



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4DR-TL-L20-835-DIM-UNV-RW-OF-CS\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
 [TEST] GEN FROM 12316380.12  
 [TESTLAB] UL Verification Services Inc.  
 [ISSUEDATE] 06 JULY 2023  
 [MANUFAC] WILLIAMS INDOOR  
 [OTHER] H.E. WILLIAMS, INC. - CARTHAGE, MO.  
 [LUMCAT] 4DR-TL-L20-835-DIM-UNV-RW-OF-CS  
 [LUMINAIRE] 4.5 INCH ROUND LED DOWNLIGHT  
 [MORE] WITH REGRESSED LENS & SPECULAR FINISH TRIM  
 [LAMP] LED

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1297
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	65
Total Luminaire Watts	19.8
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.98
Spacing Criterion (90-270)	0.98
Spacing Criterion (Diagonal)	0.88
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.38 ft (Diameter)
Luminous Width (90-270)	0.38 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	29998	29998	29998
55	24222	24222	24222
65	15669	15669	15669
75	8738	8738	8738
85	4489	4489	4489

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CANDELA TABULATION

	<u>0</u>
0.0	1041.740
0.5	1041.740
1.0	1040.760
1.5	1038.800
2.0	1036.840
2.5	1034.880
3.0	1031.940
3.5	1029.000
4.0	1026.060
4.5	1022.140
5.0	1019.200
5.5	1015.280
6.0	1011.360
6.5	1007.440
7.0	1003.520
7.5	999.600
8.0	995.680
8.5	990.780
9.0	986.860
9.5	982.940
10.0	979.216
10.5	975.198
11.0	971.082
11.5	967.064
12.0	963.242
12.5	959.420
13.0	955.598
13.5	951.678
14.0	947.758
14.5	943.838
15.0	939.820
15.5	935.704
16.0	931.392
16.5	927.080
17.0	922.670
17.5	917.966
18.0	912.968
18.5	907.578
19.0	902.384
19.5	896.798
20.0	890.722
20.5	883.764
21.0	875.728
21.5	867.006
22.0	857.010
22.5	845.936
23.0	833.392
23.5	819.280
24.0	803.796
24.5	786.254
25.0	766.654
25.5	744.996
26.0	721.574
26.5	696.682

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**CANDELA TABULATION - (Cont.)**

27.0	670.516
27.5	643.958
28.0	616.126
28.5	588.588
29.0	561.148
29.5	533.708
30.0	506.758
30.5	480.298
31.0	455.308
31.5	431.102
32.0	408.268
32.5	387.002
33.0	367.304
33.5	349.566
34.0	333.592
34.5	319.676
35.0	307.426
35.5	297.038
36.0	287.924
36.5	280.280
37.0	273.518
37.5	267.736
38.0	262.444
38.5	257.740
39.0	253.526
39.5	249.704
40.0	246.274
40.5	243.040
41.0	239.904
41.5	237.062
42.0	234.220
42.5	231.574
43.0	228.928
43.5	226.184
44.0	223.440
44.5	220.696
45.0	217.854
45.5	214.914
46.0	211.876
46.5	208.740
47.0	205.506
47.5	202.174
48.0	198.842
48.5	195.314
49.0	191.688
49.5	187.866
50.0	184.044
50.5	180.124
51.0	176.008
51.5	171.990
52.0	167.874
52.5	163.758
53.0	159.838
53.5	155.526
54.0	151.214
54.5	146.902

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**CANDELA TABULATION - (Cont.)**

55.0	142.688
55.5	138.376
56.0	134.162
56.5	130.046
57.0	125.930
57.5	121.814
58.0	117.796
58.5	113.876
59.0	109.956
59.5	106.134
60.0	102.312
60.5	98.588
61.0	94.962
61.5	91.336
62.0	87.906
62.5	84.378
63.0	81.046
63.5	77.616
64.0	74.382
64.5	71.148
65.0	68.012
65.5	64.876
66.0	61.838
66.5	58.898
67.0	56.056
67.5	53.214
68.0	50.470
68.5	47.726
69.0	45.080
69.5	42.532
70.0	40.180
70.5	37.926
71.0	35.868
71.5	33.908
72.0	32.046
72.5	30.282
73.0	28.616
73.5	27.146
74.0	25.676
74.5	24.402
75.0	23.226
75.5	22.148
76.0	20.972
76.5	19.894
77.0	18.816
77.5	17.738
78.0	16.758
78.5	15.680
79.0	14.700
79.5	13.720
80.0	12.740
80.5	11.760
81.0	10.878
81.5	9.996
82.0	9.016
82.5	8.232

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CANDELA TABULATION - (Cont.)

