



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : 8CRDI-TL-L20-8TWU-L20-8TWD-XXX-DALI-UNV-OM-CSU-RM-WHD-WM 4000K\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
 [TEST] GEN from UL #12326812.04  
 [TESTLAB]  
 [ISSUE DATE] 23-FEB-2021  
 [MANUFAC] WILLIAMS INDOOR  
 [OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.  
 [LUMCAT] 8CRDI-TL-L20-8TWU-L20-8TWD-xxx-DIM1-UNV-OM-CSU-RM-WHD-WM 4000k  
 [LUMINAIRE] White formed aluminum housing, specular reflector, cover glass  
 [MORE]  
 [LAMP] One white LED  
 [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	4150
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	86
Total Luminaire Watts	48
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)	0.50 ft (Diameter)
Luminous Width (90-270)	0.50 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	6793	6793	6793
55	4568	4568	4568
65	3399	3399	3399
75	2347	2347	2347
85	1961	1961	1961

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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>
0.0	4983.426	4983.426	4983.426	4983.426	4983.426	4983.426	4983.426	4983.426	4983.426	4983.426
2.5	4926.809	4926.809	4926.809	4926.809	4926.809	4926.809	4926.809	4926.809	4926.809	4926.809
5.0	4773.135	4773.135	4773.135	4773.135	4773.135	4773.135	4773.135	4773.135	4773.135	4773.135
7.5	4527.026	4527.026	4527.026	4527.026	4527.026	4527.026	4527.026	4527.026	4527.026	4527.026
10.0	4167.683	4167.683	4167.683	4167.683	4167.683	4167.683	4167.683	4167.683	4167.683	4167.683
12.5	3681.241	3681.241	3681.241	3681.241	3681.241	3681.241	3681.241	3681.241	3681.241	3681.241
15.0	3083.877	3083.877	3083.877	3083.877	3083.877	3083.877	3083.877	3083.877	3083.877	3083.877
17.5	2449.539	2449.539	2449.539	2449.539	2449.539	2449.539	2449.539	2449.539	2449.539	2449.539
20.0	1854.486	1854.486	1854.486	1854.486	1854.486	1854.486	1854.486	1854.486	1854.486	1854.486
22.5	1358.801	1358.801	1358.801	1358.801	1358.801	1358.801	1358.801	1358.801	1358.801	1358.801
25.0	977.967	977.967	977.967	977.967	977.967	977.967	977.967	977.967	977.967	977.967
27.5	701.470	701.470	701.470	701.470	701.470	701.470	701.470	701.470	701.470	701.470
30.0	504.004	504.004	504.004	504.004	504.004	504.004	504.004	504.004	504.004	504.004
32.5	362.000	362.000	362.000	362.000	362.000	362.000	362.000	362.000	362.000	362.000
35.0	259.397	259.397	259.397	259.397	259.397	259.397	259.397	259.397	259.397	259.397
37.5	187.413	187.413	187.413	187.413	187.413	187.413	187.413	187.413	187.413	187.413
40.0	139.346	139.346	139.346	139.346	139.346	139.346	139.346	139.346	139.346	139.346
42.5	108.381	108.381	108.381	108.381	108.381	108.381	108.381	108.381	108.381	108.381
45.0	87.698	87.698	87.698	87.698	87.698	87.698	87.698	87.698	87.698	87.698
47.5	73.371	73.371	73.371	73.371	73.371	73.371	73.371	73.371	73.371	73.371
50.0	62.856	62.856	62.856	62.856	62.856	62.856	62.856	62.856	62.856	62.856
52.5	54.653	54.653	54.653	54.653	54.653	54.653	54.653	54.653	54.653	54.653
55.0	47.835	47.835	47.835	47.835	47.835	47.835	47.835	47.835	47.835	47.835
57.5	41.827	41.827	41.827	41.827	41.827	41.827	41.827	41.827	41.827	41.827
60.0	36.281	36.281	36.281	36.281	36.281	36.281	36.281	36.281	36.281	36.281
62.5	31.081	31.081	31.081	31.081	31.081	31.081	31.081	31.081	31.081	31.081
65.0	26.229	26.229	26.229	26.229	26.229	26.229	26.229	26.229	26.229	26.229
67.5	21.722	21.722	21.722	21.722	21.722	21.722	21.722	21.722	21.722	21.722
70.0	17.563	17.563	17.563	17.563	17.563	17.563	17.563	17.563	17.563	17.563
72.5	13.865	13.865	13.865	13.865	13.865	13.865	13.865	13.865	13.865	13.865
75.0	11.092	11.092	11.092	11.092	11.092	11.092	11.092	11.092	11.092	11.092
77.5	8.781	8.781	8.781	8.781	8.781	8.781	8.781	8.781	8.781	8.781
80.0	6.817	6.817	6.817	6.817	6.817	6.817	6.817	6.817	6.817	6.817
82.5	4.968	4.968	4.968	4.968	4.968	4.968	4.968	4.968	4.968	4.968
85.0	3.120	3.120	3.120	3.120	3.120	3.120	3.120	3.120	3.120	3.120
87.5	1.502	1.502	1.502	1.502	1.502	1.502	1.502	1.502	1.502	1.502
90.0	0.567	0.567	0.567	0.567	0.567	0.567	0.567	0.567	0.567	0.567
92.5	0.209	0.209	0.209	0.209	0.209	0.209	0.209	0.209	0.209	0.209
95.0	0.314	0.314	0.314	0.314	0.314	0.314	0.314	0.314	0.314	0.314
97.5	0.418	0.418	0.418	0.418	0.418	0.418	0.418	0.418	0.418	0.418
100.0	0.628	0.628	0.628	0.628	0.628	0.628	0.628	0.628	0.628	0.628
102.5	0.837	0.837	0.837	0.837	0.837	0.837	0.837	0.837	0.837	0.837
105.0	1.151	1.151	1.151	1.151	1.151	1.151	1.151	1.151	1.151	1.151
107.5	1.674	1.674	1.674	1.674	1.674	1.674	1.674	1.674	1.674	1.674
110.0	2.301	2.301	2.301	2.301	2.301	2.301	2.301	2.301	2.301	2.301
112.5	3.034	3.034	3.034	3.034	3.034	3.034	3.034	3.034	3.034	3.034
115.0	4.185	4.185	4.185	4.185	4.185	4.185	4.185	4.185	4.185	4.185
117.5	5.649	5.649	5.649	5.649	5.649	5.649	5.649	5.649	5.649	5.649
120.0	7.637	7.637	7.637	7.637	7.637	7.637	7.637	7.637	7.637	7.637
122.5	10.462	10.462	10.462	10.462	10.462	10.462	10.462	10.462	10.462	10.462
125.0	14.437	14.437	14.437	14.437	14.437	14.437	14.437	14.437	14.437	14.437
127.5	20.295	20.295	20.295	20.295	20.295	20.295	20.295	20.295	20.295	20.295
130.0	28.038	28.038	28.038	28.038	28.038	28.038	28.038	28.038	28.038	28.038
132.5	37.453	37.453	37.453	37.453	37.453	37.453	37.453	37.453	37.453	37.453

