



TEST REPORT

Report No...... : WTZ23F03048451C
Applicant..... : Jiangmen City Xinhui Henglong Innovative Housewares Co., Ltd
Address..... : Folk Enterprise Industrial Park, Xinhui, Jiangmen City, Guangdong, China
Manufacturer..... : Jiangmen City Xinhui Henglong Innovative Housewares Co., Ltd
Address..... : Folk Enterprise Industrial Park, Xinhui, Jiangmen City, Guangdong, China
Sample Name..... : Coffee machine
Sample Model..... : HLK-02
Reference Model No...... : HLK-01
Date of Receipt sample..... : 2023-03-14 & 2023-03-29
Testing period..... : 2023-03-14 to 2023-03-31
Date of Issue..... : 2023-04-03
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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Test Requested : In accordance with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863.

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, 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
7) With reference to IEC 62321-8:2017, determination of Phthalates content by GC-MS.

Test Conclusion : **Pass** (Based on the performed tests on the submitted samples, the results comply with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863)

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Sample Photo(s):



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

Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
1	White plastic shell	BL	BL	BL	BL	BL	NA
2	White soft plastic stopper	BL	BL	BL	BL	BL	NA
3	White plastic base	BL	BL	BL	BL	BL	NA
4	White plastic sheet	BL	BL	BL	BL	BL	NA
5	White fibrous net	BL	BL	BL	BL	BL	NA
6	White plastic tube	BL	BL	BL	BL	BL	NA
7	Red plastic sheet	BL	BL	BL	BL	BL	NA
8	White soft plastic sheet	BL	BL	BL	BL	BL	NA
9	Transparent glass	BL	BL	BL	BL	--	NA
10	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
11	Black coating	BL	BL	BL	IN	BL	Cr ⁶⁺ : ND
12	Silvery metal sheet without black coating	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
13	Silvery metal sheet	BL	BL	BL	BL	--	NA
14	White soft plastic ring	BL	BL	BL	BL	BL	NA
15	Beige plastic sheet	BL	BL	BL	BL	BL	NA
16	Silvery metal sheet	BL	BL	BL	BL	--	NA
17	Silvery-grey metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
18	White powder	BL	BL	BL	BL	BL	NA
19	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	
20	Brown soft plastic stopper	BL	BL	BL	BL	BL	NA
21	Blue fibrous wire covering	BL	BL	BL	BL	BL	NA
22	White plastic wire covering	BL	BL	BL	BL	BL	NA
23	Silvery metal wire	BL	BL	BL	BL	--	NA
24	Silvery metal shell (fuse)	BL	BL	BL	BL	--	NA
25	Silvery metal spring (fuse)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
26	Silvery metal sheet (fuse)	BL	BL	BL	BL	--	NA
27	Pink powder (fuse)	BL	BL	BL	BL	BL	NA
28	Black glue (fuse)	BL	BL	BL	BL	BL	NA
29	Silvery metal pin (fuse)	BL	BL	BL	BL	--	NA
30	Golden metal terminal	BL	BL	BL	BL	--	NA
31	White fibrous tube	BL	BL	BL	BL	BL	NA
32	Semi-transparent plastic cap	BL	BL	BL	BL	BL	NA
33	Silvery metal terminal	BL	BL	BL	BL	--	NA
34	Silvery metal sheet	BL	BL	BL	BL	--	NA
35	White fibrous wire	BL	BL	BL	BL	BL	NA
36	Black heat-shrinkable tube	BL	BL	BL	BL	BL	NA
37	White soft plastic tube	BL	BL	BL	BL	BL	NA
38	Silvery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
39	White plastic ball	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	
40	Silvery metal sheet	BL	BL	BL	BL	--	NA
41	Silvery metal cover	OL	BL	BL	BL	--	NA
42	White ceramic sheet	BL	BL	BL	BL	--	NA
43	Silvery-coppery metal sheet	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
44	Coppery metal sheet	BL	BL	BL	BL	--	NA
45	Silvery metal sheet	BL	BL	BL	BL	--	NA
46	Silvery-coppery metal contact	* ¹ OL	BL	BL	BL	--	NA
47	White ceramic sheet	BL	BL	BL	BL	--	NA
48	White fibrous tube	BL	BL	BL	BL	BL	NA
49	White nylon cable tie	BL	BL	BL	BL	BL	NA
50	Red fibrous wire covering	BL	BL	BL	BL	BL	NA
51	Yellow-green fibrous wire covering	BL	BL	BL	BL	BL	NA
52	Silvery metal terminal	BL	BL	BL	BL	--	NA
53	Silvery metal ring	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
54	Black plastic shell (relay)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
55	Black plastic base with adhesive (relay)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
56	Coppery varnished wire (relay)	BL	BL	BL	BL	BL	NA
57	Silvery metal axle (relay)	BL	BL	BL	BL	--	NA
58	Coppery metal sheet (relay)	BL	BL	BL	BL	--	NA
59	Silvery metal contact (relay)	BL	BL	BL	BL	--	NA



