



## IES INDOOR REPORT

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

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #13131414.06 and #13257153.01

[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-LW-WHD-WM

[MORE]

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

[MORE] wide distrib white painted flush prismatic lens 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	2335
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
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	54756	54756	54756
55	47823	47823	47823
65	40852	40852	40852
75	32959	32959	32959
85	18461	18461	18461

**IES INDOOR REPORT**

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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>	1566.387	1566.387	1566.387	1566.387	1566.387	1566.387	1566.387	1566.387	1566.387	1566.387
<b>2.5</b>	1561.545	1561.545	1561.545	1561.545	1561.545	1561.545	1561.545	1561.545	1561.545	1561.545
<b>5.0</b>	1545.405	1545.405	1545.405	1545.405	1545.405	1545.405	1545.405	1545.405	1545.405	1545.405
<b>7.5</b>	1522.809	1522.809	1522.809	1522.809	1522.809	1522.809	1522.809	1522.809	1522.809	1522.809
<b>10.0</b>	1491.336	1491.336	1491.336	1491.336	1491.336	1491.336	1491.336	1491.336	1491.336	1491.336
<b>12.5</b>	1446.951	1446.951	1446.951	1446.951	1446.951	1446.951	1446.951	1446.951	1446.951	1446.951
<b>15.0</b>	1386.426	1386.426	1386.426	1386.426	1386.426	1386.426	1386.426	1386.426	1386.426	1386.426
<b>17.5</b>	1301.691	1301.691	1301.691	1301.691	1301.691	1301.691	1301.691	1301.691	1301.691	1301.691
<b>20.0</b>	1182.255	1182.255	1182.255	1182.255	1182.255	1182.255	1182.255	1182.255	1182.255	1182.255
<b>22.5</b>	1022.469	1022.469	1022.469	1022.469	1022.469	1022.469	1022.469	1022.469	1022.469	1022.469
<b>25.0</b>	832.824	832.824	832.824	832.824	832.824	832.824	832.824	832.824	832.824	832.824
<b>27.5</b>	638.337	638.337	638.337	638.337	638.337	638.337	638.337	638.337	638.337	638.337
<b>30.0</b>	463.944	463.944	463.944	463.944	463.944	463.944	463.944	463.944	463.944	463.944
<b>32.5</b>	330.386	330.386	330.386	330.386	330.386	330.386	330.386	330.386	330.386	330.386
<b>35.0</b>	241.212	241.212	241.212	241.212	241.212	241.212	241.212	241.212	241.212	241.212
<b>37.5</b>	186.820	186.820	186.820	186.820	186.820	186.820	186.820	186.820	186.820	186.820
<b>40.0</b>	154.944	154.944	154.944	154.944	154.944	154.944	154.944	154.944	154.944	154.944
<b>42.5</b>	135.415	135.415	135.415	135.415	135.415	135.415	135.415	135.415	135.415	135.415
<b>45.0</b>	122.341	122.341	122.341	122.341	122.341	122.341	122.341	122.341	122.341	122.341
<b>47.5</b>	112.173	112.173	112.173	112.173	112.173	112.173	112.173	112.173	112.173	112.173
<b>50.0</b>	103.135	103.135	103.135	103.135	103.135	103.135	103.135	103.135	103.135	103.135
<b>52.5</b>	94.742	94.742	94.742	94.742	94.742	94.742	94.742	94.742	94.742	94.742
<b>55.0</b>	86.672	86.672	86.672	86.672	86.672	86.672	86.672	86.672	86.672	86.672
<b>57.5</b>	78.682	78.682	78.682	78.682	78.682	78.682	78.682	78.682	78.682	78.682
