

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: **FLDSQ4C50D010 FEU4C509035 F4LC-SQ-LI**

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: FLDSQ4C50D010 FEU4C509035 F4LC-SQ-LI
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

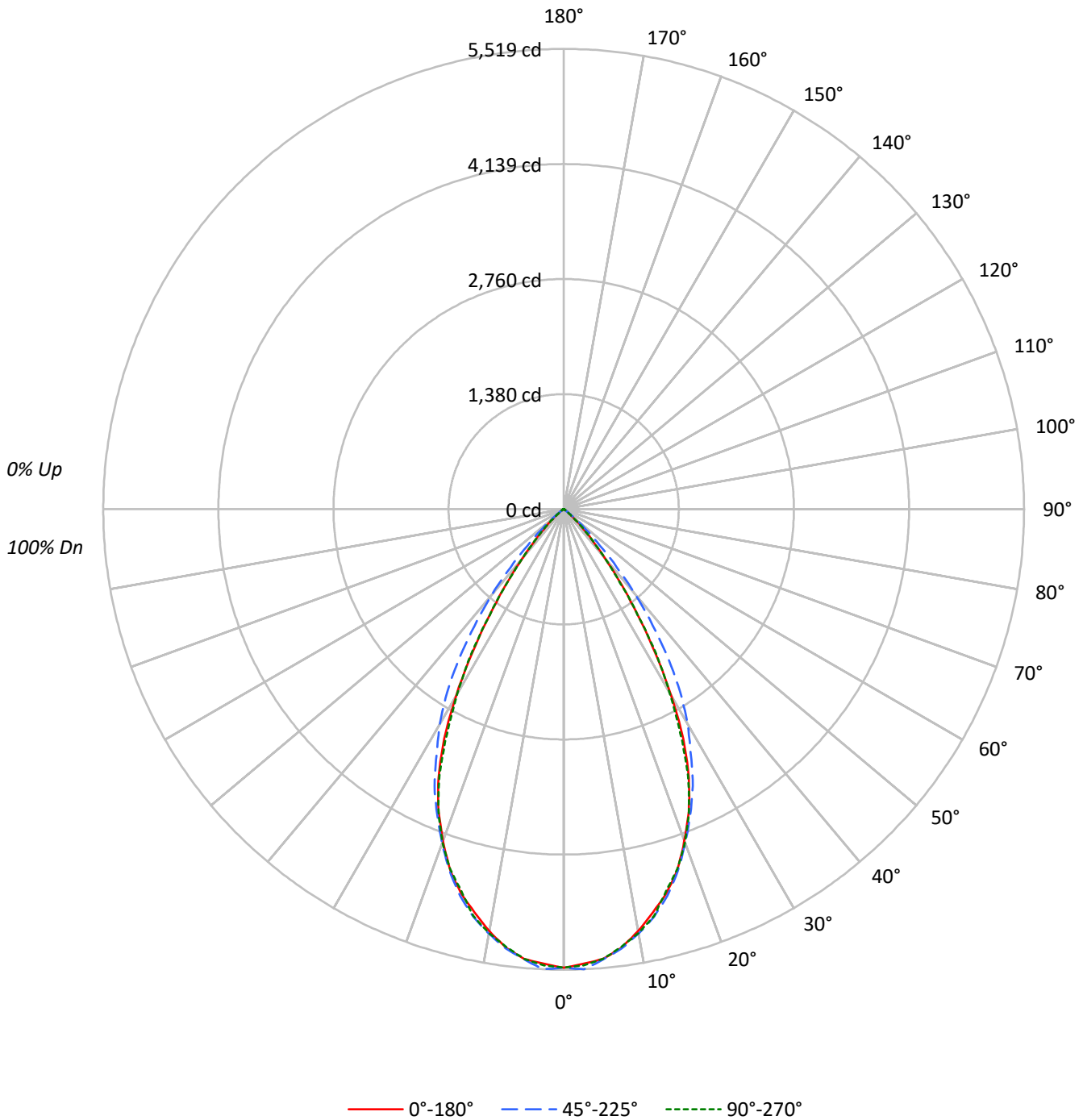
Lumens per Lamp: N/A
 Luminaire Lumens: 5073.0 lumens
 Efficiency: N/A
 Efficacy: 86.9 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 58.4
 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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	113	111	108	106	111	108	106	104	104	103	101	101	99	98	97	96	95				93	
2	108	103	99	95	105	101	97	94	98	95	92	95	92	90	92	90	88				87	
3	102	96	91	87	100	94	90	86	92	88	84	89	86	83	87	84	82				80	
4	97	89	84	79	95	88	83	79	86	81	78	84	80	77	82	79	76				75	
5	92	83	77	73	90	82	77	73	81	76	72	79	75	71	77	74	71				69	
6	87	78	72	68	86	77	71	67	76	71	67	74	70	66	73	69	66				64	
7	83	73	67	63	81	73	67	63	71	66	62	70	65	62	69	65	62				60	
8	79	69	63	59	77	68	62	58	67	62	58	66	61	58	65	61	58				56	
9	75	65	59	55	74	64	59	55	63	58	55	63	58	54	62	57	54				53	
10	71	61	55	51	70	61	55	51	60	55	51	59	54	51	58	54	51				50	

