



Report of Test

LLIA001249-014

Indoor Distribution Photometry Test Report

Catalog Number: PBL G2 4 VH UV 850

Surface/pendant mounted, formed white enamel aluminum
housing/reflectors, no enclosure.

448 white LEDs, four 20072 5000K 3437A1 LED boards with 112 LEDs each.
Two ULT Everline D21CC80UNVPW-C LED drivers each programmed at 1700mA



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

Performance Summary			
Input Voltage	120.0 V	Luminous Flux	28017.4 Lumens
Input Current	1.391 A	Total Efficacy	168.2 Lm/W
Input Power	166.6 W	Downward Flux	28012.5 Lumens
Frequency	60.00 Hz	Downward Flux	100.0 % of Total
Power Factor	0.998		
Current THD	5.2 %		

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

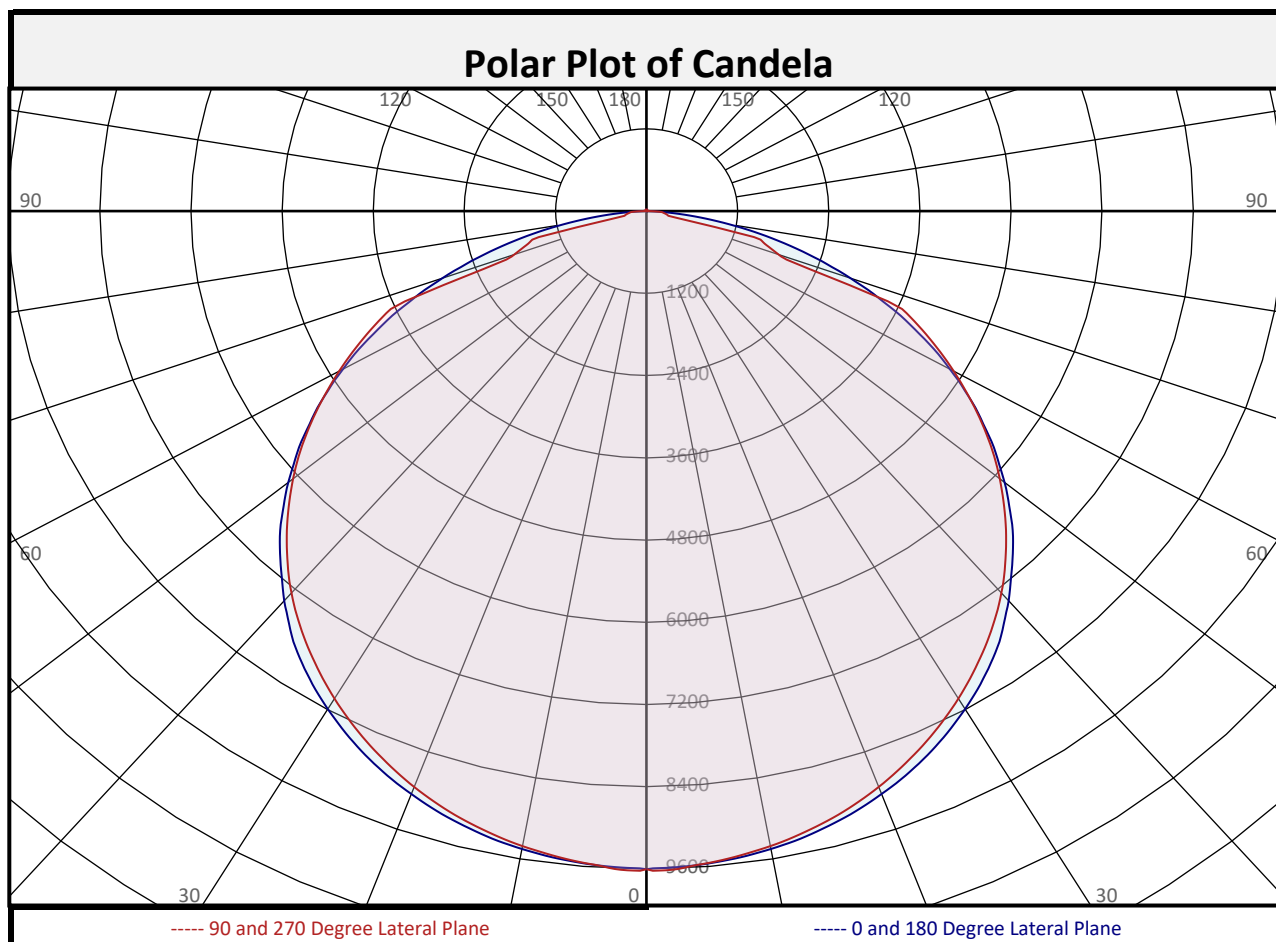
Test date: 03/17/2020
Report date: 03/18/2020

