LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001979-001

Indoor Distribution Photometry Test Report

Catalog Number: LVT2-20-CS tested at 4000K setting
Surface/pendant mounted, formed white plastic housing, formed white painted steel LED tray/reflector, translucent white drop plastic lens with internal linear prisms.
392 white LEDs on two L3904(557XX16XX1.0)196LED(14C7BX2)-CCT LED boards.
One Fosen FS-TMG041B0450TWC LED driver, set for 4000K

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

Performance Summary					
Input Voltage	120.0	Vac	Luminous Flux	2875.5	Lumens
Input Current	0.1611	A	Total Efficacy	149.7	Lm/W
Input Power	19.21	W	Downward Flux	2659.4	Lumens
Frequency	60.00	Hz	Downward Flux	92.5	% of Total
Power Factor	0.993				
Current THD	5.9	%			

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

Test date: 01/09/2023
Report date: 01/09/2023

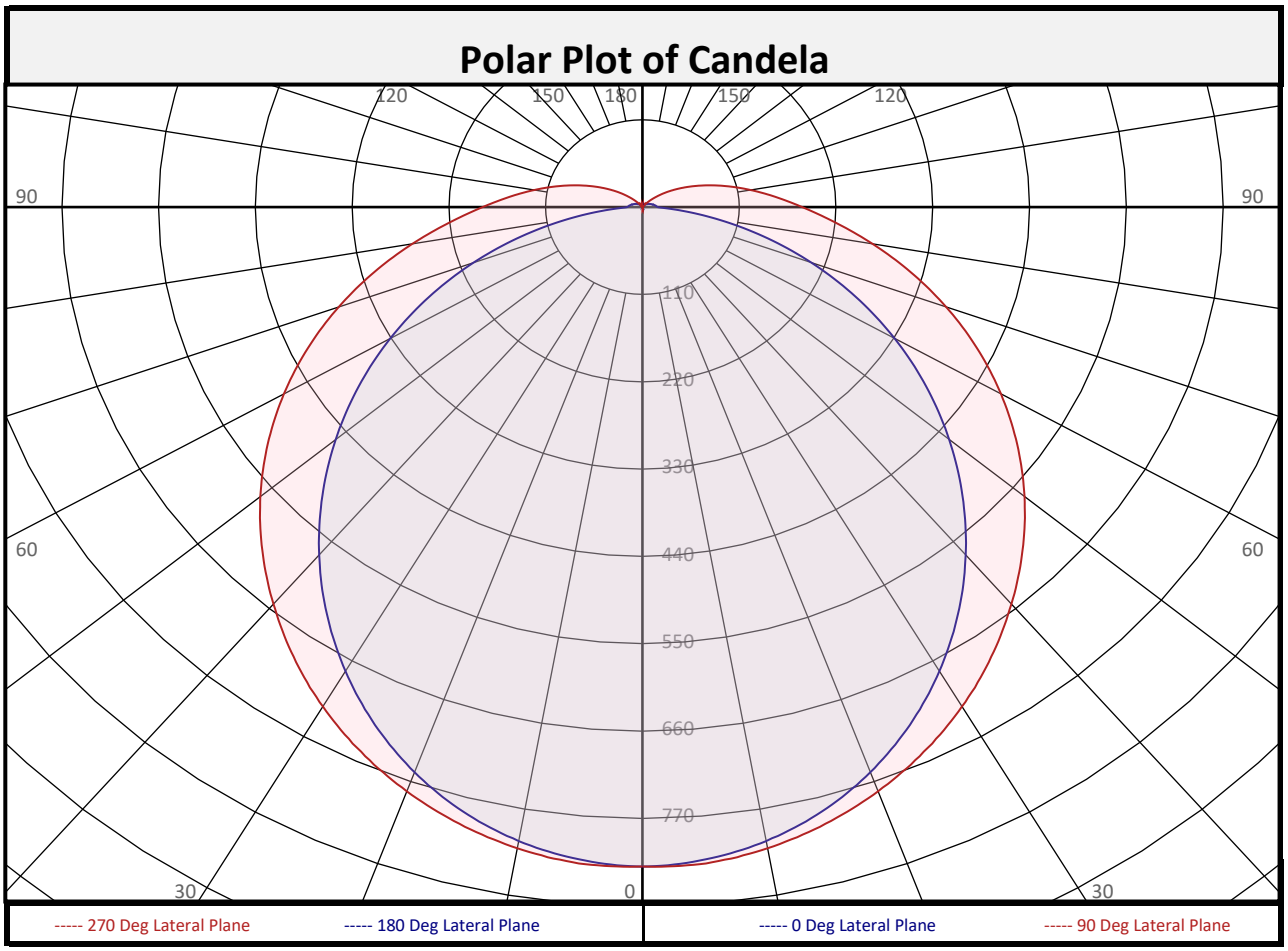
Signed: Michael L. Grather Digitally signed by Michael L. Grather Date: 2023.01.11 15:00:52 -05'00'

