LightLab INTERNATIONAL ALLENTOWN LLC

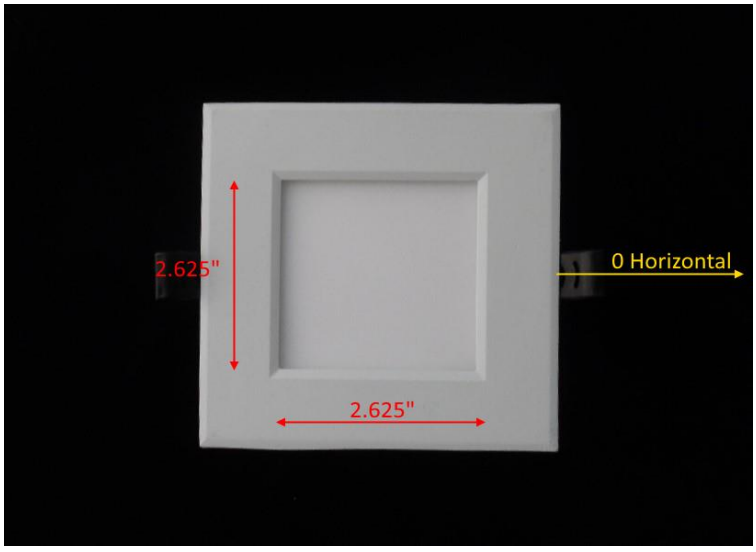
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002581-005

Indoor Distribution Photometry Test Report

Catalog Number: RDL4-SQ-7W-CS 4000K Setting
Recessed mounted, formed white painted aluminum housing,
white interior reflector, diffuse white plastic enclosure.
40 white LEDs, switch set for 4000K.
One Topaz RDL4-SQ-7W-CS 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	612.3	Lumens
Input Current	0.0558	A	Total Efficacy	96.6	Lm/W
Input Power	6.34	W	Downward Flux	612.3	Lumens
Frequency	60.00	Hz	Downward Flux	100.0	% of Total
Power Factor	0.947				
Current THD	19.1	%			

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

Test date: 01/28/2025
Report date: 02/03/2025

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2025.02.06 11:24:28 -05'00'

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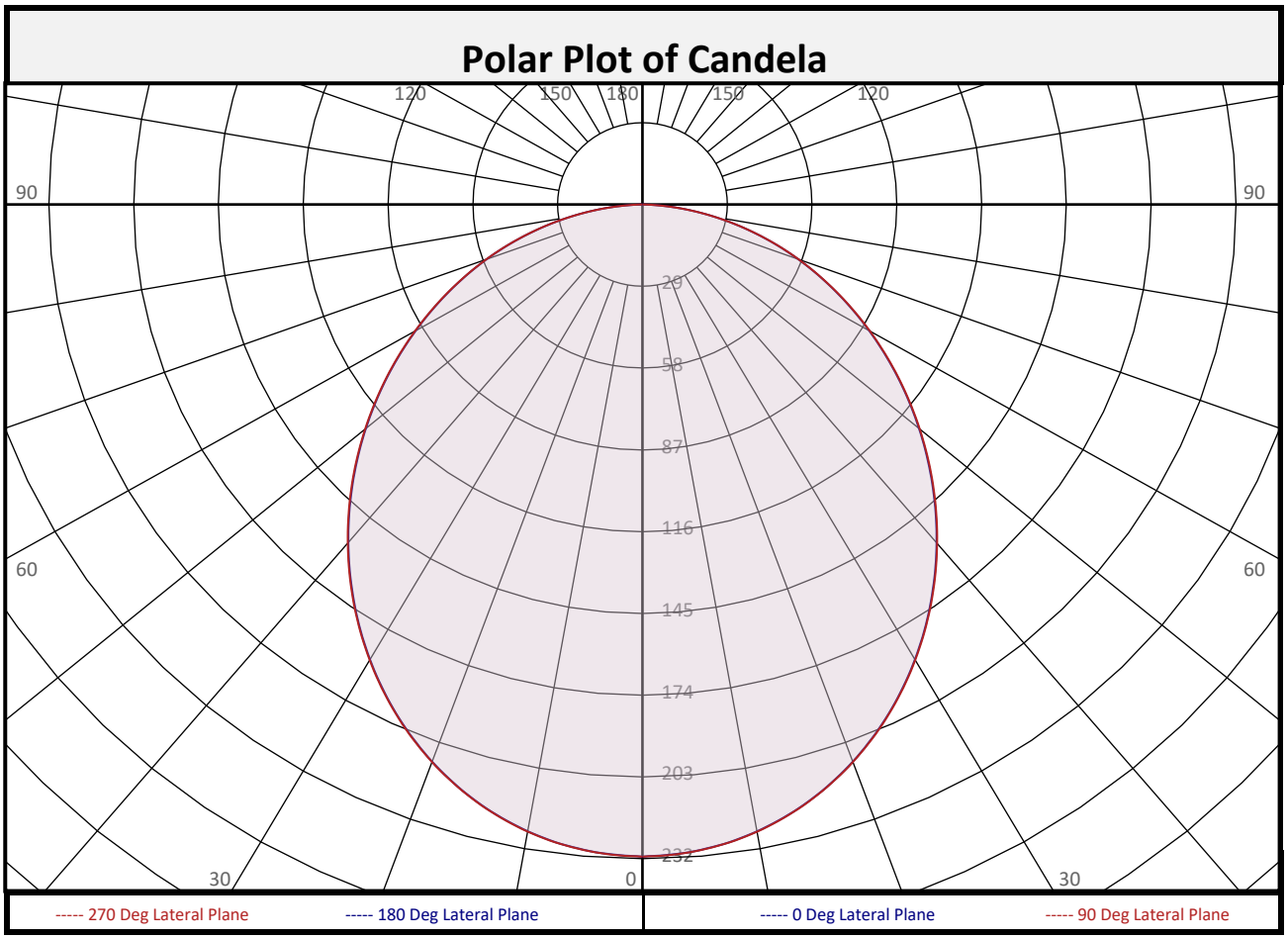

