

# VISUAL COMFORT GROUP TEST REPORT

## SCOPE OF WORK

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

**MODEL NUMBER**  
700BOD48x-LED930

**REPORT NUMBER**  
103643585CHI-051

**ISSUE DATE**

**REVISION DATE**  
None

**DOCUMENT CONTROL NUMBER**  
TBD  
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**REPORT NO.: 103643585CHI-051**

**REPORT DATE: March 22, 2019**

**TEST REPORT**

**TEST OF ONE CEILING SUSPENSION**

MODEL NO. 700BOD48X-LED930  
LED MODEL NO. LUMINUS MP-2016-1100-30-90  
DRIVER MODEL NO. LTF DA32W900C2036C-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 700BOD48x-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 AH03082019045409E.

**DATE OF TESTS**

March 13, 2019 through March 19, 2019.

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**SUMMARY**

<b>MODEL NO:</b>	700BOD48x-LED930
<b>DESCRIPTION:</b>	CEILING SUSPENSION

CRITERIA	RESULTS	
	INTEGRATING SPHERE	GONIOPHOTOMETER
Lumen Output (lumens)	2483.9	2474.4
Input Power (W) @ 120 (VAC)	32.53	32.39
Lumen Efficacy (lm/W)	76.4	76.4
Input Power Factor @ 120 (VAC)	0.988	0.987

CRITERIA	RESULTS
Input Current ATHD (%) @ 120 (VAC)	7.86
Correlated Color Temperature (K)	2913
Color Rendering Index - Ra	93.8
Color Rendering - R9	66.9
DUV	0.0016
Chromaticity Coordinate (x)	0.441
Chromaticity Coordinate (y)	0.402
Chromaticity Coordinate (u')	0.254
Chromaticity Coordinate (v')	0.521

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**EQUIPMENT LIST**

<b>EQUIPMENT USED</b>	<b>MODEL NO.</b>	<b>CONTROL NO.</b>	<b>LAST CAL DATE</b>	<b>CAL DUE DATE</b>
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	VBU	VBU
Newport Thermohygrometer	iServer	146379	4/16/2018	4/16/2019
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU
3 Meter Sphere	SPR600	CHI0088	VBU	VBU
Elgar AC Power Supply	CW1251	146112	VBU	VBU
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU
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.

**TEST REPORT**

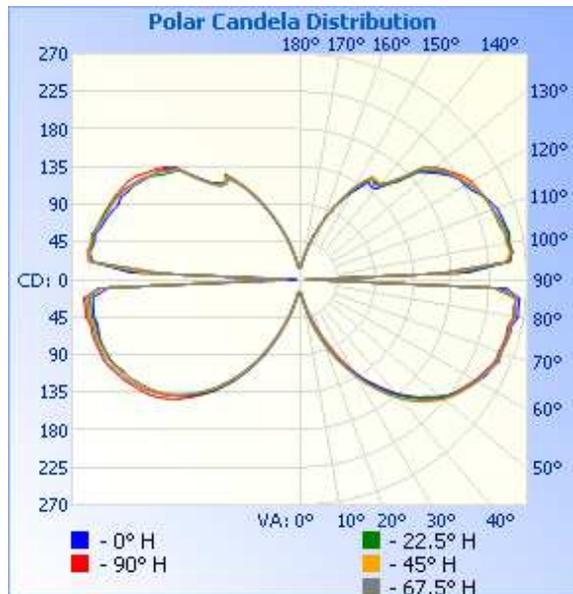
**RESULTS OF TESTS**

**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)
AH03082019045409E	Base Up	120.1	273.4	32.39	0.987	2474.4	76.4

**INTENSITY SUMMARY - CANDELAS**

Angle	0	22.5	45	67.5	90
0	16	16	16	16	16
5	16	17	16	16	15
10	29	31	28	25	25
15	49	52	48	43	42
20	74	78	74	69	65
25	101	106	102	99	93
30	128	132	132	132	126
35	152	157	160	160	154
40	178	180	184	186	180
45	199	200	207	205	202
50	218	218	223	222	219
55	234	232	234	233	231
60	244	242	244	243	241
65	251	250	251	250	248
70	254	253	254	254	252
75	258	256	257	256	254
80	263	259	259	259	258
85	262	258	258	258	258
90	9	6	8	12	15
95	249	250	246	248	251
100	253	253	249	251	250
105	253	250	247	246	247
110	249	245	244	244	244
115	239	241	241	238	240
120	226	230	233	230	235
125	217	219	219	220	222
130	200	201	209	208	210
135	168	167	175	173	173
140	142	147	150	148	149
145	143	150	151	148	148
150	119	122	126	124	124
155	93	93	94	94	95
160	67	66	65	66	67
165	44	43	42	43	43
170	26	25	25	25	25
175	15	14	15	14	15
180	14	14	14	14	14



