



## IES INDOOR REPORT

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

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002

[TEST] GEN from UL #12326812.05

[TESTLAB] UL Verification Services Inc.

[ISSUE DATE] 24-FEB-2021

[MANUFAC] WILLIAMS INDOOR

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

[LUMCAT] 8CRDI-TL-L20-8TWU-L20-8TWD-xxx-DALI-UNV-ON-CSU-LM-WHD-WM 4000k

[LUMINAIRE] White formed aluminum housing, specular reflector, clear glass cover

[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	4120
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	7935	7935	7935
55	5810	5810	5810
65	4734	4734	4734
75	3853	3853	3853
85	2535	2535	2535

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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>	4999.207	4999.207	4999.207	4999.207	4999.207	4999.207	4999.207	4999.207	4999.207	4999.207
<b>2.5</b>	4946.195	4946.195	4946.195	4946.195	4946.195	4946.195	4946.195	4946.195	4946.195	4946.195
<b>5.0</b>	4803.295	4803.295	4803.295	4803.295	4803.295	4803.295	4803.295	4803.295	4803.295	4803.295
<b>7.5</b>	4568.201	4568.201	4568.201	4568.201	4568.201	4568.201	4568.201	4568.201	4568.201	4568.201
<b>10.0</b>	4219.017	4219.017	4219.017	4219.017	4219.017	4219.017	4219.017	4219.017	4219.017	4219.017
<b>12.5</b>	3741.914	3741.914	3741.914	3741.914	3741.914	3741.914	3741.914	3741.914	3741.914	3741.914
<b>15.0</b>	3143.807	3143.807	3143.807	3143.807	3143.807	3143.807	3143.807	3143.807	3143.807	3143.807
<b>17.5</b>	2501.908	2501.908	2501.908	2501.908	2501.908	2501.908	2501.908	2501.908	2501.908	2501.908
<b>20.0</b>	1887.667	1887.667	1887.667	1887.667	1887.667	1887.667	1887.667	1887.667	1887.667	1887.667
<b>22.5</b>	1375.992	1375.992	1375.992	1375.992	1375.992	1375.992	1375.992	1375.992	1375.992	1375.992
<b>25.0</b>	976.101	976.101	976.101	976.101	976.101	976.101	976.101	976.101	976.101	976.101
<b>27.5</b>	688.457	688.457	688.457	688.457	688.457	688.457	688.457	688.457	688.457	688.457
<b>30.0</b>	489.203	489.203	489.203	489.203	489.203	489.203	489.203	489.203	489.203	489.203
<b>32.5</b>	351.143	351.143	351.143	351.143	351.143	351.143	351.143	351.143	351.143	351.143
<b>35.0</b>	255.262	255.262	255.262	255.262	255.262	255.262	255.262	255.262	255.262	255.262
<b>37.5</b>	190.611	190.611	190.611	190.611	190.611	190.611	190.611	190.611	190.611	190.611
<b>40.0</b>	148.893	148.893	148.893	148.893	148.893	148.893	148.893	148.893	148.893	148.893
<b>42.5</b>	121.465	121.465	121.465	121.465	121.465	121.465	121.465	121.465	121.465	121.465
<b>45.0</b>	102.450	102.450	102.450	102.450	102.450	102.450	102.450	102.450	102.450	102.450
<b>47.5</b>	88.506	88.506	88.506	88.506	88.506	88.506	88.506	88.506	88.506	88.506
<b>50.0</b>	77.673	77.673	77.673	77.673	77.673	77.673	77.673	77.673	77.673	77.673
<b>52.5</b>	68.684	68.684	68.684	68.684	68.684	68.684	68.684	68.684	68.684	68.684
<b>55.0</b>	60.848	60.848	60.848	60.848	60.848	60.848	60.848	60.848	60.848	60.848
<b>57.5</b>	53.818	53.818	53.818	53.818	53.818	53.818	53.818	53.818	53.818	53.818
<b>60.0</b>	47.710	47.710	47.710	47.710	47.710	47.710	47.710	47.710	47.710	47.710
<b>62.5</b>	41.948	41.948	41.948	41.948	41.948	41.948	41.948	41.948	41.948	41.948
<b>65.0</b>	36.532	36.532	36.532	36.532	36.532	36.532	36.532	36.532	36.532	36.532
<b>67.5</b>	31.461	31.461	31.461	31.461	31.461	31.461	31.461	31.461	31.461	31.461
<b>70.0</b>	26.736	26.736	26.736	26.736	26.736	26.736	26.736	26.736	26.736	26.736
<b>72.5</b>	22.357	22.357	22.357	22.357	22.357	22.357	22.357	22.357	22.357	22.357
<b>75.0</b>	18.208	18.208	18.208	18.208	18.208	18.208	18.208	18.208	18.208	18.208
<b>77.5</b>	14.290	14.290	14.290	14.290	14.290	14.290	14.290	14.290	14.290	14.290
<b>80.0</b>	10.602	10.602	10.602	10.602	10.602	10.602	10.602	10.602	10.602	10.602
<b>82.5</b>	7.145	7.145	7.145	7.145	7.145	7.145	7.145	7.145	7.145	7.145
<b>85.0</b>	4.034	4.034	4.034	4.034	4.034	4.034	4.034	4.034	4.034	4.034
<b>87.5</b>	1.613	1.613	1.613	1.613	1.613	1.613	1.613	1.613	1.613	1.613
<b>90.0</b>	0.346	0.346	0.346	0.346	0.346	0.346	0.346	0.346	0.346	0.346
<b>92.5</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>95.0</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>97.5</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>100.0</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>102.5</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>105.0</b>	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
<b>107.5</b>	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966
<b>110.0</b>	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966
<b>112.5</b>	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966
<b>115.0</b>	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966	0.966
<b>117.5</b>	1.931	1.931	1.931	1.931	1.931	1.931	1.931	1.931	1.931	1.931
<b>120.0</b>	1.931	1.931	1.931	1.931	1.931	1.931	1.931	1.931	1.931	1.931
<b>122.5</b>	2.897	2.897	2.897	2.897	2.897	2.897	2.897	2.897	2.897	2.897
<b>125.0</b>	3.863	3.863	3.863	3.863	3.863	3.863	3.863	3.863	3.863	3.863
<b>127.5</b>	4.829	4.829	4.829	4.829	4.829	4.829	4.829	4.829	4.829	4.829
<b>130.0</b>	7.726	7.726	7.726	7.726	7.726	7.726	7.726	7.726	7.726	7.726
<b>132.5</b>	9.657	9.657	9.657	9.657	9.657	9.657	9.657	9.657	9.657	9.657

