



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No. : WTF25F06152916C
Job No. : FSW2506120541CJ
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 : 118897
Sample Name : Smart watch
Sample Model : MO2748
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 : 2025-06-12
Testing Period : 2025-06-12 to 2025-06-20
Date of Issue : 2025-07-07
Test Result : Refer to next page (s)

Prepared By:

Waltek Testing Group (Foshan) Co., Ltd.

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

Swing Liang



WTF25F06152916C

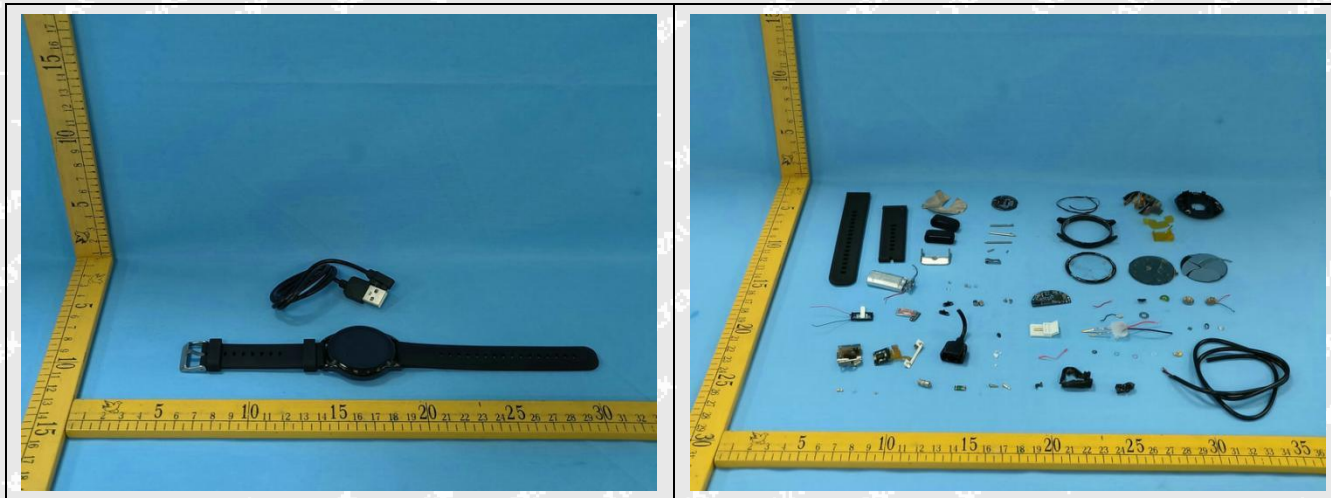
Swing Liang
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Sample photo:



