



IES INDOOR REPORT

PHOTOMETRIC FILENAME : LLM-4-L20-830-X-SQ-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

[ISSUEDATE] 10/25/2022

[MANUFAC] WILLIAMS INDOOR

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

[LUMINAIRE] 4' DIRECT/INDIRECT SURFACE LUMINAIRE

[MORE] WHITE REFLECTOR w/FROSTED ACRYLIC SQUARE LENS

[LUMCAT] LLM-4-L20-830-x-SQ-DIM-UNV

[LAMPCAT] HLM 80 CRI 3000K CCT

[_SEARCH_SOURCETYPE]LED

[_SEARCH_APPLICATION]INDOOR,ARCHITECTURAL,DIRECT,LINEAR

[_SEARCH_MOUNTING]CEILING,SURFACE,WALL

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	7116
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	128
Total Luminaire Watts	55.4
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	18012	13542	13663
55	14300	11293	12231
65	11320	9724	11013
75	8235	8066	9109
85	5396	6981	7712

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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	2170.746	2170.746	2170.746	2170.746	2170.746
5	2179.471	2182.961	2189.941	2189.941	2195.176
10	2118.397	2127.122	2137.592	2144.572	2144.572
15	2010.209	2029.404	2043.363	2050.343	2053.833
20	1928.195	1956.115	1975.309	1989.269	1991.014
25	1736.248	1771.148	1799.067	1818.262	1825.242
30	1558.261	1605.375	1643.765	1678.664	1694.369
35	1401.213	1460.542	1521.616	1580.945	1605.375
40	1188.327	1265.105	1357.589	1446.583	1484.972
45	1003.359	1097.588	1226.716	1359.334	1413.428
50	821.882	935.305	1090.608	1254.636	1319.200
55	659.600	786.983	977.185	1167.387	1240.676
60	520.002	656.110	863.762	1067.923	1142.957
65	397.854	544.432	776.513	989.400	1060.944
70	286.176	439.733	677.050	879.466	944.030
75	190.202	342.015	570.606	750.338	804.433
80	115.168	272.216	492.082	657.855	703.224
85	55.839	205.907	415.304	561.881	598.526
90	8.725	136.108	314.095	427.518	453.693
95	0.000	129.128	300.135	399.599	420.538
100	0.000	120.403	268.726	350.740	368.189
105	0.000	113.423	242.551	312.350	326.310
110	0.000	102.953	219.867	280.941	298.390
115	0.000	94.229	198.927	253.021	268.726
120	0.000	90.739	181.477	239.061	251.276
125	0.000	83.759	164.027	212.887	228.591
130	0.000	76.779	148.323	195.437	207.652
135	0.000	69.799	132.618	171.007	186.712
140	0.000	68.054	125.638	162.282	174.497
145	0.000	69.799	116.913	155.303	164.027
150	0.000	57.584	95.974	122.148	132.618
155	0.000	57.584	87.249	109.933	115.168
160	0.000	47.114	71.544	88.994	94.229
165	0.000	41.879	64.564	71.544	75.034
170	0.000	0.000	48.859	61.074	62.819
175	0.000	0.000	22.685	43.624	43.624
180	0.000	0.000	0.000	0.000	0.000

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	784.72	N.A.	11.00
0-30	1613.5	N.A.	22.70
0-40	2556.64	N.A.	35.90
0-60	4369.67	N.A.	61.40
0-80	5698.76	N.A.	80.10
0-90	6105.05	N.A.	85.80
10-90	5898.31	N.A.	82.90
20-40	1771.91	N.A.	24.90
20-50	2715.53	N.A.	38.20
40-70	2563.31	N.A.	36.00
60-80	1329.09	N.A.	18.70
70-80	578.82	N.A.	8.10
80-90	406.29	N.A.	5.70
90-110	501.36	N.A.	7.00
90-120	672.17	N.A.	9.40
90-130	801.96	N.A.	11.30
90-150	958.53	N.A.	13.50
90-180	1011.39	N.A.	14.20
110-180	510.04	N.A.	7.20
0-180	7116.45	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	206.74
10-20	577.98
20-30	828.78
30-40	943.13
40-50	943.61
50-60	869.42
60-70	750.27
70-80	578.82
80-90	406.29
90-100	280.39
100-110	220.96
110-120	170.81
120-130	129.79
130-140	92.19
140-150	64.37
150-160	35.57
160-170	14.98
170-180	2.32

