

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: **FLDSQ4C25D010 FEU4C259030 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: FLDSQ4C25D010 FEU4C259030 F4LC-SQ-LI
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-SQ TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

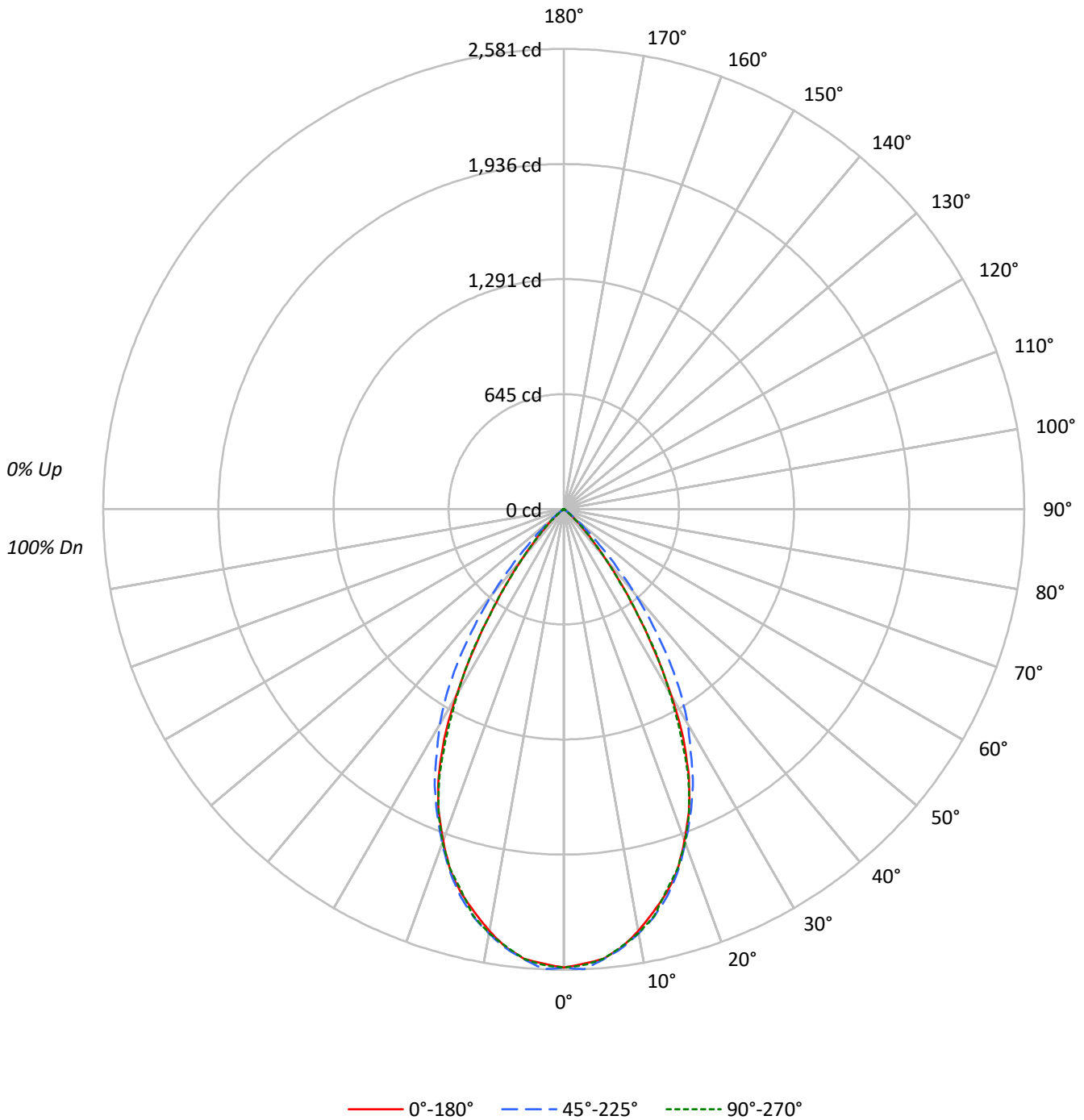
Lumens per Lamp: N/A
 Luminaire Lumens: 2372.0 lumens
 Efficiency: N/A
 Efficacy: 75.3 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.9 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 31.5
 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				
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	
RCR																					
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	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°	247899	247899	247899
5°	245059	245369	245059
10°	235254	236694	236380
15°	222411	224039	221262
20°	202970	204480	203976
25°	176740	182298	175516
30°	134401	154578	132395
35°	84598	120171	85363
40°	45647	79366	44816
45°	21601	39204	21383
50°	8091	14696	8091
55°	3835	4677	3566
60°	2528	2219	2528
65°	1484	1484	1484
70°	931	1382	931
75°	634	634	634
80°	945	945	945
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	238.2	10.0
10°-20°	624.3	26.3
20°-30°	762.6	32.2
30°-40°	533.4	22.5
40°-50°	174.8	7.4
50°-60°	27.8	1.2
60°-70°	7.6	0.3
70°-80°	2.6	0.1
80°-90°	0.7	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°	1625.1	68.5
0°-40°	2158.6	91.0
0°-60°	2361.2	99.5
0°-90°	2372.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	2372.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2569	2569	2569	2569	2569	
5°	2530	2531	2533	2518	2530	237
15°	2226	2235	2243	2228	2215	621
25°	1660	1685	1712	1681	1649	746
35°	718	848	1020	835	725	458
45°	158	195	287	193	157	133
55°	23	24	28	24	21	23
65°	6	8	6	8	6	7
75°	2	2	2	2	2	2
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°	2569.2	2569.2	2569.2	2569.2	2569.2	2569.2	2569.2	2569.2	2569.2	2569.2	2569.2
2.5°	2549.7	2567.6	2562.7	2574.2	2574.2	2561.1	2564.4	2569.2	2575.8	2580.7	2541.5
5°	2530.1	2546.4	2531.7	2548.0	2538.2	2523.5	2548.0	2534.9	2543.1	2533.3	2539.9
