

Add: F&G, 23/F.,Technology Building, Quanzhi Science and Technology Innovation Park, Industrial Building, Maozhoushan Industrial Park, Houting, Shajing Street, Bao'an District, Shenzhen, Guangdong, China

Report No.: LCS200608112AR

TEST REPORT

Applicant :

Address :

Report on the submitted samples said to be:

Sample Name : Powerbank with earbuds

Trade Mark :

Style No. :

Testing Period : June 10, 2020 ~ December 17, 2020

Results : Please refer to next page(s).

Summary of Test Results:

TEST REQUEST	CONCLUSION
According to the customer's request, based on the performed tests on submitted sample, the result of Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), PBBs, PBDEs, Dibuyl Phthalate(DBP), Benzylbutyl Phthalate(BBP), Bis(2-ethylhexyl) Phthalate(DEHP), Diispbutyl phthalate(DIBP) content comply with the limit requirement as set of RoHS Directive (EU) 2015/863 amending Annex II to Directive 2011/65/EU.	Pass

Signed for and on behalf of LCS





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Results:

A. EU RoHS Directive 2011/65/EU and its amendment directives on XRF

Test method: With reference to IEC 62321-3-1:2013, Screening by X-ray Fluorescence Spectroscopy (XRF)

0			Date of					
Seq. No.	Tested Part(s)	Cd	Pb	Uм	Cr(Cr ⁶⁺) [▼]	В	sample submission/r	
		Ca	PD	Hg	Cr(Cr ^o)	PBBs	PBDEs	esubmission
1	White plastic shell	BL	BL	BL	BL	BL	BL	2020-06-10
2	Black plastic pad	BL	BL	BL	BL	BL	BL	2020-06-10
3	Silver metal screw	BL	BL	BL	BL	/	/	2020-06-10
4	Black ceramic	BL	BL	BL	BL	BL	BL	2020-06-10
5	Copper wire	BL	BL	BL	BL	1	1	2020-06-10
6	Silver solder joint	BL	BL	BL	BL	1	1	2020-06-10
7	Black ceramic	BL	BL	BL	BL	BL	BL	2020-06-10
8	Copper wire	BL	BL	BL	BL	/	1	2020-06-10
9	White plastic shell	BL	BL	BL	BL	BL	BL	2020-06-10
10	Black plastic shell	BL	BL	BL	BL	BL	BL	2020-06-10
11	Silver metal plate	BL	BL	BL	BL	1	1	2020-06-10
12	Silver metal shell	BL	BL	BL	BL	/	1	2020-06-10
13	Black plastic shell	BL	BL	BL	BL	BL	BL	2020-06-10
14	Silver metal shell	BL	BL	BL	BL	1	1	2020-06-10
15	Black plastic shell	BL	BL	BL	BL	BL	BL	2020-06-10
16	Silver metal pin	BL	BL	BL	BL	/	1	2020-06-10
17	Green PCB board	BL	BL	BL	BL	BL	BL	2020-06-10
18	Yellow chip capacitor	BL	BL	BL	BL	BL	BL	2020-06-10
19	Black plastic leather	BL	BL	BL	BL	BL	BL	2020-06-10
20	Black body	BL	BL	BL	BL	BL	BL	2020-06-10
21	Red plastic leather	BL	BL	BL	BL	BL	BL	2020-06-10
22	Silver wire	BL	BL	BL	BL	1	1	2020-06-10
23	Silver solder joint	BL	BL	BL	BL	1	/	2020-06-10
24	Green PCB board	BL	BL	BL	BL	BL	BL	2020-06-10
25	Silver metal plate	BL	BL	BL	BL	/	1	2020-06-10



