



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_18W\_3000K\_.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\_3000K

[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	1836
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	99
Total Luminaire Watts	18.5
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	63154	63154	63154
55	20904	20904	20904
65	1152	1152	1152
75	313	313	313
85	400	400	400

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CANDELA TABULATION

	<u>0</u>
0.0	1300.696
0.5	1300.696
1.0	1300.696
1.5	1301.635
2.0	1301.635
2.5	1302.574
3.0	1302.574
3.5	1303.513
4.0	1303.513
4.5	1304.452
5.0	1304.452
5.5	1305.391
6.0	1306.330
6.5	1307.270
7.0	1308.209
7.5	1310.087
8.0	1311.965
8.5	1312.904
9.0	1314.783
9.5	1316.661
10.0	1317.600
10.5	1318.539
11.0	1318.539
11.5	1319.478
12.0	1319.478
12.5	1318.539
13.0	1318.539
13.5	1317.600
14.0	1316.661
14.5	1314.783
15.0	1312.904
15.5	1311.026
16.0	1308.209
16.5	1304.452
17.0	1300.696
17.5	1295.061
18.0	1289.426
18.5	1281.913
19.0	1273.461
19.5	1265.009
20.0	1254.678
20.5	1243.409
21.0	1231.200
21.5	1218.991
22.0	1204.904
22.5	1190.817
23.0	1175.791
23.5	1160.765
24.0	1144.800
24.5	1127.896
25.0	1111.930
25.5	1094.087
26.0	1077.183
26.5	1059.339

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_18W\_3000K\_.IES****CANDELA TABULATION - (Cont.)**

27.0	1041.496
27.5	1022.713
28.0	1003.930
28.5	986.087
29.0	967.304
29.5	948.522
30.0	929.270
30.5	910.205
31.0	890.671
31.5	871.043
32.0	851.603
32.5	831.976
33.0	812.254
33.5	792.344
34.0	772.529
34.5	753.089
35.0	735.527
35.5	717.965
36.0	700.591
36.5	681.339
37.0	661.523
37.5	641.708
38.0	621.986
38.5	602.358
39.0	582.918
39.5	563.478
40.0	544.132
40.5	524.880
41.0	505.816
41.5	486.939
42.0	468.250
42.5	449.656
43.0	431.249
43.5	413.311
44.0	395.562
44.5	378.376
45.0	361.659
45.5	345.130
46.0	328.977
46.5	313.294
47.0	298.174
47.5	283.242
48.0	268.873
48.5	254.692
49.0	240.887
49.5	227.551
50.0	214.497
50.5	201.819
51.0	189.610
51.5	177.496
52.0	165.757
52.5	154.299
53.0	142.842
53.5	131.572
54.0	120.115
54.5	108.563

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CANDELA TABULATION - (Cont.)

55.0	97.106
55.5	85.930
56.0	75.318
56.5	65.363
57.0	55.878
57.5	47.238
58.0	39.350
58.5	32.494
59.0	26.483
59.5	21.506
60.0	17.562
60.5	14.275
61.0	11.833
61.5	9.955
62.0	8.452
62.5	7.325
63.0	6.292
63.5	5.541
64.0	4.977
64.5	4.414
65.0	3.944
65.5	3.569
66.0	3.287
66.5	3.005
67.0	2.723
67.5	2.536
68.0	2.348
68.5	2.066
69.0	1.972
69.5	1.784
70.0	1.597
70.5	1.503
71.0	1.409
71.5	1.221
72.0	1.127
72.5	1.033
73.0	0.939
73.5	0.939
74.0	0.845
74.5	0.751
75.0	0.657
75.5	0.657
76.0	0.563
76.5	0.563
77.0	0.470
77.5	0.470
78.0	0.376
78.5	0.376
79.0	0.376
79.5	0.282
80.0	0.282
80.5	0.282
81.0	0.282
81.5	0.282
82.0	0.282
82.5	0.282

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-CS-DIM-UNV\_18W\_3000K\_.IES****CANDELA TABULATION - (Cont.)**

83.0	0.282
83.5	0.282
84.0	0.282
84.5	0.282
85.0	0.282
85.5	0.282
86.0	0.376
86.5	0.376
87.0	0.376
87.5	0.376
88.0	0.376
88.5	0.376
89.0	0.376
89.5	0.282
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\_3000K\_.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\_18W\_3000K\_.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\_18W\_3000K\_.IES****ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	493.91	N.A.	26.90
0-30	1000.69	N.A.	54.50
0-40	1458.43	N.A.	79.40
0-60	1829.83	N.A.	99.60
0-80	1836.01	N.A.	100.00
0-90	1836.35	N.A.	100.00
10-90	1711.38	N.A.	93.20
20-40	964.51	N.A.	52.50
20-50	1245.62	N.A.	67.80
40-70	376.77	N.A.	20.50
60-80	6.18	N.A.	0.30
70-80	0.81	N.A.	0.00
80-90	0.34	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	1836.35	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	124.97
10-20	368.94
20-30	506.78
30-40	457.74
40-50	281.11
50-60	90.29
60-70	5.37
70-80	0.81
80-90	0.34
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	13.3	14.5	13.7	14.8	15.1
	3H	13.2	14.2	13.6	14.5	14.9
	4H	13.1	14.0	13.5	14.4	14.8
	6H	13.0	13.8	13.4	14.2	14.6
	8H	12.9	13.7	13.4	14.1	14.5
	12H	12.9	13.7	13.3	14.0	14.5