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 62321-6:2015, 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	Silvery metal buckle	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
2	Black soft plastic ring	BL	BL	BL	BL	BL	NA
3	Transparent glass shell with black surface	BL	BL	BL	BL	--	NA
4	Black soft plastic watch strap	BL	BL	BL	BL	BL	NA
5	Silvery metal strip	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
6	Silvery metal shell with black plating	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
7	Silvery metal button with black plating	BL	BL	BL	BL	--	NA
8	Silvery metal buckle	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
9	Silvery metal spring	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
10	Golden metal part	IN	OL	BL	BL	--	Cd :38 #Pb : 2.60×10 ⁴
11	Silvery metal spring	BL	BL	BL	BL	--	NA
12	Transparent plastic sheet with black-silvery printing	BL	BL	BL	BL	BL	NA
13	Black double faced adhesive tape	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 part	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
15	Black plastic shell	BL	BL	BL	BL	BL	NA
16	Silvery metal shell	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
17	Silvery metal spring	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
18	Black PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
19	Chip capacitor(grey-brown)	BL	BL	BL	BL	BL	NA
20	Black soft plastic shell	BL	BL	BL	BL	BL	NA
21	Chip EC	BL	BL	BL	BL	BL	NA
22	Chip LED	BL	BL	BL	BL	BL	NA
23	Silvery-grey fabric adhesive tape	BL	BL	BL	BL	BL	NA
24	Black sponge adhesive tape	BL	BL	BL	BL	BL	NA
25	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
26	Black-brown FPC	BL	BL	BL	BL	BL	NA
27	Black plastic shell(socket)	BL	BL	BL	BL	BL	NA
28	Golden metal pin(socket)	BL	BL	BL	BL	--	NA
29	Chip IC	BL	BL	BL	BL	BL	NA
30	Chip EC	BL	BL	BL	BL	BL	NA
31	Black plastic buckle(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	
32	Grey plastic shell(socket)	BL	BL	BL	BL	BL	NA
33	Silvery metal pin(socket)	BL	BL	BL	BL	--	NA
34	Chip capacitor(grey)	BL	BL	BL	BL	BL	NA
35	Chip IC	BL	BL	BL	BL	BL	NA
36	Brow-green FPC	BL	BL	BL	BL	BL	NA
37	Black plastic adhesive tape	BL	BL	BL	BL	BL	NA
38	Silvery glass sheet	BL	BL	BL	BL	--	NA
39	Chip IC	BL	BL	BL	BL	BL	NA
40	Black transparent glass sheet with adhesive	BL	BL	BL	BL	--	NA
41	Red plastic wire covering	BL	BL	BL	BL	BL	NA
42	Silvery metal wire	BL	BL	BL	BL	--	NA
43	Silvery magnetic block	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
44	Coppery metal wire	BL	BL	BL	BL	--	NA
45	Black soft plastic sheet with adhesive	BL	BL	BL	BL	BL	NA
46	Black plastic wire covering	BL	BL	BL	IN	BL	Cr ⁶⁺ : ND
47	Silvery metal shell	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
48	Black plastic shell	BL	BL	BL	BL	BL	NA
49	Transparent plastic film	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	Red plastic wire covering	BL	BL	BL	BL	BL	NA
51	Silvery metal wire	BL	BL	BL	BL	--	NA
52	Black plastic wire covering	BL	BL	BL	BL	BL	NA
53	Brow plastic adhesive tape	BL	BL	BL	BL	BL	NA
54	Transparent double faced adhesive tape	BL	BL	BL	BL	BL	NA
55	Chip capacitor(brown)	BL	BL	BL	BL	BL	NA
56	Chip IC	BL	BL	BL	BL	BL	NA
57	Solder	BL	BL	BL	BL	--	NA
58	Silvery metal sheet	BL	BL	BL	BL	--	NA
59	Blue PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
60	Black soft plastic gasket	BL	BL	BL	BL	BL	NA
61	White soft glue	BL	BL	BL	BL	BL	NA
62	Silvery-grey fabric sheet with black sponge	BL	BL	BL	BL	BL	NA
63	Black soft plastic gasket	BL	BL	BL	BL	BL	NA
64	Chip audio	BL	BL	BL	BL	BL	NA
65	Chip IC	BL	BL	BL	BL	BL	NA
66	Solder	BL	BL	BL	BL	--	NA
67	Chip diode	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	Brow FPC	BL	BL	BL	BL	BL	NA
69	Silvery metal screw	BL	BL	BL	BL	--	NA
70	Blue PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
71	Black sponge with adhesive	BL	BL	BL	BL	BL	NA
72	Chip crystal oscillator	BL	BL	BL	BL	BL	NA
73	Blue plastic wire covering	BL	BL	BL	BL	BL	NA
74	Silvery metal wire	BL	BL	BL	BL	--	NA
75	Silvery metal shell	BL	BL	BL	BL	--	NA
76	Red plastic wire covering	BL	BL	BL	BL	BL	NA
77	Silvery silicon steel sheet	BL	BL	BL	BL	--	NA
78	White dry glue	BL	BL	BL	BL	BL	NA
79	Red-coppery varnished wire	BL	BL	BL	BL	BL	NA
80	Coppery varnished wire	BL	BL	BL	BL	BL	NA
81	Transparent dry glue	BL	BL	BL	BL	BL	NA
82	Coppery metal part	BL	BL	BL	BL	--	NA
83	Silvery magnetic ring	BL	BL	BL	BL	--	NA
84	Green PCB	BL	BL	BL	BL	BL	NA
85	Brow FPC	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	Silvery metal axle	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
87	White plastic sheet	BL	BL	BL	BL	BL	NA
88	Silvery magnetic block	BL	BL	BL	BL	--	NA
89	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
90	Brow FPC	BL	BL	BL	BL	BL	NA
91	Red plastic wire covering	BL	BL	BL	BL	BL	NA
92	Silvery metal wire	BL	BL	BL	BL	--	NA
93	Black plastic wire covering	BL	BL	BL	BL	BL	NA
94	Black plastic sheet with adhesive	BL	BL	BL	BL	BL	NA
95	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
96	Chip EC	BL	BL	BL	IN	BL	Cr ⁶⁺ : ND
97	Silvery plastic film	BL	BL	BL	BL	BL	NA
98	Silvery metal gasket	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
99	Silvery metal ring	BL	BL	BL	BL	--	NA
100	Golden metal shell	BL	BL	BL	BL	--	NA
101	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
102	White plastic ring	BL	BL	BL	BL	BL	NA
103	Red plastic ring	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	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
105	Black plastic jacket(USB plug)	BL	BL	BL	BL	BL	NA
106	Silvery metal shell(USB plug)	BL	BL	BL	BL	--	NA
107	White plastic core(USB plug)	BL	BL	BL	BL	BL	NA
108	Golden metal pin(USB plug)	BL	BL	BL	BL	--	NA
109	Transparent dry glue(USB plug)	BL	BL	BL	BL	BL	NA
110	Red plastic wire covering	BL	BL	BL	BL	BL	NA
111	Coppery metal wire	BL	BL	BL	BL	--	NA
112	Solder	BL	BL	BL	BL	--	NA
113	Black plastic wire covering	BL	BL	BL	BL	BL	NA
114	Black plastic jacket(plug)	BL	BL	BL	BL	BL	NA
115	Golden metal shell(plug)	IN	OL	BL	BL	--	Cd :32 #Pb : 2.51×10^4
116	Silvery metal spring(plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
117	Silvery magnetic block(plug)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
118	Chip resistor(plug)	BL	BL	BL	BL	BL	NA
119	Solder(plug)	BL	BL	BL	BL	--	NA
120	Green PCB(plug)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND



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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	2+4+20 [△]	ND	ND	ND	ND
T02	12+15+27+31+32 [△]	ND	ND	ND	ND
T03	13+54 [△]	130	ND	ND	ND
T04	18+36+59+68+70 [△]	ND	ND	ND	ND
T05	19+21+22+29+30 [△]	ND	ND	ND	ND
T06	23+62 [△]	ND	ND	ND	ND
T07	24+71 [△]	256	ND	ND	ND
T08	26+84+85+90+95 [△]	ND	ND	ND	ND
T09	34+35+39+55+56 [△]	ND	ND	ND	ND
T10	37+53 [△]	ND	ND	ND	ND
T11	41+45+46 [△]	ND	ND	ND	ND
T12	48+87+102+103+107 [△]	ND	ND	ND	ND
T13	49+97 [△]	ND	ND	ND	ND
T14	50+52+60 [△]	ND	ND	ND	ND
T15	61+78+81+109 [△]	ND	ND	100	ND
T16	63+73+76 [△]	ND	ND	ND	ND
T17	64+65+67+72+96 [△]	ND	ND	ND	ND
T18	79+80 [△]	ND	ND	ND	ND
T19	91+93+104 [△]	ND	ND	ND	ND
T20	94	ND	ND	ND	ND
T21	105+110+113 [△]	ND	ND	ND	ND
T22	114	ND	ND	ND	ND
T23	118	ND	ND	ND	ND
T24	120	ND	ND	ND	ND
T25	1	--	--	--	--
T26	3	--	--	--	--
T27	5	--	--	--	--
T28	6	--	--	--	--
T29	7	--	--	--	--
T30	8	--	--	--	--
T31	9	--	--	--	--
T32	10	--	--	--	--
T33	11	--	--	--	--
T34	14	--	--	--	--
T35	16	--	--	--	--



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Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T36	17	--	--	--	--
T37	25	--	--	--	--
T38	28	--	--	--	--
T39	33	--	--	--	--
T40	38	--	--	--	--
T41	40	--	--	--	--
T42	42	--	--	--	--
T43	43	--	--	--	--
T44	44	--	--	--	--
T45	47	--	--	--	--
T46	51	--	--	--	--
T47	57	--	--	--	--
T48	58	--	--	--	--
T49	66	--	--	--	--
T50	69	--	--	--	--
T51	74	--	--	--	--
T52	75	--	--	--	--
T53	77	--	--	--	--
T54	82	--	--	--	--
T55	83	--	--	--	--
T56	86	--	--	--	--
T57	88	--	--	--	--
T58	89	--	--	--	--
T59	92	--	--	--	--
T60	98	--	--	--	--
T61	99	--	--	--	--
T62	100	--	--	--	--
T63	101	--	--	--	--
T64	106	--	--	--	--
T65	108	--	--	--	--
T66	111	--	--	--	--
T67	112	--	--	--	--
T68	115	--	--	--	--
T69	116	--	--	--	--
T70	117	--	--	--	--
T71	119	--	--	--	--

