

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 1 of 17

Applicant: Acclaim Lighting LLC
Address: 6122 S.Eastern Ave., LOS ANGELES, CA 90040, USA

Report on the submitted sample(s) said to be:

Sample Name: Low Power LED
Model: AL-DOT
Brand: ACCLAIM LIGHTING
Manufacturers: Rnet Lighting Company Limited
Address: #99A 10-303, Carnel Industrial Park, Linchun, Tangxia Town, Dongguan, Guangdong, China
Sample Received Date: Mar.16, 2016
Testing Period: Mar.16, 2016 to Mar.23, 2016

Test Method: Please refer to following page(s).

Test Result: Please refer to following page(s).

Test Requested:

As specified by client, to determine the Pb, Cd, Hg, Cr⁶⁺, PBBs, PBDEs content in the submitted sample in accordance with EU RoHS Directive 2011/65/EU(RoHS) and its amendment directives on XRF and Chemical Method.

Conclusion

Pass

Tested by: Felix.Li

Liwenlong, Felix.Li

Test Engineer

Reviewed by: Jason

Jiangyuncheng, Jason

Laboratory Manager

Approved by: Jessie.Liang

Liangdan, Jessie.Liang

Technical Supervisor



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No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 2 of 17

Test Methods:

 A: Screening by X-ray Fluorescence Spectrometry (XRF) :With reference to IEC 62321-3-1:2013 Ed 1.0 Screening – Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence spectrometry

 B: Chemical test:

Test Item	Test Method	Measuring Instrument	MDL
Cadmium (Cd)	IEC 62321-5:2013 Ed 1.0 Section 7	AAS/ICP-OES	2 mg/kg
Lead (Pb)	IEC 62321-5:2013 Ed 1.0 Section 7	AAS/ICP-OES	2 mg/kg
Mercury (Hg)	IEC 62321-4:2013 Ed 1.0 Section 7	ICP-OES	2 mg/kg
Non-metal Hexavalent Chromium (Cr ⁶⁺)	IEC 62321:2008 Ed 1.0 Annex C	UV-Vis	1 mg/kg
Metal Hexavalent Chromium (Cr ⁶⁺)	IEC 62321:2008 Ed 1.0 Annex B	UV-Vis	/
PBBs/PBDEs	IEC 62321:2008 Ed 1.0 Annex A	GC-MS	5 mg/kg

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No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 3 of 17

Test Results:
A、EU RoHS Directive 2011/65/EU and its amendment directives on XRF

Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
1	Black rubber (lampshell)	BL	BL	BL	BL	BL
2	Transparent glass (lampshell)	BL	BL	BL	BL	BL
3	Silver metal ring (lampshell)	BL	BL	BL	BL	-
4	Silver metal shell (lampshell)	BL	BL	BL	BL	-
5	Black plastic screw (lampshell)	BL	BL	BL	BL	BL
6	White sealing ring (lampshell)	BL	BL	BL	BL	BL
7	White wire skin (circuit board)	BL	BL	BL	BL	BL
8	Wire core (circuit board)	BL	BL	BL	BL	-
9	Glass diode (circuit board)	BL	OL*	BL	BL	BL
10	Chip capacitor (circuit board)	BL	BL	BL	BL	BL
11	Chip resistor (circuit board)	BL	BL	BL	BL	X*
12	Chip crystal (circuit board)	BL	BL	BL	X*	BL
13	Chip fuses (circuit board)	BL	BL	BL	BL	X*
14	IC Ontology (U2) (circuit board)	BL	BL	BL	BL	BL
15	Pin (U2) (circuit board)	BL	BL	BL	BL	-
16	IC Ontology (U5) (circuit board)	BL	BL	BL	BL	BL
17	Pin (U5) (circuit board)	BL	BL	BL	BL	-
18	Solder resist (PCB board) (circuit board)	BL	BL	BL	BL	BL
19	Substrate (PCB board) (circuit board)	BL	BL	BL	BL	X*
20	Copper foil (PCB board) (circuit board)	BL	BL	BL	BL	-
21	Tin solder (PCB board) (circuit board)	BL	BL	BL	BL	-
22	Black plastic (needle file) (circuit board)	BL	BL	BL	BL	X*
23	Pin (needle file) (circuit board)	BL	BL	BL	BL	-
24	Chip diode (circuit board)	BL	BL	BL	BL	BL
25	IC Ontology (U5) (circuit board)	BL	BL	BL	BL	BL

