

LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: FAIL-SAFE

Report Number: P1219434

Luminaire Tested: FWLSC-D-16-UNV-100-35-OPL/84-IP6X

Issue Date: 12/9/2025

Tested By:

Approved By:



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Test Information

Test Method: LM-79-2019
Report Number: P1219434
Test Lab: INNOVATION CENTER
Issue Date: 12/9/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: FWLSC-D-16-UNV-100-35-OPL/84-IP6X
Description: FAILSAFE FWLDL LED FIXTURE WITH SCONE

Light Source:
Ballast/Driver: -

Summary

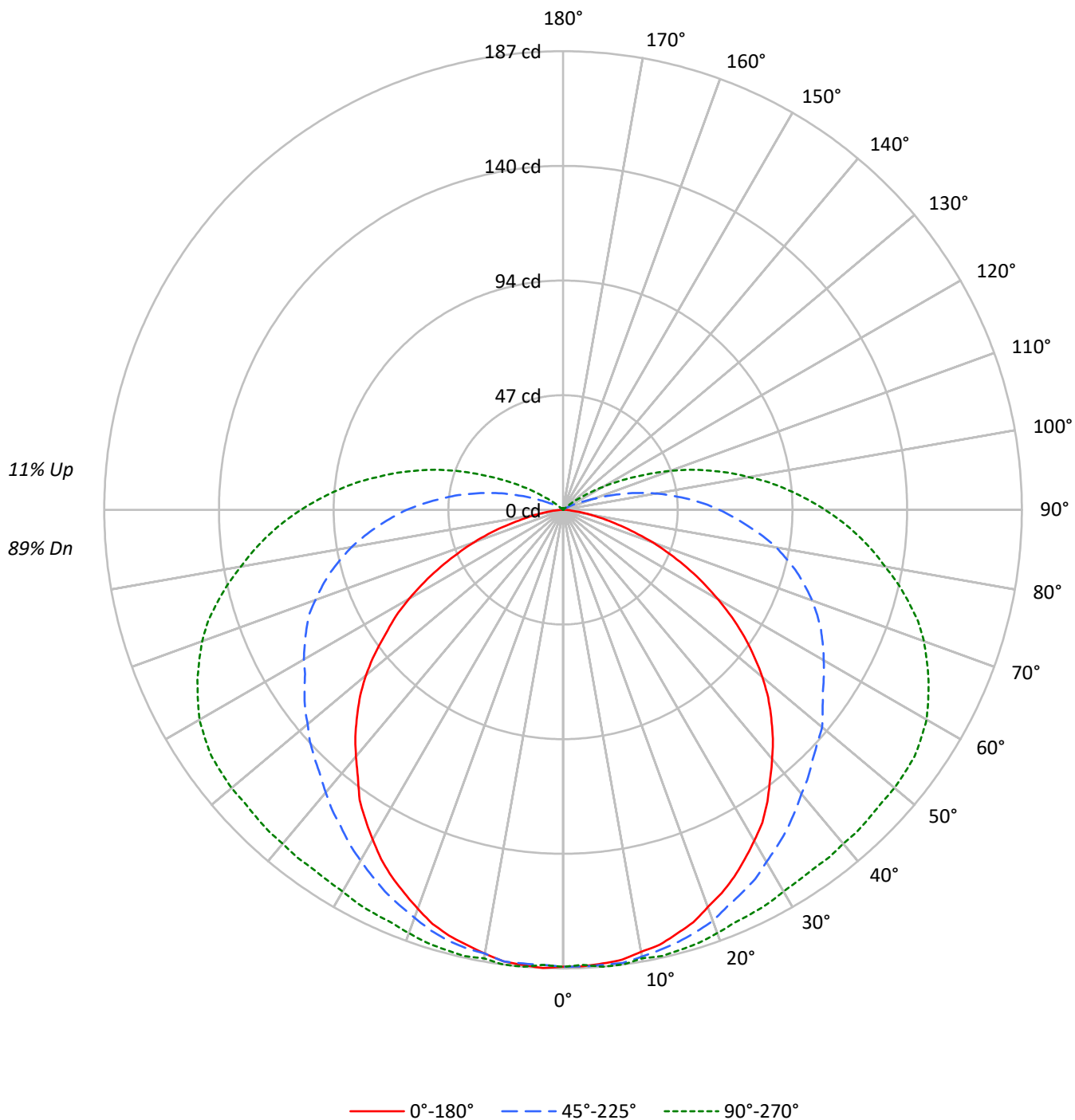
Lumens per Lamp: N/A
Luminaire Lumens: 860.1 lumens
Efficiency: N/A
Efficacy: 48.0 lumens/watt
Spacing Criteria (0/90/45): 1.24 / 1.47 / 1.5
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 1.33' x H: 0.21')
CIE Type: Semi-Direct

