



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No...... : WTF24F03057642A1C
Applicant..... : Mid Ocean Brands B.V.
Address..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer..... : 114746
Sample Name..... : Wireless bamboo speaker
Sample Model..... : MO6385
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..... : 2024-03-20 & 2024-04-28
Testing period..... : 2024-03-20 to 2024-04-12 & 2024-04-28 to 2024-04-30
Date of Issue..... : 2024-04-30
Test Result..... : Refer to next page (s)

Prepared By:

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

Swing Liang

Swing.Liang



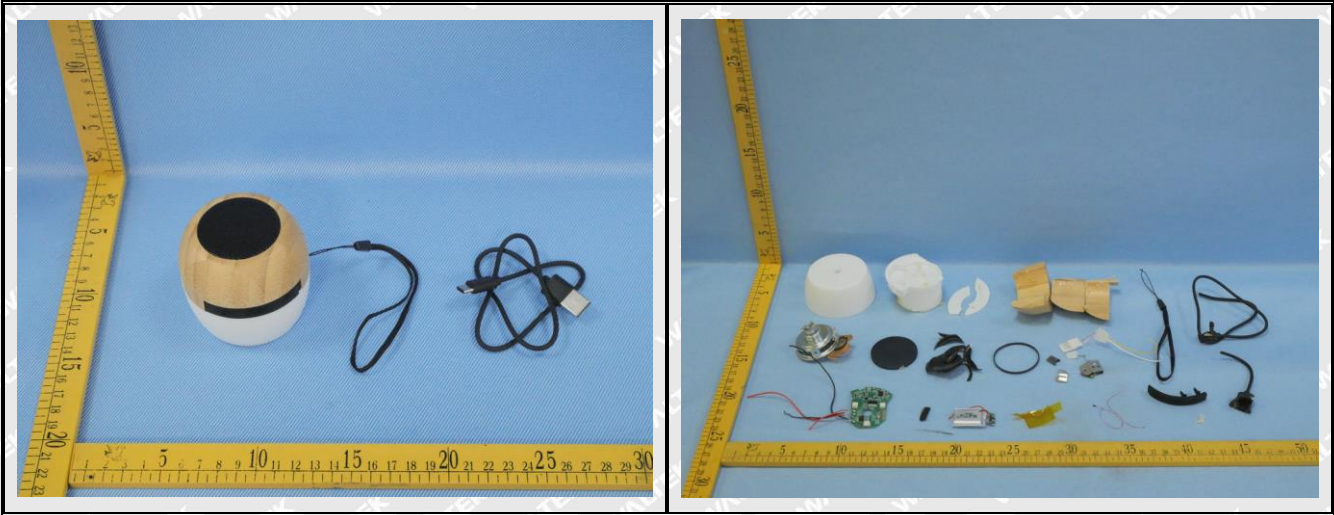
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Summary:

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, Mercury, Cadmium, 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, mercury, cadmium, 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	Black coating	BL	BL	BL	BL	BL	NA
2	Silvery metal net without black coating	BL	BL	BL	BL	--	NA
3	Black fabric wire	BL	BL	BL	BL	BL	NA
4	Black drawstring	BL	BL	BL	BL	BL	NA
5(R1)	Black plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : 177
6	Black soft plastic button	BL	BL	BL	BL	BL	NA
7	White plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
8	Brown wood shell	BL	BL	BL	BL	BL	NA
9	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
10	Chip crystal oscillator	BL	BL	BL	BL	BL	NA
11	Black plastic base	BL	BL	BL	BL	BL	NA
12	Chip LED	BL	BL	BL	BL	BL	NA
13	Chip IC	BL	BL	BL	BL	BL	NA
14	Chip IC	BL	BL	BL	BL	BL	NA
15	Chip audio	BL	BL	BL	BL	BL	NA



