



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No...... : WTF24F09224707C
Applicant..... : Mid Ocean Brands B.V.
Address..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha
Wan, Kowloon, Hong Kong
Manufacturer : 118966
Sample Name : Wireless charger speaker
Sample Model..... : MO2513
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 : 2024-09-25 & 2024-09-29
Testing period : 2024-09-25 to 2024-10-08
Date of Issue..... : 2024-10-08
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



WTF24F09224707C



Report No.: WTF24F09224707C

Job No.: FSW2409250853CJ

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	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
2	Black plastic jacket (USB plug)	BL	BL	BL	BL	BL	NA
3	Golden metal pin (USB plug)	BL	BL	BL	BL	--	NA
4	Solder (USB plug)	BL	BL	BL	BL	--	NA
5	Silvery metal shell (USB plug)	BL	BL	BL	BL	--	NA
6	White plastic core (USB plug)	BL	BL	BL	BL	BL	NA
7	White plastic core (USB plug)	BL	BL	BL	BL	BL	NA
8	Black plastic jacket (Type-C plug)	BL	BL	BL	BL	BL	NA
9	Green PCB (Type-C plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
10	Silvery metal sheet (Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
11	Black plastic core (Type-C plug)	BL	BL	BL	BL	BL	NA
12	Silvery metal shell (Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
13	Chip resistor (Type-C plug)	BL	IN	BL	IN	BL	Pb : 611 Cr ⁶⁺ : ND
14	Golden metal pin (Type-C plug)	BL	BL	BL	BL	--	NA
15	Solder (Type-C 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	
16	Black plastic wire covering	BL	BL	BL	BL	BL	NA
17	Green plastic wire covering	BL	BL	BL	BL	BL	NA
18	White plastic wire covering	BL	BL	BL	BL	BL	NA
19	Red plastic wire covering	BL	BL	BL	BL	BL	NA
20	Coppery metal wire	BL	BL	BL	BL	--	NA
21	Black coating	BL	BL	BL	BL	BL	NA
22	Brown wooden shell without black coating	BL	BL	BL	BL	BL	NA
23	Silvery metal shell without black coating	BL	BL	BL	BL	--	NA
24	Brown drawstring	BL	BL	BL	BL	BL	NA
25	Black-white main fabric	BL	BL	BL	BL	BL	NA
26	Black sponge sheet with adhesive	BL	BL	BL	BL	BL	NA
27	Brown plastic adhesive tape	BL	BL	BL	BL	BL	NA
28	Black body	BL	BL	BL	BL	BL	NA
29	Red metal wire	BL	BL	BL	BL	--	NA
30	White fabric wire covering	BL	BL	BL	BL	BL	NA
31	Coppery varnished wire	BL	BL	BL	BL	BL	NA
32	Black magnetic sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : ND
33	Transparent double faced adhesive tape	BL	BL	BL	BL	BL	NA
34	Brown dry glue	BL	BL	BL	BL	BL	NA
35	Black sponge adhesive tape	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	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
37	Black plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
38	Black soft plastic sheet	BL	BL	BL	BL	BL	NA
39	Black plastic film(electrolytic capacitor)	BL	BL	BL	BL	BL	NA
40	Black rubber stopper(electrolytic capacitor)	BL	BL	BL	BL	BL	NA
41	Brown paper(electrolytic capacitor)	BL	BL	BL	BL	BL	NA
42	Silvery metal shell(electrolytic capacitor)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
43	Grey metal foil(electrolytic capacitor)	BL	BL	BL	BL	--	NA
44	Silvery-grey metal foil(electrolytic capacitor)	BL	BL	BL	BL	--	NA
45	Silvery metal pin(electrolytic capacitor)	BL	BL	BL	BL	--	NA
46	Red capacitor	BL	BL	BL	BL	BL	NA
47	Silvery metal sheet with black surface	BL	BL	BL	BL	--	NA
48	Black plastic core(socket)	BL	BL	BL	BL	BL	NA
49	Silvery metal shell(socket)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
50	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
51	Chip IC	BL	BL	BL	BL	BL	NA
52	Solder	BL	IN	BL	BL	--	Pb : 209
53	Chip capacitor	BL	BL	BL	BL	BL	NA
54	Chip IC	BL	BL	BL	BL	BL	NA
55	Chip crystal oscillator	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	
56	Black plastic base	BL	BL	BL	BL	BL	NA
57	Black plastic cap (button)	BL	BL	BL	BL	BL	NA
58	White plastic shell(button)	BL	BL	BL	BL	BL	NA
59	Silvery metal shell(button)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
60	Silvery metal sheet(button)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
61	Chip LED	BL	BL	BL	BL	BL	NA
62	Chip diode	BL	BL	BL	BL	BL	NA
63	Chip IC	BL	BL	BL	BL	BL	NA
64	Chip resistor	BL	BL	BL	IN	BL	Cr ⁶⁺ : ND
65	Green PCB	BL	BL	BL	BL	BL	NA
66	Chip resistor	BL	IN	BL	IN	BL	Pb : 640 Cr ⁶⁺ : ND
67	Chip IC	BL	BL	BL	BL	BL	NA
68	Chip audio	BL	BL	BL	BL	BL	NA
69	Chip resistor	BL	IN	BL	BL	BL	Pb : 567
70	Silvery metal shell	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
71	Black magnetic rim	BL	BL	BL	IN	--	Cr ⁶⁺ : ND
72	Silvery metal shell	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
73	White dry glue	BL	BL	BL	BL	BL	NA
74	Black plastic wire covering	BL	BL	BL	BL	BL	NA
75	Silvery metal wire	BL	BL	BL	BL	--	NA



