LightLab INTERNATIONAL ALLENTOWN LLC

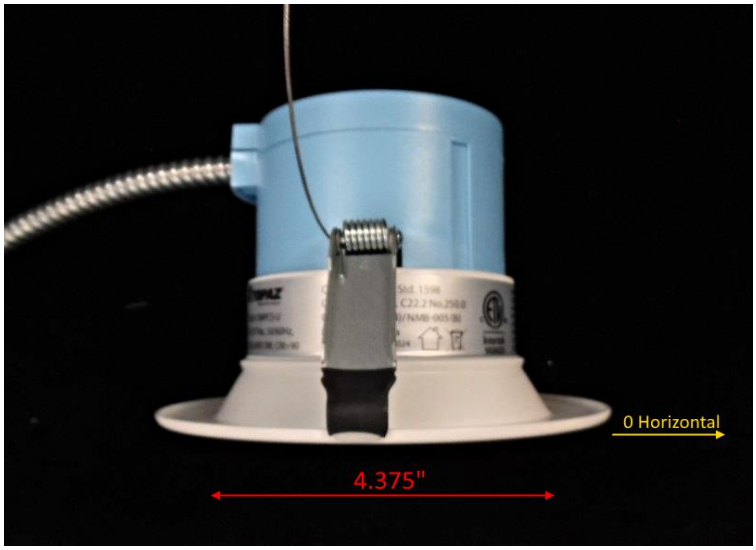
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002379-001

Indoor Distribution Photometry Test Report

Catalog Number: CDL4S-13WPCS-U - 6W 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 mounted on top of fixture housing



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

Performance Summary					
Input Voltage	120.0	Vac	Luminous Flux	671.8	Lumens
Input Current	0.0536	A	Total Efficacy	111.2	Lm/W
Input Power	6.04	W	Downward Flux	671.8	Lumens
Frequency	60.00	Hz	Downward Flux	100.0	% of Total
Power Factor	0.940				
Current THD	15.3	%			

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

Test date: 05/02/2024
Report date: 05/16/2024

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2024.05.16 15:05:15 -04'00'

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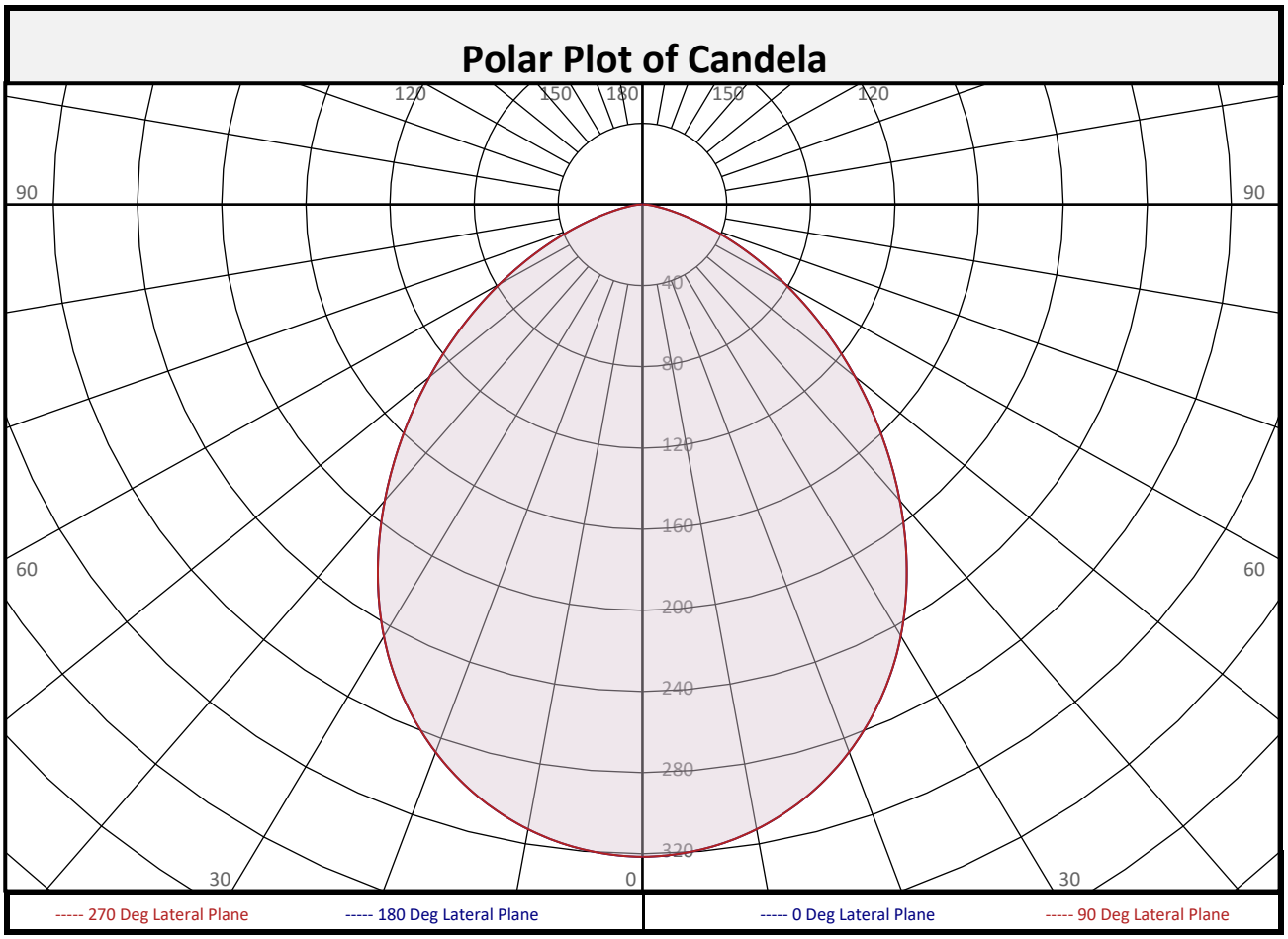

