

## Test Report

No. CANEC1102738205

Date: 20 Jul 2011

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FOSHAN BLUE ROCKET ELECTRONICS CO., LTD.  
NO.45 GUXIN ROAD, CHANCHENG DISTRICT, FOSHAN, GUANGDONG  
CHINA

The following sample(s) was/were submitted and identified on behalf of the clients as :  
TO-126 Semiconductor Device(Solder Bonding, Halogen Free Product)

SGS Job No. : 13251709 - GZ  
SGS Internal Reference No. : 8.5  
Date of Sample Received : 15 Jul 2011  
Testing Period : 15 Jul 2011 - 20 Jul 2011  
Test Requested : Selected test(s) as requested by client.  
Test Method : Please refer to next page(s).  
Test Results : Please refer to next page(s).  
Conclusion : A:Based on the performed tests on submitted sample(s), the results **comply with** the RoHS Directive 2002/95/EC and its subsequent amendments.

Signed for and on behalf of  
SGS-CSTC Ltd.



Almay Gao  
Approved Signatory

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## Test Results:

ID for specimen 1 : CAN11-027382.007  
 Description for specimen 1 : Silvery metal pin

### A: RoHS Directive 2002/95/EC

| Test Item(s)   | Unit  | Test Method (Reference) | Result   | MDL | Limit |
|--|-------|-------------------------|----------|-----|-------|
| Cadmium (Cd)   | mg/kg | IEC 62321:2008, ICP-OES | N.D.     | 2   | 100   |
| Lead (Pb)  | mg/kg | IEC 62321:2008, ICP-OES | 7        | 2   | 1000  |
| Mercury (Hg)   | mg/kg | IEC 62321:2008, ICP-OES | N.D.     | 2   | 1000  |
| Hexavalent Chromium (CrVI) by boiling water extraction | -     | IEC 62321:2008, UV-Vis  | Negative | ◇   | #     |

#### Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
4. ◇ = Spot-Test:

Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;  
 (The tested sample should be further verified by boiling-water-extraction method if the spot test result is negative or cannot be confirmed.)

#### Boiling-water-extraction:

Negative = Absence of CrVI coating  
 Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.

Storage conditions and production date of the tested sample are unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

5. # = Positive indicates the presence of CrVI on the tested areas.  
 Negative indicates the absence of CrVI on the tested areas.
6. "-" = Not regulated

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ID for specimen 2 : CAN11-027382.008  
 Description for specimen 2 : Silvery metal w/ copper-colored surface & solder

## A: RoHS Directive 2002/95/EC

| Test Item(s)   | Unit  | Test Method (Reference) | Result                    | MDL | Limit |
|--|-------|-------------------------|---------------------------|-----|-------|
| Cadmium (Cd)   | mg/kg | IEC 62321:2008, ICP-OES | N.D.                      | 2   | 100   |
| Lead (Pb)  | mg/kg | IEC 62321:2008, ICP-OES | 6713 <sup>&lt;1&gt;</sup> | 2   | 1000  |
| Mercury (Hg)   | mg/kg | IEC 62321:2008, ICP-OES | N.D.                      | 2   | 1000  |
| Hexavalent Chromium (CrVI) by boiling water extraction | -     | IEC 62321:2008, UV-Vis  | Negative                  | ◇   | #     |

### Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit
4. ◇ = Spot-Test:

Negative = Absence of CrVI coating, Positive = Presence of CrVI coating;  
 (The tested sample should be further verified by boiling-water-extraction method if the spot test result is negative or cannot be confirmed.)

### Boiling-water-extraction:

Negative = Absence of CrVI coating  
 Positive = Presence of CrVI coating; the detected concentration in boiling-water-extraction solution is equal or greater than 0.02 mg/kg with 50 cm<sup>2</sup> sample surface area.

Storage conditions and production date of the tested sample are unavailable and thus results of Cr(VI) represent status of the sample at the time of testing.

5. # = Positive indicates the presence of CrVI on the tested areas.  
 Negative indicates the absence of CrVI on the tested areas.
6. "- " = Not regulated

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ID for specimen 3 : CAN11-027382.009  
 Description for specimen 3 : Black plastic w/ gray printing & chip

## A: RoHS Directive 2002/95/EC

| Test Item(s)                                      | Unit  | Test Method (Reference) | Result | MDL | Limit |
|---|-------|-------------------------|--------|-----|-------|
| Cadmium (Cd)                                      | mg/kg | IEC 62321:2008, ICP-OES | N.D.   | 2   | 100   |
| Lead (Pb)   | mg/kg | IEC 62321:2008, ICP-OES | 27     | 2   | 1000  |
| Mercury (Hg)                                      | mg/kg | IEC 62321:2008, ICP-OES | N.D.   | 2   | 1000  |
| Hexavalent Chromium (CrVI) by alkaline extraction | mg/kg | IEC 62321:2008, UV-Vis  | N.D.   | 2   | 1000  |
| Sum of PBBs                                       | mg/kg | -                       | N.D.   | -   | 1000  |
| Monobromobiphenyl                                 | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Dibromobiphenyl                                   | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Tribromobiphenyl                                  | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Tetrabromobiphenyl                                | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Pentabromobiphenyl                                | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Hexabromobiphenyl                                 | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Heptabromobiphenyl                                | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Octabromobiphenyl                                 | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Nonabromobiphenyl                                 | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Decabromobiphenyl                                 | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Sum of PBDEs                                      | mg/kg | -                       | N.D.   | -   | 1000  |
| Monobromodiphenyl ether                           | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Dibromodiphenyl ether                             | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Tribromodiphenyl ether                            | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Tetrabromodiphenyl ether                          | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Pentabromodiphenyl ether                          | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Hexabromodiphenyl ether                           | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Heptabromodiphenyl ether                          | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Octabromodiphenyl ether                           | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Nonabromodiphenyl ether                           | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |
| Decabromodiphenyl ether                           | mg/kg | IEC 62321:2008, GC-MS   | N.D.   | 5   |       |

### Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
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4. "-" = Not regulated

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## B: Halogen

| Test Item(s)  | Unit  | Test Method (Reference) | Result | MDL |
|---------------|-------|-------------------------|--------|-----|
| Fluorine (F)  | mg/kg | BS EN 14582:2007, IC    | N.D.   | 50  |
| Chlorine (Cl) | mg/kg | BS EN 14582:2007, IC    | 117    | 50  |
| Bromine (Br)  | mg/kg | BS EN 14582:2007, IC    | N.D.   | 50  |
| Iodine (I)    | mg/kg | BS EN 14582:2007, IC    | N.D.   | 50  |

### Note:

1. mg/kg = ppm
2. N.D. = Not Detected (< MDL)
3. MDL = Method Detection Limit

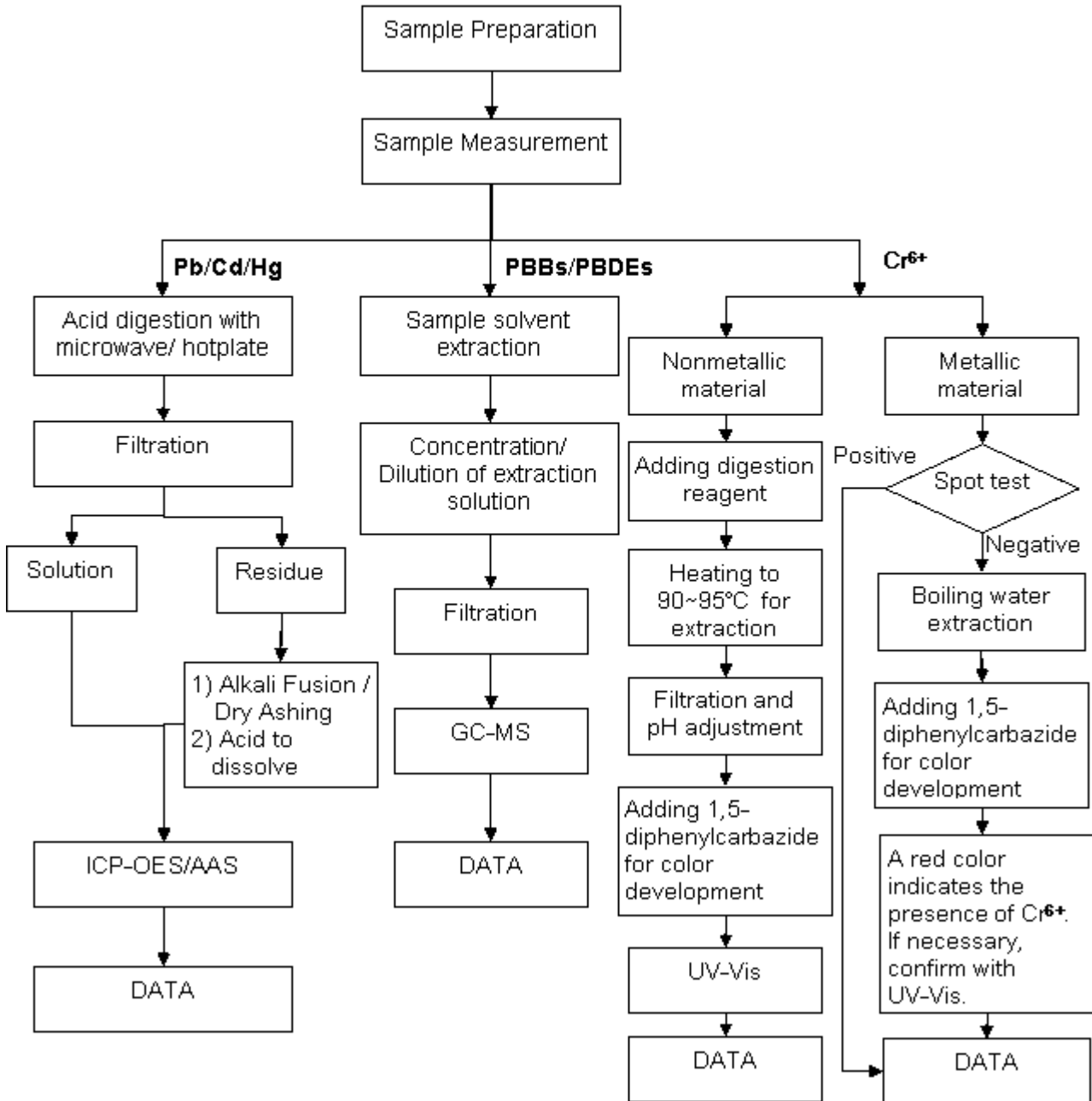
Remark<1>: According to the declaration from client, the source of Lead in specimen 2 could be from the high melting temperature type solder, while Lead in high melting temperature type solders is exempted by RoHS regulatory (Directive 2002/95/EC of the European Parliament and of the council of 27 January 2003).

