



REPORT

545 EAST ALGONQUIN ROAD ARLINGTON HEIGHTS, IL 60005

Project No. G101174222

Date: May 14, 2013

REPORT NO. 101174222CHI-002

TEST OF ONE LED LINEAR SUSPENSION LUMINAIRE

FIXTURE MODEL NO. 700LSBIZAS-LED

RENDERED TO

GENERATION BRANDS
7400 LINDER AVENUE
SKOKIE, IL 60077

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

AUTHORIZATION: The testing performed was authorized by signed quote number 500452907..

STANDARDS USED: The following American National Standards or Illuminating Engineering Society of North America Test Guides were used in part or totally to test each specimen:

IESNA LM-79: 2008 Approved Method for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2008 Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one prototype sample of model number 700LSBIZAS-LED in undamaged condition, and one sample was tested as received. The sample identification was CHI05022013041618.

DATES OF TESTS: May 8, 2013 through May 10, 2013

SUMMARY

Model No.:	700LSBIZAS-LED
Description:	Ceiling-mount LED Linear suspension luminaire

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	2401	2347
Total Power (W)	45.45	45.94
Luminaire Efficacy (LPW)	52.83	51.09

Criteria	Result
Power Factor	0.949
Current ATHD (%)	28.77
Correlated Color Temperature (CCT - K)	3034
Color Rendering Index (CRI - Ra)	81.6
Color Rendering Index (CRI - R9)	10.4
Duv	0.001
Chromaticity Coordinate (x)	0.434
Chromaticity Coordinate (y)	0.402
Chromaticity Coordinate (u')	0.250
Chromaticity Coordinate (v')	0.520

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Calibration Date	Calibration Due Date
Yokogawa Power Meter	WT210	146919	12/21/12	12/21/13
Omega Thermometer	DPI8-C24	146920	11/15/12	11/15/13
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
Newport Hygrometer	iServer	146960	2/21/13	2/21/14
Elgar, AC Power Supply	CW1251P	146918	VBU	VBU
Cole-Parmer Triple Timer	94440-00	CHI0041	7/19/12	7/19/13
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU
3 Meter Sphere	SPR600	CHI0088	VBU	VBU
Elgar AC Power Supply	CW1251M	146112	VBU	VBU
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU
Newport Temperature and Humidity Recorder	iTHX-SD	146382	9/14/12	9/14/13
Yokogawa Power Meter	WT1600	146769	5/18/12	5/18/13
Omega Temperature Meter	MDSi8	146139	7/19/12	7/19/13



TEST METHODS

Seasoning in Sample Orientation – LED Products

No seasoning was performed in accordance with IESNA LM-79.

Photometric and Electrical measurements – Distribution Method

A LSI Type C High Speed Model 6440 Mirror Goniometer was used to measure the intensity (candelas) at each angle of distribution for each sample.

Ambient temperature was measured equal to the height of the sample mounted on the Goniometer equipment. Each sample was operated at input rated voltage in its designated orientation. Each sample was allowed to stabilize for at least thirty minutes before measurements were made. Electrical measurements including voltage, current, and power were measured using the Yokogawa Power Analyzer.

Some graphics were created with Photometrics Pro software.

Photometric and Electrical Measurements – Integrating Sphere Method

A Labsphere Model CDS 1100 Spectroradiometer and Three Meter 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. Electrical measurements including voltage, current, and power were measured using the Yokogawa Power Analyzer.

The calibration of the sphere photometer-spectroradiometer system is traceable to the National Institute of Standards and Technology..

