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检测
TESTING
CNAS L6478



TEST REPORT

Report No. : WTF25F05122565A1C
Job No. : FSW2506040126CJ
Applicant : Mid Ocean Brands B.V.
Address : Unit 711-716, 7/F., Tower A, 83 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
Manufacturer : 106613
Sample Name : Wireless speaker
Sample Model : MO2666
Test Requested : With reference to EU RoHS Directive 2011/65/EU and its amendment Directive EU 2015/863, to determine the Pb, Cd, Hg, Cr⁶⁺, PBBs, PBDEs, DBP, BBP, DEHP, DIBP content in the submitted sample.
Test Method : Refer to next page (s)
Test Conclusion : **Pass**
Date of Receipt Sample : 2025-06-04 & 2025-06-14
Testing Period : 2025-06-04 to 2025-06-11 & 2025-06-14 to 2025-06-19
Date of Issue : 2025-06-19
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



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Swing.Liang
Waltek Testing Group (Foshan) Co., Ltd.
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Sample photo:



MO2666



MO2666



MO2666



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

Test Method/Equipment:

- 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(R1)	Brown synthetic leather	IN	IN	BL	BL	BL	NA
2	Black plastic button	BL	BL	BL	BL	BL	NA
3	Black plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : 332
4	Black plastic shell	BL	BL	BL	BL	BL	NA
5	Black coating	BL	BL	BL	BL	BL	NA
6	Silvery metal net without black coating	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
7	Black sponge adhesive tape	BL	BL	BL	BL	BL	NA
8	Black plastic base(electrolytic capacitor)	BL	BL	BL	BL	BL	NA
9	Black rubber stopper(electrolytic capacitor)	BL	BL	BL	BL	BL	NA
10	Brown paper(electrolytic capacitor)	BL	BL	BL	BL	BL	NA
11	Silvery metal shell with black printing (electrolytic capacitor)	BL	BL	BL	BL	--	NA
12	Grey metal foil(electrolytic capacitor)	BL	BL	BL	BL	--	NA
13	Silvery-grey metal foil(electrolytic capacitor)	BL	BL	BL	BL	--	NA
14	Silvery metal pin(electrolytic capacitor)	BL	BL	BL	BL	--	NA
15	Chip crystal oscillator	BL	BL	BL	BL	BL	NA
16	Black plastic shell(button)	BL	BL	BL	BL	BL	NA
17	Silvery metal shell(button)	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	
18	Silvery metal sheet(button)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
19	Silvery metal screw	BL	BL	BL	BL	--	NA
20	Black plastic shell(socket)	BL	BL	BL	BL	BL	NA
21	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
22	Black plastic shell(socket)	BL	BL	BL	BL	BL	NA
23	Black plastic shell(socket)	BL	BL	BL	BL	BL	NA
24	Silvery metal shell(socket)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
25	Silvery metal spring(socket)	BL	BL	BL	BL	--	NA
26	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
27	Black plastic core(socket)	BL	BL	BL	BL	BL	NA
28	Silvery metal shell(socket)	BL	BL	BL	BL	--	NA
29	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
30	Chip capacitor	BL	BL	BL	BL	BL	NA
31	Chip IC	BL	BL	BL	BL	BL	NA
32	Red plastic shell(socket)	BL	BL	BL	BL	BL	NA
33	Black plastic wire covering	BL	BL	BL	BL	BL	NA
34	Chip IC	BL	BL	BL	BL	BL	NA
35	Beige plastic shell(socket)	BL	BL	BL	BL	BL	NA
36	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
37	Chip resistor	BL	IN	BL	BL	BL	Pb :583
38	Chip LED	BL	BL	BL	BL	BL	NA
39	Red plastic wire covering	BL	BL	BL	BL	BL	NA
40	Silvery metal wire	BL	BL	BL	BL	--	NA
41	White plastic shell(socket)	BL	BL	BL	BL	BL	NA
42	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
43(R1)	Solder	BL	IN	BL	BL	--	Pb :86
44	Black plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND



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Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
45	Black plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
46	Black magnetic rim	BL	BL	BL	BL	--	NA
47	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
48	Blue plastic film	BL	BL	BL	BL	BL	NA
49	Pink plastic film	BL	BL	BL	BL	BL	NA
50	Black soft plastic sheet	BL	BL	BL	BL	BL	NA
51	Silvery metal sheet	BL	BL	BL	BL	--	NA
52	Solder	BL	BL	BL	BL	--	NA
53	White plastic wire covering	BL	BL	BL	BL	BL	NA
54	Green paper sheet with adhesive	BL	BL	BL	BL	BL	NA
55	Chip IC	BL	BL	BL	BL	BL	NA
56	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
57	Chip resistor	BL	BL	BL	BL	BL	NA
58	White plastic sheet	BL	BL	BL	BL	BL	NA
59	Black paper rim	BL	BL	BL	BL	BL	NA
60	Black synthetic leather	BL	BL	BL	BL	BL	NA
61	Black paper sheet	BL	BL	BL	BL	BL	NA
62	Black plastic sheet	BL	BL	BL	BL	BL	NA
63	Brown fabric net	BL	BL	BL	BL	BL	NA
64	Coppery metal wire	BL	BL	BL	BL	--	NA
65	Coppery varnished wire	BL	BL	BL	BL	BL	NA
66	Brown paper tube	BL	BL	BL	BL	BL	NA
67	Solder	BL	BL	BL	BL	--	NA
68	Silvery metal rivet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
69	White paper sheet	BL	BL	BL	BL	BL	NA
70	Silvery metal shell	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
71	Solder	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	
72	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
73	Black plastic jacket(USB plug)	BL	BL	BL	BL	BL	NA
74	Silvery metal shell(USB plug)	BL	BL	BL	BL	--	NA
75	White plastic core(USB plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
76	Solder(USB plug)	BL	BL	BL	BL	--	NA
77	Silvery metal pin(USB plug)	BL	BL	BL	BL	--	NA
78	Copper metal wire	BL	BL	BL	BL	--	NA
79	Black plastic wire covering	BL	BL	BL	BL	BL	NA
80	Red plastic wire covering	BL	BL	BL	BL	BL	NA
81	Black plastic jacket(Type-C plug)	BL	BL	BL	BL	BL	NA
82	Silvery metal shell(Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
83	Black plastic core(Type-C plug)	BL	BL	BL	BL	BL	NA
84	Silvery metal pin(Type-C plug)	BL	BL	BL	BL	--	NA
85	Chip resistor(Type-C plug)	BL	BL	BL	BL	BL	NA
86	Green PCB(Type-C plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
87	Solder(Type-C plug)	BL	BL	BL	BL	--	NA
88	White plastic button	BL	BL	BL	BL	BL	NA
89	White plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
90	White plastic shell	BL	BL	BL	BL	BL	NA
91	White coating	BL	BL	BL	BL	BL	NA

2. Phthalates

Test Method/Equipment:

1) With reference to IEC 62321-8:2017, determination of DBP, BBP, DEHP, DIBP by GC-MS

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T01	1(R1)	ND	ND	ND	ND
T02	2+3+4+8+16 [△]	ND	ND	ND	ND
T03	5+91 [△]	103	ND	ND	ND



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Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T04	7	ND	ND	ND	ND
T05	9+33+39 ^Δ	ND	ND	ND	ND
T06	10+59+61+66+69 ^Δ	ND	ND	ND	ND
T07	15+30+31+34+37 ^Δ	ND	ND	ND	ND
T08	20+22+23+27+32 ^Δ	ND	ND	ND	ND
T09	35+41+44+45+58 ^Δ	ND	ND	ND	ND
T10	38+55+57+85 ^Δ	ND	ND	ND	ND
T11	42+56+86 ^Δ	ND	ND	ND	ND
T12	48+49 ^Δ	ND	ND	ND	ND
T13	50+53+72 ^Δ	ND	ND	ND	ND
T14	54	ND	ND	ND	ND
T15	60	ND	ND	ND	ND
T16	62+75+83+88+89 ^Δ	ND	ND	ND	ND
T17	63	ND	ND	ND	ND
T18	65	ND	ND	ND	ND
T19	73+79+80 ^Δ	ND	ND	ND	ND
T20	81	ND	ND	ND	ND
T21	90	ND	ND	ND	ND
T22	6	--	--	--	--
T23	11	--	--	--	--
T24	12	--	--	--	--
T25	13	--	--	--	--
T26	14	--	--	--	--
T27	17	--	--	--	--
T28	18	--	--	--	--
T29	19	--	--	--	--
T30	21	--	--	--	--
T31	24	--	--	--	--
T32	25	--	--	--	--
T33	26	--	--	--	--
T34	28	--	--	--	--
T35	29	--	--	--	--
T36	36	--	--	--	--
T37	40	--	--	--	--
T38	43(R1)	--	--	--	--
T39	46	--	--	--	--
T40	47	--	--	--	--



