LightLab INTERNATIONAL ALLENTOWN LLC

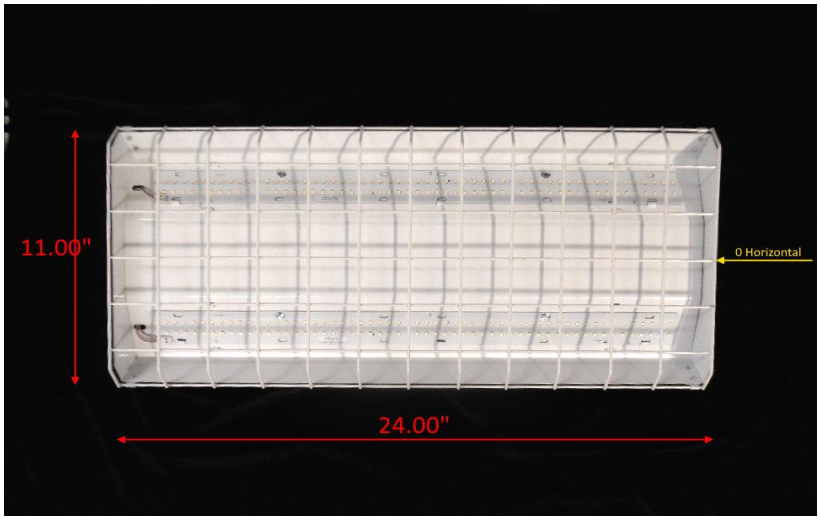
NVLAP TESTING Lab Code: 201079-0

Report of Test

LLIA001249-021

Indoor Distribution Photometry Test Report

Catalog Number: PBL G2 2 MH UV 835 WG
Surface/pendant mounted, formed white enamel aluminum housing/reflectors, formed white enamel steel wire guard.
224 white LEDs, two 20103 3500K 3437A1 LED boards with 112 LEDs each.
One ULT Everline D21CC80UNVPW-C programmed at 1730mA



Prepared For:
Lumen Focus, LLC
880 Facet Road
Henderson, NC 27537, USA

Performance Summary					
Input Voltage	120.0	V	Luminous Flux	12956.0	Lumens
Input Current	0.7074	A	Total Efficacy	152.9	Lm/W
Input Power	84.74	W	Downward Flux	12882.2	Lumens
Frequency	60.00	Hz	Downward Flux	99.4	% of Total
Power Factor	0.998				
Current THD	5.0	%			

