REPORT

25800 COMMERCENTRE DRIVE, LAKE FOREST, CA 92630

Project No. G103924656 Date: May 20, 2019

REPORT NO. 103924656LAX-020

TEST OF ONE LED LUMINAIRE

MODEL NO. ALD-R-060W-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-060W-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 14, 2019.

SUMMARY

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

Criteria	Result
Total Lumen Output (Lumens)	7206
Total Power (W)	60.21
Luminaire Efficacy (LPW)	119.7
BUG Rating	B2-U0-G2
IES Classification	Type IV
Longitudinal Classification	Very Short
Maximum In-Situ Source Temperature Point (°C)	39.6
Maximum In-Situ Driver Case Temperature (°C)	56.1

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
Power Supply (AC 3P / DC)	CSW5550-208-LAN	001339	VBU	VBU	05/14/19
Power Meter	WT330	001319	08/13/18	08/13/19	05/14/19
Temp. & RH Meter	971	001177	01/29/19	01/29/20	05/14/19
True RMS Multimeter	87 III	000029	09/27/18	09/27/19	05/14/19

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.

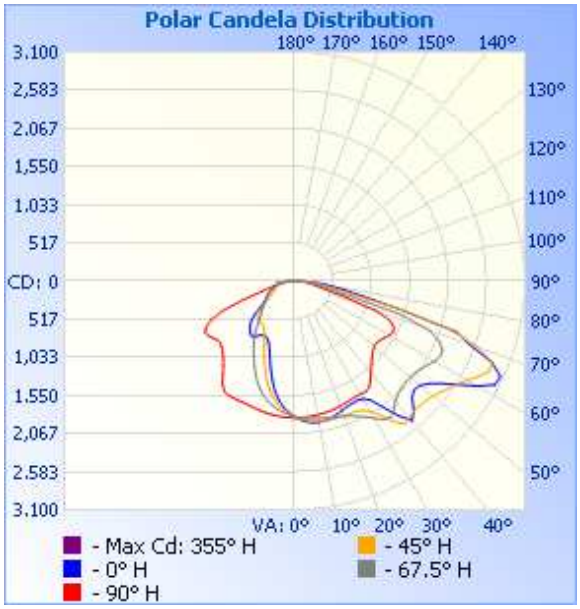
RESULTS OF TEST (cont'd)

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – Distribution Method

Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD	Absolute Luminous Flux (Lumens)	Lumen Efficacy (LPW)
LAN1903191345-003A	UP	277.0	218.9	60.21	0.993	10.71	7206	119.7
		480.1	136.7	59.92	0.913	17.36		

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	25	45	67.5	90
0	1852	1852	1852	1852	1852
5	1914	1905	1893	1863	1847
10	1938	1931	1923	1886	1836
15	1917	1920	1940	1912	1823
20	1864	1874	1941	1948	1800
25	1827	1831	1946	2019	1775
30	1839	1836	2039	2143	1769
35	2091	2047	2323	2255	1753
40	2465	2345	2413	2114	1598
45	2239	2193	2388	2038	1472
50	2201	2261	2425	2029	1395
55	2416	2410	2531	2076	1395
60	2840	2720	2682	2173	1473
65	3059	2970	2890	2200	1475
70	2511	2352	2637	1918	1162
75	1467	1316	1487	756	420
80	678	491	479	342	250
85	351	236	282	219	131
90	0	0	0	0	0



RESULTS OF TEST (cont'd)

Illumination Plots

Mounting Height: 25 ft.

Illuminance - Cone of Light

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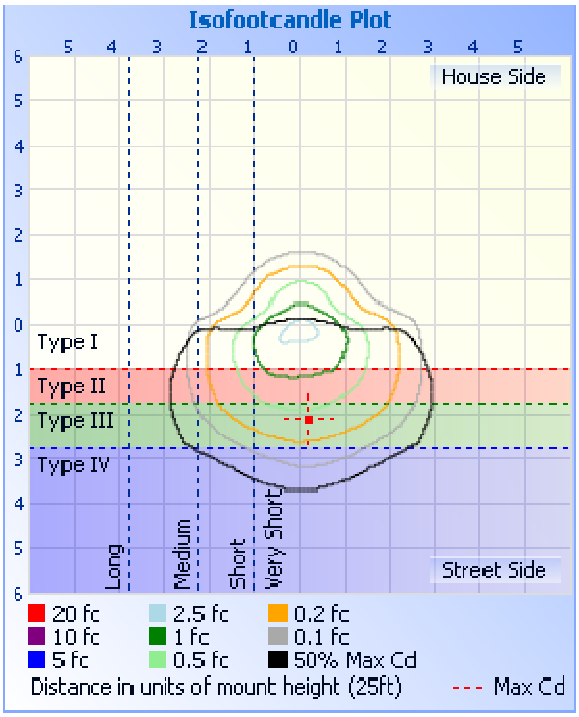


Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	1375	19.1
0-40	2368	32.9
0-60	4834	67.1
60-90	2371	32.9
0-90	7206	100.0
90-180	0.0	0.0
0-180	7206	100.0

Luminaire Classification System (LCS)

LCS	Zone	Lumens	% Luminaire
FL	(0-30)	824	11.4
FM	(30-60)	2588	35.9
FH	(60-80)	1790	24.8
FVH	(80-90)	121.7	1.7
BL	(0-30)	551.5	7.7
BM	(30-60)	871	12.1
BH	(60-80)	372.1	5.2
BVH	(80-90)	88.2	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	173.8	2.4
10-20	481.0	6.7
20-30	720.0	10.0
30-40	993.7	13.8
40-50	1159	16.1
50-60	1307	18.1
60-70	1438	20.0
70-80	723.3	10.0
80-90	209.9	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 23
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 η_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

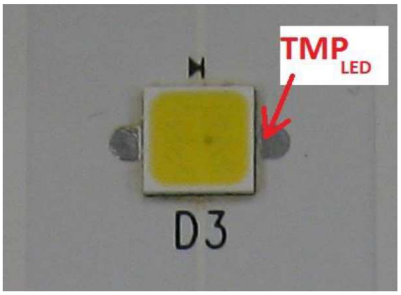


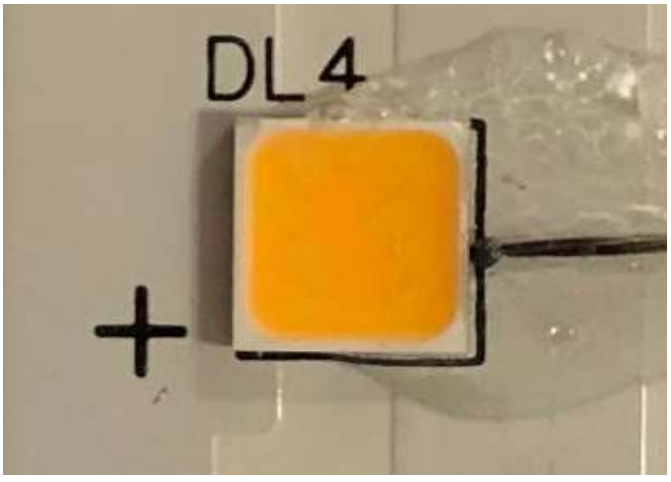
Fig. 2 DURIS S8 type LED model GW P9LT31.PM and temperature measurement point.

Maximum Junction Temperature from LED specification (Tj) = 125°C
Thermal Resistance Formula from LED specification = 1.5°C/W
Maximum Forward Voltage (Vf) from LED specification = 23.2V
Measured LED Current = 360.7mA
Calculated LED Wattage = Vf x Measured LED Current = 8.367W
Maximum Source Temperature (Ts) = Tj – (LED Wattage x Thermal Resistance) = 112.4°C

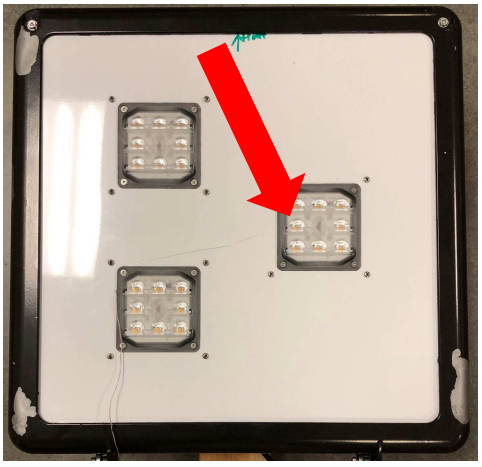
Maximum Measured Manufacturer Designated Source Temperature

Sample No.	Maximum Measured Source Temperature (°C)	Location	Maximum Rated Source Temperature (°C)
LAN1903191345-003A	39.6	Per specs above	112.4