**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) “△”=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.

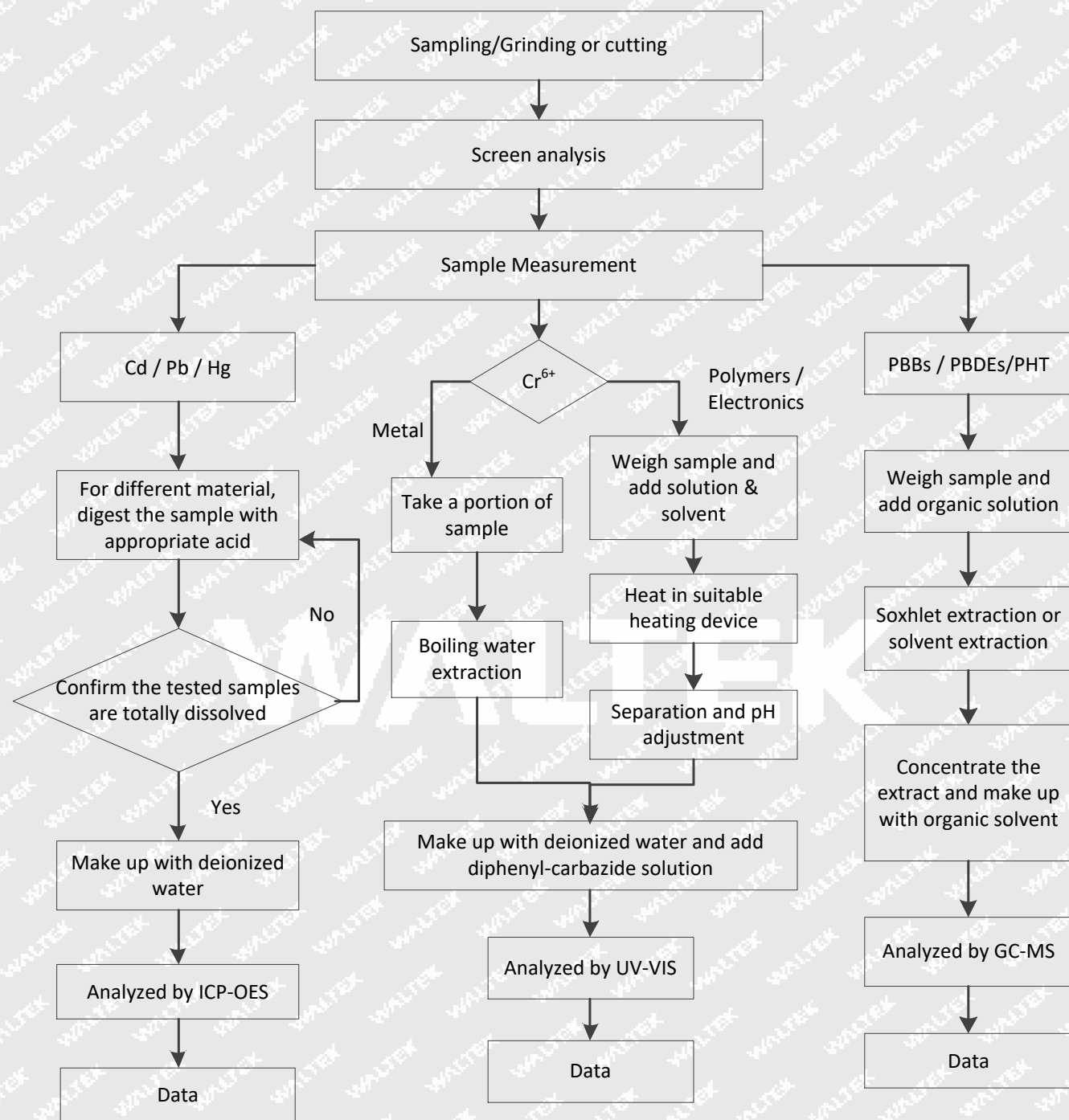
(13)[#] = According to the declaration from client, the source of lead in test sample is from copper alloy while lead as copper alloy containing up to 4% lead by weight is exempted by Directive 2011/65/EU ANNEX III-6(c).



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Testing Flow chart:

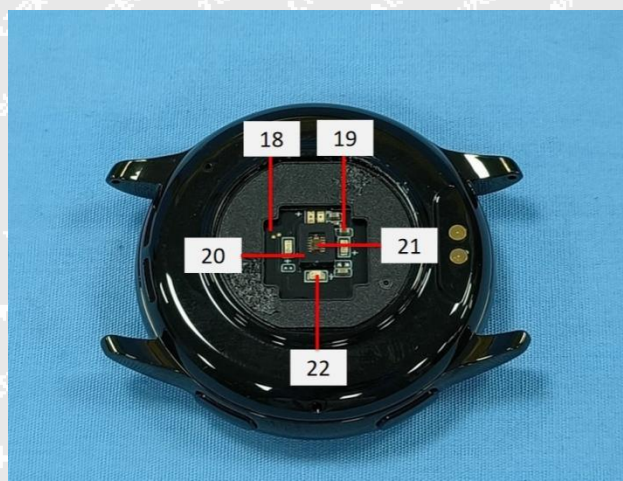
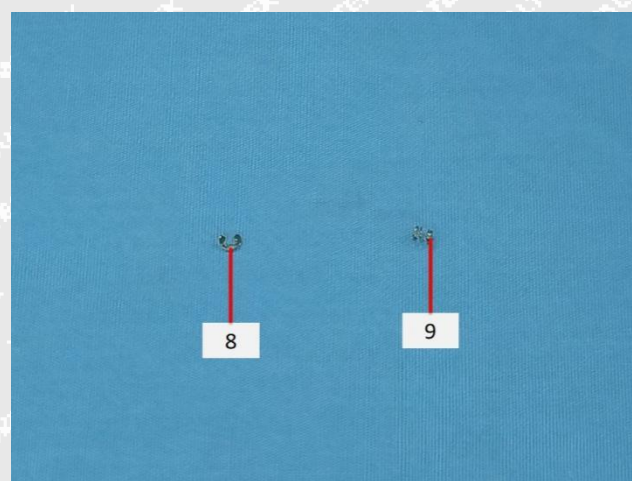
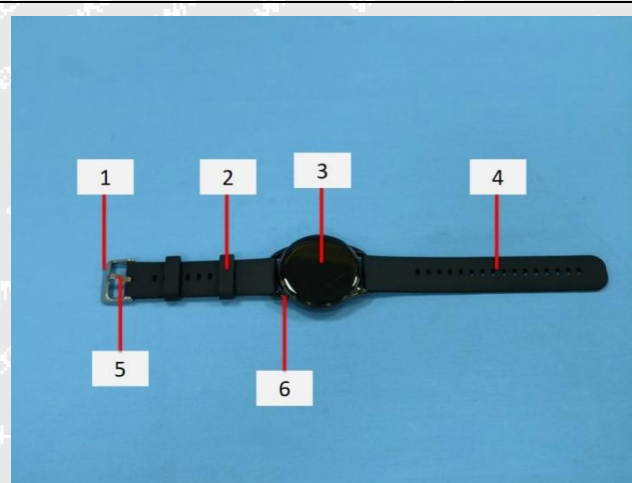