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## CANDELA TABULATION - (Cont.)

135.0	48.333	48.333	48.333	48.333	48.333	48.333	48.333	48.333	48.333	48.333
137.5	68.314	68.314	68.314	68.314	68.314	68.314	68.314	68.314	68.314	68.314
140.0	121.147	121.147	121.147	121.147	121.147	121.147	121.147	121.147	121.147	121.147
142.5	180.464	180.464	180.464	180.464	180.464	180.464	180.464	180.464	180.464	180.464
145.0	413.760	413.760	413.760	413.760	413.760	413.760	413.760	413.760	413.760	413.760
147.5	744.034	744.034	744.034	744.034	744.034	744.034	744.034	744.034	744.034	744.034
150.0	1049.306	1049.306	1049.306	1049.306	1049.306	1049.306	1049.306	1049.306	1049.306	1049.306
152.5	1231.340	1231.340	1231.340	1231.340	1231.340	1231.340	1231.340	1231.340	1231.340	1231.340
155.0	1477.189	1477.189	1477.189	1477.189	1477.189	1477.189	1477.189	1477.189	1477.189	1477.189
157.5	1753.377	1753.377	1753.377	1753.377	1753.377	1753.377	1753.377	1753.377	1753.377	1753.377
160.0	2000.273	2000.273	2000.273	2000.273	2000.273	2000.273	2000.273	2000.273	2000.273	2000.273
162.5	2203.229	2203.229	2203.229	2203.229	2203.229	2203.229	2203.229	2203.229	2203.229	2203.229
165.0	2432.340	2432.340	2432.340	2432.340	2432.340	2432.340	2432.340	2432.340	2432.340	2432.340
167.5	2724.221	2724.221	2724.221	2724.221	2724.221	2724.221	2724.221	2724.221	2724.221	2724.221
170.0	3131.180	3131.180	3131.180	3131.180	3131.180	3131.180	3131.180	3131.180	3131.180	3131.180
172.5	3736.912	3736.912	3736.912	3736.912	3736.912	3736.912	3736.912	3736.912	3736.912	3736.912
175.0	4155.380	4155.380	4155.380	4155.380	4155.380	4155.380	4155.380	4155.380	4155.380	4155.380
177.5	4249.534	4249.534	4249.534	4249.534	4249.534	4249.534	4249.534	4249.534	4249.534	4249.534
180.0	4197.303	4197.303	4197.303	4197.303	4197.303	4197.303	4197.303	4197.303	4197.303	4197.303