North America (issuing laboratory)
LightLab International Allentown, LLC
905 Harrison Street, Suite 135
Allentown, PA 18103 USA
Ph: +1 484-273-0705
Fx: +1 484-209-5779
www.lightlaballentown.com

Australasia & S.E. Asia
LightLab International
50 Redcliffe Gardens Drive
Clontarf - Queensland, 4019, Australia
Ph : +61 7 3283 7862
Fx : +61 7 3283 8751
www.lightlabint.com

Report of Test

LLIA001979-001



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	78.6	2.7%	90-100	100.8	3.5%	0-20	303.1	10.5%
10-20	224.5	7.8%	100-110	61.0	2.1%	0-30	643.2	22.4%
20-30	340.1	11.8%	110-120	32.6	1.1%	0-40	1055	36.7%
30-40	411.8	14.3%	120-130	14.4	0.5%	0-60	1899	66.0%
40-50	434.2	15.1%	130-140	4.6	0.2%	0-80	2498	86.9%
50-60	409.4	14.2%	140-150	1.5	0.1%	10-90	2581	89.8%
60-70	344.7	12.0%	150-160	0.7	0.0%	20-50	1186	41.3%
70-80	254.1	8.8%	160-170	0.4	0.0%	40-90	1604	55.8%
80-90	161.8	5.6%	170-180	0.1	0.0%	60-90	760.7	26.5%
0-90	2659	92.5%	90-180	216.1	7.5%	0-180	2875	100.0%

Report of Test

LLIA001979-001

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	831	831	831	831	831	831	831	831	831
	2.5	829	829	829	830	831	830	829	829	829
	5	825	824	826	829	830	829	826	824	825
	7.5	819	819	821	824	826	824	821	819	819
	10	811	811	814	818	820	818	814	811	811
	12.5	800	801	806	811	813	811	806	801	800
	15	788	790	795	802	804	802	795	790	788
	17.5	774	776	783	791	794	791	783	776	774
	20	758	760	769	779	783	779	769	760	758
	22.5	739	743	754	766	771	766	754	743	739
	25	720	724	737	751	757	751	737	724	720
	27.5	698	703	719	736	743	736	719	703	698
	30	675	681	700	719	727	719	700	681	675
	32.5	651	659	679	701	710	701	679	659	651
	35	626	634	658	682	691	682	658	634	626
	37.5	599	609	635	663	672	663	635	609	599
	40	572	582	611	641	653	641	611	582	572
	42.5	544	555	587	620	632	620	587	555	544
	45	515	527	562	597	611	597	562	527	515
	47.5	485	499	537	575	590	575	537	499	485
	50	455	471	511	552	567	552	511	471	455
	52.5	425	442	484	528	544	528	484	442	425
	55	394	412	458	503	520	503	458	412	394
	57.5	363	383	432	479	496	479	432	383	363
	60	331	353	405	453	471	453	405	353	331
	62.5	299	324	378	428	445	428	378	324	299
	65	268	294	352	402	420	402	352	294	268
	67.5	236	266	326	376	394	376	326	266	236
	70	204	238	300	350	368	350	300	238	204
	72.5	173	210	274	324	342	324	274	210	173
	75	142	184	249	299	316	299	249	184	142
	77.5	113	158	225	274	290	274	225	158	113
	80	85	135	201	250	266	250	201	135	85
	82.5	60	113	179	226	242	226	179	113	60
	85	38	93	159	205	220	205	159	93	38
	87.5	23	77	141	186	200	186	141	77	23
	90	17	64	125	168	182	168	125	64	17

