

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: **FLDSQ4C70D010 FEU4C709030 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: FLDSQ4C70D010 FEU4C709030 F4LC-SQ-LI
 Description: 4 INCH 7000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

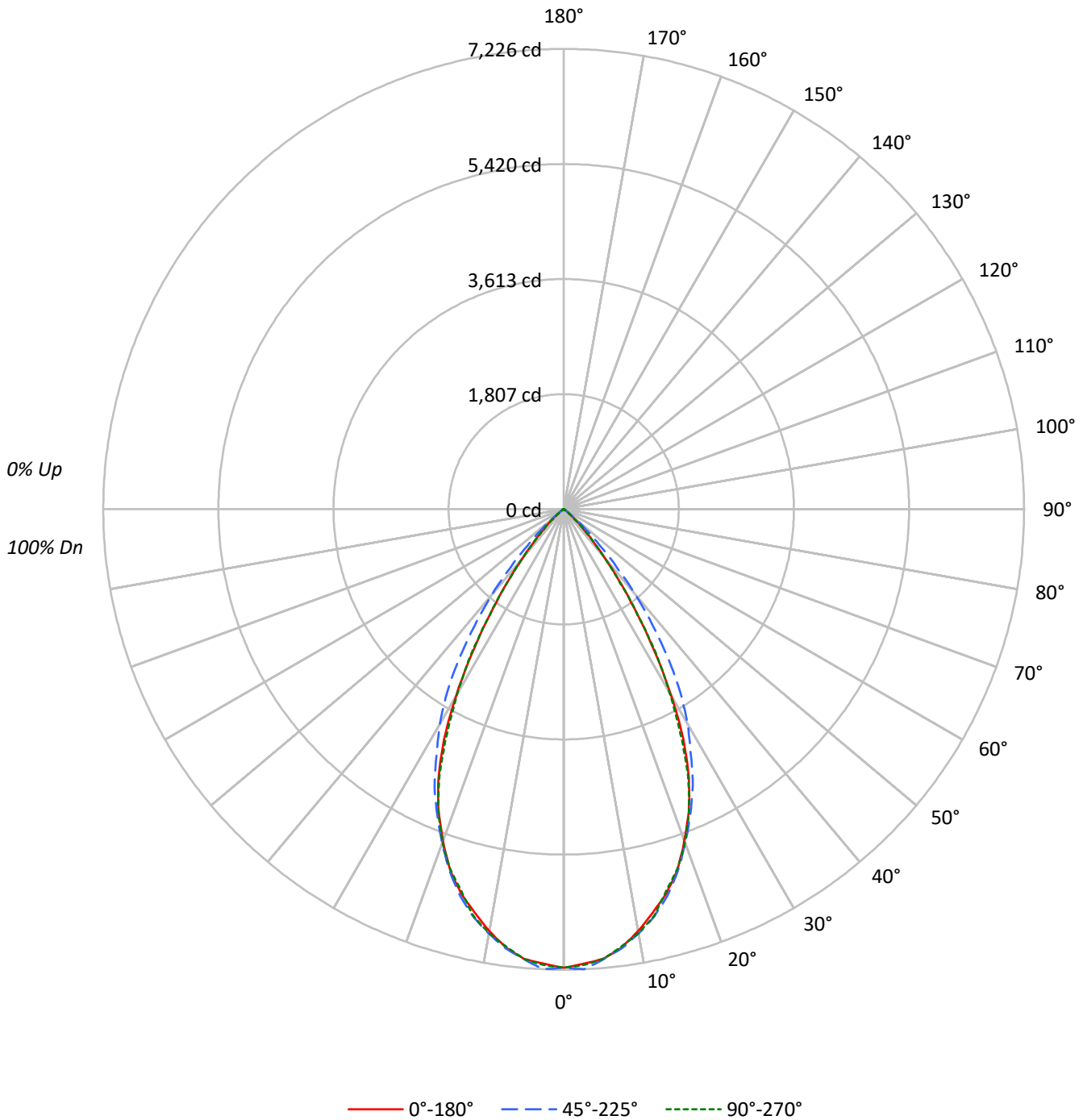
Lumens per Lamp: N/A
 Luminaire Lumens: 6642.0 lumens
 Efficiency: N/A
 Efficacy: 85.2 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	694170	694170	694170
5°	686196	687087	686196
10°	658751	662797	661896
15°	622781	627346	619574
20°	568362	572572	571175
25°	494897	510462	491479
30°	376329	432861	370736
35°	236890	336506	239045
40°	127809	222226	125504
45°	60505	109779	59863
50°	22652	41160	22652
55°	10766	13088	10009
60°	7063	6195	7063
65°	4178	4178	4178
70°	2567	3893	2567
75°	1752	1752	1752
80°	2612	2612	2612
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	667.0	10.0
10°-20°	1748.1	26.3
20°-30°	2135.5	32.2
30°-40°	1493.6	22.5
40°-50°	489.5	7.4
50°-60°	77.8	1.2
60°-70°	21.2	0.3
70°-80°	7.1	0.1
80°-90°	2.0	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°	4550.7	68.5
0°-40°	6044.3	91.0
0°-60°	6611.7	99.5
0°-90°	6642.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6642.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	7194	7194	7194	7194	7194	
5°	7085	7087	7094	7050	7085	664
15°	6234	6260	6280	6239	6202	1739
25°	4648	4719	4795	4708	4616	2088
35°	2011	2374	2857	2338	2029	1283
45°	443	546	804	539	439	372
55°	64	69	78	69	60	63
65°	18	23	18	23	18	20
75°	5	5	5	5	5	7
85°	0	0	0	0	0	2
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°	7194.3	7194.3	7194.3	7194.3	7194.3	7194.3	7194.3	7194.3	7194.3	7194.3	7194.3
2.5°	7139.5	7189.8	7176.0	7208.1	7208.1	7171.6	7180.7	7194.3	7212.6	7226.4	7116.5
5°	7084.6	7130.3	7089.1	7134.8	7107.4	7066.4	7134.8	7098.3	7121.2	7093.8	7112.1
7.5°	6938.4	7011.5	6929.3	6984.1	6965.8	6942.9	6970.3	6961.2	6975.0	6952.0	6901.9
10°	6723.5	6783.0	6728.2	6805.8	6769.2	6746.5	6769.2	6792.2	6787.5	6764.8	6792.2
12.5°	6476.8	6545.2	6517.8	6563.5	6522.5	6522.5	6577.3	6563.5	6568.2	6549.9	6581.8
