



## IES INDOOR REPORT

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

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13571228.02 and #13257153.08

[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-LN-WHD-WM

[MORE]

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

[MORE] narrow distrib white painted flush prismatic lens 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	2341
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	82
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	3963	3963	3963
55	2238	2238	2238
65	1212	1212	1212
75	539	539	539
85	99	99	99

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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>	4492.644	4492.644	4492.644	4492.644	4492.644	4492.644	4492.644	4492.644	4492.644	4492.644
<b>2.5</b>	4327.414	4327.414	4327.414	4327.414	4327.414	4327.414	4327.414	4327.414	4327.414	4327.414
<b>5.0</b>	3880.890	3880.890	3880.890	3880.890	3880.890	3880.890	3880.890	3880.890	3880.890	3880.890
<b>7.5</b>	3224.000	3224.000	3224.000	3224.000	3224.000	3224.000	3224.000	3224.000	3224.000	3224.000
<b>10.0</b>	2485.704	2485.704	2485.704	2485.704	2485.704	2485.704	2485.704	2485.704	2485.704	2485.704
<b>12.5</b>	1801.410	1801.410	1801.410	1801.410	1801.410	1801.410	1801.410	1801.410	1801.410	1801.410
<b>15.0</b>	1263.808	1263.808	1263.808	1263.808	1263.808	1263.808	1263.808	1263.808	1263.808	1263.808
<b>17.5</b>	900.302	900.302	900.302	900.302	900.302	900.302	900.302	900.302	900.302	900.302
<b>20.0</b>	678.813	678.813	678.813	678.813	678.813	678.813	678.813	678.813	678.813	678.813
<b>22.5</b>	541.793	541.793	541.793	541.793	541.793	541.793	541.793	541.793	541.793	541.793
<b>25.0</b>	440.882	440.882	440.882	440.882	440.882	440.882	440.882	440.882	440.882	440.882
<b>27.5</b>	358.186	358.186	358.186	358.186	358.186	358.186	358.186	358.186	358.186	358.186
<b>30.0</b>	295.721	295.721	295.721	295.721	295.721	295.721	295.721	295.721	295.721	295.721
<b>32.5</b>	252.520	252.520	252.520	252.520	252.520	252.520	252.520	252.520	252.520	252.520
<b>35.0</b>	221.731	221.731	221.731	221.731	221.731	221.731	221.731	221.731	221.731	221.731
<b>37.5</b>	197.631	197.631	197.631	197.631	197.631	197.631	197.631	197.631	197.631	197.631
<b>40.0</b>	175.950	175.950	175.950	175.950	175.950	175.950	175.950	175.950	175.950	175.950
<b>42.5</b>	155.558	155.558	155.558	155.558	155.558	155.558	155.558	155.558	155.558	155.558
<b>45.0</b>	137.342	137.342	137.342	137.342	137.342	137.342	137.342	137.342	137.342	137.342
<b>47.5</b>	121.545	121.545	121.545	121.545	121.545	121.545	121.545	121.545	121.545	121.545
<b>50.0</b>	107.843	107.843	107.843	107.843	107.843	107.843	107.843	107.843	107.843	107.843
<b>52.5</b>	96.236	96.236	96.236	96.236	96.236	96.236	96.236	96.236	96.236	96.236
<b>55.0</b>	85.920	85.920	85.920	85.920	85.920	85.920	85.920	85.920	85.920	85.920
<b>57.5</b>	76.167	76.167	76.167	76.167	76.167	76.167	76.167	76.167	76.167	76.167