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
60	Silvery metal sheet (relay)	BL	BL	BL	BL	--	NA
61	Black plastic film (electrolytic capacitor)	BL	BL	BL	BL	BL	NA
62	Black rubber stopper (electrolytic capacitor)	BL	BL	BL	BL	BL	NA
63	Brown paper (electrolytic capacitor)	BL	BL	BL	BL	BL	NA
64	Silvery metal shell (electrolytic capacitor)	BL	BL	BL	BL	--	NA
65	Grey metal foil (electrolytic capacitor)	BL	BL	BL	BL	--	NA
66	Silvery-grey metal foil (electrolytic capacitor)	BL	BL	BL	BL	--	NA
67	Brown plastic shell (fuse)	BL	BL	BL	BL	BL	NA
68	Black plastic base (fuse)	BL	BL	BL	BL	BL	NA
69	Silvery metal wire (fuse)	BL	BL	BL	BL	--	NA
70	White fibrous wire (fuse)	BL	BL	BL	BL	BL	NA
71	White sand (fuse)	BL	BL	BL	BL	BL	NA
72	Yellow plastic shell (capacitor)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
73	Yellow epoxy resin (capacitor)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
74	Silvery plastic film (capacitor)	BL	BL	BL	BL	BL	NA
75	White plastic shell (socket)	BL	BL	BL	BL	BL	NA
76	Silvery metal pin (socket)	BL	BL	BL	BL	--	NA
77	Dark yellow plastic shell (capacitor)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
78	Yellow resistor with multicolour coating	BL	BL	BL	BL	BL	NA
79	Blue capacitor	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	
80	Grey resistor with multicolour coating	BL	BL	BL	BL	BL	NA
81	Chip IC	BL	BL	BL	BL	BL	NA
82	Solder	BL	BL	BL	BL	--	NA
83	Chip capacitor	BL	BL	BL	BL	BL	NA
84	Chip diode	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
85	Chip resistor	BL	OL	BL	BL	BL	*Pb : 2.53×10^3
86	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
87	Chip audion	BL	BL	BL	BL	BL	NA
88	White plastic wire covering	BL	BL	BL	BL	BL	NA
89	White plastic shell (connector)	BL	BL	BL	BL	BL	NA
90	Silvery metal pin (connector)	BL	BL	BL	BL	--	NA
91	Solder	BL	BL	BL	BL	--	NA
92	Silvery metal wire	BL	BL	BL	BL	--	NA
93	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
94	Chip LED	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
95	Silvery metal sheet	IN	OL	BL	BL	--	Cd :15 #Pb : 2.11×10^4
96	Silvery metal pin	BL	BL	BL	BL	--	NA
97	White plastic core	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
98	White plastic jacket	BL	BL	BL	BL	BL	NA
99	White plastic wire jacket	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	
100	Brown plastic wire covering	BL	BL	BL	BL	BL	NA
101	Coppery metal wire	BL	BL	BL	BL	--	NA
102	Blue plastic wire covering	BL	BL	BL	BL	BL	NA
103	Golden metal terminal	BL	BL	BL	BL	--	NA
104	Yellow-green plastic wire covering	BL	BL	BL	BL	BL	NA
105	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
106	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
107	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
108	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
109	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
110	Silvery metal spring	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
111	Black plastic cap (button)	BL	BL	BL	BL	BL	NA
112	Black plastic base (button)	BL	BL	BL	BL	BL	NA
113	Silvery metal sheet (button)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative

**Remark:**

- (1) Results are obtained by EDXRF 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

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

- (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 $0.10\text{ug}/\text{cm}^2$.
 Positive = Presence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is greater than $0.13\text{ug}/\text{cm}^2$.
 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)* = 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.
- (12)*¹ = According to the declaration from client, the source of cadmium in test sample is from cadmium and its compounds in electrical contacts which is exempted by Directive 2011/65/EU ANNEX III.
- (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.

