

LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P#

Luminaire Tested: **FLDSQ4C100D010 FEU4C1009027 F4LC-CSSQ-MW**

Issue Date: 12/13/2022

Tested By:

Approved By:



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**Test Information**

Test Method: LM-79-08  
 Report Number: P#  
 Test Lab: INNOVATION CENTER  
 Issue Date: 12/13/2022  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: FAIL-SAFE  
 Catalog Number: FLDSQ4C100D010 FEU4C1009027 F4LC-CSSQ-MW  
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

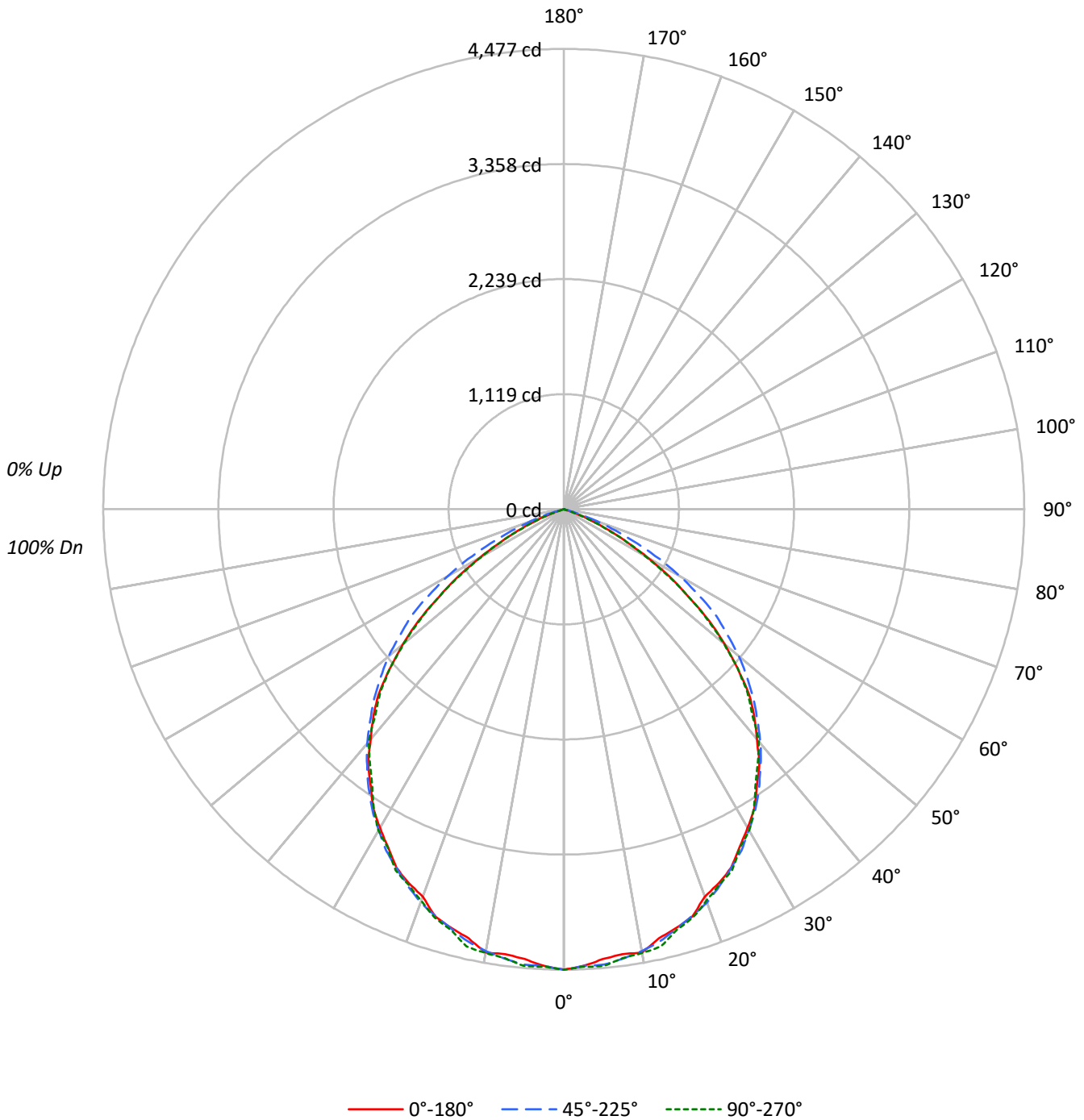
Lumens per Lamp: N/A  
 Luminaire Lumens: 9564.0 lumens  
 Efficiency: N/A  
 Efficacy: 83.6 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 114.4  
 Input Voltage (V):  
 Input Current (Ain): NR  
 Voltage Rise (V): NR  
 Power Factor: NR  
 Total Harmonic Distortion (THDi): NR  
 Frequency (hertz): 60  
 Stabilization Time: NR  
 Operation Time: NR  
 Ambient Temperature (°C): NR  
 Test Distance: 25 FT

