

Product Number: NB0250-A
Product Name: Antenna



Specification For Approval

Date: 2012 / 03 / 21

File No.: 120321005

Version: 1.0

Customer : 多威通信系统（上海）有限公司

Customer P/N : /

INVAX P/N : NB0250-A

Description : Antenna

Cortec Checked By:

R@D Dept
2012.03.21
Jack

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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1. Specification

| Sample Photo | |
|--|---|
|  | |
| A. Electrical Characteristics | |
| Frequency | 2400 ~ 2500 MHz |
| S.W.R. | ≤ 2.0 |
| Efficiency (by dBi) | - 4.9 ~ - 3.6 dBi |
| Efficiency (by %) | 32 ~ 42 % |
| Peak Gain (dBi) | + 0.6 ~ + 1.5 dBi |
| Polarization | Linear |
| Impedance | 50 Ohm |
| Antenna Type | PIFA |
| B. Material & Mechanical Characteristics | |
| Material of Radiator | ZSNH |
| Cable Type | O.D. 1.13 mm |
| Connector Type | Mini Connector for O.D. 1.13 mm Coaxial Cable |
| Pull Test | ≥ 1.0 Kg |
| C. Environmental | |
| Operation Temperature | - 40 °C ~ + 65 °C |
| Storage Temperature | - 40 °C ~ + 80 °C |

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2. Characteristics and Reliability Test

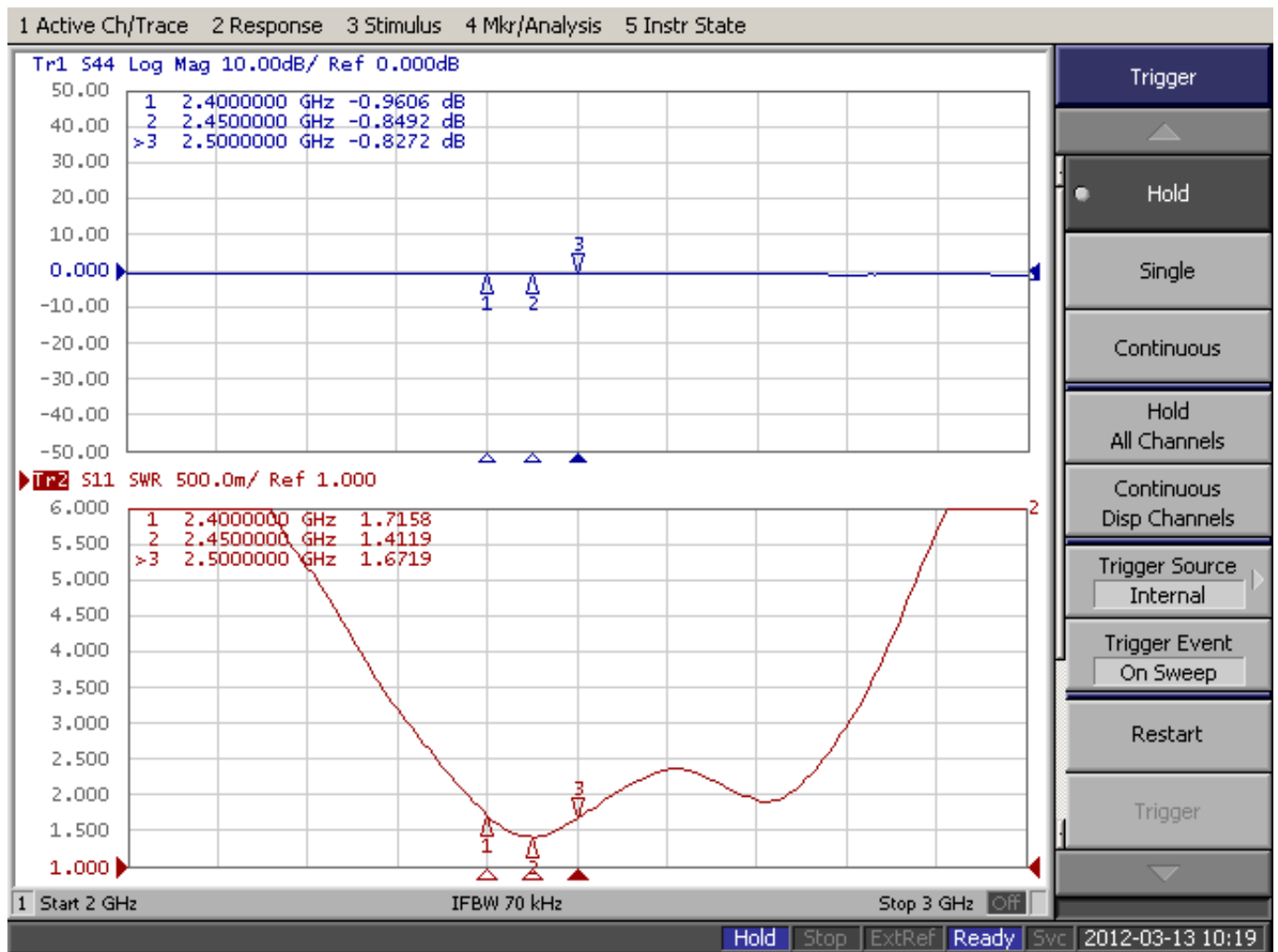
| Test Items | | Test Condition and Procedure | Requirements |
|------------|----------------------|---|---|
| C1 | S.W.R. | Set DUT on Network Analyzer; make individual calibration to test | Directive DUT specification |
| C2 | Antenna Gain | Set DUT on Antenna Chamber; make individual calibration to 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 |

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3. Antenna - S Parameter Test Data

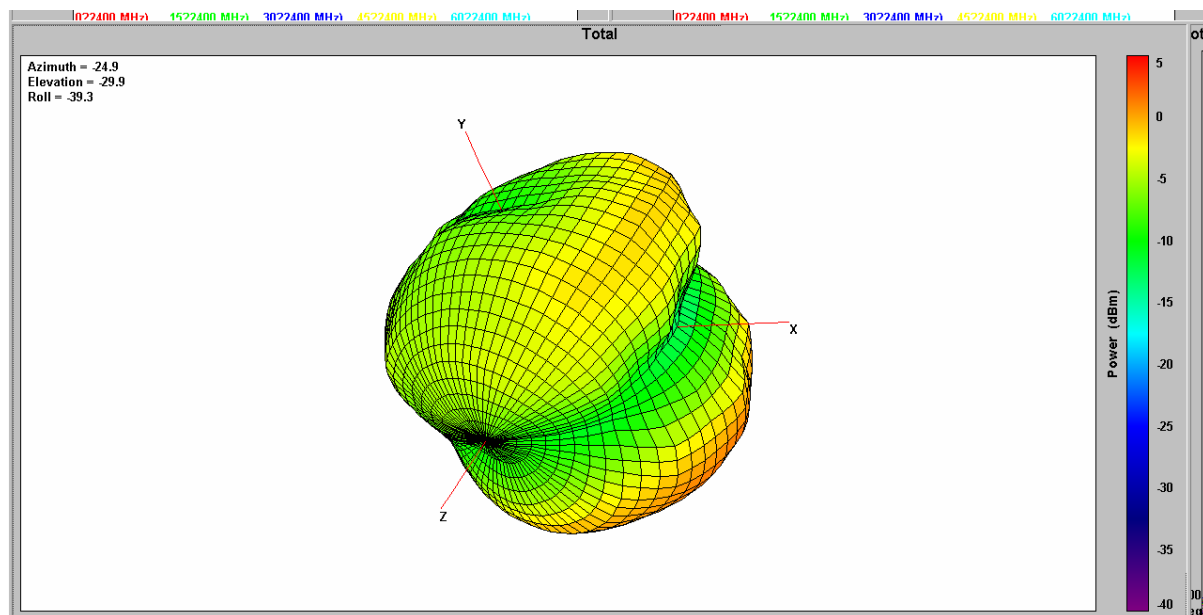


Product Number: NB0250-A

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4. Antenna - Radiation Pattern Test Data



| Point Values | Ant. Port Input Pwr. (dBm) | Tot. Rad. Pwr. (dBm) | Peak EIRP (dBm) | Directivity (dBi) | Efficiency (dB) | Efficiency (%) | Gain (dBi) |
|--------------------|----------------------------------|-------------------------|--------------------|----------------------|--------------------|-------------------|------------|
| Frequency (MHz) | | | | | | | |
| 2400 | 0 | -4.92468 | 0.65103 | 5.57571 | -4.92468 | 32.176 | 0.65103 |
| 2410 | 0 | -4.84417 | 0.725057 | 5.56922 | -4.84417 | 32.7781 | 0.725057 |
| 2420 | 0 | -4.72421 | 0.908867 | 5.63308 | -4.72421 | 33.6961 | 0.908867 |
| 2430 | 0 | -4.79518 | 0.879568 | 5.67475 | -4.79518 | 33.1499 | 0.879568 |
| 2440 | 0 | -4.71706 | 1.01374 | 5.73079 | -4.71706 | 33.7516 | 1.01374 |
| 2450 | 0 | -4.47182 | 1.24149 | 5.71331 | -4.47182 | 35.7123 | 1.24149 |
| 2460 | 0 | -4.2834 | 1.40321 | 5.68661 | -4.2834 | 37.2958 | 1.40321 |
| 2470 | 0 | -4.03564 | 1.58825 | 5.62389 | -4.03564 | 39.4854 | 1.58825 |
| 2480 | 0 | -3.93824 | 1.53074 | 5.46898 | -3.93824 | 40.3809 | 1.53074 |
| 2490 | 0 | -3.72139 | 1.58049 | 5.30188 | -3.72139 | 42.4483 | 1.58049 |
| 2500 | 0 | -3.69903 | 1.41782 | 5.11685 | -3.69903 | 42.6675 | 1.41782 |

