

REPORT

25800 COMMERCE DRIVE, LAKE FOREST, CA 92630

Project No. G103961645

Date: July 16, 2019

REPORT NO. 103924656LAX-015A

TEST OF ONE LED LUMINAIRE

MODEL NO. ALD-R-240W-HV-30K-T4
LED MODEL NO. GWP9LR34.PM-M2M3
DRIVER MODEL NO. ESD-320S620DT
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-HV-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 6, 2019 through July 16, 2019.

SUMMARY

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

Criteria	Result
Total Lumen Output (Lumens)	27948
Total Power (W)	234.57
Luminaire Efficacy (LPW)	119.1
BUG Rating	B3-U0-G3
IES Classification	Type IV
Longitudinal Classification	Very Short
Maximum In-Situ Source Temperature Point (°C)	70.3
Maximum In-Situ Driver Case Temperature (°C)	63.8

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Goniophotometer	6440T	000943	VBU	VBU	06/06/19
AC Source	CW1251P	001334	02/19/19	02/19/20	06/06/19
Power Analyzer	WT210	000945	11/28/18	11/28/19	06/06/19
Thermometer	DPI8-C24	001782	09/21/18	09/21/19	06/06/19
AC Source	CW1251P-V	001336	VBU	VBU	07/16/19
Power Meter	WT330	001322	11/28/18	11/28/19	07/16/19
Thermometer	52 Series II	001265	10/04/18	10/04/19	07/16/19
True RMS Multimeter	87 III	000029	09/27/18	09/27/19	07/16/19
Temp. & RH Meter	971	001177	01/29/19	01/29/20	07/16/19
Variac 3 phase	6020E-3Y	001096	VBU	VBU	07/16/19

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.

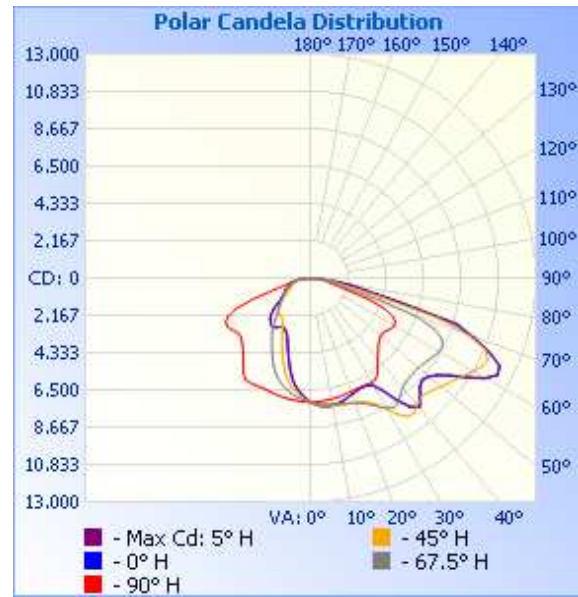
RESULTS OF TEST (cont'd)

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	277.0	854.5	234.6	0.991	9.14	27948	119.1
		480.1	526.2	237.6	0.940	12.21		

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	25	45	67.5	90
0	7196	7196	7196	7196	7196
5	7464	7467	7430	7340	7172
10	7494	7532	7539	7433	7126
15	7358	7462	7598	7535	7062
20	7140	7345	7688	7706	6983
25	7004	7295	7939	8088	6960
30	7153	7662	8783	8704	7000
35	8565	9030	9805	8838	6759
40	9800	9608	9575	8287	6040
45	8908	9182	9461	8096	5544
50	8863	9499	9797	8119	5267
55	9813	10100	10241	8299	5334
60	11598	11245	10811	8561	5570
65	12033	11697	11284	8367	5246
70	9983	9054	9753	6566	3517
75	5357	4201	4127	1988	1445
80	2415	1577	1521	1155	862
85	837	601	764	616	314
90	0	0	0	0	0



RESULTS OF TEST (cont'd)

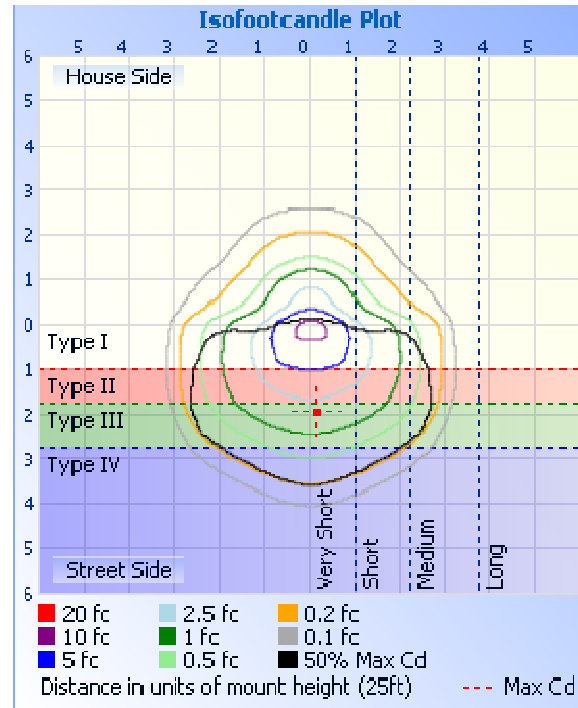
Illumination Plots

Mounting Height: 25 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	5329	19.1
0-40	9236	33.0
0-60	18933	67.7
60-90	9014	32.3
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)	3189	11.4
FM	(30-60)	10216	36.6
FH	(60-80)	6937	24.8
FVH	(80-90)	366.1	1.3
BL	(0-30)	2142.5	7.7
BM	(30-60)	3387	12.1
BH	(60-80)	1456.1	5.2
BVH	(80-90)	256.9	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	674.9	2.4
10-20	1860	6.7
20-30	2794	10.0
30-40	3906	14.0
40-50	4538	16.2
50-60	5160	18.5
60-70	5647	20.2
70-80	2744	9.8
80-90	622.9	2.2

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

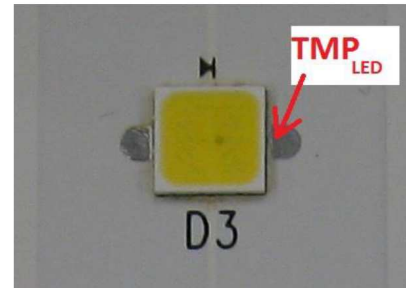


Fig. 2 DURIS S8 type LED model GW P9LT31.PM and temperature measurement point.

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 = 116.3mA

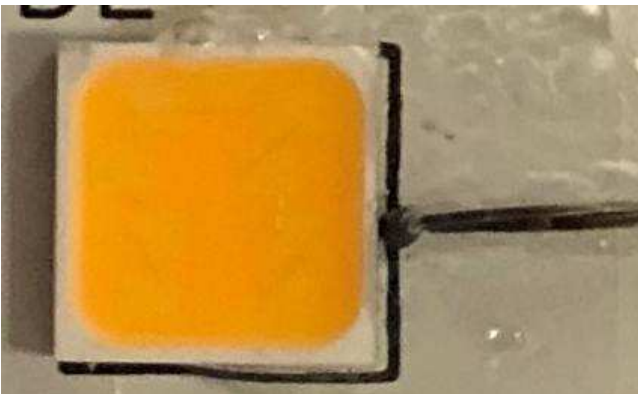
Calculated LED Wattage = $V_f \times$ Measured LED Current = 2.698W

Maximum Source Temperature (T_s) = $T_j - (\text{LED Wattage} \times \text{Thermal Resistance}) = 121^\circ\text{C}$

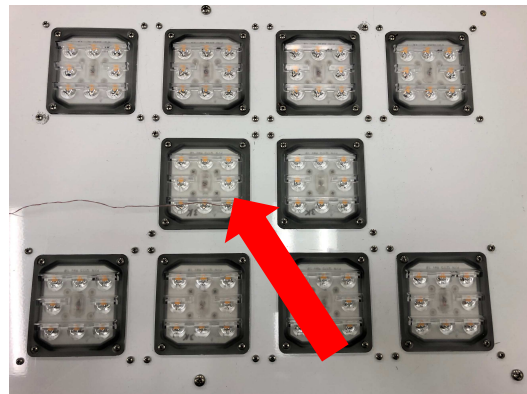
Maximum Measured Manufacturer Designated Source Temperature

Sample No.	Maximum Measured Source Temperature (°C)	Location	Maximum Rated Source Temperature (°C)
LAN1903191345-010	70.3	Per specs above	121.0

LED In-Situ Picture – T_s



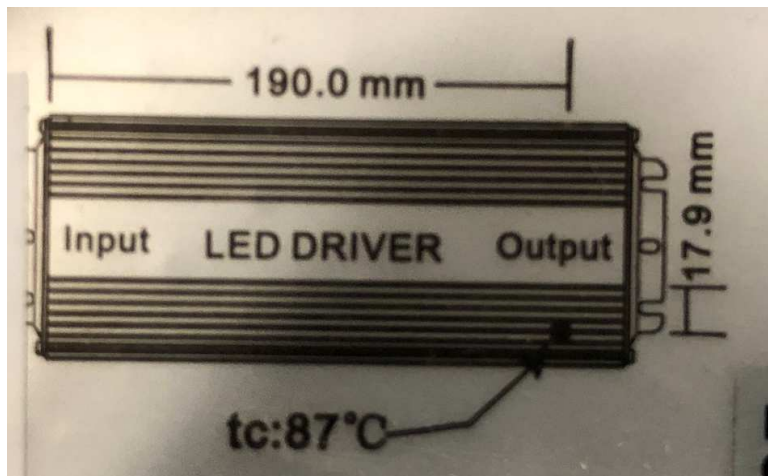
LED In-Situ Picture – T_s location



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	63.8	Per specs above	87.0

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