Test Report

Report No.: AGC05794181101-001 Date: Nov.09, 2018 Page 1 of 13

Applicant: [redacted]
Address:

Test site:

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

Sample Name:	Bottle With Bluetooth Earbuds
Sample Model:	62145
Sample Received Date:	Nov.02, 2018
Testing Period:	Nov.02, 2018 to Nov.09, 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).

Approved by:

Liulinwen, Lewis

Technical Director

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Test Report

Test Requested: **Conclusion**

1. As specified by client, to determine the Pb, Cd, Hg, Cr^{6+}, 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 62321-4:2017 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):

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 plastic cover(Glass)	BL	BL	BL	BL	BL
2	Silver metal buckle(Glass)	BL	BL	BL	X*	-
3	Silver metal buckle(Glass)	BL	BL	BL	BL	BL
4	Grey rubber(Glass)	BL	BL	BL	BL	BL
5	Silvery metal axis(Glass)	BL	BL	BL	X*	-
6	White rubber ring(Glass)	BL	BL	BL	BL	BL
7	Metal spring(Glass)	BL	BL	BL	X*	-
8	White seal ring(Glass)	BL	BL	BL	BL	BL
9	Silver screw	BL	BL	BL	BL	-
10	Black plastic shell(Earphone case)	BL	BL	BL	BL	BL
11	Black sound network(Earphone case)	BL	BL	BL	BL	BL
12	Black rubber plug(Earphone case)	BL	BL	BL	BL	BL
13	Black double-sided adhesive	BL	BL	BL	BL	BL
14	White sticker	BL	BL	BL	BL	BL
15	Brown tape(Battery)	BL	BL	BL	BL	BL
16	Electric core(Battery)	BL	BL	BL	BL	BL
17	Tin solder(Battery)	BL	BL	BL	BL	-
18	Wire core(Battery)	BL	BL	BL	BL	-
19	Red wire jacket(Battery)	BL	BL	BL	BL	BL
20	Black wire jacket(Battery)	BL	BL	BL	BL	BL
21	Wire core	BL	BL	BL	BL	-
22	Red wire jacket(Recharge stand)	BL	BL	BL	BL	BL
23	Tin solder(Recharge stand)	BL	BL	BL	BL	-
24	Contact pin(Recharge stand)	BL	BL	BL	BL	-

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Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
25	Black plastic contact(Recharge stand)	BL	BL	BL	BL	BL
26	Black wire jacket(Recharge stand)	BL	BL	BL	BL	BL
27	Chip LED	BL	BL	BL	BL	BL
28	Patch antenna	BL	BL	BL	BL	BL
29	Black plastic button(Tact Switch)	BL	BL	BL	BL	BL
30	Silver metal shell(Tact Switch)	BL	BL	BL	X*	-
31	Chip crystal oscillator	BL	BL	BL	BL	BL
32	Chip capacitor	BL	BL	BL	BL	BL
33	Copper shell(Microphone)	BL	BL	BL	BL	-
34	Chip IC	BL	BL	BL	BL	BL
35	Tin plating pin	BL	BL	BL	BL	-
36	Tin solder	BL	BL	BL	BL	-
37	Green PCB board	BL	BL	BL	BL	X*
38	PCB board(Charging PCB board)	BL	BL	BL	BL	X*
39	Tin solder(Charging PCB board)	BL	BL	BL	BL	-
40	Yellow wire jacket(Charging PCB board)	BL	BL	BL	BL	BL
41	Wire core(Charging PCB board)	BL	BL	BL	BL	-
42	Red wire jacket(Charging PCB board)	BL	BL	BL	BL	BL
43	Black wire jacket(Charging PCB board)	BL	BL	BL	BL	BL
44	Black plastic head(Charging PCB board)	BL	BL	BL	BL	BL
45	Meta contact pin(Charging PCB board)	BL	BL	BL	BL	-
46	Magnetic plane inductance	BL	BL	BL	BL	BL
47	IC body(IC)	BL	BL	BL	BL	BL
48	Tin plating pin(IC)	BL	BL	BL	BL	-
49	Chip capacitor	BL	BL	BL	BL	BL
50	Chip triode	BL	BL	BL	BL	BL

