



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4CRDI-L12-835U-L12-835D-XXX-DIM1-UNV-OW-CSU-OW-CSD-WM\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13571228.02 and #13131414.01

[TESTLAB]

[ISSUE DATE] 15-FEB-2021

[MANUFAC] WILLIAMS INDOOR

[MORE] H.E. WILLIAMS, INC. - CARTHAGE, MO

[LUMCAT] 4CRDI-L12-835U-L12-835D-xxx-DIM1-UNV-OW-CSU-OW-CSD-WM

[MORE]

[LUMINAIRE] White formed aluminum housing, wide distrib anodized aluminum reflector trim w/clear cover glass up,

[MORE] wide distrib anodized alum open reflector trim down

[LAMP] Two white LEDs (one up/one down)

[\_SEARCH\_SOURCETYPE] LED

[\_SEARCH\_APPLICATION] INDOOR, DIRECT, INDIRECT

[\_SEARCH\_MOUNTING] WALL

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2306
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	81
Total Luminaire Watts	28.5
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	Circular w/ Sides
Luminous Length (0-180)	0.31 ft (Diameter)
Luminous Width (90-270)	0.31 ft (Diameter)
Luminous Height	1.44 ft

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	2216	2216	2216
55	462	462	462
65	145	145	145
75	27	27	27
85	2	2	2

