

TEST REPORT

Report No.:TBR-C-202404-0272-1

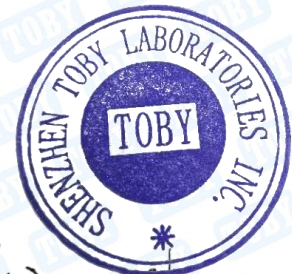
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Applicant Company : Shenzhen Leyifeng Technology Co.,Ltd
Address : 3/F.Buiding B,Xinzhongtai Science and Technology park,Gushuyi,
Xixiang,Bao'an District,Shenzhen,China
Manufacturer : Shenzhen Leyifeng Technology Co.,Ltd
Address : 3/F.Buiding B,Xinzhongtai Science and Technology park,Gushuyi,
Xixiang,Bao'an District,Shenzhen,China

Sample Information

Sample Name : Smart watch
Trade Mark : KarenBand
Basic Model No. : D8pro
Series Model No. : D8,D7,D9,D9pro,D11,D12,D77,D88,D69,D58
Sample Received Date : April 26, 2024
Testing Period : April 26, 2024~May 06, 2024
Date of issue : May 06, 2024
Results : Please refer to next page(s).

TEST REQUEST	CONCLUSION
As specified by client, based on the performed tests on submitted sample, the result of Lead(Pb), Cadmium(Cd), Mercury(Hg), Hexavalent Chromium(Cr(VI)), PBBs, PBDEs, Dibutyl Phthalate(DBP), Butylbenzyl Phthalate(BBP), Di-2-ethylhexyl Phthalate(DEHP) and Diisobutyl phthalate(DIBP) content comply with the limits set by RoHS Directive 2011/65/EU with amendment (EU) 2015/863.	Pass



Edited by:

Wick Wu

Approved by:

Kim Chan



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TEST RESULTS:

1. Screening test

Test method: With reference to IEC 62321-1:2013, IEC 62321-2:2021, IEC 62321-3-1:2013 and IEC 62321-8:2017. For Heavy Metals and Flame Retardants, analyzed by Energy Dispersive X-ray Fluorescence Spectrometer (XRF); for phthalates, analyzed by Gas Chromatography and Mass Spectrometer (GC-MS).

Sample No.	Sample Description	Heavy Metals and Flame Retardants					Phthalates			
		Cd	Pb	Hg	Cr ^v	Br ^v	DIBP	DBP	BBP	DEHP
1	Silver metal shell	BL	BL	BL	X	N/A	N/A	N/A	N/A	N/A
2	Black rubber shell	BL	BL	BL	BL	BL	BL	BL	BL	BL
3	Smoke black plastic shell	BL	BL	BL	BL	BL	BL	BL	BL	BL
4	Black LCD screen	BL	BL	BL	BL	BL	BL	BL	BL	BL
5	Black metal shell	BL	BL	BL	X	N/A	N/A	N/A	N/A	N/A
6	Black plastic shell	BL	BL	BL	BL	BL	BL	BL	BL	BL
7	Black plastic sheet	BL	BL	BL	BL	BL	BL	BL	BL	BL
8	Black plastic shell	BL	BL	BL	BL	BL	BL	BL	BL	BL
9	Silver plastic shell	BL	BL	BL	BL	BL	BL	BL	BL	BL
10	Transparent double-sided adhesive	BL	BL	BL	BL	BL	BL	BL	BL	BL
11	Red wire skin	BL	BL	BL	BL	BL	BL	BL	BL	BL
12	White wire skin	BL	BL	BL	BL	BL	BL	BL	BL	BL
13	Black wire skin	BL	BL	BL	BL	BL	BL	BL	BL	BL
14	Blue wire skin	BL	BL	BL	BL	BL	BL	BL	BL	BL
15	Brown wire skin	BL	BL	BL	BL	BL	BL	BL	BL	BL
16	White double-sided adhesive	BL	BL	BL	BL	BL	BL	BL	BL	BL
17	Black wire skin	BL	BL	BL	BL	BL	BL	BL	BL	BL
18	Red wire skin	BL	BL	BL	BL	BL	BL	BL	BL	BL
19	Black wire skin	BL	BL	BL	BL	BL	BL	BL	BL	BL
20	Red wire skin	BL	BL	BL	BL	BL	BL	BL	BL	BL
21	Yellow tape	BL	BL	BL	BL	BL	BL	BL	BL	BL
22	Green PCB board	BL	BL	BL	BL	X	BL	BL	BL	BL
23	Silver solder	BL	BL	BL	BL	N/A	N/A	N/A	N/A	N/A
24	Black plastic shell	BL	BL	BL	BL	BL	BL	BL	BL	BL



