

Test Report

Report No.: AGC04094190101-002

Date: Jan.21, 2019

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Applicant:

Address:

Report on the submitted sample(s) said to be:

Sample Name: Bluetooth speaker

Sample Model:

Sample Received Date: Dec.28, 2018

Testing Period: Dec.28, 2018 to Jan.21, 2019

Test site: 1,6/F.,Building 2,No.1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang,
Baoan District, Shenzhen, Guangdong, China

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

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

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

Approved by: 

Liulmwen, Lewis

Technical Director



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Test Requested:

Conclusion

As specified by client, to determine the Pb, Cd, Hg, Cr⁶⁺, PBBs, PBDEs content in the submitted sample in accordance with EU RoHS Directive 2011/65/EU(RoHS) and its amendment directives on XRF and Chemical Method.

Pass

Test Methods:

A: Screening by X-ray Fluorescence Spectrometry (XRF) :With reference to IEC 62321-3-1:2013 Ed 1.0 Screening – Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry

B: Chemical test:

Test Item	Test Method	Measuring Instrument	MDL
Cadmium (Cd)	IEC 62321-5:2013 Ed 1.0	ICP-OES	2 mg/kg
Lead (Pb)	IEC 62321-5:2013 Ed 1.0	ICP-OES	2 mg/kg
Mercury (Hg)	IEC 62321-4:2013+A1:2017 Ed 1.1	ICP-OES	2 mg/kg
Non-metal Hexavalent Chromium (Cr ⁶⁺)	IEC 62321-7-2:2017 Ed 1.0	UV-Vis	1 mg/kg
Metal Hexavalent Chromium (Cr ⁶⁺)	IEC 62321-7-1:2015 Ed 1.0	UV-Vis	/
PBBs/PBDEs	IEC 62321-6:2015 Ed 1.0	GC-MS	5 mg/kg

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Test Results:
A、EU RoHS Directive 2011/65/EU and its amendment directives on XRF

Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
1	White coating(outer shell)	BL	BL	BL	BL	BL
2	Metal sound-absorbing cover(outer shell)	BL	BL	BL	BL	-
3	Transparent plastic shell(outer shell)	BL	BL	BL	BL	BL
4	Gray rubber mats(outer shell)	BL	BL	BL	BL	BL
5	White plastic base seat(outer shell)	BL	BL	BL	BL	BL
6	Brown wood shell(outer shell)	BL	BL	BL	BL	BL
7	Silver screw	BL	BL	BL	BL	-
8	White toggle plastic(toggle switch)	BL	BL	BL	BL	BL
9	Silver metal shell(toggle switch)	BL	BL	BL	BL	-
10	Crystal oscillator	BL	BL	BL	BL	BL
11	IC body(IC)	BL	BL	BL	BL	BL
12	Tin plating pin(IC)	BL	BL	BL	BL	-
13	Chip resistor	BL	BL	BL	BL	BL
14	Chip diode	BL	BL	BL	BL	X*
15	Chip capacitor	BL	BL	BL	BL	BL
16	Tin solder	BL	BL	BL	BL	-
17	Green PCB board	BL	BL	BL	BL	X*
18	Transparent LED	BL	BL	BL	BL	X*
19	Micro metal connector(Micro joint)	BL	BL	BL	BL	-
20	Black plastic contact(Micro joint)	BL	BL	BL	BL	BL
21	Contact pin(Micro joint)	BL	BL	BL	BL	-
22	T iron(horn)	BL	BL	BL	BL	-
23	Black magnet(horn)	BL	BL	BL	BL	BL
24	Tin solder(horn)	BL	BL	BL	BL	-

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Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
25	Red connecting piece(horn)	BL	BL	BL	BL	BL
26	Black wire jacket(horn)	BL	BL	BL	BL	BL
27	Red wire jacket(horn)	BL	BL	BL	BL	BL
28	Wire core(horn)	BL	BL	BL	BL	-
29	Black rubber vibrating film(horn)	BL	BL	BL	BL	BL
30	Black globe-roof(horn)	BL	BL	BL	BL	BL
31	Enameled coil(horn)	BL	BL	BL	BL	-
32	Color zinc metal frame(horn)	BL	BL	BL	BL	-
33	Blue sleeving(battery)	BL	BL	BL	BL	BL
35	Black wire jacket(battery)	BL	BL	BL	BL	BL
36	Wire core(battery)	BL	BL	BL	BL	-
37	Red wire jacket(battery)	BL	BL	BL	BL	BL
38	Metal connecting piece(battery)	BL	BL	BL	BL	-
39	Tin solder(battery)	BL	BL	BL	BL	-
40	PCB board(battery)	BL	BL	BL	BL	X*
Different						
41	Black metal shell(outer shell)	BL	BL	BL	BL	-

