IES INDOOR REPORT
PHOTOMETRIC FILENAME : AP-22-L50-835-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] GEN from LLI-20113-1
[TESTLAB] LightLab International (www.LightLabInt.com)
[MANUFAC] WILLIAMS INDOOR
[OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.
[LUMCAT] AP-22-L50-835-DIM-UNV
[LUMINAIRE] RECESSED 2 X 2 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	5005
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	110
Total Luminaire Watts	45.7
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	5105	5180	5337
55	4883	4988	5208
65	4560	4702	4982
75	4020	4165	4615
85	2459	2715	3324

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CANDELA TABULATION

	0.0	22.5	45.0	67.5	90.0
0.0	1752.166	1752.166	1752.166	1752.166	1752.166
0.5	1752.751	1753.471	1751.006	1752.532	1752.202
1.0	1752.922	1752.995	1751.263	1751.482	1751.128
1.5	1751.897	1752.275	1751.092	1752.532	1750.592
2.0	1750.970	1751.238	1750.665	1751.494	1752.044
2.5	1750.518	1750.994	1750.604	1750.665	1750.714
3.0	1749.920	1749.542	1749.567	1750.579	1749.079
3.5	1747.126	1748.542	1747.895	1748.224	1749.054
4.0	1746.614	1747.358	1746.419	1747.200	1747.309
4.5	1745.565	1745.028	1745.369	1745.857	1745.931
5.0	1741.746	1743.564	1743.002	1744.015	1743.844
5.5	1740.916	1741.087	1739.793	1742.661	1743.320
6.0	1737.085	1737.756	1739.171	1741.099	1740.855
6.5	1734.730	1736.719	1736.877	1738.720	1737.719
7.0	1733.863	1733.107	1734.547	1736.889	1736.462
7.5	1729.825	1731.069	1731.728	1734.681	1736.121
8.0	1727.580	1728.117	1729.532	1732.021	1733.400
8.5	1724.078	1724.493	1725.103	1729.312	1731.423
9.0	1719.746	1720.296	1723.285	1726.518	1728.141
9.5	1716.013	1718.295	1718.990	1724.127	1725.859
10.0	1712.755	1714.134	1716.428	1720.869	1722.602
10.5	1709.144	1710.937	1713.377	1718.087	1719.197
11.0	1705.996	1706.691	1709.229	1714.390	1716.562
11.5	1700.651	1702.323	1705.593	1709.766	1710.986
12.0	1697.076	1699.065	1700.371	1706.935	1709.802
12.5	1693.428	1693.477	1696.417	1702.884	1704.910
13.0	1689.719	1689.804	1692.123	1699.858	1701.957
13.5	1684.192	1686.400	1689.463	1695.027	1697.686
14.0	1678.506	1681.446	1683.203	1690.707	1693.270
14.5	1674.162	1675.382	1680.592	1685.814	1690.536
15.0	1668.672	1671.209	1674.736	1681.495	1685.180
15.5	1664.291	1666.073	1670.599	1677.286	1680.409
16.0	1658.239	1660.582	1663.486	1672.857	1677.042
16.5	1652.920	1654.616	1658.984	1667.232	1671.539
17.0	1646.807	1649.552	1653.835	1662.315	1666.622
17.5	1641.487	1645.001	1649.149	1656.861	1661.924
18.0	1636.509	1638.681	1642.512	1651.309	1656.836
18.5	1631.396	1633.202	1637.033	1645.928	1651.297
19.0	1624.966	1626.589	1631.579	1640.352	1646.795
19.5	1617.597	1620.257	1625.528	1633.861	1640.364
20.0	1612.997	1613.729	1619.110	1628.590	1635.301
20.5	1606.750	1607.970	1612.814	1622.660	1628.187
21.0	1599.844	1601.235	1606.957	1616.926	1623.563
21.5	1593.060	1594.487	1600.014	1609.153	1615.181
22.0	1583.323	1587.630	1592.401	1603.004	1609.556
22.5	1577.930	1579.565	1585.568	1596.171	1603.797
23.0	1569.548	1573.354	1579.833	1589.045	1598.087
23.5	1562.971	1566.168	1573.074	1582.981	1590.510
24.0	1556.712	1558.688	1565.363	1576.624	1583.530
24.5	1548.427	1551.111	1557.602	1568.193	1576.551
25.0	1541.253	1542.290	1550.379	1562.581	1569.889
25.5	1533.090	1535.713	1542.875	1554.064	1561.470
26.0	1525.025	1527.648	1534.420	1546.816	1554.125
26.5	1516.276	1519.790	1527.612	1540.264	1548.500

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CANDELA TABULATION - (Cont.)

