LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002469-009

Indoor Distribution Photometry Test Report

Catalog Number: LSA4-50PCS-WH 50W 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	6288.7	Lumens
Input Current	0.3867	A	Total Efficacy	136.4	Lm/W
Input Power	46.09	W	Downward Flux	6288.7	Lumens
Frequency	60.00	Hz	Downward Flux	100.0	% of Total
Power Factor	0.993				
Current THD	7.3	%			

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

Test date: 09/05/2024
Report date: 09/18/2024

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2024.09.18 16:17:01 -04'00'

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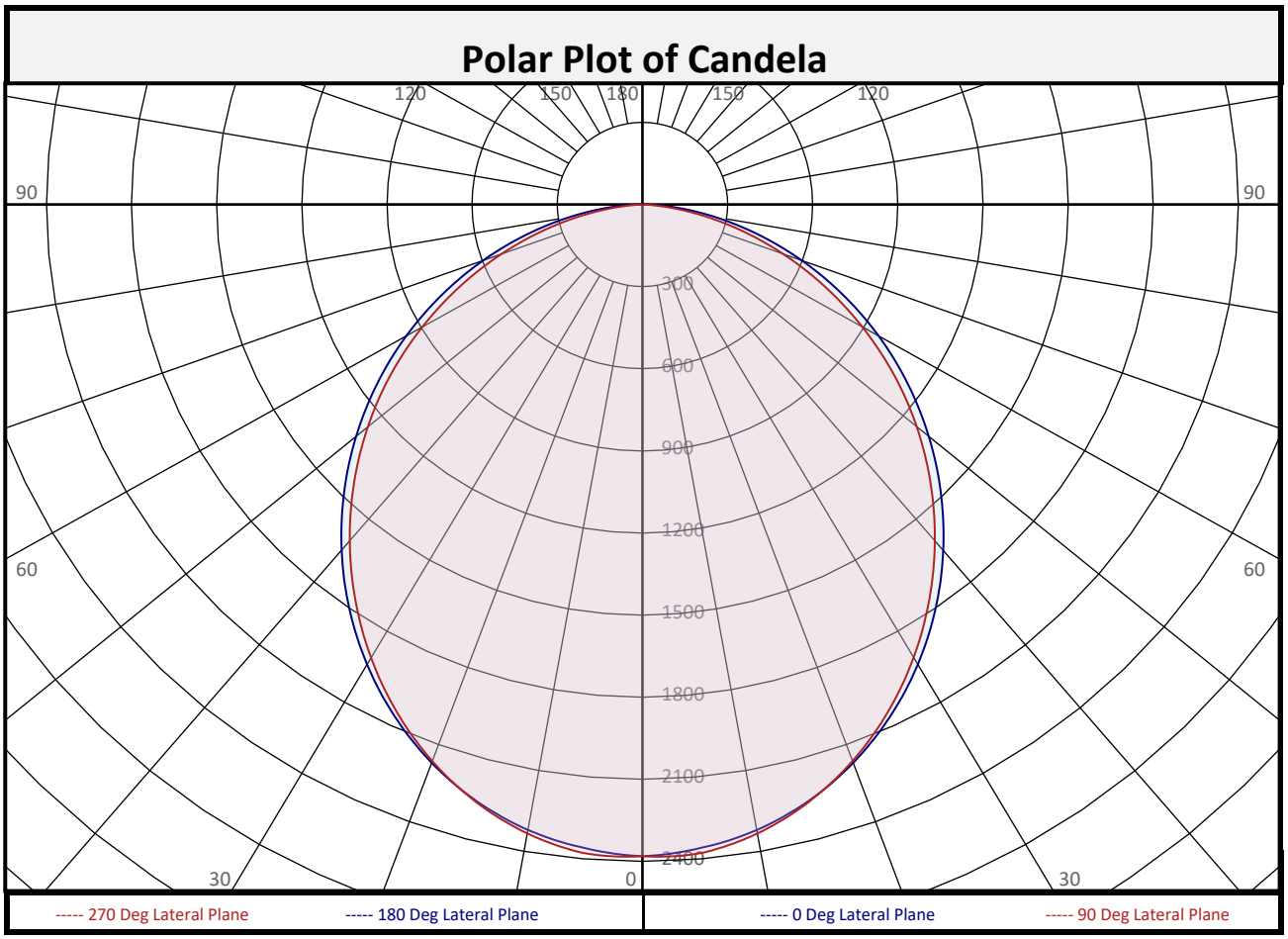