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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>	1027.621	1027.621	1027.621	1027.621	1027.621	1027.621	1027.621	1027.621	1027.621	1027.621
<b>2.5</b>	1029.154	1029.154	1029.154	1029.154	1029.154	1029.154	1029.154	1029.154	1029.154	1029.154
<b>5.0</b>	1038.863	1038.863	1038.863	1038.863	1038.863	1038.863	1038.863	1038.863	1038.863	1038.863
<b>7.5</b>	1057.770	1057.770	1057.770	1057.770	1057.770	1057.770	1057.770	1057.770	1057.770	1057.770
<b>10.0</b>	1073.100	1073.100	1073.100	1073.100	1073.100	1073.100	1073.100	1073.100	1073.100	1073.100
<b>12.5</b>	1075.144	1075.144	1075.144	1075.144	1075.144	1075.144	1075.144	1075.144	1075.144	1075.144
<b>15.0</b>	1066.457	1066.457	1066.457	1066.457	1066.457	1066.457	1066.457	1066.457	1066.457	1066.457
<b>17.5</b>	1056.748	1056.748	1056.748	1056.748	1056.748	1056.748	1056.748	1056.748	1056.748	1056.748
<b>20.0</b>	1042.440	1042.440	1042.440	1042.440	1042.440	1042.440	1042.440	1042.440	1042.440	1042.440
<b>22.5</b>	1004.626	1004.626	1004.626	1004.626	1004.626	1004.626	1004.626	1004.626	1004.626	1004.626
<b>25.0</b>	949.949	949.949	949.949	949.949	949.949	949.949	949.949	949.949	949.949	949.949
<b>27.5</b>	870.233	870.233	870.233	870.233	870.233	870.233	870.233	870.233	870.233	870.233
<b>30.0</b>	774.676	774.676	774.676	774.676	774.676	774.676	774.676	774.676	774.676	774.676
<b>32.5</b>	669.921	669.921	669.921	669.921	669.921	669.921	669.921	669.921	669.921	669.921
<b>35.0</b>	556.479	556.479	556.479	556.479	556.479	556.479	556.479	556.479	556.479	556.479
<b>37.5</b>	421.268	421.268	421.268	421.268	421.268	421.268	421.268	421.268	421.268	421.268
<b>40.0</b>	266.589	266.589	266.589	266.589	266.589	266.589	266.589	266.589	266.589	266.589
<b>42.5</b>	146.555	146.555	146.555	146.555	146.555	146.555	146.555	146.555	146.555	146.555
<b>45.0</b>	76.803	76.803	76.803	76.803	76.803	76.803	76.803	76.803	76.803	76.803
<b>47.5</b>	47.830	47.830	47.830	47.830	47.830	47.830	47.830	47.830	47.830	47.830
<b>50.0</b>	33.419	33.419	33.419	33.419	33.419	33.419	33.419	33.419	33.419	33.419
<b>52.5</b>	24.375	24.375	24.375	24.375	24.375	24.375	24.375	24.375	24.375	24.375
<b>55.0</b>	17.732	17.732	17.732	17.732	17.732	17.732	17.732	17.732	17.732	17.732
<b>57.5</b>	13.439	13.439	13.439	13.439	13.439	13.439	13.439	13.439	13.439	13.439
<b>60.0</b>	10.475	10.475	10.475	10.475	10.475	10.475	10.475	10.475	10.475	10.475
<b>62.5</b>	8.023	8.023	8.023	8.023	8.023	8.023	8.023	8.023	8.023	8.023
<b>65.0</b>	5.928	5.928	5.928	5.928	5.928	5.928	5.928	5.928	5.928	5.928
<b>67.5</b>	4.139	4.139	4.139	4.139	4.139	4.139	4.139	4.139	4.139	4.139
<b>70.0</b>	2.759	2.759	2.759	2.759	2.759	2.759	2.759	2.759	2.759	2.759
<b>72.5</b>	1.788	1.788	1.788	1.788	1.788	1.788	1.788	1.788	1.788	1.788
<b>75.0</b>	1.124	1.124	1.124	1.124	1.124	1.124	1.124	1.124	1.124	1.124
<b>77.5</b>	0.664	0.664	0.664	0.664	0.664	0.664	0.664	0.664	0.664	0.664
<b>80.0</b>	0.409	0.409	0.409	0.409	0.409	0.409	0.409	0.409	0.409	0.409
<b>82.5</b>	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204
<b>85.0</b>	0.102	0.102	0.102	0.102	0.102	0.102	0.102	0.102	0.102	0.102
<b>87.5</b>	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051
<b>90.0</b>	2.272	2.272	2.272	2.272	2.272	2.272	2.272	2.272	2.272	2.272
<b>92.5</b>	2.517	2.517	2.517	2.517	2.517	2.517	2.517	2.517	2.517	2.517
<b>95.0</b>	2.886	2.886	2.886	2.886	2.886	2.886	2.886	2.886	2.886	2.886
<b>97.5</b>	3.438	3.438	3.438	3.438	3.438	3.438	3.438	3.438	3.438	3.438
<b>100.0</b>	4.175	4.175	4.175	4.175	4.175	4.175	4.175	4.175	4.175	4.175
<b>102.5</b>	4.973	4.973	4.973	4.973	4.973	4.973	4.973	4.973	4.973	4.973
<b>105.0</b>	5.956	5.956	5.956	5.956	5.956	5.956	5.956	5.956	5.956	5.956
<b>107.5</b>	7.184	7.184	7.184	7.184	7.184	7.184	7.184	7.184	7.184	7.184
<b>110.0</b>	8.719	8.719	8.719	8.719	8.719	8.719	8.719	8.719	8.719	8.719
<b>112.5</b>	10.622	10.622	10.622	10.622	10.622	10.622	10.622	10.622	10.622	10.622
<b>115.0</b>	13.078	13.078	13.078	13.078	13.078	13.078	13.078	13.078	13.078	13.078
<b>117.5</b>	16.148	16.148	16.148	16.148	16.148	16.148	16.148	16.148	16.148	16.148
<b>120.0</b>	20.016	20.016	20.016	20.016	20.016	20.016	20.016	20.016	20.016	20.016
<b>122.5</b>	24.806	24.806	24.806	24.806	24.806	24.806	24.806	24.806	24.806	24.806
<b>125.0</b>	30.761	30.761	30.761	30.761	30.761	30.761	30.761	30.761	30.761	30.761
<b>127.5</b>	38.559	38.559	38.559	38.559	38.559	38.559	38.559	38.559	38.559	38.559
<b>130.0</b>	47.769	47.769	47.769	47.769	47.769	47.769	47.769	47.769	47.769	47.769
<b>132.5</b>	59.251	59.251	59.251	59.251	59.251	59.251	59.251	59.251	59.251	59.251