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Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T41	51	--	--	--	--
T42	52	--	--	--	--
T43	64	--	--	--	--
T44	67	--	--	--	--
T45	68	--	--	--	--
T46	70	--	--	--	--
T47	71	--	--	--	--
T48	74	--	--	--	--
T49	76	--	--	--	--
T50	77	--	--	--	--
T51	78	--	--	--	--
T52	82	--	--	--	--
T53	84	--	--	--	--
T54	87	--	--	--	--

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

- (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.



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(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) -- = Not Regulated

(8) LOQ = Limit of quantitation.

Test Items	Pb	Cd	Hg	Cr ⁶⁺		PBB	PBDE	DBP	BBP	DEHP	DIBP
Units	mg/kg	mg/kg	mg/kg	mg/kg	μg/cm ²	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
LOQ	2	2	2	8	0.1	5	5	50	50	50	50

The LOQ for single compound of PBBs and PBDEs is 5mg/kg, LOQ of Cr⁶⁺ for polymer and composite sample is 8mg/kg and LOQ of Cr⁶⁺ for metal sample is 0.1μg/cm².

(9) According to IEC 62321-7-1:2015, determined of Cr⁶⁺ on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.

Boiling water extraction:

Negative = Absence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is less than 0.10μg/cm².

Positive = Presence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is greater than 0.13μg/cm².

Information on storage conditions and production date of the tested sample is unavailable and thus Cr⁶⁺ results represent status of the sample at the time of testing.

(10)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)
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)

(11) Abbreviation:

“Pb” denotes Lead, “Cd” denotes Cadmium, “Hg” denotes Mercury, “Cr” denotes Chromium, “Cr⁶⁺” denotes Hexavalent Chromium, “Br” denotes Bromine, “PBBs” denotes Total Polybrominated Biphenyls, “PBDEs” denotes Total Polybrominated Diphenyl Ethers.

