

## 測試報告

## Test Report

號碼(No.) : CE/2016/13037

日期(Date) : 2016/01/22

頁數(Page): 1 of 11

高柏科技有限公司

T-GLOBAL TECHNOLOGY CO., LTD.

桃園市桃園區大仁路50巷33號

NO. 33, LN. 50, DAREN RD., TAOYUAN DISTRICT, TAOYUAN CITY 33068, TAIWAN (R. O. C.)



以下測試樣品係由申請廠商所提供及確認 (The following sample(s) was/were submitted and identified by/on behalf of the applicant as) :

樣品名稱(Sample Description) : THERMAL PAD (導熱矽膠片)  
樣品型號(Style/Item No.) : H48-2K  
收件日期(Sample Receiving Date) : 2016/01/15  
測試期間(Testing Period) : 2016/01/15 TO 2016/01/22

### 測試需求(Test Requested) :

- (1) 依據客戶指定, 參考RoHS2011/65/EU Annex II及其修訂指令(EU) 2015/863測試鎘、鉛、汞、六價鉻、多溴聯苯、多溴聯苯醚、DBP, BBP, DEHP, DIBP. (As specified by client, with reference to RoHS 2011/65/EU Annex II and amending Directive (EU) 2015/863 to determine Cadmium, Lead, Mercury, Cr(VI), PBBs, PBDEs, DBP, BBP, DEHP, DIBP contents in the submitted sample.)
- (2) 其他測試項目請見下一頁 . (Please refer to next pages for the other item(s).)

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

  
Troy Chang / Manager - Tech  
Signed for and on behalf of  
SGS TAIWAN LTD.  
Chemical Laboratory - Taipei

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### 測試結果(Test Results)

測試部位(PART NAME)No.1 : 深紅色片狀 (DK. RED SHEET)

| 測試項目<br>(Test Items)   | 單位<br>(Unit) | 測試方法<br>(Method)  | 方法偵測<br>極限值<br>(MDL) | 結果<br>(Result) |
|--|--------------|---|----------------------|----------------|
|  |              |   |                      | No. 1          |
| 鎘 / Cadmium (Cd)   | mg/kg        | 參考IEC 62321-5: 2013方法, 以感應<br>耦合電漿原子發射光譜儀檢測. / With<br>reference to IEC 62321-5: 2013 and<br>performed by ICP-AES.      | 2                    | n. d.          |
| 鉛 / Lead (Pb)  | mg/kg        |   | 2                    | n. d.          |
| 汞 / Mercury (Hg)   | mg/kg        | 參考IEC 62321-4: 2013方法, 以感應<br>耦合電漿原子發射光譜儀檢測. / With<br>reference to IEC 62321-4: 2013 and<br>performed by ICP-AES.      | 2                    | n. d.          |
| 六價鉻 / Hexavalent Chromium Cr(VI)   | mg/kg        | 參考IEC 62321: 2008方法, 以UV-VIS<br>檢測. / With reference to IEC<br>62321: 2008 and performed by UV-<br>VIS.                 | 2                    | n. d.          |
| <b>鹵素 / Halogen</b>  |              |   |                      |                |
| 鹵素 (氟) / Halogen-Fluorine (F)<br>(CAS No. : 14762-94-8)                  | mg/kg        | 參考BS EN 14582:2007, 以離子層析儀<br>分析. / With reference to BS EN<br>14582:2007. Analysis was performed<br>by IC.             | 50                   | n. d.          |
| 鹵素 (氯) / Halogen-Chlorine (Cl)<br>(CAS No. : 22537-15-1)                 | mg/kg        |   | 50                   | n. d.          |
| 鹵素 (溴) / Halogen-Bromine (Br)<br>(CAS No. : 10097-32-2)                  | mg/kg        |   | 50                   | n. d.          |
| 鹵素 (碘) / Halogen-Iodine (I) (CAS<br>No. : 14362-44-8)                    | mg/kg        |   | 50                   | n. d.          |
| 全氟辛烷磺酸 / Perfluorooctane<br>sulfonates (PFOS-Acid, Metal Salt,<br>Amide) | mg/kg        | 參考US EPA 3550C: 2007方法, 以液相<br>層析/質譜儀檢測. / With reference<br>to US EPA 3550C: 2007. Analysis<br>was performed by LC/MS. | 10                   | n. d.          |
| 全氟辛酸 / PFOA (CAS No. : 335-67-1)   | mg/kg        |   | 10                   | n. d.          |