5. Mechanical Drawing

See attached files

6. Material Description and RoHS Test Report

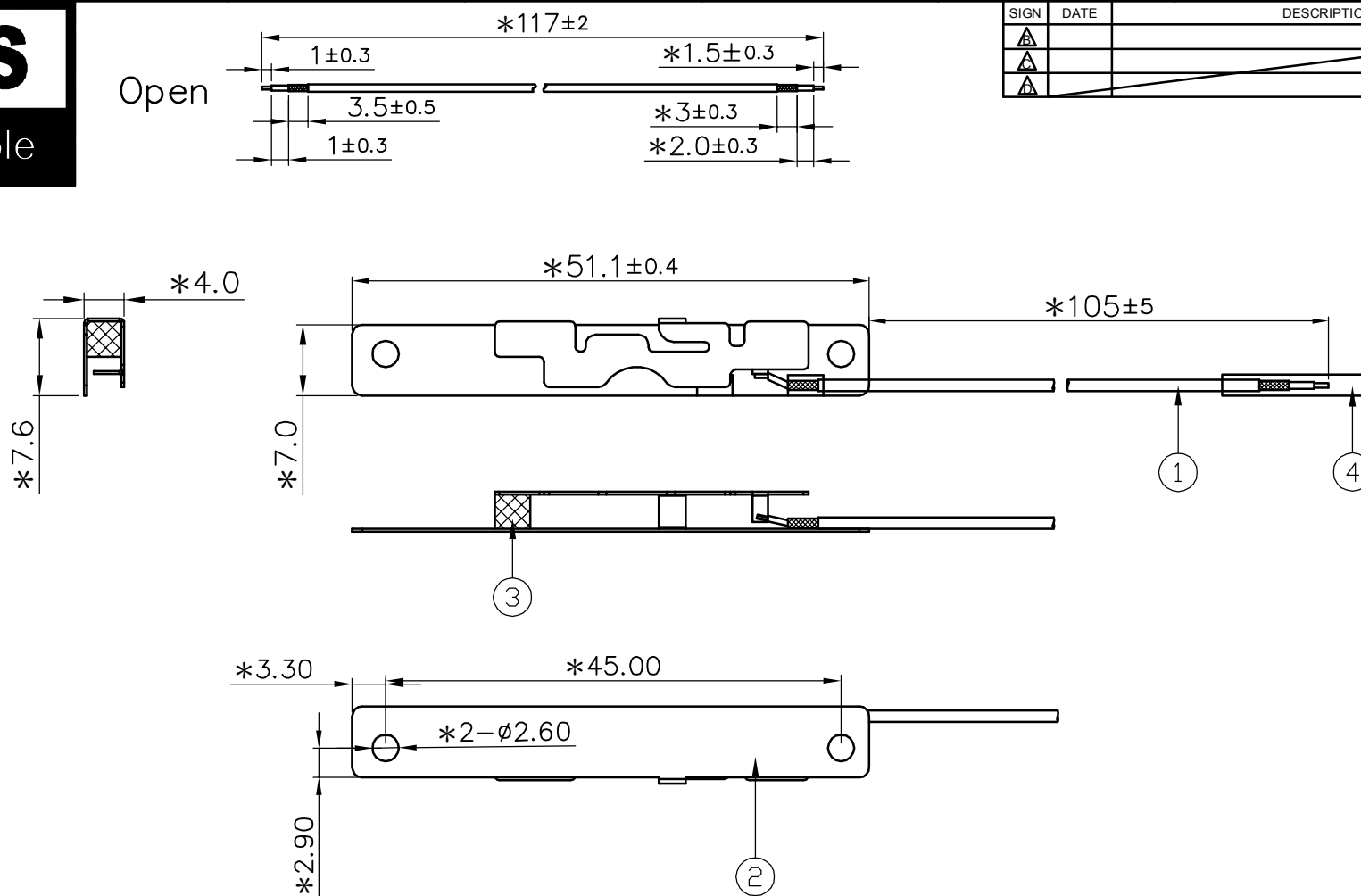
See attached files

RoHS

Compatible



Open



Note:

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

| | | | | | |
|-----|-------------------|---------------|----------|-------------------------------------|------|
| 4 | R-HSTUBE-PVC011TA | Sheath | EVA | $\phi 1.1 \times 15\text{mm}$ | 1 |
| 3 | GS-IVX0005-E | EVA | EVA | Black | 1 |
| 2 | NB0250-A01 | Sheet Metal | ZSNH140 | $51.1 \times 7 \times 0.3\text{mm}$ | 1 |
| 1 | R-CB-113A | Coaxial Cable | OD1.13 | Gray | 1 |
| No. | Part Number | Name | Material | Finish | Q'ty |

Invox System Group.

Cortec

Cortec Technology Inc.

Http://www.invoxsystem.com
E-mail: info@invox.com.tw

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

TITLE: Embedded Antenna

PART NO.: NB0250-A

CUSTOMER P/N: /


| | | | | | |
|------------|------------|------------|------------|-------------|-----------|
| APP BY | CHK BY | RF BY | DES BY | | Tolerance |
| Grant | Jack | SiFei | Seagold | UNITS: mm | X.X ±0.2 |
| 2012/03/14 | 2012/03/14 | 2012/03/14 | 2012/03/14 | SCALE: 3/2 | X.XX ±0.1 |
| | | | | REVISION: A | X° ±1 |

Date: 2012/03/21

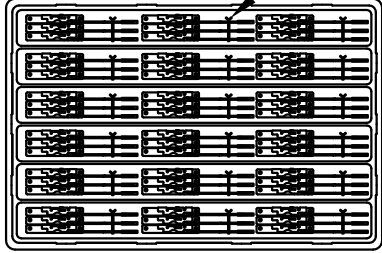
Page: 1 of 1

| | |
|------------------------|---------------|
| Part Number : NB0250-A | Revision : A |
| Name: Embedded Antenna | Customer : 多威 |

1. 180 PCS/per Tray

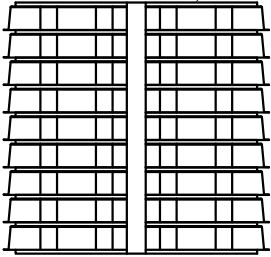
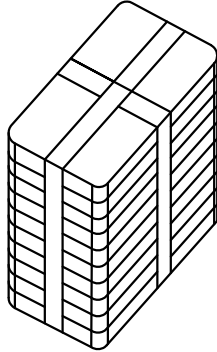


Bundle L=60mm
R-CB-PL-F60B



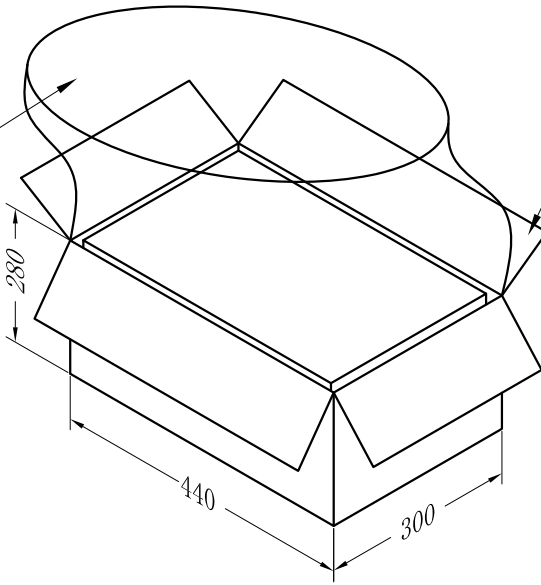
2. 1800 PCS/per Bundle

Cloppboard:40*28CM
R-FL-4028

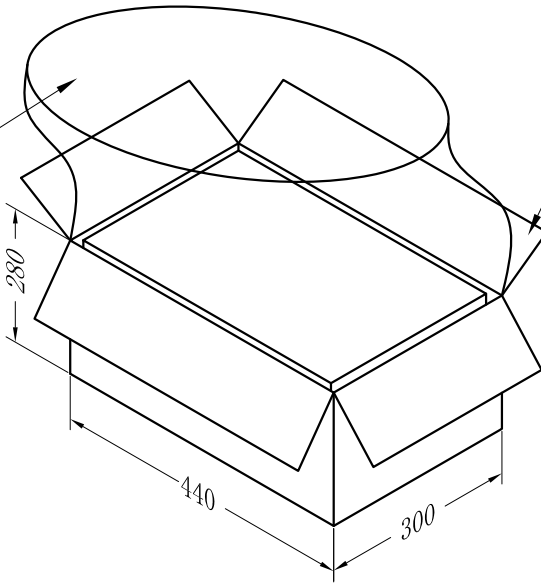



3. 1800 PCS/per Carton


PE Waterproof Bag:
R-PE-BAG-610900




Carton 44*30*28CM
P/N: R-0TT-C-443028K




Green Label
R-LABEL-EL-032



Side Mark



Case Mark


APPROVED BY : GrantCHECKED BY : JackDESIGNED BY : Seagold

SGS 台灣網站 → http://twap.sgs.com/sgsrsts/chn/cheres_tw.asp
SGS 大陸網站 → http://rsts.cn.sgs.com/chn/cheres_cn.asp
SGS 韓國網站 → http://rohs.kr.sgs.com/sgsrsts/en/cheres_en.asp

