

REPORT

25800 COMMERCE DRIVE, LAKE FOREST, CA 92630

Project No. G103924656

Date: May 20, 2019

REPORT NO. 103924656LAX-019

TEST OF ONE LED LUMINAIRE

MODEL NO. ALD-R-080W-HV-30K-T4
LED MODEL NO. GWP9LR34.PM-M2M3
DRIVER MODEL NO. ESD-096S360DT
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-080W-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 20, 2019.

SUMMARY

Model No.: ALD-R-080W-HV-30K-T4 Description: LED Luminaire

Criteria	Result
Total Lumen Output (Lumens)	9812
Total Power (W)	79.21
Luminaire Efficacy (LPW)	123.9
BUG Rating	B2-U0-G2
IES Classification	Type IV
Longitudinal Classification	Very Short
Maximum In-Situ Source Temperature Point (°C)	47.6
Maximum In-Situ Driver Case Temperature (°C)	57.1

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
AC Source	CW1251P-V	001334	VBU	VBU	05/20/19
Power Meter	WT210	001321	08/13/18	08/13/19	05/20/19
Thermometer	52 Series II	001265	10/04/18	10/04/19	05/20/19
True RMS Multimeter	87	000029	09/27/18	09/27/19	05/20/19
Temp. & RH Meter	971	001177	01/29/19	01/29/20	05/20/19

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.

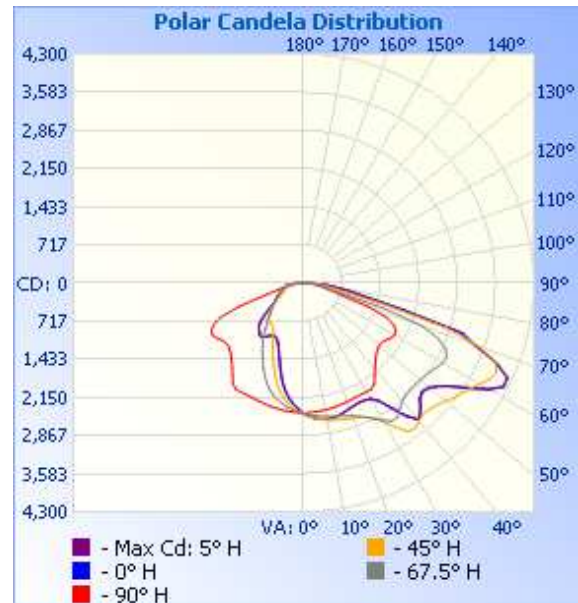
RESULTS OF TEST (cont'd)

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	276.5	289.0	79.21	0.991	11.09	9812	123.9
		480.1	175.6	78.86	0.935	13.54		

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	25	45	67.5	90
0	2454	2454	2454	2454	2454
5	2550	2563	2554	2500	2428
10	2593	2615	2613	2540	2415
15	2569	2614	2657	2586	2396
20	2506	2580	2697	2655	2370
25	2470	2566	2775	2783	2353
30	2506	2656	3012	2978	2359
35	2852	3059	3403	3067	2306
40	3353	3309	3361	2877	2073
45	3062	3192	3338	2822	1918
50	3052	3300	3450	2835	1837
55	3374	3518	3605	2896	1867
60	3974	3912	3792	2996	1959
65	4205	4118	3978	2931	1855
70	3412	3188	3489	2368	1290
75	1954	1544	1607	731	508
80	894	593	565	407	303
85	450	298	357	261	147
90	0	0	0	0	0



RESULTS OF TEST (cont'd)

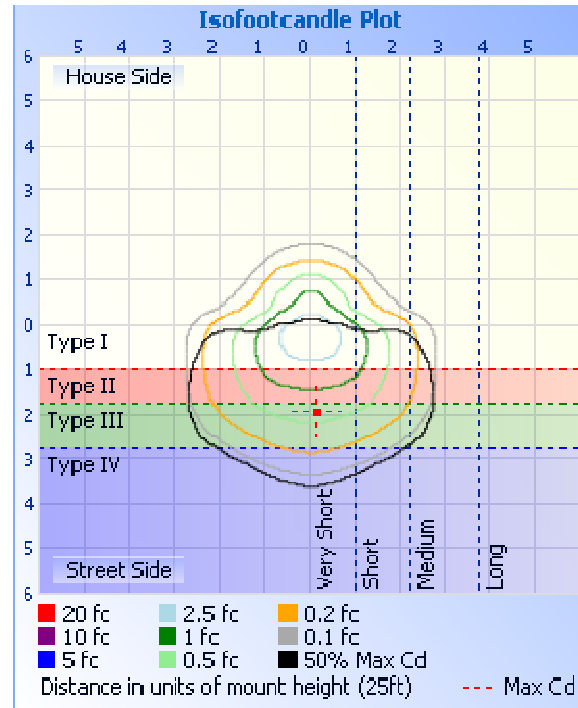
Illumination Plots

Mounting Height: 25 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	1841	18.8
0-40	3187	32.5
0-60	6574	67.0
60-90	3238	33.0
0-90	9812	100.0
90-180	0.0	0.0
0-180	9812	100.0

Luminaire Classification System (LCS)

LCS	Zone	Lumens	% Luminaire
FL	(0-30)	1105	11.3
FM	(30-60)	3545	36.1
FH	(60-80)	2457	25.0
FVH	(80-90)	162.2	1.7
BL	(0-30)	736.6	7.5
BM	(30-60)	1189	12.1
BH	(60-80)	500.6	5.1
BVH	(80-90)	117.9	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	230.9	2.4
10-20	642.3	6.5
20-30	967.3	9.9
30-40	1346	13.7
40-50	1587	16.2
50-60	1800	18.4
60-70	1976	20.1
70-80	981.7	10.0
80-90	280.1	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

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

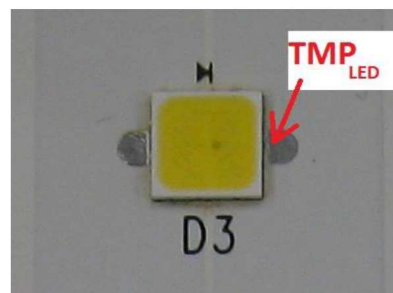


Fig. 2 DURIS S8 type LED model GW P9LT31.PM and temperature measurement point.

