LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002469-018

Indoor Distribution Photometry Test Report

Catalog Number: LSA4P-50PCS-WH 50W Setting 4000K - 80/20%
Pendant mounted, extruded aluminum housing, formed white reflectors, translucent white plastic enclosure.
360 white LEDs, 180 CW LEDs and 180 WW LEDs in direct section, 40 unenergized LEDs and 110 LEDs, 55CW LEDs and 55WW LEDs, in indirect section. 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	6621.1	Lumens
Input Current	0.3838	A	Total Efficacy	144.8	Lm/W
Input Power	45.72	W	Downward Flux	4695.1	Lumens
Frequency	60.00	Hz	Downward Flux	70.9	% of Total
Power Factor	0.993				
Current THD	7.6	%			

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

Test date: 09/10/2024
Report date: 09/18/2024

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2024.09.18 16:21:17 -04'00'

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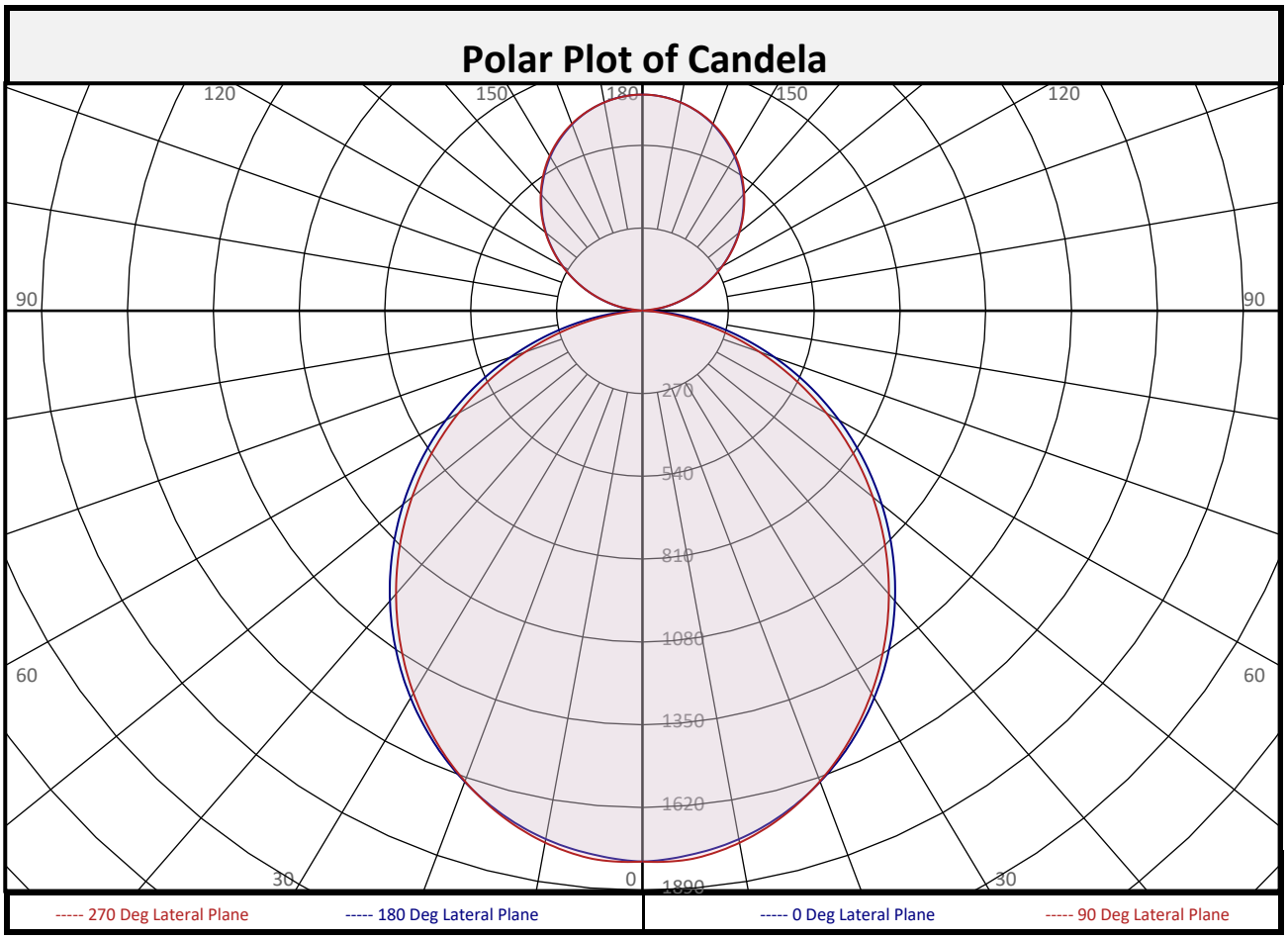