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_				Date of				
Seq. No.	Tested Part(s)	0-1	DI	11	O(O6+).▼	В	sample submission/r	
110.		Cd	Pb	Hg	Cr(Cr ⁶⁺) [▼]	PBBs	PBDEs	esubmission
26	Red plastic leather	BL	BL	BL	BL	BL	BL	2020-06-10
27	Silver metal pin	BL	BL	BL	BL	1	1	2020-06-10
28	Silver metal screw	BL	BL	BL	BL	1	1	2020-06-10
29	Black plastic leather	BL	BL	BL	BL	BL	BL	2020-06-10
30	Copper wire	BL	BL	BL	BL	1	1	2020-06-10
31	Green PCB board	BL	BL	BL	BL	BL	BL	2020-06-10
32	Silver solder joint	BL	BL	BL	BL	1	/	2020-06-10
33	Yellow transparent tape	BL	BL	BL	BL	BL	BL	2020-06-10
34	White plastic shell	BL	BL	BL	BL	BL	BL	2020-06-10
35	White fixing glue	BL	BL	BL	BL	BL	BL	2020-06-10
36	Silver metal shell	BL	BL	BL	BL	1	/	2020-06-10
37	White plastic shell	BL	BL	BL	BL	BL	BL	2020-06-10
38	Golden metal pins	BL	BL	BL	BL	1	/	2020-06-10
39	White plastic leather	BL	BL	BL	BL	BL	BL	2020-06-10
40	Pink plastic leather	BL	BL	BL	BL	BL	BL	2020-06-10
41	White plastic leather	BL	BL	BL	BL	BL	BL	2020-06-10
42	Copper Wire	BL	BL	BL	BL	1	/	2020-06-10
43	White plastic leather	BL	BL	BL	BL	BL	BL	2020-06-10
44	Silver metal shell	BL	BL	BL	BL	1	/	2020-06-10
45	White plastic sheet	BL	BL	BL	BL	BL	BL	2020-06-10
46	White plastic sheet	BL	BL	BL	BL	BL	BL	2020-06-10
47	Silver plastic sheet	BL	BL	BL	BL	BL	BL	2020-06-10
48	Blue plastic wire	BL	BL	BL	BL	BL	BL	2020-06-10
49	White plastic wire	BL	BL	BL	BL	BL	BL	2020-06-10
50	Silver Metal Wire	BL	BL	BL	BL	1	1	2020-06-10
51	Silver metal sheet	BL	BL	BL	BL	1	/	2020-06-10
52	Transparent plastic sheet	BL	BL	BL	BL	BL	BL	2020-06-10
53	Red metal coil	BL	BL	BL	BL	1	/	2020-06-10
54	Silver magnet	BL	BL	BL	BL	BL	BL	2020-06-10
55	White foam rubber	BL	BL	BL	BL	BL	BL	2020-06-10



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_			Date of					
Seq. No.	Tested Part(s)	Cd	Pb	Ца	O(O6+)▼	Br [▼]		sample submission/r
		Cu	PD	Hg	Cr(Cr ⁶⁺) [▼]	PBBs	PBDEs	esubmission
56	Black plastic sheet	BL	BL	BL	BL	BL	BL	2020-06-10
57	Silver metal sheet	BL	BL	BL	BL	1	1	2020-06-10
58	Gold metal sheet	BL	BL	BL	BL	/	/	2020-06-10
59	Red plastic wire	BL	BL	BL	BL	BL	BL	2020-06-10
60	Black plastic wire	BL	BL	BL	BL	BL	BL	2020-06-10
61	Silver metal wire	BL	BL	BL	BL	1	1	2020-06-10
62	Black IC	BL	BL	BL	BL	BL	BL	2020-06-10
63	Black plastic sheet	BL	BL	BL	BL	BL	BL	2020-06-10
64	Silver metal sheet	BL	BL	BL	BL	1	1	2020-06-10
65	Silver metal sheet	BL	BL	BL	BL	1	1	2020-06-10
66	Silver metal sheet	BL	BL	BL	BL	1	1	2020-06-10
67	Silver metal ring	BL	BL	BL	BL	1	1	2020-06-10
68	Silver metal sheet	BL	BL	BL	BL	1	1	2020-06-10
69	Black plastic ring	BL	BL	BL	BL	BL	BL	2020-06-10
70	Patch triode	BL	BL	BL	BL	BL	BL	2020-06-10
71	Silver crystal oscillator	BL	BL	BL	BL	BL	BL	2020-06-10
72	Black plastic sheet	BL	BL	BL	BL	BL	BL	2020-06-10
73	PCB board	BL	BL	BL	BL	BL	BL	2020-06-10
74	Black wire	BL	BL	BL	BL	BL	BL	2020-06-10
74	Red wire	BL	BL	BL	BL	BL	BL	2020-06-10





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Note:

(1) Results were obtained by XRF for primary screening, 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 below warning value according to IEC 62321-3-1:2013.

Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	BL≤70-3σ <x <130+3σ≤OL</x 	BL≤70-3σ <x <130+3σ≤OL</x 	BL≤50-3σ <x <150+3σ≤OL</x
Pb	mg/kg	BL≤700-3σ <x< td=""><td>BL≤700-3σ<x< td=""><td>BL≤500-3σ<x< td=""></x<></td></x<></td></x<>	BL≤700-3σ <x< td=""><td>BL≤500-3σ<x< td=""></x<></td></x<>	BL≤500-3σ <x< td=""></x<>
Hg	mg/kg	<1300+3σ≤OL BL≤700-3σ <x< td=""><td><1300+3σ≤OL BL≤700-3σ<x< td=""><td><1500+3σ≤OL BL≤500-3σ<x< td=""></x<></td></x<></td></x<>	<1300+3σ≤OL BL≤700-3σ <x< td=""><td><1500+3σ≤OL BL≤500-3σ<x< td=""></x<></td></x<>	<1500+3σ≤OL BL≤500-3σ <x< td=""></x<>
Cr	mg/kg	<1300+3σ≤OL BL≤700-3σ <x< td=""><td><1300+3σ≤OL BL≤700-3σ<x< td=""><td><1500+3σ≤OL BL≤500-3σ<x< td=""></x<></td></x<></td></x<>	<1300+3σ≤OL BL≤700-3σ <x< td=""><td><1500+3σ≤OL BL≤500-3σ<x< td=""></x<></td></x<>	<1500+3σ≤OL BL≤500-3σ <x< td=""></x<>
			DL3700-30 \X	
Br	mg/kg	BL≤300-3σ <x< td=""><td></td><td>BL≤250-3σ<x< td=""></x<></td></x<>		BL≤250-3σ <x< td=""></x<>



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Note:

BL = Below Limit
OL = Over Limit
X = Inconclusive

- (2) The XRF screening test for RoHS elements The reading may be different to the actual content in the sample be of non-uniformity composition.
- (3) The maximum permissible limit is quoted from the document 2015/863/EC amending RoHS directive 2011/65/EU:
- (4) ▼=For restricted substances PBBs and PBDEs, the results show the total Br content; The restricted substance was Cr(VI), and the results showed the total Cr content

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
Dibuyl Phthalate(DBP)	1000
Benzylbutyl Phthalate(BBP)	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	1000
Diispbutyl phthalate(DIBP)	1000

Disclaimers:

This XRF Screening 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 screening 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. EU RoHS Directive 2011/65/EU and its amendment Directives 2015/863/EU on Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs, PBDEs, DBP, BBP, DEHP, DIBP content.

Test method:

Lead & Cadmium Content:

With reference to IEC 62321-5:2013, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES)

Mercury Content:

With reference to IEC 62321-4:2013+AMD1:2017 CSV, by acid digestion and analysis was performed by inductively coupled plasma atomic emission spectrometer (ICP-OES)

Hexavalent Chromium Content:

With reference to IEC 62321-7-1:2015 or IEC 62321-7-2:2017, by alkaline digestion and analysis was performed by UV-visible spectrophotometer (UV-Vis)

PBBs & PBDEs Content:

With reference to IEC 62321-6:2015, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)

BBP DBP DEHP & DIBP Content:

With reference to IEC 62321-8:2017, by solvent extraction and analysis was performed by gas chromatographic-mass spectrometer (GC-MS)



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1) The test results of DBP, BBP, DEHP & DIBP

Item	Unit	MDL	Results	Limit
item			1+2+4+7+9	LIIIIL
Dibuyl Phthalate(DBP)	mg/kg	600	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	600	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	600	N.D.	1000
Diispbutyl phthalate(DIBP)	mg/kg	600	N.D.	1000

