

Add: Unit F-G, Floor 23, Kechuang Building, Quanzhi Innovation Science and Technology Park, Shajing Town, Bao'an District, Shenzhen, Guangdong, China

Tel: (86)755-23353209

Internet: Http://www.LCS-cert.com

Report No.: LCS180913080AR

## **TEST REPORT**

Client	00m	nanu	
CHEIR	COIII	party	

Client address :

Manufacturer :

Address :

Report on the submitted samples said to be:

Sample Name

Wireless light up logo earbud

**Trade Mark** 

: N/A

Tested Item No.

XO-9613

Style Item No.

: N/A

Sample Receiving Date

September 13, 2018

**Testing Period** 

September 13, 2018 ~ October 09, 2018

Results

: Please refer to next page(s).

Summary of Test Results:

#### **TEST REQUEST**

According to the customer's request, based on the performed tests on submitted sample, the results of lead(Pb), mercury(Hg), cadmium(Cd), hexavalent chromium(Cr<sup>6+</sup>), polybrominated biphenyls(PBBs), polybrominated diphenyl(PBDEs) comply with the limits as set by EU RoHS Directive 2011/65/EU

Signed for and on behalf of LCS

Written By:

Linda Ning

Checked by:

Suez Su

Approved by:

Lily Dan Manager

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#### Results:

#### Test method:

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

#### 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)

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No.	Sample	Tested Item	XRF Screening results	Chemical test results (mg/kg)	Conclusion	Date of sample submission/re submission
		Lead (Pb)	BL	/		
	Black	Cadmium Content (Cd)	BL	/		
1	plastic	Mercury (Hg)	BL	/	PASS	2018-09-13
'	sheet	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	FAGG	2010-09-13
	Silect	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/		
2	Black	Mercury (Hg)	BL	/	PASS	2018-09-13
	plastic	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	FAGG	2010-09-13
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/		2018-09-13
3	Silver	Mercury (Hg)	BL	/	PASS	
3	magnet	et Hexavalent Chromium (Cra) BL /		2010-09-13		
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	Silver sheet metal	Cadmium Content (Cd)	BL	/		
4		Mercury (Hg)	BL	/	PASS	2018-09-13
4		Hexavalent Chromium (Cr <sup>6+</sup> )	romium (Cr <sup>ax</sup> )   BL   /		PASS	2010-09-13
	Illetai	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		2018-09-13
		Cadmium Content (Cd)	BL	/		
5	Gold metal	Mercury (Hg)	BL	/	PASS	
3	coil	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	White	Cadmium Content (Cd)	BL	/		
6	plastic	Mercury (Hg)	BL	/	PASS	2018-09-13
	sheet	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	17.00	2010 00 10
	011001	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	X	N.D	1	
		Cadmium Content (Cd)	BL	/		
7	Tin solder	Mercury (Hg)	BL	/	PASS	2018-09-13
<b>'</b>	1111 301401	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	1 7.00	2010 00 10
		PBBs	BL	/	1	
		PBDEs	BL	/		

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		Lead (Pb)	BL	/		
	Black	Cadmium Content (Cd)	BL	/		
8	plastic	Mercury (Hg)	BL	/	PASS	2018-09-13
0	sheet	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2010-09-13
	SHEEL	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	White	Cadmium Content (Cd)	BL	/		
9	cotton	Mercury (Hg)	BL	/	PASS	2018-09-13
9	thread	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2010-09-13
	uneau	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	Х	2		
10	Gold wire	Mercury (Hg)	Hg) BL /		PASS	2018-09-13
10	Gold wire	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2010-09-13
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/		
11	Red metal wire	Mercury (Hg)	BL	/	PASS	2018-09-13
''		\ /	BL	/	PASS	
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		2018-09-13
	Black	Cadmium Content (Cd)	BL	/		
12	plastic	Mercury (Hg)	BL	/	PASS	
12	sheet	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2010-09-13
	311661	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	White	Cadmium Content (Cd)	BL	/		
13		Mercury (Hg)	BL	/	PASS	2018-09-13
13	plastic sheet	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	FAGG	2010-09-13
	311661	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/	]	
14	Red plastic	Mercury (Hg)	BL	/	PASS	2018-09-13
14	lining	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	FASS	2010-09-13
		PBBs	BL	/	]	
		PBDEs	BL	/		

