

Test Report

Report No.: AGC04094180504-002

Date: Jun.08, 2018

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Applicant: Xindao B.V.
Address: P.O. Box 3082, 2280 GB, Rijswijk, The Netherlands

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

Sample Name: 8.000 mAh light up wireless powerbank
Sample Model: P324.47
Sample Received Date: May 15, 2018
Testing Period: May 15, 2018 to Jun.08, 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: Luoxiao

Reviewed by: Leon

Approved by: Lewis

Luoxiao

Suhongliang, Leon

Liulinwen, Lewis

Test Engineer

Test Team Leader

Technical Director



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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	Black rubber sucking disc (Outer shell)	BL	BL	BL	BL	BL
2	Black coating (Outer shell)	BL	BL	BL	BL	BL
3	White plastic shell (Outer shell)	BL	BL	BL	BL	BL
4	Silver electroplated plastic frame (Outer shell)	BL	BL	BL	X*	BL
5	Black screw	BL	BL	BL	BL	-
6	IC body (IC)	BL	BL	BL	BL	BL
7	Pin (IC)	BL	BL	BL	BL	-
8	Chip diode	BL	BL	BL	BL	BL
9	Chip capacitor	BL	BL	BL	BL	BL
10	Enameled wire (Magnetic inductance)	BL	BL	BL	BL	-
11	Magnet frame (Magnetic inductance)	BL	BL	BL	BL	BL
12	Chip resistor	BL	BL	BL	BL	BL
13	Chip triode	BL	BL	BL	BL	X*
14	Tin solder	BL	BL	BL	BL	-
15	PCB board	BL	BL	BL	BL	X*
16	Chip LED	BL	BL	BL	BL	BL
17	USB metal joint (USB joint)	BL	BL	BL	BL	-
18	Black plastic (USB joint)	BL	BL	BL	BL	BL
19	Contact pin (USB joint)	BL	BL	BL	BL	-
20	TYPE-C metal connector (TYPE-C metal connector)	BL	BL	BL	X*	-
21	Black plastic contact (TYPE-C metal connector)	BL	BL	BL	BL	BL
22	Contact pin (TYPE-C metal connector)	BL	BL	BL	X*	-
23	Thin film (Fuse)	BL	BL	BL	BL	BL
24	White plastic shell (Fuse)	BL	BL	BL	BL	X*

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Seq. No.	Tested Part(s)	Results(mg-kg)				
		Cd	Pb	Hg	Cr	Br
25	Pin (Fuse)	BL	BL	BL	BL	-
26	Micro metal connector (Micro connector)	BL	BL	BL	BL	-
27	Black plastic contact (Micro connector)	BL	BL	BL	BL	BL
28	Contact pin (Micro connector)	BL	BL	BL	BL	-
29	Black plastic button (Touch switch)	BL	BL	BL	BL	X*
30	White plastic shell (Touch switch)	BL	BL	BL	BL	BL
31	Metal shrapnel (Touch switch)	BL	BL	BL	X*	-
32	Metal sheet (Touch switch)	BL	BL	BL	BL	-
33	Light guide plate (Backlight)	BL	BL	BL	BL	BL
34	Reflector panel (Backlight)	BL	BL	BL	BL	BL
35	Lower diffusion (Backlight)	BL	BL	BL	BL	BL
36	Tin solder (Backlight)	BL	BL	BL	BL	-
37	PCB board (Backlight)	BL	BL	BL	BL	X*
38	Wire core (Backlight)	BL	BL	BL	BL	-
39	Black wire jacket (Backlight)	BL	BL	BL	BL	BL
40	Red wire jacket (Backlight)	BL	BL	BL	BL	BL
41	Coil wire sets (Coil wire)	BL	BL	BL	BL	BL
42	Brown tape (Coil wire)	BL	BL	BL	BL	BL
43	Coil wire core (Coil wire)	BL	BL	BL	BL	-
44	Grey ceramic base sheet (Coil wire)	BL	BL	BL	BL	BL
46	Yellow gummed paper (Battery)	BL	BL	BL	BL	BL
47	White double-sided adhesive (Battery)	BL	BL	BL	BL	BL
48	Tin solder (Battery)	BL	BL	BL	BL	-
49	Wire core (Battery)	BL	BL	BL	BL	-
50	Black wire jacket (Battery)	BL	BL	BL	BL	BL
51	Red wire jacket (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	Black handle (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	Contact pin (USB plug)	BL	BL	BL	BL	-
56	USB metal plug (USB plug)	BL	BL	BL	BL	-
57	Meta contact pin (Micro plug)	BL	BL	BL	BL	-
58	Tin solder (Micro plug)	BL	BL	BL	BL	-
59	Black plastic plug (Micro plug)	BL	BL	BL	BL	X*
60	Micro metal plug (Micro plug)	BL	BL	BL	X*	-
61	Black outer wire jacket (Wire)	BL	BL	BL	BL	BL
62	Yellow wire jacket (Wire)	BL	BL	BL	BL	BL
63	Wire core (Wire)	BL	BL	BL	BL	-
64	Pink wire jacket (Wire)	BL	BL	BL	BL	BL

