



## Report of Test

**LLIA001426-006**

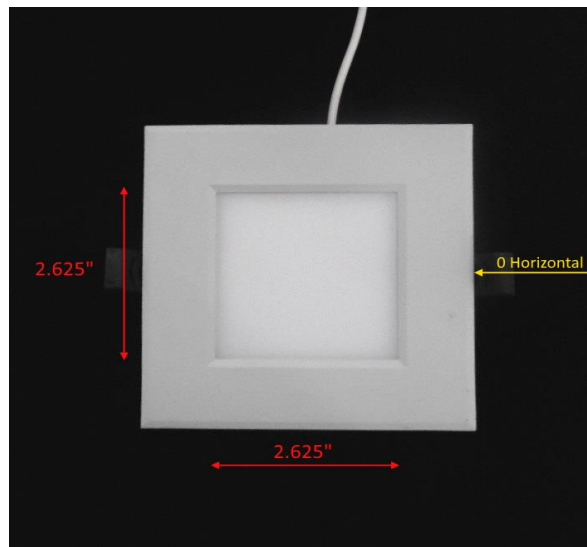
Indoor Distribution Photometry Test Report

Catalog Number: RDL/4SQ/9/5CTS-46 - 3000K Setting

Recessed mounted, cast aluminum and formed plastic housing, clear patterned plastic enclosure above translucent white plastic enclosure.

40 white LEDs

One LED20009A LED driver



Prepared For:

Topaz Lighting Corp

925 Waverly Avenue

Holtsville, NY 11742, USA

### Performance Summary

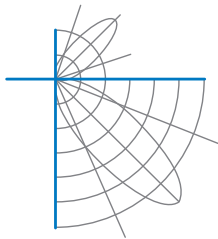
Input Voltage	120.0 V	Luminous Flux	695.8 Lumens
Input Current	0.0767 A	Total Efficacy	77.9 Lm/W
Input Power	8.93 W	Downward Flux	695.8 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.969		
Current THD	14.0 %		