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**CANDELA TABULATION - (Cont.)**

135.0	78.039	78.039	78.039	78.039	78.039	78.039	78.039	78.039	78.039	78.039
137.5	117.581	117.581	117.581	117.581	117.581	117.581	117.581	117.581	117.581	117.581
140.0	189.603	189.603	189.603	189.603	189.603	189.603	189.603	189.603	189.603	189.603
142.5	285.571	285.571	285.571	285.571	285.571	285.571	285.571	285.571	285.571	285.571
145.0	376.136	376.136	376.136	376.136	376.136	376.136	376.136	376.136	376.136	376.136
147.5	459.211	459.211	459.211	459.211	459.211	459.211	459.211	459.211	459.211	459.211
150.0	564.819	564.819	564.819	564.819	564.819	564.819	564.819	564.819	564.819	564.819
152.5	679.698	679.698	679.698	679.698	679.698	679.698	679.698	679.698	679.698	679.698
155.0	786.534	786.534	786.534	786.534	786.534	786.534	786.534	786.534	786.534	786.534
157.5	838.110	838.110	838.110	838.110	838.110	838.110	838.110	838.110	838.110	838.110
160.0	861.442	861.442	861.442	861.442	861.442	861.442	861.442	861.442	861.442	861.442
162.5	873.108	873.108	873.108	873.108	873.108	873.108	873.108	873.108	873.108	873.108
165.0	898.282	898.282	898.282	898.282	898.282	898.282	898.282	898.282	898.282	898.282
167.5	922.842	922.842	922.842	922.842	922.842	922.842	922.842	922.842	922.842	922.842
170.0	930.210	930.210	930.210	930.210	930.210	930.210	930.210	930.210	930.210	930.210
172.5	910.562	910.562	910.562	910.562	910.562	910.562	910.562	910.562	910.562	910.562
175.0	882.318	882.318	882.318	882.318	882.318	882.318	882.318	882.318	882.318	882.318
177.5	852.846	852.846	852.846	852.846	852.846	852.846	852.846	852.846	852.846	852.846
180.0	840.000	840.000	840.000	840.000	840.000	840.000	840.000	840.000	840.000	840.000

**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	1027.621	1027.621	1027.621	1027.621	1027.621	1027.621	1027.621
2.5	1029.154	1029.154	1029.154	1029.154	1029.154	1029.154	1029.154
5.0	1038.863	1038.863	1038.863	1038.863	1038.863	1038.863	1038.863
7.5	1057.770	1057.770	1057.770	1057.770	1057.770	1057.770	1057.770
10.0	1073.100	1073.100	1073.100	1073.100	1073.100	1073.100	1073.100
12.5	1075.144	1075.144	1075.144	1075.144	1075.144	1075.144	1075.144
15.0	1066.457	1066.457	1066.457	1066.457	1066.457	1066.457	1066.457
17.5	1056.748	1056.748	1056.748	1056.748	1056.748	1056.748	1056.748
20.0	1042.440	1042.440	1042.440	1042.440	1042.440	1042.440	1042.440
22.5	1004.626	1004.626	1004.626	1004.626	1004.626	1004.626	1004.626
25.0	949.949	949.949	949.949	949.949	949.949	949.949	949.949
27.5	870.233	870.233	870.233	870.233	870.233	870.233	870.233
30.0	774.676	774.676	774.676	774.676	774.676	774.676	774.676
32.5	669.921	669.921	669.921	669.921	669.921	669.921	669.921
35.0	556.479	556.479	556.479	556.479	556.479	556.479	556.479
37.5	421.268	421.268	421.268	421.268	421.268	421.268	421.268
40.0	266.589	266.589	266.589	266.589	266.589	266.589	266.589
42.5	146.555	146.555	146.555	146.555	146.555	146.555	146.555
45.0	76.803	76.803	76.803	76.803	76.803	76.803	76.803
47.5	47.830	47.830	47.830	47.830	47.830	47.830	47.830
50.0	33.419	33.419	33.419	33.419	33.419	33.419	33.419
52.5	24.375	24.375	24.375	24.375	24.375	24.375	24.375
55.0	17.732	17.732	17.732	17.732	17.732	17.732	17.732
57.5	13.439	13.439	13.439	13.439	13.439	13.439	13.439
60.0	10.475	10.475	10.475	10.475	10.475	10.475	10.475
62.5	8.023	8.023	8.023	8.023	8.023	8.023	8.023
65.0	5.928	5.928	5.928	5.928	5.928	5.928	5.928
67.5	4.139	4.139	4.139	4.139	4.139	4.139	4.139
70.0	2.759	2.759	2.759	2.759	2.759	2.759	2.759
72.5	1.788	1.788	1.788	1.788	1.788	1.788	1.788
75.0	1.124	1.124	1.124	1.124	1.124	1.124	1.124
77.5	0.664	0.664	0.664	0.664	0.664	0.664	0.664
80.0	0.409	0.409	0.409	0.409	0.409	0.409	0.409

