IES INDOOR REPORT
PHOTOMETRIC FILENAME : AP-22-L30-840-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] GEN from LLI-20113-1
[TESTLAB] LightLab International (www.LightLabInt.com)
[ISSUE DATE] 24 FEB, 2022
[MANUFAC] WILLIAMS INDOOR
[OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.64836
[LUMCAT] AP-22-L30-840-DIM-UNV
[LUMINAIRE] RECESSED 2x2 ARCHED CENTER LED LUMINAIRE
[MORE] White steel fabricated housing with frosted white concave lens.
[MORE] 180 LEDs with90 mounted along each long side of clear plastic sheet.
[ISSUEDATE] 27-APR-2020
[_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	3441
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	120
Total Luminaire Watts	28.6
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.24
Spacing Criterion (90-270)	1.28
Spacing Criterion (Diagonal)	1.38
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.55 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	3510	3561	3670
55	3357	3429	3580
65	3135	3233	3425
75	2764	2864	3173
85	1690	1867	2285

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CANDELA TABULATION

	0.0	22.5	45.0	67.5	90.0
0.0	1204.635	1204.635	1204.635	1204.635	1204.635
0.5	1205.038	1205.533	1203.838	1204.887	1204.660
1.0	1205.155	1205.206	1204.014	1204.165	1203.922
1.5	1204.451	1204.711	1203.897	1204.887	1203.553
2.0	1203.813	1203.998	1203.603	1204.174	1204.551
2.5	1203.503	1203.830	1203.561	1203.603	1203.637
3.0	1203.092	1202.832	1202.848	1203.545	1202.513
3.5	1201.171	1202.144	1201.699	1201.926	1202.496
4.0	1200.818	1201.330	1200.684	1201.221	1201.296
4.5	1200.097	1199.728	1199.963	1200.298	1200.349
5.0	1197.471	1198.721	1198.335	1199.032	1198.914
5.5	1196.901	1197.018	1196.129	1198.100	1198.553
6.0	1194.267	1194.728	1195.701	1197.027	1196.859
6.5	1192.648	1194.015	1194.124	1195.391	1194.703
7.0	1192.052	1191.532	1192.522	1194.133	1193.839
7.5	1189.276	1190.131	1190.584	1192.614	1193.604
8.0	1187.732	1188.101	1189.074	1190.786	1191.733
8.5	1185.325	1185.610	1186.029	1188.923	1190.375
9.0	1182.347	1182.724	1184.779	1187.002	1188.118
9.5	1179.780	1181.348	1181.827	1185.358	1186.549
10.0	1177.540	1178.488	1180.065	1183.118	1184.310
10.5	1175.057	1176.290	1177.968	1181.206	1181.969
11.0	1172.893	1173.371	1175.116	1178.664	1180.157
11.5	1169.218	1170.368	1172.616	1175.485	1176.324
12.0	1166.761	1168.128	1169.026	1173.539	1175.510
12.5	1164.252	1164.286	1166.308	1170.754	1172.146
13.0	1161.702	1161.761	1163.355	1168.673	1170.116
13.5	1157.902	1159.421	1161.526	1165.351	1167.180
14.0	1153.993	1156.015	1157.223	1162.382	1164.143
14.5	1151.007	1151.846	1155.428	1159.018	1162.264
15.0	1147.232	1148.977	1151.401	1156.048	1158.582
15.5	1144.220	1145.445	1148.557	1153.154	1155.302
16.0	1140.060	1141.670	1143.667	1150.109	1152.987
16.5	1136.402	1137.568	1140.571	1146.242	1149.203
17.0	1132.200	1134.087	1137.031	1142.862	1145.823
17.5	1128.542	1130.958	1133.810	1139.112	1142.593
18.0	1125.120	1126.613	1129.247	1135.295	1139.095
18.5	1121.605	1122.846	1125.480	1131.596	1135.287
19.0	1117.184	1118.300	1121.731	1127.762	1132.191
19.5	1112.117	1113.946	1117.570	1123.299	1127.770
20.0	1108.955	1109.458	1113.158	1119.675	1124.289
20.5	1104.660	1105.499	1108.829	1115.599	1119.399
21.0	1099.912	1100.868	1104.802	1111.656	1116.219
21.5	1095.248	1096.229	1100.029	1106.312	1110.456
22.0	1088.554	1091.515	1094.795	1102.085	1106.589
22.5	1084.846	1085.970	1090.097	1097.387	1102.630
23.0	1079.083	1081.700	1086.155	1092.488	1098.704
23.5	1074.562	1076.759	1081.507	1088.319	1093.495
24.0	1070.258	1071.617	1076.206	1083.948	1088.696
24.5	1064.562	1066.408	1070.871	1078.152	1083.898
25.0	1059.630	1060.343	1065.905	1074.293	1079.318
25.5	1054.018	1055.822	1060.746	1068.438	1073.530
26.0	1048.473	1050.277	1054.932	1063.455	1068.480
26.5	1042.458	1044.874	1050.251	1058.950	1064.613

