



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_14W\_3500K\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] GEN FROM 15248898.03  
[TESTLAB] UL Verification Services Inc.  
[ISSUE DATE] 2024-04-30  
[TEST DATE] 4/15/2024  
[MANUFACT] H.E. WILLIAMS, INC.  
[MORE] CARTHAGE, MO. 64836  
[LUMCAT] 4FDR-LS-8CS-CS-DIM-UNV\_14W\_3500K  
[LUMINAIRE] 4 INCH ROUND, RECESSED LED DOWNLIGHT  
[MORE] W/SEMI-SPECULAR TRIM. WATTAGE & COLOR SELECTABLE  
[LAMP] LED

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	1519
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	113
Total Luminaire Watts	13.4
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.12
Spacing Criterion (90-270)	1.12
Spacing Criterion (Diagonal)	1.08
Basic Luminous Shape	Circular
Luminous Length (0-180)	0.33 ft (Diameter)
Luminous Width (90-270)	0.33 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	52250	52250	52250
55	17295	17295	17295
65	953	953	953
75	260	260	260
85	330	330	330

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CANDELA TABULATION

	<u>0</u>
0.0	1076.120
0.5	1076.120
1.0	1076.120
1.5	1076.897
2.0	1076.897
2.5	1077.674
3.0	1077.674
3.5	1078.451
4.0	1078.451
4.5	1079.228
5.0	1079.228
5.5	1080.005
6.0	1080.782
6.5	1081.559
7.0	1082.336
7.5	1083.890
8.0	1085.444
8.5	1086.221
9.0	1087.775
9.5	1089.329
10.0	1090.106
10.5	1090.883
11.0	1090.883
11.5	1091.660
12.0	1091.660
12.5	1090.883
13.0	1090.883
13.5	1090.106
14.0	1089.329
14.5	1087.775
15.0	1086.221
15.5	1084.667
16.0	1082.336
16.5	1079.228
17.0	1076.120
17.5	1071.458
18.0	1066.796
18.5	1060.581
19.0	1053.588
19.5	1046.595
20.0	1038.048
20.5	1028.724
21.0	1018.624
21.5	1008.523
22.0	996.868
22.5	985.213
23.0	972.782
23.5	960.350
24.0	947.141
24.5	933.156
25.0	919.947
25.5	905.184
26.0	891.199
26.5	876.436

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_14W\_3500K\_.IES****CANDELA TABULATION - (Cont.)**

27.0	861.673
27.5	846.134
28.0	830.594
28.5	815.831
29.0	800.292
29.5	784.752
30.0	768.824
30.5	753.051
31.0	736.890
31.5	720.651
32.0	704.567
32.5	688.328
33.0	672.012
33.5	655.540
34.0	639.145
34.5	623.062
35.0	608.532
35.5	594.003
36.0	579.629
36.5	563.701
37.0	547.306
37.5	530.912
38.0	514.595
38.5	498.356
39.0	482.273
39.5	466.189
40.0	450.183
40.5	434.255
41.0	418.483
41.5	402.865
42.0	387.403
42.5	372.019
43.0	356.790
43.5	341.950
44.0	327.265
44.5	313.046
45.0	299.216
45.5	285.541
46.0	272.177
46.5	259.201
47.0	246.692
47.5	234.338
48.0	222.450
48.5	210.718
49.0	199.296
49.5	188.263
50.0	177.463
50.5	166.973
51.0	156.873
51.5	146.850
52.0	137.137
52.5	127.658
53.0	118.179
53.5	108.855
54.0	99.376
54.5	89.819

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_14W\_3500K\_.IES****CANDELA TABULATION - (Cont.)**

55.0	80.340
55.5	71.094
56.0	62.314
56.5	54.078
57.0	46.230
57.5	39.082
58.0	32.556
58.5	26.884
59.0	21.911
59.5	17.793
60.0	14.530
60.5	11.810
61.0	9.790
61.5	8.236
62.0	6.993
62.5	6.060
63.0	5.206
63.5	4.584
64.0	4.118
64.5	3.652
65.0	3.263
65.5	2.953
66.0	2.719
66.5	2.486
67.0	2.253
67.5	2.098
68.0	1.942
68.5	1.709
69.0	1.632
69.5	1.476
70.0	1.321
70.5	1.243
71.0	1.165
71.5	1.010
72.0	0.932
72.5	0.855
73.0	0.777
73.5	0.777
74.0	0.699
74.5	0.622
75.0	0.544
75.5	0.544
76.0	0.466
76.5	0.466
77.0	0.388
77.5	0.388
78.0	0.311
78.5	0.311
79.0	0.311
79.5	0.233
80.0	0.233
80.5	0.233
81.0	0.233
81.5	0.233
82.0	0.233
82.5	0.233

