Company name: Littelfuse, Inc.

Product Series: PulseGuard ESD Protector, Halogen-Free

Product #: PGB1010603HF

Issue Date: January 6, 2013

It is hereby certified by Littelfuse, Inc. that there is neither RoHS (EU Directive 2002/95/EC, 2011/65/EU)-restricted substance nor such use, for materials to be used for unit parts, for packing/packaging materials, and for additives and the like in the manufacturing processes.

In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/packaging materials, and the additives and the like in the manufacturing processes, are all composed of the following components.

Issued by: [Global EHS Engineer]

(1) Parts, sub-materials and unit parts

This document covers the PulseGuard ESD Protector, Halogen-Free RoHS-Compliant series products manufactured by Littelfuse, Inc.

< Raw Materials Used

Please see Table 1

(2) The ICP data on all measurable substances

Please see appropriate pages as identified in Table 1

Remarks:
Table 1: List of Raw Materials covered by this report

<table>
<thead>
<tr>
<th>Item No.</th>
<th>Raw Material Part Number</th>
<th>Raw Material Description</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>039167</td>
<td>FR-4- HF</td>
<td>3-13</td>
</tr>
<tr>
<td>2</td>
<td>010104</td>
<td>Nickel Anode</td>
<td>14-19</td>
</tr>
<tr>
<td>3</td>
<td>010113</td>
<td>Tin Anode</td>
<td>20-25</td>
</tr>
<tr>
<td>4</td>
<td>010114</td>
<td>Copper Anode</td>
<td>26-31</td>
</tr>
<tr>
<td>5</td>
<td>090418</td>
<td>Photoimageable Soldermask (green)</td>
<td>32-43</td>
</tr>
<tr>
<td>6</td>
<td>4501-WPM</td>
<td>VVM Material</td>
<td>44-55</td>
</tr>
<tr>
<td>7</td>
<td>NA</td>
<td>PGB (PFOS Test)</td>
<td>56-60</td>
</tr>
</tbody>
</table>
Applicant: Littelfuse Philippines Inc.
LIMA Technology Center, Lipa City,
Malvar, Batangas

Sample Description:
One (1) group of submitted samples said to be:
Part Description: FR-4(PGB HF 0.010") Copper Clad Laminate
Part Number: 039167
Date Sample Received: Oct 30, 2013
Date Test Started: Oct 31, 2013

Test Conducted:
As requested by the applicant, for details please refer to attached pages.

Authorized by:
On Behalf of Intertek Testing Services
Taiwan Limited

K. Y. Liang
Director
## Test Result Summary:

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Unit</th>
<th>Test Method</th>
<th>Result</th>
<th>RL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heavy Metal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cadmium (Cd) content ppm</td>
<td></td>
<td>With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Lead (Pb) content ppm</td>
<td></td>
<td>With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Mercury (Hg) content ppm</td>
<td></td>
<td>With reference to IEC 62321-4: 2013, by microwave or acid digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Chromium VI (Cr&lt;sup&gt;6+&lt;/sup&gt;) content ppm</td>
<td></td>
<td>With reference to IEC 62321: 2008, by alkaline digestion and determined by UV-Vis Spectrophotometer.</td>
<td>ND</td>
<td>1</td>
</tr>
<tr>
<td><strong>Polybrominated Biphenyls (PBBs)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monobrominated Biphenyls (MonoBB) ppm</td>
<td></td>
<td>With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.</td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Dibrominated Biphenyls (DiBB) ppm</td>
<td></td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Tribrominated Biphenyls (TriBB) ppm</td>
<td></td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Tetrabrominated Biphenyls (TetraBB) ppm</td>
<td></td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Pentabrominated Biphenyls (PentaBB) ppm</td>
<td></td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Hexabrominated Biphenyls (HexaBB) ppm</td>
<td></td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Heptabrominated Biphenyls (HeptaBB) ppm</td>
<td></td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Octabrominated Biphenyls (OctaBB) ppm</td>
<td></td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Nonabrominated Biphenyls (NonaBB) ppm</td>
<td></td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Decabrominated Biphenyl (DecaBB) ppm</td>
<td></td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
</tbody>
</table>
## Test Report

**Number:** TWNC00340087

### Test Conducted

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Unit</th>
<th>Test Method</th>
<th>Result</th>
<th>RL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Polybrominated Diphenyl Ethers (PBDEs)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monobrominated Diphenyl Ethers (MonoBDE)</td>
<td>ppm</td>
<td>With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.</td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Dibrominated Diphenyl Ethers (DiBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Tribrominated Diphenyl Ethers (TriBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Tetrabrominated Diphenyl Ethers (TetraBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Pentabrominated Diphenyl Ethers (PentaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Hexabrominated Diphenyl Ethers (HexaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Heptabrominated Diphenyl Ethers (HeptaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Octabrominated Diphenyl Ethers (OctaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Nonabrominated Diphenyl Ethers (NonaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Decabrominated Diphenyl Ether (DecaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td><strong>Halogen Content</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluorine (F)</td>
<td>ppm</td>
<td>With reference to EN 14582:2007 by combustion bomb with oxygen and determined by Ion Chromatography.</td>
<td>537</td>
<td>50</td>
</tr>
<tr>
<td>Chlorine (Cl)</td>
<td>ppm</td>
<td></td>
<td>103</td>
<td>50</td>
</tr>
<tr>
<td>Bromine (Br)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>50</td>
</tr>
<tr>
<td>Iodine (I)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>50</td>
</tr>
<tr>
<td><strong>Phthalates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Di(2-ethylhexyl) Phthalate (DEHP)</td>
<td>ppm</td>
<td>With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.</td>
<td>ND</td>
<td>10</td>
</tr>
<tr>
<td>Dibutyl Phthalate (DBP)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>10</td>
</tr>
<tr>
<td>Benzyl Butyl Phthalate (BBP)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>10</td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hexabromocyclododecane (HBCDD)</td>
<td>ppm</td>
<td>With reference to USEPA 3540C, by solvent extraction and determined by GC-MS.</td>
<td>ND</td>
<td>10</td>
</tr>
</tbody>
</table>
Test Report

Number: TWNC00340087

Test Conducted

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg
ND = Not detected
RL = Reporting limit, quantitation limit of analyte in sample

Responsibility of Chemist: Kevin Liu/ Irene Chiou/ Vico Lin

Date Sample Received : Oct 30, 2013
Test Period : Oct 31, 2013 to Nov 06, 2013

RoHS Limit

<table>
<thead>
<tr>
<th>Restricted Substances</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium (Cd) content</td>
<td>0.01% (100ppm)</td>
</tr>
<tr>
<td>Lead (Pb) content</td>
<td>0.1% (1000ppm)</td>
</tr>
<tr>
<td>Mercury (Hg) content</td>
<td>0.1% (1000ppm)</td>
</tr>
<tr>
<td>Chromium VI (CrVI) content</td>
<td>0.1% (1000ppm)</td>
</tr>
<tr>
<td>Polybrominated Biphenyls (PBBs)</td>
<td>0.1% (1000ppm)</td>
</tr>
<tr>
<td>Polybrominated Diphenyl Ethers (PBDEs)</td>
<td>0.1% (1000ppm)</td>
</tr>
</tbody>
</table>

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.
Measurement Flowchart:

Test for Cd/Pb/Hg Chromium (VI)/PBBs/PBDEs Contents
Reference Standards:
- Cd/Pb: IEC 62321-5:2013
- Hg: IEC 62321-4:2013
- Chromium (VI)/PBBs/PBDEs: IEC 62321:2008

Remarks:
*1: List of Appropriate Acid:

<table>
<thead>
<tr>
<th>Material</th>
<th>Acid Added for Digestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymers</td>
<td>HNO₃, HCl, HF, H₂O₂, H₃BO₃</td>
</tr>
<tr>
<td>Metals</td>
<td>HNO₃, HCl, HF</td>
</tr>
<tr>
<td>Electronics</td>
<td>HNO₃, HCl, H₂O₂, HBF₄</td>
</tr>
</tbody>
</table>

*2: If the result of spot test is positive, Chromium VI would be determined as detected.
Test Conducted

Measurement Flowchart:

Test for Halogen Contents
Reference Method: EN 14582

- Sampling
- Add absorbent in a combustion bomb & place weighed sample into sample cup
- Fill oxygen into the combustion bomb
- Ignite then leave the bomb at room temperature
- Transfer the absorbent into a volumetric flask
- Make up with deionized water
- Analyzed by Ion Chromatography
Measurement Flowchart:

Test for Phthalates Contents
Reference Method: EN 14372: 2004

Sampling

Weigh sample and add organic solvent

By solvent extraction

Concentrate the extract and make up with organic solvent

Analyzed by GC-MS
Test Conducted

Measurement Flowchart:

Test for Hexabromocyclododecane (HBCDD) Content
Reference Method: USEPA 3540C

1. **Sampling**
2. Weigh sample and add organic solvent
3. By solvent extraction
4. Concentrate the extract and make up with organic solvent
5. Analyzed by GC-MS
End of Report

This report is made solely on the basis of your instructions and/or information and materials supplied by you. It is not intended to be a recommendation for any particular course of action. Intertek does not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and only accepts liability to the Client insofar as is expressly contained in the terms and conditions governing Intertek’s provision of services to you. Intertek makes no warranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conduct the Review on a diligent and careful basis and we do not accept any liability to you for any loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or wilful misconduct.
1. Intertek Testing Services Taiwan Ltd. (hereinafter “the Company”) agrees to provide its services in accordance with and subject to the terms and conditions herein contained (hereinafter “the Conditions”). The Conditions may only be modified by a variation expressed in writing and signed on behalf of the Company by a director and no other action on the part of the Company or its employees or agents shall be construed as an acceptance of any other terms and conditions.

2. The Company acts for the person or body from whom the request to provide its services has originated (hereinafter “the Principal”). No other party is entitled to give instructions to the Company unless agreed by the Company.

3. All rights (including but not limited to copyright) in any test reports, surveys, certificates of inspection or other material produced by the Company in the course of providing its services shall remain vested in the Company. The Principal shall not reproduce or make copies, publish or disclose the contents of any such material or extracts thereof to any third party without the Company’s prior written consent, which may be refused at its discretion. The Company further undertakes to its servants and agents to keep confidential and shall not publish or otherwise use any information that may be acquired relating to the Company’s activities.

4. The Company undertakes to exercise due care and skill in the performance of its services and accepts responsibility only where such skill and care is not exercised.

4.1 The liability of the Company in respect of any claims for loss, damage or expense of whatsoever nature and however arising in respect of any breach of contract and/or any failure to exercise due care and skill by the Company shall in no circumstances exceed a total aggregate sum equal to ten (10) times the amount of the fee or commission payable in respect of the specific service required under the particular contract with the Company which gives rise to such claims provided however that the Company shall have no liability in respect of any claims for indirect or consequential loss including loss of profit and/or loss of future business and/or loss of production and/or cancellation of contracts entered into by the Principal.

4.2 The Company shall not be liable for any loss or damage caused by delay in performance or non-performance of any of its services where the same is occasioned by any cause whatsoever that is beyond the Company’s control including but not limited to war, civil disturbance, requisitioning, governmental or parliamentary restriction, prohibitions or enactment of any kind, import or export regulations, strike or trade disputes (whether involving its own employees or those of any other person), difficulties in obtaining workforce or materials, breakdown of machinery, fire or accident. Should any such event occur the Company may cancel or suspend any contract for the provision of services without incurring any liability whatsoever.

4.3 The Principal will not be liable to the Principal for any loss or damage whatsoever sustained by the Principal as a result of any failure by the Company to comply with any time estimate given by the Company relating to the provision of its services. [See clause 9.1] [See clause 9.2]

4.4 The Principal acknowledges that samples may be damaged or destroyed in the course of testing carried out by the Company or any of the Company’s agent or subcontractor. If the Principal determines samples from a rejection to be acceptable, then such samples will be returned to the Company for destruction.

4.5 In the event that the Principal requests for the return of the samples, the Company shall not be responsible for any re-packaging of the samples prior to such return and the Company shall in no circumstances be liable for any loss or damage caused to any of the samples during or as a result of their shipment to the Principal for the purpose of this clause 4.6.

5. The Company shall contain statements of opinion made with due care within the limitations of the instructions received by the Company. The Company is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received.

5.1 Subject to the Principal’s instructions as accepted by the Company, the test reports, surveys, certificates of inspection or other material produced by the Company shall contain statements of opinion made with due care within the limitations of the instructions received by the Company. The Company is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received.

5.2 For pre-shipment inspection or survey of goods, the Company’s inspector shall perform the inspection or survey by the Company if the Principal agrees and is completed, packed and marked (unless otherwise agreed between the Company and the Principal). Goods for inspection or survey shall be unpacked in the presence of the Principal’s inspector and inspection or survey shall, subject to Condition 5.3, be undertaken at the place specified by the Principal.

5.3 If the Company’s inspector finds that the location is not suitable for carrying out a proper inspection or survey of goods or where necessary equipment for inspection or survey is not available to the inspector then, if practical in the circumstances, the samples are drawn from the location and carried out the inspection or survey at the premises of the Principal. The Company shall be responsible for all costs and expenses incurred in relation thereto.

