

VISUAL COMFORT & CO. TEST REPORT

SCOPE OF WORK

Electrical and Photometric tests as required to the IESNA LM-79 test standard.

MODEL NUMBER

700OSWEND92730x120

REPORT NUMBER

104206403CHI-034

ISSUE DATE

February 28, 2020

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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TEST REPORT

TEST OF ONE WEND STEP WALL

MODEL NO. 700OSWEND92730X120
LED MODEL NO. LUMINUS MP-2016-1100-30-90
DRIVER MODEL NO. EPT D13-300RC2-NI

RENDERED TO:

VISUAL COMFORT & CO.
7400 LINDER AVE.
SKOKIE IL 60077

STATEMENT OF LIMITATIONS

NVLAP Lab Code 600186-0. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-01040682-1.

STANDARDS USED

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting
ANSI NEMA ANSLG C78.377: 2015: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE

The client submitted one production sample of model number 700OSWEND92730x120. The sample was received by Intertek on February 18, 2020 in undamaged condition and one sample was tested as received. The sample designation was AH02182020100147.

DATE OF TESTS

February 20, 2020 through February 20, 2020.

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SUMMARY

MODEL NO:	7000SWEND92730x120
DESCRIPTION:	Wend Step Wall

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	343.8	343.8
Input Power (W) @ 120 (VAC)	12.10	12.13
Lumen Efficacy (lm/W)	28.4	28.3
Input Power Factor () @ 120 (VAC)	0.961	0.961

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	23.16
Correlated Color Temperature (K)	2978
Color Rendering Index - Ra	92.1
Color Rendering - R9	57.6
DUV	0.0017
Chromaticity Coordinate (x)	0.436
Chromaticity Coordinate (y)	0.400
Chromaticity Coordinate (u')	0.252
Chromaticity Coordinate (v')	0.520

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EQUIPMENT LIST

EQUIPMENT USED	MODEL NO.	CONTROL NO.	LAST CAL DATE	CAL DUE DATE
Yokogawa Power Meter	WT210	146919	7/1/2019	7/1/2020
Omega Thermometer	DPI8-C24	146920	10/3/2019	10/3/2020
LSI High Speed Mirror Goniometer	6440T	146928	VBV	VBV
Newport Thermohygrometer	iServer	146957	12/2/2019	12/2/2020
Pacific, AC Power Supply	118-ACX	CHI0153	VBV	VBV
Labsphere 2M Sphere & Spectroradiometer	CDS1100	146137	VBV	VBV
Elgar AC Power Supply	CW1251M	146113	VBV	VBV
Sorenson DC Power Supply	XFR150-8	146847	VBV	VBV
Yokogawa Power Analyzer	WT1600	146767	4/3/2019	4/3/2020
Omega Temperature	MDSi8	146873	7/2/2019	7/2/2020
Newport Thermohygrometer	iTHX-M	146961	7/26/2019	7/26/2020

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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 Spectroradiometer and integrating 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. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a 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 Type C Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for the SSL sample.

Ambient temperature was measured equal to the height of the sample mounted on the goniometer equipment. The SSL sample was operated on the client provided driver at rated input volts in its designated orientation. The SSL sample was allowed to stabilize for at least thirty minutes before measurements were made. Stabilization procedures to LM-79 were followed. Electrical measurements including voltage, current, and power were measured using a power analyzer.

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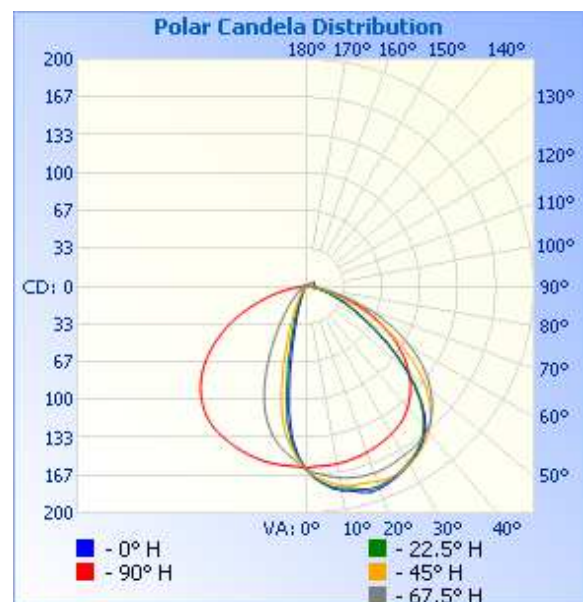
RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR	LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)
AH02182020100147	Horizontal	120.0	105.2	12.13	0.961	343.8	28.3

