

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER

7000WFLO93023xUNV

REPORT NUMBER

104203293CHI-001

ISSUE DATE

January 10, 2020

REVISION DATE

None

DOCUMENT CONTROL NUMBER

TBD

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REPORT NO.:104203293CHI-001

REPORT DATE:January 10, 2020

TEST REPORT

TEST OF ONE WALL SCONCE

MODEL NO. 700OWFLO93023XUNV
LED MODEL NO. LUMINUS MP-2016-1100-30-90 (LINEAR); CXM-6-30-90-36-AC40 (DOWNLIGHT)
DRIVER MODEL NO. ERP ESS015W-0300-42 (X2)

RENDERED TO:

VISUAL COMFORT GROUP
7400 LINDER AVE.
SKOKIE IL 60077

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-00981438-2.

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 700OWFLO93023xUNV. The sample was received by Intertek on December 31, 2019 in undamaged condition and one sample was tested as received. The sample designation was AH12312019014251-001.

DATE OF TESTS

January 6, 2020 through January 10, 2020

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SUMMARY

MODEL NO:	7000WFLO93023xUNV
DESCRIPTION:	Wall Sconce

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	1187.5	1125.0
Input Power (W) @ 120 (VAC)	23.89	23.91
Lumen Efficacy (lm/W)	49.7	47.1
Input Power Factor () @ 120 (VAC)	0.989	0.989

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	13.44
Correlated Color Temperature (K)	2980
Color Rendering Index - Ra	92.1
Color Rendering - R9	59.6
DUV	0.0006
Chromaticity Coordinate (x)	0.438
Chromaticity Coordinate (y)	0.403
Chromaticity Coordinate (u')	0.251
Chromaticity Coordinate (v')	0.521
BUG Rating	B1-U3-G1
IES Classification	Type I
Longitudinal Classification	Very Short

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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	146956	10/11/2019	10/11/2020
Elgar, AC Power Supply	CW1251	146111	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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TEST REPORT

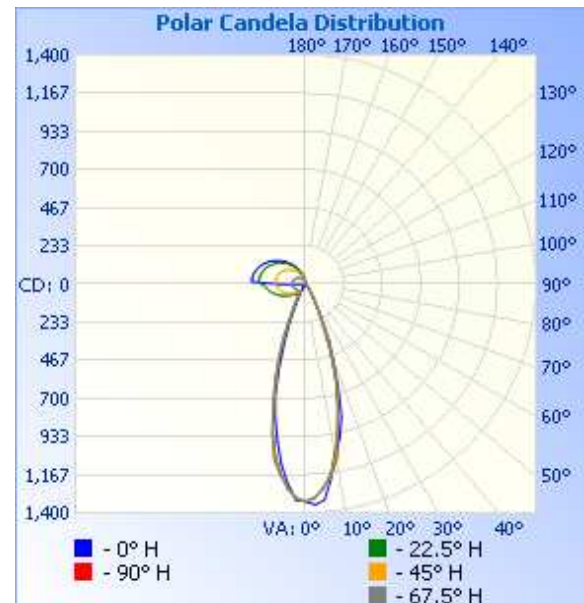
RESULTS OF TESTS

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)
AH12312019014251-001	Up/Horizontal	120.0	201.5	23.91	0.989	1125.0	47.1

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	1329	1329	1329	1329	1329
5	1326	1258	1251	1247	1248
10	1049	1034	1052	1078	1092
15	844	764	756	757	752
20	490	441	469	459	460
25	228	220	230	222	204
30	87	90	106	90	80
35	37	39	43	40	36
40	18	19	20	19	18
45	9	10	9	10	10
50	4	5	5	5	5
55	2	3	3	3	4
60	2	3	3	2	3
65	1	2	3	2	3
70	1	2	3	2	3
75	1	2	3	2	3
80	1	2	3	2	3
85	1	2	3	2	3
90	2	2	2	2	4
95	2	2	3	3	6
100	2	2	3	3	6
105	2	2	3	3	6
110	2	2	3	3	6
115	2	2	3	3	6
120	2	2	3	3	6
125	2	2	3	3	5
130	2	2	3	3	5
135	2	2	3	3	5
140	2	3	3	3	5
145	2	3	3	3	5
150	2	3	3	4	5
155	2	3	3	4	5
160	2	3	3	4	4
165	2	3	3	4	4
170	2	3	3	4	4
175	2	3	3	4	4
180	3	3	3	3	3