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No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 4 of 17

Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
26	Pin (U5) (circuit board)	BL	BL	BL	BL	-
27	Aluminum shell (electrolytic capacitor) (circuit board)	BL	BL	BL	BL	BL
28	Rubber plug (electrolytic capacitor) (circuit board)	BL	BL	BL	BL	BL
29	Aluminum shell (electrolytic capacitor) (circuit board)	BL	BL	BL	BL	-
30	Electrolytic paper (electrolytic capacitor) (circuit board)	BL	BL	BL	BL	BL
31	Aluminum foil (electrolytic capacitor) (circuit board)	BL	BL	BL	BL	BL
32	Pin (electrolytic capacitor) (circuit board)	BL	BL	BL	BL	-
33	Black plastic seat (electrolytic capacitor) (circuit board)	BL	BL	BL	BL	X*
34	Magnetic frame (inductance) (circuit board)	BL	BL	BL	BL	BL
35	Enameled wire (inductance) (circuit board)	BL	BL	BL	BL	-
36	Pin (inductance) (circuit board)	BL	BL	BL	BL	-
37	Chip LED (circuit board)	BL	BL	BL	BL	X*
38	Silver label (joint)	BL	BL	BL	BL	BL
39	black plastic handle (joint)	BL	BL	BL	BL	BL
40	black plastic plug (joint)	BL	BL	BL	BL	X*
41	Red seal ring (joint)	BL	BL	BL	BL	BL
42	Tin solder (joint)	BL	BL	BL	BL	-
43	Metal pin (joint)	BL	BL	BL	BL	-
44	Plastic screw thread ring (joint)	BL	BL	BL	BL	X*
45	Black outer wire skin (wire rod)	BL	BL	BL	BL	BL
46	Black wire skin (wire rod)	BL	BL	BL	BL	BL
47	White wire skin (wire rod)	BL	BL	BL	BL	BL
48	Wire core (wire rod)	BL	BL	BL	BL	-
49	Blue aluminum foil (wire rod)	BL	BL	BL	BL	-

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No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 5 of 17

Seq. No.	Tested Part(s)	Results(mg/kg)				
		Cd	Pb	Hg	Cr	Br
50	Metal wire (wire rod)	BL	BL	BL	BL	-
51	Red wire skin (wire rod)	BL	BL	BL	BL	BL
52	White wire skin (wire rod)	BL	BL	BL	BL	BL
Connecting line						
53	Black handle plastic (joint)	BL	BL	BL	BL	X*
54	Copper pins (joint)	BL	OL*	BL	BL	-
55	Black outer wire skin (wire rod)	BL	BL	BL	BL	BL
56	Heat shrinkable sleeve (wire rod)	BL	BL	BL	BL	BL
57	Black wire skin (wire rod)	BL	BL	BL	BL	BL
58	White wire skin (wire rod)	BL	BL	BL	BL	BL
59	Wire core (wire rod)	BL	BL	BL	BL	-
60	Black fine wire skin (wire rod)	BL	BL	BL	BL	BL
61	White fine wire skin (wire rod)	BL	BL	BL	BL	BL
62	Red sleeve tube (terminal blocks)	BL	BL	BL	BL	BL
63	Purple sleeve tube (terminal blocks)	BL	BL	BL	BL	BL
64	Green plastic terminal (terminal blocks)	BL	BL	BL	BL	BL
65	Pin (terminal blocks)	BL	BL	BL	BL	-
66	Screw (terminal blocks)	BL	BL	BL	BL	-
67	Metal terminal (terminal blocks)	BL	OL*	BL	BL	-
Difference						
68	Cylindrical lamp shade	BL	BL	BL	BL	BL
69	Arc lamp shade	BL	BL	BL	BL	BL

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No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 6 of 17

Element	Unit	Non-metal	Metal	Composite Material
Cd	mg/kg	BL≤70-3σ<X <130+3σ≤OL	BL≤70-3σ<X <130+3σ≤OL	BL≤50-3σ<X <150+3σ≤OL
Pb	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Hg	mg/kg	BL≤700-3σ<X <1300+3σ≤OL	BL≤700-3σ<X <1300+3σ≤OL	BL≤500-3σ<X <1500+3σ≤OL
Cr	mg/kg	BL≤700-3σ<X	BL≤700-3σ<X	BL≤500-3σ<X
Br	mg/kg	BL≤300-3σ<X	-	BL≤250-3σ<X

Note: BL= Below Limit

OL= Over limited

X= Inconclusive

“-“= Not regulated

*= Scanning by XRF and detected by chemical method. The test results of chemical method please refer to next pages.