Zonal Flux Summary

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	169.6	2.6%	90-100	28.6	0.4%	0-20	649.3	9.8%
10-20	479.7	7.2%	100-110	133.2	2.0%	0-30	1361	20.6%
20-30	711.8	10.8%	110-120	232.5	3.5%	0-40	2197	33.2%
30-40	835.7	12.6%	120-130	307.9	4.7%	0-60	3780	57.1%
40-50	842.9	12.7%	130-140	345.7	5.2%	0-80	4628	69.9%
50-60	740.5	11.2%	140-150	338.1	5.1%	10-90	4526	68.4%
60-70	547.0	8.3%	150-160	284.1	4.3%	20-50	2390	36.1%
70-80	300.3	4.5%	160-170	189.4	2.9%	40-90	2498	37.7%
80-90	67.5	1.0%	170-180	66.6	1.0%	60-90	914.9	13.8%
0-90	4695	70.9%	90-180	1926	29.1%	0-180	6621	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	1797	1797	1797	1797	1797	1797	1797	1797	1797
2.5	1791	1791	1793	1797	1799	1797	1793	1791	1791
5	1780	1780	1785	1791	1795	1791	1785	1780	1780
7.5	1767	1767	1772	1777	1781	1777	1772	1767	1767
10	1750	1749	1753	1758	1762	1758	1753	1749	1750
12.5	1728	1727	1729	1733	1737	1733	1729	1727	1728
15	1701	1700	1701	1704	1707	1704	1701	1700	1701
17.5	1670	1668	1668	1669	1672	1669	1668	1668	1670
20	1635	1632	1631	1630	1633	1630	1631	1632	1635
22.5	1596	1592	1589	1587	1590	1587	1589	1592	1596
25	1553	1549	1545	1541	1544	1541	1545	1549	1553
27.5	1507	1502	1497	1492	1494	1492	1497	1502	1507
30	1458	1452	1445	1439	1441	1439	1445	1452	1458
32.5	1406	1400	1392	1384	1385	1384	1392	1400	1406
35	1351	1344	1335	1326	1327	1326	1335	1344	1351
37.5	1295	1287	1277	1267	1268	1267	1277	1287	1295
40	1235	1228	1217	1206	1206	1206	1217	1228	1235
42.5	1175	1167	1155	1144	1143	1144	1155	1167	1175
45	1112	1105	1092	1079	1078	1079	1092	1105	1112
47.5	1047	1042	1028	1014	1013	1014	1028	1042	1047
50	983	977	963	948	946	948	963	977	983
52.5	916	910	896	881	878	881	896	910	916
55	849	844	829	813	808	813	829	844	849
57.5	782	776	761	744	738	744	761	776	782
60	713	709	693	674	668	674	693	709	713
62.5	645	640	624	603	597	603	624	640	645
65	576	572	554	534	527	534	554	572	576
67.5	507	503	484	465	458	465	484	503	507
70	440	436	415	397	390	397	415	436	440
72.5	373	369	348	330	324	330	348	369	373
75	308	303	282	265	259	265	282	303	308
77.5	245	239	219	203	197	203	219	239	245
80	184	177	159	144	139	144	159	177	184
82.5	128	120	102	90	85	90	102	120	128
85	76	67	51	42	38	42	51	67	76
87.5	30	20	10	7	6	7	10	20	30
90	0	1	1	1	1	1	1	1	0

