

Report of Test

LLI-17113-5

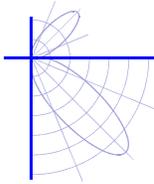
Vantage Lighting - 4" downlight luminaire. Product ID: A4VOFLEDU-4035K-L4060SCL
Unpainted formed steel housing with specular reflector and no lens.
54 LEDs in circular array mounted in plastic housing with flat white plastic lens.
Philips Advance Xitanium LED driver. Model: XI050C140V054DSM1 set to 1400mA.
Operating at 120 VAC and 60 Hz



Performance Summary

Total Light Output	4126 lm	Min Power Factor	0.99 @ 277 V
Luminaire Power	58.0 W	Max THD(i)*	3.1 % @ 277 V
Luminous Efficacy	71.1 lm/W		
CCT	3520 K		
CIE(x,y) 1931	(0.406, 0.393)		
CRI	83		

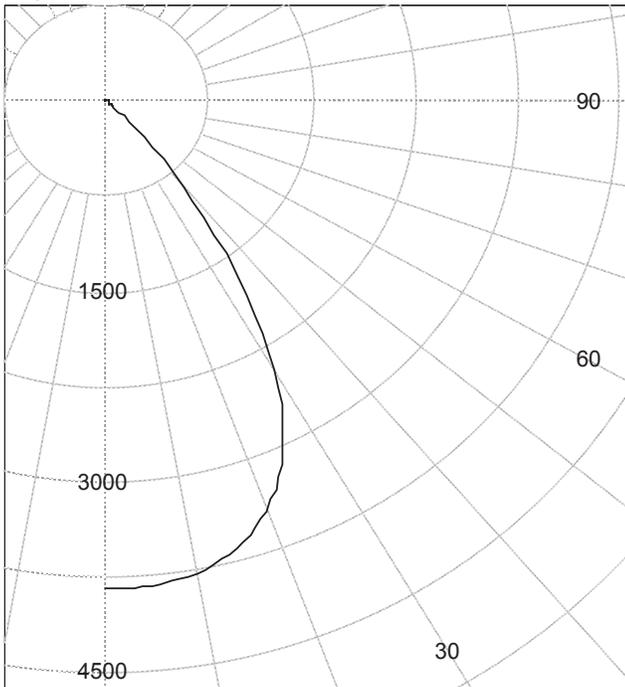
PREPARED FOR : Lexington Lighting Group, East Providence, RI



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Legend: All planes - Solid (cd)



(Rotational symmetry)

INTENSITY SUMMARY (cd)

Gamma	All Planes	Flux (lm)	Gamma	C0	Flux (lm)
0	3843		90	0	
5	3837	365	95	0	0
10	3784		100	0	0
15	3647	1025	105	0	0
20	3429		110	0	0
25	3036	1375	115	0	0
30	2443		120	0	0
35	1666	1021	125	0	0
40	882		130	0	0
45	318	279	135	0	0
50	79		140	0	0
55	37	35	145	0	0
60	24		150	0	0
65	16	17	155	0	0
70	11		160	0	0
75	7	8	165	0	0
80	4		170	0	0
85	1	2	175	0	0
90	0		180	0	0

ZONAL FLUX AND PERCENTAGES

Zone	Flux (lm)	%Lamp	%Luminaire
0-30	2765	N / A	67.0
0-40	3786	N / A	91.8
0-60	4100	N / A	99.4
0-90	4126	N / A	100.0
40-90	340	N / A	8.2
60-90	26	N / A	0.6
90-180	0	N / A	0.0
0-180	4126	N / A	100.0

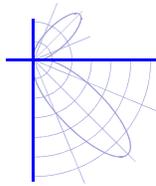
Total Light Output = 4,126 lm

Signed:

Ryder Tunney
Ryder Tunney
Authorized Signatory

Date of test 5-May-2017
Date of report 18-May-2017

RT

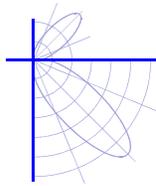


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Intensity (cd) and Flux (lm) data