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_14W\_3500K\_.IES****CANDELA TABULATION - (Cont.)**

83.0	0.233
83.5	0.233
84.0	0.233
84.5	0.233
85.0	0.233
85.5	0.233
86.0	0.311
86.5	0.311
87.0	0.311
87.5	0.311
88.0	0.311
88.5	0.311
89.0	0.311
89.5	0.233
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

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_14W\_3500K\_.IES****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

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_14W\_3500K\_.IES****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



**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_14W\_3500K\_.IES****ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	408.64	N.A.	26.90
0-30	827.91	N.A.	54.50
0-40	1206.62	N.A.	79.40
0-60	1513.89	N.A.	99.60
0-80	1519.01	N.A.	100.00
0-90	1519.29	N.A.	100.00
10-90	1415.89	N.A.	93.20
20-40	797.98	N.A.	52.50
20-50	1030.55	N.A.	67.80
40-70	311.72	N.A.	20.50
60-80	5.12	N.A.	0.30
70-80	0.67	N.A.	0.00
80-90	0.28	N.A.	0.00
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	1519.29	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	103.39
10-20	305.24
20-30	419.28
30-40	378.70
40-50	232.57
50-60	74.70
60-70	4.44
70-80	0.67
80-90	0.28
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	113	110	107	105	110	108	105	103	103	102	100	100	98	97	96	95	94	92
2	106	101	96	92	104	99	95	91	96	92	89	93	90	87	90	88	86	84
3	100	93	87	83	98	91	86	82	89	84	80	86	82	79	84	81	78	76
4	94	85	79	74	92	84	78	74	82	77	73	80	75	72	78	74	71	69
5	88	79	72	67	86	78	71	67	76	70	66	74	69	66	72	68	65	63
6	83	73	66	61	81	72	66	61	70	65	60	69	64	60	67	63	60	58
7	78	67	61	56	77	67	60	56	65	60	55	64	59	55	63	58	55	53
8	74	63	56	51	72	62	56	51	61	55	51	60	55	51	59	54	51	49
9	69	59	52	47	68	58	52	47	57	51	47	56	51	47	55	50	47	45
10	66	55	48	44	65	54	48	44	53	48	44	53	47	44	52	47	43	42

