



IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4UD-4-00-L15-835U-L12-835D-A-F-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] 05-22-2023
 [MANUFAC] WILLIAMS INDOOR
 [OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO 64836
 [LUMINAIRE] 4' INDIRECT SUSPENDED LUMINAIRE
 [MORE] WITH SEMI & FLAT DIFFUSE ACRYLIC LENS
 [LUMCAT] MX4UD-4-00-L15-835U-L12-835D-AF-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	10455
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	108
Total Luminaire Watts	97.2
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	13495	13086	12881
55	12393	11889	11553
65	10548	10377	10035
75	8007	8379	7914
85	3871	4977	4700

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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	1912.492	1912.492	1912.492	1912.492	1912.492
5	1921.043	1901.091	1892.541	1886.840	1886.840
10	1886.840	1866.889	1858.338	1852.638	1846.937
15	1821.285	1807.034	1792.783	1787.083	1778.532
20	1744.330	1724.378	1712.977	1695.876	1690.176
25	1644.572	1621.771	1610.370	1590.418	1587.568
30	1544.815	1519.163	1496.361	1490.661	1476.410
35	1405.155	1388.053	1368.102	1348.150	1348.150
40	1274.045	1256.943	1231.292	1225.591	1205.640
45	1128.684	1111.583	1094.481	1077.380	1077.380
50	991.874	969.072	954.821	943.420	929.169
55	840.813	820.861	806.610	792.359	783.808
60	684.051	672.650	664.099	652.699	644.148
65	527.289	524.439	518.739	504.488	501.637
70	390.479	387.629	379.078	373.378	367.677
75	245.118	253.669	256.519	247.968	242.268
80	125.409	131.110	131.110	133.960	136.810
85	39.903	42.753	51.304	45.603	48.454
90	0.000	0.000	0.000	0.000	0.000
95	103.376	101.309	105.444	103.376	109.579
100	219.158	221.226	208.820	219.158	217.091
105	370.088	368.020	368.020	361.818	355.615
110	529.287	521.017	514.815	510.680	500.342
115	700.892	690.555	678.150	657.474	657.474
120	870.430	851.822	833.214	822.877	812.539
125	1025.494	1021.359	1000.684	980.009	969.671
130	1186.762	1184.694	1164.019	1145.411	1139.208
135	1339.759	1343.894	1321.151	1296.341	1288.071
140	1503.094	1494.823	1480.351	1445.203	1445.203
145	1649.888	1639.551	1616.808	1608.538	1589.930
150	1771.872	1784.278	1761.535	1742.927	1734.657
155	1891.789	1902.127	1885.586	1862.844	1860.776
160	1997.233	2005.503	1988.963	1978.625	1968.288
165	2075.799	2086.137	2071.664	2061.326	2055.124
170	2131.622	2141.960	2129.555	2123.352	2123.352
175	2160.568	2172.973	2162.635	2156.433	2148.163
180	2168.838	2168.838	2168.838	2168.838	2168.838

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Zone	Lumens	%Lamp	%Fixt
0-20	686.14	N.A.	6.60
0-30	1428.65	N.A.	13.70
0-40	2287.16	N.A.	21.90
0-60	3858.35	N.A.	36.90
0-80	4638.68	N.A.	44.40
0-90	4699.57	N.A.	44.90
10-90	4519.63	N.A.	43.20
20-40	1601.02	N.A.	15.30
20-50	2448.33	N.A.	23.40
40-70	2084.49	N.A.	19.90
60-80	780.33	N.A.	7.50
70-80	267.03	N.A.	2.60
80-90	60.89	N.A.	0.60
90-110	501.62	N.A.	4.80
90-120	1171.34	N.A.	11.20
90-130	2066.58	N.A.	19.80
90-150	4099.7	N.A.	39.20
90-180	5755.76	N.A.	55.10
110-180	5254.14	N.A.	50.30
0-180	10455.33	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	179.94
10-20	506.20
20-30	742.51
30-40	858.52
40-50	847.31
50-60	723.88
60-70	513.30
70-80	267.03
80-90	60.89
90-100	115.74
100-110	385.88
110-120	669.72
120-130	895.24
130-140	1018.79
140-150	1014.33
150-160	866.89
160-170	583.85
170-180	205.31

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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	74	69	65	62	58	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	49	67	58	51	46	49	44	40	40	36	33	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	50	42	37	57	47	40	34	39	34	30	33	29	25	26	23	21	18
7	58	46	38	32	53	42	35	30	36	30	26	30	26	23	24	21	19	16
8	53	41	34	28	49	38	31	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	46	35	27	23	43	32	26	21	27	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	16.4	17.2	17.4	18.2	19.6	16.1	16.9	17.1	18.0	19.3
	3H	17.9	18.7	18.9	19.7	21.0	17.6	18.4	18.6	19.4	20.7
	4H	18.4	19.1	19.4	20.1	21.5	18.1	18.8	19.2	19.8	21.2
	6H	18.7	19.3	19.7	20.3	21.7	18.5	19.1	19.5	20.1	21.5
	8H	18.7	19.3	19.8	20.4	21.7	18.5	19.1	19.6	20.2	21.6
	12H	18.7	19.3	19.8	20.3	21.7	18.6	19.1	19.6	20.2	21.6

