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检测
TESTING
CNAS L6478



TEST REPORT

Report No. : WTF26F01002798A1C
Job No. : FSW2601120402CJ
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 : 120041
Sample Name : TWS earbuds with charging case
Sample Model : MO6862
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 : 2026-01-12 & 2026-02-02
Testing Period : 2026-01-12 to 2026-01-22 & 2026-02-02 to 2026-02-05
Date of Issue : 2026-02-06
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:



MO6862



MO6862

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

Test Method/Equipment:

- 1) 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 transparent plastic cover	BL	BL	BL	BL	BL	NA
2	Black plastic shell with white printing	BL	BL	BL	BL	BL	NA
3	Semi-transparent plastic shell	BL	BL	BL	BL	BL	NA
4	Silvery magnetic block	BL	BL	BL	BL	--	NA
5	Yellow plastic adhesive tape with black printing	BL	BL	BL	BL	BL	NA
6	Blue plastic wire covering	BL	BL	BL	BL	BL	NA
7	Red plastic wire covering	BL	BL	BL	BL	BL	NA
8	Green PCB	BL	BL	BL	BL	BL	NA
9	Solder	BL	IN	BL	IN	--	Cr ⁶⁺ : Negative Pb :287
10	Black sponge with adhesive	BL	BL	BL	BL	BL	NA
11	Chip IC	BL	BL	BL	BL	BL	NA
12	Chip resistor	BL	IN	BL	BL	BL	Pb :500
13	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	
14	Silvery metal sheet	BL	BL	BL	BL	--	NA
15	Silvery metal wire	BL	BL	BL	BL	--	NA
16	Black body(resistor)	BL	BL	BL	BL	BL	NA
17	Silvery metal screw	BL	BL	BL	BL	--	NA
18	Silvery metal pin(resistor)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
19	Chip LED	BL	BL	BL	BL	BL	NA
20	Golden metal shell	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
21	Silvery metal spring	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
22	Chip IC	BL	BL	BL	BL	BL	NA
23	Chip inductor	BL	BL	BL	BL	BL	NA
24	Chip resistor	BL	BL	BL	BL	BL	NA
25	Grey plastic core(socket)	BL	BL	BL	BL	BL	NA
26	Silvery metal shell(socket)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
27	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
28	Black plastic cover	BL	BL	BL	BL	BL	NA
29	Black plastic shell	BL	BL	BL	BL	BL	NA
30	Black soft plastic shell	BL	BL	BL	BL	BL	NA
31	Golden metal strip	IN	OL	BL	BL	--	Cd :27 #Pb : 3.14x10 ⁴