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

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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	1	1	1	1	1	1	1	0
	92.5	11	6	3	2	2	2	3	6	11
	95	32	32	16	6	6	6	16	32	32
	97.5	53	53	51	39	31	39	51	53	53
	100	76	76	75	73	71	73	75	76	76
	102.5	100	101	100	99	98	99	100	101	100
	105	126	127	126	125	125	125	126	127	126
	107.5	152	153	153	152	152	152	153	153	152
	110	179	180	180	179	180	179	180	180	179
	112.5	207	208	208	207	207	207	208	208	207
	115	234	235	236	234	235	234	236	235	234
	117.5	261	263	263	262	263	262	263	263	261
	120	289	290	291	290	290	290	291	290	289
	122.5	316	317	318	318	318	318	318	317	316
	125	343	344	345	345	345	345	345	344	343
	127.5	370	371	372	372	372	372	372	371	370
	130	396	397	398	398	398	398	398	397	396
	132.5	421	422	423	424	424	424	423	422	421
	135	446	447	449	450	449	450	449	447	446
	137.5	470	471	473	474	474	474	473	471	470
	140	494	494	496	498	498	498	496	494	494
	142.5	517	517	519	521	521	521	519	517	517
	145	539	538	541	543	543	543	541	538	539
	147.5	560	559	562	563	564	563	562	559	560
	150	580	578	581	583	584	583	581	578	580
	152.5	598	597	600	601	602	601	600	597	598
	155	616	614	617	619	619	619	617	614	616
	157.5	632	630	633	635	634	635	633	630	632
	160	646	645	648	649	649	649	648	645	646
	162.5	660	658	661	662	661	662	661	658	660
	165	671	669	672	674	672	674	672	669	671
	167.5	682	679	682	683	682	683	682	679	682
	170	690	687	690	692	690	692	690	687	690
	172.5	696	694	696	698	696	698	696	694	696
	175	701	699	700	703	701	703	700	699	701
	177.5	704	703	704	704	704	704	704	703	704
	180	705	705	705	705	705	705	705	705	705

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	112	112	112	112		106	106	106	106		95	95	95		85	85	85		75	75	75	71
1	103	98	94	91		97	93	89	86		84	81	78		75	73	71		67	65	64	60
2	93	86	79	74		88	81	76	71		73	69	65		66	62	59		59	56	54	50
3	85	75	68	62		80	72	65	59		65	59	55		58	54	50		52	49	46	42
4	78	67	59	52		74	64	56	50		57	51	47		52	47	43		46	43	39	36
5	72	60	51	45		68	57	49	43		51	45	40		46	41	37		42	38	34	32
6	66	54	45	39		62	51	43	38		46	40	35		42	37	33		38	34	30	28
7	61	48	40	34		58	46	39	33		42	36	31		38	33	29		35	30	27	25
8	57	44	36	31		54	42	35	30		39	32	28		35	30	26		32	27	24	22
9	53	40	33	27		50	39	31	27		35	29	25		32	27	23		29	25	22	20
10	50	37	30	25		47	36	29	24		33	27	23		30	25	21		27	23	20	18

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	49.9	7.26	7.18
8.0	28.1	9.68	9.57
10.0	18.0	12.10	11.96
12.0	12.5	14.52	14.36
14.0	9.2	16.94	16.75
16.0	7.0	19.36	19.14

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	33330	33330	33330
45	29167	28652	28287
55	27471	26821	26142
65	25288	24310	23137
75	22059	20208	18546
85	16237	10882	8160