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

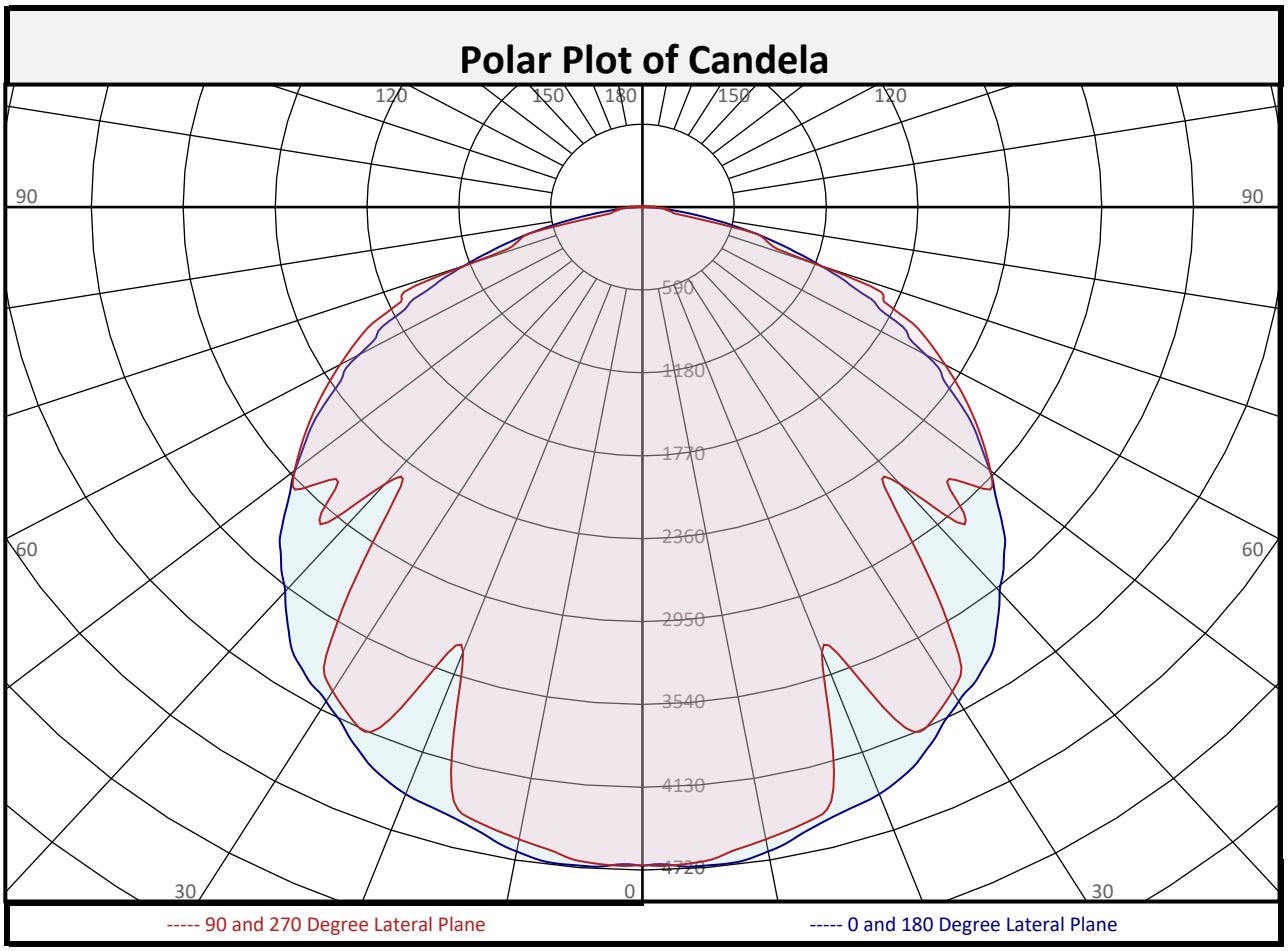
Test date: 03/25/2020
Report date: 03/26/2020

Signed: Michael L. Grather

USA west coast LightLab International, LLC, 24825 N. 16th Avenue, Suite 125, Phoenix, AZ, 85085, Ph : +1 623-434-1499, Fx : +1 623-434-1492, www.lightlabint.com
USA east coast LightLab Int'l Allentown LLC, 905 Harrison Street, Suite 135, Allentown, PA 18103, Ph: +1 484-273-0705, www.lightlaballentown.com (issuing laboratory)
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

LLIA001249-021



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	446.9	3.4%	90-100	42.7	0.3%	0-20	1709	13.2%
10-20	1262	9.7%	100-110	15.6	0.1%	0-30	3537	27.3%
20-30	1829	14.1%	110-120	5.3	0.0%	0-40	5789	44.7%
30-40	2252	17.4%	120-130	3.0	0.0%	0-60	10173	78.5%
40-50	2173	16.8%	130-140	2.5	0.0%	0-80	12708	98.1%
50-60	2210	17.1%	140-150	2.2	0.0%	10-90	12435	96.0%
60-70	1684	13.0%	150-160	1.5	0.0%	20-50	6254	48.3%
70-80	851.5	6.6%	160-170	0.8	0.0%	40-90	7093	54.7%
80-90	174.0	1.3%	170-180	0.2	0.0%	60-90	2709	20.9%
0-90	12882	99.4%	90-180	73.8	0.6%	0-180	12956	100.0%

