

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: **FLDSQ4C60D010 FEU4C609035 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: FLDSQ4C60D010 FEU4C609035 F4LC-CSSQ-MW  
 Description: 4 INCH 6000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

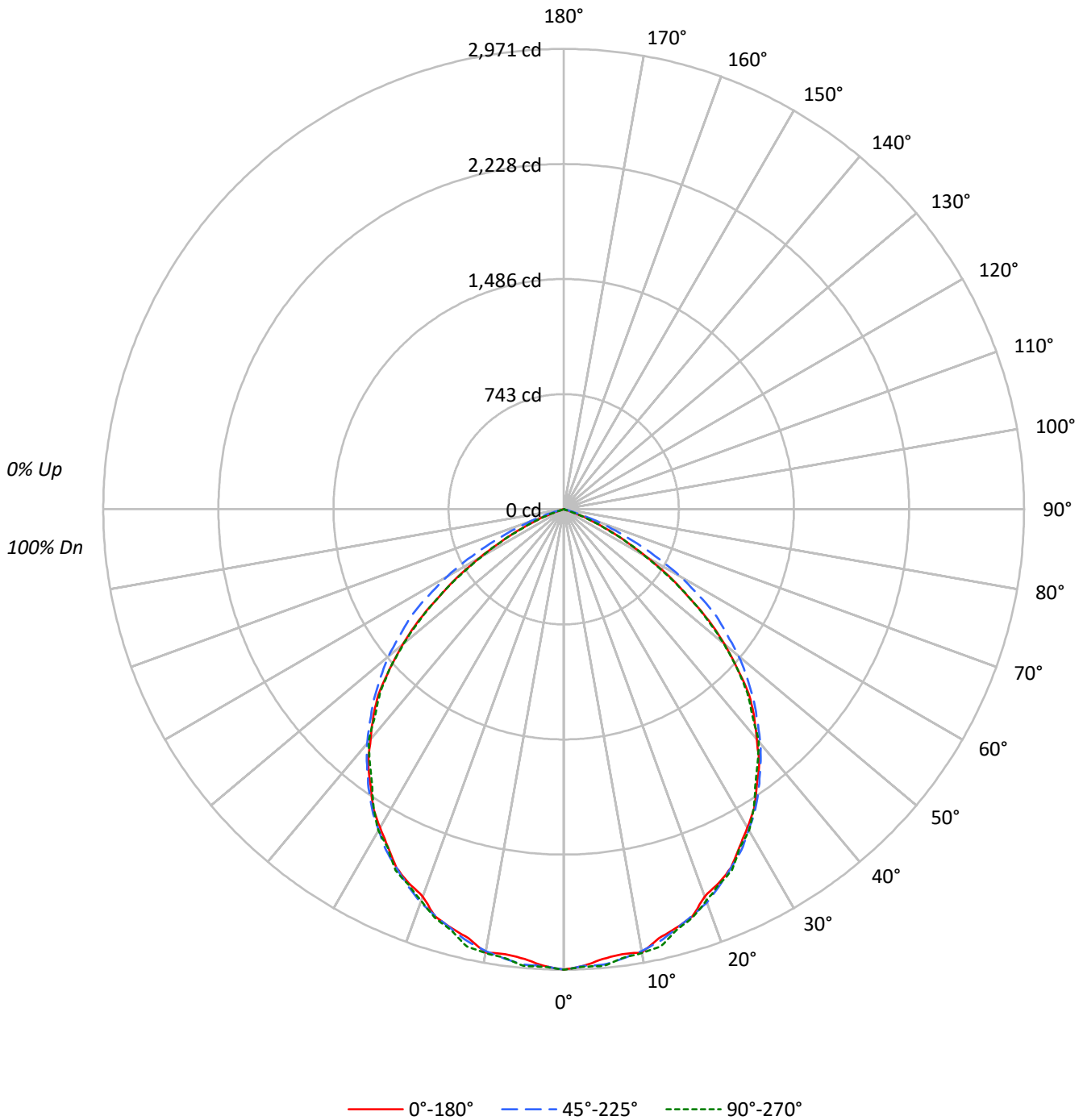
Lumens per Lamp: N/A  
 Luminaire Lumens: 6346.0 lumens  
 Efficiency: N/A  
 Efficacy: 88.1 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 72  
 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



TEST NUMBER: P#

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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°	286649	286649	286649
5°	282020	285691	286504
10°	284458	283625	284859
15°	279470	279889	280728
20°	272968	277301	276018
25°	271791	271791	273590
30°	264211	266094	266573
35°	255972	258469	253981
40°	243967	248740	246612
45°	230897	236082	228591
50°	203339	221067	202078
55°	164674	202305	165414
60°	120515	167756	118083
65°	73220	119453	71302
70°	28550	64294	27393
75°	3132	17335	3132
80°	2389	2389	2389
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	280.4	4.4
10°-20°	793.5	12.5
20°-30°	1177.4	18.6
30°-40°	1364.2	21.5
40°-50°	1308.0	20.6
50°-60°	961.7	15.2
60°-70°	415.4	6.5
70°-80°	44.8	0.7
80°-90°	0.6	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°	2251.3	35.5
0°-40°	3615.5	57.0
0°-60°	5885.2	92.7
0°-90°	6346.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6346.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2971	2971	2971	2971	2971	
5°	2912	2941	2950	2954	2958	278
15°	2798	2815	2802	2806	2810	789
25°	2553	2549	2553	2557	2570	1169
35°	2173	2186	2194	2190	2156	1359
45°	1692	1696	1730	1705	1675	1286
55°	979	1080	1203	1076	983	881
65°	321	401	523	397	312	330
75°	8	13	46	8	8	26
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°	2970.8	2970.8	2970.8	2970.8	2970.8	2970.8	2970.8	2970.8	2970.8	2970.8	2970.8
2.5°	2949.6	2983.3	2987.6	2966.5	2958.0	2945.4	2974.9	2953.9	2962.3	2953.9	2949.6
5°	2911.7	2949.6	2953.9	2953.9	2945.4	2941.1	2953.9	2949.6	2945.4	2937.0	2949.6
7.5°	2894.8	2915.8	2937.0	2911.7	2924.3	2920.1	2949.6	2937.0	2932.7	2932.7	2924.3
10°	2903.3	2899.0	2915.8	2890.5	2899.0	2890.5	2915.8	2915.8	2907.4	2899.0	2894.8
12.5°	2835.6	2869.4	2869.4	2865.2	2856.8	2844.0	2869.4	2886.4	2860.9	2860.9	2856.8
