



IES INDOOR REPORT

PHOTOMETRIC FILENAME : LLM-4-L20-835-X-RD-XX-XX-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from BALLABS TEST NO. 17323.0

[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC

[ISSUE DATE] 26-JUL-2021

[MANUFAC] H.E. WILLIAMS, INC - CARTHAGE, MO

[LUMINAIRE] 4' DIRECT/INDIRECT SURFACE LUMINAIRE

[MORE] WHITE REFLECTOR w/FROSTED ACRYLIC ROUND LENS

[LUMCAT] LLM-4-L20-835-x-RD-xx-xx-DIM-UNV

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	7707
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	142
Total Luminaire Watts	54.4
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.10
Spacing Criterion (90-270)	1.32
Spacing Criterion (Diagonal)	1.34
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	3.88 ft
Luminous Width (90-270)	0.21 ft
Luminous Height	0.17 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	19286	16593	17426
55	15805	14002	15170
65	12807	12103	13420
75	9552	10261	11313
85	6656	9525	10431

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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	2239.858	2239.858	2239.858	2239.858	2239.858
5	2252.837	2250.983	2254.691	2258.400	2260.254
10	2186.086	2189.795	2208.337	2223.170	2226.879
15	2082.252	2097.086	2130.461	2161.982	2174.961
20	1985.834	2015.501	2076.689	2134.169	2154.565
25	1800.416	1841.208	1928.354	2006.230	2035.897
30	1618.705	1676.185	1794.853	1904.250	1946.896
35	1464.808	1542.684	1694.727	1830.083	1883.854
40	1251.576	1340.577	1531.558	1694.727	1752.207
45	1066.158	1179.263	1405.474	1594.601	1665.060
50	884.447	1004.969	1253.430	1457.391	1525.996
55	721.279	854.780	1116.221	1329.452	1399.911
60	572.944	712.008	982.719	1194.096	1262.701
65	443.151	595.194	875.176	1088.408	1157.013
70	320.774	482.089	758.362	964.177	1023.511
75	215.086	378.254	643.403	826.967	877.030
80	135.356	304.087	561.819	737.966	784.321
85	64.897	241.044	487.651	650.820	693.466
90	9.271	178.002	385.671	517.318	554.402
95	0.000	137.210	341.170	474.672	504.339
100	0.000	113.105	289.253	396.796	426.463
105	0.000	92.709	239.190	333.754	363.421
110	0.000	76.022	202.106	289.253	307.795
115	0.000	64.897	172.439	242.898	268.857
120	0.000	61.188	150.189	213.232	233.628
125	0.000	57.480	127.939	181.710	200.252
130	0.000	51.917	109.397	159.460	174.294
135	0.000	44.500	92.709	133.501	142.772
140	0.000	42.646	87.147	120.522	133.501
145	0.000	44.500	81.584	109.397	120.522
150	0.000	38.938	66.751	87.147	94.564
155	0.000	38.938	59.334	76.022	79.730
160	0.000	38.938	51.917	64.897	66.751
165	0.000	18.542	46.355	55.626	57.480
170	0.000	0.000	42.646	44.500	46.355
175	0.000	0.000	0.000	38.938	38.938
180	0.000	0.000	0.000	0.000	0.000

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	817.04	N.A.	10.60
0-30	1706.2	N.A.	22.10
0-40	2752.25	N.A.	35.70
0-60	4795.09	N.A.	62.20
0-80	6268.00	N.A.	81.30
0-90	6741.34	N.A.	87.50
10-90	6527.98	N.A.	84.70
20-40	1935.21	N.A.	25.10
20-50	3001.51	N.A.	38.90
40-70	2873.05	N.A.	37.30
60-80	1472.92	N.A.	19.10
70-80	642.70	N.A.	8.30
80-90	473.33	N.A.	6.10
90-110	553.34	N.A.	7.20
90-120	708.17	N.A.	9.20
90-130	814.03	N.A.	10.60
90-150	927.72	N.A.	12.00
90-180	965.17	N.A.	12.50
110-180	411.83	N.A.	5.30
0-180	7706.51	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	213.36
10-20	603.68
20-30	889.16
30-40	1046.05
40-50	1066.29
50-60	976.54
60-70	830.21
70-80	642.70
80-90	473.33
90-100	326.43
100-110	226.91
110-120	154.83
120-130	105.86
130-140	68.40
140-150	45.29
150-160	24.95
160-170	10.82
170-180	1.68

