Test Report

Report No.: A001R20171011002 Date: Oct.30,2017 Page 1 of 17

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: Twist wireless headphones

Sample Model: P326.34

Sample Received Date: Oct.11,2017

Testing Period: Oct.11,2017 to Oct.30,2017

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

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

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

Test Requested:	**Conclusion**
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**

Tested by:	Reviewed by:	Approved by:
Luoxiao	Suhongliang, Leon	Liulinwen, Lewis
Test Engineer	Test Team Leader	Technical Director

Attestation of Global Compliance Std. & Tech.
Tel: +86-755 8358 3833 Fax: +86-755 2531 6612 E-mail: agc01@agc-cert.com 400 089 2118
Add: Building 2, No.171, Meihua Road, Shangmeilin, Futian District, Shenzhen, Guangdong China

Test Report

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 plastic frame(Earlap)	BL	BL	BL	BL	BL
2	Silver coating(Earlap)	BL	BL	BL	BL	BL
3	White plastic ear shell(Earlap)	BL	BL	BL	BL	BL
4	Black leather(Earmuff)	BL	BL	BL	BL	BL
5	White foam(Earmuff)	BL	BL	BL	BL	BL
6	Black fabric(Earmuff)	BL	BL	BL	BL	X*
7	Black PU leather(Earmuff)	BL	BL	BL	BL	BL
8	Metal card	BL	BL	BL	X*	-
9	Silver screw	BL	BL	BL	BL	-
10	Metal shaft	BL	BL	BL	BL	-
11	Black leather(Head frame)	BL	BL	BL	BL	BL
12	White foam(Head frame)	BL	BL	BL	BL	BL
13	Black plastic tape(Head frame)	BL	BL	BL	BL	X*
14	Black braided wire(Lunk)	BL	BL	BL	BL	BL
15	Red enameled wire	BL	BL	BL	BL	-
16	Brown enameled wire(Lunk)	BL	BL	BL	BL	-
17	Blue enameled wire(Lunk)	BL	BL	BL	BL	-
18	Green enameled wire(Lunk)	BL	BL	BL	BL	-
19	Black plastic cover(Horn)	BL	BL	BL	BL	X*
20	White dust screen(Horn)	BL	BL	BL	BL	BL
21	Red wire sheath	BL	BL	BL	BL	BL
22	Solder(Horn)	BL	BL	BL	BL	-
23	PCB board(Horn)	BL	BL	BL	BL	BL
24	Black wire sheath(Horn)	BL	BL	BL	BL	BL

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Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
25	Wire core(Horn)	BL	BL	BL	BL	-
26	Black plastic frame(Horn)	BL	BL	BL	BL	X*
27	Magnetic shield(Horn)	BL	BL	BL	BL	-
28	Magnet(Horn)	BL	BL	BL	BL	BL
29	Diaphragm(Horn)	BL	BL	BL	BL	BL
30	Enameled wire(Horn)	BL	BL	BL	BL	-
31	Black plastic seat(Headphone socket)	BL	BL	BL	BL	BL
32	Sheet metal(Headphone socket)	BL	BL	BL	BL	-
33	Patch triode	BL	BL	BL	BL	BL
34	Patch LED	BL	BL	BL	BL	BL
35	IC ontology(IC)	BL	BL	BL	BL	BL
36	Pin(IC)	BL	BL	BL	BL	-
37	Patch crystals(Touch switch)	BL	BL	BL	BL	BL
38	Patch resistor(Touch switch)	BL	BL	BL	BL	BL
39	PCB board(Touch switch)	BL	BL	BL	BL	X*
40	Solder(Touch switch)	BL	BL	BL	BL	-
41	Black plastic button(Touch switch)	BL	BL	BL	BL	BL
42	Sheet metal(Touch switch)	BL	BL	BL	BL	-
43	White plastic base(Touch switch)	BL	BL	BL	BL	BL
44	Black rubber cap(Microphone)	BL	BL	BL	BL	BL
45	Black dust screen(Microphone)	BL	BL	BL	BL	BL
46	Copper shell(Microphone)	BL	BL	BL	BL	-
47	White plastic ring(Microphone)	BL	BL	BL	BL	BL
48	Diaphragm(Microphone)	BL	BL	BL	BL	BL
49	PCB board(Microphone)	BL	BL	BL	BL	X*
50	Solder(Microphone)	BL	BL	BL	BL	-

