



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : AX2UD-8-L33-835U-L66-835D-X-DIM-UNV\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] GEN FROM BALLABS TEST NO. 18753.0  
[TESTLAB] BUILDING ACOUSTICS & LIGHTING LABORATORIES, INC  
[ISSUEDATE] 10-15-2021  
[MANUFAC] WILLIAMS INDOOR  
[OTHER] H.E. WILLIAMS, INC - CARTHAGE, MO  
[LUMINAIRE] 8' LED SUSPENDED INDIRECT LUMINAIRE  
[MORE] WHITE REFLECTOR w/FROSTED ACRYLIC LENS  
[LUMCAT] AX2UD-8-L33-835U-L66-835D-X-DIM-UNV  
[LAMPCAT] HLM 80 CRI 3500K CCT  
[SEARCH\_SOURCETYPE] LED  
[SEARCH\_APPLICATION] Architectural, Classroom, Office, Indirect  
[SEARCH\_MOUNTING] Suspended

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	9943
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	80
Total Luminaire Watts	125
Ballast Factor	1.00
CIE Type	Semi-Direct
Spacing Criterion (0-180)	1.18
Spacing Criterion (90-270)	1.16
Spacing Criterion (Diagonal)	1.26
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	7.59 ft
Luminous Width (90-270)	0.18 ft
Luminous Height	0.00 ft

### LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	16348	15920	15589
55	14539	14369	13933
65	12488	12613	13114
75	10350	11626	13826
85	7407	14750	21921

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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	2685.485	2685.485	2685.485	2685.485	2685.485	2685.485	2685.485	2685.485	2685.485	2685.485
5	2662.831	2687.544	2664.891	2650.475	2652.534	2650.475	2664.891	2687.544	2662.831	2687.544
10	2619.584	2640.178	2607.227	2598.989	2590.752	2598.989	2607.227	2640.178	2619.584	2640.178
15	2547.504	2561.920	2531.028	2500.137	2487.781	2500.137	2531.028	2561.920	2547.504	2561.920
20	2452.770	2456.889	2411.582	2382.750	2370.394	2382.750	2411.582	2456.889	2452.770	2456.889
25	2312.730	2323.027	2273.601	2236.531	2228.294	2236.531	2273.601	2323.027	2312.730	2323.027
30	2092.372	2150.036	2096.491	2047.065	2045.005	2047.065	2096.491	2150.036	2092.372	2150.036
35	1909.083	1948.212	1890.549	1847.301	1826.706	1847.301	1890.549	1948.212	1909.083	1948.212
40	1701.082	1742.270	1670.190	1664.012	1634.943	1664.012	1670.190	1742.270	1701.082	1742.270
45	1493.080	1521.912	1453.951	1455.832	1423.763	1455.832	1453.951	1521.912	1493.080	1521.912
50	1278.900	1303.614	1258.128	1245.593	1222.821	1245.593	1258.128	1303.614	1278.900	1303.614
55	1077.077	1099.731	1064.483	1070.364	1032.235	1070.364	1064.483	1099.731	1077.077	1099.731
60	881.432	889.670	871.838	888.076	866.303	888.076	871.838	889.670	881.432	889.670
65	681.668	702.263	688.490	718.025	715.847	718.025	688.490	702.263	681.668	702.263
70	510.736	533.152	531.796	569.568	591.044	569.568	531.796	533.152	510.736	533.152
75	345.983	369.458	388.636	437.706	462.181	437.706	388.636	369.458	345.983	369.458
80	199.764	230.417	269.131	319.141	348.794	319.141	269.131	230.417	199.764	230.417
85	83.377	111.971	166.041	220.170	246.764	220.170	166.041	111.971	83.377	111.971
90	27.535	55.070	113.199	171.328	192.744	171.328	113.199	55.070	27.535	55.070
95	42.059	68.535	121.545	171.436	193.793	171.436	121.545	68.535	42.059	68.535
100	97.000	124.475	165.307	213.199	238.615	213.199	165.307	124.475	97.000	124.475
105	168.000	190.416	220.188	262.901	287.377	262.901	220.188	190.416	168.000	190.416
110	248.000	271.475	288.129	323.783	342.080	323.783	288.129	271.475	248.000	271.475
115	331.000	341.000	354.772	386.426	391.664	386.426	354.772	341.000	331.000	341.000
120	428.000	432.000	440.654	461.129	458.426	461.129	440.654	432.000	428.000	432.000
125	523.000	534.000	529.475	548.070	531.129	548.070	529.475	534.000	523.000	534.000
130	621.000	633.000	620.357	623.713	618.951	623.713	620.357	633.000	621.000	633.000
135	725.000	739.000	706.000	716.357	708.654	716.357	706.000	739.000	725.000	739.000
140	826.000	846.000	811.000	808.000	806.475	808.000	811.000	846.000	826.000	846.000
145	927.000	946.000	918.000	897.000	887.000	897.000	918.000	946.000	927.000	946.000
150	1016.000	1044.000	1018.000	994.000	993.000	994.000	1018.000	1044.000	1016.000	1044.000
155	1123.000	1128.000	1104.000	1086.000	1082.000	1086.000	1104.000	1128.000	1123.000	1128.000
160	1191.000	1193.000	1171.000	1157.000	1151.000	1157.000	1171.000	1193.000	1191.000	1193.000
165	1237.000	1244.000	1229.000	1214.000	1208.000	1214.000	1229.000	1244.000	1237.000	1244.000
170	1272.000	1282.000	1266.000	1262.000	1258.000	1262.000	1266.000	1282.000	1272.000	1282.000
175	1293.000	1305.000	1294.000	1287.000	1288.000	1287.000	1294.000	1305.000	1293.000	1305.000
180	1304.000	1304.000	1304.000	1304.000	1304.000	1304.000	1304.000	1304.000	1304.000	1304.000

