

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 FEU4C709035 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 FEU4C709035 F4LC-CSSQ-MMS
 Description: 4 INCH 7000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

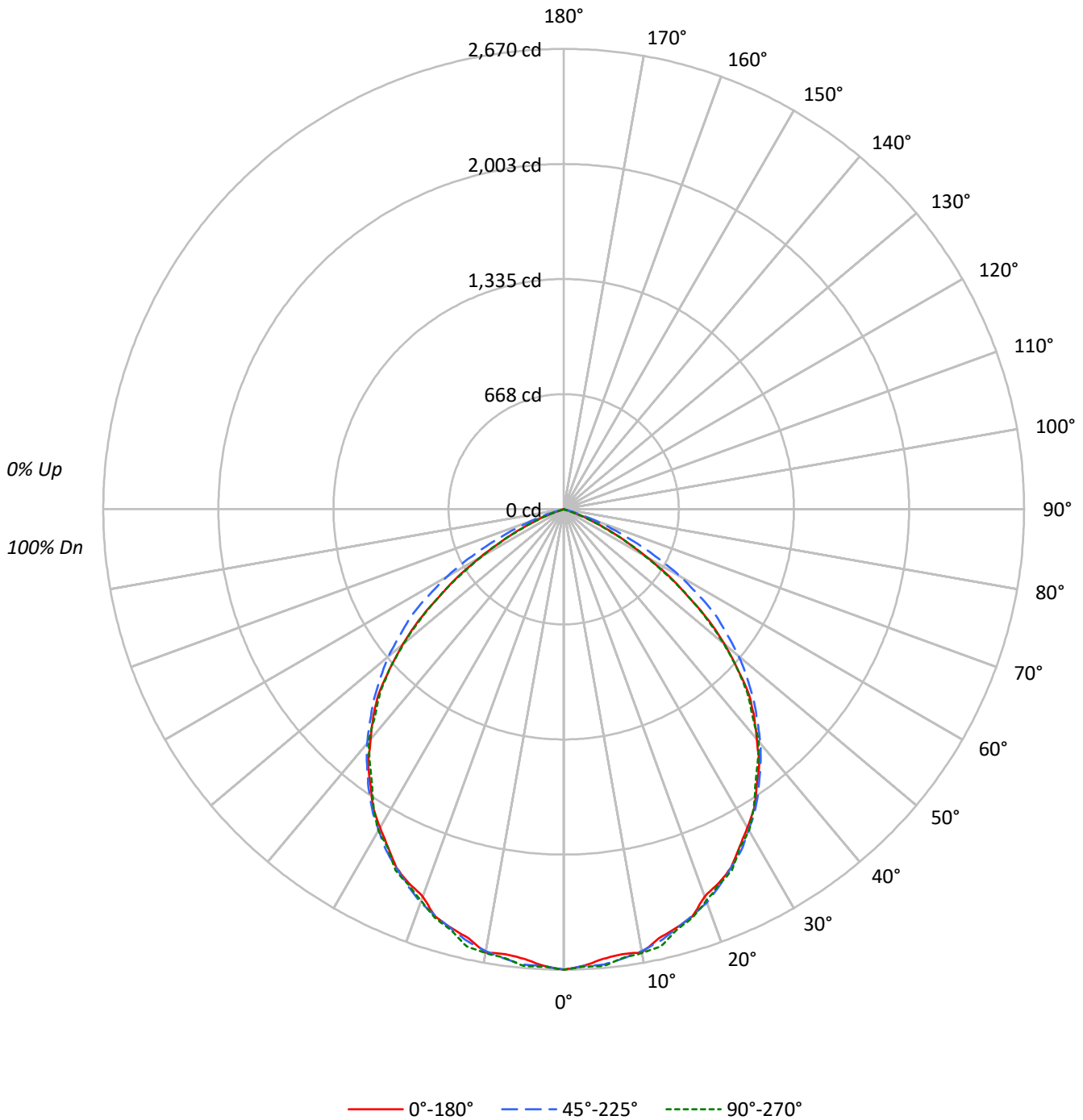
Lumens per Lamp: N/A
 Luminaire Lumens: 5703.0 lumens
 Efficiency: N/A
 Efficacy: 73.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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				
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°	257606	257606	257606
5°	253447	256740	257476
10°	255633	254888	255995
15°	251160	251530	252289
20°	245316	249208	248047
25°	244249	244249	245867
30°	237449	239132	239566
35°	230034	232272	228256
40°	219241	223536	221622
45°	207495	212162	205434
50°	182744	198671	181603
55°	148003	181799	148642
60°	108299	150754	106118
65°	65800	107352	64087
70°	25672	57805	24629
75°	2833	15583	2833
80°	2167	2167	2167
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.0	4.4
10°-20°	713.1	12.5
20°-30°	1058.1	18.6
30°-40°	1226.0	21.5
40°-50°	1175.5	20.6
50°-60°	864.3	15.2
60°-70°	373.3	6.5
70°-80°	40.3	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°	2023.2	35.5
0°-40°	3249.2	57.0
0°-60°	5288.9	92.7
0°-90°	5703.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5703.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2670	2670	2670	2670	2670	
5°	2617	2643	2651	2655	2658	250
15°	2514	2529	2518	2522	2526	709
25°	2294	2290	2294	2298	2309	1050
35°	1953	1964	1972	1968	1938	1221
45°	1521	1524	1555	1532	1506	1156
55°	880	971	1081	967	884	792
65°	288	360	470	356	281	296
75°	8	11	42	8	8	23
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	2669.8	2669.8	2669.8	2669.8	2669.8	2669.8	2669.8	2669.8	2669.8	2669.8	2669.8
2.5°	2650.7	2681.0	2684.9	2665.9	2658.3	2647.0	2673.5	2654.6	2662.2	2654.6	2650.7
5°	2616.7	2650.7	2654.6	2654.6	2647.0	2643.1	2654.6	2650.7	2647.0	2639.4	2650.7
7.5°	2601.5	2620.4	2639.4	2616.7	2628.0	2624.3	2650.7	2639.4	2635.6	2635.6	2628.0
10°	2609.1	2605.2	2620.4	2597.7	2605.2	2597.7	2620.4	2620.4	2612.8	2605.2	2601.5
12.5°	2548.3	2578.6	2578.6	2574.9	2567.3	2555.9	2578.6	2593.9	2571.0	2571.0	2567.3
15°	2514.3	2521.8	2525.6	2525.6	2521.8	2529.4	2540.7	2525.6	2529.4	2510.4	2518.0