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Sample No.	Sample Description	Heavy Metals and Flame Retardants					Phthalates			
		Cd	Pb	Hg	Cr▼	Br▼	DIBP	DBP	BBP	DEHP
25	Black wire skin	BL	BL	BL	BL	BL	BL	BL	BL	BL

NOTE :

- "BL" denotes below limit
- "OL" denotes over limit
- "X" denotes inconclusive
- "NA" denotes not applicable

Remark :

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(Unit: mg/kg).

Element	Polymers	Metals	Composite material
Cd	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < X < (130+3\sigma) \leq OL$	$LOD < X < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < X < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < X < (1500+3\sigma) \leq OL$
Cr	$BL \leq (700-3\sigma) < X$	$BL \leq (700-3\sigma) < X$	$BL \leq (500-3\sigma) < X$
Br	$BL \leq (300-3\sigma) < X$	/	$BL \leq (250-3\sigma) < X$

- 3σ = The reproducibility of analytical instruments
- "/" = Not applicable
- LOD = Detection limit

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 RoHS Directive 2011/65/EU with amendment (EU) 2015/863.
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.
5. Screening results of phthalates are for primary screening, and further chemical testing by GC-MS (for



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DBP, BBP,DEHP and DIBP) are recommended to be performed if the concentration exceeds the below warning value(Unit: mg/kg).

Test item	Screening limit
Di-2-ethylhexyl phthalate(DEHP)	BL≤600<X
Dibutyl phthalate(DBP)	BL≤600<X
Benzylbutyl phthalate(BBP)	BL≤600<X
Diisobutyl phthalate(DIBP)	BL≤600<X

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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2. Chemical test.

Test method:

Lead(Pb) & Cadmium(Cd) 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(Hg) 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(Cr(VI)) 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)

1) The test results of Hexavalent Chromium(Cr(VI))(for metal)

Tested Items	Unit	MDL	Results		Limit
			(1)	(5)	
Hexavalent Chromium(Cr(VI)) Content★	µg/cm ²	0.10 (LOQ)	Negative	Negative	0.13

2) The test results of PBBs & PBDEs

Tested Items	Unit	MDL	Results	Limit
			(22)	
Polybrominated Biphenyls(PBBs) Content				
Monobromobiphenyl	mg/kg	50	N.D.	/
Dibromobiphenyl	mg/kg	50	N.D.	/



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Tribromobiphenyl	mg/kg	50	N.D.	/
Tetrabromobiphenyl	mg/kg	50	N.D.	/
Pentabromobiphenyl	mg/kg	50	N.D.	/
Hexabromobiphenyl	mg/kg	50	N.D.	/
Heptabromobiphenyl	mg/kg	50	N.D.	/
Octabromobiphenyl	mg/kg	50	N.D.	/
Nonabromodiphenyl	mg/kg	50	N.D.	/
Decabromodiphenyl	mg/kg	50	N.D.	/
Total content	mg/kg	/	N.D.	1000
Polybrominated Diphenylethers(PBDEs) Content				
Monobromodiphenyl ether	mg/kg	50	N.D.	/
Dibromodiphenyl ether	mg/kg	50	N.D.	/
Tribromodiphenyl ether	mg/kg	50	N.D.	/
Tetrabromodiphenyl ether	mg/kg	50	N.D.	/
Pentabromodiphenyl ether	mg/kg	50	N.D.	/
Hexabromodiphenyl ether	mg/kg	50	N.D.	/
Heptabromodiphenyl ether	mg/kg	50	N.D.	/
Octabromodiphenyl ether	mg/kg	50	N.D.	/
Nonabromodiphenyl ether	mg/kg	50	N.D.	/
Decabromodiphenyl ether	mg/kg	50	N.D.	/
Total content	mg/kg	/	N.D.	1000

