REPORT

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

Project No. G103017649 Date: August 30, 2017

REPORT NO. 103017649CHI-048

TEST OF ONE LED DOWNLIGHT

MODEL NO. E3SFF-XI3043AN
LED MODEL NO. XICATO XTM STANDARD 2000LM
DRIVER MODEL NO. 255LEDDA18W440

RENDERED TO

GENERATION BRANDS
7400 LINDER AVE.
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 Qu-00779063-2.

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 E3SFF-XI3043AN . The sample was received by Intertek on August 23, 2017, in undamaged condition and one sample was tested as received. The sample designation was 08232017045431-048.

DATES OF TESTS: August 29, 2017 through August 30, 2017.

SUMMARY

Model No.:	E3SFF-XI3043AN
Description:	LED Downlight

	Result	
Criteria	Sphere	Goniometer
Total Lumen Output (Lumens)	1129	1080
Total Power (W)	14.35	14.31
Luminaire Efficacy (LPW)	78.68	75.47

Criteria	Result
Power Factor	0.954
Current ATHD %	16.96
Correlated Color Temperature (CCT - K)	2973
Color Rendering Index (CRI - Ra)	82.1
Color Rendering Index (CRI - R9)	15.0
DUV	0.001
Chromaticity Coordinate (x)	0.440
Chromaticity Coordinate (y)	0.408
Chromaticity Coordinate (u')	0.251
Chromaticity Coordinate (v')	0.523

EQUIPMENT LIST

Equipment Used	Model Number	Control Number	Last Date Calibrated	Calibration Due Date	Date Used
Yokogawa Power Meter	WT210	146919	07/10/17	07/10/18	08/29/17
Omega Newport Thermometer	DPI8-C24	146920	10/07/16	10/07/17	08/29/17
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	08/29/17
Newport Thermohygrometer	iServer	146956	01/06/17	01/06/18	08/29/17
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	08/29/17
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	08/30/17
3 Meter Sphere	SPR600	CHI0088	VBU	VBU	08/30/17
Elgar AC Power Supply	CW1251M	146112	VBU	VBU	08/30/17
Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU	08/30/17
Newport Humidity Recorder	iTHX-SD	146961	07/14/17	07/14/18	08/30/17
Yokogawa Power Meter	WT1600	146768	01/10/17	01/10/18	08/30/17
Extech K Temperature Meter	SD200	CHI0207	04/05/17	04/05/18	08/30/17

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 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 Yokogawa Power Analyzer.

Some graphics were created with Photometrics Plus software.

RESULTS OF TEST

Photometric and Electrical Measurements at Ambient Temperature (25℃ +/- 1℃) - Integrating Sphere Met hod

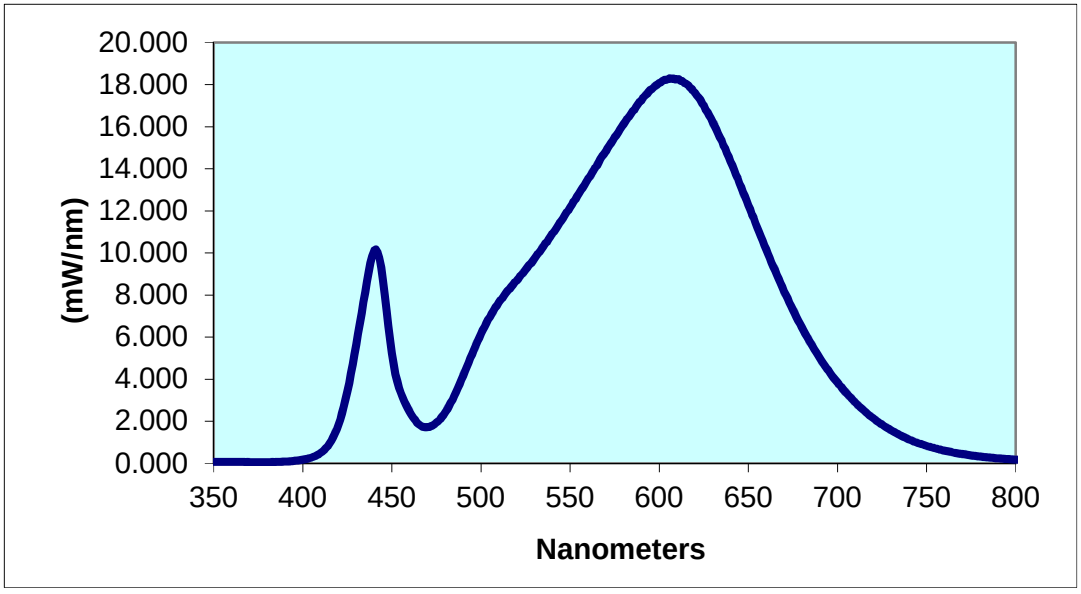
Intertek Sample No.	Base Orientation	Input Voltage {VAC}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
08232017045431-048	Up	120.0	125.4	14.35	0.954	16.96	1129	78.68

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')
2973	82.1	15.0	0.001	0.440	0.408	0.251	0.523