Report of Test

LLIA001249-021

Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
Vertical (Gamma) Angles		0	22.5	45	67.5	90	112.5	135	157.5	180
	0	4688	4688	4688	4688	4688	4688	4688	4688	4688
	2.5	4691	4697	4695	4695	4690	4695	4695	4697	4691
	5	4705	4719	4713	4683	4672	4683	4713	4719	4705
	7.5	4702	4712	4695	4649	4613	4649	4695	4712	4702
	10	4657	4675	4648	4622	4570	4622	4648	4675	4657
	12.5	4590	4618	4596	4582	4525	4582	4596	4618	4590
	15	4525	4531	4535	4537	4474	4537	4535	4531	4525
	17.5	4483	4449	4448	4412	4071	4412	4448	4449	4483
	20	4448	4399	4361	3761	3370	3761	4361	4399	4448
	22.5	4383	4341	4208	3345	3635	3345	4208	4341	4383
	25	4286	4263	3703	3847	4121	3847	3703	4263	4286
	27.5	4164	4142	3200	4121	4083	4121	3200	4142	4164
	30	4064	4009	3356	4010	3982	4010	3356	4009	4064
	32.5	3993	3904	3771	3884	3783	3884	3771	3904	3993
	35	3900	3815	3781	3608	3200	3608	3781	3815	3900
	37.5	3744	3642	3637	3046	2616	3046	3637	3642	3744
	40	3570	3239	3512	2501	2574	2501	3512	3239	3570
	42.5	3436	2742	3263	2545	3064	2545	3263	2742	3436
	45	3288	2485	2759	2997	2767	2997	2759	2485	3288
	47.5	3086	2591	2212	2700	2968	2700	2212	2591	3086
	50	2913	2715	2135	2907	2918	2907	2135	2715	2913
	52.5	2722	2646	2482	2776	2759	2776	2482	2646	2722
	55	2525	2458	2244	2595	2593	2595	2244	2458	2525
	57.5	2296	2248	2317	2428	2421	2428	2317	2248	2296
	60	2100	1888	2162	2257	2245	2257	2162	1888	2100
	62.5	1913	1487	1994	2082	2072	2082	1994	1487	1913
	65	1663	1219	1788	1908	1862	1908	1788	1219	1663
	67.5	1440	1265	1606	1671	1678	1671	1606	1265	1440
	70	1213	1160	1430	1556	1186	1556	1430	1160	1213
	72.5	996	1035	1203	859	852	859	1203	1035	996
	75	790	857	1012	773	784	773	1012	857	790
	77.5	582	699	586	457	217	457	586	699	582
	80	399	540	454	195	187	195	454	540	399
	82.5	242	313	168	160	153	160	168	313	242
	85	131	151	135	150	155	150	135	151	131
	87.5	34	70	112	118	105	118	112	70	34
	90	11	42	53	46	29	46	53	42	11

Report of Test

LLIA001249-021

Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
Vertical (Gamma) Angles		0	22.5	45	67.5	90	112.5	135	157.5	180
	90	11	42	53	46	29	46	53	42	11
	92.5	7	37	57	80	79	80	57	37	7
	95	2	29	49	49	43	49	49	29	2
	97.5	2	19	37	49	41	49	37	19	2
	100	2	15	32	30	21	30	32	15	2
	102.5	2	11	27	28	19	28	27	11	2
	105	3	7	16	26	19	26	16	7	3
	107.5	3	4	14	15	19	15	14	4	3
	110	3	3	11	10	3	10	11	3	3
	112.5	3	3	10	9	2	9	10	3	3
	115	3	3	8	7	2	7	8	3	3
	117.5	3	3	6	7	2	7	6	3	3
	120	3	4	4	6	2	6	4	4	3
	122.5	3	4	3	5	1	5	3	4	3
	125	3	4	3	4	1	4	3	4	3
	127.5	4	4	3	3	1	3	3	4	4
	130	4	4	3	3	1	3	3	4	4
	132.5	4	4	3	3	1	3	3	4	4
	135	4	4	4	3	1	3	4	4	4
	137.5	4	4	4	3	1	3	4	4	4
	140	4	4	4	3	1	3	4	4	4
	142.5	4	4	4	4	2	4	4	4	4
	145	4	4	4	4	2	4	4	4	4
	147.5	4	4	4	3	2	3	4	4	4
	150	4	4	4	3	2	3	4	4	4
	152.5	4	4	4	3	2	3	4	4	4
	155	4	4	3	3	2	3	3	4	4
	157.5	4	4	3	3	2	3	3	4	4
	160	4	4	3	3	2	3	3	4	4
	162.5	3	4	3	3	2	3	3	4	3
	165	3	3	3	2	2	2	3	3	3
	167.5	3	3	3	2	2	2	3	3	3
	170	3	2	3	2	2	2	3	2	3
	172.5	2	2	3	3	2	3	3	2	2
	175	2	2	2	2	2	2	2	2	2
	177.5	2	2	2	2	2	2	2	2	2
	180	2	2	2	2	2	2	2	2	2

