

Test Report

Report No.: A001R20170608043

Date: Jun.23, 2017

Page 1 of 12

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 : Notos 2.200 mAh solar charger

Model : P323.833

Sample Receiving Date : Jun.08, 2017

Testing Period : Jun.08, 2017 to Jun.23, 2017

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

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

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

Tested by: Hui Su 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:

1. 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 Result(s):
1. 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 (Shell)	BL	BL	BL	BL	BL
2	Grey rubber belt(Shell)	BL	BL	BL	BL	BL
3	Gray rubber chuck(Shell)	BL	BL	BL	BL	BL
4	Silver screw	BL	BL	BL	BL	-
5	White plastic pad	BL	BL	BL	BL	BL
6	Solar panels(Solar panels)	BL	BL	BL	BL	BL
7	Black coating(Solar panels)	BL	BL	BL	BL	BL
8	Copper foil(Solar panels)	BL	BL	BL	BL	-
9	Black foam(Solar panels)	BL	BL	BL	BL	BL
10	Red leather (Solar panels)	BL	BL	BL	BL	BL
11	Wire core(Solar panels)	BL	BL	BL	BL	-
12	Black leather(Solar panels)	BL	BL	BL	BL	BL
13	Tin solder(Solar panels)	BL	BL	BL	BL	-
14	Patch IC	BL	BL	BL	BL	BL
15	SMD triode	BL	BL	BL	BL	X*
16	IC Ontology(IC)	BL	BL	BL	BL	BL
17	Pin(IC)	BL	BL	BL	BL	-
18	Enameled wire(Inductance)	BL	BL	BL	BL	-
19	Magnet ring(Inductance)	BL	BL	BL	BL	BL
20	SMD diode	BL	BL	BL	BL	BL
21	Tin solder	BL	BL	BL	BL	-
22	Patch LED	BL	BL	BL	BL	BL
23	Solder resist(PCB board)	BL	BL	BL	BL	BL
24	Substrate(PCB board)	BL	BL	BL	BL	X*
25	Copper foil(PCB board)	BL	BL	BL	BL	-

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Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
26	Tin solder(PCB board)	BL	BL	BL	BL	-
27	Metal shell(USB joint)	BL	BL	BL	BL	-
28	White gum(USB joint)	BL	BL	BL	BL	X*
29	Pin(USB joint)	BL	BL	BL	BL	-
30	Metal shell(Micro joint)	BL	BL	BL	X*	-
31	Black inner gum(Micro joint)	BL	BL	BL	BL	BL
32	Pin(Micro joint)	BL	BL	BL	BL	-
33	Pink sleeve(Battery)	BL	BL	BL	BL	BL
34	Black sponge(Battery)	BL	BL	BL	BL	BL
35	Blue cannula(Battery)	BL	BL	BL	BL	BL
36	White washer(Battery)	BL	BL	BL	BL	BL
37	Barley paper(Battery)	BL	BL	BL	BL	BL
38	Red leather(Battery)	BL	BL	BL	BL	BL
39	Wire core(Battery)	BL	BL	BL	BL	-
40	Black leather(Battery)	BL	BL	BL	BL	BL
41	Metal connecting piece(Battery)	BL	BL	BL	BL	-
USB line						
43	White plastic grip(USB plug)	BL	BL	BL	BL	BL
44	White gum(USB plug)	BL	BL	BL	BL	BL
45	Tin solder(USB plug)	BL	BL	BL	BL	-
46	White plastic joint(USB plug)	BL	BL	BL	BL	BL
47	Pin(USB plug)	BL	BL	BL	BL	-
48	Metal shell(USB plug)	BL	BL	BL	BL	-
49	White plastic grip(Android connector)	BL	BL	BL	BL	BL
50	Tin solder(Android connector)	BL	BL	BL	BL	-
51	Black plastic joint(Android connector)	BL	BL	BL	BL	BL

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Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
52	Metal needle(Android connector)	BL	BL	BL	X*	-
53	Pin(Android connector)	BL	BL	BL	BL	-
54	Metal shell(Android connector)	BL	BL	BL	X*	-
55	White outside leather(Wire rod)	BL	BL	BL	BL	BL
56	Bullet proof wire(Wire rod)	BL	BL	BL	BL	BL
57	Red enameled wire(Wire rod)	BL	BL	BL	BL	-
58	Brown enameled wire(Wire rod)	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 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.