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Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
51	Red wire sheath(Microphone)	BL	BL	BL	BL	BL
52	Wire core(Microphone)	BL	BL	BL	BL	-
53	Black wire sheath(Microphone)	BL	BL	BL	BL	BL
54	Metal shell(Micro joint)	BL	BL	BL	BL	-
55	Black plastic joint(Micro joint)	BL	BL	BL	BL	BL
56	Pin(Micro joint)	BL	BL	BL	BL	-
57	Black casing(Electrolytic capacitor)	BL	BL	BL	BL	BL
58	Aluminum shell(Electrolytic capacitor)	BL	BL	BL	BL	-
59	Electrolytic paper(Electrolytic capacitor)	BL	BL	BL	BL	BL
60	Anode foil(Electrolytic capacitor)	BL	BL	BL	BL	-
61	Cathode foil(Electrolytic capacitor)	BL	BL	BL	BL	-
62	Black rubber plug(Electrolytic capacitor)	BL	BL	BL	BL	BL
63	Pin(Electrolytic capacitor)	BL	BL	BL	BL	-
USB cable						
64	Black handle(USB plug)	BL	BL	BL	BL	BL
65	Solder(USB plug)	BL	BL	BL	BL	-
66	White plastic plug(USB plug)	BL	BL	BL	BL	BL
67	Pin(USB plug)	BL	BL	BL	BL	-
68	Metal shell(USB plug)	BL	BL	BL	BL	-
69	Black plastic plug(Micro plug)	BL	BL	BL	BL	BL
70	Metal thimbles(Micro plug)	BL	BL	BL	X*	-
71	pin(Micro plug)	BL	BL	BL	BL	-
72	Metal shell(Micro plug)	BL	BL	BL	X*	-
73	Black exterior wire sheath(Wire rod)	BL	BL	BL	BL	BL
74	White wire sheath(Wire rod)	BL	BL	BL	BL	BL
75	Red wire sheath(Wire rod)	BL	BL	BL	BL	BL

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Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
76	Wire core(Wire rod)	BL	BL	BL	BL	-
Audio cable						
77	Black handle(Audio plug)	BL	BL	BL	BL	BL
78	Solder(Audio plug)	BL	BL	BL	BL	-
79	Metal ring(Audio plug)	BL	OL*	BL	BL	-
80	Black plastic plug(Audio plug)	BL	BL	BL	BL	BL
81	Metal head(Audio plug)	BL	BL	BL	BL	-
82	Black exterior wire sheath(Wire rod)	BL	BL	BL	BL	BL
83	Yellow wire sheath(Wire rod)	BL	BL	BL	BL	BL
84	Blue wire sheath(Wire rod)	BL	BL	BL	BL	BL
85	Wire core(Wire rod)	BL	BL	BL	BL	-
86	Red wire sheath(Wire rod)	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 Pb

Test Item(s)	Unit	Result(s)
		79*
Lead(Pb)	mg/kg	20750

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

MDL = Method Detection Limit

* 1= As claimed by the material declaration submitted by the client, the materials of the sample No.79 is copper alloy, according to the RoHS 2011/65 / EU, Lead is exempted as an alloying element in Copper containing up to 4% (40000ppm) by weight.

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2)The Test Results of metal Cr^{6+}

Test Item(s)	MDL	Result(s)			Limit
		8	70	72	
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/cm² 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/cm² and ≤ the0,13 μg/cm² 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/cm² 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
		6	13	19	
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**	/

