



中国认可
国际互认
检测
TESTING
CNAS L6478



TEST REPORT

Report No...... : WTF23F03049835R1C
Applicant..... : Shada B.V.
Address..... : Molenmakershoek 28 NL-7328 JK Apeldoorn
Manufacturer..... : Shada B.V.
Address..... : Molenmakershoek 28 NL-7328 JK Apeldoorn
Sample Name..... : Work Light
Sample Model..... : 300819
Reference Model No...... : 300817, 300823, 300814, 300815, 300818
Date of Receipt sample..... : 2023-03-14 & 2023-04-11
Testing period..... : 2023-03-14 to 2023-03-23 & 2023-04-11 to 2023-04-11
Date of Issue..... : 2023-12-22
Test Result..... : Refer to next page (s)
Note..... : As per client's requirement, all results of specimen are quoted from report No. WTF23F03049835C.

Prepared By:

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

Swing Liang

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):



Reference Sample Photo(s) Provided by Client(Not tested) :





300818



300814



300815



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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	Black plastic shell	BL	BL	BL	BL	BL	NA
2	Transparent plastic shell	BL	BL	BL	BL	BL	NA
3	Yellow plastic shell	BL	BL	BL	BL	BL	NA
4	Black plastic cover	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
5	Black plastic shell	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
6	Yellow soft plastic sheet	BL	BL	BL	BL	BL	NA
7	Yellow plastic sheet	BL	BL	BL	BL	BL	NA
8	Silvery metal axle	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
9	Silvery magnetic core	BL	BL	BL	BL	--	NA
10	Silvery metal sheet	BL	BL	BL	BL	--	NA
11	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
12	White plastic sheet	BL	BL	BL	BL	BL	NA
13	Grey soft plastic ring	BL	BL	BL	BL	BL	NA
14	Dark grey glue	BL	BL	BL	BL	BL	NA
15	Black paper adhesive label with yellow printing	BL	BL	BL	BL	BL	NA
16	White coating	BL	BL	BL	BL	BL	NA
17	Silvery metal sheet without white coating	BL	BL	BL	BL	--	NA
18	Beige plastic shell (socket)	BL	BL	BL	BL	BL	NA
19	Silvery metal pin (socket)	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	Black coating	BL	BL	BL	BL	BL	NA
21	Silvery metal strip without black coating	IN	OL	BL	BL	--	Cd :14 #Pb : 1.17×10^3
22	Black plastic sheet	BL	BL	BL	BL	BL	NA
23	Semi-transparent soft plastic gasket	BL	BL	BL	BL	BL	NA
24	Black plastic tube	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
25	Yellow plastic sheet	BL	BL	BL	BL	BL	NA
26	Silvery metal pin	BL	BL	BL	BL	--	NA
27	Silvery metal sheet	BL	BL	BL	BL	--	NA
28	Silvery metal nut	BL	BL	BL	BL	--	NA
29	Silvery metal nut	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
30	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
31	Chip resistor	BL	BL	BL	BL	BL	NA
32	Chip audion	BL	BL	BL	BL	BL	NA
33	Chip IC	BL	BL	BL	BL	BL	NA
34	Chip capacitor	BL	BL	BL	BL	BL	NA
35	Chip diode	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
36	Chip IC	BL	BL	BL	BL	BL	NA
37	Dark grey magnetic core (inductor)	BL	BL	BL	IN	--	Cr ⁶⁺ : ND
38	Copper varnished wire (inductor)	BL	BL	BL	BL	BL	NA
39	Black plastic cap (button)	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 (button)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
41	Silvery metal sheet (button)	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
42	Black plastic base (button)	BL	BL	BL	BL	BL	NA
43	Silvery metal pin (button)	BL	BL	BL	BL	--	NA
44	Black plastic film (electrolytic capacitor)	BL	BL	BL	BL	BL	NA
45	Black rubber stopper (electrolytic capacitor)	BL	BL	BL	BL	BL	NA
46	Brown paper (electrolytic capacitor)	BL	BL	BL	BL	BL	NA
47	Silvery metal shell (electrolytic capacitor)	BL	BL	BL	BL	--	NA
48	Grey metal foil (electrolytic capacitor)	BL	BL	BL	BL	--	NA
49	Silvery-grey metal foil (electrolytic capacitor)	BL	BL	BL	BL	--	NA
50	Silvery metal pin (electrolytic capacitor)	BL	BL	BL	BL	--	NA
51	Silvery metal shell (USB socket)	BL	BL	BL	BL	--	NA
52	White plastic core (USB socket)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
53	Silvery metal pin (USB socket)	BL	BL	BL	BL	--	NA
54	Grey plastic shell (Socket)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
55	Solder	BL	BL	BL	BL	--	NA
56	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
57	Green coating (inductor)	BL	BL	BL	BL	BL	NA
58	Dark grey magnetic core without green coating (inductor)	BL	BL	BL	BL	--	NA
59	Copper varnished wire (inductor)	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	
60	Red varnished wire (inductor)	BL	BL	BL	BL	BL	NA
61	Chip resistor	BL	BL	BL	BL	BL	NA
62	Chip audion	BL	BL	BL	BL	BL	NA
63	Chip capacitor	BL	BL	BL	BL	BL	NA
64	Chip inductor	BL	BL	BL	IN	BL	Cr ⁶⁺ : ND
65	Black plastic sheet	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
66	Solder	BL	BL	BL	BL	--	NA
67	Silvery metal pin	BL	BL	BL	BL	--	NA
68	Black heat-shrinkable tube	BL	BL	BL	BL	BL	NA
69	Light red plastic wire covering	BL	BL	BL	BL	BL	NA
70	Black plastic wire covering	BL	BL	BL	BL	BL	NA
71	Silvery metal wire	BL	BL	BL	BL	--	NA
72	Blue plastic wire covering	BL	BL	BL	BL	BL	NA
73	Semi-transparent nylon cable tie	BL	BL	BL	BL	BL	NA
74	White plastic shell (connector)	BL	BL	BL	BL	BL	NA
75	Silvery metal pin (connector)	BL	BL	BL	BL	--	NA
76	Silvery metal gasket	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
77	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
78	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
79	Silvery metal screw	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative



Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
80	Black plastic shell	BL	BL	BL	BL	BL	NA
81	Solder	BL	BL	BL	BL	--	NA
82	Green PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
83	Light red plastic wire covering	BL	BL	BL	BL	BL	NA
84	Blue plastic wire covering	BL	BL	BL	BL	BL	NA
85	Silvery metal pin	BL	BL	BL	BL	--	NA
86	Silvery metal pin	BL	BL	BL	BL	--	NA
87	Silvery metal screw with black coating	BL	BL	BL	IN	--	Cr ⁶⁺ : Negative
88	Silvery metal screw	BL	BL	BL	BL	--	NA
89	Red plastic shell	BL	BL	BL	BL	BL	NA

Remark:

- (1) Results are obtained by EDXRF 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

-- = 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.



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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) LOQ = Limit of quantitation.

Test Items	Pb	Cd	Hg	Cr ⁶⁺		PBB	PBDE
Units	mg/kg	mg/kg	mg/kg	mg/kg	µg/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 Cr⁶⁺ for polymer and composite sample is 8mg/kg and LOQ of Cr⁶⁺ for metal sample is 0.1µg/cm².

- (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)

- (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 0.10ug/cm².

Positive = Presence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is greater than 0.13ug/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) 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 alloying element in steel for machining purposes and in galvanised steel containing up to 0.35% lead by weight is exempted by Directive 2011/65/EU ANNEX III.



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2. Phthalates:

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T01	1+2+3+4+5 [△]	ND	ND	ND	ND
T02	6	ND	ND	ND	ND
T03	7+12+18+22+24 [△]	ND	ND	ND	ND
T04	8	--	--	--	--
T05	9	--	--	--	--
T06	10	--	--	--	--
T07	11	--	--	--	--
T08	13	ND	ND	ND	ND
T09	14	ND	ND	ND	ND
T10	15	ND	ND	ND	ND
T11	16	ND	ND	ND	ND
T12	17	--	--	--	--
T13	19	--	--	--	--
T14	20	ND	ND	ND	ND
T15	21	--	--	--	--
T16	23	ND	ND	ND	ND
T17	25+39+42+52 [△]	ND	ND	ND	ND
T18	26	--	--	--	--
T19	27	--	--	--	--
T20	28	--	--	--	--
T21	29	--	--	--	--
T22	30	--	--	--	--
T23	31+32+33+34+35 [△]	ND	ND	ND	ND
T24	36+61+62+63+64 [△]	ND	ND	ND	ND
T25	37	--	--	--	--
T26	38+59+60 [△]	ND	ND	ND	ND
T27	40	--	--	--	--
T28	41	--	--	--	--
T29	43	--	--	--	--
T30	44	ND	ND	ND	ND
T31	45	ND	ND	ND	ND
T32	46	ND	ND	ND	ND
T33	47	--	--	--	--
T34	48	--	--	--	--
T35	49	--	--	--	--
T36	50	--	--	--	--
T37	51	--	--	--	--
T38	53	--	--	--	--
T39	54	ND	ND	ND	ND
T40	55	--	--	--	--
T41	56+82 [△]	ND	ND	ND	ND
T42	57	ND	ND	ND	ND



Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T43	58	--	--	--	--
T44	65+73+74+80 [△]	ND	ND	ND	ND
T45	66	--	--	--	--
T46	67	--	--	--	--
T47	68	ND	ND	ND	ND
T48	69	ND	ND	ND	ND
T49	70	ND	ND	106	ND
T50	71	--	--	--	--
T51	72	ND	ND	ND	ND
T52	75	--	--	--	--
T53	76	--	--	--	--
T54	77	--	--	--	--
T55	78	--	--	--	--
T56	79	--	--	--	--
T57	81	--	--	--	--
T58	83	ND	ND	ND	ND
T59	84	ND	ND	ND	ND
T60	85	--	--	--	--
T61	86	--	--	--	--
T62	87	--	--	--	--
T63	88	--	--	--	--
T64	89	ND	ND	ND	ND

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

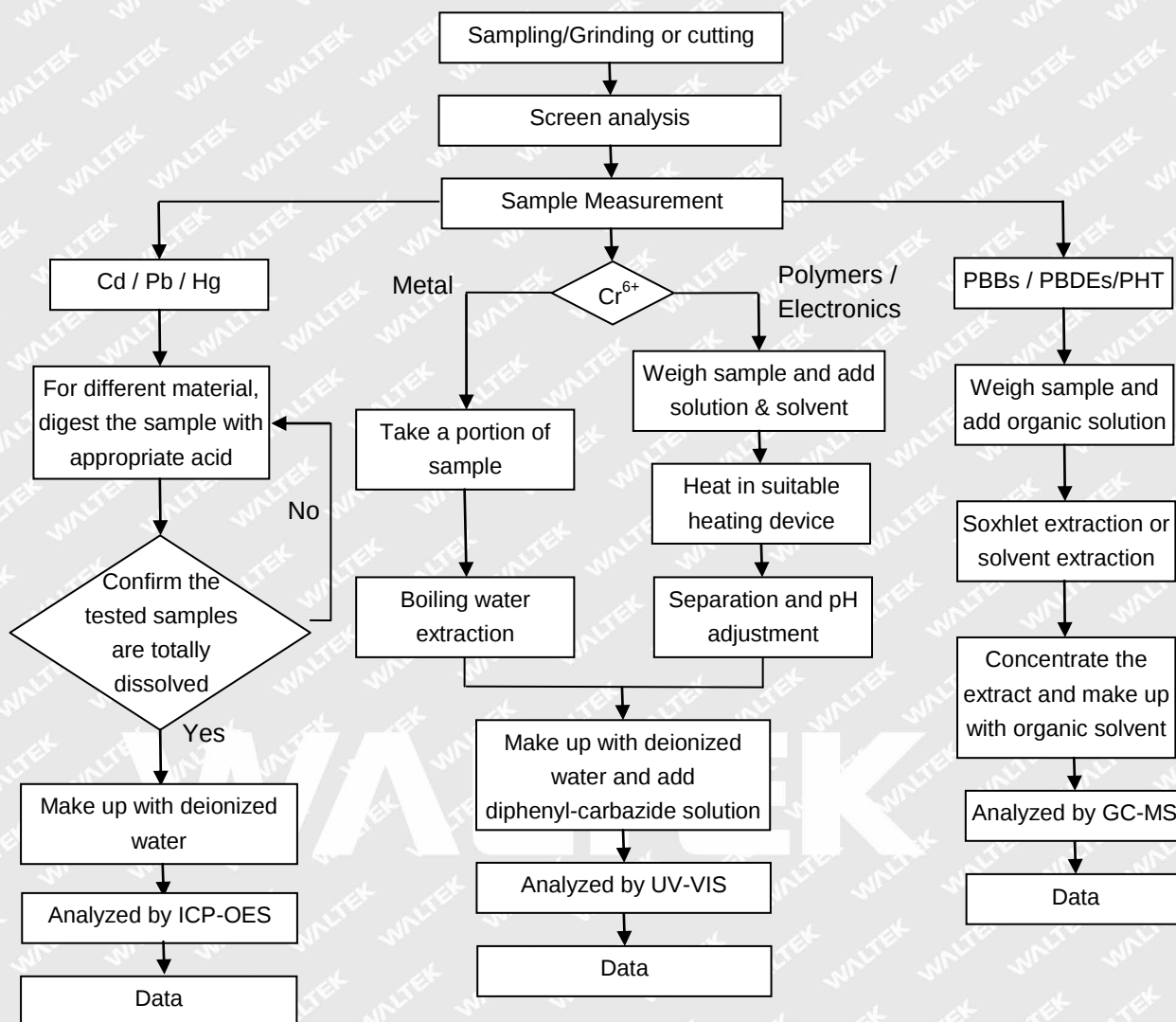
Restricted Substances	Limits
Dibutyl phthalate (DBP)	0.1% (1000 mg/kg)
Benzyl butyl phthalate (BBP)	0.1% (1000 mg/kg)
Di(2-ethylhexyl) phthalate (DEHP)	0.1% (1000 mg/kg)
Di-iso-butyl phthalate (DIBP)	0.1% (1000 mg/kg)

