LightLab INTERNATIONAL ALLENTOWN LLC

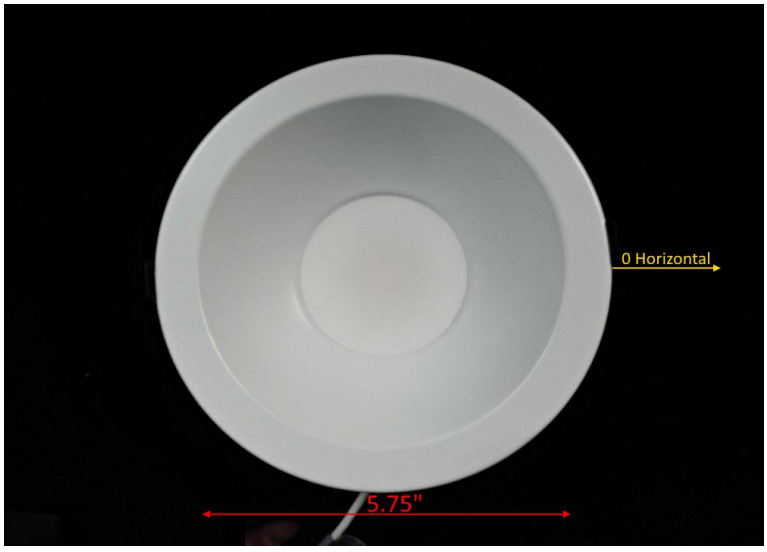
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002379-018

Indoor Distribution Photometry Test Report

Catalog Number: CDL6S-RM-24WPCS-U - 24W Setting - 4000K Setting
Recessed mounted, formed white painted aluminum housing,
white interior reflector, diffuse white plastic enclosure.
white LEDs
One unmarked PCB type LED driver in formed steel box.



Prepared For:
Topaz Lighting, A Southwire Company
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary					
Input Voltage	120.0	Vac	Luminous Flux	2072.2	Lumens
Input Current	0.1804	A	Total Efficacy	96.5	Lm/W
Input Power	21.48	W	Downward Flux	2072.2	Lumens
Frequency	60.00	Hz	Downward Flux	100.0	% of Total
Power Factor	0.992				
Current THD	9.0	%			

This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 05/01/2024
Report date: 05/16/2024

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2024.05.16 15:29:38 -04'00'

