



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4UD-4-00-L8-935U-L8-935D-A-F-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-4-00-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	5654
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	99
Total Luminaire Watts	57
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)	0.33 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	6360	6147	5934
65	5391	5230	5006
75	4087	3982	3982
85	2178	2334	2023

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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	1043.118	1043.118	1043.118	1043.118	1043.118
5	1054.876	1039.758	1034.719	1031.360	1029.680
10	1033.039	1016.242	1012.883	1006.164	1006.164
15	1001.124	984.327	977.608	972.569	969.209
20	954.092	938.974	932.255	927.216	922.177
25	898.660	883.543	878.503	870.105	866.745
30	831.471	821.392	816.353	804.595	794.517
35	759.242	757.562	749.164	735.726	727.327
40	688.693	676.935	675.255	661.817	655.098
45	611.425	603.026	597.987	581.190	582.869
50	530.798	525.758	520.719	507.281	502.242
55	451.850	446.811	436.732	426.654	421.614
60	364.503	362.824	351.065	346.026	340.987
65	282.196	280.516	273.797	268.758	262.039
70	208.288	203.248	194.850	198.209	194.850
75	131.020	127.660	127.660	131.020	127.660
80	65.510	72.229	72.229	72.229	67.190
85	23.516	25.196	25.196	25.196	21.837
90	1.680	1.680	1.680	1.680	1.680
95	38.634	40.314	38.634	33.595	33.595
100	90.706	89.026	89.026	82.307	75.588
105	156.216	156.216	147.817	139.418	127.660
110	245.242	240.203	225.085	218.366	206.608
115	332.588	324.190	314.111	297.314	283.876
120	440.092	440.092	413.216	394.739	384.660
125	547.595	555.994	519.039	507.281	490.484
130	663.497	670.216	638.301	619.824	606.386
135	769.320	759.242	749.164	740.765	737.405
140	868.425	866.745	861.706	849.948	853.307
145	954.092	955.771	950.732	942.334	955.771
150	1033.039	1036.399	1034.719	1022.961	1039.758
155	1093.510	1098.549	1098.549	1090.151	1106.948
160	1140.543	1150.621	1145.582	1140.543	1150.621
165	1179.177	1189.255	1179.177	1179.177	1184.216
170	1201.013	1212.772	1202.693	1201.013	1197.654
175	1217.811	1227.889	1217.811	1216.131	1207.732
180	1221.170	1221.170	1221.170	1221.170	1221.170

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Zone	Lumens	%Lamp	%Fixt
0-20	374.24	N.A.	6.60
0-30	778.57	N.A.	13.80
0-40	1244.89	N.A.	22.00
0-60	2094.22	N.A.	37.00
0-80	2505.73	N.A.	44.30
0-90	2538.82	N.A.	44.90
10-90	2440.59	N.A.	43.20
20-40	870.66	N.A.	15.40
20-50	1329.9	N.A.	23.50
40-70	1121.58	N.A.	19.80
60-80	411.51	N.A.	7.30
70-80	139.26	N.A.	2.50
80-90	33.09	N.A.	0.60
90-110	203.90	N.A.	3.60
90-120	516.72	N.A.	9.10
90-130	987.66	N.A.	17.50
90-150	2161.22	N.A.	38.20
90-180	3115.14	N.A.	55.10
110-180	2911.24	N.A.	51.50
0-180	5653.96	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	98.23
10-20	276.01
20-30	404.33
30-40	466.33
40-50	459.25
50-60	390.08
60-70	272.25
70-80	139.26
80-90	33.09
90-100	44.07
100-110	159.83
110-120	312.82
120-130	470.94
130-140	579.35
140-150	594.20
150-160	504.68
160-170	333.40
170-180	115.83

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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

