

REPORT

25800 COMMERCENTRE DRIVE, LAKE FOREST, CA 92630

Project No. G103924656

Date: May 11, 2019

REPORT NO. 103924656LAX-007

TEST OF ONE LED LUMINAIRE

MODEL NO. ALD-R-120W-LV-30K-T4
LED MODEL NO. GWP9LR34.PM-M2M3
DRIVER MODEL NO. EUD-150S350DTA
RETROFIT MODEL NO. LITHONIA KAD CONTOUR SERIES

RENDERED TO

SIMPLYLEDs LLC
111 W. 34TH STREET
GARDEN CITY, IDAHO, 83714

TEST: Electrical and Photometric tests as required to the IESNA test standard.

AUTHORIZATION: The testing performed was authorized by signed quote number Qu-00973316-2.

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

UL 1598-2009: Underwriters Laboratories Inc. Standard for Safety - Luminaires

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number ALD-R-120W-LV-30K-T4. The sample was received by Intertek on March 19, 2019, in undamaged condition and one sample was tested as received. The sample designation was LAN1903191345-003A.

DATES OF TESTS: May 6, 2019 through May 11, 2019.

SUMMARY

Model No.: ALD-R-120W-LV-30K-T4 Description: LED Luminaire

Criteria	Result
Total Lumen Output (Lumens)	15178
Total Power (W)	118.4
Luminaire Efficacy (LPW)	128.2
BUG Rating	B3-U0-G3
IES Classification	Type IV
Longitudinal Classification	Very Short
Maximum In-Situ Source Temperature Point (°C)	59.1
Maximum In-Situ Driver Case Temperature (°C)	63.5

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Goniophotometer	6440T	000943	VBU	VBU	05/06/19
AC Source	CW1251P	000944	VBU	VBU	05/06/19
Power Analyzer	WT210	000945	11/28/18	11/28/19	05/06/19
Magnetic Level	581-9	001610	10/31/18	10/31/19	05/06/19
Thermometer	DPI8-C24	001782	09/21/18	09/21/19	05/06/19
Temp. & RH Meter	971	001177	01/29/19	01/29/20	05/11/19
AC Source	CW1251P-V	001336	VBU	VBU	05/11/19
Power Meter	WT333-D-C1/EX2/G5	001322	11/28/18	11/28/19	05/11/19
Thermometer	52 Series II	001265	10/04/18	10/04/19	05/11/19

TEST METHODS

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IESNA LM-79.

Photometric and Electrical Measurements – Distribution Method

A LSI Type C High Speed Model 6440 Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Xitron or Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.

BUG Ratings (Backlight, Uplight, Glare) – for Outdoor Fixtures Only

Zonal Lumens were calculated and grouped using the formula in IESNA TM-15-11 for each zone as defined in the BUG addendum. The maximum lumen rating in each zone was compared against the BUG zonal requirements of Energy Star. Photometric Toolbox software was used to calculate results.

In-Situ Maximum Measured Power Supply Case and LED Source Point Temperature

Power supply case and/or LED source operating temperature measurements were taken on one test sample per model with a thermocouple and Fluke 87 temperature meter. The SSL sample was allowed to reach thermal equilibrium for seven and a half hours before measurements were taken. Power supply or source temperature measurements were measured at the TMPPS or TS point as indicated by the included diagram in accordance with manufacturers declared hot spot location, or at a hot spot location found with a thermal camera when no diagram from the manufacturer is given. The maximum temperature was recorded for the sample. A simulated ceiling or other enclosure may be used in accordance to UL 1598 or UL 153 as applicable.

