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检测
TESTING
CNAS L6478



TEST REPORT

Report No. : WTF25F09233911A1C
Job No. : FSW2509170759CJ
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 : 118102
Sample Name : Wireless multi speaker
Sample Model : MO6887
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 : 2025-09-17 & 2025-10-16
Testing Period : 2025-09-17 to 2025-09-26 & 2025-10-16 to 2025-10-22
Date of Issue : 2025-10-22
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, 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



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



MO6887



MO6887

WALTEK



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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 62321-12:2023, 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 fabric sheet	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
2	Brown wood sheet with adhesive	BL	BL	BL	BL	BL	NA
3	White soft plastic part	BL	BL	BL	BL	BL	NA
4	Black soft plastic sheet	BL	BL	BL	BL	BL	NA
5	Black soft plastic foot pad with adhesive	BL	BL	BL	BL	BL	NA
6	Black plastic shell with white printing	BL	BL	BL	BL	IN	PBBs : ND PBDEs : 134
7	White plastic shell	BL	BL	BL	BL	BL	NA
8	Silvery metal screw with black surfaced	BL	BL	BL	BL	--	NA
9	Brown plastic adhesive tape	BL	BL	BL	BL	BL	NA
10	Copper varnished wire	BL	BL	BL	BL	BL	NA
11	Black magnetic sheet	BL	BL	BL	BL	--	NA
12	Transparent double faced adhesive tape	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
13	Chip LED	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	
14	White PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
15	Black plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : 112
16	Black plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : 233
17	Black soft plastic sheet	BL	BL	BL	BL	BL	NA
18	Black plastic rim	BL	BL	BL	BL	BL	NA
19	Black plastic sheet	BL	BL	BL	BL	BL	NA
20	Black synthetic leather	BL	BL	BL	BL	BL	NA
21	Yellow dry glue	BL	BL	BL	BL	BL	NA
22	Silvery metal shell	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
23	Black fabric net	BL	BL	BL	BL	BL	NA
24	Red-coppery varnished wire	BL	BL	BL	BL	BL	NA
25	Brown paper tube	BL	BL	BL	BL	BL	NA
26	Silvery magnetic core	BL	BL	BL	BL	--	NA
27	Coppery metal wire	BL	BL	BL	BL	--	NA
28	Black paper sheet	BL	BL	BL	BL	BL	NA
29	Silvery metal rivet	BL	BL	BL	BL	--	NA
30	White paper sheet	BL	BL	BL	BL	BL	NA
31	Solder	BL	IN	BL	BL	--	Pb :168



