



TEST REPORT

Report No.: STR18116022R

Date: Nov.16,2018

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Applicant : Shenzhen Sonoff Technologies Co.,Ltd.

Applicant Address : Room 1001,10F,Building B,Lianhua Industrial Park,Longyuan Load,Longhua District,Shenzhen,GD,China.

The following sample was submitted by the client as:

Manufacturer : ShenZhen JuXingHui Optoelectronic Co.,Ltd.

Manufacturer address : 4F,Block6,HongXin Industrial Zone,GuanGuang Road,GuaLan Town, LongHua New District,ShenZhen City,China

Sample Description : Smart Wifi Controller

Model No. : Spider Z

Brand : Sonoff

Sample Receiving Date : Nov.09, 2018

Test Period : Nov.09, 2018 to Nov.16, 2018

Test Requested:

As requested by the applicant, test(s) was/were performed as below:

Test Summary	Conclusion
1 European Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (XRF screening and chemical confirm)	PASS

Test Results: Please refer to following page(s).



<p>Tested by: <i>Alen Zhang</i> Alen Zhang</p>	<p>Reviewed by: <i>Eric Lu</i> Eric Lu</p>	<p>Approved by: <i>Jandyso</i> Jandyso</p>
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Declaration:

- (1) The report shall not be reproduced partly without the written approval of the laboratory, except in full produced.
- (2) All the results shown in the report apply to the tested sample,any erasion on the report is invalid
- (3) All tested sample will be kept for one month,if there is any doubt about the test result, please inform within this period

Shenzhen SEM Test Technology Co., Ltd.

1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C. (518101)



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RoHS hazardous substances test

Test method:

IEC 62321-3-1:2013, XRF screening

IEC 62321-4-2013 for Hg, analyzed by ICP-OES

IEC 62321-5-2013 for Cd and Pb, analyzed by ICP-OES

IEC 62321-7-2:2017 method 7.1 and/or IEC 62321-7-1:2015 for Cr⁶⁺, analyzed by UV-VIS

IEC 62321-6-2015 for PBBs and PBDEs, analyzed by GC-MS

1. XRF results:

No.	Name of the sample	Part name	Sample Description	Results					
				Pb	Cd	Hg	Cr	Br	
1	WiFi controler	Wire 1	White plastic filling	BL	BL	BL	BL	BL	
2			Silvery metal tube	BL	BL	BL	BL	NA	
3			Silvery metal PIN	BL	BL	BL	BL	NA	
4			Black plastic plug	BL	BL	BL	BL	BL	
5			Black plastic cable	BL	BL	BL	BL	BL	
6			Black plastic wire	BL	BL	BL	BL	BL	
7			Red plastic wire	BL	BL	BL	BL	BL	
8			Silvery metal core	BL	BL	BL	BL	NA	
9		Wire 2	Black plastic wire	BL	BL	BL	BL	BL	
10			Red plastic wire	BL	BL	BL	BL	BL	
11			White plastic wire	BL	BL	BL	BL	BL	
12			Silvery metal core	BL	BL	BL	BL	NA	
13		Luminescent secondary tube	Black plastic shell	BL	BL	BL	BL	BL	
14			Silvery metal PIN	BL	BL	BL	BL	NA	
15		Shell	Black plastic shell	BL	BL	BL	BL	IN	
16		Label	Silvery plastic film w/black printing	BL	BL	BL	BL	BL	
17		PCB	IC	Black body	BL	BL	BL	BL	BL
18				Silvery metal PIN	BL	BL	BL	BL	NA
19			Microphone	Black sponge piece w/adhesive	BL	BL	BL	BL	BL
20				Silvery metal shell	BL	BL	BL	BL	NA
21				Silvery metal round 1	BL	BL	BL	BL	NA
22				Silvery metal round 2	BL	BL	BL	BL	NA
23				Black triode SMD	BL	BL	BL	BL	BL
24				Green PCB round	BL	BL	BL	BL	NA