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

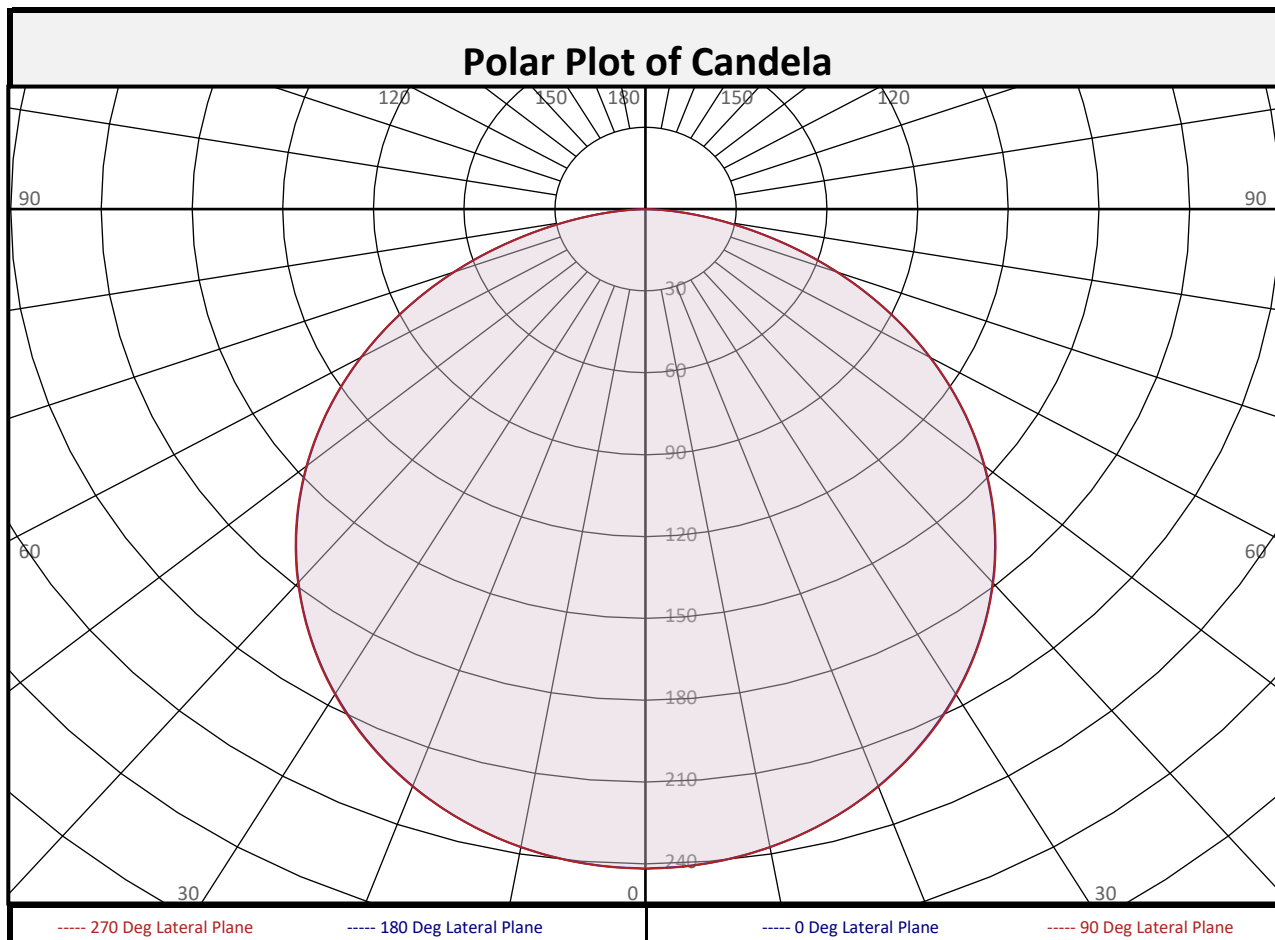
Test date: 03/17/2021

Report date: 03/19/2021

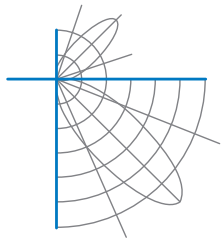
Signed: \_\_\_\_\_



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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	22.9	3.3%		90-100	0.0	0.0%		0-20	88.5	12.7%
10-20	65.6	9.4%		100-110	0.0	0.0%		0-30	188.1	27.0%
20-30	99.7	14.3%		110-120	0.0	0.0%		0-40	308.8	44.4%
30-40	120.6	17.3%		120-130	0.0	0.0%		0-60	548.6	78.8%
40-50	125.8	18.1%		130-140	0.0	0.0%		0-80	684.4	98.4%
50-60	114.1	16.4%		140-150	0.0	0.0%		10-90	672.9	96.7%
60-70	86.9	12.5%		150-160	0.0	0.0%		20-50	346.0	49.7%
70-80	48.8	7.0%		160-170	0.0	0.0%		40-90	387.0	55.6%
80-90	11.4	1.6%		170-180	0.0	0.0%		60-90	147.1	21.1%
0-90	695.8	100.0%		90-180	0.0	0.0%		0-180	695.8	100.0%

