For the Scope of
Accreditation Under
NVLAP Lab Code 600186-0

VISUAL COMFORT & CO.

TEST REPORT

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

MODEL NUMBER
700OSKYSN92730x120

REPORT NUMBER
104206403CHI-033

ISSUE DATE
Febuary 28, 2020

REVISION DATE
None

DOCUMENT CONTROL NUMBER
TBD
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REPORT NO.: 104206403CHI-033

TEST REPORT **REPORT DATE: Febuary 28, 2020**

TEST OF ONE KRYSEN STEP WALL

MODEL NO. 700OSKYSN92730X120
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 700OSKYSN92730x120. 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 19, 2020 through February 20, 2020.

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TEST REPORT

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SUMMARY

MODEL NO:	700OSKYSN92730x120
DESCRIPTION:	Krysen Step Wall

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	200.1	201.6
Input Power (W) @ 120 (VAC)	12.73	12.74
Lumen Efficacy (lm/W)	15.7	15.8
Input Power Factor ( ) @ 120 (VAC)	0.963	0.961

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	23.39
Correlated Color Temperature (K)	2904
Color Rendering Index - Ra	92.0
Color Rendering - R9	56.9
DUV	0.0019
Chromaticity Coordinate (x)	0.441
Chromaticity Coordinate (y)	0.402
Chromaticity Coordinate (u')	0.255
Chromaticity Coordinate (v')	0.521

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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	VBU	VBU
Newport Thermohygrometer	iServer	146957	12/2/2019	12/2/2020
Pacific, AC Power Supply	118-ACX	CHI0153	VBU	VBU
Labsphere 2M Sphere & Spectroradiometer	CDS1100	146137	VBU	VBU
Elgar AC Power Supply	CW1251M	146113	VBU	VBU
Sorenson DC Power Supply	XFR150-8	146847	VBU	VBU
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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TEST REPORT

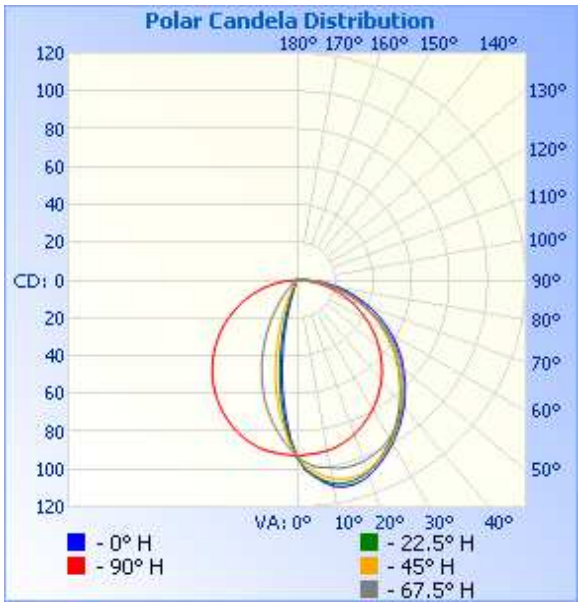
RESULTS OF TESTS

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	110.4	12.74	0.961	201.6	15.8

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	94	94	94	94	94
5	104	104	101	99	92
10	111	109	106	101	92
15	112	110	108	102	90
20	110	108	107	102	87
25	105	104	104	100	83
30	100	98	99	97	79
35	94	91	93	92	74
40	87	84	85	86	69
45	80	77	77	79	63
50	73	69	69	72	56
55	65	61	61	64	50
60	57	53	53	54	42
65	49	44	44	45	35
70	40	36	35	36	28
75	31	27	27	27	20
80	22	19	18	18	13
85	13	11	10	9	6
90	6	4	3	2	1



Lum. Classification System (LCS)

LCS	Zone	Lumens	%Lumens
FL	(0-30)	42.9	21.3
FM	(30-60)	84.7	42.0
FH	(60-80)	35.7	17.0
FVH	(80-90)	5.6	2.8
BL	(0-30)	15.9	7.9
BM	(30-60)	11.6	5.7
BH	(60-80)	4.1	2.0
BVH	(80-90)	0.5	0.3
UL	(90-100)	0.3	0.2
UH	(100-180)	0.4	0.2
Total		**201.7**	**100.0**

