

VISUAL COMFORT & CO.

TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

7000WBLD9273018xUNV

REPORT NUMBER

104206403CHI-035

ISSUE DATE

February 28, 2020

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT DATE: February 28, 2020

TEST REPORT

TEST OF ONE BLADE 18 WALL

MODEL NO. 700OWBLD9273018XUNV
LED MODEL NO. LUMINUS MP-2016-1100-30-90
DRIVER MODEL NO. ERP ESS030W-0500-42

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 700OWBLD9273018xUNV. 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 21, 2020 through February 25, 2020.

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SUMMARY

MODEL NO:	7000WBLED9273018xUNV
DESCRIPTION:	Blade 18 Wall

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	1397.5	1395.9
Input Power (W) @ 120 (VAC)	19.92	19.96
Lumen Efficacy (lm/W)	70.2	69.9
Input Power Factor () @ 120 (VAC)	0.990	0.990

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	11.98
Correlated Color Temperature (K)	2948
Color Rendering Index - Ra	92.8
Color Rendering - R9	61.0
DUV	0.0019
Chromaticity Coordinate (x)	0.438
Chromaticity Coordinate (y)	0.400
Chromaticity Coordinate (u')	0.253
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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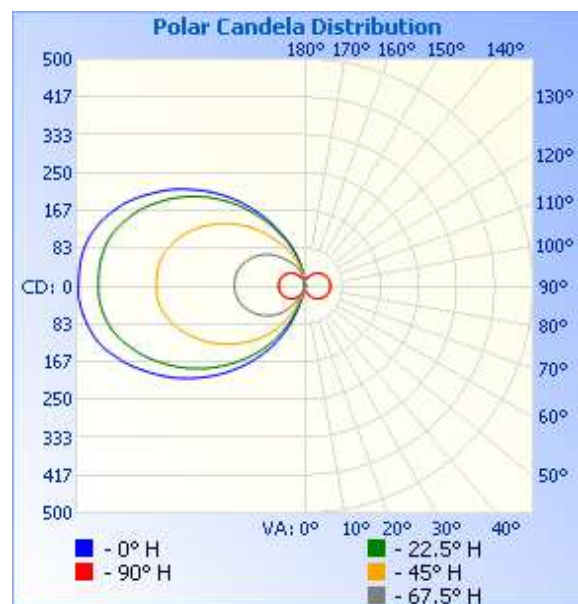
RESULTS OF TESTS

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	120.1	167.9	19.96	0.990	1395.9	69.9

INTENSITY SUMMARY - CANDELAS

Angle	180	202.5	225	247.5	270
0	7	7	7	7	7
5	11	10	10	9	8
10	19	17	15	12	9
15	45	34	20	14	11
20	84	68	39	18	15
25	126	106	66	30	20
30	164	143	94	45	26
35	203	178	123	60	31
40	240	212	148	75	35
45	278	247	173	89	39
50	316	282	198	101	42
55	352	315	222	112	46
60	385	346	246	122	48
65	417	376	267	131	51
70	445	402	287	139	53
75	470	425	303	145	55
80	484	441	316	150	56
85	493	450	324	153	56
90	496	452	325	153	56
95	495	452	325	154	56
100	490	447	321	152	56
105	478	438	312	148	55
110	458	419	299	143	54
115	434	398	282	136	52
120	402	370	261	128	50
125	369	341	239	119	47
130	332	308	215	109	44
135	294	272	189	97	41
140	255	236	163	84	37
145	214	198	136	71	33
150	176	162	111	62	28
155	136	126	90	52	24
160	104	97	71	42	21
165	74	70	52	33	18
170	46	45	35	24	14
180	9	9	9	9	9



Lum. Classification System (LCS)