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No.	Sample	Tested Item	XRF Screening results	Chemical test results (mg/kg)	Conclusion	Date of sample submission/re submission
		Lead (Pb)	BL	/		
	Cold	Cadmium Content (Cd)	BL	/		
15	Gold	Mercury (Hg)	BL	/	DACC	2019 00 12
15	plastic sheet	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2018-09-13
	Sileet	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	\\/ b:4.a	Cadmium Content (Cd)	BL	/		
16	White	Mercury (Hg)	BL	/	DACC	2019 00 12
16	plastic	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2018-09-13
	sheet	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	Oil	Cadmium Content (Cd)	BL	/		2018-09-13
47	Silver	Mercury (Hg)	BL	/	DACC	
17	sheet	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	
	metal	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/		
40	Gold metal	Mercury (Hg)	BL	/	DAGO	2018-09-13
18	sheet	Hexavalent Chromium (C <sup>r6+</sup> )	BL	/	PASS	
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	Oil	Cadmium Content (Cd)	BL	/		
40	Silver	Mercury (Hg)	BL	/	DACC	0040 00 40
19	sheet metal	Hexavalent Chromium (Cr <sup>6+</sup> )	Х	Negative	PASS	2018-09-13
	IIIelai	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	X	N.D		
	Oil	Cadmium Content (Cd)	Х	N.D		
20	Silver	Mercury (Hg)	BL	/	DACC	2040 00 42
20	sheet	Hexavalent Chromium (Cr <sup>6+</sup> )	Х	Negative	PASS	2018-09-13
	metal	PBBs	BL	/	]	
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	Diest	Cadmium Content (Cd)	BL	/		
24	Black	Mercury (Hg)	BL	/	DACC	2010 00 12
21	carbon	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2018-09-13
	sheet	PBBs	BL	/	]	
		PBDEs	BL	/	1	

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		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/		
22	Black IC	Mercury (Hg)	BL	/	PASS	2018-09-13
	DIACK IC	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2010-09-13
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/		
23	Brown	Mercury (Hg)	BL	/	PASS	2018-09-13
23	resistor	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2016-09-13
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	Oil	Cadmium Content (Cd)	BL	/		2018-09-13
0.4	Silver	Mercury (Hg)	BL	/	DAGG	
24	sheet	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	
	metal	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	0.1	Cadmium Content (Cd)	Х	2		
0.5	Silver	Mercury (Hg)	BL	/	DAGO	2018-09-13
25	sheet	Hexavalent Chromium (C <sup>r6+</sup> ) BL		/	PASS	2018-09-13
	metal	PBBs	BL	/	1	
		PBDEs	BL	/		
		Lead (Pb)	BL	/		0040 00 40
	Disale	Cadmium Content (Cd)	BL	/		
200	Black	Mercury (Hg)	BL	/	DACC	
26	plastic sheet	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2018-09-13
	Sileet	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/		
27	Silver	Mercury (Hg)	BL	/	PASS	2019 00 12
21	needle	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2018-09-13
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/	]	
28	White LED	Mercury (Hg)	BL	/	PASS	2018-09-13
20	Willie LED	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	FASS	2010-09-13
		PBBs	BL	/		
		PBDEs	BL	/		

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		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	X	N.D		
29	Silver	Mercury (Hg)	BL	/	PASS	2018-09-13
29	needle	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	FAGG	2010-09-13
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	X	N.D		
		Cadmium Content (Cd)	BL	/		
30	Tin solder	Mercury (Hg)	BL	/	PASS	2018-09-13
30	Till Solder	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2010-09-13
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	Х	N.D		
		Cadmium Content (Cd)	BL	/		2018-09-13
31	Gold metal	Mercury (Hg)	BL	/	PASS	
31	shrapnel	Hexavalent Chromium (Cr <sup>6+</sup> )	Х	Negative	PASS	
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	Х	N.D		
32	Crystal	Mercury (Hg)	BL	/	PASS	2018-09-13
32	oscillator	Hexavalent Chromium (C <sup>r6+</sup> )	BL	/	PASS	
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/		
33	PCB board	Mercury (Hg)	BL	/	PASS	0040 00 40
33	PCB board	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2018-09-13
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/		
24	LEDlows	Mercury (Hg)	BL	/	DACC	2010 00 12
34	LED lamp	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2018-09-13
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/		
25	Black	Mercury (Hg)	BL	/	DACC	2010 00 12
35	plastic cord	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2018-09-13
		PBBs	BL	/		
		PBDEs	BL	/	]	

