



IES INDOOR REPORT

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

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from BALLABS TEST NO. 17322.0

[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 SQUARE LENS

[LUMCAT] LLM-4-L20-835-S-SQ-xx-xx-DIM-UNV

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	7863
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	145
Total Luminaire Watts	54.4
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.10
Spacing Criterion (90-270)	1.18
Spacing Criterion (Diagonal)	1.28
Basic Luminous Shape	Rectangular w/Sides
Luminous Length (0-180)	3.88 ft
Luminous Width (90-270)	0.21 ft
Luminous Height	0.20 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	19903	14964	15098
55	15801	12478	13515
65	12508	10745	12169
75	9099	8912	10065
85	5963	7714	8522

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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	2398.620	2398.620	2398.620	2398.620	2398.620
5	2408.261	2412.117	2419.830	2419.830	2425.614
10	2340.775	2350.416	2361.985	2369.698	2369.698
15	2221.230	2242.440	2257.865	2265.577	2269.434
20	2130.607	2161.457	2182.667	2198.092	2200.020
25	1918.510	1957.073	1987.924	2009.133	2016.846
30	1721.839	1773.899	1816.318	1854.881	1872.235
35	1548.305	1613.862	1681.348	1746.905	1773.899
40	1313.071	1397.909	1500.101	1598.437	1640.857
45	1108.687	1212.807	1355.490	1502.030	1561.802
50	908.159	1033.489	1205.094	1386.341	1457.682
55	728.841	869.596	1079.765	1289.933	1370.915
60	574.589	724.985	954.435	1180.028	1262.939
65	439.618	601.583	858.027	1093.262	1172.316
70	316.217	485.894	748.123	971.788	1043.130
75	210.168	377.918	630.505	829.105	888.878
80	127.258	300.792	543.739	726.913	777.045
85	61.701	227.522	458.900	620.865	661.356
90	9.641	150.396	347.067	472.397	501.319
95	0.000	142.683	331.642	441.547	464.684
100	0.000	133.042	296.935	387.558	406.840
105	0.000	125.330	268.013	345.139	360.564
110	0.000	113.761	242.947	310.432	329.714
115	0.000	104.120	219.809	279.582	296.935
120	0.000	100.264	200.528	264.157	277.654
125	0.000	92.551	181.246	235.234	252.588
130	0.000	84.839	163.893	215.953	229.450
135	0.000	77.126	146.539	188.959	206.312
140	0.000	75.198	138.827	179.318	192.815
145	0.000	77.126	129.186	171.605	181.246
150	0.000	63.629	106.048	134.971	146.539
155	0.000	63.629	96.408	121.474	127.258
160	0.000	52.060	79.054	98.336	104.120
165	0.000	46.276	71.342	79.054	82.910
170	0.000	0.000	53.988	67.485	69.413
175	0.000	0.000	25.066	48.204	48.204
180	0.000	0.000	0.000	0.000	0.000

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	867.10	N.A.	11.00
0-30	1782.88	N.A.	22.70
0-40	2825.02	N.A.	35.90
0-60	4828.37	N.A.	61.40
0-80	6296.99	N.A.	80.10
0-90	6745.93	N.A.	85.80
10-90	6517.49	N.A.	82.90
20-40	1957.92	N.A.	24.90
20-50	3000.59	N.A.	38.20
40-70	2832.39	N.A.	36.00
60-80	1468.61	N.A.	18.70
70-80	639.58	N.A.	8.10
80-90	448.94	N.A.	5.70
90-110	553.99	N.A.	7.00
90-120	742.73	N.A.	9.40
90-130	886.14	N.A.	11.30
90-150	1059.15	N.A.	13.50
90-180	1117.57	N.A.	14.20
110-180	563.58	N.A.	7.20
0-180	7863.49	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	228.44
10-20	638.66
20-30	915.78
30-40	1042.14
40-50	1042.67
50-60	960.69
60-70	829.03
70-80	639.58
80-90	448.94
90-100	309.83
100-110	244.16
110-120	188.74
120-130	143.41
130-140	101.87
140-150	71.13
150-160	39.31
160-170	16.55
170-180	2.56

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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	385	385	385	385	370	370	370	370	343	343	343	319	319	319	296	296	296	285
1	345	327	310	296	331	314	300	286	291	279	269	270	261	252	251	243	236	226
2	312	282	258	237	299	272	250	231	252	234	218	234	219	206	218	206	195	185
3	284	247	219	196	271	238	212	191	222	200	182	206	188	173	192	177	164	155
4	260	219	189	166	248	211	183	162	197	173	155	183	164	148	171	154	141	132
5	239	195	165	143	228	189	161	140	176	152	134	165	144	128	154	136	122	114
6	221	176	146	124	211	170	142	122	159	135	117	149	128	112	140	122	108	100
7	205	160	130	110	196	155	127	108	145	121	104	136	115	100	128	110	96	89
8	190	146	117	98	183	141	115	96	133	110	93	125	105	90	118	100	86	79
9	178	134	106	88	171	130	104	87	123	100	84	116	95	81	109	91	78	72
10	167	123	97	80	160	120	95	79	113	91	76	107	88	74	101	84	71	65