Zonal Flux Summary

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	21.8	3.6%	90-100	0.0	0.0%	0-20	83.6	13.7%
10-20	61.8	10.1%	100-110	0.0	0.0%	0-30	175.4	28.6%
20-30	91.8	15.0%	110-120	0.0	0.0%	0-40	283.0	46.2%
30-40	107.6	17.6%	120-130	0.0	0.0%	0-60	486.3	79.4%
40-50	108.2	17.7%	130-140	0.0	0.0%	0-80	601.1	98.2%
50-60	95.2	15.5%	140-150	0.0	0.0%	10-90	590.5	96.4%
60-70	72.1	11.8%	150-160	0.0	0.0%	20-50	307.5	50.2%
70-80	42.7	7.0%	160-170	0.0	0.0%	40-90	329.3	53.8%
80-90	11.2	1.8%	170-180	0.0	0.0%	60-90	126.0	20.6%
0-90	612.3	100.0%	90-180	0.0	0.0%	0-180	612.3	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	231	231	231	231	231	231	231	231	231
	2.5	231	231	231	231	231	231	231	231	231
	5	230	230	230	230	230	230	230	230	230
	7.5	228	228	228	228	228	228	228	228	228
	10	226	226	226	226	226	226	226	226	226
	12.5	223	223	223	223	223	223	223	223	223
	15	219	219	219	219	219	219	219	219	219
	17.5	215	215	215	215	215	215	215	215	215
	20	210	210	210	210	210	210	210	210	210
	22.5	205	205	205	205	205	205	205	205	205
	25	199	199	199	199	199	199	199	199	199
	27.5	193	193	193	193	193	193	193	193	193
	30	186	186	186	187	187	187	186	186	186
	32.5	179	179	179	180	180	180	179	179	179
	35	172	172	172	172	172	172	172	172	172
	37.5	164	164	164	165	165	165	164	164	164
	40	156	156	156	157	157	157	156	156	156
	42.5	148	148	148	149	149	149	148	148	148
	45	140	140	140	140	140	140	140	140	140
	47.5	132	132	132	132	132	132	132	132	132
	50	123	123	123	124	124	124	123	123	123
	52.5	115	115	115	115	115	115	115	115	115
	55	106	106	106	107	107	107	106	106	106
	57.5	98	98	98	98	98	98	98	98	98
	60	89	89	89	90	90	90	89	89	89
	62.5	81	81	81	81	81	81	81	81	81
	65	73	73	73	73	73	73	73	73	73
	67.5	65	64	64	65	65	65	64	64	65
	70	57	56	56	57	57	57	56	56	57
	72.5	48	48	48	49	49	49	48	48	48
	75	40	40	41	40	41	40	41	40	40
	77.5	32	32	33	32	33	32	33	32	32
	80	25	25	25	25	25	25	25	25	25
	82.5	17	17	17	17	17	17	17	17	17
	85	10	10	9	10	10	10	9	10	10
	87.5	3	3	3	3	3	3	3	3	3
	90	0	0	0	0	0	0	0	0	0

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

Report of Test

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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	109	104	100	96		106	102	98	94		98	94	91		94	91	89		90	88	86	84
2	99	91	84	78		96	89	83	77		85	80	76		82	78	74		79	75	72	70
3	90	80	72	65		88	78	71	65		75	69	64		73	67	62		70	65	61	59
4	83	71	62	55		81	70	61	55		67	60	54		65	59	54		63	57	53	51
5	76	63	54	48		74	62	54	48		60	53	47		58	52	47		56	51	46	44
6	70	57	48	42		69	56	48	42		54	47	41		53	46	41		51	45	41	39
7	65	52	43	37		64	51	43	37		50	42	37		48	41	36		47	41	36	34
8	61	47	39	33		59	47	39	33		45	38	33		44	38	33		43	37	32	31
9	57	44	35	30		56	43	35	30		42	35	30		41	34	29		40	34	29	28
10	53	40	32	27		52	40	32	27		39	32	27		38	31	27		37	31	27	25

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	6.4	7.21	7.21
8.0	3.6	9.61	9.62
10.0	2.3	12.01	12.02
12.0	1.6	14.41	14.43
14.0	1.2	16.81	16.83
16.0	0.9	19.22	19.24

