



IES INDOOR REPORT

PHOTOMETRIC FILENAME : AX2UD-8-L33-835U-L50-835D-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] 10-21-2021
 [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-L50-835D-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	8411
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	93
Total Luminaire Watts	90.4
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)	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	12425	12100	11880
55	11050	10949	10658
65	9492	9649	10102
75	7866	8993	10823
85	5653	11817	17758

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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	2041.113	2041.113	2041.113	2041.113	2041.113	2041.113	2041.113	2041.113	2041.113	2041.113
5	2023.895	2042.679	2025.461	2014.504	2016.069	2014.504	2025.461	2042.679	2023.895	2042.679
10	1991.025	2006.677	1981.633	1975.372	1969.111	1975.372	1981.633	2006.677	1991.025	2006.677
15	1936.240	1947.197	1923.718	1900.239	1890.847	1900.239	1923.718	1947.197	1936.240	1947.197
20	1864.238	1867.368	1832.932	1811.019	1801.627	1811.019	1832.932	1867.368	1864.238	1867.368
25	1757.799	1765.626	1728.059	1699.884	1693.623	1699.884	1728.059	1765.626	1757.799	1765.626
30	1590.315	1634.143	1593.446	1555.879	1554.314	1555.879	1593.446	1634.143	1590.315	1634.143
35	1451.006	1480.746	1436.919	1404.048	1388.395	1404.048	1436.919	1480.746	1451.006	1480.746
40	1292.914	1324.219	1269.435	1264.739	1244.746	1264.739	1269.435	1324.219	1292.914	1324.219
45	1134.822	1156.735	1105.081	1108.087	1085.026	1108.087	1105.081	1156.735	1134.822	1156.735
50	972.033	990.817	957.821	949.871	933.613	949.871	957.821	990.817	972.033	990.817
55	818.637	835.855	811.166	818.263	789.546	818.263	811.166	835.855	818.637	835.855
60	669.936	676.197	665.534	679.977	664.742	679.977	665.534	676.197	669.936	676.197
65	518.105	533.757	526.705	552.043	551.438	552.043	526.705	533.757	518.105	533.757
70	388.187	407.326	409.185	440.784	458.420	440.784	409.185	407.326	388.187	407.326
75	262.966	282.647	300.639	341.087	361.791	341.087	300.639	282.647	262.966	282.647
80	151.831	177.231	210.333	252.285	276.662	252.285	210.333	177.231	151.831	177.231
85	63.634	87.468	133.030	178.112	199.901	178.112	133.030	87.468	63.634	87.468
90	23.292	46.585	95.757	144.930	163.046	144.930	95.757	46.585	23.292	46.585
95	42.476	65.226	110.245	153.157	172.776	153.157	110.245	65.226	42.476	65.226
100	99.209	122.981	157.168	198.034	220.242	198.034	157.168	122.981	99.209	122.981
105	171.825	190.964	214.381	251.574	272.279	251.574	214.381	190.964	171.825	190.964
110	253.647	273.328	284.410	314.924	330.932	314.924	284.410	273.328	253.647	273.328
115	338.536	348.764	355.817	382.240	385.432	382.240	355.817	348.764	338.536	348.764
120	437.745	441.836	444.735	461.349	455.879	461.349	444.735	441.836	437.745	441.836
125	534.908	546.159	537.203	550.810	532.943	550.810	537.203	546.159	534.908	546.159
130	635.140	647.413	631.235	631.422	624.387	631.422	631.235	647.413	635.140	647.413
135	741.508	755.826	722.075	729.421	718.838	729.421	722.075	755.826	741.508	755.826
140	844.807	865.263	829.466	826.397	820.510	826.397	829.466	865.263	844.807	865.263
145	948.107	967.539	938.902	917.424	907.196	917.424	938.902	967.539	948.107	967.539
150	1039.133	1067.771	1041.179	1016.632	1015.610	1016.632	1041.179	1067.771	1039.133	1067.771
155	1148.570	1153.683	1129.137	1110.727	1106.636	1110.727	1129.137	1153.683	1148.570	1153.683
160	1218.118	1220.163	1197.662	1183.344	1177.207	1183.344	1197.662	1220.163	1218.118	1220.163
165	1265.165	1272.325	1256.983	1241.642	1235.505	1241.642	1256.983	1272.325	1265.165	1272.325
170	1300.962	1311.190	1294.826	1290.734	1286.643	1290.734	1294.826	1311.190	1300.962	1311.190
175	1322.440	1334.714	1323.463	1316.304	1317.327	1316.304	1323.463	1334.714	1322.440	1334.714
180	1333.691	1333.691	1333.691	1333.691	1333.691	1333.691	1333.691	1333.691	1333.691	1333.691