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CANDELA TABULATION - (Cont.)

27.0	1036.771	1038.809	1044.665	1053.196	1059.202
27.5	1032.107	1033.592	1039.137	1048.121	1054.664
28.0	1024.943	1027.124	1033.726	1041.611	1048.783
28.5	1020.145	1022.049	1027.527	1036.268	1043.314
29.0	1014.424	1015.816	1021.806	1030.312	1037.543
29.5	1008.577	1009.844	1015.724	1025.077	1031.696
30.0	1001.413	1004.299	1009.592	1019.306	1026.185
30.5	996.112	997.932	1003.116	1013.031	1020.682
31.0	989.023	991.959	997.982	1007.310	1014.223
31.5	983.034	985.156	991.238	1001.136	1009.340
32.0	976.063	978.839	984.820	995.222	1002.470
32.5	970.736	972.565	979.066	988.889	996.195
33.0	963.656	966.147	972.514	981.935	990.382
33.5	956.283	959.722	965.871	976.616	983.931
34.0	950.822	952.642	959.034	969.687	977.388
34.5	943.549	945.629	952.675	962.683	971.558
35.0	936.225	939.178	945.394	956.308	964.109
35.5	929.917	931.847	939.321	949.689	958.438
36.0	921.763	924.708	931.830	942.718	951.618
36.5	916.227	917.963	925.295	935.680	944.505
37.0	908.031	911.328	917.989	928.474	938.062
37.5	900.708	903.317	910.732	921.621	930.286
38.0	892.999	896.111	902.981	914.608	923.944
38.5	886.791	888.788	896.178	907.025	917.141
39.0	878.831	880.869	888.352	899.886	910.489
39.5	871.658	873.596	880.894	893.192	902.965
40.0	863.186	866.239	873.277	885.298	895.952
40.5	856.400	858.304	866.340	877.371	888.503
41.0	848.909	850.251	858.975	870.652	881.221
41.5	840.243	843.557	850.754	863.144	873.680
42.0	832.308	835.428	843.229	855.208	865.392
42.5	824.666	827.182	834.824	847.952	858.488
43.0	816.092	818.970	827.669	839.606	850.922
43.5	809.222	811.479	819.473	832.165	843.322
44.0	800.599	803.417	811.554	824.020	835.067
44.5	792.160	795.247	803.660	815.547	827.216
45.0	784.006	786.908	795.398	807.469	819.624
45.5	776.087	779.090	787.278	799.567	811.210
46.0	768.252	770.660	779.115	791.631	802.922
46.5	759.117	762.254	769.829	783.125	795.473
47.0	750.955	753.388	762.498	775.307	786.875
47.5	741.954	745.402	753.505	766.726	778.797
48.0	733.205	736.602	744.873	758.513	770.869
48.5	724.489	727.962	736.577	749.630	761.449
49.0	715.773	719.431	728.046	741.442	753.421
49.5	707.552	710.841	719.347	732.534	745.871
50.0	699.197	702.242	710.522	724.481	736.602
50.5	689.945	692.981	701.588	715.555	727.710
51.0	681.078	684.215	692.914	706.730	719.506
51.5	672.429	675.919	684.039	698.300	710.614
52.0	663.680	666.549	675.349	689.441	702.603
52.5	654.193	657.682	666.591	680.113	692.889
53.0	645.561	648.178	657.137	671.599	684.165
53.5	635.947	639.194	648.631	662.338	675.525
54.0	627.366	629.924	638.766	653.404	666.616
54.5	618.440	621.418	630.117	644.571	658.194

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CANDELA TABULATION - (Cont.)

