LightLab INTERNATIONAL ALLENTOWN LLC

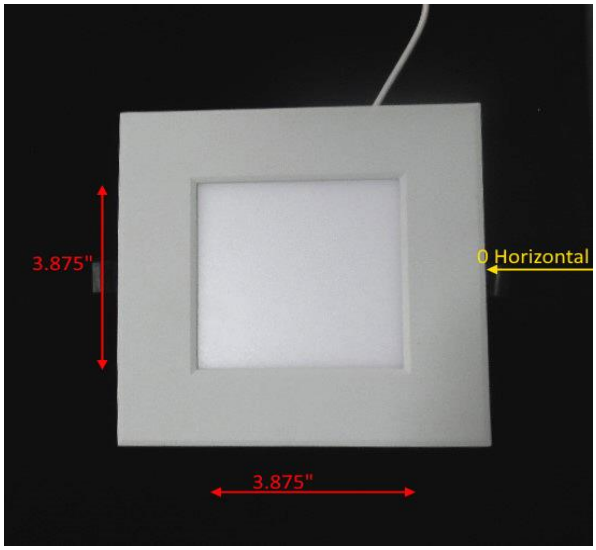
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001426-007

Indoor Distribution Photometry Test Report

Catalog Number: RDL/6SQ/11/5CTS-46 - 3000K Setting
Recessed mounted, cast aluminum and formed plastic housing, clear patterned plastic enclosure above translucent white plastic enclosure.
60 white LEDs
One LED20009A LED driver



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

Performance Summary					
Input Voltage	120.0	V	Luminous Flux	949.3	Lumens
Input Current	0.0946	A	Total Efficacy	85.7	Lm/W
Input Power	11.08	W	Downward Flux	949.3	Lumens
Frequency	60.00	Hz	Downward Flux	100.0	% of Total
Power Factor	0.976				
Current THD	12.7	%			

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: Michael L. Grather

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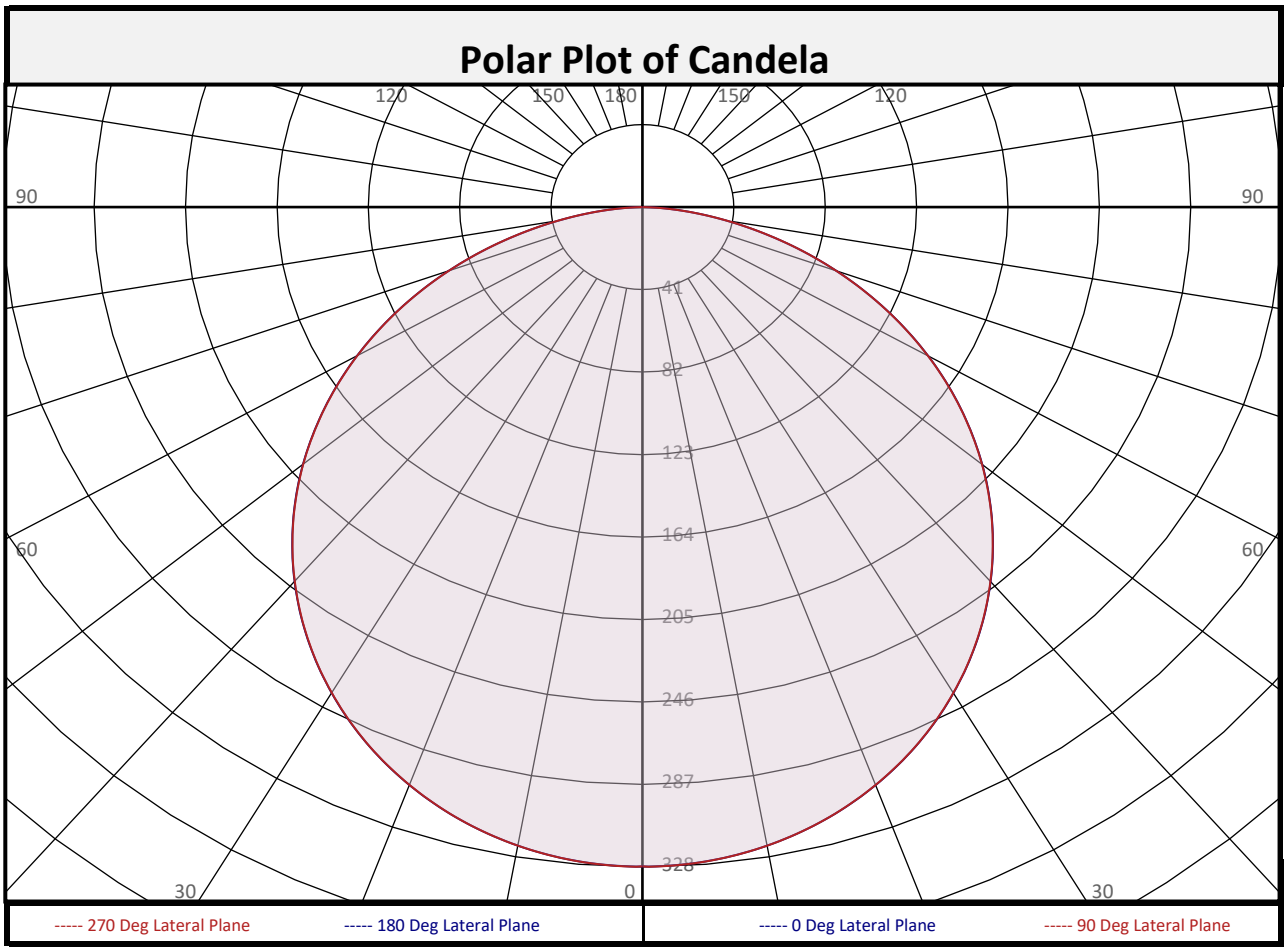

