



REPORT

545 E. Algonquin Rd., Arlington Heights, IL 60005

Project No. G102171228

Date: April 19, 2017

REPORT NO. 102171228CHI-097

TEST OF ONE LED RECESSED LUMINAIRE (MEDIUM LENS)

MODEL NO. 925003
LED MODEL NO. LUMINUS CXM-9-30-90-36-AC30-F4-3
DRIVER MODEL NO. ERP ESS015W-0300-42

RENDERED TO

GENERATION BRANDS
7400 LINDER AVE.
SKOKIE, IL 60077 USA

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

AUTHORIZATION: The testing performed was authorized by signed quote number 500606081.

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: Electrical and Photometric Measurements of Solid State Lighting

ANSI NEMA ANSLG C78.377: 2012: Specifications of the Chromaticity of Solid State Lighting Products

DESCRIPTION OF SAMPLE: The client submitted one production sample of model number 925003. The sample was received by Intertek on April 6, 2017, in undamaged condition and one sample was tested as received. The sample designation was 04062017115221O.

DATES OF TESTS: April 18, 2017 through April 19, 2017.

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SUMMARY

Model No.:	925003
Description:	LED recessed luminaire (medium lens)

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	978.6	947.4
Total Power (W)	11.92	11.92
Luminaire Efficacy (LPW)	82.10	79.48

Criteria	Result
Power Factor at 120Vac	0.988
Power Factor at 277Vac	0.941
Current ATHD % at 120Vac	12.74
Current ATHD % at 277Vac	15.85
Correlated Color Temperature (CCT - K)	2981
Color Rendering Index (CRI - Ra)	91.8
Color Rendering Index (CRI - R9)	66.6
DUV	0.000
Chromaticity Coordinate (x)	0.438
Chromaticity Coordinate (y)	0.405
Chromaticity Coordinate (u')	0.251
Chromaticity Coordinate (v')	0.522

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Yokogawa Power Meter	WT210	146919	07/11/16	07/11/17	04/19/17
Omega Newport Thermometer	DPI8-C24	146920	10/07/16	10/07/17	04/19/17
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	04/19/17
Newport Thermohygrometer	iServer	146956	01/06/17	01/06/18	04/19/17
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	04/19/17
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	04/18/17
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	04/18/17
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	04/18/17
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	04/18/17
Newport Humidity Recorder	iTHX-SD	146382	06/27/16	06/27/17	04/18/17
Yokogawa Power Meter	WT1600	146768	01/10/17	01/10/18	04/18/17
Fluke J/KTemperature Meter	52	146004	01/10/17	01/10/18	04/18/17

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 Labsphere Model CDS 1100 CCD Array Spectroradiometer and Two Meter or Ten Foot 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 Xitron or Yokogawa 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 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 Xitron or Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.

RESULTS OF TEST

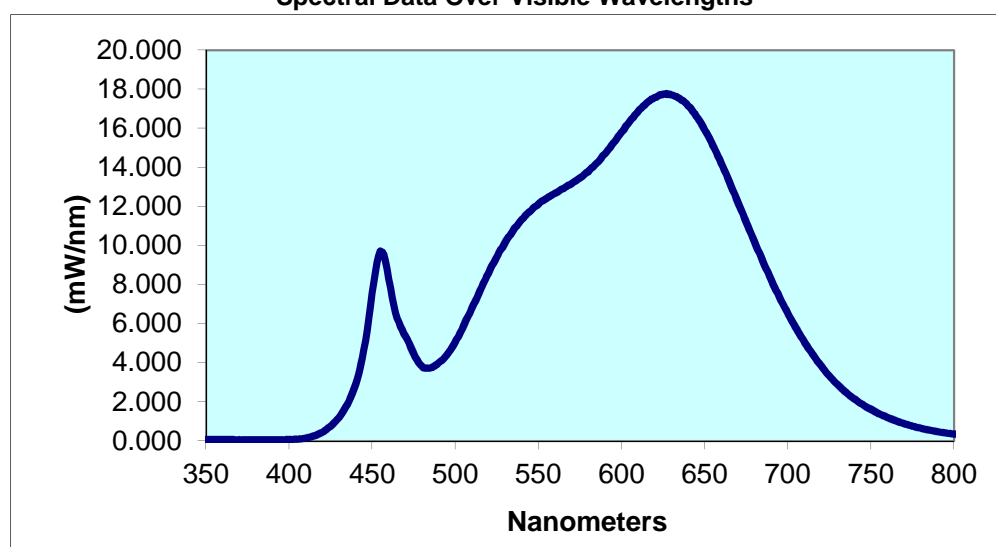
Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method

Intertek Sample No.	Base Orientation	Input Voltage {Vac}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
040620171152210	Up	120.0	100.5	11.92	0.988	12.74	978.6	82.10
		277.0	47.72	12.43	0.941	15.85		
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')	
2981	91.8	66.6	0.000	0.438	0.405	0.251	0.522	

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.071	440	2.896	530	10.16	620	17.58	710	5.065
355	0.071	445	4.661	535	10.79	625	17.75	715	4.428
360	0.065	450	7.560	540	11.34	630	17.71	720	3.846
365	0.065	455	9.723	545	11.75	635	17.52	725	3.330
370	0.061	460	8.298	550	12.12	640	17.16	730	2.882
375	0.055	465	6.296	555	12.43	645	16.62	735	2.491
380	0.051	470	5.370	560	12.68	650	15.92	740	2.155
385	0.050	475	4.493	565	12.91	655	15.12	745	1.862
390	0.051	480	3.818	570	13.17	660	14.21	750	1.618
395	0.055	485	3.741	575	13.48	665	13.25	755	1.396
400	0.068	490	3.994	580	13.78	670	12.22	760	1.202
405	0.091	495	4.404	585	14.22	675	11.21	765	1.032
410	0.148	500	5.066	590	14.69	680	10.19	770	0.885
415	0.257	505	5.877	595	15.25	685	9.199	775	0.758
420	0.452	510	6.790	600	15.80	690	8.260	780	0.652
425	0.755	515	7.719	605	16.35	695	7.375		
430	1.205	520	8.591	610	16.86	700	6.534		
435	1.870	525	9.414	615	17.28	705	5.775		