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		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/	1	
00	Red plastic	Mercury (Hg)	BL	/	D. 00	0040 00 40
36	lining	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2018-09-13
		PBBs	BL	/	1	
		PBDEs	BL	/	1	
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/		
07	Black	Mercury (Hg)	BL	/	DA 00	0040 00 40
37	plastic cord	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	2018-09-13
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/		2018-09-13
20	Cold wine	Mercury (Hg)	BL	/	DACC	
38	Gold wire	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	PASS	
		PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	Black	Cadmium Content (Cd)	BL	/		
39		Mercury (Hg)	BL	/	PASS	2018-09-13
39	plastic sheet	Hexavalent Chromium (C <sup>r6+</sup> )	BL	/	1 700	
	SHEEL	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	Silver	Cadmium Content (Cd)	BL	/		
40	sheet	Mercury (Hg)	BL	/	PASS	2018-09-13
40	metal	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	FAGG	2010-09-13
	metai	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	White	Cadmium Content (Cd)	BL	/		
41	plastic	Mercury (Hg)	BL	/	PASS	2018-09-13
41	sheet	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	FAGG	2010-09-13
	SHOOL	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	Golden	Cadmium Content (Cd)	BL	/		
42	metal	Mercury (Hg)	BL	/	PASS	2018-09-13
74	needle	Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/	1 700	2010-03-13
	1100010	PBBs	BL	/	]	
		PBDEs	BL	/		

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No.	Sample	Tested Item	XRF Screening results	Chemical test results (mg/kg)	Conclusion	Date of sample submission/re submission
		Lead (Pb)	BL	/		
	Silver	Cadmium Content (Cd)	BL	/		
43	sheet	Mercury (Hg)	BL	/	PASS	2018-09-13
43	metal	Hexavalent Chromium (Cr <sup>6+</sup> )	X	Negative	FAGG	2010-09-13
	metai	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
	Black plastic sheet	Cadmium Content (Cd)	BL	/	PASS	2018-09-13
44		Mercury (Hg)	BL	/		
44		Hexavalent Chromium (Cr <sup>6+</sup> )	BL	/		
	SHEEL	PBBs	BL	/		
		PBDEs	BL	/		
		Lead (Pb)	BL	/		
		Cadmium Content (Cd)	BL	/		
45	Silver	Mercury (Hg)	BL	/	PASS	2018-09-13
45	needle	Hexavalent Chromium (Cr <sup>6+</sup> )	Х	Negative	PASS	2010-09-13
		PBBs	BL	/	]	
		PBDEs	BL	/		

#### Note:

i 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 &lt;130+3σ≤OL</x 	BL≤70-3σ <x &lt;130+3σ≤OL</x 	BL≤50-3σ <x &lt;150+3σ≤OL</x 
Pb	mg/kg	BL≤700-3σ <x &lt;1300+3σ≤OL</x 	BL≤700-3σ <x &lt;1300+3σ≤OL</x 	BL≤500-3σ <x &lt;1500+3σ≤OL</x 
Hg	mg/kg	BL≤700-3σ <x &lt;1300+3σ≤OL</x 	BL≤700-3σ <x &lt;1300+3σ≤OL</x 	BL≤500-3σ <x &lt;1500+3σ≤OL</x 
Cr	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<>
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

The XRF screening test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.

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 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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#### Note:

- Negative = Absence of Cr(VI) on the tested areas
- MDL = Method Detection Limit
- N/A = Not apply
- /= Undetected
- mg/kg = ppm
- \*\* = Spot-test:

Negative = Absence of Cr(VI) coating/ surface layer, Positive = Presence of Cr(VI) coating/ surface layer; (The tested sample should be further verified by boiling-water-extraction method if the spot test result cannot be confirmed)

Boiling-water-extraction:

Negative = Absence of Cr(VI) coating/ surface layer, Positive = Presence of Cr(VI) coating/ surface layer; (The detected concentration in boiling- water-extraction solution is equal or greater than 0.02 mg/kg with  $50cm^2$  sample surface areas.)

- #=

Positive indicates the presence of Cr(VI) on the tested areas and result be regarded as conflict with RoHS requirement.

Negative indicates the absence of Cr(VI) on the tested areas and result be regarded as no conflict with RoHS requirement.

- #1 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in glass of cathode ray tubes, electronic components and fluorescent tubes.
- #2 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in electronic ceramic parts (e.g. piezoelectronic devices).
- #3 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted as an alloying element in Copper containing up to 4% (40000ppm) by weight.
- #4 According to RoHS directive 2011/65/EU and its amendments, Lead is exempted in high melting temperature type solders (i.e. lead-based alloys containing 85 % by weight or more lead).
- 45 According to the statement provided by the customer, according to RoHS directive 2011/65/EU and its amendments, Lead is exempted as an alloying element in Aluminum containing up to 0.4% (4000ppm) by weight.
- #6 According to the statement provided by the customer, according to RoHS directive 2011/65/EU and its amendments, Cadmium and its compounds in electrical contact is exempted.
- Flow chart appendix is included.