15°	2797.7	2806.2	2810.3	2810.3	2806.2	2814.6	2827.2	2810.3	2814.6	2793.4	2801.9
17.5°	2755.5	2738.7	2751.2	2742.8	2747.1	2755.5	2772.4	2772.4	2747.1	2742.8	2751.2
20°	2658.4	2709.1	2713.4	2688.1	2692.2	2692.2	2721.8	2696.5	2713.4	2692.2	2700.6
22.5°	2612.0	2645.7	2650.0	2616.3	2637.3	2612.0	2641.6	2603.5	2645.7	2616.3	2628.8
25°	2552.9	2548.8	2561.3	2544.5	2548.8	2548.8	2569.8	2552.9	2565.6	2548.8	2552.9
27.5°	2456.0	2489.7	2485.4	2468.5	2477.0	2472.8	2515.0	2468.5	2493.9	2472.8	2481.3
30°	2371.4	2401.1	2392.6	2375.7	2375.7	2363.0	2409.5	2396.8	2392.6	2392.6	2388.3
32.5°	2287.1	2291.4	2282.9	2287.1	2291.4	2274.5	2312.4	2295.5	2291.4	2295.5	2299.8
35°	2173.1	2173.1	2181.5	2169.0	2185.8	2185.8	2219.6	2198.4	2194.3	2181.5	2194.3
37.5°	2071.9	2059.3	2063.4	2063.4	2071.9	2080.3	2097.2	2088.7	2088.7	2076.2	2084.6
40°	1936.9	1928.5	1941.0	1941.0	1953.8	1953.8	1970.6	1962.2	1974.8	1974.8	1974.8
42.5°	1818.8	1818.8	1810.3	1822.9	1827.2	1822.9	1852.5	1848.2	1852.5	1844.1	1848.2
45°	1692.1	1692.1	1683.6	1679.5	1700.5	1696.4	1730.1	1717.4	1734.3	1725.8	1730.1
47.5°	1519.0	1540.2	1527.5	1540.2	1565.5	1569.8	1590.8	1582.4	1599.3	1586.7	1603.6
50°	1354.6	1354.6	1367.2	1384.1	1409.4	1413.7	1439.0	1455.9	1464.3	1468.4	1472.7
52.5°	1181.6	1177.3	1190.0	1211.0	1232.2	1249.1	1274.4	1299.7	1316.6	1341.9	1329.1
55°	978.9	987.4	1000.1	1025.4	1059.2	1080.2	1101.4	1135.1	1164.7	1177.3	1202.6
57.5°	805.9	797.5	805.9	839.7	877.7	894.6	924.2	957.9	1000.1	1025.4	1033.9
60°	624.5	628.8	637.2	666.8	696.2	721.6	734.3	789.0	827.1	852.4	869.3
62.5°	460.0	468.5	476.9	502.2	531.7	552.8	573.8	620.3	654.1	679.4	696.2
65°	320.7	324.9	337.6	350.2	379.8	400.8	417.7	455.7	489.5	510.6	523.2
67.5°	198.3	202.5	210.9	227.9	249.0	265.8	282.7	308.0	337.6	358.6	362.9
70°	101.2	105.5	109.7	122.4	139.3	147.7	160.3	181.5	202.5	219.3	227.9
72.5°	33.7	33.7	38.0	46.5	54.9	63.4	67.5	88.7	105.5	114.0	118.1
75°	8.4	8.4	8.4	8.4	8.4	12.7	12.7	25.3	33.7	42.2	46.5
77.5°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	8.4	8.4
80°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
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°	2970.8	2970.8	2970.8	2970.8	2970.8	2970.8	2970.8	2970.8	2970.8	2970.8
2.5°	2970.8	2962.3	2958.0	2962.3	2962.3	2958.0	2970.8	2987.6	3008.6	2953.9