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Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
32	Silvery metal net with adhesive	BL	BL	BL	BL	--	NA
33	Red plastic wire covering	BL	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	Chip capacitor	BL	OL	BL	BL	BL	*Pb : 1.80×10^4
37	Chip IC	BL	BL	BL	BL	BL	NA
38	Green PCB	BL	BL	BL	BL	BL	NA
39	Chip resistor	BL	OL	BL	BL	BL	*Pb : 6.60×10^4
40(R1)	Solder	BL	IN	BL	BL	--	Pb : 180
41	Green plastic wire covering	BL	BL	BL	BL	BL	NA
42	White plastic wire covering	BL	BL	BL	BL	BL	NA
43	Pink dry glue(loudspeaker)	BL	BL	BL	BL	BL	NA
44	Silvery metal shell(loudspeaker)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
45	Black-grey plastic adhesive tape(loudspeaker)	BL	BL	BL	BL	BL	NA
46	Black sponge with adhesive(loudspeaker)	BL	BL	BL	BL	BL	NA
47	Silvery magnetic block(loudspeaker)	BL	BL	BL	BL	--	NA
48	Red-coppery varnished wire(loudspeaker)	BL	BL	BL	BL	BL	NA
49	Transparent plastic film(loudspeaker)	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	Dark blue PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
51	Chip IC	BL	BL	BL	BL	BL	NA
52	Chip LED	BL	BL	BL	BL	BL	NA
53	Chip diode	BL	BL	BL	BL	BL	NA
54	Chip MIC	BL	BL	BL	BL	BL	NA
55	Chip crystal oscillator	BL	BL	BL	BL	BL	NA
56	Grey plastic cap(button)	BL	BL	BL	BL	BL	NA
57	Grey plastic base(button)	BL	BL	BL	BL	BL	NA
58	Silvery metal shell(button)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
59	Silvery metal sheet(button)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
60	Silvery metal shell(USB plug)	BL	BL	BL	BL	--	NA
61	Black plastic jacket(USB plug)	BL	BL	BL	BL	BL	NA
62	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
63	Black plastic jacket(Type-C plug)	BL	BL	BL	BL	BL	NA
64	Silvery metal shell(Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
65	Silvery metal pin(USB plug)	BL	BL	BL	BL	--	NA
66	White plastic core(USB plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
67	Coppery metal wire	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	Transparent dry glue	BL	BL	BL	BL	BL	NA
69	Red plastic wire covering	BL	BL	BL	BL	BL	NA
70	Black plastic wire covering	BL	BL	BL	BL	BL	NA
71	Solder	BL	BL	BL	BL	--	NA
72	Black plastic core(Type-C plug)	BL	BL	BL	BL	BL	NA
73	Silvery metal sheet(Type-C plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
74	Golden metal pin(Type-C plug)	BL	BL	BL	BL	--	NA
75	Red PCB(Type-C plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
76	Chip resistor(Type-C plug)	BL	BL	BL	BL	BL	NA

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+2+3+25+28 [△]	ND	ND	ND	ND
T02	5+45+49 [△]	ND	ND	ND	ND
T03	6+7+33 [△]	ND	ND	ND	ND
T04	8+38+50+75 [△]	ND	ND	ND	ND
T05	10+46+62 [△]	ND	ND	ND	ND
T06	11+12+13+16+19 [△]	ND	ND	ND	ND
T07	22+23+24+36+37 [△]	ND	ND	ND	ND
T08	29+43+56+57+66 [△]	ND	ND	ND	ND
T09	30+61+63 [△]	ND	ND	ND	ND
T10	34+41+42 [△]	ND	ND	ND	ND
T11	39+51+52+53+55 [△]	ND	ND	ND	ND
T12	48+54+76 [△]	ND	ND	ND	ND
T13	68+72 [△]	ND	ND	ND	ND



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Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T14	69+70 [△]	ND	ND	ND	ND
T15	4	--	--	--	--
T16	9	--	--	--	--
T17	14	--	--	--	--
T18	15	--	--	--	--
T19	17	--	--	--	--
T20	18	--	--	--	--
T21	20	--	--	--	--
T22	21	--	--	--	--
T23	26	--	--	--	--
T24	27	--	--	--	--
T25	31	--	--	--	--
T26	32	--	--	--	--
T27	35	--	--	--	--
T28	40(R1)	--	--	--	--
T29	44	--	--	--	--
T30	47	--	--	--	--
T31	58	--	--	--	--
T32	59	--	--	--	--
T33	60	--	--	--	--
T34	64	--	--	--	--
T35	65	--	--	--	--
T36	67	--	--	--	--
T37	71	--	--	--	--
T38	73	--	--	--	--
T39	74	--	--	--	--



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 ≤ (70-3σ) < IN < (130+3σ) ≤ OL	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	LOD < IN < (150+3σ) ≤ OL
Pb	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Hg	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Cr	BL ≤ (700-3σ) < IN	BL ≤ (700-3σ) < IN	BL ≤ (500-3σ) < IN
Br	BL ≤ (300-3σ) < IN	--	BL ≤ (250-3σ) < 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, μg/cm²= 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	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.

