LightLab INTERNATIONAL ALLENTOWN LLC

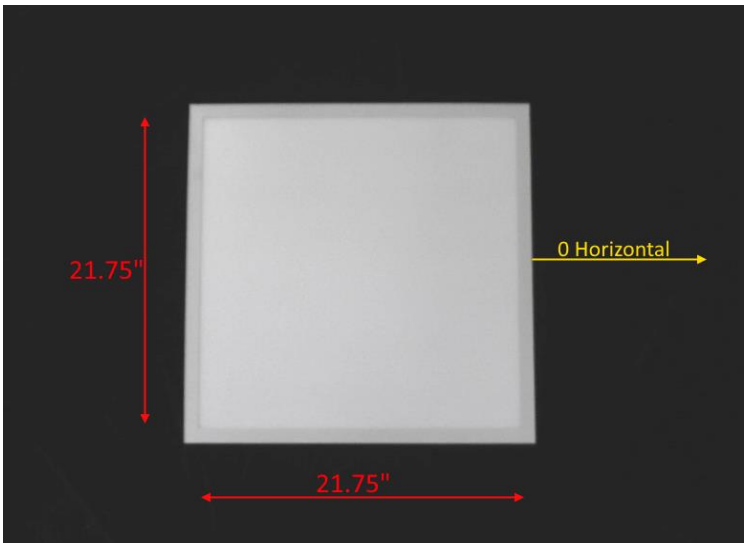
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001740-002

Indoor Distribution Photometry Test Report

Catalog Number: PL22-35WPCTS-D - 30W/4000K setting
Recessed mounted, formed white painted steel housing/reflector, white painted aluminum frame, clear prismatic plastic enclosure with diffuse white plastic overlay.
120 white LEDs on six white circuit boards with optic below each LED
XZ-SE40B-480070-060050-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	3907.6	Lumens
Input Current	0.2284	A	Total Efficacy	143.2	Lm/W
Input Power	27.29	W	Downward Flux	3907.5	Lumens
Frequency	60.00	Hz	Downward Flux	100.0	% of Total
Power Factor	0.996				
Current THD	7.5	%			