<b>60.0</b>	70.612	70.612	70.612	70.612	70.612	70.612	70.612	70.612	70.612	70.612
<b>62.5</b>	62.542	62.542	62.542	62.542	62.542	62.542	62.542	62.542	62.542	62.542
<b>65.0</b>	54.553	54.553	54.553	54.553	54.553	54.553	54.553	54.553	54.553	54.553
<b>67.5</b>	47.129	47.129	47.129	47.129	47.129	47.129	47.129	47.129	47.129	47.129
<b>70.0</b>	40.108	40.108	40.108	40.108	40.108	40.108	40.108	40.108	40.108	40.108
<b>72.5</b>	33.410	33.410	33.410	33.410	33.410	33.410	33.410	33.410	33.410	33.410
<b>75.0</b>	26.954	26.954	26.954	26.954	26.954	26.954	26.954	26.954	26.954	26.954
<b>77.5</b>	20.982	20.982	20.982	20.982	20.982	20.982	20.982	20.982	20.982	20.982
<b>80.0</b>	15.414	15.414	15.414	15.414	15.414	15.414	15.414	15.414	15.414	15.414
<b>82.5</b>	10.087	10.087	10.087	10.087	10.087	10.087	10.087	10.087	10.087	10.087
<b>85.0</b>	5.084	5.084	5.084	5.084	5.084	5.084	5.084	5.084	5.084	5.084
<b>87.5</b>	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968	0.968
<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	1566.387	1566.387	1566.387	1566.387	1566.387	1566.387	1566.387
2.5	1561.545	1561.545	1561.545	1561.545	1561.545	1561.545	1561.545
5.0	1545.405	1545.405	1545.405	1545.405	1545.405	1545.405	1545.405
7.5	1522.809	1522.809	1522.809	1522.809	1522.809	1522.809	1522.809
10.0	1491.336	1491.336	1491.336	1491.336	1491.336	1491.336	1491.336
12.5	1446.951	1446.951	1446.951	1446.951	1446.951	1446.951	1446.951
15.0	1386.426	1386.426	1386.426	1386.426	1386.426	1386.426	1386.426
17.5	1301.691	1301.691	1301.691	1301.691	1301.691	1301.691	1301.691
20.0	1182.255	1182.255	1182.255	1182.255	1182.255	1182.255	1182.255
22.5	1022.469	1022.469	1022.469	1022.469	1022.469	1022.469	1022.469
25.0	832.824	832.824	832.824	832.824	832.824	832.824	832.824
27.5	638.337	638.337	638.337	638.337	638.337	638.337	638.337
30.0	463.944	463.944	463.944	463.944	463.944	463.944	463.944
32.5	330.386	330.386	330.386	330.386	330.386	330.386	330.386
35.0	241.212	241.212	241.212	241.212	241.212	241.212	241.212
37.5	186.820	186.820	186.820	186.820	186.820	186.820	186.820
40.0	154.944	154.944	154.944	154.944	154.944	154.944	154.944
42.5	135.415	135.415	135.415	135.415	135.415	135.415	135.415
45.0	122.341	122.341	122.341	122.341	122.341	122.341	122.341
47.5	112.173	112.173	112.173	112.173	112.173	112.173	112.173
50.0	103.135	103.135	103.135	103.135	103.135	103.135	103.135
52.5	94.742	94.742	94.742	94.742	94.742	94.742	94.742
55.0	86.672	86.672	86.672	86.672	86.672	86.672	86.672
57.5	78.682	78.682	78.682	78.682	78.682	78.682	78.682
60.0	70.612	70.612	70.612	70.612	70.612	70.612	70.612
62.5	62.542	62.542	62.542	62.542	62.542	62.542	62.542
65.0	54.553	54.553	54.553	54.553	54.553	54.553	54.553
67.5	47.129	47.129	47.129	47.129	47.129	47.129	47.129
70.0	40.108	40.108	40.108	40.108	40.108	40.108	40.108
72.5	33.410	33.410	33.410	33.410	33.410	33.410	33.410
75.0	26.954	26.954	26.954	26.954	26.954	26.954	26.954
77.5	20.982	20.982	20.982	20.982	20.982	20.982	20.982
80.0	15.414	15.414	15.414	15.414	15.414	15.414	15.414