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	161	161	161	161	161
5	174	174	171	167	159
10	183	181	178	172	159
15	188	185	181	174	158
20	190	188	183	176	156
25	186	185	184	175	154
30	182	180	182	172	150
35	175	173	176	170	146
40	164	161	168	166	139
45	143	142	155	157	130
50	116	116	138	143	118
55	86	88	114	126	103
60	61	63	88	106	86
65	42	43	63	83	68
70	29	29	41	59	48
75	18	17	24	35	30
80	9	8	11	16	14
85	4	4	4	4	4
90	2	2	2	1	0
95	2	2	1	1	0
100	2	5	4	2	0
105	6	5	5	3	0
110	5	6	7	1	0
115	8	7	2	0	0
120	1	1	1	0	0
125	1	1	0	0	0
130	1	1	0	0	0
135	1	1	0	0	0
140	1	1	0	0	0
145	1	0	0	0	0
150	1	1	1	0	0
155	1	1	0	0	0



Lum. Classification System (LCS)

LCS	Zone	Lumens	%Lumens
FL	(0-30)	74.6	21.7
FM	(30-60)	157.0	45.7
FH	(60-80)	43.9	12.8
FVH	(80-90)	2.7	0.8
BL	(0-30)	29.2	8.5
BM	(30-60)	23.4	6.8
BH	(60-80)	7.0	2.0
BVH	(80-90)	0.4	0.1
UL	(90-100)	0.9	0.3
UH	(100-180)	4.8	1.4

Total 343.9 100.0

BUG Rating: B0-U1-G0

IES Classification: Type II

Longitudinal Classification: Very Short

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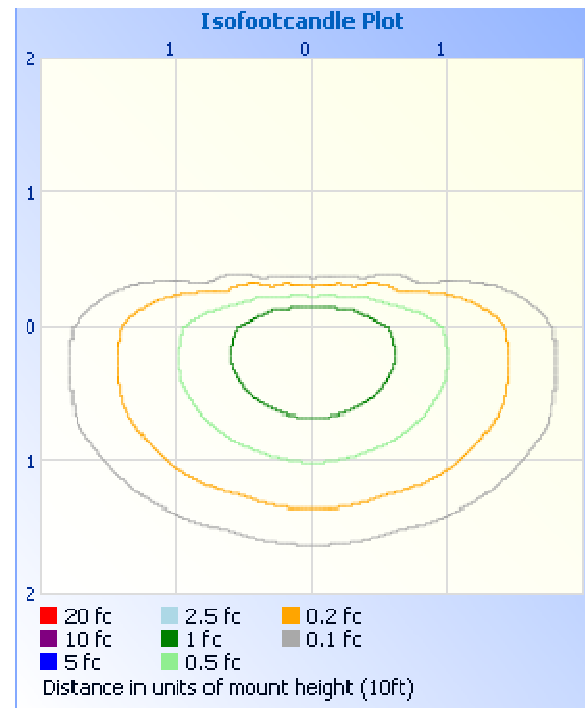
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RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

MOUNTING HEIGHT: 10ft	
ILLUMINANCE - CONE OF LIGHT	ISOILLUMINATION PLOT



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	103.8	30.2
0-40	165.8	48.2
0-60	284.1	82.6
60-90	54.0	15.7
70-100	19.8	5.7
90-120	4.6	1.3
0-90	338.1	98.3
90-180	5.7	1.7
0-180	343.8	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	14.7	4.3
10-20	37.3	10.9
20-30	51.8	15.1
30-40	62.0	18.0
40-50	64.5	18.7
50-60	53.9	15.7
60-70	35.1	10.2
70-80	15.8	4.6
80-90	3.1	0.9
90-100	0.9	0.3
100-110	2.2	0.6
110-120	1.5	0.4
120-130	0.3	0.1
130-140	0.3	0.1
140-150	0.3	0.1
150-160	0.2	0.1
160-170	0.1	0.0

