



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4UD-4-00-L15-835U-L15-835D-ASYUD-DIM-UNV\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN FROM ul #13323616.01

[TESTLAB] UL Verification Services Inc.

[ISSUE DATE] 26- AUG-2020

[MANUFAC] H E Williams Inc

[LUMCAT] MX4U-4'00-L15/835U/L15/835D-ASYUD-DIM-UNV

[LUMINAIRE] White aluminum housing, frosted lens enclosure

[OTHER] This test was performed using the calibrated photodetector met

[MORE] hod of absolute photometry.

[\_CONVERT] Luminaire test position and photometric web converted from original test data

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	11144
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	101
Total Luminaire Watts	110.4
Ballast Factor	1.00
CIE Type	General Diffuse
Spacing Criterion (0-180)	N.A.
Spacing Criterion (90-270)	N.A.
Spacing Criterion (Diagonal)	N.A.
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	4.00 ft
Luminous Width (90-270)	0.33 ft
Luminous Height	0.00 ft

### LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	14216	16997	18042
55	13515	16505	17611
65	12578	15765	16908
75	10874	14715	16050
85	7919	13614	15821

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## CANDELA TABULATION

	<u>0.0</u>	<u>22.5</u>	<u>45.0</u>	<u>67.5</u>	<u>90.0</u>	<u>112.5</u>	<u>135.0</u>	<u>157.5</u>	<u>180.0</u>	<u>202.5</u>
0.0	1975.641	1975.641	1975.641	1975.641	1975.641	1975.641	1975.641	1975.641	1975.641	1975.641
2.5	1977.367	1997.227	1994.637	2004.135	2007.589	2004.135	1994.637	1997.227	1977.367	1965.279
5.0	1969.596	2004.999	2013.634	2031.767	2036.084	2031.767	2013.634	2004.999	1969.596	1941.101
7.5	1956.644	2006.726	2026.586	2052.490	2061.125	2052.490	2026.586	2006.726	1956.644	1913.470
10.0	1938.511	2002.408	2034.357	2067.169	2080.122	2067.169	2034.357	2002.408	1938.511	1882.385
12.5	1915.197	1993.774	2035.220	2076.668	2090.483	2076.668	2035.220	1993.774	1915.197	1847.846
15.0	1887.566	1979.094	2030.903	2078.394	2092.210	2078.394	2030.903	1979.094	1887.566	1809.853
17.5	1855.617	1959.234	2018.814	2070.623	2087.893	2070.623	2018.814	1959.234	1855.617	1767.542
20.0	1819.351	1932.467	2000.681	2058.534	2078.394	2058.534	2000.681	1932.467	1819.351	1721.778
22.5	1778.767	1900.518	1976.504	2040.401	2060.262	2040.401	1976.504	1900.518	1778.767	1673.423
25.0	1733.003	1862.525	1946.282	2014.497	2035.220	2014.497	1946.282	1862.525	1733.003	1621.614
27.5	1682.921	1818.487	1909.153	1980.821	2003.272	1980.821	1909.153	1818.487	1682.921	1568.078
30.0	1627.658	1768.405	1865.979	1939.374	1961.825	1939.374	1865.979	1768.405	1627.658	1511.089
32.5	1569.805	1714.006	1813.306	1889.293	1912.607	1889.293	1813.306	1714.006	1569.805	1450.645
35.0	1510.225	1654.426	1754.590	1833.166	1856.480	1833.166	1754.590	1654.426	1510.225	1387.611
37.5	1448.055	1590.529	1694.146	1771.859	1793.446	1771.859	1694.146	1590.529	1448.055	1321.987
40.0	1382.430	1526.631	1630.249	1706.235	1726.095	1706.235	1630.249	1526.631	1382.430	1255.499
42.5	1314.215	1460.143	1560.307	1634.566	1656.153	1634.566	1560.307	1460.143	1314.215	1188.147
45.0	1245.137	1391.065	1488.638	1559.443	1580.167	1559.443	1488.638	1391.065	1245.137	1119.933
