

Test Report

Report No.: AGC01981180601-002

Date: Jun.26, 2018

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Applicant:

Address:

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

Sample Name: Wireless Speaker

Sample Model: P328.103; WX65

Sample Received Date: Jun.19, 2018

Testing Period: Jun.19, 2018 to Jun.26,2018

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

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

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

Tested by:

Leon

Suhongliang, Leon

Test Team Leader

Reviewed by:

Jessie Liang

Liangdan, Jessie.Liang

Technical Supervisor

Approved by:

Lewis

Liulinwen, Lewis

Technical Director



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Test Requested:

1. As specified by client, to determine Lead(Pb), Cadmium(Cd), Mercury(Hg) content accordance with European Directive 2006/66/EC and its amendments 2013/56/EU.
2. 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.

Conclusion
Pass
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 62321-4:2017 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 Result(s):
1. Test result of Lead(Pb), Cadmium(Cd), Mercury(Hg)

Unit: %,w/w

Test item(s)	Test Method/ Equipment	MDL	Result(s)	Limit
			34	
Lead (Pb)	Refer to IEC 62321-5:2013 ICP-OES	0.0005	N.D.	—
Cadmium (Cd)		0.0005	N.D.	0.002
Mercury (Hg)	Refer to IEC 62321-4:2017, ICP-OES	0.0001	N.D.	0.0005
Conclusion	/	/	Pass	/

Note:

- N.D.=Not Detected(less than method detection limit)
- MDL = Method Detection Limit
- “—”=Not regulated
- As specified by client, only test the designated sample.

Sample Description

34	Electric core (battery)
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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	Grey mesh cloth (Shell)	BL	BL	BL	BL	BL
2	Black plastic shell (Shell)	BL	BL	BL	BL	BL
3	Silver coating (Shell)	BL	BL	BL	BL	BL
4	Milk white plastic shell (Shell)	BL	BL	BL	BL	BL
5	Black rubber mats (Shell)	BL	BL	BL	BL	BL
6	Red wire jacket (Connection line)	BL	BL	BL	BL	BL
7	Wire core (Connection line)	BL	BL	BL	BL	-
8	Black screw	BL	BL	BL	BL	-
9	Red wire jacket (Microphone)	BL	BL	BL	BL	BL
10	Black wire jacket (Microphone)	BL	BL	BL	BL	BL
11	Tin solder (Microphone)	BL	BL	BL	BL	-
12	Copper shell (Microphone)	BL	BL	BL	BL	-
13	PCB board (Microphone)	BL	BL	BL	BL	X*
14	T iron (Horn)	BL	BL	BL	BL	-
15	Magnet (Horn)	BL	BL	BL	BL	BL
16	Tin solder (Horn)	BL	BL	BL	BL	-
17	Black rubber vibrating film (Horn)	BL	BL	BL	BL	BL
18	Damper (Horn)	BL	BL	BL	BL	BL
19	Silver metal frame (Horn)	BL	BL	BL	BL	-
20	Silver magnet (Horn)	BL	BL	BL	BL	-
21	Chip IC	BL	BL	BL	BL	BL
22	Chip capacitor	BL	BL	BL	BL	BL
23	Chip resistor	BL	BL	BL	BL	BL
24	LED lamp	BL	BL	BL	BL	X*

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Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
25	Tin solder	BL	BL	BL	BL	-
26	PCB board	BL	BL	BL	BL	X*
27	Black plastic audio holder	BL	BL	BL	BL	BL
28	Micro metal connector	BL	BL	BL	BL	-
29	Crystal oscillator	BL	BL	BL	BL	BL
30	Black plastic button	BL	BL	BL	BL	BL
31	Green electrolytic capacitor	BL	BL	BL	BL	BL
32	Chip triode	BL	BL	BL	BL	BL
33	Blue sleeving (Battery)	BL	BL	BL	BL	BL
35	Tin solder (Battery)	BL	BL	BL	BL	-
36	PCB board (Battery)	BL	BL	BL	BL	X*
37	Red wire jacket (Battery)	BL	BL	BL	BL	BL
38	Black wire jacket (Battery)	BL	BL	BL	BL	BL
USB line						
39	Black handle (USB plug)	BL	BL	BL	BL	BL
40	Milk white inner glue (USB plug)	BL	BL	BL	BL	BL
41	Tin solder (USB plug)	BL	BL	BL	BL	-
42	White plastic plug (USB plug)	BL	BL	BL	BL	X*
43	Contact pin (USB plug)	BL	BL	BL	BL	-
44	USB metal plug (USB plug)	BL	BL	BL	BL	-
45	Black plastic plug (Micro plug)	BL	BL	BL	BL	BL
46	Contact pin (Micro plug)	BL	BL	BL	BL	-
47	Micro metal plug (Micro plug)	BL	BL	BL	X*	-
48	Black outer wire jacket (Wire rod)	BL	BL	BL	BL	BL
49	Black wire jacket (Wire rod)	BL	BL	BL	BL	BL
50	Red wire jacket (Wire rod)	BL	BL	BL	BL	BL