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

Report of Test

LLIA001979-001

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	17	64	125	168	182	168	125	64	17
92.5	16	54	112	153	166	153	112	54	16
95	16	45	100	139	151	139	100	45	16
97.5	15	38	88	125	138	125	88	38	15
100	14	32	78	113	125	113	78	32	14
102.5	13	26	69	101	113	101	69	26	13
105	12	21	60	91	102	91	60	21	12
107.5	12	17	51	80	91	80	51	17	12
110	11	14	44	71	81	71	44	14	11
112.5	10	11	37	62	71	62	37	11	10
115	9	9	31	53	62	53	31	9	9
117.5	9	9	25	46	54	46	25	9	9
120	8	8	20	38	46	38	20	8	8
122.5	7	7	15	32	39	32	15	7	7
125	7	7	11	26	32	26	11	7	7
127.5	6	6	8	20	26	20	8	6	6
130	5	5	5	15	20	15	5	5	5
132.5	5	5	4	11	15	11	4	5	5
135	4	4	4	7	11	7	4	4	4
137.5	3	3	3	4	7	4	3	3	3
140	3	3	3	3	4	3	3	3	3
142.5	2	2	2	3	3	3	2	2	2
145	2	2	2	3	3	3	2	2	2
147.5	1	2	2	3	3	3	2	2	1
150	1	1	2	2	3	2	2	1	1
152.5	1	1	2	2	2	2	2	1	1
155	1	1	1	2	2	2	1	1	1
157.5	1	1	1	2	2	2	1	1	1
160	1	1	1	2	2	2	1	1	1
162.5	1	1	1	2	2	2	1	1	1
165	1	1	1	1	2	1	1	1	1
167.5	1	1	1	1	1	1	1	1	1
170	1	1	1	1	1	1	1	1	1
172.5	1	1	1	1	1	1	1	1	1
175	1	1	1	1	1	1	1	1	1
177.5	1	1	1	1	1	1	1	1	1
180	0	0	0	0	0	0	0	0	0

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

LightLab INTERNATIONAL ALLENTOWN LLC

NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001979-001

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	117	117	117	117		114	114	114	114		107	107	107		101	101	101		95	95	95	92
1	105	99	94	90		101	96	92	88		91	87	84		85	82	80		81	78	76	73
2	95	86	78	72		91	83	76	70		78	73	68		74	69	65		70	66	62	60
3	86	75	66	59		83	73	64	58		68	62	56		65	59	54		61	56	52	50
4	79	66	57	50		76	64	55	49		61	53	47		57	51	46		54	49	44	42
5	72	59	49	42		69	57	48	42		54	46	41		51	45	39		49	43	38	36
6	67	53	43	37		64	51	43	36		49	41	35		46	40	34		44	38	34	31
7	62	48	39	32		59	46	38	32		44	37	31		42	35	30		40	34	30	28
8	57	43	35	29		55	42	34	28		40	33	28		39	32	27		37	31	27	25
9	53	40	31	26		52	39	31	26		37	30	25		36	29	24		34	28	24	22
10	50	37	29	23		48	36	28	23		34	27	23		33	27	22		32	26	22	20

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	23.1	7.27	7.81
8.0	13.0	9.69	10.42
10.0	8.3	12.11	13.02
12.0	5.8	14.53	15.63
14.0	4.2	16.96	18.23
16.0	3.2	19.38	20.84

Spacing Criterion

0 deg:	1.2
90 deg:	1.3
180 deg:	1.2
270 deg:	1.3

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	13697	13697	13697
45	11338	10207	10608
55	10447	9364	10031
65	9275	8530	9425
75	7429	7690	8810
85	4355	7055	8448