83.0	7.350
83.5	6.468
84.0	5.684
84.5	4.802
85.0	4.018
85.5	3.332
86.0	2.646
86.5	2.156
87.0	1.666
87.5	1.274
88.0	0.882
88.5	0.588
89.0	0.294
89.5	0.098
90.0	0.000
90.5	0.000
91.0	0.000
91.5	0.000
92.0	0.000
92.5	0.000
93.0	0.000
93.5	0.000
94.0	0.000
94.5	0.000
95.0	0.000
95.5	0.000
96.0	0.000
96.5	0.000
97.0	0.000
97.5	0.000
98.0	0.000
98.5	0.000
99.0	0.000
99.5	0.000
100.0	0.000
100.5	0.000
101.0	0.000
101.5	0.000
102.0	0.000
102.5	0.000
103.0	0.000
103.5	0.000
104.0	0.000
104.5	0.000
105.0	0.000
105.5	0.000
106.0	0.000
106.5	0.000
107.0	0.000
107.5	0.000
108.0	0.000
108.5	0.000
109.0	0.000
109.5	0.000
110.0	0.000
110.5	0.000

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CANDELA TABULATION - (Cont.)

111.0	0.000
111.5	0.000
112.0	0.000
112.5	0.000
113.0	0.000
113.5	0.000
114.0	0.000
114.5	0.000
115.0	0.000
115.5	0.000
116.0	0.000
116.5	0.000
117.0	0.000
117.5	0.000
118.0	0.000
118.5	0.000
119.0	0.000
119.5	0.000
120.0	0.000
120.5	0.000
121.0	0.000
121.5	0.000
122.0	0.000
122.5	0.000
123.0	0.000
123.5	0.000
124.0	0.000
124.5	0.000
125.0	0.000
125.5	0.000
126.0	0.000
126.5	0.000
127.0	0.000
127.5	0.000
128.0	0.000
128.5	0.000
129.0	0.000
129.5	0.000
130.0	0.000
130.5	0.000
131.0	0.000
131.5	0.000
132.0	0.000
132.5	0.000
133.0	0.000
133.5	0.000
134.0	0.000
134.5	0.000
135.0	0.000
135.5	0.000
136.0	0.000
136.5	0.000
137.0	0.000
137.5	0.000
138.0	0.000
138.5	0.000

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CANDELA TABULATION - (Cont.)

139.0	0.000
139.5	0.000
140.0	0.000
140.5	0.000
141.0	0.000
141.5	0.000
142.0	0.000
142.5	0.000
143.0	0.000
143.5	0.000
144.0	0.000
144.5	0.000
145.0	0.000
145.5	0.000
146.0	0.000
146.5	0.000
147.0	0.000
147.5	0.000
148.0	0.000
148.5	0.000
149.0	0.000
149.5	0.000
150.0	0.000
150.5	0.000
151.0	0.000
151.5	0.000
152.0	0.000
152.5	0.000
153.0	0.000
153.5	0.000
154.0	0.000
154.5	0.000
155.0	0.000
155.5	0.000
156.0	0.000
156.5	0.000
157.0	0.000
157.5	0.000
158.0	0.000
158.5	0.000
159.0	0.000
159.5	0.000
160.0	0.000
160.5	0.000
161.0	0.000
161.5	0.000
162.0	0.000
162.5	0.000
163.0	0.000
163.5	0.000
164.0	0.000
164.5	0.000
165.0	0.000
165.5	0.000
166.0	0.000
166.5	0.000

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CANDELA TABULATION - (Cont.)

167.0	0.000
167.5	0.000
168.0	0.000
168.5	0.000
169.0	0.000
169.5	0.000
170.0	0.000
170.5	0.000
171.0	0.000
171.5	0.000
172.0	0.000
172.5	0.000
173.0	0.000
173.5	0.000
174.0	0.000
174.5	0.000
175.0	0.000
175.5	0.000
176.0	0.000
176.5	0.000
177.0	0.000
177.5	0.000
178.0	0.000
178.5	0.000
179.0	0.000
179.5	0.000
180.0	0.000

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**ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	360.58	N.A.	27.80
0-30	697.77	N.A.	53.80
0-40	903.25	N.A.	69.60
0-60	1197.85	N.A.	92.40
0-80	1291.58	N.A.	99.60
0-90	1296.88	N.A.	100.00
10-90	1200.94	N.A.	92.60
20-40	542.67	N.A.	41.80
20-50	709.85	N.A.	54.70
40-70	362.73	N.A.	28.00
60-80	93.73	N.A.	7.20
70-80	25.60	N.A.	2.00
80-90	5.30	N.A.	0.40
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	1296.88	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	95.95
10-20	264.64
20-30	337.19
30-40	205.48
40-50	167.18
50-60	127.41
60-70	68.14
70-80	25.60
80-90	5.30
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

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**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	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	112	108	105	102	109	106	103	101	102	100	97	98	96	95	95	93	92	90
2	104	98	93	89	102	96	92	88	93	89	86	90	87	84	87	84	82	80
3	97	89	83	78	95	88	82	77	85	80	76	82	78	75	80	77	74	72
4	91	82	75	70	89	80	74	69	78	73	68	76	71	67	74	70	67	65
5	85	75	68	63	84	74	67	62	72	66	62	70	65	61	69	64	61	59
6	80	69	62	57	78	68	62	57	67	61	56	65	60	56	64	59	55	54
7	75	64	57	52	74	64	57	52	62	56	52	61	55	51	60	55	51	49
8	71	60	53	48	70	59	53	48	58	52	48	57	51	47	56	51	47	46
9	67	56	49	44	66	56	49	44	54	48	44	54	48	44	53	48	44	42
10	64	53	46	41	63	52	46	41	51	45	41	50	45	41	50	45	41	39

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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	20.5	21.8	20.9	22.1	22.4	20.5	21.8	20.9	22.1	22.4
	3H	21.3	22.4	21.6	22.8	23.1	21.3	22.4	21.6	22.8	23.1
	4H	21.4	22.5	21.8	22.9	23.2	21.4	22.5	21.8	22.9	23.2
	6H	21.5	22.5	22.0	22.9	23.3	21.5	22.5	22.0	22.9	23.3
	8H	21.6	22.5	22.0	22.9	23.3	21.6	22.5	22.0	22.9	23.3
	12H	21.5	22.4	22.0	22.8	23.3	21.5	22.4	22.0	22.8	23.3

### UGR Viewed Endwise

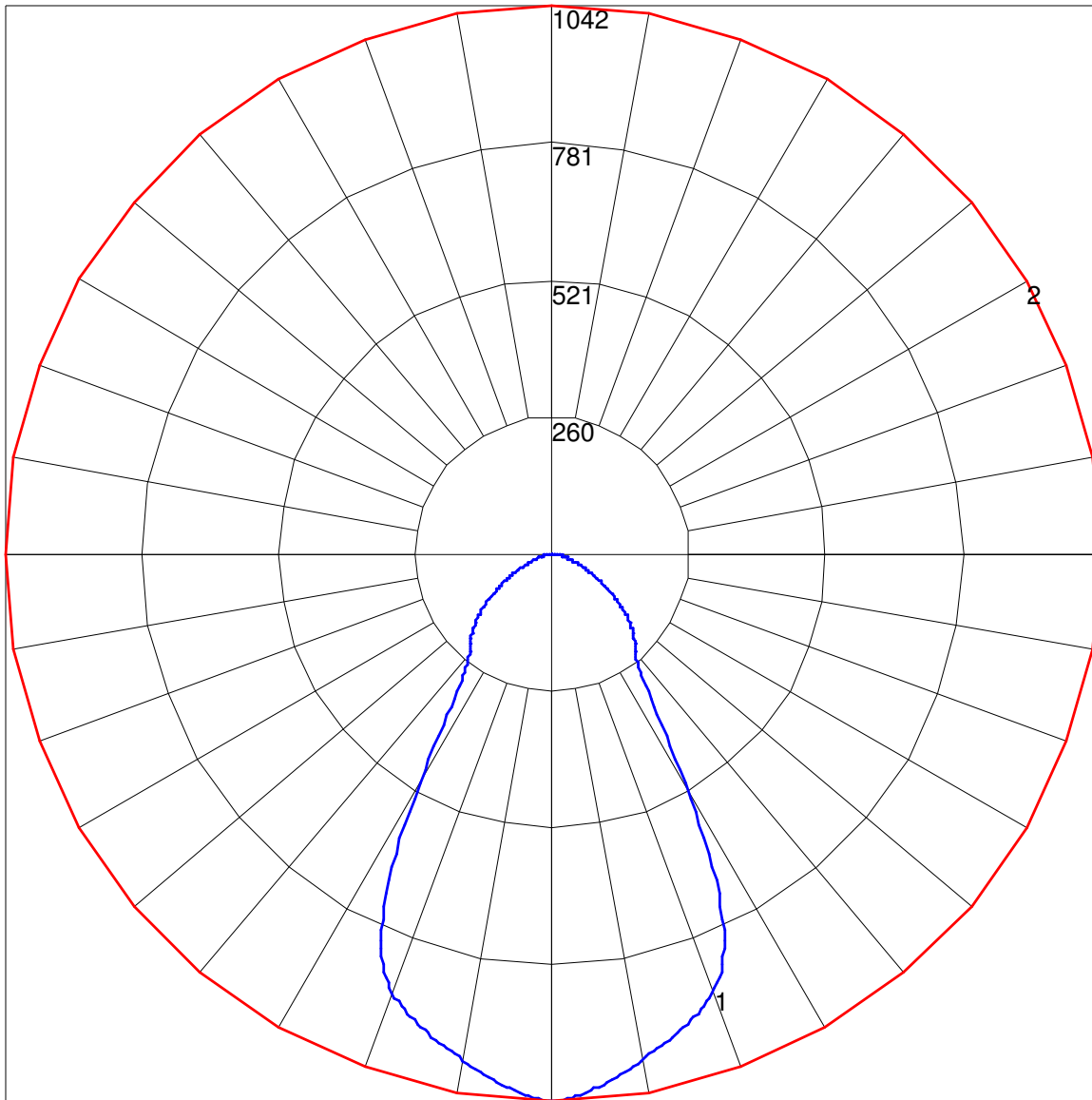
4H	2H	20.8	21.9	21.2	22.2	22.6	20.8	21.9	21.2	22.2	22.6
	3H	21.7	22.6	22.1	23.0	23.4	21.7	22.6	22.1	23.0	23.4
	4H	21.9	22.7	22.3	23.1	23.6	21.9	22.7	22.3	23.1	23.6
	6H	22.1	22.8	22.5	23.2	23.7	22.1	22.8	22.5	23.2	23.7
	8H	22.1	22.7	22.6	23.2	23.7	22.1	22.7	22.6	23.2	23.7
	12H	22.1	22.7	22.6	23.2	23.6	22.1	22.7	22.6	23.2	23.6

8H	4H	22.0	22.6	22.4	23.0	23.5	22.0	22.6	22.4	23.0	23.5
	6H	22.2	22.7	22.7	23.2	23.7	22.2	22.7	22.7	23.2	23.7
	8H	22.2	22.7	22.8	23.2	23.7	22.2	22.7	22.8	23.2	23.7
	12H	22.3	22.7	22.8	23.2	23.7	22.3	22.7	22.8	23.2	23.7

12H	4H	21.9	22.5	22.4	23.0	23.4	21.9	22.5	22.4	23.0	23.4
	6H	22.2	22.6	22.7	23.1	23.6	22.2	22.6	22.7	23.1	23.6
	8H	22.2	22.6	22.8	23.1	23.7	22.2	22.6	22.8	23.1	23.7

Maximum UGR = 23.7

POLAR GRAPH



Maximum Candela = 1041.74 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)