Input Watts (W): 17.9
Input Voltage (V): 120
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: >0.9
Total Harmonic Distortion (THDi): <20
Frequency (hertz): 60
Stabilization Time: HR
Operation Time: HR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot



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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				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			
RCR																					
0	116	116	116	116	112	112	112	112	105	105	105	98	98	98	92	92	92	89			
1	102	96	90	85	98	92	87	83	86	82	78	80	77	73	75	72	69	66			
2	91	81	73	66	88	79	71	64	73	67	61	68	63	58	63	59	55	52			
3	83	70	61	53	79	68	59	52	63	56	50	59	53	47	55	50	45	42			
4	75	62	52	44	72	59	50	43	55	48	41	52	45	40	48	42	38	35			
5	69	55	45	37	66	53	43	37	49	41	35	46	39	34	43	37	32	30			
6	63	49	39	32	60	47	38	32	44	36	30	41	34	29	39	33	28	26			
7	58	44	35	28	56	43	34	28	40	32	27	38	31	26	35	29	25	22			
8	54	40	31	25	52	39	30	24	36	29	23	34	28	23	32	26	22	20			
9	51	37	28	22	49	35	27	22	33	26	21	32	25	20	30	24	20	18			
10	47	34	25	20	45	33	25	20	31	24	19	29	23	18	28	22	18	16			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	4569	4569	4569	4569	4569
5°	4509	4372	4361	4358	4524
10°	4434	4192	4158	4162	4451
15°	4360	4023	4028	4010	4377
20°	4255	3866	3893	3835	4272
25°	4161	3697	3792	3682	4161
30°	4043	3546	3722	3531	4028
35°	3914	3419	3695	3391	3896
40°	3749	3290	3709	3275	3712
45°	3594	3196	3752	3180	3556
50°	3407	3152	3828	3106	3365
55°	3147	3068	3920	3051	3077
60°	2808	3051	3992	3033	2785
65°	2415	3054	4034	3038	2384
70°	1955	3048	4083	3028	1925
75°	1383	3024	4096	3002	1342
80°	842	2976	4085	2953	790
85°	331	2867	4105	2867	331