Zonal Flux Summary									
Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	31.0	3.3%	90-100	0.0	0.0%	0-20	120.0	12.6%
10-20	89.0	9.4%	100-110	0.0	0.0%	0-30	255.3	26.9%
20-30	135.3	14.3%	110-120	0.0	0.0%	0-40	419.2	44.2%
30-40	163.9	17.3%	120-130	0.0	0.0%	0-60	745.6	78.5%
40-50	171.0	18.0%	130-140	0.0	0.0%	0-80	932.4	98.2%
50-60	155.4	16.4%	140-150	0.0	0.0%	10-90	918.3	96.7%
60-70	118.8	12.5%	150-160	0.0	0.0%	20-50	470.2	49.5%
70-80	67.9	7.2%	160-170	0.0	0.0%	40-90	530.1	55.8%
80-90	17.0	1.8%	170-180	0.0	0.0%	60-90	203.8	21.5%
0-90	949.3	100.0%	90-180	0.0	0.0%	0-180	949.3	100.0%

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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
	0	328	328	328	328	328	328	328	328	328
	2.5	328	327	327	327	328	327	327	327	328
	5	327	326	326	326	327	326	326	326	327
	7.5	325	325	325	325	325	325	325	325	325
	10	322	322	322	322	322	322	322	322	322
	12.5	319	319	319	319	319	319	319	319	319
	15	315	315	315	315	315	315	315	315	315
	17.5	311	311	311	311	311	311	311	311	311
	20	306	306	306	306	306	306	306	306	306
	22.5	300	300	300	300	300	300	300	300	300
	25	294	294	294	293	294	293	294	294	294
	27.5	287	287	287	286	287	286	287	287	287
	30	279	279	279	279	279	279	279	279	279
	32.5	271	271	271	271	271	271	271	271	271
	35	262	262	262	262	262	262	262	262	262
	37.5	253	253	253	253	253	253	253	253	253
	40	243	243	243	243	243	243	243	243	243
	42.5	233	233	233	233	233	233	233	233	233
	45	222	222	222	222	222	222	222	222	222
	47.5	211	211	210	210	211	210	210	211	211
	50	199	199	199	199	199	199	199	199	199
	52.5	187	187	186	186	187	186	186	187	187
	55	174	174	174	174	174	174	174	174	174
	57.5	161	161	161	161	161	161	161	161	161
	60	148	148	147	148	148	148	147	148	148
	62.5	134	134	134	134	134	134	134	134	134
	65	121	120	120	120	120	120	120	120	121
	67.5	107	106	106	106	107	106	106	106	107
	70	92	92	92	92	92	92	92	92	92
	72.5	78	78	78	78	78	78	78	78	78
	75	64	64	64	64	64	64	64	64	64
	77.5	51	50	51	51	51	51	51	50	51
	80	38	38	37	38	38	38	37	38	38
	82.5	26	25	25	26	26	26	25	25	26
	85	15	14	14	15	15	15	14	14	15
	87.5	5	5	5	5	5	5	5	5	5
	90	0	0	0	0	0	0	0	0	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
	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	36		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	9.1	7.59	7.59
8.0	5.1	10.12	10.12
10.0	3.3	12.65	12.65
12.0	2.3	15.18	15.18
14.0	1.7	17.71	17.70
16.0	1.3	20.24	20.23