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No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 7 of 17

Remark:

- i Results were obtained by XRF for primary scanning, and further chemical testing by ICP (for Cd, Pb, Hg), UV-Vis (for Cr(VI)) and GC-MS (for PBBs, PBDEs) are recommended to be performed, if the concentration exceeds the above warning value according to IEC 62321-3-1:2013 Ed 1.0.
- ii The XRF scanning test for RoHS elements – The reading may be different to the actual content in the sample be of non-uniformity composition.
- iii The maximum permissible limit is quoted from the document 2005/618/EC amending RoHS directive 2011/65/EU:

RoHS Restricted Substances	Maximum Concentration Value (mg/kg) (by weight in homogenous materials)
Cadmium (Cd)	100
Lead (Pb)	1000
Mercury (Hg)	1000
Hexavalent Chromium (Cr(VI))	1000
Polybrominated biphenyls (PBBs)	1000
Polybrominated diphenylethers (PBDEs)	1000

Disclaimers:

This XRF Scanning report is for reference purposes only. The applicant shall make its/his/her own judgment as to whether the information provided in this XRF screening report is sufficient for its/his/her purposes.

The result shown in this XRF scanning report will differ based on various factors, including but not limited to, the sample size, thickness, area, surface flatness, equipment parameters and matrix effect (e.g. plastic, rubber, metal, glass, ceramic etc.). Further wet chemical pre-treatment with relevant chemical equipment analysis are required to obtain quantitative data.

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No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 8 of 17

B、 The Test Results of Chemical Method:

1) The Test Results of Pb

Test Item(s)	Unit	Result(s)		
		9	54	67
Lead(Pb)	mg/kg	242691*	30126*	27998*

Note: N.D. = Not Detected or less than MDL

mg/kg = ppm= parts per million

MDL = Method Detection Limit

*1= As claimed by the material declaration submitted by the client, the materials of the sample No.9 is glass, according to the RoHS 2011/65 / EU, lead in glass of electronic components is exempted.

2= As claimed by the material declaration submitted by the client, the materials of the sample No.54 and No.67 are copper alloy, according to the RoHS 2011/65 / EU, Lead is exempted as an alloying element in Copper containing up to 4% (40000ppm) by weight.

2) The Test Results of non-metal Cr(VI)

Test Item(s)	Unit	Result(s)	Limit
		12	
Hexavalent Chromium(Cr ⁶⁺)	mg/kg	N.D.	1000

Note: N.D. = Not Detected or less than MDL

mg/kg = ppm=parts per million

MDL = Method Detection Limit

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No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 9 of 17

3) The Test Results of PBBs & PBDEs

Unit:mg/kg

Item(s)	MDL	Result(s)				Limit
		11	13	19	22	
Polybrominated Biphenyls (PBBs)						
Monobromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	Total PBBs Content <1000
Dibromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Tribromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Tetrabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Pentabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Hexabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Heptabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Octabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl	5	N.D.	N.D.	N.D.	N.D.	
Total content	/	N.D.	N.D.	N.D.	N.D.	
Polybrominated Diphenylethers (PBDEs)						
Monobromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	Total PBDEs Content <1000
Dibromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Tribromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Tetrabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Pentabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Hexabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Heptabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Octabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	
Total content	/	N.D.	N.D.	N.D.	N.D.	
Conclusion	/	Pass	Pass	Pass	Pass	/

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No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 10 of 17

Unit:mg/kg

Item(s)	MDL	Result(s)					Limit
		33	37	40	44	53	
Polybrominated Biphenyls (PBBs)							
Monobromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	Total PBBs Content <1000
Dibromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Tribromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Tetrabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Pentabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Hexabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Heptabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Octabromobiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Total content	/	N.D.	N.D.	N.D.	N.D.	N.D.	
Polybrominated Diphenylethers (PBDEs)							
Monobromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	Total PBDEs Content <1000
Dibromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Tribromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Tetrabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Pentabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Hexabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Heptabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Octabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Nonabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Decabromodiphenyl ether	5	N.D.	N.D.	N.D.	N.D.	N.D.	
Total content	/	N.D.	N.D.	N.D.	N.D.	N.D.	
Conclusion	/	Pass	Pass	Pass	Pass	Pass	/