<b>60.0</b>	66.898	66.898	66.898	66.898	66.898	66.898	66.898	66.898	66.898	66.898
<b>62.5</b>	58.032	58.032	58.032	58.032	58.032	58.032	58.032	58.032	58.032	58.032
<b>65.0</b>	49.650	49.650	49.650	49.650	49.650	49.650	49.650	49.650	49.650	49.650
<b>67.5</b>	41.993	41.993	41.993	41.993	41.993	41.993	41.993	41.993	41.993	41.993
<b>70.0</b>	34.980	34.980	34.980	34.980	34.980	34.980	34.980	34.980	34.980	34.980
<b>72.5</b>	28.613	28.613	28.613	28.613	28.613	28.613	28.613	28.613	28.613	28.613
<b>75.0</b>	22.810	22.810	22.810	22.810	22.810	22.810	22.810	22.810	22.810	22.810
<b>77.5</b>	17.490	17.490	17.490	17.490	17.490	17.490	17.490	17.490	17.490	17.490
<b>80.0</b>	12.654	12.654	12.654	12.654	12.654	12.654	12.654	12.654	12.654	12.654
<b>82.5</b>	8.221	8.221	8.221	8.221	8.221	8.221	8.221	8.221	8.221	8.221
<b>85.0</b>	4.191	4.191	4.191	4.191	4.191	4.191	4.191	4.191	4.191	4.191
<b>87.5</b>	0.806	0.806	0.806	0.806	0.806	0.806	0.806	0.806	0.806	0.806
<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	4492.644	4492.644	4492.644	4492.644	4492.644	4492.644	4492.644
2.5	4327.414	4327.414	4327.414	4327.414	4327.414	4327.414	4327.414
5.0	3880.890	3880.890	3880.890	3880.890	3880.890	3880.890	3880.890
7.5	3224.000	3224.000	3224.000	3224.000	3224.000	3224.000	3224.000
10.0	2485.704	2485.704	2485.704	2485.704	2485.704	2485.704	2485.704
12.5	1801.410	1801.410	1801.410	1801.410	1801.410	1801.410	1801.410
15.0	1263.808	1263.808	1263.808	1263.808	1263.808	1263.808	1263.808
17.5	900.302	900.302	900.302	900.302	900.302	900.302	900.302
20.0	678.813	678.813	678.813	678.813	678.813	678.813	678.813
22.5	541.793	541.793	541.793	541.793	541.793	541.793	541.793
25.0	440.882	440.882	440.882	440.882	440.882	440.882	440.882
27.5	358.186	358.186	358.186	358.186	358.186	358.186	358.186
30.0	295.721	295.721	295.721	295.721	295.721	295.721	295.721
32.5	252.520	252.520	252.520	252.520	252.520	252.520	252.520
35.0	221.731	221.731	221.731	221.731	221.731	221.731	221.731
37.5	197.631	197.631	197.631	197.631	197.631	197.631	197.631
40.0	175.950	175.950	175.950	175.950	175.950	175.950	175.950
42.5	155.558	155.558	155.558	155.558	155.558	155.558	155.558
45.0	137.342	137.342	137.342	137.342	137.342	137.342	137.342
47.5	121.545	121.545	121.545	121.545	121.545	121.545	121.545
50.0	107.843	107.843	107.843	107.843	107.843	107.843	107.843
52.5	96.236	96.236	96.236	96.236	96.236	96.236	96.236
55.0	85.920	85.920	85.920	85.920	85.920	85.920	85.920
57.5	76.167	76.167	76.167	76.167	76.167	76.167	76.167
60.0	66.898	66.898	66.898	66.898	66.898	66.898	66.898
62.5	58.032	58.032	58.032	58.032	58.032	58.032	58.032
65.0	49.650	49.650	49.650	49.650	49.650	49.650	49.650
67.5	41.993	41.993	41.993	41.993	41.993	41.993	41.993
70.0	34.980	34.980	34.980	34.980	34.980	34.980	34.980
72.5	28.613	28.613	28.613	28.613	28.613	28.613	28.613
75.0	22.810	22.810	22.810	22.810	22.810	22.810	22.810
77.5	17.490	17.490	17.490	17.490	17.490	17.490	17.490
80.0	12.654	12.654	12.654	12.654	12.654	12.654	12.654