Signed: _____



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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	907.5	3.2%		90-100	4.5	0.0%		0-20	3513	12.5%
10-20	2605	9.3%		100-110	0.4	0.0%		0-30	7502	26.8%
20-30	3989	14.2%		110-120	0.0	0.0%		0-40	12391	44.2%
30-40	4889	17.4%		120-130	0.0	0.0%		0-60	22337	79.7%
40-50	5171	18.5%		130-140	0.0	0.0%		0-80	27738	99.0%
50-60	4775	17.0%		140-150	0.0	0.0%		10-90	27105	96.7%
60-70	3710	13.2%		150-160	0.0	0.0%		20-50	14050	50.1%
70-80	1691	6.0%		160-170	0.0	0.0%		40-90	15621	55.8%
80-90	274.4	1.0%		170-180	0.0	0.0%		60-90	5675	20.3%
0-90	28012	100.0%		90-180	4.9	0.0%		0-180	28017	100.0%



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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	9605	9605	9605	9605	9605	9605	9605	9605	9605
	2.5	9582	9585	9581	9608	9610	9608	9581	9585	9582
	5	9554	9553	9528	9545	9547	9545	9528	9553	9554
	7.5	9512	9499	9466	9484	9485	9484	9466	9499	9512
	10	9453	9423	9393	9408	9411	9408	9393	9423	9453
	12.5	9382	9338	9304	9320	9319	9320	9304	9338	9382
	15	9287	9239	9205	9213	9213	9213	9205	9239	9287
	17.5	9181	9123	9084	9092	9087	9092	9084	9123	9181
	20	9053	8989	8951	8953	8944	8953	8951	8989	9053
	22.5	8918	8839	8799	8795	8782	8795	8799	8839	8918
	25	8761	8672	8633	8620	8609	8620	8633	8672	8761
	27.5	8585	8489	8442	8431	8420	8431	8442	8489	8585
	30	8394	8286	8236	8227	8217	8227	8236	8286	8394
	32.5	8189	8067	8017	8009	8000	8009	8017	8067	8189
	35	7962	7835	7780	7775	7773	7775	7780	7835	7962
	37.5	7706	7584	7529	7530	7531	7530	7529	7584	7706
	40	7424	7297	7260	7273	7273	7273	7260	7297	7424
	42.5	7122	6989	6980	7001	6993	7001	6980	6989	7122
	45	6831	6657	6685	6710	6700	6710	6685	6657	6831
	47.5	6500	6340	6372	6408	6392	6408	6372	6340	6500
	50	6160	5981	6033	6098	6076	6098	6033	5981	6160
	52.5	5800	5618	5675	5754	5744	5754	5675	5618	5800
	55	5417	5241	5329	5403	5394	5403	5329	5241	5417
	57.5	5030	4844	4964	5043	5035	5043	4964	4844	5030
	60	4617	4442	4579	4676	4674	4676	4579	4442	4617
	62.5	4199	4028	4175	4305	4311	4305	4175	4028	4199
	65	3765	3614	3790	3933	3950	3933	3790	3614	3765
	67.5	3309	3199	3400	3570	3443	3570	3400	3199	3309
	70	2857	2780	3018	2173	1851	2173	3018	2780	2857
	72.5	2413	2370	2643	1639	1661	1639	2643	2370	2413
	75	1962	1960	1337	1475	1467	1475	1337	1960	1962
	77.5	1526	1576	1117	288	289	288	1117	1576	1526
	80	1104	1223	350	268	266	268	350	1223	1104
	82.5	715	537	202	232	237	232	202	537	715
	85	367	121	167	203	212	203	167	121	367
	87.5	109	81	126	138	136	138	126	81	109
90	1	20	20	15	8	15	20	20	1	



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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	1	20	20	15	8	15	20	20	1
	92.5	0	6	7	5	1	5	7	6	0
	95	0	3	5	4	1	4	5	3	0
	97.5	0	2	4	3	1	3	4	2	0
	100	0	0	3	3	2	3	3	0	0
	102.5	0	0	0	0	2	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	



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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	97		106	102	98	95		98	95	92		94	91	89		90	88	86	84
2	99	91	84	79		97	89	83	78		86	80	76		82	78	74		79	76	72	70
3	90	80	72	65		88	78	71	65		75	69	63		72	67	62		70	65	61	59
4	83	70	62	55		80	69	61	55		67	59	54		64	58	53		62	57	52	50
5	76	63	54	47		74	62	53	47		60	52	46		58	51	46		56	50	45	43
6	70	56	47	41		68	56	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	29
9	56	43	34	29		55	42	34	29		41	34	29		40	33	28		39	33	28	26
10	53	39	31	26		51	39	31	26		38	31	26		37	30	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	266.8	7.79	7.64
8.0	150.1	10.39	10.19
10.0	96.1	12.99	12.73
12.0	66.7	15.59	15.28
14.0	49.0	18.19	17.83
16.0	37.5	20.78	20.37

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	29746	29746	29746
45	29918	29280	29344
55	29247	28774	29122
65	27587	27772	28945
75	23471	15996	17548
85	13024	5932	7529