Note: N.D. = Not Detected or less than MDL
 mg/kg = ppm= parts per million
 MDL = Method Detection Limit

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No.1501C

Test Report

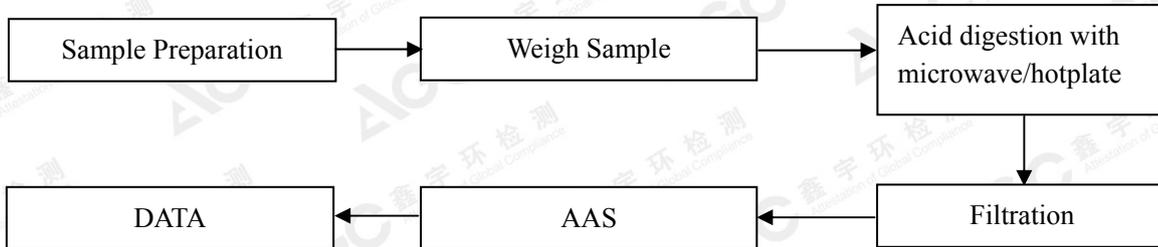
Report No.: A001E20160316087

Date: Mar.23, 2016

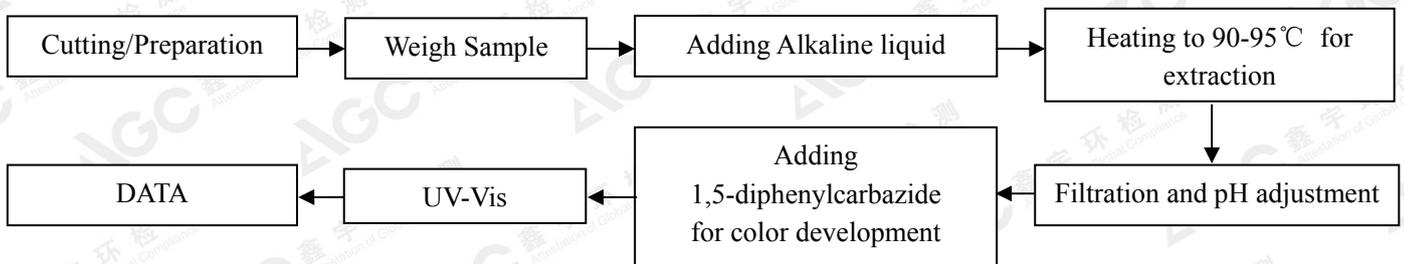
Page 11 of 17

Test Flow Chart

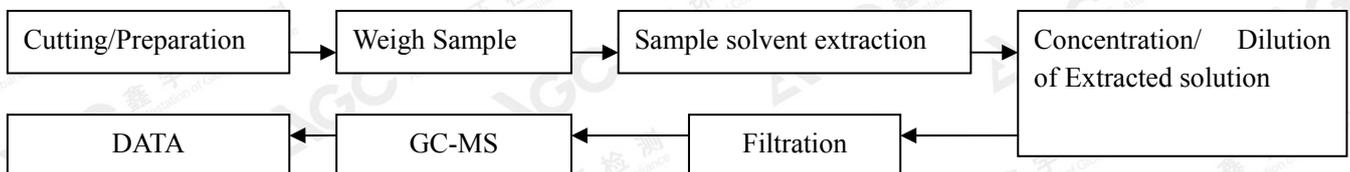
1. For Pb



2. For non-metal Cr(VI)



