

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 FEU4C1009030 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: FLDSQ4C100D010 FEU4C1009030 F4LC-SQ-LI
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

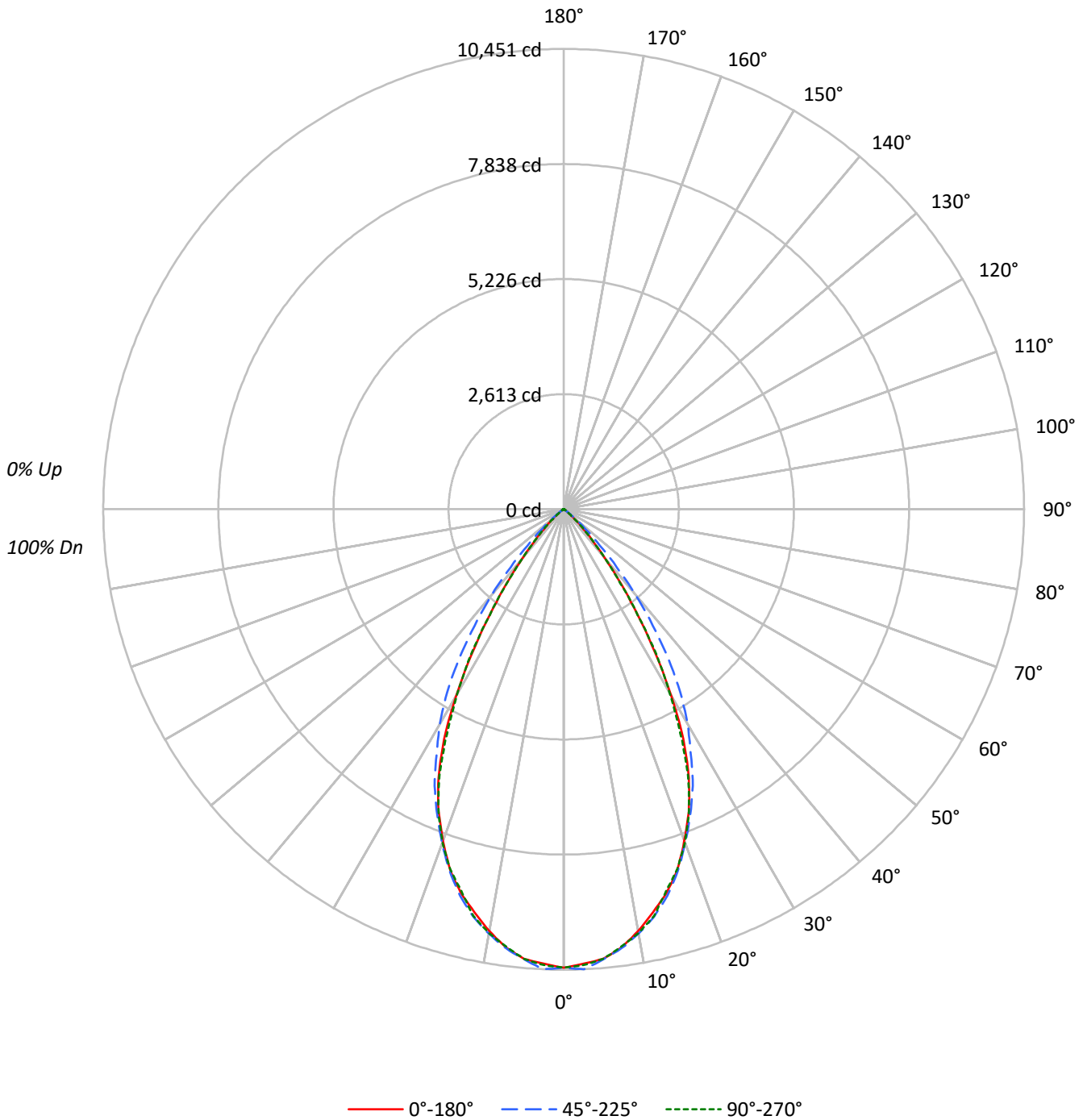
Lumens per Lamp: N/A
 Luminaire Lumens: 9606.0 lumens
 Efficiency: N/A
 Efficacy: 84.0 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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	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°	1003948	1003948	1003948
5°	992421	993699	992421
10°	952722	958562	957268
15°	900692	907295	896057
20°	821995	828094	826071
25°	715745	738262	710805
30°	544266	626023	536188
35°	342596	486666	345717
40°	184842	321393	181504
45°	87496	158766	86581
50°	32754	59519	32754
55°	15561	18925	14467
60°	10209	8954	10209
65°	6027	6027	6027
70°	3724	5642	3724
75°	2498	2498	2498
80°	3723	3723	3723
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	964.7	10.0
10°-20°	2528.2	26.3
20°-30°	3088.5	32.2
30°-40°	2160.2	22.5
40°-50°	707.9	7.4
50°-60°	112.6	1.2
60°-70°	30.8	0.3
70°-80°	10.3	0.1
80°-90°	2.8	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°	6581.5	68.5
0°-40°	8741.6	91.0
0°-60°	9562.1	99.5
0°-90°	9606.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9606.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	10405	10405	10405	10405	10405	
5°	10246	10249	10259	10197	10246	961
15°	9017	9053	9083	9023	8970	2515
25°	6723	6825	6934	6809	6676	3020
35°	2908	3434	4132	3381	2935	1856
45°	641	790	1164	780	634	538
55°	92	99	112	99	86	91
65°	26	33	26	33	26	29
75°	7	7	7	7	7	10
85°	0	0	0	0	0	3
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°	10404.8	10404.8	10404.8	10404.8	10404.8	10404.8	10404.8	10404.8	10404.8	10404.8	10404.8
2.5°	10325.5	10398.3	10378.4	10424.8	10424.8	10371.9	10385.1	10404.8	10431.2	10451.2	10292.3
5°	10246.2	10312.3	10252.7	10318.7	10279.1	10219.7	10318.7	10265.9	10299.0	10259.4	10285.8
7.5°	10034.7	10140.4	10021.5	10100.8	10074.3	10041.2	10080.8	10067.6	10087.6	10054.4	9981.8
10°	9723.9	9810.0	9730.7	9842.9	9790.0	9757.1	9790.0	9823.2	9816.5	9783.5	9823.2
