H.E. WILLIAMS, INC.

IES INDOOR REPORT
PHOTOMETRIC FILENAME : AP-24-L70-835-(L64)-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-(L64)-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.
[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	6414
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	105
Total Luminaire Watts	61
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	3144	3154	3184
55	3035	3053	3102
65	2864	2897	2947
75	2582	2601	2695
85	1980	1887	1953

Photometric Toolbox® Copyright 2002-2019 by Lighting Analysts, Inc.
Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES INDOOR REPORT
PHOTOMETRIC FILENAME : AP-24-L70-835-(L64)-DIM-UNV_.IES

CANDELA TABULATION

	0.0	22.5	45.0	67.5	90.0
0.0	2208.685	2208.685	2208.685	2208.685	2208.685
0.5	2212.019	2211.398	2209.357	2206.441	2202.968
1.0	2212.247	2210.802	2208.989	2206.188	2203.044
1.5	2211.740	2210.270	2208.508	2205.770	2202.068
2.0	2210.751	2209.686	2207.975	2204.844	2201.270
2.5	2210.054	2208.812	2206.948	2204.122	2200.649
3.0	2208.913	2207.912	2206.048	2203.361	2199.356
3.5	2207.912	2206.771	2204.603	2201.713	2198.367
4.0	2206.632	2205.351	2203.272	2200.433	2196.820
4.5	2204.578	2203.640	2201.422	2198.620	2195.020
5.0	2202.879	2201.751	2199.774	2196.960	2193.233
5.5	2200.649	2199.723	2197.746	2195.173	2191.357
6.0	2198.519	2197.518	2195.604	2192.980	2189.152
6.5	2195.794	2194.856	2193.157	2190.597	2186.832
7.0	2192.739	2192.042	2190.673	2188.099	2184.373
7.5	2189.849	2189.113	2187.744	2185.311	2181.622
8.0	2186.350	2185.868	2184.461	2182.269	2178.643
8.5	2183.245	2182.383	2181.280	2179.340	2175.398
9.0	2179.404	2178.745	2177.756	2176.032	2172.432
9.5	2175.728	2175.208	2174.194	2172.115	2168.705
10.0	2171.507	2171.101	2170.404	2168.655	2164.865
10.5	2167.374	2166.918	2165.891	2165.093	2161.442
11.0	2162.938	2162.710	2162.012	2160.922	2157.449
11.5	2158.197	2158.058	2157.297	2156.587	2152.936
12.0	2153.583	2153.215	2152.797	2152.100	2148.449
12.5	2148.538	2148.132	2148.196	2147.524	2143.797
13.0	2143.252	2143.265	2142.961	2142.973	2139.576
13.5	2137.903	2137.890	2137.865	2137.890	2134.480
14.0	2132.731	2132.338	2132.845	2132.655	2129.549
14.5	2127.002	2126.989	2127.090	2127.204	2124.137
15.0	2121.424	2121.120	2121.221	2121.614	2118.648
15.5	2115.061	2115.226	2115.302	2116.354	2113.172
16.0	2109.268	2108.926	2109.369	2110.206	2107.544
16.5	2102.575	2102.639	2102.943	2104.210	2101.764
17.0	2095.908	2095.996	2096.440	2097.961	2095.350
17.5	2089.658	2089.582	2090.140	2091.636	2088.999
18.0	2082.687	2082.547	2083.105	2084.905	2082.547
18.5	2075.499	2075.791	2076.463	2078.326	2075.576
19.0	2068.426	2068.616	2069.162	2071.076	2069.187
19.5	2061.163	2061.341	2062.050	2064.180	2062.012
20.0	2053.443	2053.697	2054.242	2056.828	2055.079
20.5	2045.952	2045.863	2046.877	2049.273	2047.701
21.0	2037.877	2038.068	2038.993	2041.731	2040.527
21.5	2029.854	2029.854	2030.969	2033.796	2032.655
22.0	2021.754	2021.804	2022.730	2025.772	2024.606
22.5	2013.337	2013.400	2014.630	2017.368	2016.899
23.0	2004.933	2005.022	2006.112	2009.420	2008.545
23.5	1995.933	1996.136	1997.454	2000.686	2000.293
24.0	1987.187	1987.301	1988.619	1992.143	1991.839
24.5	1978.111	1978.136	1979.733	1983.371	1983.396
25.0	1968.528	1968.857	1970.480	1974.270	1974.321
25.5	1959.655	1959.781	1961.328	1965.181	1965.625
26.0	1949.983	1950.084	1951.922	1955.852	1956.080
26.5	1940.590	1940.679	1942.479	1946.522	1947.029

Photometric Toolbox® Copyright 2002-2019 by Lighting Analysts, Inc.
Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

CANDELA TABULATION - (Cont.)

