

VISUAL COMFORT GROUP TEST REPORT

SCOPE OF WORK

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

MODEL NUMBER
700BOD24x-LED930

REPORT NUMBER
103643585CHI-050

ISSUE DATE
March 22, 2019

REVISION DATE
None

DOCUMENT CONTROL NUMBER
TBD
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REPORT DATE: March 22, 2019

TEST REPORT

TEST OF ONE CEILING SUSPENSION

MODEL NO. 700BOD24X-LED930
LED MODEL NO. LUMINUS MP-2016-1100-30-90
DRIVER MODEL NO. LTF DA18W450C2742-3001

RENDERED TO:

VISUAL COMFORT GROUP
7400 LINDER AVE
SKOKIE, IL 60077

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-00912313.

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 700BOD24x-LED930. The sample was received by Intertek on March 8, 2019 in undamaged condition and one sample was tested as received. The sample designation was AH03082019045409D.

DATE OF TESTS

March 13, 2019 through March 19, 2019.

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SUMMARY

MODEL NO:	700BOD24x-LED930
DESCRIPTION:	CEILING SUSPENSION

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	1036.7	1001.9
Input Power (W) @ 120 (VAC)	16.27	16.23
Lumen Efficacy (lm/W)	63.7	61.7
Input Power Factor @ 120 (VAC)	0.989	0.988

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	10.07
Correlated Color Temperature (K)	3001
Color Rendering Index - Ra	93.2
Color Rendering - R9	64.5
DUV	0.0012
Chromaticity Coordinate (x)	0.435
Chromaticity Coordinate (y)	0.401
Chromaticity Coordinate (u')	0.251
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	7/9/2018	7/9/2019
Omega Newport Thermometer	DPI8-C24	146920	10/4/2018	10/4/2019
LSI High Speed Mirror Goniometer	6440T	146928	VBV	VBV
Newport Thermohygrometer	iServer	146379	4/16/2018	4/16/2019
Pacific, AC power supply	118-ACX	CHI0358	VBV	VBV
Labsphere Spectroradiometer	CDS1100	CHI0091	VBV	VBV
3 Meter Sphere	SPR600	CHI0088	VBV	VBV
Elgar AC Power Supply	CW1251	146112	VBV	VBV
Sorenson DC Power Supply	XFR150-8	146846	VBV	VBV
Newport Humidity Recorder	iTHX-SD	146961	7/23/2018	7/23/2019
Yokogawa Power Meter	WT1600	146769	4/6/2018	4/6/2019
Extech K Temperature Meter	SD200	CHI0207	4/12/2018	4/12/2019

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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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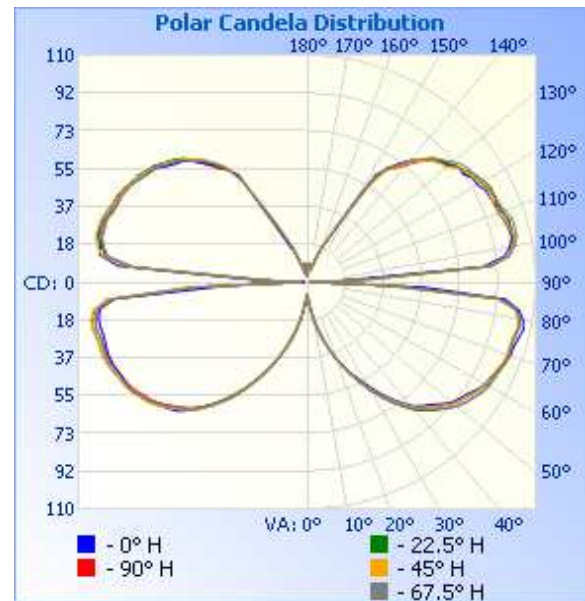
RESULTS OF TESTS

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)
AH03082019045409D	Base Up	120.1	136.8	16.23	0.988	1001.9	61.7

INTENSITY SUMMARY - CANDELAS

Angle	0	22.5	45	67.5	90
0	6	6	6	6	6
5	10	10	10	10	10
10	18	19	19	19	19
15	28	28	28	28	28
20	38	39	38	38	38
25	48	49	48	49	49
30	58	60	59	60	59
35	68	71	70	70	70
40	78	81	79	80	79
45	84	88	85	87	86
50	91	94	92	94	92
55	94	97	96	98	96
60	99	100	99	101	99
65	101	102	101	102	101
70	104	103	103	104	103
75	105	103	103	103	103
80	106	104	103	104	104
85	96	92	92	93	94
90	1	1	2	2	2
95	85	89	87	89	87
100	99	100	100	102	100
105	100	101	101	103	102
110	98	100	98	102	100
115	97	99	98	100	99
120	95	98	96	97	96
125	92	94	93	95	92
130	89	89	86	91	88
135	83	84	83	85	84
140	77	77	76	77	74
145	67	68	66	67	67
150	43	39	42	39	40
155	22	22	24	21	22
160	12	12	11	11	12
165	7	6	6	7	7
170	7	7	8	9	8
175	7	7	7	7	7
180	3	3	3	3	3