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

Test date: 05/05/2022
Report date: 05/06/2022

Signed: Michael L. Grather

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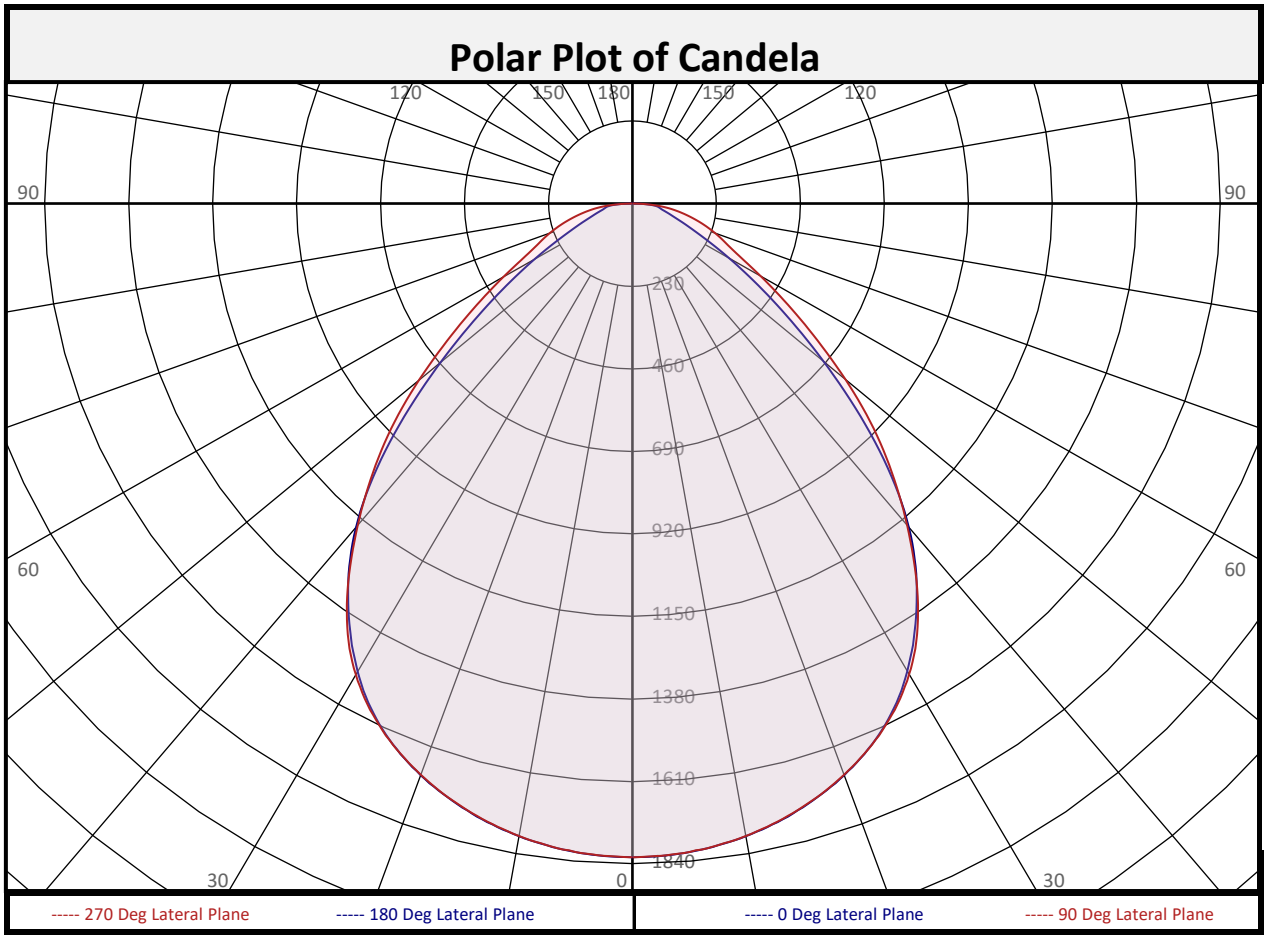