UGR Viewed Endwise

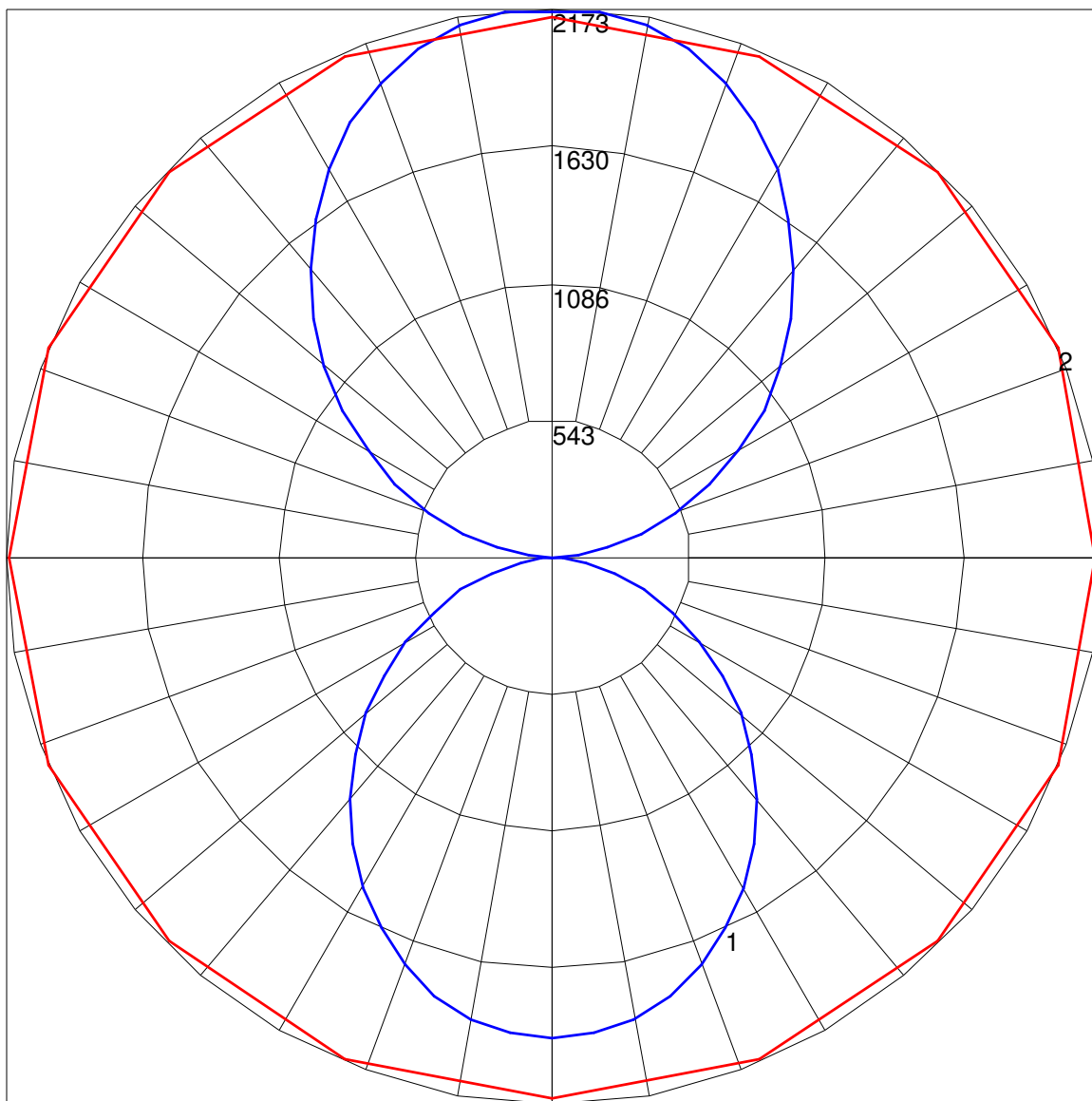
4H	2H	16.9	17.5	17.9	18.6	19.9	16.6	17.3	17.7	18.3	19.7
	3H	18.6	19.1	19.6	20.2	21.6	18.3	18.9	19.4	20.0	21.3
	4H	19.2	19.7	20.2	20.7	22.2	19.0	19.5	20.0	20.5	21.9
	6H	19.5	20.0	20.6	21.1	22.5	19.4	19.8	20.4	20.9	22.3
	8H	19.6	20.0	20.7	21.1	22.5	19.5	19.9	20.5	21.0	22.4
	12H	19.6	20.0	20.7	21.1	22.5	19.5	19.9	20.6	21.0	22.4

8H	4H	19.3	19.8	20.4	20.8	22.2	19.1	19.6	20.2	20.6	22.0
	6H	19.8	20.2	20.9	21.3	22.7	19.7	20.0	20.7	21.1	22.5
	8H	20.0	20.3	21.0	21.3	22.8	19.8	20.2	20.9	21.2	22.7
	12H	20.0	20.3	21.1	21.4	22.8	19.9	20.2	21.0	21.3	22.8

12H	4H	19.3	19.7	20.4	20.8	22.2	19.1	19.5	20.2	20.6	22.0
	6H	19.8	20.1	20.9	21.2	22.7	19.7	20.0	20.8	21.1	22.5
	8H	20.0	20.3	21.1	21.3	22.8	19.9	20.2	21.0	21.2	22.7

Maximum UGR = 22.8

POLAR GRAPH



Maximum Candela = 2172.973 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.)