Remark :

- MDL = Method Detection Limit
- “-“ = Not Regulated
- N.D.=Not Detected(<MDL or LOQ)
- mg/kg = ppm=parts per million
- LOQ = Limit of Quantification, The LOQ of Hexavalent chromium is 0.10 $\mu\text{g}/\text{cm}^2$
- ★ = a. The sample is positive for Cr(VI) if the Cr(VI) concentration is greater than 0.13 $\mu\text{g}/\text{cm}^2$. The sample coating is considered to contain Cr(VI).
 b. The sample is negative for Cr(VI) if Cr(VI) is N.D.(concentration less than 0.10 $\mu\text{g}/\text{cm}^2$). The sample coating is considered a non- Cr(VI) based coating.
 c. The result between 0.10 $\mu\text{g}/\text{cm}^2$ and 0.13 $\mu\text{g}/\text{cm}^2$ is considered to be inconclusive, unavoidable



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coating variations may influence the determination.

- Information on storage conditions and production date of the tested samples is unavailable and thus Cr(VI) results represent status of the sample at the time of testing.
- #1 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.
- #2 According to RoHS Directive 2011/65/EU and its amendments, Lead is exempted in glass of cathode ray tubes, electronic components and fluorescent tubes.
- #3 According to RoHS Directive 2011/65/EU and its amendments, Lead is exempted in electronic ceramic parts (e.g. piezoelectronic devices).
- #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).
- #5 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 RoHS Directive 2011/65/EU and its amendments, Cadmium and its compounds in electrical contact are exempted.
- #7 According to RoHS Directive 2011/65/EU and its amendments, Lead is exempted in steel for machining purposes and in galvanised steel containing up to 0.35% (3500ppm) by weight.

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
Dibutyl Phthalate(DBP)	1000
Butylbenzyl Phthalate(BBP)	1000
Di-(2-ethylhexyl) Phthalate(DEHP)	1000
Diisobutyl phthalate(DIBP)	1000



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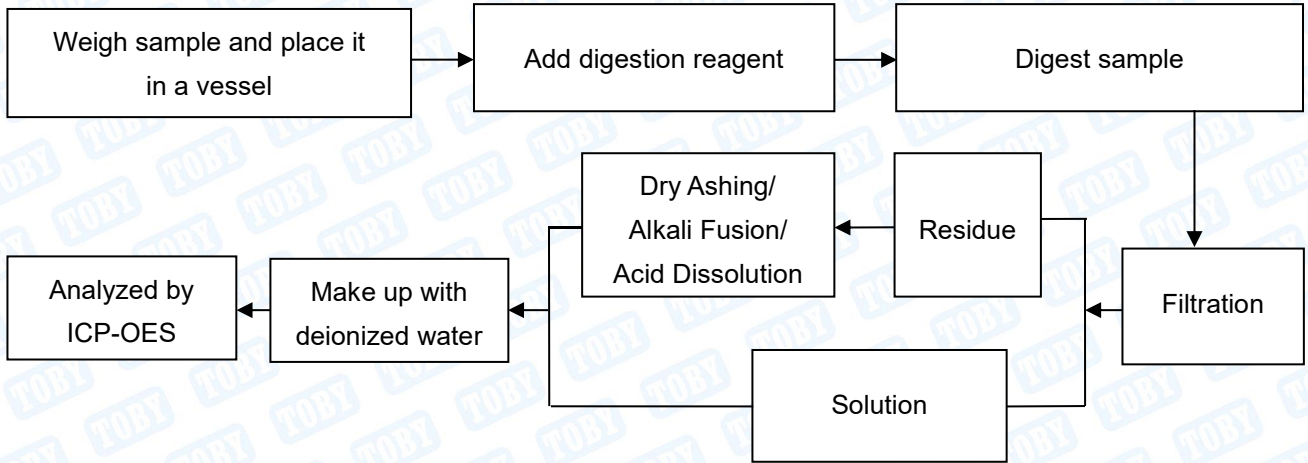
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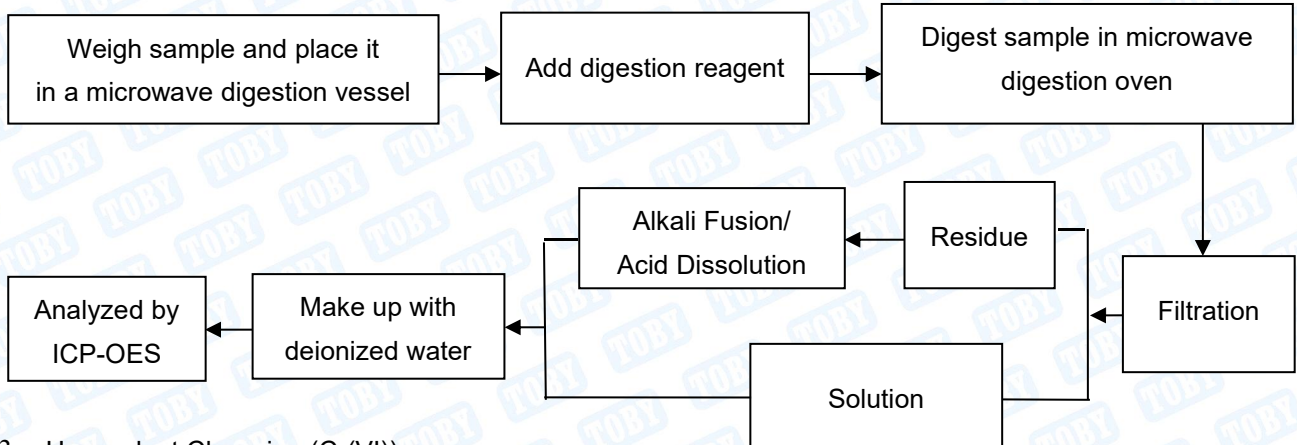
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Test Process

