



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4UD-4-00-L8-835U-L8-835D-AASYD-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] GEN FROM BALLABS TEST NO. 20657.0
 [TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC
 [ISSUEDATE] 26-AUG-2020
 [MANUFAC] WILLIAMS INDOOR
 [OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO 64836
 [LUMINAIRE] 4' INDIRECT SUSPENDED LUMINAIRE
 [MORE] WITH FROSTED ACRYLIC LENS
 [LUMCAT] MX4UD-4-00-L8/835U-L8/835D-AASYD-DIM-UNV
 [LAMPCAT] HLM 80 CRI, 3500K 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	6705
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	120
Total Luminaire Watts	55.8
Ballast Factor	1.00
CIE Type	General Diffuse
Spacing Criterion (0-180)	N.A.
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	N.A.
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	4.00 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	8685	10383	11021
55	8256	10083	10758
65	7683	9630	10329
75	6642	8989	9805
85	4837	8316	9665

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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>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>	<u>202.5</u>
0	1152.515	1152.515	1152.515	1152.515	1152.515	1152.515	1152.515	1152.515	1152.515	1152.515
5	1148.989	1169.641	1174.678	1185.256	1187.775	1185.256	1174.678	1169.641	1148.989	1132.366
10	1130.855	1168.130	1186.768	1205.909	1213.465	1205.909	1186.768	1168.130	1130.855	1098.113
15	1101.135	1154.529	1184.753	1212.457	1220.517	1212.457	1184.753	1154.529	1101.135	1055.800
20	1061.341	1127.328	1167.122	1200.872	1212.457	1200.872	1167.122	1127.328	1061.341	1004.420
25	1010.969	1086.527	1135.388	1175.182	1187.271	1175.182	1135.388	1086.527	1010.969	945.989
30	949.515	1031.621	1088.542	1131.358	1144.455	1131.358	1088.542	1031.621	949.515	881.512
35	881.009	965.130	1023.562	1069.401	1083.001	1069.401	1023.562	965.130	881.009	809.480
40	806.458	890.579	951.026	995.353	1006.939	995.353	951.026	890.579	806.458	732.411
45	726.366	811.495	868.416	909.721	921.810	909.721	868.416	811.495	726.366	653.327
50	645.771	724.351	779.761	819.051	829.629	819.051	779.761	724.351	645.771	575.754
55	560.138	634.185	684.054	721.833	729.892	721.833	684.054	634.185	560.138	496.518
60	472.491	539.486	583.813	617.059	624.615	617.059	583.813	539.486	472.491	415.570
65	384.088	441.512	481.407	509.262	516.314	509.262	481.407	441.512	384.088	334.421
70	293.115	344.545	378.093	400.811	407.007	400.811	378.093	344.545	293.115	251.760
75	203.352	245.715	275.183	294.879	300.168	294.879	275.183	245.715	203.352	170.812
80	119.029	152.174	175.648	191.464	195.797	191.464	175.648	152.174	119.029	97.923
85	49.868	70.068	85.733	96.261	99.636	96.261	85.733	70.068	49.868	37.024
90	2.317	6.599	12.643	16.975	18.990	16.975	12.643	6.599	2.317	0.353
95	66.688	62.913	64.171	61.655	62.913	61.655	64.171	62.913	66.688	62.913
100	132.117	133.376	127.084	134.634	133.376	134.634	127.084	133.376	132.117	133.376
105	216.421	220.196	223.970	223.970	225.229	223.970	223.970	220.196	216.421	220.196
110	304.499	310.790	313.307	317.082	322.115	317.082	313.307	310.790	304.499	310.790
115	400.127	400.127	412.710	420.259	426.550	420.259	412.710	400.127	400.127	400.127
120	494.497	500.788	507.079	518.404	529.728	518.404	507.079	500.788	494.497	500.788
125	590.124	596.416	608.998	621.581	624.097	621.581	608.998	596.416	590.124	596.416
130	693.302	697.077	708.401	720.984	722.242	720.984	708.401	697.077	693.302	697.077
135	783.897	788.930	804.029	817.870	815.353	817.870	804.029	788.930	783.897	788.930
140	879.524	879.524	900.915	909.723	914.756	909.723	900.915	879.524	879.524	879.524
145	967.603	978.927	983.960	997.801	1004.092	997.801	983.960	978.927	967.603	978.927
150	1055.681	1060.714	1072.038	1085.879	1078.330	1085.879	1072.038	1060.714	1055.681	1060.714
155	1132.435	1133.693	1147.534	1157.600	1151.309	1157.600	1147.534	1133.693	1132.435	1133.693
160	1197.864	1204.156	1210.447	1220.513	1215.480	1220.513	1210.447	1204.156	1197.864	1204.156
165	1250.711	1254.486	1260.778	1269.585	1263.294	1269.585	1260.778	1254.486	1250.711	1254.486
170	1292.234	1292.234	1296.009	1303.558	1297.267	1303.558	1296.009	1292.234	1292.234	1292.234
175	1307.333	1312.366	1316.141	1322.432	1314.883	1322.432	1316.141	1312.366	1307.333	1312.366
180	1319.916	1319.916	1319.916	1319.916	1319.916	1319.916	1319.916	1319.916	1319.916	1319.916

