



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_18W\_3500K\_.IES

### DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002  
[TEST] GEN FROM 15248898.03  
[TESTLAB] UL Verification Services Inc.  
[ISSUEDATE] 2024-04-30  
[TESTDATE] 4/15/2024  
[MANUFAC] H.E. WILLIAMS, INC.  
[MORE] CARTHAGE, MO. 64836  
[LUMCAT] 4FDR-LS-8CS-CS-DIM-UNV\_18W\_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	1968
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	112
Total Luminaire Watts	17.6
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	67694	67694	67694
55	22408	22408	22408
65	1235	1235	1235
75	336	336	336
85	428	428	428

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CANDELA TABULATION

	<u>0</u>
0.0	1394.210
0.5	1394.210
1.0	1394.210
1.5	1395.217
2.0	1395.217
2.5	1396.224
3.0	1396.224
3.5	1397.230
4.0	1397.230
4.5	1398.237
5.0	1398.237
5.5	1399.243
6.0	1400.250
6.5	1401.257
7.0	1402.263
7.5	1404.277
8.0	1406.290
8.5	1407.297
9.0	1409.310
9.5	1411.323
10.0	1412.330
10.5	1413.337
11.0	1413.337
11.5	1414.343
12.0	1414.343
12.5	1413.337
13.0	1413.337
13.5	1412.330
14.0	1411.323
14.5	1409.310
15.0	1407.297
15.5	1405.283
16.0	1402.263
16.5	1398.237
17.0	1394.210
17.5	1388.170
18.0	1382.130
18.5	1374.077
19.0	1365.017
19.5	1355.958
20.0	1344.884
20.5	1332.805
21.0	1319.718
21.5	1306.632
22.0	1291.532
22.5	1276.432
23.0	1260.326
23.5	1244.219
24.0	1227.106
24.5	1208.987
25.0	1191.874
25.5	1172.747
26.0	1154.628
26.5	1135.501

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_18W\_3500K\_.IES****CANDELA TABULATION - (Cont.)**

27.0	1116.375
27.5	1096.242
28.0	1076.109
28.5	1056.982
29.0	1036.849
29.5	1016.716
30.0	996.080
30.5	975.645
31.0	954.707
31.5	933.668
32.0	912.830
32.5	891.791
33.0	870.652
33.5	849.311
34.0	828.070
34.5	807.233
35.0	788.408
35.5	769.584
36.0	750.961
36.5	730.325
37.0	709.084
37.5	687.844
38.0	666.704
38.5	645.665
39.0	624.828
39.5	603.990
40.0	583.253
40.5	562.617
41.0	542.182
41.5	521.948
42.0	501.916
42.5	481.984
43.0	462.254
43.5	443.027
44.0	424.001
44.5	405.579
45.0	387.661
45.5	369.944
46.0	352.629
46.5	335.818
47.0	319.611
47.5	303.606
48.0	288.204
48.5	273.003
49.0	258.206
49.5	243.911
50.0	229.919
50.5	216.329
51.0	203.243
51.5	190.257
52.0	177.674
52.5	165.393
53.0	153.111
53.5	141.032
54.0	128.751
54.5	116.369

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_18W\_3500K\_.IES****CANDELA TABULATION - (Cont.)**

55.0	104.088
55.5	92.108
56.0	80.733
56.5	70.063
57.0	59.896
57.5	50.634
58.0	42.179
58.5	34.830
59.0	28.388
59.5	23.052
60.0	18.824
60.5	15.301
61.0	12.684
61.5	10.670
62.0	9.060
62.5	7.852
63.0	6.745
63.5	5.939
64.0	5.335
64.5	4.731
65.0	4.228
65.5	3.825
66.0	3.523
66.5	3.221
67.0	2.919
67.5	2.718
68.0	2.517
68.5	2.215
69.0	2.114
69.5	1.913
70.0	1.711
70.5	1.611
71.0	1.510
71.5	1.309
72.0	1.208
72.5	1.107
73.0	1.007
73.5	1.007
74.0	0.906
74.5	0.805
75.0	0.705
75.5	0.705
76.0	0.604
76.5	0.604
77.0	0.503
77.5	0.503
78.0	0.403
78.5	0.403
79.0	0.403
79.5	0.302
80.0	0.302
80.5	0.302
81.0	0.302
81.5	0.302
82.0	0.302
82.5	0.302

