



**IES INDOOR REPORT**

**PHOTOMETRIC FILENAME : HBPA48-LED220DMV50.IES**

**DESCRIPTION INFORMATION (From Photometric File)**

IESNA:LM-63-2002

[TEST] LLI-17027-1-R01

[TESTLAB] LightLab international (www.LightLabInt.com)

[MANUFAC] Mobern Lighting Co

[LUMCAT] HBPA48-LED220DMV50

[LUMINAIRE] Mobern Lighting Co - 4' suspended high bay luminaire. Product ID: HBPA48-LED220DMV50

[MORE] White painted formed steel housing with no lens.

[MORE] 528 LEDs with 2 x 44 array on each of Six white PCBs mounted in two rows on ~ 7.5" centers.

[MORE] Two Philips Advance Xitanium LED driver. One Model: XI190C275V054BSG1 and One Model: XI095C275V054BSS1 to

[MORE] Operating at 120Vac and 60Hz.

[OTHER] Absolute test - lamp lumens value set to -1

[MORE] NA conventions used for C0 plane alignment and C-plane rotation direction.

[MORE] The sample was tested at a distance of 8m.

[MORE] This IES file extrapolated from LLI-17027-1-R01

[DATE] This file created: Tuesday, January 16, 2018

[ISSUEDATE] Tuesday, January 16, 2018

**CHARACTERISTICS**

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	33000
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	150
Total Luminaire Watts	220
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.28
Spacing Criterion (90-270)	1.30
Spacing Criterion (Diagonal)	1.40
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	1.13 m
Luminous Width (90-270)	0.36 m
Luminous Height	0.00 m

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**LUMINANCE DATA (cd/sq.m)**

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	27910	28147	28759
55	26969	27500	28381
65	25022	25744	13946
75	20764	12683	13702
85	12976	6797	7129

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**CANDELA TABULATION**

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0.0	11650.305	11650.305	11650.305	11650.305	11650.305
0.5	11676.038	11648.137	11662.149	11632.326	11640.259
1.0	11675.187	11646.311	11660.516	11632.985	11638.571
1.5	11672.977	11644.966	11657.593	11630.281	11635.895
2.0	11670.521	11642.084	11655.973	11628.113	11633.726
2.5	11667.090	11637.651	11651.774	11624.256	11630.117
3.0	11662.492	11633.781	11646.448	11619.508	11625.258
3.5	11657.099	11626.905	11640.300	11613.785	11619.796
4.0	11650.785	11620.798	11633.808	11606.895	11614.196
4.5	11643.813	11613.551	11626.644	11599.347	11605.646
5.0	11635.497	11606.127	11618.108	11592.210	11598.757
5.5	11626.960	11597.398	11608.926	11583.111	11591.153
6.0	11616.996	11588.120	11599.086	11572.777	11581.546
6.5	11606.154	11577.910	11588.505	11562.621	11570.732
7.0	11594.543	11565.571	11576.853	11550.900	11558.407
7.5	11582.342	11554.688	11564.295	11539.111	11544.793
8.0	11569.126	11541.568	11551.326	11524.659	11530.890
8.5	11554.880	11528.338	11536.723	11512.500	11517.358
9.0	11540.250	11513.913	11521.668	11497.238	11503.689
9.5	11524.728	11499.558	11505.816	11481.675	11487.933
10.0	11508.506	11483.102	11489.141	11465.741	11470.641
10.5	11491.241	11465.316	11471.588	11448.833	11453.705
11.0	11473.660	11447.625	11453.101	11430.772	11435.218
11.5	11453.732	11428.205	11433.201	11411.352	11414.728
12.0	11431.829	11408.456	11414.110	11391.424	11396.132
12.5	11407.756	11387.554	11393.469	11370.783	11375.175
13.0	11380.404	11364.442	11371.057	11348.893	11352.228
13.5	11350.800	11338.284	11349.181	11326.454	11329.240
14.0	11321.060	11310.094	11325.589	11303.218	11306.691
14.5	11290.620	11280.436	11301.956	11278.583	11282.563
15.0	11258.587	11249.063	11279.448	11253.866	11257.338
15.5	11223.590	11218.403	11259.685	11227.598	11231.907
16.0	11184.147	11185.753	11232.854	11200.616	11203.471
16.5	11144.923	11150.756	11201.631	11173.236	11175.459
17.0	11106.920	11113.316	11168.748	11145.897	11146.611
17.5	11070.428	11072.939	11136.249	11116.925	11116.816
18.0	11034.731	11034.443	11106.193	11087.912	11087.501
18.5	10996.001	10996.962	11072.472	11057.938	11056.017
19.0	10955.610	10962.171	11030.970	11024.067	11023.683
19.5	10916.826	10924.058	10989.592	10990.539	10990.566
20.0	10880.566	10881.609	10948.433	10958.808	10956.502
20.5	10844.348	10838.048	10907.768	10924.072	10920.106
21.0	10809.008	10796.203	10866.128	10888.430	10885.150
21.5	10773.984	10756.911	10823.034	10851.265	10848.987
22.0	10737.175	10718.098	10776.660	10814.484	10812.659
22.5	10700.861	10680.000	10729.956	10776.372	10776.042
23.0	10663.366	10641.764	10683.486	10737.738	10736.173
23.5	10624.773	10602.128	10636.823	10698.349	10695.069
24.0	10585.714	10562.204	10591.012	10658.329	10653.951
24.5	10545.818	10522.761	10546.408	10617.719	10614.892
25.0	10504.768	10480.449	10499.526	10574.968	10571.578
25.5	10462.635	10439.194	10451.477	10531.723	10530.364
26.0	10418.457	10396.278	10402.619	10486.460	10485.253
26.5	10371.424	10353.115	10353.417	10443.503	10439.674

