



REPORT

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

Project No. G102171228

Date: April 26, 2017

REPORT NO. 102171228CHI-099

TEST OF ONE LED RECESSED (65° 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 04062017115221Q.

DATES OF TESTS: April 18, 2017 through April 26, 2017.

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SUMMARY

Model No.:	925003
Description:	LED recessed (65° LENS)

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	1022	988.1
Total Power (W)	11.92	11.92
Luminaire Efficacy (LPW)	85.74	82.89

Criteria	Result
Power Factor at 120Vac	0.988
Power Factor at Vac	0.940
Current ATHD % at 120Vac	12.81
Current ATHD % at Vac	15.85
Correlated Color Temperature (CCT - K)	3003
Color Rendering Index (CRI - Ra)	91.7
Color Rendering Index (CRI - R9)	66.1
DUV	0.000
Chromaticity Coordinate (x)	0.437
Chromaticity Coordinate (y)	0.404
Chromaticity Coordinate (u')	0.250
Chromaticity Coordinate (v')	0.521

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	04/26/17
Omega Newport Thermometer	DPI8-C24	146920	10/07/16	10/07/17	04/26/17
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	04/26/17
Newport Thermohygrometer	iServer	146956	01/06/17	01/06/18	04/26/17
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	04/26/17
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/K Temperature 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

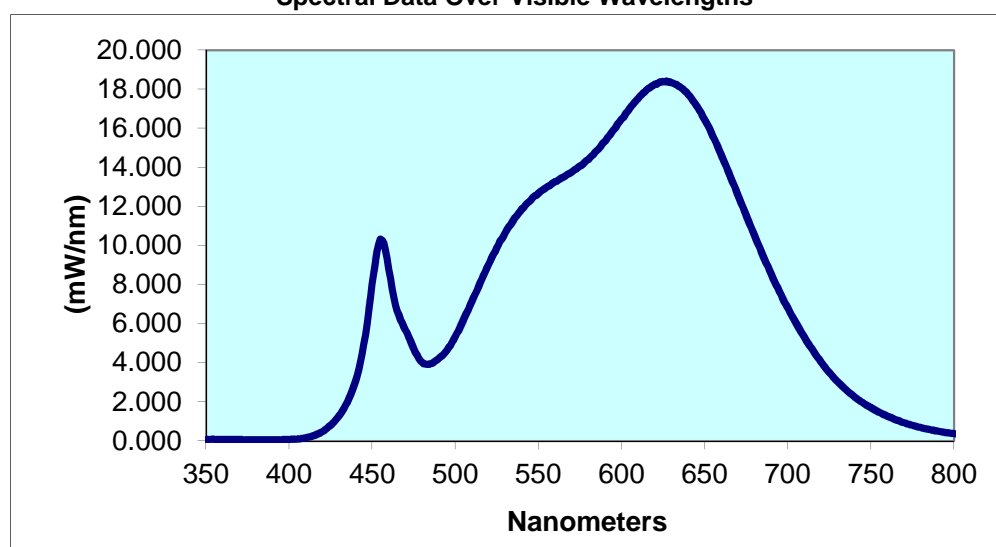
Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method

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)
04062017115221Q	Up	120.0 277.0	100.6 47.72	11.92 12.43	0.988 0.940	12.81 15.85	1022	85.74
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')	
3003	91.7	66.1	0.000	0.437	0.404	0.250	0.521	

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.070	440	3.084	530	10.64	620	18.25	710	5.307
355	0.077	445	4.946	535	11.30	625	18.40	715	4.647
360	0.072	450	8.022	540	11.87	630	18.34	720	4.039
365	0.068	455	10.32	545	12.29	635	18.15	725	3.498
370	0.070	460	8.799	550	12.68	640	17.74	730	3.034
375	0.057	465	6.670	555	12.99	645	17.16	735	2.622
380	0.053	470	5.694	560	13.27	650	16.45	740	2.269
385	0.051	475	4.745	565	13.50	655	15.59	745	1.967
390	0.053	480	4.030	570	13.76	660	14.64	750	1.703
395	0.058	485	3.956	575	14.07	665	13.64	755	1.470
400	0.072	490	4.213	580	14.40	670	12.59	760	1.270
405	0.097	495	4.637	585	14.86	675	11.55	765	1.087
410	0.160	500	5.336	590	15.33	680	10.51	770	0.931
415	0.275	505	6.187	595	15.90	685	9.513	775	0.798
420	0.481	510	7.141	600	16.46	690	8.560	780	0.687
425	0.800	515	8.113	605	17.02	695	7.655		
430	1.279	520	9.022	610	17.52	700	6.812		
435	1.985	525	9.874	615	17.95	705	6.030		

