

Test Report

Report No.: A001R20170515047-2

Date: Jun.09, 2017

Page 1 of 13

Applicant:

Address:

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

Sample Name: Bluetooth speaker

Sample Model: 170345

Country of Origin: CHINA

Country of Destination: EUROPE

Sample Received Date: May 15, 2017

Testing Period: May 15, 2017 to Jun.09, 2017

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: Huìsu Luo

Luohuisu

Test Engineer

Reviewed by: Leon

Suhongliang, Leon

Test Team Leader

Approved by: Jason

Jiangyuncheng, Jason

Laboratory Manager



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Test Requested:

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****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 Section 7	ICP-OES	2 mg/kg
Lead (Pb)	IEC 62321-5:2013 Ed 1.0 Section 7	ICP-OES	2 mg/kg
Mercury (Hg)	IEC 62321-4:2013 Ed 1.0 Section 7	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 plastic lid(Shell)	BL	BL	BL	BL	BL
2	Blue plastic shell(Shell)	BL	BL	BL	BL	BL
3	Silver screw(Shell)	BL	BL	BL	BL	-
4	Small screw(Shell)	BL	BL	BL	BL	-
5	Magnetic shield(Horn)	BL	BL	BL	BL	-
6	Metal shell(Horn)	BL	BL	BL	BL	-
7	Hot melt adhesive(Horn)	BL	BL	BL	BL	BL
8	Tin solder(Horn)	BL	BL	BL	BL	-
9	White connector(Horn)	BL	BL	BL	BL	BL
10	Rivet(Horn)	BL	BL	BL	BL	-
11	Red thread leather(Horn)	BL	BL	BL	BL	BL
12	Wire core(Horn)	BL	BL	BL	BL	-
13	Black thread leather(Horn)	BL	BL	BL	BL	BL
14	Magnet(Horn)	BL	BL	BL	BL	-
15	Enameled wire(Horn)	BL	BL	BL	BL	-
16	Elastic wave(Horn)	BL	BL	BL	BL	BL
17	Black press ring(Horn)	BL	BL	BL	BL	BL
18	Silver ball top(Horn)	BL	BL	BL	BL	BL
19	Black diaphragm(Horn)	BL	BL	BL	BL	BL
20	Chip LED	BL	BL	BL	BL	BL
21	Chip triode	BL	BL	BL	BL	BL
22	Chip IC	BL	BL	BL	BL	BL
23	Crystal oscillator(Crystal oscillator)	BL	BL	BL	BL	BL
24	Black plastic seat(Crystal oscillator)	BL	BL	BL	BL	BL
25	IC Ontology(IC)	BL	BL	BL	BL	X*

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Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
26	Pin(IC)	BL	BL	BL	BL	-
27	Chip resistor	BL	BL	BL	BL	BL
28	IC Ontology(U3)	BL	BL	BL	BL	BL
29	Pin(U3)	BL	BL	BL	BL	-
30	Chip LED	BL	BL	BL	BL	BL
31	Chip capacitor	BL	BL	BL	BL	BL
32	Solder resist(PCB board)	BL	BL	BL	BL	BL
33	Substrate(PCB board)	BL	BL	BL	BL	X*
34	Copper foil(PCB board)	BL	BL	BL	BL	-
35	Tin solder(PCB board)	BL	BL	BL	BL	-
36	Metal shell(Android plug)	BL	BL	BL	BL	-
37	Black inner glue(Android plug)	BL	BL	BL	BL	BL
38	Pin(Android plug)	BL	BL	BL	BL	-
39	Black plastic shell(Tact Switch)	BL	BL	BL	BL	X*
40	Pin(Tact Switch)	BL	BL	BL	BL	-
41	Shrapnel(Tact Switch)	BL	BL	BL	X*	-
42	Sheet metal(Tact Switch)	BL	BL	BL	BL	-
43	Tawny tape(Battery)	BL	BL	BL	BL	BL
44	Tin solder(Battery)	BL	BL	BL	BL	-
45	PCB board(Battery)	BL	BL	BL	BL	X*
46	Black thread leather(Battery)	BL	BL	BL	BL	BL
47	Wire core(Battery)	BL	BL	BL	BL	-
48	Red thread leather(Battery)	BL	BL	BL	BL	BL
49	Chip resistor(Battery)	BL	BL	BL	BL	BL
50	Chip capacitor(Battery)	BL	BL	BL	BL	BL
51	Chip IC(Battery)	BL	BL	BL	BL	BL