15°	6234.5	6284.8	6243.6	6303.1	6284.8	6234.5	6257.2	6257.2	6294.0	6280.2	6243.6
17.5°	5932.9	5973.9	5928.2	5942.0	5923.7	5914.6	6010.5	5946.5	5983.1	5955.6	5960.3
20°	5535.2	5553.5	5539.7	5576.2	5553.5	5580.9	5571.8	5562.6	5562.6	5576.2	5544.3
22.5°	5132.9	5132.9	5146.7	5155.8	5174.1	5146.7	5201.5	5155.8	5160.3	5192.4	5183.2
25°	4648.5	4634.7	4666.8	4712.5	4730.7	4707.8	4780.9	4744.4	4771.8	4794.7	4744.4
27.5°	4058.9	4058.9	4090.8	4168.6	4182.2	4209.6	4310.1	4310.1	4346.7	4314.8	4351.4
30°	3377.7	3428.1	3469.1	3569.7	3601.7	3661.2	3766.2	3816.6	3898.9	3885.1	3866.8
32.5°	2678.4	2747.1	2751.6	2856.8	2943.5	3044.0	3185.8	3304.6	3364.1	3405.1	3359.4
35°	2011.1	2052.3	2088.9	2162.0	2308.2	2440.8	2568.8	2724.1	2829.3	2856.8	2815.5
37.5°	1471.8	1481.0	1517.5	1586.0	1695.7	1823.8	1979.2	2148.2	2258.0	2299.1	2253.4
40°	1014.7	1023.8	1042.1	1101.6	1193.0	1284.4	1407.9	1581.5	1682.0	1764.3	1704.8
42.5°	681.0	690.1	708.4	754.1	804.5	891.2	987.3	1096.9	1193.0	1229.5	1197.5
45°	443.4	443.4	452.5	484.6	512.0	580.5	649.1	717.6	781.5	804.5	781.5
47.5°	260.6	265.0	274.2	297.1	329.0	356.4	406.8	452.5	470.8	489.1	479.9
50°	150.9	150.9	164.5	178.3	201.1	219.4	237.6	255.9	265.0	274.2	265.0
52.5°	82.3	86.9	91.4	96.1	105.2	123.5	137.1	137.1	141.8	146.2	141.8
55°	64.0	64.0	64.0	64.0	68.6	68.6	68.6	73.1	73.1	77.8	73.1
57.5°	45.7	45.7	45.7	50.4	50.4	50.4	45.7	45.7	45.7	45.7	45.7
60°	36.6	36.6	36.6	36.6	36.6	36.6	36.6	32.1	32.1	32.1	32.1
62.5°	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4
65°	18.3	18.3	22.9	22.9	22.9	22.9	22.9	18.3	18.3	18.3	18.3
67.5°	13.8	13.8	13.8	13.8	18.3	18.3	13.8	13.8	13.8	13.8	13.8
70°	9.1	9.1	9.1	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8
72.5°	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1
75°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
77.5°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
80°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	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°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
