



## IES INDOOR REPORT

PHOTOMETRIC FILENAME : 4FDR-LS-8CS-WH-DIM-UNV\_18W\_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\_18W\_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	1570
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	87
Total Luminaire Watts	18.1
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	47404	47404	47404
55	34863	34863	34863
65	27606	27606	27606
75	21835	21835	21835
85	16176	16176	16176

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CANDELA TABULATION

	<u>0</u>
0.0	1085.679
0.5	1084.727
1.0	1084.727
1.5	1083.776
2.0	1083.776
2.5	1082.824
3.0	1081.873
3.5	1079.970
4.0	1079.018
4.5	1077.115
5.0	1075.212
5.5	1073.309
6.0	1070.454
6.5	1067.600
7.0	1064.745
7.5	1061.891
8.0	1059.036
8.5	1056.182
9.0	1053.327
9.5	1049.521
10.0	1046.667
10.5	1042.861
11.0	1039.054
11.5	1035.248
12.0	1031.442
12.5	1026.685
13.0	1021.927
13.5	1017.170
14.0	1011.461
14.5	1005.751
15.0	1000.042
15.5	994.333
16.0	987.673
16.5	981.012
17.0	973.400
17.5	965.788
18.0	957.224
18.5	948.661
19.0	939.145
19.5	929.059
20.0	918.498
20.5	907.460
21.0	896.422
21.5	884.909
22.0	872.920
22.5	860.645
23.0	848.181
23.5	835.240
24.0	822.109
24.5	808.598
25.0	794.610
25.5	780.147
26.0	765.304
26.5	750.079

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-WH-DIM-UNV\_18W\_4000K\_.IES****CANDELA TABULATION - (Cont.)**

27.0	734.855
27.5	720.011
28.0	705.358
28.5	690.514
29.0	675.481
29.5	660.542
30.0	645.603
30.5	630.474
31.0	615.250
31.5	600.121
32.0	585.087
32.5	570.148
33.0	555.590
33.5	541.127
34.0	526.854
34.5	512.867
35.0	498.975
35.5	485.463
36.0	472.047
36.5	458.821
37.0	445.595
37.5	432.464
38.0	419.618
38.5	407.058
39.0	394.688
39.5	382.699
40.0	371.091
40.5	359.578
41.0	348.540
41.5	337.883
42.0	327.416
42.5	317.330
43.0	307.435
43.5	298.015
44.0	288.785
44.5	279.936
45.0	271.467
45.5	263.379
46.0	255.767
46.5	248.441
47.0	241.399
47.5	234.644
48.0	228.268
48.5	222.179
49.0	216.470
49.5	210.951
50.0	205.622
50.5	200.579
51.0	195.727
51.5	191.064
52.0	186.592
52.5	182.215
53.0	177.933
53.5	173.747
54.0	169.750
54.5	165.754

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-WH-DIM-UNV\_18W\_4000K\_.IES****CANDELA TABULATION - (Cont.)**

55.0	161.948
55.5	158.237
56.0	154.431
56.5	150.720
57.0	147.009
57.5	143.393
58.0	139.778
58.5	136.257
59.0	132.736
59.5	129.311
60.0	125.885
60.5	122.460
61.0	119.130
61.5	115.799
62.0	112.659
62.5	109.519
63.0	106.379
63.5	103.335
64.0	100.290
64.5	97.340
65.0	94.485
65.5	91.631
66.0	88.776
66.5	86.017
67.0	83.353
67.5	80.688
68.0	78.119
68.5	75.550
69.0	73.076
69.5	70.602
70.0	68.128
70.5	65.750
71.0	63.371
71.5	61.087
72.0	58.804
72.5	56.520
73.0	54.332
73.5	52.143
74.0	49.955
74.5	47.861
75.0	45.768
75.5	43.770
76.0	41.772
76.5	39.773
77.0	37.870
77.5	35.967
78.0	34.064
78.5	32.256
79.0	30.448
79.5	28.641
80.0	26.928
80.5	25.215
81.0	23.598
81.5	21.885
82.0	20.267
82.5	18.745