Test result on specimen No.48, No.53, No.58 were resubmitted sample on Jun.05,2018.

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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 non-metal Cr⁶⁺

Test Item(s)	Unit	Result(s)	Limit
		4	
Hexavalent Chromium(Cr ⁶⁺)	mg/kg	N.D.	1000

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

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 2)The Test Results of metal Cr⁶⁺

Test Item(s)	MDL	Result(s)				Limit
		20	22	31	60	
Hexavalent Chromium (Cr ⁶⁺)	See note	Negative	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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3) The Test Results of PBBs & PBDEs

Unit: mg/kg

Item(s)	MDL	Result(s)						Limit
		13	15	24	29	37	59	
Polybrominated Biphenyls (PBBs)								
Monobromobiphenyl	5	N.D.	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.	N.D.	
Tribromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Tetrabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Pentabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Hexabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Heptabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Octabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Total content	/	N.D.	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.	N.D.	Total PBDEs Content <1000
Dibromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Tribromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Tetrabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Pentabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Hexabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Heptabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Octabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Total content	/	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	
Conclusion	/	Pass	Pass	Pass	Pass	Pass	Pass	/

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

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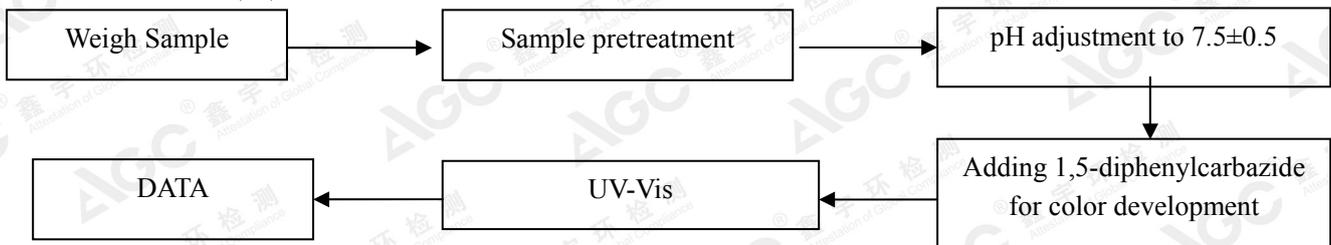
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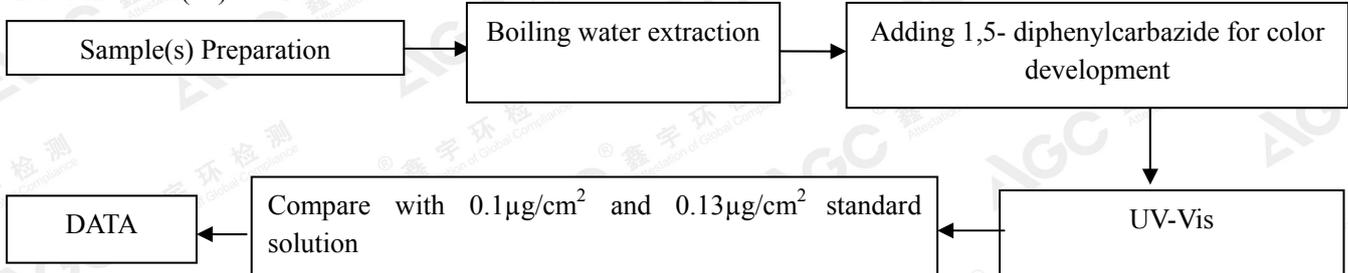
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Test Flow Chart