5.4 If in the Principal’s inspection or survey of the premises of the Company, the Principal shall be responsible for all costs and expenses incurred in relation thereto.

6. The Company will be entitled at its discretion to delegate the performance of the whole or any part of the services contracted for with the Principal to any agent or subcontractor.

7. Every officer, employee, agent or subcontractor of the Company shall have the benefit of the limitations of liability and the indemnities contained in the General Conditions. So far as relates to such limitations and indemnities, any contract entered into by the Company is entered into not only on its own behalf but also as agent and trustee for every such person as aforesaid.

8. If the requirements of the Principal necessitate the analysis of samples by the Principal only or by any third party, the Principal will pass on the results of the analysis but without responsibility for its accuracy. Where the Company is only able to witness an analysis by the Principal or by any third party, the Company will provide a confirmation, if such be the case, that a correct sample has been analysed and will otherwise be responsible for the accuracy of such analysis.

9. The Principal will:

9.1 Ensure that instructions to the Company are given in due time and are accompanied by sufficient information to enable the required services to be performed effectively.

9.2 Accept that documents referring to agreements or agreements made between the Principal and any third party, or third party documents such as copies of contracts of sale, letters of credit, bills of lading, etc., are received by the Company considered to be for information only, without extending or restricting the services to be provided or obligations accepted by the Company.

9.3 Require the necessary access for the representatives of the Company to enable the required services to be performed effectively.

9.4 Supply, if required, any special equipment and personnel necessary for the performance of the required services.

9.5 Ensure that all necessary measures are taken for safety and security of working conditions, sites and installations during the performance of the required services.
9.6 take all necessary steps to eliminate or remedy any obstruction to or interruptions in the performance of the required services and repack all inspected goods immediately after inspection or survey of them;

9.7 inform the Company in advance of any known hazards or dangers, actual or potential, associated with any request for the provision of services by the Company including but not limited to the presence or risk of radiation, toxic or noxious or explosive elements or materials, environmental pollution or poisons;

10. The Principal shall guarantee, hold harmless and indemnify the Company and its officers, employees, agents or subcontractors against

10.1 all claims made by any third party for any loss, damage or expense of whatsoever nature and howsoever arising relating to the performance, purported performance or non-performance of any of the services to the extent that the aggregate of any such claims relating to any one service exceeds the limit mentioned in Condition 4.2.

10.2 any loss or damage suffered by the Company as a result of the provision of services by the Company to the Principal otherwise than resulting from the Company’s own error, negligence or wilful default.

11.1.1 The Principal will punctually pay the Company immediately upon presentation of the relevant invoice or within such other period as may have been agreed in writing by the Company all charges rendered by the Company failing which interest will become due at the rate of 1.5 per cent per month from the date of invoice until payment. The Principal further agrees and undertakes to reimburse the Company all disbursements reasonably incurred in connection with the provision of services.

11.2 The Principal shall not be entitled to retain or defer payment of any sums due to the Company on account of any dispute, cross claim or set off which it may allege against the Company.

11.3 In the event of any suspension of payment arrangement with creditors, bankruptcy, insolvency, receivership or cessation of business or failure of the Principal to pay part or all of any sums owing to the Company, the Company shall be entitled to suspend all further performance of its services and withhold the issue of any test report, survey, certificate of inspection or other material requested forthwith and without liability until payment of all sums owing to the Company together with interest thereon is made

12. Without prejudice to any rights the Company may have at law or under the Conditions, the Company has the following rights in the event of non-payment of sums owing to the Company as set out below:

12.1 The Company has a general and particular lien over all samples delivered to be tested for all claims and sums owing by the Principal to the Company under any contract whatsoever and in any other way whatsoever.

12.2 During the currency of any such lien the Company is entitled to be paid reasonable storage charges for samples retained in the Company’s custody.

12.3 Without prejudice to the Company’s lien and other rights under Conditions 12.1 to 12.2 above, if test, inspection or survey of the goods takes place on the premises of the Company, the Company may give notice to the Principal that the goods (or any part thereof) are ready for collection and the Principal shall collect the same within three (3) calendar days (Saturdays, Sundays and Public Holidays excepted). Upon the expiry of this period, if the goods are not collected by the Principal, at the sole discretion of the Company the goods may be deemed abandoned and/or destroyed.

12.4 Without prejudice to Conditions 12.3 above, the Company shall have the discretion to store the goods (or any of them) at their own premises or elsewhere at the Principal’s expense if the Principal has deposited the goods at the Company’s premises for the performance of these services and has subsequently failed to collect said goods.

12.5 The expenses by way of disbursements that the Company may reclaim from the Principal include all reasonable costs incurred by the Company (whether by way of storage, insurance or otherwise) in respect of the goods and it is expressly declared that it shall be reasonable but not mandatory for the Company to effect comprehensive insurance in respect of the goods.

12.6 Without prejudice to the Company’s lien and other rights under Conditions 12.1 to 12.5 above, the risk and property in the goods shall remain at all times in the Principal.

13. In the event of the Company being prevented by reason of any cause whatsoever outside the Company’s control from performing or completing any service for which an order has been given or an agreement made, the Principal will pay to the Company

13.1 the amount of all abortive expenditure actually made or incurred, and

13.2 a proportion of the agreed fee or commission equal to the proportion (if any) of the service actually earned out,

and the Company shall be relieved of all responsibility whatsoever for the partial or total non-performance of the required service.

14. The Company shall be discharged from all liability to the Principal for all claims for loss, damage or expense unless suit is brought within twelve (12) months after the date of the performance by the Company of the service which gives rise to the claim or in the event of any alleged non-performance within fifteen (15) months of the date when such service should have been completed.

15. In the event that any unforeseen additional time or costs are incurred in the course of carrying out any of its services the Company shall be entitled to render additional charges as shall reasonably reflect such additional time and costs incurred.

16. All contracts for provision of services by the Company and the Conditions shall be construed in accordance with and governed by the laws of the ROC and for the purpose of any arbitral or litigation proceedings such contracts shall be deemed to have been made and performed in Taiwan. If any provision contained in the Conditions is and/or becomes invalid, illegal or unenforceable in any respect under the laws of the ROC, the validity, legality and enforceability of the remaining provisions hereof shall not in any way be affected or impaired thereby.

17. Any dispute or claim arising out of or relating to the provision of, or any agreement to provide, services by the Company shall be referred to and determined by arbitration subject to the Company’s sole and overriding discretion to commence arbitration proceedings in the courts of Taiwan or the courts of any other country as the Company may choose. The parties may agree to the appointment of an arbitrator failing which either party may, after having made a written request to concur in the appointment of an arbitrator, request the ROC Arbitration Association to appoint an arbitrator. The place of arbitration shall be in Taiwan. There shall only be one arbitrator.
Test Report

Applicant: Littelfuse Philippines Inc.
LIMA Technology Center, Lipa City,
Malvar, Batangas

Sample Description:
One (1) group of submitted samples said to be:
Part Description : Nickel Anode
Part Number : 010104
Date Sample Received : Oct 30, 2013
Date Test Started : Oct 31, 2013

Test Conducted:
As requested by the applicant, for details please refer to attached pages.
# Test Report

**Number:** TWNC00340094

## Test Conducted

## Test Result Summary:

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Unit</th>
<th>Test Method</th>
<th>Result</th>
<th>RL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heavy Metal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cadmium (Cd) content</td>
<td>ppm</td>
<td>With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Lead (Pb) content</td>
<td>ppm</td>
<td>With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Mercury (Hg) content</td>
<td>ppm</td>
<td>With reference to IEC 62321-4: 2013, by microwave or acid digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Chromium VI (Cr(^{6+}))</td>
<td>mg/kg with 50 cm(^2)</td>
<td>With reference to IEC 62321: 2008, by boiling water extraction and determined by UV-Vis Spectrophotometer.</td>
<td>Negative(#)</td>
<td>0.02</td>
</tr>
</tbody>
</table>

**Remarks:**
- ppm = parts per million based on weight of tested sample = mg/kg
- ND = Not detected
- RL = Reporting Limit, Quantitation limit of analyte in sample
- mg/kg with 50cm\(^2\) = milligram per kilogram with 50 square centimeter
- Negative = A negative test result indicated positive observation was not found at the time of test
- # = Due to the insufficient sample area, reduced total sample surface of 10 cm\(^2\) was used and the dilution factor was adjusted accordingly.

**Responsibility of Chemist:** Kevin Liu/ Irene Chiou

**Date Sample Received:** Oct 30, 2013  
**Test Period:** Oct 31, 2013 to Nov 07, 2013

### RoHS Limit

<table>
<thead>
<tr>
<th>Restricted Substances</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium (Cd) content</td>
<td>0.01% (100ppm)</td>
</tr>
<tr>
<td>Lead (Pb) content</td>
<td>0.1% (1000ppm)</td>
</tr>
<tr>
<td>Mercury (Hg) content</td>
<td>0.1% (1000ppm)</td>
</tr>
<tr>
<td>Chromium VI (Cr(^{6+})) content</td>
<td>0.1% (1000ppm)</td>
</tr>
</tbody>
</table>

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.
Test Report

Number: TWNC00340094

Measurement Flowchart:

Test for Cd/Pb/Hg/Chromium (VI)

![Measurement Flowchart Diagram]

Remarks:
*1: List of Appropriate Acid:

<table>
<thead>
<tr>
<th>Material</th>
<th>Acid Added for Digestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymers</td>
<td>HNO₃, HCl, HF, H₂O₂, H₃BO₃</td>
</tr>
<tr>
<td>Metals</td>
<td>HNO₃, HCl, HF</td>
</tr>
<tr>
<td>Electronics</td>
<td>HNO₃, HCl, H₂O₂, HBF₄</td>
</tr>
</tbody>
</table>

*2: If the result of spot test is positive, Chromium VI would be determined as detected.
This report is made solely on the basis of your instructions and/or information and materials supplied by you. It is not intended to be a recommendation for any particular course of action. Intertek does not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and only accepts liability to the Client as is expressly contained in the terms and conditions governing Intertek’s provision of services to you. Intertek makes no warranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conduct the Review on a diligent and careful basis and we do not accept any liability to you for any loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or wilful misconduct.
1. Intertek Testing Services Taiwan Ltd. (hereinafter "the Company") agrees to provide its services in accordance with and subject to the terms and conditions herein contained (hereinafter "the Conditions"). The Conditions may be modified by a variation expressed in writing and signed on behalf of the Company by a director and no other action on the part of the Company or its employees or agents shall be construed as an acceptance of any other terms and conditions.

2. The Company acts for the person or body from whom the request to provide its services has originated (hereinafter "the Principal"). No other party is entitled to give instructions to the Company unless agreed by the Company.

3. All work (including but not limited to copyright) in any test reports, surveys, certificates of inspection or other material produced by the Company in the course of providing services shall remain vested in the Company. The Principal shall not reproduce or make copies, publish or disclose the contents of any such material or extracts thereof to any third party without the Company's prior written consent, which may be refused at its discretion. The Principal further undertakes that its servants and agents shall keep confidential and shall not publish or otherwise use any information that may be acquired relating to the Company's activities.

4. The Company undertakes to exercise due care and skill in the performance of its services and accepts responsibility only where such skill and care is not exercised.

4.1 The liability of the Company in respect of any claims for loss, damage or expense of whatsoever nature and however arising in respect of any breach of contract and/or any failure to exercise due care and skill by the Company shall in no circumstances exceed a total aggregate such equal to ten (10) times the amount of the fee or commission payable in respect of the specific service required under the particular contract with the Company which gives rise to such claims provided however that the Company shall have no liability in respect of any claims for indirect or consequential loss including loss of profit and/or loss of future business and/or loss of production and/or cancellation of contracts entered into by the Principal.

4.2 The Company shall not in any event be liable for any loss or damage caused by delay in performance or non-performance of any of its services where the same is occasioned by any cause whatsoever that is beyond the Company's control including but not limited to war, civil disturbance, requisitioning, governmental or parliamentary restrictions, prohibitions or enactment of any kind, import or export regulations, strike or dispute (whether involving its own employees or those of any other person), difficulties in obtaining labour or materials, breakdown of machinery, fire or accident. Should any such event occur the Company may cancel or suspend any contract for the provision of services without incurring any liability whatsoever.

4.3 The Principal will not be liable to the Principal for any loss or damage whatsoever sustained by the Principal as a result of any failure by the Company to comply with any time estimate given by the Company relating to the provision of its services. [See clause 9.1] [See clause 9.2]

4.4 The Principal acknowledges that samples may be damaged or destroyed in the course of testing carried out by the Company or any of the Company's agents or subcontractors as part of the necessary testing process and the Company shall in no event be liable for any loss or damage arising from the damage or destruction of the samples subject to testing.

4.5 In the event that the Principal requests for the return of the samples, the Company shall not be responsible for any re-packaging of the samples prior to such return and the Company shall in no circumstances be liable for any loss or damage caused to any of the samples during or as a result of their shipment to the Principal for the purpose of this clause 4.6.

