

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 FEU4C709040 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 FEU4C709040 F4LC-CSSQ-MMS
 Description: 4 INCH 7000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

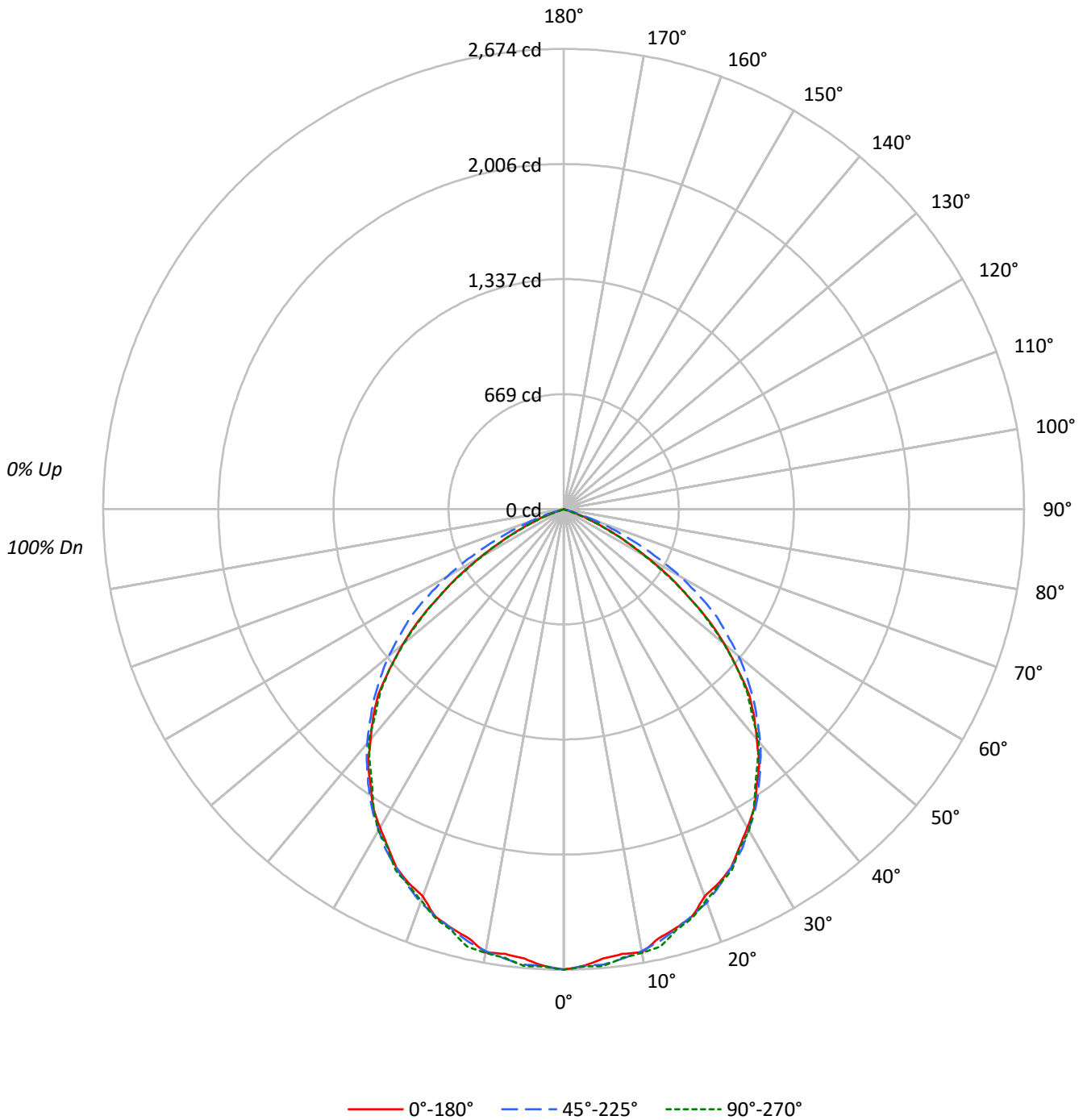
Lumens per Lamp: N/A
 Luminaire Lumens: 5711.0 lumens
 Efficiency: N/A
 Efficacy: 73.2 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	257963	257963	257963
5°	253805	257098	257835
10°	255995	255251	256358
15°	251510	251879	252639
20°	245655	249557	248396
25°	244600	244600	246208
30°	237784	239466	239900
35°	230364	232602	228574
40°	219556	223851	221937
45°	207795	212462	205721
50°	182999	198956	181858
55°	148205	182068	148861
60°	108454	150967	106273
65°	65914	107512	64179
70°	25701	57862	24657
75°	2833	15583	2833
80°	2167	2167	2167
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.4	4.4
10°-20°	714.1	12.5
20°-30°	1059.6	18.6
30°-40°	1227.7	21.5
40°-50°	1177.1	20.6
50°-60°	865.5	15.2
60°-70°	373.8	6.5
70°-80°	40.4	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°	2026.0	35.5
0°-40°	3253.7	57.0
0°-60°	5296.3	92.7
0°-90°	5711.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5711.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2674	2674	2674	2674	2674	
5°	2620	2647	2654	2658	2662	250
15°	2518	2533	2522	2525	2529	710
25°	2298	2294	2298	2301	2313	1052
35°	1956	1967	1975	1971	1940	1223
45°	1523	1527	1557	1534	1508	1158
55°	881	972	1082	968	885	793
65°	289	361	471	357	281	297
75°	8	12	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°	2673.5	2673.5	2673.5	2673.5	2673.5	2673.5	2673.5	2673.5	2673.5	2673.5	2673.5
2.5°	2654.4	2684.8	2688.7	2669.6	2662.0	2650.7	2677.2	2658.3	2665.9	2658.3	2654.4
5°	2620.4	2654.4	2658.3	2658.3	2650.7	2646.8	2658.3	2654.4	2650.7	2643.1	2654.4
7.5°	2605.2	2624.1	2643.1	2620.4	2631.7	2627.9	2654.4	2643.1	2639.3	2639.3	2631.7
10°	2612.8	2608.9	2624.1	2601.3	2608.9	2601.3	2624.1	2624.1	2616.5	2608.9	2605.2
12.5°	2551.9	2582.2	2582.2	2578.5	2570.9	2559.5	2582.2	2597.6	2574.6	2574.6	2570.9
15°	2517.8	2525.4	2529.1	2529.1	2525.4	2533.0	2544.3	2529.1	2533.0	2513.9	2521.5