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4CRDI-L12-835U-L12-835D-XXX-DIM1-UNV-OW-CSU-OW-CSD-WM\_.IES****CANDELA TABULATION - (Cont.)**

<b>82.5</b>	0.204	0.204	0.204	0.204	0.204	0.204	0.204
<b>85.0</b>	0.102	0.102	0.102	0.102	0.102	0.102	0.102
<b>87.5</b>	0.051	0.051	0.051	0.051	0.051	0.051	0.051
<b>90.0</b>	2.272	2.272	2.272	2.272	2.272	2.272	2.272
<b>92.5</b>	2.517	2.517	2.517	2.517	2.517	2.517	2.517
<b>95.0</b>	2.886	2.886	2.886	2.886	2.886	2.886	2.886
<b>97.5</b>	3.438	3.438	3.438	3.438	3.438	3.438	3.438
<b>100.0</b>	4.175	4.175	4.175	4.175	4.175	4.175	4.175
<b>102.5</b>	4.973	4.973	4.973	4.973	4.973	4.973	4.973
<b>105.0</b>	5.956	5.956	5.956	5.956	5.956	5.956	5.956
<b>107.5</b>	7.184	7.184	7.184	7.184	7.184	7.184	7.184
<b>110.0</b>	8.719	8.719	8.719	8.719	8.719	8.719	8.719
<b>112.5</b>	10.622	10.622	10.622	10.622	10.622	10.622	10.622
<b>115.0</b>	13.078	13.078	13.078	13.078	13.078	13.078	13.078
<b>117.5</b>	16.148	16.148	16.148	16.148	16.148	16.148	16.148
<b>120.0</b>	20.016	20.016	20.016	20.016	20.016	20.016	20.016
<b>122.5</b>	24.806	24.806	24.806	24.806	24.806	24.806	24.806
<b>125.0</b>	30.761	30.761	30.761	30.761	30.761	30.761	30.761
<b>127.5</b>	38.559	38.559	38.559	38.559	38.559	38.559	38.559
<b>130.0</b>	47.769	47.769	47.769	47.769	47.769	47.769	47.769
<b>132.5</b>	59.251	59.251	59.251	59.251	59.251	59.251	59.251
<b>135.0</b>	78.039	78.039	78.039	78.039	78.039	78.039	78.039
<b>137.5</b>	117.581	117.581	117.581	117.581	117.581	117.581	117.581
<b>140.0</b>	189.603	189.603	189.603	189.603	189.603	189.603	189.603
<b>142.5</b>	285.571	285.571	285.571	285.571	285.571	285.571	285.571
<b>145.0</b>	376.136	376.136	376.136	376.136	376.136	376.136	376.136
<b>147.5</b>	459.211	459.211	459.211	459.211	459.211	459.211	459.211
<b>150.0</b>	564.819	564.819	564.819	564.819	564.819	564.819	564.819
<b>152.5</b>	679.698	679.698	679.698	679.698	679.698	679.698	679.698
<b>155.0</b>	786.534	786.534	786.534	786.534	786.534	786.534	786.534
<b>157.5</b>	838.110	838.110	838.110	838.110	838.110	838.110	838.110
<b>160.0</b>	861.442	861.442	861.442	861.442	861.442	861.442	861.442
<b>162.5</b>	873.108	873.108	873.108	873.108	873.108	873.108	873.108
<b>165.0</b>	898.282	898.282	898.282	898.282	898.282	898.282	898.282
<b>167.5</b>	922.842	922.842	922.842	922.842	922.842	922.842	922.842
<b>170.0</b>	930.210	930.210	930.210	930.210	930.210	930.210	930.210
<b>172.5</b>	910.562	910.562	910.562	910.562	910.562	910.562	910.562
<b>175.0</b>	882.318	882.318	882.318	882.318	882.318	882.318	882.318
<b>177.5</b>	852.846	852.846	852.846	852.846	852.846	852.846	852.846
<b>180.0</b>	840.000	840.000	840.000	840.000	840.000	840.000	840.000

