LightLab INTERNATIONAL ALLENTOWN LLC

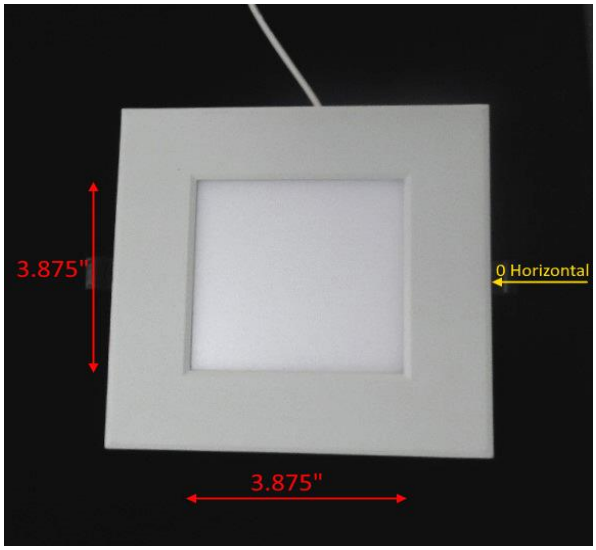
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001426-008

Indoor Distribution Photometry Test Report

Catalog Number: RDL/6SQ/15/5CTS-46 - 3000K Setting
Recessed mounted, cast aluminum and formed plastic housing,
clear patterned plastic enclosure above translucent white plastic enclosure.
60 white LEDs
One LED20010A LED driver



Prepared For:
Topaz Lighting Corp
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary					
Input Voltage	120.0	V	Luminous Flux	1135.3	Lumens
Input Current	0.1245	A	Total Efficacy	77.0	Lm/W
Input Power	14.74	W	Downward Flux	1135.3	Lumens
Frequency	60.00	Hz	Downward Flux	100.0	% of Total
Power Factor	0.987				
Current THD	9.8	%			

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

Test date: 03/18/2021
Report date: 03/19/2021

Signed: Michael L. Grather

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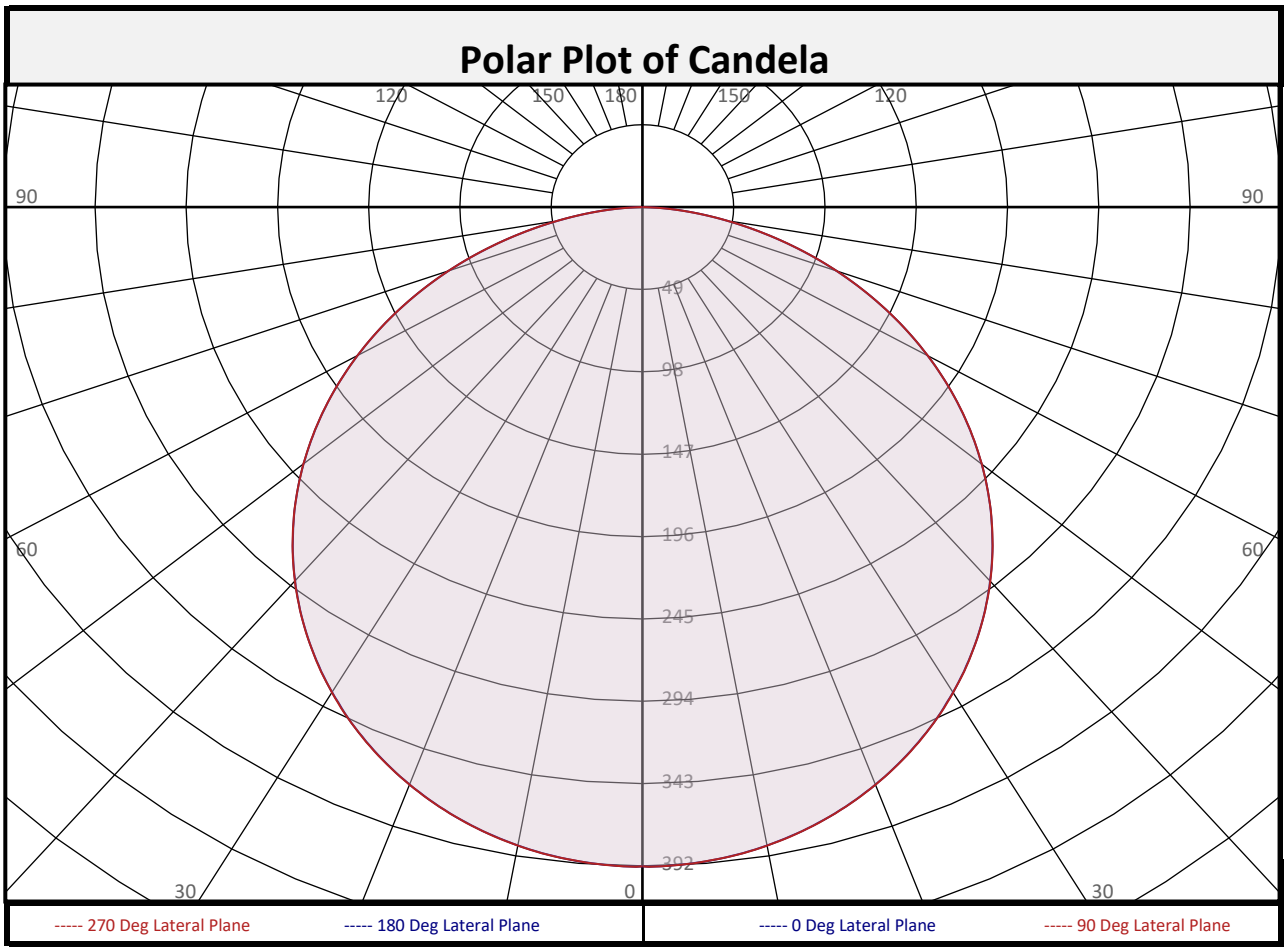

