

# Test Report



Report No. A219004332410100301

Page 1 of 8

**Applicant** HANGZHOU SILAN MICROELECTRONICS CO.,LTD.  
**Address** NO.4 HUANGGUSHAN ROAD,HANGZHOU,P.R.CHINA

**The following sample(s) and sample information was/were submitted and identified by/on the behalf of the client**

Sample Name Intelligent power module  
Client Reference Information SOP37、DIP25、DIP23、SOP23  
Item No. SDM06C60FB/SL8N50B  
Manufacturer Name Chengdu Perfect Technology CO., LTD.  
Sample Received Date Mar. 6, 2019  
Testing Period Mar. 6, 2019 to Mar. 12, 2019

**Test Requested** As specified by client, to test Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs), Phthalates (DBP, BBP, DEHP, DIBP), Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I) in the submitted sample(s).

**Test Method/Test Result(s)** Please refer to the following page(s).

Tested by

*Crite Qin*

Reviewed by

*Danna Fan*

Approved by

*Hill Zheng*

Date

Mar. 12, 2019

Hill Zheng  
Technical Manager

No. R262621286



Centre Testing International Group Co.,Ltd.

CTI Building Xing Dong Community, Xin'an Sub-district, Bao'an District, Shenzhen City, Guangdong Province, P.R. China

# Test Report

Report No. A219004332410100301

Page 2 of 8

\*\*\*\*\*

## Conclusion

<b>Tested Sample</b>	<b>According to standard/directive</b>	<b>Result</b>
Submitted Sample	RoHS Directive 2011/65/EU with amendment (EU) 2015/863	Pass

\*\*\*\*\*

Pass means that the results shown on the report comply with the limits set by RoHS Directive 2011/65/EU with amendment (EU) 2015/863.

# Test Report

Report No. A219004332410100301

Page 3 of 8

## Test Method

Tested Item(s)	Test Method	Measured Equipment(s)
Lead(Pb)	IEC 62321-5:2013	ICP-OES
Cadmium(Cd)	IEC 62321-5:2013	ICP-OES
Mercury(Hg)	IEC 62321-4:2013+AMD1:2017 CSV	ICP-OES
Hexavalent Chromium(Cr(VI))	IEC 62321-7-2:2017 and/or determination of Total Chromium by IEC 62321-5:2013	UV-Vis/ICP-OES
	IEC 62321-7-1:2015	UV-Vis
Polybrominated Biphenyls(PBBs)	IEC 62321-6:2015	GC-MS
Polybrominated Diphenyl Ethers (PBDEs)	IEC 62321-6:2015	GC-MS
Phthalates (DBP, BBP, DEHP, DIBP)	IEC 62321-8:2017	GC-MS
Fluorine (F)	Refer to EN 14582:2016	IC
Chlorine (Cl)	Refer to EN 14582:2016	IC
Bromine (Br)	Refer to EN 14582:2016	IC
Iodine (I)	Refer to EN 14582:2016	IC

# Test Report

Report No. A219004332410100301

Page 4 of 8

## Test Result(s)

Tested Item(s)	Result		MDL	Limit
	001	002		
Lead (Pb)	3761 mg/kg*	N.D.	2 mg/kg	1000 mg/kg
Cadmium (Cd)	N.D.	N.D.	2 mg/kg	100 mg/kg
Mercury (Hg)	N.D.	N.D.	2 mg/kg	1000 mg/kg
Hexavalent Chromium (Cr(VI))	N.D.	--	8 mg/kg	1000 mg/kg
	--	N.D.▼	0.10 µg/cm <sup>2</sup> (LOQ)	1000 mg/kg

Tested Item(s)	Result		MDL	Limit
	001			
<b>Polybrominated Biphenyls(PBBs)</b>				
Monobromobiphenyl	N.D.		5 mg/kg	1000 mg/kg
Dibromobiphenyl	N.D.		5 mg/kg	
Tribromobiphenyl	N.D.		5 mg/kg	
Tetrabromobiphenyl	N.D.		5 mg/kg	
Pentabromobiphenyl	N.D.		5 mg/kg	
Hexabromobiphenyl	N.D.		5 mg/kg	
Heptabromobiphenyl	N.D.		5 mg/kg	
Octabromobiphenyl	N.D.		5 mg/kg	
Nonabromobiphenyl	N.D.		5 mg/kg	
Decabromobiphenyl	N.D.		5 mg/kg	