Hom	Unit	MDI	Results	- Limit	
Item	Unit	MDL	13+15+17+18+19+20		
Dibuyl Phthalate(DBP)	mg/kg	600	N.D.	1000	
Benzylbutyl Phthalate(BBP)	mg/kg	600	N.D.	1000	
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	600	N.D.	1000	
Diispbutyl phthalate(DIBP)	mg/kg	600	N.D.	1000	

lta	11:4	MDI	Results	1 114
Item	Unit	MDL	21+24+26+29+31+33	Limit
Dibuyl Phthalate(DBP)	mg/kg	600	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	600	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	600	N.D.	1000
Diispbutyl phthalate(DIBP)	mg/kg	600	N.D.	1000



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lto an	11:4	MDI	Results	Limit	
Item	Unit	MDL	34+35+37+39+40+41	Limit	
Dibuyl Phthalate(DBP)	mg/kg	600	N.D.	1000	
Benzylbutyl Phthalate(BBP)	mg/kg	600	N.D.	1000	
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	600	N.D.	1000	
Diispbutyl phthalate(DIBP)	mg/kg	600	N.D.	1000	

Item	Unit	MDI	Results	Limit	
item	Unit MDL		43+45+46+47+48+49	Limit	
Dibuyl Phthalate(DBP)	mg/kg	600	N.D.	1000	
Benzylbutyl Phthalate(BBP)	mg/kg	600	N.D.	1000	
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	600	N.D.	1000	
Diispbutyl phthalate(DIBP)	mg/kg	600	N.D.	1000	

Item	Unit	MDL	Results	Limit	
item	Oilit	WIDE	52+54+55+56+59+60	Lillit	
Dibuyl Phthalate(DBP)	mg/kg	600	N.D.	1000	
Benzylbutyl Phthalate(BBP)	mg/kg	600	N.D.	1000	
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	600	N.D.	1000	
Diispbutyl phthalate(DIBP)	mg/kg	600	N.D.	1000	



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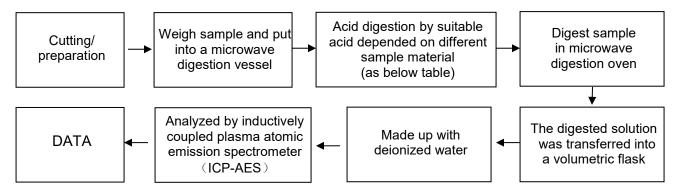
Item	Unit	MDL	Results	Limit	
			62+63+69+70+71	Limit	
Dibuyl Phthalate(DBP)	mg/kg	600	N.D.	1000	
Benzylbutyl Phthalate(BBP)	mg/kg	600	N.D.	1000	
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	600	N.D.	1000	
Diispbutyl phthalate(DIBP)	mg/kg	600	N.D.	1000	

Item	Unit	MDL	Results	Limit
			72+73+74+75	
Dibuyl Phthalate(DBP)	mg/kg	600	N.D.	1000
Benzylbutyl Phthalate(BBP)	mg/kg	600	N.D.	1000
Bis(2-ethylhexyl) Phthalate(DEHP)	mg/kg	600	N.D.	1000
Diispbutyl phthalate(DIBP)	mg/kg	600	N.D.	1000

Appendix

Test Flow chart

1. Test Flow chart for Cd / Pb /Hg content
These samples were dissolved totally by pre-conditioning method according to below flow chart.