LED In-Situ Picture – Ts



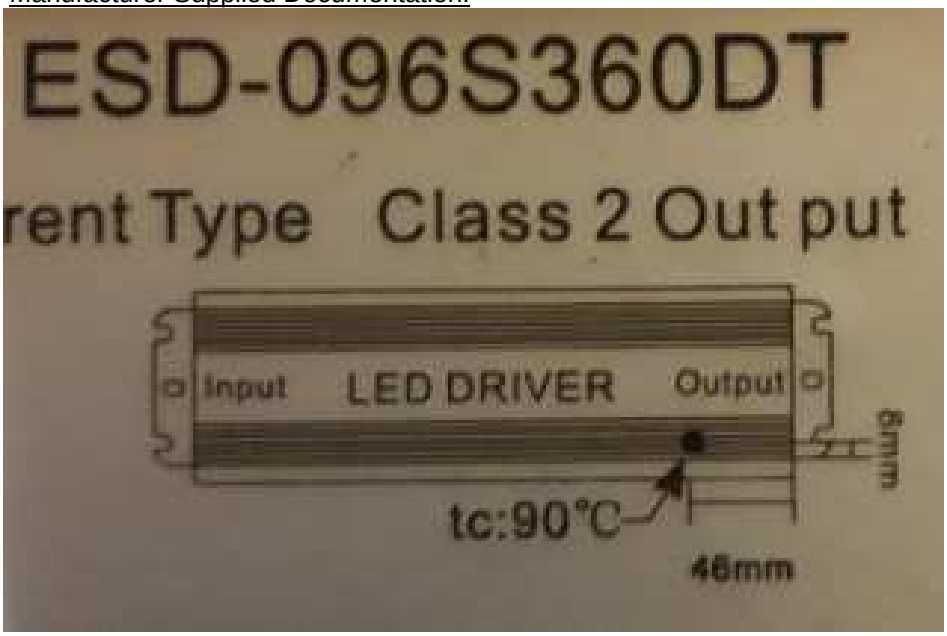
LED In-Situ Picture – Ts location



RESULTS OF TEST (cont'd)

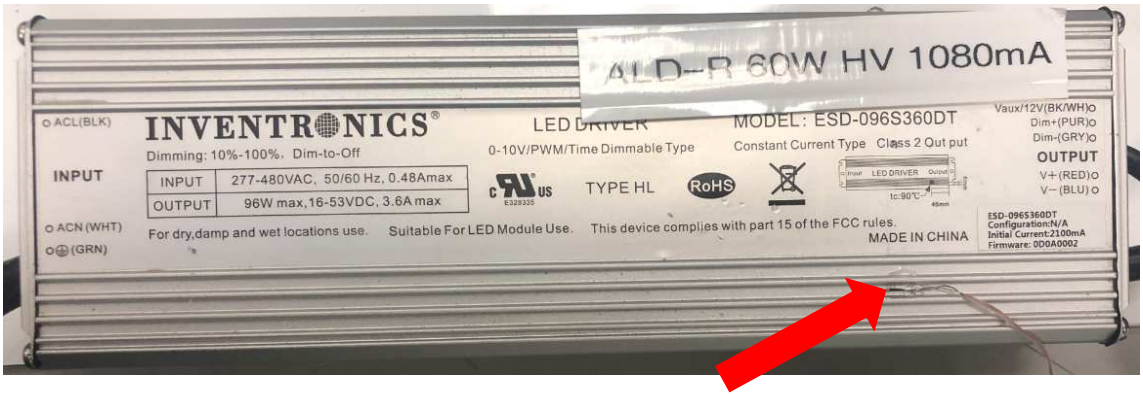
In-Situ Maximum Measured Power Supply Case Temperature

Manufacturer Supplied Documentation:

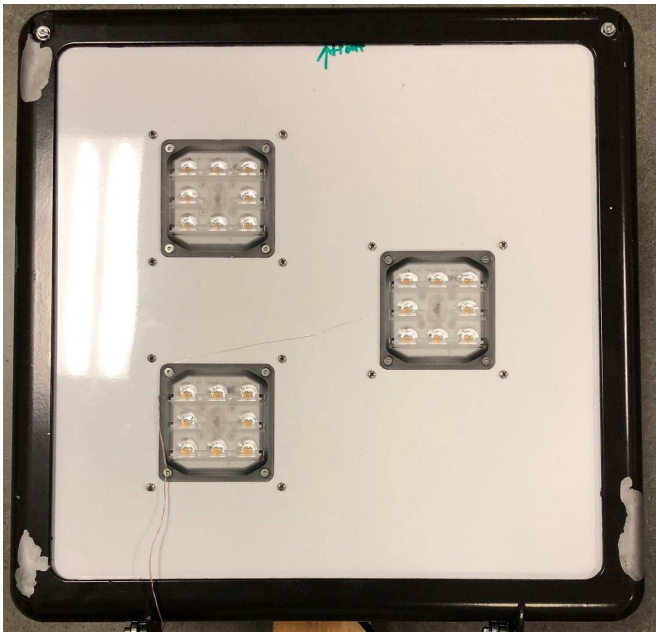


Sample No.	Maximum Measured Source Temperature (°C)	Location	Maximum Rated Source Temperature (°C)
LAN1903191345-003A	56.1	Per specs above	90.0

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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Report Reviewed By:

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Lighting Division

Attachment: None