TEST REPORT

Report No.	:	WTF23F01000097C
Applicant	:	
Address	:	
Manufacturer	:	
Address	:	
Sample Name	:	LED Flood Light
Sample Model	:	BT-MC300W
Reference Model No.	:	BT-MC200W, BT-MC150W, BT-MC100W, BT-MC50W, BT-MC30W, BT-FC200W, BT-FC165W, BT-FC125W, BT-FC80W, BT-FC65W, BT-FC50W, BT-FC30W, BT-FC20W
Date of Receipt sample	:	2023-01-03
Testing period	:	2023-01-03 to 2023-02-17
Date of Issue	:	2023-03-31
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

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** (As per client's requirement, to test the specified components. The results of specified components comply with the requirement of EU RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863)

Sample Photo(s):

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	Transparent glass sheet with black coating	BL	BL	BL	BL	--	NA
2	Transparent glass sheet	BL	BL	BL	BL	--	NA
3	Black coating	BL	BL	BL	BL	BL	NA
4	Silvery metal shell without black coating	BL	BL	BL	BL	--	NA
5	Silvery metal bracket without black coating	BL	BL	BL	BL	--	NA
6	Red plastic wire covering	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
7	Black plastic wire covering	BL	BL	BL	BL	BL	NA
8	Silvery metal wire	BL	BL	BL	BL	--	NA
9	Solder	BL	BL	BL	BL	--	NA
10	Chip LED	BL	BL	BL	BL	BL	NA
11	White coating	BL	BL	BL	BL	BL	NA
12	Silvery metal sheet without white coating	BL	BL	BL	BL	--	NA
13	Black soft glue	BL	BL	BL	BL	BL	NA
14	Grey glue	BL	BL	BL	BL	BL	NA
15	White plastic sheet	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
16	Silvery metal tube	BL	BL	BL	IN	--	Cr^{6+} : Negative
17	Orange plastic cap	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
18	Silvery metal screw	BL	BL	BL	BL	--	NA
19	Silvery metal gasket	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	
20	Silvery metal sheet without black coating	BL	BL	BL	IN	--	Cr^{6+} : Negative
21	Blue plastic wire covering	BL	BL	BL	BL	BL	NA
22	Brown plastic wire covering	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
23	Solder	BL	BL	BL	BL	--	NA
24	White plastic cable tie	BL	BL	BL	BL	BL	NA
25	Black plastic wire jacket	BL	BL	BL	BL	BL	NA
26	Light brown plastic wire covering	BL	BL	BL	BL	BL	NA
27	Light blue plastic wire covering	BL	BL	BL	BL	BL	NA
28	Yellow-green plastic wire covering	BL	BL	BL	BL	BL	NA
29	Coppery metal wire	BL	BL	BL	BL	--	NA
30	Golden metal terminal	BL	BL	BL	BL	--	NA
31	Black soft plastic ring	BL	BL	BL	BL	BL	NA
32	Black heat-shrinkable tube	BL	BL	BL	BL	BL	NA
33	Silvery metal terminal	BL	BL	BL	BL	--	NA
34	Dark grey soft glue	BL	BL	BL	BL	BL	NA
35	Brown plastic film (electrolytic capacitor)	BL	BL	BL	BL	BL	NA
