LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA002469-015

Indoor Distribution Photometry Test Report

Catalog Number: LSA4P-50PCS-WH 40W 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	5486.1	Lumens
Input Current	0.3112	A	Total Efficacy	147.9	Lm/W
Input Power	37.10	W	Downward Flux	3894.0	Lumens
Frequency	60.00	Hz	Downward Flux	71.0	% of Total
Power Factor	0.994				
Current THD	6.3	%			

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

Test date: 09/11/2024
Report date: 09/18/2024

Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2024.09.18 16:20:02 -04'00'

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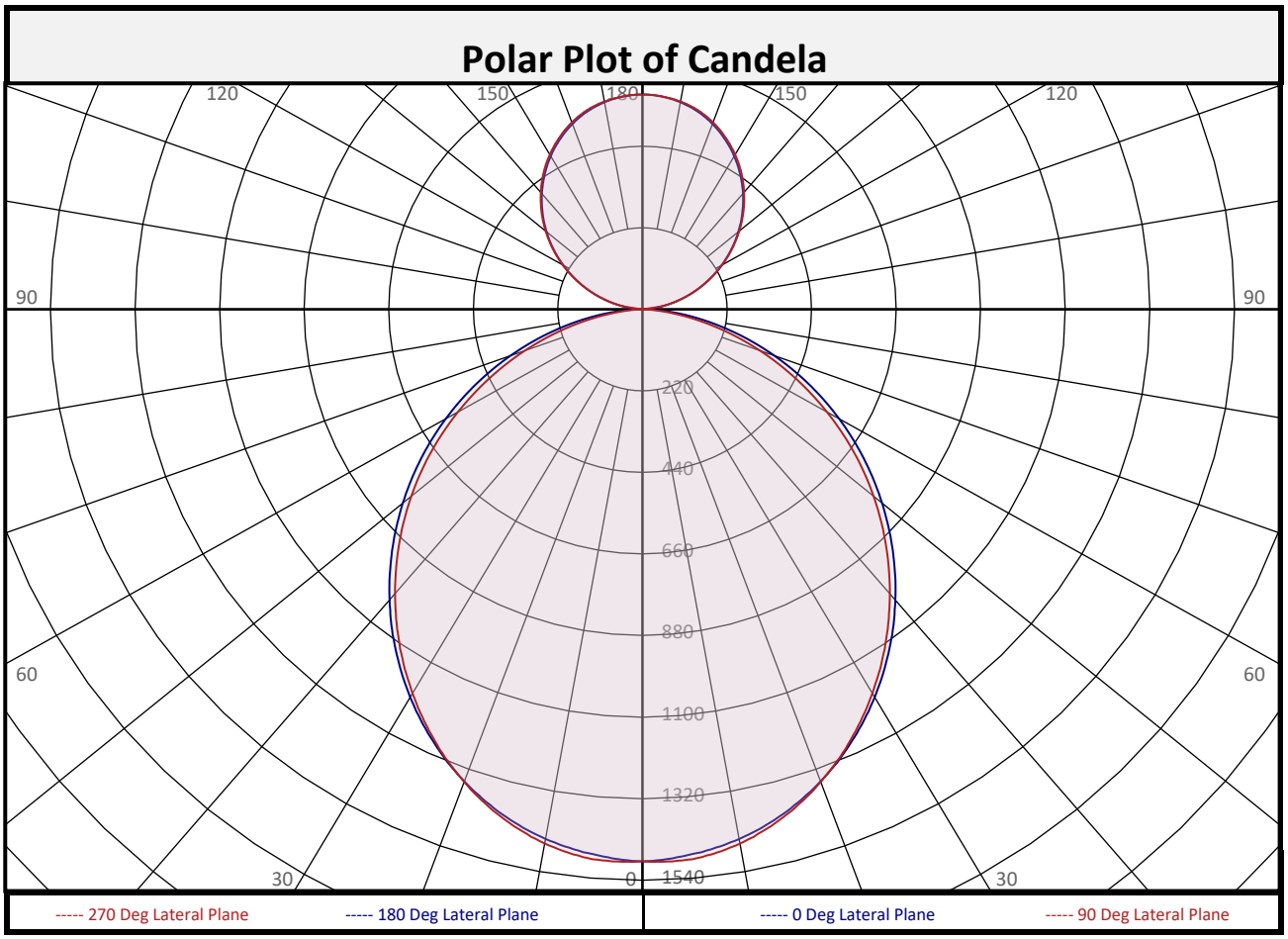

