



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4UD-4-00-L8-8TWU-L8-8TWD-ASYUD-DIM-UNV 4000K\_.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] MX4UD-4'00-L8/8TWU/L8/8TWD-ASYUD-DIM-UNV 4000k

[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	6668
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	124
Total Luminaire Watts	53.6
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	8506	10170	10795
55	8087	9876	10538
65	7526	9433	10117
75	6506	8804	9604
85	4738	8146	9467

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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>
<b>0.0</b>	1182.120	1182.120	1182.120	1182.120	1182.120	1182.120	1182.120	1182.120	1182.120	1182.120
<b>2.5</b>	1183.154	1195.037	1193.487	1199.170	1201.237	1199.170	1193.487	1195.037	1183.154	1175.920
<b>5.0</b>	1178.504	1199.687	1204.853	1215.703	1218.287	1215.703	1204.853	1199.687	1178.504	1161.454
<b>7.5</b>	1170.754	1200.720	1212.603	1228.103	1233.270	1228.103	1212.603	1200.720	1170.754	1144.921
<b>10.0</b>	1159.904	1198.137	1217.253	1236.886	1244.636	1236.886	1217.253	1198.137	1159.904	1126.321
<b>12.5</b>	1145.954	1192.970	1217.770	1242.570	1250.836	1242.570	1217.770	1192.970	1145.954	1105.655
<b>15.0</b>	1129.421	1184.187	1215.187	1243.603	1251.870	1243.603	1215.187	1184.187	1129.421	1082.922
<b>17.5</b>	1110.305	1172.304	1207.953	1238.953	1249.286	1238.953	1207.953	1172.304	1110.305	1057.605
<b>20.0</b>	1088.605	1156.287	1197.104	1231.720	1243.603	1231.720	1197.104	1156.287	1088.605	1030.222
<b>22.5</b>	1064.322	1137.171	1182.637	1220.870	1232.753	1220.870	1182.637	1137.171	1064.322	1001.289
<b>25.0</b>	1036.939	1114.438	1164.554	1205.370	1217.770	1205.370	1164.554	1114.438	1036.939	970.289
<b>27.5</b>	1006.972	1088.088	1142.338	1185.220	1198.654	1185.220	1142.338	1088.088	1006.972	938.256
<b>30.0</b>	973.906	1058.122	1116.504	1160.421	1173.854	1160.421	1116.504	1058.122	973.906	904.157
<b>32.5</b>	939.290	1025.572	1084.988	1130.454	1144.404	1130.454	1084.988	1025.572	939.290	867.991
<b>35.0</b>	903.640	989.923	1049.855	1096.871	1110.821	1096.871	1049.855	989.923	903.640	830.274
<b>37.5</b>	866.441	951.690	1013.689	1060.188	1073.105	1060.188	1013.689	951.690	866.441	791.008
<b>40.0</b>	827.174	913.457	975.456	1020.922	1032.805	1020.922	975.456	913.457	827.174	751.225
<b>42.5</b>	786.358	873.674	933.606	978.039	990.956	978.039	933.606	873.674	786.358	710.926
<b>45.0</b>	745.025	832.341	890.724	933.090	945.490	933.090	890.724	832.341	745.025	670.109
<b>47.5</b>	703.692	788.425	846.291	887.107	898.474	887.107	846.291	788.425	703.692	629.810
<b>50.0</b>	662.359	742.959	799.791	840.091	850.941	840.091	799.791	742.959	662.359	590.544
<b>52.5</b>	619.477	696.976	751.742	791.008	801.341	791.008	751.742	696.976	619.477	550.244
<b>55.0</b>	574.527	650.476	701.626	740.375	748.642	740.375	701.626	650.476	574.527	509.273