36	Black rubber stopper (electrolytic capacitor)	BL	BL	BL	BL	BL	NA
37	Brown paper sheet (electrolytic capacitor)	BL	BL	BL	BL	BL	NA
38	Transparent plastic adhesive tape (electrolytic capacitor)	BL	BL	BL	BL	BL	NA
39	Silvery metal shell (electrolytic capacitor)	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 pin (electrolytic capacitor)	BL	BL	BL	BL	--	NA
41	Grey metal foil (electrolytic capacitor)	BL	BL	BL	BL	--	NA
42	Silvery-grey metal foil (electrolytic capacitor)	BL	BL	BL	BL	--	NA
43	Orange plastic film (electrolytic capacitor)	BL	BL	BL	BL	BL	NA
44	Yellow plastic adhesive tape (transformer)	BL	BL	BL	BL	BL	NA
45	Black plastic bobbin (transformer)	BL	BL	BL	BL	BL	NA
46	Dark grey magnetic core (transformer)	BL	BL	BL	BL	--	NA
47	Coppery varnished wire (transformer)	BL	BL	BL	BL	BL	NA
48	Red capacitor	BL	BL	BL	BL	BL	NA
49	Black rectifier	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
50	Black heat-shrinkable tube (inductor)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
51	Dark grey magnetic core (inductor)	BL	BL	BL	IN	--	Cr^{6+} : ND
52	Coppery varnished wire (inductor)	BL	BL	BL	BL	BL	NA
53	Grey plastic shell (capacitor)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
54	Grey epoxy resin (capacitor)	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
55	Silvery plastic film (capacitor)	BL	BL	BL	BL	BL	NA
56	Blue resistor with multicolour ring	BL	BL	BL	BL	BL	NA
58	Yellow plastic adhesive tape (transformer)	BL	BL	BL	BL	BL	NA
59	Black plastic bobbin (transformer)	BL	BL	BL	BL	BL	NA
60	Silvery metal sheet (transformer)	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	
61	Dark grey magnetic core (transformer)	BL	BL	BL	BL	--	NA
62	Coppery varnished wire (transformer)	BL	BL	BL	BL	BL	NA
63	Red plastic shell (fuse)	BL	BL	BL	BL	BL	NA
64	Black plastic base (fuse)	BL	BL	BL	BL	BL	NA
65	White fibrous wire (fuse)	BL	BL	BL	BL	BL	NA
66	Silvery metal wire (fuse)	BL	BL	BL	BL	--	NA
67	Blue capacitor	BL	BL	BL	BL	BL	NA
68	Yellow triple insulation winding (inductor)	BL	BL	BL	BL	BL	NA
69	Coppery varnished wire (inductor)	BL	BL	BL	BL	BL	NA
70	Green coating (inductor)	BL	BL	BL	BL	BL	NA
71	Dark grey magnetic ring without green coating (inductor)	BL	BL	BL	IN	--	Cr^{6+} : ND
72	Black resistor	BL	BL	BL	BL	BL	NA
73	Chip IC	BL	BL	BL	BL	BL	NA
74	Chip IC	BL	BL	BL	BL	BL	NA
75	Solder	BL	BL	BL	BL	--	NA
76	Black PCB	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
77	Chip diode	BL	BL	BL	BL	BL	NA
78	Chip capacitor	BL	BL	BL	BL	IN	PBBs : ND PBDEs : ND
79	Chip resistor	BL	IN	BL	BL	IN	Pb :279 PBBs : ND PBDEs : ND

