LightLab INTERNATIONAL ALLENTOWN LLC

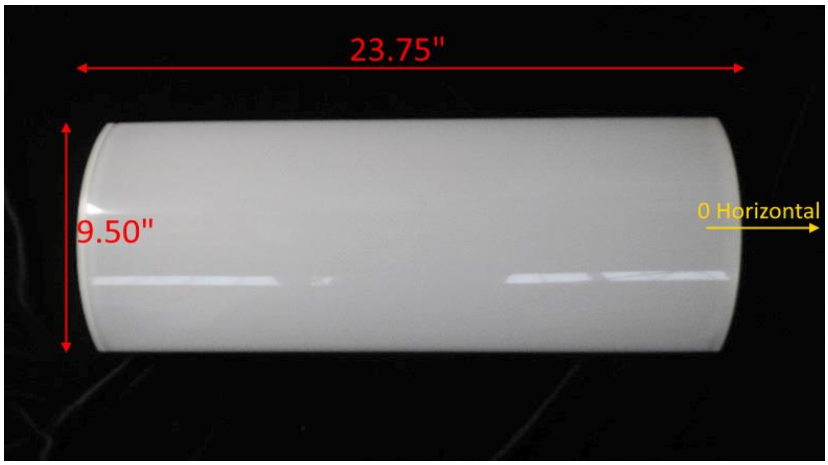
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002469-006

Indoor Distribution Photometry Test Report

Catalog Number: LWRAPA2-25PCS 25W Setting 4000K
Surface mounted, formed white painted steel housing, white painted steel reflector, translucent white linear ribbed plastic enclosure.
240 white LEDs, 120 CW LEDs and 120 WW LEDs on 2 boards
One PLC025S0550US-DEGAR LED driver



Prepared For:
Topaz Lighting, A Southwire Company
925 Waverly Avenue
Holtsville, NY 11742, USA

Performance Summary					
Input Voltage	120.0	Vac	Luminous Flux	3360.5	Lumens
Input Current	0.2094	A	Total Efficacy	134.4	Lm/W
Input Power	25.00	W	Downward Flux	3225.9	Lumens
Frequency	60.00	Hz	Downward Flux	96.0	% of Total
Power Factor	0.994				
Current THD	8.9	%			

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

Test date: 08/21/2024
Report date: 09/04/2024

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2024.09.04 14:04:16 -04'00'