3. For PBBs & PBDEs



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No.1501C

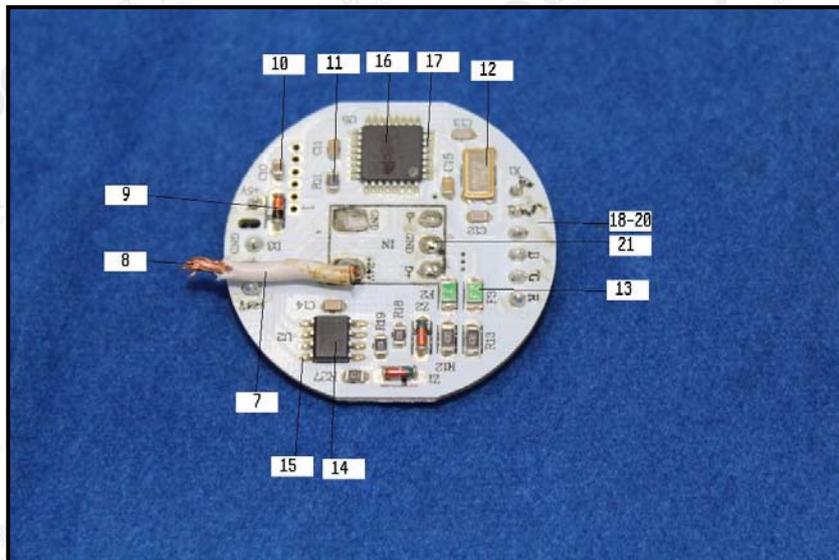
Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 12 of 17

The photo of the sample



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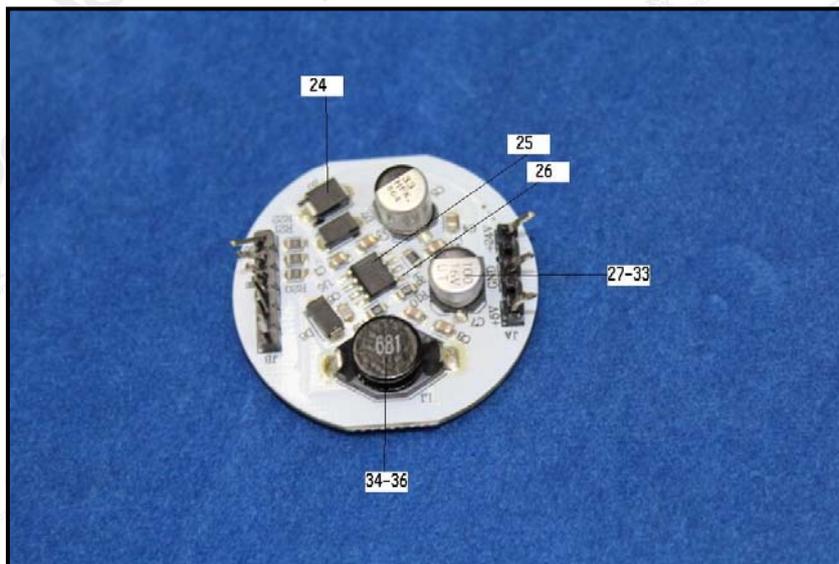
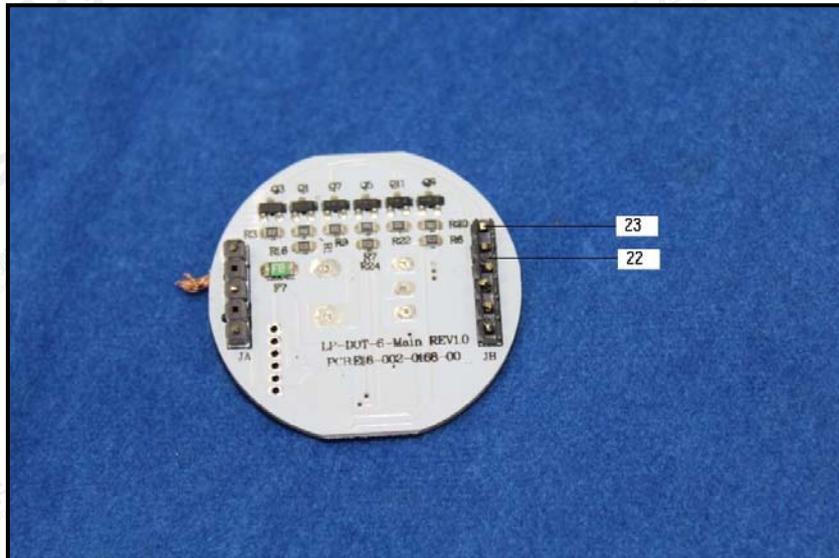
No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 13 of 17