Lum. Classification System (LCS)

LCS	Zone	Lumens	% Lumens
FL	(0-30)	215.0	19.1
FM	(30-60)	19.4	1.7
FH	(60-80)	2.4	0.2
FVH	(80-90)	1.3	0.1
BL	(0-30)	211.0	18.7
BM	(30-60)	73.6	6.5
BH	(60-80)	103.8	9.2
BVH	(80-90)	69.5	6.2
UL	(90-100)	97.0	8.6
UH	100-180	333.7	29.6
Total		1126.7	100
BUG Rating B1-U3-G1			
IES Classification : Type I			
Longitudinal Classification: Very Short			

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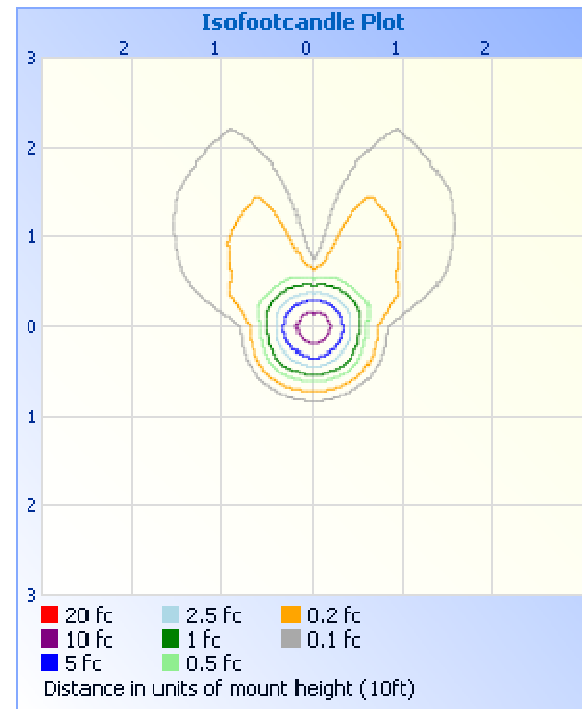
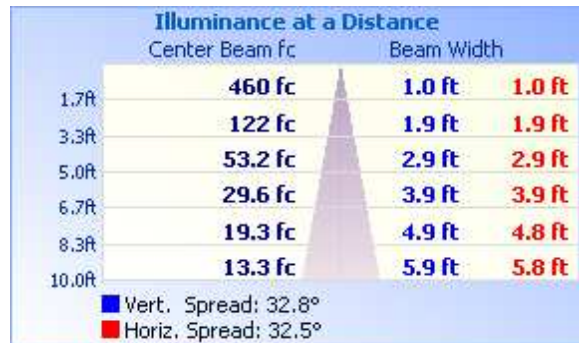
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RESULTS OF TESTS

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	424.3	37.7
0-40	458.1	40.7
0-60	517.1	46.0
60-90	177.0	15.7
70-100	227.2	20.2
90-120	271.0	24.1
0-90	694.1	61.7
90-180	430.8	38.3
0-180	1125.0	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	113.3	10.1
10-20	205.4	18.3
20-30	105.5	9.4
30-40	33.9	3.0
40-50	25.3	2.3
50-60	33.7	3.0
60-70	46.8	4.2
70-80	59.4	5.3
80-90	70.8	6.3
90-100	97.0	8.6
100-110	93.1	8.3
110-120	80.9	7.2
120-130	64.3	5.7
130-140	46.1	4.1
140-150	28.9	2.6
150-160	14.7	1.3
160-170	5.1	0.5
170-180	0.7	0.1

