



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No...... : WTF24F09223009C
Applicant..... : Mid Ocean Brands B.V.
Address..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha
Wan, Kowloon, Hong Kong
Manufacturer : 115205
Sample Name : Wireless headphone
Sample Model..... : MO2419
Test Requested : Refer to next page (s)
Test Method..... : Refer to next page (s)
Test Conclusion : Refer to next page (s)
Date of Receipt sample : 2024-09-24
Testing period : 2024-09-24 to 2024-10-08
Date of Issue..... : 2024-10-08
Test Result..... : Refer to next page (s)

Prepared By:

Waltek Testing Group (Foshan) Co., Ltd.

Address: No.13-19, 2/F., 2nd Building, Sunlink Machinery City, Xingye 4 Road, Guanglong Industrial
Park, Chihua Neighborhood Committee, Chencun Town, Shunde District, Foshan, Guangdong, China
Tel:+86-757-23811398 Fax:+86-757-23811381 E-mail:info@waltek.com.cn

Signed for and on behalf of
Waltek Testing Group (Foshan) Co., Ltd.

Swing Liang

Swing.Liang



WTF24F09223009C



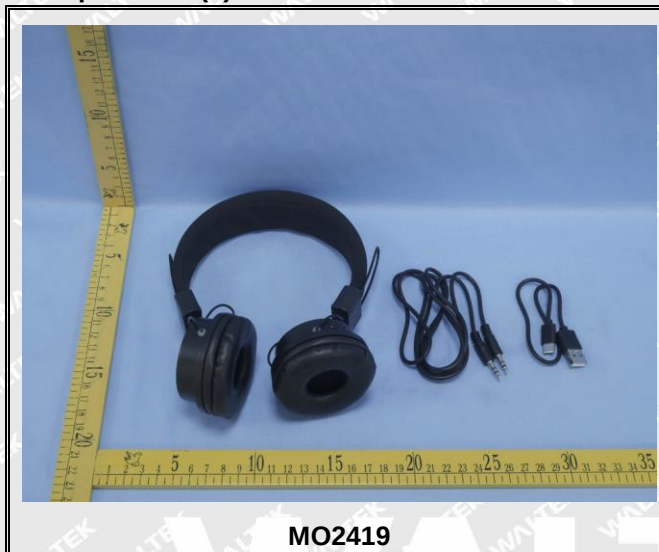
Report No.: WTF24F09223009C

Job No.: FSW2409240789CJ

Summary:

Test Requested	Test Conclusion
In accordance with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863, to determine the 10 restricted substances content in the submitted sample.	Pass (Please refer to next pages for details)

Sample Photo(s):



**Test Results:****1. Lead, Cadmium, Mercury, Hexavalent Chromium, PBBs and PBDEs**

Test method:

- 1) With reference to IEC 62321-2:2021, disassembly, disjunction and mechanical sample preparation
- 2) With reference to IEC 62321-3-1:2013, screening –Lead, cadmium, mercury, total chromium and total bromine by X-ray fluorescence spectrometry
- 3) With reference to IEC 62321-4:2013+AMD1:2017 CSV, determination of Mercury by ICP-OES
- 4) With reference to IEC 62321-5:2013, determination of Lead and Cadmium by ICP-OES
- 5) With reference to IEC 62321-7-2: 2017 and IEC 62321-7-1: 2015, determination of Hexavalent Chromium by UV-Vis
- 6) With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS

Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
1	Silvery metal bracket with black surfaced	BL	BL	BL	BL	--	NA
2	Black plastic shell	BL	BL	BL	BL	BL	NA
3	Black fabric sheet	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
4	Black plastic buckle	BL	BL	BL	BL	BL	NA
5	Semi-transparent plastic stopper	BL	BL	BL	BL	BL	NA
6	Black synthetic leather	BL	BL	BL	BL	BL	NA
7	White plastic sheet with silvery plating	BL	BL	BL	BL	BL	NA
8	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
9	Transparent plastic sheet	BL	BL	BL	BL	BL	NA
10	White sponge with adhesive	BL	BL	BL	BL	BL	NA
11	Black fibrous wire jacket	BL	BL	BL	BL	BL	NA
12	White plastic wire jacket	BL	BL	BL	BL	BL	NA
13	Red varnished wire	BL	BL	BL	BL	BL	NA
14	Copperty varnished wire	BL	BL	BL	BL	BL	NA
15	White fibrous wire	BL	BL	BL	BL	BL	NA



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
16	Black fabric sheet	BL	BL	BL	BL	BL	NA
17	Black plastic base	BL	BL	BL	BL	BL	NA
18	Grey magnetic block	BL	BL	BL	BL	--	NA
19	Transparent plastic film	BL	BL	BL	BL	BL	NA
20	Coppery varnished wire	BL	BL	BL	BL	BL	NA
21	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
22	Green varnished wire	BL	BL	BL	BL	BL	NA
23	Solder	BL	IN	BL	BL	--	Pb :124
24	Silvery metal base	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
25	Black dry glue	BL	BL	BL	BL	BL	NA
26	Yellow PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
27	Silvery metal shell (socket)	BL	BL	BL	BL	--	NA
28	Grey plastic core (socket)	BL	BL	BL	BL	BL	NA
29	Silvery metal pin (socket)	BL	BL	BL	BL	--	NA
30	Chip microphone	BL	BL	BL	BL	BL	NA
31	Black plastic shell (socket)	BL	BL	BL	BL	BL	NA
32	Silvery metal pin (socket)	BL	BL	BL	BL	--	NA
33	Black plastic cap (button)	BL	BL	BL	BL	BL	NA
34	Off-white plastic base (button)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
35	Silvery metal sheet (button)	BL	BL	BL	BL	--	NA



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
36	Chip IC	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
37	Silvery crystal oscillator	BL	BL	BL	BL	BL	NA
38	Black plastic base	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
39	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
40	Chip resistor	BL	BL	BL	BL	BL	NA
41	Chip LED	BL	BL	BL	BL	BL	NA
42	Chip resistor	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
43	Chip capacitor	BL	BL	BL	BL	BL	NA
44	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
45	Chip IC	BL	BL	BL	BL	BL	NA
46	Chip resistor	BL	IN	BL	BL	BL	Pb :414
47	Chip capacitor	BL	BL	BL	BL	BL	NA
48	Silvery metal sheet	BL	BL	BL	BL	--	NA
49	Yellow plastic wire covering	BL	BL	BL	BL	BL	NA
50	Yellow transparent plastic adhesive tape with black printing	BL	BL	BL	BL	BL	NA
51	Black sponge double faced adhesive tape	BL	BL	BL	BL	BL	NA
52	Black plastic jacket(USB plug)	BL	BL	BL	BL	BL	NA
53	Silvery metal shell (USB plug)	BL	BL	BL	BL	--	NA
54	White plastic sheet(USB plug)	BL	BL	BL	BL	BL	NA
55	Silvery metal pin (USB plug)	BL	BL	BL	BL	--	NA



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
56	Solder (USB plug)	BL	BL	BL	BL	--	NA
57	Black plastic jacket (Type-C plug)	BL	BL	BL	BL	BL	NA
58	Silvery metal shell (Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
59	Grey plastic core (Type-C plug)	BL	BL	BL	BL	BL	NA
60	Silvery-golden metal pin (Type-C plug)	BL	BL	BL	BL	--	NA
61	Chip resistor (Type-C plug)	BL	IN	BL	BL	BL	Pb :539
62	Green PCB (Type-C plug)	BL	BL	BL	BL	BL	NA
63	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
64	Black plastic wire covering	BL	BL	BL	BL	BL	NA
65	Red plastic wire covering	BL	BL	BL	BL	BL	NA
66	White plastic wire covering	BL	BL	BL	BL	BL	NA
67	Coppery metal wire	BL	BL	BL	BL	--	NA
68	Black plastic jacket (plug)	BL	BL	BL	BL	BL	NA
69	Silvery metal shell (plug)	BL	BL	BL	BL	--	NA
70	Black plastic core (plug)	BL	BL	BL	BL	BL	NA
71	Solder (plug)	BL	BL	BL	BL	--	NA
72	Silvery metal screw with black plating	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
73	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative

**Remark:**

- (1) Results are obtained by XRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr⁶⁺) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1: 2013 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	$BL \leq (70-3\sigma) < IN < (130+3\sigma) \leq OL$	$BL \leq (70-3\sigma) < IN < (130+3\sigma) \leq OL$	$LOD < IN < (150+3\sigma) \leq OL$
Pb	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < IN < (1500+3\sigma) \leq OL$
Hg	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (700-3\sigma) < IN < (1300+3\sigma) \leq OL$	$BL \leq (500-3\sigma) < IN < (1500+3\sigma) \leq OL$
Cr	$BL \leq (700-3\sigma) < IN$	$BL \leq (700-3\sigma) < IN$	$BL \leq (500-3\sigma) < IN$
Br	$BL \leq (300-3\sigma) < IN$	--	$BL \leq (250-3\sigma) < IN$

BL= Below Limit

OL= Over Limit

LOD = Limit of Detection

-- = Not Regulated

- (2) "IN" expresses the inconclusive region, and further chemical testing to confirm whether it complies with the requirement of RoHS Directive.
- (3) The XRF screening test for RoHS elements – the reading may be different to the actual content in the sample be of non-uniformity composition.
- (4) mg / kg =milligram per kilogram=ppm, $\mu\text{g}/\text{cm}^2$ = Micrograms per square centimetre.
- (5) ND = Not Detected or lower than limit of quantitation.
- (6) NA = Not Applicable, as the XRF screening test result was below the limit or as the XRF screening directly determine that test result was over the limit, it was not need to conduct the wet chemical testing.
- (7) LOQ = Limit of quantitation.

Test Items	Pb	Cd	Hg	Cr ⁶⁺		PBB	PBDE
Units	mg/kg	mg/kg	mg/kg	mg/kg	$\mu\text{g}/\text{cm}^2$	mg/kg	mg/kg
LOQ	2	2	2	8	0.1	5	5

The LOQ for single compound of PBBs and PBDEs is 5 mg/kg, LOQ of Cr⁶⁺ for polymer and composite sample is 8 mg/kg and LOQ of Cr⁶⁺ for metal sample is 0.1 $\mu\text{g}/\text{cm}^2$.

- (8) RoHS Requirement

Restricted Substances	Limits
Cadmium (Cd)	0.01% (100 mg/kg)
Lead (Pb)	0.1% (1000 mg/kg)
Mercury (Hg)	0.1% (1000 mg/kg)
Chromium (VI) (Cr ⁶⁺)	0.1% (1000 mg/kg)
Polybrominated Biphenyls (PBBs)	0.1% (1000 mg/kg)
Polybrominated Diphenyl Ethers (PBDEs)	0.1% (1000 mg/kg)



Report No.: WTF24F09223009C

Job No.: FSW2409240789CJ

- (9) According to IEC 62321-7-1:2015, determined of Cr^{6+} on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.

Boiling water extraction:

Negative = Absence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is less than $0.10 \mu\text{g}/\text{cm}^2$.

Positive = Presence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is greater than $0.13 \mu\text{g}/\text{cm}^2$.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr^{6+} results represent status of the sample at the time of testing.

- (10) Abbreviation:

"Pb" denotes Lead, "Cd" denotes Cadmium, "Hg" denotes Mercury, "Cr" denotes Chromium, "Cr (VI)" denotes Hexavalent Chromium, "Br" denotes Bromine, "PBBs" denotes Total Polybrominated Biphenyls, "PBDEs" denotes Total Polybrominated Diphenyl Ethers.