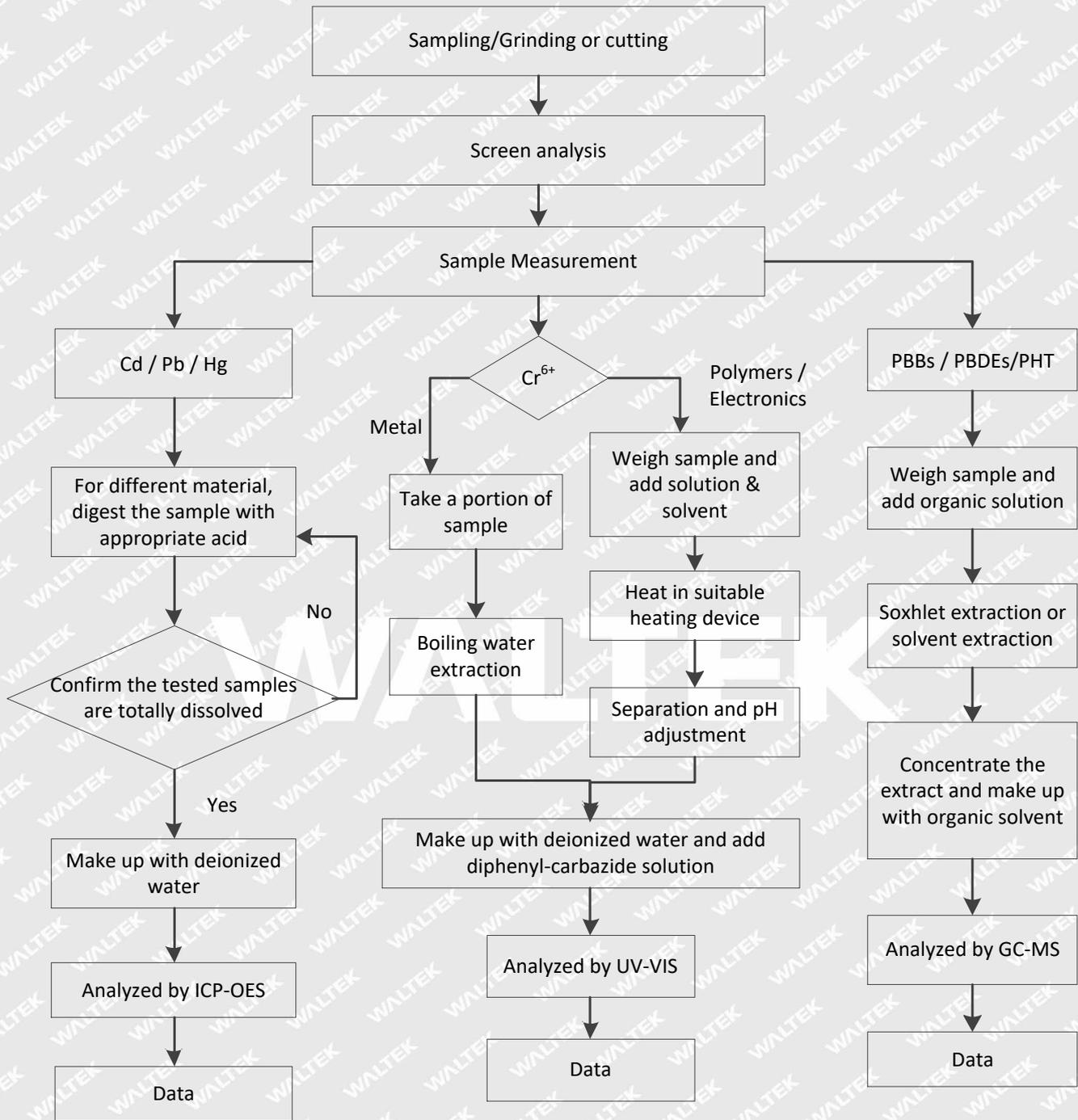
(12) “Δ”=As per applicant's requirement, the testing was conducted based on mixed components by weight in equal ratio, results are calculated by the minimum weight of mixed components.

(13) * = According to the declaration from client, the source of lead in test sample is from the glass or ceramic material of that electronic component which is exempted by Directive 2011/65/EU ANNEX III-7(c)-I.