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Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	$BL \leq 70 - 3\sigma < X$ $< 130 + 3\sigma \leq OL$	$BL \leq 70 - 3\sigma < X$ $< 130 + 3\sigma \leq OL$	$BL \leq 50 - 3\sigma < X$ $< 150 + 3\sigma \leq OL$
Pb	mg/kg	$BL \leq 700 - 3\sigma < X$ $< 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X$ $< 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X$ $< 1500 + 3\sigma \leq OL$
Hg	mg/kg	$BL \leq 700 - 3\sigma < X$ $< 1300 + 3\sigma \leq OL$	$BL \leq 700 - 3\sigma < X$ $< 1300 + 3\sigma \leq OL$	$BL \leq 500 - 3\sigma < X$ $< 1500 + 3\sigma \leq OL$
Cr	mg/kg	$BL \leq 700 - 3\sigma < X$	$BL \leq 700 - 3\sigma < X$	$BL \leq 500 - 3\sigma < X$
Br	mg/kg	$BL \leq 300 - 3\sigma < X$	-	$BL \leq 250 - 3\sigma < X$

Note: BL= Below Limit

OL= Over limited

X= Inconclusive

“-“= Not regulated

*= Scanning by XRF and detected by chemical method. The test results of chemical method please refer to next pages.

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Remark:

- i Results were obtained by XRF for primary scanning, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the above warning value according to IEC 62321-3-1:2013 Ed 1.0.
- ii The XRF scanning test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
- iii The maximum permissible limit is quoted from RoHS directive 2011/65/EU:

RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium (Cd)	100
Lead (Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr(VI))	1000
Polybrominated biphenyls (PBBs)	1000
Polybrominated diphenylethers (PBDEs)	1000

Disclaimers:

This XRF Scanning report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

The result shown in this XRF scanning report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.

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B、The Test Results of Chemical Method:

1) The Test Results of PBBs & PBDEs

Unit: mg/kg

Item(s)	MDL	Result(s)				Limit
		14	17	18	40	
Polybrominated Biphenyls (PBBs)						
Monobromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	Total PBBs Content <1000
Dibromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Tribromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Tetrabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Pentabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Hexabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Heptabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Octabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Total content	/	N.D.	N.D.	N.D.	N.D.	
Polybrominated Diphenylethers (PBDEs)						
Monobromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	Total PBDEs Content <1000
Dibromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Tribromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Tetrabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Pentabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Hexabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Heptabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Octabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Total content	/	N.D.	N.D.	N.D.	N.D.	
Conclusion	/	Pass	Pass	Pass	Pass	/

Note: N.D. = Not Detected or less than MDL
 mg/kg = parts per million
 MDL = Method Detection Limit

