

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: P1219435

Luminaire Tested: FWLSC-D-16-UNV-112-35-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: P1219435
Test Lab: INNOVATION CENTER
Issue Date: 12/9/2025
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: FWLSC-D-16-UNV-112-35-OPL/84-IP6X
Description: FAILSAFE FWLDL LED FIXTURE WITH SCONE

Light Source:
Ballast/Driver: -

Summary

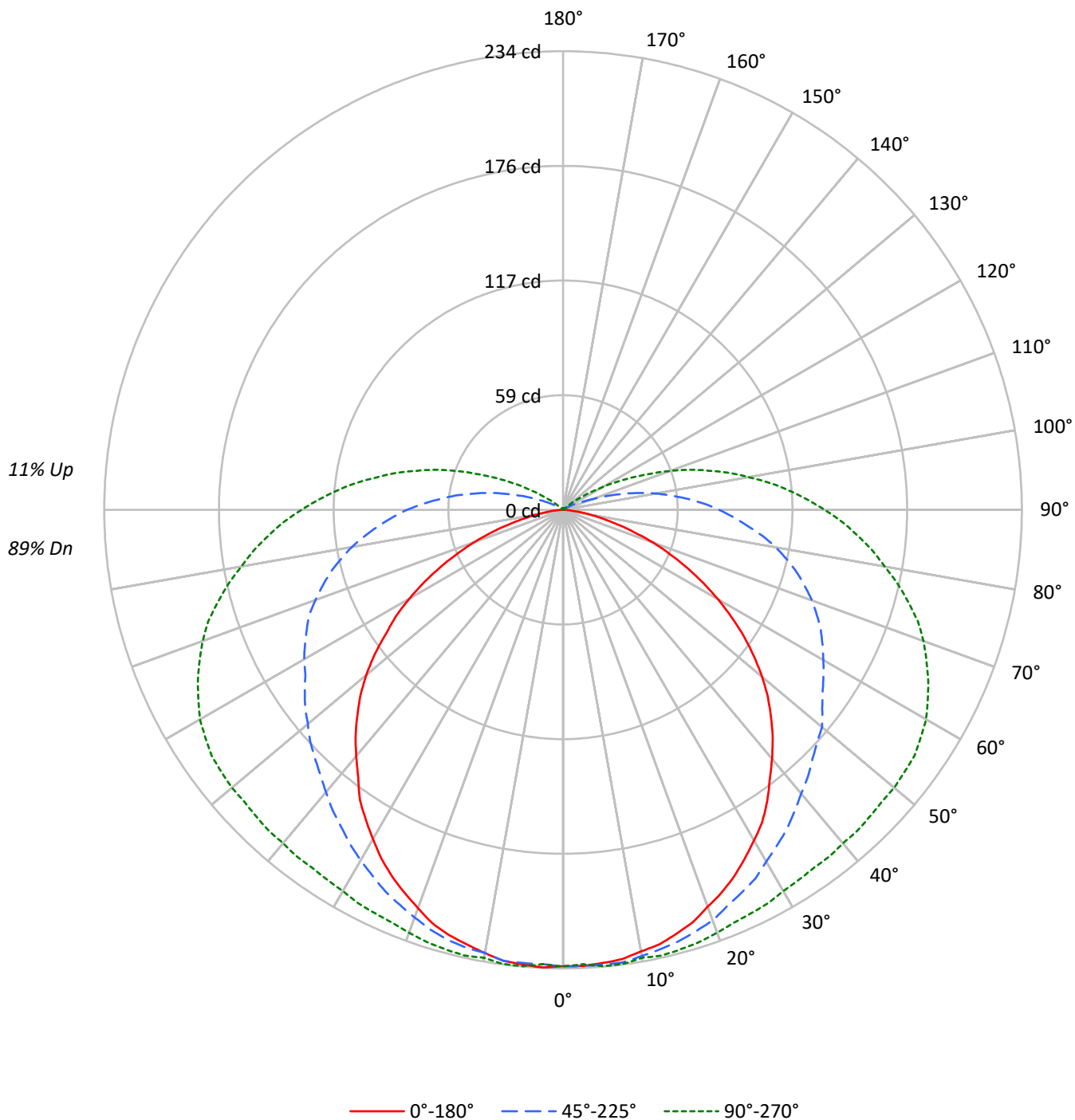
Lumens per Lamp: N/A
Luminaire Lumens: 1075.0 lumens
Efficiency: N/A
Efficacy: 48.0 lumens/watt
Spacing Criteria (0/90/45): 1.24 / 1.47 / 1.5
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 1.33' x H: 0.21')
CIE Type: Semi-Direct

Input Watts (W): 22.4
Input Voltage (V): 120
Input Current (Ain): 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	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	92	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	43	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°	5712	5712	5712	5712	5712
5°	5636	5465	5450	5446	5656
10°	5543	5239	5197	5203	5563
15°	5452	5029	5035	5012	5471
20°	5319	4832	4865	4795	5338
25°	5202	4621	4739	4604	5202
30°	5056	4431	4651	4414	5032
35°	4893	4274	4618	4240	4871
40°	4687	4113	4635	4093	4639
45°	4493	3996	4691	3976	4445
50°	4258	3940	4784	3883	4207
55°	3932	3834	4901	3815	3845
60°	3513	3812	4988	3792	3478
65°	3017	3817	5043	3796	2983
70°	2446	3809	5103	3787	2406
75°	1729	3780	5118	3755	1681
80°	1051	3719	5105	3692	991
85°	411	3584	5129	3584	411

