H.E. WILLIAMS, INC.

IES INDOOR REPORT
PHOTOMETRIC FILENAME : AP-24-L30-835-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] GEN from LLI-20113-2
[TESTLAB] LightLab International (www.LightLabInt.com)
[MANUFAC] WILLIAMS INDOOR
[OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.64836
[LUMCAT] AP-24-L30-835-DIM-UNV
[LUMINAIRE] RECESSED 2 X 4 ARCHED CENTER LED LUMINAIRE
[MORE] White steel fabricated housing with frosted white concave lens.
[MORE] 360 LEDs with180 mounted along each long side of clear plastic sheet.
[ISSUEDATE] 07-15-2021
[_SEARCH_SOURCETYPE] LED
[_SEARCH_APPLICATION] Indoor, Architectural, Direct-Indirect
[_SEARCH_MOUNTING] Recessed

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3101
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	121
Total Luminaire Watts	25.7
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.26
Spacing Criterion (90-270)	1.28
Spacing Criterion (Diagonal)	1.38
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	1.16 m
Luminous Width (90-270)	0.57 m
Luminous Height	0.00 m

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	1520	1525	1539
55	1467	1476	1500
65	1385	1400	1425
75	1248	1257	1303
85	957	912	944

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CANDELA TABULATION

	0.0	22.5	45.0	67.5	90.0
0.0	1067.841	1067.841	1067.841	1067.841	1067.841
0.5	1069.453	1069.152	1068.166	1066.756	1065.077
1.0	1069.563	1068.864	1067.988	1066.634	1065.114
1.5	1069.318	1068.607	1067.755	1066.431	1064.642
2.0	1068.840	1068.325	1067.498	1065.984	1064.256
2.5	1068.503	1067.902	1067.001	1065.635	1063.955
3.0	1067.951	1067.467	1066.566	1065.267	1063.330
3.5	1067.467	1066.915	1065.868	1064.470	1062.852
4.0	1066.848	1066.229	1065.224	1063.851	1062.105
4.5	1065.855	1065.402	1064.329	1062.975	1061.234
5.0	1065.034	1064.489	1063.533	1062.172	1060.370
5.5	1063.955	1063.508	1062.552	1061.308	1059.463
6.0	1062.926	1062.442	1061.516	1060.248	1058.397
6.5	1061.608	1061.155	1060.334	1059.096	1057.275
7.0	1060.131	1059.794	1059.132	1057.888	1056.086
7.5	1058.734	1058.379	1057.717	1056.540	1054.757
8.0	1057.043	1056.810	1056.129	1055.069	1053.316
8.5	1055.541	1055.124	1054.591	1053.653	1051.748
9.0	1053.684	1053.365	1052.887	1052.054	1050.313
9.5	1051.907	1051.656	1051.165	1050.160	1048.512
10.0	1049.866	1049.670	1049.333	1048.487	1046.655
10.5	1047.868	1047.648	1047.151	1046.765	1045.000
11.0	1045.723	1045.613	1045.276	1044.749	1043.070
11.5	1043.431	1043.364	1042.996	1042.653	1040.888
12.0	1041.200	1041.023	1040.820	1040.483	1038.718
12.5	1038.761	1038.565	1038.596	1038.271	1036.469
13.0	1036.206	1036.212	1036.065	1036.071	1034.429
13.5	1033.620	1033.613	1033.601	1033.613	1031.965
14.0	1031.119	1030.929	1031.174	1031.082	1029.581
14.5	1028.349	1028.343	1028.392	1028.447	1026.964
15.0	1025.653	1025.505	1025.555	1025.744	1024.310
15.5	1022.576	1022.656	1022.693	1023.201	1021.663
16.0	1019.775	1019.610	1019.824	1020.229	1018.942
16.5	1016.540	1016.570	1016.717	1017.330	1016.147
17.0	1013.316	1013.359	1013.573	1014.309	1013.046
17.5	1010.295	1010.258	1010.528	1011.251	1009.976
18.0	1006.924	1006.857	1007.126	1007.996	1006.857
18.5	1003.449	1003.590	1003.915	1004.816	1003.486
19.0	1000.029	1000.121	1000.385	1001.310	1000.397
19.5	996.518	996.604	996.947	997.976	996.928
20.0	992.786	992.908	993.172	994.422	993.576
20.5	989.164	989.121	989.611	990.769	990.009
21.0	985.260	985.352	985.799	987.123	986.541
21.5	981.381	981.381	981.920	983.287	982.735
22.0	977.465	977.489	977.936	979.407	978.843
22.5	973.395	973.426	974.020	975.344	975.117
23.0	969.332	969.375	969.902	971.502	971.079
23.5	964.981	965.079	965.716	967.279	967.089
24.0	960.752	960.807	961.445	963.148	963.001
24.5	956.364	956.376	957.149	958.908	958.920
25.0	951.731	951.890	952.675	954.507	954.532
25.5	947.441	947.502	948.250	950.113	950.328
26.0	942.765	942.814	943.703	945.603	945.713
26.5	938.224	938.267	939.137	941.092	941.337

