



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4FDR-LS-8CS-WH-DIM-UNV\_10W\_4000K\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] GEN FROM 15248898.04  
[TESTLAB] UL Verification Services Inc.  
[ISSUE DATE] 2024-04-30  
[TEST DATE] 4/16/2024  
[MANUFACTURER] H.E. WILLIAMS, INC.  
[MORE] CARTHAGE, MO. 64836  
[LUMEN CATEGORY] 4FDR-LS-8CS-WH-DIM-UNV\_10W\_4000K  
[LUMINAIRE] 4 INCH ROUND, RECESSED LED DOWNLIGHT  
[MORE] W/WHITE PAINTED TRIM. WATTAGE & COLOR SELECTABLE  
[LAMP] LED

### CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	832
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	90
Total Luminaire Watts	9.2
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.00
Spacing Criterion (90-270)	1.00
Spacing Criterion (Diagonal)	1.00
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	25121	25121	25121
55	18475	18475	18475
65	14629	14629	14629
75	11571	11571	11571
85	8573	8573	8573

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## CANDELA TABULATION

	<u>0</u>
0.0	575.341
0.5	574.836
1.0	574.836
1.5	574.332
2.0	574.332
2.5	573.828
3.0	573.324
3.5	572.315
4.0	571.811
4.5	570.802
5.0	569.794
5.5	568.785
6.0	567.273
6.5	565.760
7.0	564.247
7.5	562.735
8.0	561.222
8.5	559.709
9.0	558.196
9.5	556.179
10.0	554.667
10.5	552.650
11.0	550.633
11.5	548.616
12.0	546.599
12.5	544.078
13.0	541.556
13.5	539.035
14.0	536.010
14.5	532.984
15.0	529.959
15.5	526.933
16.0	523.404
16.5	519.874
17.0	515.840
17.5	511.806
18.0	507.268
18.5	502.730
19.0	497.687
19.5	492.342
20.0	486.745
20.5	480.896
21.0	475.047
21.5	468.945
22.0	462.592
22.5	456.087
23.0	449.482
23.5	442.624
24.0	435.665
24.5	428.505
25.0	421.093
25.5	413.428
26.0	405.562
26.5	397.494

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-WH-DIM-UNV\_10W\_4000K\_.IES****CANDELA TABULATION - (Cont.)**

27.0	389.426
27.5	381.560
28.0	373.795
28.5	365.929
29.0	357.962
29.5	350.045
30.0	342.128
30.5	334.111
31.0	326.043
31.5	318.026
32.0	310.059
32.5	302.142
33.0	294.427
33.5	286.763
34.0	279.199
34.5	271.787
35.0	264.425
35.5	257.264
36.0	250.155
36.5	243.146
37.0	236.137
37.5	229.178
38.0	222.371
38.5	215.715
39.0	209.160
39.5	202.806
40.0	196.655
40.5	190.553
41.0	184.704
41.5	179.056
42.0	173.510
42.5	168.165
43.0	162.921
43.5	157.929
44.0	153.038
44.5	148.348
45.0	143.860
45.5	139.574
46.0	135.540
46.5	131.658
47.0	127.926
47.5	124.346
48.0	120.968
48.5	117.741
49.0	114.715
49.5	111.791
50.0	108.967
50.5	106.294
51.0	103.723
51.5	101.252
52.0	98.882
52.5	96.562
53.0	94.293
53.5	92.075
54.0	89.957
54.5	87.839

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55.0	85.822
55.5	83.856
56.0	81.839
56.5	79.872
57.0	77.905
57.5	75.989
58.0	74.073
58.5	72.208
59.0	70.342
59.5	68.527
60.0	66.711
60.5	64.896
61.0	63.131
61.5	61.366
62.0	59.702
62.5	58.038
63.0	56.374
63.5	54.761
64.0	53.147
64.5	51.584
65.0	50.071
65.5	48.559
66.0	47.046
66.5	45.584
67.0	44.172
67.5	42.760
68.0	41.398
68.5	40.037
69.0	38.726
69.5	37.415
70.0	36.104
70.5	34.843
71.0	33.583
71.5	32.372
72.0	31.162
72.5	29.952
73.0	28.792
73.5	27.632
74.0	26.473
74.5	25.363
75.0	24.254
75.5	23.195
76.0	22.136
76.5	21.077
77.0	20.069
77.5	19.060
78.0	18.052
78.5	17.094
79.0	16.136
79.5	15.178
80.0	14.270
80.5	13.362
81.0	12.505
81.5	11.598
82.0	10.740
82.5	9.934