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Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
16	Chip capacitor	BL	BL	BL	BL	BL	NA
17	Solder	BL	BL	BL	BL	--	NA
18	Chip resistor	BL	BL	BL	IN	BL	Cr ⁶⁺ : ND
19	Red plastic wire covering	BL	BL	BL	BL	BL	NA
20	Black plastic wire covering	BL	BL	BL	BL	BL	NA
21	Silvery metal wire	BL	BL	BL	BL	--	NA
22	Black plastic part(button)	BL	BL	BL	BL	BL	NA
23	Off-white plastic shell(button)	BL	BL	BL	BL	BL	NA
24	Silvery metal shell(button)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
25	Silvery metal sheet(button)	BL	BL	BL	BL	--	NA
26	Silvery metal pin(button)	BL	BL	BL	BL	--	NA
27	Silvery metal shell(socket)	BL	BL	BL	BL	--	NA
28	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
29	Black plastic core(socket)	BL	BL	BL	BL	BL	NA
30	Silvery metal shell(socket)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
31	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
32	Silvery metal spring(socket)	BL	BL	BL	BL	--	NA
33	Black plastic shell(socket)	BL	BL	BL	BL	BL	NA
34	Green PCB	BL	BL	BL	BL	BL	NA
35	Black body	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	
36	Red-Coppery metal wire	BL	BL	BL	BL	--	NA
37	Yellow dry glue	BL	BL	BL	BL	BL	NA
38	Black plastic rim	BL	BL	BL	BL	IN	PBBs : ND PBDEs : 31
39	Black plastic sheet	BL	BL	BL	BL	BL	NA
40	Black synthetic leather	BL	BL	BL	BL	BL	NA
41	Black paper sheet	BL	BL	BL	BL	BL	NA
42	Silvery metal shell	BL	BL	BL	BL	--	NA
43	Solder	BL	IN	BL	BL	--	Pb :169
44	White paper sheet	BL	BL	BL	BL	BL	NA
45	Silvery metal rivet	BL	BL	BL	BL	--	NA
46	Brown fabric net	BL	BL	BL	BL	BL	NA
47	Coppery metal wire	BL	BL	BL	BL	--	NA
48	Brown paper shell	BL	BL	BL	BL	BL	NA
49	Red-Coppery varnished wire	BL	BL	BL	BL	BL	NA
50	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
51	Silvery magnetic sheet	BL	BL	BL	BL	--	NA
52	Black sponge adhesive tape	BL	BL	BL	BL	BL	NA
53	Brown plastic adhesive tape	BL	BL	BL	IN	BL	Cr ⁶⁺ : ND
54	Solder	BL	BL	BL	BL	--	NA
55	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
56	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
57	Chip IC	BL	BL	BL	BL	BL	NA
58	Black soft plastic jacket	BL	BL	BL	BL	BL	NA
59	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
60	Silvery metal shell(USB plug)	BL	BL	BL	BL	--	NA
61	White dry glue(USB plug)	BL	BL	BL	BL	BL	NA
62	Yellow plastic wire covering	BL	BL	BL	BL	BL	NA
63	White plastic wire covering	BL	BL	BL	BL	BL	NA
64	Solder(USB plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
65	Coppery metal wire	BL	BL	BL	BL	--	NA
66	White plastic core(USB plug)	BL	BL	BL	BL	BL	NA
67	Silvery metal pin(USB plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
68	Solder(Type-C plug)	BL	BL	BL	BL	--	NA
69	Red PCB(Type-C plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
70	Silvery metal sheet(Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
71	Black plastic core(Type-C plug)	BL	BL	BL	BL	BL	NA
72	Golden metal pin(Type-C plug)	BL	BL	BL	BL	--	NA



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Remark:

- (1) Results are obtained by EDXRF 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)



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- (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 ug/cm^2 .

