



## IES INDOOR REPORT

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

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13131414.06

[TESTLAB]

[ISSUE DATE] 11-FEB-2021

[MANUFAC] WILLIAMS INDOOR

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

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

[MORE]

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

[MORE] medium distrib anodized alum open reflector trim down

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

[\_SEARCH\_SOURCE TYPE] LED

[\_SEARCH\_APPLICATION] INDOOR, DIRECT, INDIRECT

[\_SEARCH\_MOUNTING] WALL

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2234
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	78
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
Luminous Length (0-180)	0.21 ft (Diameter)
Luminous Width (90-270)	0.21 ft (Diameter)
Luminous Height	0.00 ft

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

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	8439	8439	8439
55	2538	2538	2538
65	842	842	842
75	375	375	375
85	185	185	185

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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>	2761.955	2761.955	2761.955	2761.955	2761.955	2761.955	2761.955	2761.955	2761.955	2761.955
<b>2.5</b>	2756.845	2756.845	2756.845	2756.845	2756.845	2756.845	2756.845	2756.845	2756.845	2756.845
<b>5.0</b>	2714.943	2714.943	2714.943	2714.943	2714.943	2714.943	2714.943	2714.943	2714.943	2714.943
<b>7.5</b>	2592.814	2592.814	2592.814	2592.814	2592.814	2592.814	2592.814	2592.814	2592.814	2592.814
<b>10.0</b>	2386.881	2386.881	2386.881	2386.881	2386.881	2386.881	2386.881	2386.881	2386.881	2386.881
<b>12.5</b>	2134.447	2134.447	2134.447	2134.447	2134.447	2134.447	2134.447	2134.447	2134.447	2134.447
<b>15.0</b>	1885.590	1885.590	1885.590	1885.590	1885.590	1885.590	1885.590	1885.590	1885.590	1885.590
<b>17.5</b>	1649.508	1649.508	1649.508	1649.508	1649.508	1649.508	1649.508	1649.508	1649.508	1649.508
<b>20.0</b>	1414.448	1414.448	1414.448	1414.448	1414.448	1414.448	1414.448	1414.448	1414.448	1414.448
<b>22.5</b>	1154.860	1154.860	1154.860	1154.860	1154.860	1154.860	1154.860	1154.860	1154.860	1154.860
<b>25.0</b>	855.925	855.925	855.925	855.925	855.925	855.925	855.925	855.925	855.925	855.925
<b>27.5</b>	541.149	541.149	541.149	541.149	541.149	541.149	541.149	541.149	541.149	541.149
<b>30.0</b>	284.934	284.934	284.934	284.934	284.934	284.934	284.934	284.934	284.934	284.934
<b>32.5</b>	129.027	129.027	129.027	129.027	129.027	129.027	129.027	129.027	129.027	129.027
<b>35.0</b>	63.160	63.160	63.160	63.160	63.160	63.160	63.160	63.160	63.160	63.160
<b>37.5</b>	42.157	42.157	42.157	42.157	42.157	42.157	42.157	42.157	42.157	42.157
<b>40.0</b>	31.426	31.426	31.426	31.426	31.426	31.426	31.426	31.426	31.426	31.426
<b>42.5</b>	24.375	24.375	24.375	24.375	24.375	24.375	24.375	24.375	24.375	24.375
<b>45.0</b>	18.856	18.856	18.856	18.856	18.856	18.856	18.856	18.856	18.856	18.856
<b>47.5</b>	13.950	13.950	13.950	13.950	13.950	13.950	13.950	13.950	13.950	13.950
<b>50.0</b>	10.067	10.067	10.067	10.067	10.067	10.067	10.067	10.067	10.067	10.067
<b>52.5</b>	6.745	6.745	6.745	6.745	6.745	6.745	6.745	6.745	6.745	6.745
<b>55.0</b>	4.599	4.599	4.599	4.599	4.599	4.599	4.599	4.599	4.599	4.599
<b>57.5</b>	3.066	3.066	3.066	3.066	3.066	3.066	3.066	3.066	3.066	3.066
<b>60.0</b>	2.146	2.146	2.146	2.146	2.146	2.146	2.146	2.146	2.146	2.146
<b>62.5</b>	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584	1.584
<b>65.0</b>	1.124	1.124	1.124	1.124	1.124	1.124	1.124	1.124	1.124	1.124
<b>67.5</b>	0.818	0.818	0.818	0.818	0.818	0.818	0.818	0.818	0.818	0.818
<b>70.0</b>	0.613	0.613	0.613	0.613	0.613	0.613	0.613	0.613	0.613	0.613
<b>72.5</b>	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460	0.460
<b>75.0</b>	0.307	0.307	0.307	0.307	0.307	0.307	0.307	0.307	0.307	0.307
<b>77.5</b>	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204	0.204
<b>80.0</b>	0.153	0.153	0.153	0.153	0.153	0.153	0.153	0.153	0.153	0.153
<b>82.5</b>	0.102	0.102	0.102	0.102	0.102	0.102	0.102	0.102	0.102	0.102
<b>85.0</b>	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051	0.051
<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>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>92.5</b>	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042
<b>95.0</b>	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042	0.042
<b>97.5</b>	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084	0.084
<b>100.0</b>	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125	0.125
<b>102.5</b>	0.167	0.167	0.167	0.167	0.167	0.167	0.167	0.167	0.167	0.167
<b>105.0</b>	0.251	0.251	0.251	0.251	0.251	0.251	0.251	0.251	0.251	0.251
<b>107.5</b>	0.376	0.376	0.376	0.376	0.376	0.376	0.376	0.376	0.376	0.376
<b>110.0</b>	0.502	0.502	0.502	0.502	0.502	0.502	0.502	0.502	0.502	0.502
<b>112.5</b>	0.669	0.669	0.669	0.669	0.669	0.669	0.669	0.669	0.669	0.669
<b>115.0</b>	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920	0.920
<b>117.5</b>	1.296	1.296	1.296	1.296	1.296	1.296	1.296	1.296	1.296	1.296
<b>120.0</b>	1.756	1.756	1.756	1.756	1.756	1.756	1.756	1.756	1.756	1.756
<b>122.5</b>	2.508	2.508	2.508	2.508	2.508	2.508	2.508	2.508	2.508	2.508
<b>125.0</b>	3.762	3.762	3.762	3.762	3.762	3.762	3.762	3.762	3.762	3.762
<b>127.5</b>	5.518	5.518	5.518	5.518	5.518	5.518	5.518	5.518	5.518	5.518
<b>130.0</b>	8.235	8.235	8.235	8.235	8.235	8.235	8.235	8.235	8.235	8.235
<b>132.5</b>	11.411	11.411	11.411	11.411	11.411	11.411	11.411	11.411	11.411	11.411