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4CRDI-L12-835U-L12-835D-XXX-DIM1-UNV-OW-CSU-OW-CSD-WM\_.IES****ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	401.55	N.A.	17.40
0-30	829.93	N.A.	36.00
0-40	1164.3	N.A.	50.50
0-60	1260.71	N.A.	54.70
0-80	1268.15	N.A.	55.00
0-90	1268.61	N.A.	55.00
10-90	1168.2	N.A.	50.70
20-40	762.75	N.A.	33.10
20-50	841.98	N.A.	36.50
40-70	102.49	N.A.	4.40
60-80	7.44	N.A.	0.30
70-80	1.36	N.A.	0.10
80-90	0.46	N.A.	0.00
90-110	9.77	N.A.	0.40
90-120	23.15	N.A.	1.00
90-130	51.62	N.A.	2.20
90-150	353.37	N.A.	15.30
90-180	1037.43	N.A.	45.00
110-180	1027.66	N.A.	44.60
0-180	2306.04	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	100.41
10-20	301.14
20-30	428.38
30-40	334.37
40-50	79.22
50-60	17.19
60-70	6.08
70-80	1.36
80-90	0.46
90-100	3.29
100-110	6.48
110-120	13.38
120-130	28.48
130-140	70.93
140-150	230.82
150-160	345.05
160-170	253.25
170-180	85.75

# IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4CRDI-L12-835U-L12-835D-XXX-DIM1-UNV-OW-CSU-OW-CSD-WM\_.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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55
1	101	98	95	92	94	91	89	86	79	77	76	68	67	66	57	57	56	51
2	95	89	84	80	88	83	79	75	73	70	67	63	61	59	54	53	51	47
3	88	81	75	70	82	76	71	67	67	63	60	58	56	53	51	49	47	44
4	82	74	67	62	77	69	64	59	61	57	54	54	51	49	47	45	43	40
5	77	67	61	56	72	64	58	53	57	52	49	50	47	44	44	42	40	37
6	72	62	55	50	67	59	53	48	53	48	45	47	43	41	42	39	37	35
7	67	57	50	46	63	54	48	44	49	44	41	44	40	38	39	36	34	32
8	63	53	46	42	60	50	44	40	45	41	37	41	37	35	37	34	32	30
9	60	49	43	38	56	47	41	37	42	38	35	38	35	32	35	32	30	28
10	56	46	39	35	53	44	38	34	40	35	32	36	32	30	33	30	28	26

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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

X=2H	Y=2H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	3H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	4H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	6H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	8H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	12H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9