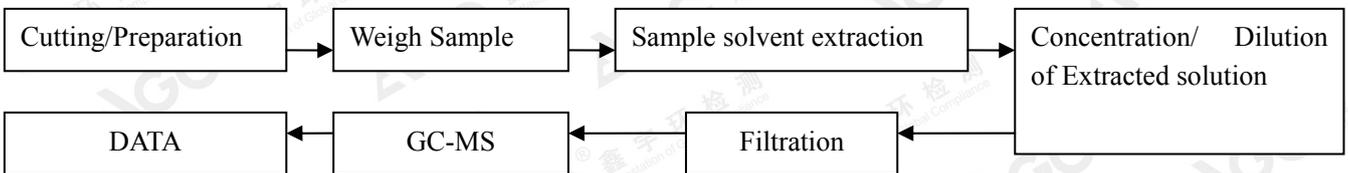
1. For non-metal Cr(VI)



2. For metal Cr(VI)



3. For PBBs & PBDEs



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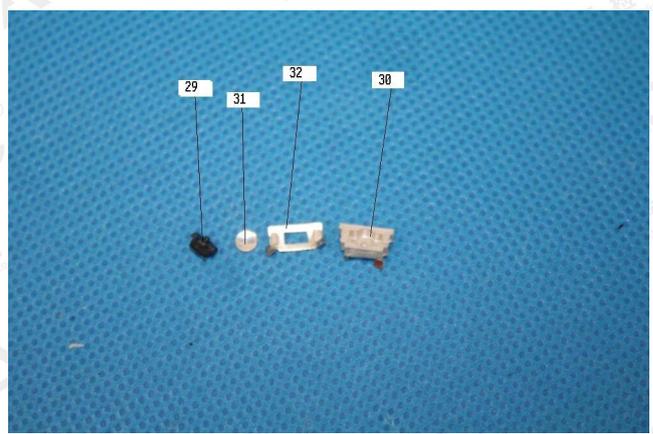