2. Phthalates:

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T01	1+3+4+6+7 [△]	ND	ND	ND	ND
T02	2	ND	ND	ND	ND
T03	5	ND	ND	ND	ND
T04	8	ND	ND	ND	ND
T05	9	--	--	--	--
T06	10	--	--	--	--
T07	11	ND	ND	ND	ND
T08	12	--	--	--	--
T09	13	--	--	--	--
T10	14	ND	ND	ND	ND
T11	15+32+49+112 [△]	ND	ND	ND	ND
T12	16	--	--	--	--
T13	17	--	--	--	--
T14	18	ND	ND	ND	ND
T15	19	--	--	--	--
T16	20	ND	ND	ND	ND
T17	21	ND	ND	ND	ND
T18	22	ND	ND	ND	ND
T19	23	--	--	--	--
T20	24	--	--	--	--
T21	25	--	--	--	--
T22	26	--	--	--	--



Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T23	27	ND	ND	ND	ND
T24	28	ND	ND	ND	ND
T25	29	--	--	--	--
T26	30	--	--	--	--
T27	31	ND	ND	ND	ND
T28	33	--	--	--	--
T29	34	--	--	--	--
T30	35	ND	ND	ND	ND
T31	36	ND	ND	ND	ND
T32	37	ND	ND	ND	ND
T33	38	--	--	--	--
T34	39	ND	ND	ND	ND
T35	40	--	--	--	--
T36	41	--	--	--	--
T37	42	--	--	--	--
T38	43	--	--	--	--
T39	44	--	--	--	--
T40	45	--	--	--	--
T41	46	--	--	--	--
T42	47	--	--	--	--
T43	48	ND	ND	ND	ND
T44	50	ND	ND	ND	ND
T45	51	ND	ND	ND	ND
T46	52	--	--	--	--
T47	53	--	--	--	--
T48	54	ND	ND	ND	ND
T49	55	ND	ND	ND	ND
T50	56+70+71+78+79 [△]	ND	ND	ND	ND
T51	57	--	--	--	--
T52	58	--	--	--	--
T53	59	--	--	--	--
T54	60	--	--	--	--
T55	61	ND	ND	ND	ND
T56	62	ND	ND	ND	ND
T57	63	ND	ND	ND	ND
T58	64	--	--	--	--
T59	65	--	--	--	--
T60	66	--	--	--	--
T61	67+68+75+89 [△]	ND	ND	ND	ND
T62	69	--	--	--	--
T63	72	ND	ND	ND	ND
T64	73	ND	ND	ND	ND
T65	74	ND	ND	ND	ND
T66	76	--	--	--	--



Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T67	77	ND	ND	ND	ND
T68	80+81+83+84+85 [△]	ND	ND	ND	ND
T69	82	--	--	--	--
T70	86+87+93+94 [△]	ND	ND	ND	ND
T71	88	ND	ND	ND	ND
T72	90	--	--	--	--
T73	91	--	--	--	--
T74	92	--	--	--	--
T75	95	--	--	--	--
T76	96	--	--	--	--
T77	97	ND	ND	ND	ND
T78	98	ND	ND	ND	ND
T79	99	ND	ND	ND	ND
T80	100	ND	ND	ND	ND
T81	101	--	--	--	--
T82	102	ND	ND	ND	ND
T83	103	--	--	--	--
T84	104	ND	ND	ND	ND
T85	105	--	--	--	--
T86	106	--	--	--	--
T87	107	--	--	--	--
T88	108	--	--	--	--
T89	109	--	--	--	--
T90	110	--	--	--	--
T91	111	ND	ND	ND	ND
T92	113	--	--	--	--

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.