LCS	Zone	Lumens	%Lumens
FL	(0-30)	1.9	0.1
FM	(30-60)	7.2	0.5
FH	(60-80)	8.5	0.6
FVH	(80-90)	4.9	0.4
BL	(0-30)	20.7	1.5
BM	(30-60)	197.5	14.2
BH	(60-80)	274.7	19.7
BVH	(80-90)	163.3	11.7
UL	(90-100)	169.1	12.1
UH	(100-180)	547.6	39.2
Total		1395.4	100.0

BUG Rating: B1-U4-G2

IES Classification: Type I

Longitudinal Classification: Very Short

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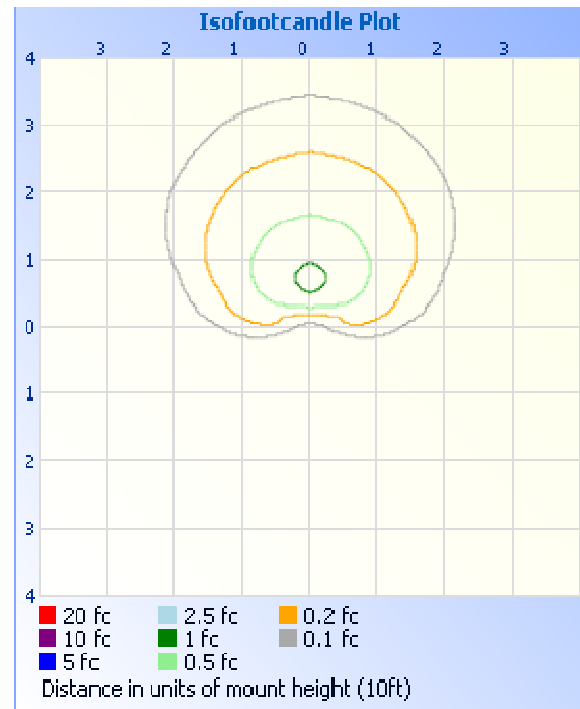
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RESULTS OF TESTS

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	22.7	1.6
0-40	62.0	4.4
0-60	227.5	16.3
60-90	451.6	32.3
70-100	491.8	35.2
90-120	462.9	33.2
0-90	679.0	48.6
90-180	716.8	51.4
0-180	1395.9	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	0.8	0.1
10-20	4.5	0.3
20-30	17.3	1.2
30-40	39.4	2.8
40-50	67.2	4.8
50-60	98.3	7.0
60-70	128.9	9.2
70-80	154.4	11.1
80-90	168.3	12.1
90-100	169.1	12.1
100-110	158.4	11.3
110-120	135.4	9.7
120-130	105.2	7.5
130-140	73.2	5.2
140-150	44.0	3.1
150-160	21.9	1.6
160-170	8.2	0.6
170-180	1.5	0.1