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ATTACHMENTS

**RoHS Testing Flow Chart**

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

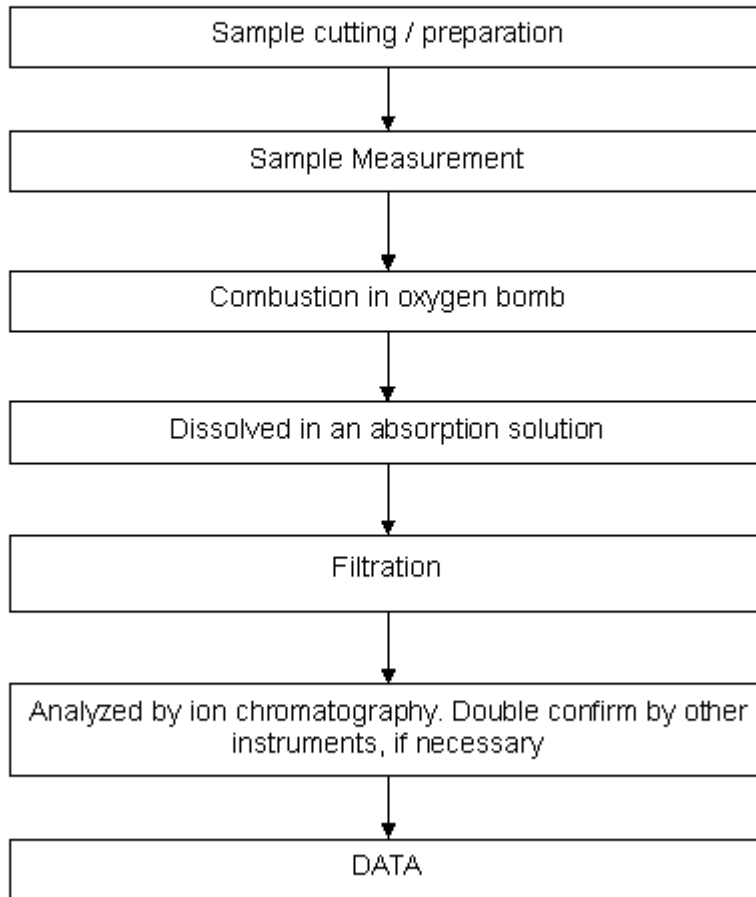


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## ATTACHMENTS

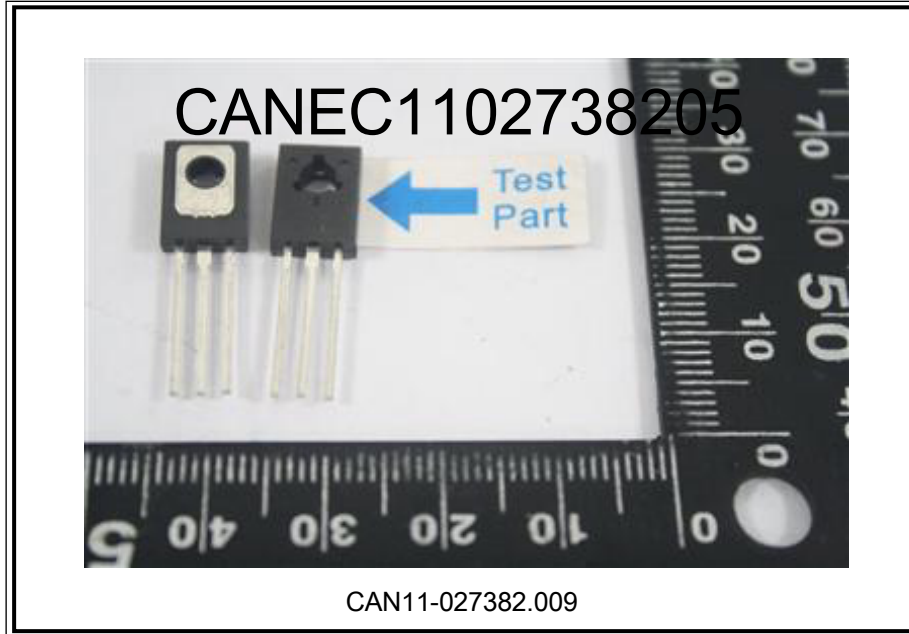
### Halogen Testing Flow Chart

- 1) Name of the person who made testing: Liang Wang
- 2) Name of the person in charge of testing: Michelle Song



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