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Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
51	Chip LED	BL	BL	BL	BL	BL
52	Micro metal connector(Micro joint)	BL	BL	BL	X*	-
53	Black plastic contact(Micro joint)	BL	BL	BL	BL	BL
54	Chip resistor	BL	BL	BL	BL	BL
55	Tin solder	BL	BL	BL	BL	-
56	PCB board	BL	BL	BL	BL	X*
57	Brown tape(Battery)	BL	BL	BL	BL	BL
58	Black sponge double-sided adhesive(Battery)	BL	BL	BL	BL	BL
59	Electric core(Battery)	BL	BL	BL	BL	BL
60	Tin solder(Battery)	BL	BL	BL	BL	-
61	Red wire jacket(Battery)	BL	BL	BL	BL	BL
62	Wire core(Battery)	BL	BL	BL	BL	-
63	Black wire jacket(Battery)	BL	BL	BL	BL	BL

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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 Cr^{6+}

Test Item(s)	MDL	Result(s)			Limit
		2	5	30	
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 ≤ the0,13 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
		37	38	56	
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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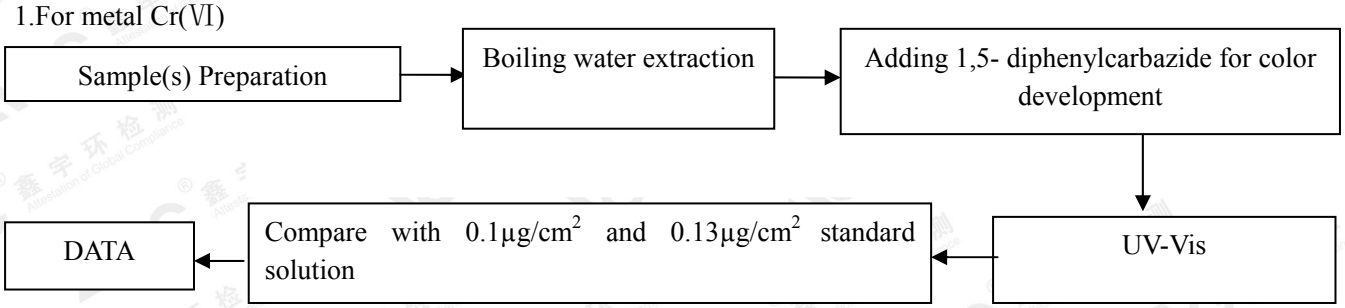
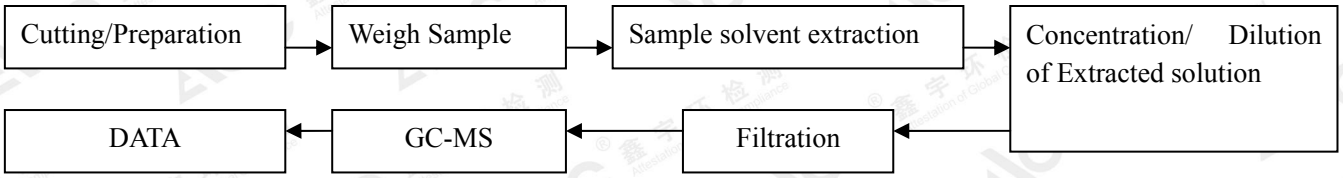
Test Flow Chart

1.For metal Cr(Ⅵ)



2.For PBBs & PBDEs



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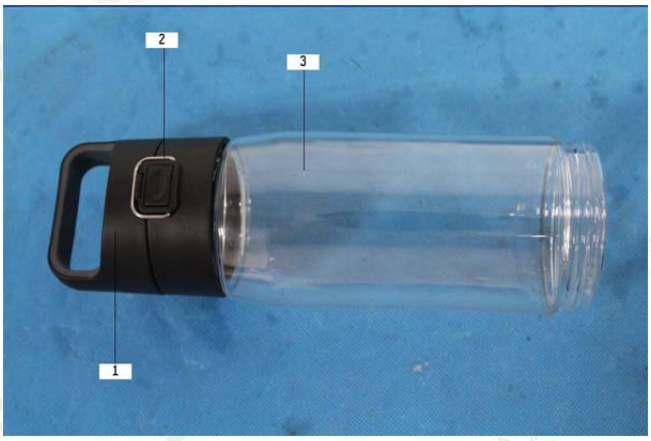
The photo of the sample



