LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001740-006

Indoor Distribution Photometry Test Report

Catalog Number: PL24-50WPCTS-D - 50W/4000K setting
Recessed mounted, formed white painted steel housing/reflector, white painted aluminum frame, clear prismatic plastic enclosure with diffuse white plastic overlay.
180 white LEDs on six white circuit boards with optic below each LED
XZ-SE50B-480100-080060-Y-D LED driver

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

Performance Summary					
Input Voltage	120.0	Vac	Luminous Flux	6545.8	Lumens
Input Current	0.3863	A	Total Efficacy	143.1	Lm/W
Input Power	45.73	W	Downward Flux	6545.8	Lumens
Frequency	60.00	Hz	Downward Flux	100.0	% of Total
Power Factor	0.987				
Current THD	8.5	%			

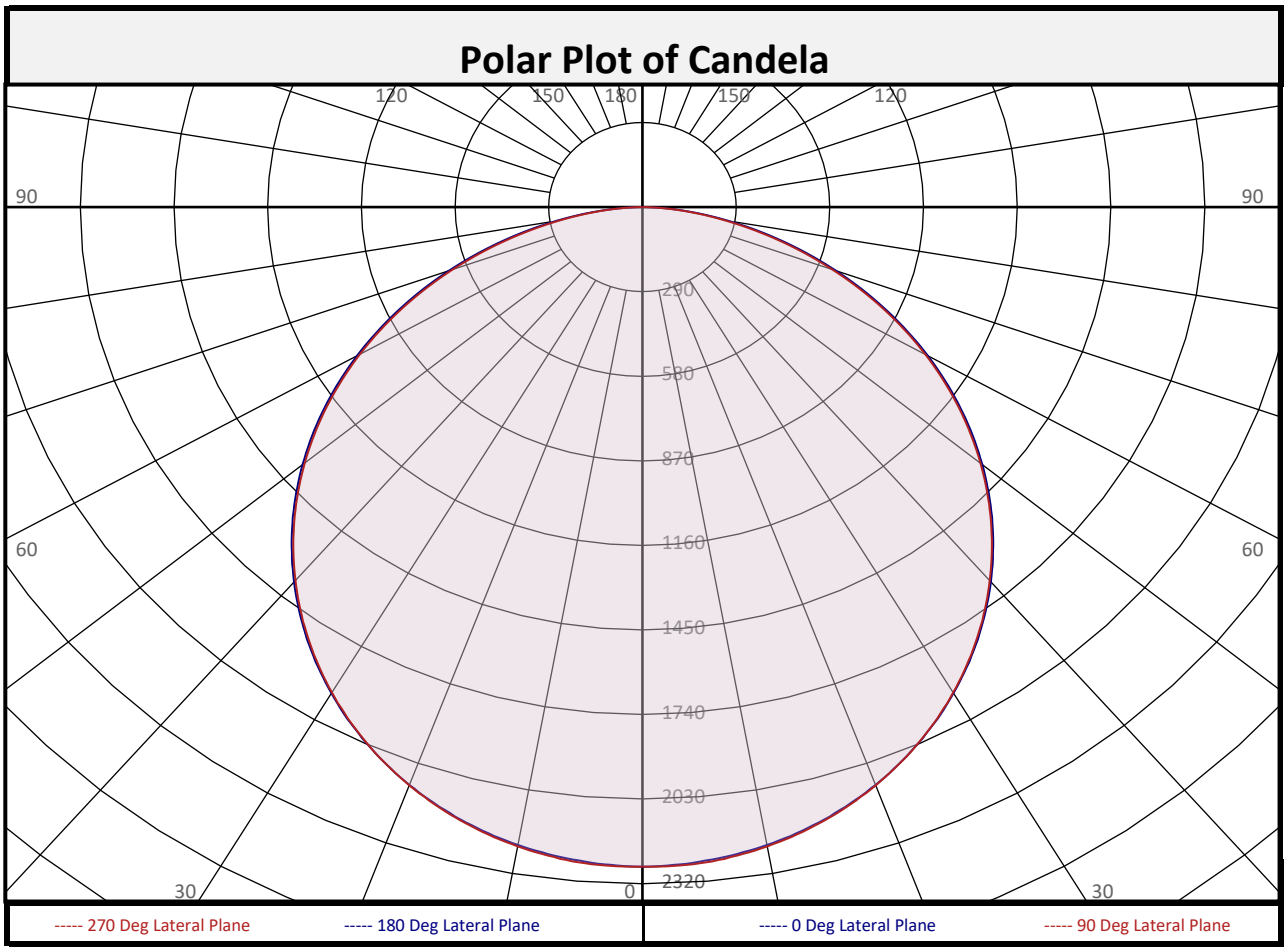
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 05/04/2022
Report date: 05/05/2022

