LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002469-008

Indoor Distribution Photometry Test Report

Catalog Number: LSA4-50PCS-WH 40W Setting 4000K
Pendant mounted, extruded aluminum housing, formed white reflectors, translucent white plastic enclosure.
360 white LEDs, 180 CW LEDs and 180 WW LEDs
One FS-TMG050B1050TC-12V 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	5255.1	Lumens
Input Current	0.3160	A	Total Efficacy	139.5	Lm/W
Input Power	37.67	W	Downward Flux	5255.1	Lumens
Frequency	60.00	Hz	Downward Flux	100.0	% of Total
Power Factor	0.994				
Current THD	6.2	%			

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

Test date: 09/05/2024
Report date: 09/17/2024

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2024.09.18 16:16:30 -04'00'

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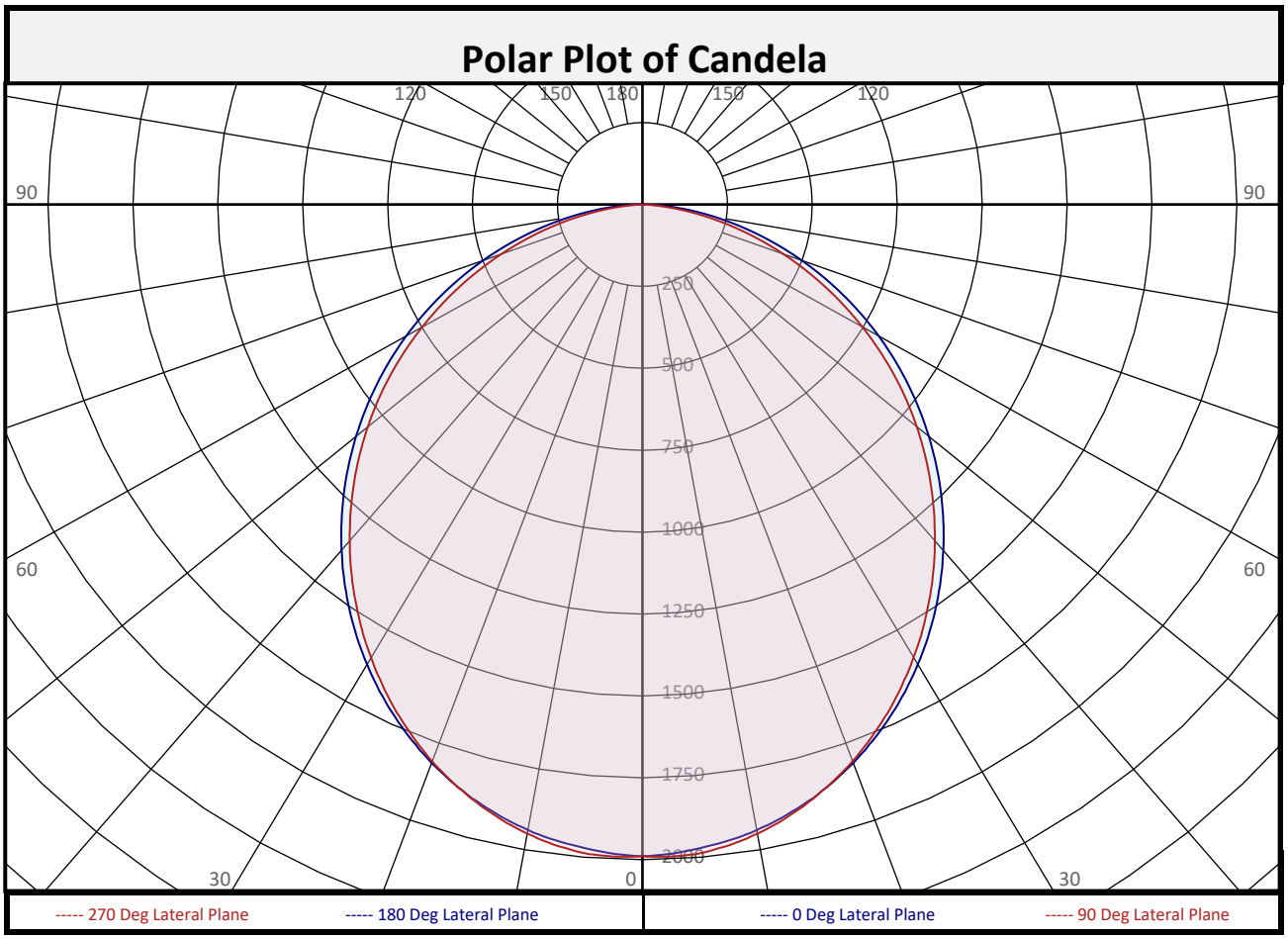