17.5°	2479.8	2464.6	2475.9	2468.4	2472.2	2479.8	2495.0	2495.0	2472.2	2468.4	2475.9
20°	2392.4	2438.0	2441.9	2419.1	2422.8	2422.8	2449.5	2426.7	2441.9	2422.8	2430.4
22.5°	2350.6	2381.0	2384.8	2354.5	2373.4	2350.6	2377.3	2343.0	2381.0	2354.5	2365.8
25°	2297.5	2293.7	2305.1	2289.9	2293.7	2293.7	2312.6	2297.5	2308.9	2293.7	2297.5
27.5°	2210.2	2240.6	2236.7	2221.5	2229.1	2225.4	2263.4	2221.5	2244.3	2225.4	2233.0
30°	2134.2	2160.8	2153.2	2138.0	2138.0	2126.6	2168.4	2156.9	2153.2	2153.2	2149.3
32.5°	2058.2	2062.1	2054.5	2058.2	2062.1	2046.9	2081.0	2065.8	2062.1	2065.8	2069.7
35°	1955.7	1955.7	1963.3	1951.9	1967.1	1967.1	1997.5	1978.4	1974.7	1963.3	1974.7
37.5°	1864.6	1853.2	1857.0	1857.0	1864.6	1872.1	1887.3	1879.7	1879.7	1868.4	1876.0
40°	1743.1	1735.5	1746.8	1746.8	1758.3	1758.3	1773.4	1765.9	1777.2	1777.2	1777.2
42.5°	1636.8	1636.8	1629.2	1640.5	1644.4	1640.5	1667.2	1663.3	1667.2	1659.6	1663.3
45°	1522.8	1522.8	1515.2	1511.4	1530.3	1526.6	1557.0	1545.5	1560.7	1553.1	1557.0
47.5°	1367.0	1386.1	1374.6	1386.1	1408.9	1412.7	1431.7	1424.1	1439.2	1427.9	1443.1
50°	1219.1	1219.1	1230.4	1245.6	1268.3	1272.2	1295.0	1310.2	1317.8	1321.5	1325.4
52.5°	1063.4	1059.5	1070.9	1089.9	1108.9	1124.1	1146.9	1169.6	1184.8	1207.6	1196.1
55°	881.0	888.6	900.0	922.8	953.2	972.1	991.2	1021.5	1048.2	1059.5	1082.3
57.5°	725.3	717.7	725.3	755.6	789.9	805.1	831.7	862.1	900.0	922.8	930.4
60°	562.0	565.8	573.4	600.1	626.6	649.4	660.8	710.1	744.3	767.1	782.3
62.5°	414.0	421.6	429.2	452.0	478.5	497.5	516.4	558.2	588.6	611.4	626.6
65°	288.7	292.4	303.8	315.2	341.8	360.7	375.9	410.1	440.5	459.6	470.9
67.5°	178.5	182.2	189.8	205.1	224.0	239.2	254.4	277.2	303.8	322.7	326.6
70°	91.1	95.0	98.7	110.2	125.3	132.9	144.3	163.3	182.2	197.4	205.1
72.5°	30.4	30.4	34.2	41.8	49.4	57.0	60.7	79.8	95.0	102.6	106.3
75°	7.6	7.6	7.6	7.6	7.6	11.5	11.5	22.8	30.4	38.0	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°	2673.5	2673.5	2673.5	2673.5	2673.5	2673.5	2673.5	2673.5	2673.5	2673.5
2.5°	2673.5	2665.9	2662.0	2665.9	2665.9	2662.0	2673.5	2688.7	2707.6	2658.3