1. Lead(Pb) & Cadmium(Cd): IEC 62321-5:2014

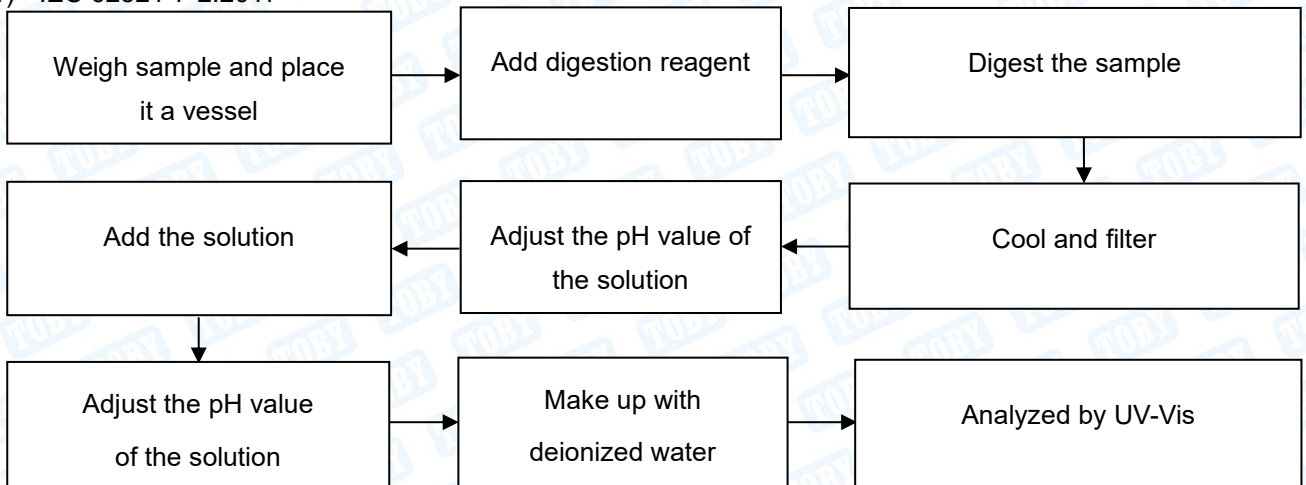


2. Mercury(Hg): IEC 62321-4:2014+A1:2017



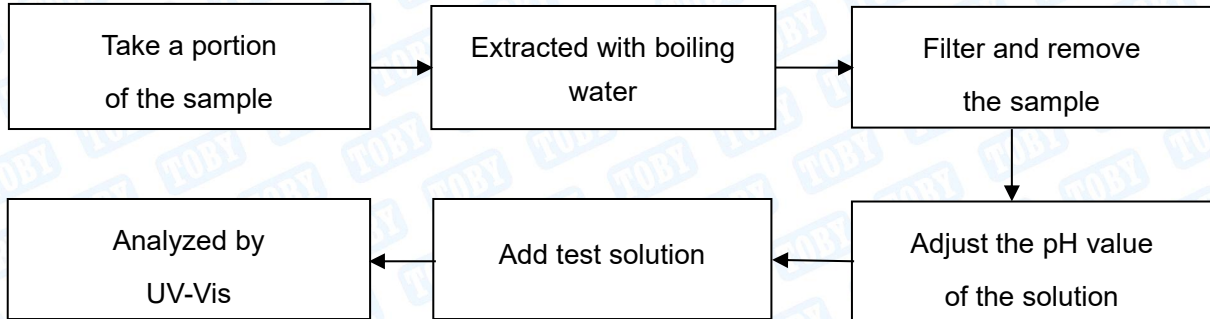
3. Hexavalent Chromium(Cr(VI))