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 106.3°

Field Angle: 160.4°

90-270 Degree Plane

Beam Angle: 103.4°

Field Angle: 156.4°

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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	21.6	22.7	22.3	23.4	24.4	21.3	22.3	22.0	23.1	24.1
	3H	23.3	24.3	24.1	25.1	26.1	22.9	23.8	23.6	24.6	25.6
	4H	24.0	24.9	24.7	25.7	26.7	23.4	24.3	24.2	25.1	26.1
	6H	24.4	25.3	25.2	26.1	27.1	23.7	24.6	24.5	25.4	26.4
	8H	24.5	25.4	25.4	26.2	27.2	23.8	24.6	24.6	25.4	26.4
	12H	24.6	25.4	25.5	26.2	27.2	23.8	24.6	24.6	25.4	26.4
4H	2H	22.1	23.0	22.9	23.8	24.8	21.8	22.8	22.6	23.6	24.5
	3H	24.1	24.8	24.9	25.7	26.7	23.6	24.4	24.4	25.2	26.2
	4H	24.8	25.5	25.6	26.4	27.4	24.3	25.0	25.1	25.8	26.9
	6H	25.4	26.0	26.2	26.9	27.9	24.7	25.3	25.6	26.2	27.2
	8H	25.6	26.2	26.4	27.0	28.0	24.8	25.4	25.7	26.2	27.3
	12H	25.7	26.2	26.6	27.1	28.1	24.9	25.4	25.7	26.2	27.3
8H	4H	25.0	25.6	25.9	26.4	27.5	24.6	25.1	25.4	26.0	27.0
	6H	25.7	26.2	26.6	27.1	28.1	25.1	25.6	26.0	26.5	27.5
	8H	26.0	26.4	26.9	27.3	28.3	25.2	25.7	26.1	26.6	27.6
	12H	26.2	26.5	27.0	27.4	28.5	25.3	25.7	26.2	26.6	27.7
12H	4H	25.0	25.5	25.9	26.4	27.5	24.6	25.1	25.4	26.0	27.0
	6H	25.7	26.2	26.6	27.0	28.1	25.1	25.6	26.0	26.4	27.5
	8H	26.0	26.4	26.9	27.3	28.4	25.3	25.7	26.2	26.6	27.7

Maximum UGR = 28.5

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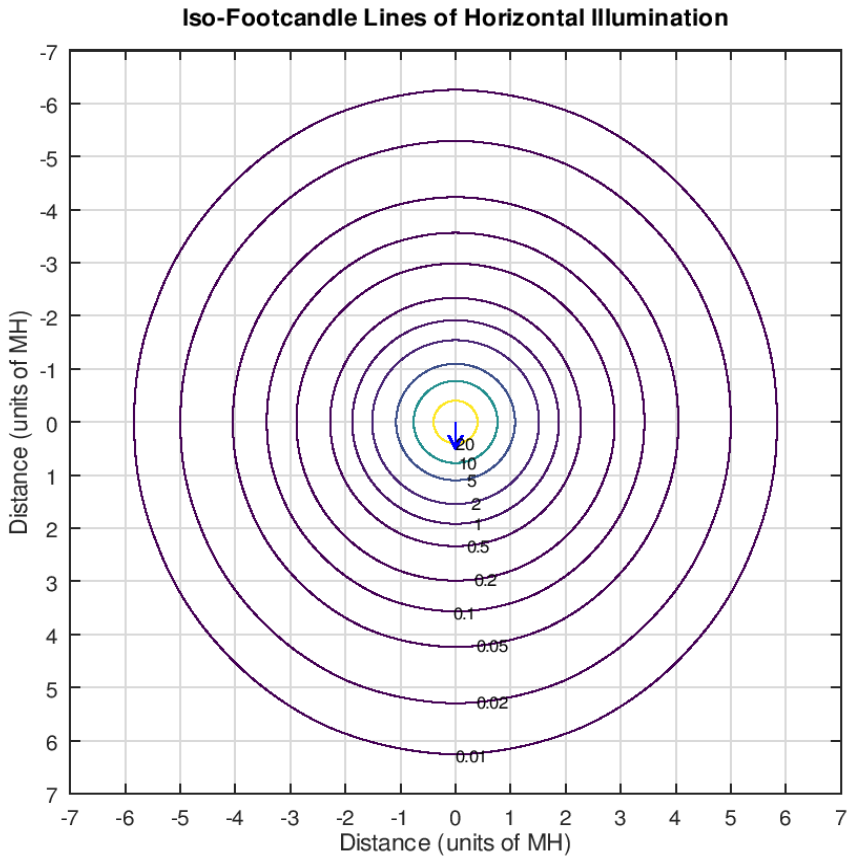
Iso-Illuminance Plot



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.