



# REPORT

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

Project No. G102171228

Date: April 19, 2017

REPORT NO. 102171228CHI-098

TEST OF ONE LED RECESSED LUMINAIRE (20° 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 04062017115221P.

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

---

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to copy or distribute this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

## SUMMARY

Model No.:	925003
Description:	LED recessed luminaire (20° Lens)

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	950.3	927.6
Total Power (W)	11.92	11.92
Luminaire Efficacy (LPW)	79.72	77.82

Criteria	Result
Power Factor at 120Vac	0.988
Power Factor at Vac	0.940
Current ATHD % at 120Vac	12.87
Current ATHD % at Vac	15.82
Correlated Color Temperature (CCT - K)	2996
Color Rendering Index (CRI - Ra)	91.6
Color Rendering Index (CRI - R9)	65.9
DUV	0.000
Chromaticity Coordinate (x)	0.437
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

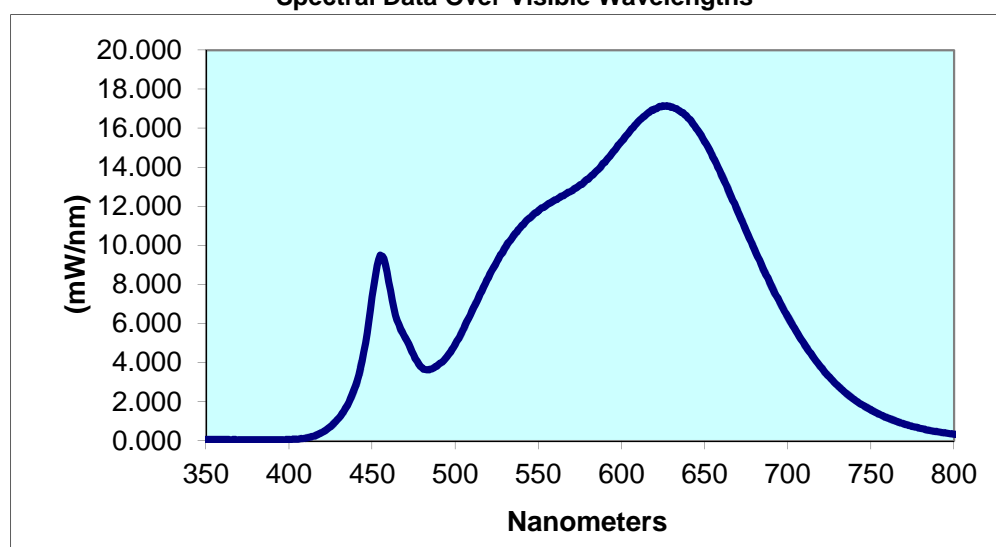
### Photometric and Electrical Measurements at Ambient Temperature (25°C +/- 1°C) - Integrating Sphere Method

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)
04062017115221P	Up	120.0 277.0	100.5 47.71	11.92 12.43	0.988 0.940	12.87 15.82	950.3	79.72
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')	
2996	91.6	65.9	0.000	0.437	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	0.068	440	2.839	530	9.896	620	16.99	710	4.947
355	0.068	445	4.545	535	10.50	625	17.15	715	4.335
360	0.071	450	7.380	540	11.03	630	17.08	720	3.767
365	0.058	455	9.504	545	11.42	635	16.90	725	3.275
370	0.054	460	8.137	550	11.79	640	16.53	730	2.834
375	0.054	465	6.183	555	12.07	645	15.99	735	2.448
380	0.049	470	5.278	560	12.33	650	15.32	740	2.119
385	0.049	475	4.402	565	12.55	655	14.54	745	1.832
390	0.049	480	3.747	570	12.80	660	13.66	750	1.591
395	0.054	485	3.671	575	13.10	665	12.72	755	1.379
400	0.066	490	3.910	580	13.40	670	11.74	760	1.185
405	0.091	495	4.308	585	13.83	675	10.76	765	1.019
410	0.146	500	4.953	590	14.27	680	9.805	770	0.872
415	0.253	505	5.733	595	14.81	685	8.873	775	0.747
420	0.442	510	6.620	600	15.32	690	7.980	780	0.641
425	0.736	515	7.523	605	15.84	695	7.144		
430	1.179	520	8.368	610	16.33	700	6.353		
435	1.828	525	9.172	615	16.72	705	5.625		