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Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
51	Green wire jacket (Wire rod)	BL	BL	BL	BL	BL
52	White wire jacket (Wire rod)	BL	BL	BL	BL	BL
Audio line						
53	Black handle (Audio plug)	BL	BL	BL	BL	BL
54	Milk white inner glue (Audio plug)	BL	BL	BL	BL	BL
55	Tin solder (Audio plug)	BL	BL	BL	BL	-
56	Metal plug (Audio plug)	BL	BL	BL	BL	-
57	Black outer wire jacket (Wire rod)	BL	BL	BL	BL	BL
58	Red wire jacket (Wire rod)	BL	BL	BL	BL	BL
59	White wire jacket (Wire rod)	BL	BL	BL	BL	BL

Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	BL≤70-3σ<X <130+3σ≤OL	BL≤70-3σ<X <130+3σ≤OL	BL≤50-3σ<X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ<X	BL≤700-3σ<X	BL≤500-3σ<X
Br	mg/kg	BL≤300-3σ<X	-	BL≤250-3σ<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 metal Cr⁶⁺

Test Item(s)	MDL	Result(s)	Limit
		47	
Hexavalent Chromium (Cr ⁶⁺)	See note	Negative	#

Note:

- Negative = Absence of Cr(VI) on the tested areas
- MDL = Method Detection Limit
- Boiling-water-extraction:

Number	Colorimetric result (Cr(VI) concentration)	Qualitative result
1	The sample solution is < the 0,10 µg/cm ² equivalent comparison standard solution	The sample is negative for Cr(VI) – The Cr(VI) concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating.
2	The sample solution is ≥ the 0,10 µg/cm ² and ≤ the 0,13 µg/cm ² equivalent comparison standard solutions	The result is considered to be inconclusive – Unavoidable coating variations may influence the determination.
3	The sample solution is > the 0,13 µg/cm ² equivalent comparison standard solution	The sample is positive for Cr(VI) – 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).

- # =Negative indicates the absence of Cr(VI) on the tested areas concentration is below the limit of quantification. The coating is considered a non-Cr(VI) based coating.

Uncertainty indicates the absence of Cr(VI) on the tested areas unavoidable coating variations may influence the determination.

Positive indicates the presence of Cr(VI) on the tested areas concentration is above the limit of quantification and the statistical margin of error. The sample coating is considered to contain Cr(VI).

Storage conditions and production date of the tested sample are unavailable and thus result of Cr(VI) represent status of the sample at the time of testing.

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2) The Test Results of PBBs & PBDEs

Unit: mg/kg

Item(s)	MDL	Result(s)					Limit
		24	13	26	36	42	
Polybrominated Biphenyls (PBBs)							
Monobromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	Total PBBs Content <1000
Dibromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Tribromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Tetrabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Pentabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Hexabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Heptabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Octabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Total content	/	N.D.	N.D.	N.D.	N.D.	N.D.	
Polybrominated Diphenylethers (PBDEs)							
Monobromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	Total PBDEs Content <1000
Dibromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Tribromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Tetrabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Pentabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Hexabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Heptabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Octabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Total content	/	N.D.	N.D.	N.D.	N.D.	N.D.	
Conclusion	/	Pass	Pass	Pass	Pass	Pass	/