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## CANDELA TABULATION - (Cont.)

135.0	12.555	12.555	12.555	12.555	12.555	12.555	12.555	12.555	12.555	12.555
137.5	16.418	16.418	16.418	16.418	16.418	16.418	16.418	16.418	16.418	16.418
140.0	20.281	20.281	20.281	20.281	20.281	20.281	20.281	20.281	20.281	20.281
142.5	36.698	36.698	36.698	36.698	36.698	36.698	36.698	36.698	36.698	36.698
145.0	233.709	233.709	233.709	233.709	233.709	233.709	233.709	233.709	233.709	233.709
147.5	523.432	523.432	523.432	523.432	523.432	523.432	523.432	523.432	523.432	523.432
150.0	729.134	729.134	729.134	729.134	729.134	729.134	729.134	729.134	729.134	729.134
152.5	794.805	794.805	794.805	794.805	794.805	794.805	794.805	794.805	794.805	794.805
155.0	986.021	986.021	986.021	986.021	986.021	986.021	986.021	986.021	986.021	986.021
157.5	1273.812	1273.812	1273.812	1273.812	1273.812	1273.812	1273.812	1273.812	1273.812	1273.812
160.0	1504.624	1504.624	1504.624	1504.624	1504.624	1504.624	1504.624	1504.624	1504.624	1504.624
162.5	1691.978	1691.978	1691.978	1691.978	1691.978	1691.978	1691.978	1691.978	1691.978	1691.978
165.0	1962.385	1962.385	1962.385	1962.385	1962.385	1962.385	1962.385	1962.385	1962.385	1962.385
167.5	2441.393	2441.393	2441.393	2441.393	2441.393	2441.393	2441.393	2441.393	2441.393	2441.393
170.0	3405.202	3405.202	3405.202	3405.202	3405.202	3405.202	3405.202	3405.202	3405.202	3405.202
172.5	5341.520	5341.520	5341.520	5341.520	5341.520	5341.519	5341.519	5341.519	5341.519	5341.519
175.0	9493.251	9493.251	9493.251	9493.251	9493.251	9493.249	9493.249	9493.249	9493.249	9493.249
177.5	16736.303	16736.303	16736.303	16736.303	16736.302	16736.302	16736.301	16736.301	16736.301	16736.301
180.0	21246.298	21246.298	21246.298	21246.298	21246.298	21246.298	21246.298	21246.298	21246.298	21246.298