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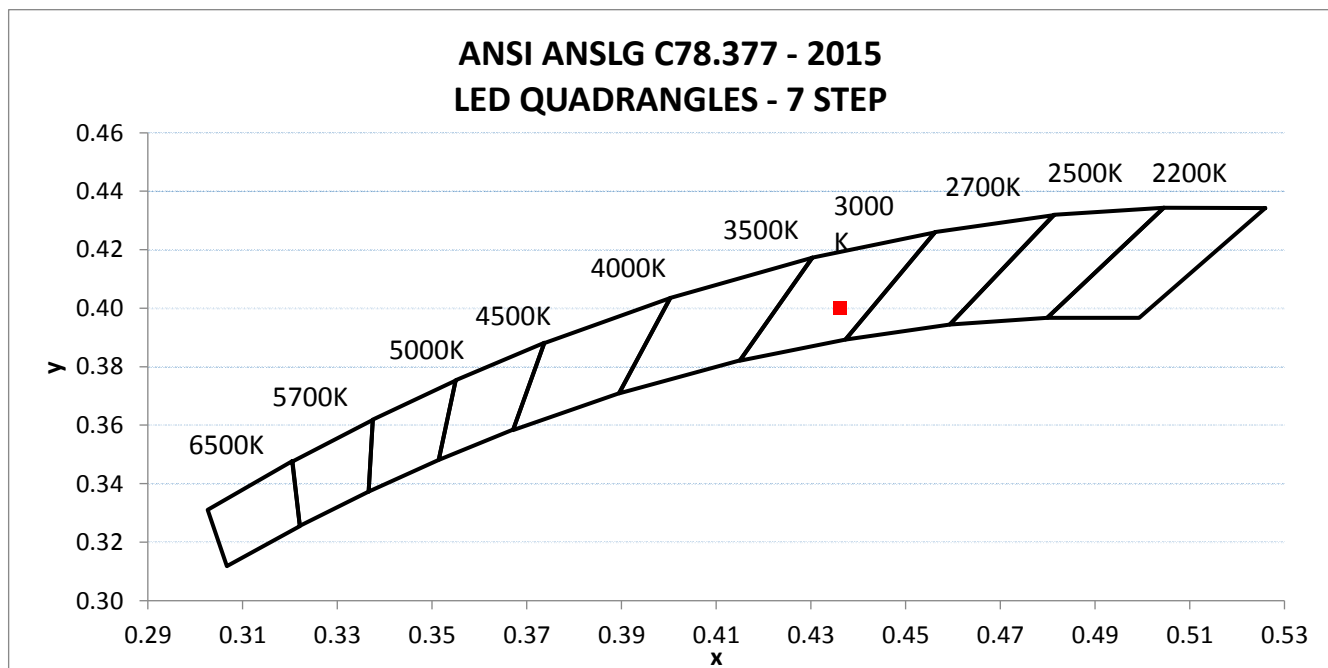
RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

INTERTEK CONTROL NO.	BASE POSITION	INPUT VOLTAGE (VAC)	INPUT CURRENT (mA)	INPUT POWER (W)	INPUT POWER FACTOR ()	INPUT CURRENT ATHD (%)
AH02182020100147	Horizontal	120.00	104.91	12.10	0.961	23.16

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
343.8	28.4	2978	92.1	57.6	0.0017

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.436	0.400	0.252	0.520



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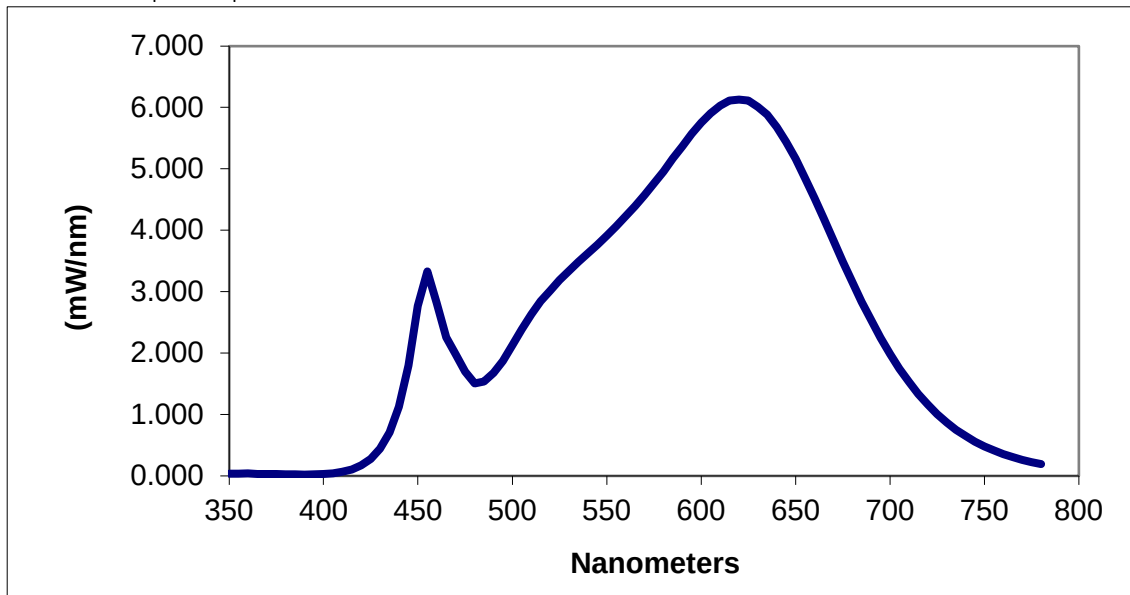
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RESULTS OF TESTS

