

Test Report No. SHAEC1816152901 Date: 30 Jul 2018 Page 1 of 10

No.2569,YunGu Road,HeFei Economy&Technology Development Area,Anhui Province,China HeFei JingWeiTe Electronics Co.,Ltd

The following sample(s) was/were submitted and identified on behalf of the clients as : DIP Quartz Crystal

Resonato

SGS Job No.: SP18-024864 - SH

Model No.: 49S-SMD

Client Ref. Information: 49S 49SS 49SS/SMD

Date of Sample Received: 20 Jul 2018

Testing Period: 20 Jul 2018 - 27 Jul 2018

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 Cadmium,

Lead, Mercury, Hexavalent chromium, Polybrominated biphenyls (PBBs),

Polybrominated diphenyl ethers (PBDEs) and Phthalates such as

Bis(2-ethylhexyl) phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP) and Diisobutyl phthalate (DIBP) comply with the limits as set by RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.

Signed for and on behalf of

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.



Approved Signatory

Hele Lin





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Test Results:

Test Part Description:

Specimen No.	SGS Sample ID	Description
SN1	SHA18-161529.002	Black plastic part
SN2	SHA18-161529.003	White wafer
SN3	SHA18-161529.004	Silvery shell
SN4	SHA18-161529.005	Silvery bracket
SN5	SHA18-161529.006	Silvery pin

Remarks:

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

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC62321-7-2:2017, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, UV-Vis and GC-MS.

Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>	<u>003</u>
Cadmium (Cd)	100	mg/kg	2	ND	ND
Lead (Pb)	1000	mg/kg	2	7	ND
Mercury (Hg)	1000	mg/kg	2	ND	ND
Hexavalent Chromium (Cr(VI))	1000	mg/kg	8	ND	ND
Sum of PBBs	1000	mg/kg	-	ND	ND
Monobromobiphenyl	-	mg/kg	5	ND	ND
Dibromobiphenyl	-	mg/kg	5	ND	ND
Tribromobiphenyl	-	mg/kg	5	ND	ND
Tetrabromobiphenyl	-	mg/kg	5	ND	ND
Pentabromobiphenyl	-	mg/kg	5	ND	ND
Hexabromobiphenyl	-	mg/kg	5	ND	ND
Heptabromobiphenyl	-	mg/kg	5	ND	ND
Octabromobiphenyl	-	mg/kg	5	ND	ND
Nonabromobiphenyl	-	mg/kg	5	ND	ND
Decabromobiphenyl	-	mg/kg	5	ND	ND
Sum of PBDEs	1000	mg/kg	-	ND	ND



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Test Item(s)	<u>Limit</u>	<u>Unit</u>	<u>MDL</u>	<u>002</u>	<u>003</u>	
Monobromodiphenyl ether	-	mg/kg	5	ND	ND	
Dibromodiphenyl ether	-	mg/kg	5	ND	ND	
Tribromodiphenyl ether	-	mg/kg	5	ND	ND	
Tetrabromodiphenyl ether	-	mg/kg	5	ND	ND	
Pentabromodiphenyl ether	-	mg/kg	5	ND	ND	
Hexabromodiphenyl ether	-	mg/kg	5	ND	ND	
Heptabromodiphenyl ether	-	mg/kg	5	ND	ND	
Octabromodiphenyl ether	-	mg/kg	5	ND	ND	
Nonabromodiphenyl ether	-	mg/kg	5	ND	ND	
Decabromodiphenyl ether	-	mg/kg	5	ND	ND	
Di-butyl Phthalate (DBP)	1000	mg/kg	50	ND	ND	
Benzyl Butyl Phthalate (BBP)	1000	mg/kg	50	ND	ND	
Di-2-Ethyl Hexyl Phthalate (DEHP)	1000	mg/kg	50	ND	ND	
Diisobutyl Phthalates (DIBP)	1000	mg/kg	50	ND	ND	

Notes:

- (1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863. IEC 62321 series is equivalent to EN 62321 series http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP ORG ID,FSP LANG _ID:1258637,25
- (2)On 4 June 2015, Commission Directive (EU) 2015/863 was published in the Official Journal of the European Union (OJEU) to include the phthalates BBP, DBP, DEHP and DIBP into ANNEX II of the Rohs Recast Directive. The new law restricts each phthalate to no more than 0.1% in each homogeneous material of an electrical product.
- (3) The restriction of DEHP, BBP, DBP and DIBP shall apply to medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, from 22 July 2021.
- (4) The restriction of DEHP, BBP, DBP and DIBP shall not apply to cables or spare parts for the repair, the reuse, the updating of functionalities or upgrading of capacity of EEE placed on the market before 22 July 2019, and of medical devices, including in vitro medical devices, and monitoring and control instruments, including industrial monitoring and control instruments, placed on the market before 22 July 2021.
- (5) The restriction of DEHP, BBP and DBP shall not apply to toys which are already subject to the restriction of DEHP, BBP and DBP through entry 51 of Annex XVII to Regulation (EC) No 1907/2006.

RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU

Test Method: With reference to IEC 62321-4:2013+AMD1:2017, IEC62321-5:2013, IEC62321-7-1:2015, IEC 62321-6:2015 and IEC62321-8:2017, analyzed by ICP-OES, AAS, UV-Vis and GC-MS.