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.066	440	10.12	530	9.729	620	17.62	710	2.898
355	0.073	445	8.732	535	10.31	625	17.01	715	2.502
360	0.070	450	5.242	540	10.91	630	16.21	720	2.154
365	0.073	455	3.360	545	11.51	635	15.33	725	1.850
370	0.063	460	2.445	550	12.17	640	14.35	730	1.579
375	0.062	465	1.864	555	12.83	645	13.32	735	1.346
380	0.063	470	1.723	560	13.51	650	12.27	740	1.144
385	0.066	475	1.941	565	14.14	655	11.21	745	0.975
390	0.088	480	2.435	570	14.83	660	10.17	750	0.834
395	0.117	485	3.207	575	15.49	665	9.166	755	0.714
400	0.173	490	4.170	580	16.11	670	8.197	760	0.609
405	0.282	495	5.178	585	16.72	675	7.308	765	0.521
410	0.494	500	6.165	590	17.23	680	6.474	770	0.446
415	0.937	505	6.954	595	17.75	685	5.708	775	0.380
420	1.822	510	7.640	600	18.07	690	5.012	780	0.326
425	3.413	515	8.207	605	18.26	695	4.401		
430	5.650	520	8.677	610	18.26	700	3.840		
435	8.136	525	9.193	615	18.04	705	3.346		

Spectral Data Over Visible Wavelengths



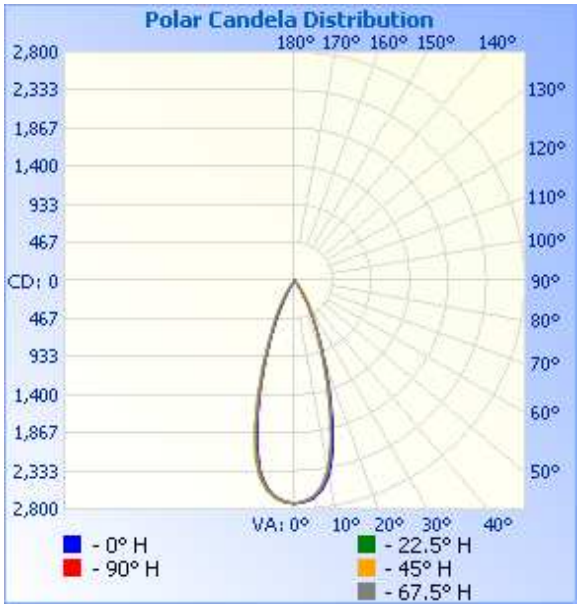
RESULTS OF TEST (cont'd)

Photometric and Electrical Measurements at Ambient Temperature (25℃ +/- 1℃) – 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)
08232017045431-048	Up	120.1	124.9	14.31	0.954	1080	75.47

Intensity (Candlepower) Summary at 25℃ - Candelas

Angle	0	22.5	45	67.5	90
0	2733	2733	2733	2733	2733
5	2684	2654	2654	2653	2658
10	2427	2340	2345	2363	2382
15	1793	1676	1690	1704	1742
20	1100	1014	1010	1023	1055
25	611	597	604	579	562
30	298	322	379	292	242
35	87	124	200	101	50
40	13	20	65	15	7
45	4	4	8	3	3
50	3	2	2	2	2
55	2	1	2	2	2
60	0	0	0	0	0
65	0	0	0	0	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

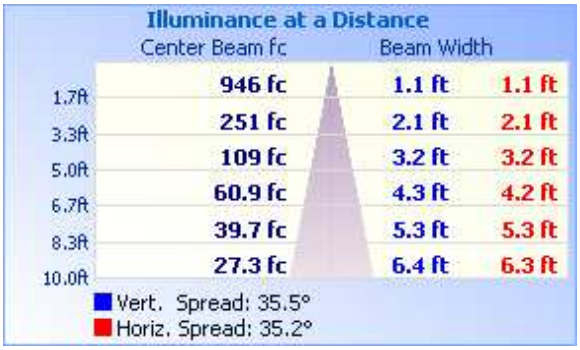


RESULTS OF TEST (cont'd)

Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



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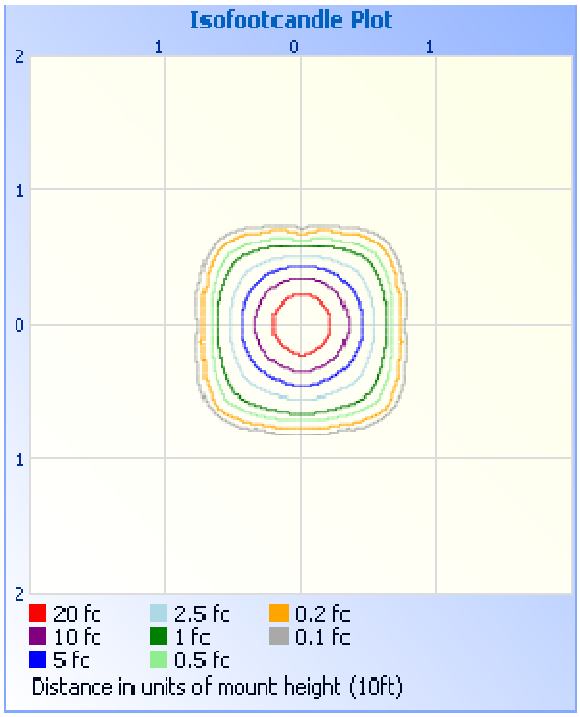

Zonal Lumen Summary and Percentages at 25℃

Zone	Lumens	% Luminaire
0-30	996.4	92.2
0-40	1074	99.4
0-60	1080	100.0
60-90	0.0	0.0
0-90	1080	100.0
90-180	0.0	0.0
0-180	1080	100.0

Zonal Lumens and Percentages at 25℃

Zone	Lumens	% Luminaire
0-10	245.1	22.7
10-20	473.6	43.8
20-30	277.7	25.7
30-40	77.4	7.2
40-50	5.3	0.5
50-60	1.3	0.1
60-70	0.0	0.0
70-80	0.0	0.0
80-90	0.0	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:

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Report Reviewed By:

Timothy Quigley
Engineer
Lighting Division

Attachment: None