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	530187	530187	530187
5°	524105	524783	524105
10°	503143	506230	505544
15°	475659	479145	473211
20°	434106	437320	436252
25°	377989	389881	375380
30°	287430	330604	283163
35°	180927	257009	182576
40°	97617	169727	95854
45°	46204	83839	45726
50°	17293	31433	17293
55°	8226	9992	7637
60°	5384	4728	5384
65°	3196	3196	3196
70°	1975	2962	1975
75°	1342	1342	1342
80°	2000	2000	2000
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	509.5	10.0
10°-20°	1335.2	26.3
20°-30°	1631.1	32.2
30°-40°	1140.8	22.5
40°-50°	373.9	7.4
50°-60°	59.4	1.2
60°-70°	16.2	0.3
70°-80°	5.5	0.1
80°-90°	1.5	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°	3475.7	68.5
0°-40°	4616.5	91.0
0°-60°	5049.8	99.5
0°-90°	5073.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5073.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5495	5495	5495	5495	5495	
5°	5411	5413	5418	5385	5411	508
15°	4762	4781	4797	4765	4737	1328
25°	3550	3604	3662	3596	3526	1595
35°	1536	1814	2182	1786	1550	980
45°	339	417	614	412	335	284
55°	49	52	59	52	45	48
65°	14	18	14	18	14	15
75°	4	4	4	4	4	5
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°	25°	30°	35°	40°	45°	50°
0°	5494.8	5494.8	5494.8	5494.8	5494.8	5494.8	5494.8	5494.8	5494.8	5494.8	5494.8
2.5°	5453.0	5491.4	5480.9	5505.4	5505.4	5477.5	5484.4	5494.8	5508.8	5519.3	5435.4
5°	5411.1	5446.0	5414.5	5449.4	5428.5	5397.1	5449.4	5421.5	5439.0	5418.1	5432.0
7.5°	5299.4	5355.2	5292.4	5334.3	5320.3	5302.8	5323.8	5316.8	5327.3	5309.8	5271.5
10°	5135.3	5180.7	5138.8	5198.1	5170.2	5152.8	5170.2	5187.7	5184.1	5166.8	5187.7
12.5°	4946.8	4999.1	4978.1	5013.0	4981.7	4981.7	5023.6	5013.0	5016.6	5002.6	5027.0
15°	4761.7	4800.2	4768.7	4814.2	4800.2	4761.7	4779.1	4779.1	4807.2	4796.6	4768.7
17.5°	4531.4	4562.7	4527.8	4538.4	4524.4	4517.4	4590.7	4541.8	4569.7	4548.8	4552.3
20°	4227.7	4241.6	4231.1	4259.0	4241.6	4262.6	4255.6	4248.6	4248.6	4259.0	4234.6
22.5°	3920.4	3920.4	3930.9	3937.9	3951.9	3930.9	3972.8	3937.9	3941.3	3965.8	3958.8
25°	3550.4	3539.9	3564.4	3599.3	3613.2	3595.7	3651.6	3623.6	3644.6	3662.1	3623.6
27.5°	3100.1	3100.1	3124.4	3183.9	3194.3	3215.2	3292.0	3292.0	3319.9	3295.5	3323.5
30°	2579.8	2618.3	2649.6	2726.4	2750.9	2796.4	2876.6	2915.0	2977.9	2967.3	2953.4
32.5°	2045.7	2098.2	2101.6	2181.9	2248.2	2325.0	2433.2	2524.0	2569.4	2600.8	2565.9
35°	1536.0	1567.5	1595.4	1651.3	1763.0	1864.2	1962.0	2080.6	2161.0	2181.9	2150.4
37.5°	1124.2	1131.1	1159.1	1211.3	1295.1	1393.0	1511.6	1640.7	1724.6	1756.0	1721.1
40°	775.0	782.0	795.9	841.4	911.2	981.0	1075.3	1207.9	1284.7	1347.5	1302.1
42.5°	520.1	527.1	541.1	576.0	614.4	680.7	754.0	837.8	911.2	939.1	914.6
45°	338.6	338.6	345.6	370.1	391.1	443.3	495.8	548.0	596.9	614.4	596.9
47.5°	199.0	202.4	209.4	226.9	251.3	272.2	310.7	345.6	359.6	373.5	366.6
50°	115.2	115.2	125.7	136.2	153.6	167.5	181.5	195.5	202.4	209.4	202.4
52.5°	62.8	66.4	69.8	73.4	80.3	94.3	104.7	104.7	108.3	111.7	108.3
55°	48.9	48.9	48.9	48.9	52.4	52.4	52.4	55.8	55.8	59.4	55.8
57.5°	34.9	34.9	34.9	38.5	38.5	38.5	34.9	34.9	34.9	34.9	34.9
60°	27.9	27.9	27.9	27.9	27.9	27.9	27.9	24.5	24.5	24.5	24.5
62.5°	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9
65°	14.0	14.0	17.5	17.5	17.5	17.5	17.5	14.0	14.0	14.0	14.0
67.5°	10.5	10.5	10.5	10.5	14.0	14.0	10.5	10.5	10.5	10.5	10.5
70°	7.0	7.0	7.0	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
72.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
75°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
77.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
80°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.6	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°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
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):