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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	116	116	116	116	111	111	111	111	103	103	103	96	96	96	89	89	89	86
1	104	98	93	89	99	95	90	86	88	84	81	81	78	76	75	73	71	68
2	94	85	78	71	90	82	75	69	76	70	66	70	66	62	65	62	59	56
3	85	74	66	59	82	72	64	58	67	60	55	62	57	52	58	53	49	46
4	78	66	57	50	75	63	55	49	59	52	47	55	49	44	51	46	42	40
5	72	59	50	43	69	57	48	42	53	46	40	50	43	38	46	41	37	34
6	66	53	44	37	63	51	43	37	48	41	35	45	39	34	42	37	32	30
7	62	48	39	33	59	46	38	32	44	36	31	41	35	30	38	33	29	27
8	57	44	35	29	55	42	34	29	40	33	28	38	31	27	35	30	26	24
9	54	40	32	26	51	39	31	26	37	30	25	35	29	24	33	27	23	22
10	50	37	29	24	48	36	29	24	34	27	23	32	26	22	31	25	21	20

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UGR TABLE - CORRECTED

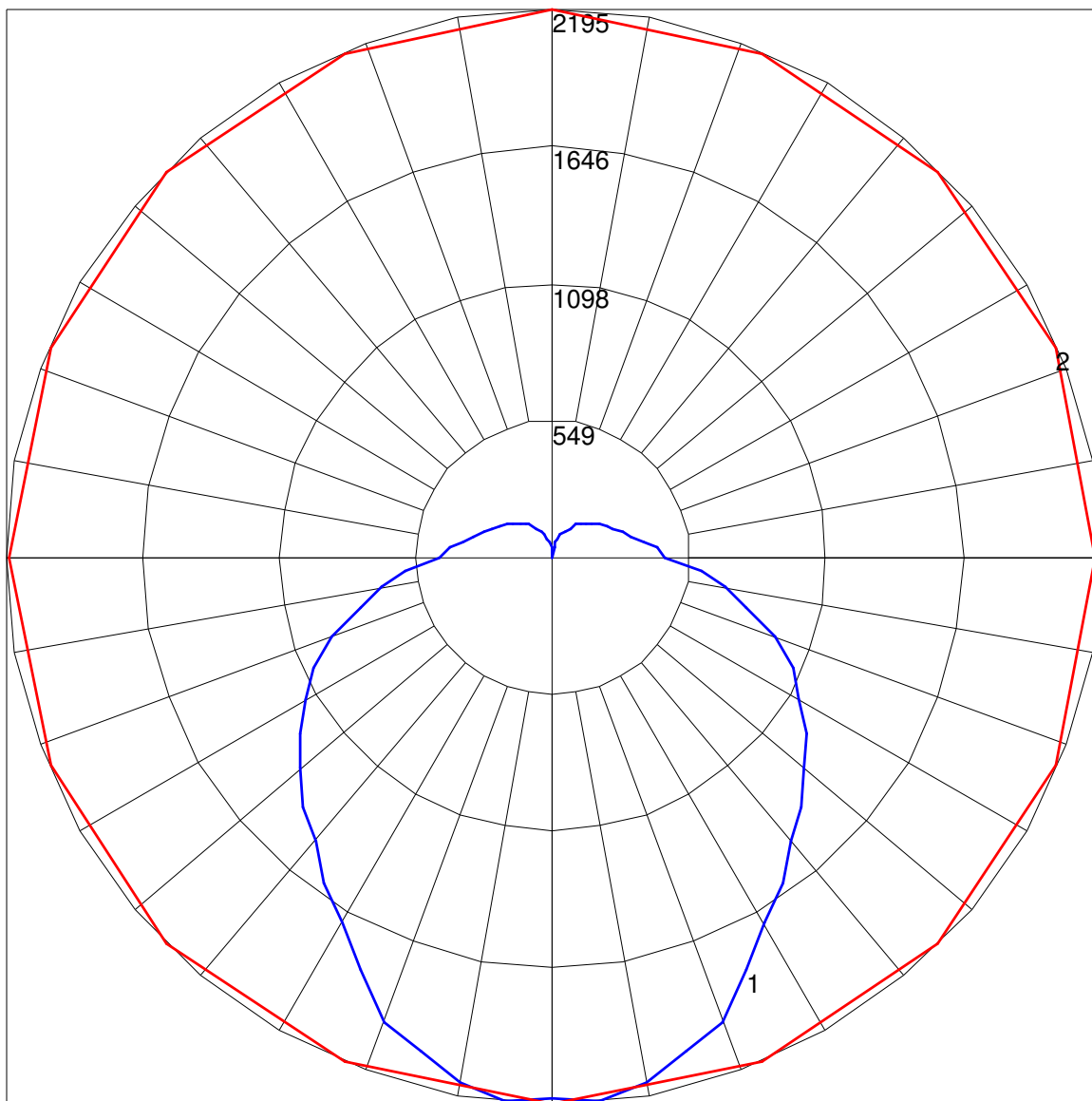
Reflectances

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	16.6	18.0	17.2	18.6	19.2	21.6	23.0	22.2	23.6	24.2
	3H	17.8	19.0	18.3	19.6	20.3	24.3	25.6	24.9	26.2	26.9
	4H	18.1	19.3	18.7	19.9	20.6	25.6	26.8	26.2	27.4	28.1