Gamma	Intensity	Flux	Gamma	Intensity	Flux
0.0	3843		90.0	0	
2.5	3842		92.5	0	
5.0	3837	365	95.0	0	
7.5	3817		97.5	0	0
10.0	3784		100.0	0	
12.5	3727		102.5	0	
15.0	3647	1025	105.0	0	
17.5	3554		107.5	0	0
20.0	3429		110.0	0	
22.5	3258		112.5	0	
25.0	3036	1375	115.0	0	
27.5	2764		117.5	0	0
30.0	2443		120.0	0	
32.5	2078		122.5	0	
35.0	1666	1021	125.0	0	
37.5	1229		127.5	0	0
40.0	882		130.0	0	
42.5	560		132.5	0	
45.0	318	279	135.0	0	
47.5	151		137.5	0	0
50.0	79		140.0	0	
52.5	46		142.5	0	
55.0	37	35	145.0	0	
57.5	30		147.5	0	0
60.0	24		150.0	0	
62.5	20		152.5	0	
65.0	16	17	155.0	0	
67.5	14		157.5	0	0
70.0	11		160.0	0	
72.5	9		162.5	0	
75.0	7	8	165.0	0	
77.5	5		167.5	0	0
80.0	4		170.0	0	
82.5	3		172.5	0	
85.0	1	2	175.0	0	
87.5	0		177.5	0	0
90.0	0		180.0	0	



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LM-79 Performance Data

Spectral	CIE 1931 (x, y) ⁽¹⁾	(0.406, 0.393)
	CIE 1976 (u', v') ⁽¹⁾	(0.235, 0.512)
	Correlated Color Temperature (CCT) ⁽¹⁾	3520 K
	Spatial Δ (u', v') Uniformity ⁽²⁾	0.0008
	Color Rendering Index (Ra) ⁽¹⁾	83.1
	Special CRI 9 (R ₉) ^{(1),(3)}	10.1
	Distance from Planckian Locus (Duv) ^{(1),(3)}	0.0012
	Scotopic/Photopic Ratio ^{(1),(3)}	1.55

Electrical	Voltage	120.0 V	(Setpoint 1)
	Frequency	60.0 Hz	
	Current	0.485 A	
	Power	58.0 W	
	Power Factor	0.997	
	Current THD	0.7 %	
	Voltage	277.0 V	(Setpoint 2)
	Frequency	60.0 Hz	
	Current	0.208 A	
	Power	56.9 W	
	Power Factor	0.987	
Current THD	3.1 %		

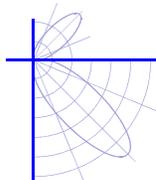
Performance data in accordance with IESNA LM-79-08. Spectral calculations are for a CIE 2° observer
Photometric and spectral values were measured at Setpoint 1

(1) Value is computed from the weighted average of the spatial measurements

(2) Value is the maximum deviation of the spatial u' and v' measurements from the weighted average

(3) Quantity is in addition to the scope of IESNA LM-79-08





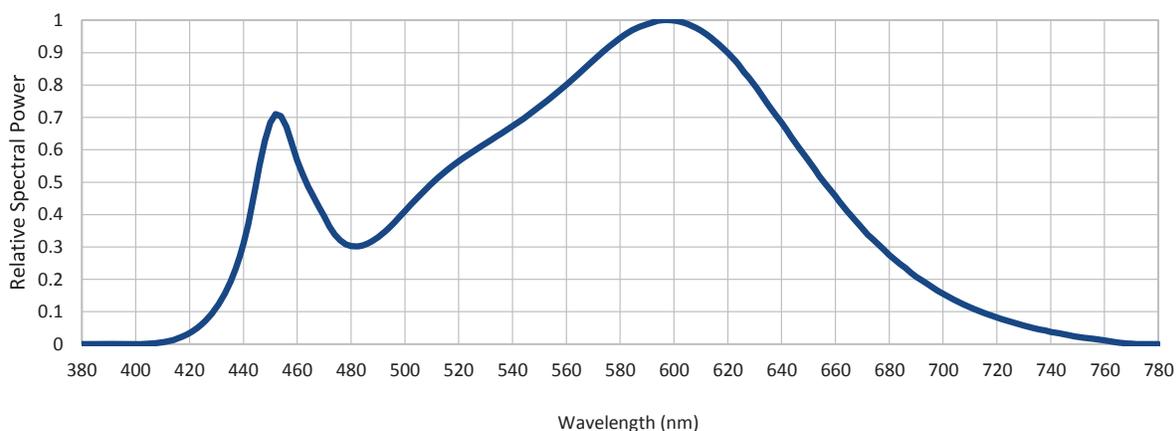
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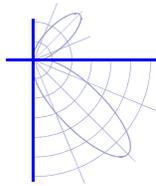
LM-79 Performance Data

Summary relative spectral irradiance distribution (wavelength – nm, irradiance – relative to peak = 1)

