



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4UD-2-00-L8-840U-L15-840D-F-P-(L6U-L12.5D)-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] GEN FROM BALLABS TEST NO. 20656.0
 [TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIOES, INC
 [ISSUEDATE] 03-11-2021
 [MANUFAC] WILLIAMS INDOOR
 [OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO 64836
 [LUMINAIRE] 2' DIRECT INDIRECT SUSPENDED LUMINAIRE
 [MORE] WITH FROSTED ACRYLIC LENS TOP, DROP BOTTOM LENS
 [LUMCAT] MX4UD-2-00-L8-840U-L15-840D-F-P-(L6U-L12.5D)-DIM-UNV
 [LAMPCAT] HLM 80 CRI, 4000K CCT
 [_SEARCH_SOURCETYPE] LED
 [_SEARCH_APPLICATION] Indoor, Architectural, Classroom, Indirect
 [_SEARCH_MOUNTING] Suspended

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3849
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	124
Total Luminaire Watts	31
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.20
Spacing Criterion (90-270)	1.18
Spacing Criterion (Diagonal)	1.30
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	2.00 ft
Luminous Width (90-270)	0.32 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	13942	14055	13867
55	12543	12868	12636
65	10718	11223	11349
75	7927	9574	10089
85	3057	8254	11006

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	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>
0	1016.423	1016.423	1016.423	1016.423	1016.423
5	1016.423	1011.695	1006.968	1006.968	1006.968
10	992.785	988.057	984.906	984.906	981.754
15	962.844	953.389	951.813	953.389	950.237
20	917.144	910.841	912.417	906.113	904.537
25	866.717	861.989	860.414	857.262	857.262
30	803.683	795.804	798.955	794.228	791.076
35	737.497	732.770	729.618	729.618	726.466
40	663.432	661.857	660.281	653.977	653.977
45	583.064	587.792	587.792	583.064	579.912
50	504.272	510.575	510.575	512.151	508.999
55	425.479	434.934	436.510	433.358	428.631
60	341.959	351.414	357.718	359.294	357.718
65	267.894	275.774	280.501	282.077	283.653
70	190.678	196.981	208.012	217.467	217.467
75	121.340	129.220	146.554	154.433	154.433
80	59.882	72.489	83.520	94.551	97.703
85	15.758	28.365	42.548	55.155	56.731
90	0.000	7.879	18.910	28.365	29.941
95	17.051	24.091	35.961	43.840	42.366
100	36.947	43.251	54.282	58.476	59.315
105	61.163	70.618	74.915	79.008	79.949
110	98.745	99.051	101.239	100.174	101.013
115	140.012	137.370	133.561	133.334	132.699
120	182.752	177.900	169.465	164.080	161.870
125	232.125	225.062	208.419	200.721	194.826
130	283.708	272.020	252.531	238.734	238.938
135	327.185	306.552	295.805	282.846	279.899
140	372.137	355.925	339.282	327.798	323.376
145	412.666	407.508	380.549	368.225	366.117
150	447.301	441.405	416.555	405.603	400.547
155	477.514	470.145	447.301	445.396	438.764
160	503.306	498.884	484.146	476.040	471.721
165	521.728	521.728	511.411	505.516	500.358
170	535.729	537.203	532.782	530.571	526.149
175	543.098	546.783	545.309	542.362	540.151
180	546.783	546.783	546.783	546.783	546.783

