



REPORT

545 E. Algonquin Rd., Arlington Heights, IL 60005

Project No. G102171228

Date: September 20, 2016

REPORT NO. 102171228CHI-052

TEST OF ONE LED PATHWAY

MODEL NO. 700OARVL8308DH12S
LED MODEL NO. LUMINUS MP-3030-2100-30-90
DRIVER MODEL NO. LTF DL115W320C46IP65D010-0000

RENDERED TO

GENERATION BRANDS
7400 LINDER AVE.
SKOKIE, IL, 60077

TEST: Electrical and Photometric tests as required to the IESNA test standard.

AUTHORIZATION: The testing performed was authorized by signed quote number 500606081.

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

ANSI NEMA ANSLG C78.377: 2012: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number 700OARVL8308DH12S. The sample was received by Intertek on September 16, 2016, in undamaged condition and one sample was tested as received. The sample designation was AH09162016092757-52.

DATES OF TESTS: September 19, 2016 through September 20, 2016.

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SUMMARY

Model No.: 700OARVL8308DH12S
Description: LED Pathway

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	122.1	120.7
Total Power (W)	17.64	17.78
Luminaire Efficacy (LPW)	6.92	6.79

Criteria	Result
Power Factor	0.616
Current ATHD %	61.07
Correlated Color Temperature (CCT - K)	3035
Color Rendering Index (CRI - Ra)	83.0
Color Rendering Index (CRI - R9)	8.5
DUV	0.001
Chromaticity Coordinate (x)	0.432
Chromaticity Coordinate (y)	0.399
Chromaticity Coordinate (u')	0.250
Chromaticity Coordinate (v')	0.519
BUG Rating	B0-U2-G0
IES Classification	Type IV
Longitudinal Classification	Very Short

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Yokogawa Power Meter	WT210	146919	07/11/16	07/11/17	09/19/16
Omega Newport Thermometer	DPI8-C24	146920	10/09/15	10/09/16	09/19/16
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	09/19/16
Newport Thermohygrometer	iServer	146956	01/04/16	01/04/17	09/19/16
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	09/19/16
Labsphere 2M Sphere & Spectroradiometer	CDS1100	146137	VBU	VBU	09/20/16
Elgar AC Power Supply	CW1251M	146113	VBU	VBU	09/20/16
Sorenson DC Power Supply	XFR150-8	146847	VBU	VBU	09/20/16
Yokogawa Power Analyzer	WT1600	146767	04/14/16	04/14/17	09/20/16
Omega Temperature	MDSi8	146873	06/24/16	06/24/17	09/20/16
Newport Thermohygrometer	ITHX-M	146382	06/27/16	06/27/17	09/20/16

TEST METHODS

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IESNA LM-79.

Photometric and Electrical Measurements – Integrating Sphere Method

A Labsphere Model CDS 1100 CCD Array Spectroradiometer and Two Meter or Ten Foot Sphere was used to measure correlated color temperature, chromaticity coordinates, and the color rendering index for each SSL unit.

Ambient temperature was measured at a position inside the sphere. Each SSL unit was operated on the client provided driver at the rated input voltage in its designated orientation. Each SSL unit 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.

The calibration of the sphere photometer-spectroradiometer system is traceable to the National Institute of Standards and Technology.

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.

RESULTS OF TEST

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

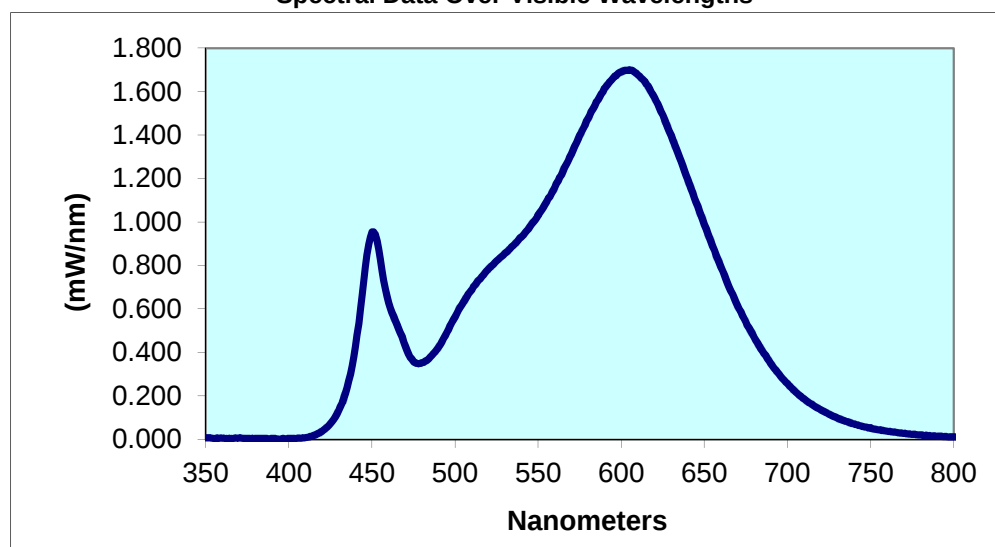
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH09162016092757-52	DOWN	120.0	238.8	17.64	0.616	61.07	122.1	6.92

