

Test Report

No. CANEC1503783306

Date: 31 Mar 2015

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CAMBRIDGE ELECTRONICS LTD.

HUANGYONG 3 INDUSTRY DISTRICT,ZHONGTANG TOWN, DONGGUAN CITY,GUANGDONG.

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

SGS Job No. : CP15-012643 - SZ

Model No. : DO-41

Client Ref. Info. : DO-35 LL-34 LL-41

Date of Sample Received : 19 Mar 2015

Testing Period : 19 Mar 2015 - 25 Mar 2015

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 of Lead, Mercury, Cadmium, Hexavalent chromium, Polybrominated biphenyls (PBBs), Polybrominated diphenyl ethers (PBDEs) comply with the limits as set by RoHS Directive 2011/65/EU Annex II; recasting 2002/95/EC.

Signed for and on behalf of
SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch



Merry Lv
Approved Signatory



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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description
SN1	CAN15-037833.002	Black/red body
SN2	CAN15-037833.003	Silver-gray metal pin

Remarks :

- (1) 1 mg/kg = 1 ppm = 0.0001%
- (2) MDL = Method Detection Limit
- (3) ND = Not Detected (< MDL)
- (4) "-" = Not Regulated

RoHS Directive 2011/65/EU

- Test Method :
- (1)With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
 - (2)With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
 - (3)With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
 - (4)With reference to IEC 62321:2008, determination of Hexavalent Chromium by Colorimetric Method using UV-Vis.
 - (5)With reference to IEC 62321:2008, determination of PBBs and PBDEs by GC-MS.

Test Item(s)	Limit	Unit	MDL	002
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	164844▲
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	1,000	mg/kg	2	ND
Sum of PBBs	1,000	mg/kg	-	ND
Monobromobiphenyl	-	mg/kg	5	ND
Dibromobiphenyl	-	mg/kg	5	ND
Tribromobiphenyl	-	mg/kg	5	ND
Tetrabromobiphenyl	-	mg/kg	5	ND
Pentabromobiphenyl	-	mg/kg	5	ND
Hexabromobiphenyl	-	mg/kg	5	ND
Heptabromobiphenyl	-	mg/kg	5	ND
Octabromobiphenyl	-	mg/kg	5	ND
Nonabromobiphenyl	-	mg/kg	5	ND
Decabromobiphenyl	-	mg/kg	5	ND
Sum of PBDEs	1,000	mg/kg	-	ND



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<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Monobromodiphenyl ether	-	mg/kg	5	ND
Dibromodiphenyl ether	-	mg/kg	5	ND
Tribromodiphenyl ether	-	mg/kg	5	ND
Tetrabromodiphenyl ether	-	mg/kg	5	ND
Pentabromodiphenyl ether	-	mg/kg	5	ND
Hexabromodiphenyl ether	-	mg/kg	5	ND
Heptabromodiphenyl ether	-	mg/kg	5	ND
Octabromodiphenyl ether	-	mg/kg	5	ND
Nonabromodiphenyl ether	-	mg/kg	5	ND
Decabromodiphenyl ether	-	mg/kg	5	ND

Notes :

(1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II

RoHS Directive 2011/65/EU

Test Method : (1)With reference to IEC 62321-5:2013, determination of Cadmium by ICP-OES.
 (2)With reference to IEC 62321-5:2013, determination of Lead by ICP-OES.
 (3)With reference to IEC 62321-4:2013, determination of Mercury by ICP-OES.
 (4)With reference to IEC 62321:2008, determination of Hexavalent Chromium by spot test / Colorimetric Method using UV-Vis.

<u>Test Item(s)</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>003</u>
Cadmium (Cd)	100	mg/kg	2	ND
Lead (Pb)	1,000	mg/kg	2	ND
Mercury (Hg)	1,000	mg/kg	2	ND
Hexavalent Chromium (CrVI)	-	-	◇	Negative

Notes :

(1) The maximum permissible limit is quoted from the directive 2011/65/EU, Annex II
 (2)◇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 cm2 sample surface area.
 Information on storage conditions and production date of the tested sample is unavailable and thus result of Cr(VI) represent status of the sample at the time of testing.