## 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	4983.426	4983.426	4983.426	4983.426	4983.426	4983.426	4983.426
2.5	4926.809	4926.809	4926.809	4926.809	4926.809	4926.809	4926.809
5.0	4773.135	4773.135	4773.135	4773.135	4773.135	4773.135	4773.135
7.5	4527.026	4527.026	4527.026	4527.026	4527.026	4527.026	4527.026
10.0	4167.683	4167.683	4167.683	4167.683	4167.683	4167.683	4167.683
12.5	3681.241	3681.241	3681.241	3681.241	3681.241	3681.241	3681.241
15.0	3083.877	3083.877	3083.877	3083.877	3083.877	3083.877	3083.877
17.5	2449.539	2449.539	2449.539	2449.539	2449.539	2449.539	2449.539
20.0	1854.486	1854.486	1854.486	1854.486	1854.486	1854.486	1854.486
22.5	1358.801	1358.801	1358.801	1358.801	1358.801	1358.801	1358.801
25.0	977.967	977.967	977.967	977.967	977.967	977.967	977.967
27.5	701.470	701.470	701.470	701.470	701.470	701.470	701.470
30.0	504.004	504.004	504.004	504.004	504.004	504.004	504.004
32.5	362.000	362.000	362.000	362.000	362.000	362.000	362.000
35.0	259.397	259.397	259.397	259.397	259.397	259.397	259.397
37.5	187.413	187.413	187.413	187.413	187.413	187.413	187.413
40.0	139.346	139.346	139.346	139.346	139.346	139.346	139.346
42.5	108.381	108.381	108.381	108.381	108.381	108.381	108.381
45.0	87.698	87.698	87.698	87.698	87.698	87.698	87.698
47.5	73.371	73.371	73.371	73.371	73.371	73.371	73.371
50.0	62.856	62.856	62.856	62.856	62.856	62.856	62.856
52.5	54.653	54.653	54.653	54.653	54.653	54.653	54.653
55.0	47.835	47.835	47.835	47.835	47.835	47.835	47.835
57.5	41.827	41.827	41.827	41.827	41.827	41.827	41.827
60.0	36.281	36.281	36.281	36.281	36.281	36.281	36.281
62.5	31.081	31.081	31.081	31.081	31.081	31.081	31.081
65.0	26.229	26.229	26.229	26.229	26.229	26.229	26.229
67.5	21.722	21.722	21.722	21.722	21.722	21.722	21.722
70.0	17.563	17.563	17.563	17.563	17.563	17.563	17.563
72.5	13.865	13.865	13.865	13.865	13.865	13.865	13.865
75.0	11.092	11.092	11.092	11.092	11.092	11.092	11.092
77.5	8.781	8.781	8.781	8.781	8.781	8.781	8.781
80.0	6.817	6.817	6.817	6.817	6.817	6.817	6.817