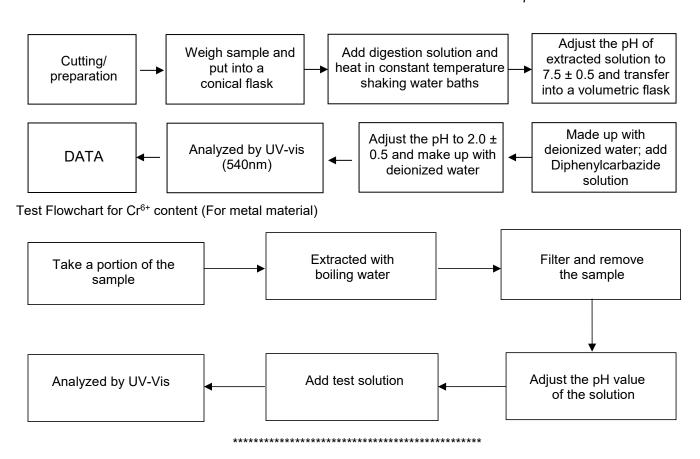


2. Test Flowchart for Cr6+ content (For non-metal material)

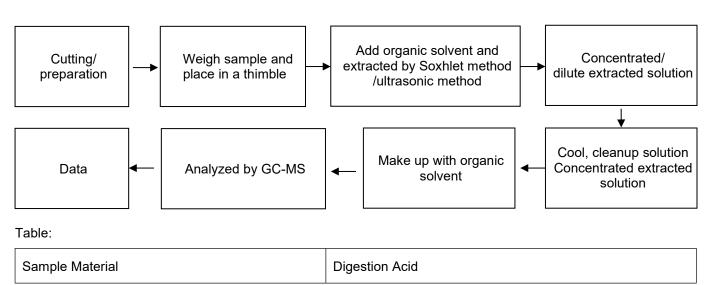


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3. Test Flow chart for PBBs & PBDEs & DBP & BBP & DEHP & DIBP content







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Tel: (86)755-23353209 Internet: Http://www.LCS-cert.com

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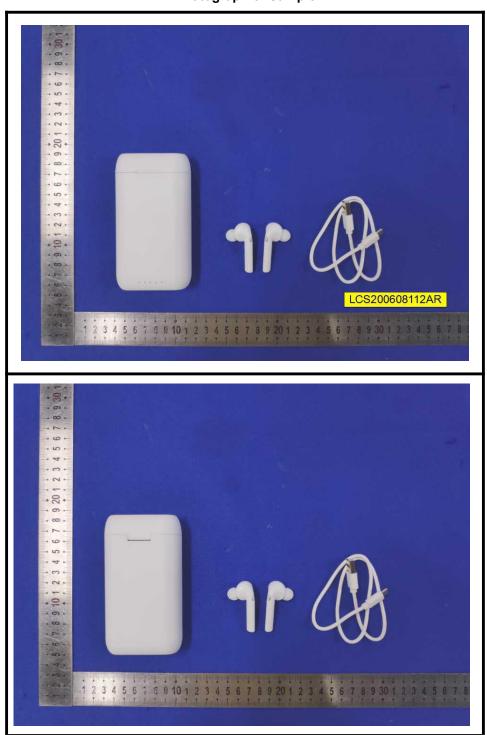
Steel, copper, aluminum, solder	Aqua regia, HNO ₃ , HCl, HF, H ₂ O ₂	
Glass	HNO₃/HF	
Gold, platinum, palladium, ceramic	Aqua regia	
Silver	HNO ₃	
Plastic	H ₂ SO ₄ , H ₂ O ₂ , HNO ₃ , HCI	
Others	Any acid to total digestion	



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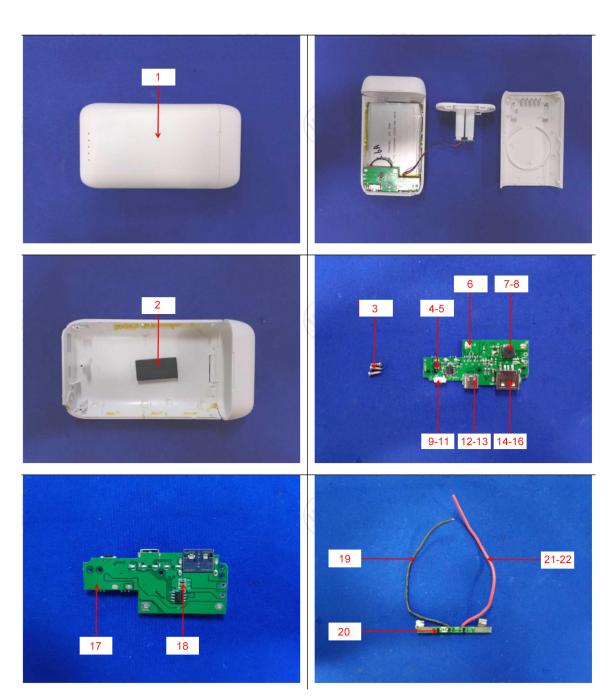
Appendix Photograph of Sample