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Unit:mg/kg

Item(s)	MDL	Result(s)			Limit
		26	39	49	
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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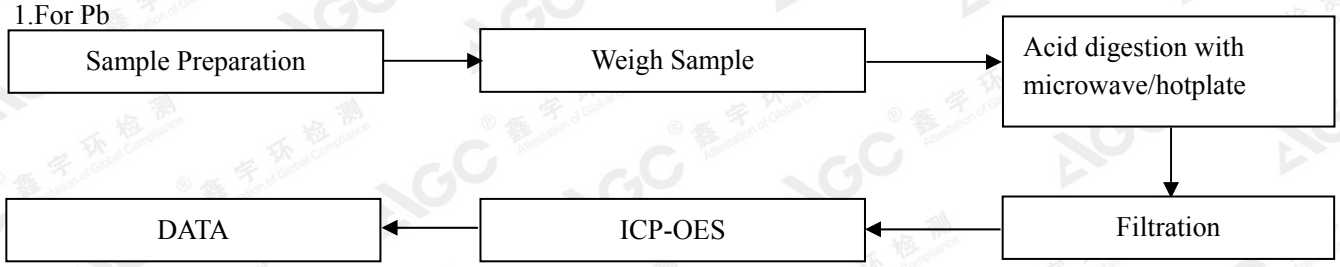
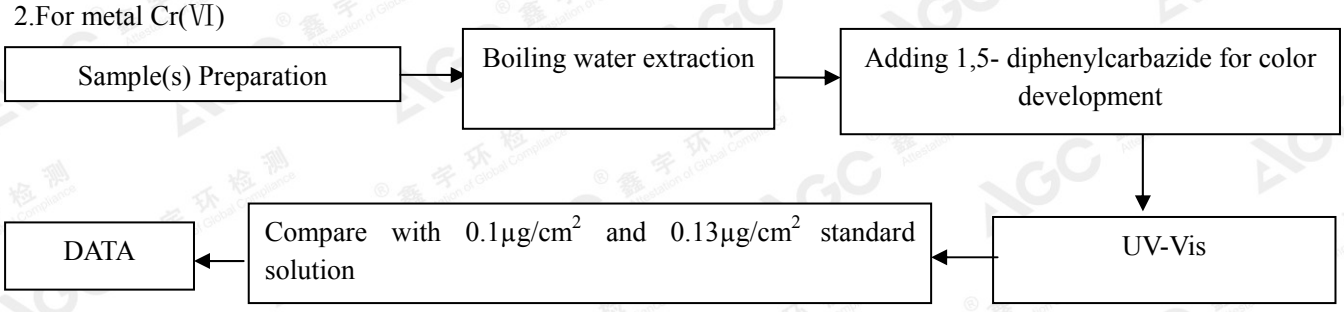
Test Report

Test Flow Chart

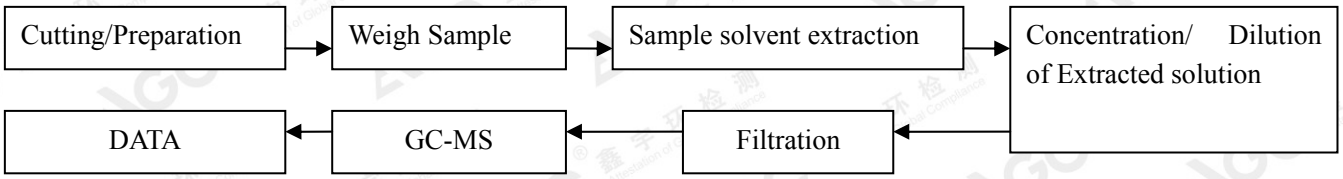
1.For Pb



2.For metal Cr(Ⅵ)



3.For PBBs & PBDEs



Test result on specimen No.64, No.65 and No.77 were resubmitted sample on Oct.24,2017.

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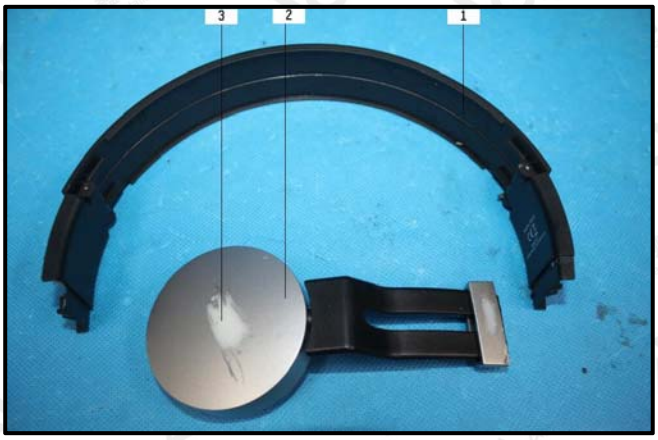
The photo of the sample