Report of Test

LLIA001249-021

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	99
1	109	104	100	96		106	102	98	94		97	94	91		93	91	88		90	88	86	84
2	99	91	84	78		96	89	82	77		85	80	75		82	77	73		79	75	72	69
3	90	79	71	65		87	78	70	64		75	68	63		72	66	62		69	65	61	58
4	82	70	61	55		80	69	61	54		66	59	54		64	58	53		62	56	52	50
5	76	63	54	47		74	62	53	47		59	52	46		57	51	46		55	50	45	43
6	70	56	47	41		68	55	47	41		54	46	40		52	45	40		50	44	40	38
7	65	51	42	36		63	50	42	36		49	41	36		47	40	35		46	40	35	33
8	60	47	38	32		59	46	38	32		45	37	32		43	37	32		42	36	31	30
9	56	43	35	29		55	42	34	29		41	34	29		40	33	29		39	33	28	27
10	53	40	32	26		52	39	31	26		38	31	26		37	31	26		36	30	26	24

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	130.2	7.79	7.52
8.0	73.3	10.39	10.03
10.0	46.9	12.99	12.54
12.0	32.6	15.59	15.04
14.0	23.9	18.18	17.55
16.0	18.3	20.78	20.06

Average Luminance (cd/m^2)

	0 deg Plane	45 deg Plane	90 deg Plane
0	27525	27525	27525
45	27299	22907	22975
55	25846	22969	26540
65	23110	24843	25863
75	17917	22966	17781
85	8800	9096	10471

Spacing Criterion

0 degree plane:	1.3
90 degree plane:	1.3
180 degree plane:	1.3
270 degree plane:	1.3