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COEFFICIENTS OF 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
0	386	386	386	386	372	372	372	372	346	346	346	323	323	323	301	301	301	291
1	345	327	310	295	332	315	300	286	293	281	270	273	263	254	254	246	239	229
2	312	282	257	237	299	272	250	230	253	235	219	236	221	208	220	208	197	187
3	284	247	218	195	272	238	212	191	222	200	182	207	189	173	194	178	165	156
4	259	218	188	164	248	211	183	161	197	173	154	184	164	148	172	155	141	133
5	238	194	164	141	228	188	160	138	176	152	133	165	144	128	155	137	123	114
6	220	175	145	123	211	169	141	121	159	135	116	150	128	112	141	122	108	100
7	204	158	129	108	196	154	126	106	145	121	103	136	115	99	129	110	96	88
8	190	144	116	96	182	140	114	95	133	109	92	125	104	89	118	100	86	79
9	177	133	105	87	170	129	103	85	122	99	83	115	95	80	109	91	78	71
10	166	122	96	78	160	119	94	77	113	90	75	107	87	73	102	84	71	64

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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

X=2H	Y=2H	13.1	14.6	13.7	15.1	15.7	18.2	19.6	18.7	20.2	20.8
	3H	14.3	15.6	14.9	16.2	16.8	20.8	22.2	21.4	22.7	23.3
	4H	14.7	15.9	15.2	16.5	17.1	22.1	23.3	22.6	23.9	24.5
	6H	14.9	16.1	15.5	16.6	17.3	23.4	24.6	24.0	25.2	25.8
	8H	14.9	16.1	15.5	16.7	17.3	24.1	25.2	24.7	25.8	26.5
	12H	15.0	16.0	15.6	16.6	17.3	24.9	26.0	25.5	26.6	27.3