BUG Rating: B0-U1-G0

IES Classification: Type III
Longitudinal Classification: Very Short

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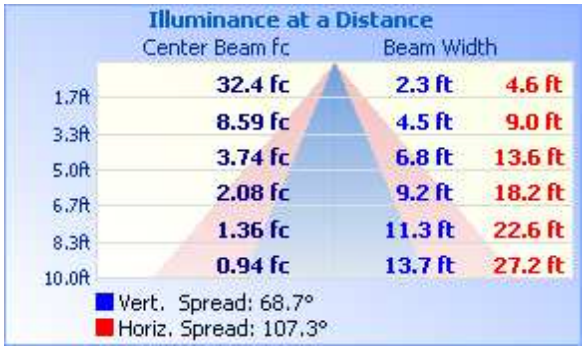
RESULTS OF TESTS

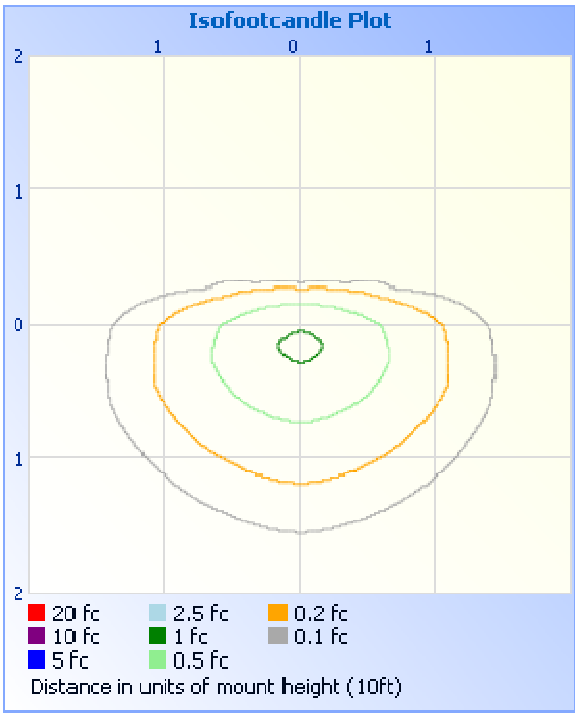
PHOTOMETRIC AND ELECTRICAL MEASUREMENTS - DISTRIBUTION METHOD (25°C +/- 1°C)

MOUNTING HEIGHT: 10ft

ILLUMINANCE - CONE OF LIGHT



ISOILLUMINATION PLOT



ZONAL LUMEN SUMMARY AND PERCENTAGES

ZONE	LUMENS	% LUMINAIRE
0-30	58.8	29.1
0-40	91.5	45.4
0-60	155.0	76.9
60-90	45.9	22.8
70-100	22.1	11.0
90-120	0.5	0.2
0-90	200.9	99.7
90-180	0.7	0.3
0-180	201.6	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	8.4	4.2
10-20	21.6	10.7
20-30	28.8	14.3
30-40	32.8	16.3
40-50	33.1	16.4
50-60	30.3	15.0
60-70	24.2	12.0
70-80	15.6	7.7
80-90	6.1	3.0
90-100	0.3	0.2
100-110	0.1	0.0
110-120	0.1	0.0
120-130	0.1	0.0