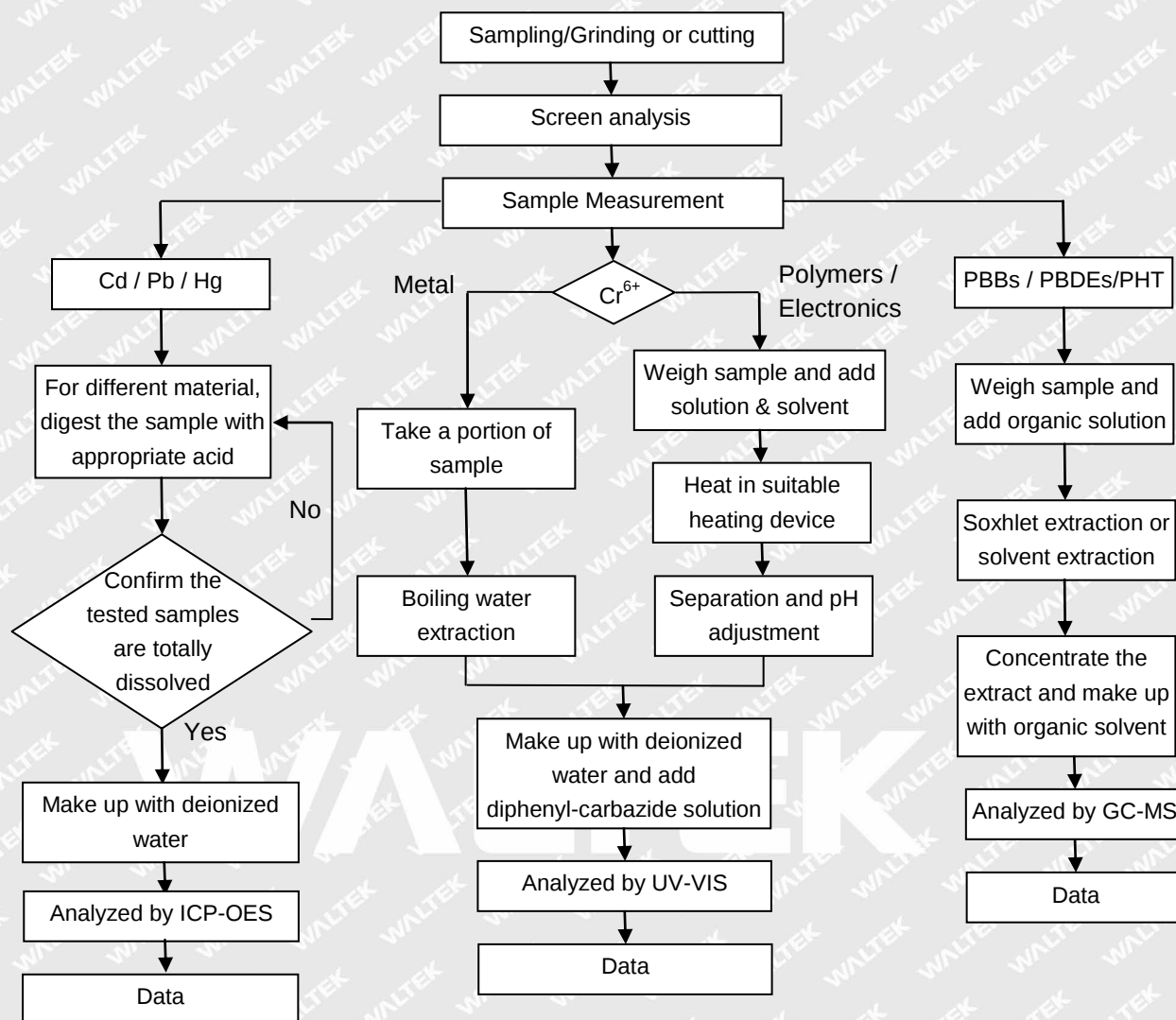
- (6) RoHS requirement

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.