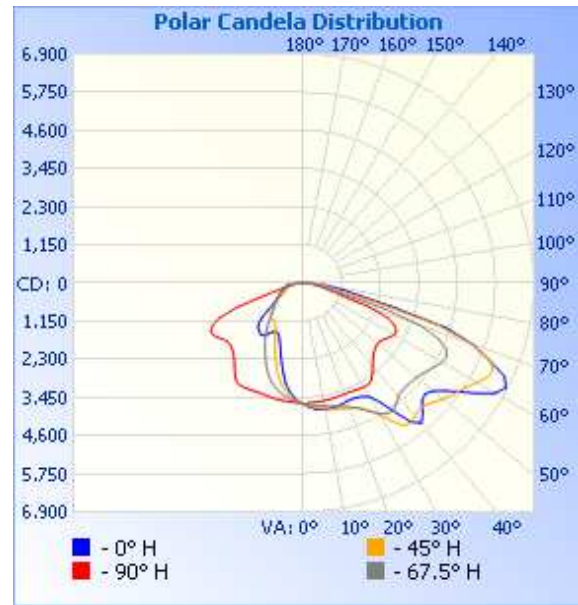
RESULTS OF TEST (cont'd)

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Distribution Method

Intertek Sample No.	Base Orient ation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD	Absolute Luminous Flux (Lumens)	Lumen Efficacy (LPW)
LAN1903191345-003A	UP	120.0	990.2	118.4	0.996	6.44	15178	128.2
		277.0	442.3	116.1	0.947	6.63		

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	25	45	67.5	90
0	3648	3648	3648	3648	3648
5	3803	3783	3761	3697	3608
10	3864	3856	3843	3757	3595
15	3849	3873	3924	3842	3582
20	3791	3859	4017	3967	3563
25	3799	3892	4172	4201	3576
30	3965	4115	4599	4534	3615
35	4722	4867	5233	4694	3544
40	5505	5214	5191	4434	3222
45	5016	5062	5196	4369	2977
50	5066	5284	5443	4419	2875
55	5710	5615	5685	4570	2945
60	6633	6230	5989	4782	3130
65	6648	6380	6257	4722	3005
70	5402	4851	5339	3749	2113
75	2742	2168	2304	1108	774
80	1232	859	831	611	453
85	598	436	503	352	182
90	0	0	0	0	0



RESULTS OF TEST (cont'd)

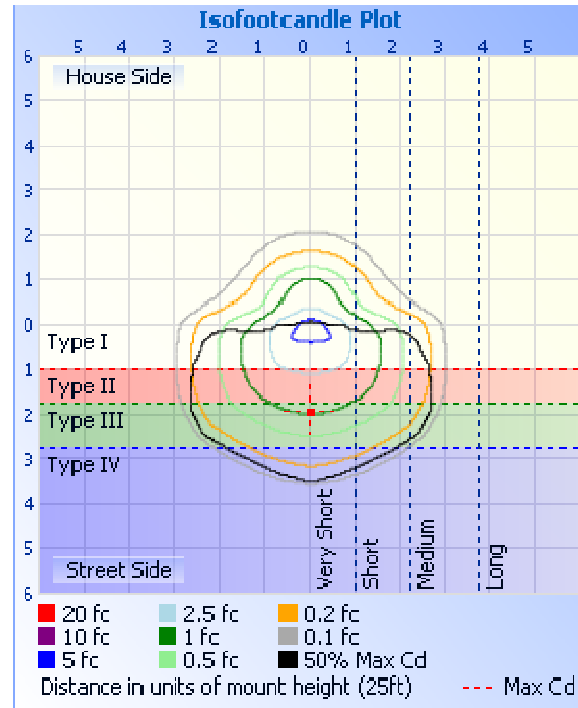
Illumination Plots

Mounting Height: 25 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	2764	18.2
0-40	4844	31.9
0-60	10198	67.2
60-90	4980	32.8
0-90	15178	100.0
90-180	0.0	0.0
0-180	15178	100.0

Luminaire Classification System (LCS)

LCS	Zone	Lumens	% Luminaire
FL	(0-30)	1660	10.9
FM	(30-60)	5607	36.9
FH	(60-80)	3811	25.1
FVH	(80-90)	229.6	1.5
BL	(0-30)	1104.9	7.3
BM	(30-60)	1826	12.0
BH	(60-80)	767.4	5.1
BVH	(80-90)	172.6	1.1
UL	(90-100)	0.0	0.0
UH	(100-180)	0.0	0.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	343.1	2.3
10-20	958.4	6.3
20-30	1462	9.6
30-40	2080	13.7
40-50	2488	16.4
50-60	2866	18.9
60-70	3108	20.5
70-80	1469	9.7
80-90	402.1	2.6