UGR Viewed Endwise

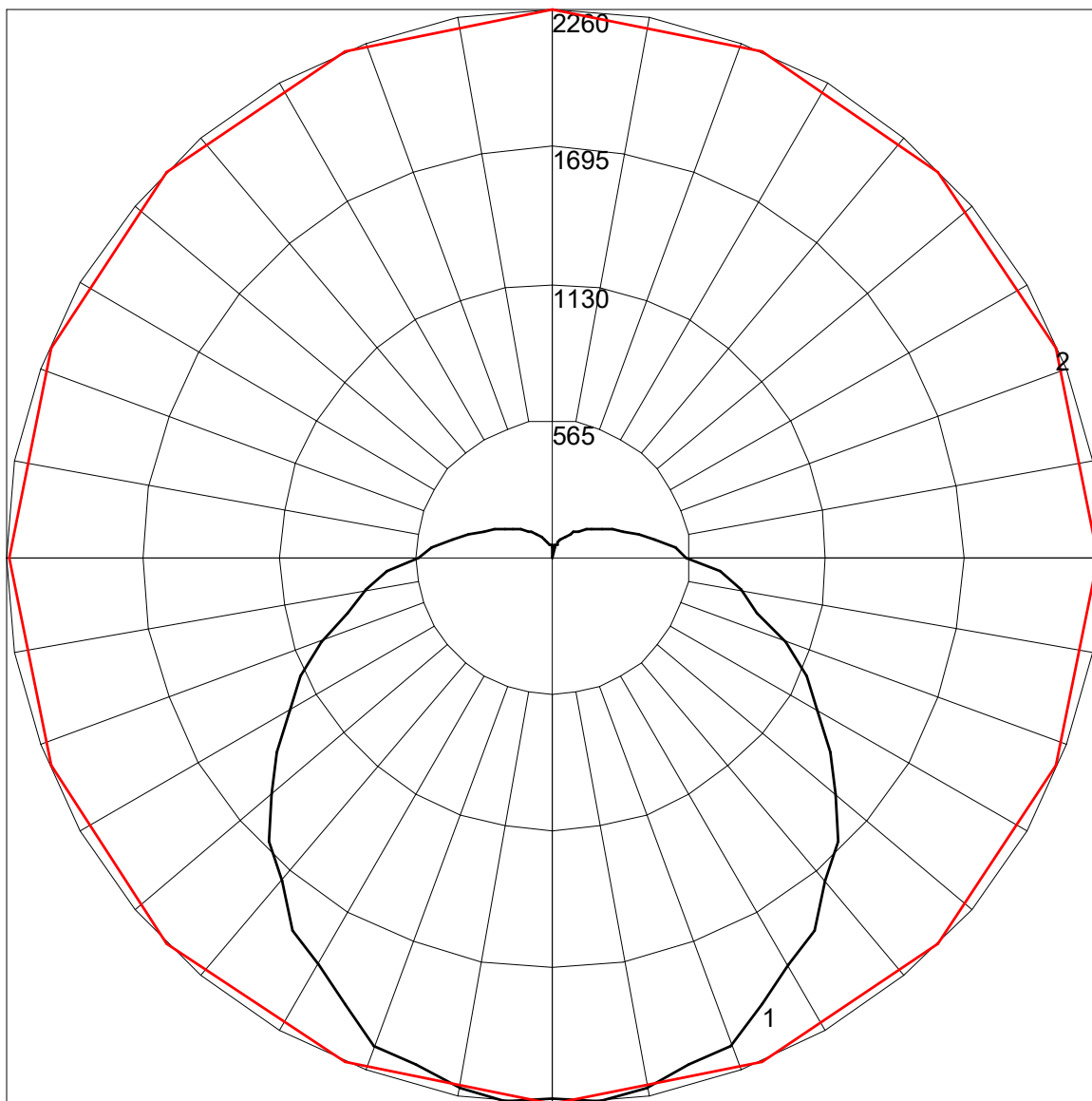
4H	2H	14.6	15.8	15.2	16.4	17.1	18.4	19.7	19.0	20.3	20.9
	3H	16.0	17.1	16.6	17.7	18.4	21.3	22.4	21.9	23.0	23.6
	4H	16.5	17.5	17.1	18.1	18.8	22.7	23.7	23.3	24.3	25.0
	6H	16.8	17.7	17.5	18.3	19.1	24.2	25.1	24.9	25.8	26.5
	8H	16.9	17.8	17.6	18.4	19.1	25.1	25.9	25.7	26.5	27.2
	12H	17.0	17.7	17.6	18.4	19.1	26.0	26.7	26.6	27.4	28.1

8H	4H	17.7	18.5	18.3	19.1	19.8	22.8	23.6	23.5	24.3	25.0
	6H	18.2	18.9	18.9	19.6	20.3	24.5	25.2	25.2	25.9	26.6
	8H	18.4	19.0	19.1	19.7	20.5	25.5	26.1	26.2	26.8	27.5
	12H	18.5	19.1	19.2	19.8	20.6	26.6	27.1	27.2	27.8	28.6

12H	4H	18.0	18.7	18.6	19.4	20.1	22.8	23.6	23.5	24.2	25.0
	6H	18.7	19.4	19.4	20.0	20.8	24.6	25.2	25.2	25.8	26.6
	8H	19.0	19.6	19.7	20.3	21.1	25.5	26.1	26.2	26.8	27.6

Maximum UGR = 28.6

POLAR GRAPH



Maximum Candela = 2260.254 Located At Horizontal Angle = 90, Vertical Angle = 5
1 - Vertical Plane Through Horizontal Angles (90 - 270)
2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)