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Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
32	Red plastic wire covering	BL	BL	BL	BL	BL	NA
33	Coppery metal wire	BL	BL	BL	BL	--	NA
34	Black plastic wire covering	BL	BL	BL	BL	BL	NA
35	Silvery metal wire	BL	BL	BL	BL	--	NA
36	Black plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : 237
37	Off-white plastic shell(socket)	BL	BL	BL	BL	BL	NA
38	Black plastic buckle(socket)	BL	BL	BL	BL	BL	NA
39	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
40	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
41	Silvery metal shell	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
42(R1)	Solder	BL	IN	BL	BL	--	Pb : 230
43	Black plastic shell(button)	BL	BL	BL	BL	BL	NA
44	Silvery metal shell(button)	BL	BL	BL	BL	--	NA
45	Silvery metal sheet(button)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
46	Chip IC	BL	BL	BL	BL	BL	NA
47	Black plastic shell(socket)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
48	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
49	Black plastic core(socket)	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	
50	Silvery metal shell(socket)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
51	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
52	Black plastic core(socket)	BL	BL	BL	BL	BL	NA
53	Silvery metal shell(socket)	BL	BL	BL	BL	--	NA
54	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
55	Black body	BL	BL	BL	BL	BL	NA
56	Red-coppery varnished wire	BL	BL	BL	BL	BL	NA
57	Chip IC	BL	BL	BL	BL	BL	NA
58	Chip IC	BL	BL	BL	BL	BL	NA
59	Chip resistor	BL	IN	BL	IN	BL	Cr ⁶⁺ : ND Pb :142
60	Chip LED	BL	BL	BL	BL	BL	NA
61	Chip IC	BL	BL	BL	BL	BL	NA
62	Chip capacitor	BL	BL	BL	BL	BL	NA
63	Chip diode	BL	BL	BL	BL	BL	NA
64	Coppery varnished wire(inductor)	BL	BL	BL	BL	BL	NA
65	Grey magnetic core(inductor)	BL	BL	BL	IN	--	Cr ⁶⁺ : ND
66	Chip crystal oscillator	BL	BL	BL	BL	BL	NA
67	Blue plastic sheet	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	
68	White FPC	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
69(R1)	Black plastic wire covering	BL	BL	BL	BL	BL	NA
70(R1)	Red plastic wire covering	BL	BL	BL	BL	BL	NA
71	Black soft plastic shell	BL	BL	BL	BL	BL	NA
72(R1)	Black sponge with adhesive	BL	BL	BL	BL	BL	NA
73	Golden MIC	BL	BL	BL	BL	BL	NA
74	White dry glue	BL	BL	BL	BL	BL	NA
75	Blue plastic film	BL	BL	BL	BL	BL	NA
76	Black sponge with adhesive	BL	BL	BL	BL	BL	NA
77	Dark brown plastic film	BL	BL	BL	BL	BL	NA
78	White plastic gasket	BL	BL	BL	BL	BL	NA
79(R1)	Black plastic wire covering	BL	BL	BL	BL	BL	NA
80	Green paper sheet with adhesive	BL	BL	BL	BL	BL	NA
81	Silvery metal sheet	BL	BL	BL	BL	--	NA
82	Chip IC	BL	BL	BL	BL	BL	NA
83	Red plastic wire covering	BL	BL	BL	BL	BL	NA
84	Chip IC	BL	BL	BL	BL	BL	NA
85	Chip capacitor	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	
86	Chip resistor	BL	IN	BL	IN	--	Cr ⁶⁺ : Negative Pb :544
87	Solder	BL	BL	BL	BL	--	NA
88	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
89(R1)	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
90(R1)	Black plastic jacket(USB plug)	BL	BL	BL	BL	BL	NA
91	White plastic core(USB plug)	BL	BL	BL	BL	BL	NA
92	Silvery metal shell(USB plug)	BL	BL	BL	BL	--	NA
93	Golden metal pin(USB plug)	BL	BL	BL	BL	--	NA
94(R1)	Solder(USB plug)	BL	IN	BL	BL	--	Pb : 146
95(R1)	Red plastic wire covering	BL	BL	BL	BL	BL	NA
96(R1)	White plastic wire covering	BL	BL	BL	BL	BL	NA
97(R1)	Black plastic jacket(Type-C plug)	BL	BL	BL	BL	BL	NA
98	Silvery metal shell(Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
99(R1)	Black plastic wire covering	BL	BL	BL	BL	BL	NA
100(R1)	Green plastic wire covering	BL	BL	BL	BL	BL	NA
101	Coppery metal wire	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
102	Green PCB(Type-C plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
103	Black plastic core(Type-C plug)	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	
104	Silvery metal sheet(Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
105	Golden metal pin(Type-C plug)	BL	BL	BL	BL	--	NA
106	Chip resistor(Type-C plug)	BL	BL	BL	BL	BL	NA
107(R1)	Solder(Type-C plug)	BL	IN	BL	BL	--	Pb : 150

2. Phthalates

Test Method/Equipment:

1) With reference to IEC 62321-12:2023, determination of DBP, BBP, DEHP, DIBP by GC-MS

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T01	1+23 ^Δ	ND	ND	ND	ND
T02	2	ND	ND	ND	ND
T03	3+4+5 ^Δ	ND	ND	ND	ND
T04	6+7+15+16+18 ^Δ	ND	ND	ND	ND
T05	9	ND	ND	ND	ND
T06	10+24+56+64+68 ^Δ	ND	ND	ND	ND
T07	12	ND	ND	ND	ND
T08	13+46+55+57+58 ^Δ	ND	ND	ND	ND
T09	14+40+88 ^Δ	ND	ND	ND	ND
T10	17+71 ^Δ	145	ND	ND	ND
T11	19+36+37+38+43 ^Δ	ND	ND	ND	ND
T12	20	ND	ND	ND	ND
T13	21+47+49+52+67 ^Δ	ND	ND	ND	ND
T14	25+28+30 ^Δ	ND	ND	ND	ND
T15	32+34 ^Δ	146	ND	ND	ND
T16	59+60+61+62+63 ^Δ	ND	ND	ND	ND
T17	66+73+82+84+85 ^Δ	ND	ND	ND	ND
T18	76	ND	ND	321	ND
T19	74+75+77+78+91 ^Δ	ND	ND	ND	ND
T20	80	409	ND	191	ND
T21	83	ND	ND	ND	ND
T22	86+106 ^Δ	ND	ND	ND	ND
T23	102	ND	ND	ND	ND
T24	103	ND	ND	ND	ND
T25	69(R1)	ND	ND	ND	ND