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**CANDELA TABULATION - (Cont.)**

27.0	10320.76710308.53910304.65510398.26810395.551
27.5	10268.24510263.93510256.09910352.85510348.449
28.0	10214.43210215.92810207.67910305.86310301.869
28.5	10160.83810164.46210159.56210258.28110254.163
29.0	10103.55310112.35110110.74510208.87310205.525
29.5	10041.57510055.45010061.31010157.27010154.937
30.0	9979.843 9999.633 10012.24610104.94010104.802
30.5	9919.744 9942.678 9961.521 10051.52510052.458
31.0	9861.320 9881.454 9909.492 9998.467 10000.347
31.5	9801.359 9819.475 9856.832 9944.421 9947.303
32.0	9739.792 9754.093 9805.119 9888.261 9893.957
32.5	9680.146 9689.808 9750.593 9830.111 9839.320
33.0	9622.944 9628.914 9696.300 9771.358 9784.917
33.5	9566.592 9566.509 9640.854 9712.590 9728.689
34.0	9511.036 9501.429 9583.226 9653.453 9672.461
34.5	9454.657 9438.833 9527.107 9593.368 9615.670
35.0	9397.646 9378.322 9467.859 9533.146 9558.014
35.5	9340.485 9317.057 9406.526 9469.945 9499.480
36.0	9283.007 9258.729 9342.365 9406.375 9439.107
36.5	9224.528 9199.234 9276.722 9345.837 9379.242
37.0	9163.620 9138.738 9209.788 9279.549 9316.330
37.5	9102.451 9078.420 9142.896 9213.933 9254.173
38.0	9035.971 9016.002 9074.412 9147.453 9191.755
38.5	8964.152 8952.953 9004.158 9078.694 9129.872
39.0	8892.182 8890.425 8930.253 9010.965 9065.478
39.5	8819.690 8826.374 8855.744 8942.687 9000.370
40.0	8741.942 8758.274 8780.892 8871.925 8932.805
40.5	8660.365 8687.045 8709.690 8803.880 8865.996
41.0	8581.505 8612.481 8637.240 8733.502 8800.133
41.5	8504.705 8536.284 8561.743 8662.012 8731.320
42.0	8424.967 8459.291 8487.783 8589.383 8663.412
42.5	8347.795 8377.645 8413.672 8518.882 8591.963
43.0	8274.617 8293.090 8341.743 8443.865 8521.119
43.5	8202.894 8211.911 8270.733 8370.728 8449.698
44.0	8133.010 8131.858 8199.765 8295.766 8378.277
44.5	8060.121 8051.159 8127.507 8221.614 8303.672
45.0	7988.192 7972.052 8055.880 8147.531 8231.043
45.5	7915.220 7896.075 7982.332 8072.926 8156.891
46.0	7840.986 7820.317 7909.099 7996.454 8080.543
46.5	7766.820 7746.371 7835.592 7921.314 8003.412
47.0	7683.966 7673.371 7761.220 7844.911 7927.325
47.5	7596.680 7595.788 7684.721 7768.357 7847.381
48.0	7511.109 7520.620 7607.550 7690.197 7769.235
48.5	7418.182 7444.258 7526.549 7612.477 7690.691
49.0	7323.334 7363.381 7441.582 7532.615 7609.924
49.5	7234.950 7278.552 7357.082 7453.852 7529.953
50.0	7144.383 7190.483 7271.388 7373.729 7448.952
50.5	7057.852 7098.983 7179.957 7292.015 7365.563
51.0	6976.440 7004.121 7088.045 7211.097 7283.588
51.5	6895.960 6911.373 6996.916 7128.834 7198.924
52.0	6813.025 6817.691 6905.856 7045.610 7114.437
52.5	6731.612 6725.711 6816.099 6961.329 7028.523
53.0	6647.949 6639.234 6727.427 6877.666 6942.445
53.5	6560.636 6554.515 6639.770 6790.833 6854.650
54.0	6464.772 6470.563 6555.640 6704.466 6767.419
54.5	6366.561 6386.269 6470.701 6616.411 6679.035