## 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	4999.207	4999.207	4999.207	4999.207	4999.207	4999.207	4999.207
2.5	4946.195	4946.195	4946.195	4946.195	4946.195	4946.195	4946.195
5.0	4803.295	4803.295	4803.295	4803.295	4803.295	4803.295	4803.295
7.5	4568.201	4568.201	4568.201	4568.201	4568.201	4568.201	4568.201
10.0	4219.017	4219.017	4219.017	4219.017	4219.017	4219.017	4219.017
12.5	3741.914	3741.914	3741.914	3741.914	3741.914	3741.914	3741.914
15.0	3143.807	3143.807	3143.807	3143.807	3143.807	3143.807	3143.807
17.5	2501.908	2501.908	2501.908	2501.908	2501.908	2501.908	2501.908
20.0	1887.667	1887.667	1887.667	1887.667	1887.667	1887.667	1887.667
22.5	1375.992	1375.992	1375.992	1375.992	1375.992	1375.992	1375.992
25.0	976.101	976.101	976.101	976.101	976.101	976.101	976.101
27.5	688.457	688.457	688.457	688.457	688.457	688.457	688.457
30.0	489.203	489.203	489.203	489.203	489.203	489.203	489.203
32.5	351.143	351.143	351.143	351.143	351.143	351.143	351.143
35.0	255.262	255.262	255.262	255.262	255.262	255.262	255.262
37.5	190.611	190.611	190.611	190.611	190.611	190.611	190.611
40.0	148.893	148.893	148.893	148.893	148.893	148.893	148.893
42.5	121.465	121.465	121.465	121.465	121.465	121.465	121.465
45.0	102.450	102.450	102.450	102.450	102.450	102.450	102.450
47.5	88.506	88.506	88.506	88.506	88.506	88.506	88.506
50.0	77.673	77.673	77.673	77.673	77.673	77.673	77.673
52.5	68.684	68.684	68.684	68.684	68.684	68.684	68.684
55.0	60.848	60.848	60.848	60.848	60.848	60.848	60.848
57.5	53.818	53.818	53.818	53.818	53.818	53.818	53.818
60.0	47.710	47.710	47.710	47.710	47.710	47.710	47.710
62.5	41.948	41.948	41.948	41.948	41.948	41.948	41.948
65.0	36.532	36.532	36.532	36.532	36.532	36.532	36.532
67.5	31.461	31.461	31.461	31.461	31.461	31.461	31.461
70.0	26.736	26.736	26.736	26.736	26.736	26.736	26.736
72.5	22.357	22.357	22.357	22.357	22.357	22.357	22.357
75.0	18.208	18.208	18.208	18.208	18.208	18.208	18.208
77.5	14.290	14.290	14.290	14.290	14.290	14.290	14.290
80.0	10.602	10.602	10.602	10.602	10.602	10.602	10.602