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
76	Black paper rim	BL	BL	BL	BL	BL	NA
77	Black paper sheet	BL	BL	BL	BL	BL	NA
78	Black plastic sheet	BL	BL	BL	BL	BL	NA
79	Coppery metal wire	BL	BL	BL	BL	--	NA
80	Brown net fabric	BL	BL	BL	BL	BL	NA
81	Brown paper bobbin with brown adhesive tape	BL	BL	BL	BL	BL	NA
82	Coppery varnished wire	BL	BL	BL	BL	BL	NA
83	Solder	BL	BL	BL	BL	--	NA
84	Silvery metal terminal	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
85	White paper sheet	BL	BL	BL	BL	BL	NA
86	Silvery metal rivet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
87	White sponge adhesive tape	BL	BL	BL	BL	BL	NA
88	Red plastic wire covering	BL	BL	BL	BL	BL	NA
89	Blue plastic film	BL	BL	BL	BL	BL	NA
90	Blue plastic film with black printing	BL	BL	BL	BL	BL	NA
91	Silvery metal sheet	BL	BL	BL	BL	--	NA
92	Green paper sheet with adhesive	BL	BL	BL	BL	BL	NA



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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)



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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 $0.10 \mu\text{g}/\text{cm}^2$.

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.

- (11) The test sample of specimen No.81 is received on the date of 2024-09-29.

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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+2+8 [△]	ND	ND	ND	ND
T02	3	--	--	--	--
T03	4	--	--	--	--
T04	5	--	--	--	--
T05	6+7+11+37+48 [△]	ND	ND	ND	ND
T06	9+65 [△]	ND	ND	ND	ND
T07	10	--	--	--	--
T08	12	--	--	--	--
T09	13+28+46+51+53 [△]	ND	ND	ND	ND
T10	14	--	--	--	--
T11	15	--	--	--	--
T12	16+17+18 [△]	ND	ND	ND	ND
T13	19+38+40 [△]	ND	ND	ND	ND
T14	20	--	--	--	--
T15	21	ND	ND	ND	313
T16	22	ND	ND	ND	ND
T17	23	--	--	--	--
T18	24+25+80 [△]	ND	ND	ND	ND
T19	26	ND	ND	ND	ND
T20	27	ND	ND	ND	ND
T21	29	--	--	--	--
T22	30+74+88 [△]	547	ND	ND	ND
T23	31+82 [△]	ND	ND	ND	ND
T24	32	--	--	--	--
T25	33	ND	ND	ND	ND
T26	34+73 [△]	ND	ND	ND	ND
T27	35+41+87 [△]	ND	ND	331	ND
T28	36	--	--	--	--
T29	39+89+90 [△]	ND	ND	ND	ND
T30	42	--	--	--	--
T31	43	--	--	--	--
T32	44	--	--	--	--
T33	45	--	--	--	--
T34	47	--	--	--	--
T35	49	--	--	--	--
T36	50	--	--	--	--
T37	52	--	--	--	--
T38	54+55+61+62+63 [△]	ND	ND	ND	ND
T39	56+57+58+78 [△]	ND	ND	ND	ND
T40	59	--	--	--	--
T41	60	--	--	--	--