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

<b>82.5</b>	8.221	8.221	8.221	8.221	8.221	8.221	8.221
<b>85.0</b>	4.191	4.191	4.191	4.191	4.191	4.191	4.191
<b>87.5</b>	0.806	0.806	0.806	0.806	0.806	0.806	0.806
<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-LN-WHD-WM\_.IES****ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	692.11	N.A.	29.60
0-30	898.55	N.A.	38.40
0-40	1039.68	N.A.	44.40
0-60	1223.87	N.A.	52.30
0-80	1297.89	N.A.	55.40
0-90	1303.51	N.A.	55.70
10-90	978.48	N.A.	41.80
20-40	347.57	N.A.	14.80
20-50	454.57	N.A.	19.40
40-70	233.76	N.A.	10.00
60-80	74.02	N.A.	3.20
70-80	24.44	N.A.	1.00
80-90	5.62	N.A.	0.20
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.	15.10
90-180	1037.43	N.A.	44.30
110-180	1027.66	N.A.	43.90
0-180	2340.93	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	325.03
10-20	367.08
20-30	206.44
30-40	141.14
40-50	106.99
50-60	77.19
60-70	49.58
70-80	24.44
80-90	5.62
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-LN-WHD-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	56
1	101	98	95	92	94	91	89	86	79	77	76	68	67	66	58	57	56	51
2	95	89	84	80	88	83	79	75	73	70	67	63	61	59	54	53	52	48
3	88	81	75	70	82	76	71	67	67	63	60	59	56	54	51	49	48	44
4	83	74	68	63	77	70	65	60	62	58	55	55	52	50	48	46	44	41
5	78	69	62	57	73	65	59	55	58	54	50	52	49	46	46	44	42	39
6	73	64	57	52	69	60	55	50	54	50	47	49	46	43	44	41	39	37
7	69	59	53	48	65	57	51	47	51	47	44	46	43	40	42	39	37	35
8	66	56	49	45	62	53	48	44	49	44	41	44	41	38	40	37	36	34
9	63	53	46	42	59	50	45	41	46	42	39	42	39	36	38	36	34	32
10	60	50	44	40	57	48	42	39	44	40	37	40	37	35	37	34	33	31

# IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4CRDI-L12-835U-L12-835D-XXX-DIM1-UNV-OW-CSU-LN-WHD-WM\_.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	6.9	7.7	7.9	8.6	9.8	6.9	7.7	7.9	8.6	9.8
	3H	7.8	8.4	8.7	9.4	10.6	7.8	8.4	8.7	9.4	10.6
	4H	8.0	8.6	8.9	9.6	10.8	8.0	8.6	8.9	9.6	10.8
	6H	8.0	8.6	9.0	9.6	10.8	8.0	8.6	9.0	9.6	10.8
	8H	8.0	8.6	9.0	9.5	10.8	8.0	8.6	9.0	9.5	10.8
	12H	8.0	8.5	9.0	9.5	10.7	8.0	8.5	9.0	9.5	10.7