Measurement and Test Equipment			
Instrument	Identification Number	Calibration Date	Calibration Due Date
Photometer	GONIO 1 IN0055	4/22/2021	10/22/2021
Power Meter	XITRON 2801 IN0197	12/1/2020	12/1/2021
AC Power Source	CHROMA 61505 IN0196	12/1/2020	12/1/2021
DC Power Supply	AGILENT E3634A IN0198	11/30/2020	11/30/2021
Room Thermometer	ONSET IN0143	12/1/2020	12/1/2021

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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	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	111	108	104	101	109	105	102	100	101	99	96		97	95	94		94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		77	73	69	67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		45	39	35	33
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		42	36	32	31

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	432000	432000	432000
5°	425030	430560	431791
10°	428700	427456	429308
15°	421187	421817	423085
20°	411393	417923	415972
25°	409619	409619	412323
30°	398200	401030	401754
35°	385778	389535	382774
40°	367682	374874	371662
45°	347976	355795	344510
50°	306450	333169	304543
55°	248197	304888	249273
60°	181611	252820	177964
65°	110366	180024	107467
70°	43051	96906	41273
75°	4735	26134	4735
80°	3612	3612	3612
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	422.6	4.4
10°-20°	1195.9	12.5
20°-30°	1774.4	18.6
30°-40°	2056.0	21.5
40°-50°	1971.3	20.6
50°-60°	1449.4	15.2
60°-70°	626.0	6.5
70°-80°	67.6	0.7
80°-90°	0.9	0.0
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	3392.9	35.5
0°-40°	5448.9	57.0
0°-60°	8869.5	92.7
0°-90°	9564.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9564.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4477	4477	4477	4477	4477	
5°	4388	4433	4445	4452	4458	419
15°	4216	4242	4223	4229	4235	1188
25°	3848	3841	3848	3854	3873	1762
35°	3275	3294	3307	3300	3250	2048
45°	2550	2557	2607	2569	2525	1939
55°	1475	1628	1812	1622	1482	1328
65°	483	604	788	598	471	497
75°	13	19	70	13	13	39
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#  
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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	4477.2	4477.2	4477.2	4477.2	4477.2	4477.2	4477.2	4477.2	4477.2	4477.2	4477.2
2.5°	4445.3	4496.2	4502.6	4470.7	4458.0	4439.1	4483.4	4451.8	4464.5	4451.8	4445.3
5°	4388.2	4445.3	4451.8	4451.8	4439.1	4432.6	4451.8	4445.3	4439.1	4426.3	4445.3