47.5	1176.059	1317.669	1414.379	1482.594	1501.590	1482.594	1414.379	1317.669	1176.059	1052.581
50.0	1106.980	1241.683	1336.666	1404.017	1422.150	1404.017	1336.666	1241.683	1106.980	986.957
52.5	1035.312	1164.834	1256.362	1321.987	1339.256	1321.987	1256.362	1164.834	1035.312	919.605
55.0	960.189	1087.120	1172.605	1237.366	1251.181	1237.366	1172.605	1087.120	960.189	851.132
57.5	885.066	1006.817	1087.984	1148.427	1162.243	1148.427	1087.984	1006.817	885.066	782.571
60.0	809.944	924.786	1000.772	1057.762	1070.714	1057.762	1000.772	924.786	809.944	712.370
62.5	733.957	841.201	913.561	965.370	977.458	965.370	913.561	841.201	733.957	643.119
65.0	658.403	756.840	825.227	872.977	885.066	872.977	825.227	756.840	658.403	573.264
67.5	581.467	672.305	735.598	781.017	791.638	781.017	735.598	672.305	581.467	502.718
70.0	502.459	590.620	648.128	687.070	697.691	687.070	648.128	590.620	502.459	431.567
72.5	424.832	505.654	560.484	597.182	607.112	597.182	560.484	505.654	424.832	361.021
75.0	348.587	421.205	471.719	505.481	514.547	505.481	471.719	421.205	348.587	292.806
77.5	274.500	339.002	385.112	415.593	423.191	415.593	385.112	339.002	274.500	228.477
80.0	204.040	260.857	301.095	328.208	335.634	328.208	301.095	260.857	204.040	167.860
82.5	140.661	187.202	221.051	244.106	251.359	244.106	221.051	187.202	140.661	112.425
85.0	85.484	120.110	146.964	165.011	170.796	165.011	146.964	120.110	85.484	63.466
87.5	38.943	61.652	80.131	92.997	97.573	92.997	80.131	61.652	38.943	21.932
90.0	8.073	22.991	44.051	59.144	66.165	59.144	44.051	22.991	8.073	1.229
92.5	40.210	63.658	82.736	96.021	100.747	96.021	82.736	63.658	40.210	22.646
95.0	88.264	124.017	151.743	170.377	176.350	170.377	151.743	124.017	88.264	65.530
97.5	145.235	193.290	228.240	252.044	259.532	252.044	228.240	193.290	145.235	116.082
100.0	210.675	269.340	310.887	338.883	346.550	338.883	310.887	269.340	210.675	173.318
102.5	283.427	350.026	397.636	429.107	436.954	429.107	397.636	350.026	283.427	235.907
105.0	359.922	434.902	487.059	521.920	531.281	521.920	487.059	434.902	359.922	302.328
107.5	438.648	522.097	578.712	616.603	626.856	616.603	578.712	522.097	438.648	372.761
110.0	518.798	609.826	669.204	709.414	720.380	709.414	669.204	609.826	518.798	445.601
112.5	600.376	694.167	759.519	806.416	817.382	806.416	759.519	694.167	600.376	519.067
115.0	679.815	781.452	852.064	901.366	913.848	901.366	852.064	781.452	679.815	591.907
117.5	757.825	868.557	943.270	996.764	1009.246	996.764	943.270	868.557	757.825	664.034
120.0	836.283	954.861	1033.317	1092.161	1105.535	1092.161	1033.317	954.861	836.283	735.536
122.5	913.848	1039.558	1123.365	1185.773	1200.039	1185.773	1123.365	1039.558	913.848	808.021
125.0	991.414	1122.473	1210.738	1277.605	1291.869	1277.605	1210.738	1122.473	991.414	878.810
127.5	1068.980	1202.714	1297.220	1364.977	1382.809	1364.977	1297.220	1202.714	1068.980	949.510
130.0	1142.980	1282.062	1380.135	1449.676	1468.398	1449.676	1380.135	1282.062	1142.980	1019.053
132.5	1214.305	1360.520	1460.375	1530.808	1550.423	1530.808	1460.375	1360.520	1214.305	1086.811

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## CANDELA TABULATION - (Cont.)