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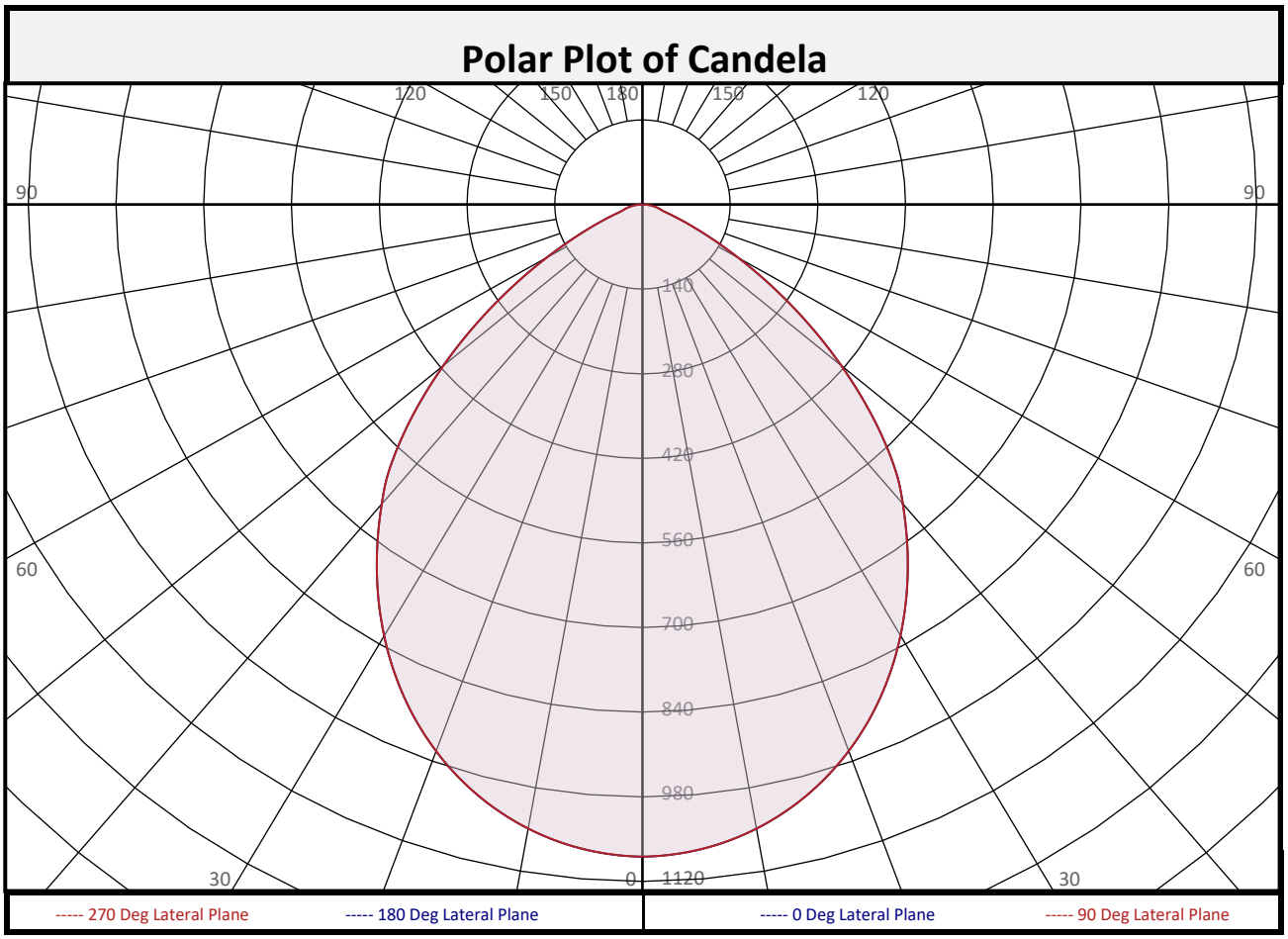

Zonal Flux Summary

Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	101.6	4.9%	90-100	0.0	0.0%	0-20	386.6	18.7%
10-20	285.0	13.8%	100-110	0.0	0.0%	0-30	800.0	38.6%
20-30	413.4	19.9%	110-120	0.0	0.0%	0-40	1261	60.9%
30-40	461.0	22.2%	120-130	0.0	0.0%	0-60	1934	93.3%
40-50	413.4	20.0%	130-140	0.0	0.0%	0-80	2062	99.5%
50-60	259.1	12.5%	140-150	0.0	0.0%	10-90	1971	95.1%
60-70	98.2	4.7%	150-160	0.0	0.0%	20-50	1288	62.2%
70-80	30.6	1.5%	160-170	0.0	0.0%	40-90	811.1	39.1%
80-90	9.7	0.5%	170-180	0.0	0.0%	60-90	138.6	6.7%
0-90	2072	100.0%	90-180	0.0	0.0%	0-180	2072	100.0%

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Luminous Intensity (Candela) Table