(14) # = According to the declaration from client, the source of lead in test sample is from copper alloy while lead as copper alloy containing up to 4% lead by weight is exempted by Directive 2011/65/EU ANNEX III-6(c).

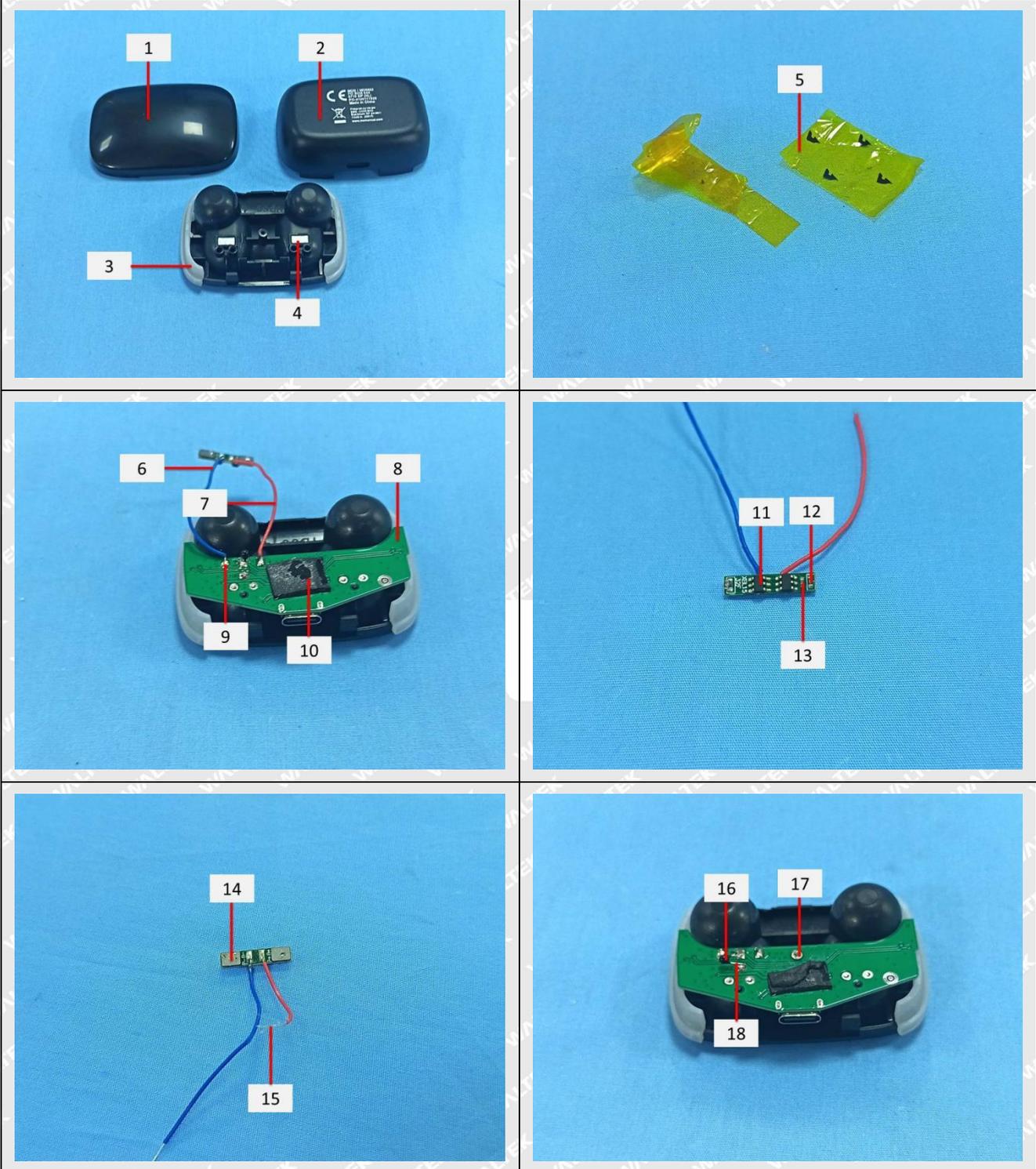


Testing Flow chart:





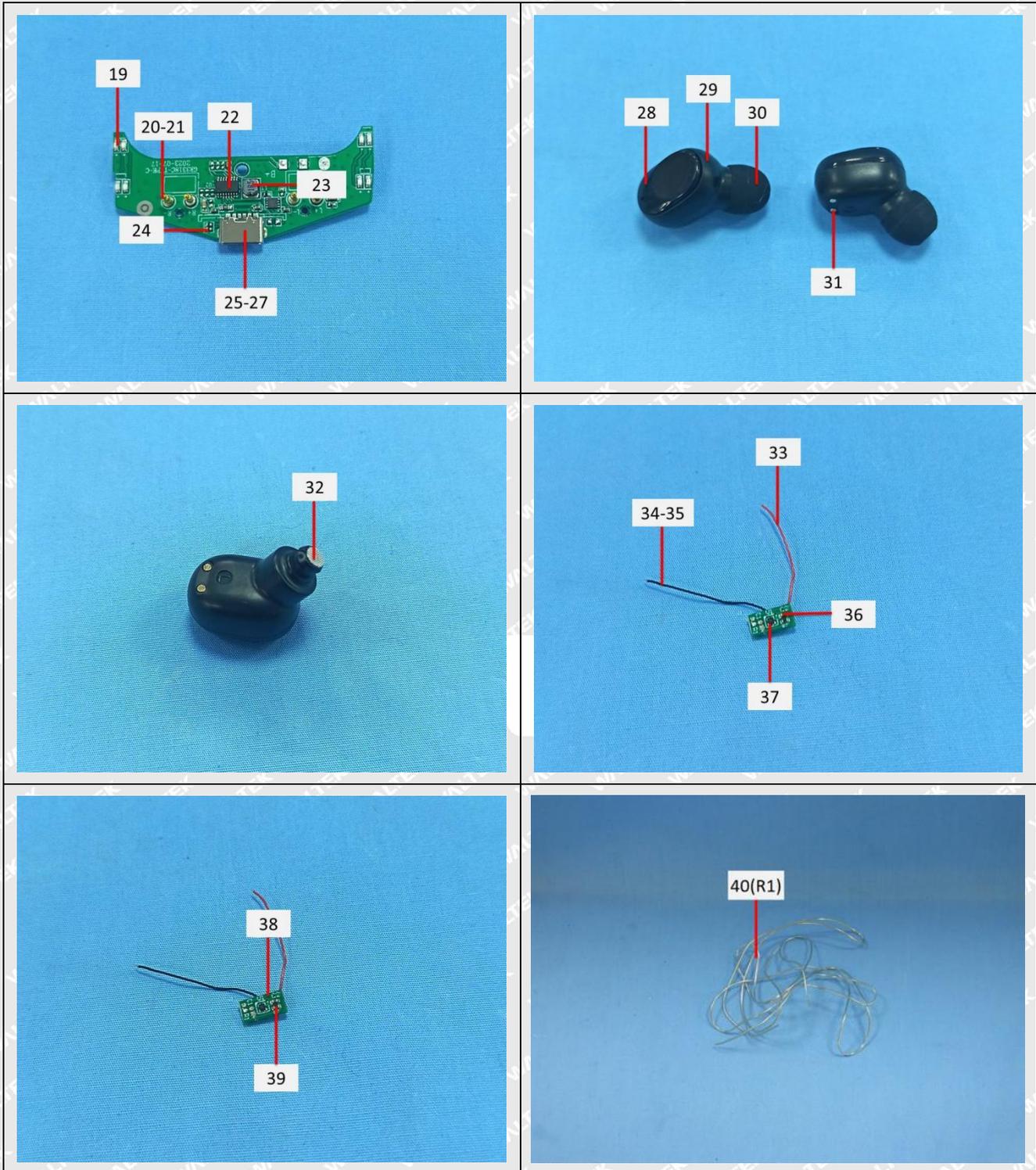
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