## 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	2685.485	2685.485	2685.485	2685.485	2685.485	2685.485	2685.485
5	2664.891	2650.475	2652.534	2650.475	2664.891	2687.544	2662.831
10	2607.227	2598.989	2590.752	2598.989	2607.227	2640.178	2619.584
15	2531.028	2500.137	2487.781	2500.137	2531.028	2561.920	2547.504
20	2411.582	2382.750	2370.394	2382.750	2411.582	2456.889	2452.770
25	2273.601	2236.531	2228.294	2236.531	2273.601	2323.027	2312.730
30	2096.491	2047.065	2045.005	2047.065	2096.491	2150.036	2092.372
35	1890.549	1847.301	1826.706	1847.301	1890.549	1948.212	1909.083
40	1670.190	1664.012	1634.943	1664.012	1670.190	1742.270	1701.082
45	1453.951	1455.832	1423.763	1455.832	1453.951	1521.912	1493.080
50	1258.128	1245.593	1222.821	1245.593	1258.128	1303.614	1278.900
55	1064.483	1070.364	1032.235	1070.364	1064.483	1099.731	1077.077
60	871.838	888.076	866.303	888.076	871.838	889.670	881.432

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<b>65</b>	688.490	718.025	715.847	718.025	688.490	702.263	681.668
<b>70</b>	531.796	569.568	591.044	569.568	531.796	533.152	510.736
<b>75</b>	388.636	437.706	462.181	437.706	388.636	369.458	345.983
<b>80</b>	269.131	319.141	348.794	319.141	269.131	230.417	199.764
<b>85</b>	166.041	220.170	246.764	220.170	166.041	111.971	83.377
<b>90</b>	113.199	171.328	192.744	171.328	113.199	55.070	27.535
<b>95</b>	121.545	171.436	193.793	171.436	121.545	68.535	42.059
<b>100</b>	165.307	213.199	238.615	213.199	165.307	124.475	97.000
<b>105</b>	220.188	262.901	287.377	262.901	220.188	190.416	168.000
<b>110</b>	288.129	323.783	342.080	323.783	288.129	271.475	248.000
<b>115</b>	354.772	386.426	391.664	386.426	354.772	341.000	331.000
<b>120</b>	440.654	461.129	458.426	461.129	440.654	432.000	428.000
<b>125</b>	529.475	548.070	531.129	548.070	529.475	534.000	523.000
<b>130</b>	620.357	623.713	618.951	623.713	620.357	633.000	621.000
<b>135</b>	706.000	716.357	708.654	716.357	706.000	739.000	725.000
<b>140</b>	811.000	808.000	806.475	808.000	811.000	846.000	826.000
<b>145</b>	918.000	897.000	887.000	897.000	918.000	946.000	927.000
<b>150</b>	1018.000	994.000	993.000	994.000	1018.000	1044.000	1016.000
<b>155</b>	1104.000	1086.000	1082.000	1086.000	1104.000	1128.000	1123.000
<b>160</b>	1171.000	1157.000	1151.000	1157.000	1171.000	1193.000	1191.000
<b>165</b>	1229.000	1214.000	1208.000	1214.000	1229.000	1244.000	1237.000
<b>170</b>	1266.000	1262.000	1258.000	1262.000	1266.000	1282.000	1272.000
<b>175</b>	1294.000	1287.000	1288.000	1287.000	1294.000	1305.000	1293.000
<b>180</b>	1304.000	1304.000	1304.000	1304.000	1304.000	1304.000	1304.000