Beam and Field Angle

0-180 Degree Plane

Beam Angle: 106.5°

Field Angle: 160.3°

90-270 Degree Plane

Beam Angle: 130.8°

Field Angle: 218.8°

Report of Test

LLIA001979-001

UGR Table - Corrected

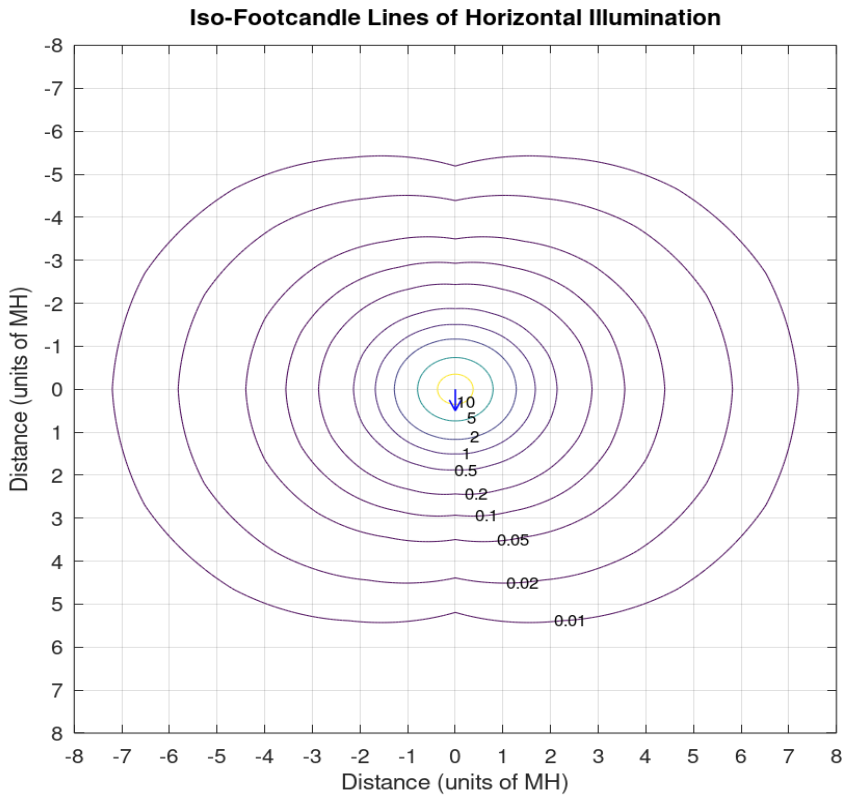
Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	18.1	19.6	18.6	20.1	20.6	20.5	22.0	20.9	22.5	23.0
	3H	19.6	21.0	20.1	21.5	22.0	22.9	24.3	23.4	24.8	25.3
	4H	20.1	21.5	20.7	22.0	22.5	24.1	25.4	24.6	25.9	26.5
	6H	20.5	21.7	21.0	22.2	22.8	25.3	26.5	25.8	27.0	27.6
	8H	20.6	21.7	21.1	22.3	22.9	25.8	27.0	26.4	27.6	28.1
	12H	20.6	21.7	21.1	22.3	22.9	26.4	27.6	27.0	28.1	28.7
4H	2H	19.0	20.3	19.5	20.8	21.4	20.9	22.2	21.4	22.7	23.3
	3H	20.8	21.9	21.4	22.5	23.1	23.6	24.7	24.1	25.2	25.8
	4H	21.5	22.5	22.0	23.0	23.7	24.9	25.9	25.5	26.5	27.1
	6H	21.9	22.8	22.5	23.4	24.0	26.3	27.2	26.8	27.8	28.4
	8H	22.1	22.9	22.6	23.5	24.1	27.0	27.8	27.5	28.4	29.0
	12H	22.1	22.9	22.7	23.5	24.2	27.7	28.5	28.3	29.1	29.7
8H	4H	22.2	23.1	22.8	23.6	24.3	25.1	26.0	25.7	26.6	27.2
	6H	22.8	23.6	23.4	24.2	24.8	26.7	27.4	27.3	28.0	28.7
	8H	23.1	23.7	23.7	24.4	25.0	27.5	28.1	28.1	28.8	29.4
	12H	23.3	23.8	23.9	24.4	25.2	28.4	29.0	29.0	29.6	30.3
12H	4H	22.4	23.2	23.0	23.8	24.4	25.2	25.9	25.8	26.5	27.2
	6H	23.2	23.8	23.8	24.4	25.1	26.7	27.4	27.4	28.0	28.7
	8H	23.5	24.1	24.1	24.7	25.4	27.6	28.2	28.2	28.8	29.5

Maximum UGR = 30.3

Report of Test

LLIA001979-001

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.

Report of Test

LLIA001979-001

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.