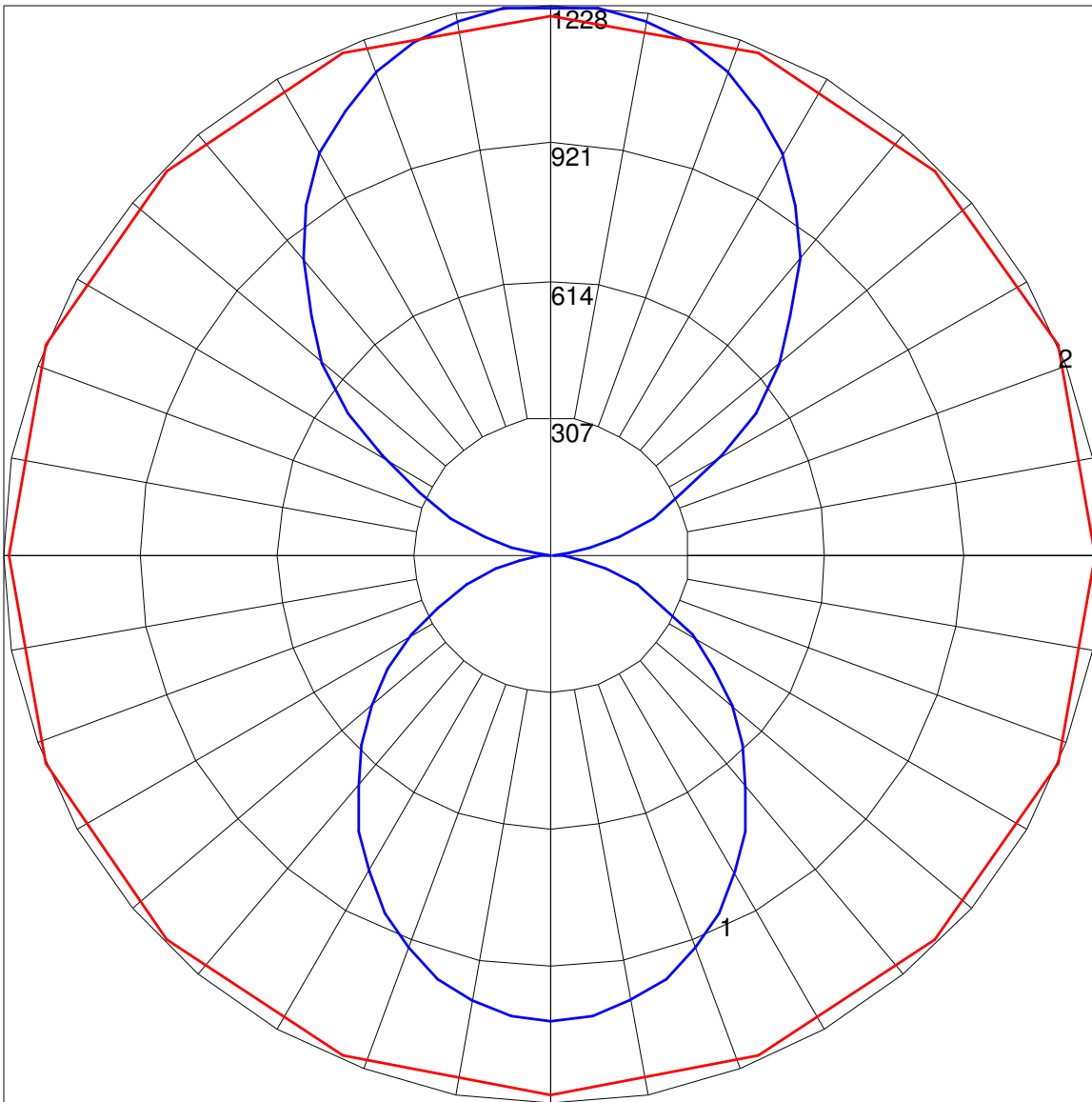
X=2H	Y=2H	14.0	14.8	15.0	15.9	17.2	13.7	14.5	14.7	15.5	16.8
	3H	15.5	16.2	16.5	17.3	18.6	15.2	15.9	16.2	16.9	18.3
	4H	16.0	16.7	17.0	17.7	19.1	15.7	16.3	16.7	17.4	18.7
	6H	16.2	16.9	17.3	17.9	19.3	16.0	16.6	17.0	17.6	19.0
	8H	16.3	16.9	17.3	17.9	19.3	16.0	16.6	17.1	17.7	19.0
	12H	16.3	16.9	17.3	17.9	19.3	16.0	16.6	17.1	17.6	19.0

UGR Viewed Endwise

4H	2H	14.5	15.1	15.5	16.2	17.5	14.2	14.9	15.2	15.9	17.3
	3H	16.1	16.7	17.2	17.7	19.1	15.8	16.4	16.9	17.5	18.9
	4H	16.7	17.2	17.7	18.3	19.7	16.5	17.0	17.5	18.0	19.4
	6H	17.0	17.5	18.1	18.6	20.0	16.9	17.3	17.9	18.4	19.8
	8H	17.1	17.6	18.2	18.6	20.0	17.0	17.4	18.0	18.4	19.9
	12H	17.2	17.5	18.2	18.6	20.0	17.0	17.4	18.1	18.4	19.9
8H	4H	16.8	17.3	17.9	18.3	19.7	16.6	17.1	17.7	18.1	19.5
	6H	17.3	17.7	18.4	18.8	20.2	17.1	17.5	18.2	18.6	20.0
	8H	17.5	17.8	18.5	18.9	20.3	17.3	17.6	18.4	18.7	20.1
	12H	17.5	17.8	18.6	18.9	20.4	17.4	17.7	18.5	18.7	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	17.6	18.4	18.7	20.2	17.2	17.5	18.2	18.5	20.0
	8H	17.5	17.8	18.6	18.9	20.3	17.4	17.6	18.5	18.7	20.2

Maximum UGR = 20.4

POLAR GRAPH



Maximum Candela = 1227.889 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.)