7.5°	4362.8	4394.4	4426.3	4388.2	4407.2	4400.9	4445.3	4426.3	4419.9	4419.9	4407.2
10°	4375.5	4369.0	4394.4	4356.3	4369.0	4356.3	4394.4	4394.4	4381.7	4369.0	4362.8
12.5°	4273.5	4324.4	4324.4	4318.1	4305.4	4286.2	4324.4	4350.1	4311.7	4311.7	4305.4
15°	4216.4	4229.1	4235.4	4235.4	4229.1	4241.9	4260.8	4235.4	4241.9	4210.0	4222.7
17.5°	4152.9	4127.4	4146.4	4133.7	4140.1	4152.9	4178.3	4178.3	4140.1	4133.7	4146.4
20°	4006.5	4082.8	4089.3	4051.1	4057.4	4057.4	4102.0	4063.9	4089.3	4057.4	4070.1
22.5°	3936.5	3987.3	3993.8	3943.0	3974.6	3936.5	3981.1	3923.8	3987.3	3943.0	3961.9
25°	3847.5	3841.2	3860.2	3834.8	3841.2	3841.2	3872.9	3847.5	3866.7	3841.2	3847.5
27.5°	3701.4	3752.2	3745.8	3720.3	3733.0	3726.8	3790.4	3720.3	3758.5	3726.8	3739.5
30°	3574.0	3618.6	3605.9	3580.5	3580.5	3561.3	3631.3	3612.1	3605.9	3605.9	3599.4
32.5°	3446.8	3453.3	3440.6	3446.8	3453.3	3427.9	3485.0	3459.6	3453.3	3459.6	3466.0
35°	3275.1	3275.1	3287.8	3268.8	3294.3	3294.3	3345.1	3313.2	3307.0	3287.8	3307.0
37.5°	3122.5	3103.6	3109.8	3109.8	3122.5	3135.2	3160.6	3147.9	3147.9	3129.0	3141.7
40°	2919.1	2906.4	2925.3	2925.3	2944.5	2944.5	2969.9	2957.2	2976.2	2976.2	2976.2
42.5°	2741.1	2741.1	2728.4	2747.3	2753.8	2747.3	2791.9	2785.4	2791.9	2779.2	2785.4
45°	2550.1	2550.1	2537.4	2531.2	2562.8	2556.6	2607.4	2588.2	2613.7	2601.0	2607.4
47.5°	2289.3	2321.2	2302.0	2321.2	2359.4	2365.9	2397.5	2384.8	2410.2	2391.3	2416.7
50°	2041.5	2041.5	2060.5	2085.9	2124.0	2130.5	2168.7	2194.1	2206.8	2213.0	2219.5
52.5°	1780.8	1774.3	1793.5	1825.1	1857.0	1882.5	1920.6	1958.8	1984.2	2022.3	2003.1
55°	1475.4	1488.1	1507.3	1545.4	1596.3	1627.9	1659.8	1710.7	1755.3	1774.3	1812.4
57.5°	1214.6	1201.9	1214.6	1265.5	1322.8	1348.2	1392.8	1443.7	1507.3	1545.4	1558.1
60°	941.1	947.6	960.3	1004.9	1049.3	1087.5	1106.6	1189.2	1246.5	1284.7	1310.1
62.5°	693.3	706.0	718.7	756.9	801.3	833.2	864.8	934.9	985.7	1023.9	1049.3
65°	483.4	489.6	508.8	527.8	572.4	604.1	629.5	686.8	737.7	769.6	788.5
67.5°	298.9	305.1	317.9	343.5	375.2	400.6	426.1	464.2	508.8	540.5	547.0
70°	152.6	159.1	165.3	184.5	209.9	222.6	241.6	273.5	305.1	330.6	343.5
72.5°	50.9	50.9	57.3	70.1	82.8	95.5	101.7	133.6	159.1	171.8	178.0
75°	12.7	12.7	12.7	12.7	12.7	19.2	19.2	38.1	50.9	63.6	70.1
77.5°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	12.7	12.7
80°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	4477.2	4477.2	4477.2	4477.2	4477.2	4477.2	4477.2	4477.2	4477.2	4477.2