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Halogen

Test Method : With reference to EN 14582: 2007, analysis was performed by Ion Chromatograph (IC).

<u>Test Item(s)</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Fluorine (F)	mg/kg	50	ND
Chlorine (Cl)	mg/kg	50	ND
Bromine (Br)	mg/kg	50	ND
Iodine (I)	mg/kg	50	ND

US California Proposition 65 - Flame retardant(s)

Test Method : With reference to US EPA 3550C:2007&US EPA 8270D: 2007, analysis was performed by GC-MS.

<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Tris(1,3-dichloro-2-propyl) Phosphate(TDCPP)	13674-87-8	25	mg/kg	5	ND
Tris(2-chloroethyl) Phosphate(TCEP)	115-96-8	25	mg/kg	5	ND
Tris(1-chloro-2-propyl) Phosphate (TCPP)	13674-84-5	25	mg/kg	5	ND
2-Ethylhexyl tetrabromobenzoate(TBB)	183658-27-7	25	mg/kg	5	ND
Bis(2-ethylhexyl)-2,3,4,5-tetrabromophthalate(TBPH)	26040-51-7	25	mg/kg	5	ND
Triphenyl Phosphate(TPP)	115-86-6	25	mg/kg	5	ND
2,2-bis(chloromethyl)trimethylen ebis(bis(2-chloroethyl) phosphate) (V6)	38051-10-4	25	mg/kg	5	ND
4-(tert-Butyl)phenyl diphenyl phosphate (MDPP)	56803-37-3	25	mg/kg	5	ND



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<u>Test Item(s)</u>	<u>CAS NO.</u>	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>
Bis-(tert-Butylphenyl) phenyl phosphate (DBPP)	65652-41-7	25	mg/kg	5	ND
tris-(4-tert-Butylphenyl) phosphate (TBPP)	78-33-1/ 28777-70-0	25	mg/kg	5	ND
Pentabromodiphenyl ethers (Penta-BDEs)	32534-81-9	25	mg/kg	5	ND
Octabromodiphenyl ethers (Octa-BDEs)	32536-52-0	25	mg/kg	5	ND
Decabromodiphenyl ether (Deca-BDE)	1163-19-5	25	mg/kg	5	ND

Notes :

The limit is referenced to the requirement as stated in the Superior Court of the State of California Case No. RG-13667688.

Remark: Results and photo(s) of this report refer to test report CANEC1503783302.