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82.5	7.145	7.145	7.145	7.145	7.145	7.145	7.145
85.0	4.034	4.034	4.034	4.034	4.034	4.034	4.034
87.5	1.613	1.613	1.613	1.613	1.613	1.613	1.613
90.0	0.346	0.346	0.346	0.346	0.346	0.346	0.346
92.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
95.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
97.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
100.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
102.5	0.000	0.000	0.000	0.000	0.000	0.000	0.000
105.0	0.000	0.000	0.000	0.000	0.000	0.000	0.000
107.5	0.966	0.966	0.966	0.966	0.966	0.966	0.966
110.0	0.966	0.966	0.966	0.966	0.966	0.966	0.966
112.5	0.966	0.966	0.966	0.966	0.966	0.966	0.966
115.0	0.966	0.966	0.966	0.966	0.966	0.966	0.966
117.5	1.931	1.931	1.931	1.931	1.931	1.931	1.931
120.0	1.931	1.931	1.931	1.931	1.931	1.931	1.931
122.5	2.897	2.897	2.897	2.897	2.897	2.897	2.897
125.0	3.863	3.863	3.863	3.863	3.863	3.863	3.863
127.5	4.829	4.829	4.829	4.829	4.829	4.829	4.829
130.0	7.726	7.726	7.726	7.726	7.726	7.726	7.726
132.5	9.657	9.657	9.657	9.657	9.657	9.657	9.657
135.0	12.555	12.555	12.555	12.555	12.555	12.555	12.555
137.5	16.418	16.418	16.418	16.418	16.418	16.418	16.418
140.0	20.281	20.281	20.281	20.281	20.281	20.281	20.281
142.5	36.698	36.698	36.698	36.698	36.698	36.698	36.698
145.0	233.709	233.709	233.709	233.709	233.709	233.709	233.709
147.5	523.432	523.432	523.432	523.432	523.432	523.432	523.432
150.0	729.134	729.134	729.134	729.134	729.134	729.134	729.134
152.5	794.805	794.805	794.805	794.805	794.805	794.805	794.805
155.0	986.021	986.021	986.021	986.021	986.021	986.021	986.021
157.5	1273.812	1273.812	1273.812	1273.812	1273.812	1273.812	1273.812
160.0	1504.624	1504.624	1504.624	1504.624	1504.624	1504.624	1504.624
162.5	1691.978	1691.978	1691.978	1691.978	1691.978	1691.978	1691.978
165.0	1962.385	1962.385	1962.385	1962.385	1962.385	1962.385	1962.385
167.5	2441.393	2441.393	2441.393	2441.393	2441.393	2441.393	2441.393
170.0	3405.202	3405.202	3405.202	3405.202	3405.202	3405.202	3405.202
172.5	5341.519	5341.519	5341.520	5341.520	5341.520	5341.520	5341.520
175.0	9493.249	9493.249	9493.251	9493.251	9493.251	9493.251	9493.251
177.5	16736.301	16736.302	16736.302	16736.302	16736.303	16736.303	16736.303
180.0	21246.298	21246.298	21246.298	21246.298	21246.298	21246.298	21246.298

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Zone	Lumens	%Lamp	%Fixt
0-20	1287.35	N.A.	31.20
0-30	1757.88	N.A.	42.70
0-40	1929.08	N.A.	46.80
0-60	2065.7	N.A.	50.10
0-80	2121.46	N.A.	51.50
0-90	2126.43	N.A.	51.60
10-90	1686.23	N.A.	40.90
20-40	641.72	N.A.	15.60
20-50	723.41	N.A.	17.60
40-70	173.00	N.A.	4.20
60-80	55.77	N.A.	1.40
70-80	19.38	N.A.	0.50
80-90	4.97	N.A.	0.10
90-110	0.43	N.A.	0.00
90-120	1.73	N.A.	0.00
90-130	5.37	N.A.	0.10
90-150	188.95	N.A.	4.60
90-180	1993.43	N.A.	48.40
110-180	1993.00	N.A.	48.40
0-180	4119.86	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	440.20
10-20	847.15
20-30	470.53
30-40	171.20
40-50	81.69
50-60	54.93
60-70	36.39
70-80	19.38
80-90	4.97
90-100	0.05
100-110	0.38
110-120	1.31
120-130	3.64
130-140	10.05
140-150	173.53
150-160	471.21
160-170	580.81
170-180	752.45