**Spectral Data Over Visible Wavelengths**



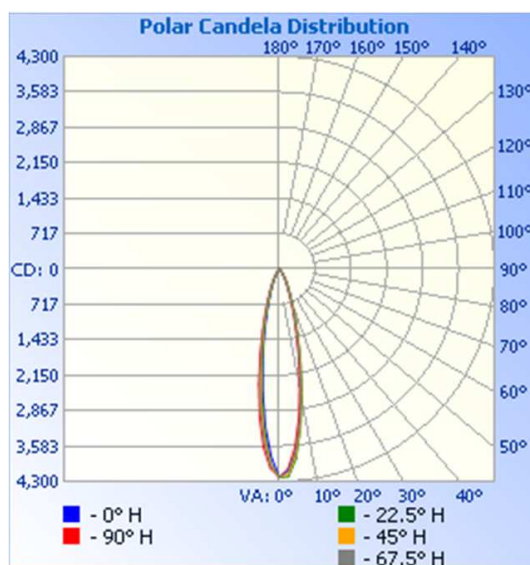
# RESULTS OF TEST (cont'd)

## 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)
04062017115221P	Up	120.0	100.5	11.92	0.988	927.6	77.82

## Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	4213	4213	4213	4213	4213
5	3746	3850	3797	3720	3620
10	2524	2583	2562	2479	2359
15	1429	1469	1454	1376	1292
20	770	787	786	731	670
25	435	448	439	400	358
30	252	256	251	224	192
35	132	135	136	116	99
40	65	69	71	60	51
45	30	36	38	31	24
50	11	15	20	13	9
55	5	5	9	4	4
60	2	2	3	2	2
65	1	1	1	1	1
70	0	0	1	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

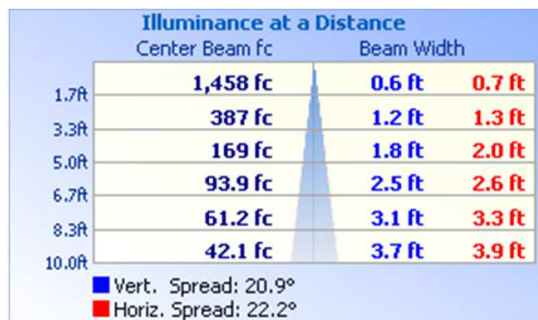


# RESULTS OF TEST (cont'd)

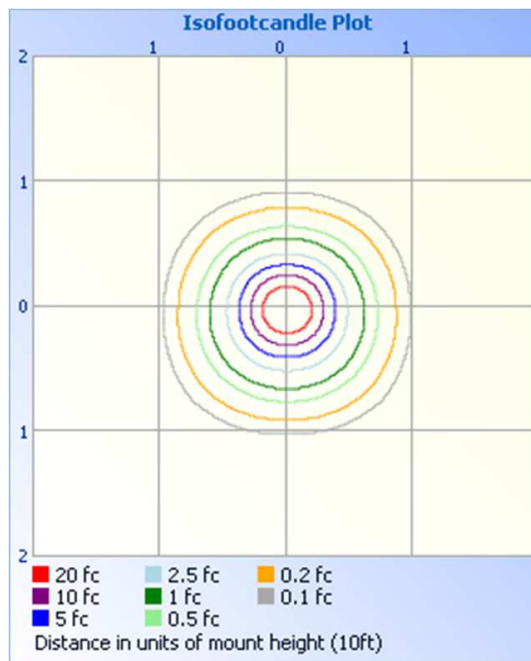
## Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



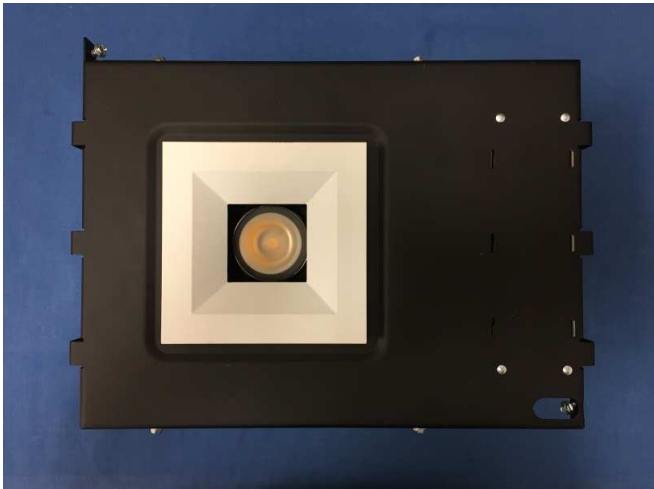
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	829.8	89.5
0-40	897.9	96.8
0-60	925.8	99.8
60-90	1.8	0.2
0-90	927.6	100.0
90-180	0.0	0.0
0-180	927.6	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	298.0	32.1
10-20	359.1	38.7
20-30	172.7	18.6
30-40	68.1	7.3
40-50	22.7	2.4
50-60	5.2	0.6
60-70	1.1	0.1
70-80	0.5	0.1
80-90	0.3	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