1) IEC 62321-7-2:2017

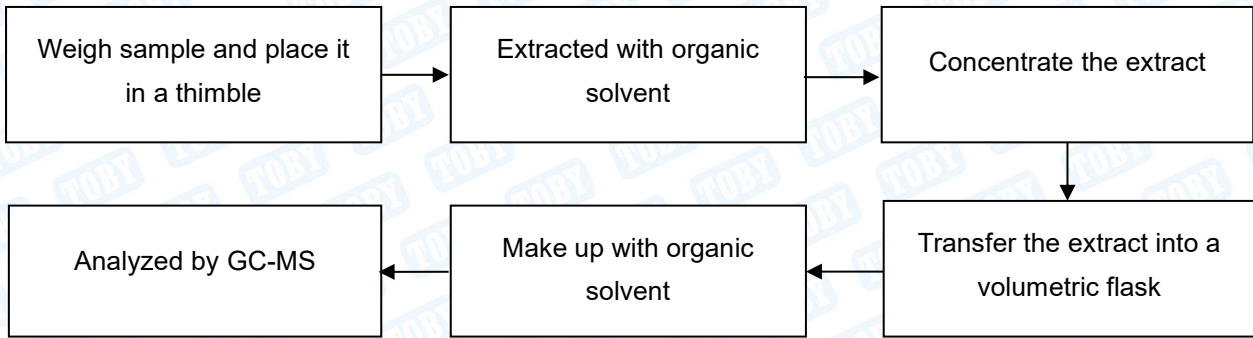


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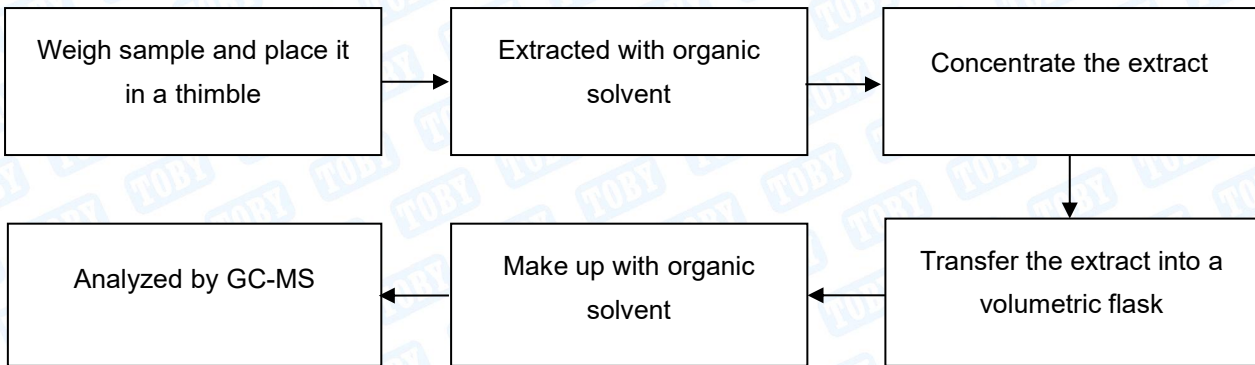
2) IEC 62321-7-1:2015