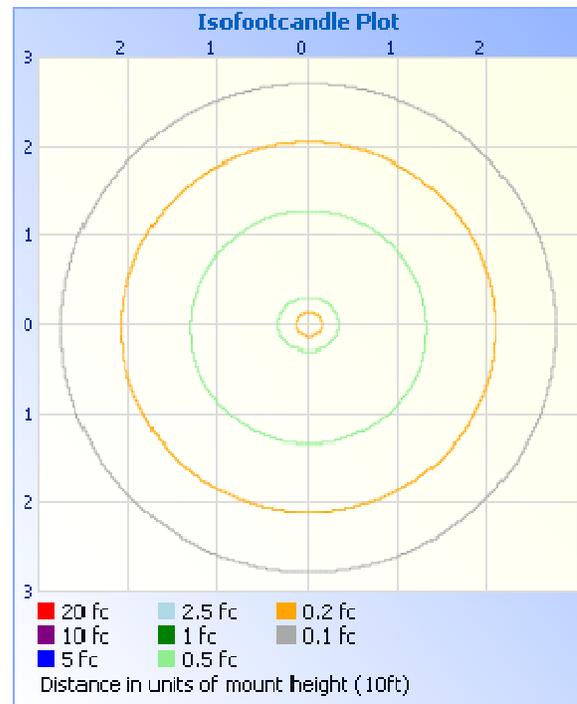
**TEST REPORT**

**RESULTS OF TESTS**

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

**MOUNTING HEIGHT: 10ft**

ILLUMINANCE - CONE OF LIGHT	ISOILLUMINATION PLOT
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**ZONAL LUMEN SUMMARY AND PERCENTAGES**

ZONE	LUMENS	% LUMINAIRE
0-30	62.2	2.5
0-40	160.0	6.5
0-60	520.2	21.0
60-90	752.9	30.4
70-100	729.1	29.5
90-120	719.6	29.1
0-90	1273.1	51.4
90-180	1201.4	48.6
0-180	2474.4	100.0

ZONE	LUMENS	% LUMINAIRE
0-10	1.9	0.1
10-20	13.8	0.6
20-30	46.6	1.9
30-40	97.9	4.0
40-50	154.7	6.3
50-60	205.5	8.3
60-70	244.9	9.9
70-80	267.9	10.8
80-90	240.1	9.7
90-100	221.1	8.9
100-110	262.4	10.6
110-120	236.0	9.5
120-130	195.8	7.9
130-140	136.2	5.5
140-150	89.7	3.6
150-160	45.0	1.8
160-170	13.2	0.5
170-180	1.8	0.1

