

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-CSSQ-MMS**

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-CSSQ-MMS  
 Description: 4 INCH 7000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

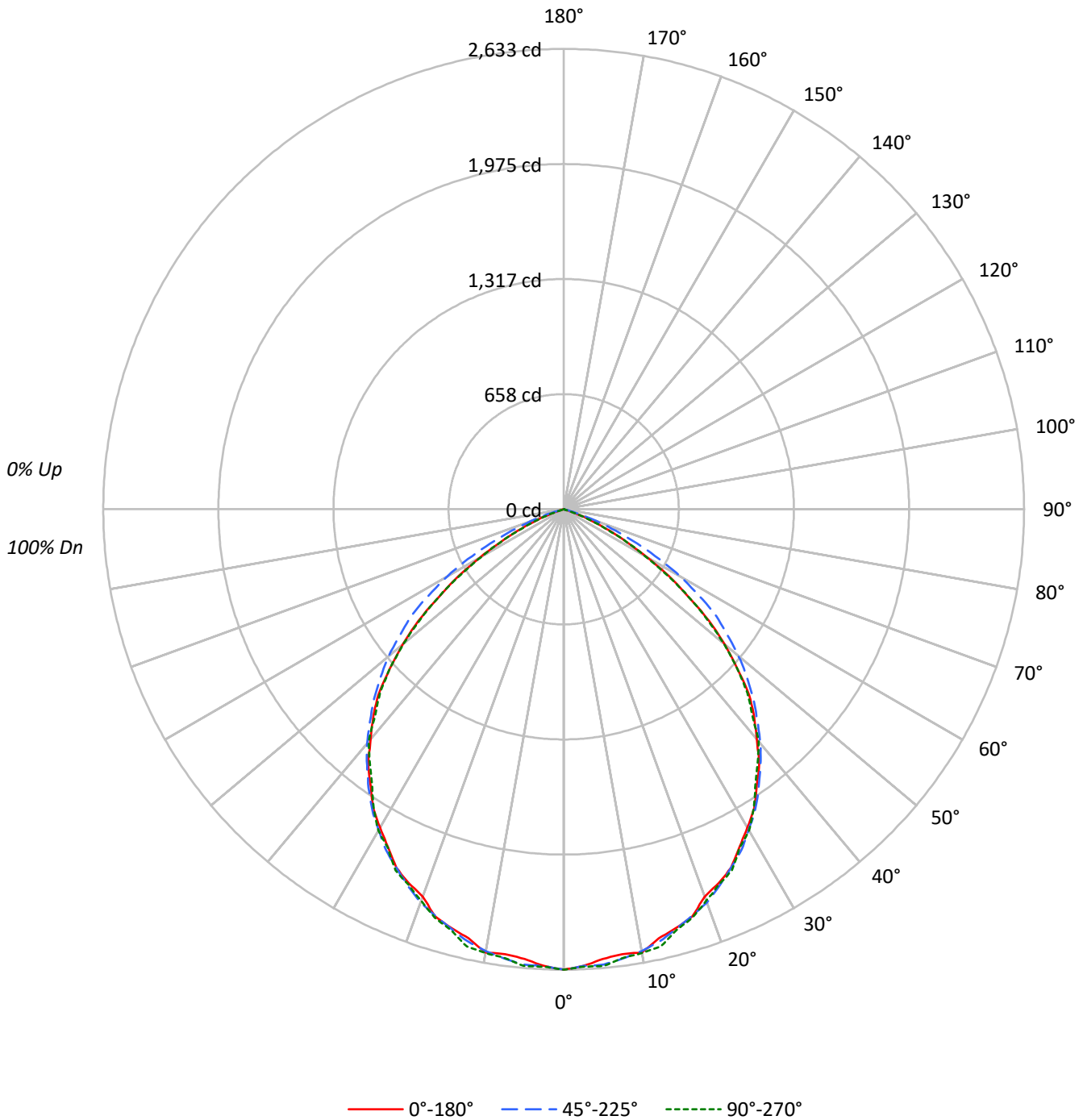
Lumens per Lamp: N/A  
 Luminaire Lumens: 5624.0 lumens  
 Efficiency: N/A  
 Efficacy: 72.1 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 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	111	108	104	101	109	105	102	100	101	99	96	97	95	94	94	92	91	89				89
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77				77
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67				67
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59				59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	54	63	58	54	52				52
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46				46
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41				41
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37				37
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	33				33
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	31				31

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	254036	254036	254036
5°	249931	253185	253912
10°	252096	251361	252449
15°	247674	248043	248793
20°	241917	245758	244607
25°	240874	240874	242460
30°	234151	235823	236246
35°	226854	229057	225087
40°	216206	220438	218549
45°	204629	209228	202582
50°	180207	195924	179081
55°	145950	179292	146590
60°	106794	148670	104652
65°	64909	105868	63197
70°	25306	56987	24290
75°	2796	15360	2796
80°	2111	2111	2111
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	248.5	4.4
10°-20°	703.2	12.5
20°-30°	1043.4	18.6
30°-40°	1209.0	21.5
40°-50°	1159.2	20.6
50°-60°	852.3	15.2
60°-70°	368.1	6.5
70°-80°	39.7	0.7
80°-90°	0.5	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°	1995.1	35.5
0°-40°	3204.2	57.0
0°-60°	5215.6	92.7
0°-90°	5624.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5624.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2633	2633	2633	2633	2633	
5°	2580	2606	2614	2618	2622	246
15°	2479	2494	2483	2487	2491	699
25°	2262	2259	2262	2266	2277	1036
35°	1926	1937	1945	1941	1911	1204
45°	1500	1503	1533	1511	1485	1140
55°	868	957	1066	954	871	781
65°	284	355	464	352	277	292
75°	8	11	41	8	8	23
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°	2632.8	2632.8	2632.8	2632.8	2632.8	2632.8	2632.8	2632.8	2632.8	2632.8	2632.8