Report of Test

LLIA001249-021

UGR TABLE - CORRECTED

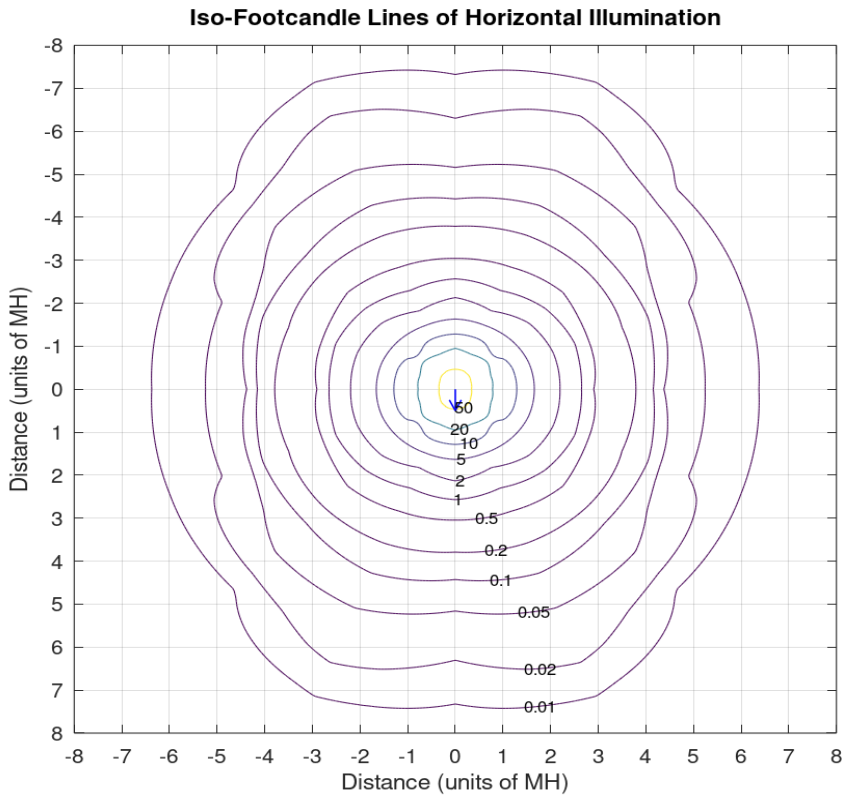
Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	23.4	25.0	23.8	25.4	25.7	23.9	25.5	24.3	25.9	26.2
	3H	25.0	26.4	25.4	26.8	27.2	26.0	27.4	26.4	27.8	28.2
	4H	25.6	26.9	26.0	27.3	27.7	26.3	27.7	26.8	28.1	28.5
	6H	25.9	27.2	26.4	27.6	28.0	26.4	27.6	26.8	28.0	28.4
	8H	26.0	27.2	26.5	27.7	28.1	26.4	27.6	26.8	28.0	28.4
	12H	26.1	27.2	26.5	27.6	28.1	26.4	27.5	26.8	27.9	28.4
4H	2H	24.1	25.5	24.6	25.9	26.3	24.6	25.9	25.0	26.3	26.7
	3H	26.0	27.1	26.4	27.5	28.0	26.8	27.9	27.2	28.4	28.8
	4H	26.7	27.7	27.1	28.2	28.6	27.2	28.3	27.7	28.7	29.2
	6H	27.2	28.1	27.7	28.6	29.1	27.3	28.2	27.8	28.7	29.2
	8H	27.3	28.2	27.8	28.6	29.1	27.3	28.2	27.8	28.6	29.1
	12H	27.4	28.1	27.9	28.6	29.1	27.3	28.1	27.8	28.6	29.1
8H	4H	27.0	27.9	27.5	28.3	28.8	27.5	28.4	28.0	28.8	29.3
	6H	27.7	28.4	28.2	28.9	29.4	27.6	28.3	28.1	28.8	29.3
	8H	27.8	28.5	28.4	29.0	29.5	27.6	28.2	28.1	28.8	29.3
	12H	27.9	28.5	28.5	29.0	29.6	27.7	28.2	28.2	28.7	29.3
12H	4H	27.0	27.8	27.5	28.3	28.8	27.5	28.3	28.0	28.8	29.3
	6H	27.6	28.3	28.2	28.8	29.3	27.6	28.2	28.1	28.7	29.3
	8H	27.9	28.4	28.4	28.9	29.5	27.7	28.2	28.2	28.7	29.3

Maximum UGR = 29.6

Report of Test

LLIA001249-021

Iso-Illuminance Plot

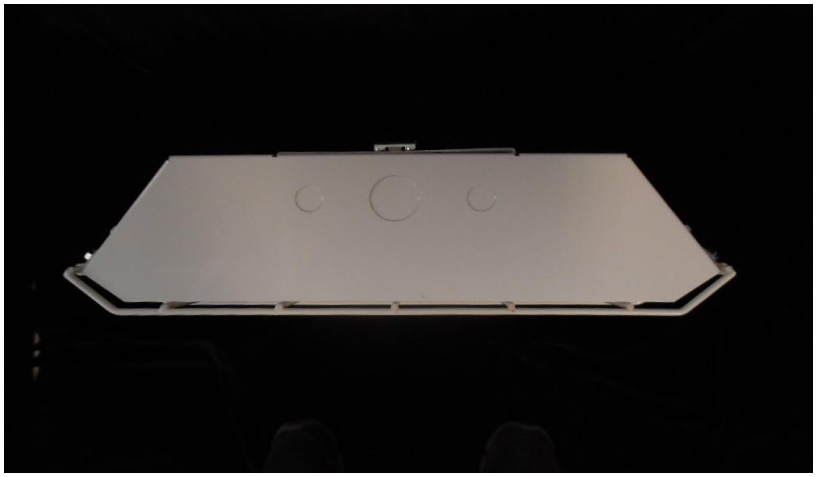


The isofootcandle values shown in the plot above are based on a mounting height of h = 8.0 feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution of room reflections.

Report of Test

LLIA001249-021

Additional Pictures of Test Subject



Report of Test

LLIA001249-021

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 publications: IES LM-79-19 and ANSI C82.77-10:2014. Format of reports and angular increments based on IES LM-41-14 and LM-46-04.

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.