2. Phthalates:

Test method:

With reference to IEC 62321-8:2017, determination of Phthalates content by GC-MS.

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T01	1	--	--	--	--
T02	2+4+5+7+9 [△]	ND	ND	ND	ND
T03	3+6+10 [△]	128	ND	ND	ND
T04	8	--	--	--	--
T05	11+12+15 [△]	ND	ND	ND	ND
T06	13+14+20+22 [△]	ND	ND	ND	ND
T07	16+21+25 [△]	ND	ND	ND	ND
T08	17+28+31+33+34 [△]	ND	ND	ND	ND
T09	18	--	--	--	--
T10	19+49+50 [△]	165	ND	ND	ND
T11	23	--	--	--	--
T12	24	--	--	--	--
T13	26+39+44 [△]	ND	ND	ND	ND
T14	27	--	--	--	--
T15	29	--	--	--	--
T16	30+36+37+40+41 [△]	ND	ND	ND	ND
T17	32	--	--	--	--
T18	35	--	--	--	--
T19	38+54+59+70 [△]	ND	ND	ND	ND
T20	42+43+45+46+47 [△]	ND	ND	ND	ND
T21	48	--	--	--	--
T22	51+52+57 [△]	119	ND	ND	ND
T23	53	--	--	--	--
T24	55	--	--	--	--
T25	56	--	--	--	--
T26	58	--	--	--	--
T27	60	--	--	--	--



Report No.: WTF24F09223009C

Job No.: FSW2409240789CJ

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T28	61	ND	ND	ND	ND
T29	62	ND	ND	ND	ND
T30	63+64+65 [△]	ND	ND	ND	ND
T31	66+68 [△]	ND	ND	ND	ND
T32	67	--	--	--	--
T33	69	--	--	--	--
T34	71	--	--	--	--
T35	72	--	--	--	--
T36	73	--	--	--	--

Note:

- (1) mg/kg = milligram per kilogram= ppm
- (2) ND = Not Detected or lower than limit of quantitation.
- (3) -- = Not Regulated.
- (4) LOQ = Limit of quantitation.