Spectral Data Over Visible Wavelengths



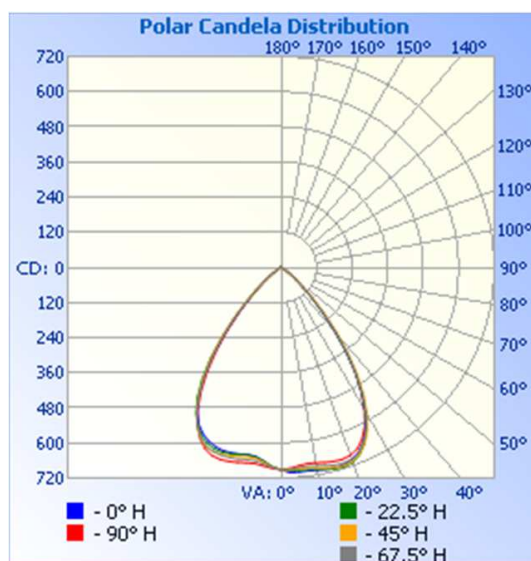
RESULTS OF TEST (cont'd)

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)
04062017115221Q	Up	120.0	100.6	11.92	0.988	988.1	82.89

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	691	691	691	691	691
5	701	695	691	687	680
10	703	701	696	688	677
15	708	711	707	699	686
20	698	708	706	697	683
25	658	665	667	658	647
30	568	572	580	572	563
35	436	438	449	442	436
40	275	282	296	288	285
45	145	149	161	154	150
50	68	66	72	68	67
55	28	29	30	29	28
60	3	6	13	9	5
65	0	0	3	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

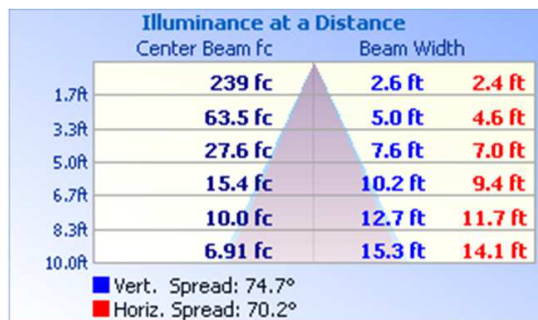


RESULTS OF TEST (cont'd)

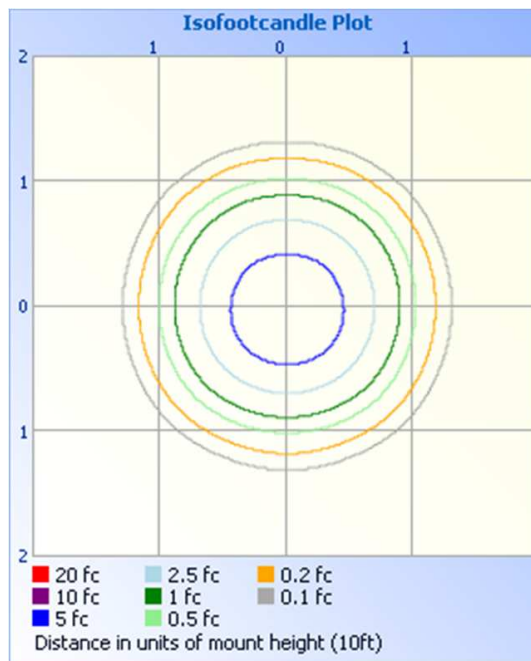
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



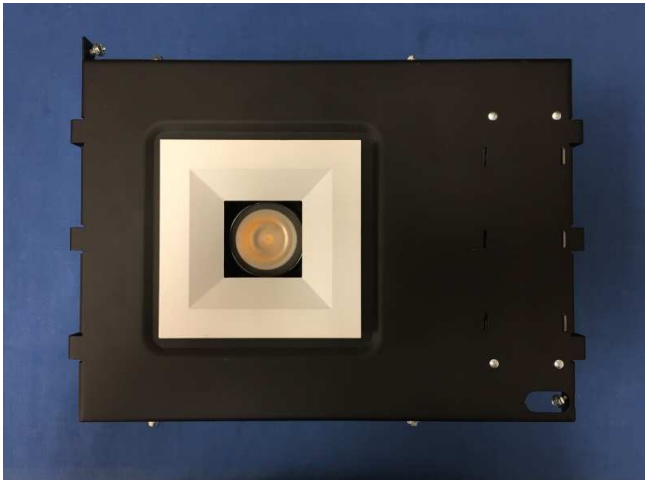
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	553.9	56.1
0-40	827.8	83.8
0-60	985.2	99.7
60-90	2.9	0.3
0-90	988.1	100.0
90-180	0.0	0.0
0-180	988.1	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	64.8	6.6
10-20	193.8	19.6
20-30	295.2	29.9
30-40	273.9	27.7
40-50	127.7	12.9
50-60	29.7	3.0
60-70	2.5	0.3
70-80	0.3	0.0
80-90	0.1	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