**IES INDOOR REPORT****PHOTOMETRIC FILENAME : 4FDR-LS-8CS-WH-DIM-UNV\_18W\_4000K\_.IES****CANDELA TABULATION - (Cont.)**

83.0	17.222
83.5	15.700
84.0	14.273
84.5	12.845
85.0	11.418
85.5	10.086
86.0	8.754
86.5	7.422
87.0	6.185
87.5	4.948
88.0	3.901
88.5	2.759
89.0	1.808
89.5	1.142
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-WH-DIM-UNV\_18W\_4000K\_.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-WH-DIM-UNV\_18W\_4000K\_.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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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-WH-DIM-UNV\_18W\_4000K\_.IES****ZONAL LUMEN SUMMARY**

Zone	Lumens	%Lamp	%Fixt
0-20	381.67	N.A.	24.30
0-30	743.24	N.A.	47.30
0-40	1055.12	N.A.	67.20
0-60	1413.67	N.A.	90.00
0-80	1556.79	N.A.	99.20
0-90	1569.93	N.A.	100.00
10-90	1468.26	N.A.	93.50
20-40	673.44	N.A.	42.90
20-50	886.34	N.A.	56.50
40-70	452.77	N.A.	28.80
60-80	143.12	N.A.	9.10
70-80	48.90	N.A.	3.10
80-90	13.14	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	1569.93	N.A.	100.00

Total Luminaire Efficiency = N.A.%

**ZONAL LUMEN SUMMARY**

Zone	Lumens
0-10	101.67
10-20	280.00
20-30	361.57
30-40	311.87
40-50	212.90
50-60	145.65
60-70	94.22
70-80	48.90
80-90	13.14
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