5. Subject to the Principal's instructions as accepted by the Company, the test reports, surveys, certificates of inspection or other material produced by the Company shall contain statements of opinion made with due care within the limitations of the instructions received by the Company. The Company is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received.

5.1 The Company's inspector shall not perform the inspection or survey when goods are incomplete, sized and marked (unless otherwise agreed between the Company and the Principal). Goods for inspection or survey shall be unpacked in the presence of the Company's inspector and inspection or survey shall be carried out at the time and place specified by the Principal.

5.2 If the Company's inspector finds that the location is not suitable for carrying out a proper inspection or survey of goods or where necessary equipment for inspection or survey is not available the inspector may, if practical in the circumstances, draw samples of goods from the location and carry out the inspection or survey at the premises of the Company. The Principal shall be responsible for all costs and expenses incurred in relation thereto.

5.3 Reports, surveys or certificates issued following testing or analysis of samples contain the Company's specific opinion on those samples only but do not express any opinion upon the bulk from which the samples were drawn. If an opinion on the bulk is required the special arrangements in writing must be made in advance for the Company to enter the sampling of the bulk. In no circumstances shall the Company's responsibility extend beyond inspection, testing and reporting upon the samples actually drawn from the bulk and inspected, tested and surveyed by the Company and any inference to be drawn from the results of such inspection or survey shall be entirely in the discretion and at the sole and exclusive responsibility of the Principal.

6. The Company shall be entitled at its discretion to delegate the performance of the whole or any part of the services contracted for with the Principal to any agent or subcontractor.

7. Every officer, employee, agent or subcontractor of the Company shall have the benefit of the limitations of liability and the indemnities contained in the General Conditions. So far as relates to such limitations and indemnities, any contract entered into by the Company is entered into not only on its own behalf but also as agent and trustee for every such person as aforesaid.

8. If the requirements of the Principal necessitate the analysis of samples by the Principal only by any third party the Company will pass on the results of the analysis but without responsibility for its accuracy. Where the Company is only able to witness an analysis by the Principal or by any third party the Company will provide confirmation, if such be the case, that a correct sample has been analysed but will not otherwise be responsible for the accuracy of such analysis.

9. Every officer, employee, agent or subcontractor of the Company is bound to maintain the confidentiality of any information given in confidence to the Company in respect of the Company's business and affairs.

9.1 In so far as the information is in the possession of the Company and is obtained by the Company from any third party or from records made by the Company for the purpose of the business of the Company, the Company shall not be liable for any loss or damage suffered by the Principal in respect of any such information.

9.2 The Company shall be entitled to use the information in the performance of its services and to provide copies of the information to any third party in respect of the performance of the services.
9.6 take all necessary steps to eliminate or remedy any obstruction to or interruptions of the performance of the required services and repack all inspected goods immediately after any inspection or survey of them;

9.7 inform the Company in advance of any known hazards or dangers, actual or potential, associated with any request for the provision of services by the Company including but not limited to the presence or risk of radiation, toxic or noxious or explosive elements or material, environmental pollution or poisons,

10. The Principal shall guarantee, hold harmless and indemnify the Company and its officers, employees, agents or subcontractors against

10.1 all claims made by any third party for any loss, damage or expense of whatsoever nature and howsoever arising relating to the performance, purported performance or non-performance of any of services to the extent that the aggregate of any such claims relating to any one service exceeds the limit mentioned in Condition 4.2.

10.2 any loss or damage suffered by the Company as a result of the provision of services by the Company to the Principal otherwise than resulting from the Company’s own error, negligence or wilful default.

11.1.1 The Principal will punctually pay the Company immediately upon presentation of the relevant invoice or within such other period as may have been agreed in writing by the Company all charges rendered by the Company failing which interest will become due at the rate of 1.5 per cent per month from the date of invoice until payment. The Principal further agrees and undertakes to reimburse the Company all disbursements reasonably incurred in connection with the provision of the services.

11.2 The Principal shall not be entitled to retain or defer payment of any sums due to the Company on account of any dispute, cross claim or set off which it may allege against the Company.

11.3 In the event of any suspension of payment arrangement with creditors, bankruptcy, insolvency, receivership or cessation of business or failure of the Principal to pay part or all of any sums owing to the Company, the Company shall be entitled to suspend all further performance of its services and withhold the issue of any test report, survey, certificate of inspection or other material requested forthwith and without liability until payment of all sums owing to the Company together with interest thereon is made.

12. Without prejudice to any rights the Company may have at law or under the Conditions, the Company has the following rights in the event of non-payment of sums owing to the Company as set out below:

12.1 The Company has a general and particular lien over all samples delivered to be tested for all claims and sums owing by the Principal to the Company under any contract whatsoever and in any other way whatsoever.

12.2 During the currency of any such lien the Company is entitled to be paid reason able storage charges for samples retained in the Company’s custody.

12.3 Without prejudice to the Company’s lien and other rights under Conditions 12.1 to 12.2 above, if default in payment or survey of the goods takes place on the premises of the Company, the Company may give notice to the Principal that the goods (or any part thereof) are ready for collection and the Company shall collect the same within three (3) calendar days (Saturdays, Sundays and Public Holidays excepted) Upon the expiry of this period, if the goods are not collected by the Principal, at the sole discretion of the Company the goods may be deemed abandoned and/or destroyed.

12.4 Without prejudice to Conditions 12.3 above, the Company shall have the discretion to store the goods (or any of them) at its premises or elsewhere at the Principal’s expense if the Principal has deposited the goods at the Company’s premises for the performance of these services and has subsequently failed to collect the said goods.

12.5 The expenses by way of disbursements that the Company may reclaim from the Principal include all reasonable costs incurred by the Company (whether by way of storage, insurance or otherwise) in respect of the goods and it is expressly declared that it shall be reasonable but not mandatory for the Company to effect comprehensive insurance in respect of the goods.

12.6 Without prejudice to the Company’s lien and other rights under Conditions 12.1 to 12.5 above, the risk and property in the goods shall remain at all times in the Principal.

13. In the event of the Company being prevented by reason of any cause whatsoever outside the Company’s control from performing or completing any service for which an order has been given or an agreement made, the Principal will pay to the Company:

13.1 the amount of all abortive expenditure actually made or incurred, and

13.2 a proportion of the agreed fee or commission equal to the proportion (if any) of the service actually earned out, and the Company shall be relieved of all responsibility whatsoever for the partial or total non-performance of the required service.

14. The Company shall be discharged from all liability to the Principal for all claims for loss, damage or expense unless suit is brought within twelve (12) months after the date of the performance by the Company of the service which gives rise to the claim or in the event of any alleged non-performance within twelve (12) months of the date when such service should have been completed.

15. In the event that any unforeseen additional time or costs are incurred in the course of carrying out any of its services the Company shall be entitled to render additional charges as shall reasonably reflect such additional time and costs incurred.

16. All contracts for provision of services by the Company and the Conditions shall be construed in accordance with and governed by the laws of the ROC and for the purpose of any arbitration or litigation proceedings such contracts shall be deemed to have been made and performed in Taiwan. If any provision contained in the Conditions is and/or becomes invalid, illegal or unenforceable in any respect under the laws of the ROC, the validity, legality and enforceability of the remaining provisions hereof shall not in any way be affected or impaired thereby.

17. Any dispute or claim arising out of or relating to the provision of, or any agreement to provide, services by the Company shall be referred to and determined by arbitration subject to the Company’s sole and overriding discretion to commence litigation proceedings in the courts of Taiwan or any other court as the Company may choose. The parties may agree to the appointment of an arbitrator failing which either party may, after having made a written request to concur in the appointment of an arbitrator, request the ROC Arbitration Association to appoint an arbitrator. The place of arbitration shall be in Taiwan. There shall only be one arbitrator.
Test Report

Applicant: Littelfuse Philippines Inc.
LIMA Technology Center, Lipa City,
Malvar, Batangas

Sample Description:
One (1) group of submitted samples said to be:
Part Description: Tin Anode
Part Number: 010113
Date Sample Received: Oct 30, 2013
Date Test Started: Oct 31, 2013

Test Conducted:
As requested by the applicant, for details please refer to attached pages.

Authorized by:
On Behalf of Intertek Testing Services Taiwan Limited

K. Y. Liang
Director
## Test Result Summary:

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Unit</th>
<th>Test Method</th>
<th>Result</th>
<th>RL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heavy Metal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cadmium (Cd) content</td>
<td>ppm</td>
<td>With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Lead (Pb) content</td>
<td>ppm</td>
<td>With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.</td>
<td>108</td>
<td>2</td>
</tr>
<tr>
<td>Mercury (Hg) content</td>
<td>ppm</td>
<td>With reference to IEC 62321-4: 2013, by microwave or acid digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Chromium VI (Cr(^{6+})) content</td>
<td>mg/kg with 50 cm(^2)</td>
<td>With reference to IEC 62321: 2008, by boiling water extraction and determined by UV-Vis Spectrophotometer.</td>
<td>Negative</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Remarks:  
ppm = Parts per million based on weight of tested sample = mg/kg  
ND = Not detected  
RL = Reporting Limit, quantitation limit of analyte in sample  
mg/kg with 50cm\(^2\) = Milligram per kilogram with 50 square centimeter  
Negative = A negative test result indicated positive observation was not found at the time of test.

Responsibility of Chemist: Kevin Liu/ Irene Chiou

Date Sample Received : Oct 30, 2013  

### RoHS Limit

<table>
<thead>
<tr>
<th>Restricted Substances</th>
<th>Limits</th>
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<tbody>
<tr>
<td>Cadmium (Cd) content</td>
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<td>0.1% (1000ppm)</td>
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<tr>
<td>Chromium VI (Cr(^{6+})) content</td>
<td>0.1% (1000ppm)</td>
</tr>
</tbody>
</table>

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.
Test Report

Test Conducted
Test For Cd/Pb/Hg/Chromium (VI)
Chromium (VI): IEC 62321:2008

Sampling

Cd/Pb/Hg
For different material, digest the sample with appropriate acid*1
Confirm the tested samples are totally dissolved
Make up with deionized water
Analyzed by ICP-OES

Cd²⁺
Metal
By spot test
Weigh sample and add alkaline solution
Definite temp. extraction

Polymers / Electronics

By spot test
Get 50cm² sample
Definite temp. extraction
Cool and filter the extract

Cd/Pb/Hg
Make up with deionized water and add diphenyl-carbazide solution
Analyzed by UV-VIS

*1 For different material, digest the sample with appropriate acid

*2 Negative

Get 50cm² sample
Boiling water extraction

Metal
Weigh sample and add alkaline solution
Definite temp. extraction
Cool and filter the extract

Analyzed by UV-VIS

Confirm the tested samples are totally dissolved
Make up with deionized water
Analyzed by ICP-OES
This report is made solely on the basis of your instructions and/or information and materials supplied by you. It is not intended to be a recommendation for any particular course of action. Intertek does not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and only accepts liability to the Client insofar as is expressly contained in the terms and conditions governing Intertek's provision of services to you. Intertek makes no warranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conduct the Review on a diligent and careful basis and we do not accept any liability to you for any loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or wilful misconduct.
TERMS AND CONDITIONS OF BUSINESS

1. Intertek Testing Services Taiwan Ltd. (hereinafter "the Company") agrees to provide its services in accordance with and subject to the terms and conditions herein contained (hereinafter "the Conditions"). The Conditions may only be modified by a variation expressed in writing and signed on behalf of the Company by a director and no other person on behalf of the Company or its employees or agents shall be construed as an acceptance of any other terms and conditions.

2. The Company acts for the person or body from whom the request to provide its services has originated (hereinafter "the Principal"). No other party is entitled to give instructions to the Company unless agreed by the Company.

3. All rights (including but not limited to copyright) in any test reports, surveys, certificates of inspection or other material produced by the Company in the course of providing its services shall remain vested in the Company. The Principal shall not reproduce or make copies, publish or disclose any part of any such material except with the written consent of the Company, which may be refused at its discretion. The Principal further undertakes that its servants and agents shall keep confidential and shall not publish or otherwise use any information that may become acquired relating to the Company's activities.

4. The Company undertakes to exercise due care and skill in the performance of its services and accepts responsibility only where such skill and care is not exercised.

4.1 The liability of the Company in respect of any claims for loss, damage or expense whatsoever nature and howsoever arising in respect of any breach of contract and/or any failure to exercise due care and skill by the Company shall in no circumstances exceed a total aggregate sum equal to ten (10) times the amount of the fee or commission payable in respect of the specific service required under the particular contract with the Company which gives rise to such claims provided however that the Company shall have no liability in respect of any claims for indirect or consequential loss including loss of profit and/or loss of future business and/or loss of production and/or cancellation of contracts entered into by the Principal.

