The following sample(s) was/were submitted and identified on behalf of the clients as : BRASS(IN CHINESE AS 铜棒)

SGS Job No. : CP11-015962 - GZ
Date of Sample Received : 29 Dec 2011
Testing Period : 29 Dec 2011 - 04 Jan 2012
Test Requested : Selected test(s) as requested by client.
Test Method : Please refer to next page(s).
Test Results : Please refer to next page(s).
Conclusion : Based on the performed tests on submitted samples, the results of Lead, Mercury, Cadmium, Hexavalent chromium comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Ltd.



Almay Gao
Approved Signatory

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Test Report

No. CANEC1112556702

Date: 04 Jan 2012

Page 2 of 4

Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
1	CAN11-125567.002	Brassy metal rod

Remarks :

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive 2011/65/EU

Test Method : With reference to IEC 62321:2008

- (1) Determination of Cadmium by ICP-OES.
- (2) Determination of Lead by ICP-OES.
- (3) Determination of Mercury by ICP-OES.
- (4) Determination of Hexavalent Chromium by Spot test / Colorimetric Method using UV-Vis.

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Cadmium (Cd)	100	mg/kg	2	51
Lead (Pb)	1,000	mg/kg	2	28156<sup>1>
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	-	-	◇	Negative

Notes :

- (1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II
- (2) ◇ = a. Negative means the absence of CrVI on the tested areas;
b. Positive means the presence of CrVI on the tested areas.

For corrosion protection coatings on metals: Information on storage conditions and production date of the tested sample is unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

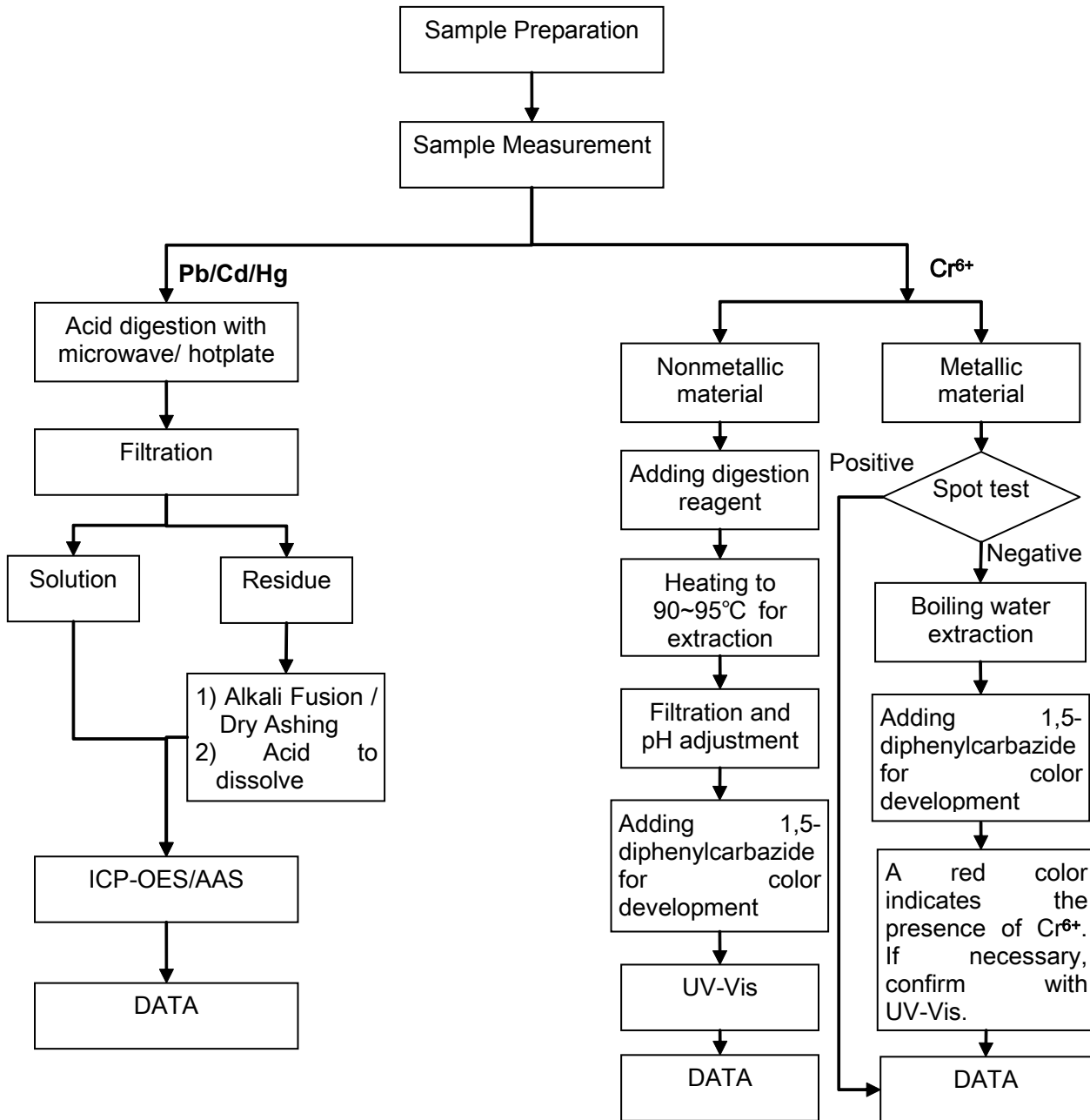
Remark<sup>1>: According to the declaration from the client, Lead (Pb) in specimen is exempted by EU RoHS Directive 2011/65/EU based on: Copper alloy containing up to 4 % lead by weight.

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ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Bella Wang / Ross Zhan
- 2) Name of the person in charge of testing: Adams Yu
- 3) These samples were dissolved totally by pre-conditioning method according to below flow chart (Cr6+ test method excluded).



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Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

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