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## UGR TABLE - CORRECTED

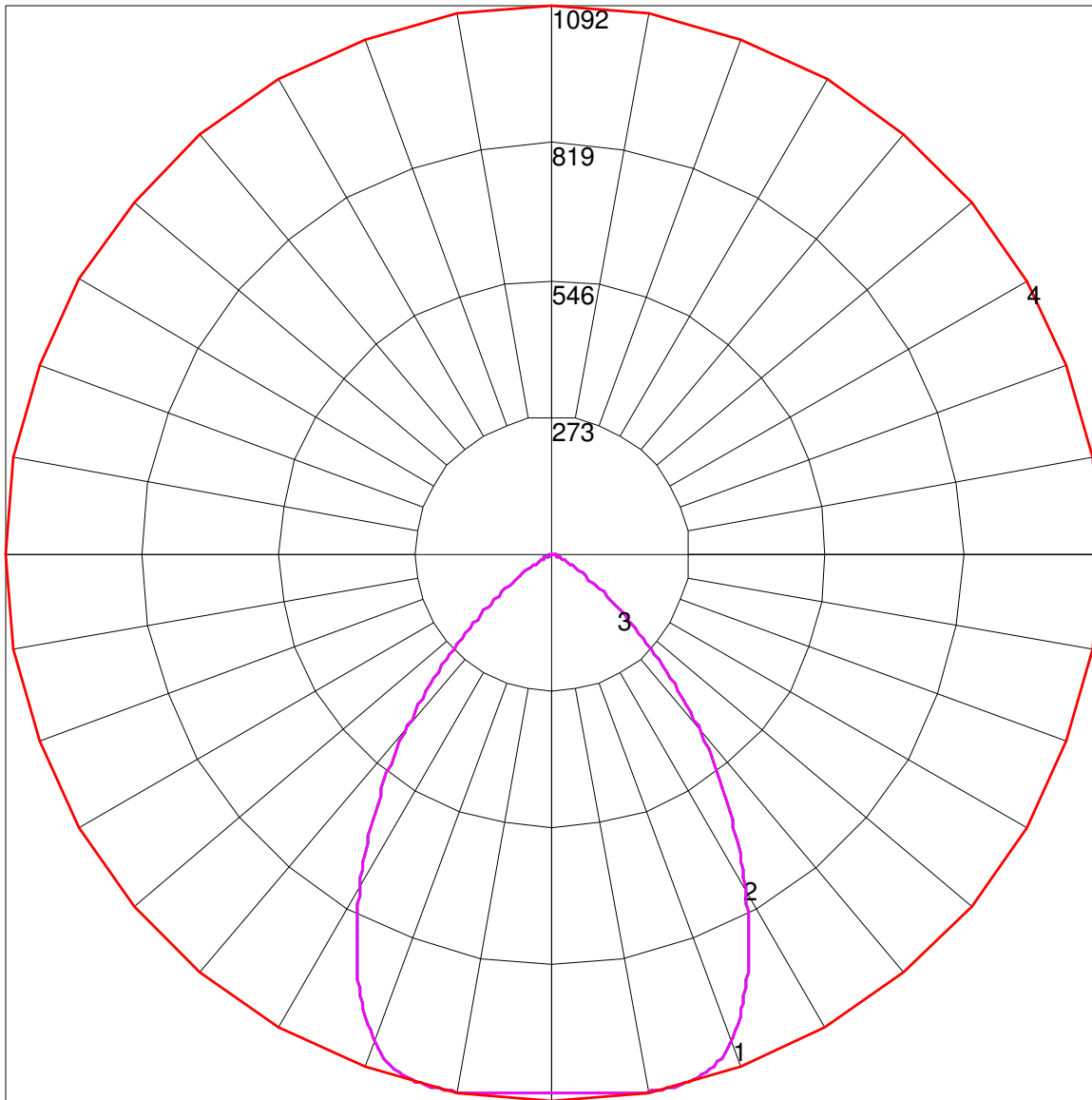
### Reflectances

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					UGR Viewed Endwise				
X=2H	Y=2H	12.7	13.9	13.1	14.2	14.5	12.7	13.9	13.1	14.2	14.5
	3H	12.6	13.6	13.0	13.9	14.3	12.6	13.6	13.0	13.9	14.3
	4H	12.5	13.4	12.9	13.8	14.2	12.5	13.4	12.9	13.8	14.2
	6H	12.4	13.2	12.8	13.6	14.0	12.4	13.2	12.8	13.6	14.0
	8H	12.3	13.1	12.8	13.5	13.9	12.3	13.1	12.8	13.5	13.9
	12H	12.3	13.1	12.7	13.4	13.9	12.3	13.1	12.7	13.4	13.9
4H	2H	12.5	13.4	12.9	13.8	14.2	12.5	13.4	12.9	13.8	14.2
	3H	12.3	13.1	12.7	13.5	13.9	12.3	13.1	12.7	13.5	13.9
	4H	12.2	12.9	12.7	13.3	13.8	12.2	12.9	12.7	13.3	13.8
	6H	12.1	12.7	12.6	13.1	13.6	12.1	12.7	12.6	13.1	13.6
	8H	12.0	12.6	12.5	13.0	13.5	12.0	12.6	12.5	13.0	13.5
	12H	12.0	12.5	12.5	13.0	13.4	12.0	12.5	12.5	13.0	13.4
8H	4H	12.0	12.6	12.5	13.0	13.5	12.0	12.6	12.5	13.0	13.5
	6H	11.9	12.4	12.5	12.9	13.4	11.9	12.4	12.5	12.9	13.4
	8H	11.9	12.3	12.4	12.8	13.3	11.9	12.3	12.4	12.8	13.3
	12H	11.8	12.2	12.3	12.7	13.2	11.8	12.2	12.3	12.7	13.2
12H	4H	12.0	12.5	12.5	13.0	13.4	12.0	12.5	12.5	13.0	13.4
	6H	11.9	12.3	12.4	12.7	13.3	11.9	12.3	12.4	12.7	13.3
	8H	11.8	12.2	12.3	12.7	13.2	11.8	12.2	12.3	12.7	13.2

Maximum UGR = 14.5

POLAR GRAPH



Maximum Candela = 1091.66 Located At Horizontal Angle = 0, Vertical Angle = 11.5  
# 1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)  
# 2 - Vertical Plane Through Horizontal Angles (5 - 185)  
# 3 - Vertical Plane Through Horizontal Angles (10 - 190)  
# 4 - Horizontal Cone Through Vertical Angle (11.5) (Through Max. Cd.)