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	73732	73732	73732
45	70594	70526	70552
55	68311	68151	68267
65	64154	63853	64106
75	55800	55845	55936
85	37728	36651	38462

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	24.1	25.8	24.5	26.1	26.4	24.1	25.8	24.5	26.1	26.4
	3H	26.0	27.5	26.4	27.8	28.2	26.0	27.5	26.4	27.8	28.2
	4H	26.6	28.1	27.0	28.4	28.8	26.6	28.1	27.0	28.4	28.8
	6H	27.1	28.4	27.5	28.8	29.2	27.1	28.4	27.5	28.8	29.2
	8H	27.3	28.5	27.7	28.9	29.3	27.3	28.5	27.7	28.9	29.3
	12H	27.4	28.5	27.8	28.9	29.4	27.4	28.6	27.8	28.9	29.4
4H	2H	24.8	26.2	25.2	26.5	26.9	24.8	26.2	25.2	26.5	26.9
	3H	26.8	28.0	27.2	28.4	28.8	26.8	28.0	27.2	28.4	28.8
	4H	27.6	28.7	28.1	29.1	29.5	27.6	28.7	28.1	29.1	29.5
	6H	28.2	29.2	28.7	29.6	30.1	28.2	29.2	28.7	29.6	30.1
	8H	28.4	29.3	28.9	29.7	30.2	28.4	29.3	28.9	29.7	30.2
	12H	28.5	29.3	29.0	29.8	30.3	28.6	29.3	29.0	29.8	30.3
8H	4H	27.9	28.8	28.4	29.3	29.7	27.9	28.8	28.4	29.3	29.7
	6H	28.7	29.4	29.2	29.9	30.4	28.7	29.4	29.2	29.9	30.4
	8H	28.9	29.6	29.4	30.1	30.6	28.9	29.6	29.4	30.1	30.6
	12H	29.1	29.7	29.6	30.2	30.7	29.1	29.7	29.6	30.2	30.7
12H	4H	28.0	28.8	28.5	29.2	29.7	28.0	28.8	28.5	29.2	29.7
	6H	28.7	29.4	29.2	29.8	30.4	28.7	29.4	29.2	29.8	30.4
	8H	29.0	29.6	29.5	30.1	30.6	29.0	29.6	29.5	30.1	30.7

Maximum UGR = 30.7

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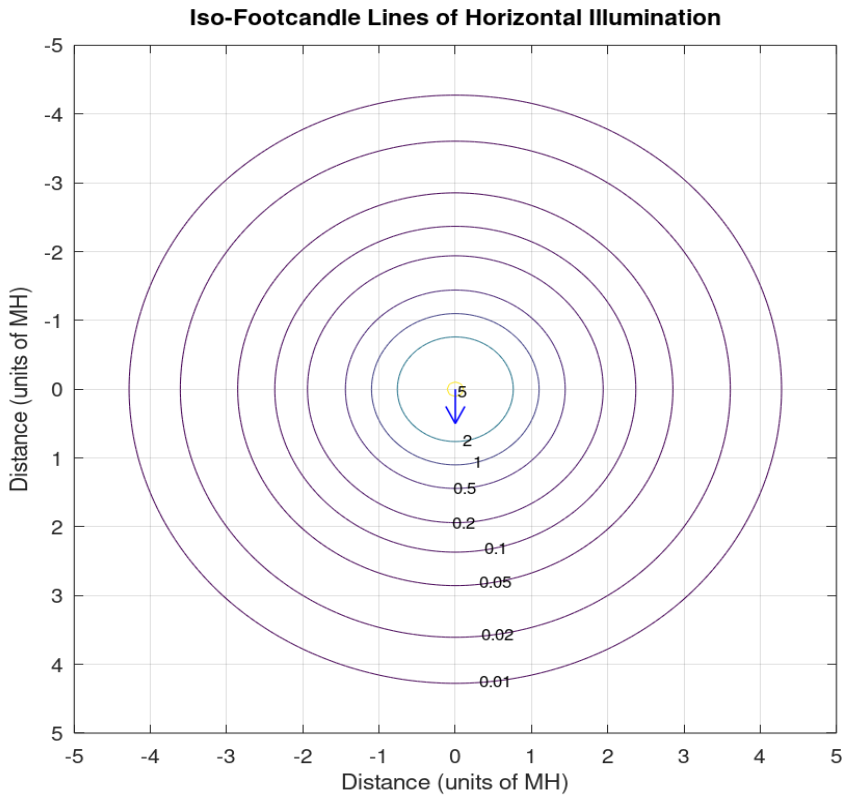
Iso-Illuminance Plot



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	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.