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<b>82.5</b>	4.968	4.968	4.968	4.968	4.968	4.968	4.968
<b>85.0</b>	3.120	3.120	3.120	3.120	3.120	3.120	3.120
<b>87.5</b>	1.502	1.502	1.502	1.502	1.502	1.502	1.502
<b>90.0</b>	0.567	0.567	0.567	0.567	0.567	0.567	0.567
<b>92.5</b>	0.209	0.209	0.209	0.209	0.209	0.209	0.209
<b>95.0</b>	0.314	0.314	0.314	0.314	0.314	0.314	0.314
<b>97.5</b>	0.418	0.418	0.418	0.418	0.418	0.418	0.418
<b>100.0</b>	0.628	0.628	0.628	0.628	0.628	0.628	0.628
<b>102.5</b>	0.837	0.837	0.837	0.837	0.837	0.837	0.837
<b>105.0</b>	1.151	1.151	1.151	1.151	1.151	1.151	1.151
<b>107.5</b>	1.674	1.674	1.674	1.674	1.674	1.674	1.674
<b>110.0</b>	2.301	2.301	2.301	2.301	2.301	2.301	2.301
<b>112.5</b>	3.034	3.034	3.034	3.034	3.034	3.034	3.034
<b>115.0</b>	4.185	4.185	4.185	4.185	4.185	4.185	4.185
<b>117.5</b>	5.649	5.649	5.649	5.649	5.649	5.649	5.649
<b>120.0</b>	7.637	7.637	7.637	7.637	7.637	7.637	7.637
<b>122.5</b>	10.462	10.462	10.462	10.462	10.462	10.462	10.462
<b>125.0</b>	14.437	14.437	14.437	14.437	14.437	14.437	14.437
<b>127.5</b>	20.295	20.295	20.295	20.295	20.295	20.295	20.295
<b>130.0</b>	28.038	28.038	28.038	28.038	28.038	28.038	28.038
<b>132.5</b>	37.453	37.453	37.453	37.453	37.453	37.453	37.453
<b>135.0</b>	48.333	48.333	48.333	48.333	48.333	48.333	48.333
<b>137.5</b>	68.314	68.314	68.314	68.314	68.314	68.314	68.314
<b>140.0</b>	121.147	121.147	121.147	121.147	121.147	121.147	121.147
<b>142.5</b>	180.464	180.464	180.464	180.464	180.464	180.464	180.464
<b>145.0</b>	413.760	413.760	413.760	413.760	413.760	413.760	413.760
<b>147.5</b>	744.034	744.034	744.034	744.034	744.034	744.034	744.034
<b>150.0</b>	1049.306	1049.306	1049.306	1049.306	1049.306	1049.306	1049.306
<b>152.5</b>	1231.340	1231.340	1231.340	1231.340	1231.340	1231.340	1231.340
<b>155.0</b>	1477.189	1477.189	1477.189	1477.189	1477.189	1477.189	1477.189
<b>157.5</b>	1753.377	1753.377	1753.377	1753.377	1753.377	1753.377	1753.377
<b>160.0</b>	2000.273	2000.273	2000.273	2000.273	2000.273	2000.273	2000.273
<b>162.5</b>	2203.229	2203.229	2203.229	2203.229	2203.229	2203.229	2203.229
<b>165.0</b>	2432.340	2432.340	2432.340	2432.340	2432.340	2432.340	2432.340
<b>167.5</b>	2724.221	2724.221	2724.221	2724.221	2724.221	2724.221	2724.221
<b>170.0</b>	3131.180	3131.180	3131.180	3131.180	3131.180	3131.180	3131.180
<b>172.5</b>	3736.912	3736.912	3736.912	3736.912	3736.912	3736.912	3736.912
<b>175.0</b>	4155.380	4155.380	4155.380	4155.380	4155.380	4155.380	4155.380
<b>177.5</b>	4249.534	4249.534	4249.534	4249.534	4249.534	4249.534	4249.534
<b>180.0</b>	4197.303	4197.303	4197.303	4197.303	4197.303	4197.303	4197.303