	55°	60°	65°	70°	75°	80°	85°	90°
0°	5494.8	5494.8	5494.8	5494.8	5494.8	5494.8	5494.8	5494.8
2.5°	5494.8	5435.4	5442.4	5473.9	5456.4	5473.9	5470.5	5470.5
5°	5435.4	5418.1	5390.1	5379.6	5400.5	5446.0	5439.0	5411.1
7.5°	5323.8	5278.4	5309.8	5323.8	5306.4	5334.3	5348.3	5288.9
10°	5191.1	5173.7	5166.8	5173.7	5166.8	5194.7	5159.8	5159.8
12.5°	5002.6	4974.7	4974.7	5016.6	4992.1	4971.2	4999.1	4995.7
15°	4814.2	4758.2	4758.2	4772.1	4782.7	4768.7	4772.1	4737.2
17.5°	4534.8	4517.4	4492.9	4531.4	4541.8	4527.8	4538.4	4520.8
20°	4273.0	4273.0	4227.7	4245.0	4259.0	4269.5	4276.5	4248.6
22.5°	3937.9	3944.9	3913.4	3948.3	3958.8	3923.9	3930.9	3923.9
25°	3630.6	3627.2	3602.7	3588.7	3595.7	3581.7	3578.3	3525.9
27.5°	3292.0	3257.1	3204.8	3218.8	3159.3	3110.5	3110.5	3030.1
30°	2925.4	2866.2	2796.4	2726.4	2674.1	2618.3	2586.8	2541.5
32.5°	2496.1	2415.8	2328.5	2234.2	2174.9	2091.2	2045.7	2070.2
35°	2070.2	1951.4	1832.8	1738.6	1647.7	1598.8	1543.0	1550.0
37.5°	1658.2	1490.7	1386.0	1284.7	1207.9	1145.1	1120.6	1113.6
40°	1211.3	1078.7	974.0	900.6	848.4	799.5	771.6	761.0
42.5°	837.8	743.6	659.7	600.5	565.6	534.1	520.1	516.7
45°	544.6	488.8	432.9	391.1	363.1	342.2	338.6	335.1
47.5°	342.2	314.1	279.2	247.9	223.4	209.4	199.0	199.0
50°	195.5	185.1	167.5	150.2	136.2	129.2	118.7	115.2
52.5°	104.7	104.7	97.7	83.8	73.4	66.4	66.4	62.8
55°	55.8	55.8	52.4	52.4	48.9	48.9	48.9	45.4
57.5°	34.9	34.9	38.5	38.5	34.9	34.9	34.9	34.9
60°	24.5	27.9	27.9	27.9	27.9	27.9	27.9	27.9
62.5°	20.9	20.9	20.9	20.9	20.9	20.9	20.9	20.9
65°	14.0	17.5	17.5	17.5	17.5	14.0	14.0	14.0
67.5°	10.5	10.5	10.5	10.5	10.5	10.5	10.5	10.5
70°	10.5	10.5	10.5	10.5	10.5	7.0	7.0	7.0
72.5°	7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
75°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
77.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
80°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
82.5°	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
87.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)