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - INTEGRATING SPHERE METHOD (25°C +/- 1°C)

SPECTRAL DISTRIBUTION OVER VISIBLE WAVELENGTHS*							
nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.037	460	2.819	570	4.572	680	3.157
355	0.035	465	2.254	575	4.763	685	2.834
360	0.039	470	1.985	580	4.951	690	2.535
365	0.032	475	1.696	585	5.165	695	2.250
370	0.028	480	1.505	590	5.366	700	1.986
375	0.028	485	1.537	595	5.570	705	1.747
380	0.024	490	1.678	600	5.752	710	1.531
385	0.025	495	1.871	605	5.902	715	1.333
390	0.020	500	2.128	610	6.026	720	1.160
395	0.025	505	2.385	615	6.110	725	1.005
400	0.029	510	2.628	620	6.125	730	0.869
405	0.041	515	2.843	625	6.109	735	0.749
410	0.064	520	3.017	630	6.008	740	0.648
415	0.103	525	3.185	635	5.880	745	0.557
420	0.169	530	3.340	640	5.679	750	0.481
425	0.273	535	3.484	645	5.439	755	0.414
430	0.442	540	3.626	650	5.162	760	0.356
435	0.709	545	3.762	655	4.849	765	0.305
440	1.124	550	3.911	660	4.523	770	0.262
445	1.795	555	4.063	665	4.186	775	0.224
450	2.768	560	4.229	670	3.833	780	0.192
455	3.326	565	4.391	675	3.491		

*Without correction of sample absorption.



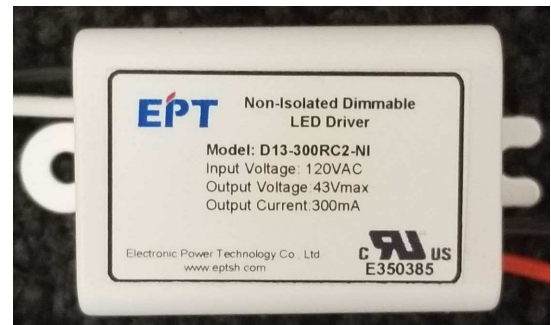
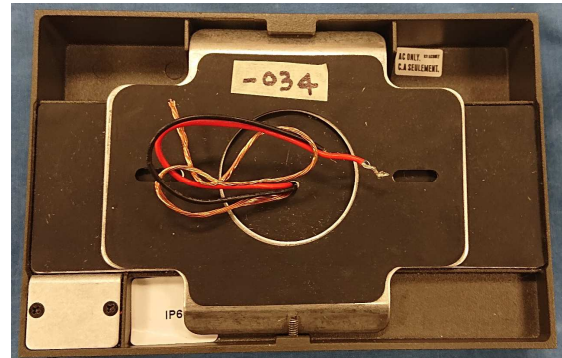
End Of Test Results

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PICTURES



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:

Ian Smith

Ian Smith
Engineer
Lighting Division

Report Reviewed By:

Jeff Davis

Jeff Davis
NA Technical Lead
Lighting Division

Attachments: IES File

REVISION HISTORY

JOB NUMBER	DATE OF REVISION	PROJECT HANDLER	REVIEWED BY	REVISION NOTE
None				