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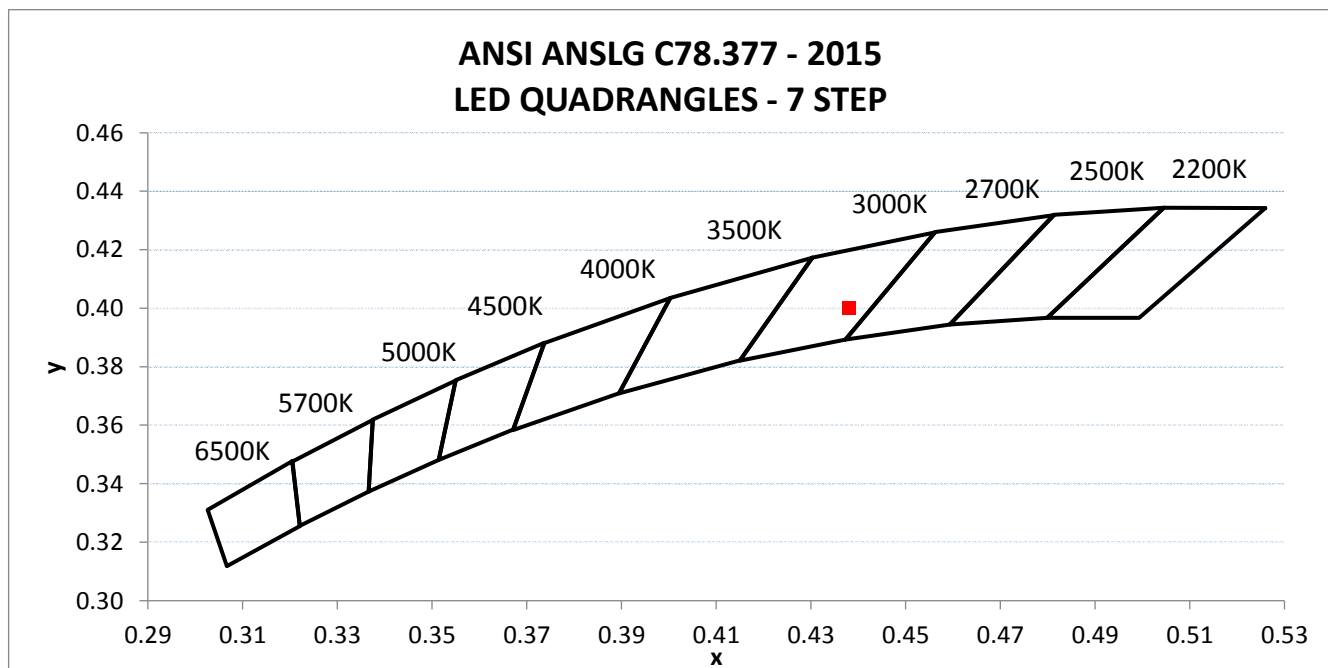
RESULTS OF TESTS

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	119.98	167.72	19.92	0.990	11.98

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
1397.5	70.2	2948	92.8	61.0	0.0019

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.438	0.400	0.253	0.520



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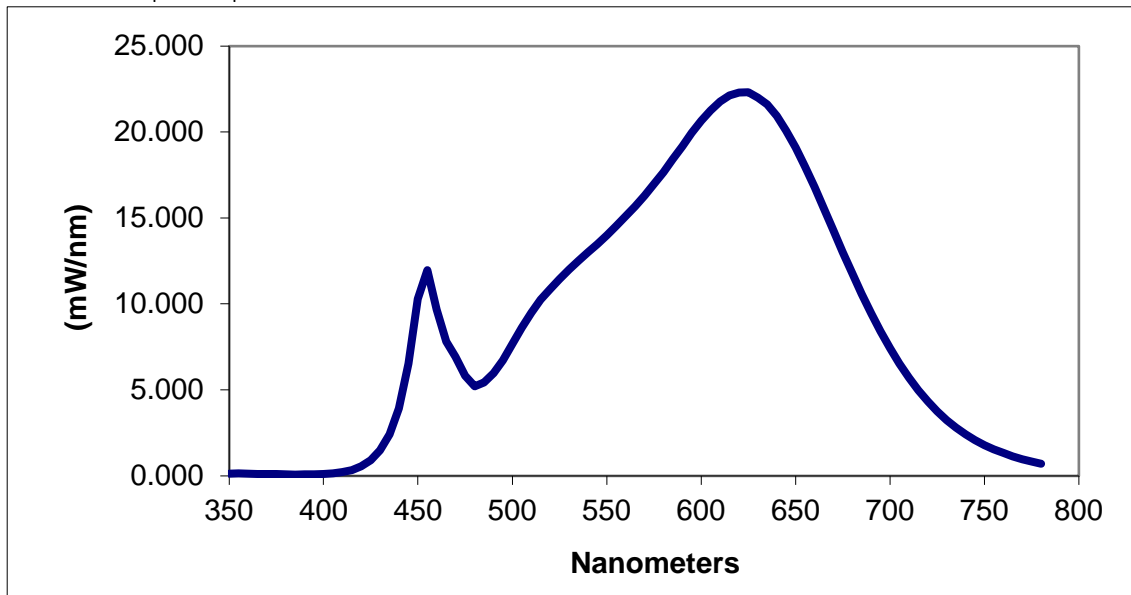
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RESULTS OF TESTS