<b>57.5</b>	529.578	602.427	650.993	687.159	695.426	687.159	650.993	602.427	529.578	468.250
<b>60.0</b>	484.628	553.344	598.810	632.910	640.660	632.910	598.810	553.344	484.628	426.245
<b>62.5</b>	439.162	503.331	546.627	577.627	584.860	577.627	546.627	503.331	439.162	384.809
<b>65.0</b>	393.954	452.853	493.773	522.344	529.578	522.344	493.773	452.853	393.954	343.011
<b>67.5</b>	347.920	402.272	440.144	467.320	473.675	467.320	440.144	402.272	347.920	300.800
<b>70.0</b>	300.645	353.396	387.806	411.107	417.462	411.107	387.806	353.396	300.645	258.227
<b>72.5</b>	254.197	302.557	335.365	357.323	363.264	357.323	335.365	302.557	254.197	216.016
<b>75.0</b>	208.576	252.027	282.252	302.453	307.878	302.453	282.252	252.027	208.576	175.200
<b>77.5</b>	164.247	202.841	230.431	248.669	253.216	248.669	230.431	202.841	164.247	136.709
<b>80.0</b>	122.087	156.083	180.160	196.383	200.826	196.383	180.160	156.083	122.087	100.439
<b>82.5</b>	84.164	112.012	132.265	146.060	150.400	146.060	132.265	112.012	84.164	67.269
<b>85.0</b>	51.149	71.868	87.936	98.734	102.196	98.734	87.936	71.868	51.149	37.975
<b>87.5</b>	23.301	36.890	47.946	55.644	58.383	55.644	47.946	36.890	23.301	13.123
<b>90.0</b>	4.830	13.757	26.358	35.389	39.589	35.389	26.358	13.757	4.830	0.736
<b>92.5</b>	24.059	38.090	49.505	57.454	60.282	57.454	49.505	38.090	24.059	13.550
<b>95.0</b>	52.812	74.205	90.795	101.945	105.519	101.945	90.795	74.205	52.812	39.210
<b>97.5</b>	86.901	115.655	136.567	150.810	155.291	150.810	136.567	115.655	86.901	69.457
<b>100.0</b>	126.057	161.159	186.019	202.770	207.358	202.770	186.019	161.159	126.057	103.705
<b>102.5</b>	169.588	209.437	237.925	256.756	261.450	256.756	237.925	209.437	169.588	141.155
<b>105.0</b>	215.359	260.223	291.431	312.290	317.891	312.290	291.431	260.223	215.359	180.897
<b>107.5</b>	262.464	312.396	346.271	368.943	375.078	368.943	346.271	312.396	262.464	223.041
<b>110.0</b>	310.422	364.888	400.417	424.476	431.038	424.476	400.417	364.888	310.422	266.625
<b>112.5</b>	359.234	415.354	454.457	482.517	489.079	482.517	454.457	415.354	359.234	310.582
<b>115.0</b>	406.766	467.580	509.831	539.331	546.799	539.331	509.831	467.580	406.766	354.166
<b>117.5</b>	453.443	519.699	564.403	596.412	603.880	596.412	564.403	519.699	453.443	397.323
<b>120.0</b>	500.388	571.339	618.283	653.492	661.494	653.492	618.283	571.339	500.388	440.107
<b>122.5</b>	546.799	622.018	672.163	709.505	718.041	709.505	672.163	622.018	546.799	483.478
<b>125.0</b>	593.210	671.629	724.443	764.452	772.987	764.452	724.443	671.629	593.210	525.834
<b>127.5</b>	639.622	719.641	776.189	816.731	827.401	816.731	776.189	719.641	639.622	568.138
<b>130.0</b>	683.900	767.119	825.801	867.411	878.613	867.411	825.801	767.119	683.900	609.748
<b>132.5</b>	726.577	814.064	873.812	915.956	927.692	915.956	873.812	814.064	726.577	650.291

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## CANDELA TABULATION - (Cont.)

135.0	769.253	859.408	919.690	963.434	976.237	963.434	919.690	859.408	769.253	691.902
137.5	811.930	902.086	963.968	1009.846	1023.182	1009.846	963.968	902.086	811.930	734.045
140.0	854.074	943.162	1007.178	1054.123	1066.392	1054.123	1007.178	943.162	854.074	775.655
142.5	894.617	982.639	1046.654	1094.665	1108.002	1094.665	1046.654	982.639	894.617	816.731
145.0	933.027	1022.115	1083.997	1132.542	1146.945	1132.542	1083.997	1022.115	933.027	857.274
147.5	969.836	1058.924	1120.272	1167.216	1181.620	1167.216	1120.272	1058.924	969.836	896.218
150.0	1005.578	1092.531	1152.813	1198.157	1212.028	1198.157	1152.813	1092.531	1005.578	933.560
152.5	1039.719	1123.472	1179.486	1223.764	1237.634	1223.764	1179.486	1123.472	1039.719	968.768
155.0	1070.660	1150.679	1202.425	1244.569	1257.372	1244.569	1202.425	1150.679	1070.660	1001.843
157.5	1098.933	1174.152	1221.096	1260.573	1272.842	1260.573	1221.096	1174.152	1098.933	1033.851
160.0	1124.006	1193.890	1236.034	1271.776	1284.045	1271.776	1236.034	1193.890	1124.006	1063.725
162.5	1146.411	1210.427	1247.236	1279.244	1289.913	1279.244	1247.236	1210.427	1146.411	1091.999
165.0	1166.150	1222.696	1254.705	1284.045	1292.580	1284.045	1254.705	1222.696	1166.150	1118.138
167.5	1183.221	1231.766	1257.372	1282.978	1291.514	1282.978	1257.372	1231.766	1183.221	1141.611
170.0	1197.625	1237.100	1256.839	1277.110	1285.112	1277.110	1256.839	1237.100	1197.625	1162.949
172.5	1208.827	1239.768	1252.037	1268.041	1273.376	1268.041	1252.037	1239.768	1208.827	1182.154
175.0	1216.829	1238.701	1244.035	1255.238	1257.905	1255.238	1244.035	1238.701	1216.829	1199.225
177.5	1221.630	1233.900	1232.299	1238.167	1240.301	1238.167	1232.299	1233.900	1221.630	1214.162
180.0	1220.018	1220.018	1220.018	1220.018	1220.018	1220.018	1220.018	1220.018	1220.018	1220.018

## Vert. Angles 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	1182.120	1182.120	1182.120	1182.120	1182.120	1182.120	1182.120
2.5	1159.904	1157.321	1158.354	1157.321	1159.904	1175.920	1183.154
5.0	1138.721	1133.038	1132.004	1133.038	1138.721	1161.454	1178.504
7.5	1116.504	1106.171	1104.105	1106.171	1116.504	1144.921	1170.754
10.0	1092.738	1078.272	1074.138	1078.272	1092.738	1126.321	1159.904
12.5	1067.422	1048.822	1043.139	1048.822	1067.422	1105.655	1145.954
15.0	1039.522	1017.306	1011.106	1017.306	1039.522	1082.922	1129.421
17.5	1009.556	985.789	977.523	985.789	1009.556	1057.605	1110.305
20.0	978.039	951.690	942.906	951.690	978.039	1030.222	1088.605
22.5	946.006	916.040	907.257	916.040	946.006	1001.289	1064.322
25.0	912.940	881.424	871.091	881.424	912.940	970.289	1036.939
27.5	879.357	846.291	834.924	846.291	879.357	938.256	1006.972
30.0	843.707	811.158	799.791	811.158	843.707	904.157	973.906
32.5	805.991	773.958	764.142	773.958	805.991	867.991	939.290
35.0	767.758	734.692	725.392	734.692	767.758	830.274	903.640
37.5	729.009	694.909	684.059	694.909	729.009	791.008	866.441
40.0	689.226	654.610	642.726	654.610	689.226	751.225	827.174
42.5	649.960	615.343	603.977	615.343	649.960	710.926	786.358
45.0	611.210	578.660	568.844	578.660	611.210	670.109	745.025
47.5	573.494	543.011	533.194	543.011	573.494	629.810	703.692
50.0	535.777	506.379	497.235	506.379	535.777	590.544	662.359
52.5	498.113	469.697	460.448	469.697	498.113	550.244	619.477
55.0	459.983	432.704	423.714	432.704	459.983	509.273	574.527
57.5	421.544	395.659	388.116	395.659	421.544	468.250	529.578
60.0	385.016	360.784	353.448	360.784	385.016	426.245	484.628
62.5	346.421	325.135	317.953	325.135	346.421	384.809	439.162
65.0	307.878	289.175	282.769	289.175	307.878	343.011	393.954
67.5	270.369	253.577	247.584	253.577	270.369	300.800	347.920
70.0	232.549	218.548	213.278	218.548	232.549	258.227	300.645
72.5	195.453	184.138	179.436	184.138	195.453	216.016	254.197
75.0	159.183	150.400	146.267	150.400	159.183	175.200	208.576
77.5	124.877	118.057	114.957	118.057	124.877	136.709	164.247
80.0	92.276	87.057	84.732	87.057	92.276	100.439	122.087