55.0	608.248	612.241	621.318	635.746	648.690
55.5	599.356	602.737	611.839	626.443	639.311
56.0	590.632	593.308	602.695	617.115	630.679
56.5	580.776	584.173	592.864	607.862	621.611
57.0	571.322	575.139	583.972	598.610	612.342
57.5	562.111	565.450	574.375	589.559	602.787
58.0	552.850	555.979	565.274	580.239	594.340
58.5	543.522	546.299	555.744	570.433	584.089
59.0	534.227	536.996	546.131	561.608	575.331
59.5	524.723	527.667	537.289	552.238	565.592
60.0	514.741	517.979	527.256	542.499	555.761
60.5	505.119	508.701	518.063	533.179	546.122
61.0	495.774	498.769	508.407	523.775	536.283
61.5	486.236	489.558	498.869	513.977	526.652
62.0	475.801	479.391	489.248	503.525	516.938
62.5	466.926	469.962	479.517	494.063	506.570
63.0	456.952	460.357	469.719	484.181	496.630
63.5	447.707	450.719	460.626	474.845	487.318
64.0	437.842	440.988	450.727	464.485	477.453
64.5	428.187	431.375	441.231	454.636	467.639
65.0	418.473	421.636	431.593	444.897	457.203
65.5	408.659	411.729	421.611	434.554	447.447
66.0	398.978	401.822	412.299	424.798	437.230
66.5	389.138	392.368	402.308	414.757	427.675
67.0	379.575	382.654	392.452	404.984	417.869
67.5	369.719	373.049	382.662	394.675	407.702
68.0	360.315	363.402	373.007	385.028	398.114
68.5	350.786	353.613	362.756	374.987	387.905
69.0	340.761	343.924	352.648	364.820	378.141
69.5	330.838	334.017	342.573	355.139	368.083
70.0	321.459	324.269	332.574	345.073	357.857
70.5	311.628	314.673	322.768	335.376	348.345
71.0	302.065	304.799	312.660	325.066	338.069
71.5	292.468	295.153	302.627	315.285	328.069
72.0	282.704	285.598	292.737	305.294	318.255
72.5	273.476	275.985	282.981	295.681	308.574
73.0	263.846	266.514	273.141	285.866	298.575
73.5	254.300	256.800	263.318	275.775	288.710
74.0	244.838	247.220	253.671	266.027	278.854
74.5	235.241	237.775	243.890	256.263	268.838
75.0	225.938	228.077	234.117	246.440	259.392
75.5	216.216	218.732	224.445	236.483	249.217
76.0	207.014	209.279	214.891	226.911	239.654
76.5	197.300	199.875	205.193	217.147	229.814
77.0	188.425	190.639	195.932	207.517	220.075
77.5	179.189	181.395	186.495	198.071	210.050
78.0	169.886	171.916	176.890	188.282	200.160
78.5	160.725	162.646	167.445	178.887	190.044
79.0	151.406	153.100	157.957	169.122	180.262
79.5	142.598	143.940	148.537	159.350	170.213
80.0	133.379	134.394	139.108	149.611	159.928
80.5	124.562	125.426	129.981	140.056	149.946
81.0	115.486	116.207	120.620	130.183	140.031
81.5	106.913	107.257	111.627	120.863	129.998
82.0	97.886	98.197	102.567	111.241	120.167
82.5	89.271	89.204	93.474	101.762	110.402

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CANDELA TABULATION - (Cont.)