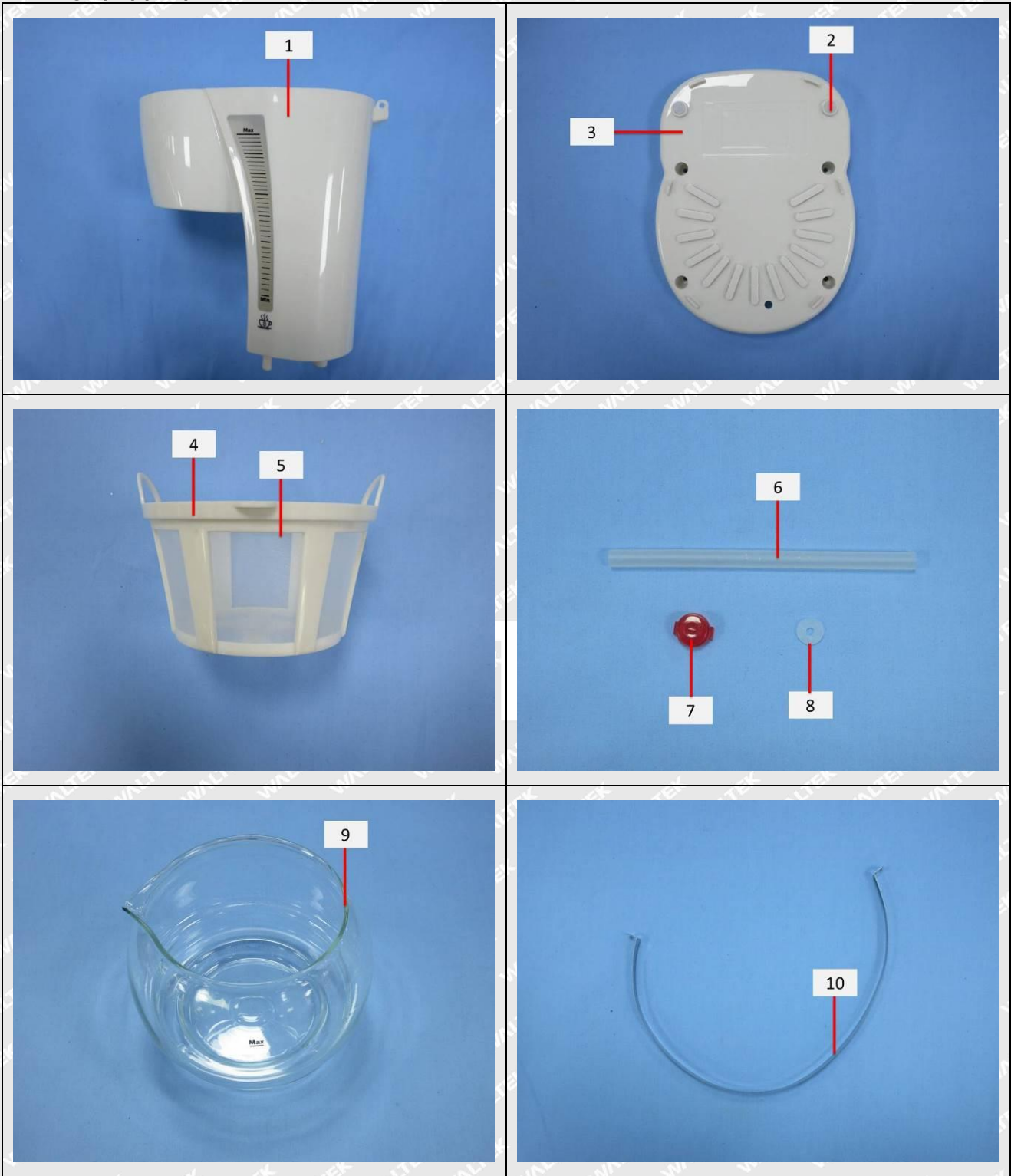