Zonal Flux Summary									
Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	37.1	3.3%	90-100	0.0	0.0%	0-20	143.6	12.6%
10-20	106.4	9.4%	100-110	0.0	0.0%	0-30	305.3	26.9%
20-30	161.8	14.3%	110-120	0.0	0.0%	0-40	501.3	44.2%
30-40	195.9	17.3%	120-130	0.0	0.0%	0-60	891.2	78.5%
40-50	204.3	18.0%	130-140	0.0	0.0%	0-80	1115	98.2%
50-60	185.6	16.3%	140-150	0.0	0.0%	10-90	1098	96.7%
60-70	142.1	12.5%	150-160	0.0	0.0%	20-50	562.0	49.5%
70-80	81.5	7.2%	160-170	0.0	0.0%	40-90	634.1	55.9%
80-90	20.6	1.8%	170-180	0.0	0.0%	60-90	244.1	21.5%
0-90	1135	100.0%	90-180	0.0	0.0%	0-180	1135	100.0%

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Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
Vertical (Gamma) Angles		0	22.5	45	67.5	90	112.5	135	157.5	180
	0	392	392	392	392	392	392	392	392	392
	2.5	392	392	392	392	392	392	392	392	392
	5	391	390	390	390	391	390	390	390	391
	7.5	389	388	388	388	389	388	388	388	389
	10	386	385	385	386	386	386	385	385	386
	12.5	382	382	382	382	382	382	382	382	382
	15	377	377	377	377	377	377	377	377	377
	17.5	372	372	372	372	372	372	372	372	372
	20	366	366	366	365	366	365	366	366	366
	22.5	359	359	359	359	359	359	359	359	359
	25	351	351	351	351	351	351	351	351	351
	27.5	343	343	343	343	343	343	343	343	343
	30	333	333	333	333	334	333	333	333	333
	32.5	324	324	324	324	324	324	324	324	324
	35	313	313	313	313	313	313	313	313	313
	37.5	302	302	302	302	302	302	302	302	302
	40	290	290	290	290	291	290	290	290	290
	42.5	278	278	278	278	278	278	278	278	278
	45	265	265	265	265	265	265	265	265	265
	47.5	252	251	251	251	252	251	251	251	252
	50	238	237	237	237	238	237	237	237	238
	52.5	223	223	223	223	223	223	223	223	223
	55	208	208	208	208	208	208	208	208	208
	57.5	193	192	192	192	193	192	192	192	193
	60	177	176	176	176	177	176	176	176	177
	62.5	161	160	160	160	161	160	160	160	161
	65	144	144	143	144	144	144	143	144	144
	67.5	127	127	127	127	128	127	127	127	127
	70	111	110	110	110	111	110	110	110	111
	72.5	94	94	94	94	94	94	94	94	94
	75	77	77	77	77	77	77	77	77	77
	77.5	61	61	61	61	61	61	61	61	61
	80	45	45	45	45	45	45	45	45	45
	82.5	31	31	30	31	31	31	30	31	31
	85	18	17	17	17	18	17	17	17	18
	87.5	6	6	6	6	6	6	6	6	6
	90	0	0	0	0	0	0	0	0	0

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Luminous Intensity (Candela) Table

Vertical (Gamma) Angles	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

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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		93	91	88		90	88	86	84
2	99	90	83	78		96	88	82	77		85	80	75		82	77	73		79	75	72	69
3	90	79	71	64		87	78	70	64		75	68	63		72	66	62		69	65	60	58
4	82	70	61	54		80	69	60	54		66	59	53		64	58	53		62	56	52	50
5	76	63	53	47		73	61	53	46		59	52	46		57	51	45		55	50	45	43
6	70	56	47	41		68	55	47	41		53	46	40		52	45	40		50	44	39	37
7	65	51	42	36		63	50	42	36		49	41	35		47	40	35		46	40	35	33
8	60	46	38	32		59	46	38	32		44	37	32		43	36	31		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	10.9	7.58	7.58
8.0	6.1	10.11	10.11
10.0	3.9	12.63	12.64
12.0	2.7	15.16	15.17
14.0	2.0	17.69	17.70
16.0	1.5	20.21	20.22