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 87.5°

Luminance: 5148 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	22.2	2.1
10°-20°	64.3	6.0
20°-30°	99.6	9.3
30°-40°	125.3	11.7
40°-50°	140.9	13.1
50°-60°	146.0	13.6
60°-70°	139.7	13.0
70°-80°	121.5	11.3
80°-90°	95.1	8.8
90°-100°	65.3	6.1
100°-110°	36.6	3.4
110°-120°	14.3	1.3
120°-130°	3.2	0.3
130°-140°	0.3	0.0
140°-150°	0.3	0.0
150°-160°	0.2	0.0
160°-170°	0.2	0.0
170°-180°	0.0	0.0
0°-30°	186.1	17.3
0°-40°	311.4	29.0
0°-60°	598.3	55.7
0°-90°	954.5	88.8
90°-120°	116.2	10.8
90°-150°	120.0	11.2
90°-180°	120.0	11.2
0°-180°	1075.0	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	233	233	233	233	233	
5°	232	233	234	232	233	22
15°	224	228	232	227	225	63
25°	206	216	227	215	206	95
35°	182	199	223	197	181	113
45°	150	180	221	179	148	116
55°	113	162	219	161	110	100
65°	70	145	206	144	69	69
75°	29	124	182	123	28	31
85°	4	94	151	94	4	6
90°	0	80	133	80	0	0
95°	0	64	115	63	0	0
105°	0	32	77	32	0	0
115°	1	8	39	9	0	1
125°	0	0	11	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°	232.9	232.9	232.9	232.9	232.9	232.9	232.9	232.9	232.9
2.5°	232.9	231.2	232.9	233.7	232.1	232.1	232.1	232.1	233.7
5°	232.1	231.2	232.9	235.4	233.7	232.9	232.1	231.2	232.9
7.5°	231.2	230.4	232.9	234.6	233.7	232.9	232.1	230.4	232.1
10°	228.8	228.8	231.2	233.7	232.1	231.2	229.6	228.8	229.6
12.5°	227.1	227.1	229.6	232.9	232.9	230.4	228.8	227.1	227.1
15°	223.8	223.8	227.9	232.1	232.1	230.4	227.1	224.6	224.6
17.5°	220.5	221.3	225.4	231.2	231.2	228.8	224.6	221.3	221.3
20°	215.5	217.2	223.0	228.8	229.6	226.3	221.3	217.2	216.3
22.5°	211.4	212.2	218.8	226.3	227.9	223.8	218.0	213.0	211.4
25°	206.4	208.0	215.5	224.6	227.1	222.1	214.7	208.0	206.4
27.5°	200.6	203.1	212.2	223.0	226.3	220.5	210.5	203.1	200.6
30°	194.8	197.3	207.2	219.6	224.6	217.2	206.4	197.3	193.9
32.5°	189.0	191.5	203.1	218.0	223.8	215.5	202.2	191.5	187.3
35°	181.5	184.8	198.9	216.3	223.0	213.8	197.3	184.8	180.7
37.5°	173.2	177.4	193.9	214.7	223.0	212.2	193.1	177.4	171.6
40°	165.8	169.9	189.0	213.0	222.1	210.5	188.1	169.9	164.1
42.5°	158.3	163.3	184.8	212.2	222.1	209.7	183.2	162.5	156.6
45°	150.0	155.8	179.9	210.5	221.3	208.0	179.0	155.0	148.4
47.5°	141.7	148.4	175.7	208.0	220.5	205.5	174.9	147.5	140.1
50°	132.6	140.1	172.4	206.4	220.5	203.9	169.9	140.1	131.0
52.5°	122.7	131.8	166.6	204.7	219.6	202.2	165.8	131.8	121.0
55°	112.7	124.3	161.6	203.1	218.8	200.6	160.8	123.5	110.2
57.5°	101.9	116.0	157.5	200.6	216.3	198.9	155.8	115.2	101.1
60°	91.2	108.6	153.3	197.3	213.8	195.6	152.5	107.7	90.3
62.5°	80.4	101.1	149.2	193.9	209.7	192.3	148.4	101.1	79.6
65°	69.6	94.5	145.0	189.0	205.5	187.3	144.2	93.7	68.8
67.5°	58.8	87.9	140.1	184.0	200.6	182.3	140.1	87.0	58.0
70°	48.9	79.6	135.1	178.2	195.6	176.5	134.3	78.7	48.1
72.5°	38.1	73.8	129.3	172.4	189.8	169.9	128.5	72.9	38.1
75°	29.0	68.0	123.5	164.9	182.3	164.1	122.7	67.1	28.2
77.5°	20.7	61.3	116.9	158.3	174.9	156.6	116.0	60.5	19.9
80°	14.1	54.7	110.2	150.8	166.6	150.0	109.4	54.7	13.3
82.5°	8.3	48.1	102.8	143.4	159.1	141.7	101.9	48.1	7.5
85°	4.1	41.4	94.5	135.1	150.8	134.3	94.5	41.4	4.1
87.5°	2.5	35.6	87.0	126.8	142.6	126.0	87.0	34.8	1.7
90°	0.0	29.0	79.6	118.5	133.4	117.7	79.6	28.2	0.0
92.5°	0.0	23.2	72.1	109.4	124.3	108.6	71.3	22.4	0.0
95°	0.0	17.4	63.8	101.1	115.2	100.3	63.0	17.4	0.0
97.5°	0.0	13.3	55.5	92.0	106.1	91.2	55.5	12.4	0.0
100°	0.0	9.1	48.1	82.1	96.1	82.1	47.2	9.1	0.0
102.5°	0.0	5.8	39.8	72.9	87.0	72.1	39.8	5.8	0.0
105°	0.0	3.3	31.5	63.8	77.1	63.8	32.3	4.1	0.0
107.5°	0.0	1.7	23.2	53.9	68.0	53.9	24.9	1.7	0.0
110°	0.0	0.0	15.7	43.9	58.0	44.8	19.1	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°	0.8	0.0	10.8	34.0	48.1	36.5	13.3	0.0	0.0
115°	0.8	0.0	7.5	25.7	39.0	28.2	9.1	0.0	0.0
117.5°	0.8	0.0	5.8	19.1	30.7	20.7	6.6	0.8	0.8
120°	0.0	0.0	2.5	14.1	23.2	15.7	3.3	0.8	0.8
122.5°	0.0	0.0	0.0	9.9	16.6	10.8	0.8	0.8	0.0
125°	0.0	0.0	0.0	6.6	10.8	7.5	0.8	0.8	0.8
127.5°	0.0	0.0	0.0	2.5	7.5	3.3	0.8	0.8	0.8
130°	0.0	0.0	0.0	0.0	2.5	0.0	0.8	0.8	0.8
132.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8
135°	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8
137.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8
140°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8
142.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8
145°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	1.7	0.8
147.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	1.7	0.8
150°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.7	0.8
152.5°	0.0	0.0	0.0	0.0	0.8	0.8	0.8	1.7	0.8
155°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	1.7	0.8
157.5°	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8
160°	0.0	0.0	0.8	0.8	0.0	0.8	0.8	0.8	0.8
162.5°	0.8	0.0	0.8	0.8	0.8	0.0	0.8	0.8	0.8
165°	0.8	0.8	0.8	0.8	0.0	0.0	0.8	0.8	0.8
167.5°	0.8	0.8	0.8	0.8	0.0	0.0	0.8	0.8	0.8
170°	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.8	0.8
172.5°	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.8	0.8
175°	0.8	0.8	0.8	0.0	0.0	0.0	0.8	0.8	0.8
177.5°	0.8	0.8	0.8	0.0	0.0	0.0	0.8	0.8	0.8
180°	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8