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : MX4UD-4-00-L8-8TWU-L8-8TWD-ASYUD-DIM-UNV 4000K\_.IES****CANDELA TABULATION - (Cont.)**

82.5	62.051	57.969	56.213	57.969	62.051	67.269	84.164
85.0	34.203	31.155	29.708	31.155	34.203	37.975	51.149
87.5	9.713	7.543	6.768	7.543	9.713	13.123	23.301
90.0	0.630	0.630	0.525	0.630	0.630	0.736	4.830
92.5	10.029	7.788	6.989	7.788	10.029	13.550	24.059
95.0	35.315	32.167	30.674	32.167	35.315	39.210	52.812
97.5	64.069	59.855	58.041	59.855	64.069	69.457	86.901
100.0	95.277	89.888	87.488	89.888	95.277	103.705	126.057
102.5	128.938	121.896	118.695	121.896	128.938	141.155	169.588
105.0	164.360	155.291	151.024	155.291	164.360	180.897	215.359
107.5	201.809	190.126	185.271	190.126	201.809	223.041	262.464
110.0	240.112	225.655	220.213	225.655	240.112	266.625	310.422
112.5	279.161	261.823	255.635	261.823	279.161	310.582	359.234
115.0	317.891	298.579	291.964	298.579	317.891	354.166	406.766
117.5	357.687	335.708	328.293	335.708	357.687	397.323	453.443
120.0	397.536	372.517	364.942	372.517	397.536	440.107	500.388
122.5	435.252	408.526	400.738	408.526	435.252	483.478	546.799
125.0	474.942	446.775	437.493	446.775	474.942	525.834	593.210
127.5	514.312	484.971	475.423	484.971	514.312	568.138	639.622
130.0	553.201	522.847	513.404	522.847	553.201	609.748	683.900
132.5	592.144	560.669	550.534	560.669	592.144	650.291	726.577
135.0	631.086	597.478	587.342	597.478	631.086	691.902	769.253
137.5	671.097	635.354	623.618	635.354	671.097	734.045	811.930
140.0	711.639	675.897	663.627	675.897	711.639	775.655	854.074
142.5	752.716	717.507	706.305	717.507	752.716	816.731	894.617
145.0	792.726	758.584	748.982	758.584	792.726	857.274	933.027
147.5	832.202	799.128	788.992	799.128	832.202	896.218	969.836
150.0	871.145	837.537	825.801	837.537	871.145	933.560	1005.578
152.5	907.954	873.812	862.076	873.812	907.954	968.768	1039.719
155.0	942.629	910.088	899.418	910.088	942.629	1001.843	1070.660
157.5	976.771	945.830	936.761	945.830	976.771	1033.851	1098.933
160.0	1009.846	982.639	973.570	982.639	1009.846	1063.725	1124.006
162.5	1042.387	1017.847	1009.312	1017.847	1042.387	1091.999	1146.411
165.0	1073.327	1050.388	1043.987	1050.388	1073.327	1118.138	1166.150
167.5	1102.134	1082.929	1077.062	1082.929	1102.134	1141.611	1183.221
170.0	1128.274	1113.337	1109.069	1113.337	1128.274	1162.949	1197.625
172.5	1152.813	1142.144	1140.011	1142.144	1152.813	1182.154	1208.827
175.0	1175.752	1169.884	1168.817	1169.884	1175.752	1199.225	1216.829
177.5	1197.625	1194.957	1196.023	1194.957	1197.625	1214.162	1221.630
180.0	1220.018	1220.018	1220.018	1220.018	1220.018	1220.018	1220.018