Tested Item(s)	Result		MDL	Limit
	001			
<b>Polybrominated Diphenyl Ethers (PBDEs)</b>				
Monobromodiphenyl ether	N.D.		5 mg/kg	1000 mg/kg
Dibromodiphenyl ether	N.D.		5 mg/kg	
Tribromodiphenyl ether	N.D.		5 mg/kg	
Tetrabromodiphenyl ether	N.D.		5 mg/kg	
Pentabromodiphenyl ether	N.D.		5 mg/kg	
Hexabromodiphenyl ether	N.D.		5 mg/kg	
Heptabromodiphenyl ether	N.D.		5 mg/kg	
Octabromodiphenyl ether	N.D.		5 mg/kg	
Nonabromodiphenyl ether	N.D.		5 mg/kg	
Decabromodiphenyl ether	N.D.		5 mg/kg	

# Test Report

Report No. A219004332410100301

Page 5 of 8

Tested Item(s)	Result	MDL	Limit
	001		
<b>Phthalates (DBP, BBP, DEHP, DIBP)</b>			
Dibutyl phthalate (DBP) CAS#:84-74-2	N.D.	50 mg/kg	1000 mg/kg
Butyl benzyl phthalate (BBP) CAS#:85-68-7	N.D.	50 mg/kg	1000 mg/kg
Di-(2-ethylhexyl) phthalate (DEHP) CAS#:117-81-7	N.D.	50 mg/kg	1000 mg/kg
Diisobutyl phthalate (DIBP) CAS#:84-69-5	N.D.	50 mg/kg	1000 mg/kg

Tested Item(s)	Result	MDL
	001	
Fluorine (F)	N.D.	10 mg/kg
Chlorine (Cl)	N.D.	10 mg/kg
Bromine (Br)	N.D.	10 mg/kg
Iodine (I)	N.D.	10 mg/kg

## Tested Sample/Part Description

- 001 Black body with brown-yellow printing(Tested as a whole)#
- 002 Metal pin with silvery plating

**Remark:** The sample(s) had been dissolved totally tested for Lead, Cadmium, Mercury.

#The sample(s) was tested as a whole, because it's impossible to disassemble or separate it by current equipment and technology. The result(s) shown on this report may be different from the content of any homogeneous material.

-MDL = Method Detection Limit

-N.D. = Not Detected (<MDL or LOQ)

-mg/kg = ppm = parts per million

-1000 mg/kg = 0.1%

-LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 µg/cm<sup>2</sup>

-▼The sample is negative for Cr(VI) – The Cr(VI) concentration is below 0.10 µg/cm<sup>2</sup>. The coating is considered a non-Cr(VI) based coating.

- \*According to the client's statement, the material of the sample(s) fall into exemption items 7(a) according to EU Directive 2011/65/EU: Lead in high melting temperature type solders(i.e. lead-based alloys containing 85% by weight of more lead).

-The test result(s) is(are) presented in reference to the result(s) that reported in A2190043324101003.