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**CANDELA TABULATION - (Cont.)**

55.0	6261.145	6300.849	6384.567	6525.502	6589.113
55.5	6161.026	6215.127	6298.639	6434.098	6498.067
56.0	6060.071	6121.267	6212.451	6340.979	6380.683
56.5	5967.199	6022.068	6123.861	6245.705	6251.716
57.0	5879.267	5919.452	6033.953	6151.474	6155.605
57.5	5791.432	5815.696	5937.815	6055.404	6064.696
58.0	5702.554	5712.421	5838.822	5942.124	5971.632
58.5	5610.780	5616.146	5738.813	5802.466	5878.403
59.0	5508.287	5525.566	5636.677	5692.384	5785.311
59.5	5400.249	5435.082	5534.569	5591.950	5685.906
60.0	5290.785	5345.503	5435.919	5494.165	5350.526
60.5	5185.808	5254.649	5341.029	5395.075	4569.506
61.0	5088.379	5150.495	5247.402	5296.686	4082.268
61.5	4997.538	5045.313	5156.260	5196.238	3977.099
62.0	4905.119	4935.326	5063.882	4855.465	3904.360
62.5	4809.269	4826.822	4968.896	4098.050	3831.539
63.0	4702.220	4730.286	4872.058	3716.283	3756.879
63.5	4587.705	4637.716	4766.765	3628.310	3586.794
64.0	4474.136	4544.199	4659.057	3554.885	2927.591
64.5	4374.100	4447.456	4543.773	3480.843	2459.538
65.0	4280.281	4338.554	4403.841	3403.150	2385.647
65.5	4184.280	4222.708	4287.404	3085.104	2335.197
66.0	4077.986	4114.959	4186.723	2413.054	2284.609
66.5	3961.371	4018.793	4088.869	2215.919	2235.119
67.0	3847.734	3923.848	3988.764	2161.379	2185.383
67.5	3752.419	3825.912	3883.074	2109.748	2139.008
68.0	3656.761	3714.375	3595.207	2058.392	2093.444
68.5	3548.915	3597.595	2935.537	2007.804	2048.607
69.0	3429.953	3497.422	2706.054	1960.154	2004.318
69.5	3323.357	3403.534	2627.386	1914.397	1960.730
70.0	3228.001	3298.791	2553.742	1870.576	1915.577
70.5	3124.685	3182.848	2474.484	1828.250	1871.111
71.0	3005.119	3076.046	2120.467	1786.556	1828.387
71.5	2902.599	2981.294	1665.343	1744.628	1783.207
72.0	2807.778	2876.893	1598.808	1701.863	1739.289
72.5	2692.892	2762.227	1552.090	1659.579	1687.892
73.0	2585.211	2664.291	1505.016	1615.853	1638.553
73.5	2491.681	2565.311	1455.883	1567.928	1592.097
74.0	2376.218	2450.206	1409.591	1516.476	1560.064
74.5	2278.680	2353.258	1370.107	1467.425	1494.270
75.0	2175.240	2250.806	1328.632	1428.586	1435.420
75.5	2071.265	2144.251	1283.808	1387.207	1381.237
76.0	1974.139	2044.311	1245.079	1319.313	1323.472
76.5	1869.793	1925.500	1203.261	1263.263	1265.445
77.0	1774.204	1831.503	1158.890	1204.180	1208.819
77.5	1676.199	1722.299	1115.659	1145.797	1152.865
78.0	1572.828	1552.090	1062.587	1090.736	1099.931
78.5	1485.871	1210.548	1023.089	1035.276	1047.024
79.0	1390.254	1129.054	968.617	980.104	986.527
79.5	1299.921	1050.359	913.761	928.309	927.046
80.0	1204.400	764.908	856.106	868.965	876.994
80.5	1120.243	715.199	798.615	802.842	771.413
81.0	1032.380	681.725	745.763	756.358	454.232
81.5	950.542	653.096	694.406	520.726	304.912
82.0	868.842	626.705	643.105	305.186	297.213
82.5	794.113	596.992	584.352	295.648	291.105

