



IES INDOOR REPORT

PHOTOMETRIC FILENAME : LLM-4-L10-835-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-L10-835-x-RD-xx-xx-DIM-UNV

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3842
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	156
Total Luminaire Watts	24.7
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	9615	8273	8688
55	7880	6981	7563
65	6385	6034	6691
75	4762	5116	5640
85	3319	4749	5201

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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	1116.731	1116.731	1116.731	1116.731	1116.731
5	1123.203	1122.278	1124.127	1125.976	1126.900
10	1089.922	1091.771	1101.016	1108.411	1110.260
15	1038.153	1045.549	1062.189	1077.905	1084.376
20	990.082	1004.873	1035.380	1064.038	1074.207
25	897.638	917.975	961.424	1000.251	1015.042
30	807.042	835.700	894.864	949.407	970.669
35	730.313	769.140	844.944	912.429	939.238
40	624.001	668.375	763.593	844.944	873.602
45	531.557	587.948	700.730	795.024	830.153
50	440.961	501.050	624.926	726.615	760.819
55	359.610	426.170	556.517	662.828	697.957
60	285.654	354.987	489.957	595.344	629.548
65	220.943	296.747	436.339	542.650	576.855
70	159.929	240.356	378.099	480.712	510.294
75	107.236	188.587	320.783	412.303	437.263
80	67.485	151.609	280.107	367.930	391.041
85	32.356	120.178	243.129	324.481	345.743
90	4.622	88.747	192.285	257.921	276.410
95	0.000	68.409	170.098	236.658	251.449
100	0.000	56.391	144.214	197.832	212.623
105	0.000	46.222	119.254	166.400	181.192
110	0.000	37.902	100.765	144.214	153.458
115	0.000	32.356	85.974	121.102	134.045
120	0.000	30.507	74.880	106.311	116.480
125	0.000	28.658	63.787	90.596	99.840
130	0.000	25.885	54.542	79.502	86.898
135	0.000	22.187	46.222	66.560	71.182
140	0.000	21.262	43.449	60.089	66.560
145	0.000	22.187	40.676	54.542	60.089
150	0.000	19.413	33.280	43.449	47.147
155	0.000	19.413	29.582	37.902	39.751
160	0.000	19.413	25.885	32.356	33.280
165	0.000	9.244	23.111	27.733	28.658
170	0.000	0.000	21.262	22.187	23.111
175	0.000	0.000	0.000	19.413	19.413
180	0.000	0.000	0.000	0.000	0.000

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	407.35	N.A.	10.60
0-30	850.66	N.A.	22.10
0-40	1372.2	N.A.	35.70
0-60	2390.7	N.A.	62.20
0-80	3125.05	N.A.	81.30
0-90	3361.05	N.A.	87.50
10-90	3254.67	N.A.	84.70
20-40	964.84	N.A.	25.10
20-50	1496.47	N.A.	38.90
40-70	1432.42	N.A.	37.30
60-80	734.36	N.A.	19.10
70-80	320.43	N.A.	8.30
80-90	235.99	N.A.	6.10
90-110	275.88	N.A.	7.20
90-120	353.07	N.A.	9.20
90-130	405.85	N.A.	10.60
90-150	462.54	N.A.	12.00
90-180	481.21	N.A.	12.50
110-180	205.33	N.A.	5.30
0-180	3842.25	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	106.38
10-20	300.98
20-30	443.31
30-40	521.53
40-50	531.62
50-60	486.88
60-70	413.92
70-80	320.43
80-90	235.99
90-100	162.75
100-110	113.13
110-120	77.19
120-130	52.78
130-140	34.10
140-150	22.58
150-160	12.44
160-170	5.40
170-180	0.84

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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	192	192	192	192	186	186	186	186	173	173	173	161	161	161	150	150	150	145
1	172	163	155	147	165	157	150	143	146	140	134	136	131	127	127	123	119	114
2	156	141	128	118	149	136	124	115	126	117	109	118	110	103	110	104	98	93
3	142	123	109	97	135	119	106	95	111	100	91	103	94	86	97	89	82	78
4	129	109	94	82	124	105	91	80	98	86	77	92	82	74	86	77	70	66
5	119	97	82	70	114	94	80	69	88	76	66	82	72	64	77	68	61	57
6	110	87	72	61	105	85	70	60	79	67	58	75	64	56	70	61	54	50
7	102	79	64	54	98	77	63	53	72	60	51	68	57	49	64	55	48	44
8	95	72	58	48	91	70	57	47	66	54	46	62	52	44	59	50	43	39
9	88	66	52	43	85	64	51	43	61	49	41	58	47	40	55	45	39	35
10	83	61	48	39	80	59	47	39	56	45	37	53	43	36	51	42	35	32