Zonal Flux Summary

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	187.8	3.6%	90-100	0.0	0.0%	0-20	719.4	13.7%
10-20	531.6	10.1%	100-110	0.0	0.0%	0-30	1510	28.7%
20-30	790.3	15.0%	110-120	0.0	0.0%	0-40	2440	46.4%
30-40	930.4	17.7%	120-130	0.0	0.0%	0-60	4213	80.2%
40-50	941.9	17.9%	130-140	0.0	0.0%	0-80	5175	98.5%
50-60	831.4	15.8%	140-150	0.0	0.0%	10-90	5067	96.4%
60-70	618.3	11.8%	150-160	0.0	0.0%	20-50	2663	50.7%
70-80	343.3	6.5%	160-170	0.0	0.0%	40-90	2815	53.6%
80-90	80.1	1.5%	170-180	0.0	0.0%	60-90	1042	19.8%
0-90	5255	100.0%	90-180	0.0	0.0%	0-180	5255	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	1989	1989	1989	1989	1989	1989	1989	1989	1989
	2.5	1984	1983	1986	1990	1992	1990	1986	1983	1984
	5	1972	1970	1975	1984	1987	1984	1975	1970	1972
	7.5	1957	1957	1962	1969	1972	1969	1962	1957	1957
	10	1939	1937	1941	1947	1950	1947	1941	1937	1939
	12.5	1915	1912	1915	1921	1923	1921	1915	1912	1915
	15	1885	1884	1884	1889	1889	1889	1884	1884	1885
	17.5	1852	1848	1849	1851	1851	1851	1849	1848	1852
	20	1814	1809	1809	1809	1808	1809	1809	1809	1814
	22.5	1771	1767	1763	1763	1761	1763	1763	1767	1771
	25	1724	1720	1715	1713	1711	1713	1715	1720	1724
	27.5	1676	1668	1663	1659	1655	1659	1663	1668	1676
	30	1620	1614	1606	1602	1597	1602	1606	1614	1620
	32.5	1565	1557	1548	1542	1536	1542	1548	1557	1565
	35	1504	1497	1486	1479	1473	1479	1486	1497	1504
	37.5	1442	1435	1423	1414	1408	1414	1423	1435	1442
	40	1377	1370	1357	1348	1340	1348	1357	1370	1377
	42.5	1310	1303	1290	1279	1271	1279	1290	1303	1310
	45	1242	1234	1221	1209	1199	1209	1221	1234	1242
	47.5	1171	1165	1150	1138	1128	1138	1150	1165	1171
	50	1100	1093	1078	1065	1054	1065	1078	1093	1100
	52.5	1026	1020	1005	990	980	990	1005	1020	1026
	55	953	947	931	916	903	916	931	947	953
	57.5	878	873	857	839	826	839	857	873	878
	60	803	797	781	761	748	761	781	797	803
	62.5	726	722	705	682	670	682	705	722	726
	65	650	646	627	605	593	605	627	646	650
	67.5	574	570	549	528	516	528	549	570	574
	70	499	494	473	452	441	452	473	494	499
	72.5	424	420	397	377	367	377	397	420	424
	75	351	346	323	304	295	304	323	346	351
	77.5	281	274	252	234	226	234	252	274	281
	80	213	205	184	168	161	168	184	205	213
	82.5	150	140	121	106	101	106	121	140	150
	85	91	80	62	51	47	51	62	80	91
	87.5	38	27	14	8	7	8	14	27	38
	90	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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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	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

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	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	95		98	95	92		94	91	89		90	88	86	84
2	99	91	84	79		97	89	83	78		86	81	76		82	78	74		79	76	73	70
3	91	80	72	66		88	79	71	65		76	69	64		73	67	63		70	66	62	60
4	83	71	62	56		81	70	62	55		67	60	55		65	59	54		63	58	53	51
5	76	64	55	48		74	63	54	48		60	53	47		58	52	47		57	51	46	44
6	71	57	49	42		69	56	48	42		55	47	42		53	46	41		51	45	41	39
7	66	52	43	37		64	51	43	37		50	42	37		48	42	37		47	41	36	34
8	61	48	39	33		59	47	39	33		46	38	33		44	38	33		43	37	33	31
9	57	44	36	30		56	43	35	30		42	35	30		41	34	30		40	34	29	28
10	54	40	33	27		52	40	32	27		39	32	27		38	32	27		37	31	27	25

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	55.3	7.29	7.19
8.0	31.1	9.71	9.58
10.0	19.9	12.14	11.98
12.0	13.8	14.57	14.37
14.0	10.1	17.00	16.77
16.0	7.8	19.43	19.17

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	36900	36900	36900
45	32577	32024	31464
55	30808	30119	29217
65	28519	27518	26017
75	25150	23178	21143
85	19296	13255	10023