27.0	1508.004	1510.969	1519.485	1531.894	1540.630
27.5	1501.220	1503.380	1511.445	1524.512	1534.029
28.0	1490.800	1493.972	1503.575	1515.044	1525.476
28.5	1483.821	1486.591	1494.558	1507.272	1517.521
29.0	1475.499	1477.525	1486.237	1498.609	1509.126
29.5	1466.995	1468.838	1477.391	1490.995	1500.622
30.0	1456.575	1460.772	1468.471	1482.601	1492.606
30.5	1448.864	1451.512	1459.052	1473.474	1484.602
31.0	1438.554	1442.824	1451.585	1465.153	1475.207
31.5	1429.842	1432.929	1441.775	1456.173	1468.105
32.0	1419.703	1423.741	1432.441	1447.571	1458.113
32.5	1411.955	1414.615	1424.071	1438.359	1448.986
33.0	1401.657	1405.281	1414.541	1428.244	1440.530
33.5	1390.932	1395.934	1404.878	1420.508	1431.147
34.0	1382.989	1385.636	1394.934	1410.430	1421.630
34.5	1372.410	1375.436	1385.685	1400.241	1413.150
35.0	1361.758	1366.053	1375.094	1390.968	1402.316
35.5	1352.583	1355.389	1366.261	1381.342	1394.068
36.0	1340.723	1345.006	1355.365	1371.202	1384.148
36.5	1332.670	1335.196	1345.860	1360.965	1373.801
37.0	1320.749	1325.545	1335.233	1350.484	1364.430
37.5	1310.098	1313.892	1324.678	1340.516	1353.120
38.0	1298.885	1303.411	1313.404	1330.315	1343.895
38.5	1289.856	1292.760	1303.509	1319.285	1334.000
39.0	1278.277	1281.241	1292.125	1308.902	1324.324
39.5	1267.844	1270.663	1281.278	1299.165	1313.380
40.0	1255.521	1259.962	1270.199	1287.684	1303.180
40.5	1245.650	1248.420	1260.109	1276.153	1292.345
41.0	1234.754	1236.706	1249.396	1266.380	1281.754
41.5	1222.150	1226.970	1237.439	1255.460	1270.785
42.0	1210.608	1215.147	1226.494	1243.917	1258.730
42.5	1199.492	1203.153	1214.268	1233.363	1248.688
43.0	1187.022	1191.208	1203.860	1221.223	1237.683
43.5	1177.030	1180.312	1191.940	1210.400	1226.628
44.0	1164.487	1168.586	1180.422	1198.553	1214.622
44.5	1152.212	1156.702	1168.940	1186.229	1203.201
45.0	1140.352	1144.574	1156.922	1174.479	1192.159
45.5	1128.834	1133.202	1145.111	1162.986	1179.921
46.0	1117.438	1120.940	1133.239	1151.443	1167.866
46.5	1104.151	1108.714	1119.732	1139.071	1157.032
47.0	1092.279	1095.817	1109.068	1127.699	1144.525
47.5	1079.187	1084.202	1095.988	1115.217	1132.775
48.0	1066.461	1071.402	1083.433	1103.272	1121.245
48.5	1053.784	1058.835	1071.366	1090.351	1107.543
49.0	1041.106	1046.426	1058.957	1078.442	1095.866
49.5	1029.149	1033.932	1046.304	1065.485	1084.885
50.0	1016.996	1021.425	1033.468	1053.771	1071.402
50.5	1003.538	1007.955	1020.474	1040.789	1058.469
51.0	990.641	995.205	1007.858	1027.953	1046.536
51.5	978.062	983.138	994.949	1015.691	1033.602
52.0	965.336	969.509	982.308	1002.806	1021.950
52.5	951.536	956.612	969.570	989.238	1007.821
53.0	938.981	942.788	955.819	976.854	995.132
53.5	924.998	929.720	943.447	963.384	982.564
54.0	912.516	916.237	929.098	950.389	969.606
54.5	899.534	903.865	916.518	937.541	957.356

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CANDELA TABULATION - (Cont.)