Correlated Color Temperature (K)	CRI -Ra	CRI -R9	DUV	CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
3035	83.0	8.5	0.001	0.432	0.399	0.250	0.519

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.007	440	0.427	530	0.857	620	1.570	710	0.186
355	0.005	445	0.728	535	0.893	625	1.491	715	0.160
360	0.006	450	0.955	540	0.932	630	1.398	720	0.137
365	0.005	455	0.829	545	0.979	635	1.297	725	0.117
370	0.007	460	0.629	550	1.032	640	1.194	730	0.099
375	0.005	465	0.529	555	1.092	645	1.093	735	0.084
380	0.005	470	0.430	560	1.160	650	0.989	740	0.071
385	0.004	475	0.358	565	1.235	655	0.890	745	0.061
390	0.004	480	0.353	570	1.313	660	0.794	750	0.053
395	0.001	485	0.379	575	1.398	665	0.701	755	0.045
400	0.005	490	0.425	580	1.477	670	0.615	760	0.039
405	0.006	495	0.494	585	1.553	675	0.540	765	0.033
410	0.009	500	0.566	590	1.616	680	0.470	770	0.028
415	0.019	505	0.633	595	1.662	685	0.406	775	0.024
420	0.039	510	0.689	600	1.692	690	0.349	780	0.021
425	0.074	515	0.739	605	1.701	695	0.300		
430	0.134	520	0.783	610	1.677	700	0.257		
435	0.239	525	0.822	615	1.634	705	0.218		

Spectral Data Over Visible Wavelengths



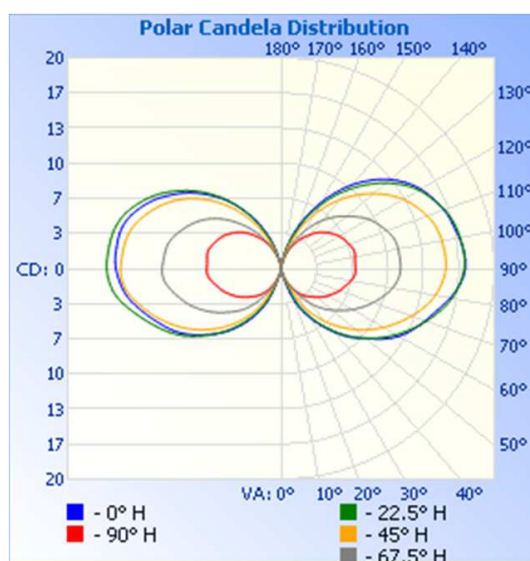
RESULTS OF TEST (cont'd)

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	Absolute Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH09162016092757-52	Horizontal	120.0	241.5	17.78	0.614	120.7	6.79

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	0	0	0	0	0
5	0	0	0	0	0
10	0	0	0	0	0
15	1	0	0	0	1
20	3	2	1	1	1
25	4	4	2	1	2
30	5	5	4	2	2
35	7	6	5	3	3
40	8	8	7	4	3
45	9	9	8	5	4
50	10	10	9	6	4
55	12	11	10	7	5
60	13	13	11	8	5
65	14	14	12	9	6
70	14	15	13	9	6
75	15	15	14	10	6
80	16	16	15	11	7
85	17	17	15	11	7
90	17	17	15	11	7
95	17	17	15	11	7
100	17	17	15	11	7
105	17	17	15	11	7
110	16	16	15	11	7
115	16	16	14	10	7
120	15	15	13	9	6
125	14	14	12	9	6
130	13	13	11	8	5
135	12	11	10	7	5
140	10	10	9	6	4
145	9	8	7	5	4
150	7	7	6	4	3
155	5	5	4	3	2
160	4	3	3	2	2
165	2	2	1	1	1
170	1	1	0	0	0
175	0	0	0	0	0
180	0	0	0	0	0



RESULTS OF TEST (cont'd)