27.0	1930.601	1930.804	1932.427	1936.698	1937.459
27.5	1920.904	1920.828	1922.666	1927.521	1928.028
28.0	1910.523	1910.840	1912.640	1917.152	1918.179
28.5	1900.040	1900.319	1902.385	1907.214	1908.381
29.0	1889.785	1890.051	1892.003	1897.036	1898.291
29.5	1878.884	1879.416	1881.470	1886.527	1887.808
30.0	1868.287	1868.604	1870.835	1875.994	1877.058
30.5	1857.462	1857.690	1859.692	1864.852	1866.626
31.0	1846.041	1846.852	1848.981	1854.293	1856.029
31.5	1834.886	1835.228	1837.738	1843.074	1844.874
32.0	1823.528	1824.200	1826.570	1831.983	1833.859
32.5	1812.107	1812.564	1815.327	1820.689	1822.730
33.0	1800.281	1800.788	1803.538	1809.027	1811.448
33.5	1788.695	1789.050	1791.826	1797.365	1800.268
34.0	1776.437	1777.134	1779.936	1785.653	1788.276
34.5	1764.319	1765.054	1767.856	1773.509	1776.361
35.0	1751.732	1752.581	1755.547	1761.404	1764.547
35.5	1739.817	1740.311	1743.429	1749.298	1752.480
36.0	1727.027	1727.546	1730.829	1736.876	1739.905
36.5	1714.693	1715.454	1718.673	1724.491	1727.927
37.0	1701.700	1702.575	1705.579	1711.701	1715.555
37.5	1688.809	1689.417	1692.688	1698.988	1702.664
38.0	1675.753	1676.361	1679.834	1686.147	1689.937
38.5	1662.405	1663.039	1666.410	1672.939	1677.096
39.0	1649.133	1649.830	1653.050	1659.832	1664.116
39.5	1635.456	1636.077	1639.626	1646.319	1650.857
40.0	1621.652	1622.666	1626.127	1632.921	1637.471
40.5	1608.101	1608.608	1612.246	1619.104	1624.111
41.0	1594.741	1595.375	1598.709	1605.959	1611.156
41.5	1580.506	1580.912	1584.550	1591.826	1597.048
42.0	1566.043	1566.905	1570.162	1577.793	1582.940
42.5	1551.871	1552.746	1556.549	1563.736	1569.199
43.0	1537.421	1538.169	1541.845	1549.551	1554.901
43.5	1523.046	1523.794	1527.280	1535.164	1540.830
44.0	1507.962	1509.001	1512.753	1520.460	1526.291
44.5	1493.473	1494.411	1498.379	1506.010	1512.145
45.0	1478.389	1479.314	1483.079	1491.141	1497.137
45.5	1463.837	1464.762	1468.616	1476.805	1482.990
46.0	1448.411	1449.450	1453.316	1461.492	1467.767
46.5	1433.136	1434.150	1438.206	1446.382	1453.063
47.0	1417.494	1419.002	1423.186	1431.197	1438.042
47.5	1401.991	1403.373	1407.455	1415.821	1422.793
48.0	1386.540	1387.858	1391.927	1400.660	1407.759
48.5	1370.428	1372.000	1376.373	1384.892	1391.952
49.0	1354.774	1356.257	1360.440	1369.465	1376.779
49.5	1338.878	1340.234	1344.646	1353.354	1360.960
50.0	1323.414	1324.618	1329.130	1337.889	1345.596
50.5	1306.948	1308.367	1312.905	1321.969	1329.675
51.0	1290.799	1292.117	1296.883	1305.705	1313.666
51.5	1274.066	1275.752	1280.772	1289.848	1297.453
52.0	1257.879	1259.324	1264.141	1273.597	1281.532
52.5	1241.134	1243.061	1247.903	1257.131	1265.409
53.0	1224.744	1226.278	1231.108	1240.475	1249.006
53.5	1208.431	1209.876	1214.654	1224.098	1233.060
54.0	1191.191	1192.738	1197.783	1207.366	1216.239
54.5	1174.789	1176.437	1181.532	1191.204	1199.938

Photometric Toolbox® Copyright 2002-2019 by Lighting Analysts, Inc.
Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

CANDELA TABULATION - (Cont.)