2.5°	2614.0	2643.9	2647.7	2629.0	2621.5	2610.3	2636.4	2617.8	2625.3	2617.8	2614.0
5°	2580.4	2614.0	2617.8	2617.8	2610.3	2606.5	2617.8	2614.0	2610.3	2602.9	2614.0
7.5°	2565.5	2584.1	2602.9	2580.4	2591.6	2587.9	2614.0	2602.9	2599.1	2599.1	2591.6
10°	2573.0	2569.1	2584.1	2561.7	2569.1	2561.7	2584.1	2584.1	2576.6	2569.1	2565.5
12.5°	2513.0	2542.9	2542.9	2539.2	2531.8	2520.5	2542.9	2558.0	2535.4	2535.4	2531.8
15°	2479.4	2486.9	2490.6	2490.6	2486.9	2494.4	2505.5	2490.6	2494.4	2475.6	2483.1
17.5°	2442.0	2427.1	2438.2	2430.8	2434.6	2442.0	2457.0	2457.0	2434.6	2430.8	2438.2
20°	2356.0	2400.8	2404.7	2382.2	2385.9	2385.9	2412.1	2389.7	2404.7	2385.9	2393.4
22.5°	2314.8	2344.7	2348.5	2318.6	2337.2	2314.8	2341.0	2307.3	2344.7	2318.6	2329.7
25°	2262.5	2258.8	2269.9	2255.0	2258.8	2258.8	2277.4	2262.5	2273.7	2258.8	2262.5
27.5°	2176.6	2206.5	2202.6	2187.7	2195.2	2191.5	2228.9	2187.7	2210.1	2191.5	2199.0
30°	2101.6	2127.9	2120.4	2105.5	2105.5	2094.2	2135.4	2124.1	2120.4	2120.4	2116.6
32.5°	2026.9	2030.7	2023.2	2026.9	2030.7	2015.7	2049.3	2034.4	2030.7	2034.4	2038.2
35°	1925.9	1925.9	1933.3	1922.2	1937.2	1937.2	1967.1	1948.3	1944.6	1933.3	1944.6
37.5°	1836.2	1825.0	1828.7	1828.7	1836.2	1843.6	1858.6	1851.1	1851.1	1840.0	1847.4
40°	1716.5	1709.0	1720.2	1720.2	1731.5	1731.5	1746.4	1739.0	1750.1	1750.1	1750.1
42.5°	1611.9	1611.9	1604.4	1615.5	1619.3	1615.5	1641.8	1637.9	1641.8	1634.3	1637.9
45°	1499.6	1499.6	1492.1	1488.4	1507.0	1503.4	1533.3	1522.0	1536.9	1529.5	1533.3
47.5°	1346.2	1365.0	1353.7	1365.0	1387.4	1391.2	1409.8	1402.4	1417.3	1406.2	1421.1
50°	1200.5	1200.5	1211.6	1226.6	1249.0	1252.8	1275.3	1290.2	1297.7	1301.4	1305.2
52.5°	1047.2	1043.3	1054.6	1073.2	1092.0	1107.0	1129.4	1151.8	1166.8	1189.2	1177.9
55°	867.6	875.0	886.3	908.8	938.7	957.3	976.1	1006.0	1032.2	1043.3	1065.8
57.5°	714.2	706.8	714.2	744.1	777.9	792.8	819.0	849.0	886.3	908.8	916.2
60°	553.4	557.2	564.7	590.9	617.0	639.5	650.8	699.3	733.0	755.4	770.4
62.5°	407.7	415.2	422.6	445.1	471.2	489.9	508.6	549.7	579.7	602.1	617.0
65°	284.3	287.9	299.2	310.3	336.6	355.2	370.2	403.9	433.8	452.6	463.7
67.5°	175.8	179.4	186.9	202.0	220.6	235.6	250.5	273.0	299.2	317.8	321.6
70°	89.7	93.5	97.2	108.5	123.4	130.9	142.1	160.8	179.4	194.4	202.0
72.5°	29.9	29.9	33.7	41.2	48.7	56.1	59.8	78.6	93.5	101.0	104.7
75°	7.5	7.5	7.5	7.5	7.5	11.3	11.3	22.4	29.9	37.4	41.2
77.5°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	7.5	7.5
80°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