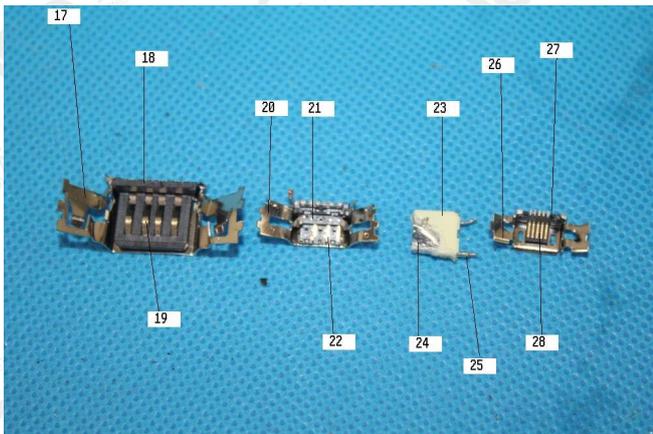
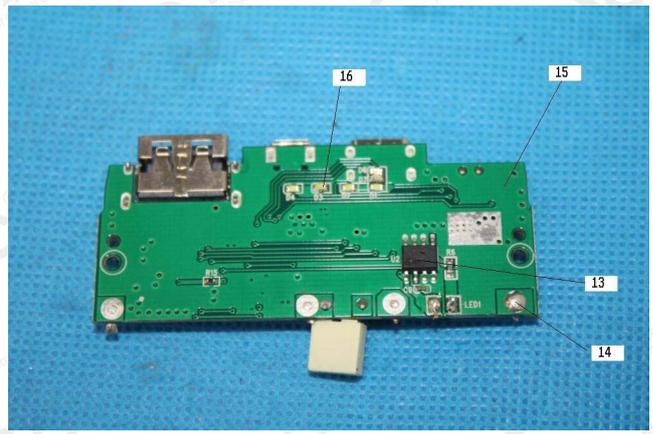
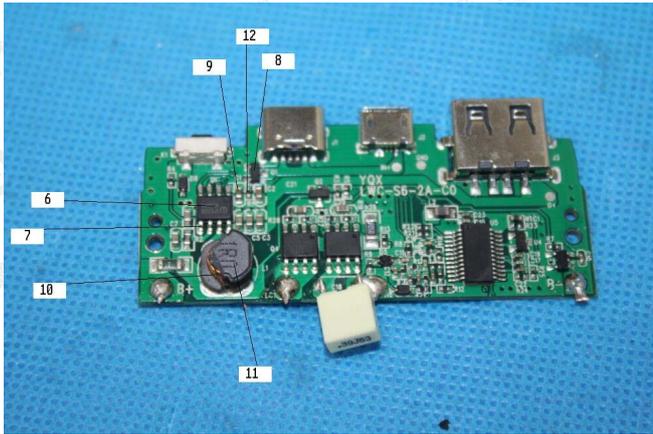
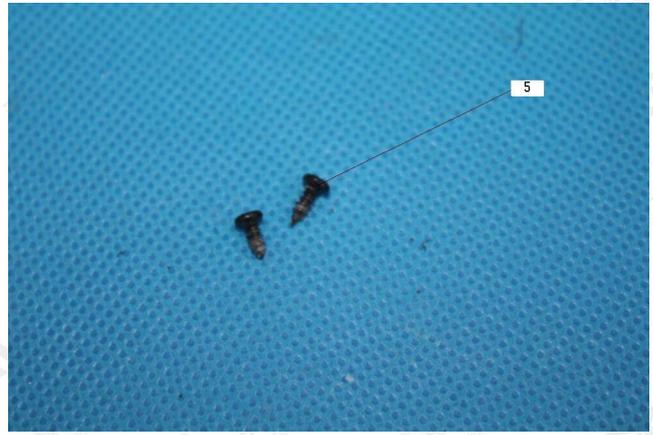
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The photo of the sample