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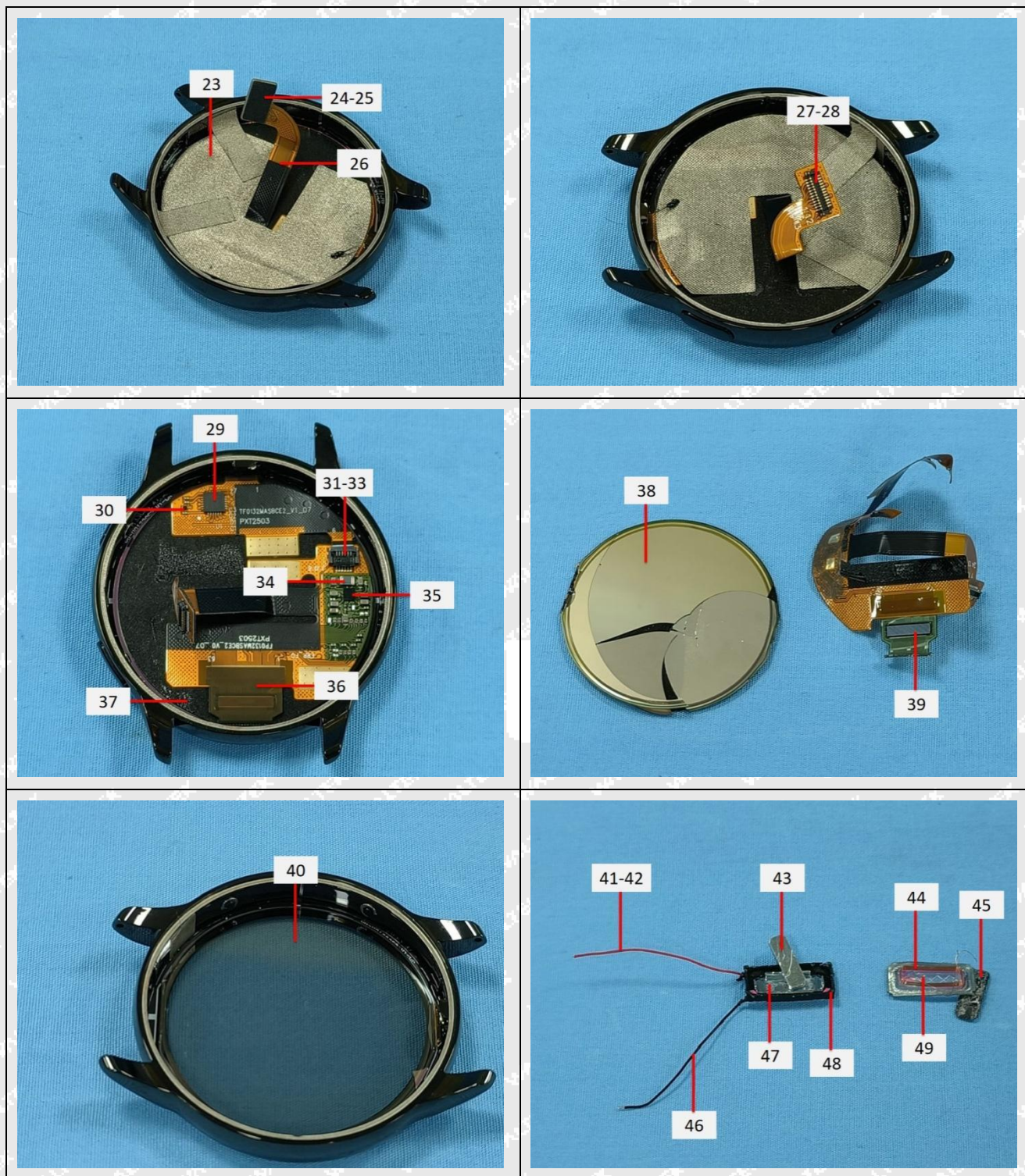
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