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	Lateral (C-Plane) Angles									
		0	22.5	45	67.5	90	112.5	135	157.5	180
	0	1079	1079	1079	1079	1079	1079	1079	1079	1079
	2.5	1077	1077	1077	1077	1077	1077	1077	1077	1077
	5	1071	1071	1071	1071	1071	1071	1071	1071	1071
	7.5	1062	1062	1062	1062	1062	1062	1062	1062	1062
	10	1049	1049	1049	1049	1049	1049	1049	1049	1049
	12.5	1032	1032	1032	1032	1032	1032	1032	1032	1032
	15	1013	1013	1013	1013	1013	1013	1013	1013	1013
	17.5	989	989	989	989	989	989	989	989	989
	20	963	963	963	963	963	963	963	963	963
	22.5	933	933	933	933	933	933	933	933	933
	25	900	900	900	900	900	900	900	900	900
	27.5	863	863	863	863	863	863	863	863	863
	30	824	824	824	824	824	824	824	824	824
	32.5	782	782	782	782	782	782	782	782	782
	35	739	739	739	739	739	739	739	739	739
	37.5	693	693	693	693	693	693	693	693	693
	40	647	647	647	647	647	647	647	647	647
	42.5	599	599	599	599	599	599	599	599	599
	45	540	540	540	540	540	540	540	540	540
	47.5	478	478	478	478	478	478	478	478	478
	50	414	414	414	414	414	414	414	414	414
	52.5	351	351	351	351	351	351	351	351	351
	55	289	289	289	289	289	289	289	289	289
	57.5	231	231	231	231	231	231	231	231	231
	60	178	178	178	178	178	178	178	178	178
	62.5	132	132	132	132	132	132	132	132	132
	65	94	94	94	94	94	94	94	94	94
	67.5	65	65	65	65	65	65	65	65	65
	70	44	44	44	44	44	44	44	44	44
	72.5	33	33	33	33	33	33	33	33	33
	75	29	29	29	29	29	29	29	29	29
	77.5	24	24	24	24	24	24	24	24	24
	80	19	19	19	19	19	19	19	19	19
	82.5	14	14	14	14	14	14	14	14	14
	85	9	9	9	9	9	9	9	9	9
	87.5	4	4	4	4	4	4	4	4	4
	90	0	0	0	0	0	0	0	0	0

16 lateral half-planes of data were acquired, 22.5 degree increments shown.

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Luminous Intensity (Candela) Table

Vertical (Gamma) Angles - Data was acquired in 0.5° increments, 2.5° increments shown.	Lateral (C-Plane) Angles									
		0	22.5	45	67.5	90	112.5	135	157.5	180
	90	0	0	0	0	0	0	0	0	0
	92.5	0	0	0	0	0	0	0	0	0
	95	0	0	0	0	0	0	0	0	0
	97.5	0	0	0	0	0	0	0	0	0
	100	0	0	0	0	0	0	0	0	0
	102.5	0	0	0	0	0	0	0	0	0
	105	0	0	0	0	0	0	0	0	0
	107.5	0	0	0	0	0	0	0	0	0
	110	0	0	0	0	0	0	0	0	0
	112.5	0	0	0	0	0	0	0	0	0
	115	0	0	0	0	0	0	0	0	0
	117.5	0	0	0	0	0	0	0	0	0
	120	0	0	0	0	0	0	0	0	0
	122.5	0	0	0	0	0	0	0	0	0
	125	0	0	0	0	0	0	0	0	0
	127.5	0	0	0	0	0	0	0	0	0
	130	0	0	0	0	0	0	0	0	0
	132.5	0	0	0	0	0	0	0	0	0
	135	0	0	0	0	0	0	0	0	0
	137.5	0	0	0	0	0	0	0	0	0
	140	0	0	0	0	0	0	0	0	0
	142.5	0	0	0	0	0	0	0	0	0
	145	0	0	0	0	0	0	0	0	0
	147.5	0	0	0	0	0	0	0	0	0
	150	0	0	0	0	0	0	0	0	0
	152.5	0	0	0	0	0	0	0	0	0
	155	0	0	0	0	0	0	0	0	0
	157.5	0	0	0	0	0	0	0	0	0
	160	0	0	0	0	0	0	0	0	0
	162.5	0	0	0	0	0	0	0	0	0
	165	0	0	0	0	0	0	0	0	0
	167.5	0	0	0	0	0	0	0	0	0
	170	0	0	0	0	0	0	0	0	0
	172.5	0	0	0	0	0	0	0	0	0
	175	0	0	0	0	0	0	0	0	0
	177.5	0	0	0	0	0	0	0	0	0
	180	0	0	0	0	0	0	0	0	0

16 lateral half-planes of data were acquired, 22.5 degree increments shown.