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

82.5	10.087	10.087	10.087	10.087	10.087	10.087	10.087
85.0	5.084	5.084	5.084	5.084	5.084	5.084	5.084
87.5	0.968	0.968	0.968	0.968	0.968	0.968	0.968
90.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
92.5	0.042	0.042	0.042	0.042	0.042	0.042	0.042
95.0	0.042	0.042	0.042	0.042	0.042	0.042	0.042
97.5	0.084	0.084	0.084	0.084	0.084	0.084	0.084
100.0	0.125	0.125	0.125	0.125	0.125	0.125	0.125
102.5	0.167	0.167	0.167	0.167	0.167	0.167	0.167
105.0	0.251	0.251	0.251	0.251	0.251	0.251	0.251
107.5	0.376	0.376	0.376	0.376	0.376	0.376	0.376
110.0	0.502	0.502	0.502	0.502	0.502	0.502	0.502
112.5	0.669	0.669	0.669	0.669	0.669	0.669	0.669
115.0	0.920	0.920	0.920	0.920	0.920	0.920	0.920
117.5	1.296	1.296	1.296	1.296	1.296	1.296	1.296
120.0	1.756	1.756	1.756	1.756	1.756	1.756	1.756
122.5	2.508	2.508	2.508	2.508	2.508	2.508	2.508
125.0	3.762	3.762	3.762	3.762	3.762	3.762	3.762
127.5	5.518	5.518	5.518	5.518	5.518	5.518	5.518
130.0	8.235	8.235	8.235	8.235	8.235	8.235	8.235
132.5	11.411	11.411	11.411	11.411	11.411	11.411	11.411
135.0	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
140.0	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
145.0	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
150.0	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
155.0	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
160.0	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
165.0	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
170.0	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
175.0	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
180.0	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-LW-WHD-WM\_.IES****ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	529.26	N.A.	22.70
0-30	903.06	N.A.	38.70
0-40	1067.08	N.A.	45.70
0-60	1240.71	N.A.	53.10
0-80	1323.77	N.A.	56.70
0-90	1330.25	N.A.	57.00
10-90	1184.41	N.A.	50.70
20-40	537.82	N.A.	23.00
20-50	633.90	N.A.	27.10
40-70	227.92	N.A.	9.80
60-80	83.06	N.A.	3.60
70-80	28.76	N.A.	1.20
80-90	6.48	N.A.	0.30
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.	2.80
90-180	1005.16	N.A.	43.00
110-180	1004.81	N.A.	43.00
0-180	2335.41	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	145.84
10-20	383.42
20-30	373.80
30-40	164.02
40-50	96.08
50-60	77.54
60-70	54.30
70-80	28.76
80-90	6.48
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-LW-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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	63	63	63	57
1	101	98	95	92	94	91	89	86	79	78	76	68	67	66	58	58	57	52
2	94	88	83	79	88	83	78	75	72	69	67	63	61	59	54	53	51	47
3	88	80	74	69	82	75	70	66	66	63	59	58	55	53	51	49	47	43
4	82	73	66	61	77	69	63	59	61	57	53	54	51	48	47	45	43	40
5	77	67	60	55	72	63	57	53	57	52	48	50	47	44	45	42	40	37
6	72	62	55	50	67	59	52	48	53	48	44	47	44	41	42	39	37	35
7	68	57	50	46	64	54	48	44	49	44	41	44	41	38	40	37	35	33
8	64	53	46	42	60	51	45	41	46	41	38	42	38	35	37	35	33	31
9	60	50	43	39	57	47	42	38	43	39	35	39	36	33	36	33	31	29
10	57	47	40	36	54	45	39	35	41	36	33	37	34	31	34	31	29	27

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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	18.1	18.9	19.1	19.8	21.0	18.1	18.9	19.1	19.8	21.0
	3H	19.6	20.3	20.6	21.2	22.4	19.6	20.3	20.6	21.2	22.4
	4H	20.1	20.7	21.1	21.7	22.9	20.1	20.7	21.1	21.7	22.9
	6H	20.4	21.0	21.4	22.0	23.2	20.4	21.0	21.4	22.0	23.2
	8H	20.5	21.1	21.5	22.0	23.3	20.5	21.1	21.5	22.0	23.3
	12H	20.5	21.1	21.5	22.0	23.3	20.5	21.1	21.5	22.0	23.3

### UGR Viewed Endwise

4H	2H	18.6	19.2	19.5	20.1	21.4	18.6	19.2	19.5	20.1	21.4
	3H	20.2	20.8	21.2	21.7	23.0	20.2	20.8	21.2	21.7	23.0
	4H	20.9	21.3	21.9	22.3	23.6	20.9	21.3	21.9	22.3	23.6
	6H	21.3	21.7	22.3	22.7	24.0	21.3	21.7	22.3	22.7	24.0
	8H	21.4	21.8	22.4	22.8	24.1	21.4	21.8	22.4	22.8	24.1
	12H	21.5	21.8	22.5	22.8	24.1	21.5	21.8	22.5	22.8	24.1

8H	4H	21.1	21.4	22.0	22.4	23.7	21.1	21.4	22.0	22.4	23.7
	6H	21.6	21.9	22.6	22.9	24.2	21.6	21.9	22.6	22.9	24.2
	8H	21.8	22.1	22.8	23.1	24.4	21.8	22.1	22.8	23.1	24.4
	12H	21.9	22.1	22.9	23.1	24.4	21.9	22.1	22.9	23.1	24.4