4.2 The Company shall not in any event be liable for any loss or damage caused by delay in performance or non-performance of any of its services where the same is occasioned by any cause whatsoever that is beyond the Company's control including but not limited to war, civil disturbance, requisitioning, governmental or parliamentary restriction, prohibitions or enactment of any kind, import or export regulations, strike or trade dispute (whether involving its own employees or those of any other person), difficulties in obtaining workers or materials, breakdown of machinery, fire or accident. Should any such event occur the Company may cancel or suspend any contract for the provision of services without incurring any liability whatsoever.

4.3 The Company will not be liable to the Principal for any loss or damage whatsoever sustained by the Principal as a result of any failure by the Company to comply with any time estimate given by the Company relating to the provision of its services. [See clause 4.1] [See clause 4.2]

4.4 The Principal acknowledges that samples may be damaged or destroyed in the course of testing carried out by the Company or any of the Company's agent or subcontractor as part of the necessary testing process and the Company shall not in any event be liable for any loss or damage arising from the damage or destruction of the samples subject to testing.

4.5 In the event that the Principal requests for the return of the samples, the Company shall not be responsible for any re-packaging of the samples prior to such return and the Company shall in no circumstances be liable for any loss or damage caused to any of the samples during or as a result of their shipment to the Principal for the purpose of clause 4.6.

4.6 Subject to the Principal's instructions as accepted by the Company, the test reports, surveys, certificates of inspection or other material produced by the Company shall contain statements of opinion made with due care within the limitations of the instructions received by the Company. The Company is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received

4.7 All equipment and instruments used by the Company for inspection and testing shall be in good working order at all times. Samples are not returned to the Principal unless agreed by the Company in writing.

4.8 The Company undertakes to exercise due care and skill in the performance of its services and accepts responsibility only where such skill and care is not exercised.

5.1 The Company shall in no circumstances be liable for any loss or damage caused to any of the samples during or as a result of their shipment to the Principal for the purpose of clause 4.2.

5.2 Subject to the Principal's instructions as accepted by the Company, the test reports, surveys, certificates of inspection or other material produced by the Company shall contain statements of opinion made with due care within the limitations of the instructions received by the Company. The Company is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received.

5.3 If the Company's inspector finds that the location is not suitable for carrying out a proper inspection or survey of goods or where necessary equipment for inspection or survey is not available the inspector may, if practical in the circumstances, draw samples of goods from the location and carry out the inspection or survey at the premises of the Company. The Principal shall be responsible for all costs and expenses incurred in relation thereto.

5.4 Reports, surveys or certificates issued following testing or analysis of samples contain the Company's specific opinion on those samples only but do not express any opinion upon the bulk from which the samples were drawn. If an opinion on the bulk is requested special arrangements in writing must be made in advance for the Company for the inspection and sampling of the bulk. In no circumstances shall the Company's responsibility extend beyond inspection, testing and reporting upon the samples actually drawn from the bulk and tested and surveyed by the Company and any inference to be drawn from the results of such inspection or survey shall be entirely in the discretion and at the sole and exclusive responsibility of the Principal.

6. The Company shall be entitled at its discretion to delegate the performance of the whole or any part of the services contracted for with the Principal to any agent or subcontractor.

7. Every officer, employee, agent or subcontractor of the Company shall have the benefit of the limitations of liability and the indemnities contained in the General Conditions. So far as relates to such limitations and indemnities, any contract entered into by the Company is entered into not only on its own behalf but also as agent and trustee for every such person as aforesaid.

8. If the requirements of the Principal necessitate the analysis of samples by the Principal or by any third party the Company will pass the results of the analysis but without responsibility for its accuracy. Where the Company is only able to witness an analysis by the Principal or by any third party the Company will provide confirmation, if such be the case, that a correct sample has been analysed but will not otherwise be responsible for the accuracy of such analysis.

9.1 ensure that instructions to the Company are given in due time and are accompanied by sufficient information to enable the required services to be performed effectively

9.2 accept that documents reflecting arrangements or agreements made between the Principal and any third party, or third party documents such as copies of contracts of sale, letters of credit, bills of lading, etc., are received by the Company considered to be for information only, without extending or restricting the services to be provided or obligations accepted by the Company

9.3 enables all necessary access for the Company's representatives to enable the required services to be performed effectively

9.4 supply, if required, any special equipment and personnel necessary for the performance of the required services

9.5 ensure that all necessary measures are taken for safety and security of working conditions, sites and installations during the performance of the required services,
9.6 take all necessary steps to eliminate or remedy any obstruction to or interruptions in the performance of the required services and repack all inspected goods immediately after any inspection or survey of them; 

9.7 inform the Company in advance of any known hazards or dangers, actual or potential, associated with any request for the provision of services by the Company including but not limited to the presence or risk of radiation, toxics or noxious or explosive elements or materials, environmental pollution or poisons; 

10. The Principal shall guarantee, hold harmless and indemnify the Company and its officers, employees, agents or subcontractors against 

10.1 all claims made by any third party for any loss, damage or expense of whatsoever nature and howsoever arising relating to the performance, purported performance or non-performance of any of the services to the extent that the aggregate of any such claims relating to any one service exceeds the limit mentioned in Condition 4.2. 

10.2 any loss or damage suffered by the Company as a result of the provision of services by the Company to the Principal otherwise than resulting from the Company's own error, negligence or willful default. 

11.1 The Principal will punctually pay the Company immediately upon presentation of the relevant invoice or in such other period as may have been agreed in writing by the Company, all charges rendered by the Company failing which interest will become due at the rate of 1.5 per cent per month from the date of invoice until payment. The Principal further agrees and undertakes to reimburse the Company all disbursements reasonably incurred in connection with the provision of the services. 

11.2 The Principal shall not be entitled to retain or defer payment of any sums due to the Company on account of any dispute, cross claim or set off from which it may arise against the Company. 

11.3 In the event of any suspension of payment arrangement with creditors, bankruptcy, insolvency, receivership or cessation of business or failure of the Principal to pay part or all of any sums owing to the Company, the Company shall be entitled to suspend all further performance of its services and withhold the issue of any test report, survey, certificate of inspection or other material requested forthwith without liability until payment of all sums owing to the Company together with interest thereon is made. 

12. Without prejudice to any rights the Company may have at law or under the Conditions, the Company has the following rights in the event of non-payment of sums owing to the Company as set out below: 

12.1 The Company has a general and particular lien over all samples delivered to be tested for all claims and sums owing by the Principal to the Company under any contract whatsoever and in any other way whatsoever. 

12.2 During the currency of any such lien the Company is entitled to pay reasonable storage charges for samples retained in the Company's custody. 

12.3 Without prejudice to the Company's lien and other rights under Conditions 12.1 to 12.2 above, if test, inspection or survey of the goods takes place on the premises of the Company, the Company may give notice to the Principal that the goods (or any part thereof) are ready for collection and the Principal shall collect the same within three (3) calendar days (Saturdays, Sundays and Public Holidays excepted) upon the expiry of this period, if the goods are not collected by the Principal, at the sole discretion of the Company, the goods may be deemed abandoned and/or destroyed. 

12.4 Without prejudice to Conditions 12.3 above, the Company shall have the discretion to store the goods (or any of them) at their own premises or elsewhere at the Principal's expense if the Principal has deposited the goods at the Company's premises for the performance of these services and has subsequently failed to collect the said goods. 

12.5 The expenses by way of disbursements that the Company may reclaim from the Principal include all reasonable costs incurred by the Company (whether by way of storage, insurance or otherwise) in respect of the goods and it is expressly declared that it shall be reasonable but not mandatory for the Company to effect comprehensive insurance in respect of the goods. 

12.6 Without prejudice to the Company's lien and other rights under Conditions 12.1 to 12.5 above, the risk and property in the goods shall remain at all times in the Principal. 

13. In the event of the Company being prevented by reason of any cause whatsoever outside the Company's control from performing or completing any service for which an order has been given or an agreement made, the Principal will pay to the Company 

13.1 the amount of all abortive expenditure actually made or incurred, and 

13.2 a proportion of the agreed fee or commission equal to the proportion (if any) of the service actually earned, and 

13.3 the Company shall be relieved of all responsibility whatsoever for the partial or total non-performance of the required service. 

14. The Company shall be discharged from all liability to the Principal for all claims for loss, damage or expense unless suit is brought within twelve (12) months after the date of the performance by the Company of the service which gives rise to the claim or in the event of any alleged non-performance within twelve (12) months of the date when such service should have been completed. 

15. In the event that any unforeseen additional time or costs are incurred in the course of carrying out any of its services the Company shall be entitled to render additional charges as shall reasonably reflect such additional time and costs incurred. 

16. All contracts for provision of services by the Company and the Conditions shall be construed in accordance with and governed by the laws of the ROC and for the purpose of any arbitration or litigation proceedings such contracts shall be deemed to have been made and performed in Taiwan. If any provision contained in the Conditions is and/or becomes invalid, illegal or unenforceable in any respect under the laws of the ROC, the validity, legality and enforceability of the remaining provisions hereof shall not in any way be affected or impaired thereby. 

17. Any dispute or claim arising out of or relating to the provisions of, or any agreement to provide, services by the Company shall be referred to and determined by arbitration subject to the Company's sole and overriding discretion to commence litigation proceedings in the courts of Taiwan or the courts of any other country as the Company may choose. The parties may agree to the appointment of an arbitrator failing which either party may, after having made a written request to concur in the appointment of an arbitrator, request the ROC Arbitration Association to appoint an arbitrator. The place of arbitration shall be in Taiwan. There shall only be one arbitrator.
Test Report

Applicant: Littelfuse Philippines Inc.  
LIMA Technology Center, Lipa City, 
Malvar, Batangas

Sample Description:
One (1) group of submitted samples said to be:
Part Description: Copper Anode
Part Number: 010114
Date Sample Received: Oct 30, 2013
Date Test Started: Oct 31, 2013

Test Conducted:
As requested by the applicant, for details please refer to attached pages.

Authorized by:
On Behalf of Intertek Testing Services 
Taiwan Limited

K. Y. Liang
Director
Test Report

Number: TWNC00340092

Test Conducted

Test Result Summary:

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Unit</th>
<th>Test Method</th>
<th>Result</th>
<th>RL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coppery metal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cadmium (Cd) content</td>
<td>ppm</td>
<td>With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Lead (Pb) content</td>
<td>ppm</td>
<td>With reference to IEC 62321-5: 2013, by microwave or acid digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Mercury (Hg) content</td>
<td>ppm</td>
<td>With reference to IEC 62321-4: 2013, by microwave or acid digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Chromium VI (Cr⁶⁺) content</td>
<td>mg/kg with 50 cm²</td>
<td>With reference to IEC 62321: 2008, by boiling water extraction and determined by UV-Vis Spectrophotometer.</td>
<td>Negative(#)</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Remarks: ppm = parts per million based on weight of tested sample = mg/kg  
ND = Not detected  
RL = Reporting Limit, Quantitation limit of analyte in sample  
mg/kg with 50 cm² = milligram per kilogram with 50 square centimeter  
Negative = A negative test result indicated positive observation was not found at the time of test  
# = Due to the insufficient sample area, reduced total sample surface of 10 cm² was used and the dilution factor was adjusted accordingly.

Responsibility of Chemist: Kevin Liu / Irene Chiou

Date Sample Received : Oct 30, 2013  

RoHS Limit

<table>
<thead>
<tr>
<th>Restricted Substances</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium (Cd) content</td>
<td>0.01% (100ppm)</td>
</tr>
<tr>
<td>Lead (Pb) content</td>
<td>0.1% (1000ppm)</td>
</tr>
<tr>
<td>Mercury (Hg) content</td>
<td>0.1% (1000ppm)</td>
</tr>
<tr>
<td>Chromium VI (Cr⁶⁺) content</td>
<td>0.1% (1000ppm)</td>
</tr>
</tbody>
</table>

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.
Test Report

Test Conducted
Measurement Flowchart:

Test for Cd/Pb/Hg/Chromium (VI)
Chromium (VI): IEC 62321:2008

Sampling

Cd/Pb/Hg
- For different material, digest the sample with appropriate acid\(^1\)
- Confirm the tested samples are totally dissolved
- Make up with deionized water
- Analyzed by ICP-OES

C\(_{6}^{6+}\)
- Polymers / Electronics
- By spot test
- Negative\(^2\)
- Weigh sample and add alkaline solution
- Definite temp. extraction
- Cool and filter the extract
- Make up with deionized water and add diphenyl-carbazide solution
- Analyzed by UV-VIS

Remarks:
*1: List of Appropriate Acid:

<table>
<thead>
<tr>
<th>Material</th>
<th>Acid Added for Digestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymers</td>
<td>HNO(_3), HCl, HF, H(_2)O(_2), H(_3)BO(_3)</td>
</tr>
<tr>
<td>Metals</td>
<td>HNO(_3), HCl, HF</td>
</tr>
<tr>
<td>Electronics</td>
<td>HNO(_3), HCl, H(_2)O(_2), HBF(_4)</td>
</tr>
</tbody>
</table>

*2: If the result of spot test is positive, Chromium VI would be determined as detected.
End of Report

This report is made solely on the basis of your instructions and/or information and materials supplied by you. It is not intended to be a recommendation for any particular course of action. Intertek does not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and only accepts liability to the Client as is expressly contained in the terms and conditions governing Intertek’s provision of services to you. Intertek makes no warranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conduct the Review on a diligent and careful basis and we do not accept any liability to you for any loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or wilful misconduct.
TERMS AND CONDITIONS OF BUSINESS

1. Intertek Testing Services Taiwan Ltd. (hereinafter the “Company”) agrees to provide its services in accordance with and subject to the terms and conditions herein contained (hereinafter “the Conditions”). The Conditions may be modified by a variation expressed in writing and signed on behalf of the Company by a director and no other action on the part of the Company or its employees or agents shall be construed as an acceptance of any other terms and conditions.