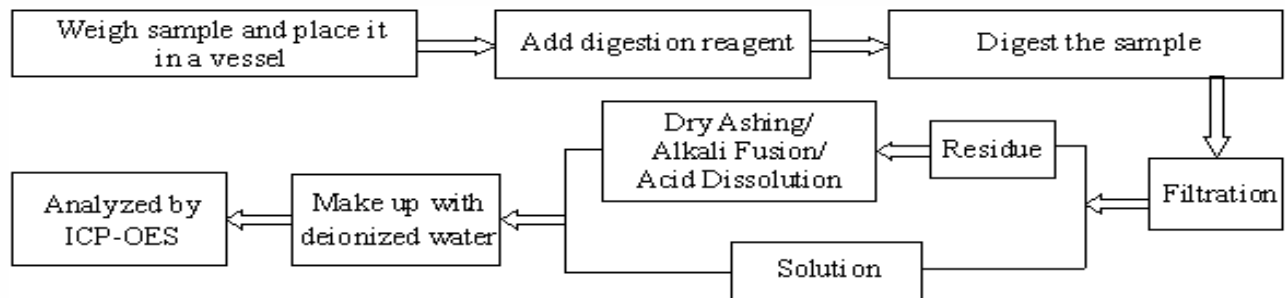
# Test Report

Report No. A219004332410100301

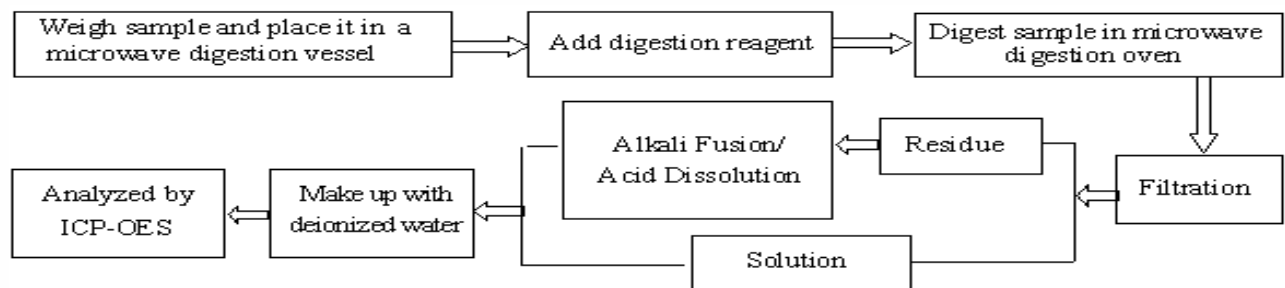
Page 6 of 8

## Test Process

### 1. Lead(Pb), Cadmium(Cd), Chromium(Cr)

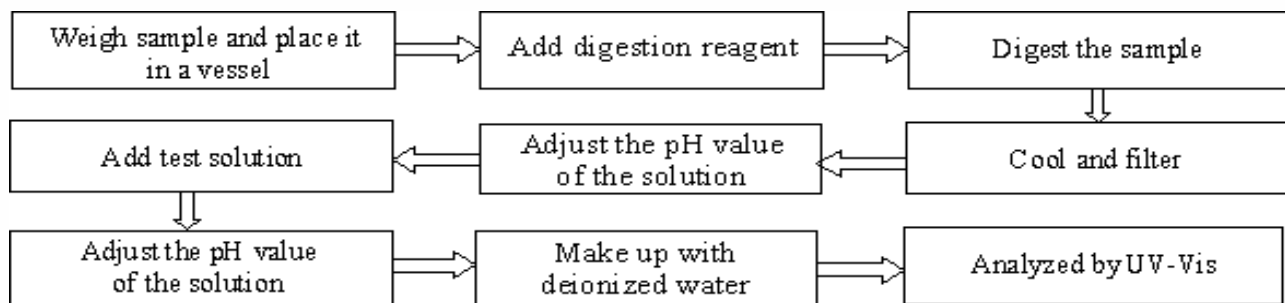


### 2. Mercury(Hg)

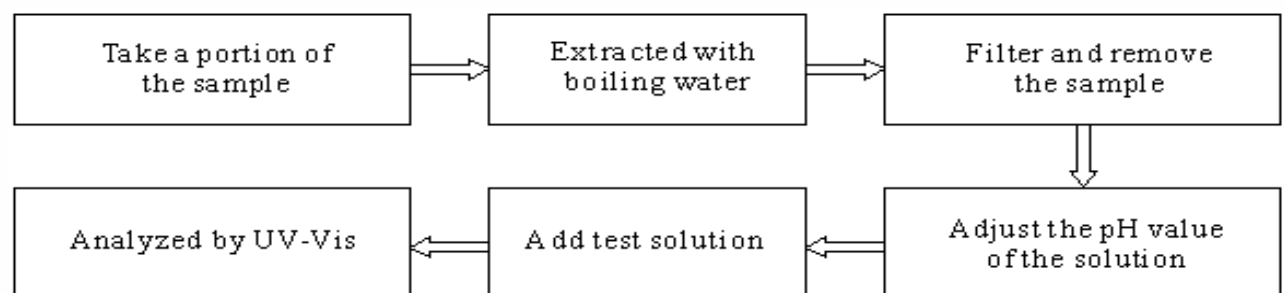


### 3. Hexavalent Chromium(Cr(VI))

#### (1) IEC 62321-7-2:2017



#### (2) IEC 62321-7-1:2015

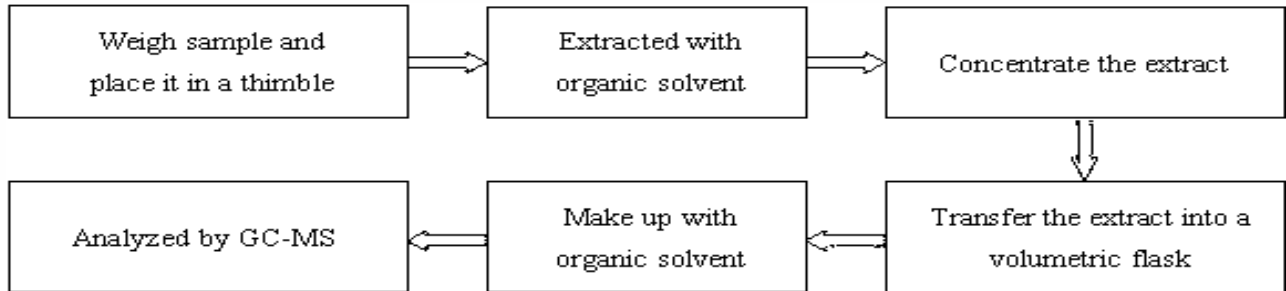


# Test Report

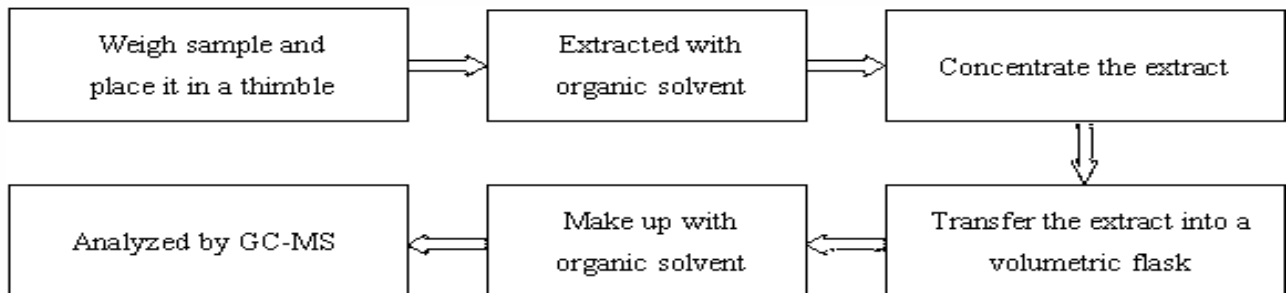
Report No. A219004332410100301

Page 7 of 8

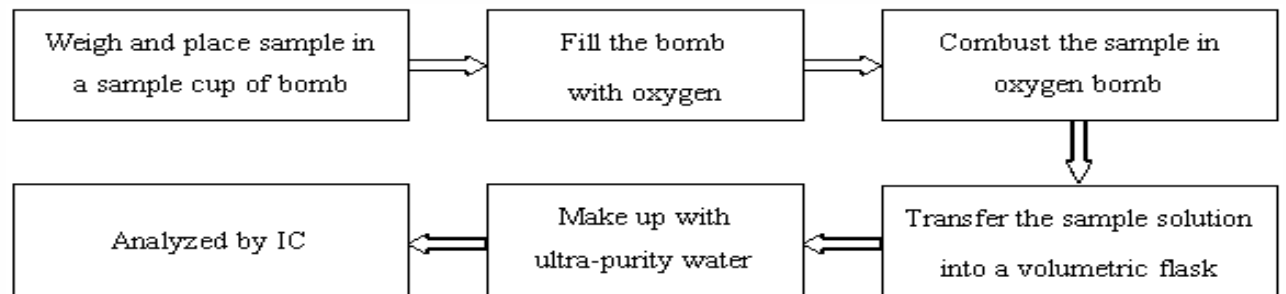
## 4. Polybrominated Biphenyls(PBBs), Polybrominated Diphenyl Ethers (PBDEs)



## 5. Phthalates (DBP, BBP, DEHP, DIBP)



## 6. Fluorine (F), Chlorine (Cl), Bromine (Br), Iodine (I)



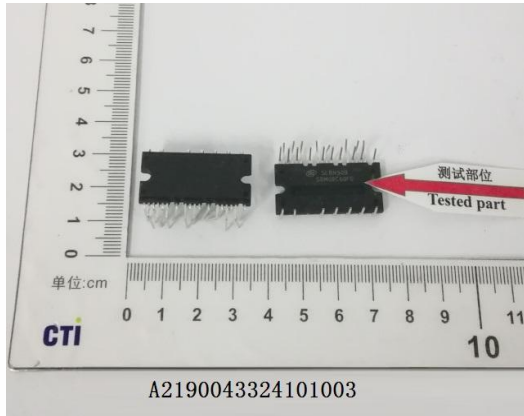