380	0.000	480	0.303	580	0.945	680	0.275
385	0.000	485	0.307	585	0.971	685	0.241
390	0.000	490	0.330	590	0.987	690	0.208
395	0.000	495	0.366	595	0.999	695	0.182
400	0.000	500	0.411	600	0.999	700	0.156
405	0.001	505	0.455	605	0.988	705	0.134
410	0.005	510	0.496	610	0.968	710	0.114
415	0.016	515	0.532	615	0.937	715	0.097
420	0.035	520	0.564	620	0.899	720	0.082
425	0.066	525	0.593	625	0.851	725	0.069
430	0.114	530	0.620	630	0.799	730	0.058
435	0.191	535	0.646	635	0.741	735	0.047
440	0.311	540	0.673	640	0.684	740	0.038
445	0.506	545	0.702	645	0.623	745	0.030
450	0.683	550	0.733	650	0.567	750	0.023
455	0.687	555	0.766	655	0.509	755	0.017
460	0.567	560	0.802	660	0.457	760	0.012
465	0.472	565	0.839	665	0.404	765	0.005
470	0.395	570	0.875	670	0.357	770	0.002
475	0.329	575	0.912	675	0.315	775	0.000
						780	0.000



The relative spectral power distribution combines the weighted spectral power distributions of all spatial measurements.



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LM-79 Performance Data

Spatial measurements

Vert. angle (°)	CIE 1976 (u',v') coordinates	
	Horiz. 0° plane	Horiz. 90° plane
0.0	(0.235, 0.513)	(0.235, 0.513)
5.0	(0.235, 0.513)	(0.235, 0.513)
10.0	(0.235, 0.513)	(0.235, 0.513)
15.0	(0.235, 0.513)	(0.235, 0.512)
20.0	(0.235, 0.513)	(0.235, 0.512)
25.0	(0.235, 0.512)	(0.235, 0.512)
30.0	(0.234, 0.512)	(0.234, 0.512)
35.0	(0.234, 0.512)	(0.234, 0.512)
40.0	(0.234, 0.512)	(0.234, 0.512)
45.0	I <= 10% peak	I <= 10% peak

Spatial measurements

Vert. angle (°)	CIE 1976 (u',v') coordinates	
	Horiz. 0° plane	Horiz. 90° plane
45.0	I <= 10% peak	I <= 10% peak
50.0	I <= 10% peak	I <= 10% peak
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

Test procedure

All measurements were performed in an environmentally controlled laboratory employing suitable baffling to minimize stray light. The sample was mounted in its normal operating orientation on a rotating mirror goniophotometer and operated from a stabilized supply. The photometric output was monitored and measurements were performed once stability was achieved.

The goniophotometer was used to measure the spatial distribution of both luminous intensity and, in conjunction with a spectroradiometer, spectral irradiance. The distribution locus comprises points in two or more planes (as indicated in the table above) at no more than 10° vertical intervals. The CIE (x,y) coordinates and other derived metrics (CIE (u', v'), CCT and CRI) are calculated from the weighted sum (weighted for intensity and represented solid angle) of the measured spectral irradiances.

Sample Orientation Horizontal Stabilization & total operation time 18.25 / 20.0 hours

Equipment and uncertainties

LightLab International R80A C-gamma rotating mirror goniophotometer with a test distance of 8 m.

Luminous Intensity ± 4 % Temperature ± 1 °C
Luminous Flux ± 4 % Luminous Efficacy ± 4.5 %
Horiz., Vert. Angles ± 0.25°

PhotoResearch PR-670 spectroradiometer (grating with 380 - 780 nm range, 2 nm / pixel, 5 nm bandwidth, incandescent/halogen calibration source). Measured at a distance from the sample deemed >5 times the maximum observed luminous opening dimension.

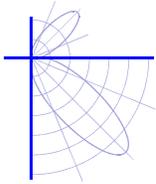
CIE (x, y) coordinates ± 0.003 CCT ± 100 K
CIE (u', v') coordinates ± 0.002 CRI (Ra) ± 2
Spatial Δ (u', v') uniformity ± 0.001 Scotopic / Photopic Ratio * ± 0.02
Rel. Spectral Irradiance * ± 2 % R9 * ± 2
Duv * ± 5E-04

Yokogawa WT210 power meter connected in circuit to the sample electrical supply

Voltage ± 0.5 % Frequency * ± 0.1 Hz
Current ± 0.5 % Power ± 0.5 %
Current THD * ± 3 % Power Factor ± 0.02

This report contains data that are not covered by the NVLAP accreditation. Quantities marked with * are not covered.