# IES INDOOR REPORT

PHOTOMETRIC FILENAME : 8CRDI-TL-L20-8TWU-L20-8TWD-XXX-DALI-UNV-ON-CSU-LM-WHD-WM 4000K\_.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	99	99	99	99	84	84	84	70	70	70	58	58	58	52
1	101	97	94	92	93	90	88	86	78	76	74	66	65	64	55	54	54	49
2	94	89	84	80	87	83	79	75	72	69	67	62	60	58	52	51	50	46
3	88	81	76	71	82	76	71	67	67	63	60	58	55	53	50	48	47	43
4	83	75	69	64	77	70	65	61	62	58	55	54	52	50	47	46	44	41
5	78	69	63	58	73	65	60	56	58	54	51	51	49	46	45	43	42	39
6	74	64	58	54	69	61	56	52	55	51	47	49	46	43	43	41	40	37
7	70	60	54	50	66	57	52	48	52	47	44	46	43	41	41	39	38	35
8	66	57	50	46	62	54	49	45	49	45	42	44	41	39	40	37	36	34
9	63	53	47	43	59	51	46	42	46	42	39	42	39	37	38	36	34	32
10	60	50	45	41	57	48	43	40	44	40	37	40	37	35	37	34	33	31

# IES INDOOR REPORT

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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	7.3	7.9	8.2	8.9	10.2	7.3	7.9	8.2	8.9	10.2
	3H	8.6	9.3	9.6	10.2	11.5	8.6	9.3	9.6	10.2	11.5
	4H	9.1	9.7	10.2	10.7	12.0	9.1	9.7	10.2	10.7	12.0
	6H	9.5	10.0	10.5	11.0	12.3	9.5	10.0	10.5	11.0	12.3
	8H	9.6	10.1	10.6	11.1	12.4	9.6	10.1	10.6	11.1	12.4
	12H	9.6	10.1	10.6	11.1	12.4	9.6	10.1	10.6	11.1	12.4

### UGR Viewed Endwise

4H	2H	7.7	8.2	8.7	9.2	10.5	7.7	8.2	8.7	9.2	10.5
	3H	9.3	9.7	10.3	10.7	12.1	9.3	9.7	10.3	10.7	12.1
	4H	9.9	10.3	10.9	11.3	12.6	9.9	10.3	10.9	11.3	12.6
	6H	10.3	10.7	11.4	11.7	13.1	10.3	10.7	11.4	11.7	13.1
	8H	10.5	10.8	11.5	11.8	13.2	10.5	10.8	11.5	11.8	13.2
	12H	10.5	10.8	11.6	11.9	13.2	10.5	10.8	11.6	11.9	13.2

8H	4H	10.1	10.4	11.1	11.4	12.8	10.1	10.4	11.1	11.4	12.8
	6H	10.6	10.9	11.7	12.0	13.3	10.6	10.9	11.7	12.0	13.3
	8H	10.8	11.1	11.9	12.1	13.5	10.8	11.1	11.9	12.1	13.5
	12H	10.9	11.1	12.0	12.2	13.6	10.9	11.1	12.0	12.2	13.6