Positive = Presence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is greater than 0.13 ug/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	ND	ND	ND	ND
T02	2	--	--	--	--
T03	3+4 [△]	ND	ND	ND	ND
T04	5(R1)	ND	ND	ND	ND
T05	6+58 [△]	ND	ND	ND	ND
T06	7+11+22+23 [△]	ND	ND	ND	ND
T07	8	ND	ND	ND	ND
T08	9	--	--	--	--
T09	10+12+13+14+15 [△]	ND	ND	ND	ND
T10	16+18+35+57 [△]	ND	ND	ND	ND
T11	17	--	--	--	--
T12	19+20+62 [△]	218	ND	ND	ND
T13	21	--	--	--	--
T14	24	--	--	--	--
T15	25	--	--	--	--
T16	26	--	--	--	--
T17	27	--	--	--	--
T18	28	--	--	--	--
T19	29+33+37+38+39 [△]	ND	ND	ND	ND
T20	30	--	--	--	--
T21	31	--	--	--	--
T22	32	--	--	--	--
T23	34+56+69 [△]	ND	ND	ND	ND
T24	36	--	--	--	--
T25	40	ND	ND	ND	ND
T26	41+44+48 [△]	ND	ND	ND	ND
T27	42	--	--	--	--



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Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T28	43	--	--	--	--
T29	45	--	--	--	--
T30	46	ND	ND	ND	ND
T31	47	--	--	--	--
T32	49	ND	ND	ND	ND
T33	50	--	--	--	--
T34	51	--	--	--	--
T35	52	ND	ND	ND	ND
T36	53	ND	ND	ND	ND
T37	54	--	--	--	--
T38	55	--	--	--	--
T39	59+63 [△]	ND	ND	ND	ND
T40	60	--	--	--	--
T41	61	ND	ND	ND	ND
T42	64	--	--	--	--
T43	65	--	--	--	--
T44	66+71 [△]	ND	ND	ND	ND
T45	67	--	--	--	--
T46	68	--	--	--	--
T47	70	--	--	--	--
T48	72	--	--	--	--

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

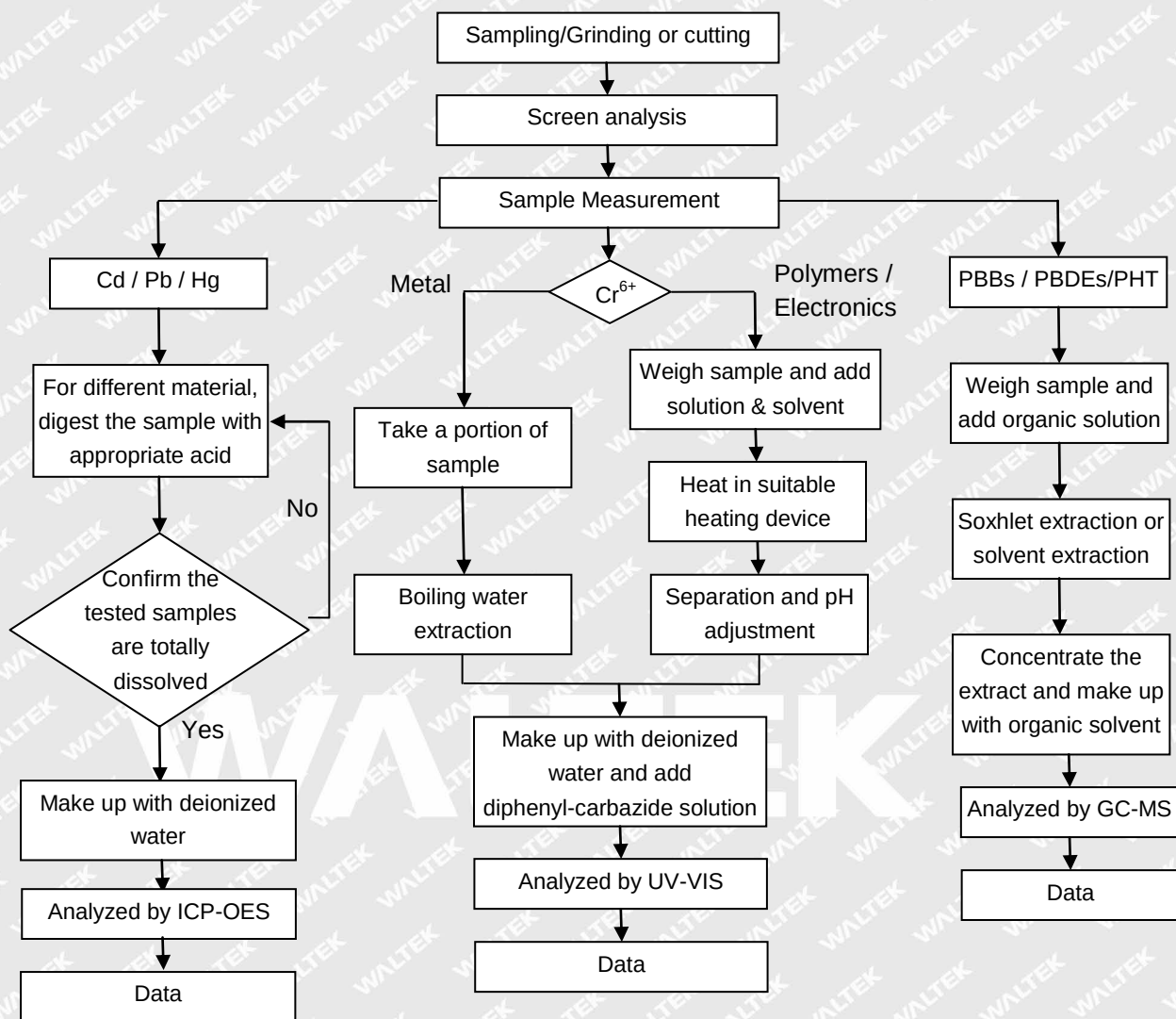
- (5) Abbreviation:

“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

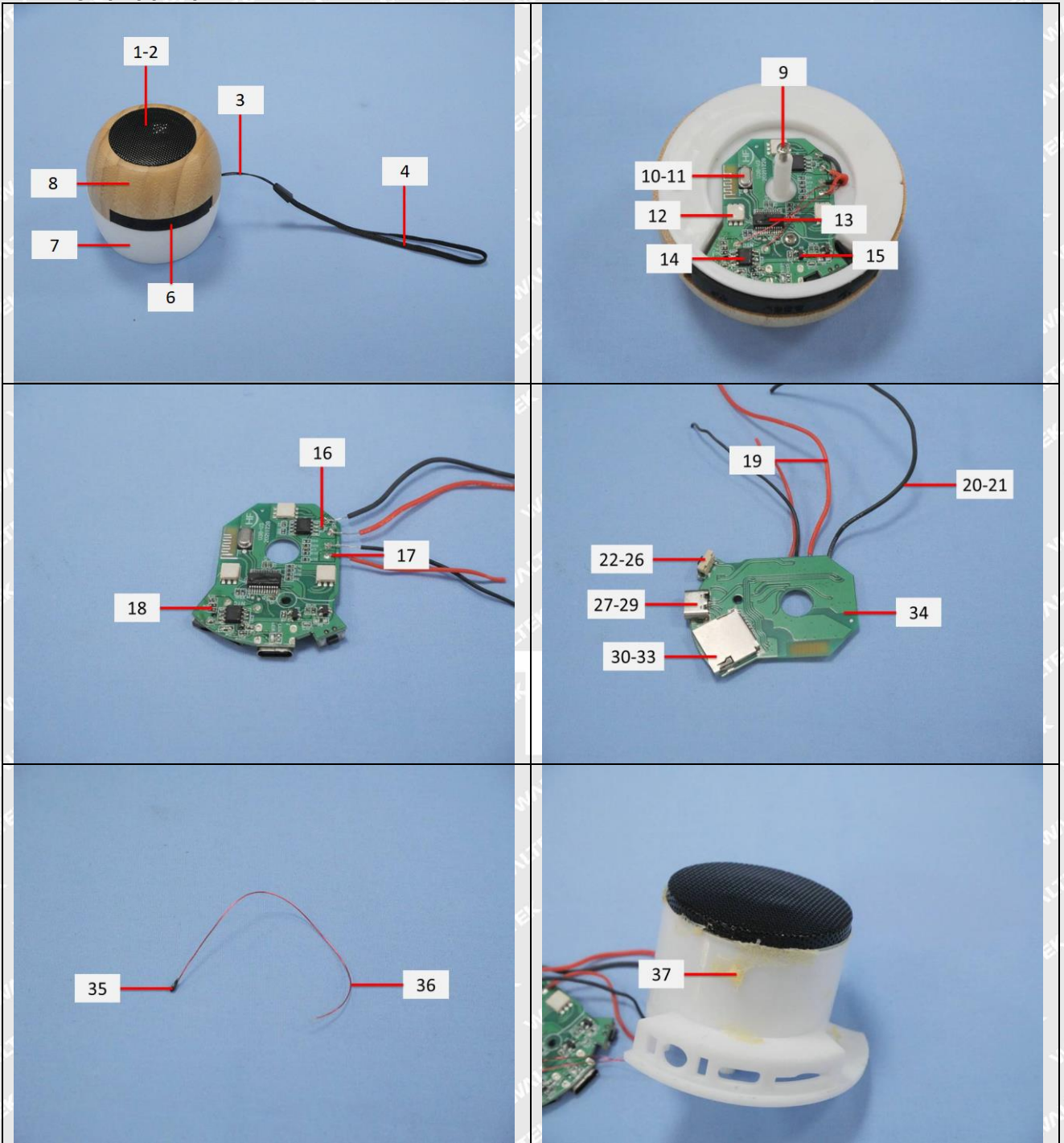
Restricted Substances	Limits
Dibutyl phthalate (DBP)	0.1% (1000 mg/kg)
Benzyl butyl phthalate (BBP)	0.1% (1000 mg/kg)
Di(2-ethylhexyl) phthalate (DEHP)	0.1% (1000 mg/kg)
Di-iso-butyl phthalate (DIBP)	0.1% (1000 mg/kg)