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : MX4UD-4-00-L8-8TWU-L8-8TWD-ASYUD-DIM-UNV 4000K\_.IES****ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	430.55	N.A.	6.50
0-30	910.21	N.A.	13.70
0-40	1480.08	N.A.	22.20
0-60	2580.81	N.A.	38.70
0-80	3210.54	N.A.	48.10
0-90	3280.63	N.A.	49.20
10-90	3168.93	N.A.	47.50
20-40	1049.53	N.A.	15.70
20-50	1630.13	N.A.	24.40
40-70	1497.71	N.A.	22.50
60-80	629.73	N.A.	9.40
70-80	232.75	N.A.	3.50
80-90	70.09	N.A.	1.10
90-110	312.63	N.A.	4.70
90-120	722.52	N.A.	10.80
90-130	1259.56	N.A.	18.90
90-150	2447.45	N.A.	36.70
90-180	3387.26	N.A.	50.80
110-180	3074.62	N.A.	46.10
0-180	6667.89	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	111.70
10-20	318.86
20-30	479.66
30-40	569.87
40-50	580.60
50-60	520.13
60-70	396.98
70-80	232.75
80-90	70.09
90-100	72.31
100-110	240.32
110-120	409.89
120-130	537.04
130-140	599.48
140-150	588.40
150-160	495.26
160-170	329.23
170-180	115.33

# IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4UD-4-00-L8-8TWU-L8-8TWD-ASYUD-DIM-UNV 4000K\_.IES

## COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC RW	80				70				50			30			10			0
	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-L8-8TWU-L8-8TWD-ASYUD-DIM-UNV 4000K\_.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	15.5	16.4	16.5	17.4	18.6	UGR Viewed Endwise			
	3H	17.3	18.0	18.2	19.0	20.3	17.2	18.1	18.2	19.1
	4H	17.9	18.6	18.9	19.6	20.9	19.1	19.9	20.1	20.9
	6H	18.3	19.0	19.3	20.0	21.3	19.9	20.6	20.9	21.6
	8H	18.4	19.1	19.4	20.1	21.4	20.5	21.2	21.5	22.2
	12H	18.5	19.1	19.5	20.1	21.5	20.7	21.4	21.7	22.4

4H	2H	16.1	16.9	17.1	17.8	19.2	20.9	21.5	21.9	22.5
	3H	18.1	18.7	19.1	19.7	21.0	17.8	18.5	18.7	19.5
	4H	18.8	19.4	19.8	20.4	21.8	19.9	20.5	20.9	21.5
	6H	19.4	19.9	20.4	20.9	22.3	20.8	21.3	21.8	22.4
	8H	19.6	20.0	20.6	21.0	22.4	21.5	22.0	22.5	23.0
	12H	19.6	20.1	20.7	21.1	22.5	21.8	22.3	22.8	23.3

8H	4H	19.1	19.6	20.2	20.6	22.0	22.0	22.4	23.1	23.5
	6H	19.8	20.2	20.9	21.3	22.6	21.0	21.5	22.0	22.5
	8H	20.1	20.4	21.1	21.5	22.9	21.9	22.3	23.0	23.4
	12H	20.3	20.6	21.3	21.6	23.0	22.3	22.6	23.4	23.7