Test Items	DBP	BBP	DEHP	DIBP
Units	mg/kg	mg/kg	mg/kg	mg/kg
LOQ	50	50	50	50

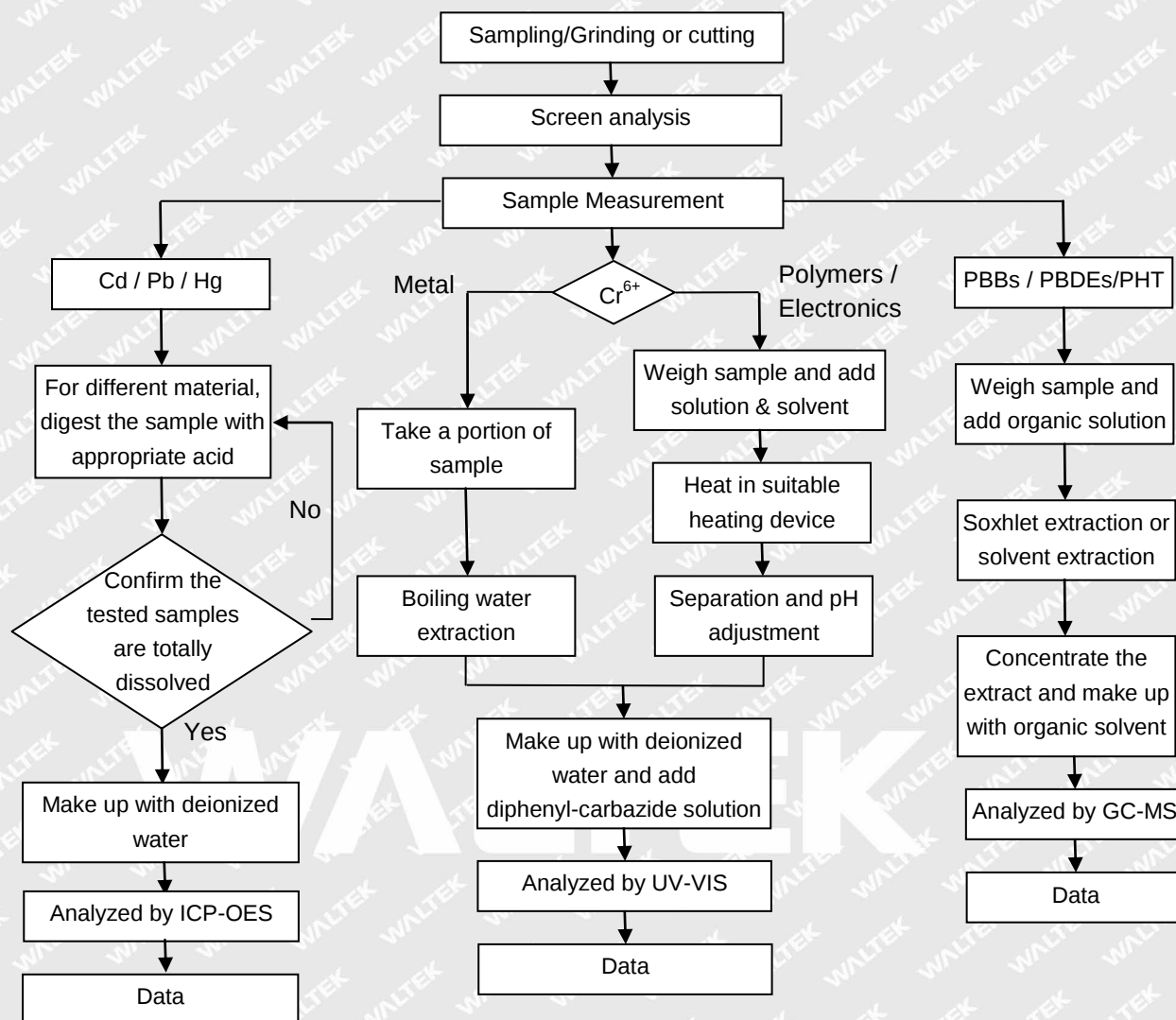
- (5) Abbreviation:

“DBP” denotes Dibutyl phthalate, “BBP” denotes Benzyl butyl phthalate (BBP), “DEHP” denotes Bis(2-ethylhexyl)-phthalate, “DIBP” denotes Diisobutyl phthalate, “PHT” denotes Phthalates.

