



Report of Test

LLIA001249-011

Indoor Distribution Photometry Test Report

Catalog Number: PBL G2 4 VH UV 835

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

448 white LEDs, four 20103 3500K 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	27048.4 Lumens
Input Current	1.393 A	Total Efficacy	162.1 Lm/W
Input Power	166.9 W	Downward Flux	27044.6 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

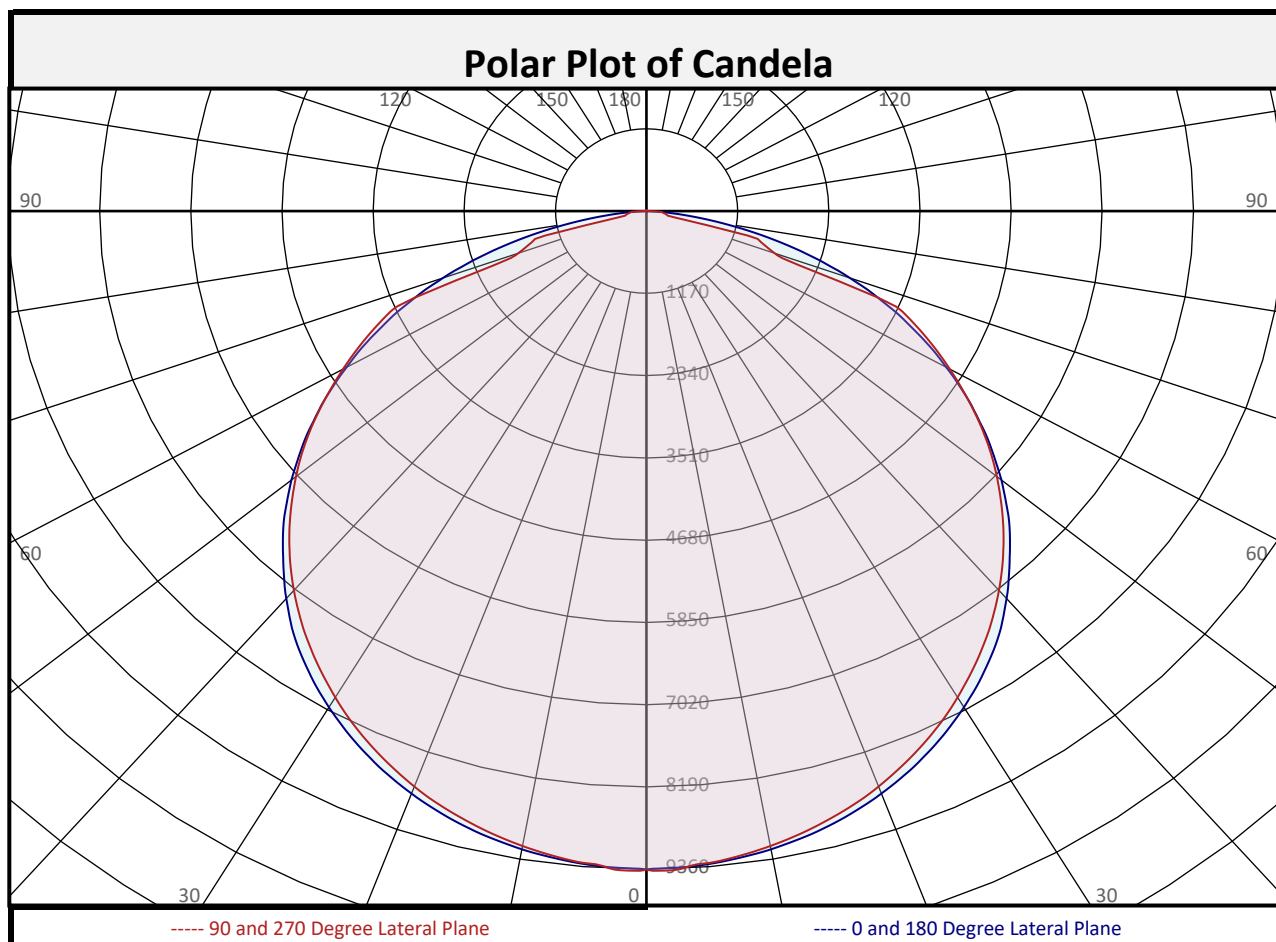
Report date: 03/18/2020

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	884.9	3.3%		90-100	3.7	0.0%		0-20	3423	12.7%	
10-20	2538	9.4%		100-110	0.1	0.0%		0-30	7302	27.0%	
20-30	3879	14.3%		110-120	0.0	0.0%		0-40	12044	44.5%	
30-40	4742	17.5%		120-130	0.0	0.0%		0-60	21643	80.0%	
40-50	5001	18.5%		130-140	0.0	0.0%		0-80	26793	99.1%	
50-60	4598	17.0%		140-150	0.0	0.0%		10-90	26160	96.7%	
60-70	3554	13.1%		150-160	0.0	0.0%		20-50	13621	50.4%	
70-80	1596	5.9%		160-170	0.0	0.0%		40-90	15001	55.5%	
80-90	251.7	0.9%		170-180	0.0	0.0%		60-90	5402	20.0%	
0-90	27045	100.0%		90-180	3.8	0.0%		0-180	27048	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	9369	9369	9369	9369	9369	9369	9369	9369	9369
	2.5	9348	9354	9347	9377	9376	9377	9347	9354	9348
	5	9322	9323	9281	9301	9307	9301	9281	9323	9322
	7.5	9275	9265	9231	9247	9247	9247	9231	9265	9275
	10	9219	9175	9159	9171	9170	9171	9159	9175	9219
	12.5	9143	9097	9071	9082	9079	9082	9071	9097	9143
	15	9053	9003	8969	8975	8971	8975	8969	9003	9053
	17.5	8943	8885	8847	8854	8851	8854	8847	8885	8943
	20	8818	8751	8711	8717	8711	8717	8711	8751	8818
	22.5	8676	8599	8559	8559	8551	8559	8559	8599	8676
	25	8517	8432	8393	8385	8381	8385	8393	8432	8517
	27.5	8343	8247	8206	8197	8195	8197	8206	8247	8343
	30	8152	8044	7999	7993	7988	7993	7999	8044	8152
	32.5	7946	7827	7780	7776	7770	7776	7780	7827	7946
	35	7720	7594	7543	7544	7540	7544	7543	7594	7720
	37.5	7476	7345	7295	7302	7299	7302	7295	7345	7476
	40	7193	7071	7028	7047	7040	7047	7028	7071	7193
	42.5	6897	6764	6751	6778	6770	6778	6751	6764	6897