Vert. Horizontal Angles

	<u>225.0</u>	<u>247.5</u>	<u>270.0</u>	<u>292.5</u>	<u>315.0</u>	<u>337.5</u>	<u>360.0</u>
0	1152.515	1152.515	1152.515	1152.515	1152.515	1152.515	1152.515
5	1110.202	1104.661	1103.654	1104.661	1110.202	1132.366	1148.989
10	1065.371	1051.267	1047.237	1051.267	1065.371	1098.113	1130.855
15	1013.487	991.827	985.783	991.827	1013.487	1055.800	1101.135
20	953.545	927.855	919.292	927.855	953.545	1004.420	1061.341
25	890.076	859.349	849.274	859.349	890.076	945.989	1010.969
30	822.577	790.843	779.761	790.843	822.577	881.512	949.515
35	748.530	716.292	707.225	716.292	748.530	809.480	881.009
40	671.964	638.215	626.629	638.215	671.964	732.411	806.458
45	595.902	564.168	554.597	564.168	595.902	653.327	726.366
50	522.359	493.697	484.781	493.697	522.359	575.754	645.771
55	448.463	421.867	413.102	421.867	448.463	496.518	560.138
60	375.373	351.749	344.596	351.749	375.373	415.570	472.491

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65	300.168	281.933	275.687	281.933	300.168	334.421	384.088
70	226.725	213.074	207.936	213.074	226.725	251.760	293.115
75	155.197	146.633	142.604	146.633	155.197	170.812	203.352
80	89.965	84.877	82.610	84.877	89.965	97.923	119.029
85	33.346	30.374	28.964	30.374	33.346	37.024	49.868
90	0.302	0.302	0.252	0.302	0.302	0.353	2.317
95	64.171	61.655	62.913	61.655	64.171	62.913	66.688
100	127.084	134.634	133.376	134.634	127.084	133.376	132.117
105	223.970	223.970	225.229	223.970	223.970	220.196	216.421
110	313.307	317.082	322.115	317.082	313.307	310.790	304.499
115	412.710	420.259	426.550	420.259	412.710	400.127	400.127
120	507.079	518.404	529.728	518.404	507.079	500.788	494.497
125	608.998	621.581	624.097	621.581	608.998	596.416	590.124
130	708.401	720.984	722.242	720.984	708.401	697.077	693.302
135	804.029	817.870	815.353	817.870	804.029	788.930	783.897
140	900.915	909.723	914.756	909.723	900.915	879.524	879.524
145	983.960	997.801	1004.092	997.801	983.960	978.927	967.603
150	1072.038	1085.879	1078.330	1085.879	1072.038	1060.714	1055.681
155	1147.534	1157.600	1151.309	1157.600	1147.534	1133.693	1132.435
160	1210.447	1220.513	1215.480	1220.513	1210.447	1204.156	1197.864
165	1260.778	1269.585	1263.294	1269.585	1260.778	1254.486	1250.711
170	1296.009	1303.558	1297.267	1303.558	1296.009	1292.234	1292.234
175	1316.141	1322.432	1314.883	1322.432	1316.141	1312.366	1307.333
180	1319.916	1319.916	1319.916	1319.916	1319.916	1319.916	1319.916