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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

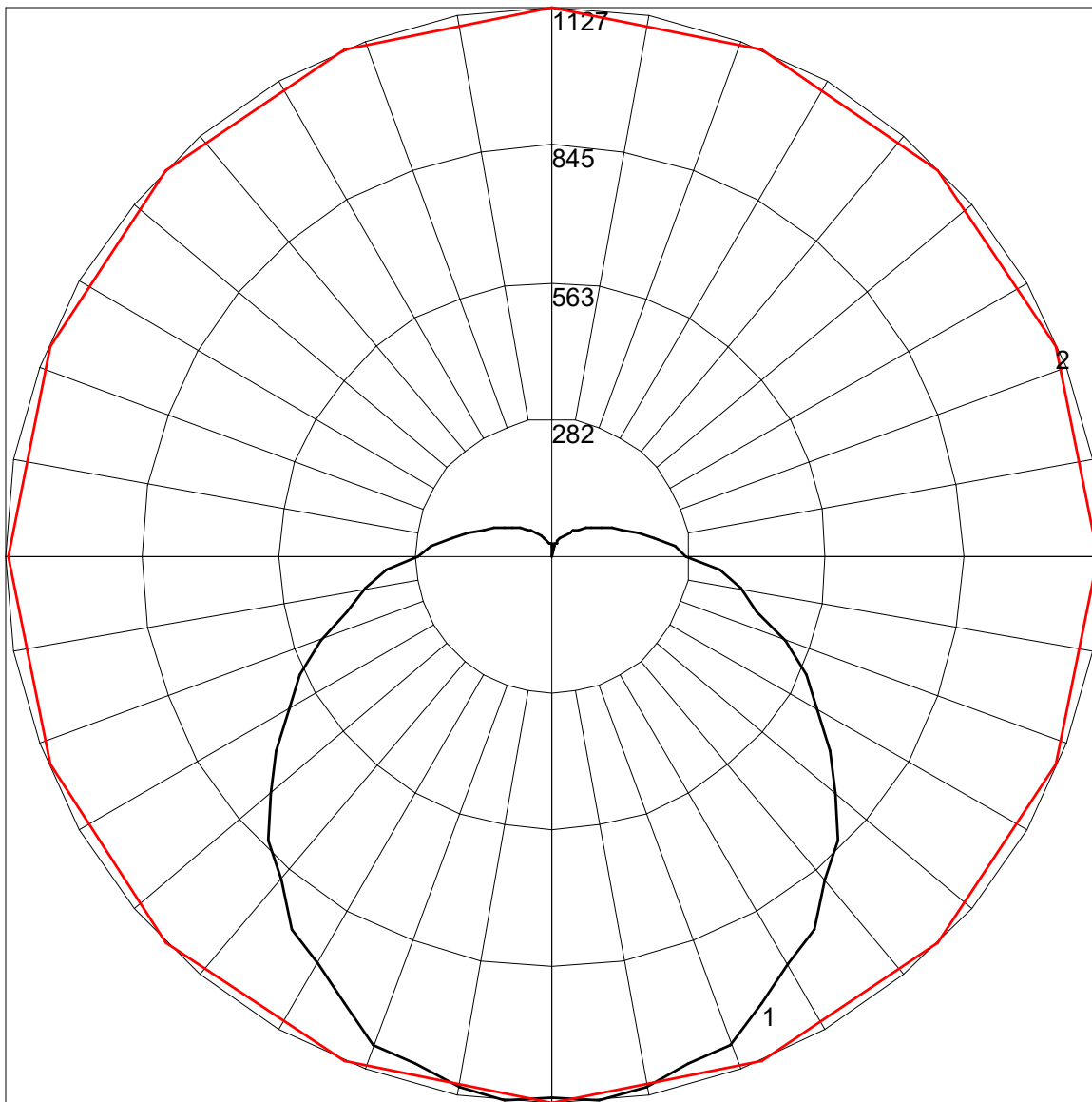
4H	2H	14.6	15.8	15.2	16.4	17.1	18.4	19.7	19.0	20.3	20.9
	3H	16.0	17.1	16.6	17.7	18.4	21.3	22.4	21.9	23.0	23.6
	4H	16.5	17.5	17.1	18.1	18.8	22.7	23.7	23.3	24.3	25.0
	6H	16.8	17.7	17.5	18.3	19.1	24.2	25.1	24.9	25.8	26.5
	8H	16.9	17.8	17.6	18.4	19.1	25.1	25.9	25.7	26.5	27.2
	12H	17.0	17.7	17.6	18.4	19.1	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 = 1126.9 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.)