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## CANDELA TABULATION - (Cont.)

135.0	15.424	15.424	15.424	15.424	15.424	15.424	15.424	15.424	15.424	15.424
137.5	19.939	19.939	19.939	19.939	19.939	19.939	19.939	19.939	19.939	19.939
140.0	25.707	25.707	25.707	25.707	25.707	25.707	25.707	25.707	25.707	25.707
142.5	34.485	34.485	34.485	34.485	34.485	34.485	34.485	34.485	34.485	34.485
145.0	51.665	51.665	51.665	51.665	51.665	51.665	51.665	51.665	51.665	51.665
147.5	105.545	105.545	105.545	105.545	105.545	105.545	105.545	105.545	105.545	105.545
150.0	233.077	233.077	233.077	233.077	233.077	233.077	233.077	233.077	233.077	233.077
152.5	442.662	442.662	442.662	442.662	442.662	442.662	442.662	442.662	442.662	442.662
155.0	700.150	700.150	700.150	700.150	700.150	700.150	700.150	700.150	700.150	700.150
157.5	944.680	944.680	944.680	944.680	944.680	944.680	944.680	944.680	944.680	944.680
160.0	1157.024	1157.024	1157.024	1157.024	1157.024	1157.024	1157.024	1157.024	1157.024	1157.024
162.5	1349.304	1349.304	1349.304	1349.304	1349.304	1349.304	1349.304	1349.304	1349.304	1349.304
165.0	1542.420	1542.420	1542.420	1542.420	1542.420	1542.420	1542.420	1542.420	1542.420	1542.420
167.5	1745.986	1745.986	1745.986	1745.986	1745.986	1745.986	1745.986	1745.986	1745.986	1745.986
170.0	1952.478	1952.478	1952.478	1952.478	1952.478	1952.478	1952.478	1952.478	1952.478	1952.478
172.5	2120.932	2120.932	2120.932	2120.932	2120.932	2120.932	2120.932	2120.932	2120.932	2120.932
175.0	2220.834	2220.834	2220.834	2220.834	2220.834	2220.834	2220.834	2220.834	2220.834	2220.834
177.5	2255.110	2255.110	2255.110	2255.110	2255.110	2255.110	2255.110	2255.110	2255.110	2255.110
180.0	2259.000	2259.000	2259.000	2259.000	2259.000	2259.000	2259.000	2259.000	2259.000	2259.000

