

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: **FLDSQ4C80D010 FEU4C809040 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: FLDSQ4C80D010 FEU4C809040 F4LC-CSSQ-MMS  
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

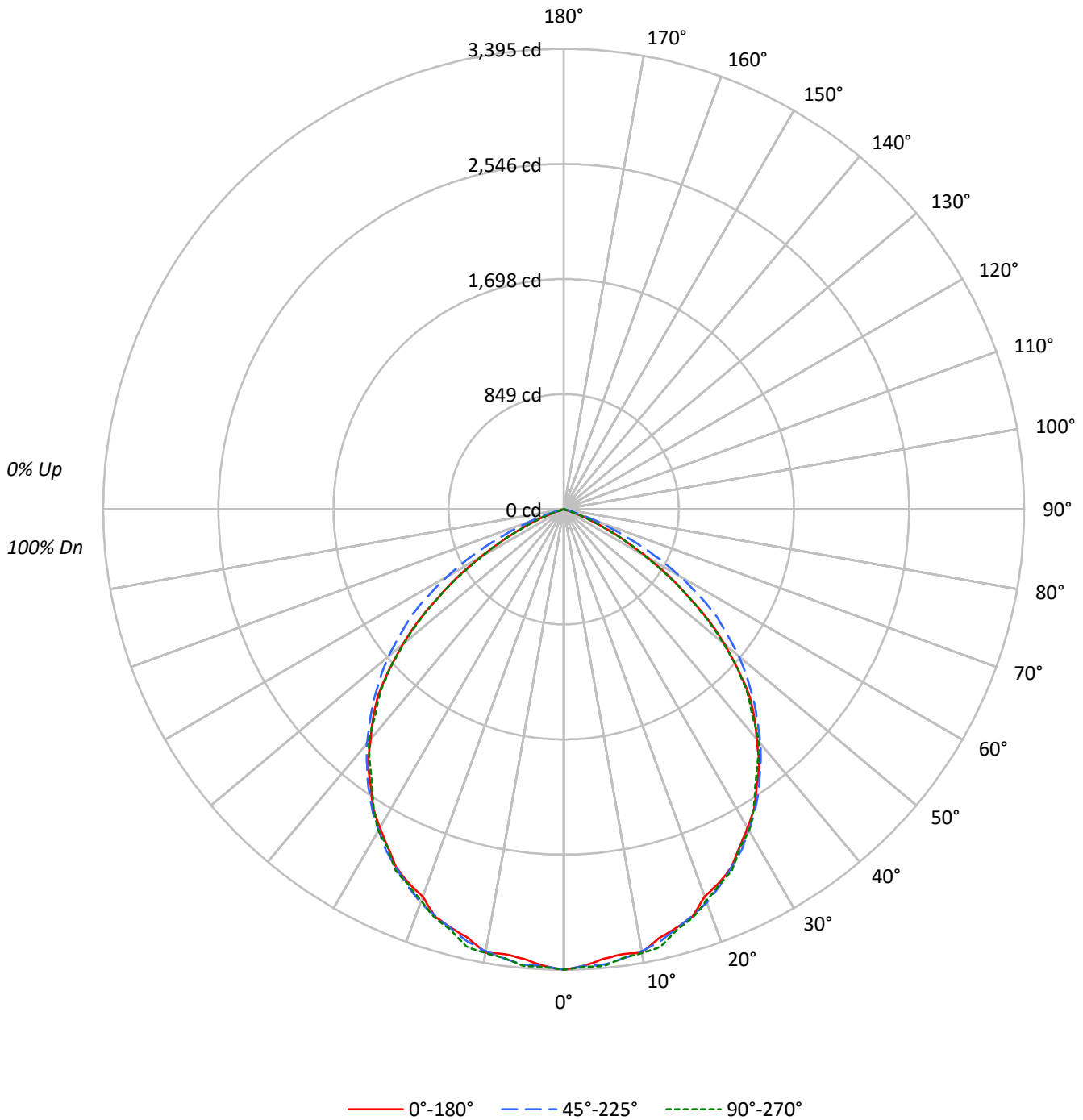
Lumens per Lamp: N/A  
 Luminaire Lumens: 7253.0 lumens  
 Efficiency: N/A  
 Efficacy: 81.0 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 89.5  
 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	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°	327618	327618	327618
5°	322332	326526	327456
10°	325109	324168	325569
15°	319417	319886	320855
20°	311987	316936	315458
25°	310640	310640	312695
30°	301981	304132	304678
35°	292558	295409	290285
40°	278832	284286	281855
45°	263892	269828	261258
50°	232400	252665	230959
55°	188225	231223	189049
60°	137728	191723	134949
65°	83699	136531	81485
70°	32641	73491	31315
75°	3579	19796	3579
80°	2723	2723	2723
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	320.5	4.4
10°-20°	906.9	12.5
20°-30°	1345.6	18.6
30°-40°	1559.2	21.5
40°-50°	1494.9	20.6
50°-60°	1099.2	15.2
60°-70°	474.7	6.5
70°-80°	51.2	0.7
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°	2573.0	35.5
0°-40°	4132.3	57.0
0°-60°	6726.4	92.7
0°-90°	7253.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7253.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3395	3395	3395	3395	3395	
5°	3328	3362	3371	3376	3381	317
15°	3198	3217	3202	3207	3212	901
25°	2918	2913	2918	2923	2937	1336
35°	2484	2498	2508	2503	2464	1553
45°	1934	1939	1977	1948	1915	1470
55°	1119	1235	1374	1230	1124	1007
65°	367	458	598	453	357	377
75°	10	15	53	10	10	30