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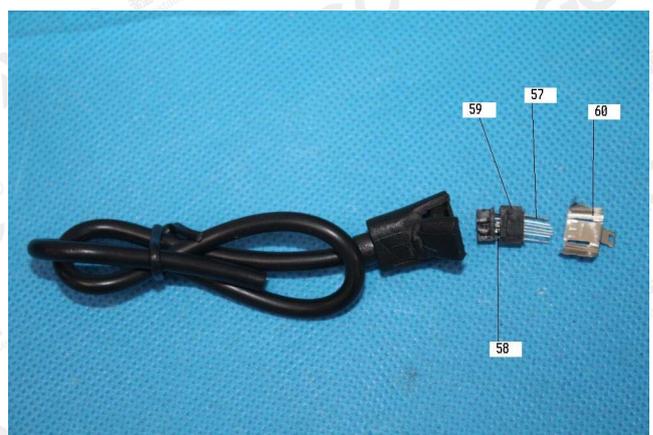
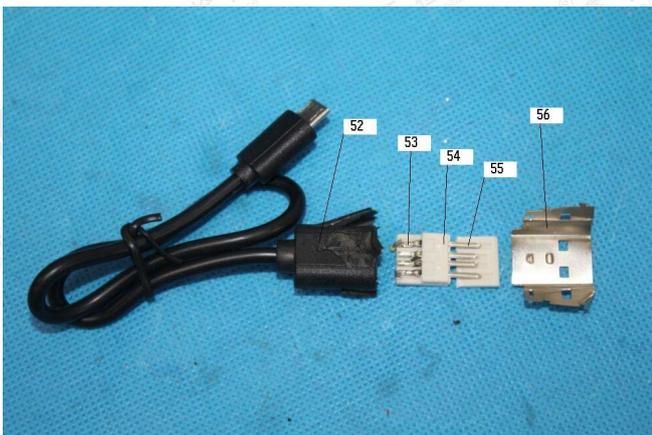
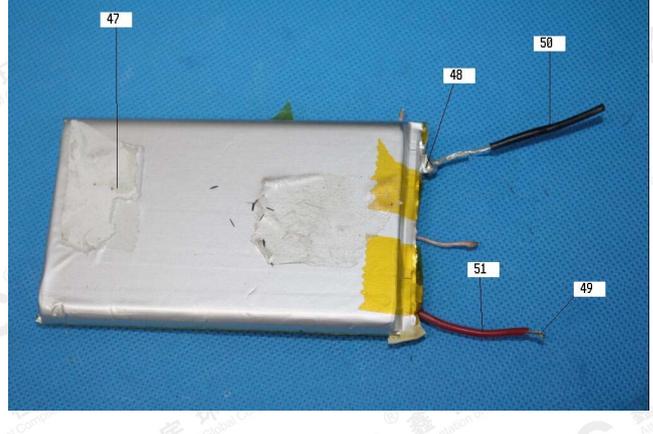
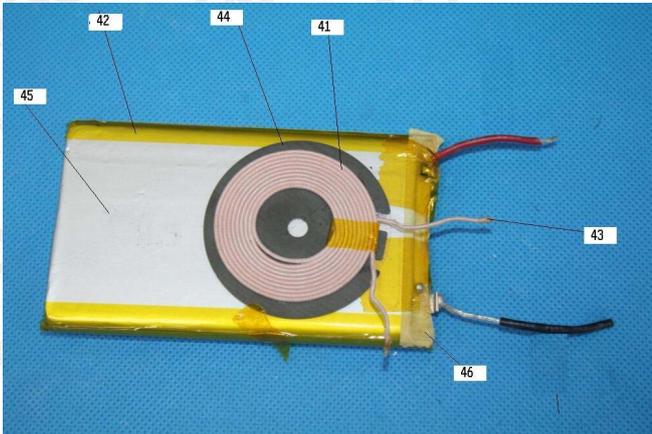
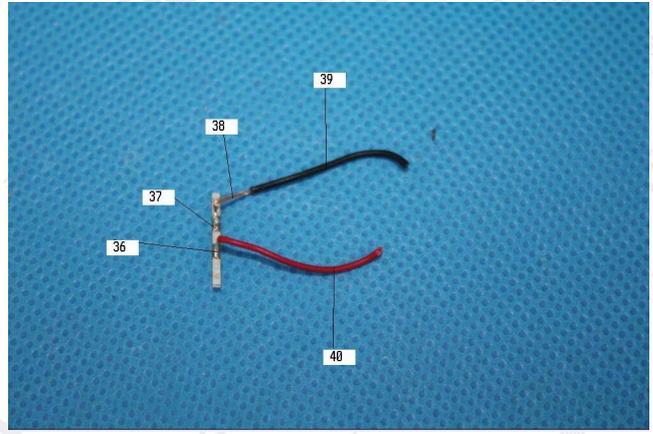
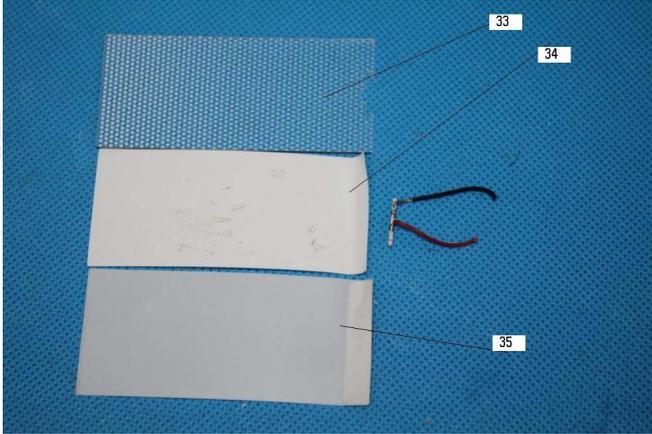


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