Zonal Flux Summary								
Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	172.4	4.4%	90-100	0.0	0.0%	0-20	666.2	17.0%
10-20	493.8	12.6%	100-110	0.0	0.0%	0-30	1410	36.1%
20-30	743.8	19.0%	110-120	0.0	0.0%	0-40	2255	57.7%
30-40	844.9	21.6%	120-130	0.0	0.0%	0-60	3447	88.2%
40-50	733.7	18.8%	130-140	0.0	0.0%	0-80	3847	98.5%
50-60	458.7	11.7%	140-150	0.0	0.0%	10-90	3735	95.6%
60-70	249.0	6.4%	150-160	0.0	0.0%	20-50	2322	59.4%
70-80	150.8	3.9%	160-170	0.0	0.0%	40-90	1653	42.3%
80-90	60.5	1.5%	170-180	0.0	0.0%	60-90	460.2	11.8%
0-90	3908	100.0%	90-180	0.0	0.0%	0-180	3908	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	1821	1821	1821	1821	1821	1821	1821	1821	1821
2.5	1819	1820	1820	1819	1819	1819	1820	1820	1819
5	1813	1813	1813	1813	1813	1813	1813	1813	1813
7.5	1803	1803	1804	1803	1803	1803	1804	1803	1803
10	1790	1790	1790	1789	1789	1789	1790	1790	1790
12.5	1772	1772	1772	1771	1771	1771	1772	1772	1772
15	1750	1750	1750	1750	1750	1750	1750	1750	1750
17.5	1725	1724	1723	1723	1724	1723	1723	1724	1725
20	1695	1695	1693	1693	1694	1693	1693	1695	1695
22.5	1660	1659	1658	1659	1659	1659	1658	1659	1660
25	1618	1619	1617	1618	1620	1618	1617	1619	1618
27.5	1567	1569	1569	1570	1573	1570	1569	1569	1567
30	1506	1508	1509	1511	1515	1511	1509	1508	1506
32.5	1435	1436	1437	1441	1447	1441	1437	1436	1435
35	1357	1353	1355	1359	1364	1359	1355	1353	1357
37.5	1274	1263	1266	1272	1269	1272	1266	1263	1274
40	1178	1168	1172	1178	1171	1178	1172	1168	1178
42.5	1065	1070	1072	1074	1072	1074	1072	1070	1065
45	940	963	961	955	973	955	961	963	940
47.5	808	850	842	826	869	826	842	850	808
50	682	734	721	698	761	698	721	734	682
52.5	567	623	608	579	655	579	608	623	567
55	467	525	508	475	561	475	508	525	467
57.5	381	442	422	387	479	387	422	442	381
60	308	373	349	313	407	313	349	373	308
62.5	248	316	290	254	346	254	290	316	248
65	200	271	244	210	301	210	244	271	200
67.5	164	239	212	177	269	177	212	239	164
70	136	214	188	151	241	151	188	214	136
72.5	115	193	168	130	212	130	168	193	115
75	99	169	148	112	183	112	148	169	99
77.5	86	145	128	93	155	93	128	145	86
80	77	121	108	77	128	77	108	121	77
82.5	71	97	86	64	100	64	86	97	71
85	57	69	61	48	68	48	61	69	57
87.5	29	34	28	22	31	22	28	34	29
90	1	2	1	0	0	0	1	2	1

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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	1	2	1	0	0	0	1	2	1
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	110	106	102	99		108	104	100	97		100	97	94		96	94	92		92	90	89	87
2	102	95	89	84		99	93	87	83		89	85	81		86	82	79		83	80	77	75
3	94	85	77	72		92	83	76	71		80	74	70		78	73	69		75	71	67	65
4	87	76	68	62		85	75	68	62		72	66	61		70	65	60		68	63	59	57
5	80	69	61	55		79	68	60	54		66	59	54		64	58	53		62	57	53	51
6	75	63	54	49		73	62	54	48		60	53	48		58	52	48		57	51	47	45
7	70	57	49	44		68	56	49	43		55	48	43		54	47	43		52	47	43	41
8	65	53	45	39		64	52	44	39		51	44	39		49	43	39		48	43	39	37
9	61	49	41	36		60	48	41	36		47	40	35		46	40	35		45	39	35	33
10	57	45	38	33		56	44	37	33		43	37	32		43	37	32		42	36	32	30

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	50.6	7.33	7.38
8.0	28.5	9.78	9.84
10.0	18.2	12.22	12.30
12.0	12.6	14.67	14.76
14.0	9.3	17.11	17.22
16.0	7.1	19.56	19.68

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	5968	5968	5968
45	4354	4451	4506
55	2667	2901	3207
65	1547	1893	2334
75	1257	1879	2322
85	2148	2276	2573