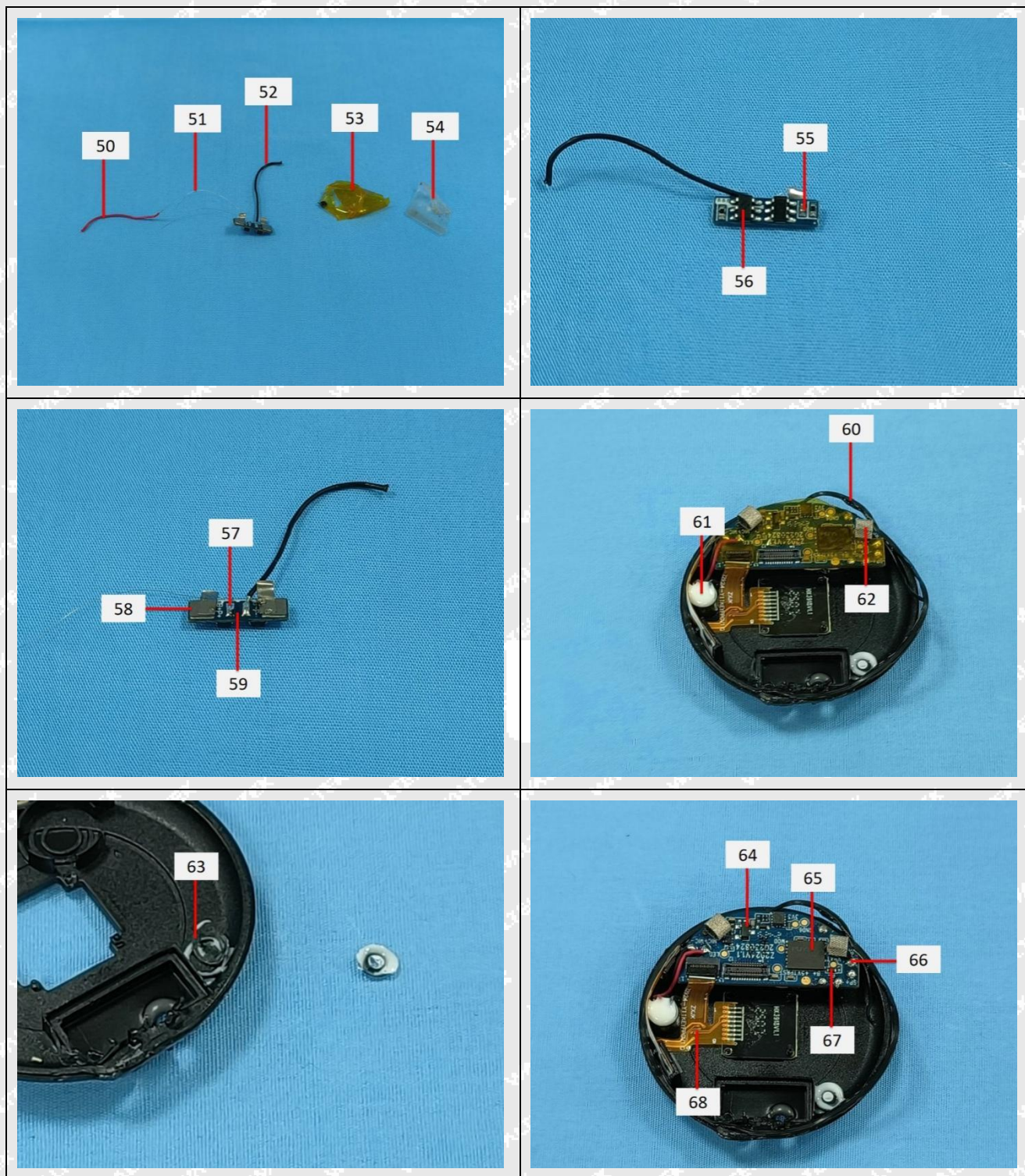
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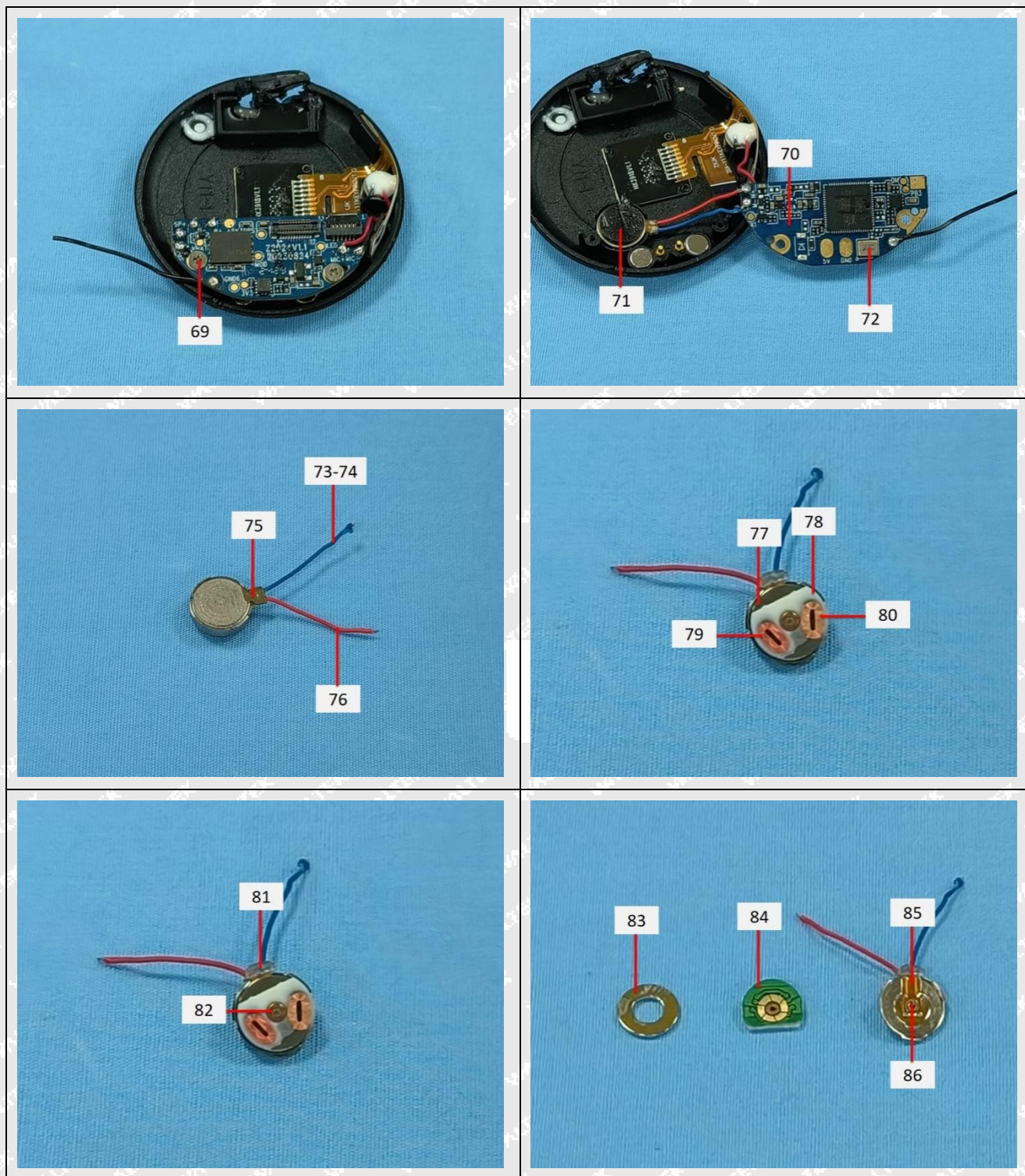