2. The Company acts for the person or body from whom the request to provide its services has originated (hereinafter “the Principal”). No other party is entitled to give instructions to the Company unless agreed by the Company.

3. All rights (including but not limited to copyright) in any test reports, surveys, certificates of inspection or other material produced by the Company in the course of providing its services shall remain vested in the Company. The Principal shall not reproduce or make copies, publish or disclose the contents of any such material or extracts thereof to any third party without the Company’s prior written consent, which may be refused at its discretion. The Principal further undertakes that its servants and agents shall keep confidential and shall not publish or otherwise use any information that may be acquired relating to the Company’s activities.

4. The Company undertakes to exercise due care and skill in the performance of its services and accepts responsibility only where such skill and care is not exercised.

4.1 The liability of the Company in respect of any claims for loss, damage or expense of whatsoever nature and however arising in respect of any breach of contract and/or any failure to exercise due care and skill by the Company shall in no circumstances exceed a total aggregate sum equal to ten (10) times the amount of the fee or commission payable in respect of the specific service required under the particular contract with the Company which gives rise to such claims provided however that the Company shall have no liability in respect of any claims for indirect or consequential loss including loss of profit and/or loss of future business and/or loss of production and/or cancellation of contracts entered into by the Principal.

4.2 The Company shall not in any event be liable for any loss or damage caused by delay in performance or non-performance of any of its services where the same is occasioned by any cause whatsoever that is beyond the Company’s control including but not limited to war, civil disturbance, requisitioning, governmental or parliamentary restriction, prohibitions or enactment of any kind, import or export regulations, strike or trade dispute (whether involving its own employees or those of any other person), difficulties in obtaining workers or materials, breakdown of machinery, fire or accident. Should any such event occur the Company may cancel or suspend any contract for the provision of services without incurring any liability whatsoever.

4.3 The Company will not be liable to the Principal for any loss or damage whatsoever sustained by the Principal as a result of any failure by the Company to comply with any time estimate given by the Company relating to the provision of its services. [See clause 9.1] [See clause 9.2]

4.4 The Principal acknowledges that samples may be damaged or destroyed in the course of testing carried out by the Company or any of the Company’s agents or subcontractors as part of the necessary testing process and the Company shall not in any event be liable for any loss or damage arising from the destruction of the samples subject to testing.

4.5 In the event that the Principal requests for the return of the samples, the Company shall not be responsible for any re-packaging of the samples prior to such return and the Company shall in no circumstances be liable for any loss or damage caused to any of the samples during or as a result of their shipment to the Principal for the purpose of this Clause 4.6.

5.1 Subject to the Principal’s instructions as accepted by the Company, the test reports, surveys, certificates of inspection or other material produced by the Company shall contain statements of opinion made with due care within the limitation of the instructions received by the Company. The Company is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received.

5.2 For pre-shipping inspection or survey of goods, the Company’s inspector shall perform the inspection or survey when goods are 100% completed, packed and marked (unless otherwise agreed between the Company and the Principal). Goods for inspection or survey shall be unpacked in the presence of the Company’s inspector and inspection or survey shall, subject to Condition 5.3, take place at the point specified by the Principal.

5.3 If the Company’s inspector finds that the location is not suitable for carrying out a proper inspection or survey of goods or where no necessary equipment for inspection or survey is not available the inspector may, if practical in the circumstances, draw samples of goods from the location and carry out the inspection or survey at the premises of the Company. The Principal shall be responsible for all costs and expenses incurred in relation thereto.

5.4 Reports, surveys or certificates issued following testing or analysis of samples contain the Company’s specific opinion on those samples only but do not express any opinion upon the bulk from which the samples were drawn. If an opinion on the bulk is required special arrangements in writing must be made in advance with the Company for the inspection and sampling of the bulk. In no circumstances shall the Company’s responsibility extend beyond inspection, testing and reporting upon the samples actually drawn from the bulk and inspected, tested and surveyed by the Company and any reference to be drawn from the results of such inspection or survey or testing shall be entirely in the discretion and at the sole and exclusive responsibility of the Principal.

6. The Company shall be entitled at its discretion to delegate the performance of the whole or any part of the services contracted for with the Principal to any agent or sub-contractor.

7. Every officer, employee, agent or sub-contractor of the Company shall have the benefit of the limitations of liability and the indemnities contained in the General Conditions. So far as relates to such limitations and indemnities, any contract entered into by the Company is entered into not only on its own behalf but also as agent and trustee for every such person as aforesaid.

8. If the requirements of the Principal necessitate the analysis of samples by the Principal or by any third party the Company will pass on the results of the analysis but without responsibility for its accuracy. Where the Company is only able to witness an analysis by the Principal or by any third party the Company will provide confirmation, if such be the case, that a correct sample has been analysed but will not otherwise be responsible for the accuracy of such analysis.

9.1 ensure that instructions to the Company are given in due time and are accompanied by sufficient information to enable the required services to be performed effectively.

9.2 accept that documents reflecting arrangements or agreements made between the Principal and any third party, or third party documents such as copies of contracts of sale, letters of credit, bills of lading, etc. are -if received by the Company considered to be for information only, without extending or restricting the services to be provided or obligations accepted by the Company.

9.3 ensure all necessary access for the Company’s representatives to enable the required services to be performed effectively.

9.4 supply, if required, any special equipment and personnel necessary for the performance of the required services.

9.5 ensure that all necessary measures are taken for safety and security of working conditions, sites and installations during the performance of the required services.
9.6 take all necessary steps to eliminate or remedy any obstruction to or interruptions in the performance of the required services and repack all inspected goods immediately after any inspection or survey of them;

9.7 inform the Company in advance of any known hazards or dangers, actual or potential, associated with any request for the provision of services by the Company including but not limited to the presence or risk of radiation, toxic or noxious or explosive elements or materials, environmental pollution or poisons;

10. The Principal shall guarantee, hold harmless and indemnify the Company and its officers, employees, agents or subcontractors against:

10.1 all claims made by any third party for any loss, damage or expense of whatsoever nature and howsoever arising relating to the performance, purported performance or non-performance of any of the services to the extent that the aggregate of any such claims relating to any one service exceeds the limit mentioned in Condition 4.2.

10.2 any loss or damage suffered by the Company as a result of the provision of services by the Company to the Principal otherwise than resulting from the Company's own error, negligence or wilful default.

11.1 The Principal will punctually pay the Company immediately upon presentation of the relevant invoice or within such other period as may have been agreed in writing by the Company all charges rendered by the Company failing which interest will become due at the rate of 1.5 per cent per month from the date of invoice until payment. The Principal further agrees and undertakes to reimburse the Company all disbursements reasonably incurred in connection with the provision of the services.

11.2 The Principal shall not be entitled to retain or defer payment of any sums due to the Company on account of any dispute, cross claim or set off which it may allege against the Company.

11.3 In the event of any suspension of payment arrangement with creditors, bankruptcy, insolvency, receivership or cessation of business or failure of the Principal to pay part or all of any sums owing to the Company, the Company shall be entitled to suspend all further performance of its services and withhold the issue of any test report, survey, certificate of inspection or other material requested forthwith and without liability until payment of all sums owing to the Company together with interest thereon is made.

12. Without prejudice to any rights the Company may have at law or under the Conditions, the Company has the following rights in the event of non-payment of sums owing to the Company as set out below:

12.1 The Company has a general and particular lien over all samples delivered to be tested for all claims and sums owing by the Principal to the Company under any contract whatever and in any other way whatever.

12.2 During the currency of any such lien the Company is entitled to be paid reasonable storage charges for samples retained in the Company's custody.

12.3 Without prejudice to the Company's lien and other rights under Conditions 12.1 to 12.2 above, if test, inspection or survey of the goods takes place on the premises of the Company, the Company may give notice to the Principal that the goods (or any part thereof) are ready for collection and the Principal shall collect the same within three (3) calendar days (Saturdays, Sundays and Public Holidays excepted). Upon expiry of this period, if the goods are not collected by the Principal, at the sole discretion of the Company the goods may be deemed abandoned and/or destroyed.

12.4 Without prejudice to Conditions 12.3 above, the Company shall have the discretion to store the goods (or any of them) at their own premises or elsewhere at the Principal's expense if the Principal has deposited the goods at the Company's premises for the performance of these services and has subsequently failed to collect the said goods.

12.5 The expenses by way of disbursements that the Company may reclaim from the Principal include all reasonable costs incurred by the Company (whether by way of storage, insurance or otherwise) in respect of the goods and it is expressly declared that it shall be reasonable but not mandatory for the Company to effect comprehensive insurance in respect of the goods.

12.6 Without prejudice to the Company's lien and other rights under Conditions 12.1 to 12.5 above, the risk and property in the goods shall remain at all times in the Principal.

13. In the event of the Company being prevented by reason of any cause whatsoever outside the Company's control from performing or completing any service for which an order has been given or an agreement made, the Principal will pay to the Company:

13.1 the amount of all abortive expenditure actually made or incurred and

13.2 a proportion of the agreed fee or commission equal to the proportion (if any) of the service actually earned out;

and the Company shall be relieved of all responsibility whatsoever for the partial or total non-performance of the required service.

14. The Company shall be discharged from all liability to the Principal for all claims for loss, damage or expense unless suit is brought within twelve (12) months after the date of the performance by the Company of the service which gives rise to the claim or in the event of any alleged non-performance within twelve (12) months of the date when such service should have been completed.

15. In the event that any unforeseen additional time or costs are incurred in the course of carrying out any of its services the Company shall be entitled to render additional charges as shall reasonably reflect such additional time and costs incurred.

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17. Any dispute or claim arising out of or relating to the provision of, or any agreement to provide, services by the Company shall be referred to and determined by arbitration subject to the Company's sole and unlimited discretion to commence arbitration proceedings in the courts of Taiwan or the courts of any other country as the Company may choose. The parties may agree to the appointment of an arbitrator sitting which either party may, after having made a written request to concur in the appointment of an arbitrator, request the ROC Arbitration Association to appoint an arbitrator. The place of arbitration shall be in Taiwan. There shall only be one arbitrator.
Test Report

Applicant: Littelfuse Philippines Inc.
LIMA Technology Center, Lipa City,
Malvar, Batangas

Number : TWNC00319525
Date : Jun 27, 2013

Sample Description:
One (1) group of submitted samples said to be:
Part Description : Photoimageable solder mask green(Peters)
Part Number : 090418
Date Sample Received : Jun 21, 2013
Date Test Started : Jun 24, 2013

Test Conducted :
As requested by the applicant, for details please refer to attached pages.