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Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
USB line						
52	White grip(USB plug)	BL	BL	BL	BL	BL
53	Tin solder(USB plug)	BL	BL	BL	BL	-
54	White plastic plug(USB plug)	BL	BL	BL	BL	BL
55	Pin(USB plug)	BL	BL	BL	BL	-
56	Metal shell(USB plug)	BL	BL	BL	BL	-
57	White grip(Android plug)	BL	BL	BL	BL	BL
58	Tin solder(Android plug)	BL	BL	BL	BL	-
59	Black plastic plug(Android plug)	BL	BL	BL	BL	BL
60	Metal needle(Android plug)	BL	BL	BL	X*	-
61	Pin(Android plug)	BL	BL	BL	BL	-
62	Metal shell(Android plug)	BL	BL	BL	X*	-
63	White exterior thread leather(Wire rod)	BL	BL	BL	BL	BL
64	Red thread leather(Wire rod)	BL	BL	BL	BL	BL
65	Wire core(Wire rod)	BL	BL	BL	BL	-
66	Black thread leather(Wire rod)	BL	BL	BL	BL	BL
Difference						
67	Black plastic shell(Shell)	BL	BL	BL	BL	BL
68	Red plastic shell(Shell)	BL	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 the document 2005/618/EC amending 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
		41	60	62	
Hexavalent Chromium (Cr ⁶⁺)	See note	Negative	Negative	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
		25	33	39	45	
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

MDL = Method Detection Limit

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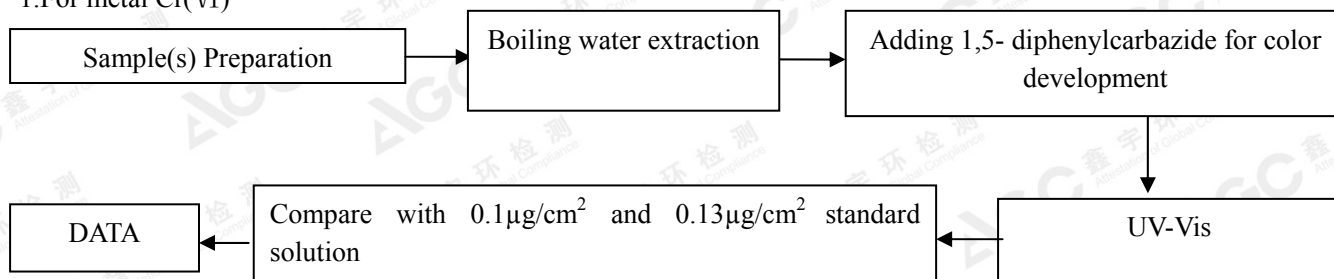
Report No.: A001R20170515047-2

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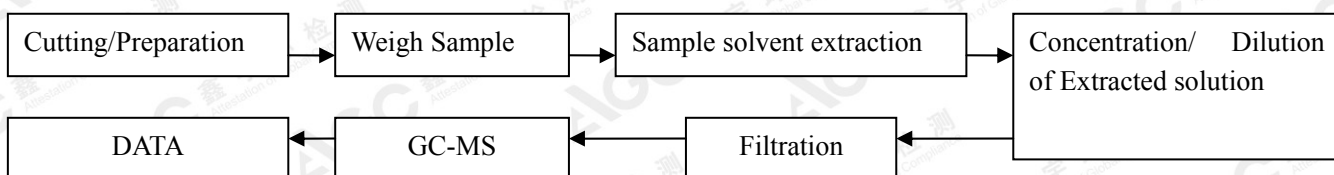
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Test Flow Chart