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No.	Name of the sample	Part name	Sample Description	Results					
				Pb	Cd	Hg	Cr	Br	
25	PCB	Microphone	Silvery metal PIN	BL	BL	BL	BL	NA	
26			Solder	BL	BL	BL	BL	NA	
27		Electrolytic capacitor	Black plastic w/white printing	BL	BL	BL	BL	BL	
28			Silvery metal shell	BL	BL	BL	BL	NA	
29			Black rubber cover	BL	BL	BL	BL	BL	
30			Brown paper w/liquid	BL	BL	BL	BL	BL	
31			Silvery metal PIN	BL	BL	BL	BL	NA	
32		Inductance	Silvery metal PIN	BL	BL	BL	BL	NA	
33			Black solid material	BL	BL	BL	BL	NA	
34		SMD	Black resistor SMD	BL	BL	BL	BL	BL	
35			Brown capacitor SMD	BL	BL	BL	BL	BL	
36			Black triode SMD	BL	BL	BL	BL	BL	
37			Black diode SMD	BL	BL	BL	BL	BL	
38			Black IC SMD	BL	BL	BL	BL	BL	
39		PCB	Green PCB body	BL	BL	BL	BL	IN	
40			Solder	BL	BL	BL	BL	NA	
41		Connector	Silvery metal tube	BL	BL	BL	BL	NA	
42			Black plastic	BL	BL	BL	BL	BL	
43		Wire	Wire	Silvery metal PIN	BL	BL	BL	BL	NA
44				Black plastic head	BL	BL	BL	BL	BL
45	Green plastic wire			BL	BL	BL	BL	BL	
46	Red plastic wire			BL	BL	BL	BL	BL	
47	White plastic wire			BL	BL	BL	BL	BL	
48	Blue plastic wire			BL	BL	BL	BL	BL	
49	Silvery metal core			BL	BL	BL	BL	NA	
50	LED band			Black rubber cable	BL	BL	BL	BL	BL
51			Transparent soft plastic	BL	BL	BL	BL	BL	
52			White body LED	BL	BL	BL	BL	BL	
53			Black resistor SMD	BL	BL	BL	BL	BL	
54			Black PCB band	BL	BL	BL	BL	BL	
55			Brown paper w/adhesive	BL	BL	BL	BL	BL	



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No.	Name of the sample	Part name	Sample Description	Results				
				Pb	Cd	Hg	Cr	Br
56	Remote	Body	Black plastic shell	BL	BL	BL	BL	BL
57			Black plastic film w/multi-color printing	BL	BL	BL	BL	BL
58			Slivery metal screw	BL	BL	BL	BL	NA
59			Slivery metal spring	BL	BL	BL	BL	NA
60			Slivery metal piece	BL	BL	BL	BL	NA
61			Green PCB	BL	BL	BL	BL	IN
62			Solder	BL	BL	BL	BL	NA
63			Black solid round	BL	BL	BL	BL	BL
64			LED	Transparent body	BL	BL	BL	BL
65		Slivery metal screw		BL	BL	BL	BL	NA

2. Chemical confirm results:

Test Item(s)	Result (mg/kg)			Limit (mg/kg)
	15	39	61	
Mono-PBB	ND	ND	ND	--
Di-PBB	ND	ND	ND	--
Tri-PBB	ND	ND	ND	--
Tetra-PBB	ND	ND	ND	--
Penta-PBB	ND	ND	ND	--
Hexa-PBB	ND	ND	ND	--
Hepta-PBB	ND	ND	ND	--
Octa-PBB	ND	ND	ND	--
Nona-PBB	ND	ND	ND	--
Deca-PBB	ND	ND	ND	--
Sum of PBBs	ND	ND	ND	1000
Mono-PBDE	ND	ND	ND	--
Di- PBDE	ND	ND	ND	--
Tri- PBDE	ND	ND	ND	--
Tetra- PBDE	ND	ND	ND	--
Penta- PBDE	ND	ND	ND	--
Hexa- PBDE	ND	ND	ND	--
Hepta- PBDE	ND	ND	ND	--
Octa- PBDE	ND	ND	ND	--
Nona- PBDE	ND	ND	ND	--



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Deca- PBDE	ND	ND	ND	--
Sum of PBDEs	ND	ND	ND	1000
Comment	PASS	PASS	PASS	--

Remark:

1. BL = below limit
2. OL = over limit
3. IN = inconclusive, chemical confirm test is recommended
4. NA = not applicable
5. mg/kg = milligram per kilogram = ppm
6. Method Detection Limit (MDL) :10mg/kg for Pb, Cd, Hg and Cr(VI); 10mg/kg for PBB and PBDE
7. ND = not detected
8. Negative = The Cr(VI) concentration is below the limit of quantification. The coating is considered a non- Cr(VI)⁺ based coating.
9. Positive = The Cr(VI) concentration is above the limit of quantification and the statistical margin of error, The sample coating is considered to contain Cr(VI).

