Test Report

NO.: MNCABOUH29545704       Issued Date: 2019-08-15

Applicant: HARMONY ELECTRONICS
Address: No.39, Huadong Rd., Daiao Dist., Dafa Industrial Park., Kaohsiung City 831, Taiwan

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

Sample Name: THERMISTOR
Sample Model: Seam Thermistor 221S&211S&1612 Series
Manufacturer: HARMONY ELECTRONICS CORP.
Sample Description: MIXED ALL PARTS: QUARTZ CRYSTAL RESONATORS
Test Component: Overall test
Sample Received Date: 2019-08-08
Testing Period: 2019-08-08 TO 2019-08-15

Test Items:
1. Pb, Cd, Hg, Cr₆⁺, PBBs, PBDEs, Phthalates
2. F, Cl, Br, I
3. Sb, Be
4. PFOS, PFOA
5. DINP

Reference Method:
   a. IEC 62321-5 Edition 1.0:2013 method, Lead Analysis is performed by AAS
   b. IEC 62321-5 Edition 1.0:2013 method, Cadmium Analysis is performed by AAS
   c. IEC 62321-4:2013+AMD1:2017 CSV method, Mercury Analysis is performed by ICP-OES
   d. IEC 62321-7-2 Edition 1.0:2017 method, Hexavalent Chromium Analysis is performed by UV-Vis
   e. IEC 62321-6 Edition 1.0:2015 method, PBBs and PBDEs Analysis is performed by GC-MS
   f. IEC 62321-8 Edition 1.0:2017 method, Phthalates Analysis is performed by GC-MS
2. EN 14582:2016 method, Analysis is performed by IC
3. EPA 6010D:2018 & EPA 3052:1996 method, Analysis is performed by ICP-OES
4. EPA 3550C:2007 & EPA 8321B:2007 method, Analysis is performed by LC-MS
5. IEC 62321-8 Edition 1.0:2017 method, DINP Analysis is performed by GC-MS

Testing Results: Please refer to next page(s)

Approved by:

Code: 8ud44d6

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## Test Report

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### Test Result (Unit: mg/kg)

<table>
<thead>
<tr>
<th>Test Item</th>
<th>MDL</th>
<th>Test Result</th>
<th>RoHS Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lead (Pb)</td>
<td>1</td>
<td>20.6</td>
<td>1000</td>
</tr>
<tr>
<td>Cadmium (Cd)</td>
<td>1</td>
<td>N.D.</td>
<td>100</td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>1</td>
<td>N.D.</td>
<td>1000</td>
</tr>
<tr>
<td>Hexavalent Chromium (Cr⁶⁺)</td>
<td>8</td>
<td>N.D.</td>
<td>1000</td>
</tr>
<tr>
<td>Sum of PBBs</td>
<td>—</td>
<td>N.D.</td>
<td>1000</td>
</tr>
<tr>
<td>Bromobiphenyl</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Dibromobiphenyl</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Tribromobiphenyl</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Tetrabromobiphenyl</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Pentabromobiphenyl</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Hexabromobiphenyl</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Heptabromobiphenyl</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Octabromobiphenyl</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Nonabromobiphenyl</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Decabromobiphenyl</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Sum of PBDEs</td>
<td>—</td>
<td>N.D.</td>
<td>1000</td>
</tr>
<tr>
<td>Bromodiphenyl ether</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Dibromodiphenyl ether</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Tribromodiphenyl ether</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Tetrabromodiphenyl ether</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Pentabromodiphenyl ether</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Hexabromodiphenyl ether</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Heptabromodiphenyl ether</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Octabromodiphenyl ether</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Nonabromodiphenyl ether</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
<tr>
<td>Decabromodiphenyl ether</td>
<td>5</td>
<td>N.D.</td>
<td>—</td>
</tr>
</tbody>
</table>

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## Test Results (Unit: mg/kg)

