

REPORT

25800 COMMERCE DRIVE, LAKE FOREST, CA 92630

Project No. G103961645

Date: June 28, 2019

REPORT NO. 103961645LAX-007A

TEST OF ONE LED LUMINAIRE

MODEL NO. ALD-R-240W-LV-30K-T4
LED MODEL NO. GWP9LR34.PM-M2M3
DRIVER MODEL NO. EUD-320S670DT
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-00983281.

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-240W-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 LAN1903191345-010.

DATES OF TESTS: June 4, 2019 through June 28, 2019.

SUMMARY

Model No.: ALD-R-240W-LV-30K-T4 Description: LED Luminaire

Criteria	Result
Total Lumen Output (Lumens)	27948
Total Power (W)	233.62
Luminaire Efficacy (LPW)	119.6
BUG Rating	B3-U0-G3
IES Classification	Type IV
Longitudinal Classification	Very Short
Maximum In-Situ Source Temperature Point (°C)	70.400
Maximum In-Situ Driver Case Temperature (°C)	61.3

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Goniophotometer	6440T	000943	VBU	VBU	06/04/19
AC Source	CW1251P	000944	VBU	VBU	06/04/19
Power Analyzer	WT210	000945	11/28/18	11/28/19	06/04/19
Thermometer	DPI8-C24	001782	09/21/18	09/21/19	06/04/19
AC Source	CW1251P-V	001336	VBU	VBU	06/28/19
Power Meter	WT330	001322	11/28/18	11/28/19	06/28/19
Thermometer	52 Series II	001265	10/04/18	10/04/19	06/28/19
True RMS Multimeter	87 III	000029	09/27/18	09/27/19	06/28/19
Temp. & RH Meter	971	001177	01/29/19	01/29/20	06/28/19

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.

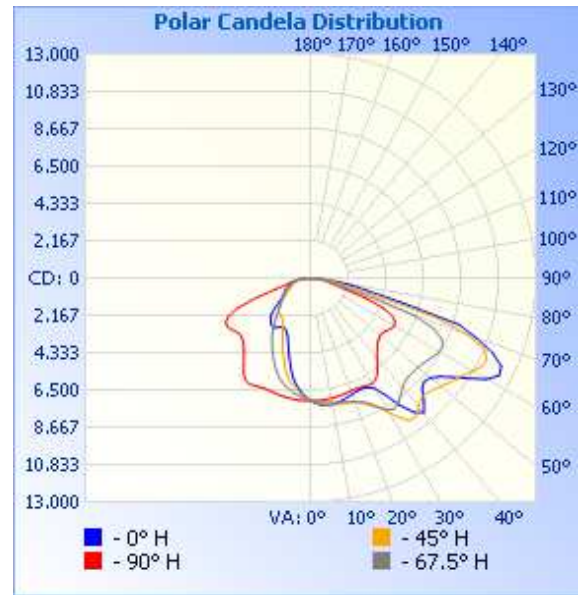
RESULTS OF TEST (cont'd)

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)
LAN1903191345-010	UP	120.0	1950	233.6	0.998	4.71	27948	119.6
		276.9	916.3	234.6	0.925	11.92		

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	25	45	67.5	90
0	7099	7099	7099	7099	7099
5	7394	7386	7343	7240	7120
10	7432	7464	7462	7344	7075
15	7316	7417	7539	7454	7013
20	7144	7342	7658	7643	6942
25	7084	7361	7984	8110	6973
30	7382	7878	9003	8813	7077
35	9039	9504	10063	8856	6732
40	10182	9910	9700	8272	5971
45	9108	9264	9448	8029	5463
50	9004	9546	9774	8072	5226
55	10017	10156	10228	8284	5336
60	11724	11295	10800	8568	5571
65	12152	11688	11229	8356	5229
70	10201	9160	9688	6417	3333
75	5453	4255	4079	1919	1425
80	2418	1583	1517	1160	861
85	857	633	794	630	317
90	0	0	0	0	0



RESULTS OF TEST (cont'd)

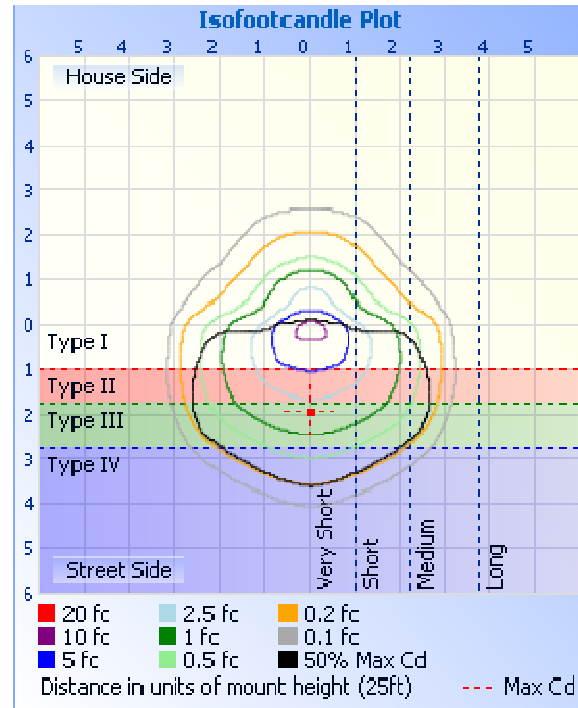
Illumination Plots

Mounting Height: 25 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	5296	19.0
0-40	9261	33.1
0-60	18955	67.8
60-90	8993	32.2
0-90	27948	100.0
90-180	0.0	0.0
0-180	27948	100.0