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Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T26	70(R1)	ND	ND	ND	ND
T27	72(R1)	ND	ND	ND	ND
T28	79(R1)	ND	ND	ND	ND
T29	89(R1)	ND	ND	ND	ND
T30	90(R1)	ND	ND	ND	ND
T31	95(R1)	ND	ND	ND	ND
T32	96(R1)	ND	ND	ND	ND
T33	97(R1)	ND	ND	ND	ND
T34	99(R1)	ND	ND	ND	ND
T35	100(R1)	ND	ND	ND	ND
T36	8	--	--	--	--
T37	11	--	--	--	--
T38	22	--	--	--	--
T39	26	--	--	--	--
T40	27	--	--	--	--
T41	29	--	--	--	--
T42	31	--	--	--	--
T43	33	--	--	--	--
T44	35	--	--	--	--
T45	39	--	--	--	--
T46	41	--	--	--	--
T47	42(R1)	--	--	--	--
T48	44	--	--	--	--
T49	45	--	--	--	--
T50	48	--	--	--	--
T51	50	--	--	--	--
T52	51	--	--	--	--
T53	53	--	--	--	--
T54	54	--	--	--	--
T55	65	--	--	--	--
T56	81	--	--	--	--
T57	87	--	--	--	--
T58	92	--	--	--	--
T59	93	--	--	--	--
T60	94(R1)	--	--	--	--
T61	98	--	--	--	--
T62	101	--	--	--	--
T63	104	--	--	--	--
T64	105	--	--	--	--
T65	107(R1)	--	--	--	--



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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 Cr^{6+}) 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	$\text{BL} \leq (70-3\sigma) < \text{IN} < (130+3\sigma) \leq \text{OL}$	$\text{BL} \leq (70-3\sigma) < \text{IN} < (130+3\sigma) \leq \text{OL}$	$\text{LOD} < \text{IN} < (150+3\sigma) \leq \text{OL}$
Pb	$\text{BL} \leq (700-3\sigma) < \text{IN} < (1300+3\sigma) \leq \text{OL}$	$\text{BL} \leq (700-3\sigma) < \text{IN} < (1300+3\sigma) \leq \text{OL}$	$\text{BL} \leq (500-3\sigma) < \text{IN} < (1500+3\sigma) \leq \text{OL}$
Hg	$\text{BL} \leq (700-3\sigma) < \text{IN} < (1300+3\sigma) \leq \text{OL}$	$\text{BL} \leq (700-3\sigma) < \text{IN} < (1300+3\sigma) \leq \text{OL}$	$\text{BL} \leq (500-3\sigma) < \text{IN} < (1500+3\sigma) \leq \text{OL}$
Cr	$\text{BL} \leq (700-3\sigma) < \text{IN}$	$\text{BL} \leq (700-3\sigma) < \text{IN}$	$\text{BL} \leq (500-3\sigma) < \text{IN}$
Br	$\text{BL} \leq (300-3\sigma) < \text{IN}$	--	$\text{BL} \leq (250-3\sigma) < \text{IN}$

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.
- (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	$\mu\text{g}/\text{cm}^2$	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 Cr^{6+} for polymer and composite sample is 8mg/kg and LOQ of Cr^{6+} for metal sample is $0.1\mu\text{g}/\text{cm}^2$.

- (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.



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(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.