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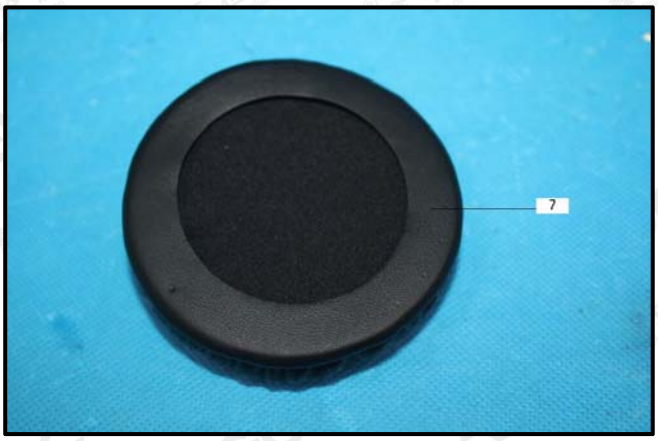

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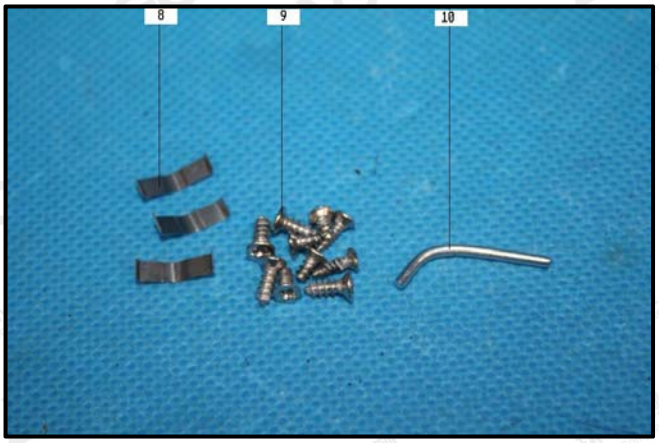

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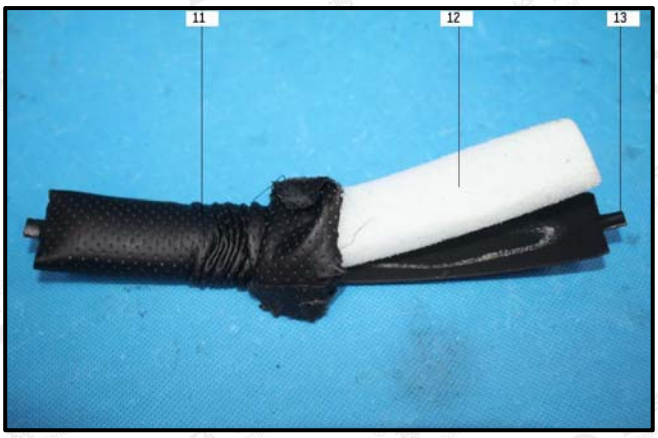

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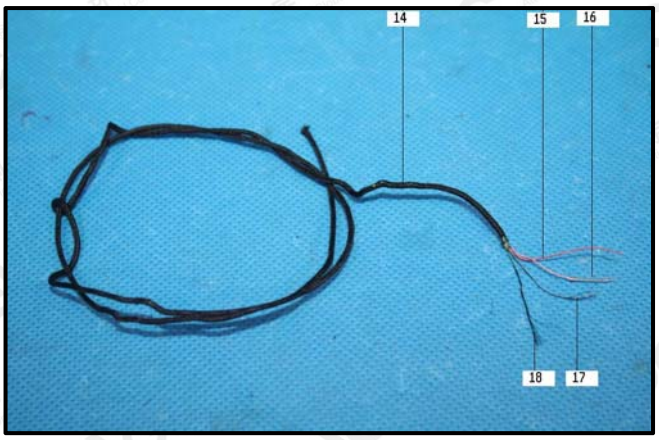

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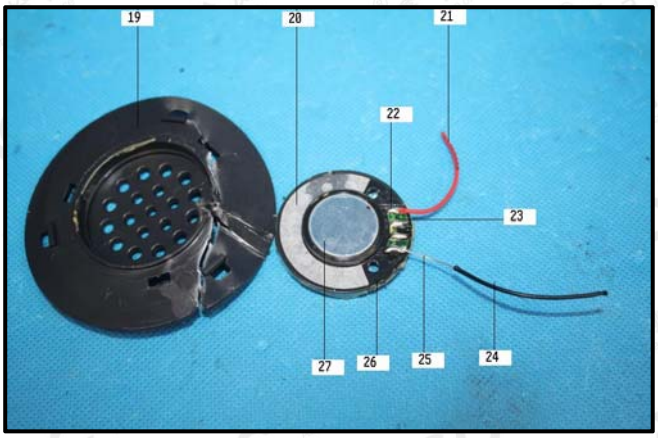