BUG Rating: B3-U0-G3

IES Classification: Type IV

Longitudinal Classification: Very Short

RESULTS OF TEST (cont'd)

In-Situ Maximum Measured LED Source Temperature

Manufacturer Supplied Documentation:

Forward Voltage Groups 1) page 23

Durchlassspannungsgruppen 1) Seite 23

Group	(min.) V_F [V]	(max.) V_F [V]
Gruppe		
K8	20.80	21.60
T8	21.60	22.40
28	22.40	23.20

Maximum Ratings Grenzwerte

Parameter	Symbol	Values	Unit
Bezeichnung	Symbol	Werte	Einheit
Junction temperature Sperrschichttemperatur	T_j	125	°C

Parameter	Symbol	Values	Unit
Bezeichnung	Symbol	Werte	Einheit
"Electrical" thermal resistance junction / solder point (typ.)	R_{thJSel}	1.5	K/W
"Elektrischer" Wärmewiderstand Sperrschicht / Lötpad (with efficiency $\eta_e = 59\%$)			

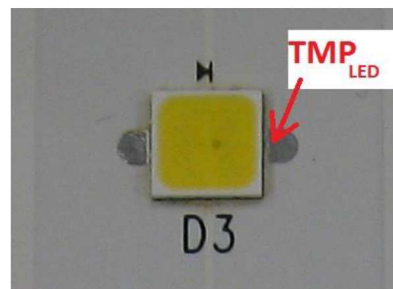


Fig. 2 DURIS S8 type LED model GW P9LT31.PM and temperature measurement point.

Maximum Junction Temperature from LED specification (T_j) = 125°C

Thermal Resistance Formula from LED specification = 1.5°C/W

Maximum Forward Voltage (V_f) from LED specification = 23.2V

Measured LED Current = 392.5mA

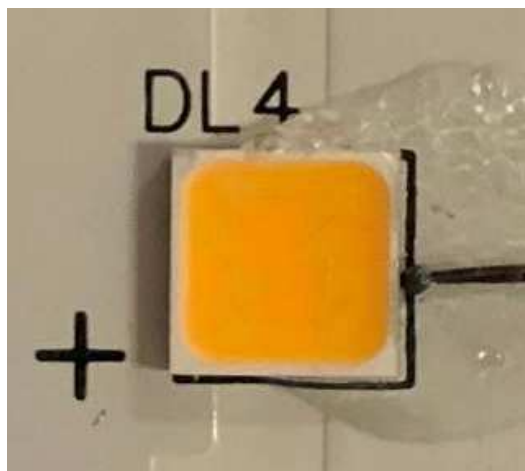
Calculated LED Wattage = $V_f \times$ Measured LED Current = 9.106W

Maximum Source Temperature (T_s) = $T_j - (\text{LED Wattage} \times \text{Thermal Resistance}) = 111.3^\circ\text{C}$

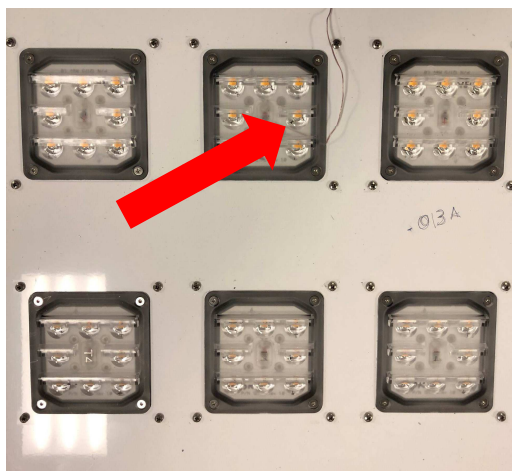
Maximum Measured Manufacturer Designated Source Temperature

Sample No.	Maximum Measured Source Temperature (°C)	Location	Maximum Rated Source Temperature (°C)
LAN1903191345-003A	59.1	Per specs above	111.3

LED In-Situ Picture – T_s



LED In-Situ Picture – T_s location



RESULTS OF TEST (cont'd)