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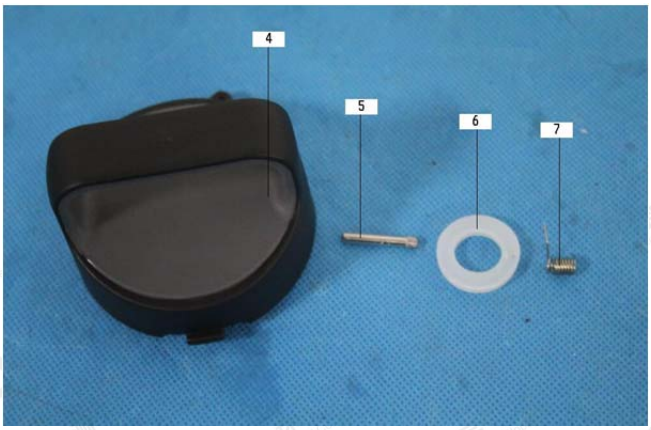

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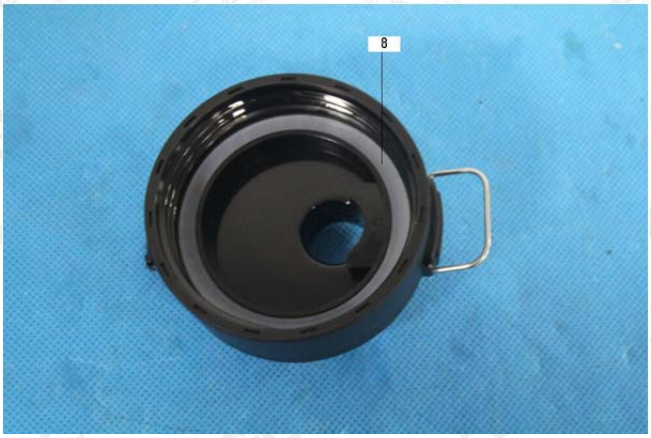

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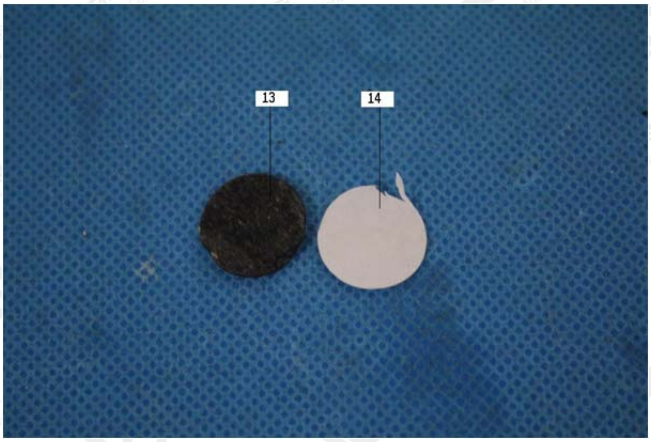

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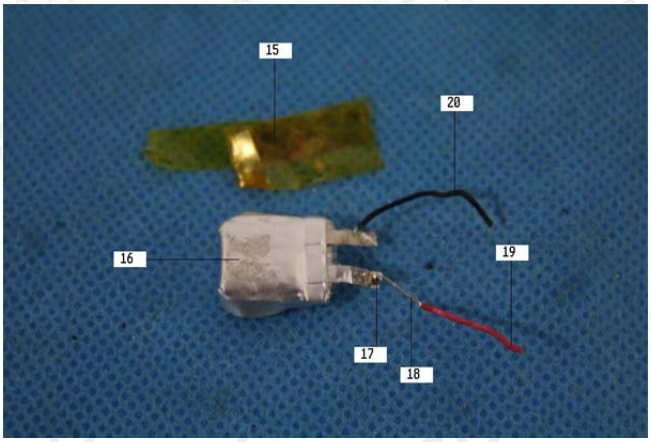