Estimated Total Operating Time

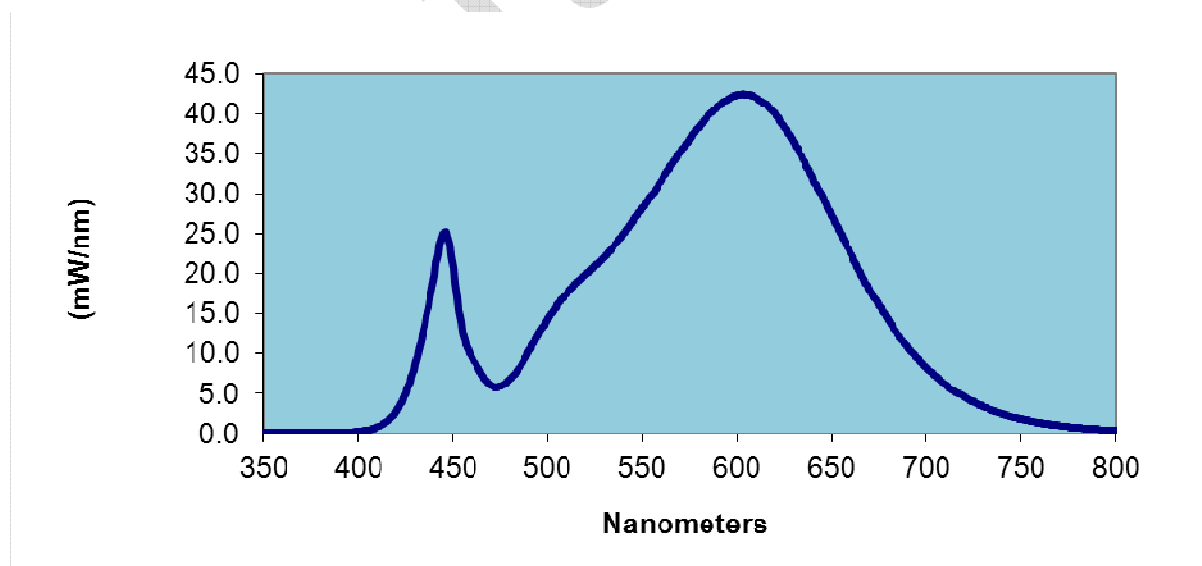
Model No.	Total Hours
700LSBIZAS-LED	3

RESULTS OF TESTS

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
700LSBIZAS-LED							
350	0.17	460	9.58	570	35.17	680	14.20
355	0.16	465	7.58	575	36.79	685	12.49
360	0.16	470	6.04	580	38.38	690	10.90
365	0.15	475	5.98	585	39.84	695	9.58
370	0.14	480	6.88	590	40.99	700	8.27
375	0.14	485	8.28	595	41.75	705	7.17
380	0.13	490	10.24	600	42.32	710	6.19
385	0.13	495	12.42	605	42.42	715	5.36
390	0.16	500	14.42	610	42.02	720	4.64
395	0.21	505	16.13	615	41.25	725	4.01
400	0.31	510	17.50	620	39.95	730	3.44
405	0.49	515	18.79	625	38.32	735	2.95
410	0.87	520	19.91	630	36.44	740	2.53
415	1.55	525	20.95	635	34.30	745	2.17
420	2.85	530	22.18	640	32.05	750	1.88
425	5.16	535	23.46	645	29.67	755	1.61
430	8.73	540	24.91	650	27.26	760	1.39
435	13.53	545	26.53	655	24.90	765	1.20
440	19.75	550	28.18	660	22.55	770	1.03
445	25.15	555	29.87	665	20.25	775	0.89
450	20.64	560	31.64	670	18.08	780	0.76
455	12.77	565	33.41	675	16.06		

Spectral Data Over Visible Wavelengths



RESULTS OF TESTS (cont'd)

Photometric and Electrical Measurements at 25°C – Integrating Sphere Method

Intertek Sample No.	Correlated Color Temperature (K)	CRI -Ra	CRI -R9	DUV	CIE 31' Chromaticity Coordinate (x)	CIE 31' Chromaticity Coordinate (y)	CIE 76' Chromaticity Coordinate (u')	CIE 76' Chromaticity Coordinate (v')
CHI05022013041618	3034	81.6	10.4	0.001	0.434	0.402	0.250	0.520

Intertek Sample No.	Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
CHI05022013041618	Up	120.0	399.2	45.45	0.949	28.77	2401	52.83

Photometric and Electrical Measurements – Distribution Method

Intertek Sample No.	Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (Watts)	Input Power Factor	Absolute Luminous Flux (Lumens)	Lumen Efficacy (Lumens Per Watt)
CHI05022013041618	Up	120.0	398.0	45.94	0.962	2347	51.09

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	109.2	4.7
10-20	307.0	13.1
20-30	429.4	18.3
30-40	455.3	19.4
40-50	396.7	16.9
50-60	296.3	12.6
60-70	192.7	8.2
70-80	106.0	4.5
80-90	44.0	1.9
90-100	9.9	0.4
100-110	0.7	0.0