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 107.1°

Field Angle: 161.0°

90-270 Degree Plane

Beam Angle: 103.9°

Field Angle: 157.0°

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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	25.7	24.4	26.0	26.3	23.8	25.4	24.1	25.7	26.0
	3H	25.9	27.3	26.2	27.7	28.0	25.4	26.9	25.8	27.2	27.6
	4H	26.6	27.9	27.0	28.3	28.7	26.0	27.4	26.4	27.7	28.1
	6H	27.1	28.3	27.5	28.7	29.1	26.4	27.6	26.8	28.0	28.4
	8H	27.2	28.4	27.6	28.8	29.2	26.4	27.7	26.9	28.1	28.5
	12H	27.3	28.5	27.8	28.9	29.3	26.5	27.7	26.9	28.0	28.5
4H	2H	24.7	26.0	25.1	26.4	26.8	24.4	25.8	24.8	26.1	26.5
	3H	26.7	27.8	27.1	28.2	28.6	26.3	27.4	26.7	27.8	28.2
	4H	27.5	28.5	27.9	29.0	29.4	27.0	28.0	27.4	28.4	28.9
	6H	28.1	29.0	28.6	29.5	29.9	27.5	28.4	27.9	28.8	29.3
	8H	28.3	29.2	28.8	29.6	30.1	27.6	28.4	28.0	28.9	29.3
	12H	28.5	29.2	29.0	29.7	30.2	27.6	28.4	28.1	28.9	29.3
8H	4H	27.8	28.6	28.2	29.0	29.5	27.3	28.1	27.8	28.6	29.1
	6H	28.5	29.2	29.0	29.7	30.2	27.9	28.6	28.4	29.1	29.5
	8H	28.8	29.4	29.3	29.9	30.4	28.0	28.7	28.5	29.2	29.7
	12H	29.0	29.6	29.5	30.0	30.6	28.1	28.7	28.6	29.2	29.7
12H	4H	27.8	28.5	28.2	29.0	29.5	27.3	28.1	27.8	28.6	29.0
	6H	28.5	29.2	29.1	29.6	30.2	27.9	28.6	28.5	29.0	29.6
	8H	28.9	29.4	29.4	29.9	30.5	28.1	28.7	28.7	29.2	29.8

Maximum UGR = 30.6

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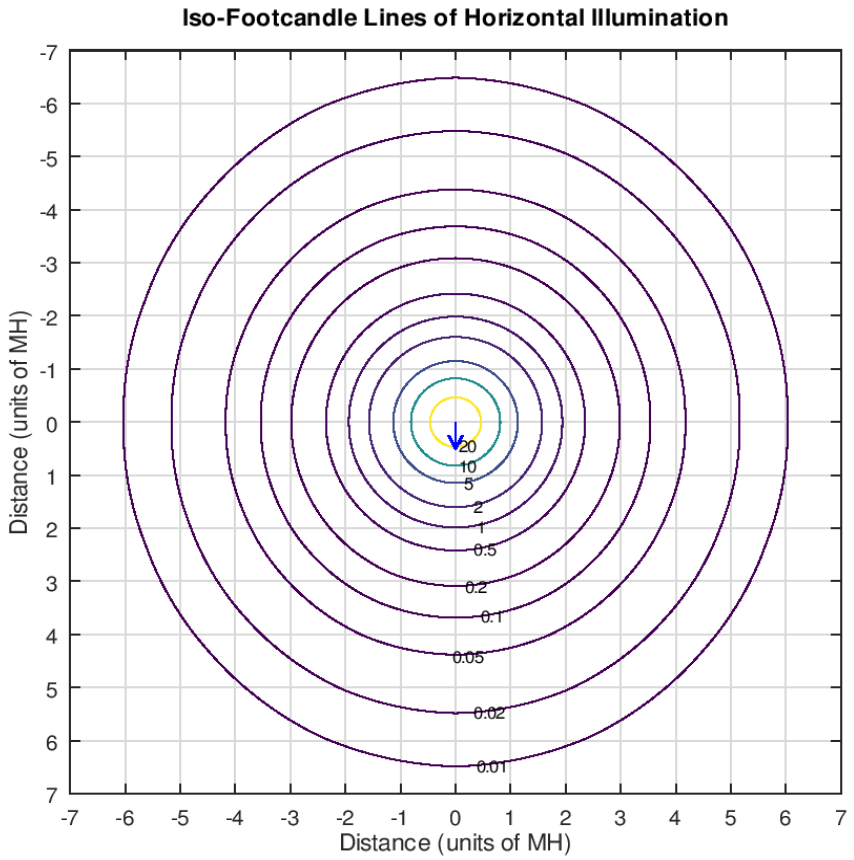
Iso-Illuminance Plot



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	24.5 °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.