COR/F-G-47a

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： | 時麗 |
| 部門： | 研發部 |
| 職務： | 文員 |

物料名稱：NB0250-A

| 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 | NB0250-A01 | sheet Metal | ZSNH | N.D. | N.D. | N.D. | Negative | N.D. | N.D. | CE/2011/B1565 | 2011.11.15 | 鋅錫鎳合金 | SGS |
| 2 | GS-IVX0005-E | EVA | EVA | N.D. | 19 | N.D. | N.D. | N.D. | N.D. | CANEC1201490109 | 2012.02.27 | Environmental | SGS |
| 3 | R-HSTUBE-PVC011TA | Sheath | EVA | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | CANEC1103678901 | 2011.09.29 | HEAT SHRINKABLE | SGS |
| 4 | R-CB-113A | Cable | FEP | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | RLSHD000593720006 | 2011.04.25 | cable | CTI |
| 5 | | | FEP | N.D. | N.D. | N.D. | N.D. | N.D. | N.D. | RLSHD000593720006 | 2011.04.25 | cable | CTI |
| 6 | | | 鍍錫銅線 | N.D. | N.D. | N.D. | Negative | | | RLSHD000593720006 | 2011.04.25 | cable | CTI |
| 7 | | | 鍍銀銅線 | N.D. | N.D. | N.D. | Negative | | | RLSHD000593720006 | 2011.04.25 | cable | CTI |

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%

| 型号 Type | RF-1.13/50 | 料号 P/N | SY113/50-020(Gray) | |
|---|--|--|-------------------------------|------------------------------------|
| 结构图 Structure drawing | |  | | |
| 结构特性 Structure characteristics | | | | |
| 结构 Structure | 项目 Item | | 标准值 Standard value | |
| ①内导体 Inner conductor | 材料 Material | | 镀银铜线 Silverplated copper wire | |
| | 组成:总根数/单根外径(mm) Makeup:total / O.D. of every wire(mm) | | 7/0.083 | |
| | (绞合)标称外径(mm) (Intertwist)NOM.O.D.(mm) | | 0.249±0.02 | |
| ②绝缘层 Insulation | 材料 Material | | 聚全氟乙丙烯 FEP | |
| | 颜色 Color | | 透明 Clarity | |
| | 标称外径(mm) NOM.O.D.(mm) | | 0.7±0.03 | |
| ③外导体 Outer conductor | 材料 Material | | 镀锡铜线 Tinned copper wire | |
| | 组成:总根数/单根外径(mm) Makeup:total / O.D. of every wire(mm) | | 4/0.05 | |
| | 标称外径(mm) NOM.O.D.(mm) | | 0.92±0.05 | |
| | 覆盖率(%) Coverage ratio(%) | | 90±5 | |
| ④护套层 Jacket | 材料 Material | | 聚全氟乙丙烯 FEP | |
| | 颜色 Color | | 灰 Gray | |
| | 标称外径(mm) NOM.O.D.(mm) | | 1.13±0.05 | |
| 电性能特性 Electrical characteristics | | | | |
| 项目 Item | 标准值 Standard value | 项目 Item | 频率 Frequency | 标准值 Standard value 单位 Unit:dB/m |
| 电容(pF/m) Capacitance(pF/m) | 98 | 衰减 Attenuation | 1GHz | ≤2.2 |
| 速率(%) Velocity(%) | 70 | | 2GHz | ≤3.1 |
| 阻抗(Ω) Impedance(Ω) | 50±2 | | 3GHz | ≤3.8 |
| 驻波比 Standing wave ratio | ≤1.3@0~6GHz | | 4GHz | ≤4.4 |
| 最大工作电压(V) Max.operating voltage(V) | 1000 | | 5GHz | ≤4.9 |
| 最大工作频率(GHz) Max.operating frequency(GHz) | 6 | | 6GHz | ≤5.4 |
| 可靠性 Dependability | | | | |
| 项目 Item | | 单位 Unit | 标准值 Standard value | |
| 最小弯曲半径(一次) Min.bending radius static | | mm | 4 | |
| 最小弯曲半径(重复) Min.bending radius repeated | | mm | — | |
| 工作温度范围 Operating temperature | | ℃ | -55~+200 | |



測試報告 Test Report

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日期(Date) : 2011/11/15 頁數(Page) : 1 of 9

鈺貿科技股份有限公司

TAIMAO TECHNOLOGY CO., LTD.

新北市五股工業區五權五路18號

NO. 18, WUCHUN 5TH RD., WUKU IND. ZONE, NEW TAIPEI CITY, 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) : 鋅錫鎳合金
樣品型號(Style/Item No.) : ZSNH
收件日期(Sample Receiving Date) : 2011/11/08
測試期間(Testing Period) : 2011/11/08 TO 2011/11/15

測試結果(Test Results) : 請見下一頁 (Please refer to next pages).


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



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測試報告 Test Report

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新北市五股工業區五權五路18號

NO. 18, WUCHUN 5TH RD., WUKU IND. ZONE, NEW TAIPEI CITY, TAIWAN



測試結果(Test Results)

測試部位(PART NAME) No.1 : 銀色金屬 (SILVER COLORED METAL)

| 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, 以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, 以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, 以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) | ** | 參考IEC 62321: 2008方法, 以沸水萃取法檢測. / With reference to IEC 62321: 2008 and performed by Boiling water extraction Method.# | # | Negative |
| 全氟辛烷磺酸 / Perfluorooctane sulfonates (PFOS-Acid, Metal Salt, Amide) | mg/kg | 參考US EPA 3540C: 1996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 3540C: 1996 method for PFOS Content. Analysis was performed by LC/MS. | 10 | n.d. |
| 全氟辛酸(銨) / 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(銨)含量. / With reference to US EPA 3540C: 1996 method for PFOA Content. Analysis was performed by LC/MS. | 10 | n.d. |

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測試報告 Test Report

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日期(Date) : 2011/11/15 頁數(Page) : 3 of 9

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TAIMAO TECHNOLOGY CO., LTD.

新北市五股工業區五權五路18號

NO. 18, WUCHUN 5TH RD., WUKU IND. ZONE, NEW TAIPEI CITY, 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. |
| 多溴聯苯醚總和 / Sum of PBDEs | | | - | 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. |
| 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 | | 50 | n.d. |
| 鹵素(溴) / Halogen-Bromine (Br) (CAS No.: 10097-32-2) | mg/kg | | | n.d. |
| 鹵素(碘) / Halogen-Iodine (I) (CAS No.: 14362-44-8) | mg/kg | | | n.d. |

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測試報告 Test Report

號碼(No.) : CE/2011/B1565

日期(Date) : 2011/11/15 頁數(Page) : 4 of 9

欽貿科技股份有限公司

TAIMAO TECHNOLOGY CO., LTD.

新北市五股工業區五權五路18號

NO. 18, WUCHUN 5TH RD., WUKU IND. ZONE, NEW TAIPEI CITY, TAIWAN



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. ** = Qualitative analysis (No Unit) 定性分析(無單位)
6. # =
 - 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)

PFOS參考資訊(Reference Information) : 指令 2006/122/EC (Directive 2006/122/EC)

- (1) 該物質不可置於市場上或使用於特殊物質或配置成分重量濃度等於或大於0.005%。
(May not be placed on the market or used as a substance or constituent of preparations in a concentration equal to or higher than 0.005 % by mass.)
- (2) 該物質不可置於市場上的半成品或商品或其物件；假若零件上明顯地具有PFOS並參照結構上及微細構造上計算PFOS重量濃度等於或大於0.1%，而紡織品或其他覆蓋物質，如果PFOS在覆蓋物質中含量等於或大於1 μ g/m²。
(May not be placed on the market in semi-finished products or articles, or parts thereof, if the concentration of PFOS is equal to or higher than 0.1 % by mass calculated with reference to the mass of structurally or microstructurally distinct parts that contain PFOS or, for textiles or other coated materials, if the amount of PFOS is equal to or higher than 1 μ g/m² of the coated material.)