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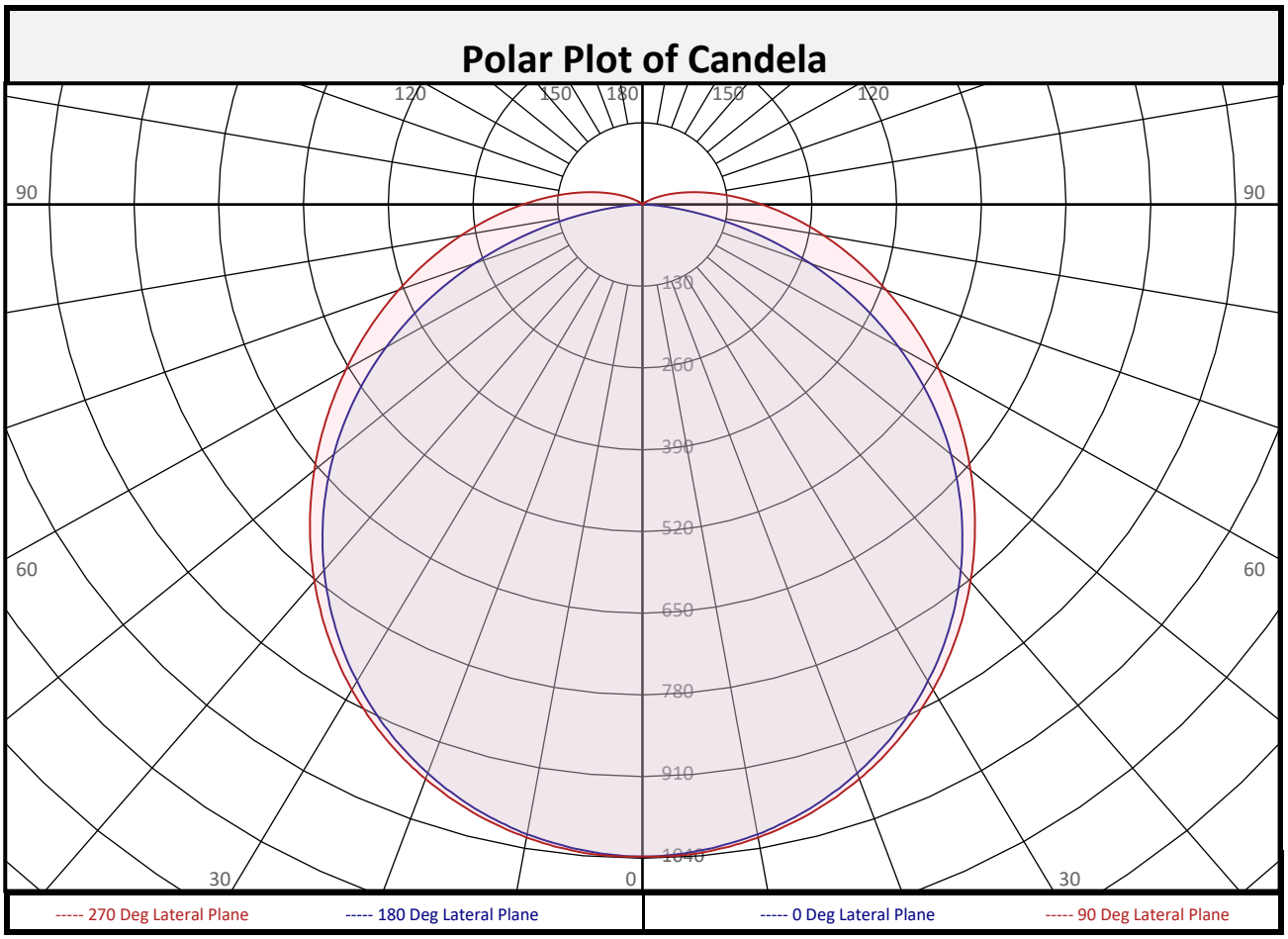

Zonal Flux Summary									
Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total	Zone (Deg Vert)	Flux (Lumens)	Percent of Total
0-10	98.2	2.9%	90-100	81.3	2.4%	0-20	379.8	11.3%
10-20	281.6	8.4%	100-110	35.8	1.1%	0-30	808.2	24.0%
20-30	428.3	12.7%	110-120	12.6	0.4%	0-40	1328	39.5%
30-40	519.4	15.5%	120-130	3.3	0.1%	0-60	2375	70.7%
40-50	544.2	16.2%	130-140	0.9	0.0%	0-80	3064	91.2%
50-60	502.9	15.0%	140-150	0.5	0.0%	10-90	3128	93.1%
60-70	407.5	12.1%	150-160	0.1	0.0%	20-50	1492	44.4%
70-80	282.1	8.4%	160-170	0.0	0.0%	40-90	1898	56.5%
80-90	161.7	4.8%	170-180	0.0	0.0%	60-90	851.3	25.3%
0-90	3226	96.0%	90-180	134.5	4.0%	0-180	3360	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	1037	1037	1037	1037	1037	1037	1037	1037	1037
2.5	1036	1036	1036	1037	1037	1037	1036	1036	1036
5	1031	1032	1032	1034	1035	1034	1032	1032	1031
7.5	1025	1026	1027	1029	1030	1029	1027	1026	1025
10	1017	1018	1019	1021	1023	1021	1019	1018	1017
12.5	1007	1008	1009	1012	1013	1012	1009	1008	1007
15	995	995	998	1000	1002	1000	998	995	995
17.5	979	980	983	987	988	987	983	980	979
20	963	964	968	971	972	971	968	964	963
22.5	944	945	949	953	955	953	949	945	944
25	923	925	929	934	936	934	929	925	923
27.5	901	903	907	912	915	912	907	903	901
30	876	878	883	888	891	888	883	878	876
32.5	850	852	857	864	866	864	857	852	850
35	821	824	830	837	840	837	830	824	821
37.5	791	794	801	808	812	808	801	794	791
40	760	763	770	779	783	779	770	763	760
42.5	726	730	738	748	753	748	738	730	726
45	692	695	704	716	721	716	704	695	692
47.5	656	659	669	683	689	683	669	659	656
50	618	622	634	650	657	650	634	622	618
52.5	579	583	597	616	624	616	597	583	579
55	539	543	560	581	591	581	560	543	539
57.5	497	502	522	548	558	548	522	502	497
60	454	461	485	513	525	513	485	461	454
62.5	410	418	447	480	493	480	447	418	410
65	366	375	411	446	461	446	411	375	366
67.5	320	333	374	414	429	414	374	333	320
70	274	291	339	382	398	382	339	291	274
72.5	228	250	305	351	368	351	305	250	228
75	183	211	272	320	338	320	272	211	183
77.5	139	175	241	291	310	291	241	175	139
80	97	141	212	264	282	264	212	141	97
82.5	60	111	184	237	256	237	184	111	60
85	28	85	159	211	230	211	159	85	28
87.5	7	63	135	187	207	187	135	63	7
90	0	45	114	165	184	165	114	45	0