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

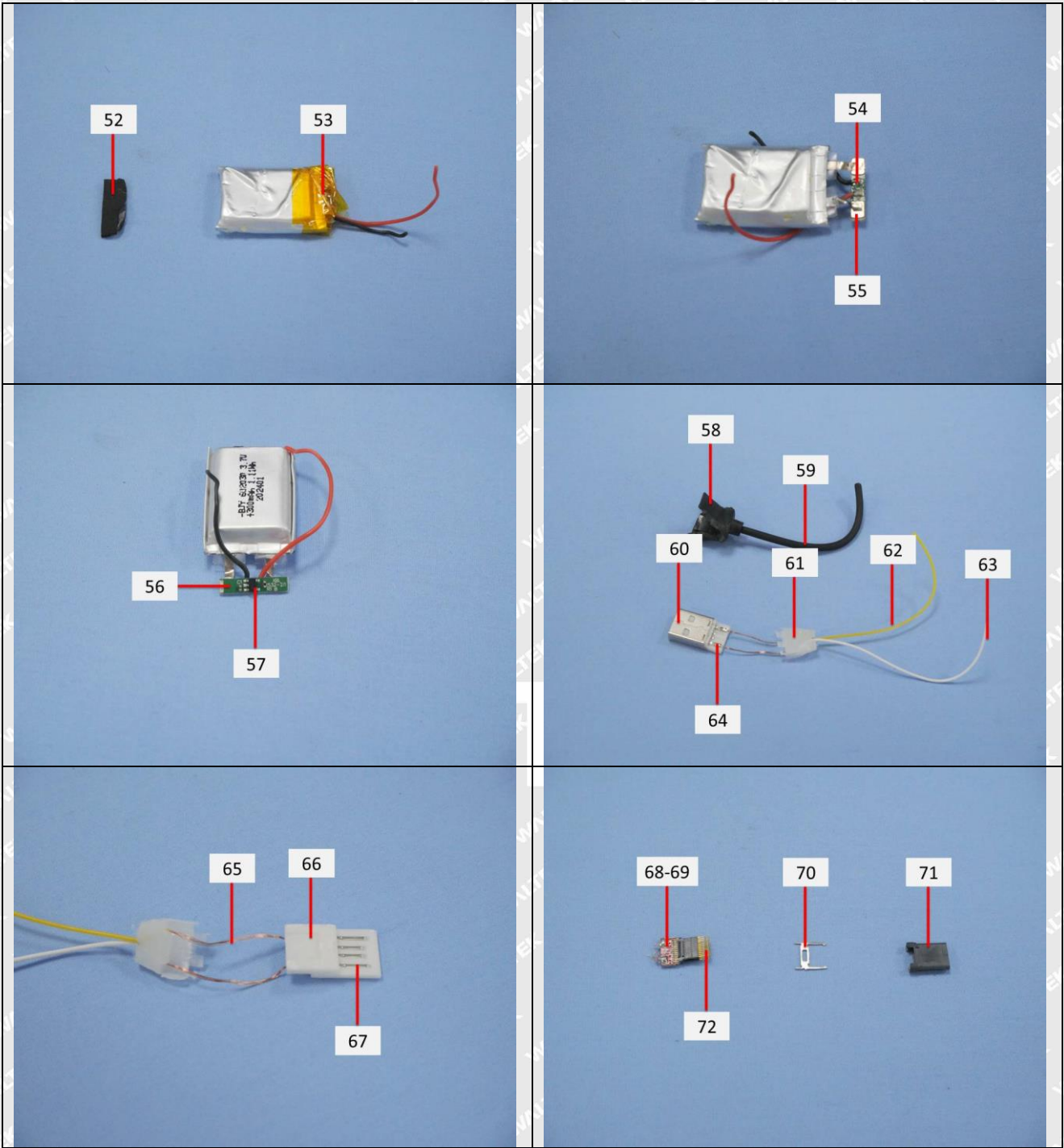
**Measurement Flowchart:**