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| 測試項目<br>(Test Items)   | 單位<br>(Unit) | 測試方法<br>(Method)  | 方法偵測<br>極限值<br>(MDL)  | 結果<br>(Result) |       |
|--|--------------|---|---|----------------|-------|
|  |              |   |   | No. 1          |       |
| 多溴聯苯總和 / Sum of PBBs   | mg/kg        | 參考IEC 62321-6: 2015方法, 以氣相層析/質譜儀檢測. / With reference to IEC 62321-6: 2015 and performed by GC/MS.                         | -   | n. d.          |       |
| 一溴聯苯 / Monobromobiphenyl                                     | mg/kg        |   | 5   | n. d.          |       |
| 二溴聯苯 / Dibromobiphenyl                                       | mg/kg        |   | 5   | n. d.          |       |
| 三溴聯苯 / Tribromobiphenyl                                      | mg/kg        |   | 5   | n. d.          |       |
| 四溴聯苯 / Tetrabromobiphenyl                                    | mg/kg        |   | 5   | n. d.          |       |
| 五溴聯苯 / Pentabromobiphenyl                                    | mg/kg        |   | 5   | n. d.          |       |
| 六溴聯苯 / Hexabromobiphenyl                                     | mg/kg        |   | 5   | n. d.          |       |
| 七溴聯苯 / Heptabromobiphenyl                                    | mg/kg        |   | 5   | n. d.          |       |
| 八溴聯苯 / Octabromobiphenyl                                     | mg/kg        |   | 5   | n. d.          |       |
| 九溴聯苯 / Nonabromobiphenyl                                     | mg/kg        |   | 5   | n. d.          |       |
| 十溴聯苯 / Decabromobiphenyl                                     | mg/kg        |   | 5   | n. d.          |       |
| 多溴聯苯醚總和 / Sum of PBDEs                                       | mg/kg        |   | 參考IEC 62321-8 (111/321/CD), 以氣相層析儀/質譜儀檢測之. / With reference to IEC 62321-8 (111/321/CD). Analysis was performed by GC/MS. | -              | n. d. |
| 一溴聯苯醚 / Monobromodiphenyl ether                              | mg/kg        |   |   | 5              | n. d. |
| 二溴聯苯醚 / Dibromodiphenyl ether                                | mg/kg        |   |   | 5              | n. d. |
| 三溴聯苯醚 / Tribromodiphenyl ether                               | mg/kg        |   |   | 5              | n. d. |
| 四溴聯苯醚 / Tetrabromodiphenyl ether                             | mg/kg        |   |   | 5              | n. d. |
| 五溴聯苯醚 / Pentabromodiphenyl ether                             | mg/kg        |   |   | 5              | n. d. |
| 六溴聯苯醚 / Hexabromodiphenyl ether                              | mg/kg        |   |   | 5              | n. d. |
| 七溴聯苯醚 / Heptabromodiphenyl ether                             | mg/kg        |   |   | 5              | n. d. |
| 八溴聯苯醚 / Octabromodiphenyl ether                              | mg/kg        |   |   | 5              | n. d. |
| 九溴聯苯醚 / Nonabromodiphenyl ether                              | mg/kg        | 5   |   | n. d.          |       |
| 十溴聯苯醚 / Decabromodiphenyl ether                              | mg/kg        | 5   | n. d.   |                |       |
| 鄰苯二甲酸二異丁酯 / DIBP (Di-isobutyl phthalate) (CAS No. : 84-69-5) | mg/kg        | 參考IEC 62321-8 (111/321/CD), 以氣相層析儀/質譜儀檢測之. / With reference to IEC 62321-8 (111/321/CD). Analysis was performed by GC/MS. | 50  | n. d.          |       |
| 鄰苯二甲酸二丁酯 / DBP (Dibutyl phthalate) (CAS No. : 84-74-2)       | mg/kg        |   | 50  | n. d.          |       |
| 鄰苯二甲酸丁苄甲酯 / BBP (Butyl Benzyl phthalate) (CAS No. : 85-68-7) | mg/kg        |   | 50  | n. d.          |       |