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CANDELA TABULATION - (Cont.)

27.0	933.395	933.493	934.277	936.343	936.710
27.5	928.706	928.670	929.558	931.906	932.151
28.0	923.687	923.840	924.711	926.892	927.389
28.5	918.619	918.754	919.753	922.088	922.652
29.0	913.661	913.790	914.734	917.167	917.773
29.5	908.391	908.648	909.641	912.086	912.705
30.0	903.267	903.420	904.499	906.993	907.508
30.5	898.034	898.144	899.112	901.606	902.464
31.0	892.512	892.904	893.934	896.501	897.341
31.5	887.119	887.284	888.498	891.078	891.948
32.0	881.628	881.952	883.099	885.715	886.622
32.5	876.106	876.327	877.663	880.255	881.242
33.0	870.388	870.633	871.963	874.617	875.787
33.5	864.787	864.958	866.300	868.979	870.382
34.0	858.860	859.198	860.552	863.316	864.584
34.5	853.002	853.357	854.711	857.445	858.824
35.0	846.916	847.327	848.761	851.592	853.112
35.5	841.155	841.394	842.902	845.739	847.278
36.0	834.972	835.223	836.810	839.734	841.198
36.5	829.009	829.376	830.933	833.746	835.407
37.0	822.727	823.150	824.602	827.562	829.425
37.5	816.494	816.789	818.370	821.416	823.193
38.0	810.182	810.476	812.155	815.207	817.040
38.5	803.729	804.035	805.665	808.822	810.832
39.0	797.312	797.649	799.206	802.485	804.556
39.5	790.700	791.000	792.716	795.952	798.146
40.0	784.026	784.516	786.189	789.474	791.674
40.5	777.475	777.720	779.479	782.794	785.215
41.0	771.015	771.322	772.933	776.439	778.951
41.5	764.133	764.329	766.088	769.606	772.131
42.0	757.140	757.557	759.132	762.821	765.310
42.5	750.289	750.712	752.550	756.025	758.666
43.0	743.302	743.664	745.441	749.167	751.753
43.5	736.353	736.714	738.399	742.211	744.951
44.0	729.060	729.562	731.376	735.102	737.921
44.5	722.055	722.508	724.427	728.116	731.082
45.0	714.762	715.209	717.030	720.927	723.826
45.5	707.727	708.174	710.037	713.996	716.987
46.0	700.268	700.771	702.640	706.593	709.626
46.5	692.883	693.374	695.335	699.288	702.517
47.0	685.321	686.050	688.073	691.946	695.255
47.5	677.826	678.494	680.467	684.512	687.883
48.0	670.355	670.993	672.960	677.182	680.614
48.5	662.566	663.326	665.440	669.559	672.972
49.0	654.997	655.714	657.737	662.100	665.636
49.5	647.312	647.968	650.101	654.311	657.988
50.0	639.836	640.418	642.599	646.834	650.560
50.5	631.875	632.561	634.755	639.137	642.863
51.0	624.067	624.704	627.009	631.274	635.123
51.5	615.977	616.793	619.219	623.607	627.284
52.0	608.151	608.850	611.179	615.751	619.587
52.5	600.056	600.987	603.328	607.790	611.792
53.0	592.132	592.873	595.208	599.737	603.861
53.5	584.244	584.943	587.253	591.819	596.152
54.0	575.910	576.657	579.096	583.729	588.019
54.5	567.979	568.776	571.240	575.916	580.138

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CANDELA TABULATION - (Cont.)