Note: N.D. = Not Detected or less than MDL

MDL = Method Detection Limit

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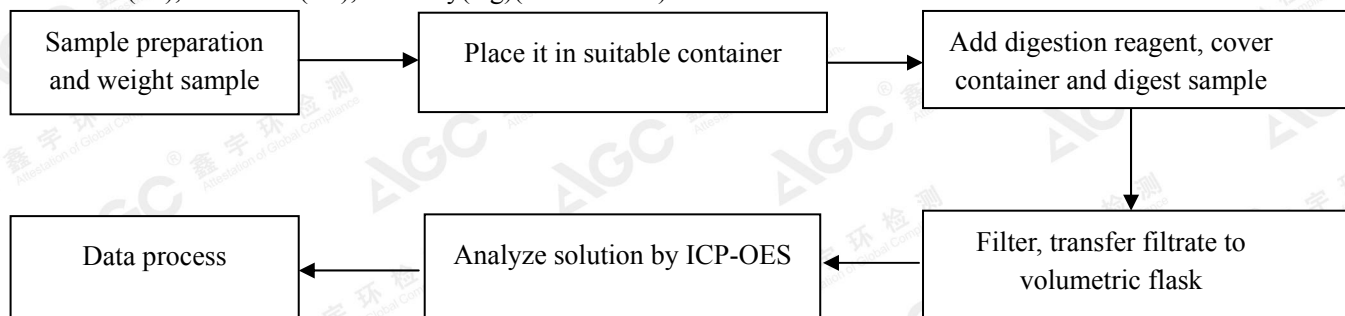
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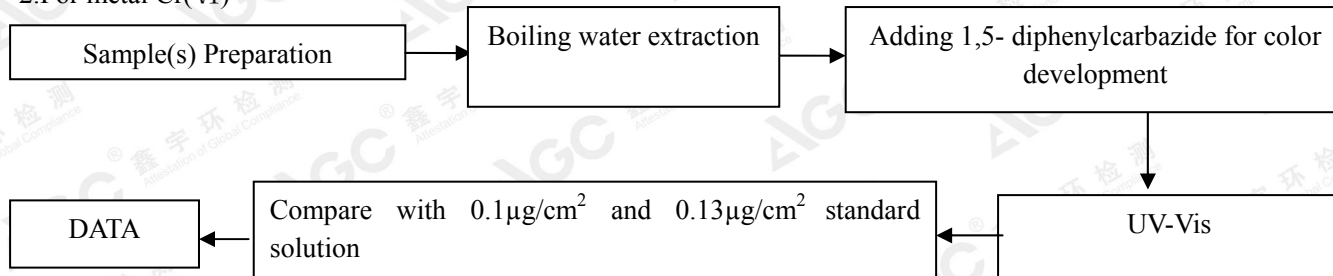
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Test Flow Chart

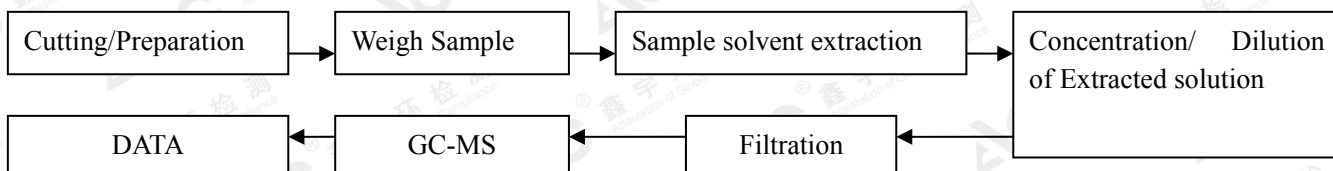
1.For Lead(Pb), Cadmium(Cd), Mercury(Hg)(2006/66/EC)



2.For metal Cr(VI)



3.For PBBs & PBDEs



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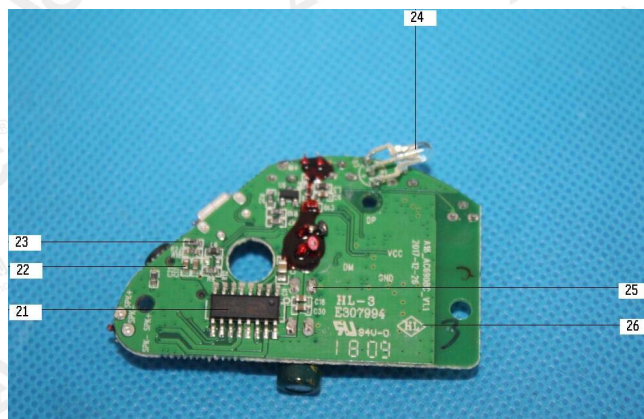
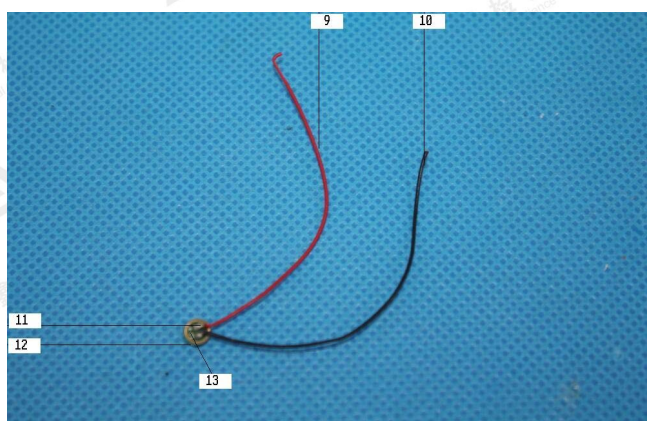
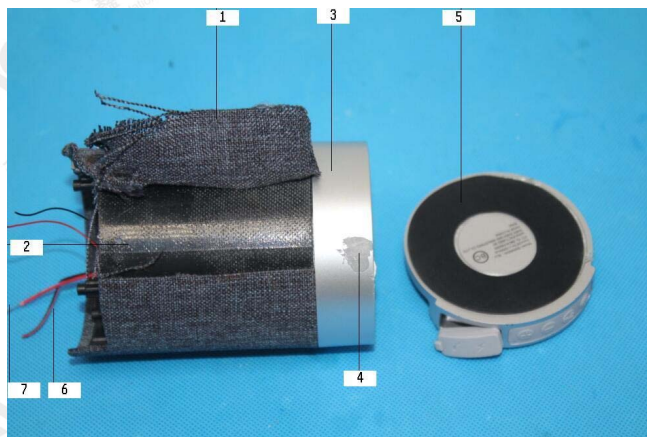
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The photo of the sample