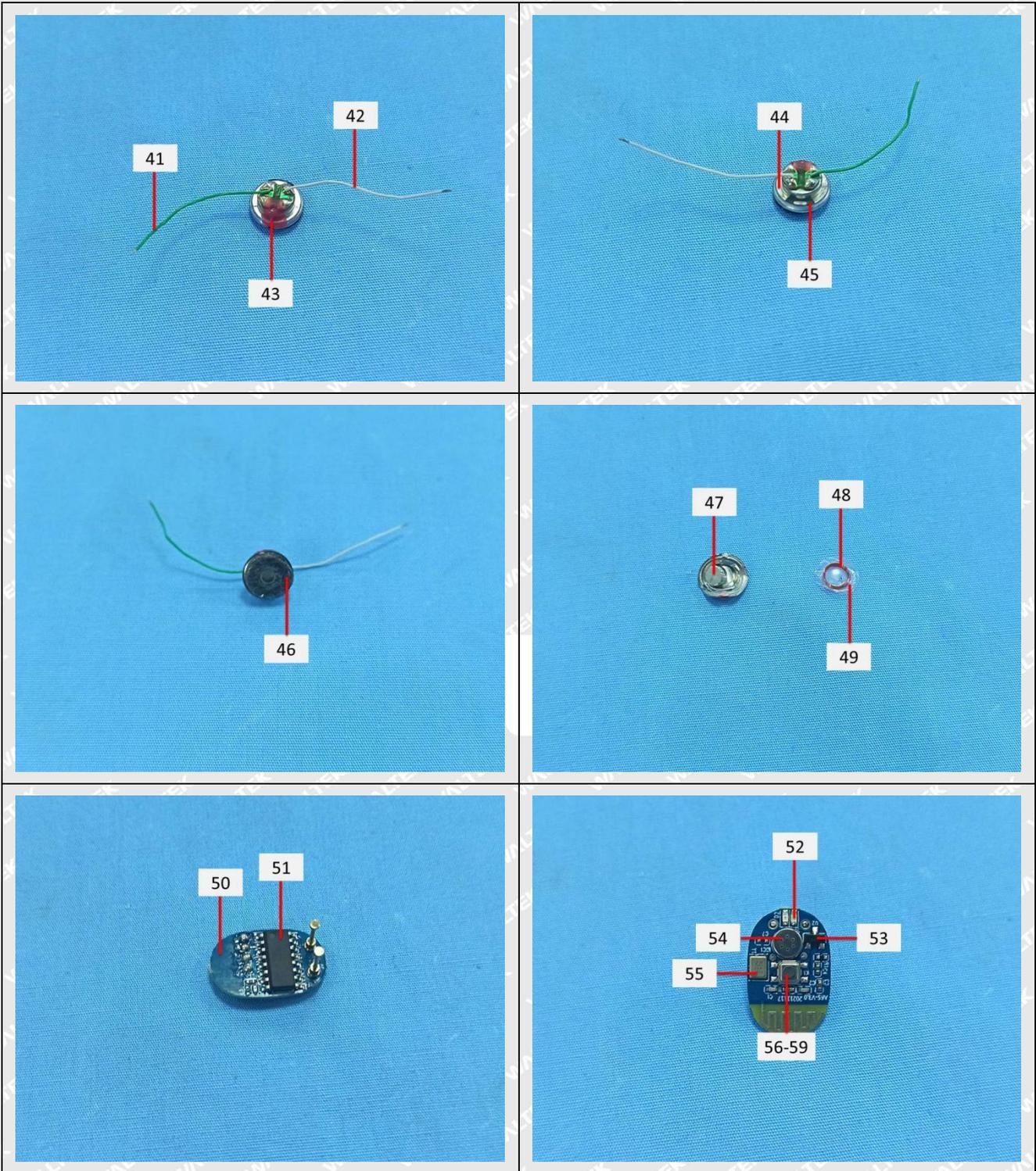