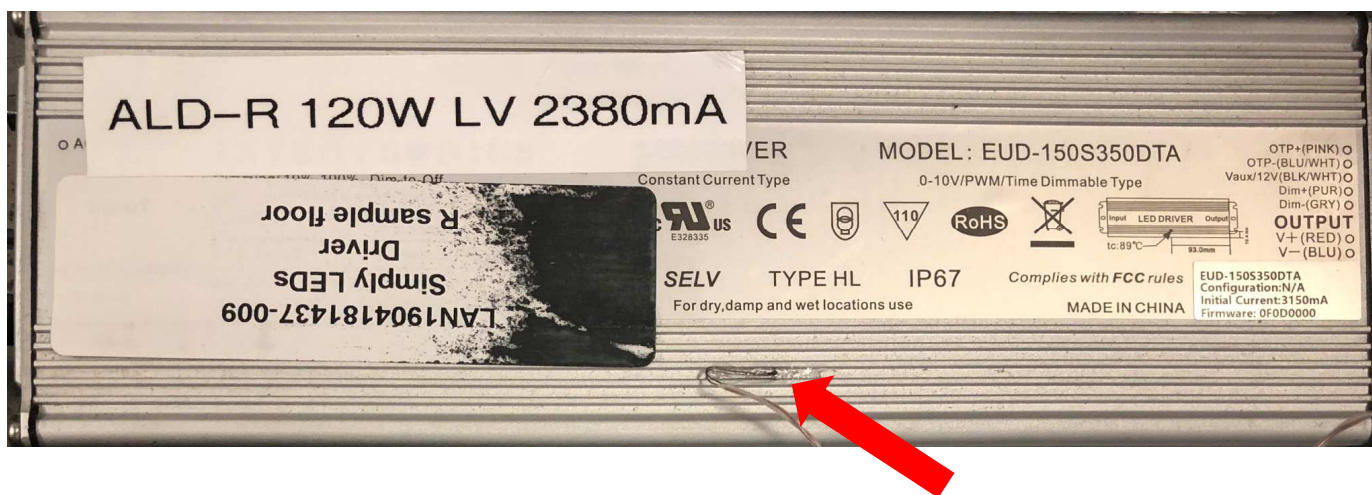
In-Situ Maximum Measured Power Supply Case Temperature

Manufacturer Supplied Documentation:

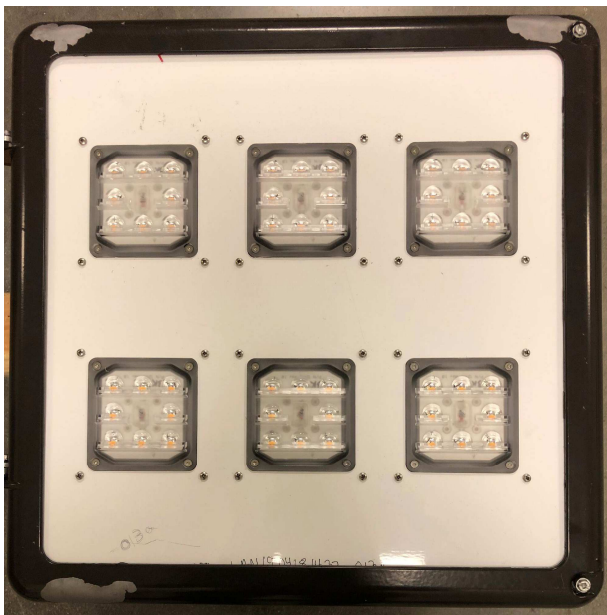


Sample No.	Maximum Measured Source Temperature (°C)	Location	Maximum Rated Source Temperature (°C)
LAN1903191345-003A	63.5	Per specs above	89.0

Driver In-Situ Picture – Ts Location



PICTURES (not to scale)



CONCLUSION

The results tabulated in this report are representative of the actual test samples submitted for this report only. The data is provided to the client for further evaluation. Compliance to the referenced specification requirements was not determined in this report.

In Charge Of Tests:

A handwritten signature in black ink, appearing to read 'Erik Linares'.

Erik Linares
Associate Engineer
Lighting Division

Attachment: None

Report Reviewed By:

A handwritten signature in black ink, appearing to read 'Vladimir Kozak'.

Vladimir Kozak
Engineering Supervisor
Lighting Division