55.0	1157.575	1159.210	1164.496	1174.244	1183.180
55.5	1140.501	1142.047	1147.510	1157.486	1166.220
56.0	1123.578	1125.239	1130.689	1140.754	1149.412
56.5	1106.301	1107.771	1113.298	1123.578	1132.692
57.0	1089.176	1090.634	1096.072	1106.402	1115.504
57.5	1071.670	1073.306	1078.883	1088.986	1098.353
58.0	1054.241	1055.851	1061.568	1072.152	1081.570
58.5	1036.761	1038.346	1044.100	1054.659	1063.951
59.0	1019.471	1021.208	1027.165	1037.674	1047.206
59.5	1001.928	1003.423	1009.343	1020.143	1028.978
60.0	984.131	985.690	991.863	1002.587	1011.016
60.5	966.245	968.222	974.446	985.322	992.814
61.0	948.613	950.235	956.535	967.487	974.548
61.5	930.448	932.451	938.814	949.386	956.358
62.0	912.588	914.451	920.916	930.816	937.648
62.5	894.981	896.705	903.182	912.258	919.648
63.0	876.728	878.465	885.335	893.878	901.192
63.5	859.273	861.200	867.715	876.018	883.180
64.0	841.033	842.896	849.703	857.283	865.104
64.5	822.982	824.643	831.652	838.764	846.306
65.0	804.868	806.858	814.020	820.460	828.230
65.5	786.463	788.529	795.767	801.763	809.888
66.0	768.679	770.656	777.932	783.535	790.988
66.5	750.108	752.352	759.514	764.724	772.824
67.0	732.210	734.124	741.654	746.166	754.241
67.5	713.691	715.922	723.096	727.647	735.988
68.0	695.995	698.163	704.805	709.799	717.747
68.5	677.843	679.973	685.994	691.178	699.506
69.0	659.514	661.732	667.145	672.722	681.050
69.5	641.362	643.644	648.942	654.405	662.810
70.0	623.350	625.378	630.055	635.785	644.506
70.5	605.261	607.441	611.612	617.696	626.404
71.0	586.830	589.213	592.953	599.113	607.834
71.5	569.249	571.239	574.598	581.177	589.594
72.0	551.034	553.239	556.015	562.721	571.290
72.5	533.439	535.303	538.256	544.987	553.734
73.0	515.452	517.759	519.838	526.797	535.658
73.5	497.377	499.671	501.724	508.683	517.519
74.0	479.884	482.089	483.560	490.785	499.798
74.5	461.947	464.115	465.395	472.836	481.646
75.0	444.379	446.673	447.624	455.026	463.811
75.5	426.480	428.863	429.687	437.153	445.634
76.0	409.165	411.485	411.802	419.496	428.141
76.5	391.558	393.865	394.068	401.509	409.900
77.0	374.763	376.778	376.715	384.282	392.496
77.5	357.295	359.564	359.552	366.713	374.687
78.0	340.069	341.945	342.046	348.891	356.687
78.5	323.413	324.490	324.934	331.360	339.042
79.0	306.186	306.883	307.834	313.678	321.055
79.5	289.505	289.758	291.051	296.083	303.233
80.0	272.709	272.633	273.913	278.578	284.967
80.5	256.066	255.622	257.067	260.959	266.967
81.0	239.752	238.776	240.043	243.212	249.056
81.5	223.742	222.462	223.463	226.265	231.424
82.0	207.758	206.148	206.909	208.772	213.817
82.5	191.507	189.593	190.088	191.431	196.248

Photometric Toolbox® Copyright 2002-2019 by Lighting Analysts, Inc.
Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

CANDELA TABULATION - (Cont.)