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 = 374.8mA

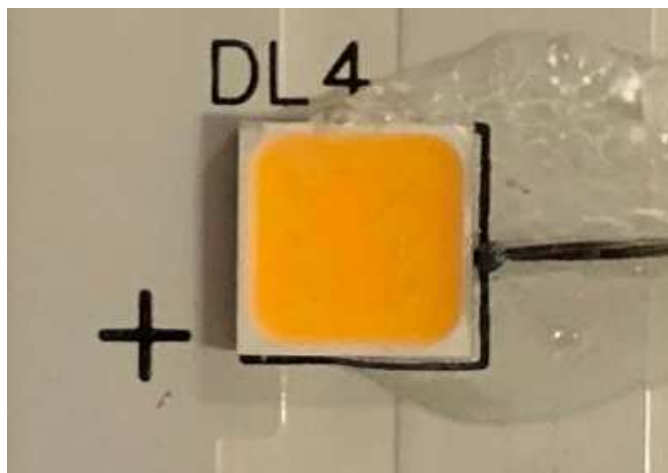
Calculated LED Wattage = V_f x Measured LED Current = 8.694W

Maximum Source Temperature (T_s) = T_j – (LED Wattage x Thermal Resistance) = 112°C

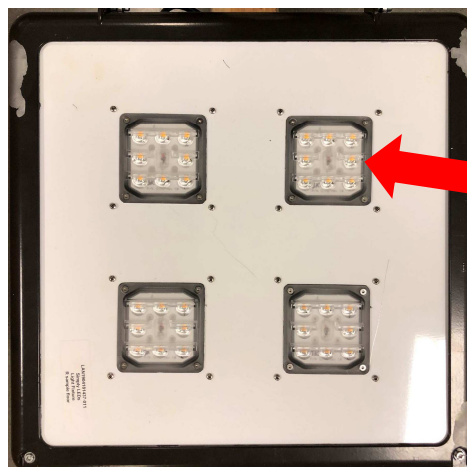
Maximum Measured Manufacturer Designated Source Temperature

Sample No.	Maximum Measured Source Temperature (°C)	Location	Maximum Rated Source Temperature (°C)
LAN1903191345-003A	47.6	Per specs above	112.0

LED In-Situ Picture – T_s



LED In-Situ Picture – T_s location



RESULTS OF TEST (cont'd)

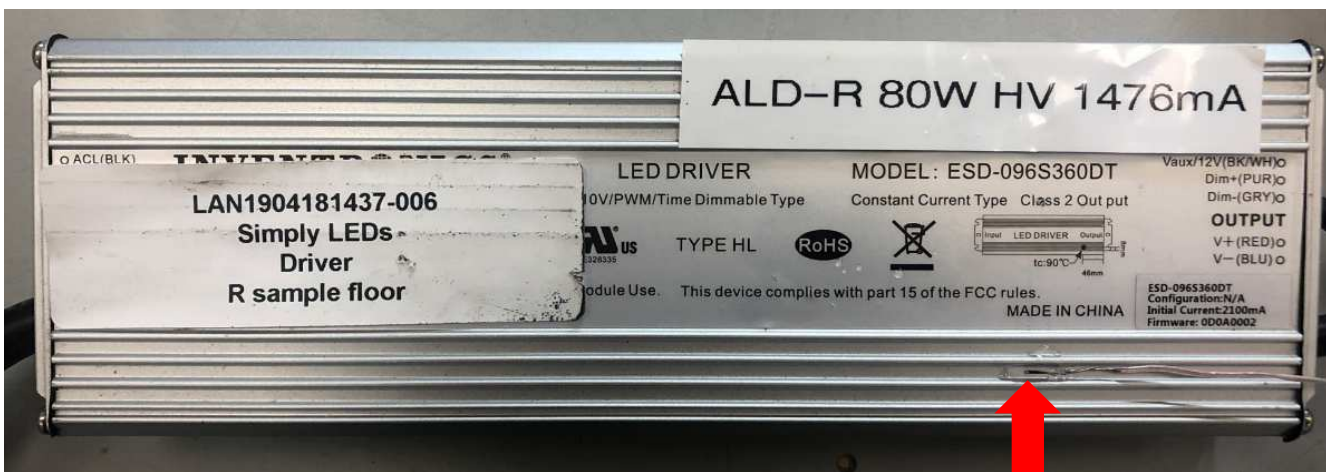
In-Situ Maximum Measured Power Supply Case Temperature

Manufacturer Supplied Documentation:



Sample No.	Maximum Measured Source Temperature (°C)	Location	Maximum Rated Source Temperature (°C)
LAN1903191345-003A	57.1	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:



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Technician
Lighting Division

Attachment: None

Report Reviewed By:



Vladimir Kozak
Engineering Supervisor
Lighting Division