Vert. Angles **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	2041.113	2041.113	2041.113	2041.113	2041.113	2041.113	2041.113
5	2025.461	2014.504	2016.069	2014.504	2025.461	2042.679	2023.895
10	1981.633	1975.372	1969.111	1975.372	1981.633	2006.677	1991.025
15	1923.718	1900.239	1890.847	1900.239	1923.718	1947.197	1936.240
20	1832.932	1811.019	1801.627	1811.019	1832.932	1867.368	1864.238
25	1728.059	1699.884	1693.623	1699.884	1728.059	1765.626	1757.799
30	1593.446	1555.879	1554.314	1555.879	1593.446	1634.143	1590.315
35	1436.919	1404.048	1388.395	1404.048	1436.919	1480.746	1451.006
40	1269.435	1264.739	1244.746	1264.739	1269.435	1324.219	1292.914
45	1105.081	1108.087	1085.026	1108.087	1105.081	1156.735	1134.822
50	957.821	949.871	933.613	949.871	957.821	990.817	972.033
55	811.166	818.263	789.546	818.263	811.166	835.855	818.637
60	665.534	679.977	664.742	679.977	665.534	676.197	669.936

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65	526.705	552.043	551.438	552.043	526.705	533.757	518.105
70	409.185	440.784	458.420	440.784	409.185	407.326	388.187
75	300.639	341.087	361.791	341.087	300.639	282.647	262.966
80	210.333	252.285	276.662	252.285	210.333	177.231	151.831
85	133.030	178.112	199.901	178.112	133.030	87.468	63.634
90	95.757	144.930	163.046	144.930	95.757	46.585	23.292
95	110.245	153.157	172.776	153.157	110.245	65.226	42.476
100	157.168	198.034	220.242	198.034	157.168	122.981	99.209
105	214.381	251.574	272.279	251.574	214.381	190.964	171.825
110	284.410	314.924	330.932	314.924	284.410	273.328	253.647
115	355.817	382.240	385.432	382.240	355.817	348.764	338.536
120	444.735	461.349	455.879	461.349	444.735	441.836	437.745
125	537.203	550.810	532.943	550.810	537.203	546.159	534.908
130	631.235	631.422	624.387	631.422	631.235	647.413	635.140
135	722.075	729.421	718.838	729.421	722.075	755.826	741.508
140	829.466	826.397	820.510	826.397	829.466	865.263	844.807
145	938.902	917.424	907.196	917.424	938.902	967.539	948.107
150	1041.179	1016.632	1015.610	1016.632	1041.179	1067.771	1039.133
155	1129.137	1110.727	1106.636	1110.727	1129.137	1153.683	1148.570
160	1197.662	1183.344	1177.207	1183.344	1197.662	1220.163	1218.118
165	1256.983	1241.642	1235.505	1241.642	1256.983	1272.325	1265.165
170	1294.826	1290.734	1286.643	1290.734	1294.826	1311.190	1300.962
175	1323.463	1316.304	1317.327	1316.304	1323.463	1334.714	1322.440
180	1333.691	1333.691	1333.691	1333.691	1333.691	1333.691	1333.691