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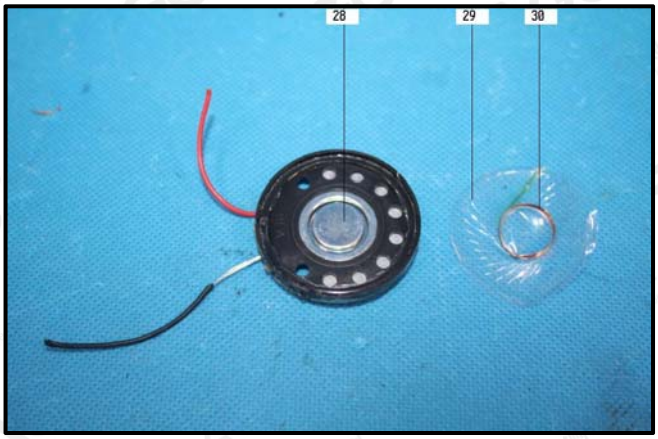

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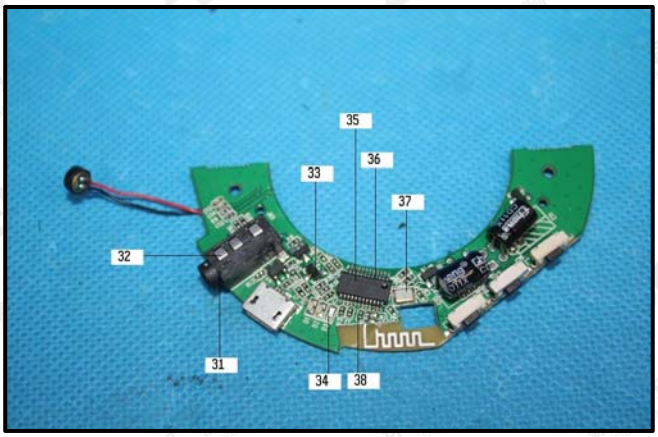

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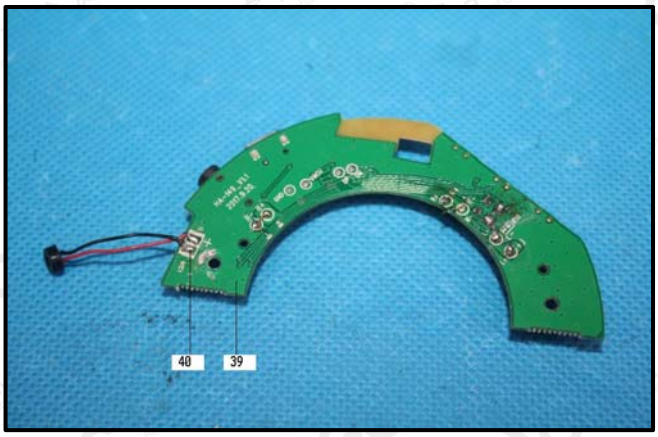

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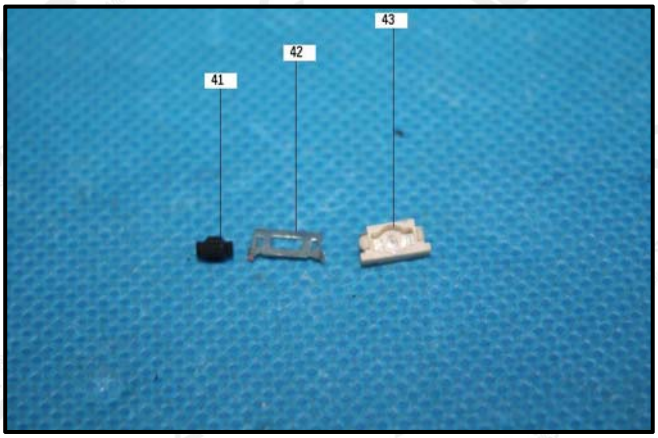