Spacing Criterion

0 deg:	1.2
90 deg:	1.2
180 deg:	1.2
270 deg:	1.2

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	52030	52030	52030
45	44573	44581	44695
55	41724	41663	41860
65	38755	38640	38891
75	35083	35213	35242
85	25533	24284	25582

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 104.5°

Field Angle: 161.0°

90-270 Degree Plane

Beam Angle: 104.7°

Field Angle: 161.1°

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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	25.0	26.6	25.3	26.9	27.2	25.0	26.6	25.3	26.9	27.2
	3H	26.8	28.3	27.2	28.6	29.0	26.8	28.3	27.2	28.6	29.0
	4H	27.5	28.9	27.9	29.2	29.6	27.5	28.9	27.9	29.3	29.6
	6H	28.0	29.3	28.4	29.7	30.1	28.1	29.3	28.5	29.7	30.1
	8H	28.2	29.4	28.6	29.8	30.2	28.2	29.5	28.7	29.8	30.2
	12H	28.3	29.5	28.8	29.9	30.3	28.3	29.5	28.8	29.9	30.3
4H	2H	25.6	27.0	26.0	27.3	27.7	25.6	27.0	26.0	27.3	27.7
	3H	27.7	28.8	28.1	29.2	29.6	27.7	28.8	28.1	29.2	29.6
	4H	28.5	29.6	28.9	30.0	30.4	28.5	29.6	28.9	30.0	30.4
	6H	29.2	30.1	29.6	30.5	31.0	29.2	30.1	29.6	30.5	31.0
	8H	29.4	30.3	29.9	30.7	31.2	29.4	30.3	29.9	30.7	31.2
	12H	29.5	30.3	30.0	30.8	31.3	29.6	30.3	30.0	30.8	31.3
8H	4H	28.8	29.7	29.3	30.1	30.6	28.9	29.7	29.3	30.2	30.6
	6H	29.6	30.3	30.1	30.8	31.3	29.6	30.4	30.1	30.8	31.3
	8H	29.9	30.6	30.4	31.1	31.6	29.9	30.6	30.4	31.1	31.6
	12H	30.1	30.7	30.7	31.2	31.8	30.2	30.7	30.7	31.2	31.8
12H	4H	28.9	29.6	29.4	30.1	30.6	28.9	29.7	29.4	30.1	30.6
	6H	29.7	30.4	30.2	30.8	31.3	29.7	30.4	30.2	30.8	31.4
	8H	30.0	30.6	30.6	31.1	31.7	30.1	30.6	30.6	31.1	31.7

Maximum UGR = 31.8

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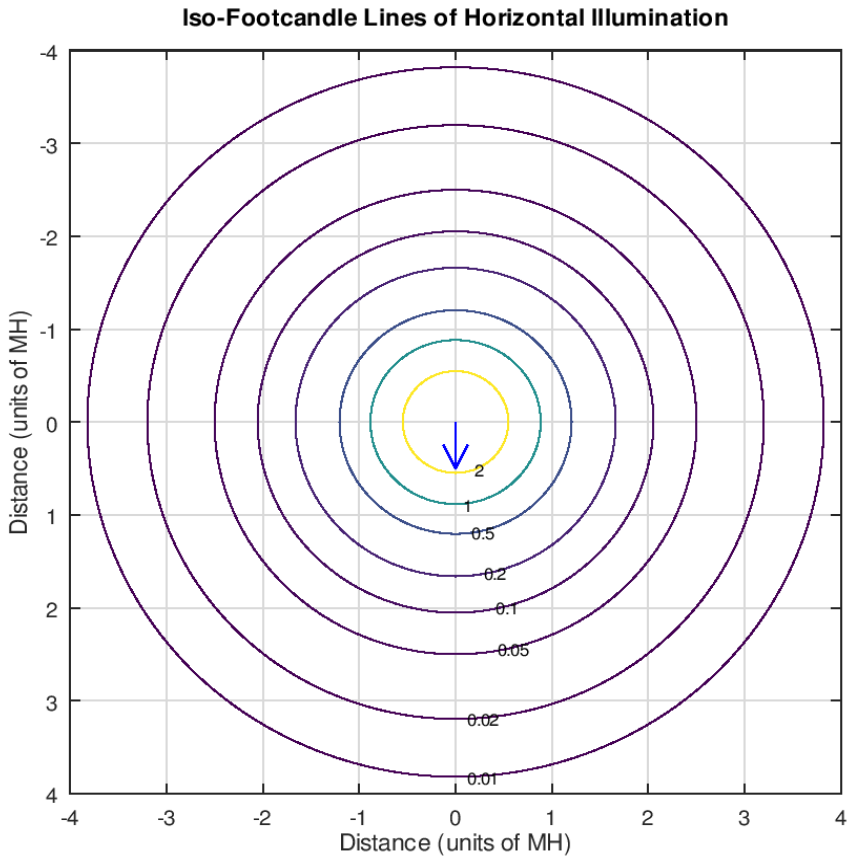
Iso-Illuminance Plot



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	25.2 °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.