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Zone	Lumens	%Lamp	%Fixt
0-20	419.77	N.A.	6.30
0-30	887.42	N.A.	13.20
0-40	1443.09	N.A.	21.50
0-60	2516.67	N.A.	37.50
0-80	3131.25	N.A.	46.70
0-90	3200.44	N.A.	47.70
10-90	3091.54	N.A.	46.10
20-40	1023.32	N.A.	15.30
20-50	1589.63	N.A.	23.70
40-70	1460.83	N.A.	21.80
60-80	614.58	N.A.	9.20
70-80	227.33	N.A.	3.40
80-90	69.20	N.A.	1.00
90-110	306.96	N.A.	4.60
90-120	714.54	N.A.	10.70
90-130	1259.36	N.A.	18.80
90-150	2496.69	N.A.	37.20
90-180	3504.53	N.A.	52.30
110-180	3197.58	N.A.	47.70
0-180	6704.98	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	108.90
10-20	310.87
20-30	467.64
30-40	555.68
40-50	566.31
50-60	507.26
60-70	387.25
70-80	227.33
80-90	69.20
90-100	72.12
100-110	234.84
110-120	407.58
120-130	544.83
130-140	620.02
140-150	617.30
150-160	527.57
160-170	355.32
170-180	124.95

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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	107	107	107	107	98	98	98	98	82	82	82	67	67	67	54	54	54	48
1	97	93	89	85	89	85	82	79	72	69	67	59	57	56	47	46	45	40
2	88	81	75	69	81	74	69	65	63	59	55	52	49	46	42	40	38	33
3	80	71	63	58	74	65	59	54	55	50	46	46	42	39	37	34	32	28
4	74	63	55	49	67	58	51	45	49	44	39	41	37	33	33	30	28	24
5	67	56	48	42	62	52	44	39	44	38	34	36	32	29	29	26	24	21
6	62	50	42	36	57	46	39	34	39	34	29	33	28	25	27	23	21	18
7	57	45	37	31	53	42	35	30	36	30	26	30	25	22	24	21	19	16
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	17	14
9	49	37	30	25	45	35	28	23	30	24	20	25	21	18	21	17	15	13
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	14	12

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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	15.4	16.3	16.4	17.3	18.6	UGR Viewed Endwise	17.2	18.0	18.1	19.0	20.3
	3H	17.2	17.9	18.2	18.9	20.3		19.1	19.8	20.0	20.8	22.1
	4H	17.8	18.5	18.8	19.5	20.9		19.8	20.5	20.8	21.5	22.9
	6H	18.2	18.9	19.2	19.9	21.3		20.4	21.1	21.4	22.1	23.4
	8H	18.4	19.0	19.4	20.0	21.4		20.6	21.3	21.6	22.3	23.6
	12H	18.4	19.0	19.5	20.1	21.4		20.8	21.4	21.8	22.4	23.8

4H	2H	16.0	16.8	17.0	17.8	19.1	17.7	18.4	18.7	19.4	20.7
	3H	18.0	18.6	19.0	19.6	21.0	19.8	20.4	20.8	21.4	22.8
	4H	18.7	19.3	19.8	20.3	21.7	20.7	21.3	21.7	22.3	23.6
	6H	19.3	19.8	20.3	20.8	22.2	21.4	21.9	22.5	23.0	24.3
	8H	19.5	19.9	20.5	21.0	22.4	21.7	22.2	22.8	23.2	24.6
	12H	19.6	20.0	20.6	21.0	22.4	21.9	22.4	23.0	23.4	24.8

8H	4H	19.1	19.5	20.1	20.5	21.9	20.9	21.4	22.0	22.4	23.8
	6H	19.8	20.1	20.8	21.2	22.6	21.9	22.2	22.9	23.3	24.7
	8H	20.0	20.4	21.1	21.4	22.8	22.2	22.6	23.3	23.6	25.0
	12H	20.2	20.5	21.3	21.6	23.0	22.6	22.9	23.6	23.9	25.4

