IES INDOOR REPORT
PHOTOMETRIC FILENAME : AP-24-L70-835-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.
[LUMCAT] AP-24-L70-835-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] 28-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	7261
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	110
Total Luminaire Watts	66.1
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	3559	3571	3605
55	3436	3456	3512
65	3242	3279	3336
75	2923	2944	3051
85	2242	2136	2211

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CANDELA TABULATION

	0.0	22.5	45.0	67.5	90.0
0.0	2500.352	2500.352	2500.352	2500.352	2500.352
0.5	2504.126	2503.423	2501.113	2497.812	2493.881
1.0	2504.385	2502.749	2500.697	2497.525	2493.967
1.5	2503.811	2502.146	2500.151	2497.052	2492.862
2.0	2502.691	2501.486	2499.549	2496.004	2491.958
2.5	2501.902	2500.496	2498.386	2495.186	2491.254
3.0	2500.611	2499.477	2497.368	2494.325	2489.791
3.5	2499.477	2498.185	2495.732	2492.460	2488.672
4.0	2498.028	2496.578	2494.225	2491.011	2486.921
4.5	2495.703	2494.641	2492.130	2488.959	2484.883
5.0	2493.780	2492.503	2490.264	2487.079	2482.860
5.5	2491.254	2490.207	2487.968	2485.055	2480.736
6.0	2488.844	2487.710	2485.543	2482.573	2478.239
6.5	2485.759	2484.697	2482.774	2479.875	2475.613
7.0	2482.300	2481.511	2479.961	2477.048	2472.829
7.5	2479.028	2478.196	2476.646	2473.891	2469.715
8.0	2475.068	2474.523	2472.930	2470.447	2466.343
8.5	2471.552	2470.576	2469.328	2467.132	2462.670
9.0	2467.204	2466.458	2465.339	2463.387	2459.312
9.5	2463.043	2462.454	2461.306	2458.953	2455.093
10.0	2458.264	2457.805	2457.016	2455.036	2450.745
10.5	2453.586	2453.070	2451.907	2451.003	2446.871
11.0	2448.564	2448.306	2447.516	2446.282	2442.350
11.5	2443.197	2443.039	2442.178	2441.375	2437.242
12.0	2437.974	2437.558	2437.084	2436.295	2432.162
12.5	2432.262	2431.803	2431.875	2431.114	2426.896
13.0	2426.279	2426.293	2425.949	2425.963	2422.117
13.5	2420.223	2420.209	2420.180	2420.209	2416.349
14.0	2414.368	2413.923	2414.497	2414.282	2410.766
14.5	2407.882	2407.868	2407.983	2408.112	2404.639
15.0	2401.568	2401.224	2401.339	2401.783	2398.426
15.5	2394.365	2394.551	2394.637	2395.828	2392.227
16.0	2387.807	2387.419	2387.922	2388.869	2385.855
16.5	2380.230	2380.302	2380.646	2382.081	2379.312
17.0	2372.682	2372.783	2373.285	2375.007	2372.051
17.5	2365.608	2365.522	2366.153	2367.846	2364.861
18.0	2357.715	2357.557	2358.189	2360.226	2357.557
18.5	2349.579	2349.909	2350.669	2352.779	2349.665
19.0	2341.572	2341.787	2342.404	2344.571	2342.433
19.5	2333.349	2333.550	2334.354	2336.765	2334.311
20.0	2324.610	2324.897	2325.514	2328.442	2326.461
20.5	2316.130	2316.029	2317.177	2319.889	2318.110
21.0	2306.989	2307.204	2308.251	2311.351	2309.988
21.5	2297.905	2297.905	2299.168	2302.368	2301.077
22.0	2288.736	2288.793	2289.841	2293.285	2291.964
22.5	2279.207	2279.279	2280.671	2283.771	2283.240
23.0	2269.694	2269.794	2271.028	2274.773	2273.783
23.5	2259.505	2259.735	2261.227	2264.886	2264.442
24.0	2249.604	2249.733	2251.225	2255.215	2254.870
24.5	2239.329	2239.358	2241.166	2245.285	2245.313
25.0	2228.481	2228.854	2230.691	2234.981	2235.039
25.5	2218.436	2218.580	2220.330	2224.693	2225.195
26.0	2207.487	2207.602	2209.683	2214.131	2214.389
26.5	2196.854	2196.954	2198.992	2203.570	2204.144

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CANDELA TABULATION - (Cont.)