Average Luminance (cd/m^2)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	40492	40492	40492
45	38697	38669	38715
55	37439	37357	37476
65	35203	35028	35232
75	30709	30755	30787
85	21127	20305	21352

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	24.7	26.4	25.1	26.7	27.0	24.7	26.4	25.1	26.7	27.0
	3H	26.6	28.1	27.0	28.4	28.8	26.6	28.1	27.0	28.4	28.8
	4H	27.2	28.7	27.6	29.0	29.4	27.3	28.7	27.7	29.0	29.4
	6H	27.7	29.0	28.1	29.4	29.8	27.7	29.0	28.1	29.4	29.8
	8H	27.9	29.1	28.3	29.5	29.9	27.9	29.1	28.3	29.5	29.9
	12H	28.0	29.2	28.4	29.5	30.0	28.0	29.2	28.4	29.6	30.0
4H	2H	25.4	26.8	25.8	27.1	27.5	25.4	26.8	25.8	27.1	27.5
	3H	27.4	28.6	27.8	29.0	29.4	27.4	28.6	27.8	29.0	29.4
	4H	28.2	29.3	28.7	29.7	30.2	28.2	29.3	28.7	29.7	30.2
	6H	28.9	29.8	29.3	30.2	30.7	28.9	29.8	29.3	30.2	30.7
	8H	29.0	29.9	29.5	30.3	30.8	29.0	29.9	29.5	30.4	30.8
	12H	29.2	29.9	29.6	30.4	30.9	29.2	30.0	29.6	30.4	30.9
8H	4H	28.6	29.4	29.0	29.9	30.3	28.6	29.4	29.0	29.9	30.3
	6H	29.3	30.0	29.8	30.5	31.0	29.3	30.0	29.8	30.5	31.0
	8H	29.5	30.2	30.0	30.7	31.2	29.5	30.2	30.0	30.7	31.2
	12H	29.7	30.3	30.2	30.8	31.3	29.7	30.3	30.2	30.8	31.4
12H	4H	28.6	29.4	29.1	29.8	30.3	28.6	29.4	29.1	29.8	30.3
	6H	29.3	30.0	29.8	30.4	31.0	29.3	30.0	29.9	30.5	31.0
	8H	29.6	30.2	30.1	30.7	31.3	29.6	30.2	30.1	30.7	31.3

Maximum UGR = 31.4

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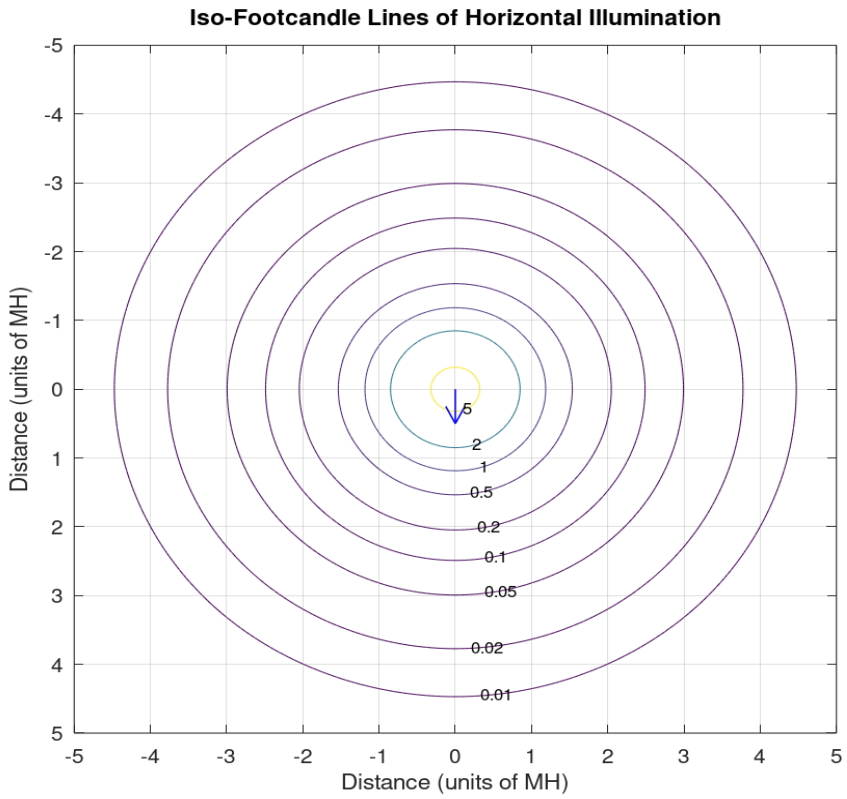
Iso-Illuminance Plot



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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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.