1.For metal Cr(VI)

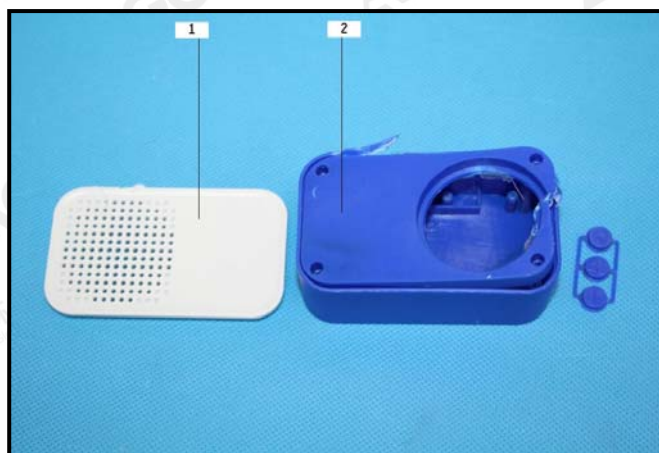


2.For PBBs & PBDEs

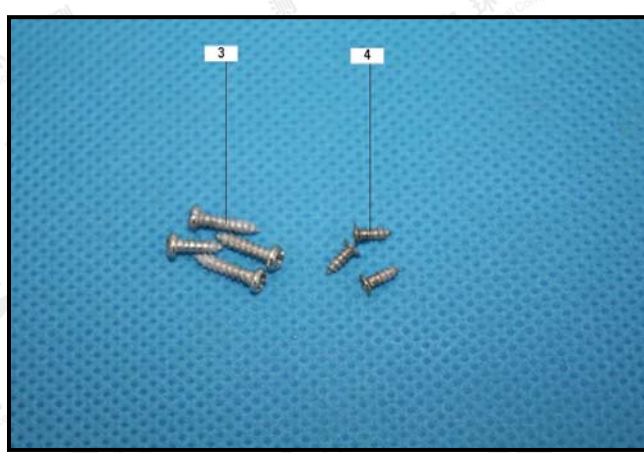


Test result on specimen No.8 was resubmitted sample on Jun.05,2017.