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**CANDELA TABULATION - (Cont.)**

<b>83.0</b>	719.728	559.579	537.566	287.482	283.804
<b>83.5</b>	646.893	513.342	395.355	278.630	275.254
<b>84.0</b>	579.699	463.455	262.092	268.296	275.940
<b>84.5</b>	517.610	408.050	250.962	269.407	326.006
<b>85.0</b>	457.759	358.478	239.777	291.297	251.497
<b>85.5</b>	400.446	314.587	225.833	238.651	241.259
<b>86.0</b>	334.378	269.229	238.747	225.792	224.666
<b>86.5</b>	270.423	217.049	197.492	207.579	206.619
<b>87.0</b>	212.355	169.344	180.570	187.364	186.101
<b>87.5</b>	166.654	152.724	160.601	164.060	166.407
<b>88.0</b>	136.941	134.388	137.037	145.258	144.763
<b>88.5</b>	113.692	104.359	113.843	117.438	117.809
<b>89.0</b>	75.854	79.203	84.596	85.694	87.231
<b>89.5</b>	47.994	46.566	51.356	52.468	53.278
<b>90.0</b>	0.000	0.000	0.000	0.000	0.000

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	4282.04	N.A.	13.00
0-30	9134.01	N.A.	27.70
0-40	15055.97	N.A.	45.60
0-60	26997.67	N.A.	81.80
0-80	32618.23	N.A.	98.80
0-90	32999.97	N.A.	100.00
10-90	31895.93	N.A.	96.70
20-40	10773.93	N.A.	32.60
20-50	17003.4	N.A.	51.50
40-70	15768.88	N.A.	47.80
60-80	5620.55	N.A.	17.00
70-80	1793.36	N.A.	5.40
80-90	381.75	N.A.	1.20
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	32999.97	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	1104.06
10-20	3177.98
20-30	4851.97
30-40	5921.96
40-50	6229.47
50-60	5712.23
60-70	3827.18
70-80	1793.36
80-90	381.75
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

