IES INDOOR REPORT
PHOTOMETRIC FILENAME : AP-24-L50-835-DIM-UNV_.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] LLI-20113-2
[TESTLAB] LightLab International (www.LightLabInt.com)
[MANUFAC] WILLIAMS INDOOR
[OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.64836
[LUMCAT] AP-24-L50-835-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.
[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	5060
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	115
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	2480	2488	2512
55	2394	2409	2447
65	2259	2285	2325
75	2037	2052	2126
85	1562	1489	1541

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CANDELA TABULATION

	0.0	22.5	45.0	67.5	90.0
0.0	1742.43	1742.43	1742.43	1742.43	1742.43
0.5	1745.06	1744.57	1742.96	1740.66	1737.92
1.0	1745.24	1744.10	1742.67	1740.46	1737.98
1.5	1744.84	1743.68	1742.29	1740.13	1737.21
2.0	1744.06	1743.22	1741.87	1739.40	1736.58
2.5	1743.51	1742.53	1741.06	1738.83	1736.09
3.0	1742.61	1741.82	1740.35	1738.23	1735.07
3.5	1741.82	1740.92	1739.21	1736.93	1734.29
4.0	1740.81	1739.80	1738.16	1735.92	1733.07
4.5	1739.19	1738.45	1736.70	1734.49	1731.65
5.0	1737.85	1736.96	1735.40	1733.18	1730.24
5.5	1736.09	1735.36	1733.80	1731.77	1728.76
6.0	1734.41	1733.62	1732.11	1730.04	1727.02
6.5	1732.26	1731.52	1730.18	1728.16	1725.19
7.0	1729.85	1729.30	1728.22	1726.19	1723.25
7.5	1727.57	1726.99	1725.91	1723.99	1721.08
8.0	1724.81	1724.43	1723.32	1721.59	1718.73
8.5	1722.36	1721.68	1720.81	1719.28	1716.17
9.0	1719.33	1718.81	1718.03	1716.67	1713.83
9.5	1716.43	1716.02	1715.22	1713.58	1710.89
10.0	1713.10	1712.78	1712.23	1710.85	1707.86
10.5	1709.84	1709.48	1708.67	1708.04	1705.16
11.0	1706.34	1706.16	1705.61	1704.75	1702.01
11.5	1702.60	1702.49	1701.89	1701.33	1698.45
12.0	1698.96	1698.67	1698.34	1697.79	1694.91
12.5	1694.98	1694.66	1694.71	1694.18	1691.24
13.0	1690.81	1690.82	1690.58	1690.59	1687.91
13.5	1686.59	1686.58	1686.56	1686.58	1683.89
14.0	1682.51	1682.20	1682.60	1682.45	1680.00
14.5	1677.99	1677.98	1678.06	1678.15	1675.73
15.0	1673.59	1673.35	1673.43	1673.74	1671.40
15.5	1668.57	1668.70	1668.76	1669.59	1667.08
16.0	1664.00	1663.73	1664.08	1664.74	1662.64
16.5	1658.72	1658.77	1659.01	1660.01	1658.08
17.0	1653.46	1653.53	1653.88	1655.08	1653.02
17.5	1648.53	1648.47	1648.91	1650.09	1648.01
18.0	1643.03	1642.92	1643.36	1644.78	1642.92
18.5	1637.36	1637.59	1638.12	1639.59	1637.42
19.0	1631.78	1631.93	1632.36	1633.87	1632.38
19.5	1626.05	1626.19	1626.75	1628.43	1626.72
20.0	1619.96	1620.16	1620.59	1622.63	1621.25
20.5	1614.05	1613.98	1614.78	1616.67	1615.43
21.0	1607.68	1607.83	1608.56	1610.72	1609.77
21.5	1601.35	1601.35	1602.23	1604.46	1603.56
22.0	1594.96	1595.00	1595.73	1598.13	1597.21
22.5	1588.32	1588.37	1589.34	1591.50	1591.13
23.0	1581.69	1581.76	1582.62	1585.23	1584.54
23.5	1574.59	1574.75	1575.79	1578.34	1578.03
24.0	1567.69	1567.78	1568.82	1571.60	1571.36
24.5	1560.53	1560.55	1561.81	1564.68	1564.70
25.0	1552.97	1553.23	1554.51	1557.50	1557.54
25.5	1545.97	1546.07	1547.29	1550.33	1550.68
26.0	1538.34	1538.42	1539.87	1542.97	1543.15
26.5	1530.93	1531.00	1532.42	1535.61	1536.01

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CANDELA TABULATION - (Cont.)