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Zone	Lumens	%Lamp	%Fixt
0-20	733.54	N.A.	8.70
0-30	1527.53	N.A.	18.20
0-40	2426.22	N.A.	28.80
0-60	4023.17	N.A.	47.80
0-80	4889.91	N.A.	58.10
0-90	5046.3	N.A.	60.00
10-90	4854.18	N.A.	57.70
20-40	1692.67	N.A.	20.10
20-50	2558.24	N.A.	30.40
40-70	2133.19	N.A.	25.40
60-80	866.74	N.A.	10.30
70-80	330.50	N.A.	3.90
80-90	156.40	N.A.	1.90
90-110	363.90	N.A.	4.30
90-120	726.49	N.A.	8.60
90-130	1211.4	N.A.	14.40
90-150	2366.68	N.A.	28.10
90-180	3364.79	N.A.	40.00
110-180	3000.88	N.A.	35.70
0-180	8411.09	N.A.	100.00

Total Luminaire Efficiency = N.A. %

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	192.12
10-20	541.42
20-30	793.99
30-40	898.69
40-50	865.56
50-60	731.39
60-70	536.24
70-80	330.50
80-90	156.40
90-100	128.87
100-110	235.03
110-120	362.58
120-130	484.91
130-140	567.91
140-150	587.36
150-160	518.80
160-170	353.77
170-180	125.54

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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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65	60
1	100	95	91	88	93	89	86	82	78	75	73	67	65	63	57	56	55	50
2	91	83	77	72	85	78	73	68	68	64	60	59	56	53	51	48	46	42
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	39	36
4	76	65	57	51	71	61	54	48	54	48	43	47	42	39	40	37	34	31
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30	27
6	65	52	44	38	60	49	42	36	44	37	33	38	33	30	33	29	26	24
7	60	47	39	34	56	45	37	32	40	34	29	35	30	26	30	26	24	21
8	56	43	35	30	52	41	34	29	36	30	26	32	27	24	28	24	21	19
9	52	39	32	27	48	37	30	26	33	27	23	29	25	21	26	22	19	17
10	48	36	29	24	45	34	28	23	31	25	21	27	23	19	24	20	17	16

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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	17.2	18.2	18.1	19.0	20.2	17.1	18.1	18.0	19.0	20.1
	3H	18.8	19.6	19.6	20.5	21.7	19.0	19.9	19.9	20.8	21.9
	4H	19.3	20.1	20.2	21.0	22.2	19.8	20.7	20.7	21.6	22.7
	6H	19.7	20.4	20.6	21.4	22.5	20.7	21.4	21.6	22.3	23.5
	8H	19.8	20.5	20.7	21.5	22.6	21.1	21.8	22.0	22.7	23.9
	12H	19.9	20.6	20.8	21.5	22.7	21.5	22.2	22.5	23.1	24.3