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83.0	9.127
83.5	8.320
84.0	7.564
84.5	6.807
85.0	6.051
85.5	5.345
86.0	4.639
86.5	3.933
87.0	3.278
87.5	2.622
88.0	2.067
88.5	1.462
89.0	0.958
89.5	0.605
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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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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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

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-WH-DIM-UNV\_10W\_4000K\_.IES****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	202.26	N.A.	24.30
0-30	393.87	N.A.	47.30
0-40	559.14	N.A.	67.20
0-60	749.15	N.A.	90.00
0-80	825.00	N.A.	99.20
0-90	831.96	N.A.	100.00
10-90	778.08	N.A.	93.50
20-40	356.88	N.A.	42.90
20-50	469.71	N.A.	56.50
40-70	239.94	N.A.	28.80
60-80	75.84	N.A.	9.10
70-80	25.91	N.A.	3.10
80-90	6.97	N.A.	0.80
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	831.96	N.A.	100.00

Total Luminaire Efficiency = N.A. %

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	53.88
10-20	148.38
20-30	191.61
30-40	165.27
40-50	112.82
50-60	77.19
60-70	49.93
70-80	25.91
80-90	6.97
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	111	107	104	101	109	105	102	99	101	99	96	97	95	93	94	92	91	89
2	103	97	91	87	101	95	90	86	92	87	84	88	85	82	86	83	80	78
3	96	88	81	76	94	86	80	75	83	78	74	81	76	73	78	75	71	70
4	90	80	73	67	88	79	72	67	76	70	66	74	69	65	72	68	64	62
5	84	73	66	60	82	72	65	60	70	64	59	68	63	59	66	62	58	56
6	78	67	60	54	77	66	59	54	65	58	54	63	57	53	62	57	53	51
7	74	62	55	49	72	61	54	49	60	54	49	59	53	49	57	52	48	47
8	69	58	50	45	68	57	50	45	56	49	45	55	49	45	54	48	44	43
9	65	54	47	42	64	53	46	42	52	46	41	51	45	41	50	45	41	39
10	62	50	43	39	61	50	43	39	49	43	38	48	42	38	47	42	38	37

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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	19.6	20.9	19.9	21.2	21.6	19.6	20.9	19.9	21.2	21.6
	3H	20.9	22.1	21.3	22.5	22.8	20.9	22.1	21.3	22.5	22.8
	4H	21.4	22.5	21.8	22.9	23.3	21.4	22.5	21.8	22.9	23.3
	6H	21.7	22.8	22.2	23.2	23.5	21.7	22.8	22.2	23.2	23.5
	8H	21.8	22.8	22.3	23.2	23.6	21.8	22.8	22.3	23.2	23.6
	12H	21.9	22.9	22.3	23.2	23.7	21.9	22.9	22.3	23.2	23.7