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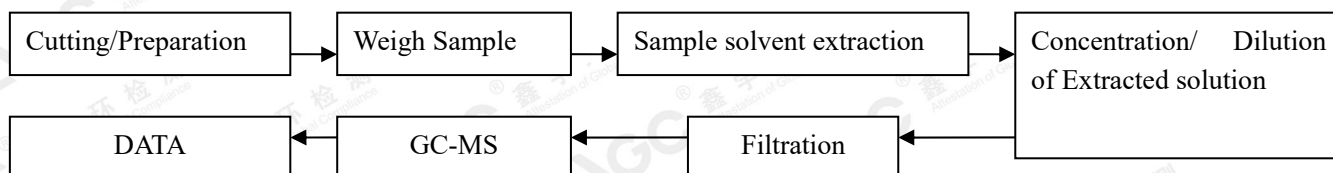
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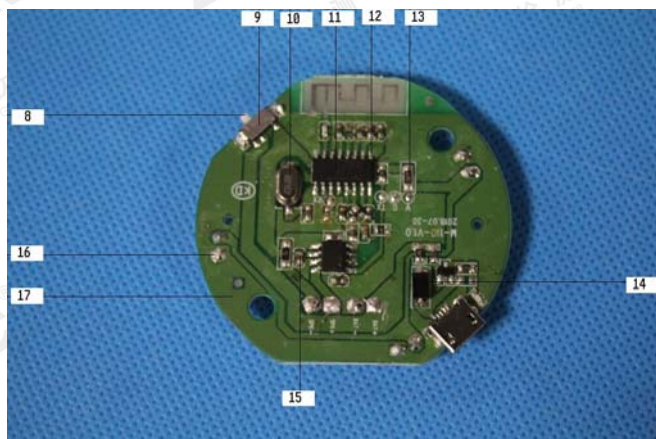
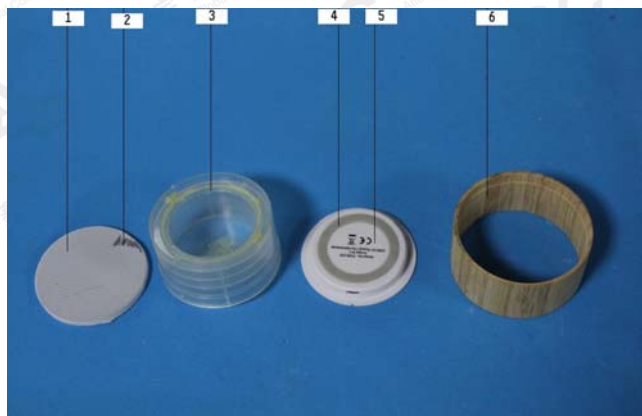
Test Flow Chart

1.For PBBs & PBDEs



As client's request, add this report that the results are copied from report No.: AGC04094190101-001.