	6H	18.3	19.4	18.9	20.0	20.7	26.9	28.0	27.5	28.6	29.3
	8H	18.3	19.4	18.9	20.0	20.7	27.6	28.7	28.2	29.3	30.0
	12H	18.3	19.3	18.9	20.0	20.7	28.3	29.3	28.9	30.0	30.7
4H	2H	18.0	19.2	18.6	19.8	20.5	21.8	23.0	22.4	23.6	24.3
	3H	19.4	20.4	20.0	21.1	21.8	24.8	25.8	25.4	26.4	27.1
	4H	19.8	20.8	20.5	21.4	22.2	26.2	27.1	26.8	27.8	28.5
	6H	20.1	21.0	20.8	21.6	22.4	27.7	28.5	28.3	29.2	29.9
	8H	20.2	21.0	20.9	21.7	22.4	28.5	29.3	29.1	29.9	30.7
	12H	20.3	21.0	20.9	21.7	22.4	29.3	30.0	30.0	30.7	31.5
8H	4H	20.9	21.7	21.6	22.4	23.2	26.3	27.1	26.9	27.7	28.5
	6H	21.5	22.1	22.2	22.9	23.6	27.9	28.6	28.6	29.3	30.1
	8H	21.7	22.3	22.4	23.0	23.7	28.8	29.4	29.5	30.2	30.9
	12H	21.8	22.3	22.5	23.0	23.9	29.9	30.4	30.6	31.1	31.9
12H	4H	21.3	22.0	21.9	22.7	23.5	26.3	27.0	26.9	27.7	28.4
	6H	22.0	22.6	22.7	23.2	24.1	28.0	28.6	28.7	29.2	30.1
	8H	22.3	22.8	23.0	23.5	24.3	28.9	29.4	29.6	30.1	31.0

Maximum UGR = 31.9

POLAR GRAPH



Maximum Candela = 2195.176 Located At Horizontal Angle = 90, Vertical Angle = 5
1 - Vertical Plane Through Horizontal Angles (90 - 270) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)