- (6) RoHS requirement

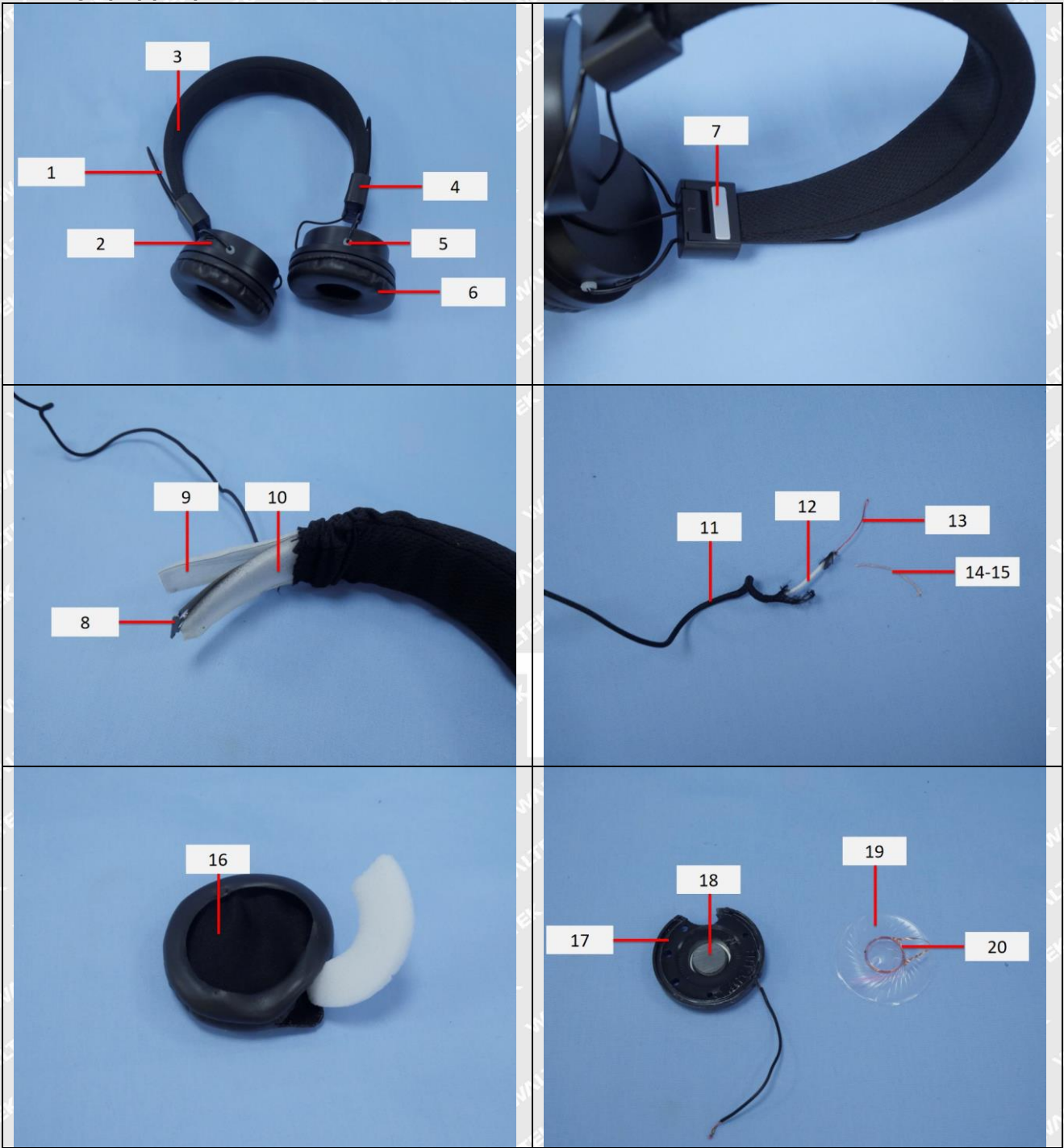
Restricted Substances	Limits
Dibutyl phthalate (DBP)	0.1% (1000 mg/kg)
Benzyl butyl phthalate (BBP)	0.1% (1000 mg/kg)
Di(2-ethylhexyl) phthalate (DEHP)	0.1% (1000 mg/kg)
Di-iso-butyl phthalate (DIBP)	0.1% (1000 mg/kg)