55.0	559.657	560.447	563.003	567.716	572.036
55.5	551.402	552.150	554.791	559.614	563.837
56.0	543.220	544.023	546.658	551.524	555.710
56.5	534.867	535.578	538.250	543.220	547.627
57.0	526.588	527.293	529.922	534.916	539.317
57.5	518.124	518.915	521.611	526.496	531.025
58.0	509.698	510.476	513.240	518.357	522.911
58.5	501.247	502.013	504.795	509.900	514.392
59.0	492.887	493.727	496.607	501.688	506.296
59.5	484.406	485.129	487.991	493.212	497.484
60.0	475.801	476.555	479.540	484.724	488.800
60.5	467.154	468.110	471.119	476.377	479.999
61.0	458.629	459.414	462.460	467.755	471.168
61.5	449.847	450.815	453.892	459.003	462.374
62.0	441.212	442.113	445.239	450.025	453.328
62.5	432.700	433.533	436.665	441.053	444.626
63.0	423.875	424.714	428.036	432.167	435.703
63.5	415.436	416.367	419.517	423.532	426.994
64.0	406.617	407.518	410.809	414.474	418.255
64.5	397.890	398.693	402.082	405.520	409.166
65.0	389.133	390.095	393.557	396.671	400.427
65.5	380.234	381.233	384.732	387.631	391.559
66.0	371.636	372.592	376.110	378.818	382.422
66.5	362.658	363.742	367.205	369.724	373.640
67.0	354.004	354.930	358.570	360.752	364.655
67.5	345.051	346.129	349.598	351.798	355.831
68.0	336.495	337.543	340.755	343.169	347.012
68.5	327.719	328.749	331.660	334.166	338.193
69.0	318.858	319.930	322.547	325.243	329.270
69.5	310.082	311.185	313.746	316.388	320.451
70.0	301.373	302.354	304.615	307.385	311.601
70.5	292.628	293.682	295.698	298.640	302.850
71.0	283.717	284.869	286.677	289.655	293.872
71.5	275.217	276.179	277.803	280.984	285.053
72.0	266.410	267.477	268.819	272.061	276.203
72.5	257.904	258.805	260.233	263.487	267.716
73.0	249.208	250.323	251.328	254.693	258.976
73.5	240.468	241.578	242.570	245.935	250.207
74.0	232.011	233.078	233.788	237.282	241.639
74.5	223.339	224.387	225.006	228.604	232.863
75.0	214.845	215.955	216.414	219.993	224.240
75.5	206.192	207.344	207.742	211.352	215.452
76.0	197.820	198.942	199.095	202.815	206.995
76.5	189.308	190.423	190.521	194.119	198.176
77.0	181.188	182.162	182.132	185.790	189.762
77.5	172.743	173.840	173.834	177.296	181.151
78.0	164.414	165.321	165.370	168.680	172.449
78.5	156.361	156.882	157.097	160.204	163.918
79.0	148.033	148.370	148.830	151.655	155.222
79.5	139.968	140.090	140.716	143.149	146.605
80.0	131.848	131.811	132.430	134.685	137.774
80.5	123.801	123.586	124.285	126.167	129.071
81.0	115.914	115.442	116.055	117.587	120.412
81.5	108.173	107.554	108.039	109.393	111.887
82.0	100.445	99.667	100.035	100.936	103.375
82.5	92.589	91.663	91.902	92.552	94.881

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CANDELA TABULATION - (Cont.)

83.0	85.075	83.991	83.960	84.487	86.589
83.5	77.433	76.293	75.876	76.422	78.309
84.0	70.048	68.792	68.118	68.577	70.349
84.5	62.590	61.272	60.384	60.733	62.437
85.0	55.481	53.979	52.876	53.305	54.715
85.5	48.182	46.619	45.504	45.749	46.938
86.0	41.263	39.663	38.609	38.677	39.657
86.5	34.344	32.640	31.733	31.562	32.199
87.0	27.413	25.960	25.102	24.551	24.863
87.5	20.665	19.924	18.888	17.705	17.779
88.0	14.390	14.194	12.802	10.958	10.326
88.5	9.842	9.009	7.146	3.383	2.335
89.0	5.988	4.596	2.617	1.875	1.600
89.5	2.874	2.194	1.593	1.275	1.164
90.0	0.000	0.000	0.000	0.000	0.000

