

Report of Test

LLIA001503-003-R01*

Indoor Distribution Photometry Test Report

Catalog Number: MLH4-DI-48-560-680-35K-ASO-BW-1%-2C-U

Pendant mounted, extruded aluminum housing, frosted plastic upper enclosure, translucent white plastic lower enclosure. 224 white LEDs, two Advance FO Strip PR 22 in 2200lm 835 LV5 LED boards with 56 LEDs each in indirect section, two Advance FO Strip PR 23.7 in 2200lm 835 LV5 LED boards with 56 LEDs each in direct section.
Two Advance XI040C110V054BST2 LED drivers labeled as 460mA(direct) and 445mA(indirect)



Prepared For:
Mercury Lighting Products Company, Inc.
20 Audrey Place
Fairfield, NJ 07004, USA

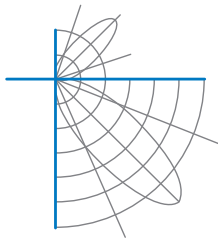
Performance Summary			
Input Voltage	120.0 V	Luminous Flux	4995.0 Lumens
Input Current	0.3434 A	Total Efficacy	122.8 Lm/W
Input Power	40.68 W	Downward Flux	2271.4 Lumens
Frequency	60.00 Hz	Downward Flux	45.5 % of Total
Power Factor	0.987		
Current THD	6.8 %		

*This test report supersedes test report LLIA001503-003

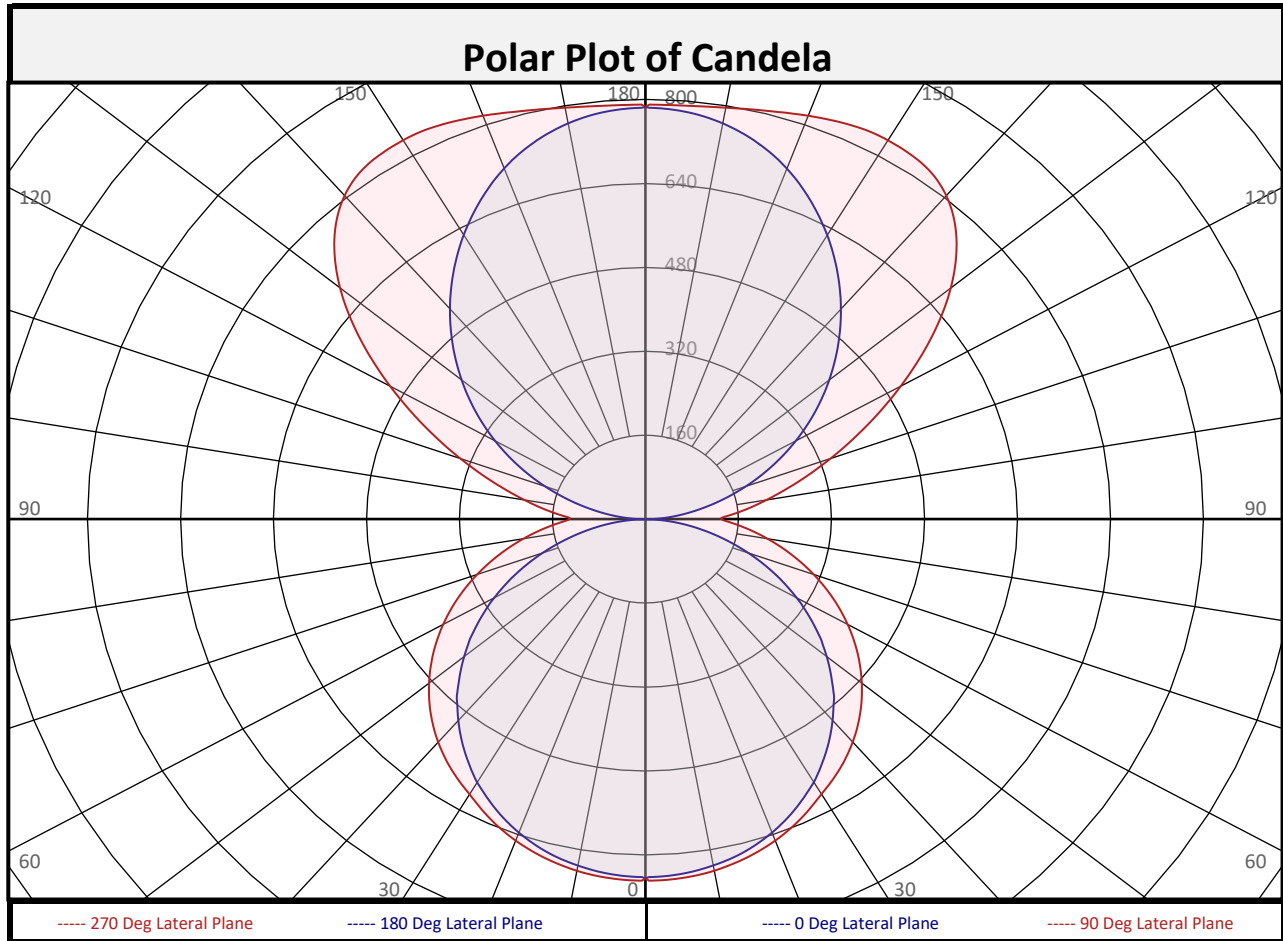
This test report was issued by LightLab International Allentown, LLC without alterations or erasures.