Note: Test result on specimen No.50 was resubmitted sample on Jun.19, 2017.

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B、The Test Results of Chemical Method:
1) Test Results of metal Cr⁶⁺

Test Item(s)	MDL	Result(s)			Limit
		30	52	54	
Hexavalent Chromium (Cr ⁶⁺)	**	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
		15	24	28	
Polybrominated Biphenyls (PBBs)					
Monobromobiphenyl	5	N.D.	N.D.	N.D.	Total PBBs Content <1000
Dibromobiphenyl	5	N.D.	N.D.	N.D.	
Tribromobiphenyl	5	N.D.	N.D.	N.D.	
Tetrabromobiphenyl	5	N.D.	N.D.	N.D.	
Pentabromobiphenyl	5	N.D.	N.D.	N.D.	
Hexabromobiphenyl	5	N.D.	N.D.	N.D.	
Heptabromobiphenyl	5	N.D.	N.D.	N.D.	
Octabromobiphenyl	5	N.D.	N.D.	N.D.	
Nonabromodiphenyl	5	N.D.	N.D.	N.D.	
Decabromodiphenyl	5	N.D.	N.D.	N.D.	
Total content	/	N.D.	N.D.	N.D.	
Polybrominated Diphenylethers (PBDEs)					
Monobromodiphenyl ether	5	N.D.	N.D.	N.D.	Total PBDEs Content <1000
Dibromodiphenyl ether	5	N.D.	N.D.	N.D.	
Tribromodiphenyl ether	5	N.D.	N.D.	N.D.	
Tetrabromodiphenyl ether	5	N.D.	N.D.	N.D.	
Pentabromodiphenyl ether	5	N.D.	N.D.	N.D.	
Hexabromodiphenyl ether	5	N.D.	N.D.	N.D.	
Heptabromodiphenyl ether	5	N.D.	N.D.	N.D.	
Octabromodiphenyl ether	5	N.D.	N.D.	N.D.	
Nonabromodiphenyl ether	5	N.D.	N.D.	N.D.	
Decabromodiphenyl ether	5	N.D.	N.D.	N.D.	
Total content	/	N.D.	N.D.	N.D.	
Conclusion	/	Pass	Pass	Pass	/

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

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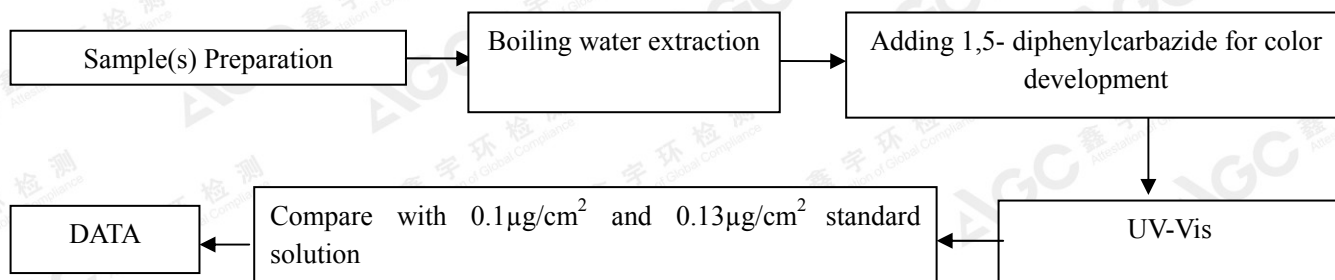
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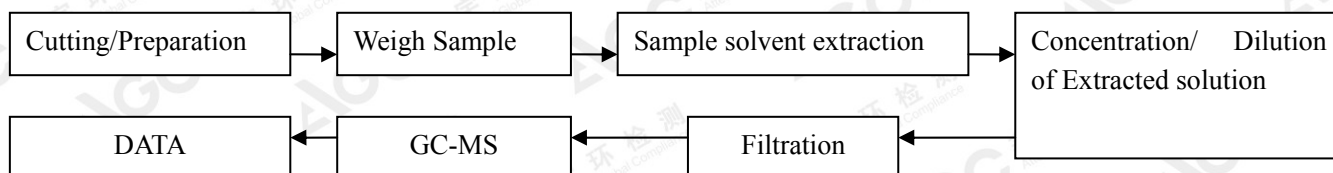
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Test Flow Chart