16 lateral half-planes of data were acquired, 22.5 degree increments shown.

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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
	90	0	45	114	165	184	165	114	45	0
	92.5	0	31	94	144	162	144	94	31	0
	95	0	20	77	125	142	125	77	20	0
	97.5	0	12	62	107	123	107	62	12	0
	100	0	7	49	90	106	90	49	7	0
	102.5	0	4	39	76	90	76	39	4	0
	105	0	2	29	62	76	62	29	2	0
	107.5	0	0	22	51	63	51	22	0	0
	110	0	0	16	40	51	40	16	0	0
	112.5	0	0	11	32	41	32	11	0	0
	115	0	0	8	24	33	24	8	0	0
	117.5	0	0	5	18	25	18	5	0	0
	120	0	0	4	13	19	13	4	0	0
	122.5	0	0	3	10	14	10	3	0	0
	125	0	0	2	7	10	7	2	0	0
	127.5	0	0	2	5	7	5	2	0	0
	130	0	0	1	3	5	3	1	0	0
	132.5	0	0	1	2	3	2	1	0	0
	135	0	0	1	2	3	2	1	0	0
	137.5	0	0	1	2	2	2	1	0	0
	140	0	0	1	1	2	1	1	0	0
	142.5	0	0	1	2	2	2	1	0	0
	145	0	0	0	2	2	2	0	0	0
	147.5	0	0	1	1	2	1	1	0	0
	150	0	0	0	1	1	1	0	0	0
	152.5	0	0	0	1	1	1	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

16 lateral half-planes of data were acquired, 22.5 degree increments shown.

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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	118	118	118	118		115	115	115	115		109	109	109		103	103	103		98	98	98	96
1	106	101	96	92		103	98	94	90		93	90	86		89	86	83		84	82	80	77
2	96	87	80	74		93	85	78	72		81	75	70		77	72	68		73	69	66	63
3	87	76	68	61		84	74	66	60		71	64	58		67	62	57		64	59	55	53
4	80	67	58	51		77	66	57	50		63	55	49		60	53	48		57	52	47	45
5	73	60	51	44		71	59	50	43		56	48	42		54	47	42		51	45	41	39
6	68	54	45	38		65	53	44	38		50	43	37		48	42	36		46	40	36	34
7	63	49	40	34		61	48	39	33		46	38	33		44	37	32		42	36	32	30
8	58	44	36	30		56	44	35	30		42	34	29		40	34	29		39	33	28	26
9	54	41	32	27		53	40	32	27		39	31	26		37	31	26		36	30	26	24
10	51	38	30	24		50	37	29	24		36	29	24		34	28	23		33	27	23	21