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	390.47	N.A.	12.60
0-30	829.77	N.A.	26.80
0-40	1361.16	N.A.	43.90
0-60	2419.14	N.A.	78.00
0-80	3038.92	N.A.	98.00
0-90	3101.02	N.A.	100.00
10-90	2999.98	N.A.	96.70
20-40	970.69	N.A.	31.30
20-50	1524.55	N.A.	49.20
40-70	1447.39	N.A.	46.70
60-80	619.78	N.A.	20.00
70-80	230.38	N.A.	7.40
80-90	62.10	N.A.	2.00
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	3101.02	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	101.04
10-20	289.43
20-30	439.30
30-40	531.39
40-50	553.86
50-60	504.13
60-70	389.40
70-80	230.38
80-90	62.10
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

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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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	109	104	99	95	106	101	97	94	97	94	91	93	91	88	90	87	85	83
2	99	90	83	77	96	88	82	76	85	79	75	81	77	73	78	75	71	69
3	90	79	71	64	87	77	70	63	74	68	62	72	66	61	69	64	60	58
4	82	70	61	54	80	69	60	54	66	59	53	64	57	52	61	56	52	49
5	75	62	53	46	73	61	53	46	59	51	46	57	50	45	55	49	45	43
6	70	56	47	41	68	55	47	40	53	46	40	52	45	40	50	44	39	37
7	64	51	42	36	63	50	42	36	48	41	35	47	40	35	46	39	35	33
8	60	46	38	32	58	46	37	32	44	37	32	43	36	31	42	36	31	29
9	56	42	34	29	55	42	34	29	41	33	28	40	33	28	39	33	28	26
10	53	39	31	26	51	39	31	26	38	31	26	37	30	26	36	30	25	24

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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					UGR Viewed Endwise				
X=2H	Y=2H	13.5	15.1	13.8	15.4	15.7	13.6	15.2	13.9	15.5	15.8
	3H	15.3	16.8	15.7	17.1	17.5	15.5	17.0	15.8	17.3	17.6
	4H	16.0	17.4	16.4	17.8	18.2	16.2	17.6	16.6	18.0	18.3
	6H	16.6	17.9	17.0	18.2	18.6	16.7	18.1	17.2	18.4	18.8
	8H	16.8	18.0	17.2	18.4	18.8	16.9	18.2	17.4	18.6	19.0
	12H	16.9	18.1	17.3	18.4	18.9	17.0	18.2	17.5	18.6	19.0
4H	2H	14.1	15.5	14.5	15.9	16.3	14.2	15.6	14.6	16.0	16.3
	3H	16.2	17.4	16.6	17.8	18.2	16.3	17.5	16.7	17.9	18.3
	4H	17.1	18.1	17.5	18.5	19.0	17.2	18.3	17.6	18.7	19.1
	6H	17.7	18.7	18.2	19.1	19.6	17.9	18.8	18.3	19.3	19.7
	8H	18.0	18.8	18.4	19.3	19.7	18.1	19.0	18.6	19.4	19.9
	12H	18.1	18.9	18.6	19.4	19.8	18.3	19.0	18.7	19.5	20.0
8H	4H	17.4	18.3	17.9	18.7	19.2	17.5	18.4	18.0	18.8	19.3
	6H	18.2	18.9	18.7	19.4	19.9	18.3	19.1	18.8	19.6	20.0
	8H	18.5	19.1	19.0	19.7	20.1	18.6	19.3	19.1	19.8	20.3
	12H	18.7	19.3	19.2	19.8	20.4	18.8	19.4	19.3	19.9	20.5
12H	4H	17.4	18.2	17.9	18.7	19.2	17.6	18.3	18.0	18.8	19.3
	6H	18.3	18.9	18.8	19.4	19.9	18.4	19.1	18.9	19.5	20.1
	8H	18.6	19.2	19.1	19.7	20.2	18.7	19.3	19.2	19.8	20.4

Maximum UGR = 20.5

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Results derived from content of manufacturers photometric file.

IES INDOOR REPORT
PHOTOMETRIC FILENAME : AP-24-L30-835-DIM-UNV_.IES

POLAR GRAPH

Maximum Candela = 1069.563 Located At Horizontal Angle = 0, Vertical Angle = 1
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (1) (Through Max. Cd.)

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