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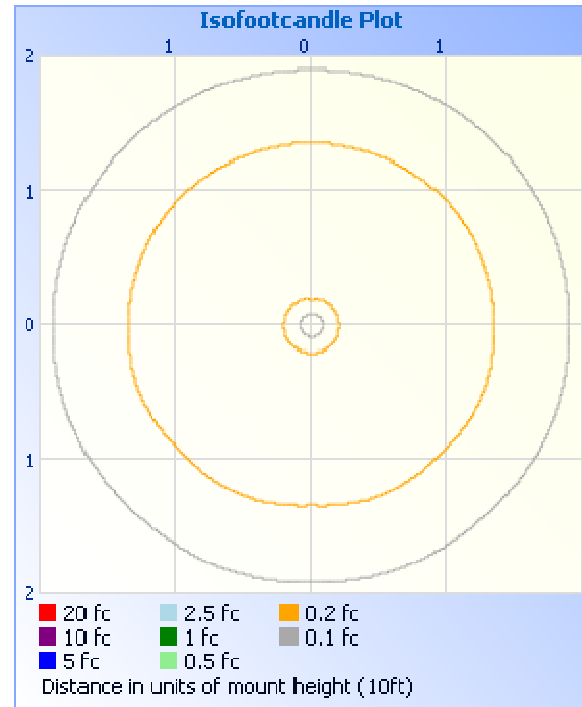
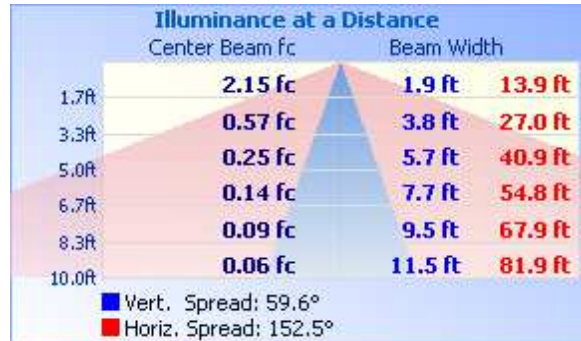
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RESULTS OF TESTS

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	32.5	3.2
0-40	76.7	7.7
0-60	230.6	23.0
60-90	291.5	29.1
70-100	261.0	26.1
90-120	276.3	27.6
0-90	522.1	52.1
90-180	479.8	47.9
0-180	1001.9	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	1.3	0.1
10-20	8.3	0.8
20-30	22.9	2.3
30-40	44.2	4.4
40-50	67.1	6.7
50-60	86.8	8.7
60-70	101.1	10.1
70-80	109.7	11.0
80-90	80.7	8.1
90-100	70.6	7.0
100-110	107.6	10.7
110-120	98.1	9.8
120-130	83.9	8.4
130-140	64.7	6.5
140-150	40.6	4.1
150-160	11.5	1.1
160-170	2.1	0.2
170-180	0.7	0.1

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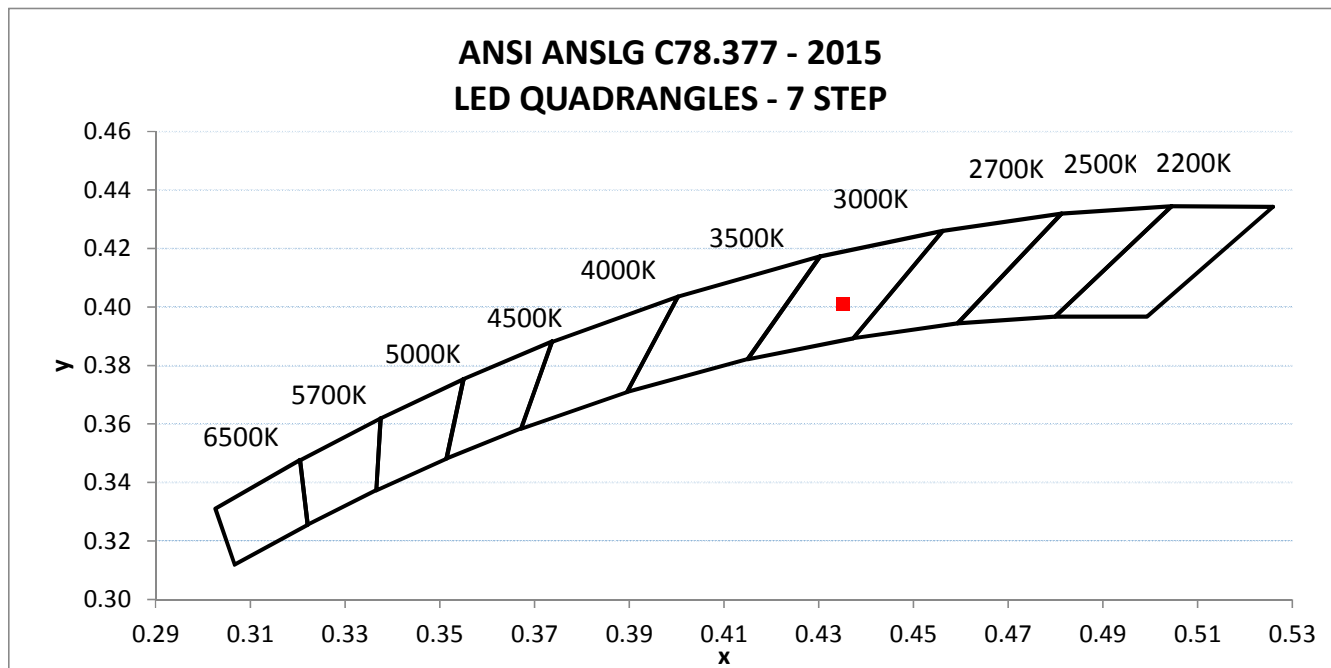
RESULTS OF TESTS