135.0	1285.628	1436.302	1537.049	1610.157	1631.554	1610.157	1537.049	1436.302	1285.628	1156.353
137.5	1356.954	1507.627	1611.049	1687.723	1710.012	1687.723	1611.049	1507.627	1356.954	1226.787
140.0	1427.387	1576.277	1683.265	1761.723	1782.228	1761.723	1683.265	1576.277	1427.387	1296.328
142.5	1495.146	1642.253	1749.239	1829.480	1851.769	1829.480	1749.239	1642.253	1495.146	1364.977
145.0	1559.338	1708.228	1811.649	1892.782	1916.853	1892.782	1811.649	1708.228	1559.338	1432.736
147.5	1620.856	1769.746	1872.275	1950.732	1974.805	1950.732	1872.275	1769.746	1620.856	1497.820
150.0	1680.590	1825.913	1926.660	2002.442	2025.623	2002.442	1926.660	1825.913	1680.590	1560.229
152.5	1737.650	1877.624	1971.238	2045.238	2068.419	2045.238	1971.238	1877.624	1737.650	1619.072
155.0	1789.360	1923.094	2009.575	2080.008	2101.405	2080.008	2009.575	1923.094	1789.360	1674.349
157.5	1836.613	1962.323	2040.779	2106.756	2127.261	2106.756	2040.779	1962.323	1836.613	1727.842
160.0	1878.516	1995.311	2065.744	2125.478	2145.983	2125.478	2065.744	1995.311	1878.516	1777.771
162.5	1915.961	2022.949	2084.467	2137.960	2155.790	2137.960	2084.467	2022.949	1915.961	1825.023
165.0	1948.949	2043.454	2096.949	2145.983	2160.249	2145.983	2096.949	2043.454	1948.949	1868.709
167.5	1977.479	2058.612	2101.405	2144.201	2158.467	2144.201	2101.405	2058.612	1977.479	1907.938
170.0	2001.552	2067.527	2100.515	2134.394	2147.767	2134.394	2100.515	2067.527	2001.552	1943.600
172.5	2020.275	2071.985	2092.490	2119.238	2128.153	2119.238	2092.490	2071.985	2020.275	1975.697
175.0	2033.648	2070.201	2079.116	2097.839	2102.297	2097.839	2079.116	2070.201	2033.648	2004.226
177.5	2041.671	2062.178	2059.502	2069.309	2072.876	2069.309	2059.502	2062.178	2041.671	2029.190
180.0	2038.977	2038.977	2038.977	2038.977	2038.977	2038.977	2038.977	2038.977	2038.977	2038.977