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| 測試項目<br>(Test Items)   | 單位<br>(Unit) | 測試方法<br>(Method)   | 方法偵測<br>極限值<br>(MDL) | 結果<br>(Result) |
|--|--------------|--|----------------------|----------------|
|  |              |  |                      | No. 1          |
| 鄰苯二甲酸二(2-乙基己基)酯 / DEHP<br>(Di-(2-ethylhexyl) phthalate) (CAS<br>No. : 117-81-7)  | mg/kg        | 參考IEC 62321-8 (111/321/CD), 以氣<br>相層析儀/質譜儀檢測之. / With<br>reference to IEC 62321-8<br>(111/321/CD). Analysis was<br>performed by GC/MS. | 50                   | n. d.          |
| 鄰苯二甲酸二正辛酯 / DNOP (Di-n-<br>octyl phthalate) (CAS No. : 117-84-0)   | mg/kg        |  | 50                   | n. d.          |
| 鄰苯二甲酸二異壬酯 / DINP (Di-<br>isononyl phthalate) (CAS No. : 28553-<br>12-0; 68515-48-0)  | mg/kg        |  | 50                   | n. d.          |
| 鄰苯二甲酸二異癸酯 / DIDP (Di-<br>isodecyl phthalate) (CAS No. : 26761-<br>40-0; 68515-49-1)  | mg/kg        |  | 50                   | n. d.          |
| 六溴環十二烷及所有主要被辨別出的異構<br>物 / Hexabromocyclododecane (HBCDD)<br>and all major diastereoisomers<br>identified ( $\alpha$ -HBCDD, $\beta$ -HBCDD,<br>$\gamma$ -HBCDD) (CAS No. : 25637-99-4 and<br>3194-55-6 (134237-51-7, 134237-50-6,<br>134237-52-8)) | mg/kg        | 參考IEC 62321: 2008方法, 以氣相層<br>析/質譜儀檢測. / With reference to<br>IEC 62321: 2008 method. Analysis<br>was performed by GC/MS.               | 5                    | n. d.          |

### 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)

### 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 $\mu$ g/m<sup>2</sup>。

(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 $\mu$ g/m<sup>2</sup>.)

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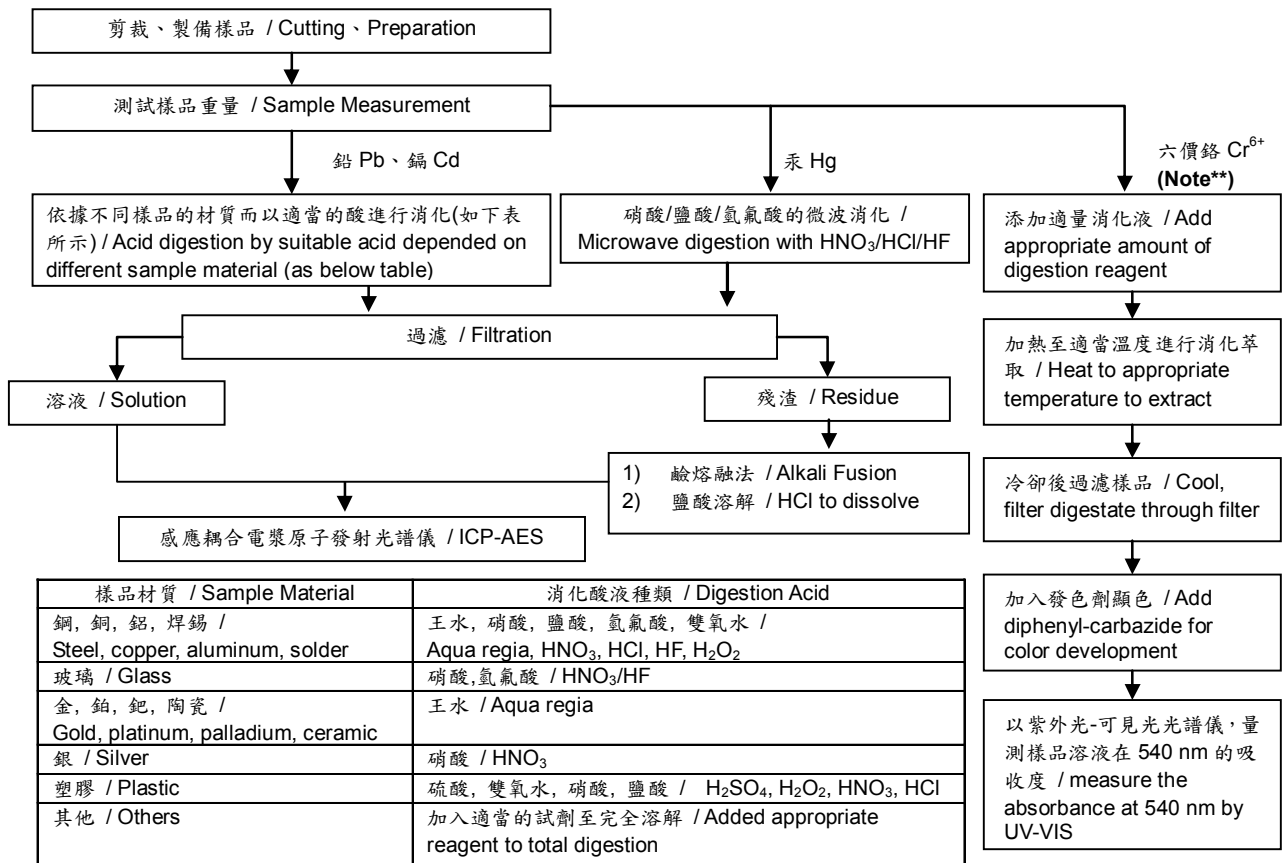
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- 1) 根據以下的流程圖之條件，樣品已完全溶解。(六價鉻測試方法除外) / These samples were dissolved totally by pre-conditioning method according to below flow chart. (Cr<sup>6+</sup> test method excluded)
- 2) 測試人員：楊登偉 / Name of the person who made measurement: Climbgreat Yang
- 3) 測試負責人：張啟興 / Name of the person in charge of measurement: Troy Chang