Authorized by:
On Behalf of Intertek Testing Services
Taiwan Limited

K. Y. Liang
Director
## Test Result Summary:

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Unit</th>
<th>Test Method</th>
<th>Result</th>
<th>RL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heavy Metal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cadmium (Cd) content ppm</td>
<td>ppm</td>
<td>With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Lead (Pb) content ppm</td>
<td>ppm</td>
<td>With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Mercury (Hg) content ppm</td>
<td>ppm</td>
<td>With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Antimony (Sb) Content ppm</td>
<td>ppm</td>
<td>With reference to USEPA 3052, by microwave digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Chromium VI (Cr(^{6+})) content ppm</td>
<td>ppm</td>
<td>With reference to IEC 62321: 2008, by alkaline digestion and determined by UV-Vis Spectrophotometer.</td>
<td>ND</td>
<td>1</td>
</tr>
<tr>
<td><strong>Polybrominated Biphenyls (PBBs)</strong></td>
<td>ppm</td>
<td>With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.</td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Monobrominated Biphenyls (MonoBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Dibrominated Biphenyls (DiBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Tribrominated Biphenyls (TriBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Tetrabrominated Biphenyls (TetraBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Pentabrominated Biphenyls (PentaBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Hexabrominated Biphenyls (HexaBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Heptabrominated Biphenyls (HeptaBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Octabrominated Biphenyls (OctaBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Nonabrominated Biphenyls (NonaBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Decabrominated Biphenyl (DecaBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Test Item</td>
<td>Unit</td>
<td>Test Method</td>
<td>Result</td>
<td>RL</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>------</td>
<td>-----------------------------------------------------------------------------</td>
<td>--------</td>
<td>----</td>
</tr>
<tr>
<td>Polybrominated Diphenyl Ethers (PBDEs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monobrominated Diphenyl Ethers (MonoBDE)</td>
<td>ppm</td>
<td>With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.</td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Dibrominated Diphenyl Ethers (DiBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Tribrominated Diphenyl Ethers (TriBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Tetrabrominated Diphenyl Ethers (TetraBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Pentabrominated Diphenyl Ethers (PentaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Hexabrominated Diphenyl Ethers (HexaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Heptabrominated Diphenyl Ethers (HeptaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Octabrominated Diphenyl Ethers (OctaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Nonabrominated Diphenyl Ethers (NonaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Decabrominated Diphenyl Ether (DecaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Halogen Content</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluorine (F)</td>
<td>ppm</td>
<td>With reference to EN 14582:2007 by calorimetric bomb with oxygen and determined by Ion Chromatograph.</td>
<td>ND</td>
<td>50</td>
</tr>
<tr>
<td>Chlorine (Cl)</td>
<td>ppm</td>
<td></td>
<td>254</td>
<td>50</td>
</tr>
<tr>
<td>Bromine (Br)</td>
<td>ppm</td>
<td></td>
<td>167</td>
<td>50</td>
</tr>
<tr>
<td>Iodine (I)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>50</td>
</tr>
<tr>
<td>Phthalates</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Di(2-ethylhexyl) Phthalate (DEHP)</td>
<td>ppm</td>
<td>With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.</td>
<td>ND</td>
<td>10</td>
</tr>
<tr>
<td>Dibutyl Phthalate (DBP)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>10</td>
</tr>
<tr>
<td>Benzyl Butyl Phthalate (BBP)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>10</td>
</tr>
<tr>
<td>Diisobutyl Phthalate (DIBP)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>10</td>
</tr>
<tr>
<td>Others</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hexabromocyclododecane (HBCDD)</td>
<td>ppm</td>
<td>With reference to USEPA 3540C, by solvent extraction and determined by GC-MS.</td>
<td>ND</td>
<td>10</td>
</tr>
</tbody>
</table>
Test Report

Number: TWNC00319525

Test Conducted

Remarks: ppm = parts per million based on wet weight of tested sample = mg/kg
ND = Not detected
RL = Reporting Limit, Quantitation limit of analyte in sample

Responsibility of Chemist: Kevin Liu/ Irene Chiou/ Vico Lin

Date Sample Received: Jun 21, 2013
Test Period: Jun 24, 2013 To Jun 26, 2013

RoHS Limit

<table>
<thead>
<tr>
<th>Restricted Substances</th>
<th>Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium (Cd) content</td>
<td>0.01% (100ppm)</td>
</tr>
<tr>
<td>Lead (Pb) content</td>
<td>0.1% (1000ppm)</td>
</tr>
<tr>
<td>Mercury (Hg) content</td>
<td>0.1% (1000ppm)</td>
</tr>
<tr>
<td>Chromium VI (Cr^{6+}) content</td>
<td>0.1% (1000ppm)</td>
</tr>
<tr>
<td>Polybrominated Biphenyls (PBBs)</td>
<td>0.1% (1000ppm)</td>
</tr>
<tr>
<td>Polybrominated Diphenyl Ethers (PBDEs)</td>
<td>0.1% (1000ppm)</td>
</tr>
</tbody>
</table>

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.
Test Report

Number: TWNC00319525

Test Conducted
Measurement Flowchart:

Test for Cd/Pb/Hg/Cromium (VI)/PBBs/PBDEs Contents

Remarks:
*1: List of Appropriate Acid:

<table>
<thead>
<tr>
<th>Material</th>
<th>Acid Added for Digestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymers</td>
<td>HNO₃, HCl, HF, H₂O₂, H₃BO₃</td>
</tr>
<tr>
<td>Metals</td>
<td>HNO₃, HCl, HF</td>
</tr>
<tr>
<td>Electronics</td>
<td>HNO₃, HCl, H₂O₂, HBF₄</td>
</tr>
</tbody>
</table>

*2: If the result of spot test is positive, Chromium VI would be determined as detected.
Test Conducted

Measurement Flowchart:

Test for Heavy Metal (Sb) Contents
Reference Method: USEPA 3052

```
Sampling

↓

Weigh sample and digest in microwave digestion oven with suitable acid

↓

Confirm the tested samples are totally dissolved

↓

Transfer the digested solution and make up with deionized water

↓

Analyzed by ICP-OES
```
Test Conducted
Test for Halogen Contents
Reference Method: EN 14582

Sampling

Add absorbent in a combustion flask & place weighed sample in equipment

Fill oxygen into calorimetric bomb

Ignite then leave the bomb at room temperature

Transfer the absorbent into a volumetric flask

Make up with deionized water

Analyzed by ion chromatography
Test Conducted
Test for Phthalates Contents
Reference Method: EN 14372: 2004

Sampling

Weigh sample and add organic solvent

By solvent extraction

Concentrate the extract and make up with organic solvent

Analyzed by GC-MS
Test Conducted
Test for Hexabromocyclododecane (HBCDD) Content
Reference Method: USEPA 3540C

Sampling

Weigh sample and add organic solvent

By soxhlet extraction

Concentrate the extract and make up with organic solvent

Analyzed by GC-MS
This report is made solely on the basis of your instructions and/or information and materials supplied by you. It is not intended to be a recommendation for any particular course of action. Intertek does not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and only accepts liability to the Client insofar as is expressly contained in the terms and conditions governing Intertek’s provision of services to you. Intertek makes no warranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conduct the Review on a diligent and careful basis and we do not accept any liability to you for any loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or wilful misconduct.
TERMS AND CONDITIONS OF BUSINESS

1. Intertek Testing Services Taiwan Ltd. (hereinafter "the Company") agrees to provide its services in accordance with and subject to the terms and conditions herein contained (hereinafter "the Conditions"). The Conditions may only be modified by a variation expressed in writing and signed on behalf of the Company by a director and no other person on the part of the Company or its employees or agents shall be construed as an acceptance of any other terms and conditions.

2. The Company acts for the person or body from whom the request to provide its services has originated (hereinafter the "Principal"). No other party is entitled to give instructions to the Company unless agreed by the Company.

3. All rights (including but not limited to copyright) in any test reports, surveys, certificates of inspection or other material produced by the Company in the course of providing its services shall remain vested in the Company. The Principal shall not reproduce or make copies, publish or disclose the contents of any such material or extracts thereof to any third party without the Company’s prior written consent, which may be refused at its discretion. The Principal further undertakes that its servants and agents shall keep confidential and shall not publish or otherwise use any information that may be acquired relating to the Company’s activities.

4. The Company undertakes to exercise due care and skill in the performance of its services and accepts responsibility only where such skill and care is not exercised.

4.1 The liability of the Company in respect of any claims for loss, damage or expense of whatsoever nature and howsoever arising in respect of any breach of contract and/or any failure to exercise due care and skill by the Company shall in no circumstances exceed a total aggregate sum equal to ten (10) times the amount of the fee or commission payable in respect of the specific service required under the particular contract with the Company which gives rise to such claims provided however that the Company shall have no liability in respect of any claims for indirect or consequential loss including loss of profit and/or loss of future business and/or loss of production and/or cancellation of contracts entered into by the Principal.

4.2 The Company shall not in any event be liable for any loss or damage caused by delay in performance or non-performance of any of its services where the same is occasioned by any cause whatsoever that is beyond the Company’s control including but not limited to war, civil disturbance, requisitioning, governmental or parliamentary restriction, prohibitions or enactment of any kind, import or export regulations, strike or trade dispute (whether involving its own employees or those of any other person), difficulties in obtaining workmen or materials, breakdown of machinery, fire or accident. Should any such event occur the Company may cancel or suspend any contract for the provision of services without incurring any liability whatsoever.

4.3 The Principal shall not be liable to the Principal for any loss or damage whatsoever sustained by the Principal as a result of any failure by the Company to comply with any time estimate given by the Company relating to the provision of its services. [See clause 9.1] [See clause 9.2]

4.4 The Principal acknowledges that samples may be damaged or destroyed in the course of testing carried out by the Company or any of the Company’s agent or subcontractor as part of the necessary testing process and the Company shall not in any event be liable for any loss or damage arising from the damage or destruction of the samples subject to testing.

4.5 In the event that the Principal requests for the return of the samples, the Company shall not be responsible for any re-packaging of the samples prior to such return and the Company shall in no circumstances be liable for any loss or damage caused to any of the samples during or as a result of their shipment to the Principal for the purpose of this Clause 4.6.

5. 1 Subject to the Principal’s instructions as accepted by the Company, the test reports, surveys, certificates of inspection or other material produced by the Company shall contain statements of opinion made with due care within the limitation of the instructions received by the Company. The Company is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received.

5.2 For pre-shipment inspection or survey of goods, the Company’s inspector shall perform the inspection or survey when goods are 100% completed, packed and marked (unless otherwise agreed between the Company and the Principal). Goods for inspection or survey shall be unpacked in the presence of the Company’s inspector and inspection or survey shall, subject to Condition 5.3, take place at the place specified by the Principal.

5.3 If the Company’s inspector finds that the location is not suitable for carrying out a proper inspection or survey of goods or where necessary equipment for inspection or survey is not available the inspector may, if, in practical circumstances, draw samples of goods from the location and carry out the inspection or survey at the premises of the Company. The Principal shall be responsible for all costs and expenses incurred in relation thereto.

5.4 Reports, surveys or certificates issued following testing or analysis of samples contain the Company’s specific opinion on those samples only but do not express any opinion upon the bulk from which the samples were drawn. If an opinion on the bulk is required special arrangements in writing must be made in advance with the Company for the inspection and sampling of the bulk. In no circumstances shall the Company’s responsibility extend beyond inspection, testing and reporting upon the samples actually drawn from the bulk and inspected, tested and surveyed by the Company and any inference to be drawn from the results of such inspection or survey or testing shall be entirely in the discretion and at the sole and exclusive responsibility of the Principal.

6. The Company shall be entitled at its discretion to delegate the performance of the whole or any part of the services contracted for with the Principal to any agent or subcontractor.

7. Every officer, employee, agent or subcontractor of the Company shall have the benefit of the limitations of liability and the indemnities contained in the General Conditions. So far as relates to such limitations and indemnities, any contract entered into by the Company is entered into not only on its own behalf but also as agent and trustee for every such person as aforesaid.

8. If the requirements of the Principal necessitate the analysis of samples by the Principal or by any third party the Company will pass on the results of the analysis but without responsibility for its accuracy. Where the Company is only able to witness an analysis by the Principal or by any third party the Company will provide confirmation, if such be the case, that a correct sample has been analysed but will not otherwise be responsible for the accuracy of such analysis.

9. The Principal will

9.1 ensure that instructions to the Company are given in due time and are accompanied by sufficient information to enable the required services to be performed effectively.

9.2 accept that documents reflecting arrangements or agreements made between the Principal and any third party, or third party documents such as copies of contracts of sale, letters of credit, bills of lading, etc. are, if received by the Company considered to be for information only, without extending or restricting the services to be provided or obligations accepted by the Company.

9.3 procure all necessary access for the Company’s representatives to perform the required services to be performed effectively.

9.4 supply, if required, any special equipment and personnel necessary for the performance of the required services.

9.5 ensure that all necessary measures are taken for safety and security of working conditions, sites and installations during the performance of the required services.
9.6 take all necessary steps to eliminate or remedy any obstruction to or interruptions in the performance of the required services and repack all inspected goods immediately after any inspection or survey of them;

9.7 inform the Company in advance of any known hazards or dangers, actual or potential, associated with any request for the provision of services by the Company including but not limited to the presence or risk of radiation, toxic or noxious or explosive elements or material, environmental pollution or poisons;

10. The Principal shall guarantee, hold harmless and indemnify the Company and its officers, employees, agents or subcontractors against

10.1 all claims made by any third party for any loss, damage or expense of whatsoever nature and howsoever arising relating to the performance, purported performance or non-performance of any of services to the extent that the aggregate of any such claims relating to any one service exceeds the limit specified in Condition 4.2;

10.2 any loss or damage suffered by the Company as a result of the provision of services by the Company to the Principal otherwise than resulting from the Company’s own error, negligence or wilful default.

11.1 The Principal will punctually pay the Company immediately upon presentation of the relevant invoice or within such other period as may have been agreed in writing by the Company all charges rendered by the Company failing which interest will become due at the rate of 1.5 per cent per month from the date of invoice until payment. The Principal further agrees and undertakes to reimburse the Company all disbursements reasonably incurred in connection with the provision of services.

11.2 The Principal shall not be entitled to retain or defer payment of any sums due to the Company on account of any dispute, cross claim or set off which it may allege against the Company.

11.3 In the event of suspension of payment arrangement with creditors, bankruptcy, insolvency, receivership or cessation of business or failure of the Principal to pay part or all of any sums owing to the Company, the Company shall be entitled to suspend further performance of its services and withhold the issue of any test report, survey, certificate of inspection or other material requested forthwith and without liability until payment of all sums owing to the Company together with interest thereon is made.

12. Without prejudice to any rights the Company may have at law or under the Conditions, the Company has the following rights in the event of non-payment of sums owing to the Company as set out below:

12.1 The Company has a general and particular lien over all samples delivered to be tested for all claims and sums owing by the Principal to the Company under any contract whatsoever and in any other way whatsoever.