Spectral Data Over Visible Wavelengths



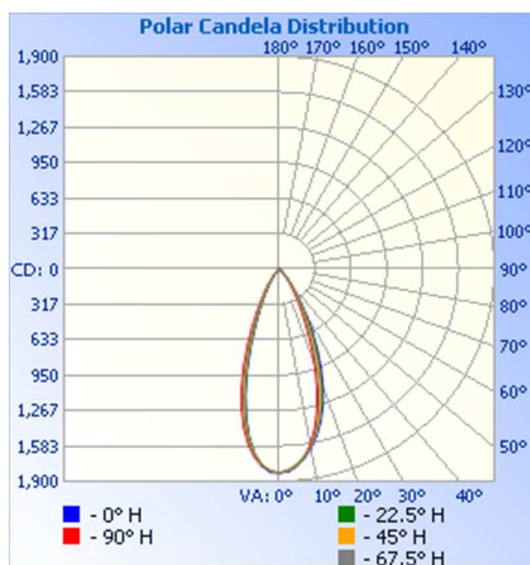
RESULTS OF TEST (cont'd)

Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) – 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 (LPW)
04062017115221O	Up	120.0	100.5	11.92	0.988	947.4	79.48

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	1822	1822	1822	1822	1822
5	1771	1753	1762	1770	1770
10	1624	1607	1614	1608	1588
15	1413	1386	1375	1339	1289
20	1130	1090	1050	983	916
25	795	746	700	629	562
30	486	453	422	369	323
35	267	250	242	207	175
40	120	126	131	105	81
45	49	55	65	44	33
50	21	22	29	18	14
55	10	10	10	8	7
60	3	4	4	3	2
65	0	1	2	1	0
70	0	0	0	0	0
75	0	0	0	0	0
80	0	0	0	0	0
85	0	0	0	0	0
90	0	0	0	0	0

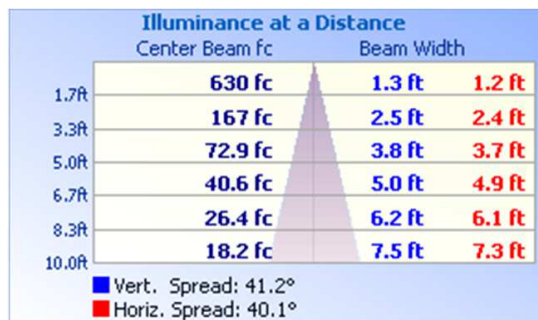


RESULTS OF TEST (cont'd)

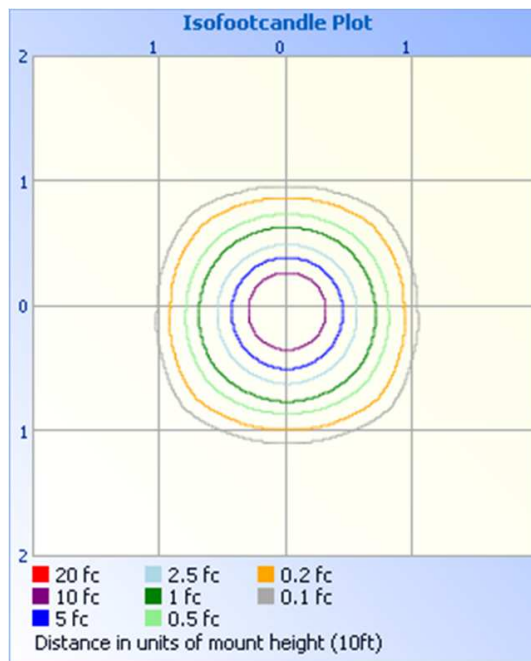
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



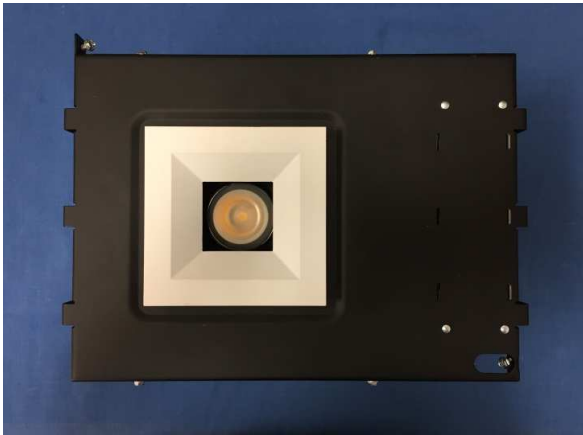
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	781.2	82.5
0-40	902.7	95.3
0-60	945.8	99.8
60-90	1.7	0.2
0-90	947.4	100.0
90-180	0.0	0.0
0-180	947.4	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	162.0	17.1
10-20	350.3	37.0
20-30	268.9	28.4
30-40	121.4	12.8
40-50	35.6	3.8
50-60	7.6	0.8
60-70	1.1	0.1
70-80	0.4	0.0
80-90	0.2	0.0

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:



Jehue Williams
Associate Engineer
Lighting Division

Attachment: None

Report Reviewed By:



Timothy Quigley
Engineer
Lighting Division