The photo of the sample



1



2

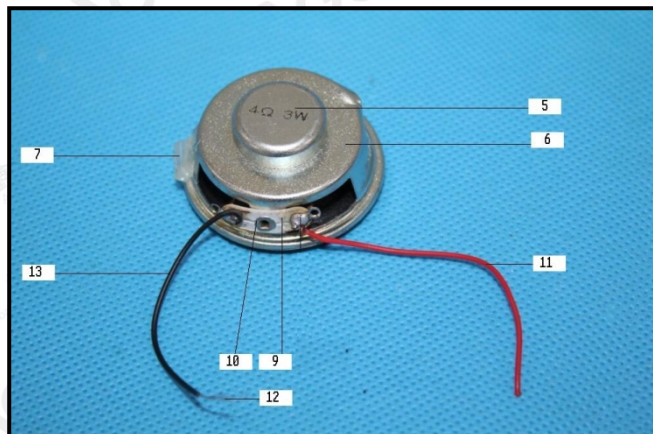
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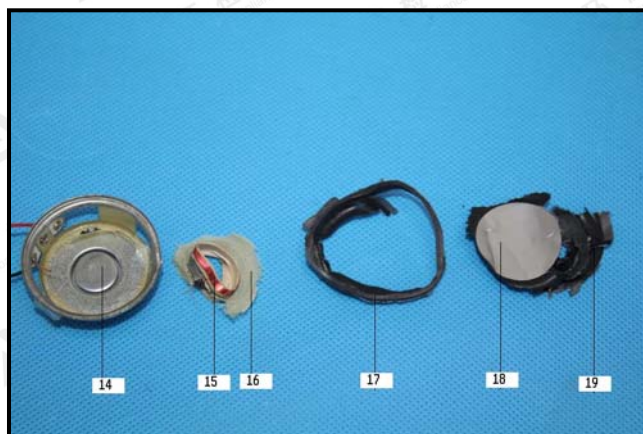
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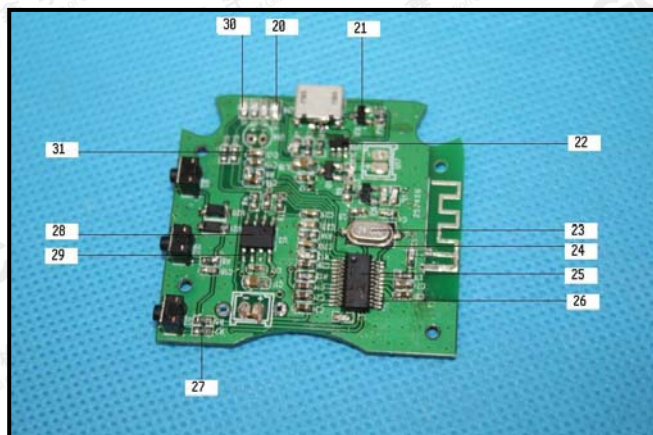
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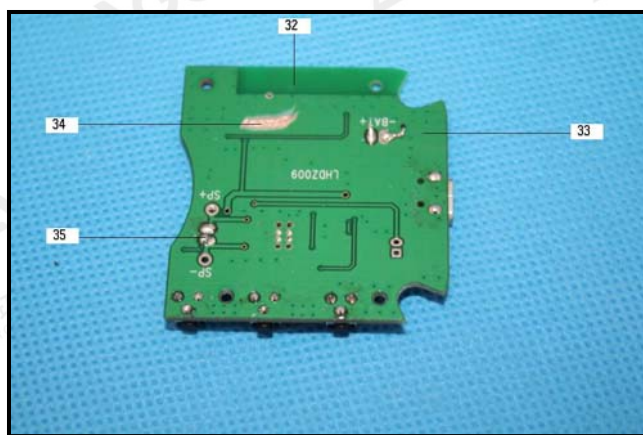
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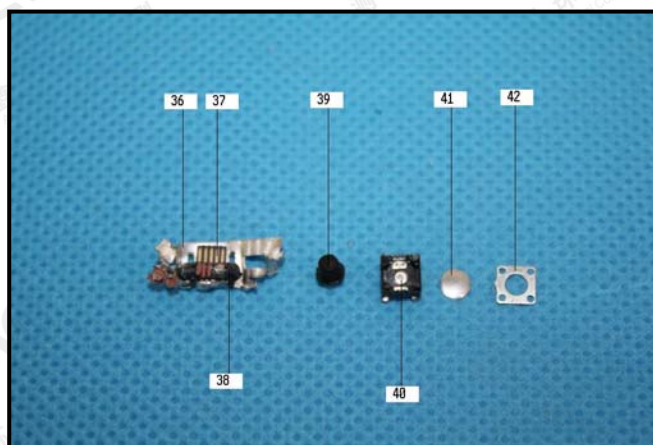
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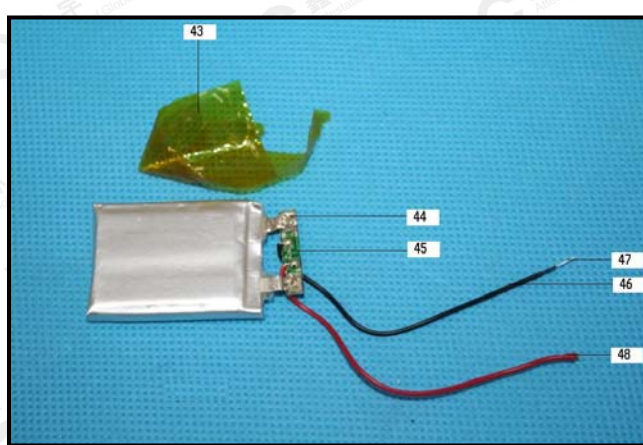