Part No.	Part Description	Result of XRF					Result of Wet Chemical Testing (mg/kg)
		Cd	Pb	Hg	Cr	Br	
80	Silvery metal screw	BL	BL	BL	IN	--	Cr^{6+} : Negative
81	Silvery metal gasket	BL	BL	BL	IN	--	Cr^{6+} : Negative
82	Silvery metal gasket	BL	BL	BL	IN	--	Cr^{6+} : Negative
83	Silvery metal gasket	BL	BL	BL	IN	--	Cr^{6+} : Negative
84	Black plastic screw	BL	BL	BL	BL	BL	NA
85	Silvery metal screw with black plating	BL	BL	BL	BL	--	NA
86	Black soft plastic gasket	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 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	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 -- = 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, μg/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	$\mu g/cm^2$	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 0.1μg/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)

(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 0.10ug/cm^2.
Positive = Presence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is greater than 0.13ug/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) As per client's requirement, to test the specified components. The test results relate only to the components tested, and it doesn't mean that the whole product complies with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863.

2. Phthalates:

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T01	1	--	--	--	--
T02	2	--	--	--	--
T03	3	ND	ND	ND	ND
T04	4	--	--	--	--
T05	5	--	--	--	--
T06	6	ND	ND	ND	ND
T07	7	ND	ND	ND	ND
T08	8	--	--	--	--

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T09	9	--	--	--	--
T10	10+47+49+56+67△	ND	ND	ND	ND
T11	11	ND	ND	ND	ND
T12	12	--	--	--	--
T13	13	ND	ND	ND	ND
T14	14	ND	ND	ND	ND
T15	15+17+24+45+53△	ND	ND	ND	ND
T16	16	--	--	--	--
T17	18	--	--	--	--
T18	19	--	--	--	--
T19	20	--	--	--	--
T20	21	ND	ND	ND	ND
T21	22	ND	ND	ND	ND
T22	23	--	--	--	--
T23	25	ND	ND	ND	ND
T24	26	ND	ND	ND	ND
T25	27	ND	ND	ND	ND
T26	28	ND	ND	ND	ND
T27	29	--	--	--	--
T28	30	--	--	--	--
T29	31	ND	ND	ND	ND
T30	32	ND	ND	ND	ND
T31	33	--	--	--	--
T32	34	ND	ND	ND	ND
T33	35+43△	ND	ND	ND	ND
T34	36	ND	ND	ND	ND
T35	37	ND	ND	ND	ND
T36	38	ND	ND	ND	ND
T37	39	--	--	--	--
T38	40	--	--	--	--
T39	41	--	--	--	--
T40	42	--	--	--	--
T41	44	ND	ND	ND	ND
T42	46	--	--	--	--
T43	48+52+62+65+69△	ND	ND	ND	ND
T44	50	ND	ND	ND	ND
T45	51	--	--	--	--
T46	54	ND	ND	ND	ND
T47	55	ND	ND	ND	ND
T48	58	ND	ND	ND	ND
T49	59	ND	ND	ND	ND
T50	60	--	--	--	--
T51	61	--	--	--	--
T52	63+64+84△	ND	ND	ND	ND

Serial No.	Part No.	Result (mg/kg)			
		DBP	BBP	DEHP	DIBP
T53	66	--	--	--	--
T54	68+70+78+79△	ND	ND	ND	ND
T55	71	--	--	--	--
T56	72+73+74+76+77△	ND	ND	ND	ND
T57	75	--	--	--	--
T58	80	--	--	--	--
T59	81	--	--	--	--
T60	82	--	--	--	--
T61	83	--	--	--	--
T62	85	--	--	--	--
T63	86	ND	ND	459	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.