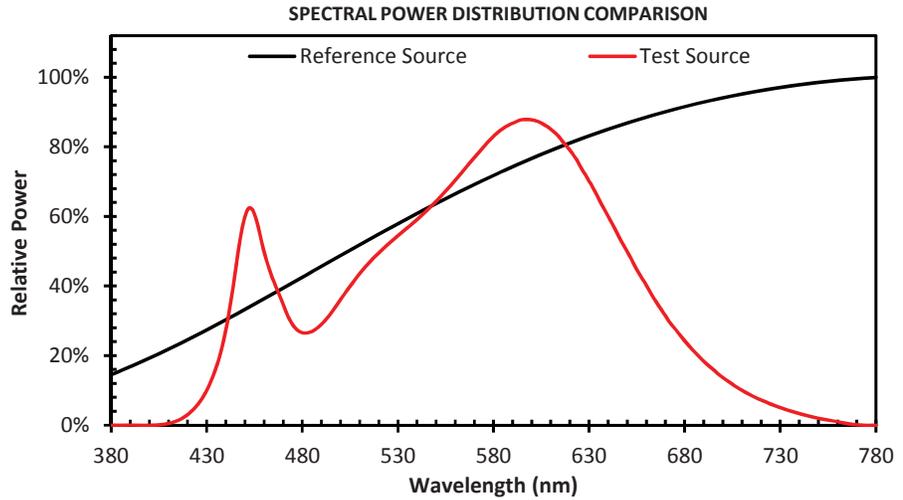
Calculator / report version 1.0.7 / 5.7 (30th Jan 2017)



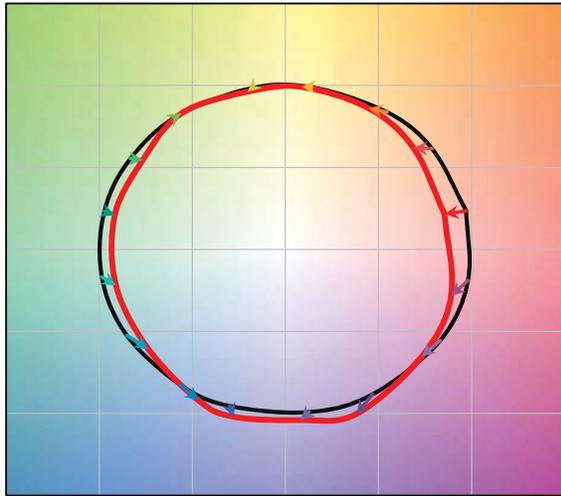
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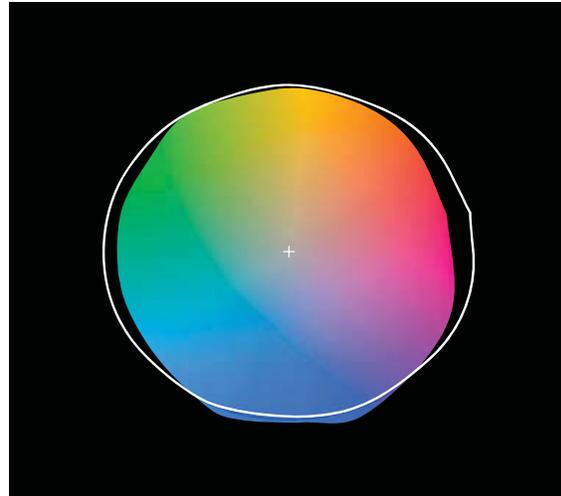
R_f	83
R_g	94



COLOR VECTOR GRAPHIC

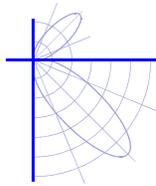


COLOR DISTORTION GRAPHIC



— Reference Illuminant — Test Source

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Test Distance 8.0 m
Test Temperature 24.8 °C

Notes The laboratory has not participated in the selection of samples to be tested. All testing is performed on the understanding that the significance of the report is limited to the extent that the test sample is representative of production units.

Tested in accordance with the applicable sections of publications: IES LM-79-08 (Sec. 12), IES LM-16-93, IES LM-58-13, CIE 13.3:1995, CIE 15:2004, ANSI C78.377:2011, ANSI C82.77:2002.

The luminous intensity values, and other derived quantities, contained in this report are based on the absolute data, as measured.

Prorating the performance of the sample for the use of other component combinations (such as lamp / LED / Ballast / driver), or for use in different environmental conditions than that tested, may produce erroneous results.

This report is free of erasures and corrections.

Photometric intensity values are reported using the CIE Gamma coordinate system as defined in CIE publication number 121.

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