

## REPORT

25800 COMMERCE DRIVE, LAKE FOREST, CA 92630

Project No. G103924656

Date: May 10, 2019

REPORT NO. 103924656LAX-010

TEST OF ONE LED LUMINAIRE

MODEL NO. ALD-R-040W-LV-30K-T4  
LED MODEL NO. GWP9LR34.PM-M2M3  
DRIVER MODEL NO. EUD-075S180DT  
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-040W-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 9, 2019.

## SUMMARY

Model No.: ALD-R-040W-LV-30K-T4 Description: LED Luminaire
---

Criteria	Result
Total Lumen Output (Lumens)	4864
Total Power (W)	38.05
Luminaire Efficacy (LPW)	127.8
BUG Rating	B1-U0-G1
IES Classification	Type IV
Longitudinal Classification	Very Short
Maximum In-Situ Source Temperature Point (°C)	38.6
Maximum In-Situ Driver Case Temperature (°C)	44.3

## 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
AC Source	CW1251P	001336	02/19/2019	02/19/2020	05/09/19
Power Meter	WT333-D-C1/EX2/G5	001322	11/28/2018	11/28/2019	05/09/19
Thermometer	52II	001265	10/04/2018	10/04/2019	05/09/19
Temp. & RH Meter	971	001177	01/29/2019	01/29/2020	05/09/19
True RMS Multimeter	179	001099	04/03/2019	04/03/2020	05/09/19

## 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.

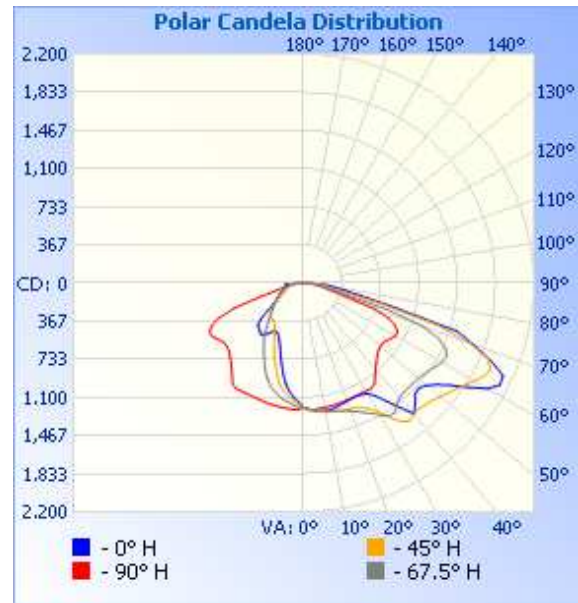
RESULTS OF TEST (cont'd)

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	320.3	38.05	0.990	7.35	4864	127.8
		277.0	165.2	37.87	0.827	22.73		

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	25	45	67.5	90
0	1196	1196	1196	1196	1196
5	1232	1237	1232	1230	1218
10	1245	1255	1256	1250	1212
15	1231	1250	1271	1274	1206
20	1207	1235	1286	1310	1198
25	1199	1237	1321	1372	1193
30	1226	1290	1428	1463	1196
35	1387	1471	1625	1519	1182
40	1640	1581	1640	1431	1069
45	1507	1555	1650	1417	994
50	1530	1628	1698	1429	953
55	1710	1749	1776	1465	966
60	2029	1944	1880	1524	1013
65	2104	2015	1973	1502	968
70	1727	1541	1694	1217	711
75	892	704	766	402	268
80	408	279	274	205	155
85	236	150	173	128	76
90	0	0	0	0	0



## RESULTS OF TEST (cont'd)

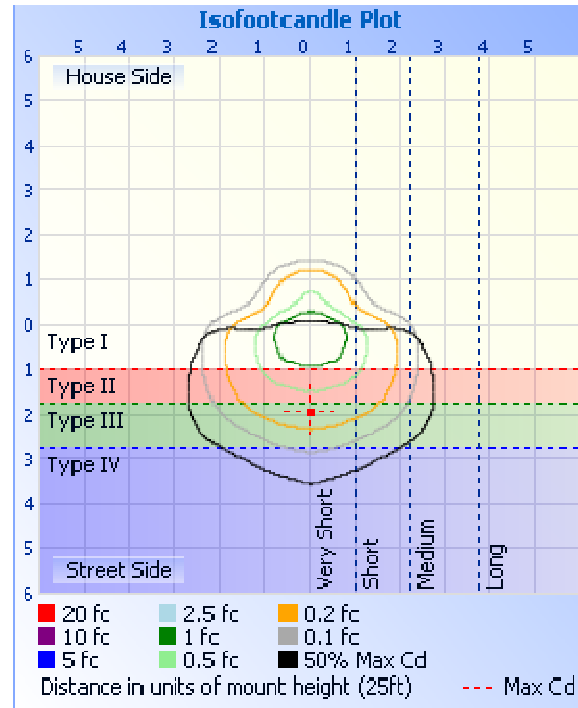
### Illumination Plots

Mounting Height: 25 ft.