Zonal Flux Summary

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	224.7	3.6%	90-100	0.0	0.0%	0-20	861.0	13.7%
10-20	636.2	10.1%	100-110	0.0	0.0%	0-30	1807	28.7%
20-30	945.8	15.0%	110-120	0.0	0.0%	0-40	2920	46.4%
30-40	1113	17.7%	120-130	0.0	0.0%	0-60	5042	80.2%
40-50	1127	17.9%	130-140	0.0	0.0%	0-80	6193	98.5%
50-60	995.0	15.8%	140-150	0.0	0.0%	10-90	6064	96.4%
60-70	739.8	11.8%	150-160	0.0	0.0%	20-50	3186	50.7%
70-80	410.7	6.5%	160-170	0.0	0.0%	40-90	3368	53.6%
80-90	95.8	1.5%	170-180	0.0	0.0%	60-90	1246	19.8%
0-90	6289	100.0%	90-180	0.0	0.0%	0-180	6289	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	2381	2381	2381	2381	2381	2381	2381	2381	2381
2.5	2373	2373	2376	2381	2384	2381	2376	2373	2373
5	2360	2359	2365	2374	2379	2374	2365	2359	2360
7.5	2343	2342	2347	2356	2359	2356	2347	2342	2343
10	2320	2319	2323	2331	2333	2331	2323	2319	2320
12.5	2291	2289	2292	2299	2300	2299	2292	2289	2291
15	2257	2254	2256	2260	2261	2260	2256	2254	2257
17.5	2217	2213	2213	2216	2215	2216	2213	2213	2217
20	2171	2166	2164	2165	2164	2165	2164	2166	2171
22.5	2120	2114	2111	2110	2108	2110	2111	2114	2120
25	2064	2058	2053	2050	2046	2050	2053	2058	2064
27.5	2004	1997	1990	1986	1981	1986	1990	1997	2004
30	1940	1932	1923	1917	1912	1917	1923	1932	1940
32.5	1872	1864	1852	1845	1839	1845	1852	1864	1872
35	1800	1792	1779	1770	1763	1770	1779	1792	1800
37.5	1726	1717	1703	1693	1685	1693	1703	1717	1726
40	1648	1639	1624	1612	1603	1612	1624	1639	1648
42.5	1568	1560	1543	1531	1520	1531	1543	1560	1568
45	1486	1478	1461	1447	1436	1447	1461	1478	1486
47.5	1402	1394	1376	1362	1350	1362	1376	1394	1402
50	1316	1309	1291	1275	1262	1275	1291	1309	1316
52.5	1228	1221	1203	1186	1172	1186	1203	1221	1228
55	1140	1133	1115	1096	1081	1096	1115	1133	1140
57.5	1051	1044	1025	1003	988	1003	1025	1044	1051
60	961	954	935	910	895	910	935	954	961
62.5	869	864	843	816	802	816	843	864	869
65	778	773	751	724	709	724	751	773	778
67.5	687	681	657	631	618	631	657	681	687
70	596	591	566	540	527	540	566	591	596
72.5	507	502	475	451	439	451	475	502	507
75	420	414	387	363	353	363	387	414	420
77.5	335	328	302	279	270	279	302	328	335
80	255	245	221	200	192	200	221	245	255
82.5	179	168	144	127	120	127	144	168	179
85	108	96	75	61	56	61	75	96	108
87.5	46	32	17	10	8	10	17	32	46
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	66.1	7.28	7.19
8.0	37.2	9.71	9.58
10.0	23.8	12.14	11.98
12.0	16.5	14.57	14.37
14.0	12.1	17.00	16.77
16.0	9.3	19.43	19.16

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	44168	44168	44168
45	38974	38319	37663
55	36864	36042	34960
65	34133	32941	31131
75	30101	27740	25286
85	23085	15857	11952

