

REPORT

25800 COMMERCE DRIVE, LAKE FOREST, CA 92630

Project No. G103924656

Date: May 17, 2019

REPORT NO. 103924656LAX-018

TEST OF ONE LED LUMINAIRE

MODEL NO. ALD-R-120W-HV-30K-T4
LED MODEL NO. GWP9LR34.PM-M2M3
DRIVER MODEL NO. ESD-150S350DT
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-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 LAN1903191345-003A.

DATES OF TESTS: May 13, 2019 through May 17, 2019.

SUMMARY

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

Criteria	Result
Total Lumen Output (Lumens)	15297
Total Power (W)	118.24
Luminaire Efficacy (LPW)	129.4
BUG Rating	B3-U0-G3
IES Classification	Type IV
Longitudinal Classification	Very Short
Maximum In-Situ Source Temperature Point (°C)	59.2
Maximum In-Situ Driver Case Temperature (°C)	60.1

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Goniophotometer	6440T	000943	VBU	VBU	05/13/19
AC Source	CW1251P	000944	VBU	VBU	05/13/19
Power Analyzer	WT210	000945	11/28/18	11/28/19	05/13/19
Variac	2520CT-2	001095	VBU	VBU	05/13/19
Magnetic Level	581-9	001610	10/31/18	10/31/19	05/13/19
Thermometer	DPi8-C24	001782	09/21/18	09/21/19	05/13/19
Temp. & RH Meter	971	001177	01/29/19	01/29/20	05/13/19
Thermometer	DPi8-C24	001782	09/21/18	09/21/19	05/17/19
Temp. & RH Meter	971	001177	01/29/19	01/29/20	05/17/19
True RMS Multimeter	87	000029	09/27/18	09/27/19	05/17/19
AC Source	CW1251P-V	001334	VBU	VBU	05/17/19
Power Meter	WT330	001321	08/13/18	08/13/19	05/17/19

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.

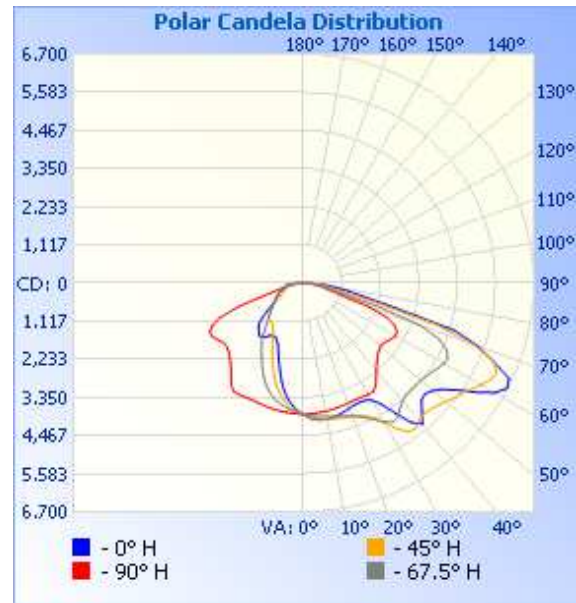
RESULTS OF TEST (cont'd)

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	277.2	431.0	118.2	0.990	10.05	15297	129.4
		479.9	267.1	120.04	0.936	10.04		

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	25	45	67.5	90
0	3854	3854	3854	3854	3854
5	4008	4007	3975	3910	3824
10	4042	4058	4043	3965	3806
15	3987	4037	4090	4032	3780
20	3892	3986	4149	4141	3746
25	3851	3982	4284	4353	3734
30	3950	4193	4714	4692	3765
35	4639	4928	5318	4784	3666
40	5382	5184	5235	4489	3293
45	4854	5010	5222	4412	3043
50	4895	5195	5392	4438	2911
55	5453	5559	5632	4547	2951
60	6416	6183	5946	4710	3092
65	6598	6343	6202	4593	2922
70	5406	4805	5279	3621	2017
75	2710	2059	2173	1081	796
80	1297	846	828	620	467
85	651	426	497	360	194
90	0	0	0	0	0



RESULTS OF TEST (cont'd)