- (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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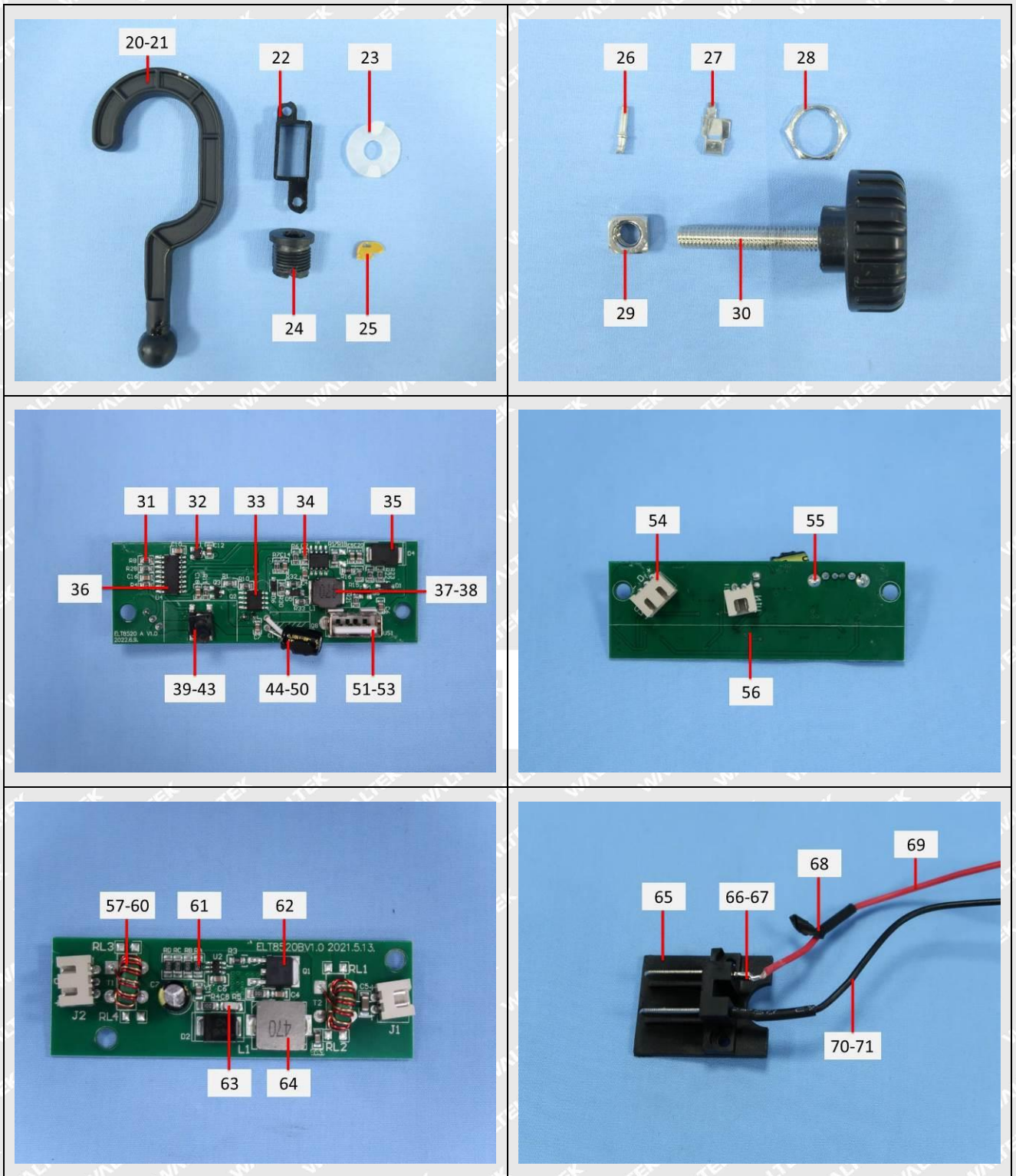