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Test Item(s)	Limit	<u>Unit</u>	<u>MDL</u>	<u>004</u>	<u>005</u>	<u>006</u>	
Cadmium (Cd)	100	mg/kg	2	ND	ND	ND	
Lead (Pb)	1000	mg/kg	2	6	ND	ND	
Mercury (Hg)	1000	mg/kg	2	ND	ND	ND	
Hexavalent Chromium (Cr(VI))▼	-	μg/cm²	0.10	ND	ND	ND	
Sum of PBBs	1000	mg/kg	-	ND	ND	ND	
Monobromobiphenyl	-	mg/kg	5	ND	ND	ND	
Dibromobiphenyl	-	mg/kg	5	ND	ND	ND	
Tribromobiphenyl	-	mg/kg	5	ND	ND	ND	
Tetrabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Pentabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Hexabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Heptabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Octabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Nonabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Decabromobiphenyl	-	mg/kg	5	ND	ND	ND	
Sum of PBDEs	1000	mg/kg	-	ND	ND	ND	
Monobromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Dibromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Tribromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Tetrabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Pentabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Hexabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Heptabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Octabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Nonabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Decabromodiphenyl ether	-	mg/kg	5	ND	ND	ND	
Di-butyl Phthalate (DBP)	1000	mg/kg	50	ND	ND	ND	

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Notes:

(1) The maximum permissible limit is quoted from RoHS Directive (EU) 2015/863.

1000

1000

1000

- IEC 62321 series is equivalent to EN 62321 series
- http://www.cenelec.eu/dyn/www/f?p=104:30:1742232870351101::::FSP_ORG_ID,FSP_LANG ID:1258637,25

mg/kg

mg/kg

mg/kg

- (2) ▼ = a. The sample is positive for CrVI if the CrVI concentration is greater than 0.13 µg/cm². The sample coating is considered to contain CrVI
 - b. The sample is negative for CrVI if CrVI is ND (concentration less than 0.10 µg/cm²). The



Benzyl Butyl Phthalate (BBP)

Diisobutyl Phthalates (DIBP)

Di-2-Ethyl Hexyl Phthalate (DEHP)

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ND

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ND

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ND

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coating is considered a non-CrVI based coating

c. The result between 0.10 µg/cm² and 0.13 µg/cm² is considered to be inconclusive unavoidable coating variations may influence the determination Information on storage conditions and production date of the tested sample is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.



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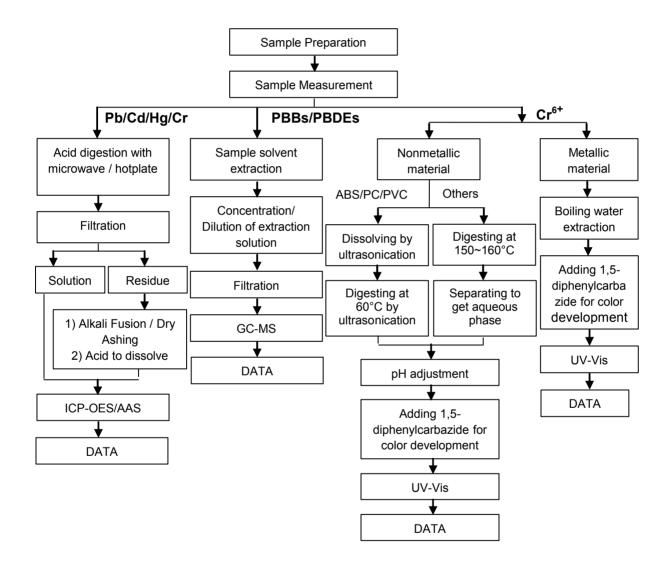


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ATTACHMENTS

Pb/Cd/Hg/Cr⁶⁺/PBBs/PBDEs Testing Flow Chart

- 1) Name of the person who made testing: Meria Jin/Gary Xu/ Xiaolong Yang/Sielina Song
- 2) Name of the person in charge of testing: Jan Shi/Myra Ma/Luna Xu/Shara Wang
- 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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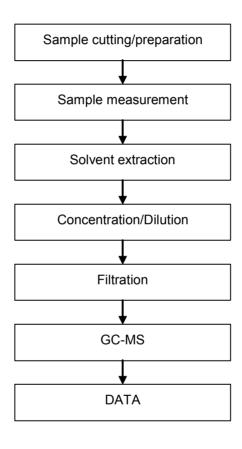
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ATTACHMENTS

Phthalates Testing Flow Chart

- 1) Name of the person who made testing: Sherlock Gao
- 2) Name of the person in charge of testing: Jessy Huang





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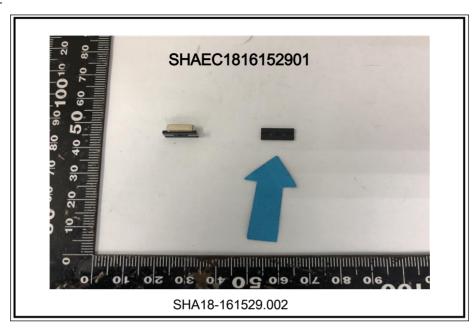


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Sample photo:







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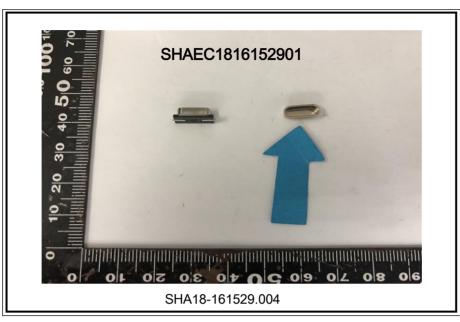
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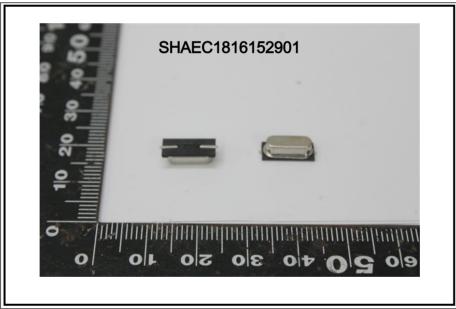
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