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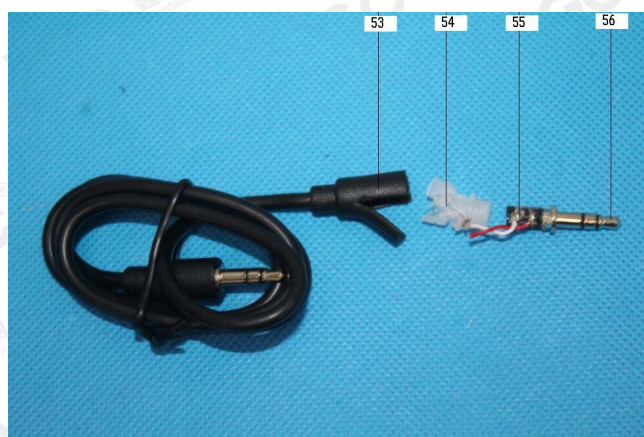
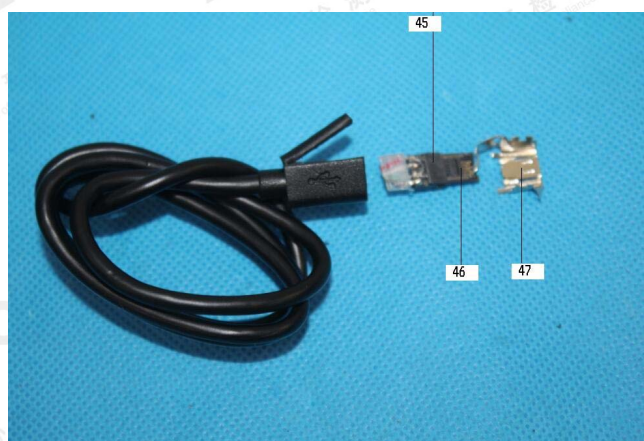
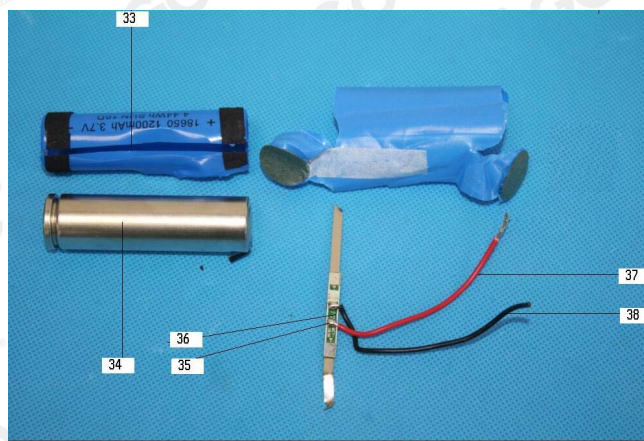
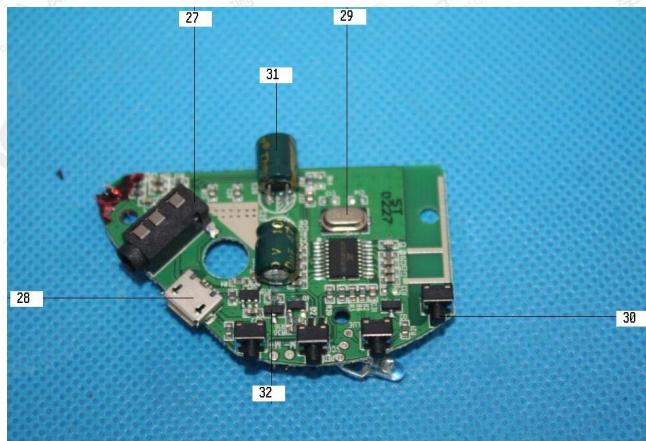
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