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Zone	Lumens	%Lamp	%Fixt
0-20	364.30	N.A.	9.50
0-30	759.68	N.A.	19.70
0-40	1216.49	N.A.	31.60
0-60	2055.11	N.A.	53.40
0-80	2483.03	N.A.	64.50
0-90	2532.34	N.A.	65.80
10-90	2436.73	N.A.	63.30
20-40	852.19	N.A.	22.10
20-50	1303.75	N.A.	33.90
40-70	1115.37	N.A.	29.00
60-80	427.92	N.A.	11.10
70-80	151.17	N.A.	3.90
80-90	49.31	N.A.	1.30
90-110	115.73	N.A.	3.00
90-120	249.70	N.A.	6.50
90-130	439.98	N.A.	11.40
90-150	910.94	N.A.	23.70
90-180	1316.63	N.A.	34.20
110-180	1200.9	N.A.	31.20
0-180	3848.97	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	95.61
10-20	268.69
20-30	395.38
30-40	456.81
40-50	451.55
50-60	387.06
60-70	276.75
70-80	151.17
80-90	49.31
90-100	36.89
100-110	78.84
110-120	133.98
120-130	190.27
130-140	230.29
140-150	240.67
150-160	209.79
160-170	144.34
170-180	51.56

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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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71	66
1	101	97	93	89	95	91	88	85	81	78	76	71	69	68	63	61	60	56
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	55	53	51	47
3	84	75	67	61	79	71	64	59	63	58	53	56	52	48	49	46	43	40
4	77	66	58	52	72	63	55	50	56	50	46	50	45	41	44	40	37	34
5	71	59	51	45	67	56	49	43	50	44	39	45	40	36	40	36	33	30
6	66	53	45	39	62	51	43	38	45	39	35	41	35	32	36	32	29	26
7	61	48	40	34	57	46	38	33	41	35	31	37	32	28	33	29	26	23
8	56	44	36	31	53	42	34	29	38	32	27	34	29	25	30	26	23	21
9	53	40	33	27	50	38	31	26	35	29	25	31	26	23	28	24	21	19
10	49	37	30	25	46	35	28	24	32	26	22	29	24	21	26	22	19	17

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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	18.2	19.3	19.0	20.1	21.1	18.3	19.3	19.1	20.2	21.2
	3H	19.7	20.6	20.5	21.4	22.5	20.0	20.9	20.8	21.7	22.8
	4H	20.2	21.0	21.0	21.9	22.9	20.6	21.5	21.5	22.3	23.4
	6H	20.4	21.2	21.3	22.1	23.1	21.1	21.9	22.0	22.8	23.8
	8H	20.5	21.2	21.3	22.1	23.2	21.3	22.1	22.2	22.9	24.0
	12H	20.5	21.2	21.3	22.0	23.1	21.5	22.2	22.3	23.1	24.2