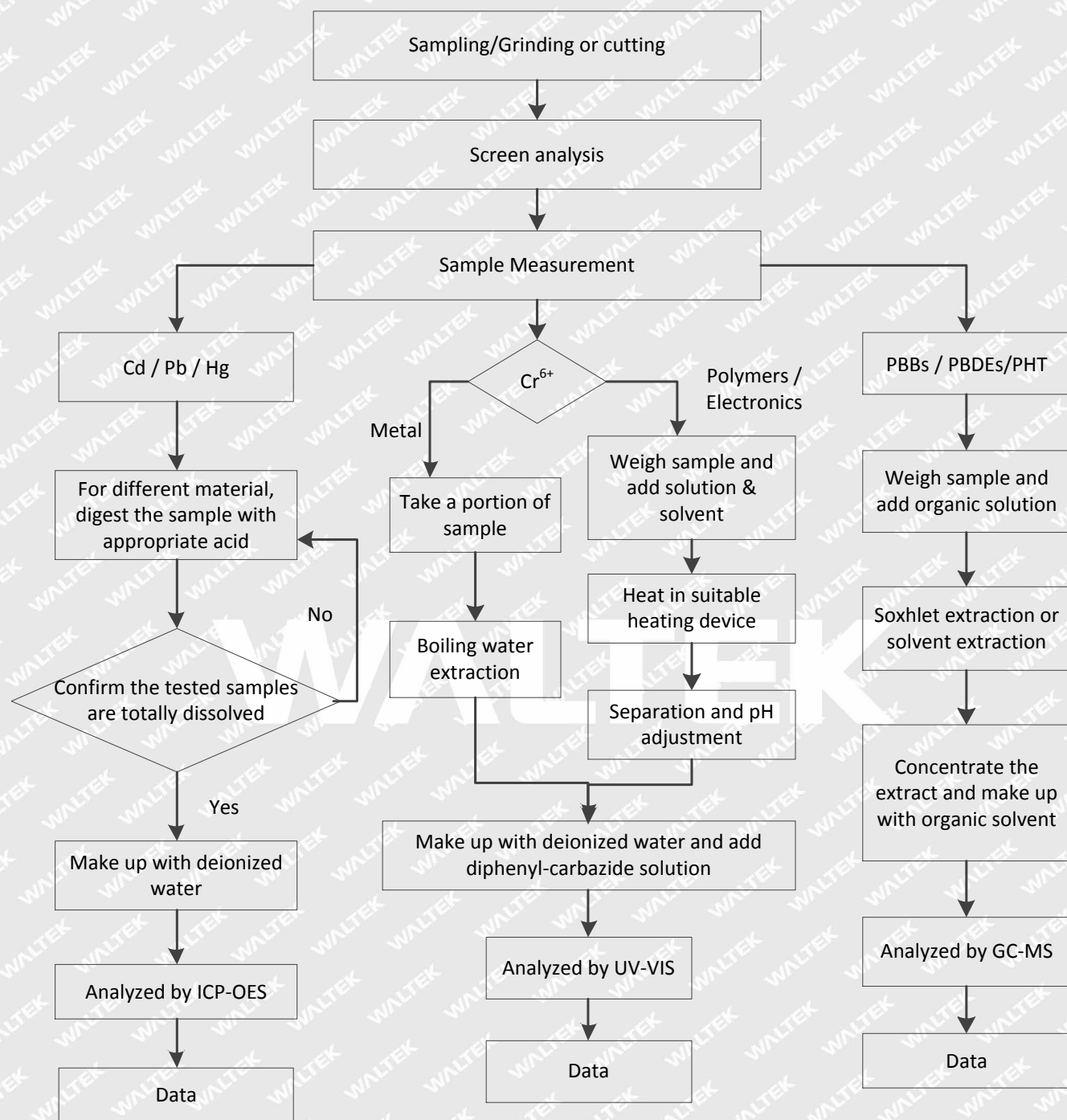
(12) “Δ”=As per applicant's requirement, the testing was conducted based on mixed components by weight in equal ratio, results are calculated by the minimum weight of mixed components.



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Testing Flow chart:





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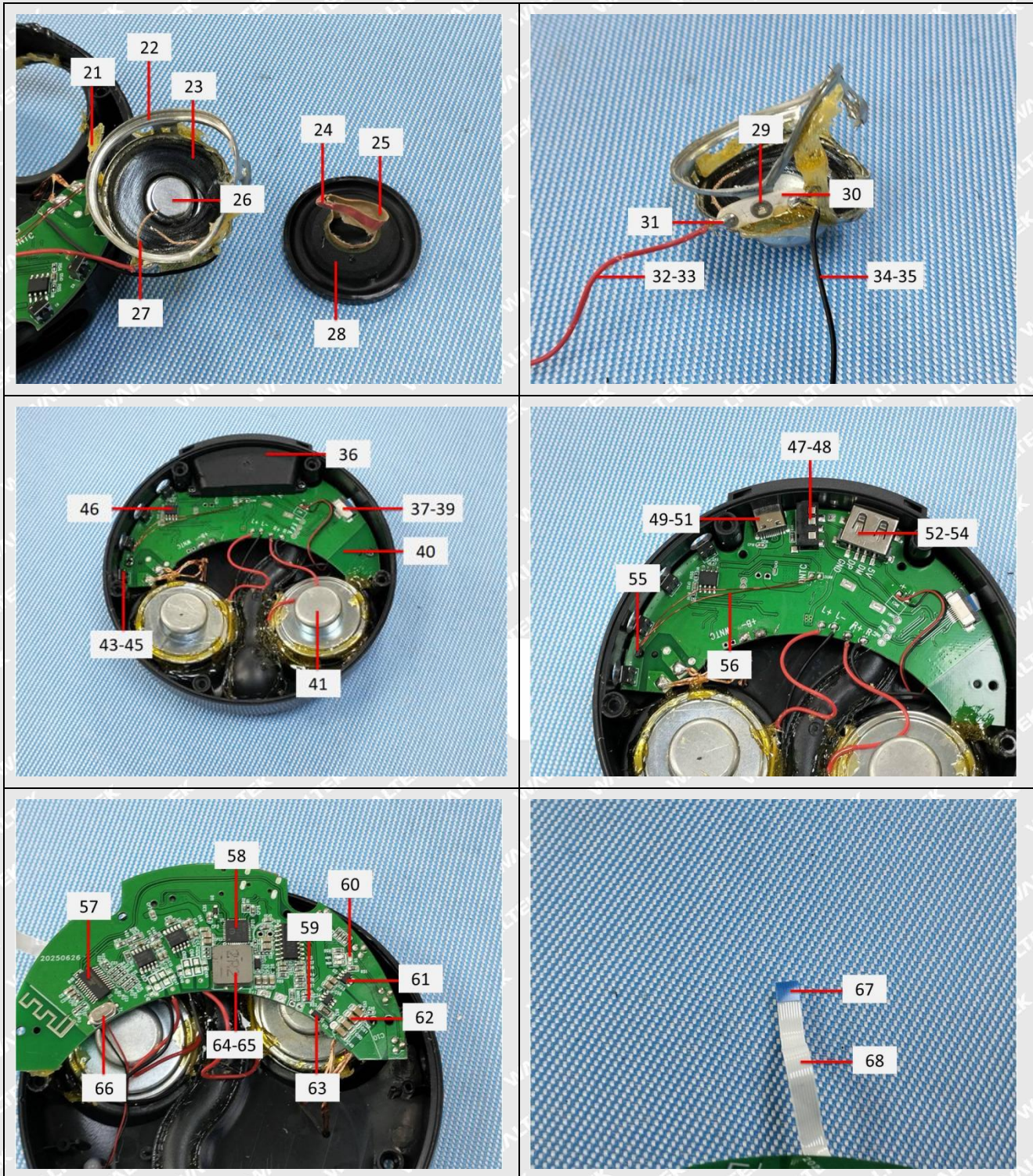
Photograph of parts tested:





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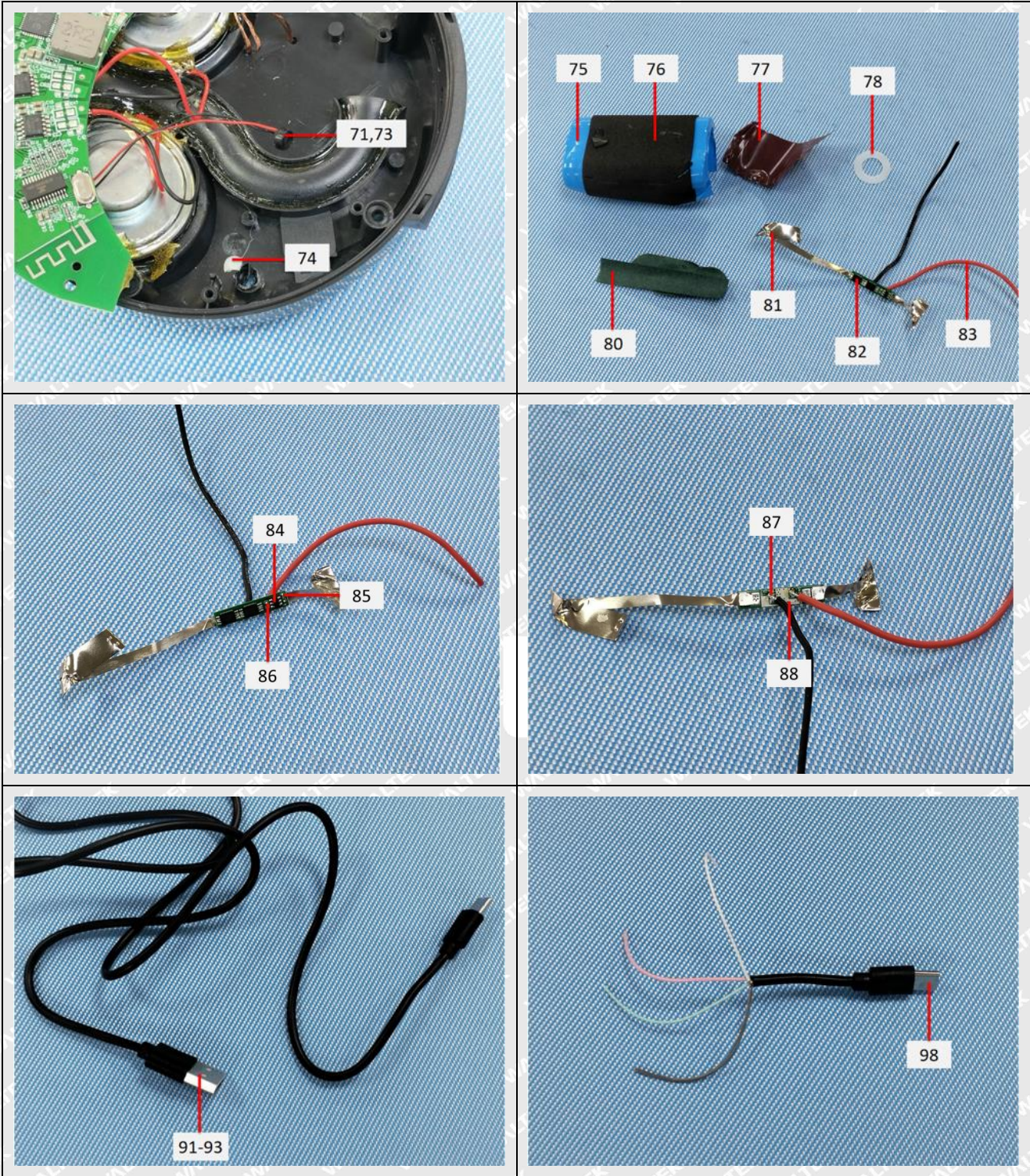
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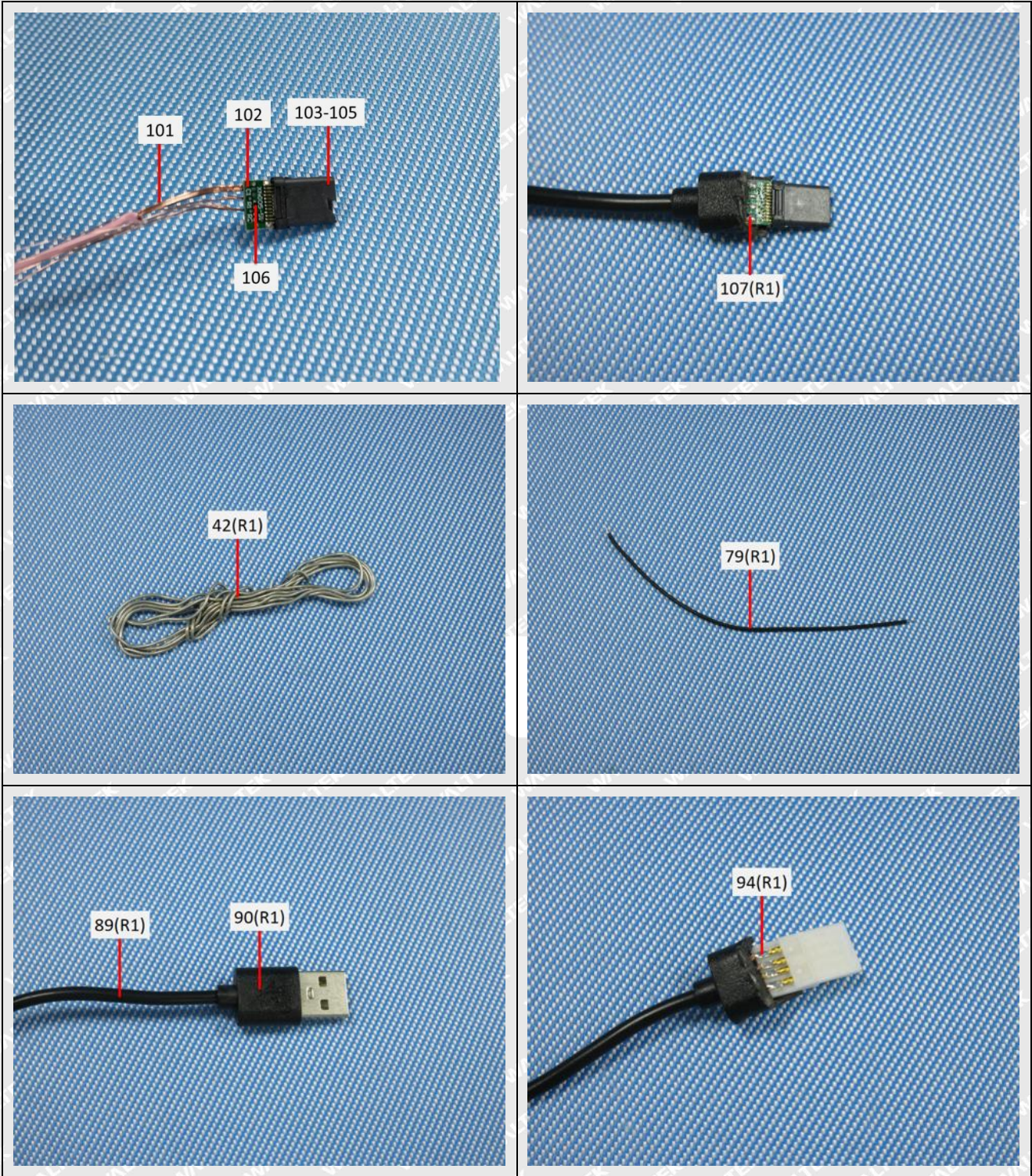