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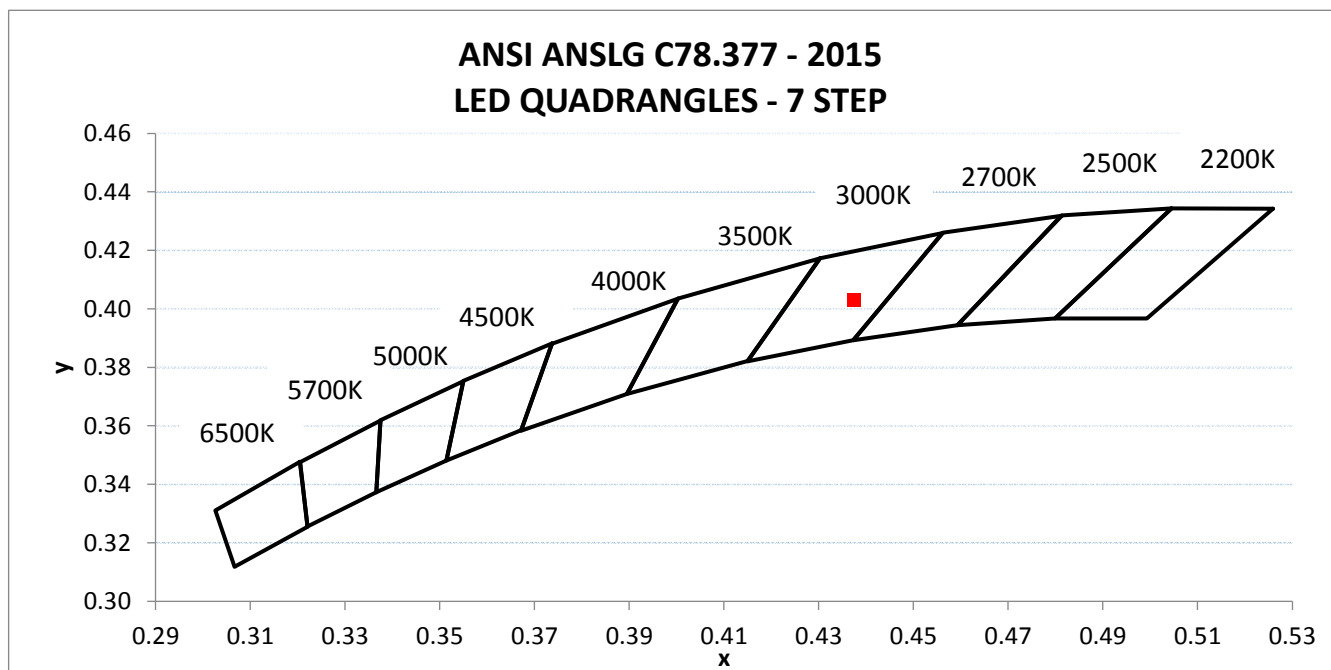
RESULTS OF TESTS

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 (%)
AH12312019014251-001	Up/Horizontal	120.01	201.40	23.89	0.989	13.44

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
1187.5	49.7	2980	92.1	59.6	0.0006

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.438	0.403	0.251	0.521



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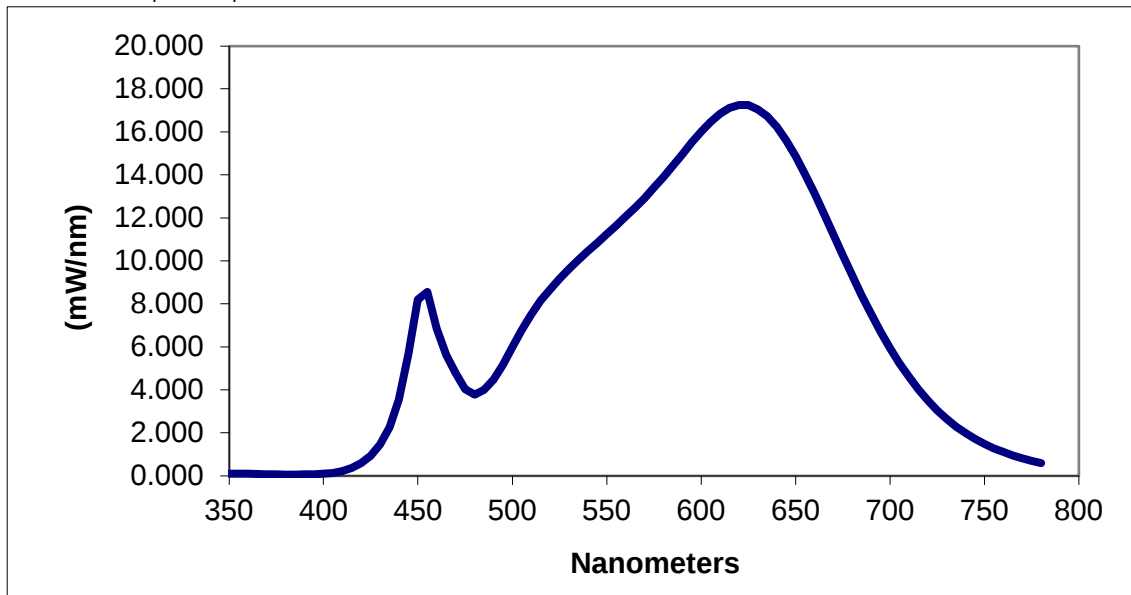
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RESULTS OF TESTS