27.0	2185.546	2185.776	2187.613	2192.449	2193.310
27.5	2174.569	2174.483	2176.563	2182.059	2182.633
28.0	2162.816	2163.175	2165.213	2170.321	2171.484
28.5	2150.949	2151.265	2153.604	2159.071	2160.391
29.0	2139.340	2139.641	2141.851	2147.548	2148.969
29.5	2126.999	2127.602	2129.927	2135.652	2137.101
30.0	2115.003	2115.361	2117.887	2123.727	2124.933
30.5	2102.748	2103.006	2105.274	2111.114	2113.123
31.0	2089.819	2090.737	2093.148	2099.161	2101.126
31.5	2077.191	2077.578	2080.420	2086.461	2088.499
32.0	2064.334	2065.094	2067.778	2073.905	2076.029
32.5	2051.404	2051.921	2055.049	2061.119	2063.430
33.0	2038.016	2038.590	2041.704	2047.917	2050.658
33.5	2024.900	2025.302	2028.445	2034.716	2038.002
34.0	2011.024	2011.813	2014.985	2021.456	2024.427
34.5	1997.306	1998.138	2001.309	2007.709	2010.938
35.0	1983.056	1984.018	1987.376	1994.005	1997.564
35.5	1969.567	1970.127	1973.657	1980.301	1983.903
36.0	1955.089	1955.677	1959.393	1966.238	1969.668
36.5	1941.126	1941.987	1945.632	1952.219	1956.107
37.0	1926.418	1927.408	1930.809	1937.740	1942.102
37.5	1911.824	1912.513	1916.215	1923.347	1927.508
38.0	1897.044	1897.732	1901.664	1908.810	1913.101
38.5	1881.933	1882.651	1886.468	1893.858	1898.565
39.0	1866.909	1867.698	1871.343	1879.020	1883.870
39.5	1851.426	1852.129	1856.147	1863.723	1868.861
40.0	1835.799	1836.947	1840.864	1848.556	1853.707
40.5	1820.459	1821.033	1825.151	1832.914	1838.583
41.0	1805.334	1806.052	1809.826	1818.034	1823.917
41.5	1789.219	1789.678	1793.797	1802.034	1807.946
42.0	1772.846	1773.822	1777.510	1786.148	1791.974
42.5	1756.803	1757.793	1762.098	1770.234	1776.419
43.0	1740.444	1741.291	1745.452	1754.177	1760.233
43.5	1724.172	1725.018	1728.964	1737.890	1744.304
44.0	1707.095	1708.272	1712.520	1721.244	1727.845
44.5	1690.693	1691.755	1696.247	1704.885	1711.831
45.0	1673.617	1674.665	1678.927	1688.053	1694.841
45.5	1657.144	1658.191	1662.554	1671.823	1678.826
46.0	1639.680	1640.857	1645.233	1654.489	1661.592
46.5	1622.388	1623.536	1628.128	1637.384	1644.946
47.0	1604.681	1606.388	1611.124	1620.193	1627.942
47.5	1587.131	1588.695	1593.316	1602.787	1610.679
48.0	1569.639	1571.131	1575.737	1585.624	1593.660
48.5	1551.400	1553.179	1558.130	1567.773	1575.766
49.0	1533.678	1535.357	1540.092	1550.309	1558.589
49.5	1515.683	1517.219	1522.212	1532.071	1540.681
50.0	1498.177	1499.540	1504.648	1514.564	1523.289
50.5	1479.536	1481.143	1486.281	1496.541	1505.265
51.0	1461.255	1462.747	1468.142	1478.130	1487.142
51.5	1442.313	1444.221	1449.904	1460.178	1468.788
52.0	1423.988	1425.624	1431.077	1441.782	1450.765
52.5	1405.032	1407.213	1412.695	1423.141	1432.512
53.0	1386.478	1388.214	1393.681	1404.286	1413.943
53.5	1368.010	1369.645	1375.055	1385.746	1395.891
54.0	1348.494	1350.244	1355.956	1366.804	1376.849
54.5	1329.925	1331.791	1337.559	1348.508	1358.395

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CANDELA TABULATION - (Cont.)