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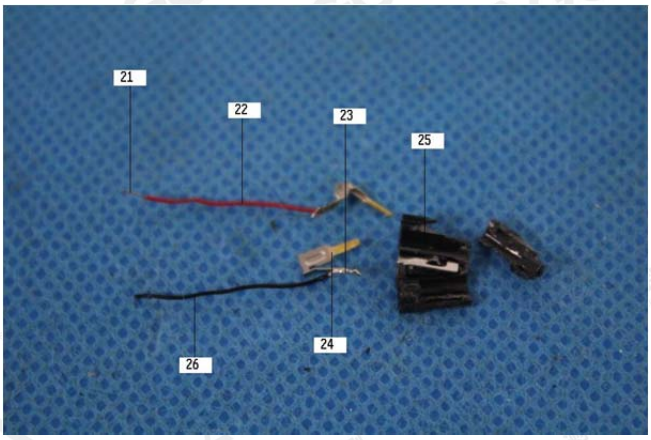

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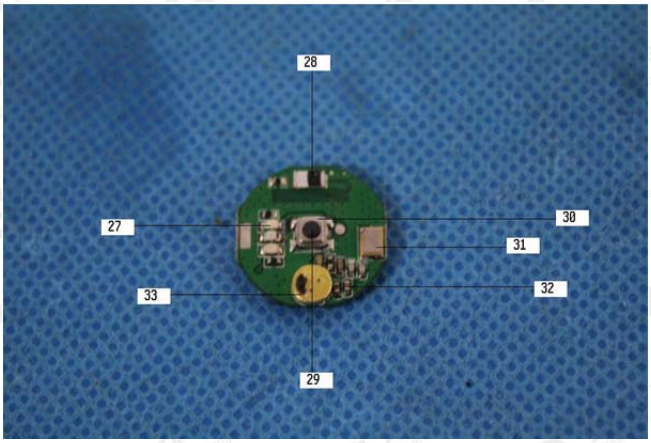

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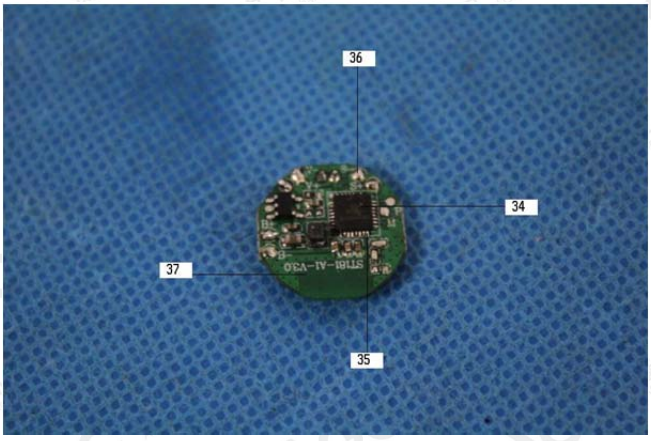

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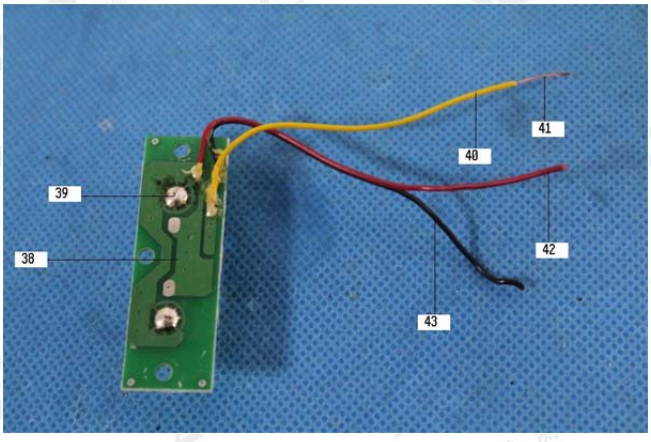