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測試報告 Test Report

號碼(No.) : CE/2011/B1565

日期(Date) : 2011/11/15

頁數(Page) : 5 of 9

鈦貿科技股份有限公司

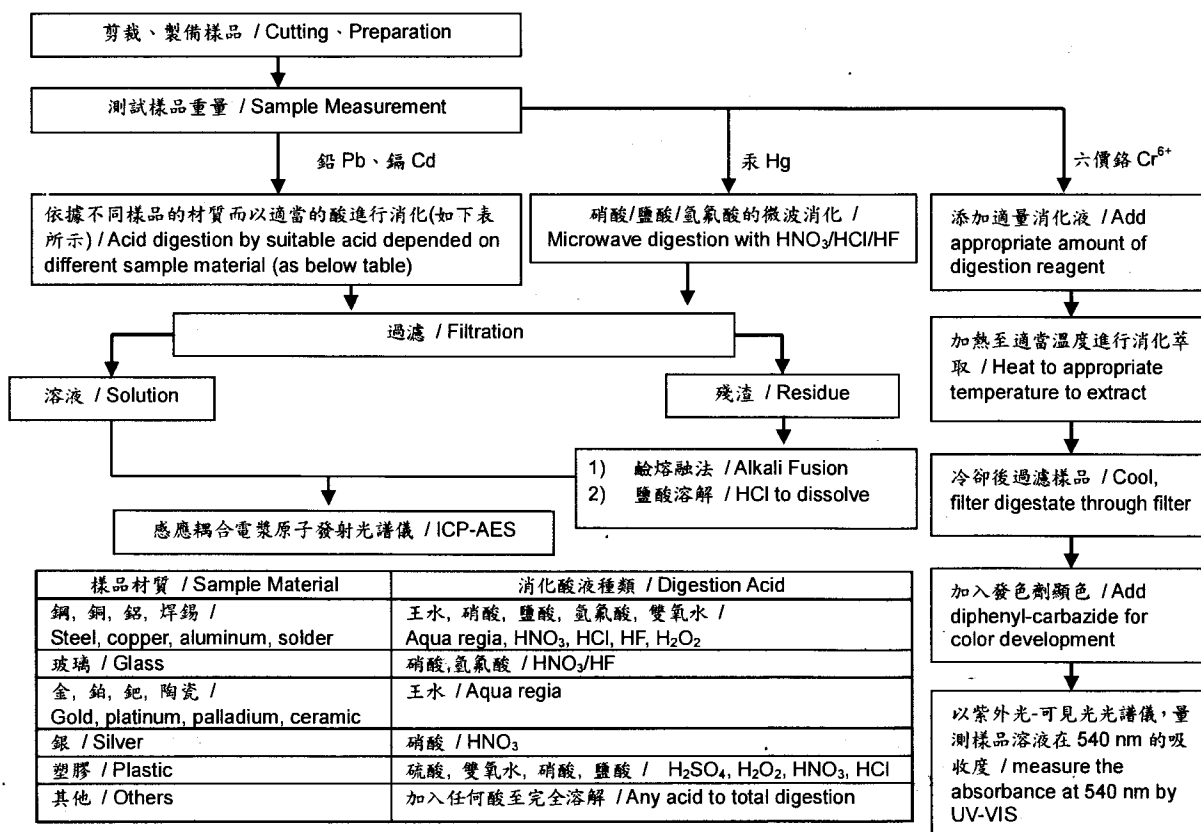
TAIMAO TECHNOLOGY CO., LTD.

新北市五股工業區五權五路18號

NO. 18, WUCHUN 5TH RD., WUKU IND. ZONE, NEW TAIPEI CITY, TAIWAN



- 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：楊登偉 / Name of the person who made measurement: Climbgreat Yang
- 3) 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang



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鈺貿科技股份有限公司

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

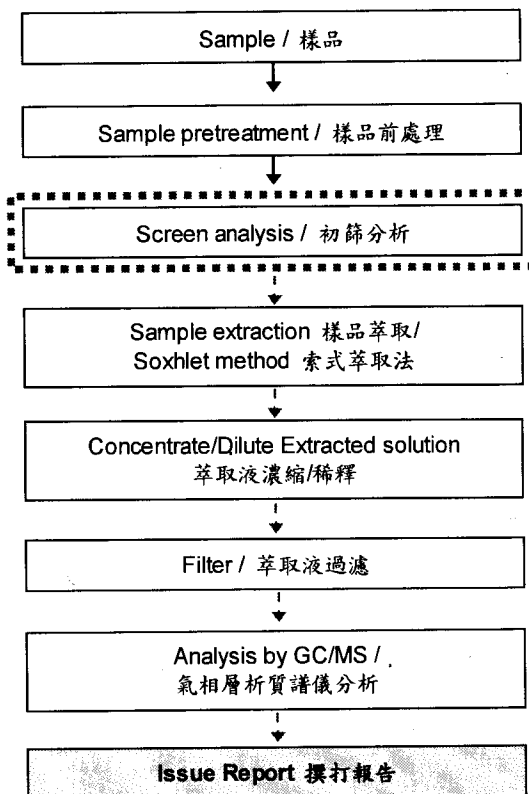
1) 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong

2) 測試負責人：張啓興 / Name of the person in charge of measurement: Troy 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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測試報告 Test Report

號碼(No.) : CE/2011/BI565

日期(Date) : 2011/11/15 頁數(Page) : 7 of 9

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TAIMAO TECHNOLOGY CO., LTD.

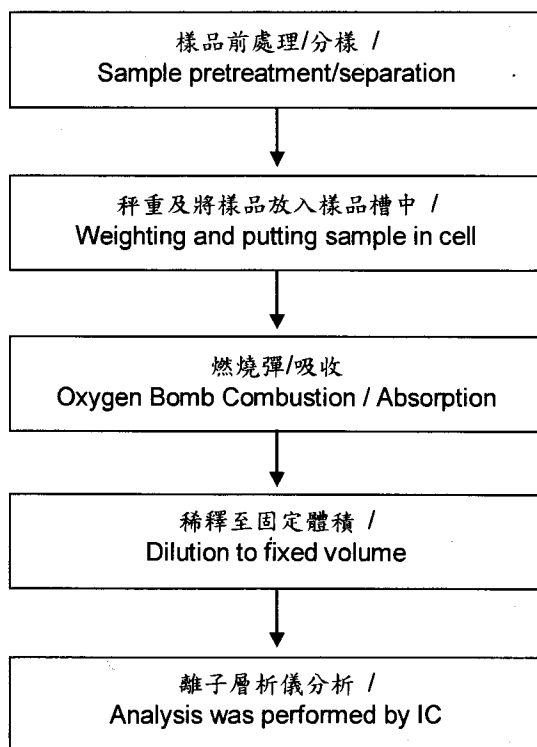
新北市五股工業區五權五路18號

NO. 18, WUCHUN 5TH RD., WUKU IND. ZONE, NEW TAIPEI CITY, TAIWAN



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

- 測試人員：陳恩臻 / Name of the person who made measurement: Rita Chen
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang



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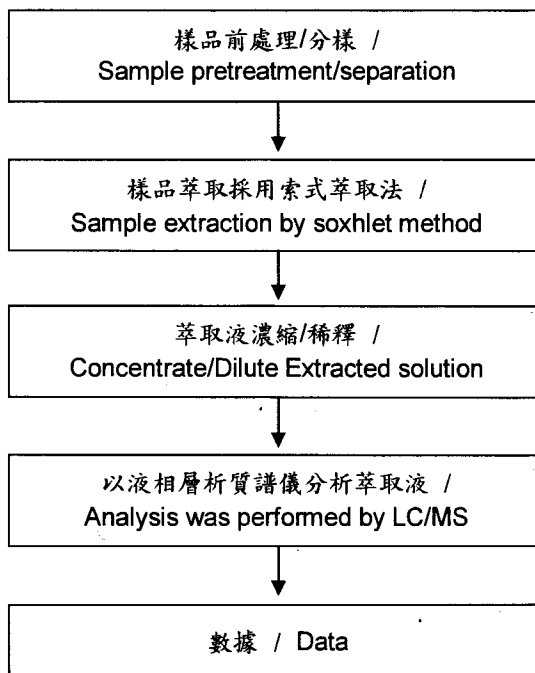
索式萃取分析流程圖 /

Analytical flow chart of Soxhlet extraction (LC/MS) procedure

- 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人：張啓興 / Name of the person in charge of measurement: Troy Chang