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°	2632.8	2632.8	2632.8	2632.8	2632.8	2632.8	2632.8	2632.8	2632.8	2632.8
2.5°	2632.8	2625.3	2621.5	2625.3	2625.3	2621.5	2632.8	2647.7	2666.3	2617.8
5°	2629.0	2621.5	2629.0	2606.5	2617.8	2610.3	2625.3	2621.5	2636.4	2621.5
7.5°	2617.8	2602.9	2606.5	2595.4	2610.3	2591.6	2602.9	2625.3	2610.3	2587.9
10°	2580.4	2573.0	2599.1	2561.7	2554.2	2569.1	2599.1	2576.6	2569.1	2576.6
12.5°	2542.9	2542.9	2554.2	2524.3	2528.0	2535.4	2550.4	2535.4	2542.9	2561.7
15°	2501.9	2494.4	2513.0	2490.6	2486.9	2479.4	2494.4	2494.4	2501.9	2490.6
17.5°	2453.2	2442.0	2442.0	2434.6	2430.8	2449.5	2457.0	2460.7	2464.5	2449.5
20°	2393.4	2389.7	2400.8	2389.7	2393.4	2397.2	2397.2	2389.7	2423.3	2382.2
22.5°	2329.7	2341.0	2326.1	2318.6	2326.1	2333.6	2333.6	2337.2	2329.7	2322.3
25°	2266.3	2273.7	2277.4	2255.0	2266.3	2255.0	2281.2	2284.9	2269.9	2277.4
27.5°	2210.1	2199.0	2195.2	2180.2	2187.7	2184.0	2187.7	2187.7	2210.1	2180.2
30°	2124.1	2112.9	2116.6	2105.5	2109.1	2105.5	2109.1	2109.1	2124.1	2120.4
32.5°	2041.8	2030.7	2034.4	2023.2	2023.2	2026.9	2019.4	2019.4	2030.7	2023.2
35°	1963.3	1937.2	1940.8	1937.2	1940.8	1925.9	1925.9	1922.2	1929.7	1910.9
37.5°	1851.1	1840.0	1836.2	1832.5	1836.2	1828.7	1836.2	1825.0	1836.2	1821.2
40°	1750.1	1742.6	1746.4	1724.0	1724.0	1727.7	1720.2	1716.5	1720.2	1735.1
42.5°	1649.2	1634.3	1626.8	1619.3	1623.0	1611.9	1608.0	1600.6	1608.0	1593.1
45°	1529.5	1529.5	1525.8	1507.0	1510.8	1510.8	1495.9	1480.9	1484.6	1484.6
47.5°	1421.1	1413.7	1409.8	1391.2	1387.4	1383.7	1368.6	1357.5	1357.5	1346.2
50°	1301.4	1293.9	1282.7	1264.0	1256.5	1234.1	1222.9	1208.0	1193.0	1193.0
52.5°	1189.2	1163.0	1148.0	1118.1	1107.0	1095.7	1065.8	1054.6	1043.3	1032.2
55°	1054.6	1032.2	1002.3	968.6	953.6	934.9	905.0	882.5	867.6	871.4
57.5°	923.7	886.3	856.4	811.6	792.8	781.5	751.6	721.7	706.8	706.8
60°	762.9	733.0	695.6	654.4	639.5	620.8	583.3	564.7	553.4	542.3
62.5°	609.6	587.1	553.4	501.1	489.9	471.2	445.1	422.6	411.4	411.4
65°	456.2	433.8	403.9	366.5	351.5	336.6	314.2	291.7	280.4	276.8
67.5°	321.6	295.4	269.3	239.4	228.1	220.6	198.2	183.2	175.8	172.0
70°	194.4	179.4	160.8	138.4	127.1	119.6	104.7	93.5	89.7	86.1
72.5°	101.0	89.7	74.8	59.8	52.3	44.9	37.4	29.9	26.2	26.2
75°	37.4	29.9	18.8	11.3	7.5	7.5	7.5	7.5	7.5	7.5
77.5°	7.5	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
80°	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8	3.8
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)