Signed: Michael L. Grather

Report of Test

LLIA001740-006



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	214.2	3.3%	90-100	0.0	0.0%	0-20	828.1	12.7%
10-20	613.9	9.4%	100-110	0.0	0.0%	0-30	1761	26.9%
20-30	933.1	14.3%	110-120	0.0	0.0%	0-40	2891	44.2%
30-40	1130	17.3%	120-130	0.0	0.0%	0-60	5139	78.5%
40-50	1178	18.0%	130-140	0.0	0.0%	0-80	6420	98.1%
50-60	1069	16.3%	140-150	0.0	0.0%	10-90	6332	96.7%
60-70	815.4	12.5%	150-160	0.0	0.0%	20-50	3241	49.5%
70-80	465.6	7.1%	160-170	0.0	0.0%	40-90	3655	55.8%
80-90	126.3	1.9%	170-180	0.0	0.0%	60-90	1407	21.5%
0-90	6546	100.0%	90-180	0.0	0.0%	0-180	6546	100.0%

Report of Test

LLIA001740-006

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	2262	2262	2262	2262	2262	2262	2262	2262	2262
	2.5	2258	2258	2259	2260	2261	2260	2259	2258	2258
	5	2249	2250	2252	2255	2256	2255	2252	2250	2249
	7.5	2238	2238	2240	2242	2243	2242	2240	2238	2238
	10	2221	2222	2223	2225	2226	2225	2223	2222	2221
	12.5	2200	2199	2201	2203	2204	2203	2201	2199	2200
	15	2175	2173	2174	2175	2178	2175	2174	2173	2175
	17.5	2143	2143	2144	2144	2146	2144	2144	2143	2143
	20	2109	2108	2108	2109	2111	2109	2108	2108	2109
	22.5	2069	2069	2068	2068	2070	2068	2068	2069	2069
	25	2026	2025	2024	2024	2025	2024	2024	2025	2026
	27.5	1979	1977	1976	1975	1977	1975	1976	1977	1979
	30	1925	1924	1923	1922	1922	1922	1923	1924	1925
	32.5	1869	1868	1867	1866	1865	1866	1867	1868	1869
	35	1810	1808	1806	1805	1805	1805	1806	1808	1810
	37.5	1745	1744	1742	1740	1740	1740	1742	1744	1745
	40	1678	1676	1674	1672	1671	1672	1674	1676	1678
	42.5	1606	1605	1603	1601	1600	1601	1603	1605	1606
	45	1532	1531	1528	1525	1525	1525	1528	1531	1532
	47.5	1454	1453	1449	1447	1446	1447	1449	1453	1454
	50	1373	1372	1369	1366	1365	1366	1369	1372	1373
	52.5	1289	1287	1284	1281	1280	1281	1284	1287	1289
	55	1202	1200	1197	1194	1193	1194	1197	1200	1202
	57.5	1112	1111	1108	1104	1103	1104	1108	1111	1112
	60	1020	1019	1015	1012	1011	1012	1015	1019	1020
	62.5	925	924	920	917	916	917	920	924	925
	65	830	829	825	821	820	821	825	829	830
	67.5	734	732	728	724	722	724	728	732	734
	70	637	635	630	626	625	626	630	635	637
	72.5	540	539	534	529	528	529	534	539	540
	75	446	444	439	434	432	434	439	444	446
	77.5	355	353	348	343	341	343	348	353	355
	80	268	266	262	257	255	257	262	266	268
	82.5	187	185	183	178	176	178	183	185	187
	85	112	111	109	107	106	107	109	111	112
	87.5	46	46	46	46	46	46	46	46	46
	90	0	0	0	0	0	0	0	0	0

Report of Test

LLIA001740-006

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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

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LLIA001740-006

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	99	96		106	102	98	94		97	94	91		93	91	88		90	88	86	83
2	99	90	83	78		96	88	82	77		85	79	75		82	77	73		79	75	71	69
3	90	79	71	64		87	78	70	64		75	68	63		72	66	61		69	64	60	58
4	82	70	61	54		80	69	60	54		66	59	53		64	58	52		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	62.8	7.59	7.58
8.0	35.3	10.12	10.10
10.0	22.6	12.65	12.63
12.0	15.7	15.18	15.15
14.0	11.5	17.71	17.68
16.0	8.8	20.24	20.21

Spacing Criterion

0 deg:	1.3
90 deg:	1.3
180 deg:	1.3
270 deg:	1.3

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	3524	3524	3524
45	3374	3366	3359
55	3263	3251	3240
65	3060	3040	3021
75	2686	2644	2602
85	1994	1955	1891

