

## Test Report

No. CANEC1101402101

Date: 20 Apr 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-220 Semiconductor Device(Solder Bonding)

SGS Job No. : 13074775 - GZ

SGS Internal Reference No. : 2.1

Date of Sample Received : 18 Apr 2011

Testing Period : 18 Apr 2011 - 20 Apr 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 : 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.



Trophy Zhang  
Approved Signatory

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## Test Results:

ID for specimen 1 : CAN11-014021.001  
 Description for specimen 1 : Black plastic w/ "chip"

## 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	9	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)
3. MDL = Method Detection Limit
4. "-" = Not regulated

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ID for specimen 2 : CAN11-014021.002  
 Description for specimen 2 : Silver-white plated metal

### 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	8	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 : CAN11-014021.003  
 Description for specimen 3 : Copper-colored metal w/ silvery plating

## 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	5883 <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

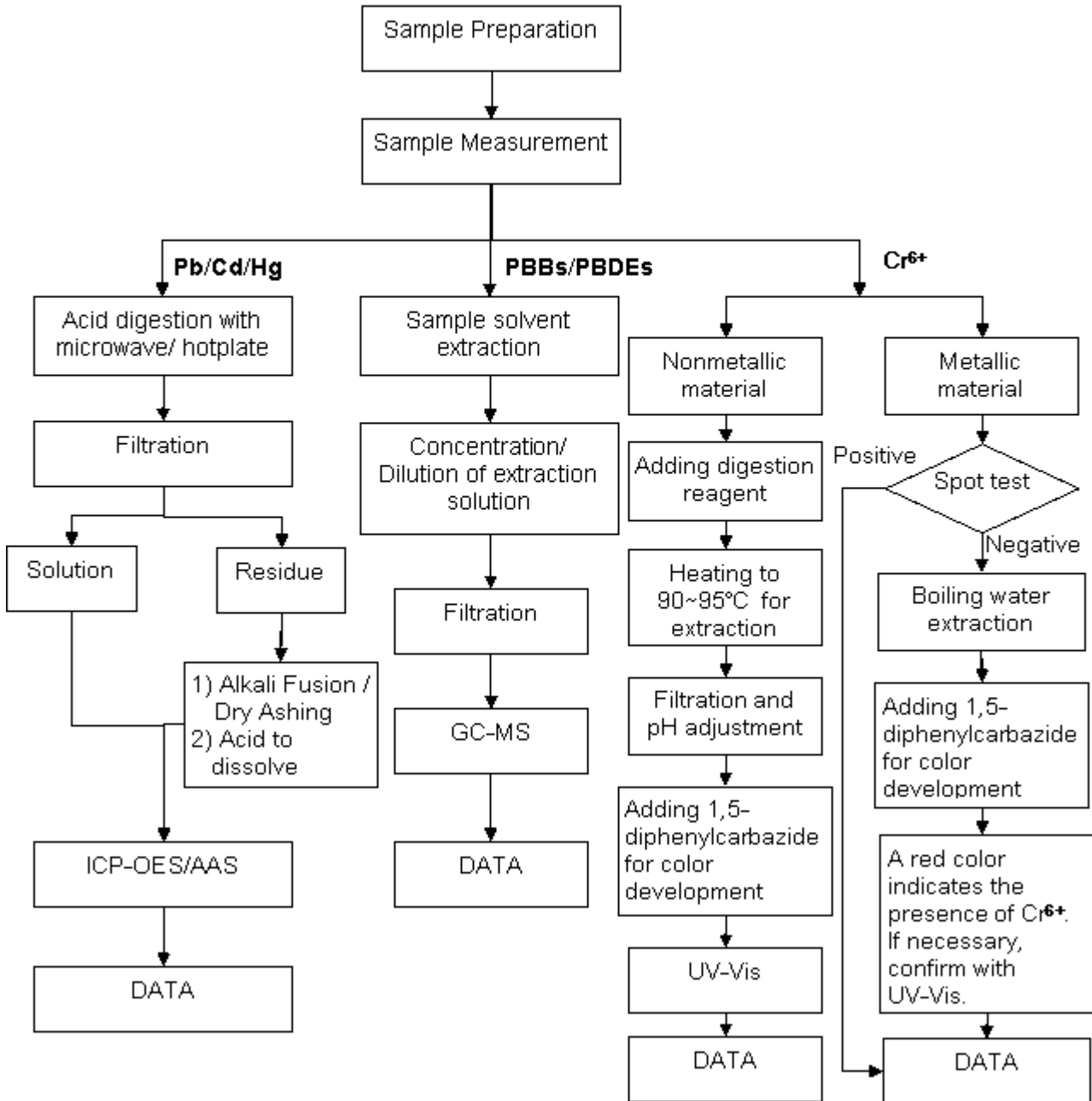
Remark<1>: According to the declaration from client, the source of Lead in specimen 3 could be from the high melting temperature type solder, while Lead in high melting temperature type solders is exempted by RoHS regulatory (Directive 2002/95/EC of the European Parliament and of the council of 27 January 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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