Test date: 08/02/2021
Report date: 08/19/2021

Signed: _____

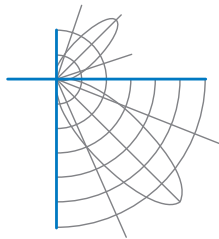


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Zonal Flux Summary

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	64.9	1.3%	90-100	128.1	2.6%	0-20	251.5	5.0%
10-20	186.6	3.7%	100-110	233.4	4.7%	0-30	536.7	10.7%
20-30	285.2	5.7%	110-120	349.8	7.0%	0-40	886.6	17.7%
30-40	350.0	7.0%	120-130	446.0	8.9%	0-60	1622	32.5%
40-50	376.1	7.5%	130-140	482.2	9.7%	0-80	2144	42.9%
50-60	359.1	7.2%	140-150	442.7	8.9%	10-90	2206	44.2%
60-70	303.1	6.1%	150-160	347.3	7.0%	20-50	1011	20.2%
70-80	219.2	4.4%	160-170	219.3	4.4%	40-90	1385	27.7%
80-90	127.3	2.5%	170-180	74.8	1.5%	60-90	649.5	13.0%
0-90	2271	45.5%	90-180	2724	54.5%	0-180	4995	100.0%

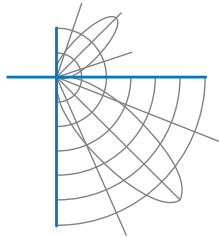


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Luminous Intensity (Candela) Table

		Lateral (C-Plane) Angles								
		0	22.5	45	67.5	90	112.5	135	157.5	180
Vertical (Gamma) Angles	0	684	684	684	684	684	684	684	684	684
	2.5	681	681	683	686	689	686	683	681	681
	5	679	679	681	684	687	684	681	679	679
	7.5	675	676	678	681	684	681	678	676	675
	10	670	671	673	677	680	677	673	671	670
	12.5	664	664	667	671	675	671	667	664	664
	15	656	657	660	664	668	664	660	657	656
	17.5	647	647	651	656	661	656	651	647	647
	20	636	637	641	647	652	647	641	637	636
	22.5	623	624	630	637	642	637	630	624	623
	25	610	611	618	625	631	625	618	611	610
	27.5	595	596	604	613	618	613	604	596	595
	30	579	580	590	598	605	598	590	580	579
	32.5	561	564	574	585	594	585	574	564	561
	35	542	545	557	572	582	572	557	545	542
	37.5	522	526	539	558	569	558	539	526	522
	40	501	506	522	544	555	544	522	506	501
	42.5	479	485	504	528	539	528	504	485	479
	45	457	463	486	511	523	511	486	463	457
	47.5	432	441	467	493	505	493	467	441	432
50	407	417	447	474	486	474	447	417	407	
52.5	383	392	426	454	466	454	426	392	383	
55	355	368	405	433	446	433	405	368	355	
57.5	328	342	383	412	424	412	383	342	328	
60	301	318	360	389	402	389	360	318	301	
62.5	273	294	336	366	379	366	336	294	273	
65	245	269	312	343	356	343	312	269	245	
67.5	217	244	288	319	332	319	288	244	217	
70	189	219	263	296	309	296	263	219	189	
72.5	162	194	239	272	285	272	239	194	162	
75	135	169	215	248	260	248	215	169	135	
77.5	109	145	191	224	237	224	191	145	109	
80	85	122	168	201	213	201	168	122	85	
82.5	61	99	146	179	191	179	146	99	61	
85	39	78	125	157	169	157	125	78	39	
87.5	18	58	104	136	148	136	104	58	18	
90	1	41	87	120	131	120	87	41	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	41	87	120	131	120	87	41	1
	92.5	17	62	105	131	140	131	105	62	17
	95	37	82	130	155	163	155	130	82	37
	97.5	58	102	155	180	186	180	155	102	58
	100	80	124	182	206	211	206	182	124	80
	102.5	104	148	210	235	239	235	210	148	104
	105	130	173	240	265	269	265	240	173	130
	107.5	157	200	273	299	303	299	273	200	157
	110	184	228	307	335	339	335	307	228	184
	112.5	213	257	344	374	378	374	344	257	213
	115	241	286	380	415	419	415	380	286	241
	117.5	270	316	417	457	462	457	417	316	270
	120	299	345	454	501	507	501	454	345	299
	122.5	327	375	491	546	553	546	491	375	327
	125	356	406	525	589	599	589	525	406	356
	127.5	384	436	558	630	644	630	558	436	384
	130	413	465	588	669	686	669	588	465	413
	132.5	441	493	615	703	724	703	615	493	441
	135	469	520	639	733	757	733	639	520	469
	137.5	496	546	659	758	784	758	659	546	496
	140	523	570	678	777	805	777	678	570	523
	142.5	550	594	696	791	820	791	696	594	550
	145	576	616	712	800	829	800	712	616	576
	147.5	601	637	725	806	833	806	725	637	601
150	625	657	736	810	834	810	736	657	625	
152.5	649	676	746	812	834	812	746	676	649	
155	671	694	754	811	830	811	754	694	671	
157.5	692	711	760	809	825	809	760	711	692	
160	711	727	766	805	819	805	766	727	711	
162.5	729	740	770	802	812	802	770	740	729	
165	743	752	774	798	806	798	774	752	743	
167.5	756	761	778	795	801	795	778	761	756	
170	766	769	780	793	797	793	780	769	766	
172.5	774	776	782	791	794	791	782	776	774	
175	780	780	784	789	792	789	784	780	780	
177.5	783	783	785	788	791	788	785	783	783	
180	786	786	786	786	786	786	786	786	786	