Spacing Criterion

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



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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

Room Size	UGR Viewed Crosswise	UGR Viewed Endwise
X=2H Y=2H	24.0 25.6 24.3 25.9 26.2	24.2 25.8 24.6 26.2 26.5
3H	25.8 27.3 26.2 27.6 28.0	25.8 27.2 26.1 27.6 27.9
4H	26.5 27.9 26.9 28.3 28.6	26.1 27.5 26.5 27.9 28.3
6H	27.0 28.3 27.4 28.6 29.0	26.1 27.4 26.5 27.8 28.2
8H	27.1 28.3 27.5 28.7 29.1	26.1 27.3 26.5 27.7 28.1
12H	27.2 28.3 27.6 28.7 29.2	26.1 27.3 26.5 27.6 28.1
4H 2H	24.7 26.1 25.1 26.4 26.8	24.9 26.3 25.3 26.6 27.0
3H	26.8 27.9 27.2 28.3 28.7	26.5 27.7 26.9 28.1 28.5
4H	27.5 28.6 28.0 29.0 29.4	27.0 28.0 27.4 28.5 28.9
6H	28.2 29.1 28.6 29.5 30.0	27.0 27.9 27.4 28.3 28.8
8H	28.3 29.2 28.8 29.6 30.1	27.0 27.8 27.4 28.3 28.7
12H	28.4 29.1 28.9 29.6 30.1	27.0 27.7 27.5 28.2 28.7
8H 4H	27.7 28.6 28.2 29.0 29.5	27.2 28.1 27.7 28.5 29.0
6H	28.4 29.1 28.9 29.6 30.1	27.2 27.9 27.7 28.4 28.9
8H	28.6 29.2 29.1 29.8 30.2	27.2 27.9 27.7 28.4 28.8
12H	28.7 29.3 29.2 29.8 30.3	27.2 27.8 27.8 28.3 28.9
12H 4H	27.7 28.5 28.2 29.0 29.4	27.2 28.0 27.7 28.5 29.0
6H	28.4 29.1 28.9 29.5 30.0	27.2 27.9 27.8 28.3 28.9
8H	28.6 29.2 29.1 29.7 30.2	27.2 27.8 27.8 28.3 28.9

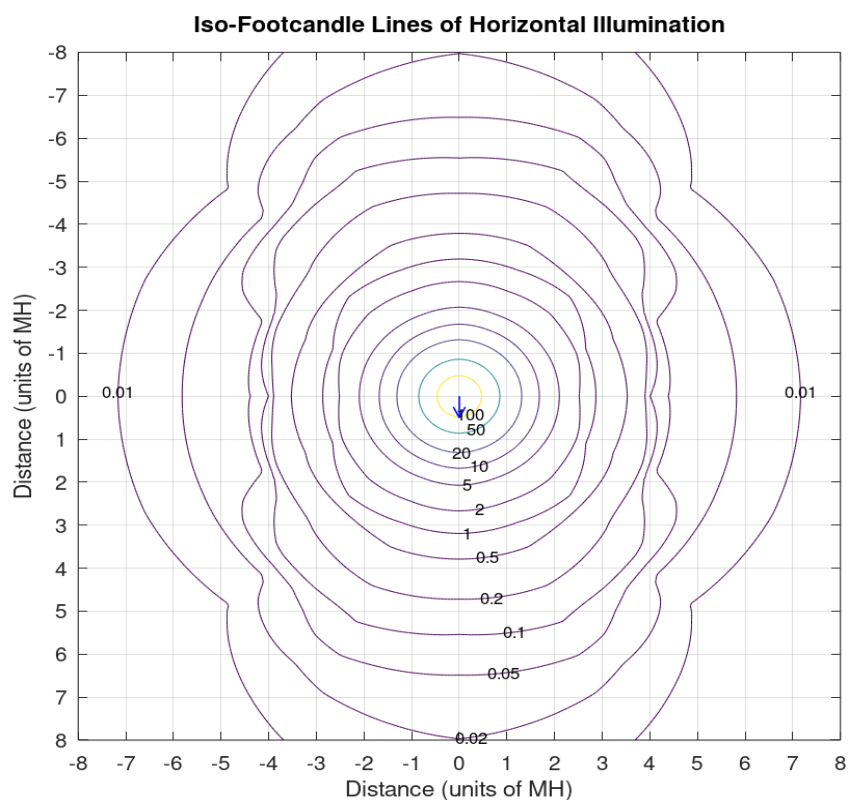
Maximum UGR = 30.3



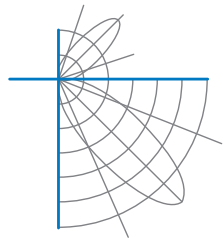
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Iso-Illuminance Plot



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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Additional Pictures of Test Subject



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Test Distance 9.5 m
Ambient Temperature 25.1 °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.

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