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 114.0°

Field Angle: 162.5°

90-270 Degree Plane

Beam Angle: 113.4°

Field Angle: 161.8°

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Report of Test

LLIA001740-006

UGR Table - Corrected

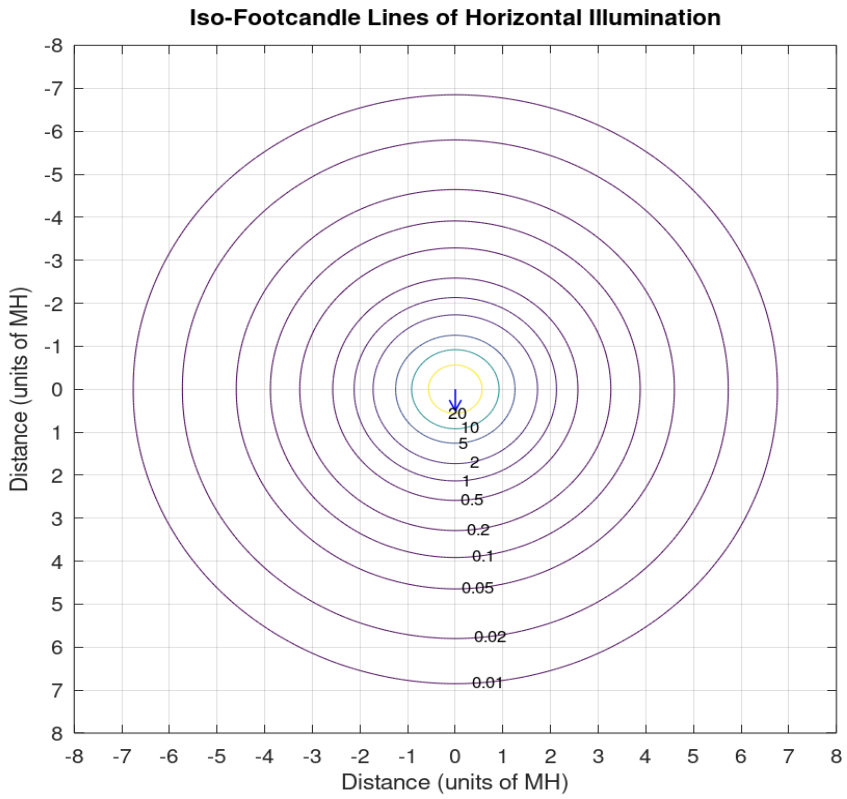
Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	16.3	17.9	16.6	18.2	18.6	16.2	17.9	16.6	18.2	18.5
	3H	18.1	19.6	18.5	19.9	20.3	18.0	19.5	18.4	19.9	20.2
	4H	18.8	20.2	19.2	20.5	20.9	18.7	20.1	19.1	20.5	20.8
	6H	19.3	20.6	19.7	21.0	21.3	19.2	20.5	19.6	20.8	21.2
	8H	19.4	20.7	19.9	21.1	21.5	19.3	20.6	19.7	21.0	21.3
	12H	19.6	20.7	20.0	21.1	21.6	19.4	20.6	19.8	21.0	21.4
4H	2H	16.9	18.3	17.3	18.7	19.0	16.9	18.3	17.3	18.6	19.0
	3H	19.0	20.1	19.4	20.5	20.9	18.9	20.1	19.3	20.5	20.9
	4H	19.8	20.8	20.2	21.3	21.7	19.7	20.8	20.1	21.2	21.6
	6H	20.4	21.3	20.9	21.8	22.2	20.3	21.2	20.7	21.7	22.1
	8H	20.6	21.5	21.1	21.9	22.4	20.5	21.4	20.9	21.8	22.3
	12H	20.7	21.5	21.2	22.0	22.5	20.6	21.4	21.1	21.9	22.3
8H	4H	20.1	21.0	20.5	21.4	21.9	20.0	20.9	20.5	21.3	21.8
	6H	20.8	21.6	21.3	22.0	22.5	20.7	21.4	21.2	21.9	22.4
	8H	21.1	21.8	21.6	22.3	22.7	21.0	21.6	21.5	22.1	22.6
	12H	21.3	21.9	21.8	22.4	22.9	21.2	21.8	21.7	22.2	22.8
12H	4H	20.1	20.9	20.6	21.4	21.8	20.0	20.8	20.5	21.3	21.8
	6H	20.9	21.6	21.4	22.0	22.5	20.8	21.4	21.3	21.9	22.4
	8H	21.2	21.8	21.7	22.3	22.8	21.1	21.7	21.6	22.2	22.7

Maximum UGR = 22.9

Report of Test

LLIA001740-006

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

LLIA001740-006

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-41-20 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.