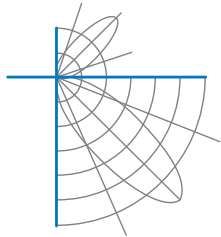


## Report of Test

LLIA001426-006

Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	0	242	242	242	242	242	242	242	242	242
	2.5	241	242	242	242	241	242	242	242	241
	5	241	241	241	241	241	241	241	241	241
	7.5	239	239	240	239	239	239	240	239	239
	10	237	238	238	238	237	238	238	238	237
	12.5	235	235	235	235	235	235	235	235	235
	15	232	232	233	232	232	232	233	232	232
	17.5	229	229	229	229	229	229	229	229	229
	20	225	225	225	225	225	225	225	225	225
	22.5	221	221	221	221	221	221	221	221	221
	25	216	216	216	216	216	216	216	216	216
	27.5	211	211	211	211	211	211	211	211	211
	30	205	205	205	205	205	205	205	205	205
	32.5	199	199	199	199	199	199	199	199	199
	35	193	193	193	193	193	193	193	193	193
	37.5	186	186	186	186	186	186	186	186	186
	40	179	179	179	179	179	179	179	179	179
	42.5	171	171	171	171	171	171	171	171	171
	45	163	163	163	163	163	163	163	163	163
	47.5	155	155	155	155	155	155	155	155	155
50	146	146	146	146	146	146	146	146	146	
52.5	137	137	137	137	137	137	137	137	137	
55	128	128	128	128	128	128	128	128	128	
57.5	118	118	118	118	119	118	118	118	118	
60	109	108	108	108	109	108	108	108	109	
62.5	98	98	98	98	99	98	98	98	98	
65	88	88	88	88	88	88	88	88	88	
67.5	78	77	77	78	78	78	77	77	78	
70	67	67	67	67	68	67	67	67	67	
72.5	57	57	56	57	57	57	56	57	57	
75	46	46	46	46	46	46	46	46	46	
77.5	36	36	36	36	36	36	36	36	36	
80	26	26	26	26	26	26	26	26	26	
82.5	18	17	17	17	18	17	17	17	18	
85	10	9	9	9	10	9	9	9	10	
87.5	3	3	3	3	3	3	3	3	3	
90	0	0	0	0	0	0	0	0	0	

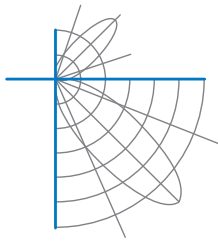


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LLIA001426-006

Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	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	



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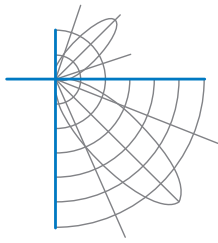
Coefficients of Utilization/Room Utilization - Zonal Cavity Method																						
Effective Floor Cavity Reflectance 0.20																						
RC	80					70					50				30				10			0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10	0
RCR																						
0	119	119	119	119		116	116	116	116		111	111	111		106	106	106		102	102	102	100
1	109	104	100	96		106	102	98	94		97	94	91		94	91	88		90	88	86	84
2	99	91	84	78		96	89	82	77		85	80	75		82	77	73		79	75	72	70
3	90	79	71	65		87	78	70	64		75	68	63		72	66	62		69	65	61	58
4	82	70	61	55		80	69	61	54		66	59	53		64	58	53		62	56	52	50
5	76	63	54	47		74	62	53	47		59	52	46		57	51	46		56	50	45	43
6	70	56	47	41		68	55	47	41		54	46	40		52	45	40		50	44	40	38
7	65	51	42	36		63	50	42	36		49	41	36		47	40	35		46	40	35	33
8	60	47	38	32		59	46	38	32		45	37	32		43	37	32		42	36	31	29
9	56	43	34	29		55	42	34	29		41	34	29		40	33	28		39	33	28	26
10	53	39	31	26		51	39	31	26		38	31	26		37	30	26		36	30	26	24

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	6.7	7.57	7.58	
8.0	3.8	10.09	10.10	
10.0	2.4	12.62	12.63	
12.0	1.7	15.14	15.15	
14.0	1.2	17.66	17.68	
16.0	0.9	20.19	20.21	

Average Luminance (cd/m <sup>2</sup> )			
	0 deg Plane	45 deg Plane	90 deg Plane
0	54397	54397	54397
45	51886	51833	51981
55	50183	50023	50290
65	46965	46672	47050
75	40104	40044	40250
85	24813	23685	25083

Spacing Criterion	
0 degree plane:	1.3
90 degree plane:	1.3
180 degree plane:	1.3
270 degree plane:	1.3



