IES INDOOR REPORT
PHOTOMETRIC FILENAME : AP-24-L50-840-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] GEN from LLI-20113-2
[TESTLAB] LightLab International (www.LightLabInt.com)
[ISSUE DATE] 24 FEB, 2022
[MANUFAC] WILLIAMS INDOOR
[OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.64836
[LUMCAT] AP-24-L50-840-DIM-UNV
[LUMINAIRE] RECESSED 2x4 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.
[MORE] One Osram Optotronic driver. Model: OTi 50/120-277/1A4 DIM-1 L G2
[MORE] Operating at 120v AC and 60 Hz.
[OTHER] Absolute test - lamp lumens value set to -1
[MORE] NA conventions used for C0 plane alignment and C-plane rotation direction.
[MORE] The sample was tested at a distance of 8m.
[MORE] This IES file created by LightLab/LSA Report program version 3.820a.
[DATE] This file created: Wednesday, April 22, 2020 2:42:14 PM
[ISSUEDATE] Wednesday, April 22, 2020 2:42:14 PM
[_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	5212
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	118
Total Luminaire Watts	44
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

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LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	2555	2563	2587
55	2466	2481	2521
65	2327	2354	2395
75	2098	2113	2190
85	1609	1533	1587

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CANDELA TABULATION

	0.0	22.5	45.0	67.5	90.0
0.0	1794.703	1794.703	1794.703	1794.703	1794.703
0.5	1797.412	1796.907	1795.249	1792.880	1790.058
1.0	1797.597	1796.423	1794.950	1792.674	1790.119
1.5	1797.185	1795.990	1794.559	1792.334	1789.326
2.0	1796.382	1795.517	1794.126	1791.582	1788.677
2.5	1795.815	1794.806	1793.292	1790.995	1788.173
3.0	1794.888	1794.075	1792.560	1790.377	1787.122
3.5	1794.075	1793.148	1791.386	1789.038	1786.319
4.0	1793.034	1791.994	1790.305	1787.998	1785.062
4.5	1791.366	1790.603	1788.801	1786.525	1783.599
5.0	1789.985	1789.069	1787.462	1785.175	1782.147
5.5	1788.173	1787.421	1785.814	1783.723	1780.623
6.0	1786.442	1785.629	1784.073	1781.941	1778.831
6.5	1784.228	1783.466	1782.085	1780.005	1776.946
7.0	1781.745	1781.179	1780.067	1777.976	1774.947
7.5	1779.397	1778.800	1777.687	1775.710	1772.712
8.0	1776.554	1776.163	1775.020	1773.238	1770.292
8.5	1774.031	1773.330	1772.434	1770.858	1767.655
9.0	1770.910	1770.374	1769.571	1768.170	1765.245
9.5	1767.923	1767.501	1766.677	1764.987	1762.217
10.0	1764.493	1764.163	1763.597	1762.175	1759.096
10.5	1761.135	1760.764	1759.930	1759.281	1756.315
11.0	1757.530	1757.345	1756.778	1755.892	1753.070
11.5	1753.678	1753.565	1752.947	1752.370	1749.403
12.0	1749.929	1749.630	1749.290	1748.724	1745.757
12.5	1745.829	1745.500	1745.551	1745.005	1741.977
13.0	1741.534	1741.545	1741.297	1741.308	1738.547
13.5	1737.188	1737.177	1737.157	1737.177	1734.407
14.0	1732.985	1732.666	1733.078	1732.923	1730.400
14.5	1728.330	1728.319	1728.402	1728.494	1726.002
15.0	1723.798	1723.550	1723.633	1723.952	1721.542
15.5	1718.627	1718.761	1718.823	1719.678	1717.092
16.0	1713.920	1713.642	1714.002	1714.682	1712.519
16.5	1708.482	1708.533	1708.780	1709.810	1707.822
17.0	1703.064	1703.136	1703.496	1704.732	1702.611
17.5	1697.986	1697.924	1698.377	1699.593	1697.450
18.0	1692.321	1692.208	1692.661	1694.123	1692.208
18.5	1686.481	1686.718	1687.264	1688.778	1686.543
19.0	1680.733	1680.888	1681.331	1682.886	1681.351
19.5	1674.831	1674.976	1675.552	1677.283	1675.522
20.0	1668.559	1668.765	1669.208	1671.309	1669.887
20.5	1662.471	1662.399	1663.223	1665.170	1663.893
21.0	1655.910	1656.065	1656.817	1659.042	1658.063
21.5	1649.390	1649.390	1650.297	1652.594	1651.667
22.0	1642.809	1642.850	1643.602	1646.074	1645.126
22.5	1635.970	1636.021	1637.020	1639.245	1638.864
23.0	1629.141	1629.213	1630.099	1632.787	1632.076
23.5	1621.828	1621.992	1623.064	1625.690	1625.371
24.0	1614.721	1614.813	1615.885	1618.748	1618.501
24.5	1607.346	1607.366	1608.664	1611.620	1611.641
25.0	1599.559	1599.827	1601.145	1604.225	1604.266
25.5	1592.349	1592.452	1593.709	1596.840	1597.200
26.0	1584.490	1584.573	1586.066	1589.259	1589.444
26.5	1576.858	1576.930	1578.393	1581.678	1582.090