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Coefficients of Utilization/Room Utilization - Zonal Cavity Method

Effective Floor Cavity Reflectance 0.20

RC	80					70					50				30				10			0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10	0
RCR																						
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102	100
1	111	108	104	101		109	105	102	100		101	99	96		97	95	94		94	92	91	89
2	103	97	91	86		101	95	90	85		91	87	84		88	85	82		85	82	80	78
3	96	87	80	75		93	85	79	74		83	77	73		80	75	72		77	74	70	69
4	89	78	71	65		87	77	70	65		75	69	64		73	67	63		71	66	62	61
5	82	71	63	58		80	70	63	57		68	62	57		66	61	56		64	60	56	54
6	77	65	57	51		75	64	56	51		62	56	51		61	55	50		59	54	50	48
7	71	59	51	46		70	59	51	46		57	50	46		56	50	45		54	49	45	43
8	67	55	47	42		65	54	47	41		53	46	41		51	45	41		50	45	41	39
9	63	50	43	38		61	50	43	38		49	42	38		48	42	37		47	41	37	36
10	59	47	39	35		58	46	39	34		45	39	34		44	38	34		44	38	34	32

For absolute test reports, RUs are expressed as a percentage of total lumen output. For relative test reports, CUs are expressed as a percentage of total lamp output. Calculations were based on published IES procedures, and are based on the zonal cavity method. Basic assumptions: 1) Room surfaces are lambertian reflectors. 2) Incident flux on each surface is uniformly distributed. 3) The room is spectrally neutral. When luminaires are not evenly distributed throughout the room, or do not exhibit lateral symmetry, CU values may differ from actual performance.

Circle of Light Plot

Height(ft)	Illuminance at Nadir (fc)	Ground-level distance to half-of-nadir illuminance (ft) 0-180 deg	90-270 deg
6.0	30.0	6.88	6.88
8.0	16.9	9.18	9.18
10.0	10.8	11.47	11.47
12.0	7.5	13.76	13.76
14.0	5.5	16.06	16.06
16.0	4.2	18.35	18.35

Spacing Criterion

SC: 1.1

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	64425	64425	64425
45	45620	45620	45620
55	30059	30059	30059
65	13287	13287	13287
75	6609	6609	6609
85	6092	6092	6092

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 90.1°

Field Angle: 128.0°

90-270 Degree Plane

Beam Angle: 90.1°

Field Angle: 128.0°

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UGR Table - Corrected

Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	21.4	22.8	21.8	23.1	23.4	21.4	22.8	21.8	23.1	23.4
	3H	21.6	22.9	22.0	23.2	23.6	21.6	22.9	22.0	23.2	23.6
	4H	21.7	22.9	22.1	23.2	23.6	21.7	22.9	22.1	23.2	23.6
	6H	21.7	22.8	22.1	23.2	23.6	21.7	22.8	22.1	23.2	23.6
	8H	21.8	22.8	22.2	23.2	23.6	21.8	22.8	22.2	23.2	23.6
	12H	21.8	22.7	22.2	23.1	23.5	21.8	22.7	22.2	23.1	23.5
4H	2H	21.5	22.6	21.9	23.0	23.4	21.5	22.6	21.9	23.0	23.4
	3H	21.8	22.7	22.2	23.1	23.5	21.8	22.7	22.2	23.1	23.5
	4H	21.9	22.7	22.3	23.2	23.6	21.9	22.7	22.3	23.2	23.6
	6H	22.0	22.7	22.5	23.2	23.7	22.0	22.7	22.5	23.2	23.7
	8H	22.0	22.7	22.5	23.2	23.6	22.0	22.7	22.5	23.2	23.6
	12H	22.1	22.7	22.5	23.2	23.6	22.1	22.7	22.5	23.2	23.6
8H	4H	21.9	22.6	22.3	23.0	23.5	21.9	22.6	22.3	23.0	23.5
	6H	22.0	22.6	22.5	23.1	23.6	22.0	22.6	22.5	23.1	23.6
	8H	22.1	22.6	22.6	23.1	23.6	22.1	22.6	22.6	23.1	23.6
	12H	22.2	22.6	22.7	23.1	23.7	22.2	22.6	22.7	23.1	23.7
12H	4H	21.8	22.5	22.3	22.9	23.4	21.8	22.5	22.3	22.9	23.4
	6H	22.0	22.5	22.5	23.0	23.5	22.0	22.5	22.5	23.0	23.5
	8H	22.1	22.6	22.6	23.1	23.6	22.1	22.6	22.6	23.1	23.6