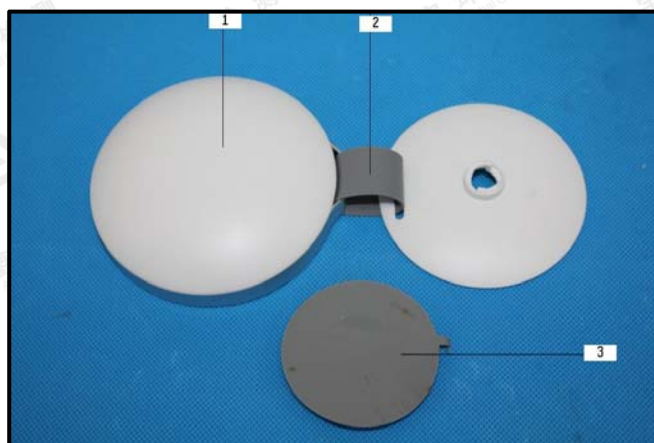
1. For metal Cr(VI)



2. For PBBs & PBDEs



The photo of the sample



1



2

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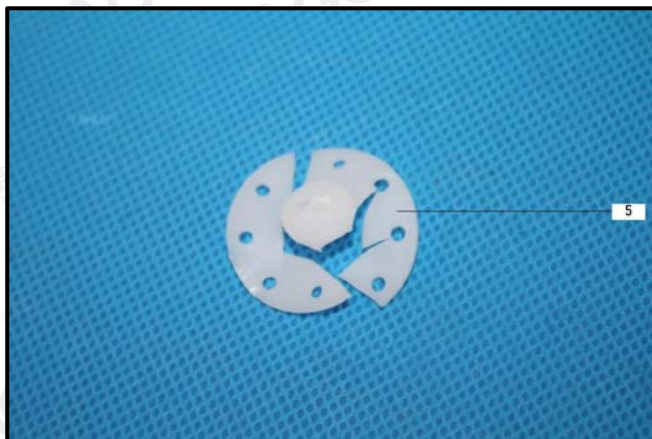
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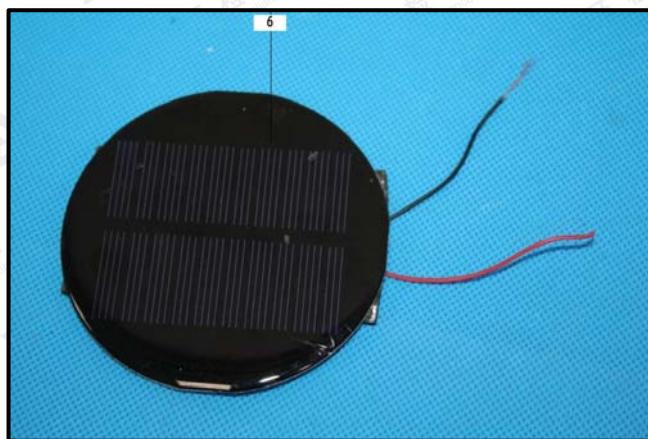
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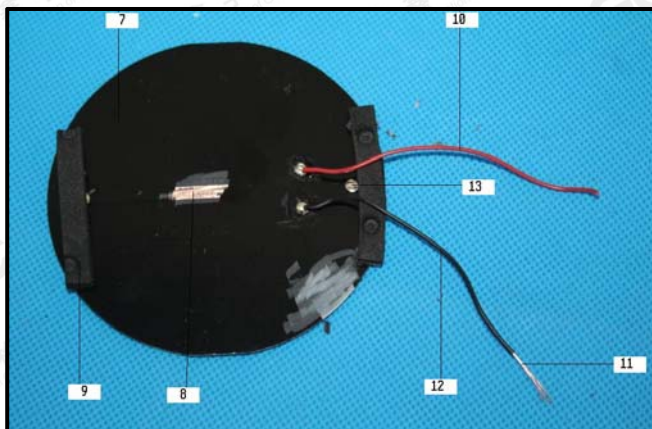