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Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T42	64+66+67+68+69 [△]	ND	ND	ND	ND
T43	70	--	--	--	--
T44	71	--	--	--	--
T45	72	--	--	--	--
T46	75	--	--	--	--
T47	76+77+85 [△]	ND	ND	ND	ND
T48	79	--	--	--	--
T49	81+92 [△]	ND	ND	ND	ND
T50	83	--	--	--	--
T51	84	--	--	--	--
T52	86	--	--	--	--
T53	91	--	--	--	--

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

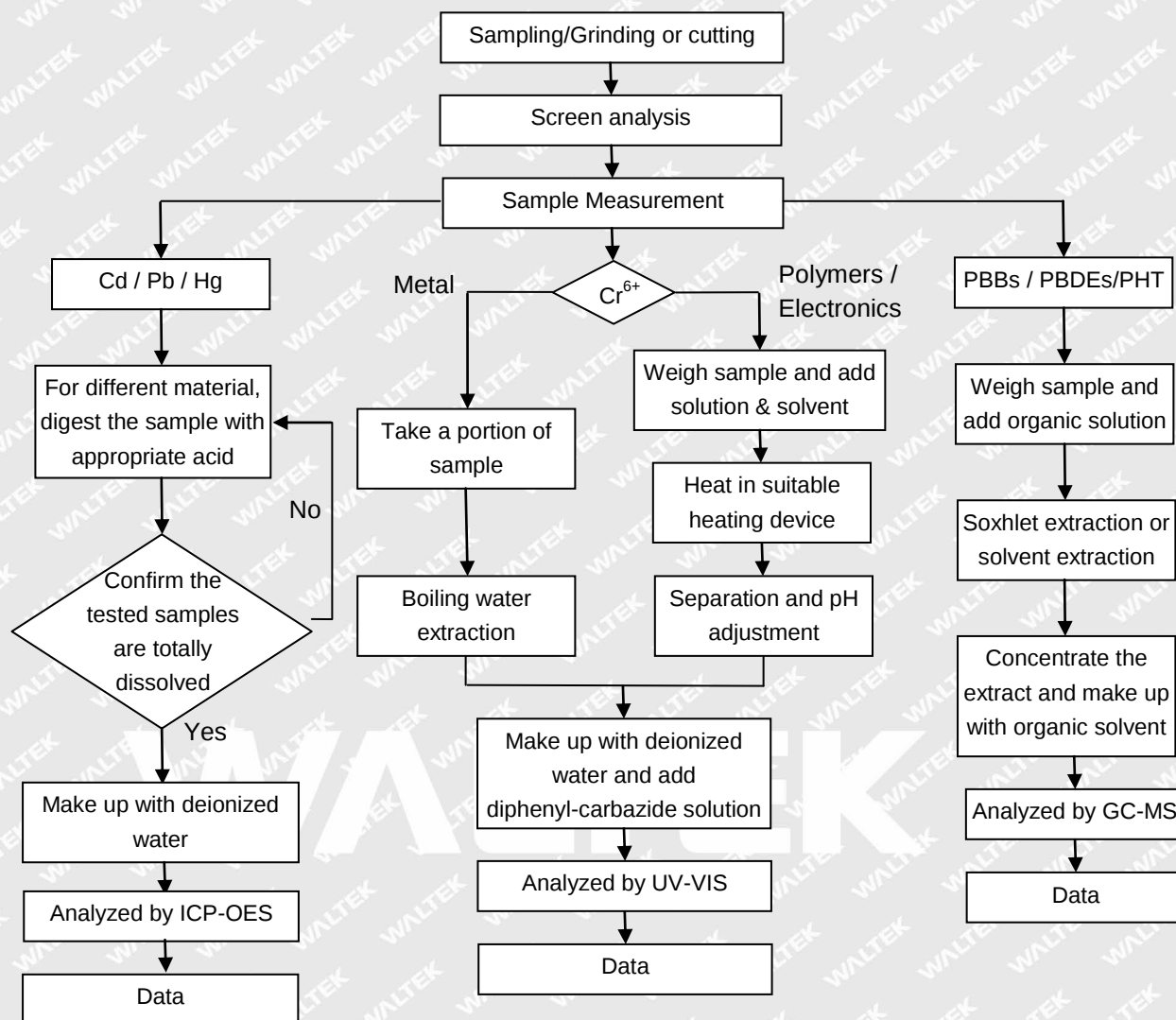
- (5) Abbreviation:

“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

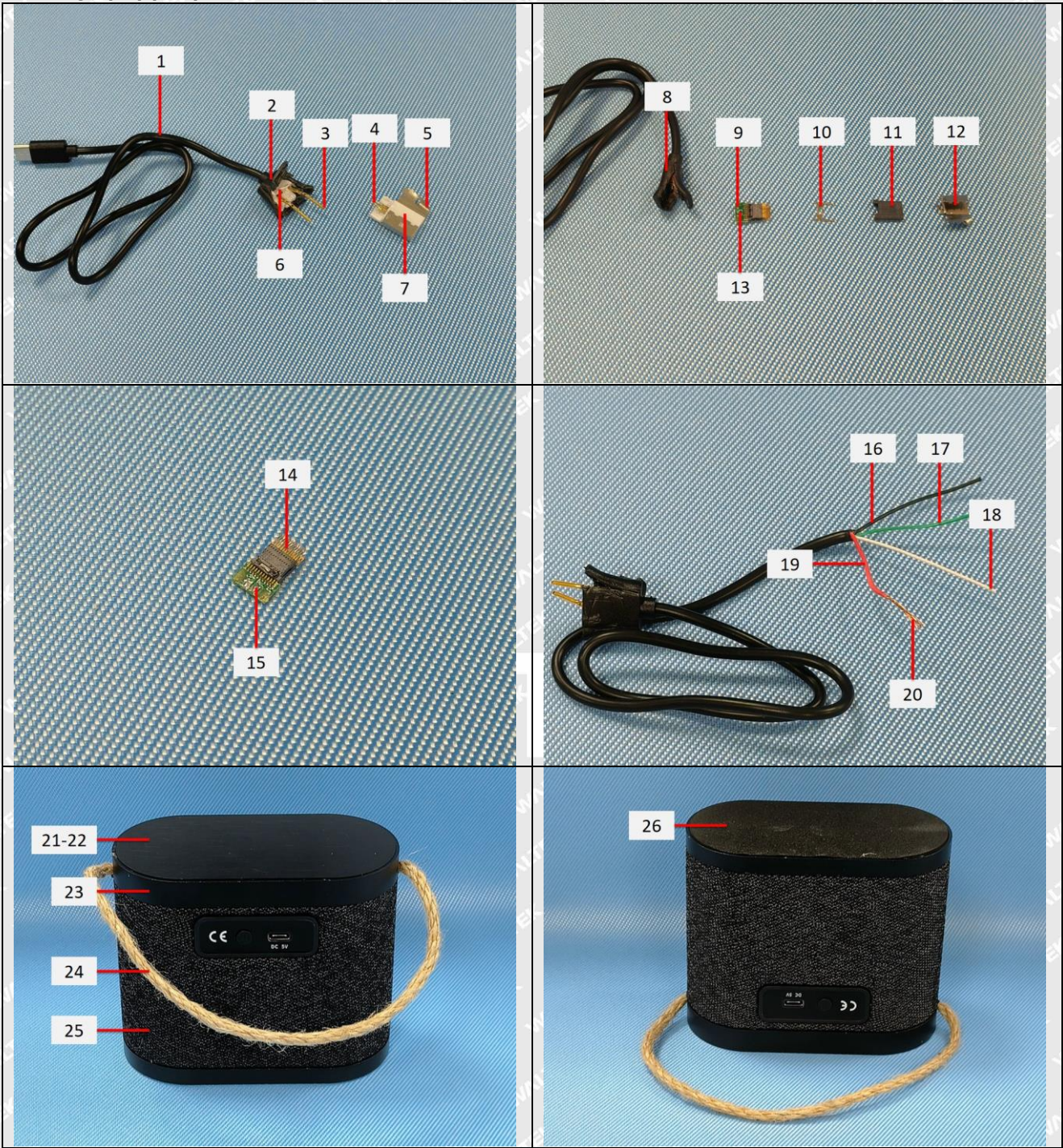
Restricted Substances	Limits
Dibutyl phthalate (DBP)	0.1% (1000 mg/kg)
Benzyl butyl phthalate (BBP)	0.1% (1000 mg/kg)
Di(2-ethylhexyl) phthalate (DEHP)	0.1% (1000 mg/kg)
Di-iso-butyl phthalate (DIBP)	0.1% (1000 mg/kg)