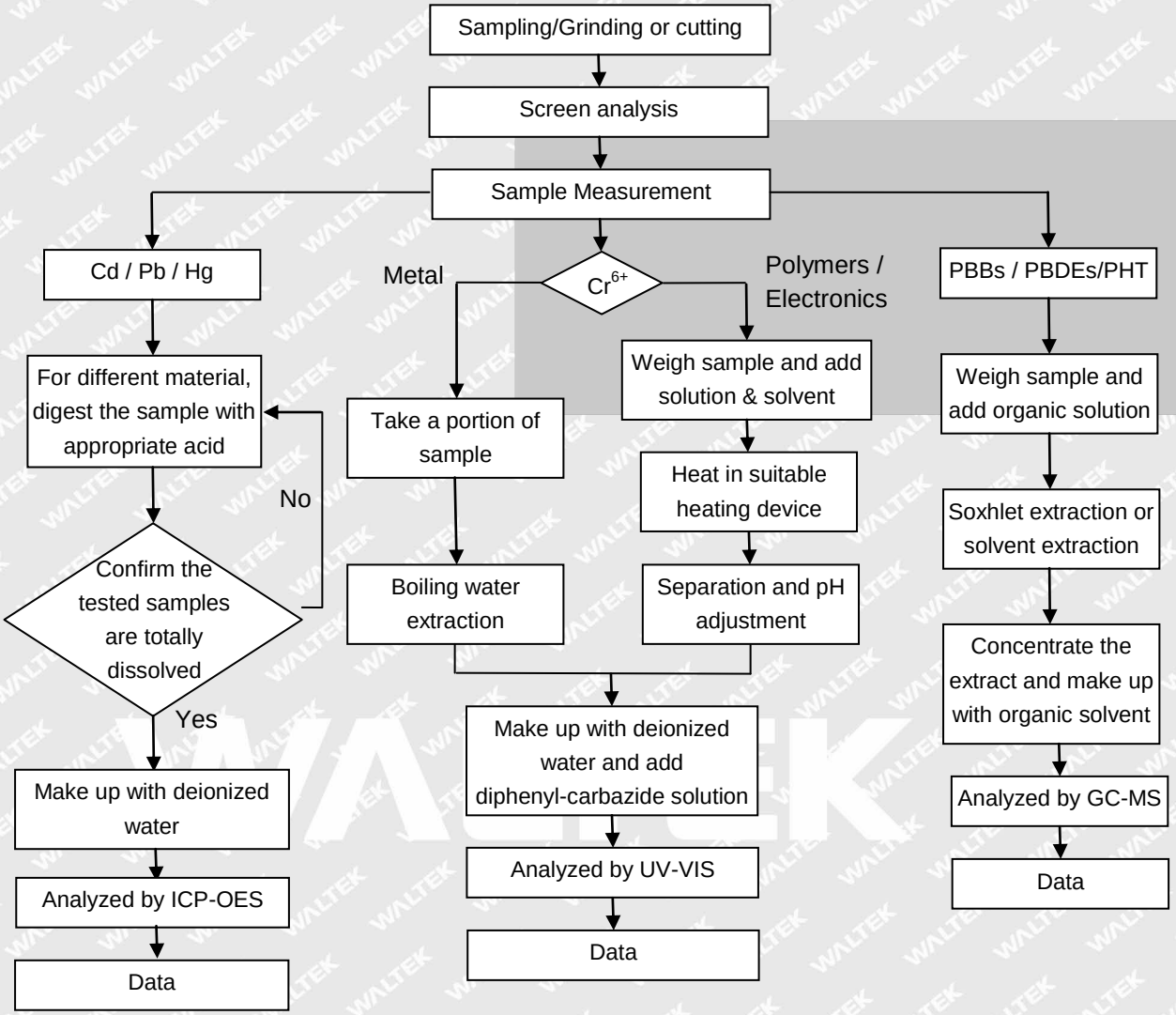
(6) RoHS requirement

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)

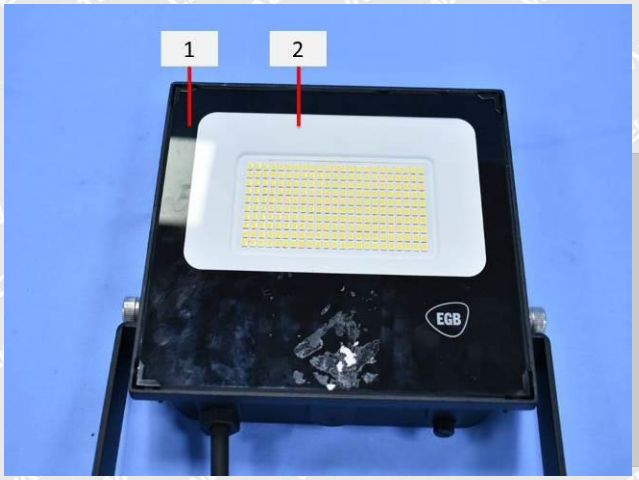
(7) "△"= As client's requirement, the testing was conducted based on mixed components. Results are calculated by the minimum weight of mixed components.

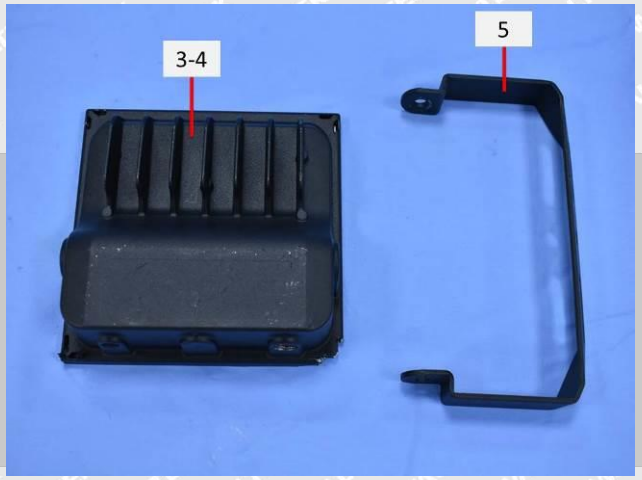
(8) As per client's requirement, to test the specified components. The test results relate only to the components tested, and it doesn't mean that the whole product complies with the RoHS Directive 2011/65/EU and its amendment (EU) No. 2015/863.