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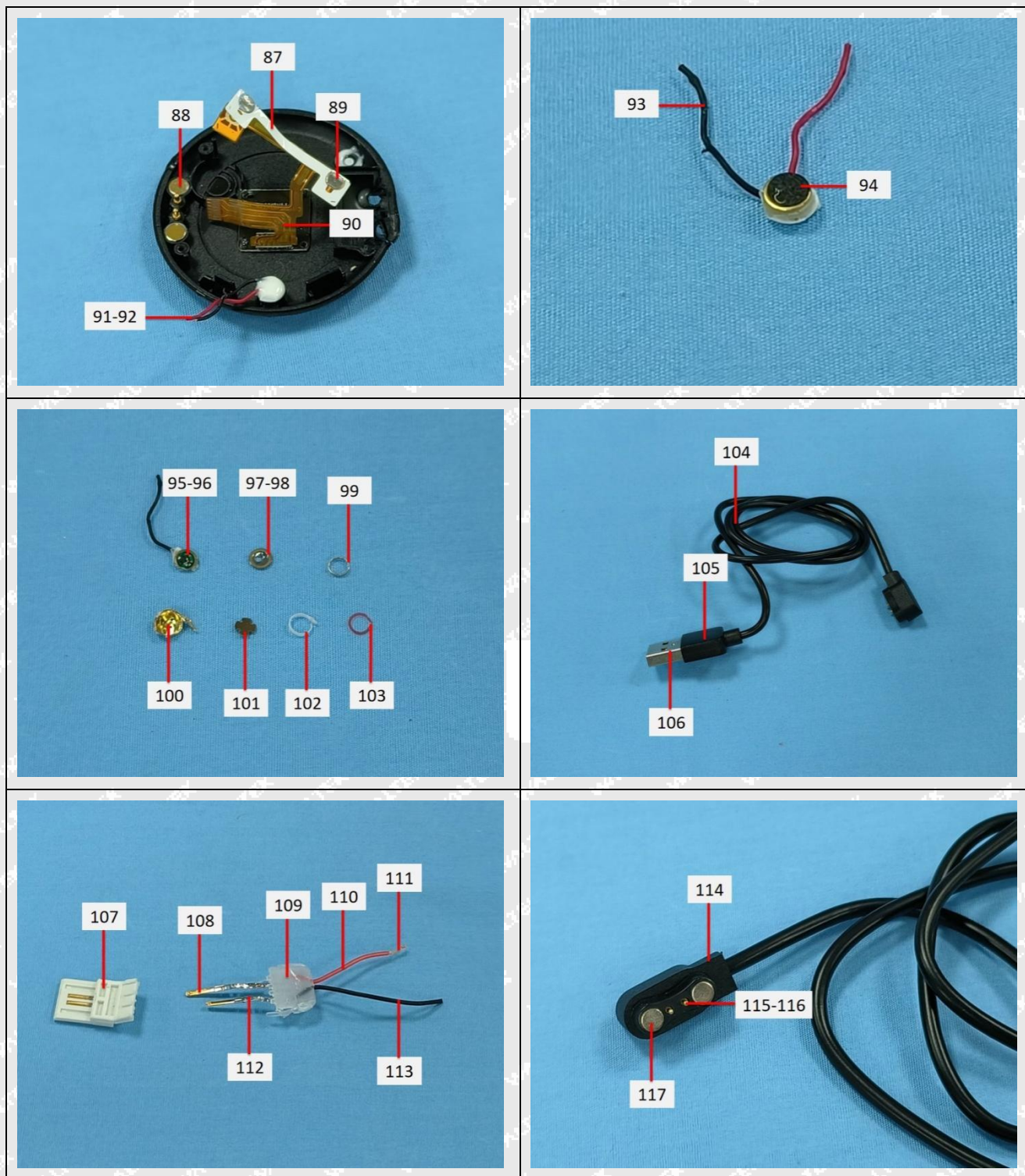
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