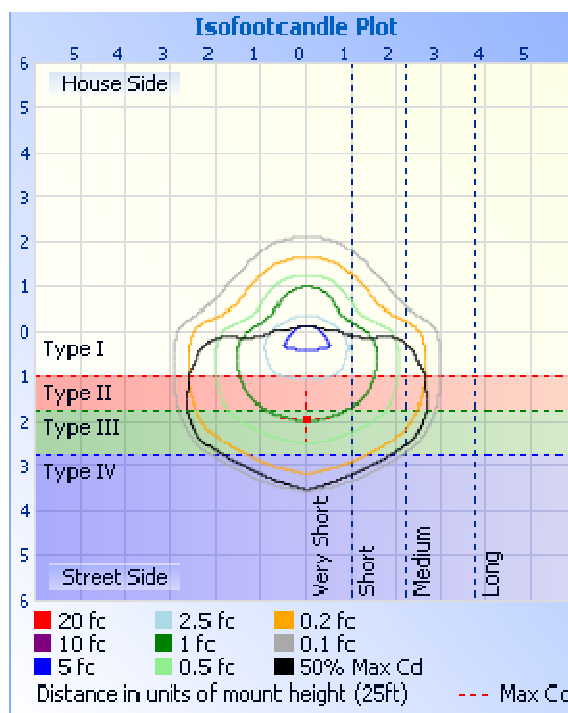
Illumination Plots

Mounting Height: 25 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	2885	18.9
0-40	5010	32.7
0-60	10349	67.7
60-90	4948	32.3
0-90	15297	100.0
90-180	0.0	0.0
0-180	15297	100.0

Luminaire Classification System (LCS)

LCS	Zone	Lumens	% Luminaire
FL	(0-30)	1720	11.2
FM	(30-60)	5591	36.5
FH	(60-80)	3744	24.5
FVH	(80-90)	231.0	1.5
BL	(0-30)	1165.8	7.6
BM	(30-60)	1872	12.2
BH	(60-80)	795.0	5.2
BVH	(80-90)	179.8	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	362.2	2.4
10-20	1006	6.6
20-30	1518	9.9
30-40	2124	13.9
40-50	2492	16.3
50-60	2847	18.6
60-70	3083	20.2
70-80	1455	9.5
80-90	410.7	2.7

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 _{th JS el}	1.5	K/W

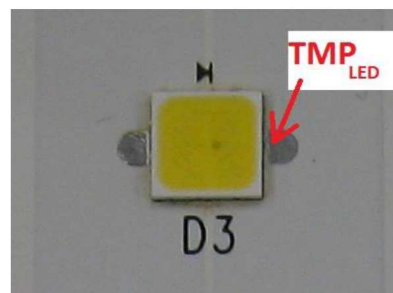


Fig. 2 DURIS S8 type LED model GW P9LT31.PM and temperature measurement point.

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 = 399.7mA

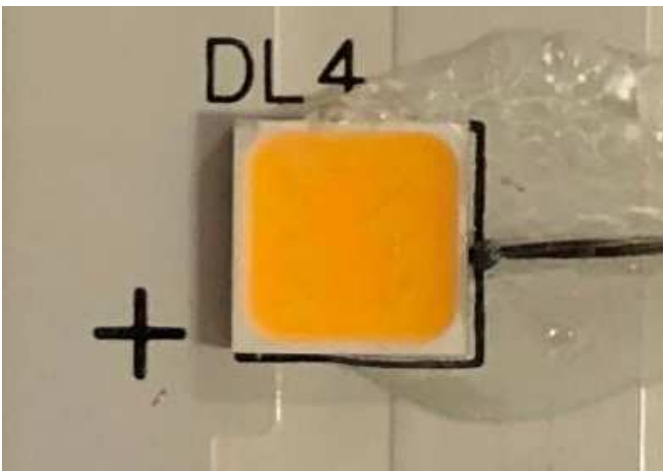
Calculated LED Wattage = V_f x Measured LED Current = 9.272W

Maximum Source Temperature (T_s) = T_j – (LED Wattage x Thermal Resistance) = 111.1°C

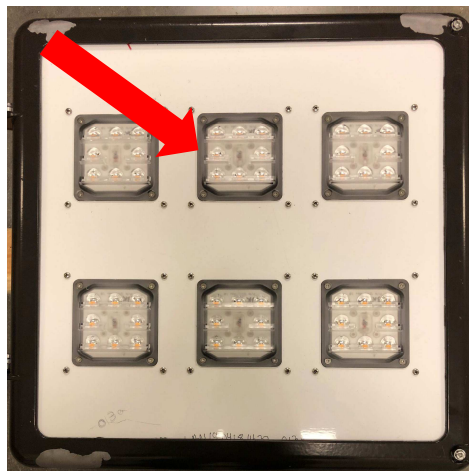
Maximum Measured Manufacturer Designated Source Temperature