Zonal Flux Summary

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	30.3	4.5%	90-100	0.0	0.0%	0-20	115.3	17.2%
10-20	85.0	12.7%	100-110	0.0	0.0%	0-30	238.7	35.5%
20-30	123.4	18.4%	110-120	0.0	0.0%	0-40	375.4	55.9%
30-40	136.7	20.3%	120-130	0.0	0.0%	0-60	592.6	88.2%
40-50	124.0	18.5%	130-140	0.0	0.0%	0-80	667.9	99.4%
50-60	93.2	13.9%	140-150	0.0	0.0%	10-90	641.5	95.5%
60-70	54.6	8.1%	150-160	0.0	0.0%	20-50	384.1	57.2%
70-80	20.7	3.1%	160-170	0.0	0.0%	40-90	296.4	44.1%
80-90	3.9	0.6%	170-180	0.0	0.0%	60-90	79.2	11.8%
0-90	671.8	100.0%	90-180	0.0	0.0%	0-180	671.8	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	321	321	321	321	321	321	321	321	321
	2.5	321	321	321	321	321	321	321	321	321
	5	319	319	319	319	319	319	319	319	319
	7.5	316	316	316	316	316	316	316	316	316
	10	313	313	313	313	313	313	313	313	313
	12.5	308	308	308	308	308	308	308	308	308
	15	302	302	302	302	302	302	302	302	302
	17.5	295	295	295	295	295	295	295	295	295
	20	287	287	287	287	287	287	287	287	287
	22.5	278	278	278	278	278	278	278	278	278
	25	268	268	268	268	268	268	268	268	268
	27.5	258	258	258	258	258	258	258	258	258
	30	246	246	246	246	246	246	246	246	246
	32.5	233	233	233	233	233	233	233	233	233
	35	219	219	219	219	219	219	219	219	219
	37.5	205	205	205	205	205	205	205	205	205
	40	190	190	190	190	190	190	190	190	190
	42.5	176	176	176	176	176	176	176	176	176
	45	161	161	161	161	161	161	161	161	161
	47.5	146	146	146	146	146	146	146	146	146
	50	132	132	132	132	132	132	132	132	132
	52.5	118	118	118	118	118	118	118	118	118
	55	104	104	104	104	104	104	104	104	104
	57.5	91	91	91	91	91	91	91	91	91
	60	78	78	78	78	78	78	78	78	78
	62.5	66	66	66	66	66	66	66	66	66
	65	55	55	55	55	55	55	55	55	55
	67.5	44	44	44	44	44	44	44	44	44
	70	34	34	34	34	34	34	34	34	34
	72.5	26	26	26	26	26	26	26	26	26
	75	19	19	19	19	19	19	19	19	19
	77.5	13	13	13	13	13	13	13	13	13
	80	8	8	8	8	8	8	8	8	8
	82.5	6	6	6	6	6	6	6	6	6
	85	3	3	3	3	3	3	3	3	3
	87.5	1	1	1	1	1	1	1	1	1
	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	107	103	100		108	104	101	98		100	97	95		96	94	92		93	91	89	87
2	102	95	89	84		99	93	87	83		89	85	81		86	82	79		83	80	77	75
3	94	85	77	72		91	83	76	71		80	74	70		77	73	69		75	71	67	65
4	87	76	68	62		84	75	67	62		72	66	61		70	64	60		68	63	59	57
5	80	68	60	54		78	67	60	54		65	59	53		63	58	53		62	56	52	50
6	74	62	54	48		73	61	53	48		60	53	47		58	52	47		56	51	47	45
7	69	57	49	43		68	56	48	43		54	48	42		53	47	42		52	46	42	40
8	65	52	44	39		63	51	44	39		50	43	38		49	43	38		48	42	38	36
9	61	48	40	35		59	47	40	35		46	40	35		45	39	35		44	39	35	33
10	57	45	37	32		56	44	37	32		43	36	32		42	36	32		41	36	32	30