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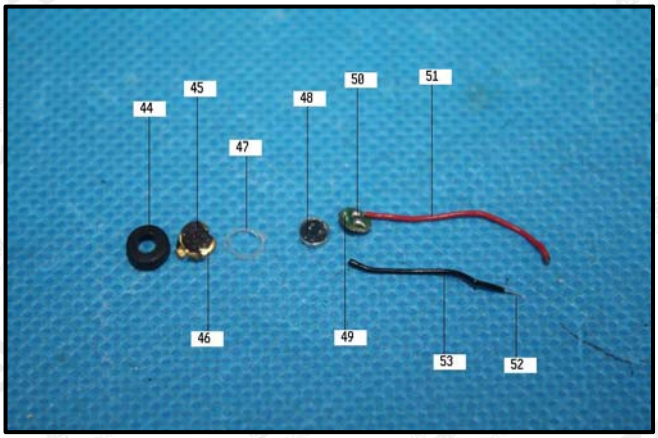

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Attestation of Global Compliance Std. & Tech.
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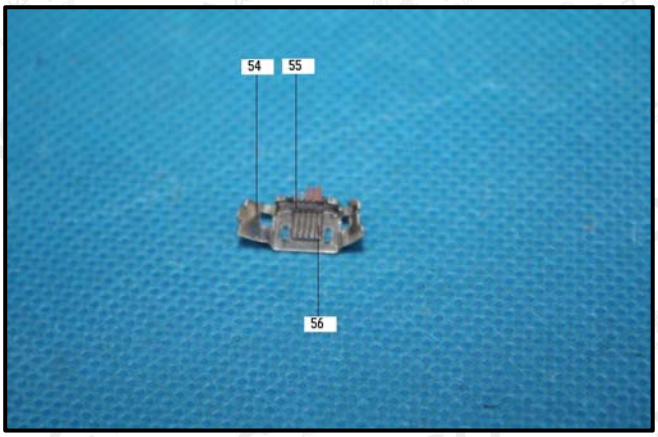
Add: Building 2, No.171, Meihua Road, Shangmeilin, Futian District, Shenzhen, Guangdong China

Test Report



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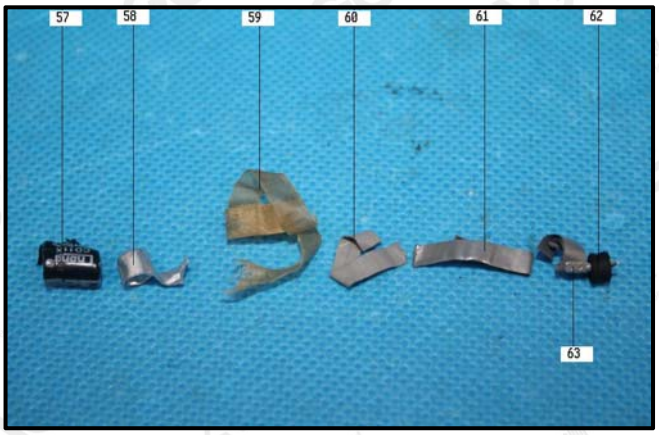

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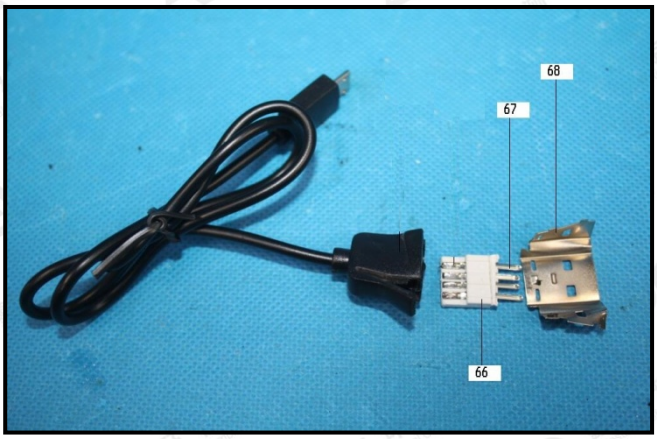

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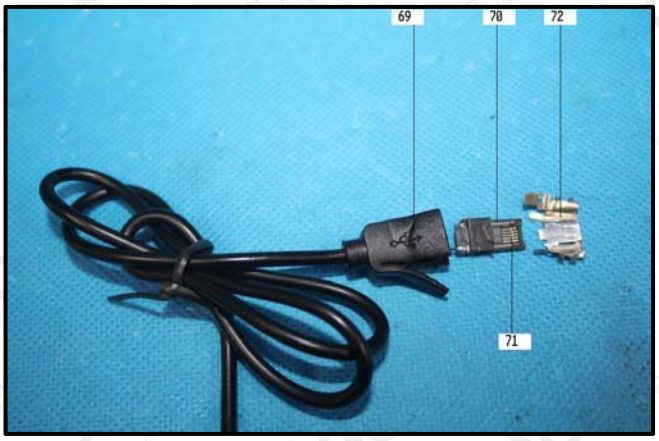