55.0	884.709	890.517	903.719	924.705	943.532
55.5	871.776	876.693	889.931	911.174	929.891
56.0	859.086	862.978	876.632	897.606	917.336
56.5	844.750	849.691	862.332	884.148	904.146
57.0	830.999	836.550	849.398	870.690	890.663
57.5	817.602	822.458	835.440	857.524	876.766
58.0	804.131	808.682	822.202	843.969	864.479
58.5	790.563	794.602	808.341	829.705	849.569
59.0	777.044	781.071	794.358	816.870	836.831
59.5	763.220	767.503	781.498	803.241	822.665
60.0	748.700	753.410	766.905	789.075	808.365
60.5	734.705	739.915	753.532	775.519	794.346
61.0	721.113	725.469	739.488	761.841	780.034
61.5	707.240	712.072	725.615	747.590	766.026
62.0	692.062	697.284	711.621	732.387	751.897
62.5	679.153	683.570	697.467	718.624	736.816
63.0	664.645	669.599	683.216	704.251	722.358
63.5	651.199	655.580	669.989	690.671	708.814
64.0	636.851	641.426	655.592	675.602	694.465
64.5	622.807	627.443	641.780	661.278	680.190
65.0	608.678	613.277	627.760	647.112	665.011
65.5	594.402	598.868	613.241	632.068	650.821
66.0	580.322	584.458	599.697	617.877	635.960
66.5	566.009	570.707	585.166	603.272	622.062
67.0	552.100	556.578	570.829	589.058	607.799
67.5	537.763	542.607	556.590	574.062	593.011
68.0	524.085	528.576	542.546	560.031	579.065
68.5	510.225	514.337	527.636	545.426	564.216
69.0	495.644	500.244	512.933	530.638	550.013
69.5	481.210	485.834	498.280	516.557	535.384
70.0	467.569	471.656	483.736	501.916	520.510
70.5	453.269	457.698	469.472	487.811	506.674
71.0	439.359	443.337	454.769	472.815	491.727
71.5	425.401	429.305	440.177	458.588	477.183
72.0	411.198	415.408	425.791	444.057	462.908
72.5	397.777	401.425	411.601	430.074	448.827
73.0	383.770	387.650	397.289	415.798	434.283
73.5	369.885	373.521	383.001	401.120	419.935
74.0	356.121	359.587	368.969	386.942	405.598
74.5	342.163	345.848	354.743	372.740	391.030
75.0	328.632	331.743	340.528	358.452	377.291
75.5	314.490	318.151	326.460	343.969	362.491
76.0	301.105	304.400	312.562	330.047	348.581
76.5	286.976	290.722	298.458	315.845	334.269
77.0	274.067	277.288	284.987	301.837	320.103
77.5	260.633	263.842	271.261	288.099	305.522
78.0	247.102	250.055	257.290	273.860	291.137
78.5	233.778	236.572	243.552	260.194	276.422
79.0	220.223	222.687	229.752	245.992	262.195
79.5	207.411	209.363	216.050	231.777	247.578
80.0	194.002	195.478	202.335	217.611	232.619
80.5	181.178	182.435	189.060	203.714	218.099
81.0	167.976	169.026	175.443	189.353	203.677
81.5	155.506	156.007	162.364	175.797	189.085
82.0	142.378	142.829	149.186	161.802	174.785
82.5	129.847	129.749	135.960	148.015	160.582

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CANDELA TABULATION - (Cont.)

83.0	117.158	116.840	123.209	134.715	146.343
83.5	104.554	103.919	110.642	121.574	132.519
84.0	92.011	91.364	98.123	108.421	118.610
84.5	79.785	79.175	86.142	95.622	105.017
85.0	67.693	67.425	74.758	83.445	91.498
85.5	57.371	56.175	63.435	70.768	77.784
86.0	48.598	47.073	53.393	59.177	65.046
86.5	40.265	38.642	43.156	47.293	51.526
87.0	32.858	30.760	33.578	35.726	38.471
87.5	26.038	23.488	24.659	24.940	26.270
88.0	19.620	17.131	16.435	15.081	14.434
88.5	14.422	11.872	9.517	5.820	3.490
89.0	9.200	7.626	5.600	3.758	2.465
89.5	4.185	3.709	3.050	2.391	1.733
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	638.60	N.A.	12.80
0-30	1354.15	N.A.	27.10
0-40	2216.48	N.A.	44.30
0-60	3922.9	N.A.	78.40
0-80	4912.59	N.A.	98.20
0-90	5004.89	N.A.	100.00
10-90	4839.3	N.A.	96.70
20-40	1577.89	N.A.	31.50
20-50	2472.96	N.A.	49.40
40-70	2330.64	N.A.	46.60
60-80	989.69	N.A.	19.80
70-80	365.46	N.A.	7.30
80-90	92.30	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	5004.89	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	165.59
10-20	473.01
20-30	715.55
30-40	862.33
40-50	895.07
50-60	811.34
60-70	624.23
70-80	365.46
80-90	92.30
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	178	178	178	178	174	174	174	174	166	166	166	159	159	159	153	153	153	150
1	163	155	149	143	159	152	146	141	146	141	136	140	136	132	134	131	128	125
2	148	135	125	116	144	132	123	115	127	119	112	122	115	110	118	112	107	104
3	135	119	106	96	131	116	105	95	112	102	94	108	99	92	104	97	91	87
4	123	105	92	81	120	103	91	81	99	88	80	96	86	79	92	84	78	74
5	113	94	80	70	110	92	79	70	89	78	69	86	76	68	83	74	67	64
6	104	84	71	61	102	83	70	61	80	69	60	78	67	60	75	66	59	56
7	97	76	63	54	94	75	63	54	73	62	53	71	60	53	69	59	52	49
8	90	70	57	48	88	69	56	48	67	56	48	65	55	47	63	54	47	44
9	84	64	52	43	82	63	51	43	61	50	43	60	50	43	58	49	42	40
10	79	59	47	39	77	58	47	39	57	46	39	55	46	39	54	45	38	36

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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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Results derived from content of manufacturers photometric file.

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POLAR GRAPH

Maximum Candela = 1753.471 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.)
3 - Horizontal Cone Through Vertical Angle (0)

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