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	8.9	6.89	6.89
8.0	5.0	9.18	9.18
10.0	3.2	11.48	11.48
12.0	2.2	13.78	13.78
14.0	1.6	16.07	16.07
16.0	1.3	18.37	18.37

Spacing Criterion

SC: 1.1

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	33148	33148	33148
45	23462	23462	23462
55	18719	18719	18719
65	13365	13365	13365
75	7460	7460	7460
85	4017	4017	4017

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 90.1°

Field Angle: 141.3°

90-270 Degree Plane

Beam Angle: 90.1°

Field Angle: 141.3°

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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	20.7	22.2	21.0	22.5	22.8	20.7	22.2	21.0	22.5	22.8
	3H	21.7	23.0	22.1	23.3	23.7	21.7	23.0	22.1	23.3	23.7
	4H	21.9	23.2	22.3	23.5	23.9	21.9	23.2	22.3	23.5	23.9
	6H	22.0	23.1	22.4	23.5	23.9	22.0	23.1	22.4	23.5	23.9
	8H	22.0	23.1	22.4	23.5	23.9	22.0	23.1	22.4	23.5	23.9
	12H	22.0	23.0	22.4	23.4	23.9	22.0	23.0	22.4	23.4	23.9
4H	2H	21.1	22.3	21.5	22.7	23.0	21.1	22.3	21.5	22.7	23.0
	3H	22.2	23.2	22.6	23.6	24.0	22.2	23.2	22.6	23.6	24.0
	4H	22.5	23.4	22.9	23.8	24.3	22.5	23.4	22.9	23.8	24.3
	6H	22.6	23.4	23.1	23.9	24.4	22.6	23.4	23.1	23.9	24.4
	8H	22.7	23.4	23.1	23.9	24.3	22.7	23.4	23.1	23.9	24.3
	12H	22.7	23.3	23.2	23.8	24.3	22.7	23.3	23.2	23.8	24.3
8H	4H	22.6	23.3	23.0	23.8	24.2	22.6	23.3	23.0	23.8	24.2
	6H	22.7	23.4	23.2	23.9	24.3	22.7	23.4	23.2	23.9	24.3
	8H	22.8	23.3	23.3	23.8	24.3	22.8	23.3	23.3	23.8	24.3
	12H	22.8	23.3	23.3	23.8	24.4	22.8	23.3	23.3	23.8	24.4
12H	4H	22.6	23.2	23.0	23.7	24.2	22.6	23.2	23.0	23.7	24.2
	6H	22.7	23.3	23.3	23.7	24.3	22.7	23.3	23.3	23.7	24.3
	8H	22.8	23.3	23.3	23.8	24.3	22.8	23.3	23.3	23.8	24.3