17.5°	2476.3	2461.2	2472.5	2464.9	2468.8	2476.3	2491.5	2491.5	2468.8	2464.9	2472.5
20°	2389.1	2434.6	2438.4	2415.7	2419.4	2419.4	2446.0	2423.3	2438.4	2419.4	2427.0
22.5°	2347.3	2377.6	2381.5	2351.2	2370.1	2347.3	2373.9	2339.7	2377.6	2351.2	2362.5
25°	2294.2	2290.5	2301.8	2286.7	2290.5	2290.5	2309.4	2294.2	2305.7	2290.5	2294.2
27.5°	2207.1	2237.5	2233.6	2218.4	2226.0	2222.3	2260.2	2218.4	2241.2	2222.3	2229.9
30°	2131.2	2157.8	2150.2	2135.0	2135.0	2123.6	2165.4	2153.9	2150.2	2150.2	2146.3
32.5°	2055.3	2059.2	2051.6	2055.3	2059.2	2044.0	2078.1	2062.9	2059.2	2062.9	2066.8
35°	1952.9	1952.9	1960.5	1949.2	1964.4	1964.4	1994.7	1975.7	1971.9	1960.5	1971.9
37.5°	1861.9	1850.6	1854.4	1854.4	1861.9	1869.5	1884.7	1877.1	1877.1	1865.8	1873.4
40°	1740.6	1733.1	1744.4	1744.4	1755.8	1755.8	1771.0	1763.4	1774.7	1774.7	1774.7
42.5°	1634.5	1634.5	1626.9	1638.2	1642.1	1638.2	1664.8	1661.0	1664.8	1657.2	1661.0
45°	1520.6	1520.6	1513.0	1509.3	1528.2	1524.5	1554.8	1543.4	1558.5	1550.9	1554.8
47.5°	1365.1	1384.2	1372.7	1384.2	1406.9	1410.8	1429.6	1422.1	1437.2	1425.9	1441.1
50°	1217.4	1217.4	1228.7	1243.8	1266.6	1270.4	1293.2	1308.3	1315.9	1319.6	1323.5
52.5°	1061.9	1058.0	1069.4	1088.3	1107.4	1122.5	1145.3	1168.0	1183.2	1205.9	1194.5
55°	879.8	887.3	898.8	921.5	951.9	970.7	989.8	1020.1	1046.7	1058.0	1080.7
57.5°	724.3	716.7	724.3	754.6	788.8	803.9	830.6	860.9	898.8	921.5	929.1
60°	561.2	565.0	572.6	599.2	625.7	648.4	659.9	709.1	743.3	766.0	781.2
62.5°	413.4	421.0	428.6	451.3	477.8	496.8	515.7	557.5	587.8	610.5	625.7
65°	288.2	292.0	303.4	314.7	341.3	360.2	375.4	409.6	439.9	458.9	470.2
67.5°	178.2	182.0	189.5	204.9	223.7	238.9	254.1	276.8	303.4	322.3	326.2
70°	91.0	94.8	98.6	110.0	125.2	132.8	144.0	163.1	182.0	197.1	204.9
72.5°	30.3	30.3	34.2	41.8	49.4	56.9	60.7	79.7	94.8	102.4	106.1
75°	7.6	7.6	7.6	7.6	7.6	11.4	11.4	22.7	30.3	37.9	41.8
77.5°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	7.6	7.6
80°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
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°	2669.8	2669.8	2669.8	2669.8	2669.8	2669.8	2669.8	2669.8	2669.8	2669.8
2.5°	2669.8	2662.2	2658.3	2662.2	2662.2	2658.3	2669.8	2684.9	2703.8	2654.6