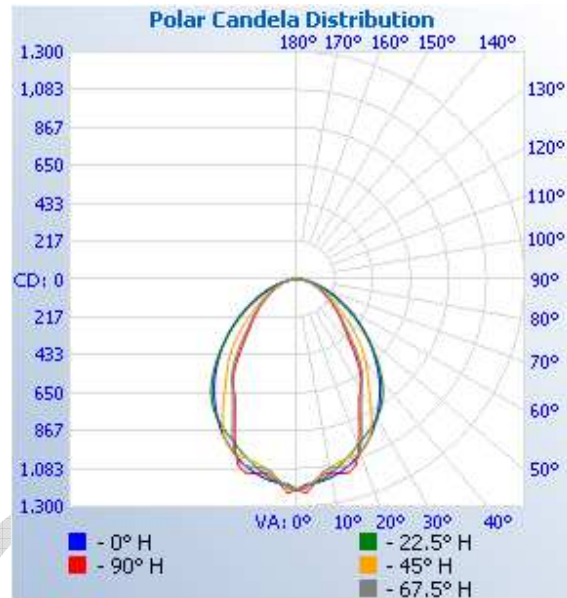
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	845.6	36.0
0-40	1301	55.4
0-60	1994	85.0
60-90	342.6	14.6
0-90	2336	99.5
90-180	10.6	0.5
0-180	2347	100.0

RESULTS OF TESTS (cont'd)

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	1202	1202	1202	1202	1202
5	1170	1169	1161	1157	1169
10	1148	1125	1092	1095	1121
15	1110	1069	1066	1107	1144
20	1056	1012	1056	1053	1037
25	991	962	986	870	842
30	913	914	847	734	726
35	825	849	707	647	623
40	732	757	609	519	480
45	633	646	502	400	378
50	533	530	389	322	310
55	434	422	299	258	248
60	341	321	230	202	195
65	257	234	176	158	153
70	184	164	130	119	118
75	122	109	92	89	89
80	70	65	63	64	64
85	30	34	41	44	45
90	2	14	23	28	29
95	0	1	8	13	15
100	0	0	1	5	6
105	0	0	0	0	1
110	0	0	0	0	0
115	6	5	3	1	0
120	6	4	2	0	0
125	5	4	2	0	0
130	4	3	1	0	0
135	3	2	0	0	0
140	2	1	0	0	0
145	1	0	0	0	0
150	0	0	0	0	0
155	0	0	0	0	0
160	0	0	0	0	0

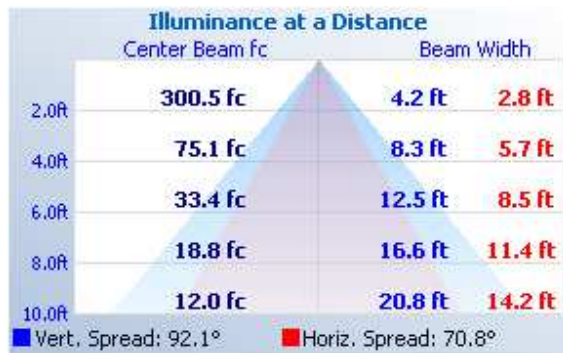


RESULTS OF TESTS (cont'd)

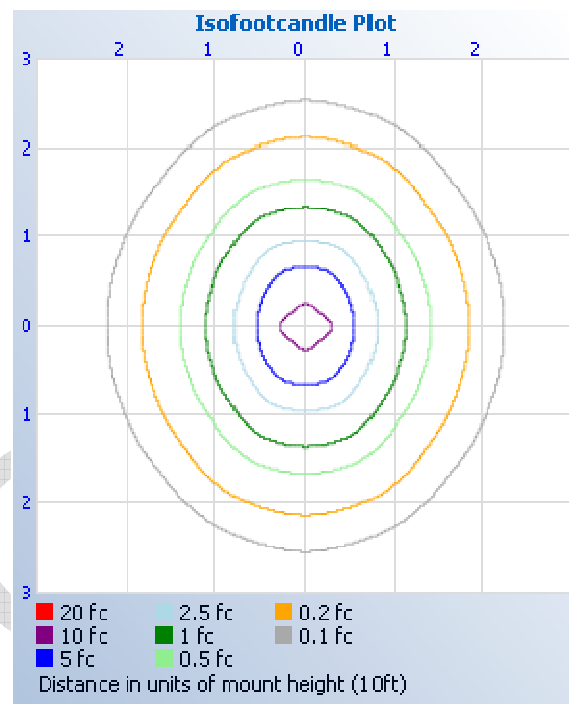
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot





Pictures (not to scale)



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:

Report Reviewed By: