



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : 8CRDI-TL-L20-8TWU-L20-8TWD-XXX-DALI-UNV-ON-CSU-LN-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-LN-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	4137
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	6718	6718	6718
55	4916	4916	4916
65	3997	3997	3997
75	3263	3263	3263
85	2113	2113	2113

**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>	7962.877	7962.877	7962.877	7962.877	7962.877	7962.877	7962.877	7962.877	7962.877	7962.877
<b>2.5</b>	7765.747	7765.747	7765.747	7765.747	7765.747	7765.747	7765.747	7765.747	7765.747	7765.747
<b>5.0</b>	7206.827	7206.827	7206.827	7206.827	7206.827	7206.827	7206.827	7206.827	7206.827	7206.827
<b>7.5</b>	6356.850	6356.850	6356.850	6356.850	6356.850	6356.850	6356.850	6356.850	6356.850	6356.850
<b>10.0</b>	5300.468	5300.468	5300.468	5300.468	5300.468	5300.468	5300.468	5300.468	5300.468	5300.468
<b>12.5</b>	4166.392	4166.392	4166.392	4166.392	4166.392	4166.392	4166.392	4166.392	4166.392	4166.392
<b>15.0</b>	3094.935	3094.935	3094.935	3094.935	3094.935	3094.935	3094.935	3094.935	3094.935	3094.935
<b>17.5</b>	2215.969	2215.969	2215.969	2215.969	2215.969	2215.969	2215.969	2215.969	2215.969	2215.969
<b>20.0</b>	1558.484	1558.484	1558.484	1558.484	1558.484	1558.484	1558.484	1558.484	1558.484	1558.484
<b>22.5</b>	1076.908	1076.908	1076.908	1076.908	1076.908	1076.908	1076.908	1076.908	1076.908	1076.908
<b>25.0</b>	735.641	735.641	735.641	735.641	735.641	735.641	735.641	735.641	735.641	735.641
<b>27.5</b>	503.956	503.956	503.956	503.956	503.956	503.956	503.956	503.956	503.956	503.956
<b>30.0</b>	352.746	352.746	352.746	352.746	352.746	352.746	352.746	352.746	352.746	352.746
<b>32.5</b>	254.877	254.877	254.877	254.877	254.877	254.877	254.877	254.877	254.877	254.877
<b>35.0</b>	190.868	190.868	190.868	190.868	190.868	190.868	190.868	190.868	190.868	190.868
<b>37.5</b>	148.775	148.775	148.775	148.775	148.775	148.775	148.775	148.775	148.775	148.775
<b>40.0</b>	120.597	120.597	120.597	120.597	120.597	120.597	120.597	120.597	120.597	120.597
<b>42.5</b>	101.116	101.116	101.116	101.116	101.116	101.116	101.116	101.116	101.116	101.116
<b>45.0</b>	86.737	86.737	86.737	86.737	86.737	86.737	86.737	86.737	86.737	86.737
<b>47.5</b>	75.489	75.489	75.489	75.489	75.489	75.489	75.489	75.489	75.489	75.489
<b>50.0</b>	66.096	66.096	66.096	66.096	66.096	66.096	66.096	66.096	66.096	66.096
<b>52.5</b>	58.211	58.211	58.211	58.211	58.211	58.211	58.211	58.211	58.211	58.211
<b>55.0</b>	51.486	51.486	51.486	51.486	51.486	51.486	51.486	51.486	51.486	51.486
<b>57.5</b>	45.572	45.572	45.572	45.572	45.572	45.572	45.572	45.572	45.572	45.572
<b>60.0</b>	40.238	40.238	40.238	40.238	40.238	40.238	40.238	40.238	40.238	40.238
<b>62.5</b>	35.367	35.367	35.367	35.367	35.367	35.367	35.367	35.367	35.367	35.367
<b>65.0</b>	30.845	30.845	30.845	30.845	30.845	30.845	30.845	30.845	30.845	30.845
<b>67.5</b>	26.555	26.555	26.555	26.555	26.555	26.555	26.555	26.555	26.555	26.555
<b>70.0</b>	22.496	22.496	22.496	22.496	22.496	22.496	22.496	22.496	22.496	22.496
<b>72.5</b>	18.785	18.785	18.785	18.785	18.785	18.785	18.785	18.785	18.785	18.785
<b>75.0</b>	15.422	15.422	15.422	15.422	15.422	15.422	15.422	15.422	15.422	15.422
<b>77.5</b>	12.060	12.060	12.060	12.060	12.060	12.060	12.060	12.060	12.060	12.060
<b>80.0</b>	9.045	9.045	9.045	9.045	9.045	9.045	9.045	9.045	9.045	9.045
<b>82.5</b>	6.146	6.146	6.146	6.146	6.146	6.146	6.146	6.146	6.146	6.146
<b>85.0</b>	3.363	3.363	3.363	3.363	3.363	3.363	3.363	3.363	3.363	3.363
<b>87.5</b>	1.276	1.276	1.276	1.276	1.276	1.276	1.276	1.276	1.276	1.276
<b>90.0</b>	0.232	0.232	0.232	0.232	0.232	0.232	0.232	0.232	0.232	0.232
<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	7962.877	7962.877	7962.877	7962.877	7962.877	7962.877	7962.877
2.5	7765.747	7765.747	7765.747	7765.747	7765.747	7765.747	7765.747
5.0	7206.827	7206.827	7206.827	7206.827	7206.827	7206.827	7206.827
7.5	6356.850	6356.850	6356.850	6356.850	6356.850	6356.850	6356.850
10.0	5300.468	5300.468	5300.468	5300.468	5300.468	5300.468	5300.468
12.5	4166.392	4166.392	4166.392	4166.392	4166.392	4166.392	4166.392
15.0	3094.935	3094.935	3094.935	3094.935	3094.935	3094.935	3094.935
17.5	2215.969	2215.969	2215.969	2215.969	2215.969	2215.969	2215.969
20.0	1558.484	1558.484	1558.484	1558.484	1558.484	1558.484	1558.484
22.5	1076.908	1076.908	1076.908	1076.908	1076.908	1076.908	1076.908
25.0	735.641	735.641	735.641	735.641	735.641	735.641	735.641
27.5	503.956	503.956	503.956	503.956	503.956	503.956	503.956
30.0	352.746	352.746	352.746	352.746	352.746	352.746	352.746
32.5	254.877	254.877	254.877	254.877	254.877	254.877	254.877
35.0	190.868	190.868	190.868	190.868	190.868	190.868	190.868
37.5	148.775	148.775	148.775	148.775	148.775	148.775	148.775
40.0	120.597	120.597	120.597	120.597	120.597	120.597	120.597
42.5	101.116	101.116	101.116	101.116	101.116	101.116	101.116
45.0	86.737	86.737	86.737	86.737	86.737	86.737	86.737
47.5	75.489	75.489	75.489	75.489	75.489	75.489	75.489
50.0	66.096	66.096	66.096	66.096	66.096	66.096	66.096
52.5	58.211	58.211	58.211	58.211	58.211	58.211	58.211
55.0	51.486	51.486	51.486	51.486	51.486	51.486	51.486
57.5	45.572	45.572	45.572	45.572	45.572	45.572	45.572
60.0	40.238	40.238	40.238	40.238	40.238	40.238	40.238
62.5	35.367	35.367	35.367	35.367	35.367	35.367	35.367
65.0	30.845	30.845	30.845	30.845	30.845	30.845	30.845
67.5	26.555	26.555	26.555	26.555	26.555	26.555	26.555
70.0	22.496	22.496	22.496	22.496	22.496	22.496	22.496
72.5	18.785	18.785	18.785	18.785	18.785	18.785	18.785
75.0	15.422	15.422	15.422	15.422	15.422	15.422	15.422
77.5	12.060	12.060	12.060	12.060	12.060	12.060	12.060
80.0	9.045	9.045	9.045	9.045	9.045	9.045	9.045

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<b>82.5</b>	6.146	6.146	6.146	6.146	6.146	6.146	6.146
<b>85.0</b>	3.363	3.363	3.363	3.363	3.363	3.363	3.363
<b>87.5</b>	1.276	1.276	1.276	1.276	1.276	1.276	1.276
<b>90.0</b>	0.232	0.232	0.232	0.232	0.232	0.232	0.232
<b>92.5</b>	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
<b>97.5</b>	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
<b>102.5</b>	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
<b>107.5</b>	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
<b>112.5</b>	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
<b>117.5</b>	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
<b>122.5</b>	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
<b>127.5</b>	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
<b>132.5</b>	9.657	9.657	9.657	9.657	9.657	9.657	9.657
<b>135.0</b>	12.555	12.555	12.555	12.555	12.555	12.555	12.555
<b>137.5</b>	16.418	16.418	16.418	16.418	16.418	16.418	16.418
<b>140.0</b>	20.281	20.281	20.281	20.281	20.281	20.281	20.281
<b>142.5</b>	36.698	36.698	36.698	36.698	36.698	36.698	36.698
<b>145.0</b>	233.709	233.709	233.709	233.709	233.709	233.709	233.709
<b>147.5</b>	523.432	523.432	523.432	523.432	523.432	523.432	523.432
<b>150.0</b>	729.134	729.134	729.134	729.134	729.134	729.134	729.134
<b>152.5</b>	794.805	794.805	794.805	794.805	794.805	794.805	794.805
<b>155.0</b>	986.021	986.021	986.021	986.021	986.021	986.021	986.021
<b>157.5</b>	1273.812	1273.812	1273.812	1273.812	1273.812	1273.812	1273.812
<b>160.0</b>	1504.624	1504.624	1504.624	1504.624	1504.624	1504.624	1504.624
<b>162.5</b>	1691.978	1691.978	1691.978	1691.978	1691.978	1691.978	1691.978
<b>165.0</b>	1962.385	1962.385	1962.385	1962.385	1962.385	1962.385	1962.385
<b>167.5</b>	2441.393	2441.393	2441.393	2441.393	2441.393	2441.393	2441.393
<b>170.0</b>	3405.202	3405.202	3405.202	3405.202	3405.202	3405.202	3405.202
<b>172.5</b>	5341.519	5341.519	5341.520	5341.520	5341.520	5341.520	5341.520
<b>175.0</b>	9493.249	9493.249	9493.251	9493.251	9493.251	9493.251	9493.251
<b>177.5</b>	16736.301	16736.302	16736.302	16736.302	16736.303	16736.303	16736.303
<b>180.0</b>	21246.298	21246.298	21246.298	21246.298	21246.298	21246.298	21246.298

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Zone	Lumens	%Lamp	%Fixt
0-20	1486.43	N.A.	35.90
0-30	1849.04	N.A.	44.70
0-40	1976.83	N.A.	47.80
0-60	2091.86	N.A.	50.60
0-80	2138.9	N.A.	51.70
0-90	2143.1	N.A.	51.80
10-90	1516.38	N.A.	36.70
20-40	490.40	N.A.	11.90
20-50	558.89	N.A.	13.50
40-70	145.72	N.A.	3.50
60-80	47.05	N.A.	1.10
70-80	16.36	N.A.	0.40
80-90	4.19	N.A.	0.10
90-110	0.41	N.A.	0.00
90-120	1.72	N.A.	0.00
90-130	5.36	N.A.	0.10
90-150	188.94	N.A.	4.60
90-180	1993.41	N.A.	48.20
110-180	1993.00	N.A.	48.20
0-180	4136.51	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	626.72
10-20	859.71
20-30	362.61
30-40	127.79
40-50	68.50
50-60	46.53
60-70	30.69
70-80	16.36
80-90	4.19
90-100	0.03
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-LN-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	98	95	92	94	91	88	86	78	76	75	66	65	64	55	55	54	49
2	95	89	85	81	88	83	80	76	72	70	68	62	61	59	53	52	51	47
3	89	82	77	73	83	77	73	69	68	64	62	59	57	55	51	49	48	45
4	84	76	70	66	78	72	67	63	63	60	57	56	53	51	49	47	46	43
5	79	71	65	60	74	67	62	58	60	56	53	53	50	48	47	45	44	41
6	75	66	60	56	71	63	58	54	57	53	50	51	48	46	45	43	42	39
7	72	62	56	52	67	59	54	50	54	50	47	48	46	43	44	42	40	38
8	68	59	53	49	64	56	51	47	51	47	44	46	44	41	42	40	39	37
9	65	56	50	46	62	53	48	45	49	45	42	45	42	40	41	39	37	35
10	62	53	47	44	59	51	46	43	47	43	40	43	40	38	39	37	36	34

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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	6.2	6.9	7.2	7.8	9.1	6.2	6.9	7.2	7.8	9.1
	3H	7.6	8.2	8.6	9.2	10.4	7.6	8.2	8.6	9.2	10.4
	4H	8.1	8.7	9.1	9.6	10.9	8.1	8.7	9.1	9.6	10.9
	6H	8.4	8.9	9.4	9.9	11.2	8.4	8.9	9.4	9.9	11.2
	8H	8.5	9.0	9.5	10.0	11.3	8.5	9.0	9.5	10.0	11.3
	12H	8.5	9.0	9.6	10.0	11.3	8.5	9.0	9.6	10.0	11.3

### UGR Viewed Endwise

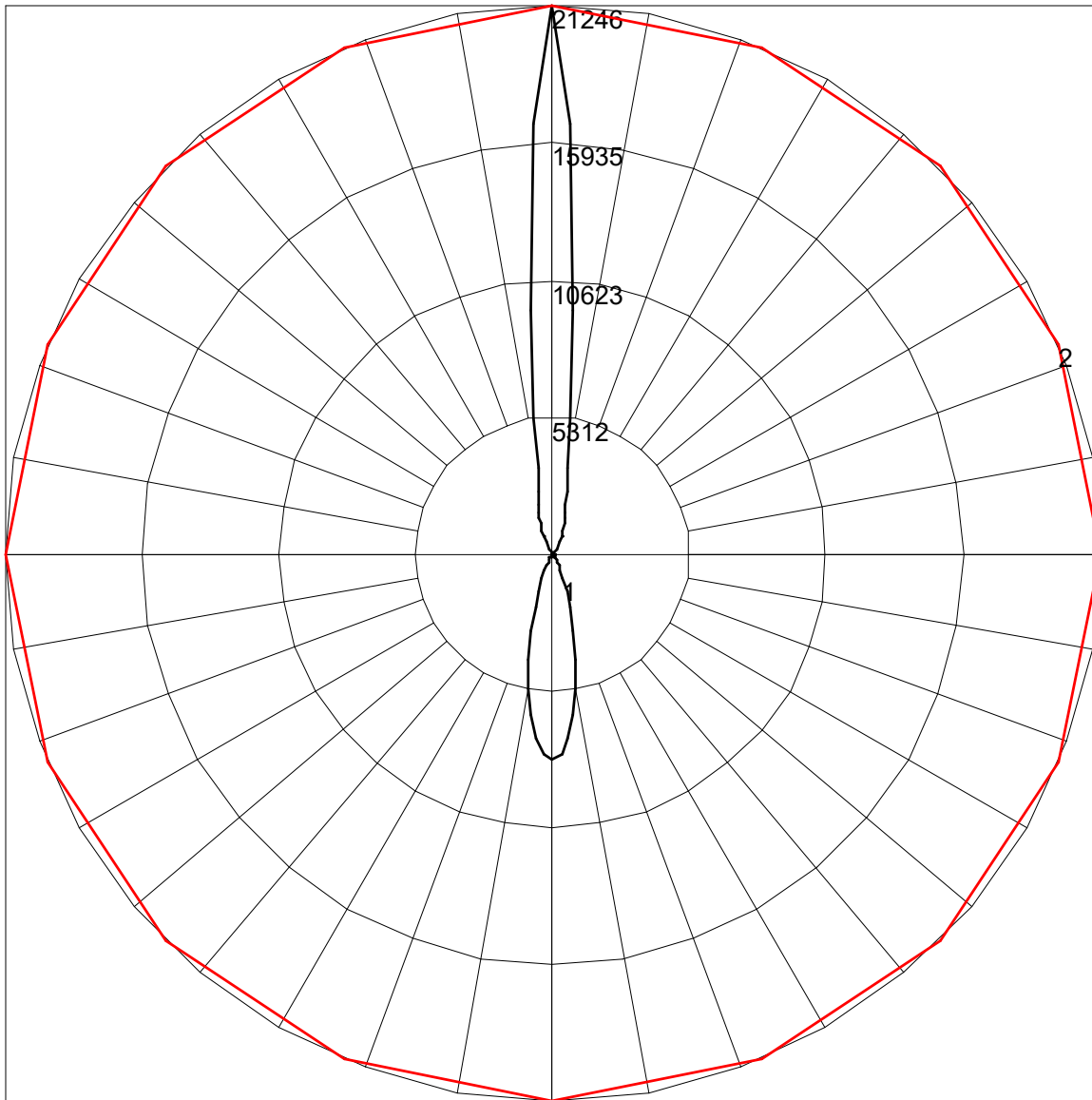
4H	2H	6.6	7.2	7.6	8.1	9.4	6.6	7.2	7.6	8.1	9.4
	3H	8.2	8.7	9.2	9.7	11.0	8.2	8.7	9.2	9.7	11.0
	4H	8.8	9.2	9.8	10.2	11.6	8.8	9.2	9.8	10.2	11.6
	6H	9.3	9.6	10.3	10.7	12.0	9.3	9.6	10.3	10.7	12.0
	8H	9.4	9.7	10.4	10.8	12.1	9.4	9.7	10.4	10.8	12.1
	12H	9.4	9.8	10.5	10.8	12.1	9.4	9.8	10.5	10.8	12.1
8H	4H	9.0	9.3	10.0	10.3	11.7	9.0	9.3	10.0	10.3	11.7
	6H	9.6	9.8	10.6	10.9	12.2	9.6	9.8	10.6	10.9	12.2
	8H	9.8	10.0	10.8	11.0	12.4	9.8	10.0	10.8	11.0	12.4
	12H	9.9	10.1	10.9	11.1	12.5	9.9	10.1	10.9	11.1	12.5
12H	4H	8.9	9.3	10.0	10.3	11.6	8.9	9.3	10.0	10.3	11.6
	6H	9.6	9.8	10.6	10.8	12.2	9.6	9.8	10.6	10.8	12.2
	8H	9.8	10.0	10.9	11.1	12.4	9.8	10.0	10.9	11.1	12.4

Maximum UGR = 12.5

# 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.)