Zonal Flux Summary

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	140.6	2.6%	90-100	24.2	0.4%	0-20	538.8	9.8%
10-20	398.1	7.3%	100-110	110.5	2.0%	0-30	1129	20.6%
20-30	590.7	10.8%	110-120	192.4	3.5%	0-40	1823	33.2%
30-40	693.3	12.6%	120-130	254.5	4.6%	0-60	3136	57.2%
40-50	699.0	12.7%	130-140	285.6	5.2%	0-80	3838	70.0%
50-60	613.9	11.2%	140-150	279.3	5.1%	10-90	3753	68.4%
60-70	453.5	8.3%	150-160	234.7	4.3%	20-50	1983	36.1%
70-80	249.0	4.5%	160-170	156.3	2.8%	40-90	2071	37.8%
80-90	55.9	1.0%	170-180	54.7	1.0%	60-90	758.4	13.8%
0-90	3894	71.0%	90-180	1592	29.0%	0-180	5486	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	1490	1490	1490	1490	1490	1490	1490	1490	1490
2.5	1485	1485	1487	1490	1491	1490	1487	1485	1485
5	1476	1476	1480	1486	1490	1486	1480	1476	1476
7.5	1465	1465	1470	1475	1479	1475	1470	1465	1465
10	1451	1450	1455	1459	1464	1459	1455	1450	1451
12.5	1433	1432	1436	1439	1443	1439	1436	1432	1433
15	1411	1410	1412	1414	1418	1414	1412	1410	1411
17.5	1385	1384	1385	1385	1390	1385	1385	1384	1385
20	1355	1355	1353	1353	1357	1353	1353	1355	1355
22.5	1324	1322	1320	1317	1321	1317	1320	1322	1324
25	1287	1286	1282	1279	1282	1279	1282	1286	1287
27.5	1249	1247	1242	1238	1240	1238	1242	1247	1249
30	1209	1205	1200	1193	1197	1193	1200	1205	1209
32.5	1165	1161	1154	1148	1151	1148	1154	1161	1165
35	1120	1116	1108	1101	1102	1101	1108	1116	1120
37.5	1073	1068	1059	1051	1053	1051	1059	1068	1073
40	1023	1018	1010	1001	1001	1001	1010	1018	1023
42.5	973	968	958	948	949	948	958	968	973
45	921	917	906	895	895	895	906	917	921
47.5	868	864	853	841	841	841	853	864	868
50	814	810	798	786	785	786	798	810	814
52.5	759	755	743	730	729	730	743	755	759
55	703	699	687	674	671	674	687	699	703
57.5	647	644	631	617	613	617	631	644	647
60	591	587	574	559	554	559	574	587	591
62.5	534	530	517	500	496	500	517	530	534
65	477	474	459	443	438	443	459	474	477
67.5	420	417	401	386	380	386	401	417	420
70	364	361	344	329	324	329	344	361	364
72.5	309	306	288	274	269	274	288	306	309
75	255	251	234	220	215	220	234	251	255
77.5	202	197	181	169	164	169	181	197	202
80	153	147	132	120	116	120	132	147	153
82.5	106	99	85	75	71	75	85	99	106
85	63	55	42	35	32	35	42	55	63
87.5	25	16	8	5	4	5	8	16	25
90	0	0	1	1	1	1	1	0	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	0	1	1	1	1	1	0	0
	92.5	9	4	3	2	2	2	3	4	9
	95	26	27	13	6	5	6	13	27	26
	97.5	44	44	43	35	26	35	43	44	44
	100	63	63	63	61	60	61	63	63	63
	102.5	83	84	83	82	82	82	83	84	83
	105	104	105	105	104	104	104	105	105	104
	107.5	126	127	127	126	126	126	127	127	126
	110	148	149	150	149	149	149	150	149	148
	112.5	170	172	172	171	172	171	172	172	170
	115	193	194	195	195	195	195	195	194	193
	117.5	215	217	218	217	218	217	218	217	215
	120	238	240	240	240	240	240	240	240	238
	122.5	260	262	263	263	263	263	263	262	260
	125	282	284	285	285	285	285	285	284	282
	127.5	305	306	307	308	307	308	307	306	305
	130	326	328	329	329	329	329	329	328	326
	132.5	347	349	350	351	351	351	350	349	347
	135	367	369	371	372	372	372	371	369	367
	137.5	387	389	391	392	392	392	391	389	387
	140	407	409	410	412	412	412	410	409	407
	142.5	426	427	429	430	431	430	429	427	426
	145	443	445	447	449	449	449	447	445	443
	147.5	461	462	464	466	466	466	464	462	461
	150	477	477	481	482	482	482	481	477	477
	152.5	492	493	496	497	497	497	496	493	492
	155	506	507	511	512	511	512	511	507	506
	157.5	520	520	524	525	525	525	524	520	520
	160	532	531	535	537	536	537	535	531	532
	162.5	543	541	546	548	547	548	546	541	543
	165	552	551	555	557	556	557	555	551	552
	167.5	560	559	562	564	563	564	562	559	560
	170	567	565	568	570	569	570	568	565	567
	172.5	572	570	572	574	573	574	572	570	572
	175	576	574	576	578	577	578	576	574	576
	177.5	578	577	578	579	578	579	578	577	578
	180	579	579	579	579	579	579	579	579	579