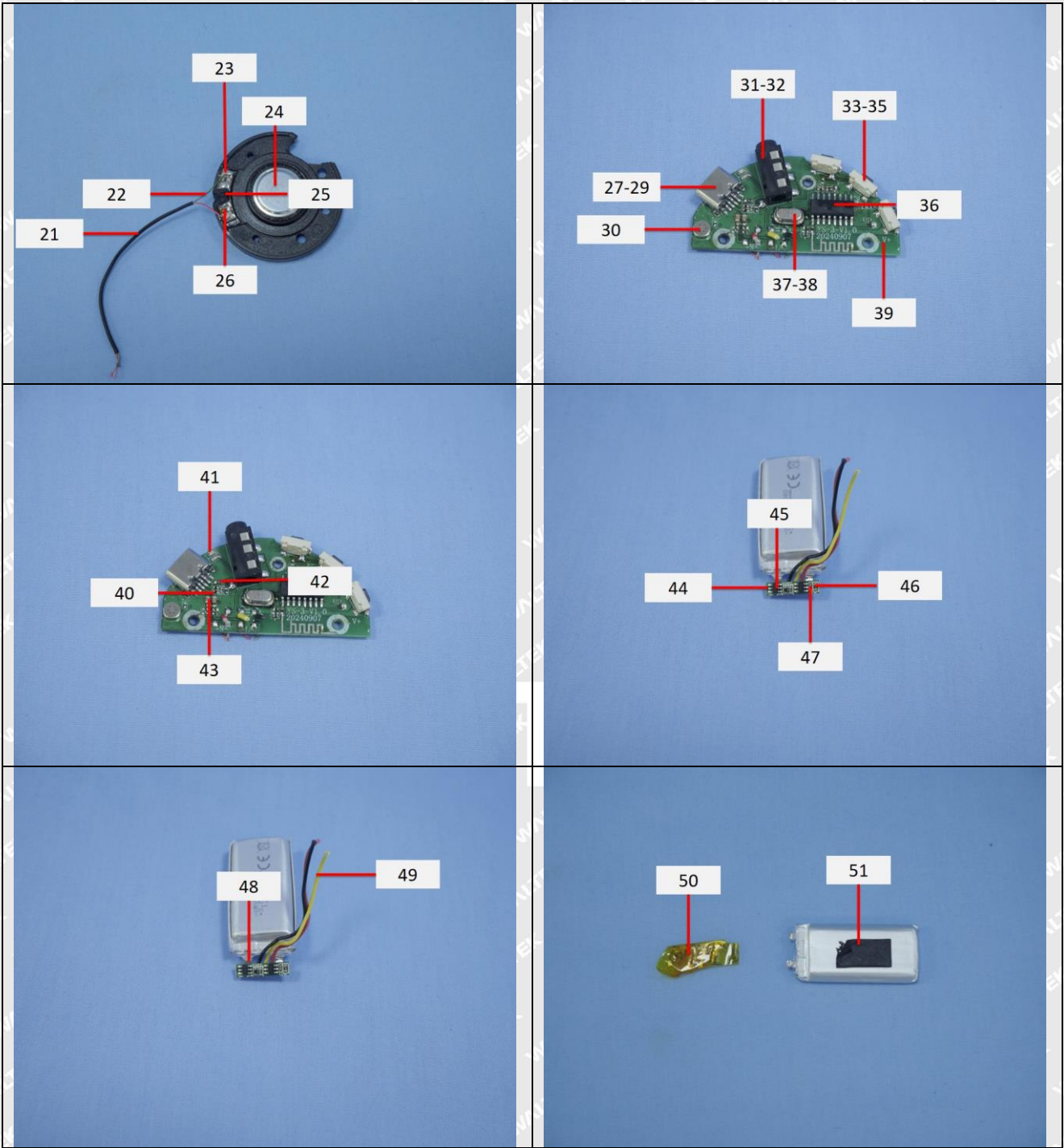
- (7) “△”= As client’s requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.