### UGR Viewed Endwise

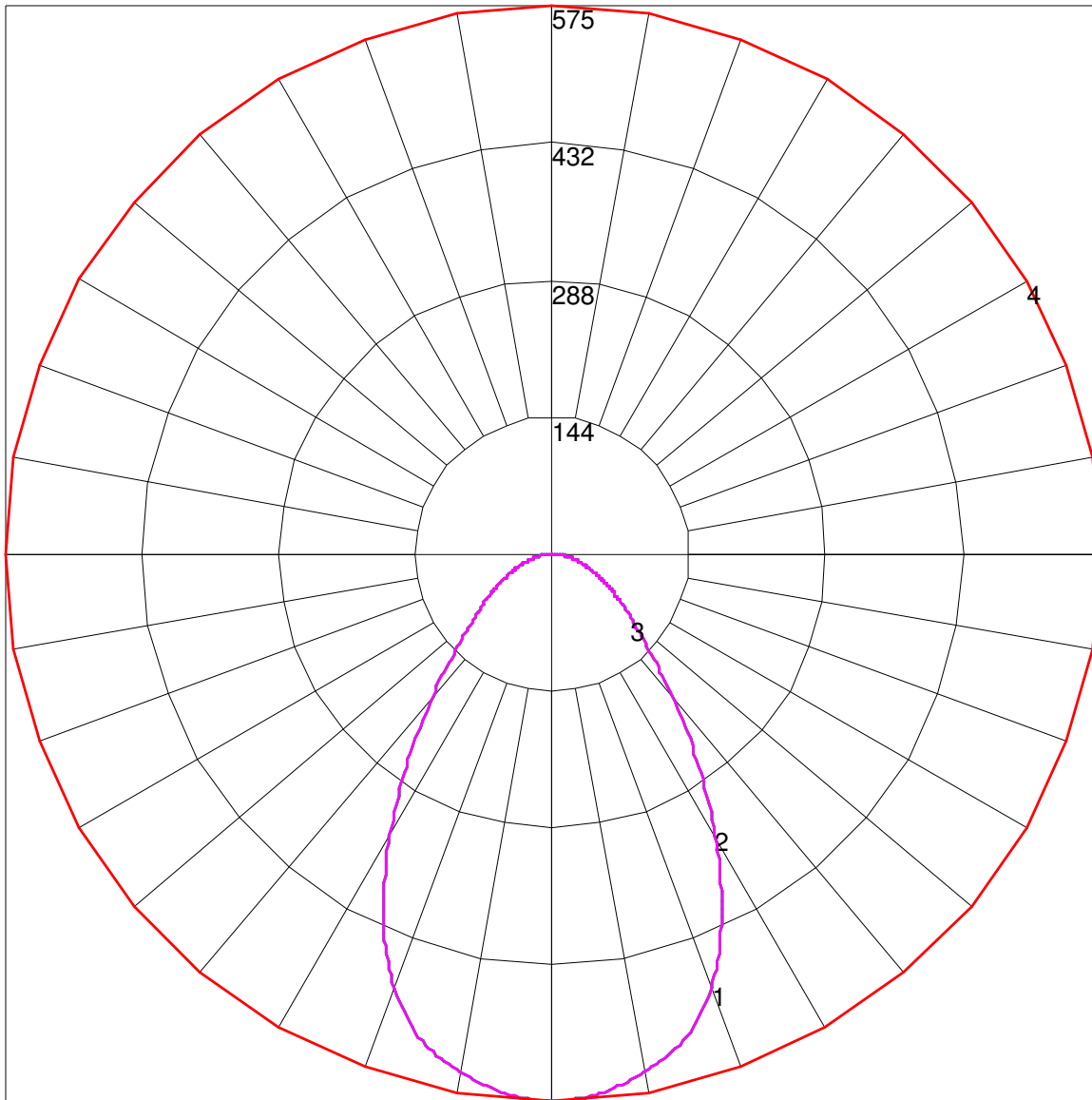
4H	2H	20.0	21.1	20.4	21.5	21.9	20.0	21.1	20.4	21.5	21.9
	3H	21.6	22.5	22.0	22.9	23.3	21.6	22.5	22.0	22.9	23.3
	4H	22.2	23.0	22.6	23.4	23.9	22.2	23.0	22.6	23.4	23.9
	6H	22.6	23.4	23.1	23.8	24.3	22.6	23.4	23.1	23.8	24.3
	8H	22.8	23.4	23.2	23.9	24.4	22.8	23.4	23.2	23.9	24.4
	12H	22.9	23.5	23.4	24.0	24.4	22.9	23.5	23.4	24.0	24.4

8H	4H	22.4	23.0	22.8	23.5	24.0	22.4	23.0	22.8	23.5	24.0
	6H	22.9	23.5	23.4	24.0	24.5	22.9	23.5	23.4	24.0	24.5
	8H	23.1	23.6	23.6	24.1	24.6	23.1	23.6	23.6	24.1	24.6
	12H	23.3	23.7	23.8	24.2	24.8	23.3	23.7	23.8	24.2	24.8

12H	4H	22.4	23.0	22.9	23.5	23.9	22.4	23.0	22.9	23.5	23.9
	6H	23.0	23.5	23.5	23.9	24.5	23.0	23.5	23.5	23.9	24.5
	8H	23.2	23.6	23.7	24.1	24.7	23.2	23.6	23.7	24.1	24.7

Maximum UGR = 24.8

POLAR GRAPH



Maximum Candela = 575.341 Located At Horizontal Angle = 0, Vertical Angle = 0  
# 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 (0) (Through Max. Cd.)