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 4116 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	17.7	2.1
10°-20°	51.5	6.0
20°-30°	79.7	9.3
30°-40°	100.2	11.7
40°-50°	112.8	13.1
50°-60°	116.8	13.6
60°-70°	111.7	13.0
70°-80°	97.2	11.3
80°-90°	76.1	8.8
90°-100°	52.3	6.1
100°-110°	29.3	3.4
110°-120°	11.5	1.3
120°-130°	2.6	0.3
130°-140°	0.2	0.0
140°-150°	0.2	0.0
150°-160°	0.2	0.0
160°-170°	0.1	0.0
170°-180°	0.0	0.0
0°-30°	148.9	17.3
0°-40°	249.1	29.0
0°-60°	478.6	55.7
0°-90°	763.7	88.8
90°-120°	93.0	10.8
90°-150°	96.1	11.2
90°-180°	96.0	11.2
0°-180°	860.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	186	186	186	186	186	
5°	186	186	187	186	186	18
15°	179	182	186	182	180	51
25°	165	172	182	172	165	76
35°	145	159	178	158	144	91
45°	120	144	177	143	119	93
55°	90	129	175	129	88	80
65°	56	116	164	115	55	55
75°	23	99	146	98	22	25
85°	3	76	121	76	3	4
90°	0	64	107	64	0	0
95°	0	51	92	50	0	0
105°	0	25	62	26	0	0
115°	1	6	31	7	0	1
125°	0	0	9	1	1	0
135°	0	0	0	1	1	0
145°	0	0	0	1	1	0
155°	0	0	0	1	1	0
165°	1	1	0	1	1	0
175°	1	1	0	1	1	0
180°	1	1	1	1	1	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
0°	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3
2.5°	186.3	185.0	186.3	187.0	185.7	185.7	185.7	185.7	187.0
5°	185.7	185.0	186.3	188.3	187.0	186.3	185.7	185.0	186.3
7.5°	185.0	184.3	186.3	187.6	187.0	186.3	185.7	184.3	185.7
10°	183.0	183.0	185.0	187.0	185.7	185.0	183.7	183.0	183.7
12.5°	181.7	181.7	183.7	186.3	186.3	184.3	183.0	181.7	181.7
15°	179.0	179.0	182.3	185.7	185.7	184.3	181.7	179.7	179.7
17.5°	176.4	177.0	180.4	185.0	185.0	183.0	179.7	177.0	177.0
20°	172.4	173.7	178.4	183.0	183.7	181.0	177.0	173.7	173.1
22.5°	169.1	169.7	175.0	181.0	182.3	179.0	174.4	170.4	169.1
25°	165.1	166.4	172.4	179.7	181.7	177.7	171.7	166.4	165.1
27.5°	160.5	162.5	169.7	178.4	181.0	176.4	168.4	162.5	160.5
30°	155.8	157.8	165.8	175.7	179.7	173.7	165.1	157.8	155.2
32.5°	151.2	153.2	162.5	174.4	179.0	172.4	161.8	153.2	149.9
35°	145.2	147.9	159.1	173.1	178.4	171.1	157.8	147.9	144.5
37.5°	138.6	141.9	155.2	171.7	178.4	169.7	154.5	141.9	137.3
40°	132.6	135.9	151.2	170.4	177.7	168.4	150.5	135.9	131.3
42.5°	126.6	130.6	147.9	169.7	177.7	167.8	146.5	130.0	125.3
45°	120.0	124.7	143.9	168.4	177.0	166.4	143.2	124.0	118.7
47.5°	113.4	118.7	140.6	166.4	176.4	164.4	139.9	118.0	112.1
50°	106.1	112.1	137.9	165.1	176.4	163.1	135.9	112.1	104.8
52.5°	98.1	105.4	133.3	163.8	175.7	161.8	132.6	105.4	96.8
55°	90.2	99.5	129.3	162.5	175.0	160.5	128.6	98.8	88.2
57.5°	81.6	92.8	126.0	160.5	173.1	159.1	124.7	92.2	80.9
60°	72.9	86.9	122.7	157.8	171.1	156.5	122.0	86.2	72.3
62.5°	64.3	80.9	119.4	155.2	167.8	153.8	118.7	80.9	63.7
65°	55.7	75.6	116.0	151.2	164.4	149.9	115.4	74.9	55.0
67.5°	47.1	70.3	112.1	147.2	160.5	145.9	112.1	69.6	46.4
70°	39.1	63.7	108.1	142.6	156.5	141.2	107.4	63.0	38.5
72.5°	30.5	59.0	103.4	137.9	151.8	135.9	102.8	58.3	30.5
75°	23.2	54.4	98.8	131.9	145.9	131.3	98.1	53.7	22.5
77.5°	16.6	49.1	93.5	126.6	139.9	125.3	92.8	48.4	15.9
80°	11.3	43.8	88.2	120.7	133.3	120.0	87.5	43.8	10.6
82.5°	6.6	38.5	82.2	114.7	127.3	113.4	81.6	38.5	6.0
