



REPORT

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

Project No. G102171228

Date: August 28, 2016

REPORT NO. 102171228CHI-049

TEST OF ONE LED PATHWAY

MODEL NO. 700OASYN18SD112830Z
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 700OASYN18SD112830Z. The sample was received by Intertek on August 22, 2016, in undamaged condition and one sample was tested as received. The sample designation was AH08222016030613-49.

DATES OF TESTS: August 25, 2016 through August 28, 2016.

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SUMMARY

Model No.: 700OASYN18SD112830Z
Description: LED Pathway

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	255.8	245.8
Total Power (W)	12.89	12.90
Luminaire Efficacy (LPW)	19.84	19.05

Criteria	Result
Power Factor	0.980
Current ATHD %	7.82
Correlated Color Temperature (CCT - K)	3067
Color Rendering Index (CRI - Ra)	83.0
Color Rendering Index (CRI - R9)	7.9
DUV	0.001
Chromaticity Coordinate (x)	0.430
Chromaticity Coordinate (y)	0.399
Chromaticity Coordinate (u')	0.249
Chromaticity Coordinate (v')	0.518
BUG Rating	B0-U1-G0
IES Classification	Type II
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	08/28/16
Omega Newport Thermometer	DPI8-C24	146920	10/09/15	10/09/16	08/28/16
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	08/28/16
Newport Thermohygrometer	iServer	146956	01/04/16	01/04/17	08/28/16
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	08/28/16
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	08/25/16
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	08/25/16
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	08/25/16
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	08/25/16
Newport Humidity Recorder	iTHX-SD	146382	06/27/16	06/27/17	08/25/16
Yokogawa Power Meter	WT1600	146768	01/14/16	01/14/17	08/25/16
Omega Temperature Meter	MDSi8	146139	03/21/16	03/21/17	08/25/16

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

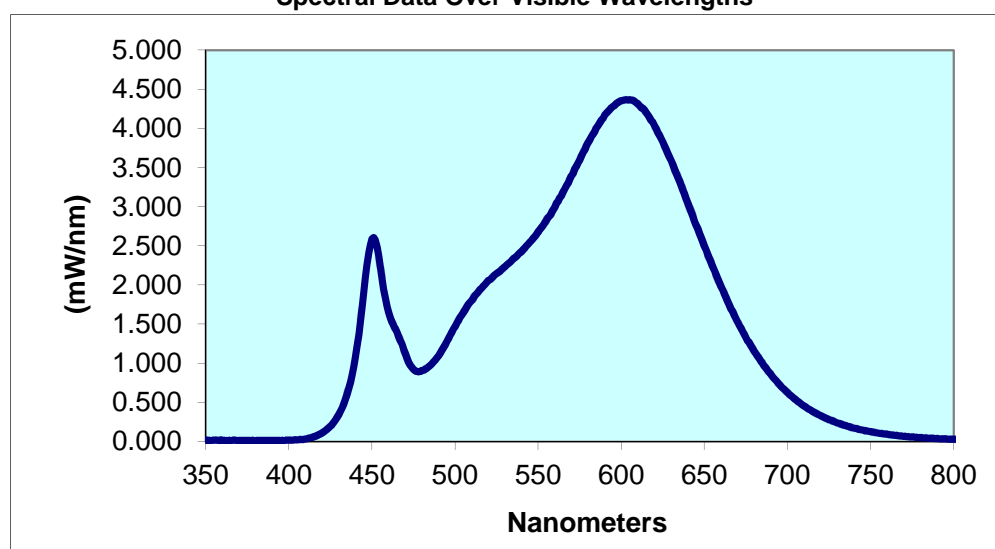
Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
AH08222016030613-49	UP	120.0	109.6	12.89	0.980	7.82	255.8	19.84

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')
3067	83.0	7.9	0.001	0.430	0.399	0.249	0.518

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.020	440	1.081	530	2.234	620	4.031	710	0.454
355	0.018	445	1.902	535	2.333	625	3.824	715	0.386
360	0.013	450	2.591	540	2.426	630	3.586	720	0.331
365	0.014	455	2.228	545	2.547	635	3.323	725	0.280
370	0.014	460	1.647	550	2.678	640	3.044	730	0.238
375	0.013	465	1.398	555	2.829	645	2.772	735	0.203
380	0.013	470	1.124	560	2.996	650	2.499	740	0.172
385	0.012	475	0.919	565	3.187	655	2.236	745	0.146
390	0.013	480	0.907	570	3.396	660	1.984	750	0.125
395	0.014	485	0.972	575	3.599	665	1.745	755	0.106
400	0.015	490	1.097	580	3.818	670	1.529	760	0.092
405	0.021	495	1.278	585	4.010	675	1.331	765	0.078
410	0.034	500	1.473	590	4.171	680	1.153	770	0.067
415	0.062	505	1.654	595	4.282	685	0.996	775	0.058
420	0.112	510	1.802	600	4.355	690	0.857	780	0.050
425	0.197	515	1.942	605	4.366	695	0.732		
430	0.344	520	2.056	610	4.315	700	0.626		
435	0.606	525	2.148	615	4.199	705	0.534		