## 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	2761.955	2761.955	2761.955	2761.955	2761.955	2761.955	2761.955
2.5	2756.845	2756.845	2756.845	2756.845	2756.845	2756.845	2756.845
5.0	2714.943	2714.943	2714.943	2714.943	2714.943	2714.943	2714.943
7.5	2592.814	2592.814	2592.814	2592.814	2592.814	2592.814	2592.814
10.0	2386.881	2386.881	2386.881	2386.881	2386.881	2386.881	2386.881
12.5	2134.447	2134.447	2134.447	2134.447	2134.447	2134.447	2134.447
15.0	1885.590	1885.590	1885.590	1885.590	1885.590	1885.590	1885.590
17.5	1649.508	1649.508	1649.508	1649.508	1649.508	1649.508	1649.508
20.0	1414.448	1414.448	1414.448	1414.448	1414.448	1414.448	1414.448
22.5	1154.860	1154.860	1154.860	1154.860	1154.860	1154.860	1154.860
25.0	855.925	855.925	855.925	855.925	855.925	855.925	855.925
27.5	541.149	541.149	541.149	541.149	541.149	541.149	541.149
30.0	284.934	284.934	284.934	284.934	284.934	284.934	284.934
32.5	129.027	129.027	129.027	129.027	129.027	129.027	129.027
35.0	63.160	63.160	63.160	63.160	63.160	63.160	63.160
37.5	42.157	42.157	42.157	42.157	42.157	42.157	42.157
40.0	31.426	31.426	31.426	31.426	31.426	31.426	31.426
42.5	24.375	24.375	24.375	24.375	24.375	24.375	24.375
45.0	18.856	18.856	18.856	18.856	18.856	18.856	18.856
47.5	13.950	13.950	13.950	13.950	13.950	13.950	13.950
50.0	10.067	10.067	10.067	10.067	10.067	10.067	10.067
52.5	6.745	6.745	6.745	6.745	6.745	6.745	6.745
55.0	4.599	4.599	4.599	4.599	4.599	4.599	4.599
57.5	3.066	3.066	3.066	3.066	3.066	3.066	3.066
60.0	2.146	2.146	2.146	2.146	2.146	2.146	2.146
62.5	1.584	1.584	1.584	1.584	1.584	1.584	1.584
65.0	1.124	1.124	1.124	1.124	1.124	1.124	1.124
67.5	0.818	0.818	0.818	0.818	0.818	0.818	0.818
70.0	0.613	0.613	0.613	0.613	0.613	0.613	0.613
72.5	0.460	0.460	0.460	0.460	0.460	0.460	0.460
75.0	0.307	0.307	0.307	0.307	0.307	0.307	0.307
77.5	0.204	0.204	0.204	0.204	0.204	0.204	0.204
80.0	0.153	0.153	0.153	0.153	0.153	0.153	0.153