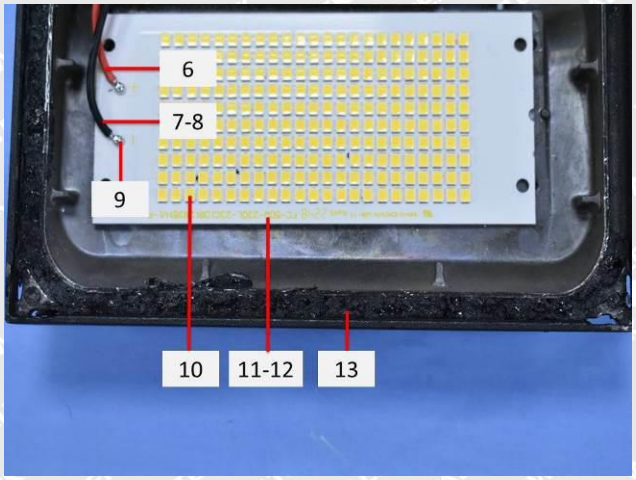
Measurement Flowchart:

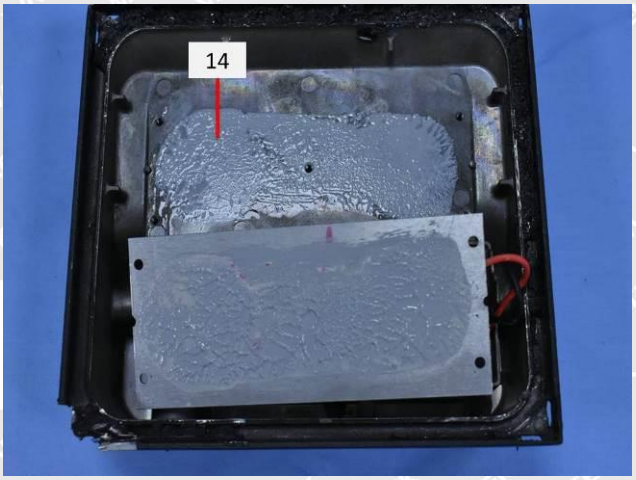


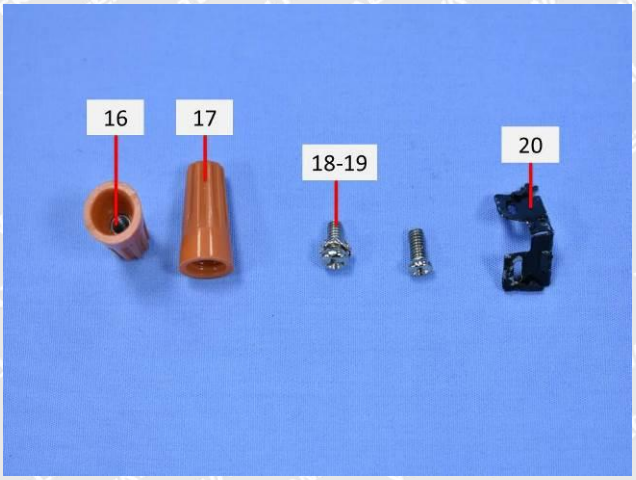
Photograph(s) of parts tested:

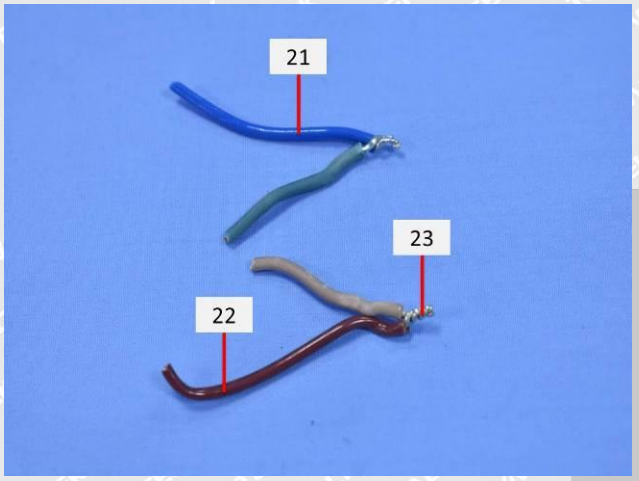


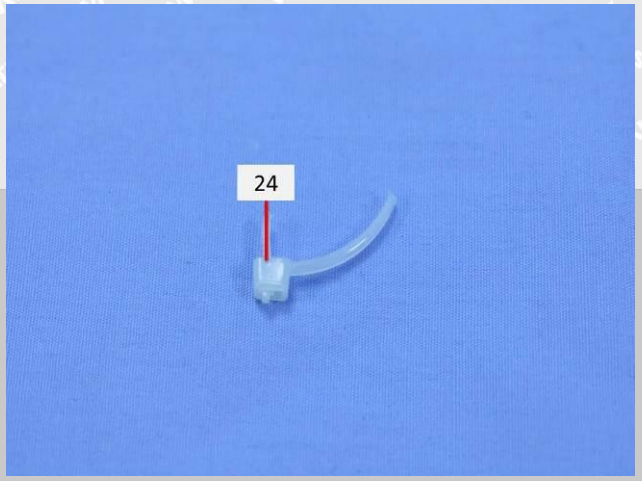


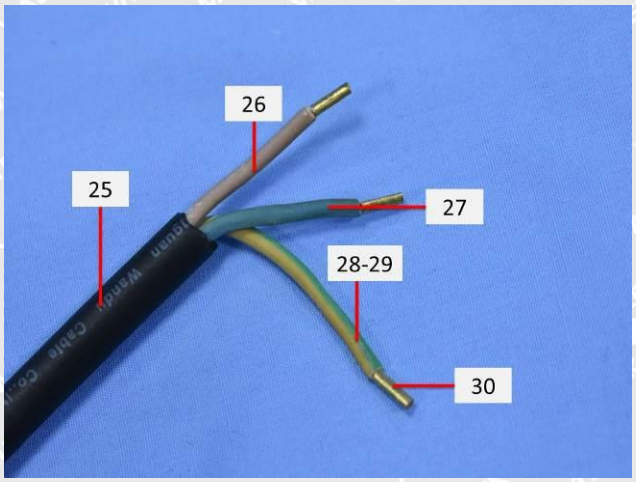


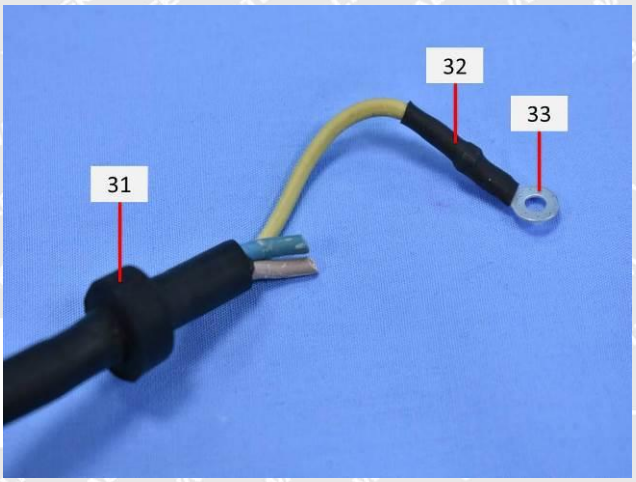


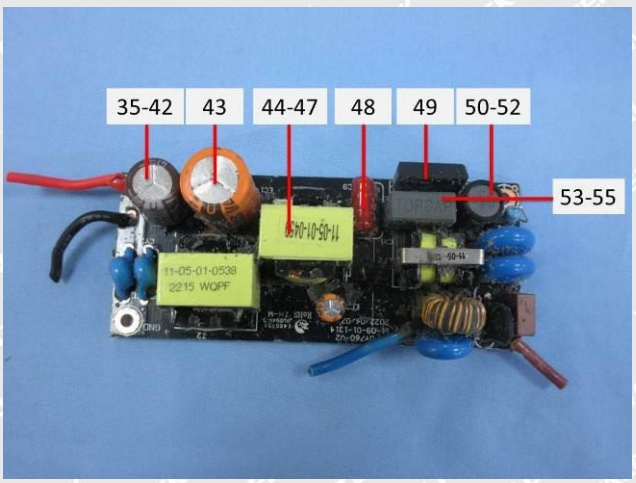


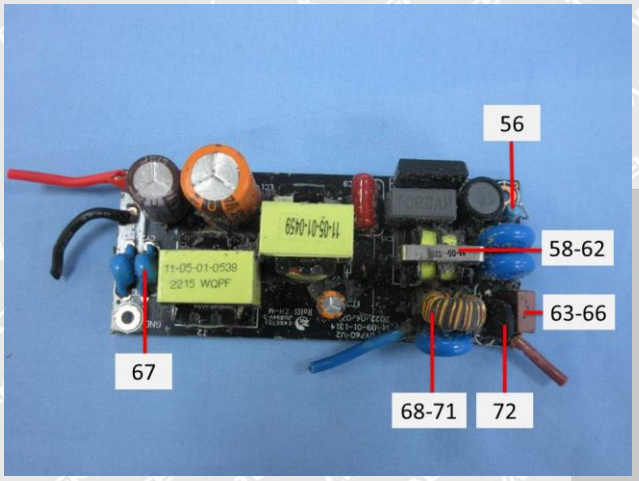


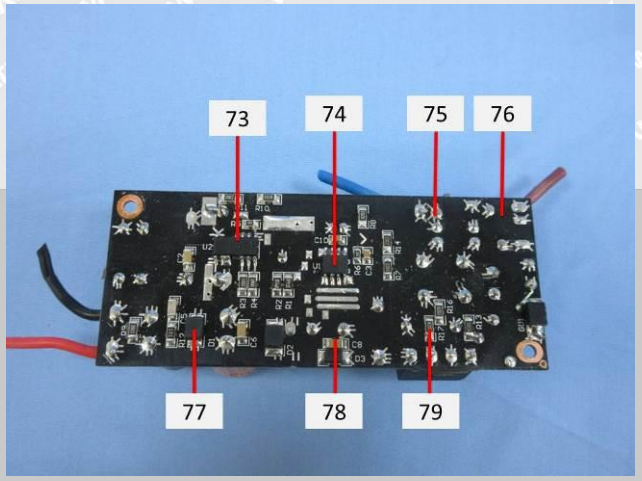


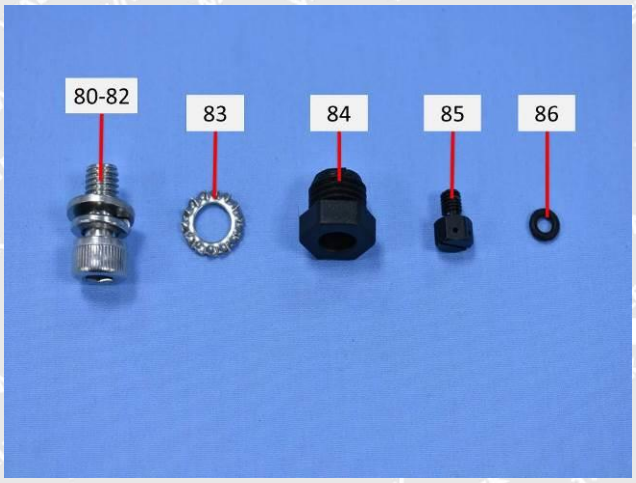












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Remarks:

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2. This test report cannot be reproduced, except in full, without prior written permission of the company;
3. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver;
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6. The sample material information (Model No. information) is provided by client, not verified by test laboratory. The samples of reference Model No. are not tested. Test laboratory not responsible for the accuracy, appropriateness, completeness and authenticity of the information provided by client.

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