**Note\*\* (For IEC 62321)**

- (1) 針對非金屬材料加入鹼性消化液，加熱至 90~95°C 萃取。 / For non-metallic material, add alkaline digestion reagent and heat to 90~95°C.
- (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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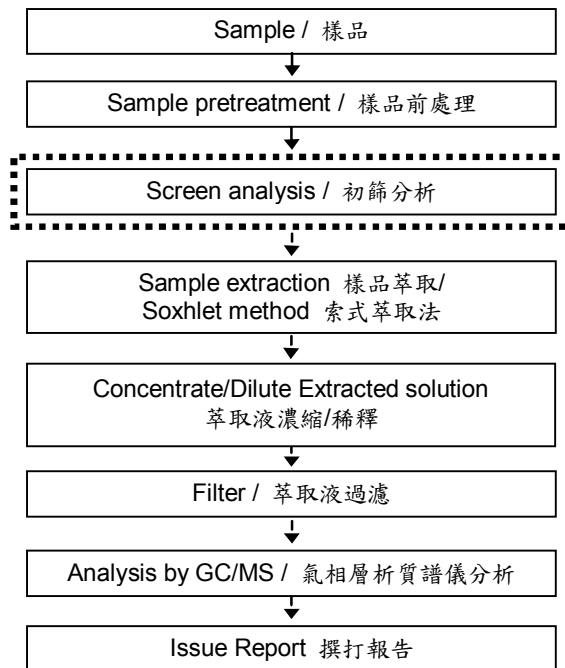
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### 多溴聯苯/多溴聯苯醚分析流程圖 / PBB/PBDE analytical FLOW CHART

- 測試人員：翁賜彬 / Name of the person who made measurement: Roman Wong
- 測試負責人：張啟興 / 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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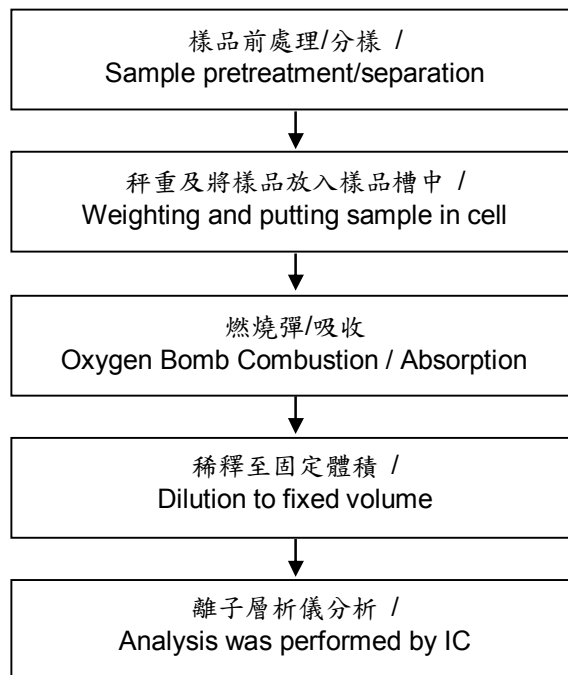
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### 鹵素分析流程圖 / Analytical flow chart of halogen content