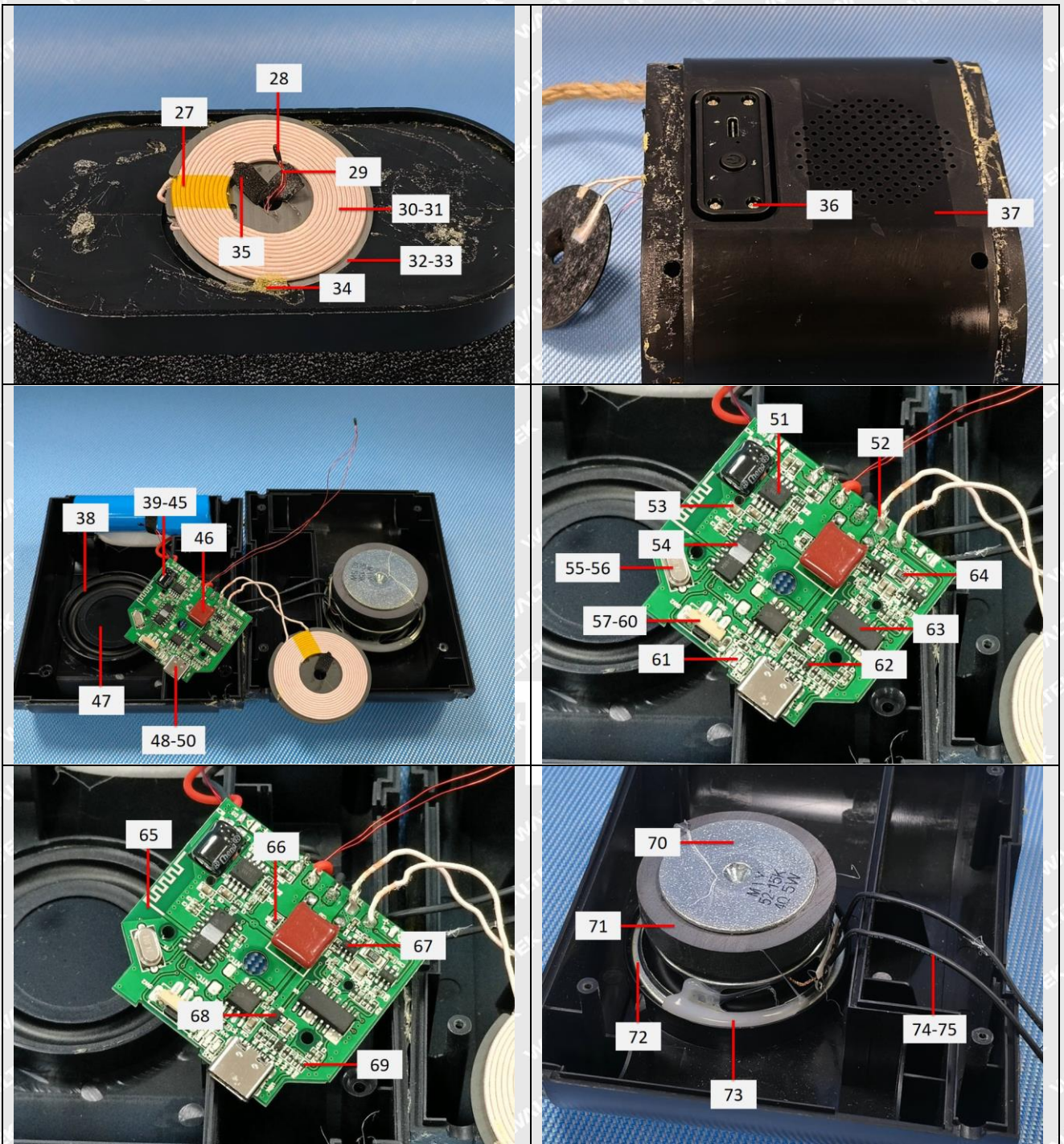
- (7) “△”= As client’s requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.