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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	13.3	14.8	13.8	15.4	16.0	18.3	19.8	18.8	20.4	21.0
	3H	14.7	16.1	15.2	16.6	17.3	21.4	22.8	21.9	23.3	23.9
	4H	15.1	16.4	15.6	17.0	17.6	22.9	24.2	23.4	24.8	25.4
	6H	15.3	16.5	15.8	17.1	17.8	24.4	25.6	25.0	26.2	26.9
	8H	15.3	16.5	15.9	17.1	17.8	25.1	26.3	25.7	26.9	27.6
	12H	15.3	16.5	15.9	17.1	17.7	25.9	27.1	26.5	27.6	28.3
4H	2H	15.0	16.3	15.5	16.9	17.5	18.6	20.0	19.2	20.5	21.2
	3H	16.7	17.8	17.2	18.4	19.1	21.9	23.1	22.5	23.7	24.4
	4H	17.2	18.3	17.8	18.9	19.6	23.6	24.7	24.2	25.3	26.0
	6H	17.6	18.5	18.2	19.2	19.8	25.4	26.3	26.0	27.0	27.6
	8H	17.6	18.6	18.3	19.2	19.9	26.2	27.1	26.8	27.8	28.5
	12H	17.7	18.5	18.3	19.2	19.9	27.1	28.0	27.7	28.6	29.3
8H	4H	18.7	19.6	19.3	20.2	20.9	23.8	24.7	24.4	25.4	26.1
	6H	19.3	20.1	20.0	20.8	21.5	25.7	26.5	26.4	27.2	27.9
	8H	19.5	20.2	20.2	20.9	21.6	26.7	27.5	27.4	28.1	28.8
	12H	19.7	20.3	20.3	21.0	21.7	27.8	28.5	28.5	29.1	29.9
12H	4H	19.1	20.0	19.8	20.6	21.3	23.8	24.7	24.5	25.3	26.0
	6H	20.0	20.7	20.6	21.3	22.1	25.8	26.5	26.4	27.1	27.9
	8H	20.3	21.0	21.0	21.6	22.4	26.8	27.5	27.5	28.1	28.9

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