12.2 During the currency of any such lien the Company is entitled to be paid reasonable storage charges for samples retained in the Company’s custody.

12.3 Without prejudice to the Company’s lien and other rights under Conditions 12.1 to 12.2 above, if test, inspection or survey of the goods takes place on the premises of the Company, the Company may give notice to the Principal that the goods (or any part thereof) are ready for collection and the Principal shall collect the same within three (3) calendar days (Saturdays, Sundays and Public Holidays excepted). Upon the expiry of this period, if the goods are not collected by the Principal, at the sole discretion of the Company the goods may be deemed abandoned and/or destroyed.

12.4 Without prejudice to Conditions 12.3 above, the Company shall have the discretion to store the goods (or any of them) at their own premises or elsewhere at the Principal’s expense if the Principal has deposited the goods at the Company’s premises for the performance of these services and has subsequently failed to collect the said goods.

12.5 The expenses by way of disbursements that the Company may reclaim from the Principal include all reasonable costs incurred by the Company (whether by way of storage, insurance or otherwise) in respect of the goods and it is expressly declared that it shall be reasonable but not mandatory for the Company to effect comprehensive insurance in respect of the goods.

12.6 Without prejudice to the Company’s lien and other rights under Conditions 12.1 to 12.5 above, the risk and property in the goods shall remain at all times in the Principal.

13. In the event of the Company being prevented by reason of any cause whatsoever outside the Company’s control from performing or completing any service for which an order has been given or an agreement made, the Principal will pay to the Company

13.1 the amount of all abortive expenditure actually made or incurred, and

13.2 a proportion of the agreed fee or commission equal to the proportion (if any) of the service actually earned out, and

14. The Company shall be discharged from all liability to the Principal for all claims for loss, damage or expense unless suit is brought within twelve (12) months after the date of the performance of the Company by the service which gives rise to the claim or in the event of any alleged non-performance within twelve (12) months of the date when such service should have been completed.

15. In the event that any unforeseen additional time or costs are incurred in the course of carrying out any of its services the Company shall be entitled to render additional charges as shall reasonably reflect such additional time and costs incurred.

16. All contracts for provision of services by the Company and the Conditions shall be construed in accordance with and governed by the laws of the ROC and for the purpose of any arbitral or litigation proceedings any contracts shall be deemed to have been made and performed in Taiwan. If any provision contained in the Conditions is and/or becomes invalid, illegal or unenforceable in any respect under the laws of the ROC, the validity, legality and enforceability of the remaining provisions hereof shall not in any way be affected or impaired thereby.

17. Any dispute or claim arising out of or relating to the provision of, or any agreement to provide, services by the Company shall be referred to and determined by arbitration subject to the Company’s sole and overriding discretion to commence litigation proceedings in the courts of Taiwan or the courts of any other country as the Company may choose. The parties may agree to the appointment of an arbitrator failing which either party may, after having made a written request to concur in the appointment of an arbitrator, request the ROC Arbitration Association to appoint an arbitrator. The place of arbitration shall be in Taiwan. There shall only be one arbitrator.
Test Report  

Applicant: Littelfuse Philippines Inc.  
LIMA Technology Center, Lipa City,  
Malvar, Batangas  

Authorized by:  
On Behalf of Intertek Testing Services  
Taiwan Limited  

K. Y. Liang  
Director  

Sample Description:  
One (1) group of submitted samples said to be:  
Part Description : VVM Material  
Part Number : 4501-WPM  
Date Sample Received : Jun 21, 2013  
Date Test Started : Jun 24, 2013  

Test Conducted :  
As requested by the applicant, for details please refer to attached pages.
Test Report

Test Conducted

Test Result Summary:

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Unit</th>
<th>Test Method</th>
<th>Result</th>
<th>RL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heavy Metal</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cadmium (Cd) content</td>
<td>ppm</td>
<td>With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Lead (Pb) content</td>
<td>ppm</td>
<td>With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Mercury (Hg) content</td>
<td>ppm</td>
<td>With reference to IEC 62321: 2008, by microwave digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Antimony (Sb) Content</td>
<td>ppm</td>
<td>With reference to USEPA 3052, by microwave digestion and determined by ICP-OES.</td>
<td>ND</td>
<td>2</td>
</tr>
<tr>
<td>Chromium VI (Cr^{6+}) content</td>
<td>ppm</td>
<td>With reference to IEC 62321: 2008, by alkaline digestion and determined by UV-Vis Spectrophotometer.</td>
<td>ND</td>
<td>1</td>
</tr>
<tr>
<td><strong>Polybrominated Biphenyls (PBBs)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monobrominated Biphenyls (MonoBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Dibrominated Biphenyls (DiBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Tribrominated Biphenyls (TriBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Tetrabrominated Biphenyls (TetraBB)</td>
<td>ppm</td>
<td>With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.</td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Pentabrominated Biphenyls (PentaBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Hexabrominated Biphenyls (HexaBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Heptabrominated Biphenyls (HeptaBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Octabrominated Biphenyls (OctaBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Nonabrominated Biphenyls (NonaBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Decabrominated Biphenyl (DecaBB)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
</tbody>
</table>
Test Report

Test Conducted

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Unit</th>
<th>Test Method</th>
<th>Result</th>
<th>RL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Polybrominated Diphenyl Ethers (PBDEs)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monobrominated Diphenyl Ethers (MonoBDE)</td>
<td>ppm</td>
<td>With reference to IEC 62321: 2008, by solvent extraction and determined by GC-MS and further HPLC-DAD confirmation when necessary.</td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Dibrominated Diphenyl Ethers (DiBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Tribrominated Diphenyl Ethers (TriBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Tetrabrominated Diphenyl Ethers (TetraBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Pentabrominated Diphenyl Ethers (PentaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Hexabrominated Diphenyl Ethers (HexaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Heptabrominated Diphenyl Ethers (HeptaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Octabrominated Diphenyl Ethers (OctaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Nonabrominated Diphenyl Ethers (NonaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td>Decabrominated Diphenyl Ether (DecaBDE)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>5</td>
</tr>
<tr>
<td><strong>Halogen Content</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fluorine (F)</td>
<td>ppm</td>
<td>With reference to EN 14582:2007 by calorimetric bomb with oxygen and determined by Ion Chromatograph.</td>
<td>ND</td>
<td>50</td>
</tr>
<tr>
<td>Chlorine (Cl)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>50</td>
</tr>
<tr>
<td>Bromine (Br)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>50</td>
</tr>
<tr>
<td>Iodine (I)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>50</td>
</tr>
<tr>
<td><strong>Phthalates</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Di(2-ethylhexyl) Phthalate (DEHP)</td>
<td>ppm</td>
<td>With reference to EN 14372: 2004, by solvent extraction and determined by GC-MS.</td>
<td>ND</td>
<td>10</td>
</tr>
<tr>
<td>Dibutyl Phthalate (DBP)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>10</td>
</tr>
<tr>
<td>Benzyl Butyl Phthalate (BBP)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>10</td>
</tr>
<tr>
<td>Diisobutyl Phthalate (DIBP)</td>
<td>ppm</td>
<td></td>
<td>ND</td>
<td>10</td>
</tr>
</tbody>
</table>
Test Report

Test Conducted

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</thead>
<tbody>
<tr>
<td>Hexabromocyclododecane (HBCDD)</td>
<td>ppm</td>
<td>With reference to USEPA 3540C, by solvent extraction and determined by GC-MS.</td>
<td>ND</td>
<td>10</td>
</tr>
</tbody>
</table>

Remarks: ppm = parts per million based on wet weight of tested sample = mg/kg
ND = Not detected
RL = Reporting Limit, Quantitation limit of analyte in sample

Responsibility of Chemist: Kevin Liu/ Irene Chiou/ Vico Lin

Date Sample Received : Jun 21, 2013
Test Period : Jun 24, 2013 To Jun 26, 2013

RoHS Limit

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<td>0.1% (1000ppm)</td>
</tr>
</tbody>
</table>

The above limits were quoted from Annex II of 2011/65/EU for homogeneous material.
Test Conducted Measurement Flowchart:

Test for Cd/Pb/Hg/Cromium (VI)/PBBs/PBDEs Contents

Measurement Flowchart:

- **Sample preparation**
  - For non-metal part
    - Take sample and immerse into Aqua Regia, start to strip plating layer
    - Stop the stripping procedure upon color change completely
    - Take the Aqua solution as plating component and stripped body as substrate component
  - For metal part

- **PBBs/PBDEs**
  - Weigh sample and add organic solvent
  - By Soxhlet extraction or Solvent extraction
  - Concentrate the extract and make up with organic solvent
  - Analyzed by GC-MS

- **Cr<sup>6+</sup>**
  - Weigh sample and add alkaline solution
  - Definite temp. extraction
  - Cool and filter the extract
  - Analyzed by ICP-OES

- **Cd/Pb/Hg**
  - For different material, digest the sample with appropriate acid<sup>*</sup>
  - Confirm the tested samples are totally dissolved
  - Make up with deionized water
  - Analyzed by ICP-OES

- **Substrate**

- **Plating**
  - Cr<sup>6+</sup>
    - By spot test
    - Negative<sup>**2**</sup>
  - Get 50cm<sup>2</sup> sample
  - By boiling water extraction
  - Make up with deionized water and add diphenyl-carbazide solution
    - Analyzed by UV-VIS

**Remarks:**

<sup>*1: List of Appropriate Acid</sup>:

<table>
<thead>
<tr>
<th>Material</th>
<th>Acid Added for Digestion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polymers</td>
<td>HNO&lt;sub&gt;3&lt;/sub&gt;,HCl,HF,H&lt;sub&gt;2&lt;/sub&gt;O&lt;sub&gt;2&lt;/sub&gt;,H&lt;sub&gt;3&lt;/sub&gt;BO&lt;sub&gt;3&lt;/sub&gt;</td>
</tr>
<tr>
<td>Metals</td>
<td>HNO&lt;sub&gt;3&lt;/sub&gt;,HCl,HF</td>
</tr>
<tr>
<td>Electronics</td>
<td>HNO&lt;sub&gt;3&lt;/sub&gt;,HCl,H&lt;sub&gt;2&lt;/sub&gt;O&lt;sub&gt;3&lt;/sub&gt;,HBF&lt;sub&gt;4&lt;/sub&gt;</td>
</tr>
</tbody>
</table>

<sup>*2: If the result of spot test is positive, Chromium VI would be determined as detected.**
Test Conducted

Measurement Flowchart:

Test for Heavy Metal (Sb) Contents
Reference Method: USEPA 3052

Sampling

Weigh sample and digest in microwave digestion oven with suitable acid

Confirm the tested samples are totally dissolved

Transfer the digested solution and make up with deionized water

Analyzed by ICP-OES
Test Report

Number: TWNC00319524

Test Conducted

Measurement Flowchart:

Test for Halogen Contents
Reference Method: EN 14582

Sampling

Add absorbent in a combustion flask & place weighed sample in equipment

Fill oxygen into calorimetric bomb

Ignite then leave the bomb at room temperature

Transfer the absorbent into a volumetric flask

Make up with deionized water

Analyzed by ion chromatography
Measurement Flowchart:

Test for Phthalates Contents
Reference Method: EN 14372: 2004

```
  Sampling  
   ↓       
Weigh sample and add organic solvent
   ↓       
By solvent extraction
   ↓       
Concentrate the extract and make up with organic solvent
   ↓       
  Analyzed by GC-MS
```
Test Conducted

Measurement Flowchart:

Test for Hexabromocyclododecane (HBCDD) Content
Reference Method: USEPA 3540C

1. Sampling
2. Weigh sample and add organic solvent
3. By soxhlet extraction
4. Concentrate the extract and make up with organic solvent
5. Analyzed by GC-MS
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1. Intertek Testing Services Taiwan Ltd. (hereinafter "the Company") agrees to provide its services in accordance with and subject to the terms and conditions herein contained (hereinafter "the Conditions"). The Conditions may only be modified by a variation expressed in writing and signed on behalf of the Company by a director and no other action on the part of the Company or its employees or agents shall be construed as an acceptance of any other terms and conditions.

2. The Company acts for the person or body from whom the request to provide its services has originated (hereinafter "the Principal"). No other party is entitled to give instructions to the Company unless agreed by the Company.

3. All rights (including but not limited to copyright) in any test reports, surveys, certificates of inspection or other material produced by the Company in the course of providing its services shall remain vested in the Company. The Principal shall reproduce or make copies, publish or distribute the contents of any such material or extracts thereof to any third party without the Company's prior written consent, which may be refused at its discretion. The Principal further undertakes that its servants and agents shall keep confidential and shall not publish or otherwise use any information that may be acquired relating to the Company's activities.

4. The Company undertakes to exercise due care and skill in the performance of its services and accepts responsibility only where such skill and care is not exercised.