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



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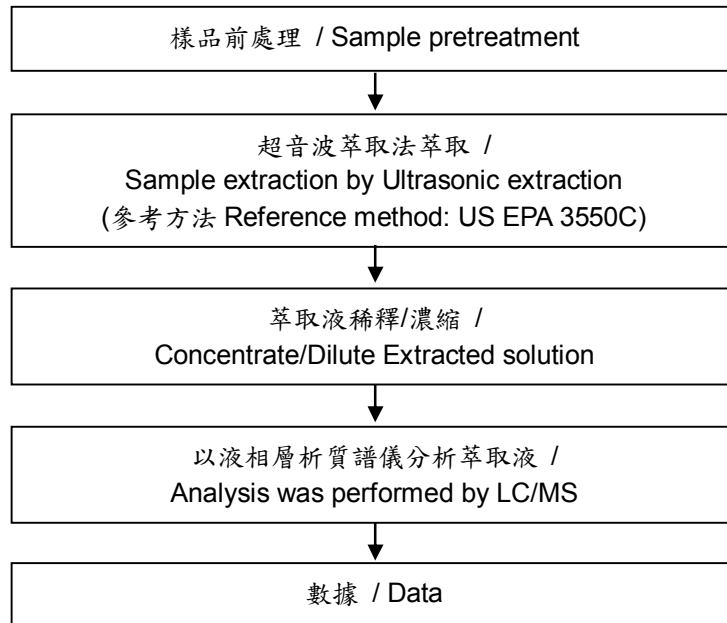
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### 全氟辛酸/全氟辛烷磺酸分析流程圖 / PFOA/PFOS analytical flow chart

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





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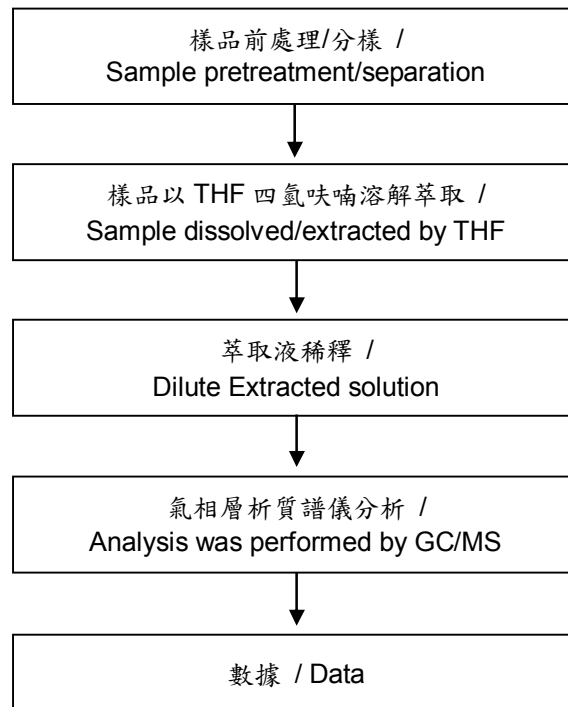
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### 可塑劑分析流程圖 / Analytical flow chart of phthalate content

- 測試人員：徐毓明 / Name of the person who made measurement: Andy Shu
- 測試負責人：張啟興 / Name of the person in charge of measurement: Troy Chang

#### 【測試方法/Test method: IEC 62321-8】



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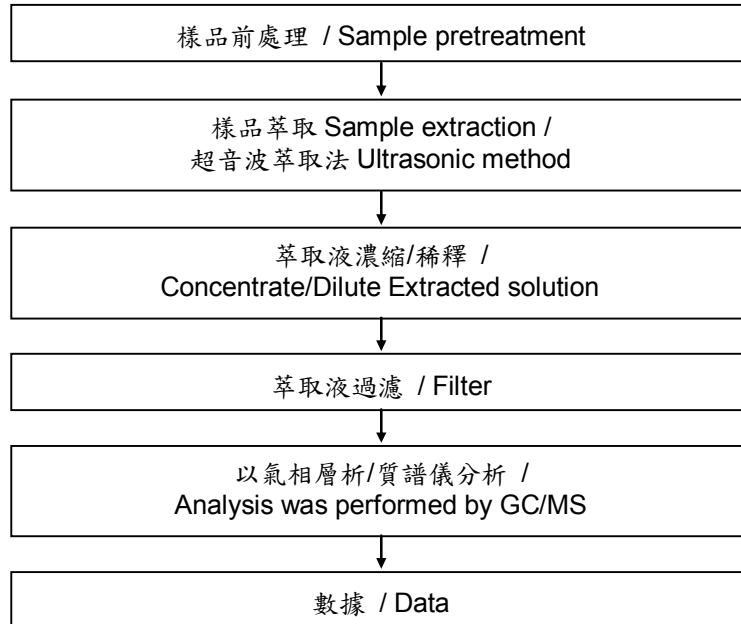
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### 六溴環十二烷分析流程圖 / HBCDD analytical flow chart

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



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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/2016/13037



\*\* 報告結尾 (End of Report) \*\*