Maximum UGR = 23.7

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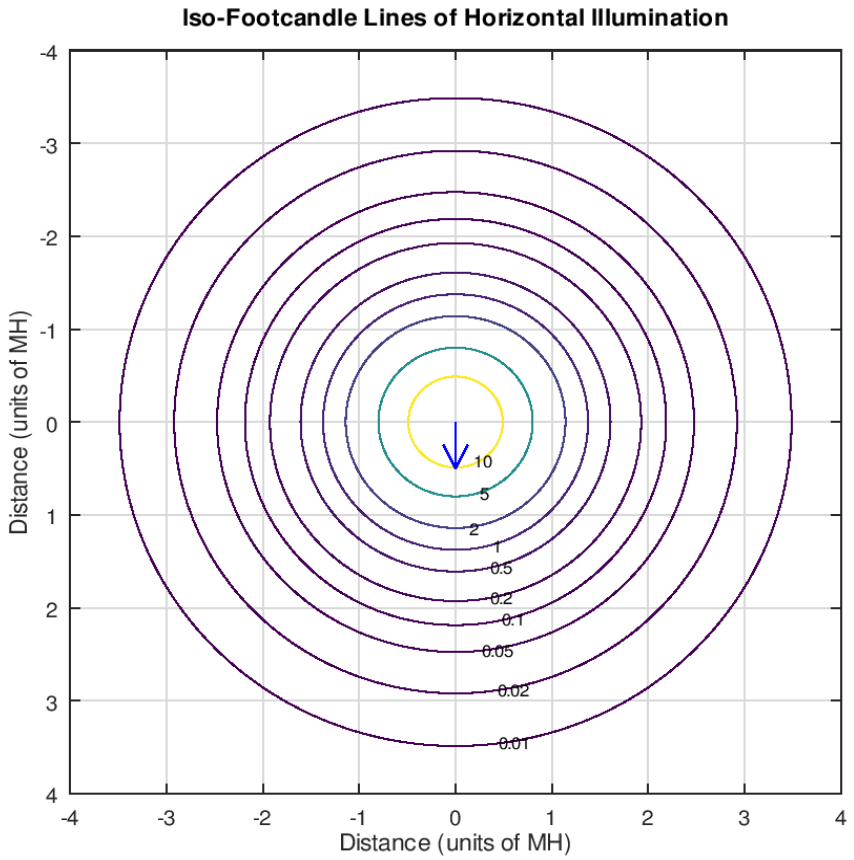
Iso-Illuminance Plot



The isofootcandle values shown in the plot above are based on a mounting height of h = 8.0 feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution of room reflections.

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Test Distance	9.5 m
Ambient Temperature	25.3 °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 IES LM-79-19. Format of reports and angular increments based on IES LM-41-20 and LM-46-20.

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 C-Gamma coordinate system as defined in CIE publication number 121.

This report may contain data that are not covered by the NVLAP accreditation. Quantities marked with ‡ are not covered.

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST, or any agency of the Federal Government.