## Vert. Horizontal Angles

	<u>225.0</u>	<u>247.5</u>	<u>270.0</u>	<u>292.5</u>	<u>315.0</u>	<u>337.5</u>	<u>360.0</u>
0.0	1975.641	1975.641	1975.641	1975.641	1975.641	1975.641	1975.641
2.5	1938.511	1934.193	1935.920	1934.193	1938.511	1965.279	1977.367
5.0	1903.108	1893.610	1891.883	1893.610	1903.108	1941.101	1969.596
7.5	1865.979	1848.709	1845.255	1848.709	1865.979	1913.470	1956.644
10.0	1826.259	1802.081	1795.173	1802.081	1826.259	1882.385	1938.511
12.5	1783.948	1752.863	1743.365	1752.863	1783.948	1847.846	1915.197
15.0	1737.320	1700.191	1689.829	1700.191	1737.320	1809.853	1887.566
17.5	1687.238	1647.518	1633.703	1647.518	1687.238	1767.542	1855.617
20.0	1634.566	1590.529	1575.850	1590.529	1634.566	1721.778	1819.351
22.5	1581.031	1530.949	1516.270	1530.949	1581.031	1673.423	1778.767
25.0	1525.768	1473.096	1455.826	1473.096	1525.768	1621.614	1733.003
27.5	1469.642	1414.379	1395.382	1414.379	1469.642	1568.078	1682.921
30.0	1410.062	1355.662	1336.666	1355.662	1410.062	1511.089	1627.658
32.5	1347.028	1293.492	1277.086	1293.492	1347.028	1450.645	1569.805
35.0	1283.130	1227.867	1212.325	1227.867	1283.130	1387.611	1510.225
37.5	1218.369	1161.380	1143.246	1161.380	1218.369	1321.987	1448.055
40.0	1151.881	1094.028	1074.168	1094.028	1151.881	1255.499	1382.430
42.5	1086.257	1028.404	1009.407	1028.404	1086.257	1188.147	1314.215
45.0	1021.496	967.097	950.691	967.097	1021.496	1119.933	1245.137
47.5	958.462	907.517	891.111	907.517	958.462	1052.581	1176.059
50.0	895.428	846.296	831.012	846.296	895.428	986.957	1106.980
52.5	832.480	784.989	769.533	784.989	832.480	919.605	1035.312
55.0	768.756	723.164	708.139	723.164	768.756	851.132	960.189
57.5	704.513	661.252	648.646	661.252	704.513	782.571	885.066
60.0	643.465	602.968	590.706	602.968	643.465	712.370	809.944
62.5	578.963	543.388	531.385	543.388	578.963	643.119	733.957
65.0	514.547	483.289	472.582	483.289	514.547	573.264	658.403
67.5	451.859	423.796	413.779	423.796	451.859	502.718	581.467
70.0	388.652	365.252	356.444	365.252	388.652	431.567	502.459
72.5	326.654	307.744	299.886	307.744	326.654	361.021	424.832
75.0	266.038	251.359	244.451	251.359	266.038	292.806	348.587
77.5	208.703	197.305	192.124	197.305	208.703	228.477	274.500
80.0	154.217	145.496	141.611	145.496	154.217	167.860	204.040

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : MX4UD-4-00-L15-835U-L15-835D-ASYUD-DIM-UNV\_.IES****CANDELA TABULATION - (Cont.)**