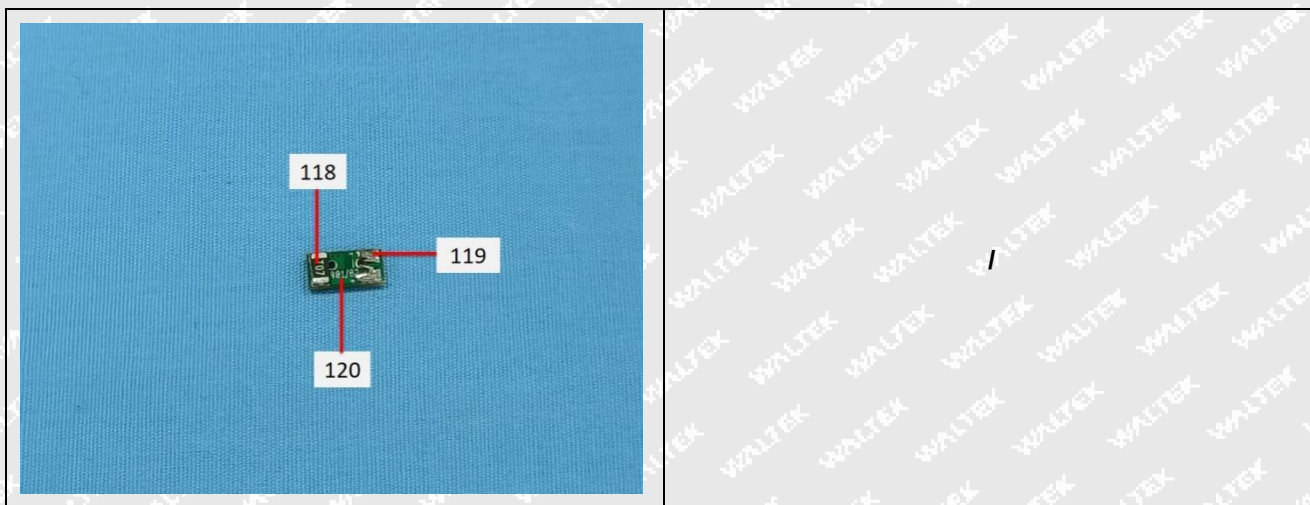
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===== End of Report =====