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	24.7	26.3	25.0	26.6	26.9	24.4	26.0	24.7	26.3	26.6
	3H	26.5	27.9	26.8	28.3	28.6	26.0	27.5	26.4	27.8	28.2
	4H	27.2	28.5	27.6	28.9	29.3	26.6	28.0	27.0	28.3	28.7
	6H	27.7	28.9	28.1	29.3	29.7	27.0	28.2	27.4	28.6	29.0
	8H	27.8	29.0	28.2	29.4	29.8	27.0	28.3	27.5	28.7	29.1
	12H	27.9	29.1	28.3	29.5	29.9	27.1	28.2	27.5	28.6	29.1
4H	2H	25.3	26.6	25.7	27.0	27.4	25.0	26.4	25.4	26.7	27.1
	3H	27.3	28.4	27.7	28.8	29.2	26.9	28.0	27.3	28.4	28.8
	4H	28.1	29.1	28.5	29.5	30.0	27.6	28.6	28.0	29.0	29.5
	6H	28.7	29.6	29.2	30.1	30.5	28.1	29.0	28.5	29.4	29.9
	8H	28.9	29.8	29.4	30.2	30.7	28.2	29.0	28.6	29.5	29.9
	12H	29.1	29.8	29.6	30.3	30.8	28.2	29.0	28.7	29.5	29.9
8H	4H	28.4	29.2	28.8	29.6	30.1	27.9	28.7	28.3	29.2	29.6
	6H	29.1	29.8	29.6	30.3	30.8	28.5	29.2	29.0	29.7	30.1
	8H	29.4	30.0	29.9	30.5	31.0	28.6	29.3	29.1	29.8	30.3
	12H	29.6	30.1	30.1	30.6	31.2	28.7	29.3	29.2	29.8	30.3
12H	4H	28.4	29.1	28.8	29.6	30.1	27.9	28.7	28.4	29.2	29.6
	6H	29.1	29.8	29.7	30.2	30.8	28.5	29.2	29.0	29.6	30.2
	8H	29.5	30.0	30.0	30.5	31.1	28.7	29.3	29.2	29.8	30.3

Maximum UGR = 31.2

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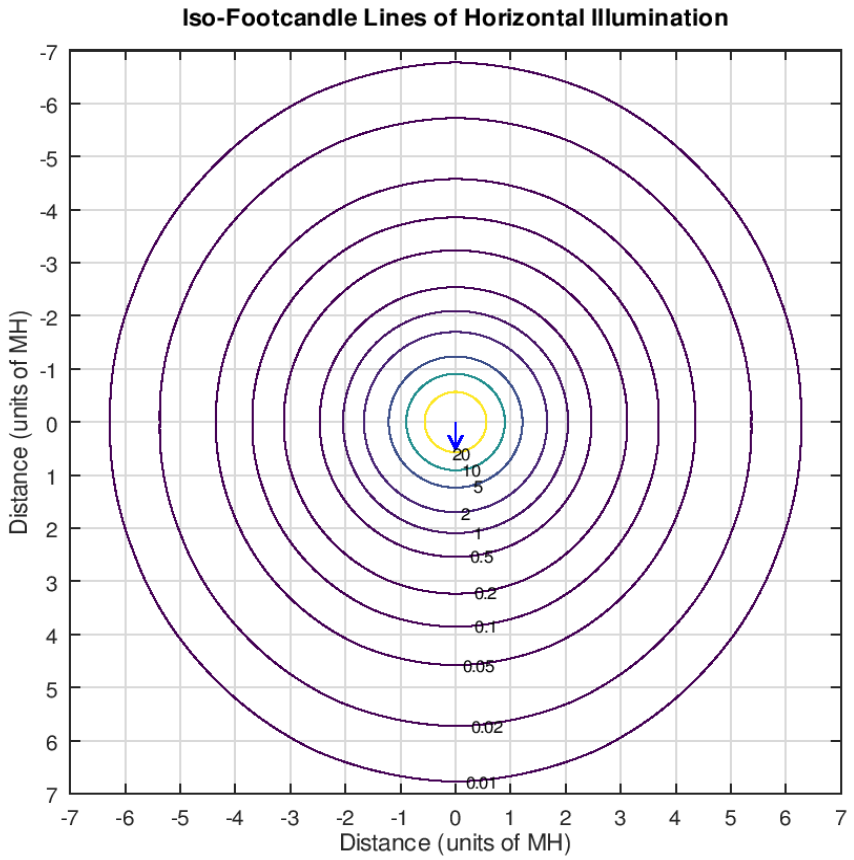
Iso-Illuminance Plot



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-41-20 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.