5°	2665.9	2658.3	2665.9	2643.1	2654.6	2647.0	2662.2	2658.3	2673.5	2658.3
7.5°	2654.6	2639.4	2643.1	2631.8	2647.0	2628.0	2639.4	2662.2	2647.0	2624.3
10°	2616.7	2609.1	2635.6	2597.7	2590.1	2605.2	2635.6	2612.8	2605.2	2612.8
12.5°	2578.6	2578.6	2590.1	2559.7	2563.5	2571.0	2586.2	2571.0	2578.6	2597.7
15°	2537.0	2529.4	2548.3	2525.6	2521.8	2514.3	2529.4	2529.4	2537.0	2525.6
17.5°	2487.6	2476.3	2476.3	2468.8	2464.9	2483.9	2491.5	2495.2	2499.1	2483.9
20°	2427.0	2423.3	2434.6	2423.3	2427.0	2430.9	2430.9	2423.3	2457.3	2415.7
22.5°	2362.5	2373.9	2358.8	2351.2	2358.8	2366.3	2366.3	2370.1	2362.5	2354.9
25°	2298.1	2305.7	2309.4	2286.7	2298.1	2286.7	2313.3	2317.0	2301.8	2309.4
27.5°	2241.2	2229.9	2226.0	2210.8	2218.4	2214.7	2218.4	2218.4	2241.2	2210.8
30°	2153.9	2142.6	2146.3	2135.0	2138.7	2135.0	2138.7	2138.7	2153.9	2150.2
32.5°	2070.5	2059.2	2062.9	2051.6	2051.6	2055.3	2047.8	2047.8	2059.2	2051.6
35°	1990.8	1964.4	1968.1	1964.4	1968.1	1952.9	1952.9	1949.2	1956.8	1937.8
37.5°	1877.1	1865.8	1861.9	1858.2	1861.9	1854.4	1861.9	1850.6	1861.9	1846.8
40°	1774.7	1767.1	1771.0	1748.2	1748.2	1751.9	1744.4	1740.6	1744.4	1759.5
42.5°	1672.4	1657.2	1649.7	1642.1	1645.8	1634.5	1630.6	1623.0	1630.6	1615.5
45°	1550.9	1550.9	1547.2	1528.2	1532.1	1532.1	1516.9	1501.7	1505.5	1505.5
47.5°	1441.1	1433.5	1429.6	1410.8	1406.9	1403.2	1387.9	1376.6	1376.6	1365.1
50°	1319.6	1312.1	1300.8	1281.7	1274.1	1251.4	1240.1	1224.9	1209.8	1209.8
52.5°	1205.9	1179.3	1164.1	1133.8	1122.5	1111.1	1080.7	1069.4	1058.0	1046.7
55°	1069.4	1046.7	1016.4	982.2	967.0	948.0	917.7	894.9	879.8	883.6
57.5°	936.7	898.8	868.5	823.0	803.9	792.5	762.2	731.8	716.7	716.7
60°	773.6	743.3	705.4	663.6	648.4	629.6	591.5	572.6	561.2	549.9
62.5°	618.1	595.4	561.2	508.1	496.8	477.8	451.3	428.6	417.1	417.1
65°	462.6	439.9	409.6	371.6	356.5	341.3	318.6	295.8	284.4	280.7
67.5°	326.2	299.5	273.1	242.8	231.3	223.7	201.0	185.8	178.2	174.4
70°	197.1	182.0	163.1	140.3	128.9	121.3	106.1	94.8	91.0	87.3
72.5°	102.4	91.0	75.8	60.7	53.1	45.5	37.9	30.3	26.6	26.6
75°	37.9	30.3	19.0	11.4	7.6	7.6	7.6	7.6	7.6	7.6
77.5°	7.6	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
80°	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
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)