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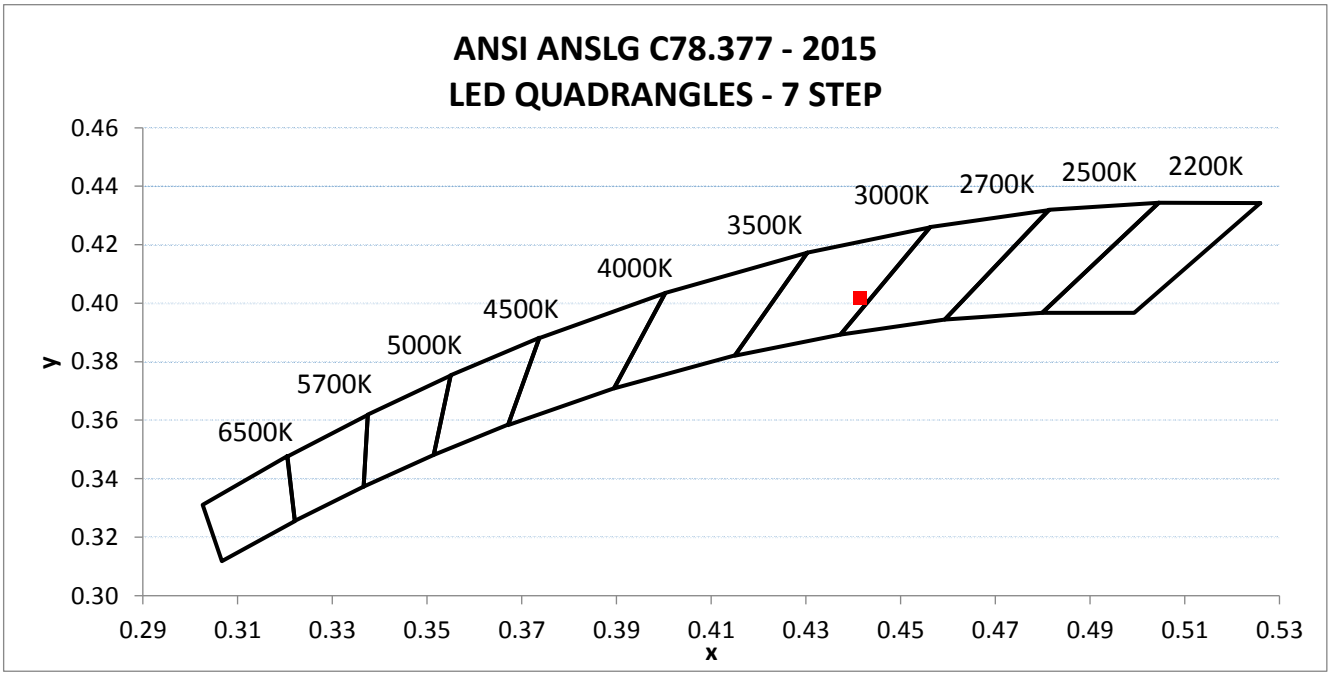
RESULTS OF TESTS

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	119.99	110.17	12.73	0.963	23.39

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
200.1	15.7	2904	92.0	56.9	0.0019

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.441	0.402	0.255	0.521



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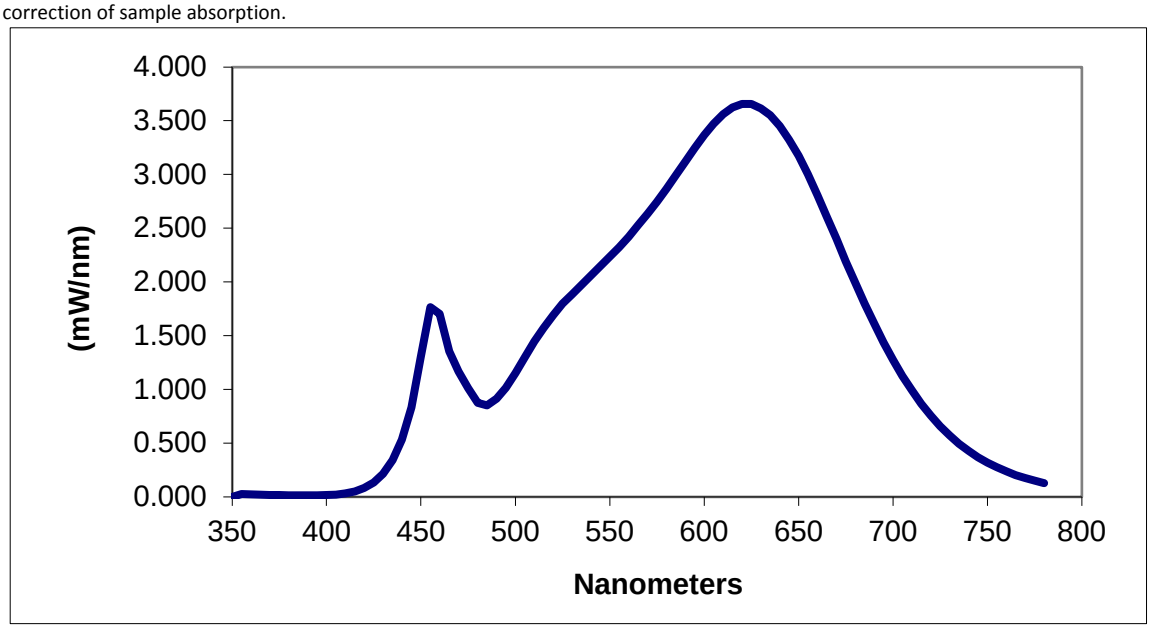
RESULTS OF TESTS