Note:

1. When perform screening tests, it is the result on total Br while test item on restricted substances is PBBs/PBDEs, it is the result on total Cr while test item on restricted substances is Cr(VI).
2. Results are obtained by EDXRF for primary screening, and further chemical testing by ICP-OES (for Cd, Pb, Hg), UV-VIS (for Cr(VI)) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration falls into the inconclusive area according to IEC 62321-3-1:2013 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Br	$BL \leq (300-3\sigma) < X$	---	$BL \leq (250-3\sigma) < X$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$

3. The XRF screening test for RoHS elements. The reading may be different to the actual content in the sample be of non-uniformity composition.



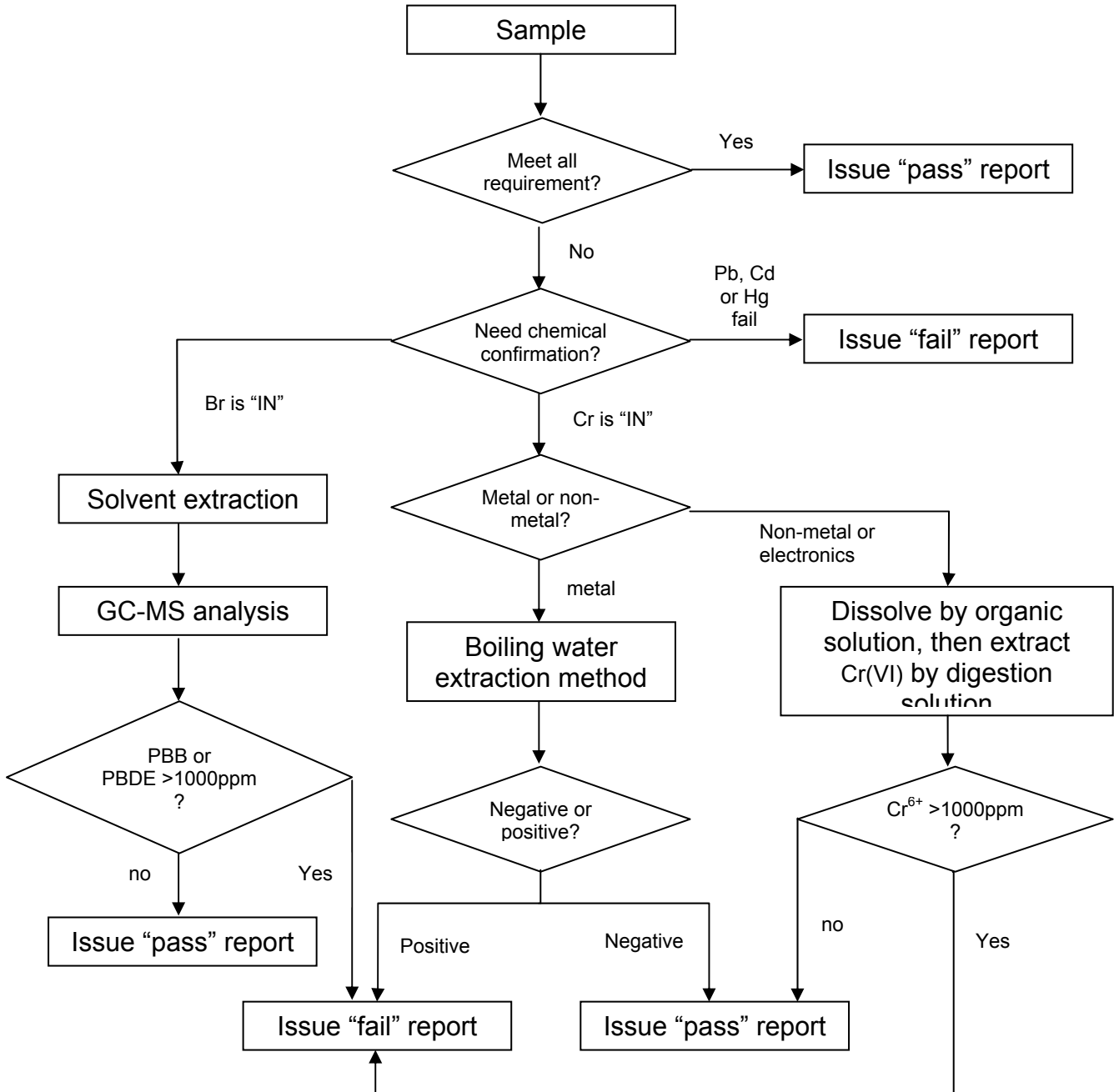
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Test flow:



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Tested sample photo:



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