<b>82.5</b>	103.704	96.882	93.947	96.882	103.704	112.425	140.661
<b>85.0</b>	57.162	52.068	49.650	52.068	57.162	63.466	85.484
<b>87.5</b>	16.233	12.607	11.312	12.607	16.233	21.932	38.943
<b>90.0</b>	1.053	1.053	0.878	1.053	1.053	1.229	8.073
<b>92.5</b>	16.761	13.016	11.680	13.016	16.761	22.646	40.210
<b>95.0</b>	59.021	53.760	51.265	53.760	59.021	65.530	88.264
<b>97.5</b>	107.076	100.034	97.002	100.034	107.076	116.082	145.235
<b>100.0</b>	159.233	150.228	146.215	150.228	159.233	173.318	210.675
<b>102.5</b>	215.489	203.721	198.372	203.721	215.489	235.907	283.427
<b>105.0</b>	274.690	259.532	252.401	259.532	274.690	302.328	359.922
<b>107.5</b>	337.277	317.751	309.638	317.751	337.277	372.761	438.648
<b>110.0</b>	401.291	377.129	368.035	377.129	401.291	445.601	518.798
<b>112.5</b>	466.552	437.577	427.235	437.577	466.552	519.067	600.376
<b>115.0</b>	531.281	499.006	487.951	499.006	531.281	591.907	679.815
<b>117.5</b>	597.790	561.059	548.666	561.059	597.790	664.034	757.825
<b>120.0</b>	664.390	622.577	609.916	622.577	664.390	735.536	836.283
<b>122.5</b>	727.423	682.757	669.740	682.757	727.423	808.021	913.848
<b>125.0</b>	793.755	746.682	731.168	746.682	793.755	878.810	991.414
<b>127.5</b>	859.553	810.517	794.559	810.517	859.553	949.510	1068.980
<b>130.0</b>	924.547	873.817	858.036	873.817	924.547	1019.053	1142.980
<b>132.5</b>	989.631	937.029	920.090	937.029	989.631	1086.811	1214.305
<b>135.0</b>	1054.714	998.547	981.607	998.547	1054.714	1156.353	1285.628
<b>137.5</b>	1121.583	1061.847	1042.233	1061.847	1121.583	1226.787	1356.954
<b>140.0</b>	1189.340	1129.606	1109.099	1129.606	1189.340	1296.328	1427.387
<b>142.5</b>	1257.991	1199.147	1180.425	1199.147	1257.991	1364.977	1495.146
<b>145.0</b>	1324.858	1267.798	1251.750	1267.798	1324.858	1432.736	1559.338
<b>147.5</b>	1390.832	1335.557	1318.617	1335.557	1390.832	1497.820	1620.856
<b>150.0</b>	1455.917	1399.749	1380.135	1399.749	1455.917	1560.229	1680.590
<b>152.5</b>	1517.435	1460.375	1440.761	1460.375	1517.435	1619.072	1737.650
<b>155.0</b>	1575.386	1521.001	1503.169	1521.001	1575.386	1674.349	1789.360
<b>157.5</b>	1632.446	1580.735	1565.579	1580.735	1632.446	1727.842	1836.613
<b>160.0</b>	1687.723	1642.253	1627.097	1642.253	1687.723	1777.771	1878.516
<b>162.5</b>	1742.108	1701.095	1686.831	1701.095	1742.108	1825.023	1915.961
<b>165.0</b>	1793.817	1755.480	1744.783	1755.480	1793.817	1868.709	1948.949
<b>167.5</b>	1841.961	1809.865	1800.060	1809.865	1841.961	1907.938	1977.479
<b>170.0</b>	1885.649	1860.686	1853.553	1860.686	1885.649	1943.600	2001.552
<b>172.5</b>	1926.660	1908.830	1905.264	1908.830	1926.660	1975.697	2020.275
<b>175.0</b>	1964.997	1955.190	1953.408	1955.190	1964.997	2004.226	2033.648
<b>177.5</b>	2001.552	1997.094	1998.876	1997.094	2001.552	2029.190	2041.671
<b>180.0</b>	2038.977	2038.977	2038.977	2038.977	2038.977	2038.977	2038.977

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : MX4UD-4-00-L15-835U-L15-835D-ASYUD-DIM-UNV\_.IES****ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	719.57	N.A.	6.50
0-30	1521.2	N.A.	13.70
0-40	2473.61	N.A.	22.20
0-60	4313.23	N.A.	38.70
0-80	5365.67	N.A.	48.10
0-90	5482.81	N.A.	49.20
10-90	5296.14	N.A.	47.50
20-40	1754.05	N.A.	15.70
20-50	2724.39	N.A.	24.40
40-70	2503.07	N.A.	22.50
60-80	1052.45	N.A.	9.40
70-80	388.99	N.A.	3.50
80-90	117.14	N.A.	1.10
90-110	522.50	N.A.	4.70
90-120	1207.52	N.A.	10.80
90-130	2105.07	N.A.	18.90
90-150	4090.35	N.A.	36.70
90-180	5661.02	N.A.	50.80
110-180	5138.52	N.A.	46.10
0-180	11143.83	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	186.67
10-20	532.89
20-30	801.64
30-40	952.41
40-50	970.34
50-60	869.27
60-70	663.45
70-80	388.99
80-90	117.14
90-100	120.85
100-110	401.64
110-120	685.03
120-130	897.54
130-140	1001.9
140-150	983.38
150-160	827.71
160-170	550.22
170-180	192.74

# IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4UD-4-00-L15-835U-L15-835D-ASYUD-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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	55	55	55	49
1	97	93	89	86	90	86	82	79	72	70	68	60	58	57	49	48	46	41
2	89	81	75	70	81	75	69	65	63	59	56	53	50	47	43	41	39	34
3	81	71	64	58	74	66	59	54	56	51	47	46	43	40	38	35	33	29
4	74	63	55	49	68	58	51	46	49	44	40	41	37	34	34	31	28	25
5	68	56	48	42	62	52	45	39	44	38	34	37	33	29	30	27	25	21
6	62	50	42	36	57	47	39	34	40	34	30	33	29	26	27	24	22	19
7	58	45	37	32	53	42	35	30	36	30	26	30	26	23	25	22	19	16
8	53	41	33	28	49	38	31	26	33	27	23	28	23	20	23	20	17	15
9	50	37	30	25	46	35	28	23	30	25	21	25	21	18	21	18	15	13
10	46	34	27	22	43	32	25	21	28	22	19	23	19	16	20	16	14	12

# IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4UD-4-00-L15-835U-L15-835D-ASYUD-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

X=2H	Y=2H	17.3	18.2	18.3	19.2	20.4	19.0	19.9	20.0	20.9	22.2
	3H	19.1	19.8	20.0	20.8	22.1	20.9	21.7	21.9	22.7	24.0
	4H	19.7	20.4	20.7	21.4	22.7	21.7	22.4	22.7	23.4	24.7
	6H	20.1	20.8	21.1	21.8	23.1	22.3	23.0	23.3	24.0	25.3
	8H	20.2	20.9	21.2	21.9	23.2	22.5	23.2	23.5	24.2	25.5
	12H	20.3	20.9	21.3	21.9	23.3	22.7	23.3	23.7	24.3	25.6

### UGR Viewed Endwise

4H	2H	17.9	18.6	18.9	19.6	21.0	19.6	20.3	20.5	21.3	22.6
	3H	19.9	20.5	20.9	21.5	22.8	21.7	22.3	22.7	23.3	24.6
	4H	20.6	21.2	21.6	22.2	23.6	22.6	23.1	23.6	24.2	25.5
	6H	21.2	21.7	22.2	22.7	24.1	23.3	23.8	24.3	24.8	26.2
	8H	21.4	21.8	22.4	22.8	24.2	23.6	24.1	24.6	25.1	26.5
	12H	21.4	21.9	22.5	22.9	24.3	23.8	24.2	24.9	25.3	26.6

8H	4H	20.9	21.4	22.0	22.4	23.8	22.8	23.3	23.8	24.3	25.7
	6H	21.6	22.0	22.7	23.1	24.4	23.7	24.1	24.8	25.2	26.5
	8H	21.9	22.2	22.9	23.3	24.7	24.1	24.4	25.2	25.5	26.9
	12H	22.1	22.4	23.1	23.4	24.8	24.4	24.7	25.5	25.8	27.2

