



REPORT

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

Project No. G103017649

Date: August 30, 2017

REPORT NO. 103017649CHI-050

TEST OF ONE LED DOWNLIGHT

MODEL NO. E3SFF-XA3043AN
LED MODEL NO. XICATO XTM ARTIST 3000LM
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-XA3043AN . The sample was received by Intertek on August 23, 2017, in undamaged condition and one sample was tested as received. The sample designation was 08232017045431-050.

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



SUMMARY

Model No.:	E3SFF-XA3043AN
Description:	LED Downlight

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	944.6	911.2
Total Power (W)	15.59	15.56
Luminaire Efficacy (LPW)	60.59	58.56

Criteria	Result
Power Factor	0.958
Current ATHD %	16.55
Correlated Color Temperature (CCT - K)	2973
Color Rendering Index (CRI - Ra)	97.1
Color Rendering Index (CRI - R9)	97.1
DUV	0.000
Chromaticity Coordinate (x)	0.438
Chromaticity Coordinate (y)	0.404
Chromaticity Coordinate (u')	0.252
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	07/10/17	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°C +/- 1°C) - Integrating Sphere Method

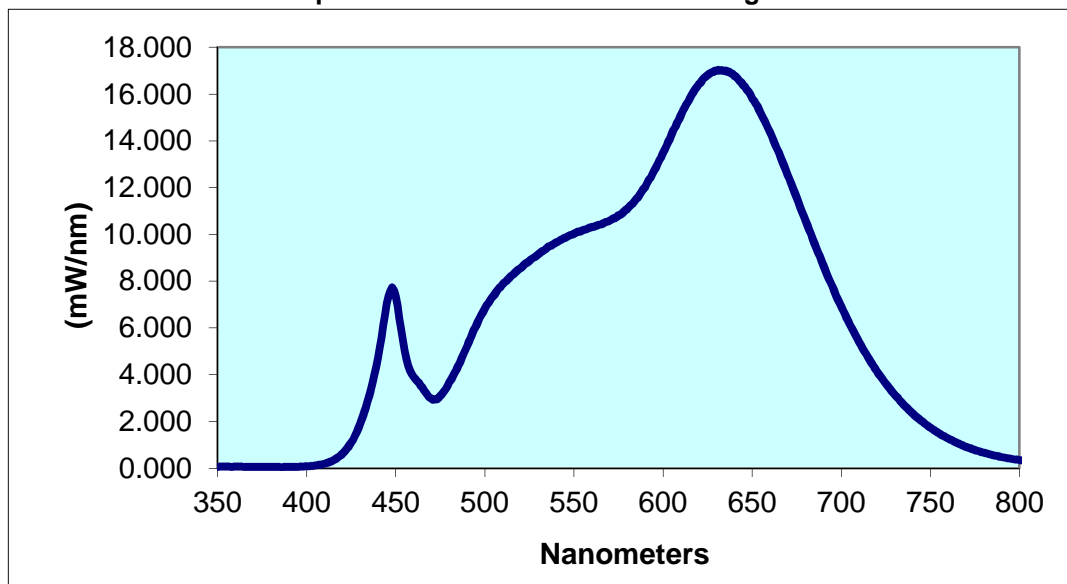
Intertek Sample No.	Base Orientation	Input Voltage {VAC}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
08232017045431-050	Up	120.0	135.5	15.59	0.958	16.55	944.6	60.59

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	97.1	97.1	0.000	0.438	0.404	0.252	0.522

Spectral Distribution over Visible Wavelengths

nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm	nm	mW/nm
350	0.056	440	4.726	530	9.149	620	16.42	710	5.403
355	0.064	445	7.051	535	9.433	625	16.82	715	4.741
360	0.061	450	7.364	540	9.657	630	17.00	720	4.147
365	0.056	455	5.037	545	9.848	635	17.01	725	3.614
370	0.054	460	3.910	550	10.02	640	16.78	730	3.148
375	0.047	465	3.444	555	10.19	645	16.38	735	2.725
380	0.046	470	2.976	560	10.32	650	15.82	740	2.350
385	0.047	475	3.088	565	10.42	655	15.15	745	2.020
390	0.052	480	3.661	570	10.59	660	14.36	750	1.739
395	0.058	485	4.372	575	10.82	665	13.50	755	1.489
400	0.078	490	5.215	580	11.09	670	12.54	760	1.270
405	0.117	495	6.073	585	11.52	675	11.57	765	1.083
410	0.192	500	6.833	590	12.03	680	10.58	770	0.917
415	0.342	505	7.382	595	12.74	685	9.604	775	0.778
420	0.612	510	7.873	600	13.49	690	8.665	780	0.662
425	1.088	515	8.239	605	14.29	695	7.763		
430	1.890	520	8.554	610	15.09	700	6.906		
435	3.071	525	8.865	615	15.82	705	6.126		