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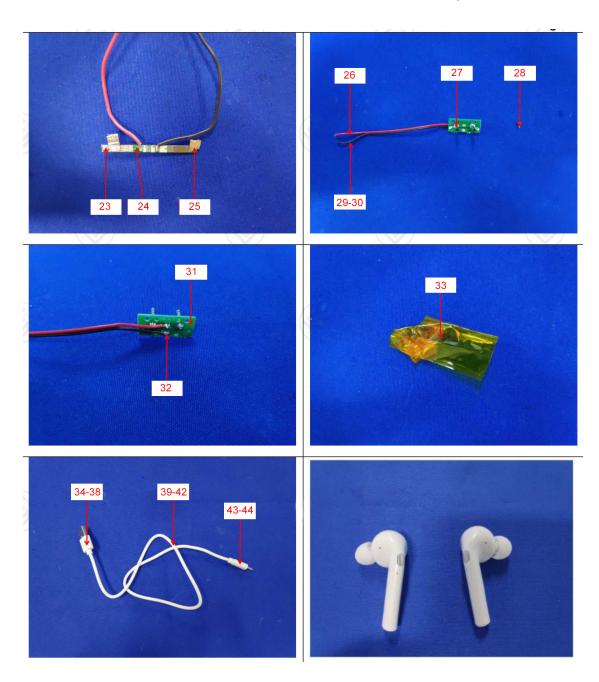
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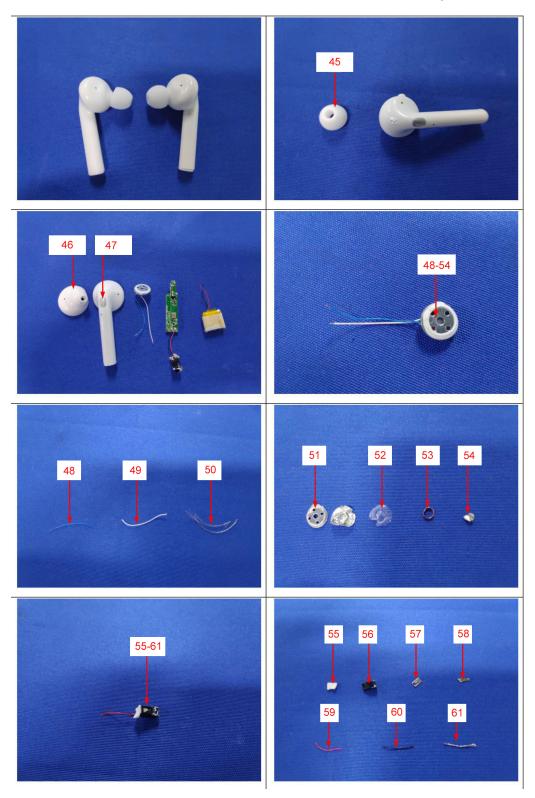
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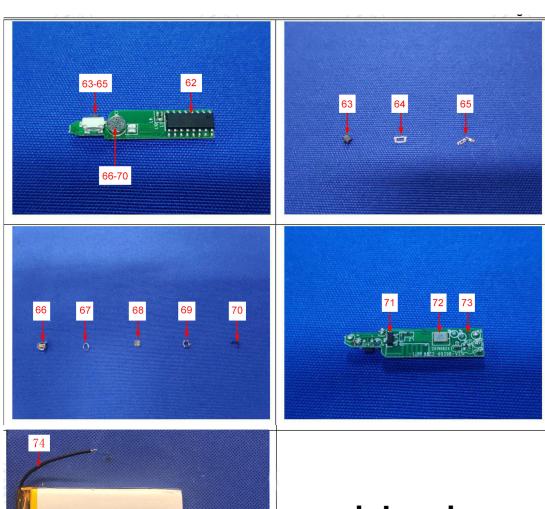
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******	End of Rep	ort *********
	Life of Itep	OIL

Statement:

- 1. The test report is considered invalidated without approval signature, special seal on the perforation.
- 2. The result(s) shown in this report refer only to the sample(s) tested.
- 3. Without written approval of LCS, this report can't be reproduced except in full.
- 4. The sample(s) and sample information was/were provided by the client who should be responsible for the authenticity which LCS hasn't verified.
- 5. In case of any discrepancy between the English version and Chinese version of the testing reports(if generated), the Chinese version shall prevail.

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