【測試項目：全氟辛酸磺酸/全氟辛酸(銨)、苯並三唑類化合物 /

Test Items: PFOS/PFOA、Benzotriazole】



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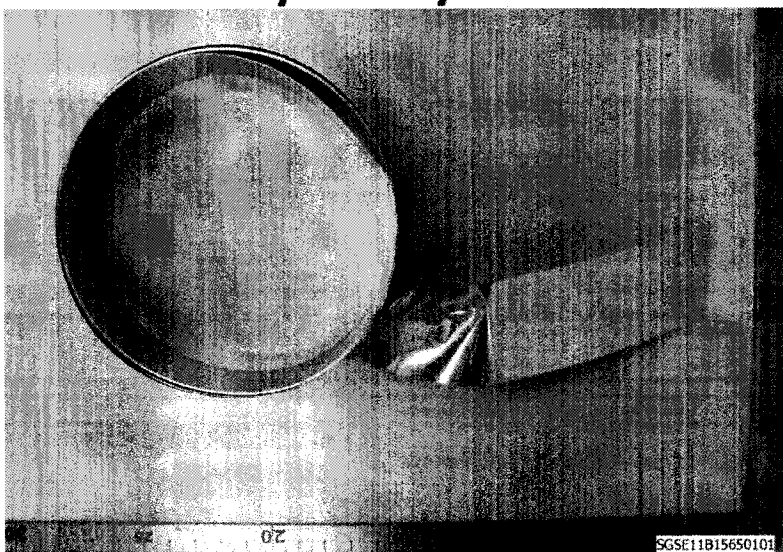
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* 照片中如有箭頭標示，則表示為實際檢測之樣品/部位。*

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

CE/2011/B1565



** 報告結尾(End of Report) **



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Test Report

No. CANEC1201490109

Date: 27 Feb 2012

Page 1 of 5

HUI ZHOU CITY FAN-ZHONG-BAO RUBBER&PLASTIC FOAM FACTORY CO.,LTD.
XINTANG INDUSTRIAL ZONE,QIU-BAO ROAD,QIU-CHANG TOWN,HUIYANG
DISTRICT,HUIZHOU,GUANGDONG PROVINCE
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : Environmental Protection Material of Ethylene Styrofoam

SGS Job No. : CP12-005438 - SZ

Date of Sample Received : 22 Feb 2012

Testing Period : 22 Feb 2012 - 27 Feb 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, Polybrominated biphenyls (PBB), Polybrominated diphenyl ethers (PBDE) 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.



Annie Liang

Approved Signatory

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Test Report

No. CANEC1201490109

Date: 27 Feb 2012

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Test Results :

Test Part Description :

| Specimen No. | SGS Sample ID | Description |
|--------------|------------------|-------------|
| 1 | CAN12-014901.005 | Black foam |

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 Colorimetric Method using UV-Vis.
- (5) Determination of PBBs / PBDEs content by GC-MS.

| Test Item(s) | Limit | Unit | MDL | 005 |
|----------------------------|-------|-------|-----|-----|
| Cadmium (Cd) | 100 | mg/kg | 2 | ND |
| Lead (Pb) | 1,000 | mg/kg | 2 | 19 |
| Mercury (Hg) | 1,000 | mg/kg | 2 | ND |
| Hexavalent Chromium (CrVI) | 1,000 | mg/kg | 2 | ND |
| Sum of PBBs | 1,000 | mg/kg | - | ND |
| Monobromobiphenyl | - | mg/kg | 5 | ND |
| Dibromobiphenyl | - | mg/kg | 5 | ND |
| Tribromobiphenyl | - | mg/kg | 5 | ND |
| Tetrabromobiphenyl | - | mg/kg | 5 | ND |
| Pentabromobiphenyl | - | mg/kg | 5 | ND |
| Hexabromobiphenyl | - | mg/kg | 5 | ND |
| Heptabromobiphenyl | - | mg/kg | 5 | ND |
| Octabromobiphenyl | - | mg/kg | 5 | ND |
| Nonabromobiphenyl | - | mg/kg | 5 | ND |
| Decabromobiphenyl | - | mg/kg | 5 | ND |
| Sum of PBDEs | 1,000 | mg/kg | - | ND |
| Monobromodiphenyl ether | - | mg/kg | 5 | ND |

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Test Report

No. CANEC1201490109

Date: 27 Feb 2012

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| <u>Test Item(s)</u> | <u>Limit</u> | <u>Unit</u> | <u>MDL</u> | <u>005</u> |
|--------------------------|--------------|-------------|------------|------------|
| Dibromodiphenyl ether | - | mg/kg | 5 | ND |
| Tribromodiphenyl ether | - | mg/kg | 5 | ND |
| Tetrabromodiphenyl ether | - | mg/kg | 5 | ND |
| Pentabromodiphenyl ether | - | mg/kg | 5 | ND |
| Hexabromodiphenyl ether | - | mg/kg | 5 | ND |
| Heptabromodiphenyl ether | - | mg/kg | 5 | ND |
| Octabromodiphenyl ether | - | mg/kg | 5 | ND |
| Nonabromodiphenyl ether | - | mg/kg | 5 | ND |
| Decabromodiphenyl ether | - | mg/kg | 5 | ND |

Notes :

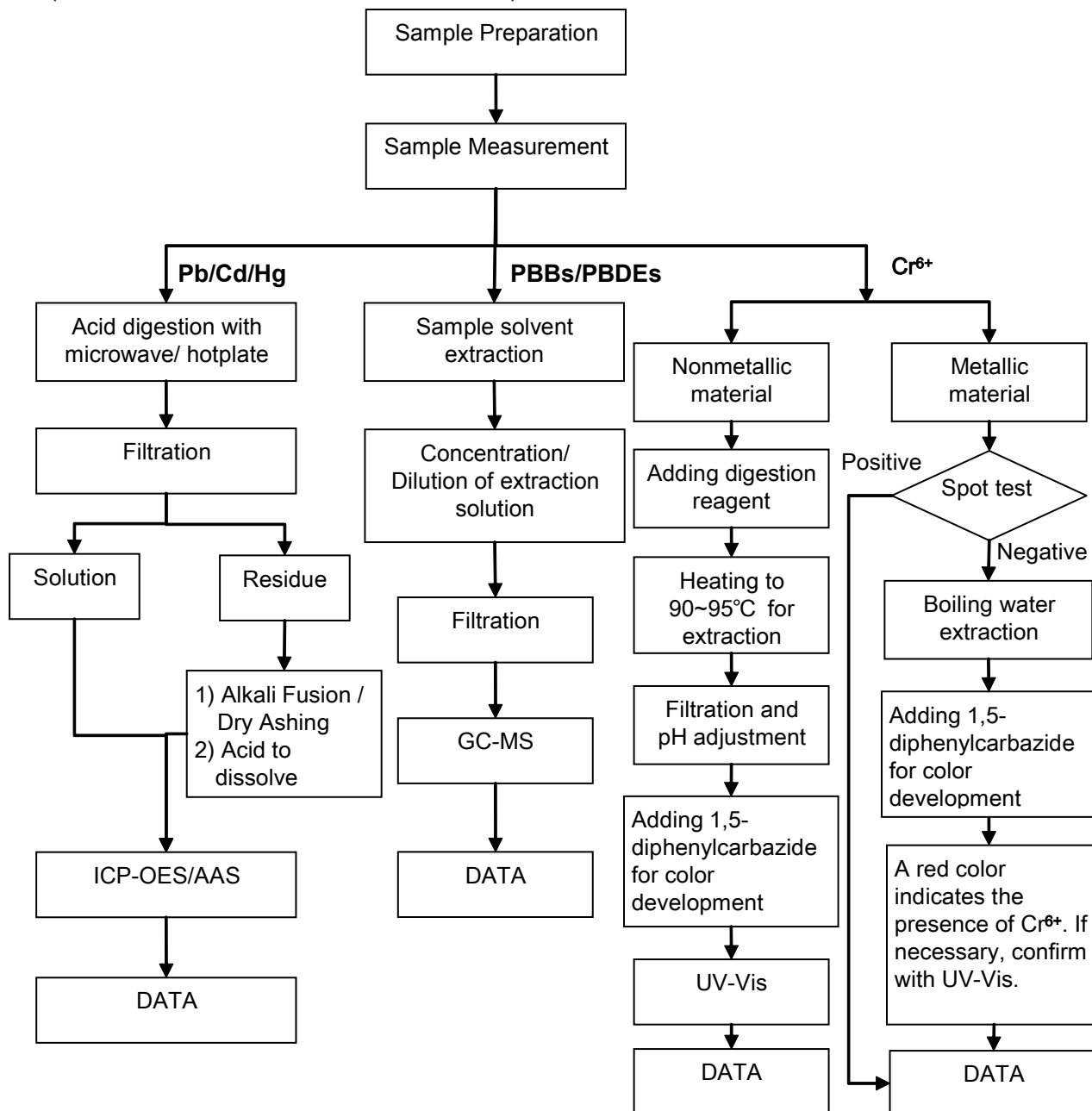
- (1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II

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ATTACHMENTS

RoHS Testing Flow Chart

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



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Test Report

No. CANEC1201490109

Date: 27 Feb 2012

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Sample photo:



SGS authenticate the photo on original report only

*** End of Report ***

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Test Report

No. CANEC1200932901

Date: 16 Feb 2012

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DONGGUAN SALIPT CO.,LTD.