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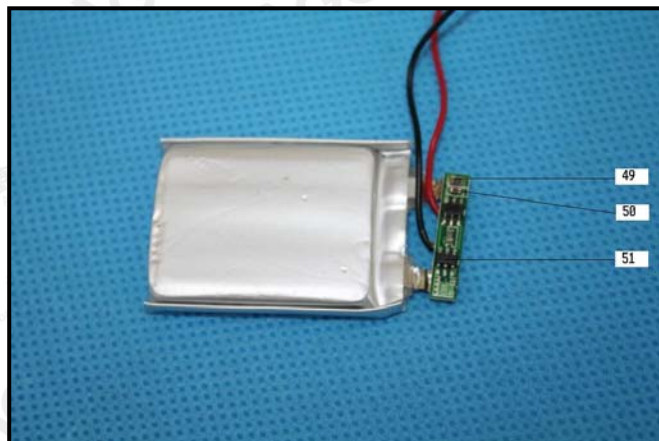
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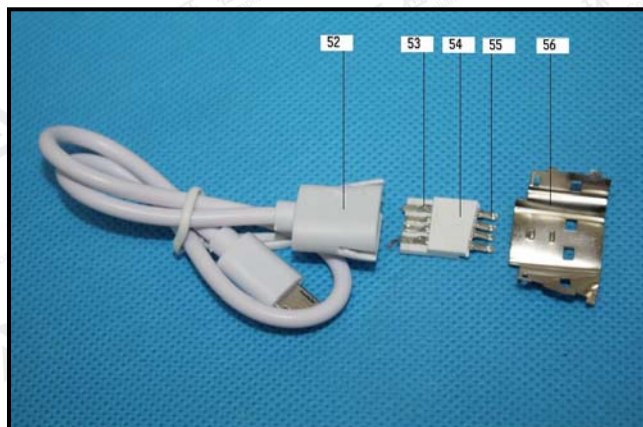
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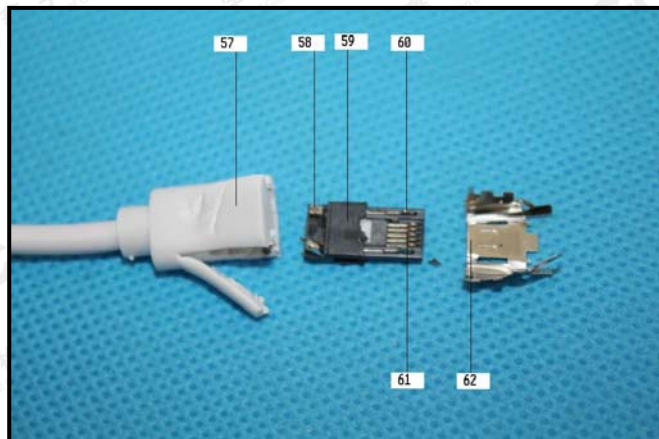
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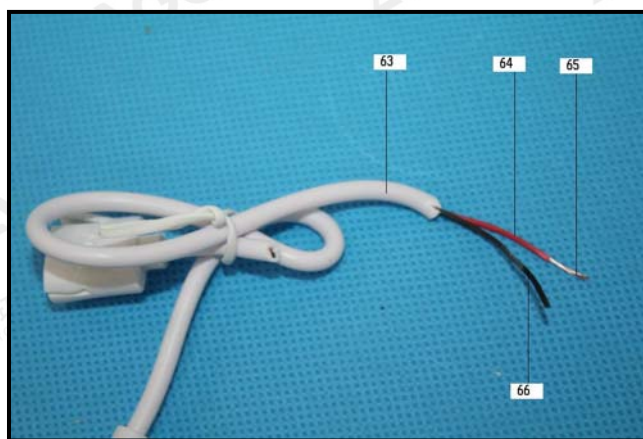
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10



11



12



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