



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4UD-5-00-L8-935U-L8-935D-AF-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] GEN FROM BALLABS TEST NO. 20659.0
 [TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC
 [ISSUEDATE] 31 MARCH 2020
 [MANUFAC] WILLIAMS INDOOR
 [OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO 64836
 [LUMINAIRE] 2' DIRECT/INDIRECT SUSPENDED LUMINAIRE
 [MORE] WITH FROSTED ACRYLIC LENS TOP/BTM
 [LUMCAT] MX4UD-5-00-L8-935U-L8-935D-A-F-DIM-UNV
 [LAMPCAT] HLM 90 CRI, 3500K CCT
 [_SEARCH_SOURCETYPE] LED
 [_SEARCH_APPLICATION] Indoor, Architectural, Classroom, Direct-Indirect
 [_SEARCH_MOUNTING] Suspended

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	7068
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	100
Total Luminaire Watts	71
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)	5.00 ft
Luminous Width (90-270)	0.33 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	6981	6828	6655
55	6361	6148	5935
65	5391	5231	5006
75	4087	3982	3982
85	2179	2334	2023

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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	1303.989	1303.989	1303.989	1303.989	1303.989
5	1318.688	1299.790	1293.490	1289.291	1287.191
10	1291.391	1270.392	1266.193	1257.793	1257.793
15	1251.494	1230.496	1222.096	1215.797	1211.597
20	1192.699	1173.801	1165.401	1159.102	1152.802
25	1123.405	1104.506	1098.207	1087.708	1083.508
30	1039.412	1026.813	1020.514	1005.815	993.216
35	949.120	947.020	936.521	919.722	909.223
40	860.927	846.228	844.128	827.330	818.931
45	764.335	753.836	747.537	726.538	728.638
50	663.544	657.244	650.945	634.146	627.847
55	564.852	558.553	545.954	533.355	527.055
60	455.661	453.562	438.863	432.563	426.264
65	352.770	350.670	342.271	335.972	327.572
70	260.378	254.078	243.579	247.779	243.579
75	163.786	159.586	159.586	163.786	159.586
80	81.893	90.292	90.292	90.292	83.993
85	29.398	31.497	31.497	31.497	27.298
90	2.100	2.100	2.100	2.100	2.100
95	48.296	50.396	48.296	41.996	41.996
100	113.390	111.291	111.291	102.891	94.492
105	195.283	195.283	184.784	174.285	159.586
110	306.574	300.275	281.376	272.977	258.278
115	415.765	405.266	392.667	371.669	354.870
120	550.153	550.153	516.556	493.458	480.859
125	684.542	695.041	648.845	634.146	613.148
130	829.430	837.829	797.932	774.834	758.036
135	961.718	949.120	936.521	926.022	921.822
140	1085.608	1083.508	1077.209	1062.510	1066.710
145	1192.699	1194.799	1188.499	1178.000	1194.799
150	1291.391	1295.590	1293.490	1278.792	1299.790
155	1366.984	1373.284	1373.284	1362.785	1383.783
160	1425.779	1438.378	1432.079	1425.779	1438.378
165	1474.075	1486.674	1474.075	1474.075	1480.375
170	1501.373	1516.072	1503.473	1501.373	1497.173
175	1522.371	1534.970	1522.371	1520.271	1509.772
180	1526.571	1526.571	1526.571	1526.571	1526.571