SALIPT SCIENCE PARK,JINGXIANG INDUSTRY DIST.,LIAOBU,DONGGUAN CITY,GUANGDONG
PROVINCE
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as : HEAT SHRINKABLE
TUBING(Clear)

SGS Job No. : CP12-003272 - SZ

Client Ref. Info. : S-901-600/S-901-300

Manufacturer : SALIPT

Tested sample info. : S-901-600

Date of Sample Received : 09 Feb 2012

Testing Period : 09 Feb 2012 - 16 Feb 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 : A:Based on the performed tests on submitted samples, the results of Lead,
Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBB),
Polybrominated diphenyl ethers (PBDE) 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.



Silva Zhou

Approved Signatory

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Test Report

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Test Results :

Test Part Description :

| Specimen No. | SGS Sample ID | Description |
|--------------|------------------|--------------------------|
| 1 | CAN12-009329.001 | Transparent plastic tube |

Remarks :

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

A: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 Colorimetric Method using UV-Vis.
- (5) Determination of PBBs / PBDEs content by GC-MS.

| Test Item(s) | Limit | Unit | MDL | 001 |
|----------------------------|-------|-------|-----|-----|
| Cadmium (Cd) | 100 | mg/kg | 2 | ND |
| Lead (Pb) | 1,000 | mg/kg | 2 | ND |
| Mercury (Hg) | 1,000 | mg/kg | 2 | ND |
| Hexavalent Chromium (CrVI) | 1,000 | mg/kg | 2 | ND |
| Sum of PBBs | 1,000 | mg/kg | - | ND |
| Monobromobiphenyl | - | mg/kg | 5 | ND |
| Dibromobiphenyl | - | mg/kg | 5 | ND |
| Tribromobiphenyl | - | mg/kg | 5 | ND |
| Tetrabromobiphenyl | - | mg/kg | 5 | ND |
| Pentabromobiphenyl | - | mg/kg | 5 | ND |
| Hexabromobiphenyl | - | mg/kg | 5 | ND |
| Heptabromobiphenyl | - | mg/kg | 5 | ND |
| Octabromobiphenyl | - | mg/kg | 5 | ND |
| Nonabromobiphenyl | - | mg/kg | 5 | ND |
| Decabromobiphenyl | - | mg/kg | 5 | ND |
| Sum of PBDEs | 1,000 | mg/kg | - | ND |
| Monobromodiphenyl ether | - | mg/kg | 5 | ND |

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| <u>Test Item(s)</u> | <u>Limit</u> | <u>Unit</u> | <u>MDL</u> | <u>001</u> |
|--------------------------|--------------|-------------|------------|------------|
| Dibromodiphenyl ether | - | mg/kg | 5 | ND |
| Tribromodiphenyl ether | - | mg/kg | 5 | ND |
| Tetrabromodiphenyl ether | - | mg/kg | 5 | ND |
| Pentabromodiphenyl ether | - | mg/kg | 5 | ND |
| Hexabromodiphenyl ether | - | mg/kg | 5 | ND |
| Heptabromodiphenyl ether | - | mg/kg | 5 | ND |
| Octabromodiphenyl ether | - | mg/kg | 5 | ND |
| Nonabromodiphenyl ether | - | mg/kg | 5 | ND |
| Decabromodiphenyl ether | - | mg/kg | 5 | ND |

Notes :

- (1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II

B:Hexabromocyclododecane (HBCDD)

Test Method : Determination of HBCDD by GC-MS based on IEC 62321:2008.

| <u>Test Item(s)</u> | <u>Unit</u> | <u>MDL</u> | <u>001</u> |
|--------------------------------|-------------|------------|------------|
| Hexabromocyclododecane (HBCDD) | mg/kg | 10 | ND |

Notes :

- (1) Reference Information: Directive 2011/65/EU recasting RoHS directive 2002/95/EC:
Hexabromocyclododecane (HBCDD) is considered as a priority for risk evaluation and substance restriction.

C:Phthalates

Test Method : Determination of phthalates by GC-MS based on EN 14372:2004.

| <u>Test Item(s)</u> | <u>Unit</u> | <u>MDL</u> | <u>001</u> |
|-------------------------------------|-------------|------------|------------|
| Dibutyl Phthalate (DBP) | % (w/w) | 0.003 | ND |
| Benzylbutyl Phthalate (BBP) | % (w/w) | 0.003 | ND |
| Bis-(2-ethylhexyl) Phthalate (DEHP) | % (w/w) | 0.003 | ND |

Notes :

- (1) Reference Information: Directive 2011/65/EU recasting RoHS directive 2002/95/EC:
Bis (2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP) and Dibutyl phthalate (DBP) are considered as a priority for risk evaluation and substance restriction.

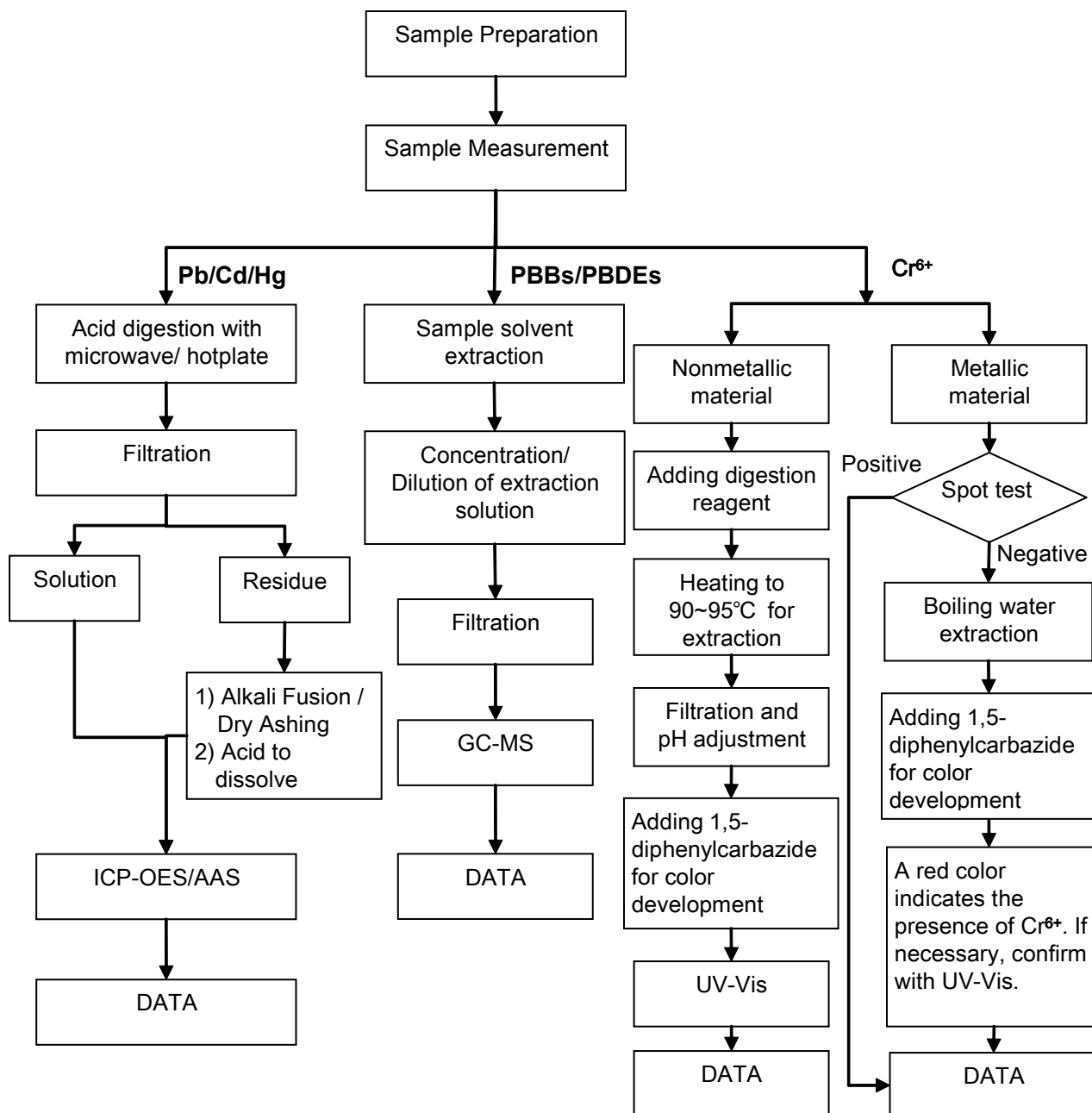
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ATTACHMENTS

RoHS Testing Flow Chart

- 1) Name of the person who made testing: Bella Wang / Cutey Yu / Ross Zhan
- 2) Name of the person in charge of testing: Adams Yu / Ryan Yang