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	0.095	460	6.858	570	12.917	680	9.314
355	0.096	465	5.629	575	13.411	685	8.396
360	0.097	470	4.792	580	13.892	690	7.530
365	0.080	475	4.030	585	14.426	695	6.706
370	0.078	480	3.773	590	14.951	700	5.940
375	0.070	485	3.995	595	15.505	705	5.240
380	0.059	490	4.478	600	16.013	710	4.607
385	0.062	495	5.164	605	16.464	715	4.032
390	0.070	500	5.996	610	16.849	720	3.504
395	0.078	505	6.779	615	17.112	725	3.050
400	0.096	510	7.511	620	17.250	730	2.653
405	0.139	515	8.150	625	17.245	735	2.297
410	0.223	520	8.678	630	17.038	740	1.988
415	0.368	525	9.166	635	16.729	745	1.719
420	0.590	530	9.622	640	16.238	750	1.485
425	0.930	535	10.045	645	15.605	755	1.281
430	1.452	540	10.460	650	14.871	760	1.112
435	2.266	545	10.833	655	14.037	765	0.952
440	3.557	550	11.248	660	13.137	770	0.818
445	5.683	555	11.639	665	12.195	775	0.698
450	8.197	560	12.070	670	11.221	780	0.600
455	8.553	565	12.470	675	10.267		

*Without correction of sample absorption.



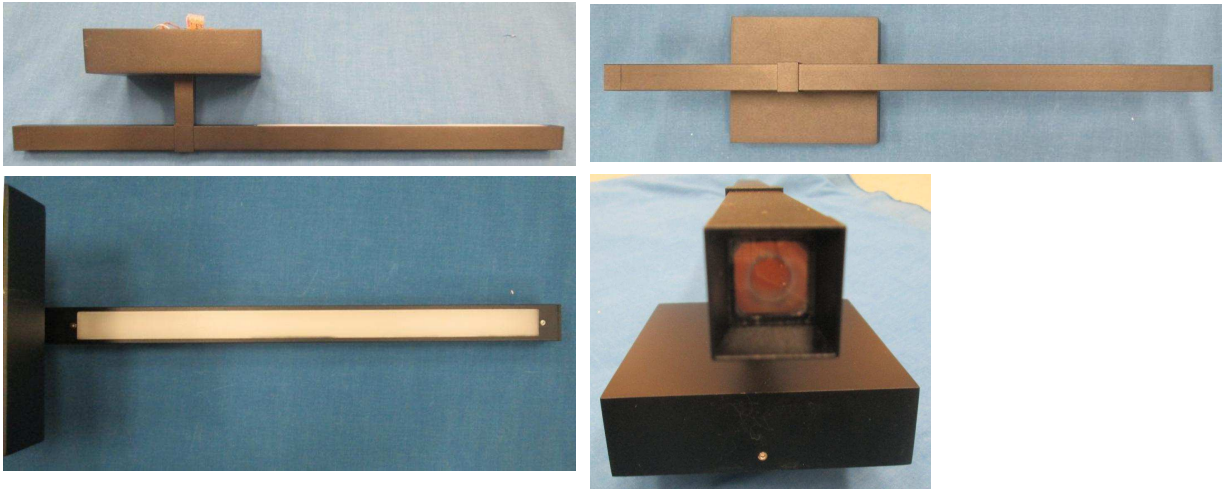
End Of Test Results

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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:

Tim Quigley

Timothy Quigley
Project Engineer
Lighting Division

Report Reviewed By:

Jeffrey Davis

Jeffrey Davis
N.A. Technical Lead
Lighting Division

Attachments: IES File

REVISION HISTORY

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