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	965.12	N.A.	9.70
0-30	2009.76	N.A.	20.20
0-40	3192.1	N.A.	32.10
0-60	5289.6	N.A.	53.20
0-80	6417.92	N.A.	64.50
0-90	6613.41	N.A.	66.50
10-90	6360.63	N.A.	64.00
20-40	2226.99	N.A.	22.40
20-50	3364.9	N.A.	33.80
40-70	2798.33	N.A.	28.10
60-80	1128.32	N.A.	11.30
70-80	427.49	N.A.	4.30
80-90	195.49	N.A.	2.00
90-110	382.79	N.A.	3.80
90-120	744.49	N.A.	7.50
90-130	1222.75	N.A.	12.30
90-150	2353.78	N.A.	23.70
90-180	3329.67	N.A.	33.50
110-180	2946.88	N.A.	29.60
0-180	9943.07	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	252.78
10-20	712.34
20-30	1044.65
30-40	1182.34
40-50	1137.92
50-60	959.58
60-70	700.83
70-80	427.49
80-90	195.49
90-100	141.74
100-110	241.05
110-120	361.70
120-130	478.26
130-140	556.65
140-150	574.38
150-160	507.25
160-170	345.89
170-180	122.74

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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	105	105	105	105	93	93	93	81	81	81	71	71	71	67
1	101	97	93	89	95	91	88	84	81	78	76	71	69	68	63	61	60	56
2	92	85	78	73	87	80	74	69	71	67	63	63	60	57	55	53	51	47
3	84	75	67	61	79	70	64	58	63	57	53	56	52	48	49	46	43	40
4	77	66	58	52	73	63	55	50	56	50	45	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	36	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	57	44	36	31	53	42	35	30	38	32	27	34	29	25	31	26	23	21
9	53	40	33	27	50	38	31	27	35	29	25	31	26	23	28	24	21	19
10	49	37	30	25	47	35	29	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	18.7	19.8	19.5	20.6	21.6	18.6	19.6	19.4	20.5	21.5
	3H	20.3	21.2	21.1	22.0	23.1	20.4	21.4	21.3	22.2	23.2
	4H	20.8	21.7	21.7	22.6	23.6	21.3	22.2	22.1	23.0	24.0
	6H	21.2	22.0	22.1	22.9	23.9	22.1	22.9	22.9	23.7	24.8
	8H	21.3	22.1	22.2	23.0	24.0	22.5	23.2	23.3	24.1	25.2
	12H	21.4	22.1	22.3	23.0	24.1	22.9	23.6	23.7	24.5	25.6

