



# REPORT

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

Project No. G103017649

Date: August 30, 2017

REPORT NO. 103017649CHI-051

TEST OF ONE LED DOWNLIGHT

MODEL NO. E4SF-XA3043AN  
LED MODEL NO. XICATO XTM ARTIST 3000LM  
DRIVER MODEL NO. 255LEDDA30W750

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 E4SF-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 08232017045431-051.

DATES OF TESTS: August 30, 2017



SUMMARY

Model No.:	E4SF-XA3043AN
Description:	LED Downlight

Criteria	Result	
	Sphere	Goniometer
Total Lumen Output (Lumens)	1927	1849
Total Power (W)	25.79	25.70
Luminaire Efficacy (LPW)	74.72	71.95

Criteria	Result
Power Factor	0.973
Current ATHD %	13.78
Correlated Color Temperature (CCT - K)	2968
Color Rendering Index (CRI - Ra)	96.6
Color Rendering Index (CRI - R9)	98.6
DUV	0.002
Chromaticity Coordinate (x)	0.437
Chromaticity Coordinate (y)	0.400
Chromaticity Coordinate (u')	0.252
Chromaticity Coordinate (v')	0.520

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	08/30/17
Omega Newport Thermometer	DPI8-C24	146920	10/07/16	10/07/17	08/30/17
LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU	08/30/17
Newport Thermohygrometer	iServer	146956	01/06/17	01/06/18	08/30/17
Pacific, AC power supply	118-ACX	CHI0358	VBU	VBU	08/30/17
Labsphere Spectroradiometer	CDS1100	CHI0091	VBU	VBU	08/30/17
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**

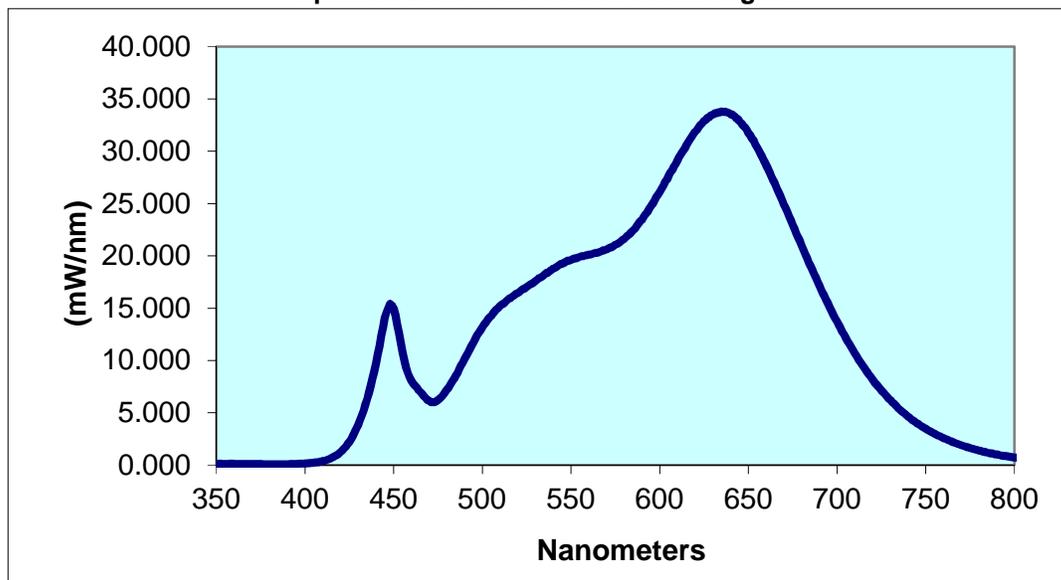
Intertek Sample No.	Base Orientation	Input Voltage {VAC}	Input Current (mA)	Input Power (Watts)	Input Power Factor	Current ATHD (%)	Luminous Flux (Lumens)	Lumen Efficacy (LPW)
08232017045431-051	Up	120.0	220.9	25.79	0.973	13.78	1927	74.72

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')
2968	96.6	98.6	0.002	0.437	0.400	0.252	0.520

**Spectral Distribution over Visible Wavelengths**

nm	mW/nm								
350	0.129	440	9.760	530	17.60	620	31.86	710	10.71
355	0.123	445	14.06	535	18.21	625	32.89	715	9.384
360	0.118	450	14.98	540	18.79	630	33.50	720	8.194
365	0.114	455	10.77	545	19.23	635	33.80	725	7.152
370	0.106	460	8.049	550	19.62	640	33.54	730	6.214
375	0.100	465	7.000	555	19.92	645	32.87	735	5.379
380	0.092	470	6.131	560	20.12	650	31.75	740	4.649
385	0.092	475	6.211	565	20.29	655	30.35	745	4.018
390	0.099	480	7.209	570	20.62	660	28.67	750	3.484
395	0.118	485	8.553	575	21.07	665	26.87	755	3.002
400	0.154	490	10.12	580	21.62	670	24.95	760	2.591
405	0.233	495	11.72	585	22.45	675	22.99	765	2.227
410	0.388	500	13.19	590	23.45	680	20.99	770	1.900
415	0.687	505	14.27	595	24.75	685	19.06	775	1.628
420	1.235	510	15.19	600	26.10	690	17.19	780	1.392
425	2.217	515	15.90	605	27.60	695	15.39		
430	3.859	520	16.43	610	29.10	700	13.70		
435	6.309	525	17.01	615	30.55	705	12.15		