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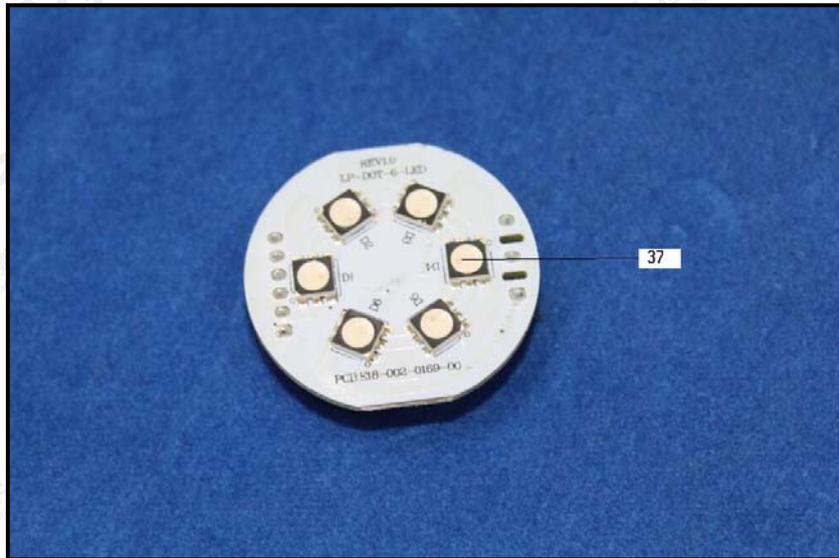
No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 14 of 17



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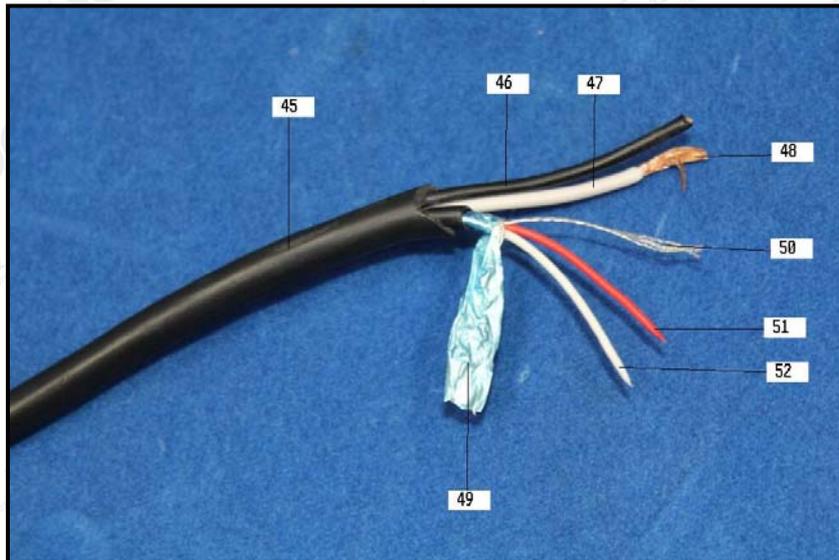
No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 15 of 17



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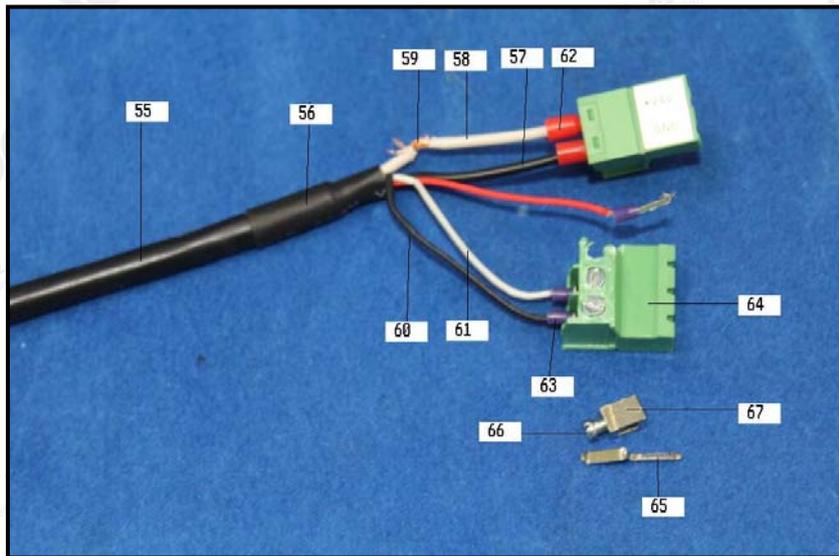
No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 16 of 17



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No.1501C

Test Report

Report No.: A001E20160316087

Date: Mar.23, 2016

Page 17 of 17



AGC authenticate the photo only on original report

*** End of Report ***

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No.1501C