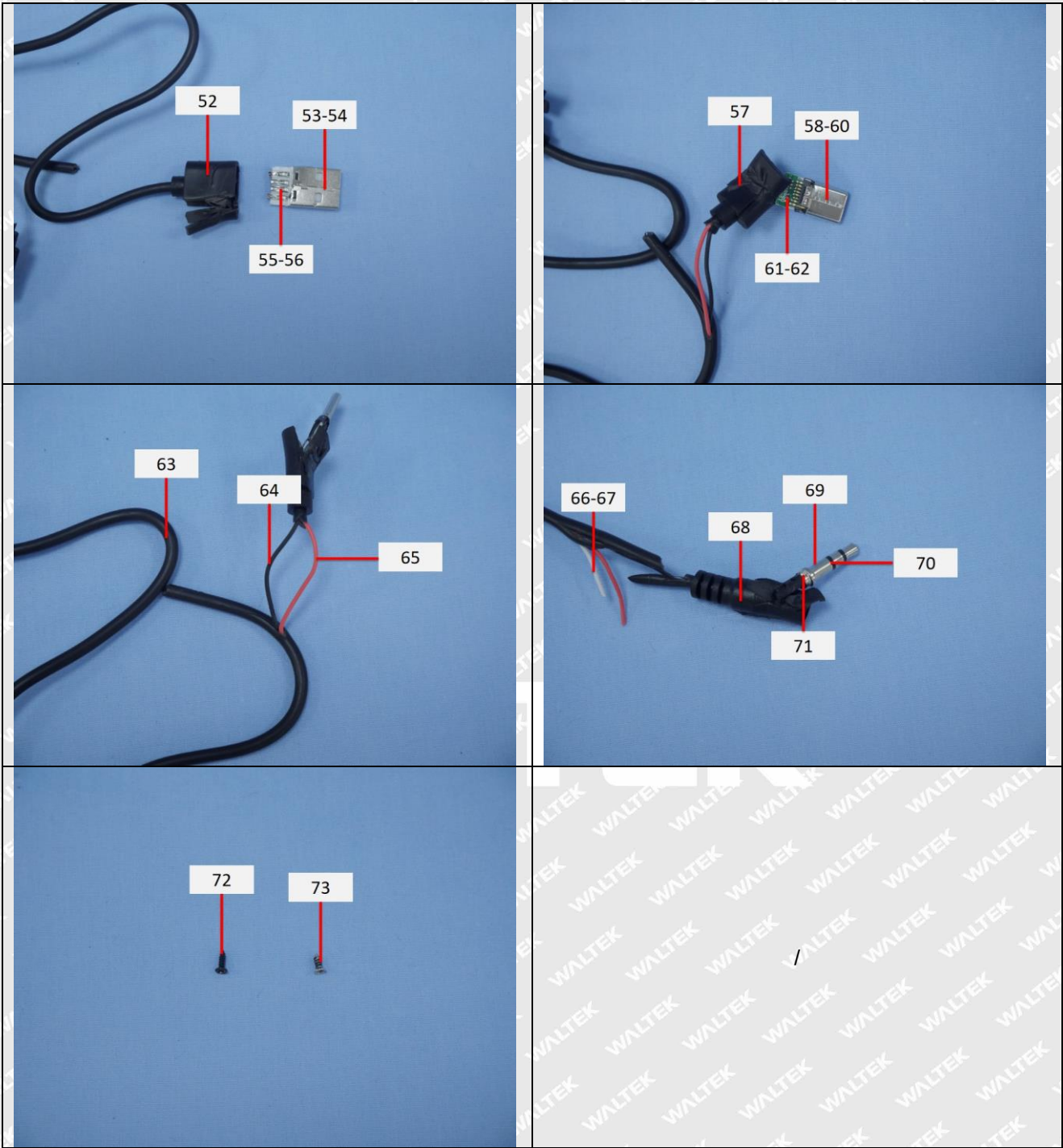
**Measurement Flowchart:**



Photograph(s) of parts tested:









Report No.: WTF24F09223009C

Job No.: FSW2409240789CJ

Remarks:

1. The results shown in this test report refer only to the sample(s) tested;
2. This test report cannot be reproduced, except in full, without prior written permission of the company;
3. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver;
4. The Applicant name and Address, the sample(s) and sample information was/were provided by the applicant who should be responsible for the authenticity which Waltek hasn't verified;
5. If the report is not stamped with the accreditation recognized seal, it will only be used for scientific research, education, and internal quality control activities, and is not used for the purpose of issuing supporting data to the society.
6. The sample material information (Model No. information) is provided by client, not verified by test laboratory. The samples of reference Model No. are not tested. Test laboratory not responsible for the accuracy, appropriateness, completeness and authenticity of the information provided by client.

===== End of Report =====

WALTEK