**Spectral Data Over Visible Wavelengths**



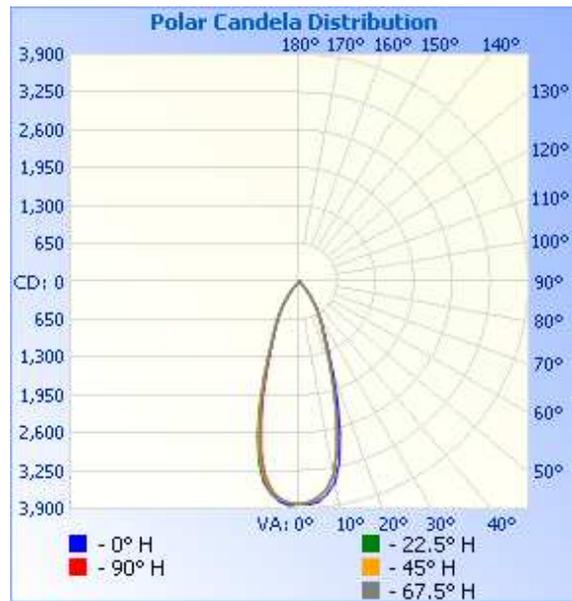
RESULTS OF TEST (cont'd)

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)
08232017045431-051	Up	120.0	218.8	25.70	0.979	1849	71.95

Intensity (Candlepower) Summary at 25°C - Candelas

Angle	0	22.5	45	67.5	90
0	3823	3823	3823	3823	3823
5	3797	3713	3716	3725	3741
10	3500	3360	3352	3352	3364
15	2692	2463	2452	2464	2514
20	1701	1526	1529	1556	1606
25	1024	954	967	990	1020
30	688	644	658	679	704
35	425	383	400	420	445
40	191	167	182	199	216
45	41	36	45	54	58
50	6	5	6	6	6
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

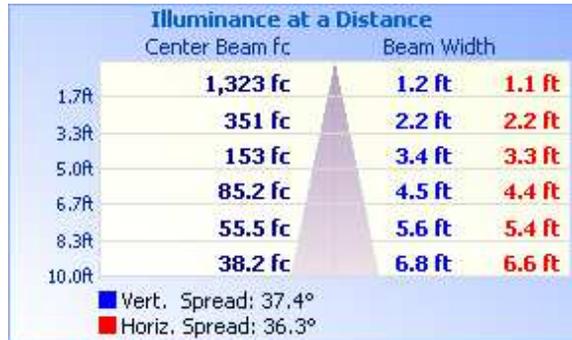


RESULTS OF TEST (cont'd)

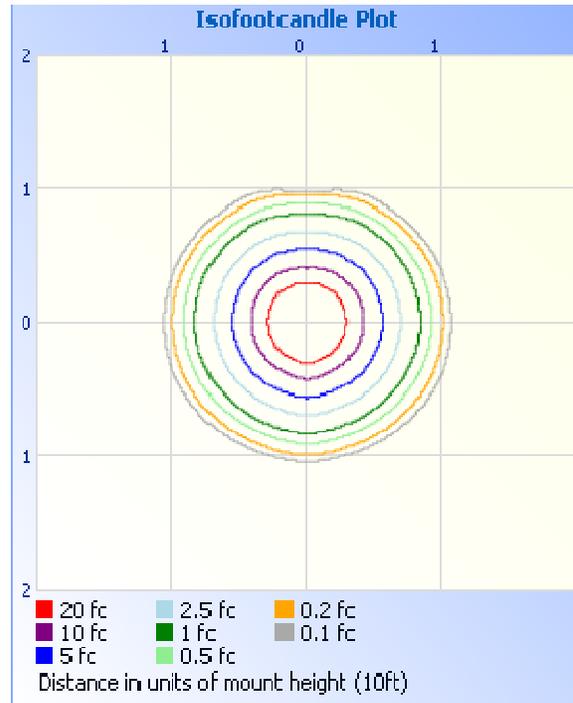
Illumination Plots

Mounting Height: 10 ft.

Illuminance - Cone of Light



Isoillumination Plot



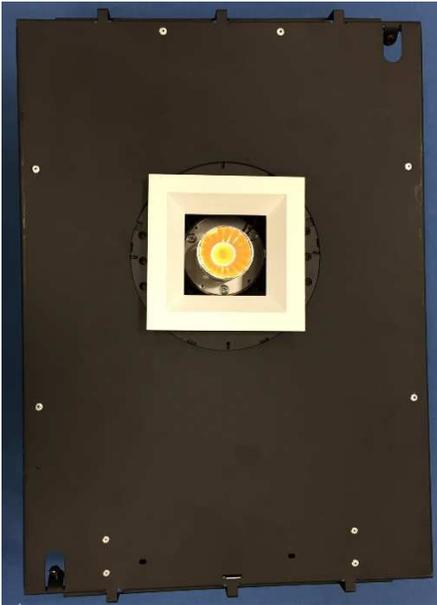
Zonal Lumen Summary and Percentages at 25°C

Zone	Lumens	% Luminaire
0-30	1526	82.6
0-40	1795	97.1
0-60	1849	100.0
60-90	0.0	0.0
0-90	1849	100.0
90-180	0.0	0.0
0-180	1849	100.0

Zonal Lumens and Percentages at 25°C

Zone	Lumens	% Luminaire
0-10	346.4	18.7
10-20	695.1	37.6
20-30	484.9	26.2
30-40	268.7	14.5
40-50	53.2	2.9
50-60	0.6	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