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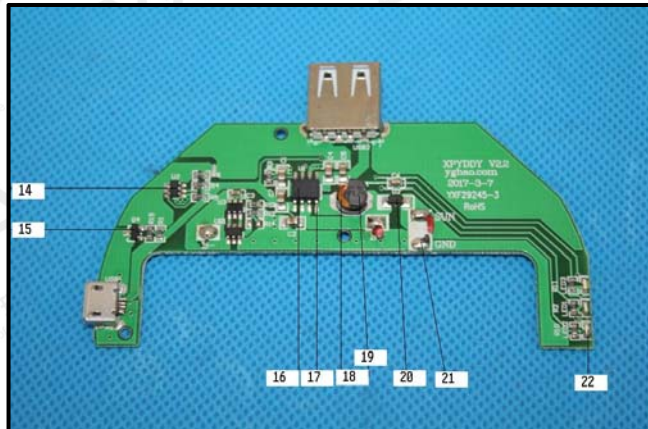
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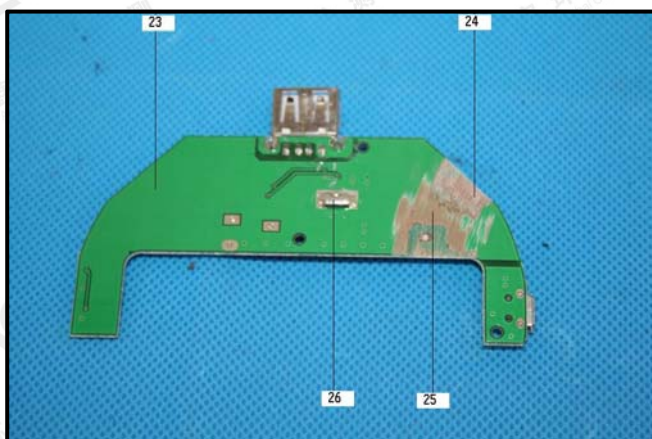
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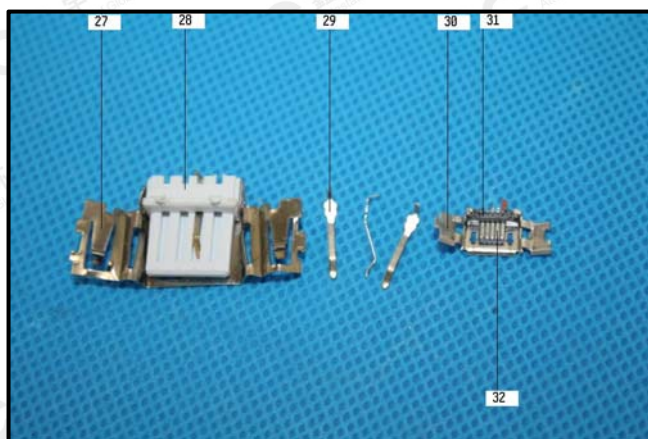
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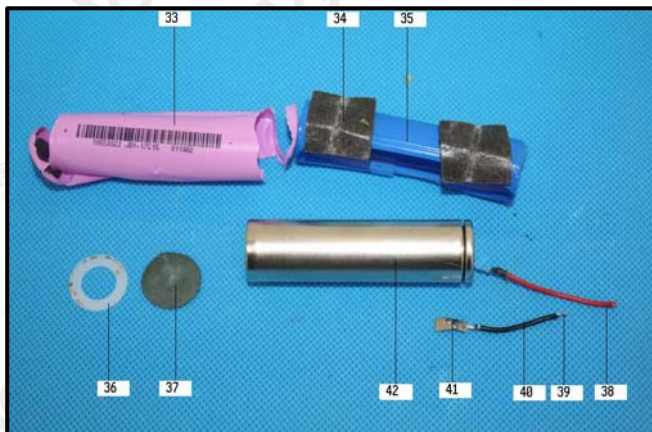
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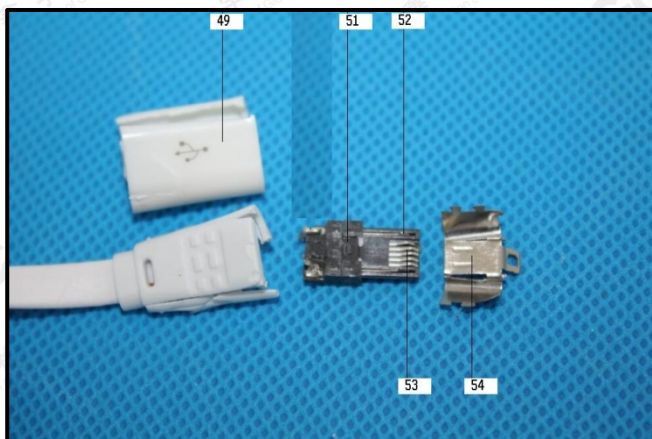
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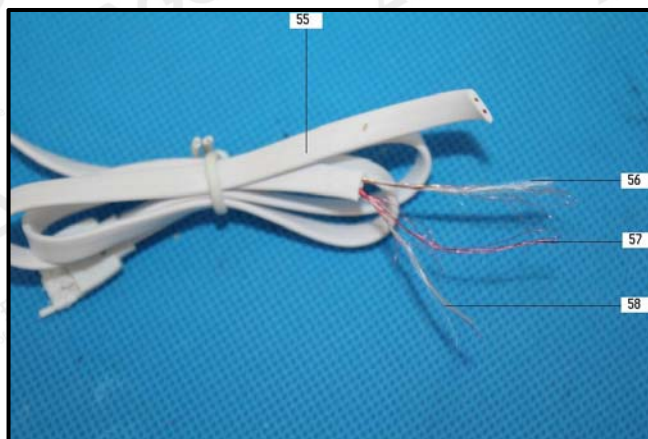
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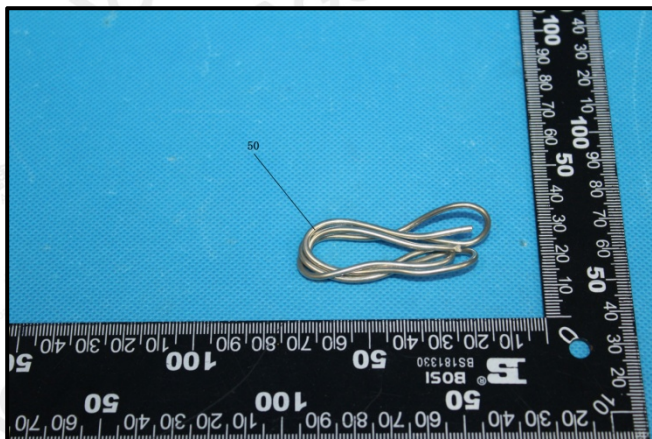
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AGC authenticate the photo only on original report

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