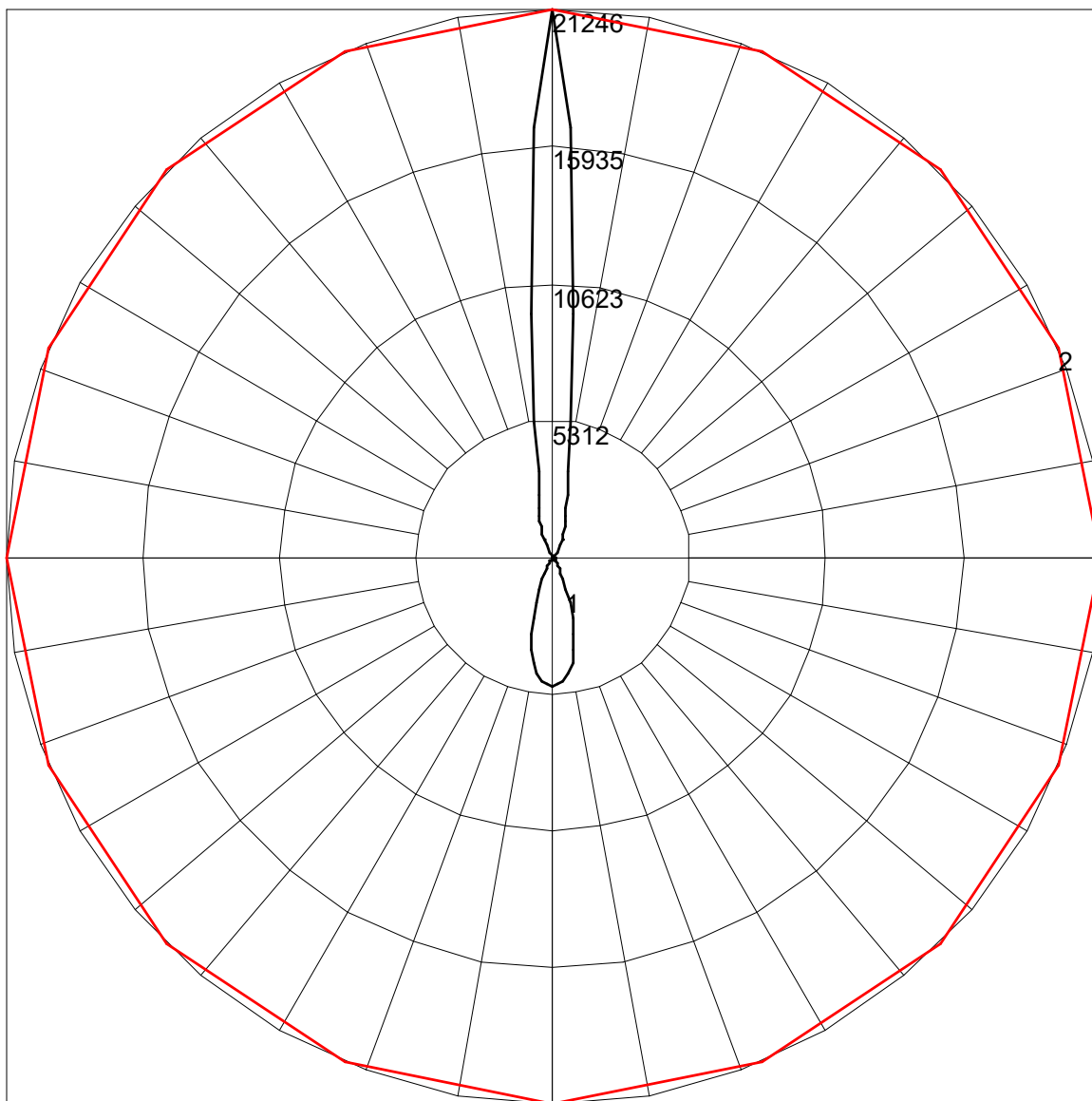
12H	4H	10.0	10.3	11.1	11.4	12.7	10.0	10.3	11.1	11.4	12.7
	6H	10.6	10.9	11.7	11.9	13.3	10.6	10.9	11.7	11.9	13.3
	8H	10.9	11.1	11.9	12.1	13.5	10.9	11.1	11.9	12.1	13.5

Maximum UGR = 13.6

# IES INDOOR REPORT

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## POLAR GRAPH



Maximum Candela = 21246.298 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.)