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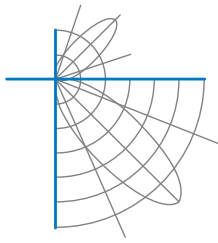
Coefficients of Utilization/Room Utilization - Zonal Cavity Method																						
Effective Floor Cavity Reflectance 0.20																						
RC	80					70					50				30				10			0
RW	70	50	30	10		70	50	30	10		50	30	10		50	30	10		50	30	10	0
RCR																						
0	106	106	106	106		97	97	97	97		81	81	81		66	66	66		52	52	52	45
1	96	91	87	83		87	83	80	76		69	67	64		56	54	53		44	43	42	36
2	87	79	72	67		79	72	67	62		60	56	52		49	46	43		38	36	34	29
3	79	69	61	55		72	63	56	51		53	47	43		43	39	36		34	31	29	24
4	72	61	52	46		65	56	48	43		46	41	37		38	34	30		30	27	24	20
5	66	54	45	39		60	49	42	37		41	36	31		34	29	26		27	23	21	18
6	60	48	40	34		55	44	37	31		37	31	27		30	26	23		24	21	18	15
7	56	43	35	29		51	40	33	27		33	28	24		27	23	20		22	19	16	13
8	52	39	31	26		47	36	29	24		30	25	21		25	21	18		20	17	14	12
9	48	36	28	23		44	33	26	21		28	22	19		23	19	16		18	15	13	11
10	45	33	25	20		41	30	24	19		26	20	17		21	17	14		17	14	12	10

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	19.0	7.54	7.93	
8.0	10.7	10.05	10.58	
10.0	6.8	12.56	13.22	
12.0	4.8	15.08	15.86	
14.0	3.5	17.59	18.51	
16.0	2.7	20.10	21.15	

Average Luminance (cd/m ²)			
	0 deg Plane	45 deg Plane	90 deg Plane
0	10401	10401	10401
45	9815	8359	8301
55	9415	7911	7852
65	8819	7305	7288
75	7909	6529	6598
85	6829	5639	5844

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



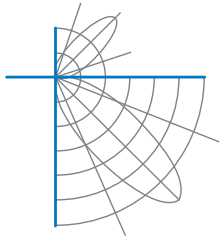
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UGR TABLE - CORRECTED