4. Polybrominated Biphenyls(PBBs) & Polybrominated Diphenyl Ethers(PBDEs) : IEC 62321-6:2015



5. Phthalates(DBP, BBP, DEHP & DIBP) : IEC 62321-8:2017

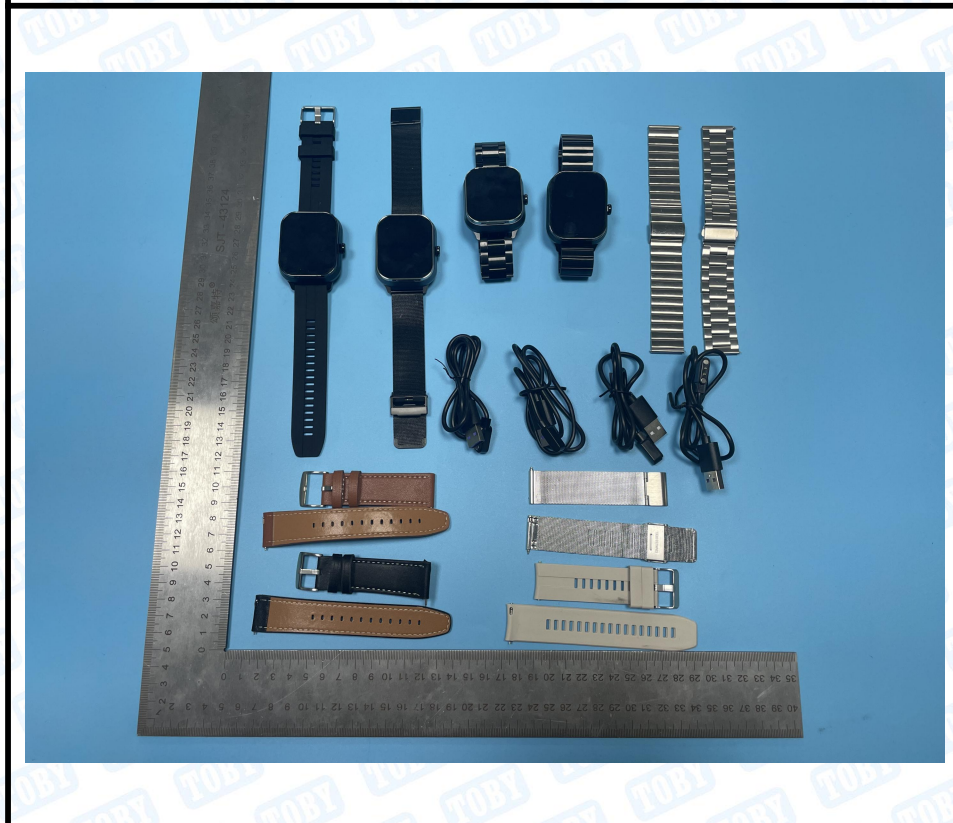