	Dhata	appendix	:~	امماريطمط
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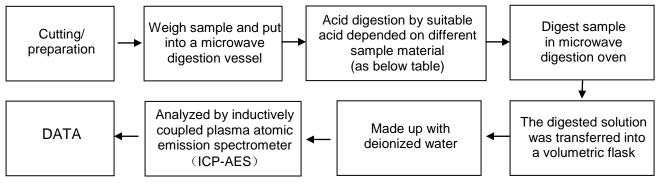
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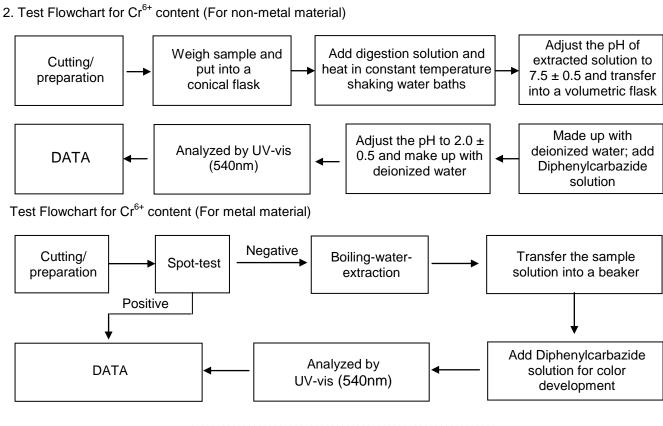
Report No.: LCS180913080AR

### **Appendix**I

#### **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.





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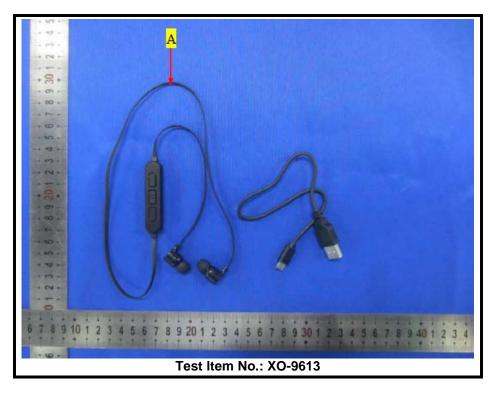


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#### 3. Test Flowchart for PBBs & PBDEs content Add organic solvent and Concentrated/ Cutting/ Weigh sample and extracted by Soxhlet method place in a thimble dilute extracted solution preparation /ultrasonic method Cool, cleanup solution Make up with organic Concentrated extracted Analyzed by GC-MS Data solvent solution

# **AppendixII**Photograph of Sample

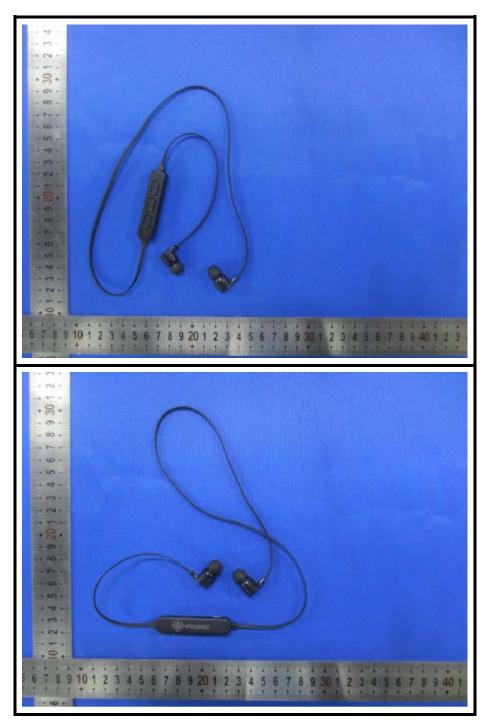


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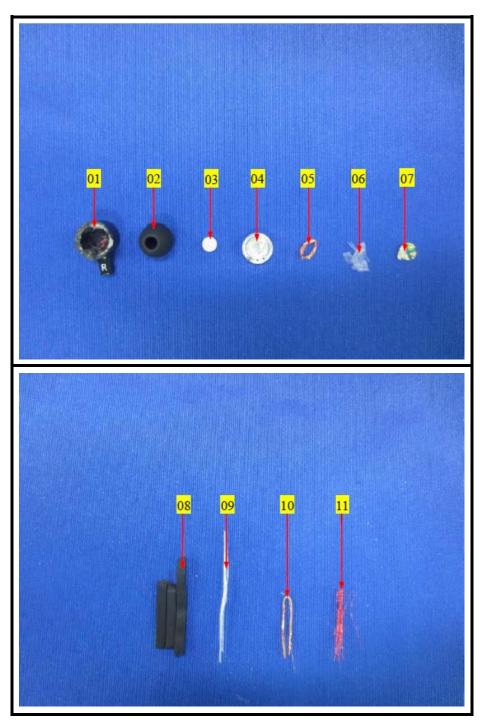