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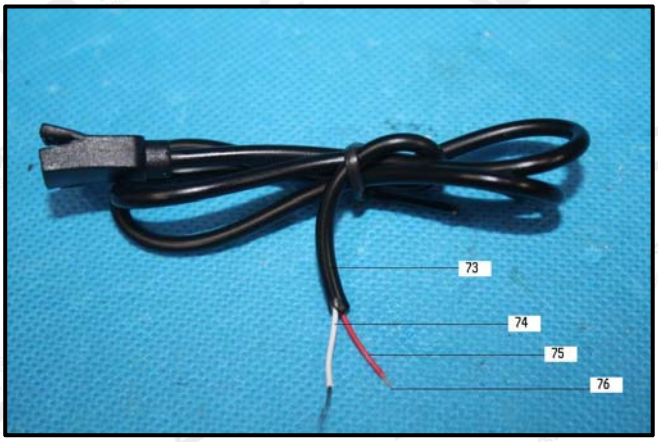

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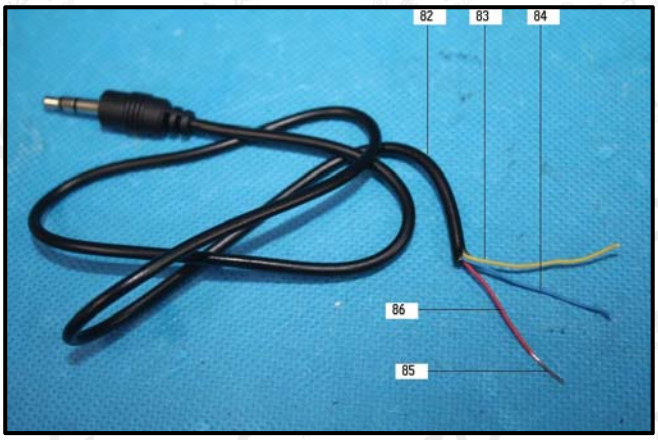

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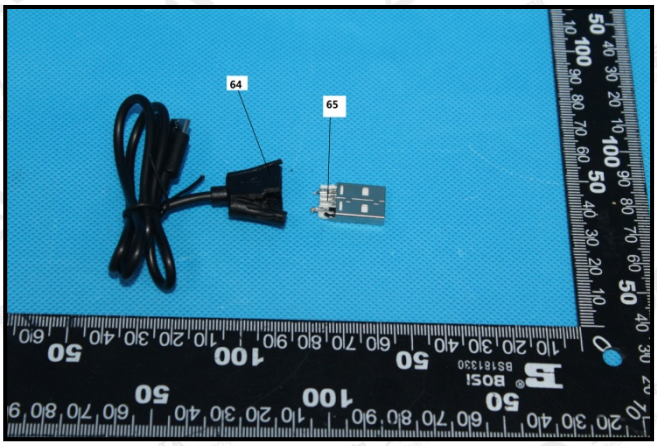

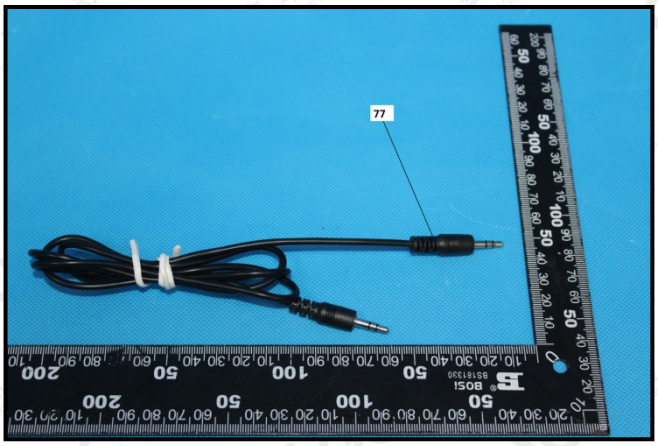

A001R20171011002

AGC authenticate the photo only on original report

*** End of Report ***

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