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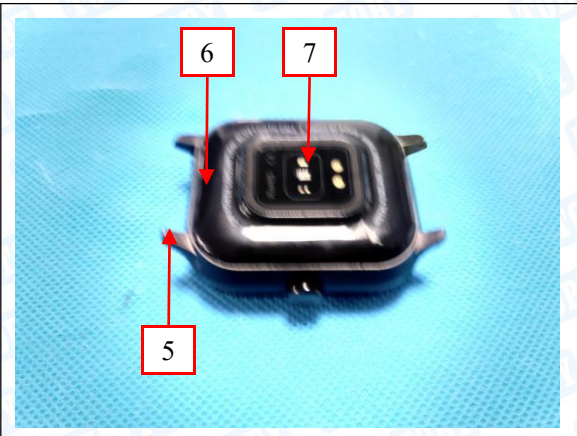
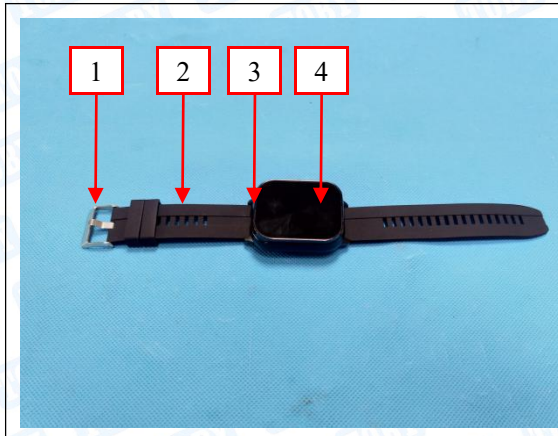
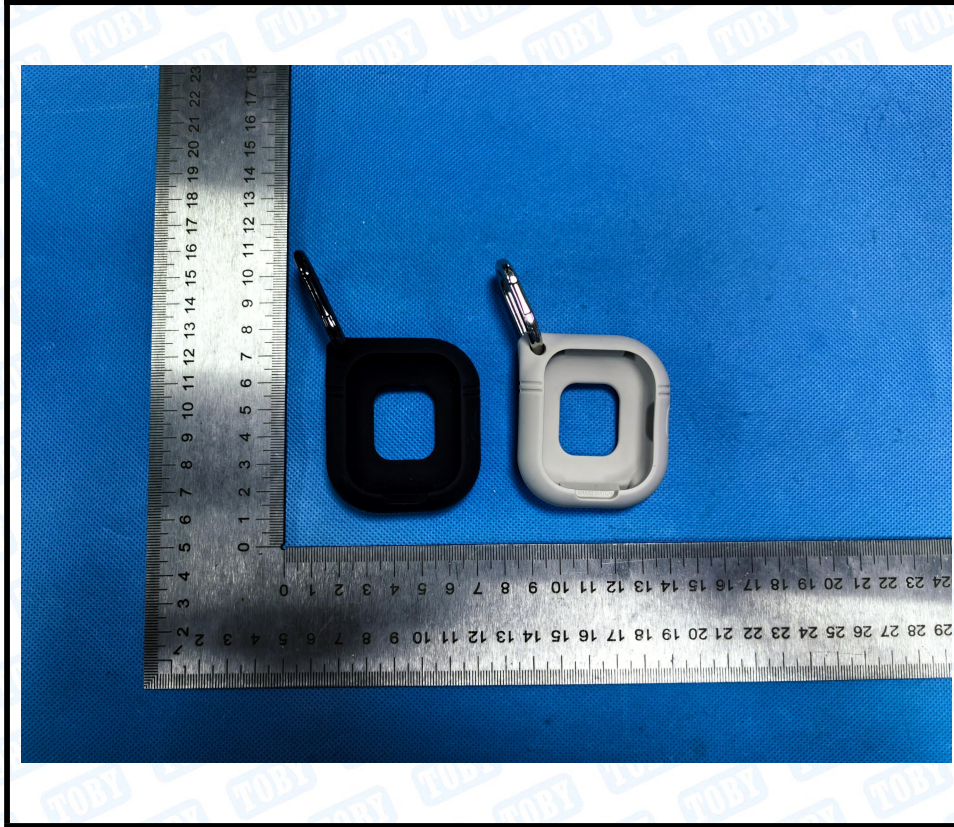
Sample Photo(s)