27.0	1523.05	1523.21	1524.49	1527.86	1528.46
27.5	1515.40	1515.34	1516.79	1520.62	1521.02
28.0	1507.21	1507.46	1508.88	1512.44	1513.25
28.5	1498.94	1499.16	1500.79	1504.60	1505.52
29.0	1490.85	1491.06	1492.60	1496.57	1497.56
29.5	1482.25	1482.67	1484.29	1488.28	1489.29
30.0	1473.89	1474.14	1475.90	1479.97	1480.81
30.5	1465.35	1465.53	1467.11	1471.18	1472.58
31.0	1456.34	1456.98	1458.66	1462.85	1464.22
31.5	1447.54	1447.81	1449.79	1454.00	1455.42
32.0	1438.58	1439.11	1440.98	1445.25	1446.73
32.5	1429.57	1429.93	1432.11	1436.34	1437.95
33.0	1420.24	1420.64	1422.81	1427.14	1429.05
33.5	1411.10	1411.38	1413.57	1417.94	1420.23
34.0	1401.43	1401.98	1404.19	1408.70	1410.77
34.5	1391.87	1392.45	1394.66	1399.12	1401.37
35.0	1381.94	1382.61	1384.95	1389.57	1392.05
35.5	1372.54	1372.93	1375.39	1380.02	1382.53
36.0	1362.45	1362.86	1365.45	1370.22	1372.61
36.5	1352.72	1353.32	1355.86	1360.45	1363.16
37.0	1342.47	1343.16	1345.53	1350.36	1353.40
37.5	1332.30	1332.78	1335.36	1340.33	1343.23
38.0	1322.00	1322.48	1325.22	1330.20	1333.19
38.5	1311.47	1311.97	1314.63	1319.78	1323.06
39.0	1301.00	1301.55	1304.09	1309.44	1312.82
39.5	1290.21	1290.70	1293.50	1298.78	1302.36
40.0	1279.32	1280.12	1282.85	1288.21	1291.80
40.5	1268.63	1269.03	1271.90	1277.31	1281.26
41.0	1258.09	1258.59	1261.22	1266.94	1271.04
41.5	1246.86	1247.18	1250.05	1255.79	1259.91
42.0	1235.45	1236.13	1238.70	1244.72	1248.78
42.5	1224.27	1224.96	1227.96	1233.63	1237.94
43.0	1212.87	1213.46	1216.36	1222.44	1226.66
43.5	1201.53	1202.12	1204.87	1211.09	1215.56
44.0	1189.63	1190.45	1193.41	1199.49	1204.09
44.5	1178.20	1178.94	1182.07	1188.09	1192.93
45.0	1166.30	1167.03	1170.00	1176.36	1181.09
45.5	1154.82	1155.55	1158.59	1165.05	1169.93
46.0	1142.65	1143.47	1146.52	1152.97	1157.92
46.5	1130.60	1131.40	1134.60	1141.05	1146.32
47.0	1118.26	1119.45	1122.75	1129.07	1134.47
47.5	1106.03	1107.12	1110.34	1116.94	1122.44
48.0	1093.84	1094.88	1098.09	1104.98	1110.58
48.5	1081.13	1082.37	1085.82	1092.54	1098.11
49.0	1068.78	1069.95	1073.25	1080.37	1086.14
49.5	1056.24	1057.31	1060.79	1067.66	1073.66
50.0	1044.04	1044.99	1048.55	1055.46	1061.54
50.5	1031.05	1032.17	1035.75	1042.90	1048.98
51.0	1018.31	1019.35	1023.11	1030.07	1036.35
51.5	1005.11	1006.44	1010.40	1017.56	1023.56
52.0	992.34	993.48	997.28	1004.74	1011.00
52.5	979.13	980.65	984.47	991.75	998.28
53.0	966.20	967.41	971.22	978.61	985.34
53.5	953.33	954.47	958.24	965.69	972.76
54.0	939.73	940.95	944.93	952.49	959.49
54.5	926.79	928.09	932.11	939.74	946.63

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CANDELA TABULATION - (Cont.)