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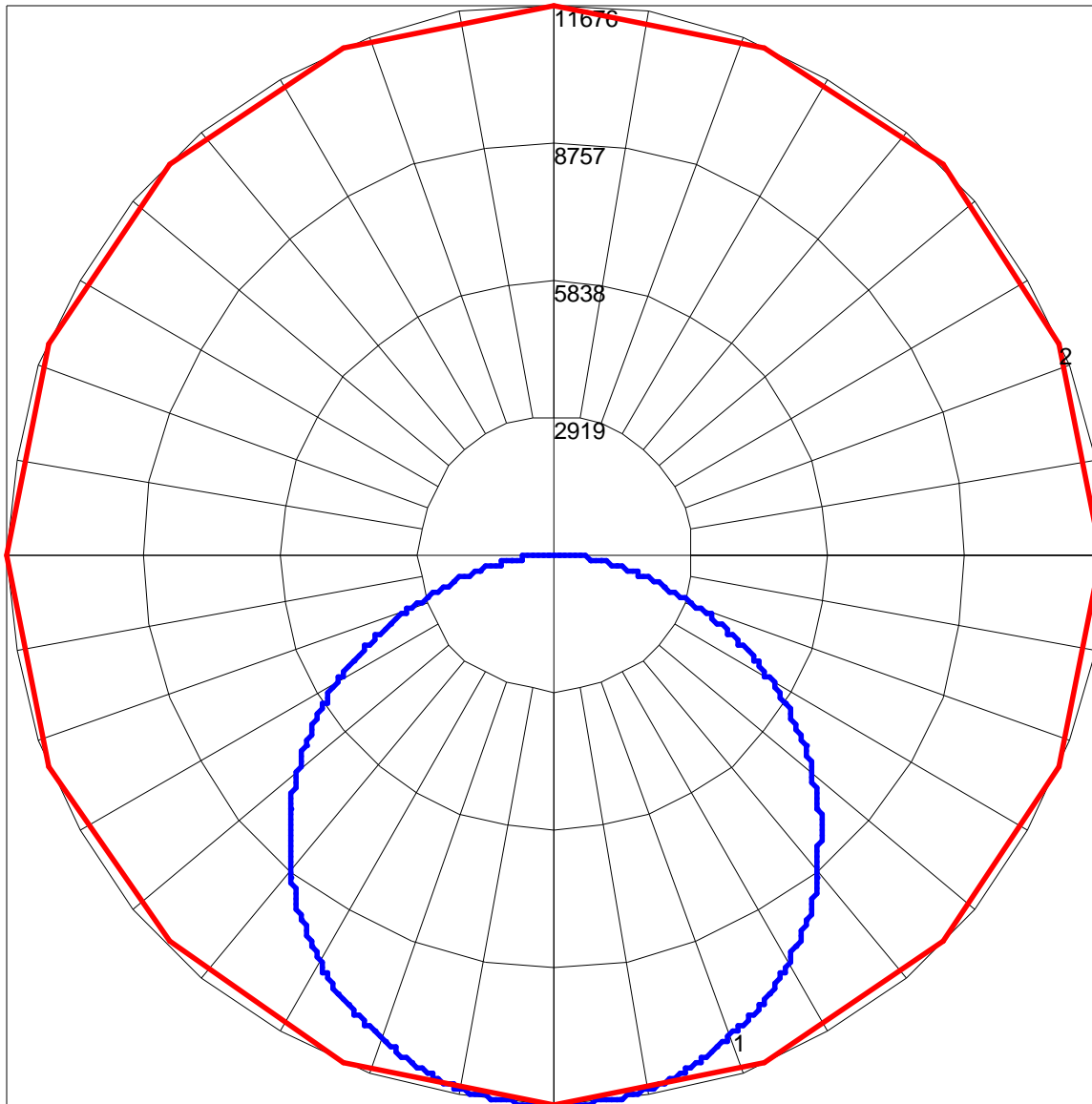
**COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD**

Effective Floor Cavity Reflectance 0.20

RC RW	80				70				50			30			10			0
	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	105	101	97	107	102	99	95	98	95	92	94	92	90	91	89	87	85
2	100	92	85	79	97	90	84	78	86	81	77	83	79	75	80	76	73	71
3	91	80	72	66	88	79	71	65	76	70	64	73	68	63	71	66	62	60
4	83	71	63	56	81	70	62	56	67	60	55	65	59	54	63	58	53	51
5	76	64	55	48	74	63	54	48	60	53	47	58	52	47	57	51	46	44
6	71	57	48	42	69	56	48	42	55	47	41	53	46	41	51	45	41	39
7	65	52	43	37	64	51	43	37	50	42	37	48	41	36	47	41	36	34
8	61	47	39	33	59	47	39	33	45	38	33	44	37	32	43	37	32	30
9	57	43	35	30	55	43	35	30	42	34	29	41	34	29	40	33	29	27
10	53	40	32	27	52	39	32	27	38	31	27	38	31	27	37	31	26	25



POLAR GRAPH



Maximum Candela = 11676.038 Located At Horizontal Angle = 0, Vertical Angle = .5  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (.5) (Through Max. Cd.)