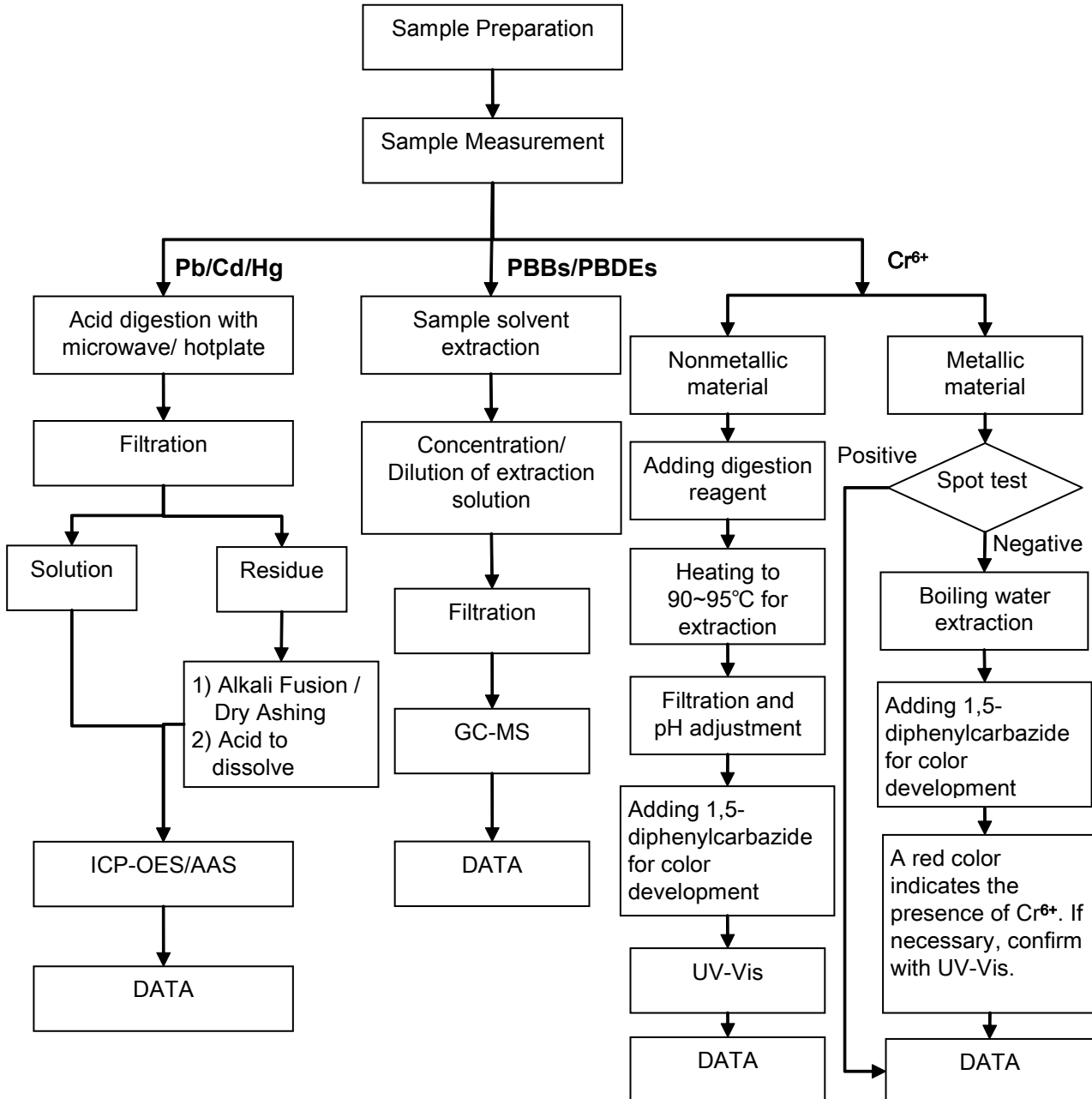
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RoHS Testing Flow Chart

- 1) Name of the person who made testing: Bruce Xiao / Sunny Hu
- 2) Name of the person in charge of testing: Bella Wang / Cutey Yu
- 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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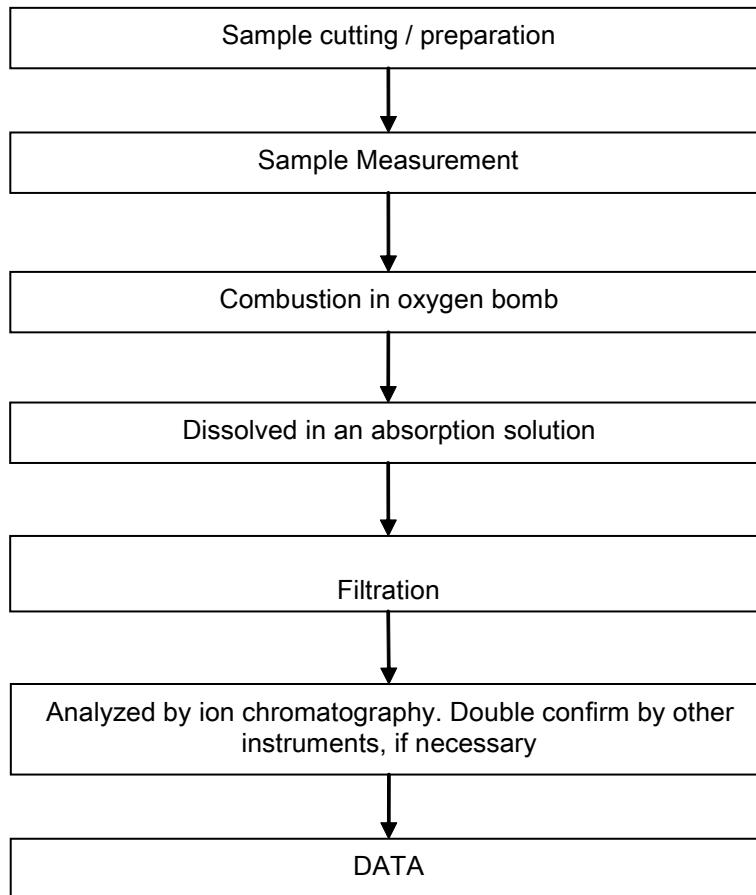
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Halogen Testing Flow Chart