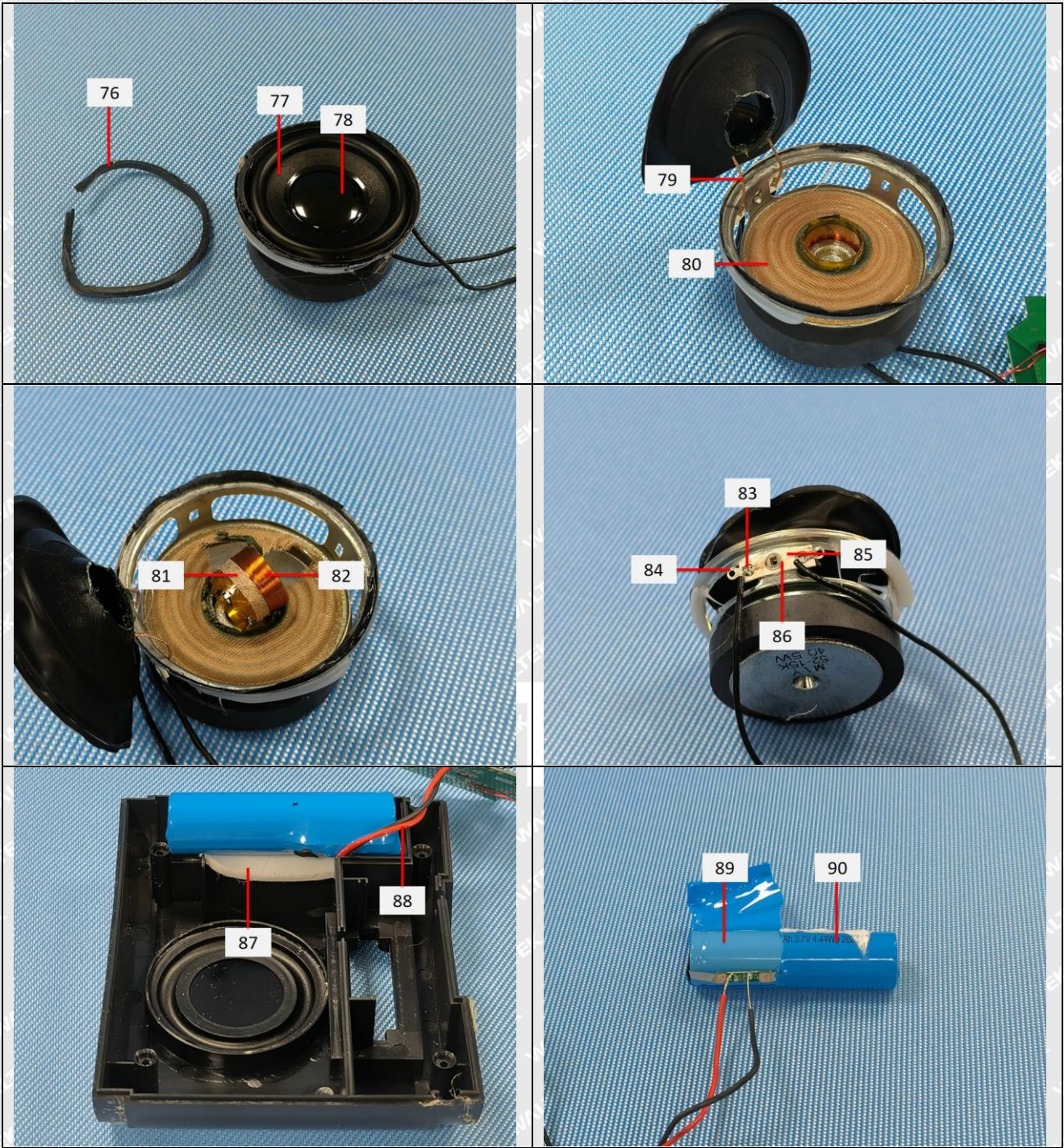
**Measurement Flowchart:**



Photograph(s) of parts tested:







**Remarks:**

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