# Test Report

Report No. A219004332410100301

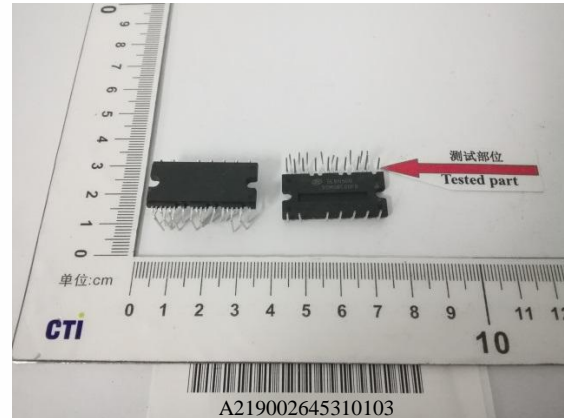
Page 8 of 8

## Photo(s) of the sample(s)

001



002



\*\*\* End of Report \*\*\*

### Statement:

1. This report is considered invalid without approved signature, special seal and the seal on the perforation;
2. The sample(s) and sample information was/were provided by the client who should be responsible for the authenticity which CTI hasn't verified;
3. The result(s) shown in this report refer(s) only to the sample(s) tested;
4. Without written approval of CTI, this report can't be reproduced except in full;
5. In case of any discrepancy between the English version and Chinese version of the testing reports (if generated), the Chinese version shall prevail.