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

<b>82.5</b>	0.102	0.102	0.102	0.102	0.102	0.102	0.102
<b>85.0</b>	0.051	0.051	0.051	0.051	0.051	0.051	0.051
<b>87.5</b>	0.051	0.051	0.051	0.051	0.051	0.051	0.051
<b>90.0</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>92.5</b>	0.042	0.042	0.042	0.042	0.042	0.042	0.042
<b>95.0</b>	0.042	0.042	0.042	0.042	0.042	0.042	0.042
<b>97.5</b>	0.084	0.084	0.084	0.084	0.084	0.084	0.084
<b>100.0</b>	0.125	0.125	0.125	0.125	0.125	0.125	0.125
<b>102.5</b>	0.167	0.167	0.167	0.167	0.167	0.167	0.167
<b>105.0</b>	0.251	0.251	0.251	0.251	0.251	0.251	0.251
<b>107.5</b>	0.376	0.376	0.376	0.376	0.376	0.376	0.376
<b>110.0</b>	0.502	0.502	0.502	0.502	0.502	0.502	0.502
<b>112.5</b>	0.669	0.669	0.669	0.669	0.669	0.669	0.669
<b>115.0</b>	0.920	0.920	0.920	0.920	0.920	0.920	0.920
<b>117.5</b>	1.296	1.296	1.296	1.296	1.296	1.296	1.296
<b>120.0</b>	1.756	1.756	1.756	1.756	1.756	1.756	1.756
<b>122.5</b>	2.508	2.508	2.508	2.508	2.508	2.508	2.508
<b>125.0</b>	3.762	3.762	3.762	3.762	3.762	3.762	3.762
<b>127.5</b>	5.518	5.518	5.518	5.518	5.518	5.518	5.518
<b>130.0</b>	8.235	8.235	8.235	8.235	8.235	8.235	8.235
<b>132.5</b>	11.411	11.411	11.411	11.411	11.411	11.411	11.411
<b>135.0</b>	15.424	15.424	15.424	15.424	15.424	15.424	15.424
<b>137.5</b>	19.939	19.939	19.939	19.939	19.939	19.939	19.939
<b>140.0</b>	25.707	25.707	25.707	25.707	25.707	25.707	25.707
<b>142.5</b>	34.485	34.485	34.485	34.485	34.485	34.485	34.485
<b>145.0</b>	51.665	51.665	51.665	51.665	51.665	51.665	51.665
<b>147.5</b>	105.545	105.545	105.545	105.545	105.545	105.545	105.545
<b>150.0</b>	233.077	233.077	233.077	233.077	233.077	233.077	233.077
<b>152.5</b>	442.662	442.662	442.662	442.662	442.662	442.662	442.662
<b>155.0</b>	700.150	700.150	700.150	700.150	700.150	700.150	700.150
<b>157.5</b>	944.680	944.680	944.680	944.680	944.680	944.680	944.680
<b>160.0</b>	1157.024	1157.024	1157.024	1157.024	1157.024	1157.024	1157.024
<b>162.5</b>	1349.304	1349.304	1349.304	1349.304	1349.304	1349.304	1349.304
<b>165.0</b>	1542.420	1542.420	1542.420	1542.420	1542.420	1542.420	1542.420
<b>167.5</b>	1745.986	1745.986	1745.986	1745.986	1745.986	1745.986	1745.986
<b>170.0</b>	1952.478	1952.478	1952.478	1952.478	1952.478	1952.478	1952.478
<b>172.5</b>	2120.932	2120.932	2120.932	2120.932	2120.932	2120.932	2120.932
<b>175.0</b>	2220.834	2220.834	2220.834	2220.834	2220.834	2220.834	2220.834
<b>177.5</b>	2255.110	2255.110	2255.110	2255.110	2255.110	2255.110	2255.110
<b>180.0</b>	2259.000	2259.000	2259.000	2259.000	2259.000	2259.000	2259.000

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

Zone	Lumens	%Lamp	%Fixt
0-20	771.04	N.A.	34.50
0-30	1148.84	N.A.	51.40
0-40	1207.76	N.A.	54.10
0-60	1227.16	N.A.	54.90
0-80	1228.72	N.A.	55.00
0-90	1228.8	N.A.	55.00
10-90	980.21	N.A.	43.90
20-40	436.72	N.A.	19.50
20-50	451.58	N.A.	20.20
40-70	20.61	N.A.	0.90
60-80	1.56	N.A.	0.10
70-80	0.36	N.A.	0.00
80-90	0.08	N.A.	0.00
90-110	0.35	N.A.	0.00
90-120	1.34	N.A.	0.10
90-130	5.05	N.A.	0.20
90-150	65.41	N.A.	2.90
90-180	1005.16	N.A.	45.00
110-180	1004.81	N.A.	45.00
0-180	2233.96	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	248.59
10-20	522.45
20-30	377.80
30-40	58.92
40-50	14.86
50-60	4.54
60-70	1.21
70-80	0.36
80-90	0.08
90-100	0.06
100-110	0.29
110-120	0.99
120-130	3.71
130-140	12.16
140-150	48.20
150-160	309.04
160-170	427.37
170-180	203.35

# IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4CRDI-L12-835U-L12-835D-XXX-DIM1-UNV-OM-CSU-OM-CSD-WM\_.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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61	55
1	102	99	96	94	95	92	90	88	80	78	77	69	68	67	58	58	57	53
2	96	91	86	83	90	85	81	78	75	72	70	65	63	62	56	55	54	50
3	90	84	78	74	85	79	74	71	70	67	64	62	59	58	54	52	51	48
4	85	78	72	68	80	74	69	65	66	62	59	58	56	54	52	50	49	46
5	81	72	66	62	76	69	64	60	62	58	55	56	53	51	50	48	46	44
6	77	68	62	57	72	65	59	55	58	55	52	53	50	48	48	46	44	42
7	73	64	58	53	69	61	56	52	55	51	49	50	47	45	46	44	42	40
8	69	60	54	50	65	57	52	49	53	49	46	48	45	43	44	42	40	38
9	66	57	51	47	63	54	49	46	50	46	43	46	43	41	42	40	39	37
10	63	54	48	44	60	52	47	43	48	44	41	44	41	39	41	39	37	35

# IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4CRDI-L12-835U-L12-835D-XXX-DIM1-UNV-OM-CSU-OM-CSD-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	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	3H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	4H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	6H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	8H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	12H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8

### UGR Viewed Endwise

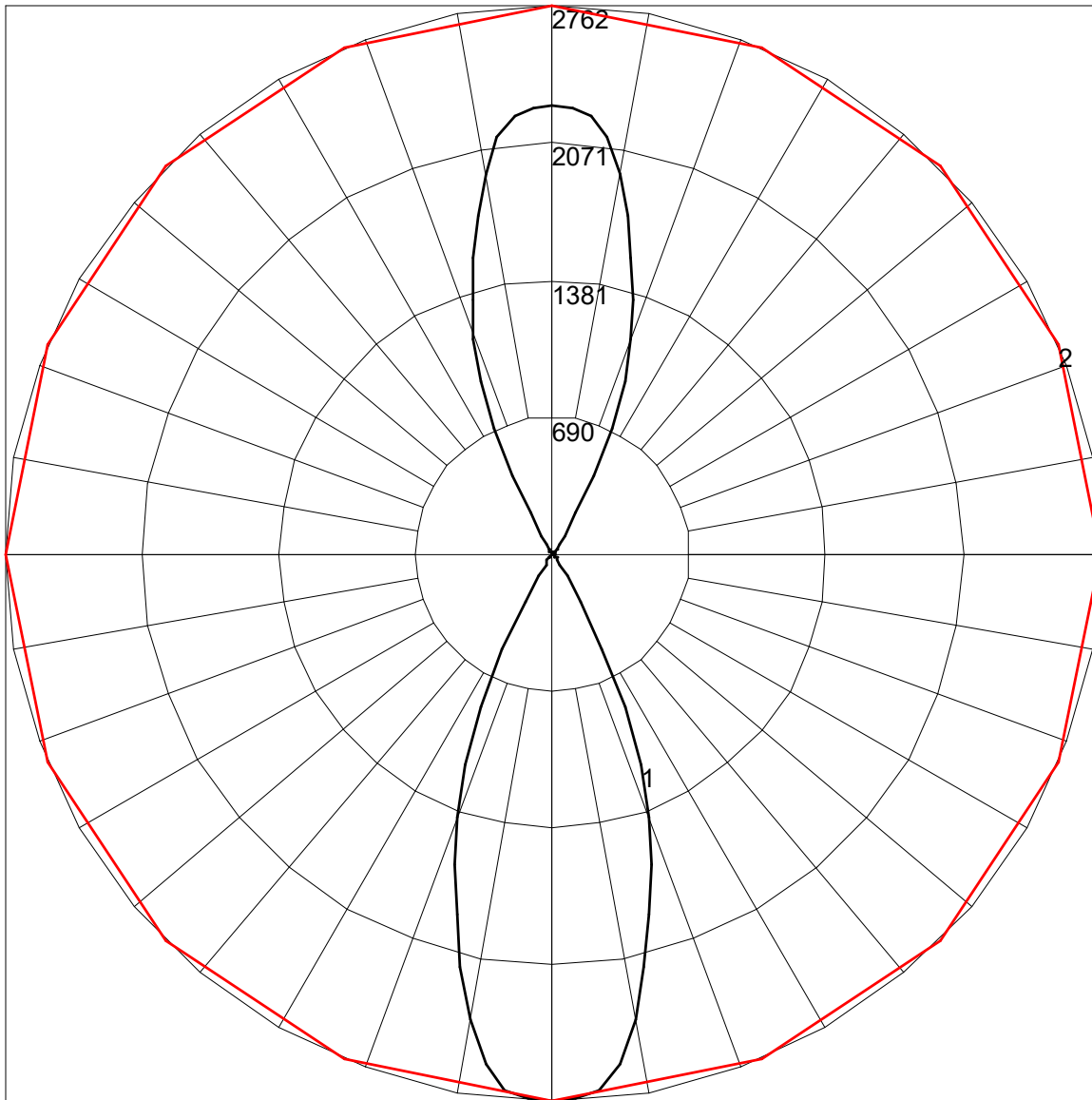
4H	2H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	3H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	4H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	6H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	8H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	12H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
8H	4H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	6H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	8H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	12H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
12H	4H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	6H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
	8H	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8

Maximum UGR = 2.8

IES INDOOR REPORT

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

POLAR GRAPH



Maximum Candela = 2761.955 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.)