The photo of the sample



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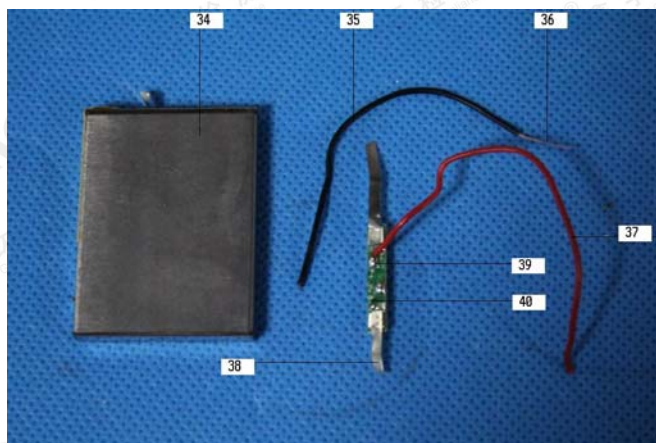
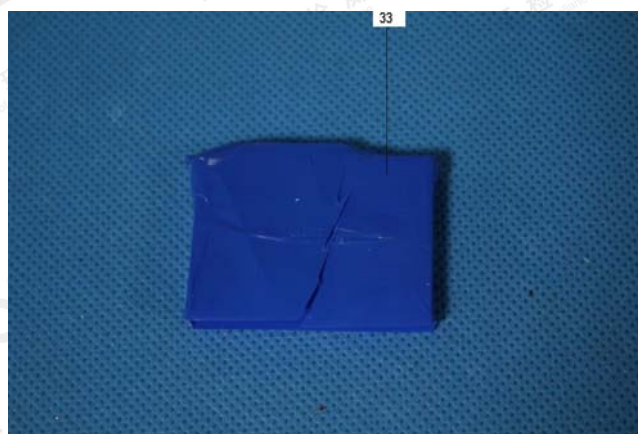
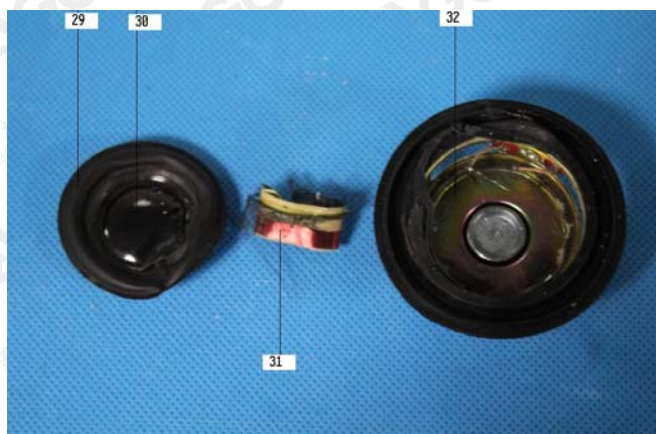
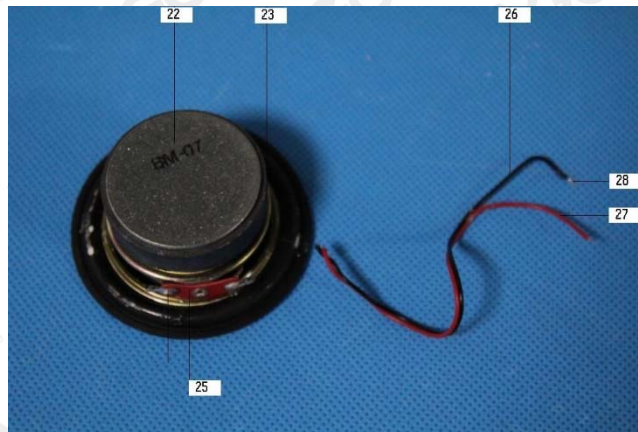
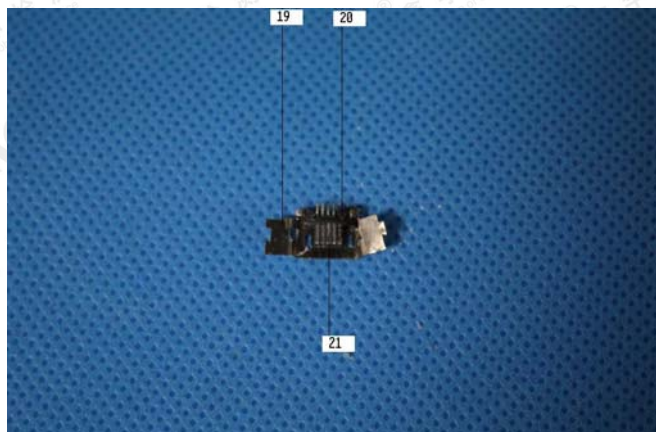
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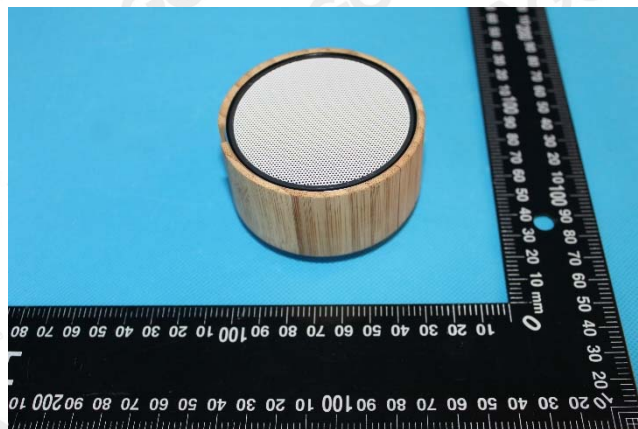
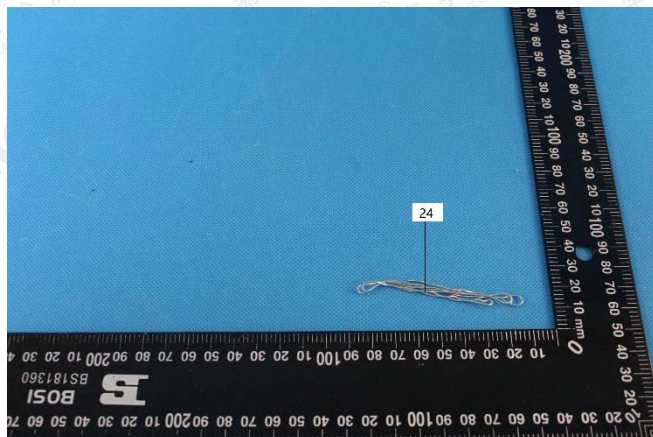
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