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Zone	Lumens	%Lamp	%Fixt
0-20	467.83	N.A.	6.60
0-30	973.28	N.A.	13.80
0-40	1556.23	N.A.	22.00
0-60	2617.96	N.A.	37.00
0-80	3132.39	N.A.	44.30
0-90	3173.75	N.A.	44.90
10-90	3050.96	N.A.	43.20
20-40	1088.4	N.A.	15.40
20-50	1662.5	N.A.	23.50
40-70	1402.07	N.A.	19.80
60-80	514.43	N.A.	7.30
70-80	174.09	N.A.	2.50
80-90	41.36	N.A.	0.60
90-110	254.89	N.A.	3.60
90-120	645.94	N.A.	9.10
90-130	1234.66	N.A.	17.50
90-150	2701.71	N.A.	38.20
90-180	3894.19	N.A.	55.10
110-180	3639.31	N.A.	51.50
0-180	7067.94	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	122.80
10-20	345.03
20-30	505.45
30-40	582.95
40-50	574.10
50-60	487.63
60-70	340.34
70-80	174.09
80-90	41.36
90-100	55.09
100-110	199.80
110-120	391.06
120-130	588.72
130-140	724.24
140-150	742.81
150-160	630.90
160-170	416.79
170-180	144.80

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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	106	106	106	106	97	97	97	97	81	81	81	65	65	65	51	51	51	45
1	97	93	89	85	89	85	82	79	71	69	66	58	56	55	46	45	44	38
2	88	81	75	70	81	75	69	65	62	59	55	51	48	46	40	39	37	32
3	81	71	64	58	74	66	59	54	55	50	47	45	42	39	36	34	32	27
4	74	63	55	50	67	58	51	46	49	44	40	40	37	34	32	30	27	24
5	68	56	48	42	62	52	45	40	44	38	34	36	32	29	29	26	24	21
6	62	51	43	37	57	47	40	35	39	34	30	33	29	26	26	23	21	18
7	58	46	38	32	53	42	35	30	36	30	26	30	26	23	24	21	19	16
8	54	41	34	29	49	38	32	27	33	27	23	27	23	20	22	19	17	14
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	20	17	15	13
10	47	35	28	23	43	32	26	21	28	22	19	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	14.1	14.9	15.1	15.9	17.2	UGR Viewed Endwise	13.7	14.5	14.7	15.5	16.9
	3H	15.5	16.3	16.5	17.3	18.6		15.2	15.9	16.2	16.9	18.3
	4H	16.0	16.7	17.0	17.7	19.1		15.7	16.4	16.7	17.4	18.8
	6H	16.3	16.9	17.3	17.9	19.3		16.0	16.6	17.0	17.6	19.0
	8H	16.3	16.9	17.3	18.0	19.3		16.0	16.6	17.1	17.7	19.1
	12H	16.3	16.9	17.4	17.9	19.3		16.1	16.6	17.1	17.7	19.1