Sample No.	Maximum Measured Source Temperature (°C)	Location	Maximum Rated Source Temperature (°C)
LAN1903191345-003A	59.2	Per specs above	111.1

LED In-Situ Picture – T_s



LED In-Situ Picture – T_s location



RESULTS OF TEST (cont'd)

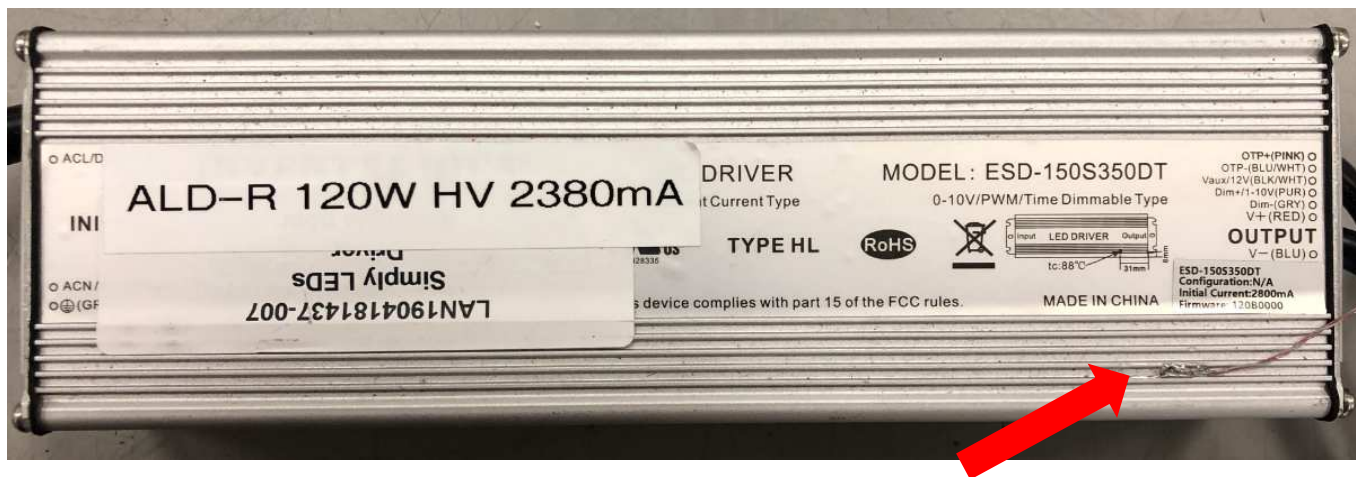
In-Situ Maximum Measured Power Supply Case Temperature

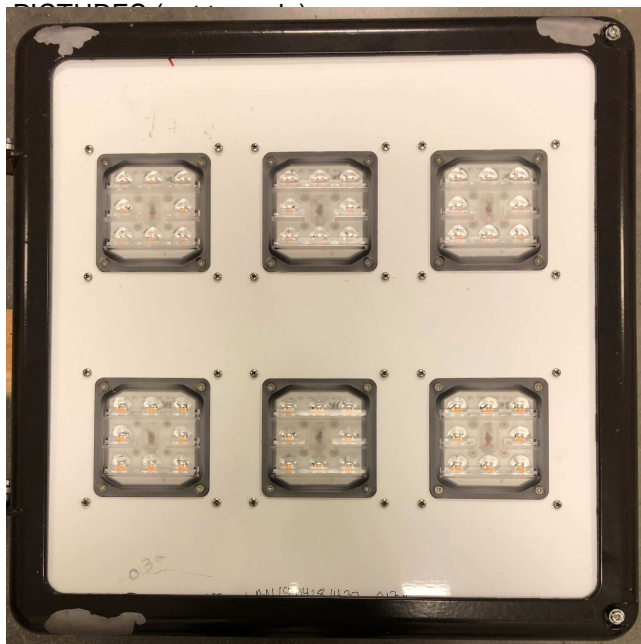
Manufacturer Supplied Documentation:



Sample No.	Maximum Measured Source Temperature (°C)	Location	Maximum Rated Source Temperature (°C)
LAN1903191345-003A	60.1	Per specs above	88.0

Driver In-Situ Picture – Ts Location





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 blue ink, appearing to read 'Gregory V. Rosandich'.

Gregory V. Rosandich
Technician
Lighting Division

Attachment: None

Report Reviewed By:

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

Vladimir Kozak
Engineering Supervisor
Lighting Division