### UGR Viewed Endwise

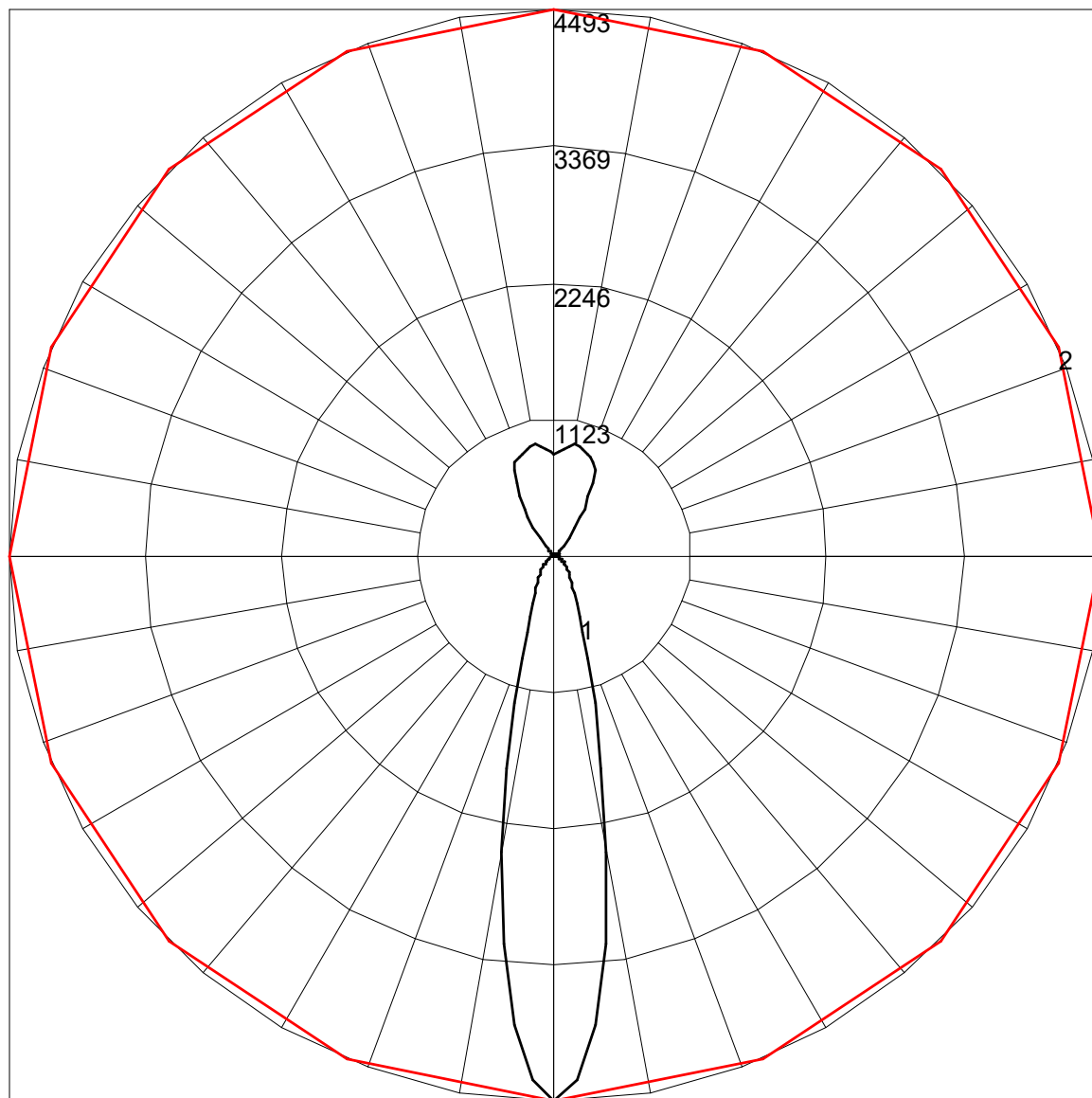
4H	2H	7.1	7.7	8.1	8.7	9.9	7.1	7.7	8.1	8.7	9.9
	3H	8.1	8.6	9.1	9.6	10.8	8.1	8.6	9.1	9.6	10.8
	4H	8.3	8.8	9.3	9.8	11.1	8.3	8.8	9.3	9.8	11.1
	6H	8.5	8.9	9.5	9.9	11.1	8.5	8.9	9.5	9.9	11.1
	8H	8.5	8.8	9.5	9.8	11.1	8.5	8.8	9.5	9.8	11.1
	12H	8.4	8.8	9.4	9.8	11.1	8.4	8.8	9.4	9.8	11.1
8H	4H	8.3	8.7	9.3	9.7	11.0	8.3	8.7	9.3	9.7	11.0
	6H	8.5	8.8	9.5	9.8	11.1	8.5	8.8	9.5	9.8	11.1
	8H	8.5	8.8	9.6	9.8	11.1	8.5	8.8	9.6	9.8	11.1
	12H	8.5	8.7	9.5	9.7	11.1	8.5	8.7	9.5	9.7	11.1
12H	4H	8.3	8.6	9.3	9.6	10.9	8.3	8.6	9.3	9.6	10.9
	6H	8.5	8.7	9.5	9.7	11.1	8.5	8.7	9.5	9.7	11.1
	8H	8.5	8.7	9.5	9.7	11.1	8.5	8.7	9.5	9.7	11.1

Maximum UGR = 11.1

# IES INDOOR REPORT

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

## POLAR GRAPH



Maximum Candela = 4492.644 Located At Horizontal Angle = 0, Vertical Angle = 0

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

# 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)