### UGR Viewed Endwise

13.3	14.5	13.7	14.8	15.1
13.2	14.2	13.6	14.5	14.9
13.1	14.0	13.5	14.4	14.8
13.0	13.8	13.4	14.2	14.6
12.9	13.7	13.4	14.1	14.5
12.9	13.7	13.3	14.0	14.5

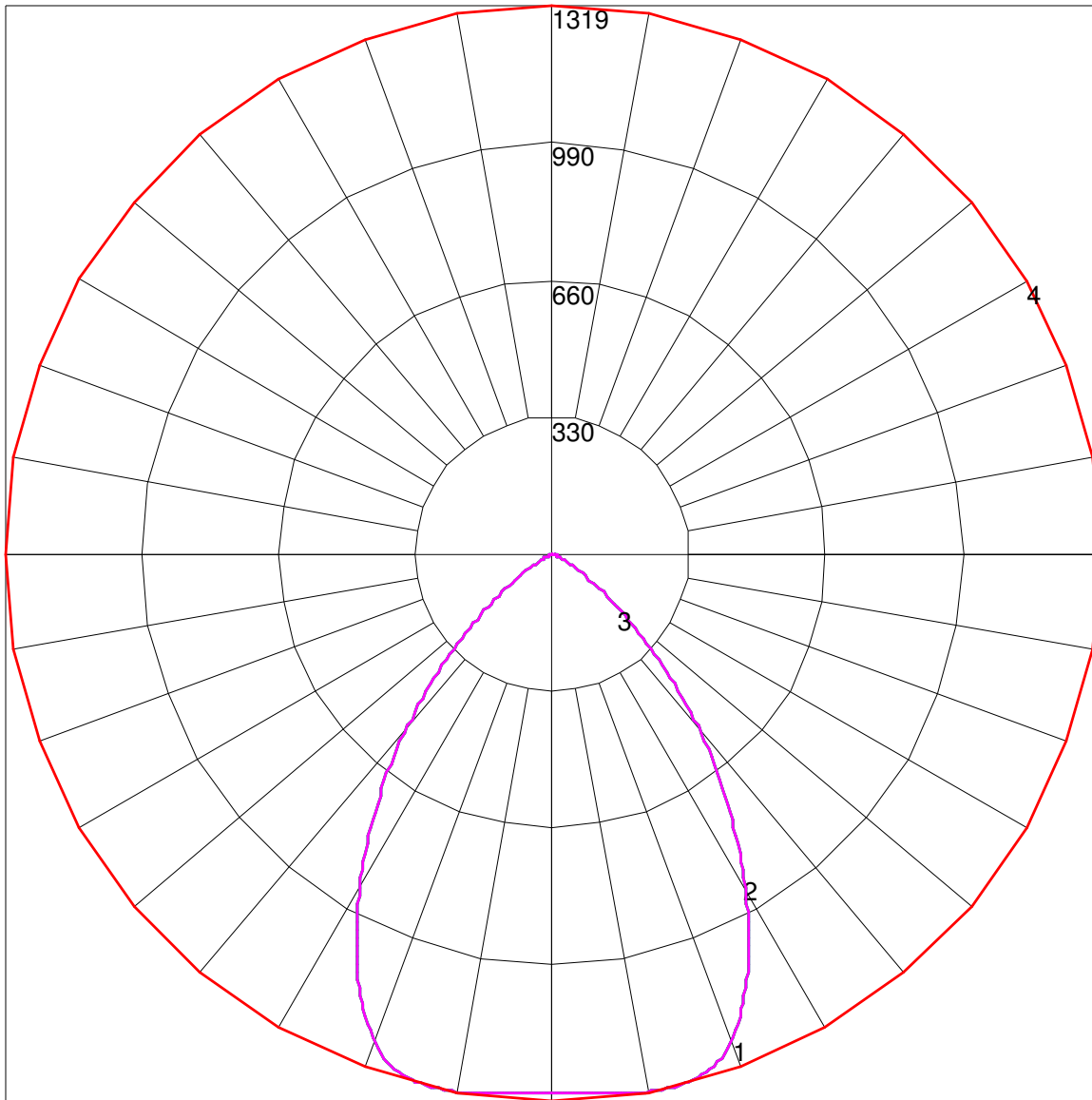
4H	2H	13.1	14.0	13.5	14.4	14.8	13.1	14.0	13.5	14.4	14.8
	3H	12.9	13.7	13.3	14.1	14.5	12.9	13.7	13.3	14.1	14.5
	4H	12.8	13.5	13.3	13.9	14.4	12.8	13.5	13.3	13.9	14.4
	6H	12.7	13.3	13.2	13.7	14.2	12.7	13.3	13.2	13.7	14.2
	8H	12.6	13.2	13.1	13.6	14.1	12.6	13.2	13.1	13.6	14.1
	12H	12.6	13.1	13.1	13.6	14.0	12.6	13.1	13.1	13.6	14.0

8H	4H	12.6	13.2	13.1	13.6	14.1	12.6	13.2	13.1	13.6	14.1
	6H	12.6	13.0	13.1	13.5	14.0	12.6	13.0	13.1	13.5	14.0
	8H	12.5	12.9	13.0	13.4	13.9	12.5	12.9	13.0	13.4	13.9
	12H	12.4	12.8	12.9	13.3	13.8	12.4	12.8	12.9	13.3	13.8

12H	4H	12.6	13.1	13.1	13.6	14.0	12.6	13.1	13.1	13.6	14.0
	6H	12.5	12.9	13.0	13.3	13.9	12.5	12.9	13.0	13.3	13.9
	8H	12.4	12.8	12.9	13.3	13.8	12.4	12.8	12.9	13.3	13.8

Maximum UGR = 15.1

POLAR GRAPH



Maximum Candela = 1319.478 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.)