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	28.8	7.53	7.66
8.0	16.2	10.05	10.21
10.0	10.4	12.56	12.76
12.0	7.2	15.07	15.32
14.0	5.3	17.58	17.87
16.0	4.1	20.09	20.42

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	7126	7126	7126
45	6726	5678	5434
55	6453	5188	5010
65	5941	4638	4619
75	4852	4097	4315
85	2244	3742	4214

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 112.4°

Field Angle: 159.2°

90-270 Degree Plane

Beam Angle: 121.0°

Field Angle: 200.7°

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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	16.6	18.2	17.1	18.6	19.1	17.7	19.3	18.2	19.7	20.1
	3H	18.2	19.6	18.6	20.1	20.5	20.0	21.4	20.4	21.8	22.3
	4H	18.7	20.1	19.1	20.5	21.0	21.0	22.4	21.5	22.8	23.3
	6H	19.0	20.2	19.4	20.7	21.2	22.0	23.3	22.5	23.8	24.3
	8H	19.0	20.2	19.5	20.7	21.2	22.5	23.8	23.0	24.2	24.7
	12H	19.0	20.2	19.5	20.6	21.2	23.0	24.2	23.5	24.7	25.2
4H	2H	17.4	18.7	17.8	19.2	19.6	18.2	19.6	18.7	20.0	20.5
	3H	19.1	20.3	19.6	20.8	21.3	20.7	21.9	21.2	22.3	22.8
	4H	19.7	20.8	20.2	21.3	21.8	21.9	23.0	22.4	23.4	24.0
	6H	20.1	21.1	20.6	21.6	22.1	23.1	24.0	23.6	24.6	25.1
	8H	20.2	21.1	20.7	21.6	22.2	23.7	24.6	24.2	25.1	25.6
	12H	20.2	21.0	20.8	21.6	22.1	24.3	25.1	24.8	25.6	26.2
8H	4H	20.2	21.1	20.7	21.6	22.2	22.1	23.0	22.6	23.5	24.1
	6H	20.8	21.5	21.3	22.1	22.6	23.5	24.3	24.0	24.8	25.4
	8H	20.9	21.6	21.5	22.2	22.8	24.2	24.9	24.8	25.5	26.0
	12H	21.0	21.6	21.6	22.2	22.8	25.0	25.6	25.6	26.2	26.8
12H	4H	20.4	21.2	20.9	21.7	22.3	22.1	22.9	22.7	23.5	24.1
	6H	21.0	21.7	21.6	22.2	22.8	23.6	24.2	24.1	24.8	25.4
	8H	21.2	21.8	21.8	22.4	23.0	24.3	24.9	24.9	25.5	26.1

Maximum UGR = 26.8

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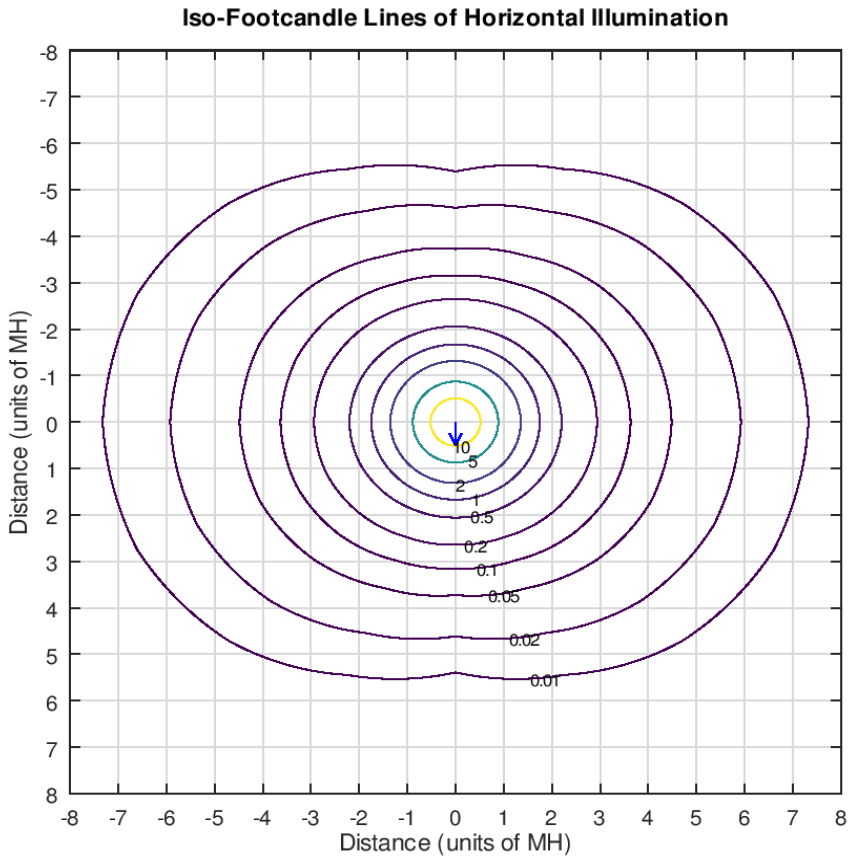
Iso-Illuminance Plot