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Zone	Lumens	%Lamp	%Fixt
0-20	1268.81	N.A.	30.60
0-30	1738.72	N.A.	41.90
0-40	1911.87	N.A.	46.10
0-60	2026.09	N.A.	48.80
0-80	2064.37	N.A.	49.70
0-90	2067.99	N.A.	49.80
10-90	1631.33	N.A.	39.30
20-40	643.06	N.A.	15.50
20-50	714.02	N.A.	17.20
40-70	140.40	N.A.	3.40
60-80	38.28	N.A.	0.90
70-80	12.11	N.A.	0.30
80-90	3.61	N.A.	0.10
90-110	1.77	N.A.	0.00
90-120	6.16	N.A.	0.10
90-130	20.13	N.A.	0.50
90-150	353.27	N.A.	8.50
90-180	2081.79	N.A.	50.20
110-180	2080.02	N.A.	50.10
0-180	4149.78	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	436.66
10-20	832.15
20-30	469.91
30-40	173.15
40-50	70.96
50-60	43.26
60-70	26.17
70-80	12.11
80-90	3.61
90-100	0.42
100-110	1.35
110-120	4.39
120-130	13.96
130-140	43.42
140-150	289.72
150-160	679.37
160-170	687.57
170-180	361.58

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## 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	56	56	56	50
1	100	97	94	91	93	90	87	85	77	75	74	65	64	63	53	53	52	47
2	94	88	84	80	87	82	78	75	71	68	66	60	59	57	51	50	49	44
3	88	81	75	71	82	76	71	67	66	63	60	57	55	53	48	47	46	42
4	83	74	68	64	77	70	65	61	61	58	55	54	51	49	46	45	43	40
5	78	69	63	58	73	65	60	56	58	54	51	51	48	46	44	42	41	38
6	74	64	58	53	69	61	55	51	54	50	47	48	45	43	42	40	39	36
7	70	60	54	49	65	57	51	48	51	47	44	46	43	40	40	38	37	35
8	66	56	50	46	62	54	48	44	48	44	41	43	40	38	39	37	35	33
9	63	53	47	43	59	51	45	42	46	42	39	42	38	36	37	35	34	32
10	60	50	44	41	56	48	43	39	44	40	37	40	37	35	36	34	32	31

# IES INDOOR REPORT

PHOTOMETRIC FILENAME : 8CRDI-TL-L20-8TWU-L20-8TWD-XXX-DALI-UNV-OM-CSU-RM-WHD-WM 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	5.5	6.1	6.5	7.1	8.4	5.5	6.1	6.5	7.1	8.4
	3H	6.5	7.1	7.6	8.1	9.4	6.5	7.1	7.6	8.1	9.4
	4H	6.9	7.4	7.9	8.4	9.7	6.9	7.4	7.9	8.4	9.7
	6H	7.1	7.6	8.1	8.6	9.9	7.1	7.6	8.1	8.6	9.9
	8H	7.2	7.6	8.2	8.7	10.0	7.2	7.6	8.2	8.7	10.0
	12H	7.2	7.7	8.2	8.7	10.0	7.2	7.7	8.2	8.7	10.0