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CANDELA TABULATION - (Cont.)

27.0	1568.741	1568.906	1570.225	1573.696	1574.314
27.5	1560.862	1560.800	1562.294	1566.239	1566.651
28.0	1552.426	1552.684	1554.146	1557.813	1558.647
28.5	1543.908	1544.135	1545.814	1549.738	1550.686
29.0	1535.575	1535.792	1537.378	1541.467	1542.487
29.5	1526.717	1527.150	1528.819	1532.928	1533.969
30.0	1518.107	1518.364	1520.177	1524.369	1525.234
30.5	1509.310	1509.496	1511.123	1515.315	1516.757
31.0	1500.030	1500.689	1502.420	1506.735	1508.147
31.5	1490.966	1491.244	1493.284	1497.620	1499.083
32.0	1481.737	1482.283	1484.209	1488.607	1490.132
32.5	1472.457	1472.828	1475.073	1479.430	1481.088
33.0	1462.847	1463.259	1465.494	1469.954	1471.921
33.5	1453.433	1453.721	1455.977	1460.478	1462.837
34.0	1443.473	1444.039	1446.316	1450.961	1453.093
34.5	1433.626	1434.223	1436.500	1441.094	1443.411
35.0	1423.398	1424.088	1426.498	1431.257	1433.811
35.5	1413.716	1414.118	1416.652	1421.421	1424.006
36.0	1403.323	1403.746	1406.413	1411.327	1413.788
36.5	1393.302	1393.920	1396.536	1401.263	1404.055
37.0	1382.744	1383.455	1385.896	1390.871	1394.002
37.5	1372.269	1372.763	1375.421	1380.540	1383.527
38.0	1361.660	1362.154	1364.977	1370.106	1373.186
38.5	1350.814	1351.329	1354.069	1359.373	1362.752
39.0	1340.030	1340.596	1343.213	1348.723	1352.205
39.5	1328.916	1329.421	1332.305	1337.743	1341.431
40.0	1317.700	1318.524	1321.335	1326.856	1330.554
40.5	1306.689	1307.101	1310.057	1315.629	1319.698
41.0	1295.833	1296.348	1299.057	1304.948	1309.171
41.5	1284.266	1284.595	1287.551	1293.464	1297.707
42.0	1272.513	1273.214	1275.861	1282.062	1286.243
42.5	1260.998	1261.709	1264.799	1270.639	1275.078
43.0	1249.256	1249.864	1252.851	1259.113	1263.460
43.5	1237.576	1238.184	1241.016	1247.423	1252.027
44.0	1225.319	1226.163	1229.212	1235.475	1240.213
44.5	1213.546	1214.308	1217.532	1223.733	1228.718
45.0	1201.289	1202.041	1205.100	1211.651	1216.523
45.5	1189.465	1190.216	1193.348	1200.001	1205.028
46.0	1176.929	1177.774	1180.916	1187.559	1192.658
46.5	1164.518	1165.342	1168.638	1175.281	1180.710
47.0	1151.808	1153.033	1156.432	1162.942	1168.504
47.5	1139.211	1140.334	1143.650	1150.448	1156.113
48.0	1126.655	1127.726	1131.033	1138.129	1143.897
48.5	1113.564	1114.841	1118.395	1125.316	1131.053
49.0	1100.843	1102.048	1105.447	1112.781	1118.724
49.5	1087.927	1089.029	1092.614	1099.690	1105.870
50.0	1075.361	1076.340	1080.006	1087.124	1093.386
50.5	1061.981	1063.135	1066.822	1074.187	1080.449
51.0	1048.859	1049.930	1053.803	1060.972	1067.440
51.5	1035.263	1036.633	1040.712	1048.087	1054.267
52.0	1022.110	1023.284	1027.198	1034.882	1041.330
52.5	1008.504	1010.069	1014.004	1021.502	1028.228
53.0	995.186	996.432	1000.357	1007.968	1014.900
53.5	981.930	983.104	986.987	994.661	1001.943
54.0	967.922	969.178	973.278	981.065	988.275
54.5	954.594	955.933	960.073	967.932	975.029

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CANDELA TABULATION - (Cont.)