Illuminance - Cone of Light



Isoillumination Plot



### Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	898.7	18.5
0-40	1557	32.0
0-60	3253	66.9
60-90	1610	33.1
0-90	4864	100.0
90-180	0.0	0.0
0-180	4864	100.0

### Luminaire Classification System (LCS)

LCS	Zone	Lumens	% Luminaire
FL	(0-30)	537	11.0
FM	(30-60)	1761	36.2
FH	(60-80)	1219	25.1
FVH	(80-90)	79.9	1.6
BL	(0-30)	361.7	7.4
BM	(30-60)	594	12.2
BH	(60-80)	248.9	5.1
BVH	(80-90)	62.8	1.3
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	112.6	2.3
10-20	313.4	6.4
20-30	472.7	9.7
30-40	658.4	13.5
40-50	790.2	16.2
50-60	906.0	18.6
60-70	986.5	20.3
70-80	481.3	9.9
80-90	142.8	2.9

BUG Rating: B1-U0-G1

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 <sup>1) page 43</sup>

##### Durchlassspannungsgruppen <sup>1) Seite 23</sup>

Group	(min.) V <sub>F</sub> [V]	(max.) V <sub>F</sub> [V]
Gruppe		
K8	20.80	21.60
T8	21.60	22.40
28	22.40	23.20

Parameter	Symbol	Values	Unit
Bezeichnung	Symbol	Werte	Einheit
"Electrical" thermal resistance junction / solder point (typ.)	R <sub>th JS el</sub>	1.5	K/W
"Elektrischer" Wärmewiderstand Sperrschicht / Lötpad (with efficiency η <sub>e</sub> = 59 %)			

##### Maximum Ratings Grenzwerte

Parameter	Symbol	Values	Unit
Bezeichnung	Symbol	Werte	Einheit
Junction temperature Sperrschichttemperatur	T <sub>j</sub>	125	°C

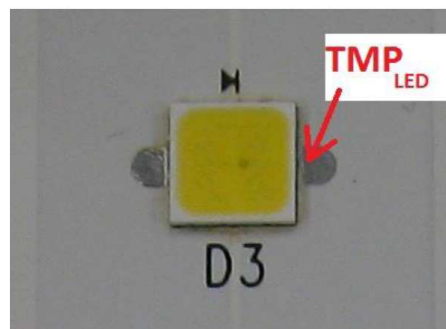


Fig. 2 DURIS S8 type LED model GW P9LT31.PM and temperature measurement point.

Maximum Junction Temperature from LED specification (T<sub>j</sub>) = 125°C

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

Maximum Forward Voltage (V<sub>f</sub>) from LED specification = 23.2V

Measured LED Current = 363.5mA

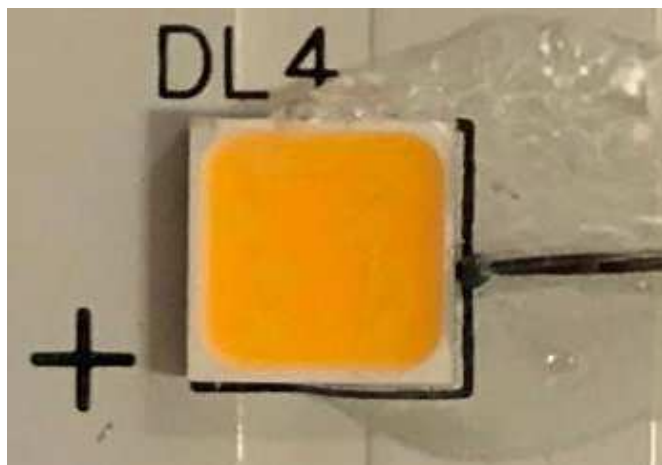
Calculated LED Wattage = V<sub>f</sub> x Measured LED Current = 8.433W

Maximum Source Temperature (T<sub>s</sub>) = T<sub>j</sub> – (LED Wattage x Thermal Resistance) = 112.4°C

#### Maximum Measured Manufacturer Designated Source Temperature

Sample No.	Maximum Measured Source Temperature (°C)	Location	Maximum Rated Source Temperature (°C)
LAN1903191345-003A	38.6	Per specs above	112.4

#### LED In-Situ Picture – T<sub>s</sub>



#### LED In-Situ Picture – T<sub>s</sub> location

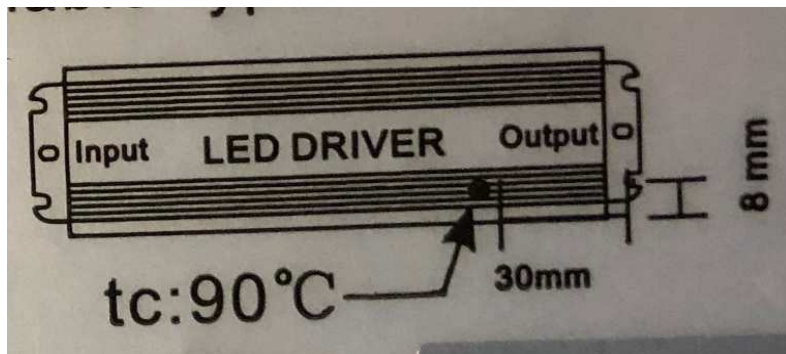




RESULTS OF TEST (cont'd)

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	44.3	Per specs above	90.0

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