83.0	175.967	173.723	173.660	174.750	179.098
83.5	160.160	157.802	156.940	158.068	161.973
84.0	144.885	142.287	140.893	141.843	145.507
84.5	129.459	126.734	124.896	125.618	129.142
85.0	114.755	111.649	109.368	110.255	113.170
85.5	99.658	96.425	94.118	94.626	97.085
86.0	85.347	82.038	79.858	79.998	82.026
86.5	71.036	67.512	65.636	65.281	66.599
87.0	56.699	53.695	51.920	50.780	51.426
87.5	42.743	41.209	39.067	36.621	36.773
88.0	29.763	29.357	26.480	22.664	21.359
88.5	20.357	18.634	14.780	6.997	4.830
89.0	12.384	9.507	5.413	3.879	3.308
89.5	5.945	4.538	3.296	2.637	2.408
90.0	0.000	0.000	0.000	0.000	0.000

Photometric Toolbox® Copyright 2002-2019 by Lighting Analysts, Inc.
Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES INDOOR REPORT
PHOTOMETRIC FILENAME : AP-24-L70-835-(L64)-DIM-UNV_.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	807.63	N.A.	12.60
0-30	1716.26	N.A.	26.80
0-40	2815.37	N.A.	43.90
0-60	5003.68	N.A.	78.00
0-80	6285.6	N.A.	98.00
0-90	6414.05	N.A.	100.00
10-90	6205.06	N.A.	96.70
20-40	2007.75	N.A.	31.30
20-50	3153.33	N.A.	49.20
40-70	2993.73	N.A.	46.70
60-80	1281.93	N.A.	20.00
70-80	476.50	N.A.	7.40
80-90	128.44	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	6414.05	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	208.98
10-20	598.64
20-30	908.63
30-40	1099.11
40-50	1145.58
50-60	1042.72
60-70	805.43
70-80	476.50
80-90	128.44
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

Photometric Toolbox® Copyright 2002-2019 by Lighting Analysts, Inc.
Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES INDOOR REPORT
PHOTOMETRIC FILENAME : AP-24-L70-835-(L64)-DIM-UNV_.IES

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

Photometric Toolbox® Copyright 2002-2019 by Lighting Analysts, Inc.
Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES INDOOR REPORT
PHOTOMETRIC FILENAME : AP-24-L70-835-(L64)-DIM-UNV_.IES

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	16.1	17.7	16.4	18.0	18.3	16.2	17.8	16.5	18.1	18.4
	3H	17.9	19.4	18.3	19.7	20.1	18.1	19.6	18.4	19.9	20.2
	4H	18.6	20.0	19.0	20.4	20.8	18.8	20.2	19.2	20.5	20.9
	6H	19.2	20.5	19.6	20.8	21.2	19.3	20.7	19.8	21.0	21.4
	8H	19.4	20.6	19.8	21.0	21.4	19.5	20.8	20.0	21.2	21.6
	12H	19.5	20.7	19.9	21.0	21.5	19.6	20.8	20.0	21.2	21.6
4H	2H	16.7	18.1	17.1	18.5	18.9	16.8	18.2	17.2	18.6	18.9
	3H	18.8	20.0	19.2	20.4	20.8	18.9	20.1	19.3	20.5	20.9
	4H	19.7	20.7	20.1	21.1	21.6	19.8	20.9	20.2	21.3	21.7
	6H	20.3	21.3	20.8	21.7	22.2	20.5	21.4	20.9	21.9	22.3
	8H	20.6	21.4	21.0	21.9	22.3	20.7	21.6	21.2	22.0	22.5
	12H	20.7	21.5	21.2	22.0	22.4	20.9	21.6	21.3	22.1	22.6
8H	4H	20.0	20.9	20.5	21.3	21.8	20.1	21.0	20.6	21.4	21.9
	6H	20.8	21.5	21.3	22.0	22.5	20.9	21.7	21.4	22.1	22.6
	8H	21.1	21.7	21.6	22.3	22.7	21.2	21.9	21.7	22.4	22.9
	12H	21.3	21.9	21.8	22.4	22.9	21.4	22.0	21.9	22.5	23.1
12H	4H	20.0	20.8	20.5	21.3	21.8	20.2	20.9	20.6	21.4	21.9
	6H	20.9	21.5	21.4	22.0	22.5	21.0	21.7	21.5	22.1	22.7
	8H	21.2	21.8	21.7	22.3	22.8	21.3	21.9	21.8	22.4	23.0

Maximum UGR = 23.1

Photometric Toolbox® Copyright 2002-2019 by Lighting Analysts, Inc.
Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES INDOOR REPORT
PHOTOMETRIC FILENAME : AP-24-L70-835-(L64)-DIM-UNV_.IES

POLAR GRAPH

Maximum Candela = 2212.247 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.)

Photometric Toolbox® Copyright 2002-2019 by Lighting Analysts, Inc.
Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.