83.0	80.547	80.329	84.708	92.618	100.613
83.5	71.882	71.446	76.068	83.584	91.108
84.0	63.258	62.814	67.461	74.541	81.545
84.5	54.853	54.434	59.223	65.741	72.201
85.0	46.540	46.355	51.397	57.370	62.906
85.5	39.443	38.621	43.612	48.654	53.477
86.0	33.412	32.363	36.708	40.685	44.720
86.5	27.682	26.567	29.670	32.514	35.425
87.0	22.590	21.148	23.085	24.562	26.449
87.5	17.901	16.148	16.953	17.146	18.061
88.0	13.489	11.778	11.299	10.368	9.924
88.5	9.915	8.162	6.543	4.001	2.399
89.0	6.325	5.243	3.850	2.584	1.694
89.5	2.877	2.550	2.097	1.644	1.191
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	439.04	N.A.	12.80
0-30	931.00	N.A.	27.10
0-40	1523.86	N.A.	44.30
0-60	2697.04	N.A.	78.40
0-80	3377.46	N.A.	98.20
0-90	3440.92	N.A.	100.00
10-90	3327.08	N.A.	96.70
20-40	1084.82	N.A.	31.50
20-50	1700.19	N.A.	49.40
40-70	1602.34	N.A.	46.60
60-80	680.42	N.A.	19.80
70-80	251.26	N.A.	7.30
80-90	63.46	N.A.	1.80
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	3440.92	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	113.84
10-20	325.20
20-30	491.95
30-40	592.86
40-50	615.37
50-60	557.80
60-70	429.16
70-80	251.26
80-90	63.46
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	123	123	123	123	120	120	120	120	114	114	114	110	110	110	105	105	105	103
1	112	107	102	98	109	105	100	97	100	97	94	96	93	91	92	90	88	86
2	102	93	86	80	99	91	84	79	87	82	77	84	79	75	81	77	74	71
3	93	82	73	66	90	80	72	66	77	70	64	74	68	63	71	66	62	60
4	85	72	63	56	82	71	62	56	68	61	55	66	59	54	64	58	53	51
5	78	64	55	48	76	63	54	48	61	53	47	59	52	47	57	51	46	44
6	72	58	49	42	70	57	48	42	55	47	41	53	46	41	52	46	41	39
7	67	53	43	37	65	52	43	37	50	42	37	49	42	36	47	41	36	34
8	62	48	39	33	60	47	39	33	46	38	33	45	38	32	43	37	32	30
9	58	44	35	30	56	43	35	30	42	35	29	41	34	29	40	34	29	27
10	54	41	32	27	53	40	32	27	39	32	27	38	31	27	37	31	26	25

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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	16.2	17.9	16.6	18.2	18.5	16.5	18.2	16.9	18.5	18.8
	3H	18.0	19.5	18.4	19.9	20.2	18.5	20.0	18.8	20.3	20.6
	4H	18.7	20.1	19.1	20.5	20.8	19.2	20.6	19.6	21.0	21.3
	6H	19.2	20.5	19.6	20.9	21.3	19.8	21.1	20.2	21.5	21.8
	8H	19.4	20.6	19.8	21.0	21.4	20.0	21.2	20.4	21.6	22.0
	12H	19.4	20.6	19.9	21.0	21.4	20.1	21.3	20.5	21.7	22.1
4H	2H	16.9	18.3	17.3	18.6	19.0	17.1	18.6	17.5	18.9	19.3
	3H	18.9	20.1	19.3	20.5	20.9	19.3	20.5	19.7	20.9	21.3
	4H	19.7	20.8	20.2	21.2	21.7	20.2	21.2	20.6	21.6	22.1
	6H	20.4	21.3	20.8	21.7	22.2	20.9	21.8	21.3	22.3	22.7
	8H	20.5	21.4	21.0	21.9	22.3	21.1	22.0	21.6	22.4	22.9
	12H	20.6	21.4	21.1	21.9	22.4	21.3	22.1	21.7	22.5	23.0
8H	4H	20.1	21.0	20.5	21.4	21.9	20.5	21.3	20.9	21.8	22.2
	6H	20.8	21.5	21.3	22.0	22.5	21.3	22.0	21.8	22.5	23.0
	8H	21.0	21.7	21.6	22.2	22.7	21.6	22.2	22.1	22.7	23.2
	12H	21.2	21.8	21.7	22.3	22.8	21.8	22.4	22.3	22.9	23.4
12H	4H	20.1	20.9	20.6	21.4	21.9	20.5	21.3	21.0	21.8	22.2
	6H	20.9	21.5	21.4	22.0	22.5	21.3	22.0	21.9	22.5	23.0
	8H	21.2	21.8	21.7	22.2	22.8	21.7	22.3	22.2	22.8	23.3

Maximum UGR = 23.4

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Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

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POLAR GRAPH

Maximum Candela = 1205.533 Located At Horizontal Angle = 22.5, Vertical Angle = .5
1 - Vertical Plane Through Horizontal Angles (90 - 270)
2 - Horizontal Cone Through Vertical Angle (.5) (Through Max. Cd.)

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