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

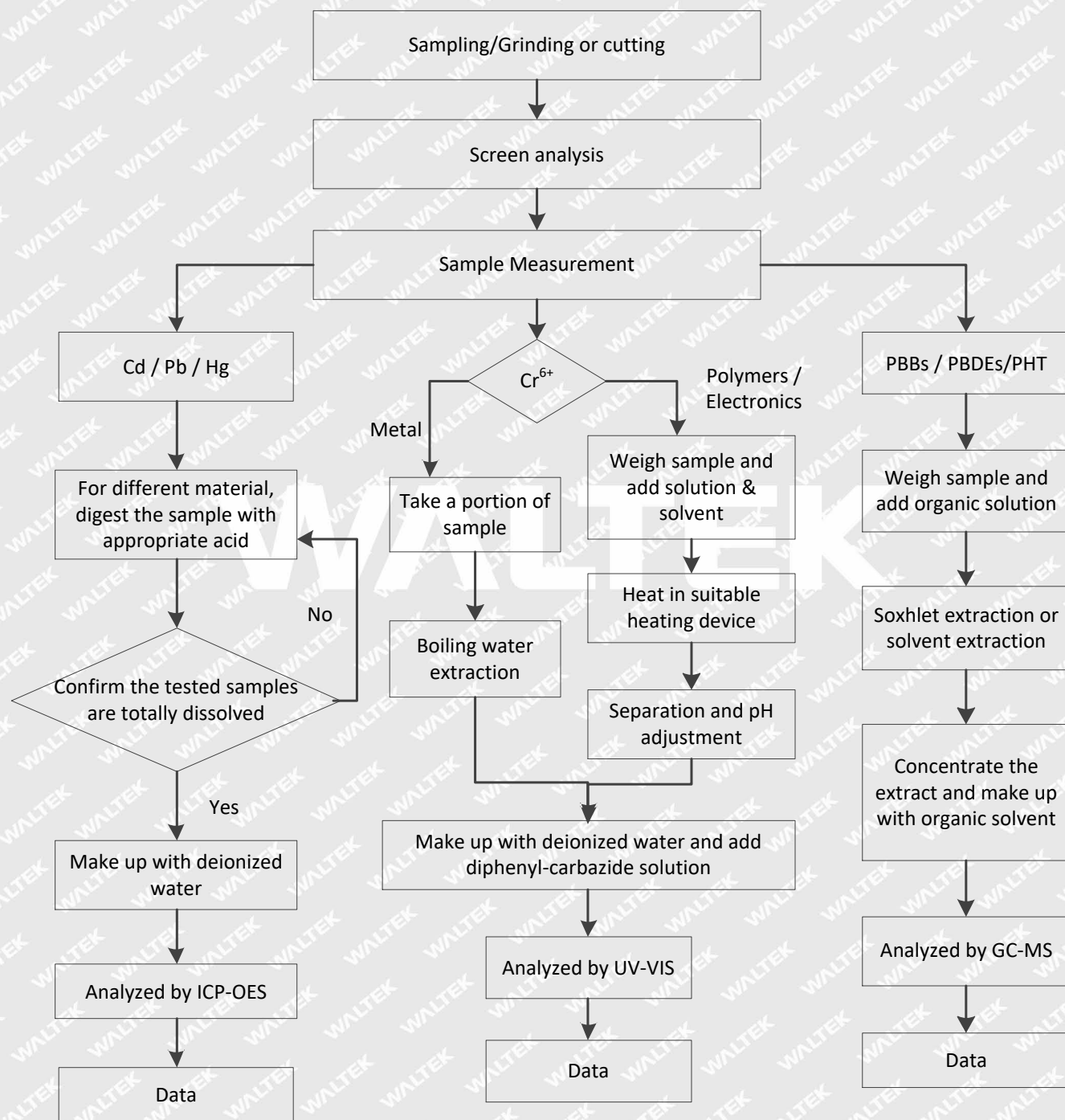


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(12) “△”=As per applicant's requirement, the testing was conducted based on mixed components by weight in equal ratio, results are calculated by the minimum weight of mixed components.

Testing Flow chart:

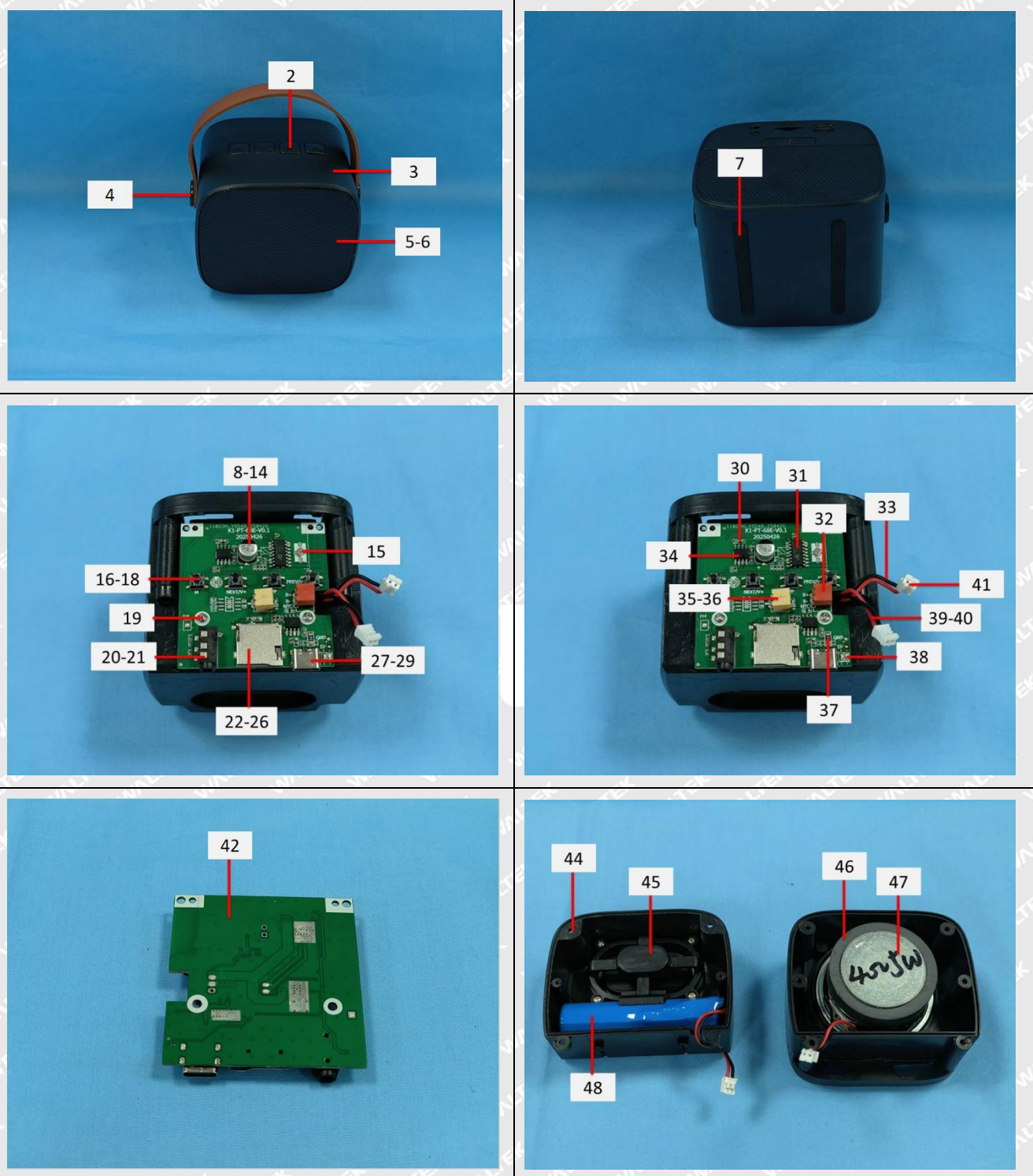




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