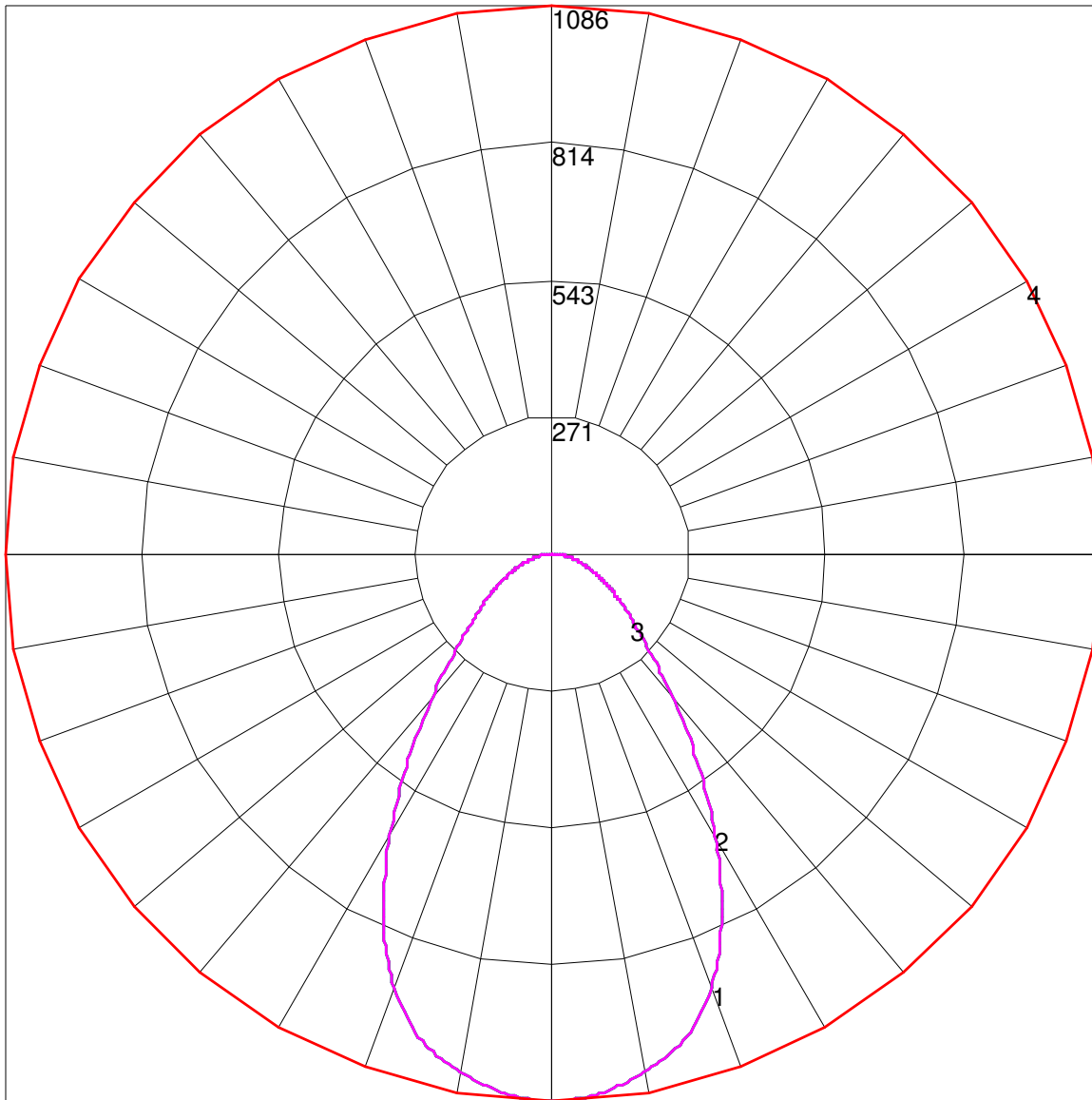
X=2H	Y=2H	21.8	23.1	22.1	23.4	23.7	21.8	23.1	22.1	23.4	23.7
	3H	23.1	24.3	23.5	24.7	25.0	23.1	24.3	23.5	24.7	25.0
	4H	23.6	24.7	24.0	25.1	25.5	23.6	24.7	24.0	25.1	25.5
	6H	23.9	25.0	24.4	25.4	25.7	23.9	25.0	24.4	25.4	25.7
	8H	24.0	25.0	24.5	25.4	25.8	24.0	25.0	24.5	25.4	25.8
	12H	24.1	25.0	24.5	25.4	25.9	24.1	25.0	24.5	25.4	25.9

### UGR Viewed Endwise

4H	2H	22.2	23.3	22.6	23.7	24.1	22.2	23.3	22.6	23.7	24.1
	3H	23.8	24.7	24.2	25.1	25.5	23.8	24.7	24.2	25.1	25.5
	4H	24.4	25.2	24.8	25.6	26.1	24.4	25.2	24.8	25.6	26.1
	6H	24.8	25.6	25.3	26.0	26.5	24.8	25.6	25.3	26.0	26.5
	8H	25.0	25.6	25.4	26.1	26.6	25.0	25.6	25.4	26.1	26.6
	12H	25.1	25.7	25.6	26.1	26.6	25.1	25.7	25.6	26.1	26.6
8H	4H	24.6	25.2	25.0	25.7	26.2	24.6	25.2	25.0	25.7	26.2
	6H	25.1	25.7	25.6	26.2	26.7	25.1	25.7	25.6	26.2	26.7
	8H	25.3	25.8	25.8	26.3	26.8	25.3	25.8	25.8	26.3	26.8
	12H	25.5	25.9	26.0	26.4	27.0	25.5	25.9	26.0	26.4	27.0
12H	4H	24.6	25.2	25.1	25.7	26.1	24.6	25.2	25.1	25.7	26.1
	6H	25.2	25.7	25.7	26.1	26.7	25.2	25.7	25.7	26.1	26.7
	8H	25.4	25.8	25.9	26.3	26.9	25.4	25.8	25.9	26.3	26.9

Maximum UGR = 27.0

POLAR GRAPH



Maximum Candela = 1085.679 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.)