7.5°	2477.9	2504.0	2474.6	2494.2	2487.6	2479.5	2489.2	2486.0	2490.9	2482.7	2464.8
10°	2401.1	2422.4	2402.8	2430.5	2417.4	2409.3	2417.4	2425.6	2424.0	2415.8	2425.6
12.5°	2313.0	2337.4	2327.6	2344.0	2329.3	2329.3	2348.9	2344.0	2345.6	2339.1	2350.5
15°	2226.5	2244.4	2229.7	2251.0	2244.4	2226.5	2234.6	2234.6	2247.7	2242.8	2229.7
17.5°	2118.8	2133.4	2117.1	2122.0	2115.5	2112.2	2146.5	2123.6	2136.7	2126.9	2128.5
20°	1976.7	1983.3	1978.3	1991.4	1983.3	1993.1	1989.8	1986.5	1986.5	1991.4	1980.0
22.5°	1833.1	1833.1	1838.0	1841.3	1847.8	1838.0	1857.6	1841.3	1842.9	1854.3	1851.0
25°	1660.1	1655.1	1666.6	1682.9	1689.4	1681.3	1707.4	1694.3	1704.1	1712.3	1694.3
27.5°	1449.5	1449.5	1460.9	1488.7	1493.5	1503.3	1539.2	1539.2	1552.3	1540.9	1554.0
30°	1206.3	1224.2	1238.9	1274.8	1286.3	1307.5	1345.0	1363.0	1392.4	1387.4	1380.9
32.5°	956.5	981.0	982.6	1020.2	1051.2	1087.1	1137.7	1180.1	1201.4	1216.0	1199.7
35°	718.2	732.9	746.0	772.1	824.3	871.7	917.4	972.9	1010.4	1020.2	1005.5
37.5°	525.6	528.9	541.9	566.4	605.6	651.3	706.8	767.2	806.4	821.0	804.7
40°	362.4	365.6	372.2	393.4	426.0	458.7	502.8	564.8	600.7	630.1	608.8
42.5°	243.2	246.5	253.0	269.3	287.3	318.3	352.6	391.7	426.0	439.1	427.6
45°	158.3	158.3	161.6	173.1	182.8	207.3	231.8	256.3	279.1	287.3	279.1
47.5°	93.1	94.7	97.9	106.1	117.5	127.3	145.3	161.6	168.1	174.7	171.4
50°	53.9	53.9	58.8	63.7	71.8	78.3	84.9	91.4	94.7	97.9	94.7
52.5°	29.4	31.0	32.6	34.3	37.6	44.1	49.0	49.0	50.6	52.2	50.6
55°	22.8	22.8	22.8	22.8	24.5	24.5	24.5	26.1	26.1	27.8	26.1
57.5°	16.3	16.3	16.3	18.0	18.0	18.0	16.3	16.3	16.3	16.3	16.3
60°	13.1	13.1	13.1	13.1	13.1	13.1	13.1	11.5	11.5	11.5	11.5
62.5°	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
65°	6.5	6.5	8.2	8.2	8.2	8.2	8.2	6.5	6.5	6.5	6.5
67.5°	4.9	4.9	4.9	4.9	6.5	6.5	4.9	4.9	4.9	4.9	4.9
70°	3.3	3.3	3.3	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
72.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
75°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