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 91.1°

Field Angle: 132.3°

90-270 Degree Plane

Beam Angle: 93.0°

Field Angle: 150.2°

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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	14.2	15.7	14.6	16.0	16.3	13.8	15.2	14.1	15.5	15.9
	3H	15.2	16.5	15.6	16.9	17.2	15.1	16.5	15.5	16.8	17.1
	4H	15.7	16.9	16.1	17.2	17.6	15.9	17.1	16.3	17.4	17.8
	6H	16.0	17.2	16.5	17.6	17.9	16.5	17.7	17.0	18.0	18.4
	8H	16.3	17.3	16.7	17.7	18.1	16.9	17.9	17.3	18.3	18.7
	12H	16.5	17.5	16.9	17.9	18.3	17.1	18.2	17.6	18.5	19.0
4H	2H	14.6	15.8	15.0	16.1	16.5	14.2	15.4	14.6	15.7	16.1
	3H	15.9	16.9	16.3	17.3	17.8	15.7	16.7	16.1	17.1	17.5
	4H	16.6	17.6	17.1	18.0	18.4	16.4	17.3	16.9	17.8	18.2
	6H	17.3	18.1	17.8	18.5	19.0	17.2	18.0	17.7	18.5	18.9
	8H	17.6	18.3	18.1	18.8	19.3	17.6	18.4	18.1	18.8	19.3
	12H	17.9	18.6	18.4	19.1	19.5	18.0	18.7	18.5	19.1	19.6
8H	4H	16.9	17.7	17.4	18.1	18.6	16.8	17.5	17.2	17.9	18.4
	6H	17.9	18.5	18.4	19.0	19.4	17.7	18.3	18.2	18.8	19.2
	8H	18.3	18.9	18.8	19.4	19.9	18.1	18.7	18.6	19.2	19.7
	12H	18.8	19.3	19.3	19.8	20.3	18.6	19.1	19.1	19.5	20.1
12H	4H	17.0	17.6	17.5	18.1	18.6	16.8	17.5	17.3	18.0	18.4
	6H	17.9	18.5	18.5	19.0	19.5	17.8	18.3	18.3	18.8	19.3
	8H	18.5	19.0	19.0	19.5	20.0	18.3	18.8	18.8	19.3	19.8

Maximum UGR = 20.3

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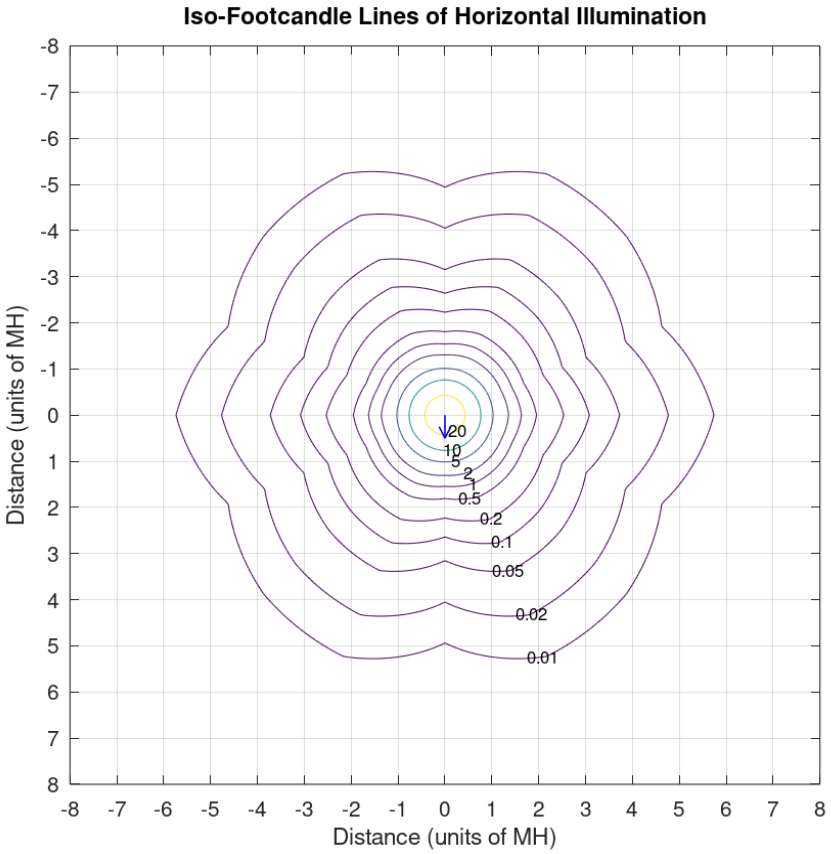
Iso-Illuminance Plot



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	25.0 °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.