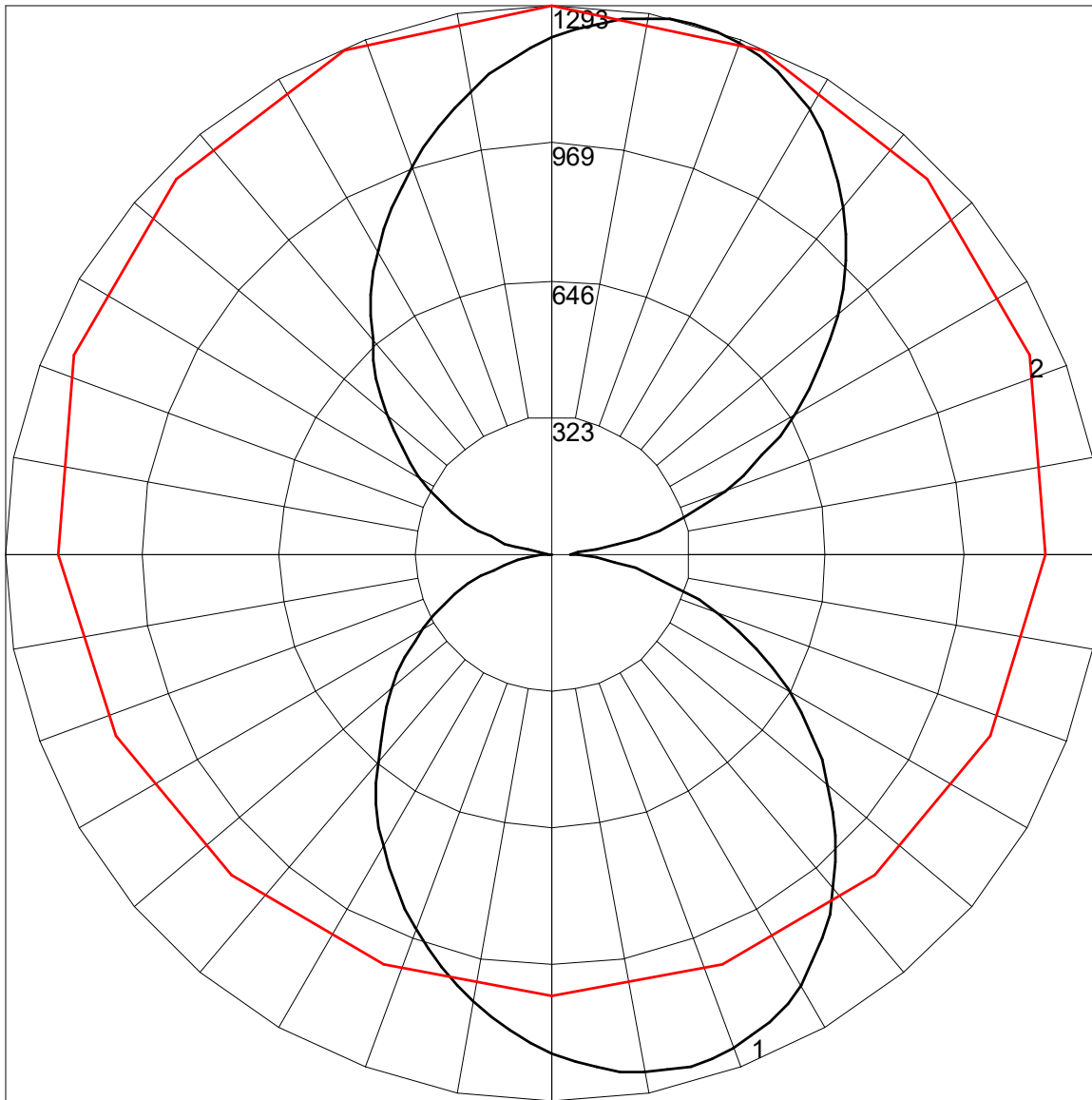
12H	4H	19.1	19.6	20.2	20.6	22.0	22.6	22.9	23.7	24.0
	6H	19.9	20.2	21.0	21.3	22.7	21.0	21.4	22.1	22.5
	8H	20.2	20.5	21.3	21.5	23.0	22.0	22.3	23.0	23.4

Maximum UGR = 25.4

# IES INDOOR REPORT

PHOTOMETRIC FILENAME : MX4UD-4-00-L8-8TWU-L8-8TWD-ASYUD-DIM-UNV 4000K\_.IES

## POLAR GRAPH



Maximum Candela = 1292.58 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.)