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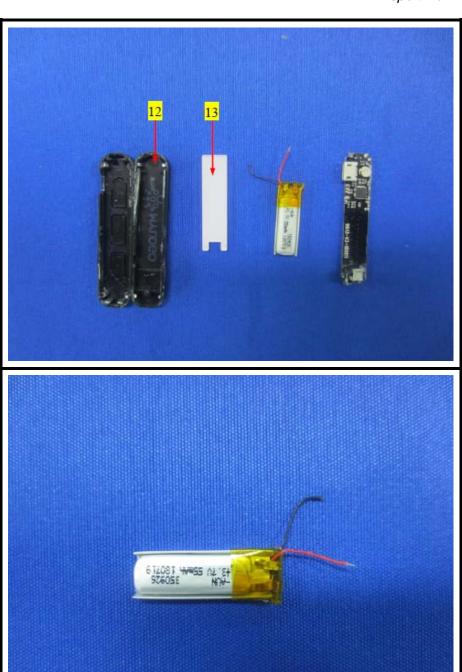


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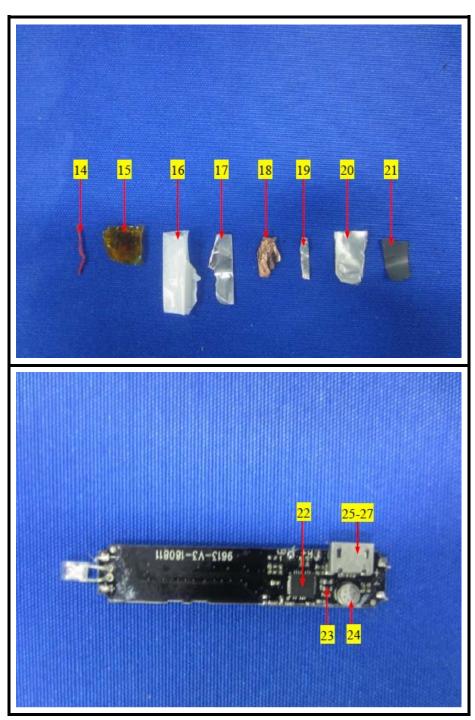


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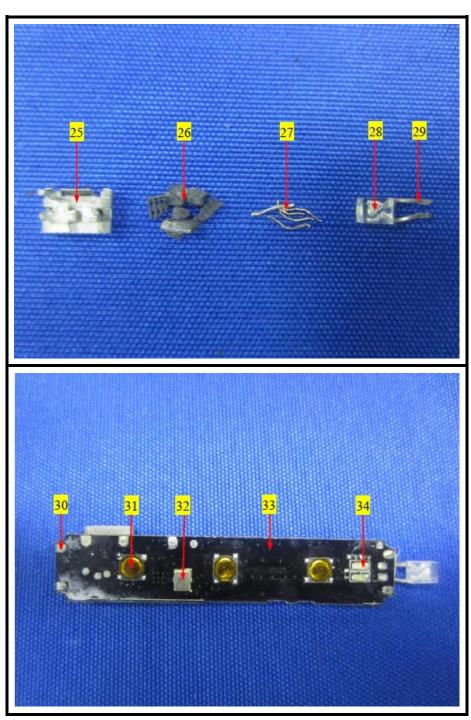


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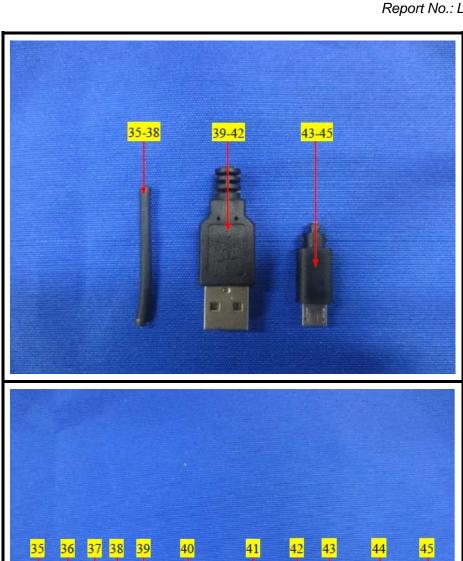


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