UGR Viewed Endwise

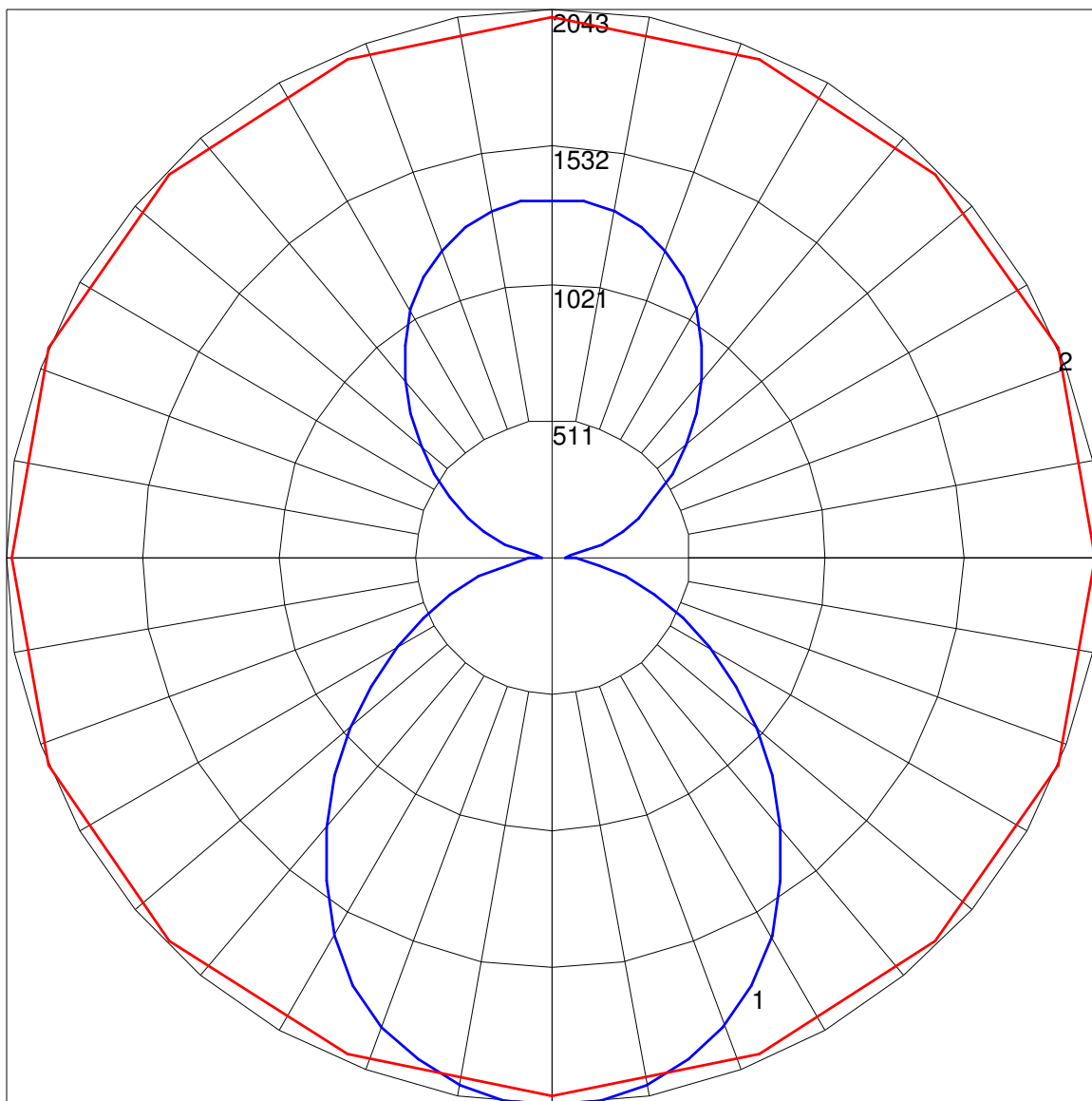
4H	2H	17.7	18.5	18.6	19.4	20.5	17.6	18.4	18.5	19.3	20.5
	3H	19.5	20.2	20.4	21.1	22.3	19.7	20.4	20.6	21.3	22.5
	4H	20.2	20.8	21.1	21.7	22.9	20.7	21.4	21.7	22.3	23.5
	6H	20.7	21.3	21.7	22.2	23.4	21.8	22.3	22.7	23.2	24.4
	8H	20.9	21.4	21.8	22.3	23.5	22.3	22.8	23.2	23.7	24.9
	12H	21.0	21.4	21.9	22.4	23.6	22.8	23.3	23.8	24.2	25.4

8H	4H	20.5	21.0	21.4	22.0	23.2	21.0	21.5	21.9	22.5	23.7
	6H	21.2	21.6	22.2	22.6	23.8	22.2	22.6	23.2	23.6	24.8
	8H	21.5	21.8	22.4	22.8	24.1	22.9	23.2	23.8	24.2	25.4
	12H	21.7	22.0	22.7	23.0	24.2	23.6	23.9	24.6	24.9	26.2

12H	4H	20.6	21.0	21.5	22.0	23.2	21.0	21.5	22.0	22.4	23.6
	6H	21.3	21.7	22.3	22.7	23.9	22.3	22.6	23.2	23.6	24.9
	8H	21.7	22.0	22.6	23.0	24.2	23.0	23.3	24.0	24.3	25.6

Maximum UGR = 26.2

POLAR GRAPH



Maximum Candela = 2042.679 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.)