85°	3.3	33.2	75.6	108.1	120.7	107.4	75.6	33.2	3.3
87.5°	2.0	28.5	69.6	101.4	114.0	100.8	69.6	27.8	1.3
90°	0.0	23.2	63.7	94.8	106.8	94.2	63.7	22.5	0.0
92.5°	0.0	18.6	57.7	87.5	99.5	86.9	57.0	17.9	0.0
95°	0.0	13.9	51.1	80.9	92.2	80.2	50.4	13.9	0.0
97.5°	0.0	10.6	44.4	73.6	84.9	72.9	44.4	9.9	0.0
100°	0.0	7.3	38.5	65.6	76.9	65.6	37.8	7.3	0.0
102.5°	0.0	4.6	31.8	58.3	69.6	57.7	31.8	4.6	0.0
105°	0.0	2.7	25.2	51.1	61.7	51.1	25.9	3.3	0.0
107.5°	0.0	1.3	18.6	43.1	54.4	43.1	19.9	1.3	0.0
110°	0.0	0.0	12.6	35.1	46.4	35.8	15.3	0.0	0.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°	180°
112.5°	0.7	0.0	8.6	27.2	38.5	29.2	10.6	0.0	0.0
115°	0.7	0.0	6.0	20.6	31.2	22.5	7.3	0.0	0.0
117.5°	0.7	0.0	4.6	15.3	24.5	16.6	5.3	0.7	0.7
120°	0.0	0.0	2.0	11.3	18.6	12.6	2.7	0.7	0.7
122.5°	0.0	0.0	0.0	8.0	13.3	8.6	0.7	0.7	0.0
125°	0.0	0.0	0.0	5.3	8.6	6.0	0.7	0.7	0.7
127.5°	0.0	0.0	0.0	2.0	6.0	2.7	0.7	0.7	0.7
130°	0.0	0.0	0.0	0.0	2.0	0.0	0.7	0.7	0.7
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7
137.5°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7
140°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7
142.5°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7
145°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	1.3	0.7
147.5°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	1.3	0.7
150°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.3	0.7
152.5°	0.0	0.0	0.0	0.0	0.7	0.7	0.7	1.3	0.7
155°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	1.3	0.7
157.5°	0.0	0.0	0.0	0.0	0.0	0.7	0.7	0.7	0.7
160°	0.0	0.0	0.7	0.7	0.0	0.7	0.7	0.7	0.7
162.5°	0.7	0.0	0.7	0.7	0.7	0.0	0.7	0.7	0.7
165°	0.7	0.7	0.7	0.7	0.0	0.0	0.7	0.7	0.7
167.5°	0.7	0.7	0.7	0.7	0.0	0.0	0.7	0.7	0.7
170°	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.7	0.7
172.5°	0.7	0.7	0.7	0.0	0.0	0.0	0.0	0.7	0.7
175°	0.7	0.7	0.7	0.0	0.0	0.0	0.7	0.7	0.7
177.5°	0.7	0.7	0.7	0.0	0.0	0.0	0.7	0.7	0.7
180°	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room Dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	12.5	14.1	13.1	14.6	15.2	17.5	19.1	18.1	19.6	20.2
	3H	13.9	15.3	14.5	15.9	16.5	20.6	22.0	21.1	22.6	23.2
	4H	14.3	15.7	14.9	16.2	16.8	22.1	23.4	22.7	24.0	24.6
	6H	14.5	15.8	15.1	16.3	17.0	23.6	24.9	24.2	25.4	26.1
	8H	14.5	15.7	15.1	16.3	17.0	24.3	25.6	24.9	26.2	26.8
	12H	14.5	15.7	15.1	16.3	17.0	25.1	26.3	25.7	26.9	27.5
4H	2H	14.2	15.6	14.8	16.1	16.7	17.8	19.2	18.4	19.8	20.4
	3H	15.9	17.0	16.4	17.6	18.3	21.2	22.3	21.7	22.9	23.6
	4H	16.4	17.5	17.0	18.1	18.8	22.9	23.9	23.4	24.5	25.2
	6H	16.8	17.8	17.4	18.4	19.1	24.6	25.6	25.2	26.2	26.9
	8H	16.9	17.8	17.5	18.4	19.1	25.4	26.4	26.1	27.0	27.7
	12H	16.9	17.7	17.5	18.4	19.1	26.3	27.2	27.0	27.8	28.5
8H	4H	17.9	18.8	18.5	19.5	20.2	23.0	24.0	23.7	24.6	25.3
	6H	18.6	19.3	19.2	20.0	20.7	25.0	25.7	25.6	26.4	27.1
	8H	18.8	19.5	19.4	20.1	20.9	26.0	26.7	26.6	27.3	28.1
	12H	18.9	19.5	19.5	20.2	21.0	27.1	27.7	27.7	28.4	29.1
12H	4H	18.4	19.2	19.0	19.8	20.6	23.1	23.9	23.7	24.5	25.2
	6H	19.2	19.9	19.9	20.6	21.3	25.0	25.7	25.7	26.4	27.1
	8H	19.5	20.2	20.2	20.8	21.6	26.1	26.7	26.7	27.4	28.2

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