Maximum UGR = 24.4

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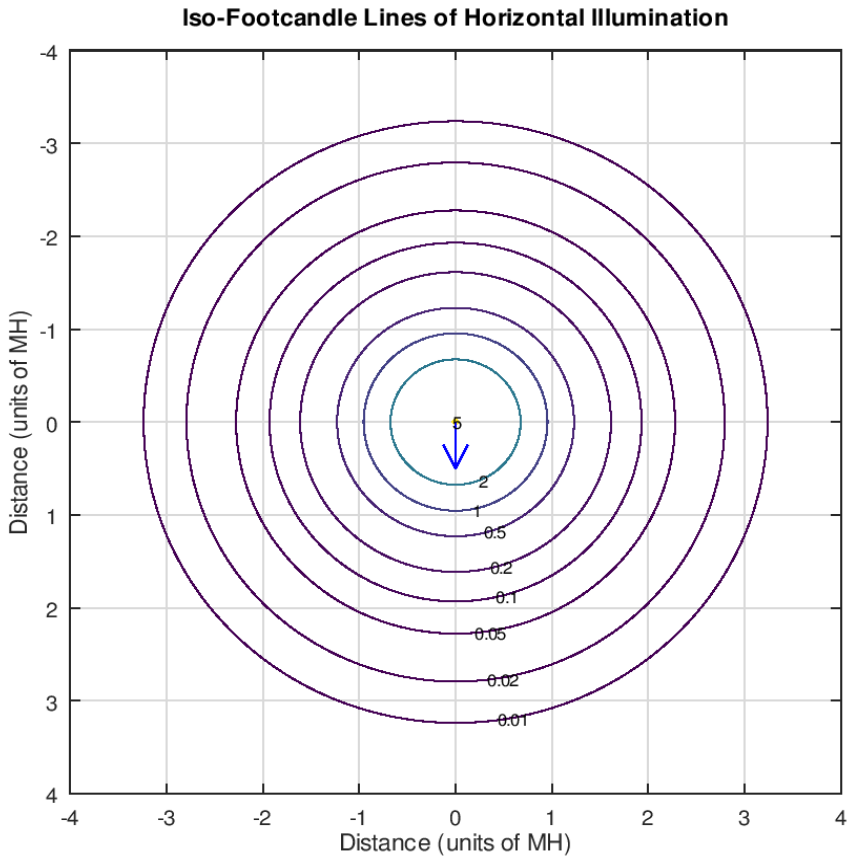
Iso-Illuminance Plot



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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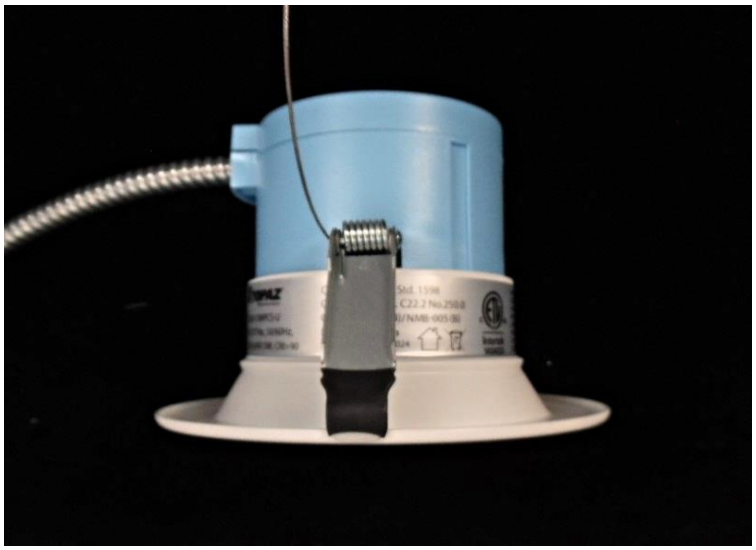
Additional Pictures of Test Subject



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Test Distance	9.5 m
Ambient Temperature	24.6 °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.