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 (%)
AH03082019045409D	Base Up	120.00	137.11	16.27	0.989	10.07

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
1036.7	63.7	3001	93.2	64.5	0.0012

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.435	0.401	0.251	0.520



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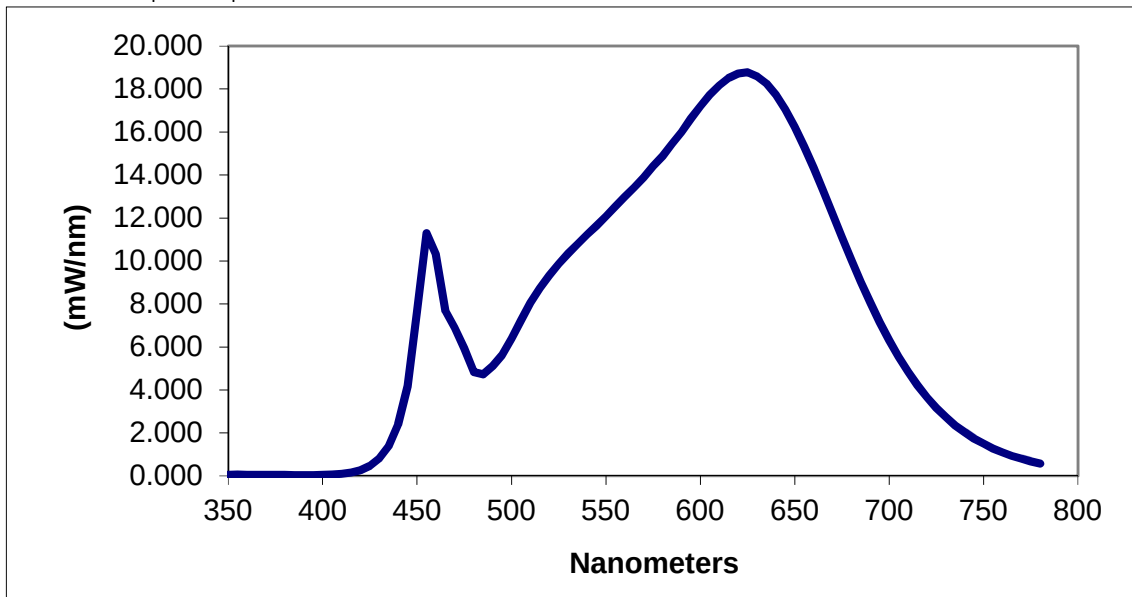
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RESULTS OF TESTS

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	0.052	460	10.306	570	13.879	680	10.047
355	0.069	465	7.684	575	14.399	685	9.032
360	0.064	470	6.886	580	14.874	690	8.065
365	0.060	475	5.940	585	15.450	695	7.157
370	0.054	480	4.839	590	15.994	700	6.309
375	0.055	485	4.727	595	16.617	705	5.548
380	0.050	490	5.112	600	17.201	710	4.845
385	0.048	495	5.618	605	17.721	715	4.223
390	0.046	500	6.399	610	18.175	720	3.653
395	0.050	505	7.225	615	18.511	725	3.168
400	0.057	510	8.055	620	18.727	730	2.735
405	0.072	515	8.738	625	18.777	735	2.356
410	0.103	520	9.332	630	18.580	740	2.030
415	0.163	525	9.864	635	18.262	745	1.737
420	0.272	530	10.351	640	17.730	750	1.494
425	0.467	535	10.794	645	17.056	755	1.277
430	0.811	540	11.234	650	16.237	760	1.096
435	1.398	545	11.631	655	15.325	765	0.932
440	2.393	550	12.084	660	14.326	770	0.795
445	4.183	555	12.528	665	13.283	775	0.680
450	7.625	560	12.985	670	12.183	780	0.580
455	11.300	565	13.418	675	11.110		

*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:

Timothy Quigley
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Lighting Division

Report Reviewed By:

Jehue Williams
Associate Engineer
Lighting Division

Attachments: IES File

REVISION HISTORY

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