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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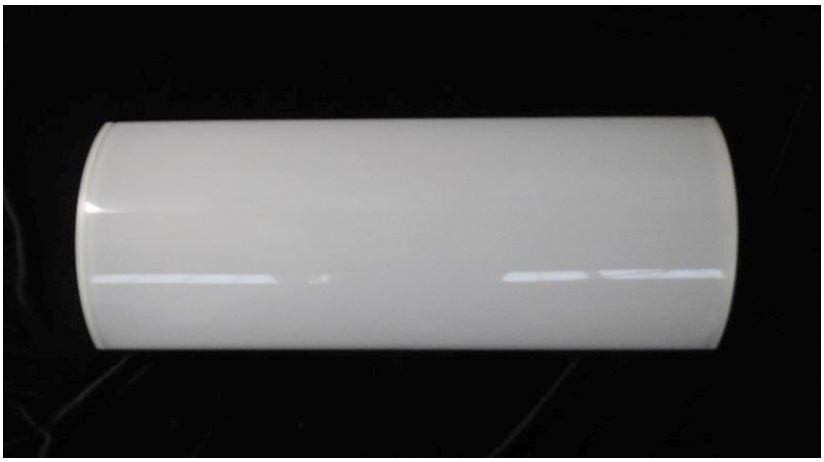
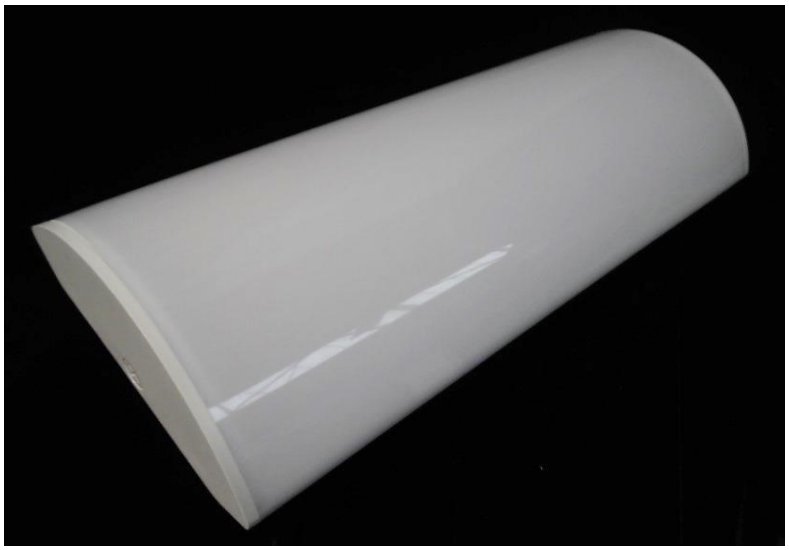
Additional Pictures of Test Subject





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Test Distance	9.5 m
Ambient Temperature	25.1 °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.