**TEST REPORT**

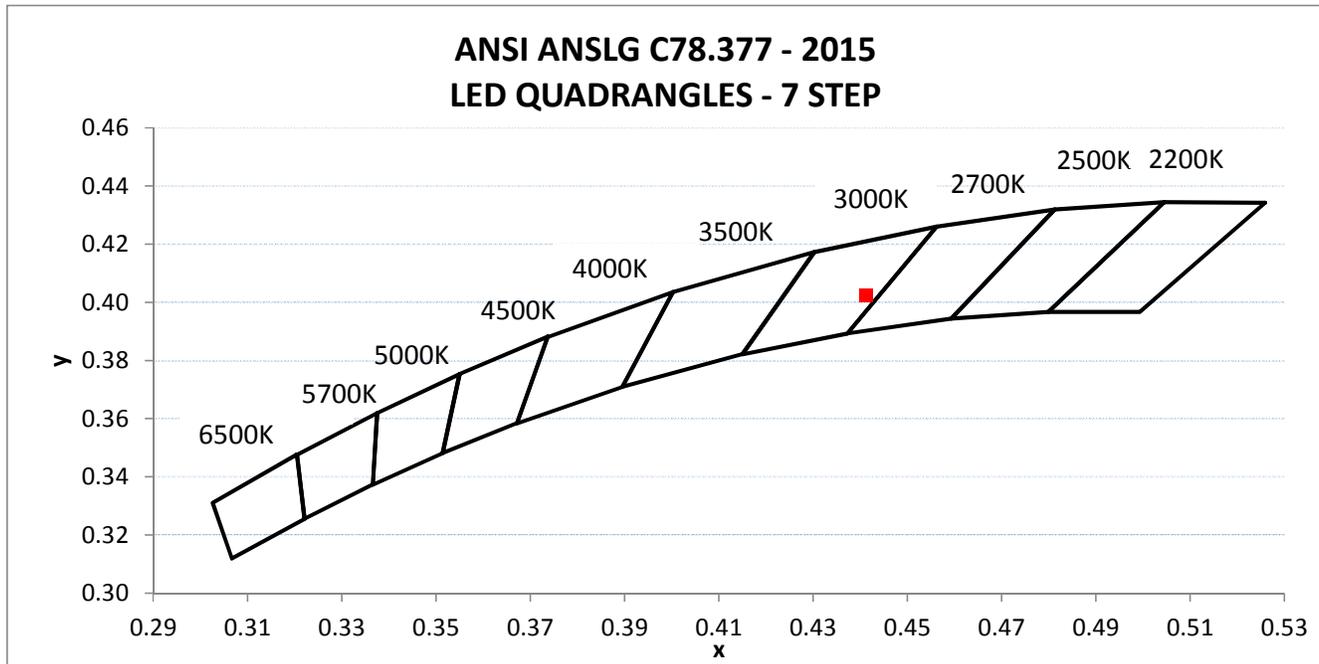
**RESULTS OF TESTS**

**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 (%)
AH03082019045409E	Base Up	120.00	274.44	32.53	0.988	7.86

LIGHT OUTPUT (lm)	LUMEN EFFICACY (lm/W)	CORRELATED COLOR TEMPERATURE - CCT (K)	CRI - Ra	CRI - R9	DUV
2483.9	76.4	2913	93.8	66.9	0.0016

CIE 1931 CHROMATICITY COORDINATE (x)	CIE 1931 CHROMATICITY COORDINATE (y)	CIE 1976 CHROMATICITY COORDINATE (u')	CIE 1976 CHROMATICITY COORDINATE (v')
0.441	0.402	0.254	0.521



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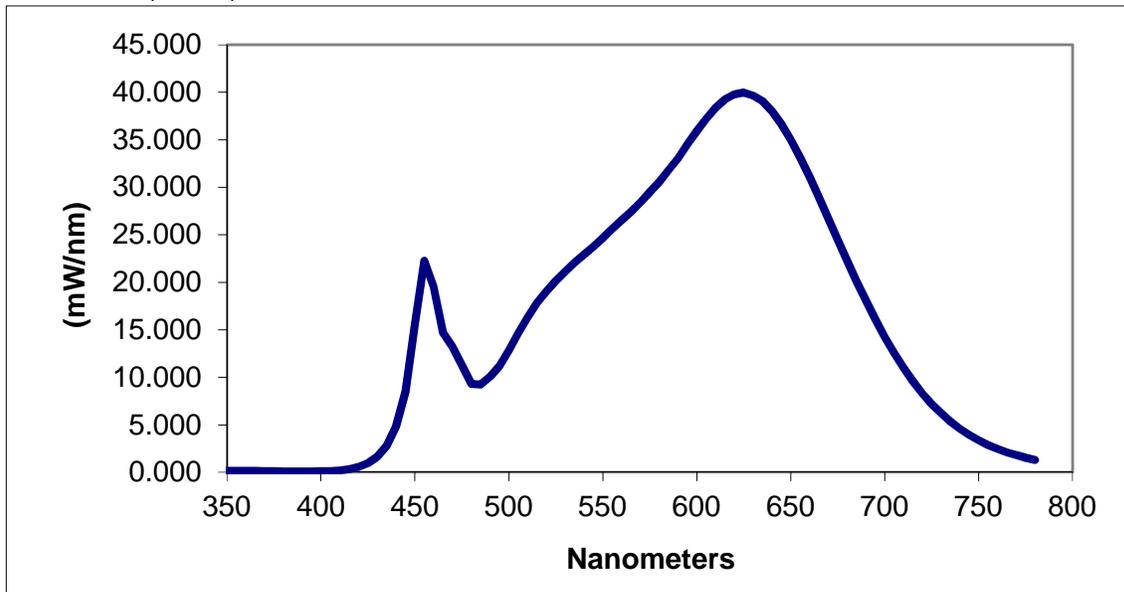
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**RESULTS OF TESTS**

**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	0.150	460	19.563	570	28.427	680	22.275
355	0.164	465	14.664	575	29.495	685	20.129
360	0.150	470	13.222	580	30.563	690	18.095
365	0.148	475	11.277	585	31.823	695	16.135
370	0.128	480	9.311	590	33.064	700	14.274
375	0.120	485	9.245	595	34.533	705	12.574
380	0.111	490	10.088	600	35.921	710	11.006
385	0.103	495	11.195	605	37.215	715	9.597
390	0.099	500	12.844	610	38.375	720	8.304
395	0.108	505	14.625	615	39.248	725	7.192
400	0.121	510	16.336	620	39.773	730	6.221
405	0.142	515	17.829	625	39.971	735	5.344
410	0.208	520	19.059	630	39.635	740	4.594
415	0.328	525	20.162	635	39.085	745	3.931
420	0.561	530	21.131	640	38.009	750	3.361
425	0.963	535	22.061	645	36.662	755	2.883
430	1.641	540	22.925	650	35.004	760	2.468
435	2.801	545	23.746	655	33.158	765	2.099
440	4.830	550	24.669	660	31.114	770	1.787
445	8.510	555	25.606	665	28.977	775	1.526
450	15.492	560	26.548	670	26.695	780	1.301
455	22.279	565	27.422	675	24.488		

\*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  
Engineer  
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				