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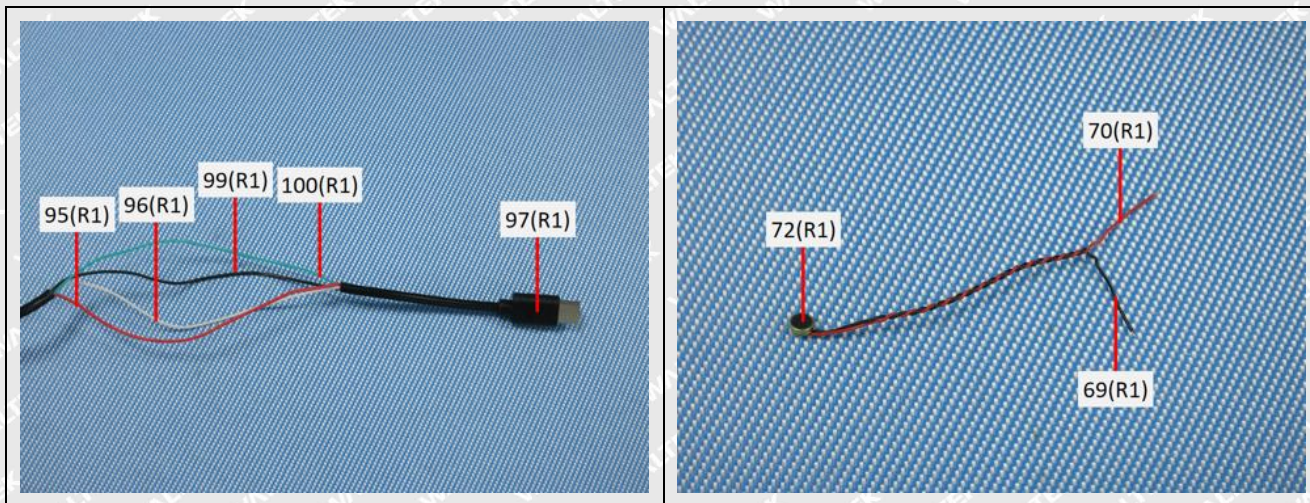
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===== End of Report =====