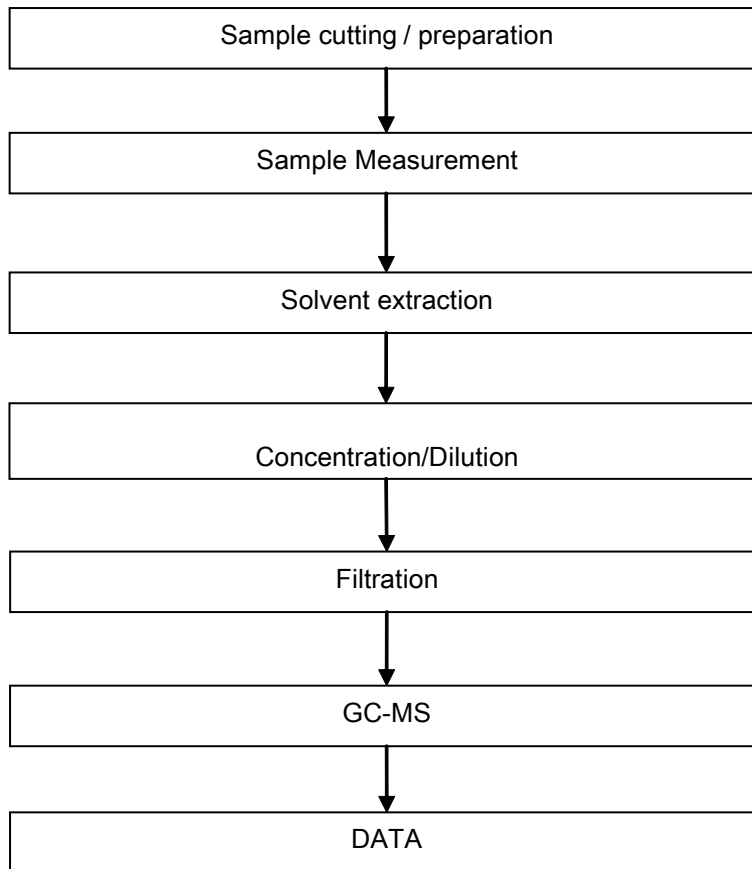


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ATTACHMENTS

HBCDD Testing Flow Chart

- 1) Name of the person who made testing: Cutey Yu
- 2) Name of the person in charge of testing: Ryan Yang

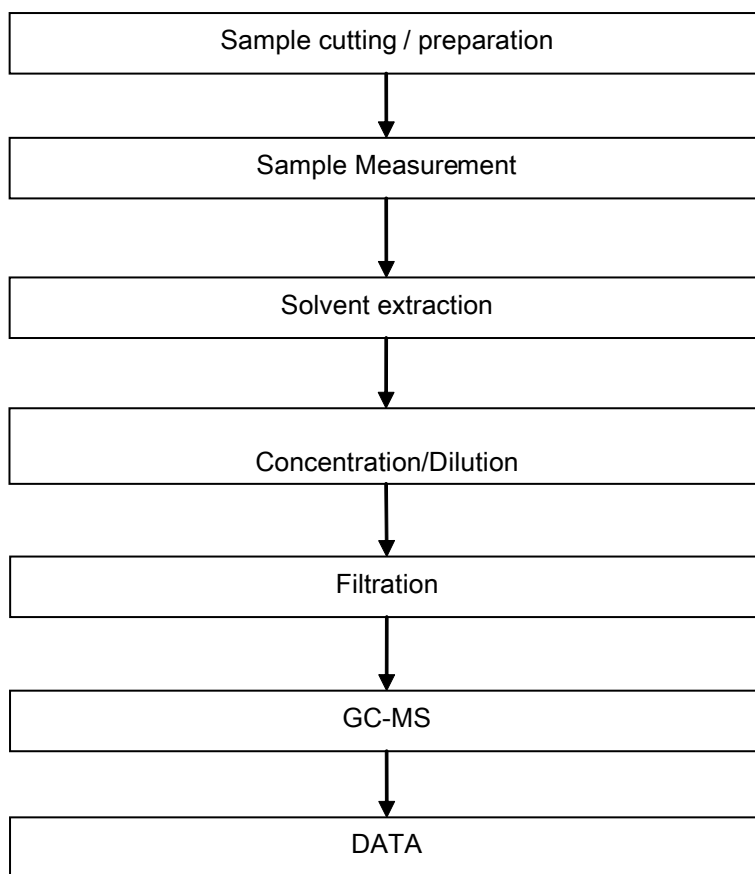


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ATTACHMENTS

Phthalates Testing Flow Chart

- 1) Name of the person who made testing: Tina Zhao
- 2) Name of the person in charge of testing: Ryan Yang



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Sample photo:



SGS authenticate the photo on original report only

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Test Report

Report No. RLSHD000593720006

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Applicant SHENYU COMMUNICATION TECHNOLOGY INC.

Address NO.275 EAST WAIHUAN ROAD,JIANGYIN CITY,JIANGSU P.R.CHINA

Report on the submitted sample said to be

Sample Name Cable

Sample Description 1. Silver plating copper wire inner conductor 2. FEP Insulation
3. Tinning copper wire external conductor 4. Grey FEP tegument

1. Silvery metal wire 2. Colorless transparent plastic wire skin
3. Silvery metal wire 4. Grey plastic wire skin

Part No. No need

Sample Received Date Apr.19,2011

Testing Period Apr.19,2011 to Apr.25,2011

Test Requested To determine the Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium (Cr(VI)), Polybrominated Biphenyls (PBBs), Polybrominated Diphenyl Ethers (PBDEs), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I) content in the submitted sample according to the request of client.

Test Result: Please refer to the following pages.

Tested by

Approved by



Inspected by

Date

Zhong Yijun

Apr.25,2011

No. 94636707

Test Report

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Test Method

| Tested Item | Test Method | Measured Equipment | M.D.L. |
|--|-----------------------------|--------------------|---------|
| Lead (Pb) | IEC 62321:2008 Ed.1 Sec.8 | ICP-OES | 2 mg/kg |
| | IEC 62321:2008 Ed.1 Sec.9 | | |
| Cadmium (Cd) | IEC 62321:2008 Ed.1 Sec.8 | ICP-OES | 2 mg/kg |
| | IEC 62321:2008 Ed.1 Sec.9 | | |
| Mercury (Hg) | IEC 62321:2008 Ed.1 Sec.7 | ICP-OES | 2 mg/kg |
| Hexavalent Chromium (Cr(VI)) | IEC 62321:2008 Ed.1 Annex B | UV-Vis | / |
| | IEC 62321:2008 Ed.1 Annex C | | 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 |
| Fluorine (F) | Refer to BS EN 14582:2007 | IC | 10mg/kg |
| Chlorine (Cl) | Refer to BS EN 14582:2007 | IC | 10mg/kg |
| Bromine (Br) | Refer to BS EN 14582:2007 | IC | 10mg/kg |
| Iodine (I) | Refer to BS EN 14582:2007 | IC | 10mg/kg |

Test Result

| Tested Item | Content (mg/kg) | | | |
|------------------------------|-----------------|------|----------|------|
| | 1 | 2 | 3 | 4 |
| Lead (Pb) | N.D. | N.D. | N.D. | N.D. |
| Cadmium (Cd) | N.D. | N.D. | N.D. | N.D. |
| Mercury (Hg) | N.D. | N.D. | N.D. | N.D. |
| Hexavalent Chromium (Cr(VI)) | Negative | N.D. | Negative | N.D. |

Test Report

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| Tested Item(s) | Content (mg/kg) | | | |
|--|-----------------|------|---|------|
| | 1 | 2 | 3 | 4 |
| Polybrominated Biphenyls(PBBs) | | | | |
| Monobromobiphenyl | / | N.D. | / | N.D. |
| Dibromobiphenyl | / | N.D. | / | N.D. |
| Tribromobiphenyl | / | N.D. | / | N.D. |
| Tetrabromobiphenyl | / | N.D. | / | N.D. |
| Pentabromobiphenyl | / | N.D. | / | N.D. |
| Hexabromobiphenyl | / | N.D. | / | N.D. |
| Heptabromobiphenyl | / | N.D. | / | N.D. |
| Octabromobiphenyl | / | N.D. | / | N.D. |
| Nonabromobiphenyl | / | N.D. | / | N.D. |
| Decabromobiphenyl | / | N.D. | / | N.D. |
| Polybrominated Diphenyl Ethers(PBDEs) | | | | |
| Monobromodiphenyl ether | / | N.D. | / | N.D. |
| Dibromodiphenyl ether | / | N.D. | / | N.D. |
| Tribromodiphenyl ether | / | N.D. | / | N.D. |
| Tetrabromodiphenyl ether | / | N.D. | / | N.D. |
| Pentabromodiphenyl ether | / | N.D. | / | N.D. |
| Hexabromodiphenyl ether | / | N.D. | / | N.D. |
| Heptabromodiphenyl ether | / | N.D. | / | N.D. |
| Octabromodiphenyl ether | / | N.D. | / | N.D. |
| Nonabromodiphenyl ether | / | N.D. | / | N.D. |
| Decabromodiphenyl ether | / | N.D. | / | N.D. |

| Tested Item | Content (mg/kg) | | | |
|----------------|-----------------|--------------------|---|--------------------|
| | 1 | 2 | 3 | 4 |
| Halogen | | | | |
| Fluorine (F) | / | 3.72×10^5 | / | 3.86×10^5 |
| Chlorine (Cl) | / | N.D. | / | N.D. |
| Bromine (Br) | / | N.D. | / | N.D. |
| Iodine (I) | / | N.D. | / | N.D. |

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

-M.D.L. = Method Detection Limit -N.D. = Not Detected (<M.D.L.)