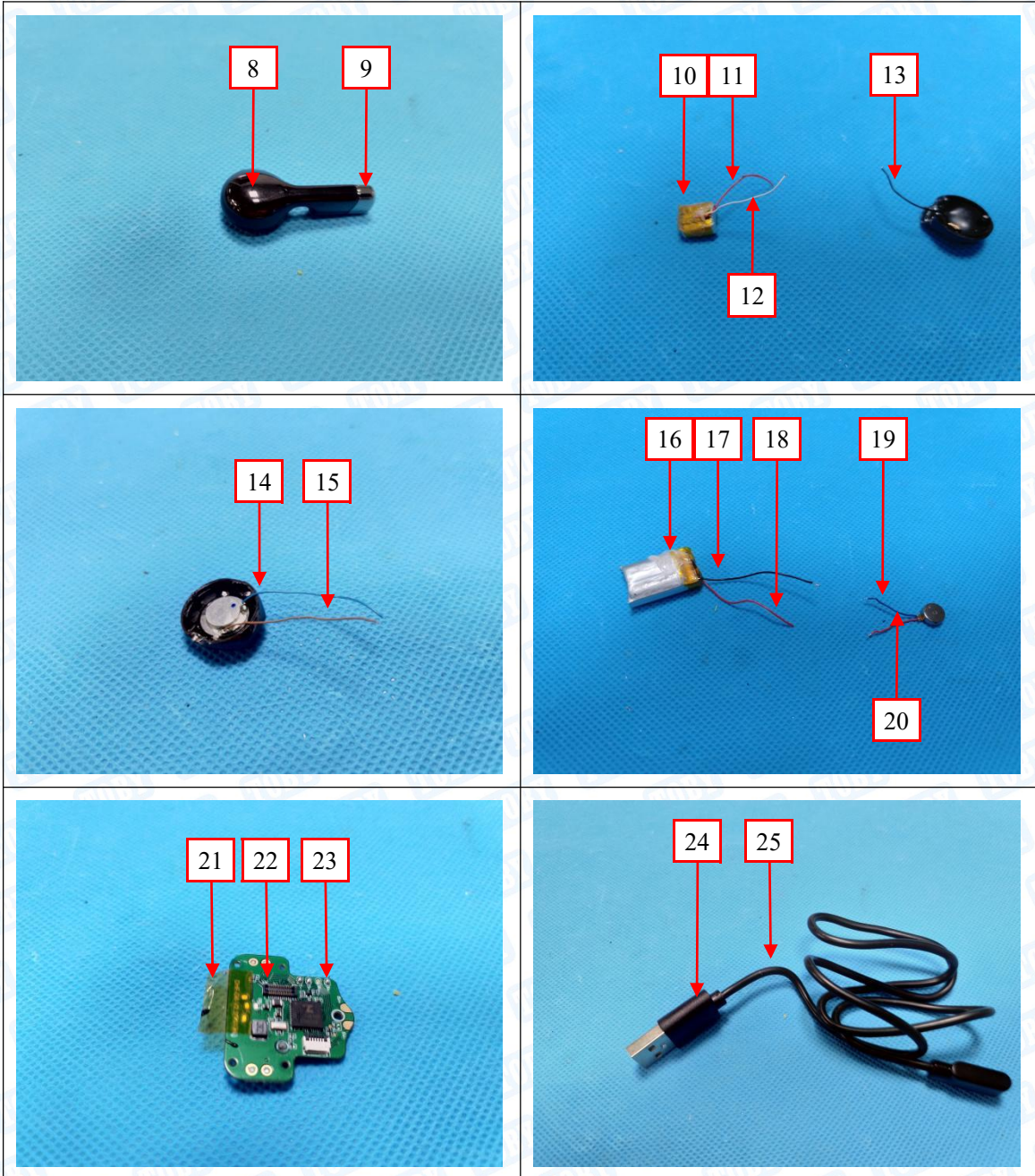
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Statement:

1. The information as listed on the first page of this test report was all provided by the client except the sample from, date received, test period, test results and conclusion. The client shall be responsible for the representativeness of sample and authenticity of materials, for which TOBY shall bear no responsibilities.
2. This test data is only responsible for the tested sample. The judgment method of determining the conformity in this test report is according to the measured value without considering the risk caused by uncertainty, unless otherwise clearly stipulated in special agreement, standard or specification. The client

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shall assume the risk caused by the judgment method, and TOBY shall not bear related responsibilities.

3. The test report is effective only with both signature and specialized stamp. Without written approval of TOBY, this report can't be reproduced in full or in part.
4. The result(s) in no CMA logo report shall only be used for client's scientific research,teaching,internal quality control,product research and development,etc..and just for internal reference.
5. The marked with special symbols in CNAS logo report means that the test item(s) was(were) currently not applying for CNAS accreditation.

***** END OF REPORT *****



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