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°	7194.3	7194.3	7194.3	7194.3	7194.3	7194.3	7194.3	7194.3
2.5°	7194.3	7116.5	7125.7	7166.9	7144.0	7166.9	7162.4	7162.4
5°	7116.5	7093.8	7057.2	7043.4	7070.8	7130.3	7121.2	7084.6
7.5°	6970.3	6911.0	6952.0	6970.3	6947.6	6984.1	7002.4	6924.6
10°	6796.7	6773.9	6764.8	6773.9	6764.8	6801.3	6755.6	6755.6
12.5°	6549.9	6513.3	6513.3	6568.2	6536.1	6508.7	6545.2	6540.7
15°	6303.1	6229.8	6229.8	6248.1	6261.9	6243.6	6248.1	6202.4
17.5°	5937.4	5914.6	5882.5	5932.9	5946.5	5928.2	5942.0	5919.1
20°	5594.5	5594.5	5535.2	5558.0	5576.2	5590.0	5599.2	5562.6
22.5°	5155.8	5165.0	5123.7	5169.4	5183.2	5137.5	5146.7	5137.5
25°	4753.5	4749.0	4716.9	4698.7	4707.8	4689.5	4685.0	4616.4
27.5°	4310.1	4264.4	4196.0	4214.3	4136.5	4072.5	4072.5	3967.3
30°	3830.2	3752.6	3661.2	3569.7	3501.2	3428.1	3386.9	3327.5
32.5°	3268.0	3163.0	3048.7	2925.2	2847.6	2737.9	2678.4	2710.5
35°	2710.5	2555.0	2399.6	2276.3	2157.3	2093.3	2020.2	2029.4
37.5°	2171.1	1951.8	1814.7	1682.0	1581.5	1499.3	1467.2	1458.0
40°	1586.0	1412.3	1275.2	1179.2	1110.7	1046.8	1010.2	996.4
42.5°	1096.9	973.6	863.8	786.2	740.5	699.3	681.0	676.5
45°	713.1	640.0	566.8	512.0	475.4	448.0	443.4	438.7
47.5°	448.0	411.3	365.6	324.5	292.5	274.2	260.6	260.6
50°	255.9	242.3	219.4	196.6	178.3	169.2	155.4	150.9
52.5°	137.1	137.1	128.0	109.7	96.1	86.9	86.9	82.3
55°	73.1	73.1	68.6	68.6	64.0	64.0	64.0	59.5
57.5°	45.7	45.7	50.4	50.4	45.7	45.7	45.7	45.7
60°	32.1	36.6	36.6	36.6	36.6	36.6	36.6	36.6
62.5°	27.4	27.4	27.4	27.4	27.4	27.4	27.4	27.4
65°	18.3	22.9	22.9	22.9	22.9	18.3	18.3	18.3
67.5°	13.8	13.8	13.8	13.8	13.8	13.8	13.8	13.8
70°	13.8	13.8	13.8	13.8	13.8	9.1	9.1	9.1
72.5°	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1
75°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
77.5°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
80°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
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°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)