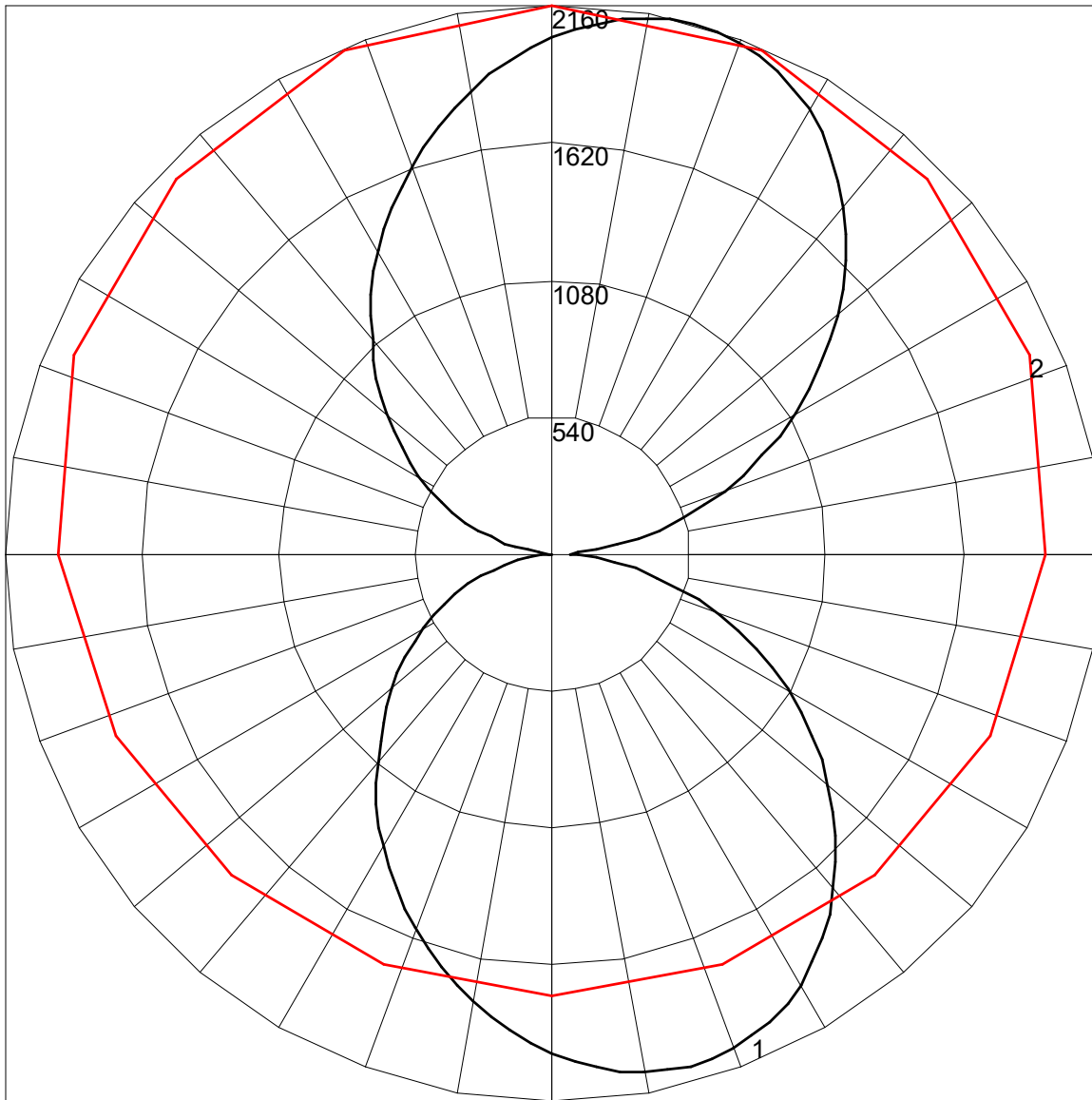
12H	4H	20.9	21.4	22.0	22.4	23.8	22.8	23.2	23.9	24.3	25.6
	6H	21.7	22.0	22.8	23.1	24.5	23.8	24.1	24.8	25.2	26.6
	8H	22.0	22.3	23.1	23.3	24.8	24.2	24.5	25.3	25.5	27.0

Maximum UGR = 27.2

# IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4UD-4-00-L15-835U-L15-835D-ASYUD-DIM-UNV\_.IES

## POLAR GRAPH



Maximum Candela = 2160.249 Located At Horizontal Angle = 90, Vertical Angle = 165

# 1 - Vertical Plane Through Horizontal Angles (90 - 270)

# 2 - Horizontal Cone Through Vertical Angle (165) (Through Max. Cd.)