Spectral Data Over Visible Wavelengths



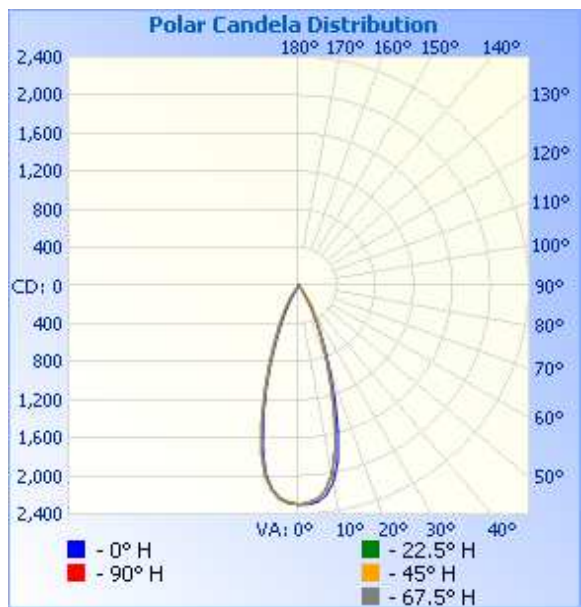
RESULTS OF TEST (cont'd)

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)
08232017045431-050	Up	120.0	135.2	15.56	0.959	911.2	58.56

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	2298	2298	2298	2298	2298
5	2282	2246	2251	2252	2254
10	2094	2014	2010	2007	2007
15	1584	1470	1462	1458	1457
20	970	883	885	882	889
25	527	508	517	493	477
30	267	286	331	256	215
35	87	116	181	90	48
40	13	20	60	13	6
45	3	3	7	3	3
50	2	2	2	2	2
55	0	0	0	0	0
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

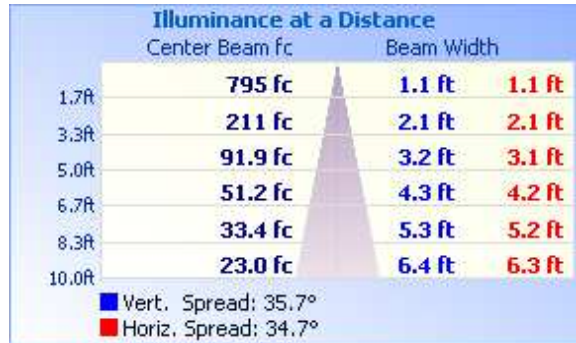


RESULTS OF TEST (cont'd)

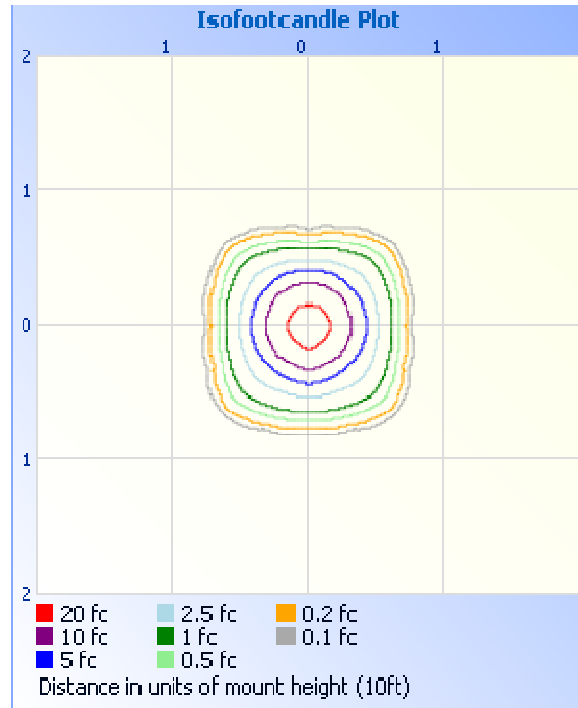
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	838.1	92.0
0-40	906.5	99.5
0-60	911.2	100.0
60-90	0.0	0.0
0-90	911.2	100.0
90-180	0.0	0.0
0-180	911.2	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	207.0	22.7
10-20	397.9	43.7
20-30	233.3	25.6
30-40	68.4	7.5
40-50	4.5	0.5
50-60	0.2	0.0
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:



Hector Huitron
Associate Engineer
Lighting Division

Attachment: None

Report Reviewed By:



Timothy Quigley
Engineer
Lighting Division