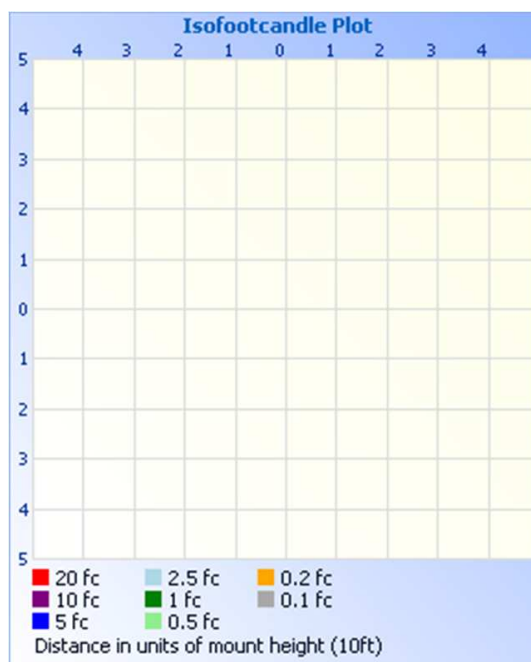
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	1.5	1.2
0-40	4.7	3.9
0-60	18.4	15.2
60-90	38.5	31.9
0-90	56.9	47.1
90-180	63.8	52.9
0-180	120.7	100.0

Luminaire Classification System (LCS)

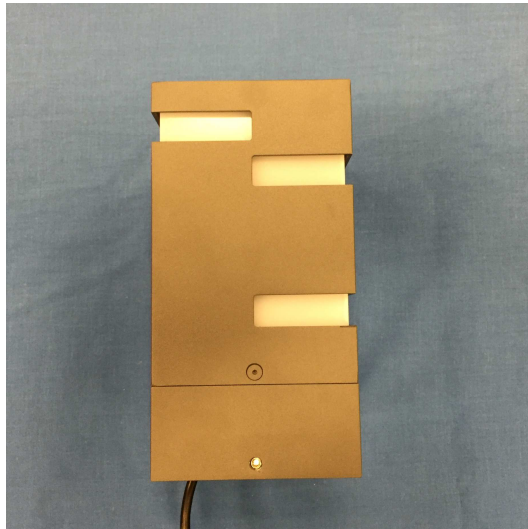
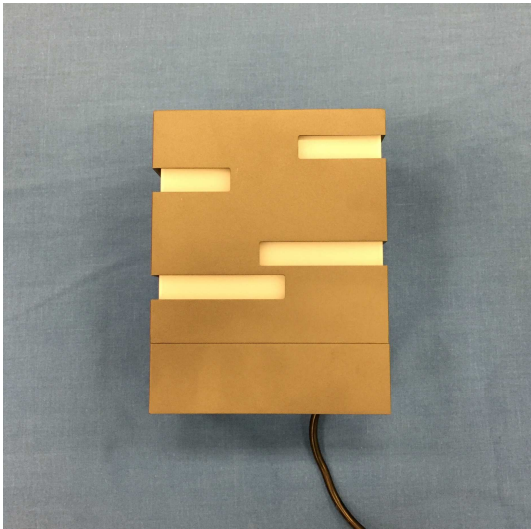
LCS	Zone	Lumens	% Luminaire
FL	(0-30)	0.7	0.6
FM	(30-60)	8.5	7.0
FH	(60-80)	12.1	10.0
FVH	(80-90)	7.5	6.2
BL	(0-30)	0.8	0.6
BM	(30-60)	8.4	7.0
BH	(60-80)	11.7	9.7
BVH	(80-90)	7.2	6.0
UL	(90-100)	14.9	12.4
UH	(100-180)	48.9	40.5
Total		120.7	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	0.0	0.0
10-20	0.2	0.2
20-30	1.3	1.1
30-40	3.2	2.6
40-50	5.6	4.6
50-60	8.2	6.8
60-70	10.7	8.9
70-80	13.1	10.8
80-90	14.7	12.2
90-100	14.9	12.4
100-110	14.1	11.7
110-120	12.2	10.1
120-130	9.7	8.0
130-140	6.7	5.6
140-150	4.0	3.3
150-160	1.7	1.4
160-170	0.4	0.3

BUG Rating: B0-U2-G0
IES Classification: Type IV
Longitudinal Classification: Very Short

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:



Vladimir Kozak
Senior Associate Engineer
Lighting Division

Attachment: None

Report Reviewed By:



Timothy Quigley
Engineer
Lighting Division