55.0	1310.438	1312.289	1318.273	1329.308	1339.425
55.5	1291.109	1292.860	1299.044	1310.338	1320.225
56.0	1271.952	1273.832	1280.002	1291.396	1301.197
56.5	1252.393	1254.058	1260.314	1271.952	1282.269
57.0	1233.007	1234.657	1240.813	1252.508	1262.811
57.5	1213.190	1215.041	1221.355	1232.791	1243.396
58.0	1193.459	1195.281	1201.753	1213.735	1224.397
58.5	1173.670	1175.464	1181.979	1193.932	1204.450
59.0	1154.097	1156.063	1162.807	1174.703	1185.494
59.5	1134.237	1135.930	1142.632	1154.858	1164.859
60.0	1114.090	1115.855	1122.843	1134.983	1144.526
60.5	1093.842	1096.081	1103.127	1115.439	1123.919
61.0	1073.882	1075.718	1082.850	1095.249	1103.241
61.5	1053.318	1055.586	1062.789	1074.757	1082.649
62.0	1033.100	1035.209	1042.527	1053.735	1061.469
62.5	1013.168	1015.119	1022.452	1032.726	1041.092
63.0	992.504	994.470	1002.247	1011.919	1020.199
63.5	972.744	974.925	982.301	991.700	999.808
64.0	952.095	954.204	961.910	970.491	979.345
64.5	931.661	933.541	941.476	949.526	958.064
65.0	911.155	913.408	921.515	928.805	937.602
65.5	890.319	892.658	900.852	907.639	916.837
66.0	870.186	872.425	880.662	887.004	895.442
66.5	849.164	851.704	859.811	865.709	874.879
67.0	828.902	831.069	839.592	844.701	853.842
67.5	807.937	810.462	818.584	823.736	833.178
68.0	787.904	790.358	797.878	803.531	812.529
68.5	767.356	769.766	776.582	782.452	791.879
69.0	746.606	749.117	755.244	761.558	770.986
69.5	726.057	728.640	734.638	740.823	750.337
70.0	705.666	707.962	713.257	719.743	729.616
70.5	685.189	687.657	692.378	699.266	709.124
71.0	664.324	667.022	671.255	678.229	688.102
71.5	644.421	646.674	650.476	657.924	667.452
72.0	623.800	626.297	629.440	637.031	646.731
72.5	603.883	605.992	609.336	616.955	626.857
73.0	583.520	586.132	588.485	596.363	606.394
73.5	563.057	565.655	567.979	575.857	585.859
74.0	543.255	545.752	547.416	555.596	565.798
74.5	522.950	525.404	526.853	535.276	545.249
75.0	503.061	505.658	506.734	515.115	525.059
75.5	482.799	485.497	486.430	494.882	504.482
76.0	463.197	465.823	466.182	474.892	484.679
76.5	443.265	445.877	446.107	454.530	464.029
77.0	424.252	426.533	426.462	435.029	444.327
77.5	404.478	407.046	407.032	415.140	424.166
78.0	384.976	387.100	387.215	394.964	403.789
78.5	366.121	367.341	367.843	375.118	383.814
79.0	346.619	347.409	348.485	355.100	363.452
79.5	327.735	328.022	329.486	335.183	343.276
80.0	308.722	308.636	310.085	315.366	322.598
80.5	289.880	289.378	291.014	295.419	302.221
81.0	271.412	270.307	271.742	275.330	281.945
81.5	253.288	251.839	252.973	256.144	261.984
82.0	235.193	233.371	234.232	236.341	242.052
82.5	216.797	214.630	215.190	216.711	222.164

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CANDELA TABULATION - (Cont.)

83.0	199.204	196.664	196.592	197.826	202.748
83.5	181.310	178.641	177.665	178.942	183.362
84.0	164.018	161.077	159.498	160.574	164.721
84.5	146.555	143.469	141.389	142.207	146.196
85.0	129.909	126.393	123.810	124.815	128.115
85.5	112.818	109.159	106.547	107.121	109.905
86.0	96.617	92.872	90.404	90.562	92.858
86.5	80.416	76.427	74.303	73.901	75.394
87.0	64.187	60.786	58.777	57.485	58.217
87.5	48.388	46.651	44.226	41.457	41.629
88.0	33.693	33.234	29.977	25.657	24.179
88.5	23.046	21.094	16.732	7.921	5.467
89.0	14.020	10.762	6.127	4.391	3.745
89.5	6.730	5.137	3.731	2.985	2.726
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	914.28	N.A.	12.60
0-30	1942.9	N.A.	26.80
0-40	3187.16	N.A.	43.90
0-60	5664.43	N.A.	78.00
0-80	7115.65	N.A.	98.00
0-90	7261.05	N.A.	100.00
10-90	7024.47	N.A.	96.70
20-40	2272.88	N.A.	31.30
20-50	3569.74	N.A.	49.20
40-70	3389.07	N.A.	46.70
60-80	1451.21	N.A.	20.00
70-80	539.42	N.A.	7.40
80-90	145.41	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	7261.05	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	236.58
10-20	677.70
20-30	1028.62
30-40	1244.26
40-50	1296.86
50-60	1180.41
60-70	911.79
70-80	539.42
80-90	145.41
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	279	279	279	279	272	272	272	272	260	260	260	249	249	249	239	239	239	234
1	254	243	232	223	248	237	228	220	227	220	213	218	212	206	210	205	200	195
2	231	211	195	181	224	207	192	179	198	186	175	190	180	171	183	175	167	162
3	210	185	165	150	204	181	163	149	174	159	146	168	154	143	162	150	141	136
4	192	164	143	127	187	160	141	126	154	137	124	149	134	122	144	131	121	115
5	176	146	125	109	171	143	123	108	138	121	107	134	118	106	129	116	105	100
6	163	131	110	95	158	129	109	94	125	107	94	121	105	93	117	103	92	87
7	151	119	98	84	147	117	97	83	113	96	83	110	94	82	107	92	81	77
8	140	108	88	75	137	107	88	74	104	86	74	101	85	73	98	84	73	68
9	131	99	80	67	128	98	79	67	95	78	66	93	77	66	90	76	66	61
10	123	92	73	61	120	91	73	61	88	72	60	86	71	60	84	70	60	56

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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.

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POLAR GRAPH

Maximum Candela = 2504.385 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.)
3 - Horizontal Cone Through Vertical Angle (0)

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