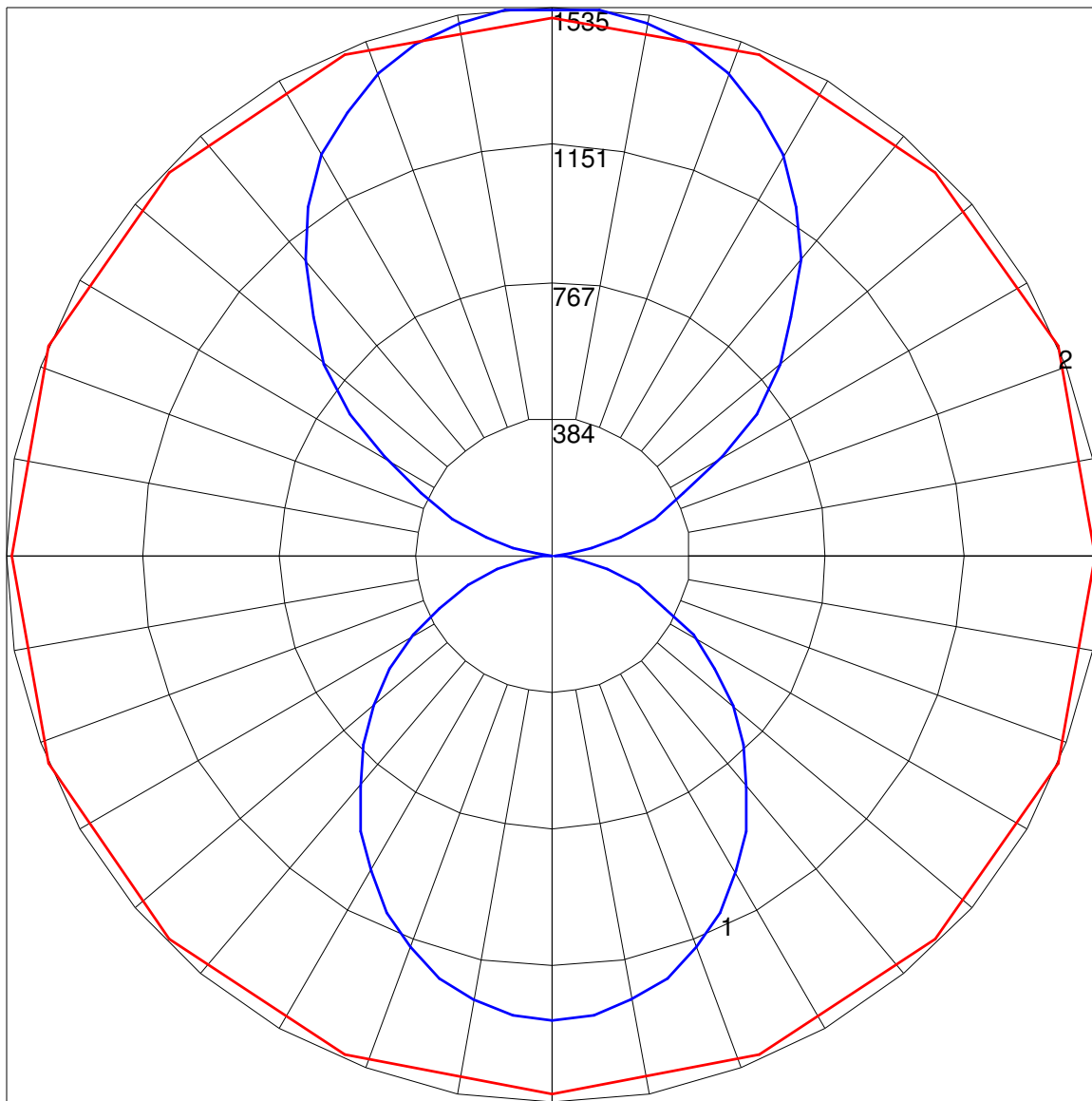
4H	2H	14.5	15.2	15.5	16.2	17.6	14.2	14.9	15.2	15.9	17.3
	3H	16.1	16.7	17.2	17.8	19.2	15.9	16.4	16.9	17.5	18.9
	4H	16.7	17.2	17.8	18.3	19.7	16.5	17.0	17.5	18.0	19.5
	6H	17.1	17.5	18.1	18.6	20.0	16.9	17.3	17.9	18.4	19.8
	8H	17.2	17.6	18.2	18.6	20.1	17.0	17.4	18.0	18.5	19.9
	12H	17.2	17.6	18.3	18.6	20.1	17.0	17.4	18.1	18.5	19.9

8H	4H	16.9	17.3	17.9	18.3	19.8	16.7	17.1	17.7	18.1	19.6
	6H	17.3	17.7	18.4	18.8	20.2	17.2	17.5	18.2	18.6	20.0
	8H	17.5	17.8	18.6	18.9	20.3	17.3	17.6	18.4	18.7	20.2
	12H	17.6	17.8	18.7	18.9	20.4	17.4	17.7	18.5	18.8	20.2

12H	4H	16.8	17.2	17.9	18.3	19.7	16.6	17.0	17.7	18.1	19.5
	6H	17.3	17.7	18.4	18.7	20.2	17.2	17.5	18.3	18.6	20.0
	8H	17.5	17.8	18.6	18.9	20.4	17.4	17.6	18.5	18.7	20.2

Maximum UGR = 20.4

POLAR GRAPH



Maximum Candela = 1534.97 Located At Horizontal Angle = 22.5, Vertical Angle = 175
1 - Vertical Plane Through Horizontal Angles (22.5 - 202.5) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (175) (Through Max. Cd.)