55.0	913.21	914.50	918.67	926.36	933.41
55.5	899.74	900.96	905.27	913.14	920.03
56.0	886.39	887.70	892.00	899.94	906.77
56.5	872.76	873.92	878.28	886.39	893.58
57.0	859.25	860.40	864.69	872.84	880.02
57.5	845.44	846.73	851.13	859.10	866.49
58.0	831.69	832.96	837.47	845.82	853.25
58.5	817.90	819.15	823.69	832.02	839.35
59.0	804.26	805.63	810.33	818.62	826.14
59.5	790.42	791.60	796.27	804.79	811.76
60.0	776.38	777.61	782.48	790.94	797.59
60.5	762.27	763.83	768.74	777.32	783.23
61.0	748.36	749.64	754.61	763.25	768.82
61.5	734.03	735.61	740.63	748.97	754.47
62.0	719.94	721.41	726.51	734.32	739.71
62.5	706.05	707.41	712.52	719.68	725.51
63.0	691.65	693.02	698.44	705.18	710.95
63.5	677.88	679.40	684.54	691.09	696.74
64.0	663.49	664.96	670.33	676.31	682.48
64.5	649.25	650.56	656.09	661.70	667.65
65.0	634.96	636.53	642.18	647.26	653.39
65.5	620.44	622.07	627.78	632.51	638.92
66.0	606.41	607.97	613.71	618.13	624.01
66.5	591.76	593.53	599.18	603.29	609.68
67.0	577.64	579.15	585.09	588.65	595.02
67.5	563.03	564.79	570.45	574.04	580.62
68.0	549.07	550.78	556.02	559.96	566.23
68.5	534.75	536.43	541.18	545.27	551.84
69.0	520.29	522.04	526.31	530.71	537.28
69.5	505.97	507.77	511.95	516.26	522.89
70.0	491.76	493.36	497.05	501.57	508.45
70.5	477.49	479.21	482.50	487.30	494.17
71.0	462.95	464.83	467.78	472.64	479.52
71.5	449.08	450.65	453.30	458.49	465.13
72.0	434.71	436.45	438.64	443.93	450.69
72.5	420.83	422.30	424.63	429.94	436.84
73.0	406.64	408.46	410.10	415.59	422.58
73.5	392.38	394.19	395.81	401.30	408.27
74.0	378.58	380.32	381.48	387.18	394.29
74.5	364.43	366.14	367.15	373.02	379.97
75.0	350.57	352.38	353.13	358.97	365.90
75.5	336.45	338.33	338.98	344.87	351.56
76.0	322.79	324.62	324.87	330.94	337.76
76.5	308.90	310.72	310.88	316.75	323.37
77.0	295.65	297.24	297.19	303.16	309.64
77.5	281.87	283.66	283.65	289.30	295.59
78.0	268.28	269.76	269.84	275.24	281.39
78.5	255.14	255.99	256.34	261.41	267.47
79.0	241.55	242.10	242.85	247.46	253.28
79.5	228.39	228.59	229.61	233.58	239.22
80.0	215.14	215.08	216.09	219.77	224.81
80.5	202.01	201.66	202.80	205.87	210.61
81.0	189.14	188.37	189.37	191.87	196.48
81.5	176.51	175.50	176.29	178.50	182.57
82.0	163.90	162.63	163.23	164.70	168.68
82.5	151.08	149.57	149.96	151.02	154.82

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CANDELA TABULATION - (Cont.)

83.0	138.82	137.05	137.00	137.86	141.29
83.5	126.35	124.49	123.81	124.70	127.78
84.0	114.30	112.25	111.15	111.90	114.79
84.5	102.13	99.98	98.53	99.10	101.88
85.0	90.53	88.08	86.28	86.98	89.28
85.5	78.62	76.07	74.25	74.65	76.59
86.0	67.33	64.72	63.00	63.11	64.71
86.5	56.04	53.26	51.78	51.50	52.54
87.0	44.73	42.36	40.96	40.06	40.57
87.5	33.72	32.51	30.82	28.89	29.01
88.0	23.48	23.16	20.89	17.88	16.85
88.5	16.06	14.70	11.66	5.52	3.81
89.0	9.77	7.50	4.27	3.06	2.61
89.5	4.69	3.58	2.60	2.08	1.90
90.0	0.00	0.00	0.00	0.00	0.00

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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	637.14	N.A.	12.60
0-30	1353.96	N.A.	26.80
0-40	2221.05	N.A.	43.90
0-60	3947.4	N.A.	78.00
0-80	4958.71	N.A.	98.00
0-90	5060.04	N.A.	100.00
10-90	4895.17	N.A.	96.70
20-40	1583.91	N.A.	31.30
20-50	2487.66	N.A.	49.20
40-70	2361.75	N.A.	46.70
60-80	1011.31	N.A.	20.00
70-80	375.91	N.A.	7.40
80-90	101.33	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	5060.04	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	164.87
10-20	472.27
20-30	716.82
30-40	867.09
40-50	903.75
50-60	822.60
60-70	635.40
70-80	375.91
80-90	101.33
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	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 = 1745.24 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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