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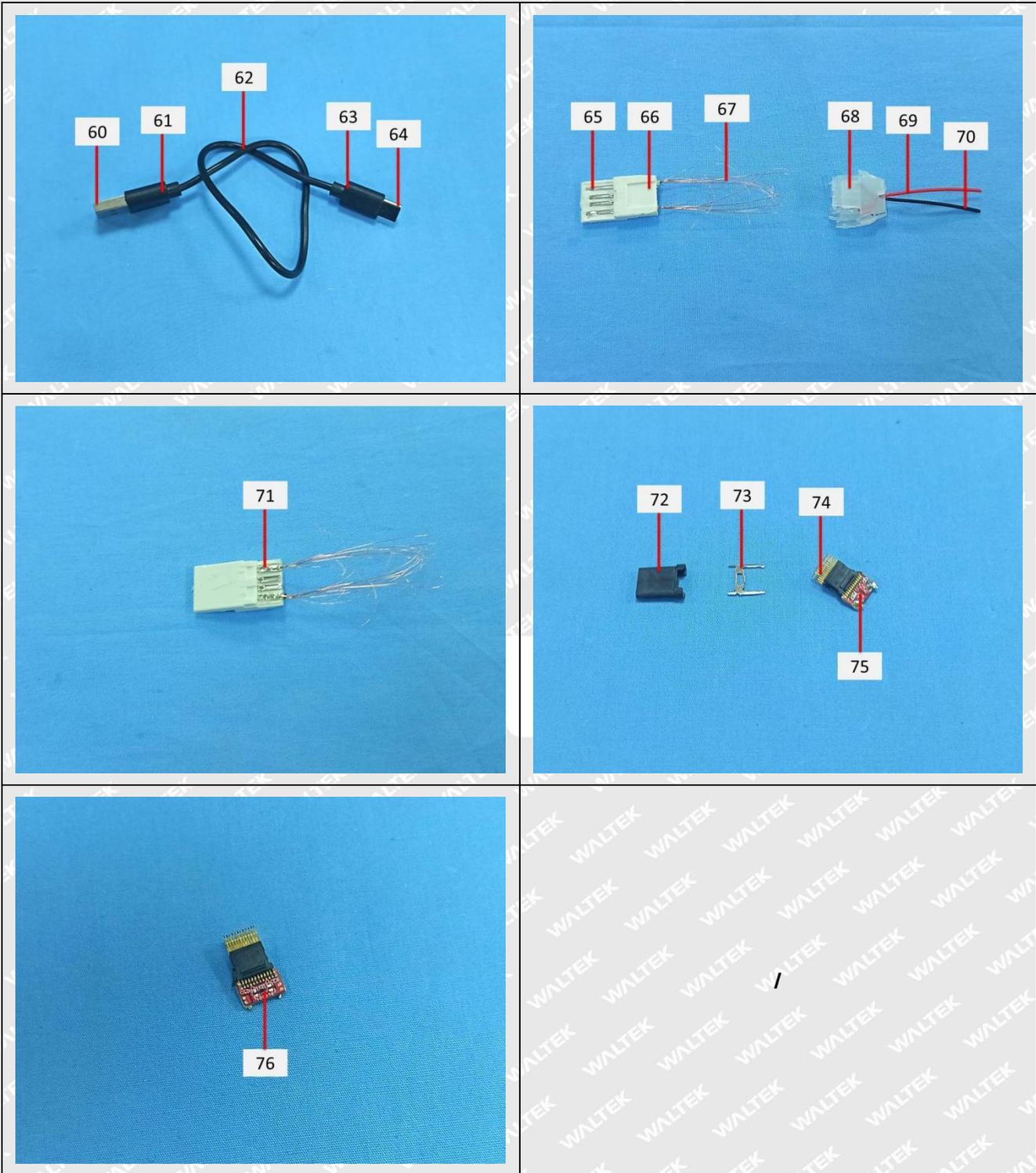






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===== End of Report =====

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