12.5°	9367.0	9466.0	9426.4	9492.5	9433.1	9433.1	9512.4	9492.5	9499.2	9472.8	9518.9
15°	9016.6	9089.5	9029.8	9115.9	9089.5	9016.6	9049.5	9049.5	9102.7	9082.7	9029.8
17.5°	8580.4	8639.8	8573.7	8593.6	8567.2	8554.0	8692.6	8600.1	8653.0	8613.3	8620.1
20°	8005.3	8031.7	8011.8	8064.7	8031.7	8071.4	8058.2	8045.0	8045.0	8064.7	8018.5
22.5°	7423.4	7423.4	7443.4	7456.6	7483.1	7443.4	7522.7	7456.6	7463.1	7509.5	7496.3
25°	6722.9	6702.9	6749.3	6815.4	6841.8	6808.7	6914.4	6861.5	6901.2	6934.4	6861.5
27.5°	5870.2	5870.2	5916.3	6028.8	6048.5	6088.1	6233.5	6233.5	6286.4	6240.3	6293.2
30°	4885.0	4957.9	5017.2	5162.6	5209.0	5295.1	5446.9	5519.8	5638.7	5618.8	5592.3
32.5°	3873.7	3973.0	3979.5	4131.6	4257.0	4402.4	4607.4	4779.3	4865.3	4924.7	4858.6
35°	2908.5	2968.1	3021.0	3126.8	3338.2	3530.0	3715.1	3939.8	4091.9	4131.6	4072.0
37.5°	2128.6	2141.9	2194.7	2293.7	2452.4	2637.7	2862.4	3106.8	3265.7	3325.0	3258.9
40°	1467.5	1480.7	1507.1	1593.2	1725.4	1857.5	2036.1	2287.3	2432.7	2551.6	2465.6
42.5°	984.9	998.1	1024.5	1090.6	1163.5	1288.9	1427.8	1586.4	1725.4	1778.2	1731.8
45°	641.2	641.2	654.4	700.8	740.5	839.5	938.8	1037.8	1130.3	1163.5	1130.3
47.5°	376.8	383.3	396.5	429.7	475.9	515.5	588.3	654.4	680.9	707.3	694.1
50°	218.2	218.2	237.9	257.9	290.8	317.2	343.7	370.1	383.3	396.5	383.3
52.5°	119.0	125.7	132.2	138.9	152.1	178.6	198.3	198.3	205.0	211.5	205.0
55°	92.5	92.5	92.5	92.5	99.3	99.3	99.3	105.7	105.7	112.5	105.7
57.5°	66.1	66.1	66.1	72.8	72.8	72.8	66.1	66.1	66.1	66.1	66.1
60°	52.9	52.9	52.9	52.9	52.9	52.9	52.9	46.4	46.4	46.4	46.4
62.5°	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7
65°	26.4	26.4	33.2	33.2	33.2	33.2	33.2	26.4	26.4	26.4	26.4
67.5°	20.0	20.0	20.0	20.0	26.4	26.4	20.0	20.0	20.0	20.0	20.0
70°	13.2	13.2	13.2	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
72.5°	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2
75°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
77.5°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
80°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.7	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°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