Luminaire Classification System (LCS)

LCS	Zone	Lumens	% Luminaire
FL	(0-30)	3191	11.4
FM	(30-60)	10310	36.9
FH	(60-80)	6920	24.8
FVH	(80-90)	376.3	1.3
BL	(0-30)	2106.8	7.5
BM	(30-60)	3348	12.0
BH	(60-80)	1444.4	5.2
BVH	(80-90)	254.1	0.9
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	665.6	2.4
10-20	1836	6.6
20-30	2795	10.0
30-40	3964	14.2
40-50	4537	16.2
50-60	5157	18.5
60-70	5639	20.2
70-80	2724	9.7
80-90	630.4	2.3

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 43}
Durchlassspannungsgruppen ^{1) Seite 23}

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

Maximum Ratings Grenzwerte

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

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

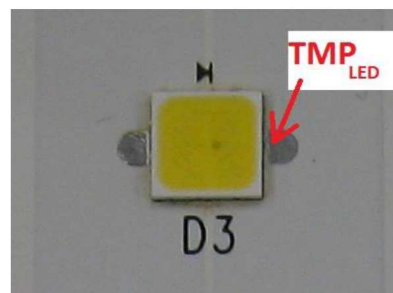


Fig. 2 DURIS S8 type LED model GW P9LT31.PM and temperature measurement point.

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 = 459mA

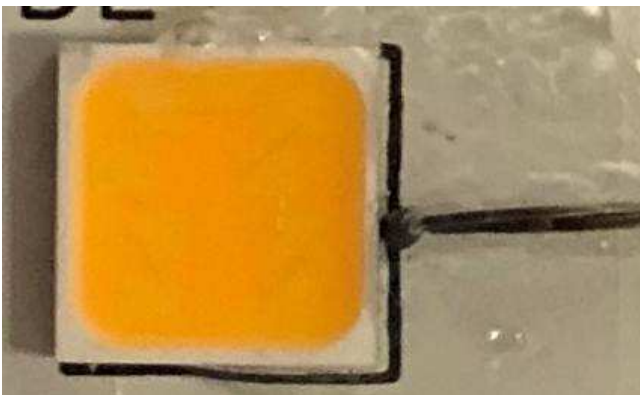
Calculated LED Wattage = $V_f \times$ Measured LED Current = 10.649W

Maximum Source Temperature (T_s) = $T_j - (\text{LED Wattage} \times \text{Thermal Resistance}) = 109^\circ\text{C}$

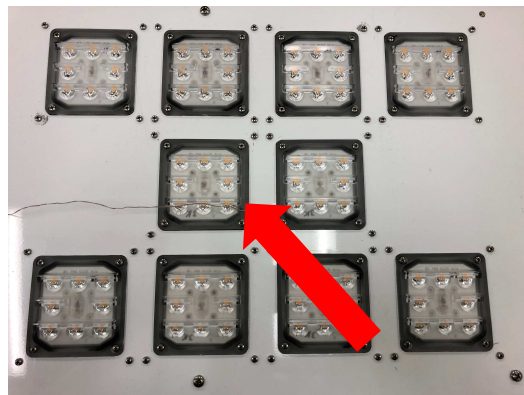
Maximum Measured Manufacturer Designated Source Temperature

Sample No.	Maximum Measured Source Temperature (°C)	Location	Maximum Rated Source Temperature (°C)
LAN1903191345-010	70.4	Per specs above	109.0

LED In-Situ Picture – T_s



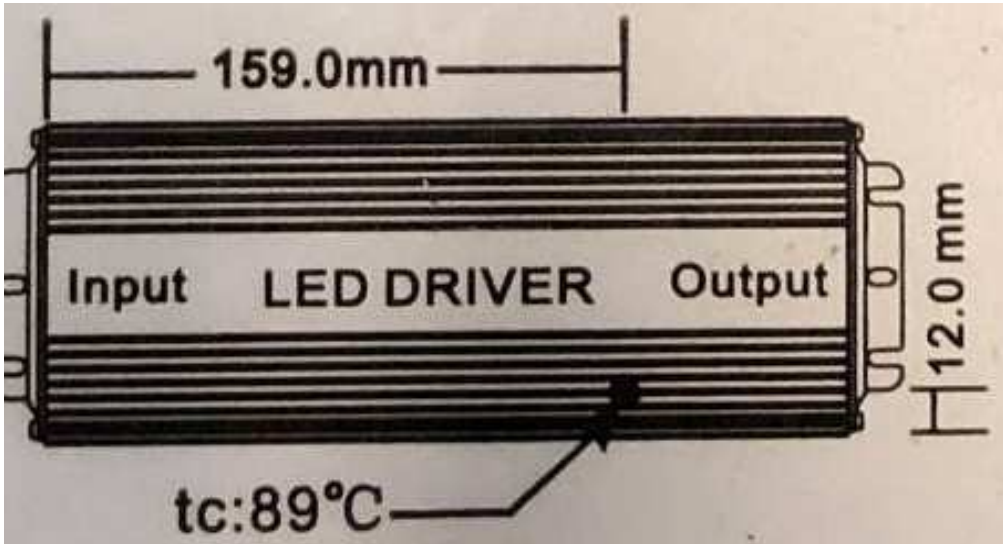
LED In-Situ Picture – T_s location



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)
LAN1903191345-010	61.3	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:

Erik Linares
Associate Engineer
Lighting Division

Attachment: None

Report Reviewed By:

Vladimir Kozak
Engineering Supervisor
Lighting Division