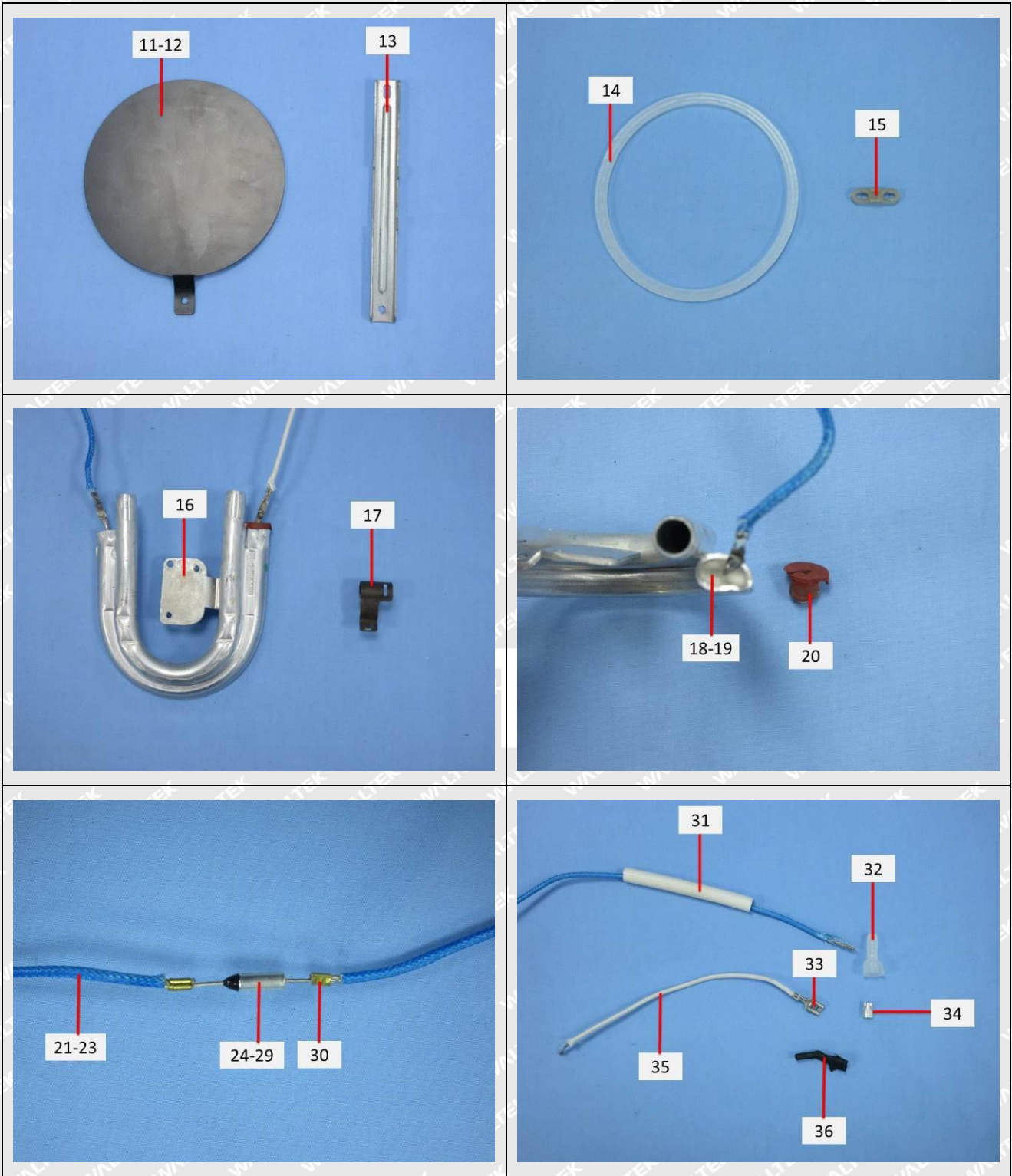
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