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°	10404.8	10404.8	10404.8	10404.8	10404.8	10404.8	10404.8	10404.8
2.5°	10404.8	10292.3	10305.5	10365.1	10332.0	10365.1	10358.7	10358.7
5°	10292.3	10259.4	10206.5	10186.6	10226.2	10312.3	10299.0	10246.2
7.5°	10080.8	9995.0	10054.4	10080.8	10047.9	10100.8	10127.2	10014.7
10°	9829.7	9796.8	9783.5	9796.8	9783.5	9836.4	9770.3	9770.3
12.5°	9472.8	9419.9	9419.9	9499.2	9452.8	9413.2	9466.0	9459.6
15°	9115.9	9009.9	9009.9	9036.3	9056.3	9029.8	9036.3	8970.2
17.5°	8586.9	8554.0	8507.6	8580.4	8600.1	8573.7	8593.6	8560.5
20°	8091.1	8091.1	8005.3	8038.2	8064.7	8084.6	8097.8	8045.0
22.5°	7456.6	7469.8	7410.2	7476.3	7496.3	7430.2	7443.4	7430.2
25°	6874.8	6868.3	6821.9	6795.4	6808.7	6782.2	6775.8	6676.5
27.5°	6233.5	6167.5	6068.4	6094.9	5982.4	5889.9	5889.9	5737.7
30°	5539.5	5427.2	5295.1	5162.6	5063.6	4957.9	4898.2	4812.5
32.5°	4726.4	4574.5	4409.2	4230.6	4118.4	3959.8	3873.7	3920.1
35°	3920.1	3695.1	3470.4	3292.1	3120.0	3027.5	2921.7	2935.0
37.5°	3140.0	2822.7	2624.5	2432.7	2287.3	2168.3	2121.9	2108.7
40°	2293.7	2042.6	1844.3	1705.4	1606.4	1513.9	1461.0	1441.0
42.5°	1586.4	1408.1	1249.2	1137.0	1070.9	1011.3	984.9	978.4
45°	1031.3	925.5	819.8	740.5	687.6	648.0	641.2	634.5
47.5°	648.0	594.8	528.7	469.4	423.0	396.5	376.8	376.8
50°	370.1	350.4	317.2	284.3	257.9	244.7	224.7	218.2
52.5°	198.3	198.3	185.1	158.6	138.9	125.7	125.7	119.0
55°	105.7	105.7	99.3	99.3	92.5	92.5	92.5	86.0
57.5°	66.1	66.1	72.8	72.8	66.1	66.1	66.1	66.1
60°	46.4	52.9	52.9	52.9	52.9	52.9	52.9	52.9
62.5°	39.7	39.7	39.7	39.7	39.7	39.7	39.7	39.7
65°	26.4	33.2	33.2	33.2	33.2	26.4	26.4	26.4
67.5°	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
70°	20.0	20.0	20.0	20.0	20.0	13.2	13.2	13.2
72.5°	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2
75°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
77.5°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
80°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
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°	6.7	6.7	6.7	6.7	6.7	6.7	6.7	6.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)