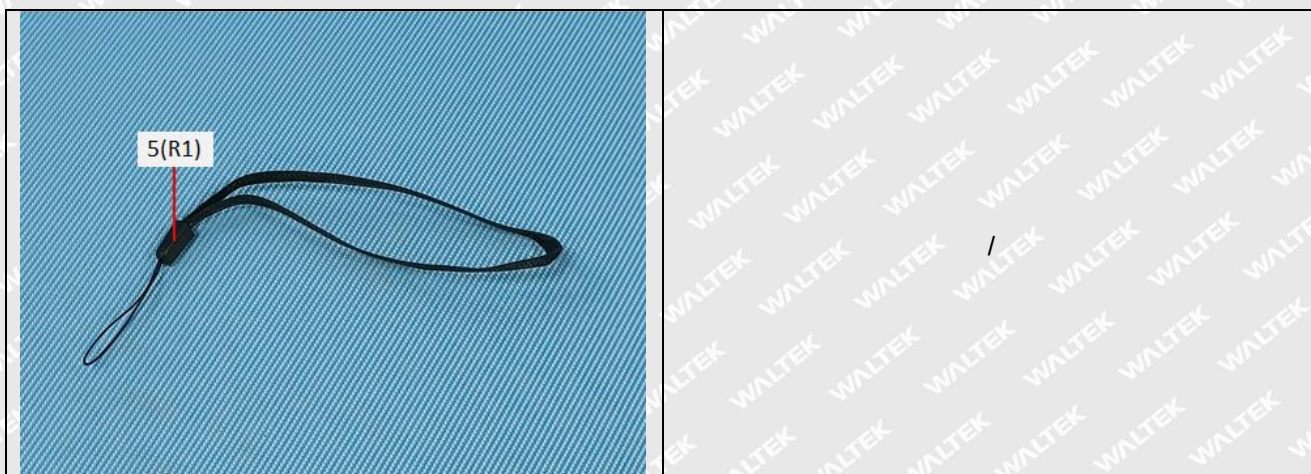


Photograph(s) of parts tested:







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