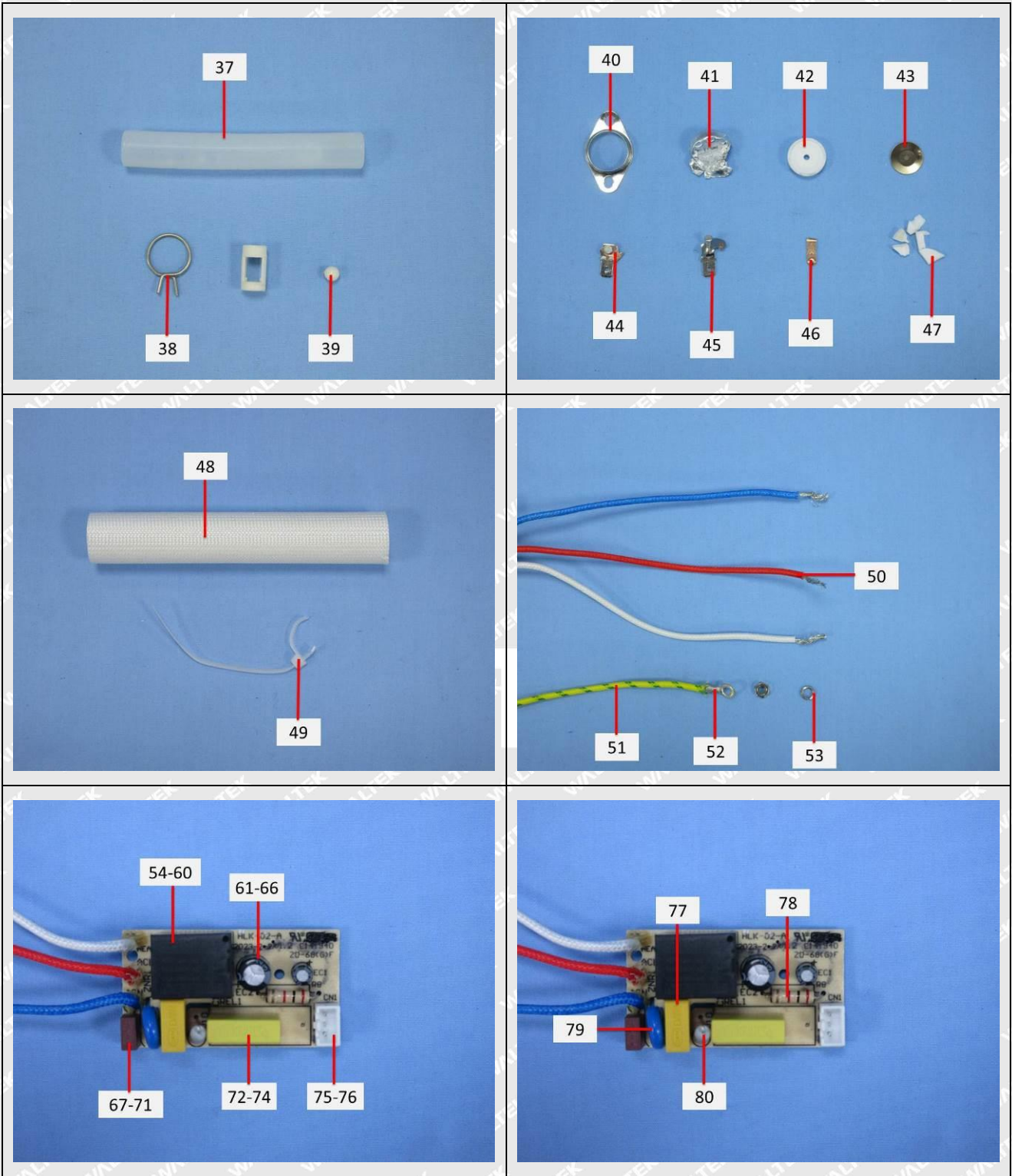