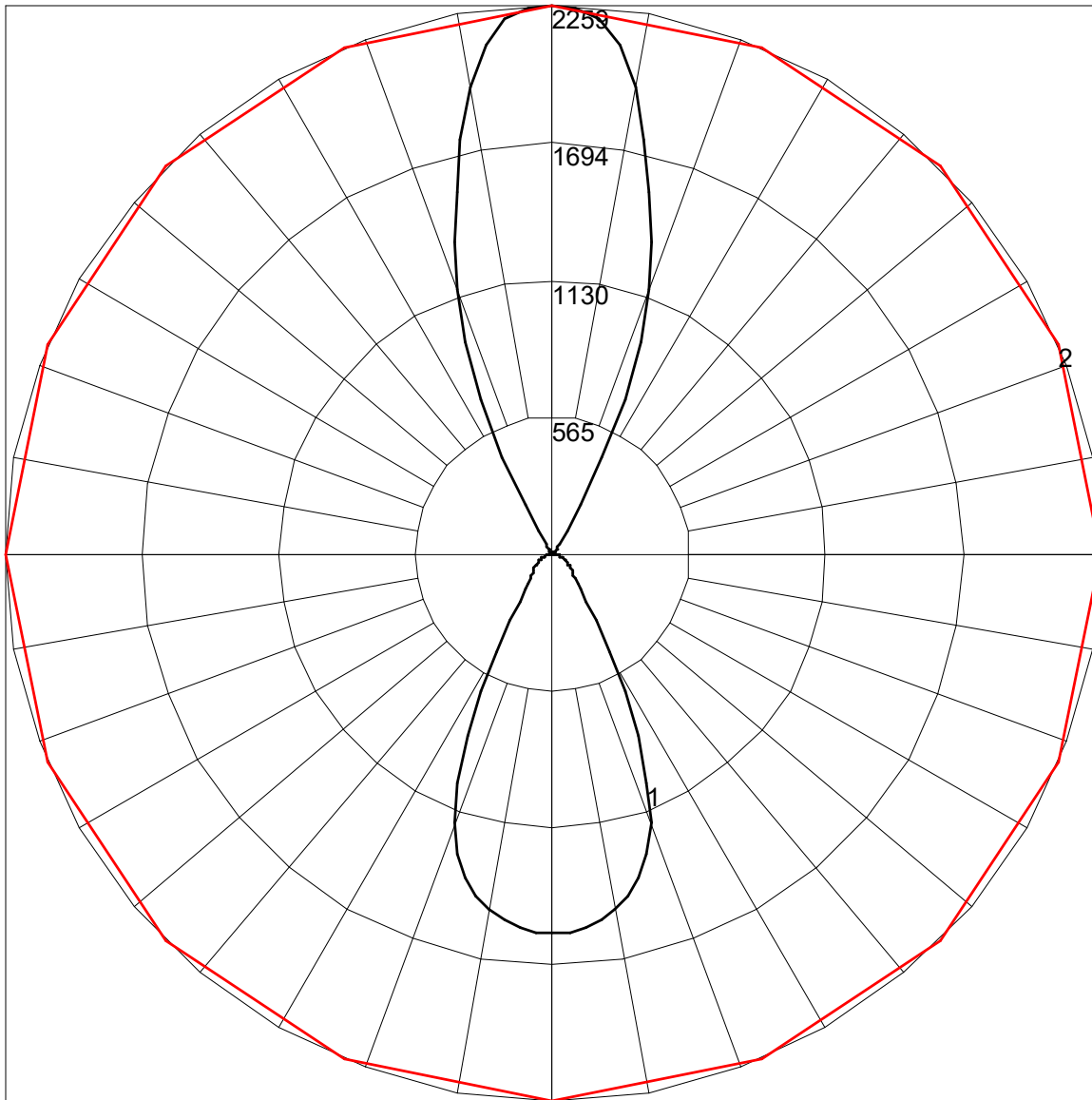
12H	4H	21.0	21.4	22.0	22.4	23.6	21.0	21.4	22.0	22.4	23.6
	6H	21.6	21.9	22.6	22.9	24.2	21.6	21.9	22.6	22.9	24.2
	8H	21.8	22.1	22.9	23.1	24.4	21.8	22.1	22.9	23.1	24.4

Maximum UGR = 24.4

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## POLAR GRAPH



Maximum Candela = 2259 Located At Horizontal Angle = 0, Vertical Angle = 180

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

# 2 - Horizontal Cone Through Vertical Angle (180) (Through Max. Cd.)