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	0.122	460	9.670	570	16.301	680	11.780
355	0.141	465	7.804	575	16.973	685	10.581
360	0.119	470	6.926	580	17.653	690	9.454
365	0.115	475	5.818	585	18.408	695	8.398
370	0.105	480	5.215	590	19.151	700	7.415
375	0.102	485	5.436	595	19.944	705	6.526
380	0.084	490	5.968	600	20.640	710	5.709
385	0.083	495	6.718	605	21.247	715	4.975
390	0.088	500	7.679	610	21.770	720	4.331
395	0.088	505	8.617	615	22.124	725	3.756
400	0.102	510	9.490	620	22.291	730	3.240
405	0.140	515	10.252	625	22.307	735	2.802
410	0.213	520	10.859	630	21.996	740	2.416
415	0.340	525	11.434	635	21.591	745	2.077
420	0.554	530	11.990	640	20.919	750	1.791
425	0.910	535	12.492	645	20.072	755	1.538
430	1.489	540	13.006	650	19.094	760	1.330
435	2.420	545	13.466	655	17.984	765	1.134
440	3.928	550	13.984	660	16.802	770	0.970
445	6.520	555	14.535	665	15.551	775	0.826
450	10.282	560	15.104	670	14.264	780	0.713
455	11.959	565	15.656	675	13.010		

*Without correction of sample absorption.



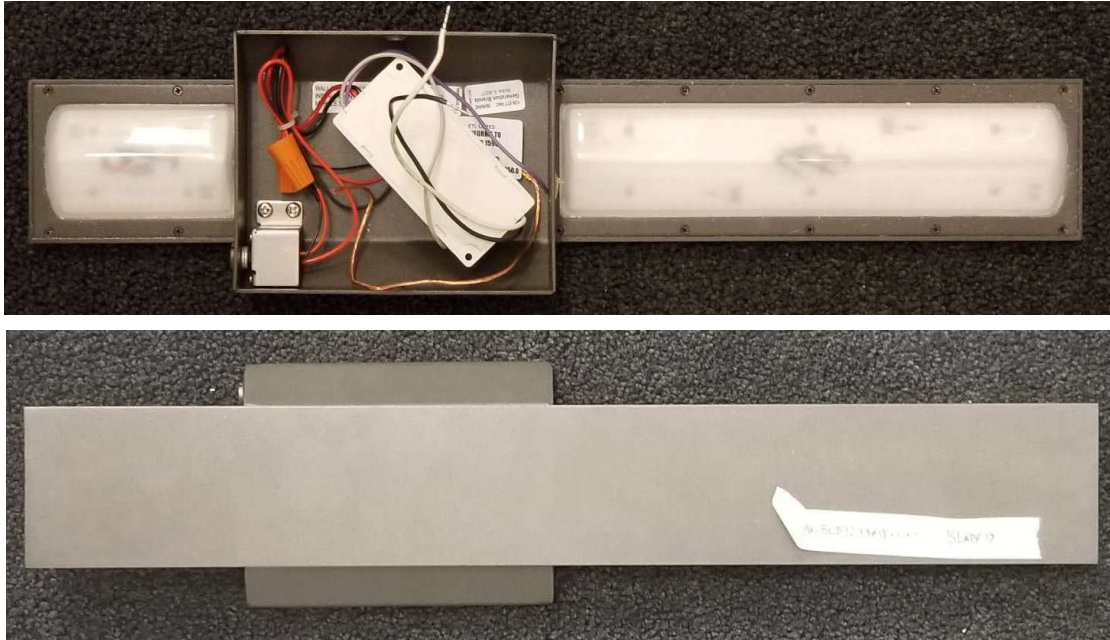
End Of Test Results

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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				