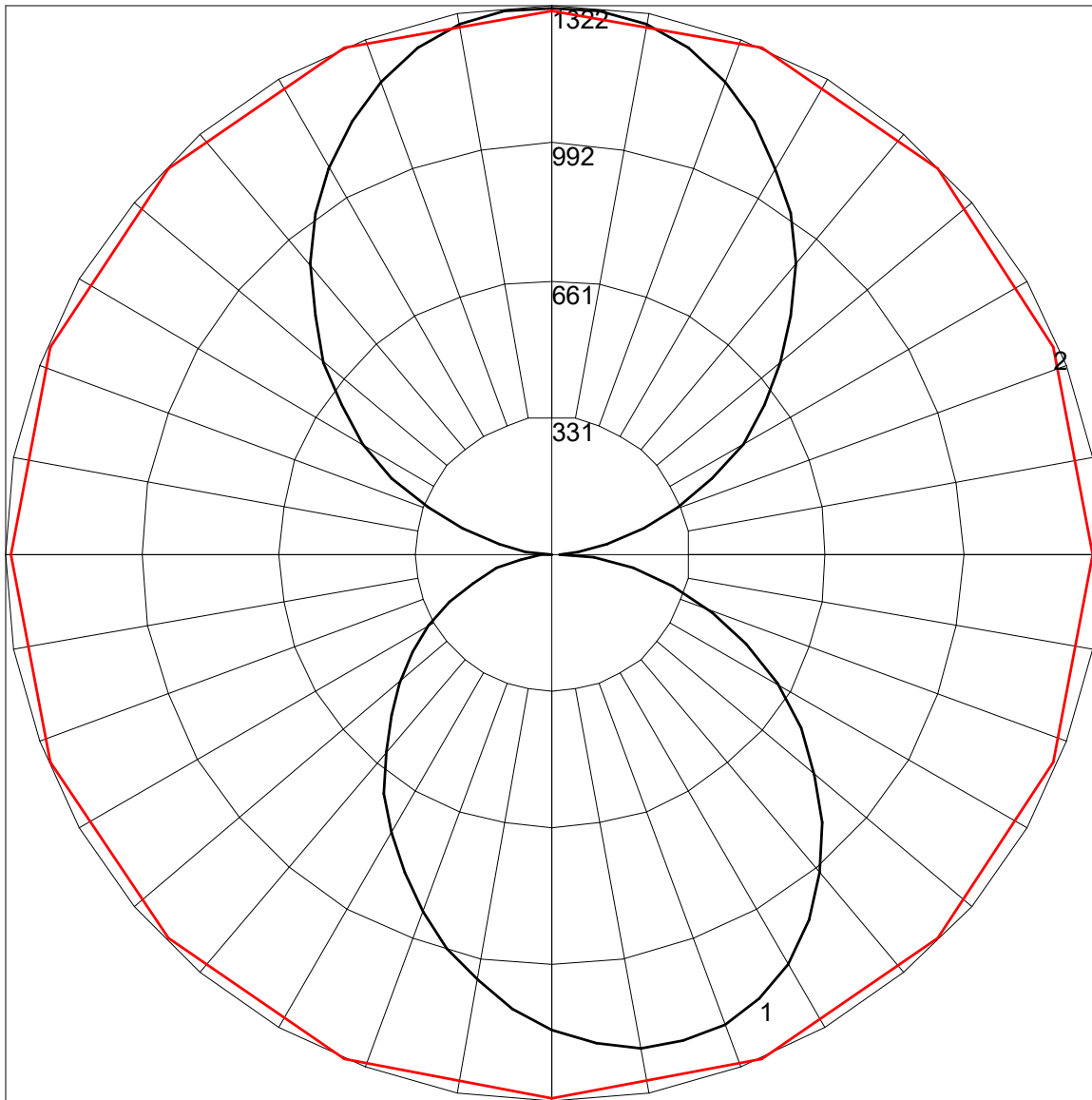
12H	4H	19.1	19.5	20.1	20.5	21.9	20.9	21.3	22.0	22.4	23.8
	6H	19.8	20.2	20.9	21.2	22.6	21.9	22.2	23.0	23.3	24.7
	8H	20.1	20.4	21.2	21.5	22.9	22.3	22.6	23.4	23.7	25.1

Maximum UGR = 25.4

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POLAR GRAPH



Maximum Candela = 1322.432 Located At Horizontal Angle = 67.5, Vertical Angle = 175

1 - Vertical Plane Through Horizontal Angles (90 - 270)

2 - Horizontal Cone Through Vertical Angle (175) (Through Max. Cd.)