UGR Viewed Endwise

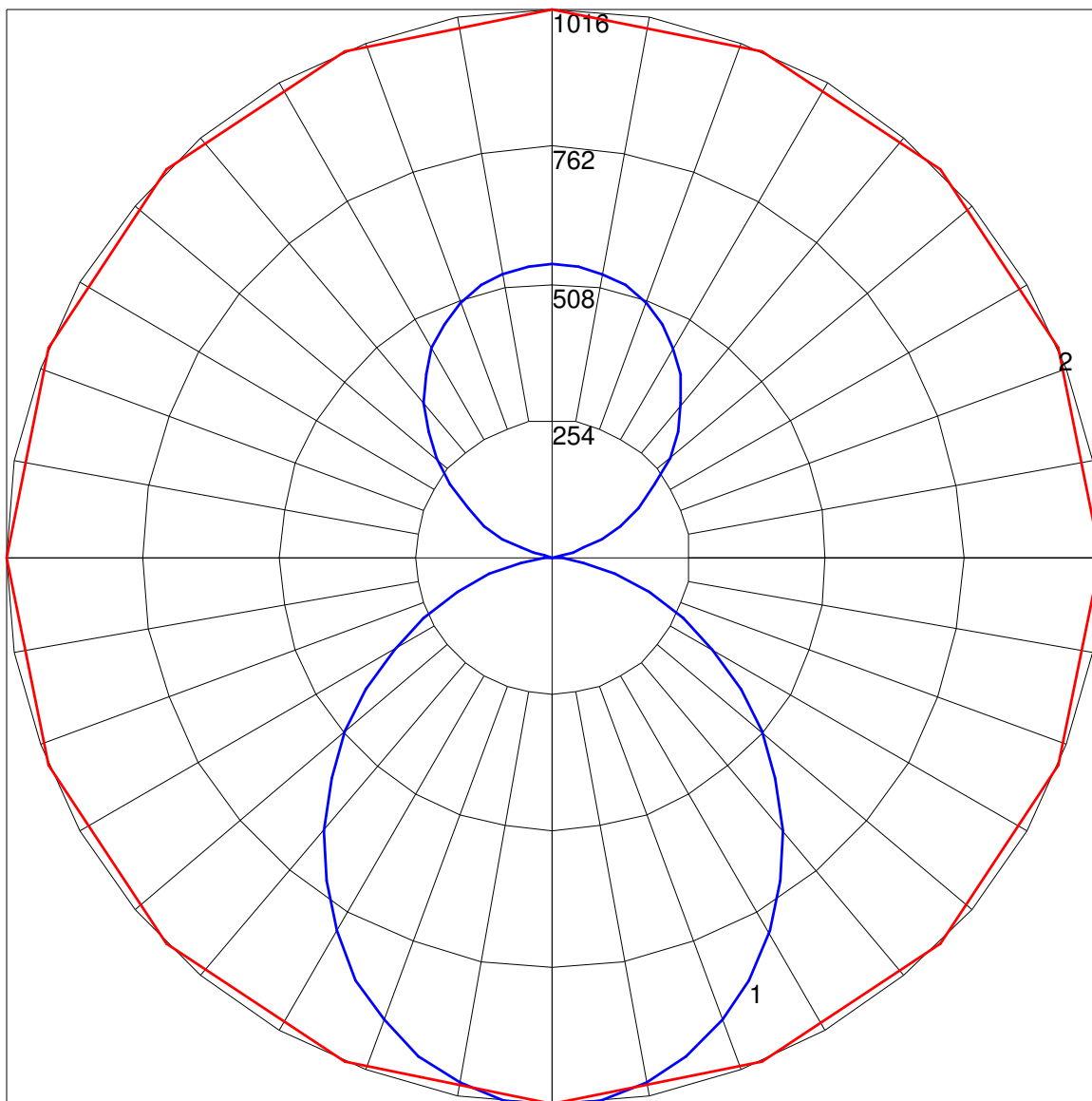
4H	2H	18.8	19.6	19.6	20.5	21.5	18.8	19.7	19.7	20.5	21.6
	3H	20.4	21.1	21.3	22.0	23.1	20.7	21.4	21.6	22.3	23.4
	4H	21.0	21.7	21.9	22.5	23.6	21.5	22.1	22.4	23.0	24.1
	6H	21.4	21.9	22.2	22.8	23.9	22.1	22.7	23.0	23.6	24.7
	8H	21.4	22.0	22.3	22.9	24.0	22.4	22.9	23.2	23.8	24.9
	12H	21.5	21.9	22.4	22.9	24.0	22.6	23.1	23.5	24.0	25.1
8H	4H	21.3	21.8	22.2	22.7	23.8	21.7	22.2	22.6	23.1	24.2
	6H	21.8	22.2	22.7	23.1	24.3	22.5	22.9	23.4	23.8	25.0
	8H	21.9	22.3	22.8	23.2	24.4	22.8	23.2	23.7	24.1	25.3
	12H	22.0	22.3	22.9	23.2	24.4	23.2	23.5	24.1	24.4	25.6
12H	4H	21.3	21.8	22.2	22.7	23.8	21.7	22.2	22.6	23.1	24.2
	6H	21.8	22.2	22.7	23.1	24.3	22.5	22.9	23.4	23.8	25.0
	8H	22.0	22.3	22.9	23.3	24.5	22.9	23.2	23.8	24.2	25.3

Maximum UGR = 25.6

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POLAR GRAPH



Maximum Candela = 1016.423 Located At Horizontal Angle = 0, Vertical Angle = 0

1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)

2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)