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_18W\_3500K\_.IES****CANDELA TABULATION - (Cont.)**

83.0	0.302
83.5	0.302
84.0	0.302
84.5	0.302
85.0	0.302
85.5	0.302
86.0	0.403
86.5	0.403
87.0	0.403
87.5	0.403
88.0	0.403
88.5	0.403
89.0	0.403
89.5	0.302
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\_18W\_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

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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

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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\_18W\_3500K\_.IES****ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	529.43	N.A.	26.90
0-30	1072.64	N.A.	54.50
0-40	1563.28	N.A.	79.40
0-60	1961.38	N.A.	99.60
0-80	1968.01	N.A.	100.00
0-90	1968.37	N.A.	100.00
10-90	1834.42	N.A.	93.20
20-40	1033.86	N.A.	52.50
20-50	1335.17	N.A.	67.80
40-70	403.86	N.A.	20.50
60-80	6.63	N.A.	0.30
70-80	0.87	N.A.	0.00
80-90	0.36	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	1968.37	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	133.95
10-20	395.47
20-30	543.21
30-40	490.65
40-50	301.32
50-60	96.79
60-70	5.75
70-80	0.87
80-90	0.36
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

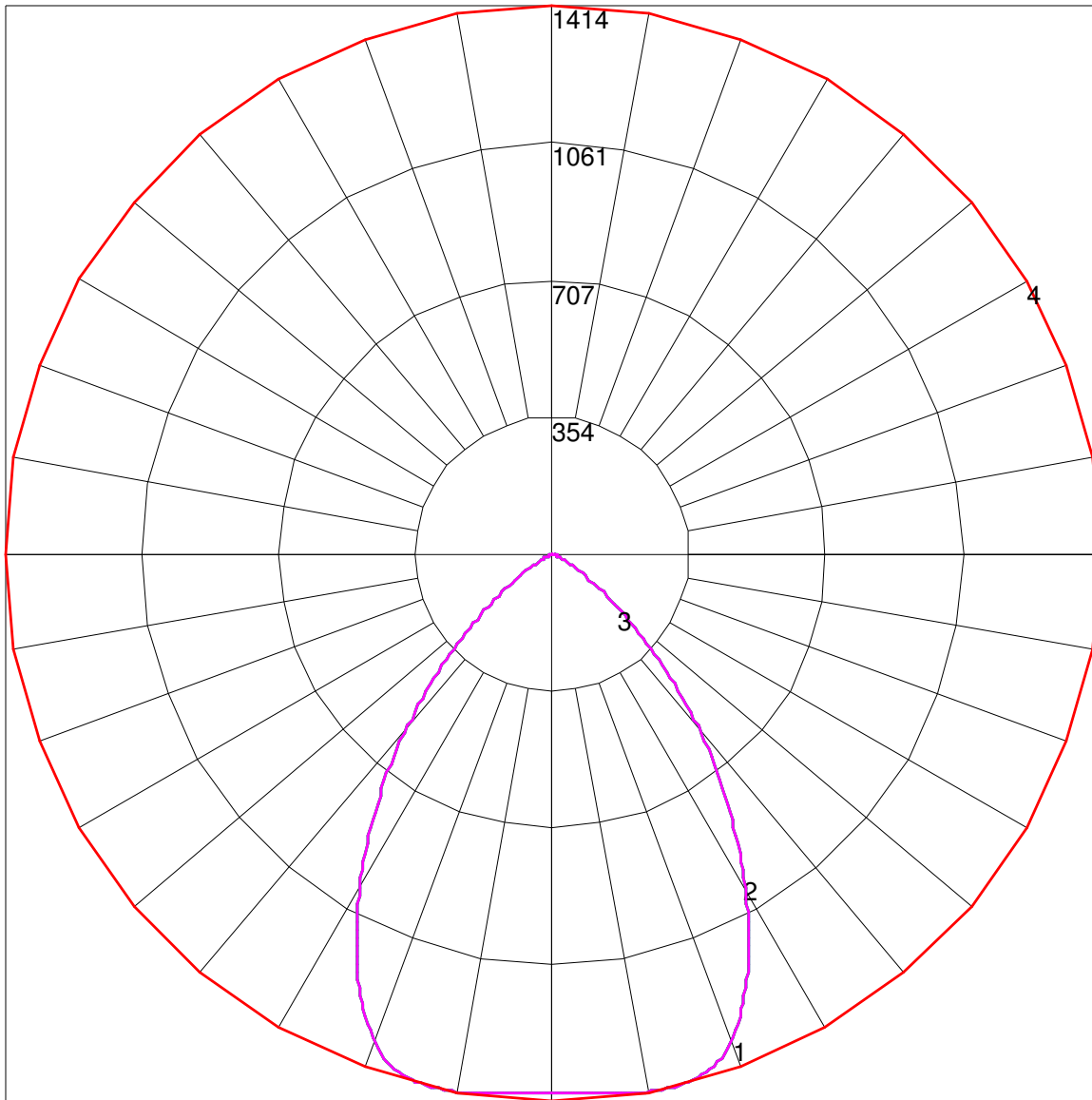
X=2H	Y=2H	13.6	14.8	14.0	15.1	15.4	13.6	14.8	14.0	15.1	15.4
	3H	13.5	14.5	13.9	14.8	15.2	13.5	14.5	13.9	14.8	15.2
	4H	13.4	14.3	13.8	14.7	15.1	13.4	14.3	13.8	14.7	15.1
	6H	13.3	14.1	13.7	14.5	14.9	13.3	14.1	13.7	14.5	14.9
	8H	13.2	14.0	13.7	14.4	14.8	13.2	14.0	13.7	14.4	14.8
	12H	13.2	14.0	13.6	14.3	14.8	13.2	14.0	13.6	14.3	14.8

### UGR Viewed Endwise

4H	2H	13.4	14.3	13.8	14.7	15.1	13.4	14.3	13.8	14.7	15.1
	3H	13.2	14.0	13.6	14.4	14.8	13.2	14.0	13.6	14.4	14.8
	4H	13.1	13.8	13.6	14.2	14.7	13.1	13.8	13.6	14.2	14.7
	6H	13.0	13.6	13.5	14.1	14.5	13.0	13.6	13.5	14.1	14.5
	8H	12.9	13.5	13.4	13.9	14.4	12.9	13.5	13.4	13.9	14.4
	12H	12.9	13.4	13.4	13.9	14.3	12.9	13.4	13.4	13.9	14.3
8H	4H	12.9	13.5	13.4	13.9	14.4	12.9	13.5	13.4	13.9	14.4
	6H	12.9	13.3	13.4	13.8	14.3	12.9	13.3	13.4	13.8	14.3
	8H	12.8	13.2	13.3	13.7	14.2	12.8	13.2	13.3	13.7	14.2
	12H	12.7	13.1	13.2	13.6	14.1	12.7	13.1	13.2	13.6	14.1
12H	4H	12.9	13.4	13.4	13.9	14.3	12.9	13.4	13.4	13.9	14.3
	6H	12.8	13.2	13.3	13.6	14.2	12.8	13.2	13.3	13.6	14.2
	8H	12.7	13.1	13.2	13.6	14.1	12.7	13.1	13.2	13.6	14.1

Maximum UGR = 15.4

POLAR GRAPH



Maximum Candela = 1414.343 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.)