55.0	940.606	941.935	946.230	954.151	961.412
55.5	926.732	927.989	932.428	940.534	947.631
56.0	912.982	914.331	918.760	926.938	933.973
56.5	898.943	900.138	904.628	912.982	920.387
57.0	885.027	886.212	890.631	899.025	906.421
57.5	870.803	872.132	876.664	884.873	892.485
58.0	856.641	857.949	862.594	871.195	878.847
58.5	842.437	843.724	848.401	856.981	864.530
59.0	828.388	829.799	834.640	843.179	850.924
59.5	814.133	815.348	820.158	828.934	836.113
60.0	799.671	800.938	805.954	814.668	821.518
60.5	785.138	786.745	791.802	800.640	806.727
61.0	770.811	772.129	777.248	786.147	791.885
61.5	756.051	757.678	762.849	771.439	777.104
62.0	741.538	743.052	748.305	756.350	761.901
62.5	727.231	728.632	733.896	741.270	747.275
63.0	712.399	713.811	719.393	726.335	732.278
63.5	698.216	699.782	705.076	711.823	717.642
64.0	683.395	684.909	690.440	696.599	702.954
64.5	668.727	670.077	675.773	681.551	687.679
65.0	654.009	655.626	661.445	666.678	672.992
65.5	639.053	640.732	646.613	651.485	658.088
66.0	624.602	626.209	632.121	636.674	642.730
66.5	609.513	611.336	617.155	621.389	627.970
67.0	594.969	596.524	602.643	606.309	612.871
67.5	579.921	581.734	587.563	591.261	598.039
68.0	565.542	567.303	572.701	576.759	583.217
68.5	550.792	552.523	557.415	561.628	568.395
69.0	535.899	537.701	542.099	546.631	553.398
69.5	521.149	523.003	527.308	531.748	538.577
70.0	506.513	508.161	511.961	516.617	523.703
70.5	491.815	493.586	496.975	501.919	508.995
71.0	476.838	478.775	481.813	486.819	493.906
71.5	462.552	464.169	466.899	472.245	479.084
72.0	447.751	449.543	451.799	457.248	464.211
72.5	433.455	434.969	437.369	442.838	449.945
73.0	418.839	420.714	422.403	428.058	435.257
73.5	404.151	406.016	407.684	413.339	420.518
74.0	389.937	391.730	392.924	398.795	406.119
74.5	375.363	377.124	378.164	384.211	391.369
75.0	361.087	362.951	363.724	369.739	376.877
75.5	346.543	348.480	349.149	355.216	362.107
76.0	332.474	334.359	334.616	340.868	347.893
76.5	318.167	320.042	320.206	326.252	333.071
77.0	304.519	306.157	306.106	312.255	318.929
77.5	290.326	292.170	292.159	297.979	304.458
78.0	276.328	277.853	277.935	283.497	289.832
78.5	262.794	263.670	264.030	269.252	275.494
79.0	248.796	249.363	250.135	254.884	260.878
79.5	235.242	235.448	236.498	240.587	246.397
80.0	221.594	221.532	222.573	226.363	231.554
80.5	208.070	207.710	208.884	212.046	216.928
81.0	194.814	194.021	195.051	197.626	202.374
81.5	181.805	180.765	181.579	183.855	188.047
82.0	168.817	167.509	168.127	169.641	173.740
82.5	155.612	154.057	154.459	155.551	159.465

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CANDELA TABULATION - (Cont.)