	45	6601	6438	6462	6491	6483	6491	6462	6438	6601
	47.5	6285	6117	6157	6191	6181	6191	6157	6117	6285
	50	5950	5775	5823	5881	5872	5881	5823	5775	5950
	52.5	5592	5416	5475	5544	5549	5544	5475	5416	5592
	55	5220	5041	5127	5203	5206	5203	5127	5041	5220
	57.5	4845	4655	4770	4851	4852	4851	4770	4655	4845
	60	4445	4265	4396	4493	4499	4493	4396	4265	4445
	62.5	4050	3861	4005	4133	4147	4133	4005	3861	4050
	65	3642	3460	3628	3770	3792	3770	3628	3460	3642
	67.5	3213	3056	3253	3415	3226	3415	3253	3056	3213
	70	2777	2651	2879	2005	1750	2005	2879	2651	2777
	72.5	2333	2253	2515	1544	1579	1544	2515	2253	2333
	75	1870	1854	1274	1395	1344	1395	1274	1854	1870
	77.5	1417	1479	1058	271	274	271	1058	1479	1417
	80	987	1138	337	251	253	251	337	1138	987
	82.5	604	500	192	221	226	221	192	500	604
	85	297	116	158	194	204	194	158	116	297
	87.5	84	74	120	131	130	131	120	74	84
90	1	17	14	9	2	9	14	17	1	



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Luminous Intensity (Candela) Table

	Lateral (C-Plane) Angles									
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	90	1	17	14	9	2	9	14	17	1
	92.5	0	5	6	4	1	4	6	5	0
	95	0	3	4	3	0	3	4	3	0
	97.5	0	2	3	3	0	3	3	2	0
	100	0	0	3	3	0	3	3	0	0
	102.5	0	0	0	0	0	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	105	100	97		106	102	98	95		98	95	92		94	92	89		91	88	87	85
2	99	91	84	79		97	89	83	78		86	80	76		82	78	74		79	76	73	70
3	90	80	72	65		88	78	71	65		75	69	64		73	67	62		70	65	61	59
4	83	71	62	55		80	69	61	55		67	60	54		64	58	53		62	57	53	50
5	76	63	54	47		74	62	53	47		60	52	47		58	51	46		56	50	46	43
6	70	57	48	41		68	56	47	41		54	46	41		52	45	40		51	45	40	38
7	65	51	42	36		63	50	42	36		49	41	36		47	41	36		46	40	35	33
8	60	47	38	32		59	46	38	32		45	37	32		43	37	32		42	36	32	30
9	56	43	35	29		55	42	34	29		41	34	29		40	33	29		39	33	28	27
10	53	39	32	26		51	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	260.3	7.76	7.61
8.0	146.4	10.35	10.15
10.0	93.7	12.93	12.69
12.0	65.1	15.52	15.22
14.0	47.8	18.11	17.76
16.0	36.6	20.69	20.30

Average Luminance (cd/m²)