### UGR Viewed Endwise

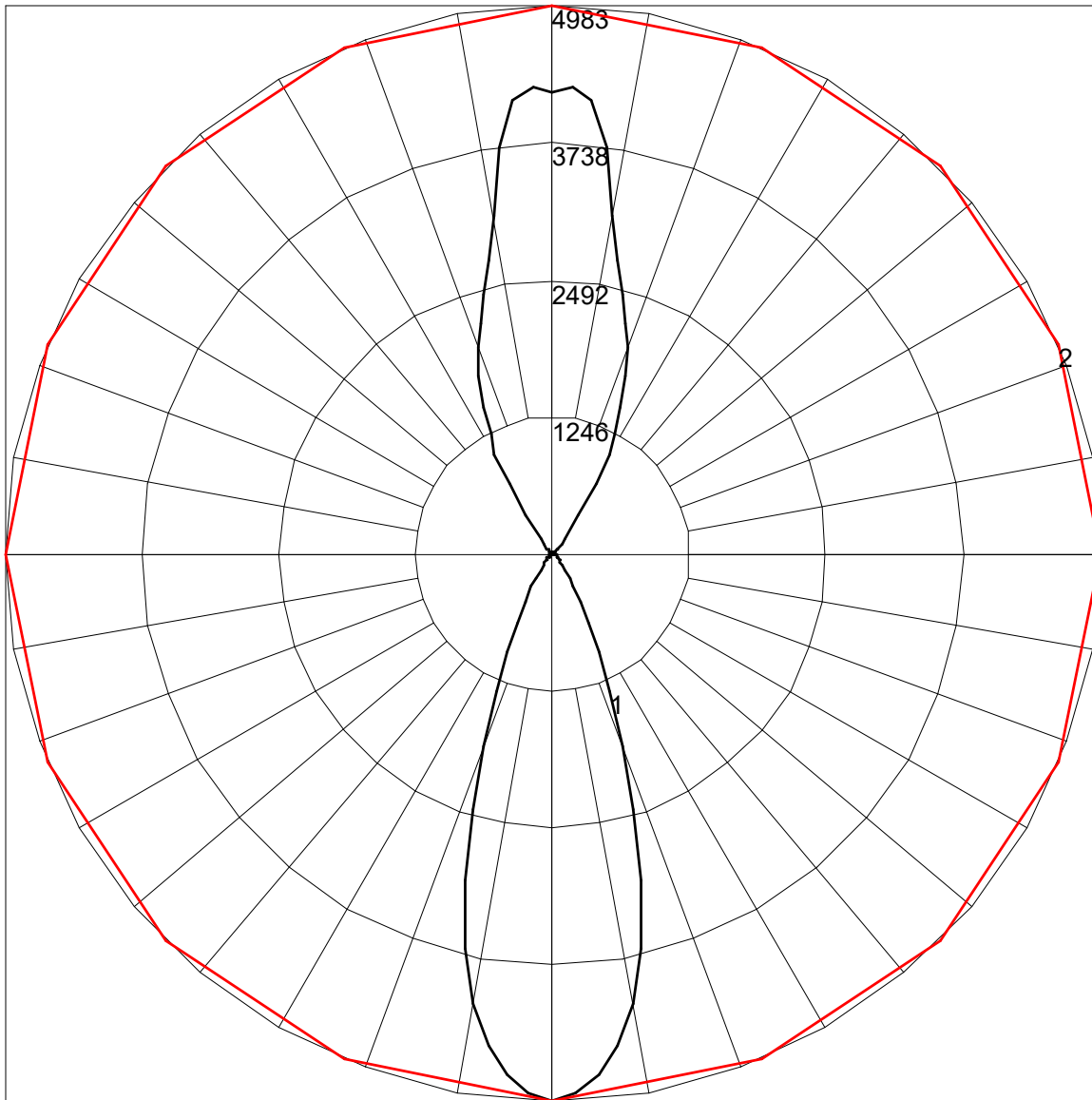
4H	2H	5.8	6.3	6.8	7.3	8.7	5.8	6.3	6.8	7.3	8.7
	3H	7.0	7.5	8.0	8.5	9.8	7.0	7.5	8.0	8.5	9.8
	4H	7.4	7.9	8.5	8.9	10.2	7.4	7.9	8.5	8.9	10.2
	6H	7.8	8.1	8.8	9.2	10.5	7.8	8.1	8.8	9.2	10.5
	8H	7.9	8.2	8.9	9.3	10.6	7.9	8.2	8.9	9.3	10.6
	12H	8.0	8.3	9.0	9.3	10.7	8.0	8.3	9.0	9.3	10.7
8H	4H	7.5	7.9	8.6	8.9	10.3	7.5	7.9	8.6	8.9	10.3
	6H	8.0	8.2	9.0	9.3	10.7	8.0	8.2	9.0	9.3	10.7
	8H	8.2	8.4	9.3	9.5	10.9	8.2	8.4	9.3	9.5	10.9
	12H	8.3	8.5	9.4	9.6	11.0	8.3	8.5	9.4	9.6	11.0
12H	4H	7.5	7.8	8.6	8.8	10.2	7.5	7.8	8.6	8.8	10.2
	6H	8.0	8.2	9.1	9.3	10.7	8.0	8.2	9.1	9.3	10.7
	8H	8.2	8.4	9.3	9.5	10.9	8.2	8.4	9.3	9.5	10.9

Maximum UGR = 11.0

IES INDOOR REPORT

PHOTOMETRIC FILENAME : 8CRDI-TL-L20-8TWU-L20-8TWD-XXX-DALI-UNV-OM-CSU-RM-WHD-WM 4000K\_.IES

POLAR GRAPH



Maximum Candela = 4983.426 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.)