-mg/kg = ppm = parts per million

-Negative = Absence of Cr (VI). The Cr (VI) concentration detected in the boiling water extraction solution is less than 0.02 mg/kg with 50cm² sample surface area used.

Test Report

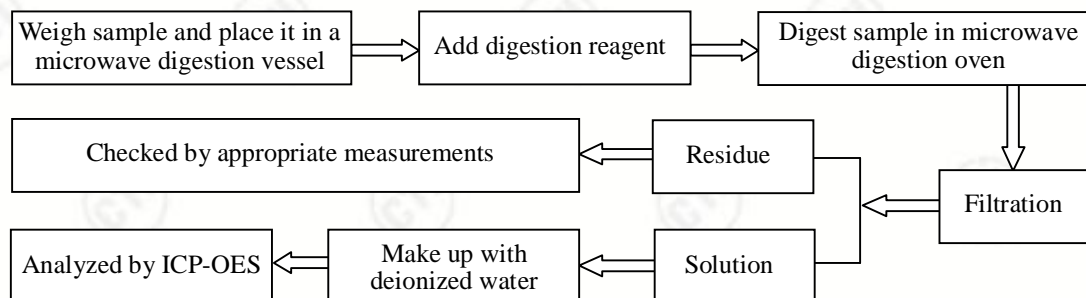
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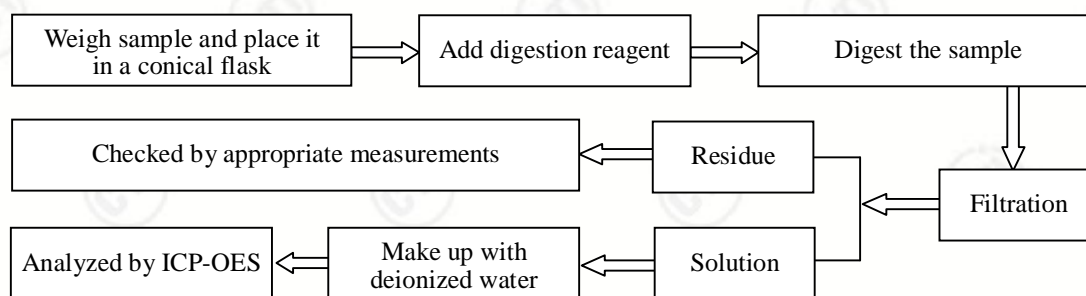
Test Process

1. Test for Pb/Cd Content

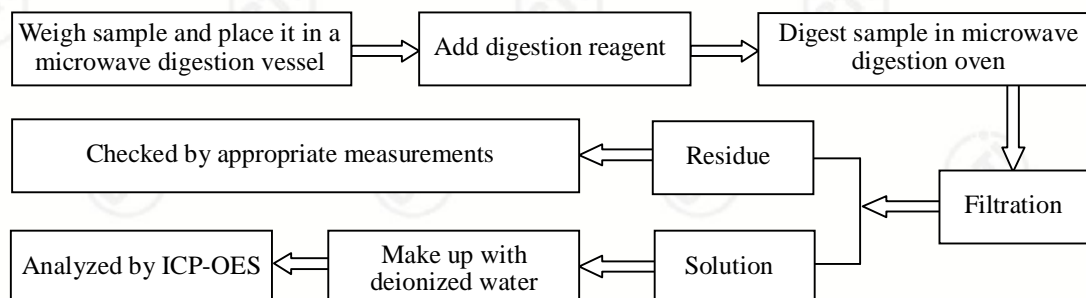
(1) IEC 62321:2008 Ed.1 Sec.8



(2) IEC 62321:2008 Ed.1 Sec.9



2. Test for Hg Content



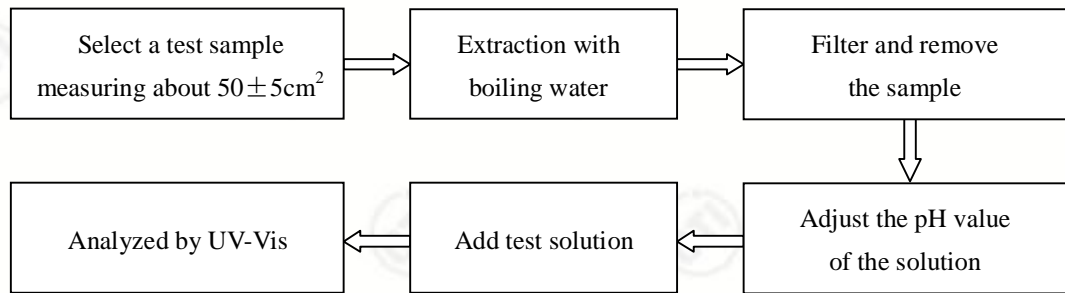
Test Report

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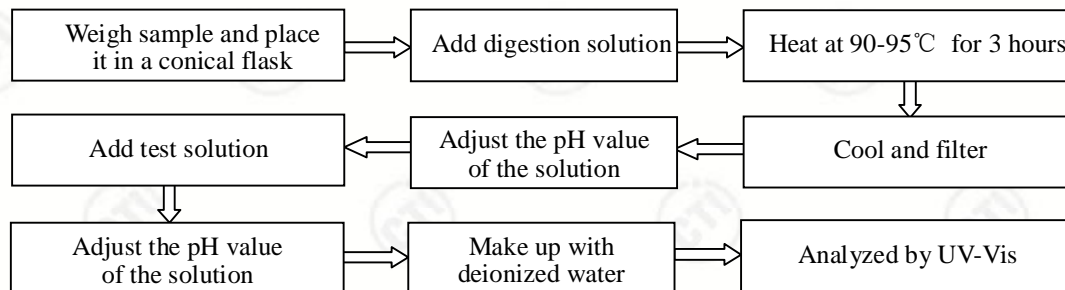
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3. Test for Cr (VI) Content

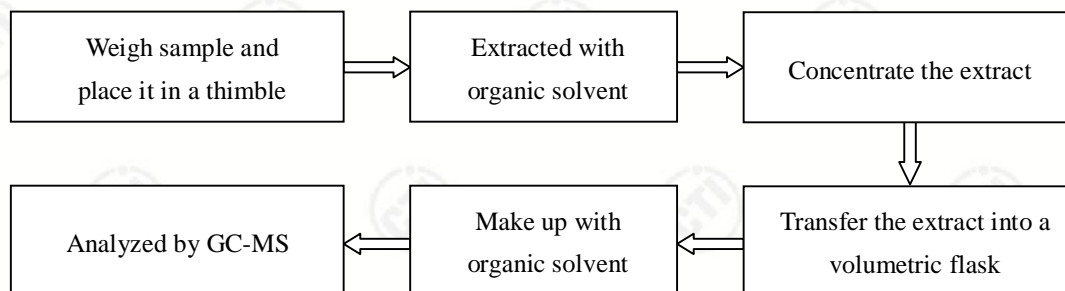
(1) IEC 62321:2008 Ed.1 Annex B



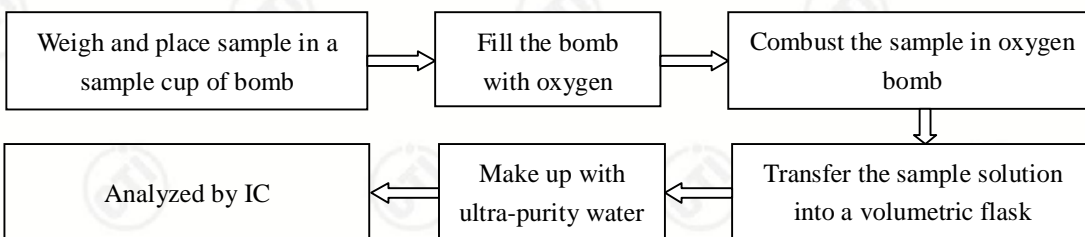
(2) IEC 62321:2008 Ed.1 Annex C



4. Test for PBBs /PBDEs Content



5. Test for F/ Cl/Br/I Content



Test Report

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Photo of the sample



1



2



3



4

*** End of report ***

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