	0 deg Plane	45 deg Plane	90 deg Plane
0	29015	29015	29015
45	28909	28300	28394
55	28184	27683	28110
65	26691	26586	27789
75	22378	15243	16084
85	10554	5606	7251

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	23.8 25.5 24.2 25.8 26.1	24.1 25.7 24.5 26.0 26.3
3H	25.7 27.2 26.1 27.5 27.9	25.6 27.1 26.0 27.4 27.8
4H	26.4 27.8 26.8 28.1 28.5	26.0 27.3 26.4 27.7 28.1
6H	26.8 28.1 27.2 28.5 28.9	25.9 27.2 26.3 27.6 28.0
8H	26.9 28.1 27.3 28.5 28.9	25.9 27.1 26.3 27.5 27.9
12H	27.0 28.1 27.4 28.5 28.9	25.9 27.1 26.3 27.5 27.9
4H 2H	24.5 25.9 24.9 26.3 26.7	24.7 26.1 25.1 26.5 26.8
3H	26.6 27.8 27.0 28.2 28.6	26.3 27.5 26.7 27.9 28.3
4H	27.4 28.5 27.8 28.9 29.3	26.8 27.9 27.2 28.3 28.7
6H	28.0 28.9 28.4 29.3 29.8	26.8 27.7 27.2 28.1 28.6
8H	28.1 28.9 28.5 29.4 29.8	26.8 27.6 27.2 28.1 28.5
12H	28.1 28.9 28.6 29.4 29.8	26.8 27.6 27.3 28.0 28.5
8H 4H	27.6 28.4 28.0 28.9 29.3	27.0 27.9 27.5 28.3 28.8
6H	28.2 28.9 28.7 29.4 29.9	27.0 27.7 27.5 28.2 28.7
8H	28.4 29.0 28.9 29.5 30.0	27.0 27.6 27.5 28.2 28.6
12H	28.5 29.0 29.0 29.5 30.1	27.0 27.6 27.5 28.1 28.6
12H 4H	27.6 28.3 28.0 28.8 29.3	27.0 27.8 27.5 28.3 28.8
6H	28.2 28.8 28.7 29.3 29.8	27.0 27.7 27.6 28.1 28.7
8H	28.4 28.9 28.9 29.4 30.0	27.0 27.6 27.5 28.1 28.6

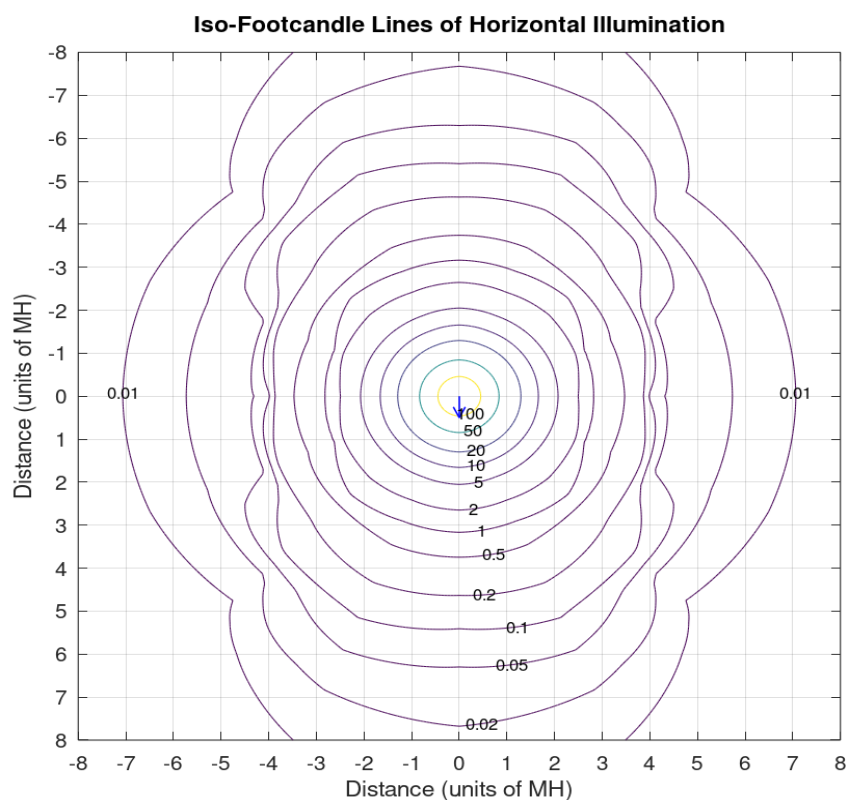
Maximum UGR = 30.1



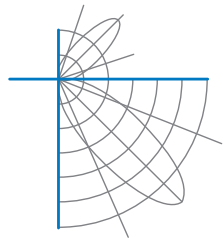
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Iso-Illuminance Plot



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 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 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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