5°	2966.5	2958.0	2966.5	2941.1	2953.9	2945.4	2962.3	2958.0	2974.9	2958.0
7.5°	2953.9	2937.0	2941.1	2928.6	2945.4	2924.3	2937.0	2962.3	2945.4	2920.1
10°	2911.7	2903.3	2932.7	2890.5	2882.1	2899.0	2932.7	2907.4	2899.0	2907.4
12.5°	2869.4	2869.4	2882.1	2848.3	2852.5	2860.9	2877.8	2860.9	2869.4	2890.5
15°	2823.0	2814.6	2835.6	2810.3	2806.2	2797.7	2814.6	2814.6	2823.0	2810.3
17.5°	2768.1	2755.5	2755.5	2747.1	2742.8	2764.0	2772.4	2776.6	2780.9	2764.0
20°	2700.6	2696.5	2709.1	2696.5	2700.6	2704.9	2704.9	2696.5	2734.4	2688.1
22.5°	2628.8	2641.6	2624.7	2616.3	2624.7	2633.1	2633.1	2637.3	2628.8	2620.4
25°	2557.2	2565.6	2569.8	2544.5	2557.2	2544.5	2574.1	2578.2	2561.3	2569.8
27.5°	2493.9	2481.3	2477.0	2460.1	2468.5	2464.4	2468.5	2468.5	2493.9	2460.1
30°	2396.8	2384.2	2388.3	2375.7	2379.9	2375.7	2379.9	2379.9	2396.8	2392.6
32.5°	2304.0	2291.4	2295.5	2282.9	2282.9	2287.1	2278.6	2278.6	2291.4	2282.9
35°	2215.3	2185.8	2190.0	2185.8	2190.0	2173.1	2173.1	2169.0	2177.4	2156.2
37.5°	2088.7	2076.2	2071.9	2067.7	2071.9	2063.4	2071.9	2059.3	2071.9	2055.0
40°	1974.8	1966.3	1970.6	1945.3	1945.3	1949.5	1941.0	1936.9	1941.0	1957.9
42.5°	1861.0	1844.1	1835.7	1827.2	1831.4	1818.8	1814.5	1806.0	1814.5	1797.6
45°	1725.8	1725.8	1721.7	1700.5	1704.8	1704.8	1687.9	1671.1	1675.2	1675.2
47.5°	1603.6	1595.1	1590.8	1569.8	1565.5	1561.4	1544.4	1531.8	1531.8	1519.0
50°	1468.4	1460.0	1447.4	1426.2	1417.8	1392.5	1379.9	1363.1	1346.2	1346.2
52.5°	1341.9	1312.3	1295.4	1261.7	1249.1	1236.3	1202.6	1190.0	1177.3	1164.7
55°	1190.0	1164.7	1131.0	1092.9	1076.1	1054.9	1021.1	995.8	978.9	983.3
57.5°	1042.3	1000.1	966.4	915.8	894.6	881.8	848.1	814.4	797.5	797.5
60°	860.8	827.1	784.9	738.4	721.6	700.5	658.2	637.2	624.5	611.9
62.5°	687.8	662.5	624.5	565.4	552.8	531.7	502.2	476.9	464.2	464.2
65°	514.8	489.5	455.7	413.5	396.7	379.8	354.5	329.2	316.4	312.3
67.5°	362.9	333.3	303.9	270.1	257.4	249.0	223.6	206.8	198.3	194.0
70°	219.3	202.5	181.5	156.2	143.4	135.0	118.1	105.5	101.2	97.1
72.5°	114.0	101.2	84.4	67.5	59.1	50.6	42.2	33.7	29.6	29.6
75°	42.2	33.7	21.2	12.7	8.4	8.4	8.4	8.4	8.4	8.4
77.5°	8.4	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
80°	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3	4.3
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)