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#### UGR TABLE - CORRECTED

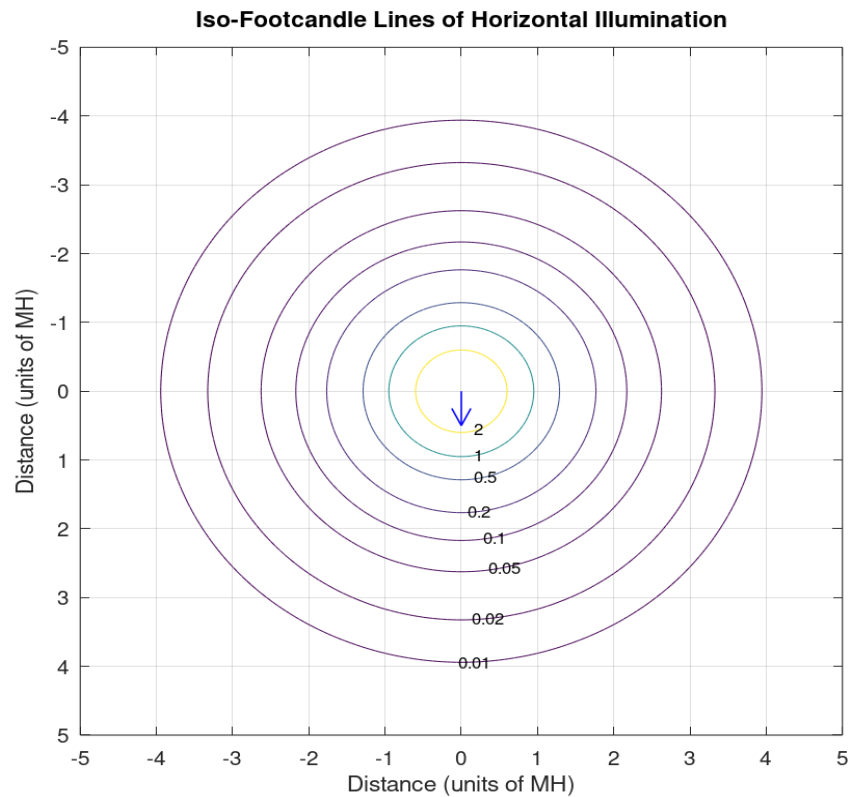
Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	25.7	27.4	26.1	27.7	28.0	25.8	27.4	26.1	27.7	28.0
	3H	27.6	29.1	27.9	29.4	29.7	27.6	29.1	28.0	29.4	29.8
	4H	28.2	29.6	28.6	30.0	30.3	28.2	29.6	28.6	30.0	30.4
	6H	28.7	30.0	29.1	30.3	30.7	28.7	30.0	29.1	30.3	30.7
	8H	28.8	30.0	29.2	30.4	30.8	28.8	30.0	29.2	30.4	30.8
	12H	28.9	30.1	29.3	30.4	30.9	28.9	30.1	29.3	30.4	30.9
4H	2H	26.4	27.8	26.8	28.1	28.5	26.4	27.8	26.8	28.1	28.5
	3H	28.4	29.6	28.8	30.0	30.4	28.4	29.6	28.8	30.0	30.4
	4H	29.2	30.3	29.6	30.7	31.1	29.2	30.3	29.6	30.7	31.1
	6H	29.8	30.7	30.2	31.1	31.6	29.8	30.7	30.2	31.1	31.6
	8H	29.9	30.8	30.4	31.2	31.7	29.9	30.8	30.4	31.2	31.7
	12H	30.0	30.8	30.5	31.3	31.8	30.0	30.8	30.5	31.3	31.8
8H	4H	29.5	30.4	29.9	30.8	31.3	29.5	30.4	30.0	30.8	31.3
	6H	30.2	30.9	30.7	31.4	31.8	30.2	30.9	30.7	31.4	31.9
	8H	30.4	31.0	30.9	31.5	32.0	30.4	31.0	30.9	31.6	32.0
	12H	30.5	31.1	31.0	31.6	32.2	30.5	31.1	31.0	31.6	32.2
12H	4H	29.5	30.3	30.0	30.8	31.2	29.5	30.3	30.0	30.8	31.3
	6H	30.2	30.9	30.7	31.3	31.9	30.2	30.9	30.7	31.3	31.9
	8H	30.5	31.1	31.0	31.5	32.1	30.5	31.1	31.0	31.5	32.1

Maximum UGR = 32.2

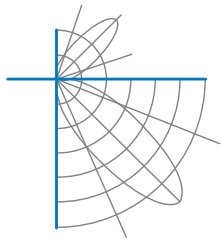


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### Iso-Illuminance Plot



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.



## Report of Test

### LLIA001426-006

Test Distance                    9.5 m  
Ambient Temperature        24.9 °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-41-14 and LM-46-04.

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.