<table>
<thead>
<tr>
<th>Test Item</th>
<th>MDL</th>
<th>Test Result</th>
<th>RoHS Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEHP</td>
<td>50</td>
<td>N.D.</td>
<td>1000</td>
</tr>
<tr>
<td>DBP</td>
<td>50</td>
<td>N.D.</td>
<td>1000</td>
</tr>
<tr>
<td>BBP</td>
<td>50</td>
<td>N.D.</td>
<td>1000</td>
</tr>
<tr>
<td>DIBP</td>
<td>50</td>
<td>N.D.</td>
<td>1000</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Item</th>
<th>MDL</th>
<th>Test Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>50</td>
<td>N.D.</td>
</tr>
<tr>
<td>Cl</td>
<td>50</td>
<td>N.D.</td>
</tr>
<tr>
<td>Br</td>
<td>50</td>
<td>N.D.</td>
</tr>
<tr>
<td>I</td>
<td>50</td>
<td>N.D.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Item</th>
<th>MDL</th>
<th>Test Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sb</td>
<td>1</td>
<td>63.2</td>
</tr>
<tr>
<td>Be</td>
<td>1</td>
<td>N.D.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Test Item</th>
<th>CAS number</th>
<th>MDL</th>
<th>Test Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diisononyl phthalate (DINP)</td>
<td>28553-12-0</td>
<td>50</td>
<td>N.D.</td>
</tr>
</tbody>
</table>

**Note:**
1. mg/kg = ppm
2. “—” = Does not stipulate
3. N.D. = Not Detected (< MDL)
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Sample No. & Photo:

Pony authenticate the photo on original report only

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Measurement Flow-chart

Tested by: Zhou Weiting       Checked by: Yang Xin       Person in charge of the lab: Mao Zuqing
These Samples Were Dissolved Totally By Pre-conditioning Method According To Below Flow Chart. (Cr$^{6+}$ Test Method Excluded)

- **Sample Preparation**
  - **Pb/Cd/Hg**
    - Acid digestion with digestion high-pressure tank /hotplate
      - Filtration
        - Solution
        - Residue
        - Dissolve totally
      - AAS/ICP-OES
        - DATA
  - **Cr$^{6+}$**
    - Nonmetallic material
      - Soluble polymer
      - Insoluble/Unknown polymer
    - Metallic material
      - Boiling water extraction
      - Filtration and pH adjustment
      - Adding the extracted solution for ultrasonic, then extraction
      - UV-Vis
      - DATA

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Measurement Flow-chart

Tested by: Wang Yaowei    Checked by: Yang Xin    Person in charge of the lab: Mao Zuqing

Sample Preparation

Sample Measurement

PBBs/PBDEs

Sample solvent extraction

Concentration/Dilution

Filtration

GC-MS

DATA

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Phthalates Measurement Flow-chart

Tested by: Jiang Yuejiao  Checked by: Yang Xin  Person in charge of the lab by: Mao Zuqing

1. Sample preparation
2. Weighing samples
3. Extraction in organic solvent
4. Concentration / Dilution of extraction solution
5. GC-MS analysis
6. data
Halogen measurement flow-chart

Tested by: Guo Xiaoying  
Checked by: Yang Xin  
Person in charge of the lab by: Mao Zuqing

1. Sample preparation
2. Weighing sample
3. Oxygen bomb method preparation
4. IC analysis
5. Data
These Samples Were Dissolved Totally By Pre-conditioning Method According To Below Flow Chart.

- Sample Preparation
- Sample Measurement
- Acid digestion with microwave
- Filtration
- Solution
- Residue
- dissolved totally ashing
- ICP-OES
- DATA
PFOS, PFOA Measurement Flow-chart

Tested by: Huang Zhenjin  Checked by: Yang Xin  Person in charge of the lab by: Mao Zuqing

Sample preparation  
Weighing samples  
Extraction in organic solvent  
Cleanup and concentration  
LC-MS analysis  
data

***End of Report***