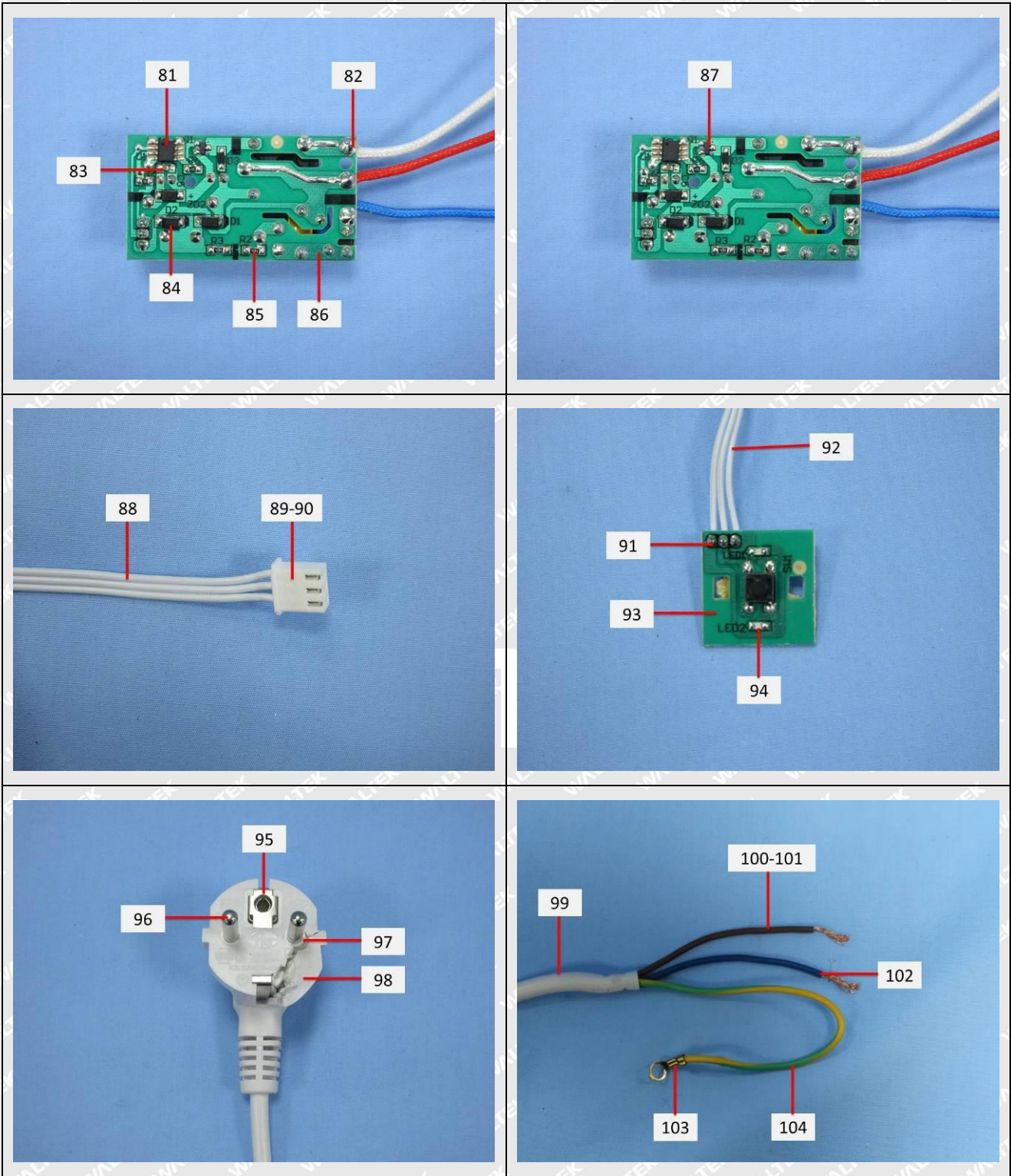


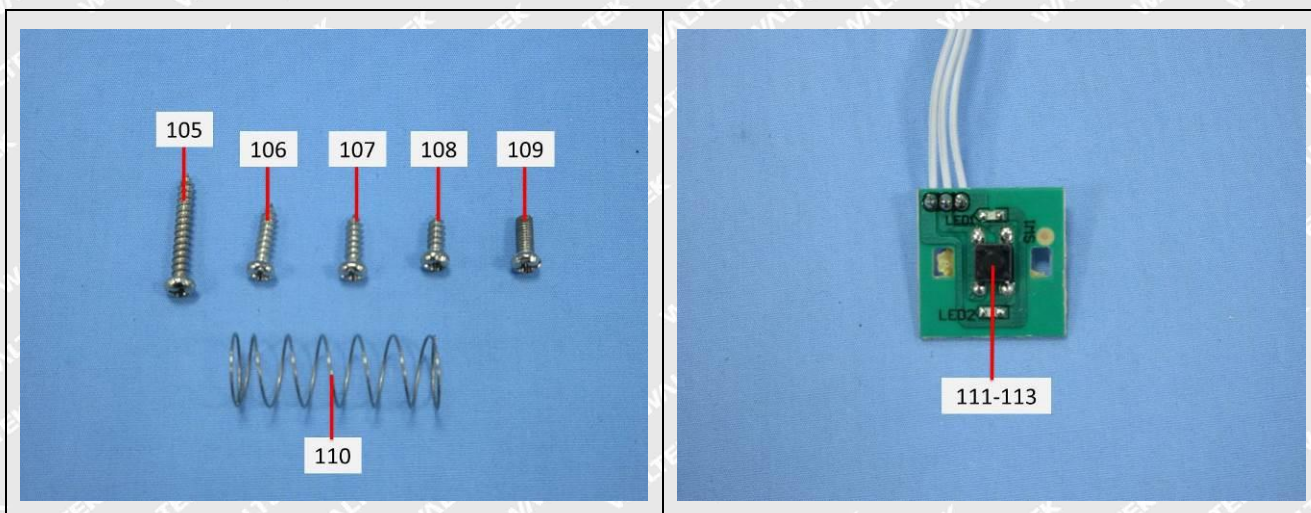
Photograph(s) of parts tested:











Remarks:

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