Spectral Data Over Visible Wavelengths



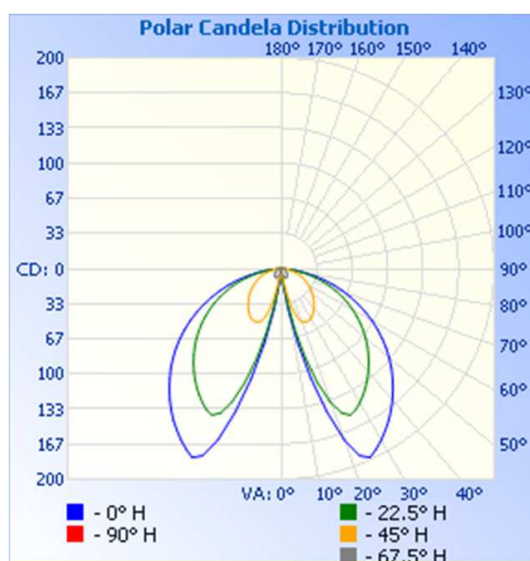
RESULTS OF TEST (cont'd)

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)
AH08222016030613-49	UP	120.0	109.7	12.90	0.980	245.8	19.05

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	0	0	0	0	0
5	1	1	0	0	0
10	40	32	11	0	0
15	108	88	37	4	0
20	173	135	53	8	0
25	198	153	56	9	0
30	188	147	55	10	0
35	176	138	52	10	0
40	162	127	48	9	0
45	148	116	43	8	0
50	133	104	39	7	0
55	116	91	34	6	0
60	98	77	29	6	0
65	80	63	24	5	0
70	61	49	19	4	0
75	42	34	13	3	0
80	23	20	9	2	0
85	8	8	5	1	0
90	0	2	3	1	0
95	0	2	2	1	0
100	0	2	2	1	0
105	0	1	2	1	0
110	0	1	1	1	0
115	0	1	1	1	0
120	1	1	1	1	0
125	1	1	1	0	0
130	1	1	1	0	0
135	1	1	1	0	0
140	1	1	1	0	0
145	1	1	1	0	0
150	1	1	1	0	0
155	1	1	1	0	0
160	1	1	1	0	0
165	1	1	1	0	0



RESULTS OF TEST (cont'd)

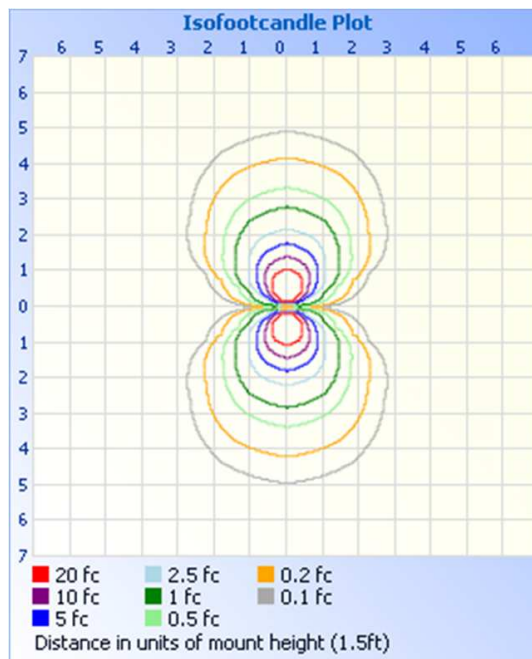
Illumination Plots

Mounting Height: 1.5 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	49.8	20.3
0-40	94.7	38.5
0-60	183.5	74.7
60-90	56.8	23.1
0-90	240.3	97.8
90-180	5.4	2.2
0-180	245.8	100.0

Luminaire Classification System (LCS)

LCS	Zone	Lumens	% Luminaire
FL	(0-30)	24.8	10.1
FM	(30-60)	66.9	27.2
FH	(60-80)	25.7	10.5
FVH	(80-90)	2.7	1.1
BL	(0-30)	24.8	10.1
BM	(30-60)	66.9	27.2
BH	(60-80)	25.7	10.5
BVH	(80-90)	2.7	1.1
UL	(90-100)	1.4	0.6
UH	(100-180)	4.0	1.6
Total		245.6	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	0.6	0.2
10-20	13.5	5.5
20-30	35.7	14.5
30-40	44.9	18.3
40-50	46.6	18.9
50-60	42.2	17.2
60-70	32.5	13.2
70-80	18.8	7.7
80-90	5.5	2.2
90-100	1.4	0.6
100-110	1.1	0.4
110-120	0.9	0.4
120-130	0.6	0.3
130-140	0.5	0.2
140-150	0.4	0.2
150-160	0.3	0.1
160-170	0.1	0.1

BUG Rating: B0-U1-G0
 IES Classification: Type II
 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:



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Lighting Division

Attachment: None

Report Reviewed By:



Timothy Quigley
Engineer
Lighting Division