

REPORT

25800 COMMERCENTRE DRIVE, LAKE FOREST, CA 92630

Project No. G103924656

Date: May 7, 2019

REPORT NO. 103924656LAX-009

TEST OF ONE LED LUMINAIRE

MODEL NO. ALD-R-060W-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-060W-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 7, 2019.

SUMMARY

Model No.: ALD-R-060W-LV-30K-T4 Description: LED Luminaire

Criteria	Result
Total Lumen Output (Lumens)	7606
Total Power (W)	59.121
Luminaire Efficacy (LPW)	128.7
BUG Rating	B2-U0-G2
IES Classification	Type IV
Longitudinal Classification	Very Short
Maximum In-Situ Source Temperature Point (°C)	40.2
Maximum In-Situ Driver Case Temperature (°C)	51.5

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Goniophotometer	6440T	000943	VBU	VBU	05/07/19
AC Source	CW1251P	000944	VBU	VBU	05/07/19
Power Analyzer	WT210	000945	11/28/18	11/28/19	05/07/19
Magnetic Level	581-9	001610	10/31/18	10/31/19	05/07/19
Thermometer	DPi8-C24	001782	09/21/18	09/21/19	05/07/19
AC Source	CW1251P	001336	02/19/2019	02/19/2020	05/07/19
Power Meter	WT333-D-C1/EX2/G5	001322	11/28/2018	11/28/2019	05/07/19
Thermometer	52II	001265	10/04/2018	10/04/2019	05/07/19
Temp. & RH Meter	971	001177	01/29/2019	01/29/2020	05/07/19
True RMS Multimeter	179	001099	04/03/2019	04/03/2020	05/07/19

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.

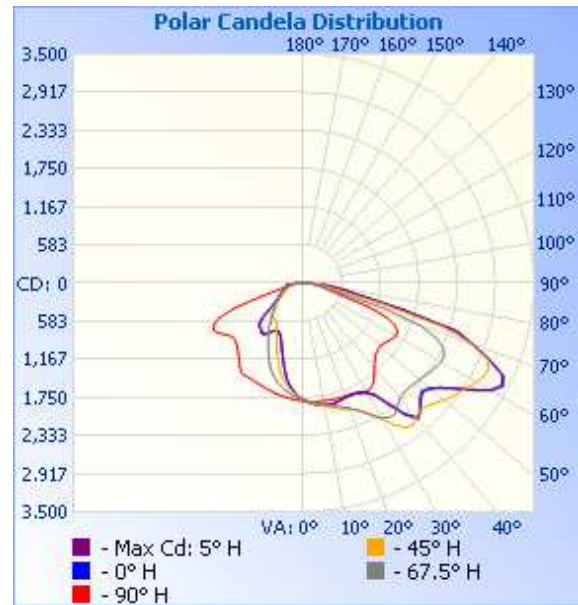
RESULTS OF TEST (cont'd)

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	496.0	59.12	0.994	5.70	7606	128.7
		277.0	226.7	58.49	0.932	8.20		

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	25	45	67.5	90
0	1804	1804	1804	1804	1804
5	1856	1862	1849	1830	1817
10	1892	1916	1910	1878	1825
15	1888	1946	1980	1946	1835
20	1856	1953	2056	2038	1841
25	1855	1981	2167	2183	1868
30	1926	2103	2408	2377	1912
35	2243	2514	2702	2434	1855
40	2684	2710	2665	2289	1675
45	2496	2605	2655	2263	1551
50	2496	2761	2784	2295	1515
55	2800	2947	2900	2354	1552
60	3268	3210	3029	2412	1618
65	3340	3274	3102	2342	1532
70	2716	2528	2730	1882	1044
75	1568	1301	1258	614	386
80	651	472	444	319	237
85	330	246	285	208	121
90	0	0	0	0	0



RESULTS OF TEST (cont'd)

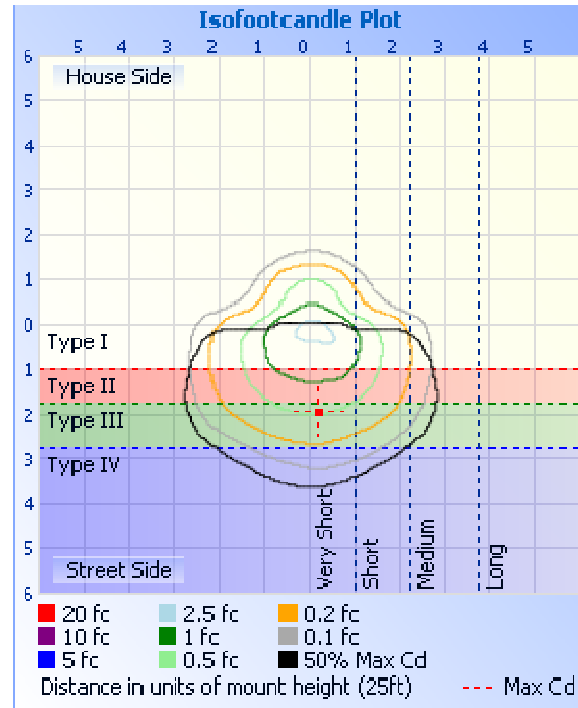
Illumination Plots

Mounting Height: 25 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	1362	17.9
0-40	2387	31.4
0-60	5047	66.4
60-90	2559	33.6
0-90	7606	100.0
90-180	0.0	0.0
0-180	7606	100.0

Luminaire Classification System (LCS)

LCS	Zone	Lumens	% Luminaire
FL	(0-30)	821	10.8
FM	(30-60)	2780	36.6
FH	(60-80)	1959	25.8
FVH	(80-90)	128.6	1.7
BL	(0-30)	542.1	7.1
BM	(30-60)	904	11.9
BH	(60-80)	380.0	5.0
BVH	(80-90)	92.2	1.2
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	169.3	2.2
10-20	472.5	6.2
20-30	720.6	9.5
30-40	1025	13.5
40-50	1236	16.2
50-60	1424	18.7
60-70	1563	20.5
70-80	775.7	10.2
80-90	220.8	2.9

BUG Rating: B2-U0-G2

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

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

Maximum Ratings Grenzwerte

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

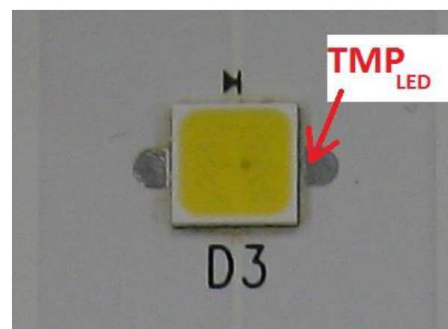


Fig. 2 DURIS S8 type LED model GW P9LT31.PM and temperature measurement point.

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 = 383.3mA

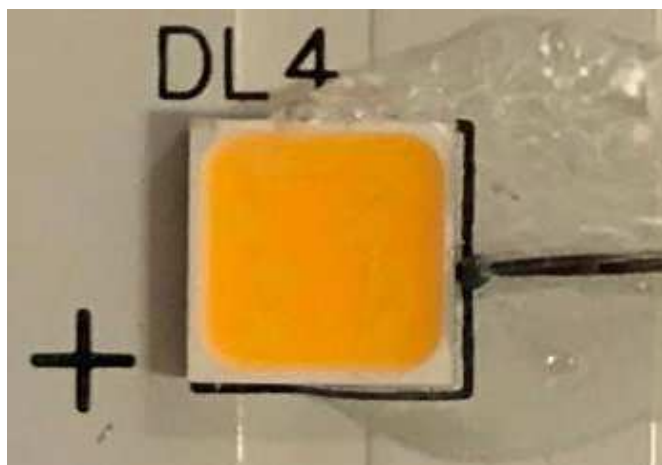
Calculated LED Wattage = $V_f \times \text{Measured LED Current} = 8.893W$

Maximum Source Temperature (T_s) = $T_j - (\text{LED Wattage} \times \text{Thermal Resistance}) = 111.7^\circ\text{C}$

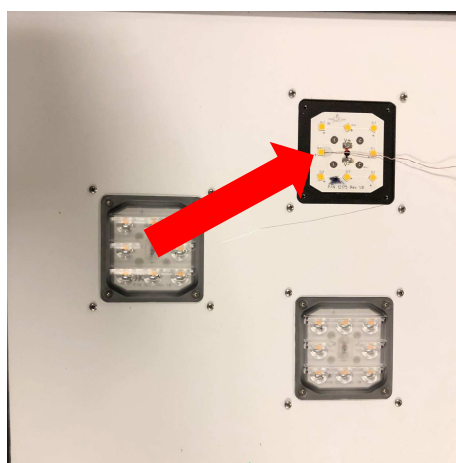
Maximum Measured Manufacturer Designated Source Temperature

Sample No.	Maximum Measured Source Temperature (°C)	Location	Maximum Rated Source Temperature (°C)
LAN1903191345-003A	40.2	Per specs above	111.7

LED In-Situ Picture – T_s



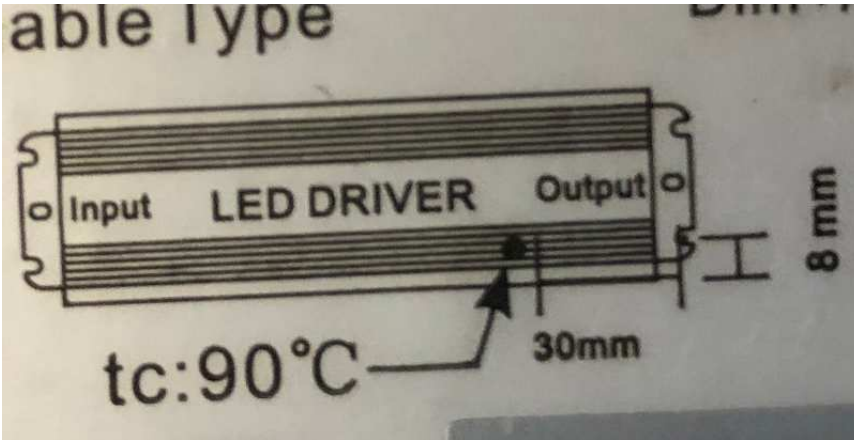
LED In-Situ Picture – T_s location



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	51.5	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:

Handwritten signature of Erik Linares.

Erik Linares
Associate Engineer
Lighting Division

Attachment: None

Report Reviewed By:

Handwritten signature of Vladimir Kozak.

Vladimir Kozak
Engineering Supervisor
Lighting Division