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	0.000	460	1.702	570	2.635	680	1.992
355	0.025	465	1.353	575	2.745	685	1.799
360	0.024	470	1.166	580	2.867	690	1.613
365	0.019	475	1.013	585	2.990	695	1.437
370	0.017	480	0.875	590	3.119	700	1.275
375	0.017	485	0.852	595	3.245	705	1.126
380	0.015	490	0.913	600	3.367	710	0.990
385	0.014	495	1.014	605	3.472	715	0.867
390	0.014	500	1.152	610	3.560	720	0.755
395	0.014	505	1.299	615	3.621	725	0.657
400	0.016	510	1.447	620	3.654	730	0.570
405	0.021	515	1.571	625	3.657	735	0.493
410	0.031	520	1.690	630	3.613	740	0.427
415	0.051	525	1.796	635	3.551	745	0.369
420	0.084	530	1.883	640	3.450	750	0.319
425	0.135	535	1.970	645	3.321	755	0.275
430	0.215	540	2.059	650	3.173	760	0.237
435	0.341	545	2.146	655	2.999	765	0.203
440	0.533	550	2.236	660	2.805	770	0.174
445	0.832	555	2.322	665	2.603	775	0.151
450	1.300	560	2.420	670	2.402	780	0.128
455	1.763	565	2.526	675	2.191		

*Without correction of sample absorption.



End Of Test Results

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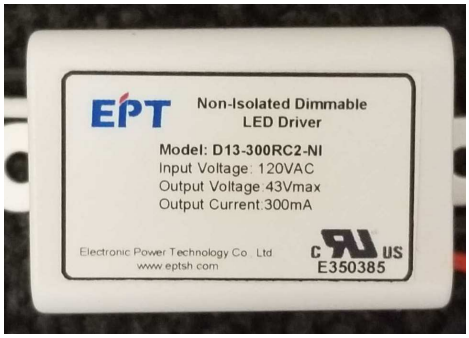
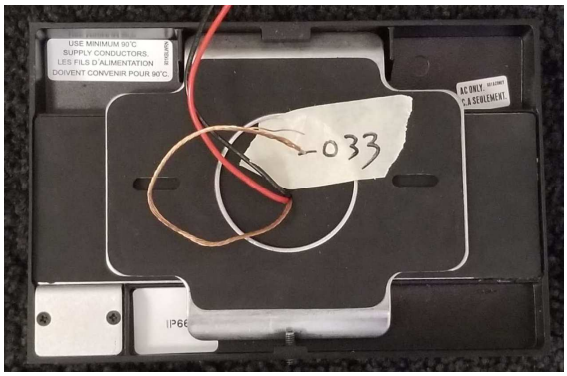
PICTURES





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
Engineer
Lighting Division

Report Reviewed By:

Jeff Davis
NA Technical Lead
Lighting Division

Attachments: IES File

REVISION HISTORY

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