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UGR TABLE - CORRECTED

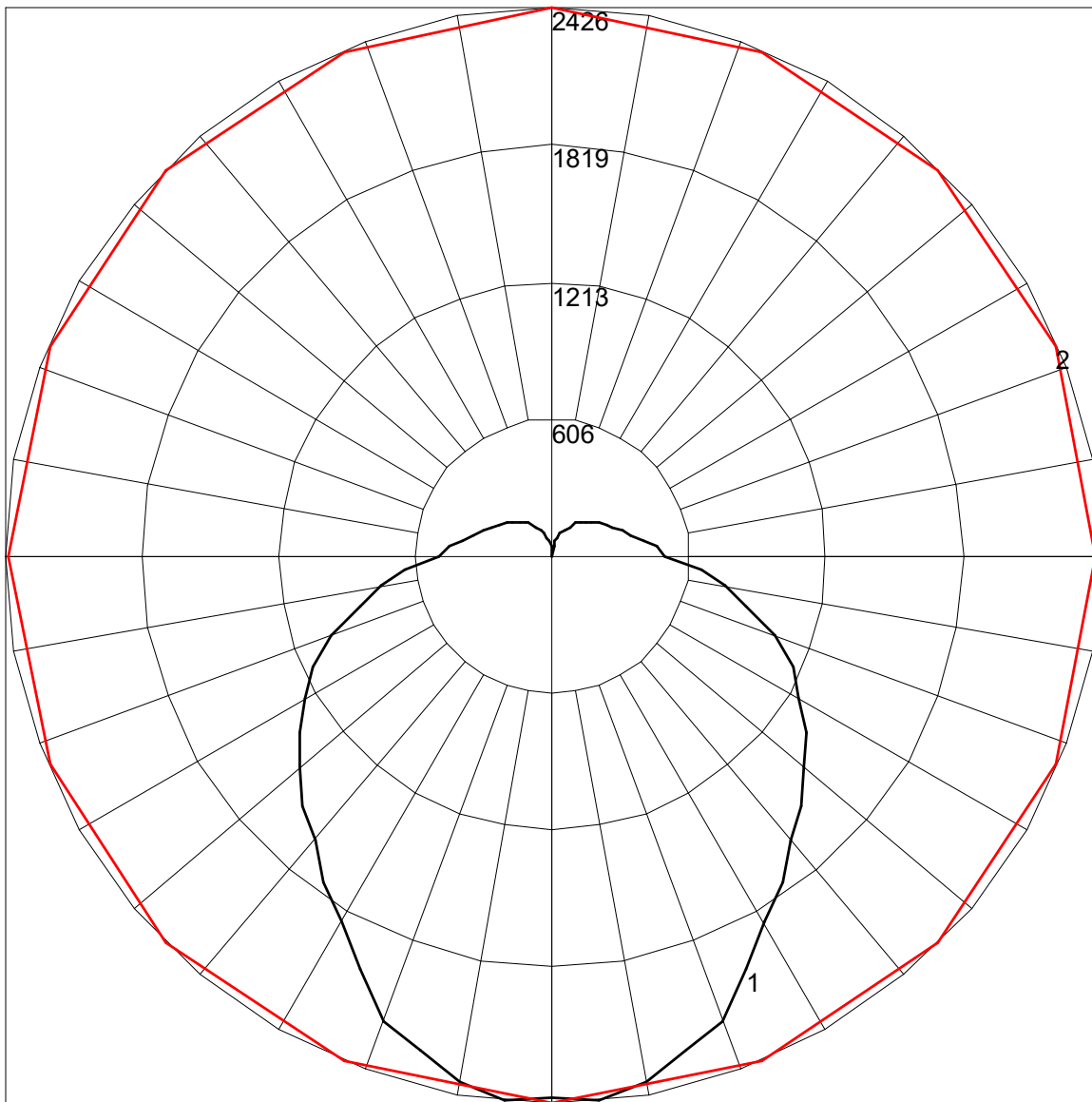
Reflectances

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	12.8	14.2	13.4	14.8	15.4	17.8	19.2	18.4	19.8	20.4
	3H	14.0	15.2	14.5	15.8	16.5	20.5	21.8	21.1	22.4	23.1
	4H	14.3	15.5	14.9	16.1	16.8	21.8	23.0	22.4	23.6	24.3
	6H	14.5	15.6	15.1	16.2	16.9	23.1	24.2	23.7	24.8	25.5
	8H	14.5	15.6	15.1	16.2	16.9	23.8	24.9	24.4	25.5	26.2
	12H	14.5	15.5	15.1	16.2	16.9	24.5	25.5	25.1	26.2	26.9
4H	2H	14.2	15.4	14.8	16.0	16.7	18.0	19.2	18.6	19.8	20.5
	3H	15.6	16.6	16.2	17.3	18.0	21.0	22.0	21.6	22.6	23.3
	4H	16.0	17.0	16.7	17.6	18.4	22.4	23.3	23.0	24.0	24.7
	6H	16.3	17.2	17.0	17.8	18.6	23.9	24.7	24.5	25.4	26.1
	8H	16.4	17.2	17.1	17.9	18.6	24.7	25.5	25.3	26.1	26.9
	12H	16.5	17.2	17.1	17.9	18.6	25.5	26.2	26.2	26.9	27.7
8H	4H	17.1	17.9	17.8	18.6	19.4	22.5	23.3	23.1	23.9	24.7
	6H	17.7	18.3	18.4	19.0	19.8	24.1	24.8	24.8	25.5	26.3
	8H	17.9	18.5	18.5	19.2	19.9	25.0	25.6	25.7	26.4	27.1
	12H	18.0	18.5	18.7	19.2	20.1	26.1	26.6	26.8	27.3	28.1
12H	4H	17.5	18.2	18.1	18.9	19.7	22.5	23.2	23.1	23.9	24.6
	6H	18.2	18.8	18.9	19.4	20.3	24.2	24.8	24.9	25.4	26.3
	8H	18.5	19.0	19.2	19.7	20.5	25.1	25.6	25.8	26.3	27.2

Maximum UGR = 28.1

POLAR GRAPH



Maximum Candela = 2425.614 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.)