2.5°	4477.2	4464.5	4458.0	4464.5	4464.5	4458.0	4477.2	4502.6	4534.3	4451.8
5°	4470.7	4458.0	4470.7	4432.6	4451.8	4439.1	4464.5	4458.0	4483.4	4458.0
7.5°	4451.8	4426.3	4432.6	4413.6	4439.1	4407.2	4426.3	4464.5	4439.1	4400.9
10°	4388.2	4375.5	4419.9	4356.3	4343.6	4369.0	4419.9	4381.7	4369.0	4381.7
12.5°	4324.4	4324.4	4343.6	4292.7	4299.0	4311.7	4337.1	4311.7	4324.4	4356.3
15°	4254.6	4241.9	4273.5	4235.4	4229.1	4216.4	4241.9	4241.9	4254.6	4235.4
17.5°	4171.8	4152.9	4152.9	4140.1	4133.7	4165.6	4178.3	4184.5	4191.0	4165.6
20°	4070.1	4063.9	4082.8	4063.9	4070.1	4076.6	4076.6	4063.9	4121.0	4051.1
22.5°	3961.9	3981.1	3955.7	3943.0	3955.7	3968.4	3968.4	3974.6	3961.9	3949.2
25°	3854.0	3866.7	3872.9	3834.8	3854.0	3834.8	3879.4	3885.6	3860.2	3872.9
27.5°	3758.5	3739.5	3733.0	3707.6	3720.3	3714.1	3720.3	3720.3	3758.5	3707.6
30°	3612.1	3593.2	3599.4	3580.5	3586.7	3580.5	3586.7	3586.7	3612.1	3605.9
32.5°	3472.3	3453.3	3459.6	3440.6	3440.6	3446.8	3434.1	3434.1	3453.3	3440.6
35°	3338.6	3294.3	3300.5	3294.3	3300.5	3275.1	3275.1	3268.8	3281.6	3249.6
37.5°	3147.9	3129.0	3122.5	3116.3	3122.5	3109.8	3122.5	3103.6	3122.5	3097.1
40°	2976.2	2963.4	2969.9	2931.8	2931.8	2938.0	2925.3	2919.1	2925.3	2950.7
42.5°	2804.6	2779.2	2766.5	2753.8	2760.0	2741.1	2734.6	2721.9	2734.6	2709.2
45°	2601.0	2601.0	2594.7	2562.8	2569.3	2569.3	2543.9	2518.4	2524.7	2524.7
47.5°	2416.7	2404.0	2397.5	2365.9	2359.4	2353.2	2327.5	2308.5	2308.5	2289.3
50°	2213.0	2200.3	2181.4	2149.5	2136.8	2098.6	2079.7	2054.2	2028.8	2028.8
52.5°	2022.3	1977.7	1952.3	1901.4	1882.5	1863.3	1812.4	1793.5	1774.3	1755.3
55°	1793.5	1755.3	1704.5	1647.1	1621.7	1589.8	1538.9	1500.8	1475.4	1481.8
57.5°	1570.8	1507.3	1456.4	1380.1	1348.2	1329.0	1278.2	1227.3	1201.9	1201.9
60°	1297.4	1246.5	1182.9	1112.9	1087.5	1055.8	992.0	960.3	941.1	922.2
62.5°	1036.6	998.5	941.1	852.1	833.2	801.3	756.9	718.7	699.5	699.5
65°	775.8	737.7	686.8	623.3	597.8	572.4	534.3	496.1	476.9	470.7
67.5°	547.0	502.3	458.0	407.1	387.9	375.2	337.1	311.6	298.9	292.4
70°	330.6	305.1	273.5	235.3	216.1	203.4	178.0	159.1	152.6	146.3
72.5°	171.8	152.6	127.1	101.7	89.0	76.3	63.6	50.9	44.6	44.6
75°	63.6	50.9	31.9	19.2	12.7	12.7	12.7	12.7	12.7	12.7
77.5°	12.7	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
80°	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5	6.5
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)