83.0	142.985	141.161	141.110	141.996	145.529
83.5	130.140	128.225	127.524	128.441	131.613
84.0	117.729	115.617	114.484	115.257	118.234
84.5	105.194	102.979	101.486	102.073	104.936
85.0	93.246	90.722	88.868	89.589	91.958
85.5	80.979	78.352	76.477	76.889	78.888
86.0	69.350	66.662	64.890	65.003	66.651
86.5	57.721	54.858	53.333	53.045	54.116
87.0	46.072	43.631	42.189	41.262	41.787
87.5	34.732	33.485	31.745	29.757	29.880
88.0	24.184	23.855	21.517	18.416	17.355
88.5	16.542	15.141	12.010	5.686	3.924
89.0	10.063	7.725	4.398	3.152	2.688
89.5	4.831	3.687	2.678	2.142	1.957
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	656.25	N.A.	12.60
0-30	1394.58	N.A.	26.80
0-40	2287.68	N.A.	43.90
0-60	4065.82	N.A.	78.00
0-80	5107.47	N.A.	98.00
0-90	5211.84	N.A.	100.00
10-90	5042.02	N.A.	96.70
20-40	1631.43	N.A.	31.30
20-50	2562.29	N.A.	49.20
40-70	2432.6	N.A.	46.70
60-80	1041.65	N.A.	20.00
70-80	387.19	N.A.	7.40
80-90	104.37	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	5211.84	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	169.81
10-20	486.44
20-30	738.33
30-40	893.10
40-50	930.86
50-60	847.28
60-70	654.46
70-80	387.19
80-90	104.37
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	104	100	97	100	97	94	96	93	91	92	90	88	86
2	101	93	86	80	99	91	84	79	87	82	77	84	79	75	81	77	73	71
3	92	81	73	66	90	80	72	65	77	70	64	74	68	63	71	66	62	60
4	84	72	63	56	82	71	62	55	68	60	55	66	59	54	63	58	53	51
5	78	64	55	48	75	63	54	48	61	53	47	59	52	47	57	51	46	44
6	72	58	48	42	70	57	48	42	55	47	41	53	46	41	51	45	40	38
7	66	52	43	37	65	51	43	37	50	42	36	48	41	36	47	41	36	34
8	62	48	39	33	60	47	39	33	46	38	32	44	37	32	43	37	32	30
9	58	44	35	29	56	43	35	29	42	34	29	41	34	29	40	34	29	27
10	54	40	32	27	53	40	32	27	39	32	26	38	31	26	37	31	26	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	15.2	16.8	15.5	17.1	17.4	15.3	16.9	15.6	17.2	17.5
	3H	17.0	18.5	17.4	18.8	19.2	17.2	18.7	17.5	19.0	19.3
	4H	17.7	19.1	18.1	19.5	19.9	17.9	19.3	18.3	19.6	20.0
	6H	18.3	19.6	18.7	19.9	20.3	18.4	19.8	18.9	20.1	20.5
	8H	18.5	19.7	18.9	20.1	20.5	18.6	19.9	19.1	20.3	20.7
	12H	18.6	19.8	19.0	20.1	20.6	18.7	19.9	19.2	20.3	20.7
4H	2H	15.8	17.2	16.2	17.6	18.0	15.9	17.3	16.3	17.7	18.0
	3H	17.9	19.1	18.3	19.5	19.9	18.0	19.2	18.4	19.6	20.0
	4H	18.8	19.8	19.2	20.2	20.7	18.9	20.0	19.3	20.4	20.8
	6H	19.4	20.4	19.9	20.8	21.3	19.6	20.5	20.0	21.0	21.4
	8H	19.7	20.5	20.1	21.0	21.4	19.8	20.7	20.3	21.1	21.6
	12H	19.8	20.6	20.3	21.1	21.5	20.0	20.7	20.4	21.2	21.7
8H	4H	19.1	20.0	19.6	20.4	20.9	19.2	20.1	19.7	20.5	21.0
	6H	19.9	20.6	20.4	21.1	21.6	20.0	20.8	20.5	21.2	21.7
	8H	20.2	20.8	20.7	21.4	21.8	20.3	21.0	20.8	21.5	22.0
	12H	20.4	21.0	20.9	21.5	22.0	20.5	21.1	21.0	21.6	22.2
12H	4H	19.1	19.9	19.6	20.4	20.9	19.3	20.0	19.7	20.5	21.0
	6H	20.0	20.6	20.5	21.1	21.6	20.1	20.8	20.6	21.2	21.8
	8H	20.3	20.9	20.8	21.4	21.9	20.4	21.0	20.9	21.5	22.1

Maximum UGR = 22.2

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Results derived from content of manufacturers photometric file.

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POLAR GRAPH

Maximum Candela = 1797.597 Located At Horizontal Angle = 0, Vertical Angle = 1
1 - Vertical Plane Through Horizontal Angles (90 - 270)
2 - Horizontal Cone Through Vertical Angle (1) (Through Max. Cd.)

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