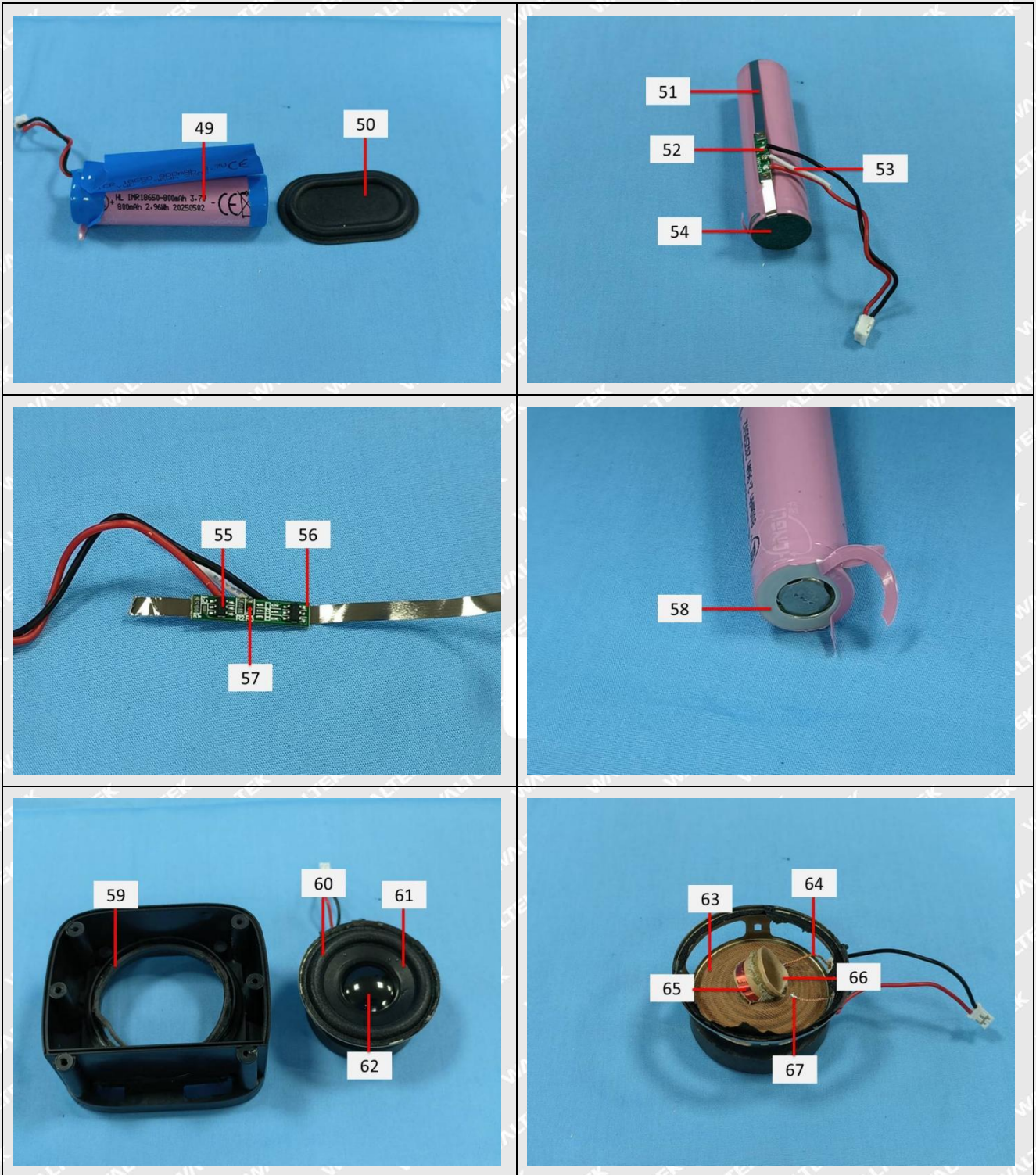
Photograph of parts tested:





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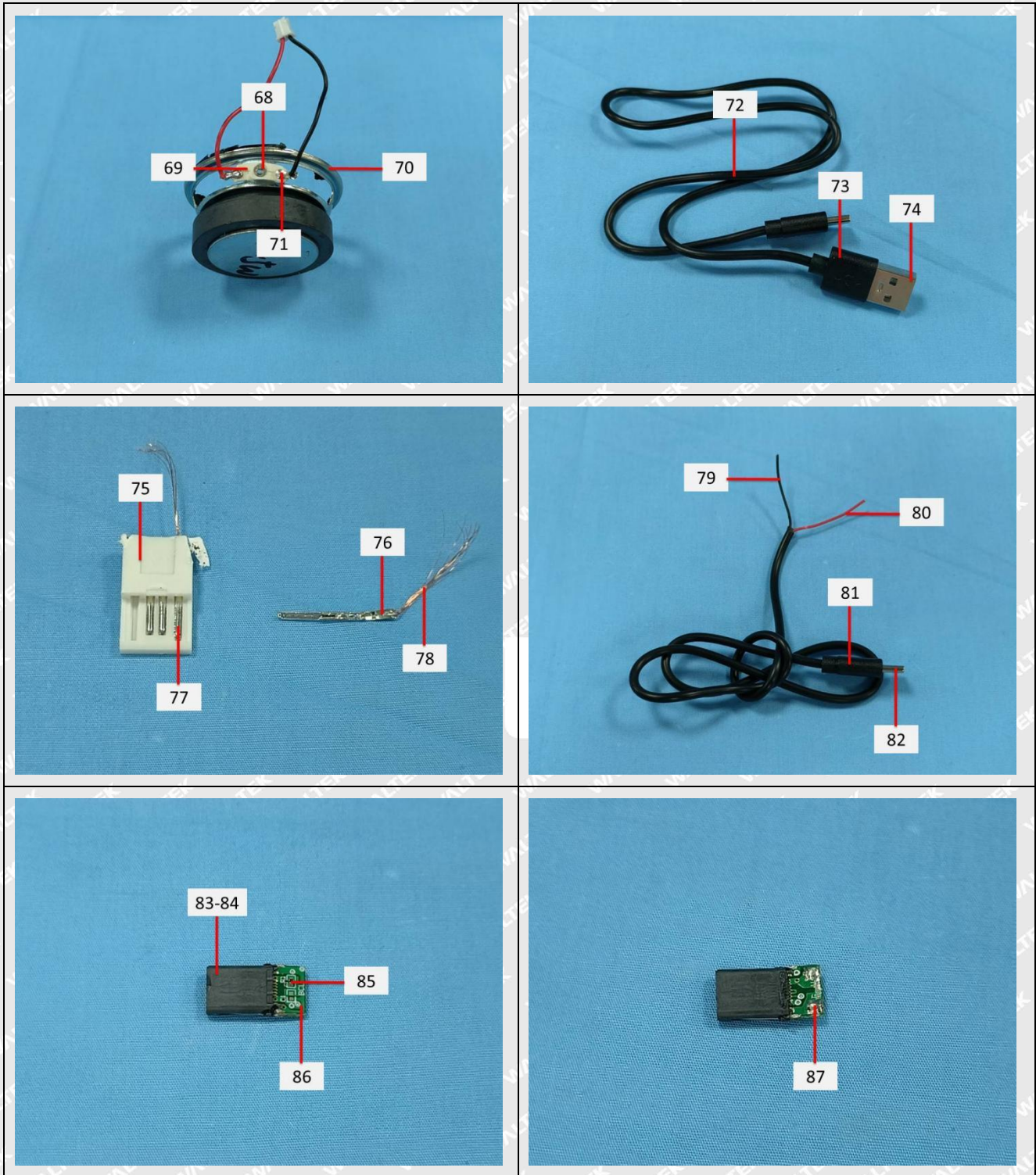
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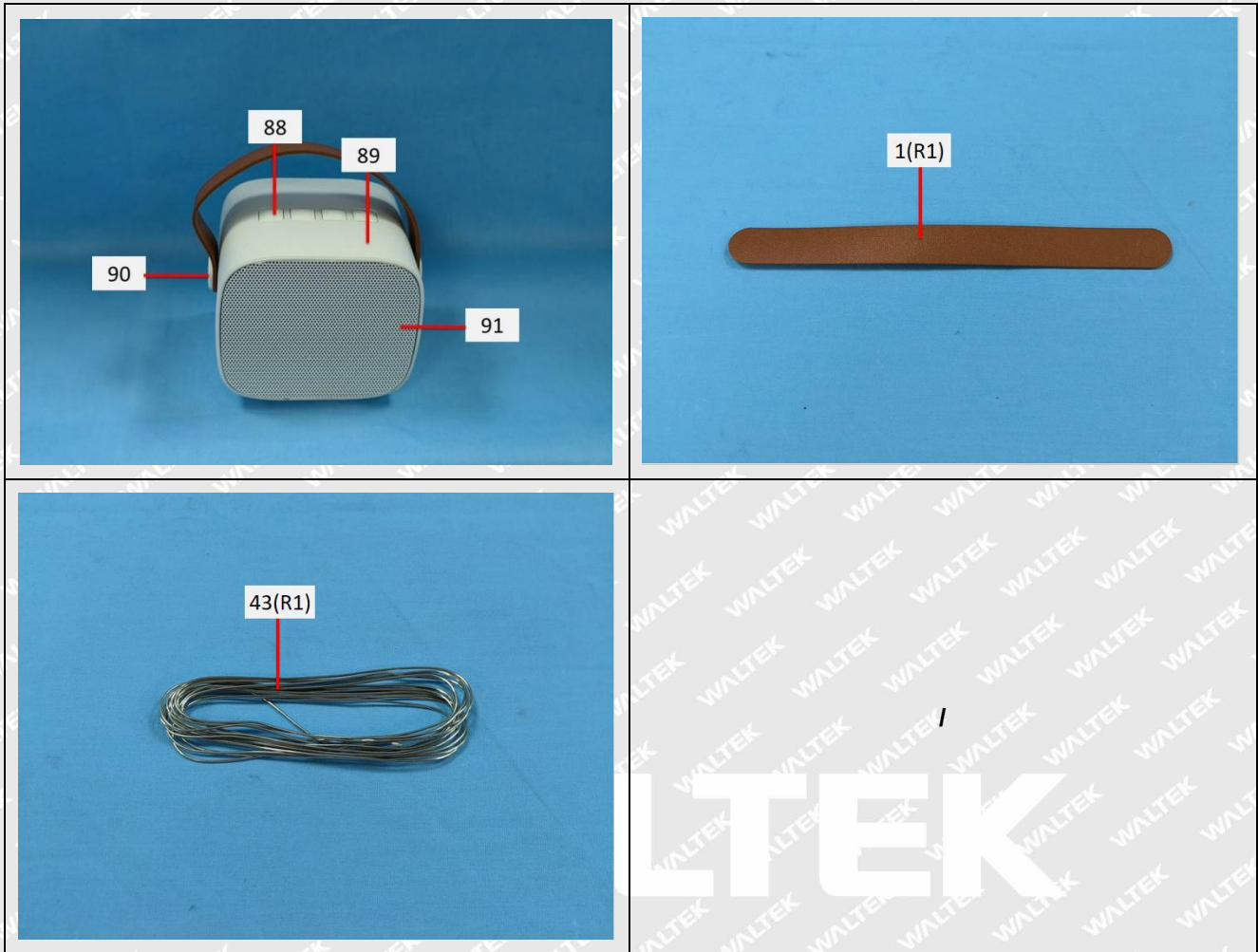
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===== End of Report =====