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	90	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		47	43	39	36
5	72	60	51	45		68	57	49	43		51	45	40		47	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	32	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	41.4	7.26	7.19
8.0	23.3	9.67	9.58
10.0	14.9	12.09	11.98
12.0	10.3	14.51	14.37
14.0	7.6	16.93	16.77
16.0	5.8	19.35	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	27629	27629	27629
45	24167	23759	23487
55	22748	22227	21698
65	20933	20150	19214
75	18251	16760	15422
85	13408	9033	6798

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 106.2°

Field Angle: 160.3°

90-270 Degree Plane

Beam Angle: 103.5°

Field Angle: 156.5°

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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	20.9	22.0	21.6	22.7	23.7	20.6	21.7	21.3	22.4	23.4
	3H	22.6	23.6	23.4	24.4	25.4	22.2	23.2	22.9	23.9	24.9
	4H	23.3	24.2	24.0	25.0	26.0	22.7	23.6	23.5	24.4	25.4
	6H	23.7	24.6	24.5	25.4	26.4	23.0	23.9	23.8	24.7	25.7
	8H	23.8	24.7	24.6	25.5	26.5	23.1	23.9	23.9	24.7	25.7
	12H	23.9	24.7	24.7	25.5	26.5	23.1	23.9	23.9	24.7	25.7
4H	2H	21.4	22.3	22.2	23.1	24.1	21.1	22.1	21.9	22.9	23.8
	3H	23.4	24.1	24.2	25.0	26.0	23.0	23.7	23.8	24.6	25.6
	4H	24.1	24.8	24.9	25.7	26.7	23.6	24.3	24.4	25.1	26.2
	6H	24.7	25.3	25.5	26.2	27.2	24.1	24.7	24.9	25.5	26.5
	8H	24.9	25.5	25.7	26.3	27.3	24.1	24.7	25.0	25.6	26.6
	12H	25.0	25.5	25.9	26.4	27.4	24.2	24.7	25.0	25.6	26.6
8H	4H	24.3	24.9	25.2	25.7	26.8	23.9	24.4	24.7	25.3	26.3
	6H	25.0	25.5	25.9	26.4	27.4	24.4	24.9	25.3	25.8	26.8
	8H	25.3	25.7	26.2	26.6	27.6	24.6	25.0	25.5	25.9	26.9
	12H	25.5	25.8	26.3	26.7	27.8	24.6	25.0	25.5	25.9	27.0
12H	4H	24.3	24.8	25.2	25.7	26.8	23.9	24.4	24.7	25.3	26.3
	6H	25.0	25.5	25.9	26.3	27.4	24.5	24.9	25.3	25.7	26.8
	8H	25.3	25.7	26.2	26.6	27.7	24.6	25.0	25.5	25.9	27.0

Maximum UGR = 27.8

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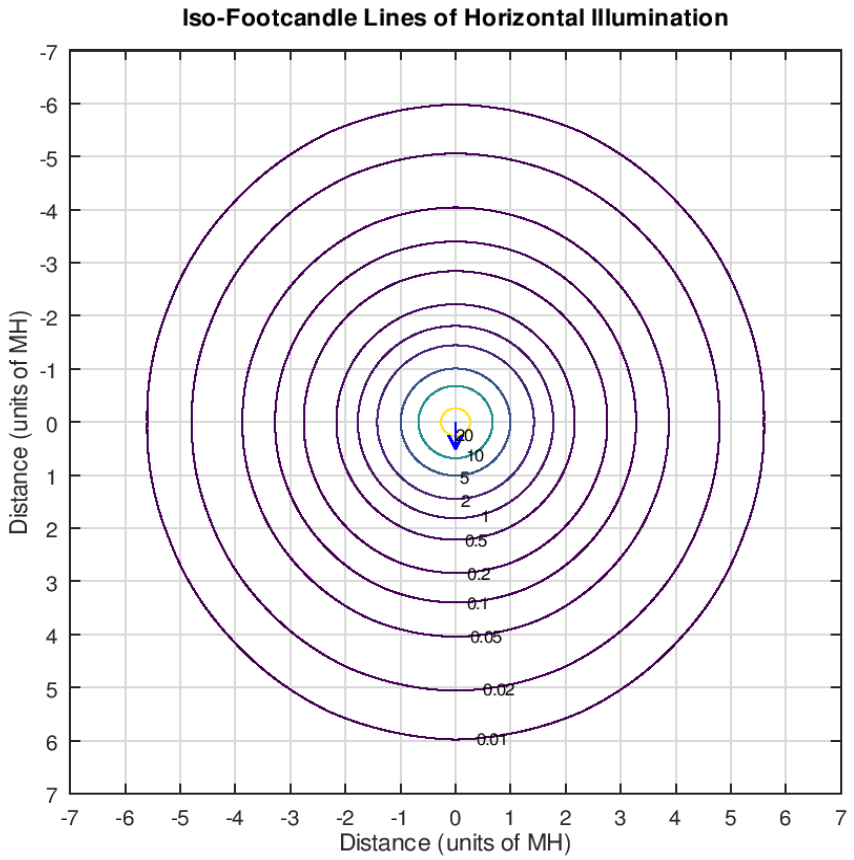
Iso-Illuminance Plot



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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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.