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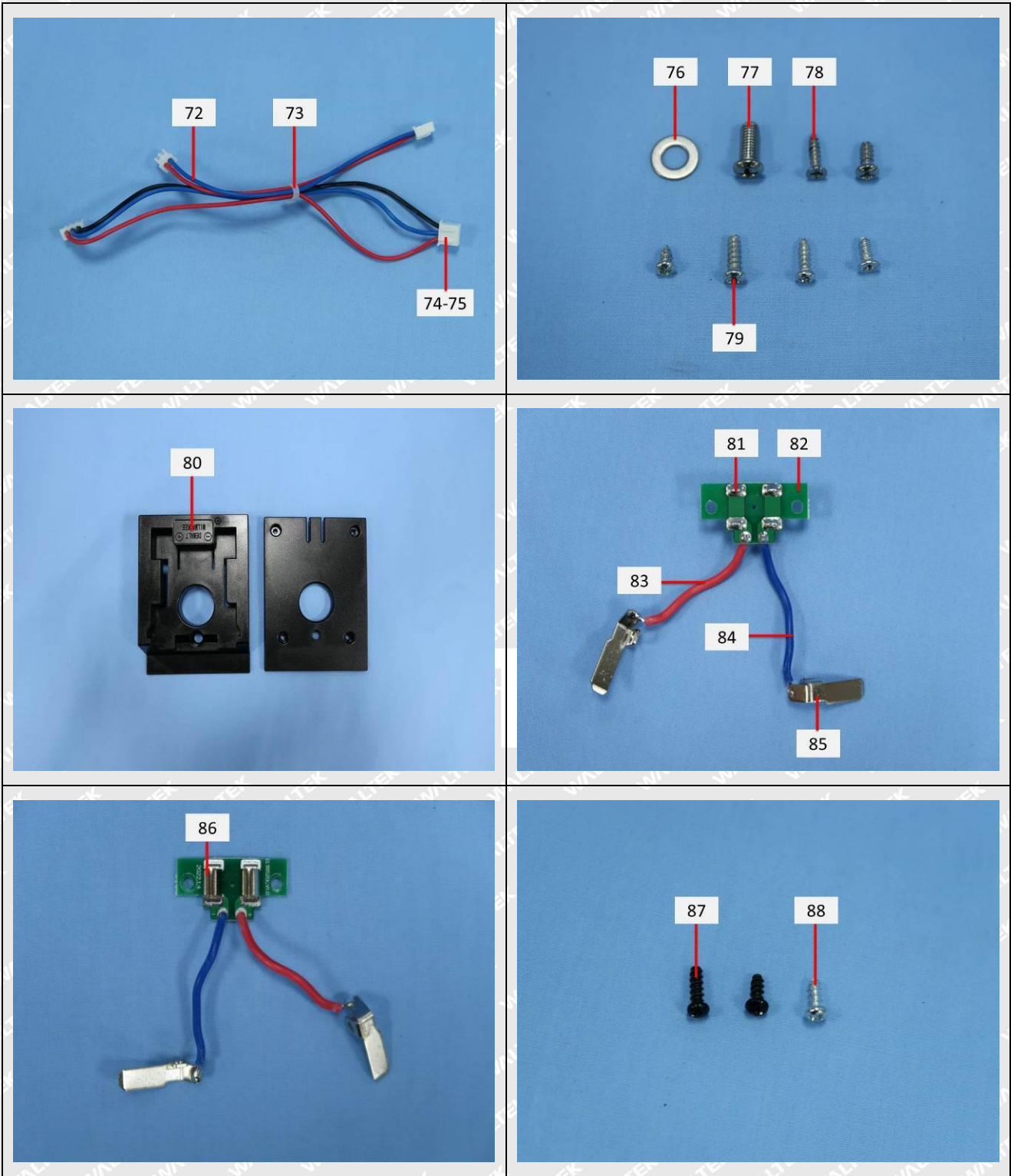




Photograph(s) of parts tested:









Remarks:

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