### UGR Viewed Endwise

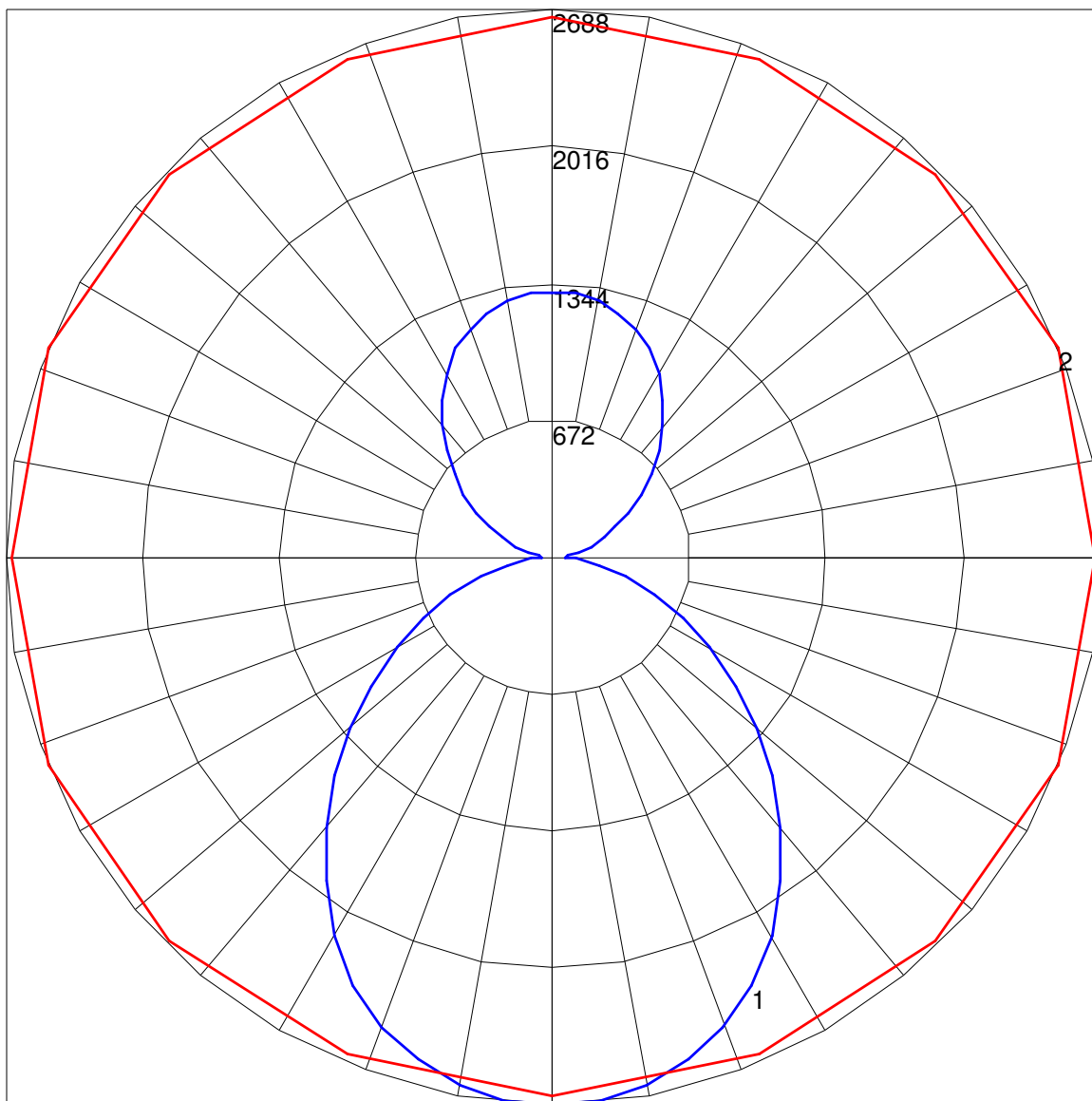
4H	2H	19.2	20.1	20.0	20.9	22.0	19.1	20.0	19.9	20.8	21.9
	3H	21.0	21.7	21.8	22.6	23.7	21.2	21.9	22.0	22.8	23.8
	4H	21.7	22.4	22.6	23.2	24.3	22.2	22.8	23.0	23.7	24.8
	6H	22.2	22.8	23.1	23.7	24.8	23.1	23.7	24.0	24.6	25.7
	8H	22.4	23.0	23.3	23.8	24.9	23.6	24.2	24.5	25.1	26.2
	12H	22.5	23.0	23.4	23.9	25.0	24.1	24.6	25.0	25.5	26.6

8H	4H	22.0	22.6	22.9	23.5	24.6	22.4	23.0	23.3	23.9	25.0
	6H	22.7	23.2	23.6	24.1	25.2	23.6	24.0	24.5	25.0	26.1
	8H	23.0	23.4	23.9	24.3	25.4	24.2	24.6	25.1	25.5	26.7
	12H	23.2	23.5	24.1	24.4	25.6	24.9	25.3	25.8	26.2	27.4

12H	4H	22.1	22.6	23.0	23.5	24.6	22.4	22.9	23.3	23.8	25.0
	6H	22.8	23.2	23.7	24.1	25.3	23.6	24.1	24.6	25.0	26.1
	8H	23.2	23.5	24.1	24.4	25.6	24.3	24.7	25.2	25.6	26.8

Maximum UGR = 27.4

POLAR GRAPH



Maximum Candela = 2687.544 Located At Horizontal Angle = 22.5, Vertical Angle = 5  
# 1 - Vertical Plane Through Horizontal Angles (22.5 - 202.5) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (5) (Through Max. Cd.)