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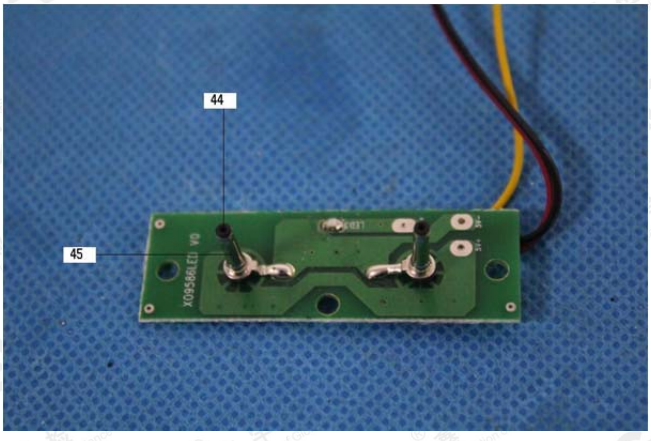

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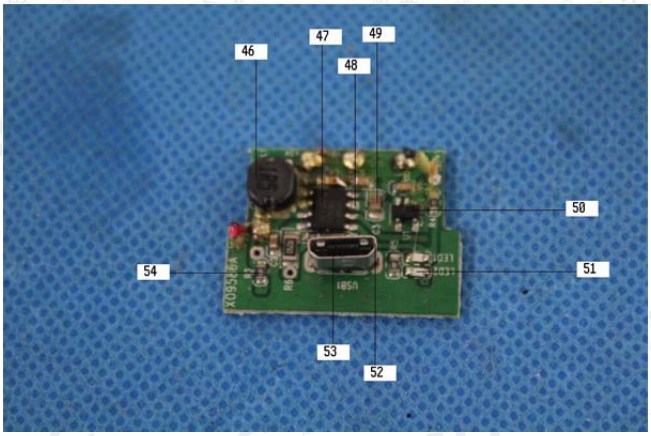

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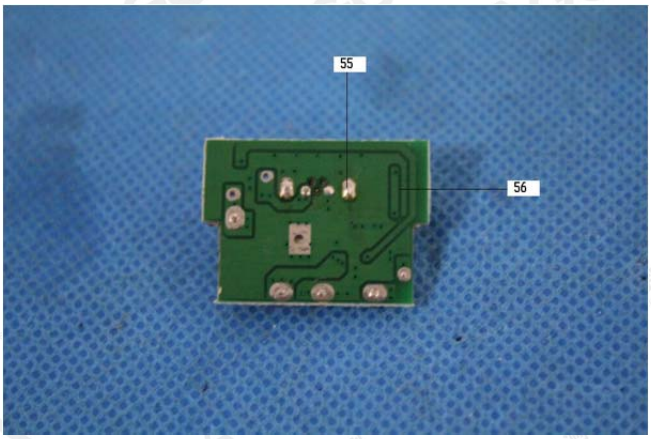

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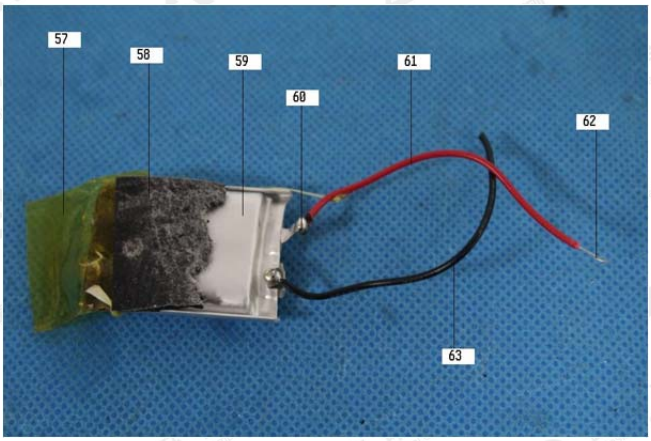

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AGC authenticate the photo only on original report

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