77.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.7	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°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
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°	2569.2	2569.2	2569.2	2569.2	2569.2	2569.2	2569.2	2569.2
2.5°	2569.2	2541.5	2544.7	2559.5	2551.3	2559.5	2557.9	2557.9
5°	2541.5	2533.3	2520.3	2515.4	2525.1	2546.4	2543.1	2530.1
7.5°	2489.2	2468.1	2482.7	2489.2	2481.1	2494.2	2500.7	2472.9
10°	2427.2	2419.1	2415.8	2419.1	2415.8	2428.9	2412.6	2412.6
12.5°	2339.1	2326.0	2326.0	2345.6	2334.2	2324.4	2337.4	2335.8
15°	2251.0	2224.8	2224.8	2231.3	2236.3	2229.7	2231.3	2215.0
17.5°	2120.4	2112.2	2100.8	2118.8	2123.6	2117.1	2122.0	2113.8
20°	1997.9	1997.9	1976.7	1984.9	1991.4	1996.3	1999.6	1986.5
22.5°	1841.3	1844.5	1829.8	1846.1	1851.0	1834.7	1838.0	1834.7
25°	1697.6	1696.0	1684.5	1678.0	1681.3	1674.7	1673.1	1648.6
27.5°	1539.2	1522.9	1498.5	1505.0	1477.2	1454.4	1454.4	1416.8
30°	1367.9	1340.1	1307.5	1274.8	1250.4	1224.2	1209.5	1188.3
32.5°	1167.1	1129.6	1088.8	1044.7	1016.9	977.8	956.5	968.0
35°	968.0	912.4	856.9	812.9	770.4	747.6	721.5	724.7
37.5°	775.3	697.0	648.1	600.7	564.8	535.4	524.0	520.7
40°	566.4	504.4	455.4	421.1	396.7	373.8	360.8	355.8
42.5°	391.7	347.7	308.5	280.8	264.4	249.7	243.2	241.6
45°	254.7	228.5	202.4	182.8	169.8	160.0	158.3	156.7
47.5°	160.0	146.9	130.6	115.9	104.4	97.9	93.1	93.1
50°	91.4	86.5	78.3	70.2	63.7	60.4	55.5	53.9
52.5°	49.0	49.0	45.7	39.2	34.3	31.0	31.0	29.4
55°	26.1	26.1	24.5	24.5	22.8	22.8	22.8	21.2
57.5°	16.3	16.3	18.0	18.0	16.3	16.3	16.3	16.3
60°	11.5	13.1	13.1	13.1	13.1	13.1	13.1	13.1
62.5°	9.8	9.8	9.8	9.8	9.8	9.8	9.8	9.8
65°	6.5	8.2	8.2	8.2	8.2	6.5	6.5	6.5
67.5°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
70°	4.9	4.9	4.9	4.9	4.9	3.3	3.3	3.3
72.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
75°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
77.5°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
80°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
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°	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

(END OF REPORT)