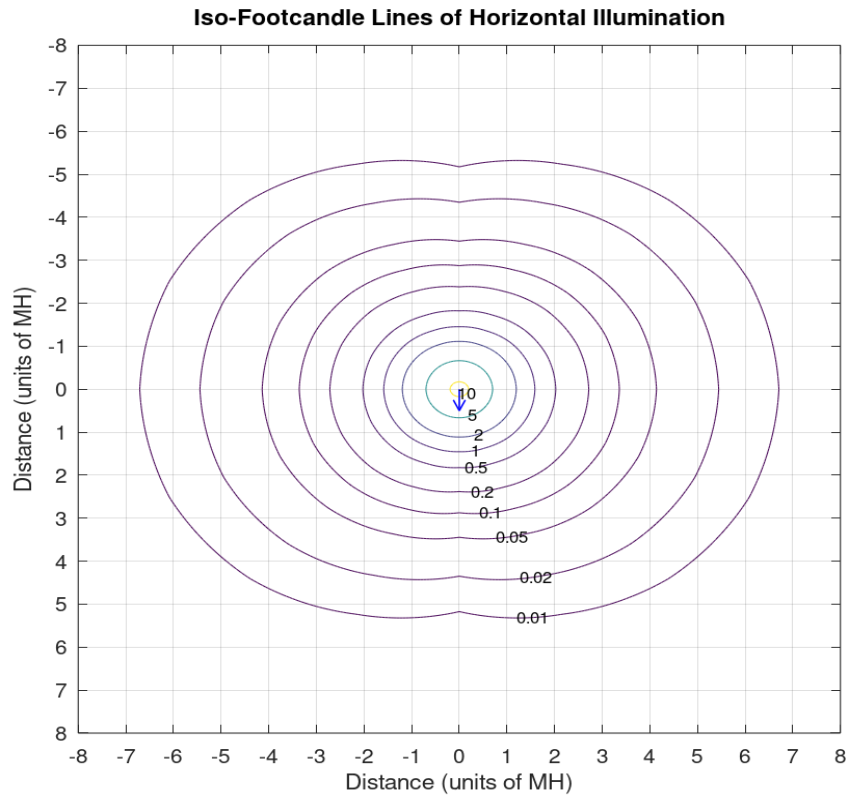
Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size	UGR Viewed Crosswise	UGR Viewed Endwise									
X=2H	Y=2H	13.1	13.9	14.1	15.0	16.3	15.1	16.0	16.1	17.0	18.3
	3H	14.7	15.5	15.7	16.5	17.9	17.5	18.3	18.6	19.3	20.7
	4H	15.3	16.0	16.3	17.0	18.4	18.7	19.4	19.7	20.4	21.8
	6H	15.7	16.3	16.7	17.3	18.7	19.8	20.5	20.8	21.5	22.9
	8H	15.7	16.4	16.8	17.4	18.8	20.4	21.0	21.4	22.1	23.4
	12H	15.8	16.4	16.8	17.4	18.8	21.0	21.6	22.0	22.6	24.0
4H	2H	14.0	14.7	15.0	15.7	17.1	15.5	16.3	16.6	17.3	18.7
	3H	15.8	16.5	16.9	17.5	18.9	18.2	18.8	19.2	19.8	21.2
	4H	16.5	17.1	17.6	18.1	19.5	19.5	20.0	20.5	21.1	22.5
	6H	17.0	17.5	18.1	18.6	20.0	20.8	21.3	21.8	22.3	23.7
	8H	17.2	17.6	18.2	18.7	20.1	21.5	21.9	22.5	23.0	24.4
	12H	17.2	17.7	18.3	18.7	20.1	22.2	22.6	23.2	23.6	25.1
8H	4H	17.2	17.6	18.2	18.7	20.1	19.7	20.1	20.7	21.2	22.6
	6H	17.9	18.2	18.9	19.3	20.8	21.2	21.6	22.2	22.7	24.1
	8H	18.1	18.4	19.2	19.5	21.0	22.0	22.3	23.1	23.4	24.8
	12H	18.3	18.6	19.3	19.6	21.1	22.9	23.2	23.9	24.2	25.7
12H	4H	17.3	17.7	18.4	18.8	20.2	19.7	20.1	20.7	21.1	22.6
	6H	18.1	18.4	19.2	19.5	21.0	21.2	21.5	22.3	22.6	24.1
	8H	18.4	18.7	19.5	19.8	21.3	22.1	22.4	23.1	23.4	24.9

Maximum UGR = 25.7

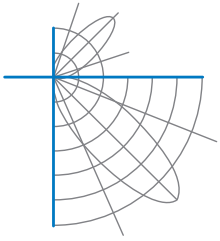


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Iso-Illuminance Plot



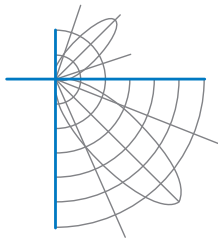
The isofootcandle values shown in the plot above are based on a mounting height of $h = 8.0$ feet. Grid values show multiples of mounting height. The isoilluminance contour lines are expressed in units of footcandles. The values expressed are based on the direct light from a single unit without the contribution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



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Additional Pictures of Test Subject





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Test Distance 9.5 m
Ambient Temperature 24.8 °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-41-14 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.

Revision

R01 - 08/19/2021 - Revised catalog number