### UGR Viewed Endwise

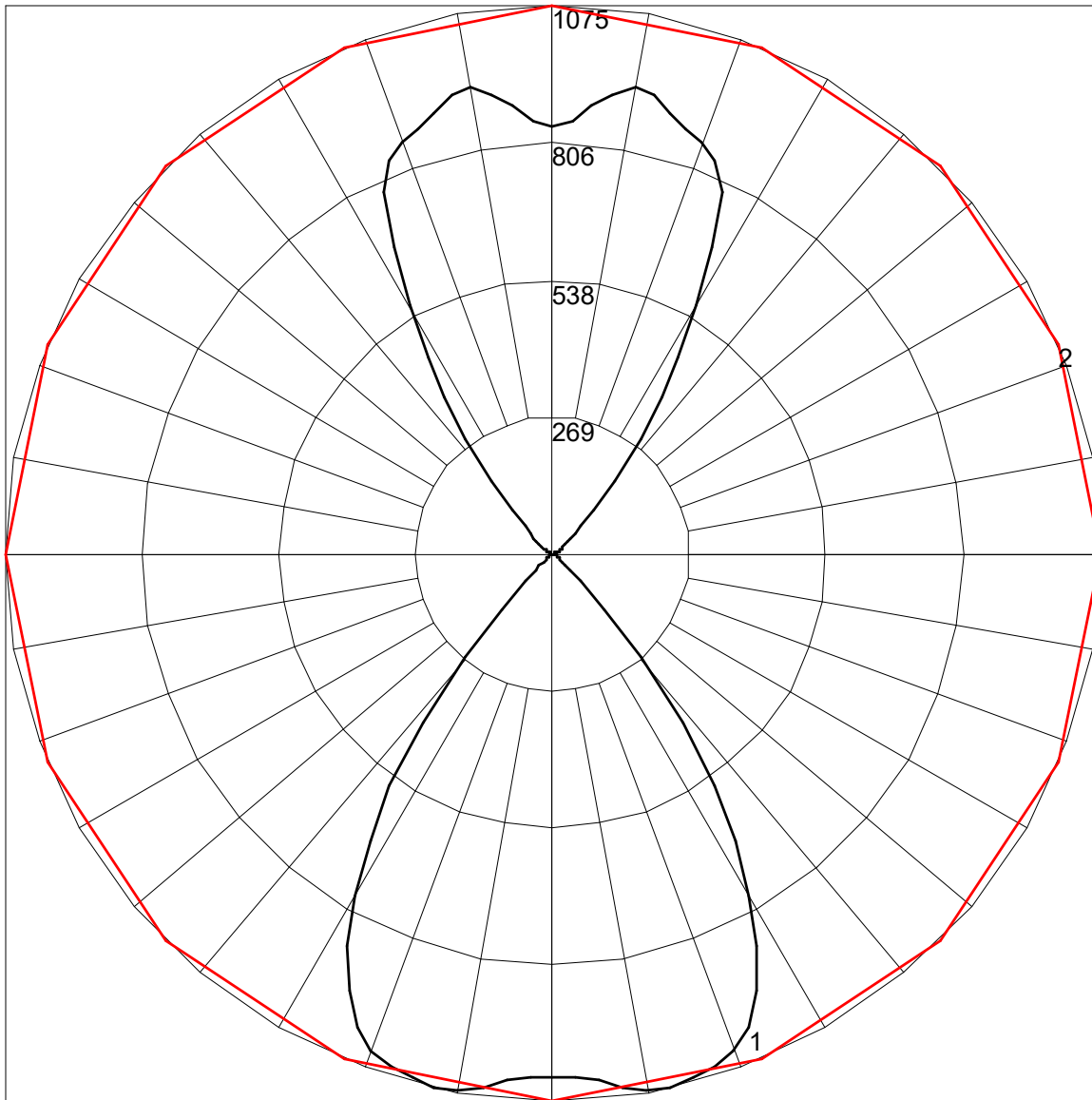
4H	2H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	3H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	4H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	6H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	8H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	12H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
8H	4H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	6H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	8H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	12H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
12H	4H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	6H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
	8H	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9

Maximum UGR = 2.9

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## POLAR GRAPH



Maximum Candela = 1075.144 Located At Horizontal Angle = 0, Vertical Angle = 12.5

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

# 2 - Horizontal Cone Through Vertical Angle (12.5) (Through Max. Cd.)