5°	2669.6	2662.0	2669.6	2646.8	2658.3	2650.7	2665.9	2662.0	2677.2	2662.0
7.5°	2658.3	2643.1	2646.8	2635.5	2650.7	2631.7	2643.1	2665.9	2650.7	2627.9
10°	2620.4	2612.8	2639.3	2601.3	2593.7	2608.9	2639.3	2616.5	2608.9	2616.5
12.5°	2582.2	2582.2	2593.7	2563.3	2567.1	2574.6	2589.8	2574.6	2582.2	2601.3
15°	2540.6	2533.0	2551.9	2529.1	2525.4	2517.8	2533.0	2533.0	2540.6	2529.1
17.5°	2491.1	2479.8	2479.8	2472.2	2468.4	2487.4	2495.0	2498.7	2502.6	2487.4
20°	2430.4	2426.7	2438.0	2426.7	2430.4	2434.3	2434.3	2426.7	2460.8	2419.1
22.5°	2365.8	2377.3	2362.1	2354.5	2362.1	2369.7	2369.7	2373.4	2365.8	2358.2
25°	2301.3	2308.9	2312.6	2289.9	2301.3	2289.9	2316.5	2320.2	2305.1	2312.6
27.5°	2244.3	2233.0	2229.1	2213.9	2221.5	2217.8	2221.5	2221.5	2244.3	2213.9
30°	2156.9	2145.6	2149.3	2138.0	2141.7	2138.0	2141.7	2141.7	2156.9	2153.2
32.5°	2073.4	2062.1	2065.8	2054.5	2054.5	2058.2	2050.6	2050.6	2062.1	2054.5
35°	1993.6	1967.1	1970.8	1967.1	1970.8	1955.7	1955.7	1951.9	1959.5	1940.5
37.5°	1879.7	1868.4	1864.6	1860.8	1864.6	1857.0	1864.6	1853.2	1864.6	1849.4
40°	1777.2	1769.6	1773.4	1750.7	1750.7	1754.4	1746.8	1743.1	1746.8	1762.0
42.5°	1674.7	1659.6	1652.0	1644.4	1648.1	1636.8	1632.9	1625.3	1632.9	1617.7
45°	1553.1	1553.1	1549.4	1530.3	1534.2	1534.2	1519.0	1503.9	1507.6	1507.6
47.5°	1443.1	1435.5	1431.7	1412.7	1408.9	1405.2	1389.8	1378.5	1378.5	1367.0
50°	1321.5	1313.9	1302.6	1283.5	1275.9	1253.2	1241.8	1226.7	1211.5	1211.5
52.5°	1207.6	1181.0	1165.8	1135.4	1124.1	1112.6	1082.3	1070.9	1059.5	1048.2
55°	1070.9	1048.2	1017.8	983.6	968.4	949.3	919.0	896.2	881.0	884.9
57.5°	938.0	900.0	869.7	824.1	805.1	793.6	763.2	732.9	717.7	717.7
60°	774.7	744.3	706.4	664.5	649.4	630.5	592.3	573.4	562.0	550.7
62.5°	619.0	596.2	562.0	508.8	497.5	478.5	452.0	429.2	417.7	417.7
65°	463.3	440.5	410.1	372.2	357.0	341.8	319.0	296.2	284.8	281.1
67.5°	326.6	300.0	273.5	243.1	231.6	224.0	201.3	186.1	178.5	174.6
70°	197.4	182.2	163.3	140.5	129.1	121.5	106.3	95.0	91.1	87.4
72.5°	102.6	91.1	75.9	60.7	53.1	45.6	38.0	30.4	26.6	26.6
75°	38.0	30.4	19.1	11.5	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)