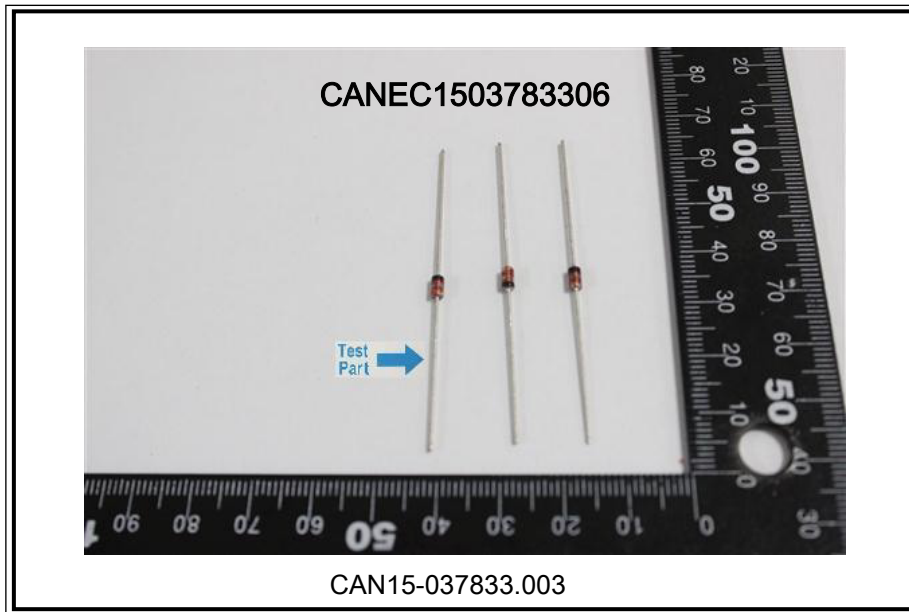
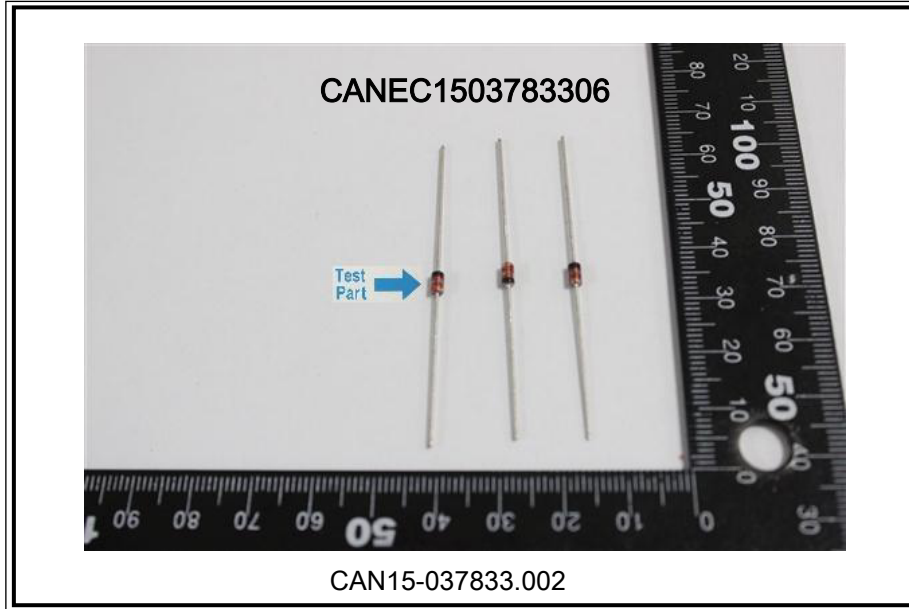
- 1) Name of the person who made testing: Hanming Xiao
- 2) Name of the person in charge of testing: Bella Wang



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