4.1 The liability of the Company in respect of any claims for loss, damage or expense whatever howsoever arising in respect of any breach of contract and/or any failure to exercise due care and skill by the Company shall in no circumstances exceed a total aggregate amount equal to ten (10) times the amount of the fee or commission payable in respect of the specific service required under the particular contract with the Company which gives rise to such claims provided however that the Company shall have no liability in respect of any claims for indirect or consequential loss including loss of profit and/or loss of future business and/or loss of production and/or cancellation of contracts entered into by the Principal.

4.2 The Company shall not in any event be liable for any loss or damage caused by delay in performance or non-performance of any of its services where the same is occasioned by any cause whatever that is beyond the Company's control including but not limited to war, civil disturbance, requisition, governmental or parliamentary restriction, prohibitions or enactment of any kind, import or export regulations, strike or trade dispute (whether involving its own employees or those of any other person), difficulties in obtaining raw materials, breakdown of machinery, fire or accident. Should any such event occur the Company may cancel or suspend any contract for the provision of services without incurring any liability whatsoever.

4.4 The Principal will not be liable to the Principal for any loss or damage whatsoever sustained by the Principal as a result of any failure by the Company to comply with any time estimate given by the Company relating to the provision of its services. [See clause 4.1][See clause 4.2]

4.5 The Principal acknowledges that samples may be damaged or destroyed in the course of testing carried out by the Company or any of the Company's agent or subcontractor as part of the necessary testing process and the Company shall not in any event be liable for any loss or damage arising from the damage or destruction of the samples subject to testing.

4.6 In the event that the Principal requests for the return of the samples, the Company shall not be responsible for any re-packaging of the samples prior to such return and the Company shall in no circumstances be liable for any loss or damage caused to any of the samples during or as a result of their shipment to the Principal for the purpose of this Clause 4.6.

5.1 Subject to the Principal's instructions as accepted by the Company, the test reports, surveys, certificates of inspection or other material produced by the Company shall contain statements of opinion made with due care within the limitation of the instructions received by the Company. The Company is under no obligation to refer to or report upon any facts or circumstances which are outside the specific instructions received.

5.2 For pre-shipping inspection or survey of goods, the Company's inspector shall perform the inspection or survey when goods are 100% completed, packed and marked (unless otherwise agreed between the Company and the Principal). Goods for inspection or survey shall be unpacked in the presence of the Principal or his inspector and inspection or survey shall only be performed at the site specified by the Principal.

5.3 If the Company's inspector finds that the location is not suitable for carrying out a proper inspection or survey of goods or where necessary equipment for inspection or survey is not available the inspector may, if practical in the circumstances, draw samples of goods from the location and carry out the inspection or survey at the premises of the Company. The Principal shall be responsible for all costs and expenses incurred in relation thereto.

5.4 Reports, surveys or certificates issued following testing or analysis of samples contain the Company's specific opinion on those samples only but do not express any opinion upon the bulk from which the samples were drawn. If an opinion on the bulk is required special arrangements in writing must be made in advance with the Company for the inspection and sampling of the bulk. In no circumstances shall the Company's responsibility extend beyond inspection, testing and reporting upon the samples actually drawn from the bulk and inspected, tested and surveyed by the Company and any inference to be drawn from the results of such inspection, survey or testing shall be entirely in the discretion and at the sole and exclusive responsibility of the Principal.

6. The Company shall be entitled at its discretion to delegate the performance of the whole or any part of the services contracted for with the Principal to any agent or subcontractor.

7. Every officer, employee, agent or subcontractor of the Company shall have the benefit of the limitations of liability and indemnities contained in the General Conditions. So far as relates to such limitations and indemnities, any contract entered into by the Company is entered into not only on its own behalf but also as agent and trustee for every such person as aforesaid.

8. If the requirements of the Principal necessitate the analysis of samples by the Principal only by any third party the Company will pass on the results of the analysis but without responsibility for its accuracy. Where the Company is only able to witness an analysis by the Principal or by any third party the Company will provide confirmation, if such be the case, that a correct sample has been analysed but will not otherwise be responsible for the accuracy of such analyses.

9.1 ensure that instructions to the Company are given in due time and are accompanied by sufficient information to enable the required services to be performed effectively.

9.2 accept that documents reflecting arrangements or agreements made between the Principal and any third party, or third party documents such as copies of contracts of sale, letters of credit, bills of lading, etc. are "received by the Company considered to be for information only, without extending or restricting the services to be provided or obligations accepted by the Company.

9.3 ensure all necessary access for the Company's representatives to enable the required services to be performed effectively.

9.4 supply, if required, any special equipment and personnel necessary for the performance of the required services.

9.5 ensure that all necessary measures are taken for safety and security of working conditions, sites and installations during the performance of the required services.
9.6 take all necessary steps to eliminate or remedy any obstruction to or interruptions in the performance of the required services, and repack all inspected goods immediately after any inspection or survey of them;
9.7 inform the Company in advance of any known hazards or dangers, actual or potential, associated with any request for the provision of services by the Company, including but not limited to the presence of radiation, toxic or noxious or explosive elements or materials, environmental pollution or poisons;
10. The Principal shall guarantee, hold harmless and indemnify the Company and its officers, employees, agents or subcontractors against
10.1 all claims made by any third party for any loss, damage or expense of whatsoever nature and howsoever arising relating to the performance, purported performance or non-performance of any of services to the extent that the aggregate of any such claims relating to any one service exceeds the limit mentioned in Condition 4.2;
10.2 any loss or damage suffered by the Company as a result of the provision of services by the Company to the Principal otherwise than resulting from the Company’s own error, negligence or willful default.
11.1 The Principal will punctually pay the Company immediately upon presentation of the relevant invoice or within such other period as may have been agreed in writing by the Company all charges rendered by the Company failing which interest will become due at the rate of 1.5% per cent per month from the date of invoice until payment. The Principal further agrees and undertakes to reimburse the Company all disbursements reasonably incurred in connection with the provision of services.
11.2 The Principal shall not be entitled to retain or defer payment of any sums due to the Company on account of any dispute, cross claim or set off which it may allege against the Company.
11.3 In the event of any suspension of payment arrangement with creditors, bankruptcy, insolvency, receivership or cessation of business or failure of the Principal to pay part or all of any sums owing to the Company, the Company shall be entitled to suspend all further performance of its services and withhold the issue of any test report, survey, certificate of inspection or other material requested forthwith and without liability until payment of all sums owing to the Company together with interest thereon is made.
12 Without prejudice to any rights the Company may have at law or under the Conditions, the Company has the following rights in the event of non-payment of sums owing to the Company as set out below:
12.1 The Company has a general and particular lien over all samples delivered to be tested for all claims and sums owing by the Principal to the Company under any contract whatsoever and in any other way whatsoever.
12.2 During the currency of any such lien the Company is entitled to be paid reasonable storage charges for samples retained in the Company’s custody.
12.3 Without prejudice to the Company’s lien and other rights under Conditions 12.1 to 12.2 above, if test, inspection or survey of the goods takes place on the premises of the Company, the Company may give notice to the Principal that the goods (or any part thereof) are ready for collection and the Principal shall collect the same within three (3) calendar days (Saturdays, Sundays and Public Holidays excepted). Upon the expiry of this period, if the goods are not collected by the Principal, at the sole discretion of the Company the goods may be deemed abandoned and/or destroyed.
12.4 Without prejudice to Conditions 12.3 above, the Company shall have the discretion to store the goods (or any of them) at their own premises or elsewhere at the Principal’s expense if the Principal has deposited the goods at the Company’s premises for the performance of these services and has subsequently failed to collect the said goods.
12.5 The expenses by way of disbursements that the Company may reclaim from the Principal include all reasonable costs incurred by the Company (whether by way of storage, insurance or otherwise) in respect of the goods and it is expressly declared that it shall be reasonable but not mandatory for the Company to effect comprehensive insurance in respect of the goods.
12.6 Without prejudice to the Company’s lien and other rights under Conditions 12.1 to 12.5 above, the risk and property in the goods shall remain at all times in the Principal.
13. In the event of the Company being prevented by reason of any cause whatsoever outside the Company’s control from performing or completing any service for which an order has been given or an agreement made, the Principal will pay to the Company:
13.1 the amount of all abortive expenditure actually made or incurred, and
13.2 a proportion of the agreed fee or commission equal to the proportion (if any) of the service actually carried out;
and the Company shall be relieved of all responsibility whatsoever for the partial or total non-performance of the required service.
14. The Company shall be discharged from all liability to the Principal for all claims for loss, damage or expense unless suit is brought within twelve (12) months after the date of the performance by the Company of the service which gives rise to the claim or in the event of any alleged non-performance within twelve (12) months of the date when such service should have been completed.
15. In the event that any unforeseen additional time or costs are incurred in the course of carrying out any of its services the Company shall be entitled to render additional charges as shall reasonably reflect such additional time and costs incurred.
16. All contracts for provision of services by the Company and the Conditions shall be construed in accordance with and governed by the laws of the ROC and for the purpose of any arbitration or litigation proceedings such contracts shall be deemed to have been made and performed in Taiwan. If any provision contained in the Conditions is and/or becomes invalid, illegal or unenforceable in any respect under the laws of the ROC, the validity, legality and enforceability of the remaining provisions hereof shall not in any way be affected or impaired thereby.
17. Any dispute or claim arising out of or relating to the provision of, or any agreement to provide, services by the Company shall be referred to and determined by arbitration subject to the Company’s sole and overriding discretion to commence arbitration proceedings in the courts of Taiwan or the courts of any other country as the Company may choose. The parties may agree to the appointment of an arbitrator failing which either party may, after having made a written request to concur in the appointment of an arbitrator, request the ROC Arbitration Association to appoint an arbitrator. The place of arbitration shall be in Taiwan. There shall only be one arbitrator.
Test Report

Applicant: Littelfuse Philippines Inc.
LIMA Technology Center, Lipa City, Malvar, Batangas

Authorized by:
On Behalf of Intertek Testing Services
Taiwan Limited

K. Y. Liang
Director

Sample Description:
One (1) group of submitted samples said to be:
Part Description: Finished Product
Part Number: PGB series
Date Sample Received: Dec 11, 2012
Date Test Started: Dec 11, 2012

Test Conducted:
As requested by the applicant, for details please refer to attached pages.

This is to supersede report No.TWNC00290393 Date Dec 12, 2012

Date: Dec 19, 2012

Lima Technology Center, Lipa City, Malvar, Batangas

Applicant: Littelfuse Philippines Inc.

Date: Dec 19, 2012

Authorized by:
On Behalf of Intertek Testing Services
Taiwan Limited

K. Y. Liang
Director
Test Conducted

(I) Test Result Summary:

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Result (ppm)</th>
<th>Submitted samples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Halogen Content</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorine (Cl)</td>
<td>123</td>
<td></td>
</tr>
<tr>
<td><strong>Others</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Perfluorooctane Sulfonates (PFOS)</td>
<td>ND</td>
<td></td>
</tr>
<tr>
<td>Perfluorooctanoic Acid (PFOA)</td>
<td>ND</td>
<td></td>
</tr>
</tbody>
</table>

Remarks: ppm = Parts per million based on weight of tested sample = mg/kg  
ND = Not detected

Responsible of Chemist: Irene Chiou / Cathy Chen

Date Sample Received: Dec 11, 2012
Test Period: Dec 11, 2012 to Dec 18, 2012

(II) Test Method:

<table>
<thead>
<tr>
<th>Test Item</th>
<th>Test Method</th>
<th>Reporting Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Halogen Content</td>
<td>With reference to EN 14582:2007 by calorimetric bomb with oxygen and determined by Ion Chromatograph.</td>
<td>50 ppm</td>
</tr>
<tr>
<td>Perfluorooctane Sulfonates (PFOS)</td>
<td>With reference to CEN/TS 15968_2010, by solvent extraction and determined by LC-MS-MS.</td>
<td>0.05 ppm</td>
</tr>
<tr>
<td>Perfluorooctanoic Acid (PFOA)</td>
<td>With reference to CEN/TS 15968_2010, by solvent extraction and determined by LC-MS-MS.</td>
<td>0.05 ppm</td>
</tr>
</tbody>
</table>

Remark: Reporting limit = Quantitation limit of analyte in sample
Test Conducted

(Ⅲ) Measurement Flowchart:

Test for Halogen Content
Reference Standard: EN 14582

1. Sampling/grinding or cutting
2. Add absorbent in a combustion flask & place weighed sample in equipment
3. Fill oxygen into calorimetric bomb
4. Ignite then leave the bomb at room temperature
5. Transfer the absorbent into a volumetric flask
6. Make up with deionized water
7. Analyzed by ion chromatography
Test Conducted

(III) Measurement Flowchart:

Test For Perfluorooctane Sulfonates (PFOS) / Perfluorooctanoic Acid (PFOA)

Contents

Reference Method: CEN/TS 15968_2010

---

Sampling/grinding or cutting

Get appropriate weigh or surface of sample and add organic solvent

By solvent extraction

Concentrate the extract and make up with organic solvent

Analyzed by LC/MS/MS

---

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Test Conducted

Photo

![Photo of a label with text](image-url)

![Photo of another label with text](image-url)