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°	3395.4	3395.4	3395.4	3395.4	3395.4	3395.4	3395.4	3395.4	3395.4	3395.4	3395.4
2.5°	3371.2	3409.7	3414.6	3390.4	3380.8	3366.4	3400.1	3376.1	3385.7	3376.1	3371.2
5°	3327.9	3371.2	3376.1	3376.1	3366.4	3361.5	3376.1	3371.2	3366.4	3356.8	3371.2
7.5°	3308.6	3332.6	3356.8	3327.9	3342.2	3337.5	3371.2	3356.8	3351.9	3351.9	3342.2
10°	3318.2	3313.3	3332.6	3303.7	3313.3	3303.7	3332.6	3332.6	3322.9	3313.3	3308.6
12.5°	3240.9	3279.5	3279.5	3274.7	3265.1	3250.5	3279.5	3298.9	3269.8	3269.8	3265.1
15°	3197.6	3207.2	3212.0	3212.0	3207.2	3216.9	3231.2	3212.0	3216.9	3192.7	3202.3
17.5°	3149.4	3130.1	3144.5	3134.8	3139.7	3149.4	3168.7	3168.7	3139.7	3134.8	3144.5
20°	3038.4	3096.3	3101.2	3072.2	3077.0	3077.0	3110.8	3081.9	3101.2	3077.0	3086.6
22.5°	2985.3	3023.8	3028.8	2990.2	3014.2	2985.3	3019.1	2975.6	3023.8	2990.2	3004.6
25°	2917.8	2913.1	2927.4	2908.1	2913.1	2913.1	2937.1	2917.8	2932.3	2913.1	2917.8
27.5°	2807.0	2845.6	2840.6	2821.4	2831.0	2826.3	2874.5	2821.4	2850.3	2826.3	2835.9
30°	2710.4	2744.2	2734.6	2715.3	2715.3	2700.7	2753.9	2739.3	2734.6	2734.6	2729.7
32.5°	2614.0	2618.9	2609.2	2614.0	2618.9	2599.6	2642.9	2623.6	2618.9	2623.6	2628.5
35°	2483.7	2483.7	2493.3	2479.0	2498.3	2498.3	2536.8	2512.6	2507.9	2493.3	2507.9
37.5°	2368.0	2353.6	2358.4	2358.4	2368.0	2377.6	2396.9	2387.3	2387.3	2372.9	2382.6
40°	2213.7	2204.1	2218.4	2218.4	2233.0	2233.0	2252.3	2242.6	2257.0	2257.0	2257.0
42.5°	2078.7	2078.7	2069.1	2083.5	2088.4	2083.5	2117.3	2112.4	2117.3	2107.7	2112.4
45°	1933.9	1933.9	1924.3	1919.5	1943.6	1938.8	1977.4	1962.8	1982.1	1972.5	1977.4
47.5°	1736.2	1760.4	1745.8	1760.4	1789.3	1794.2	1818.2	1808.6	1827.8	1813.5	1832.8
50°	1548.2	1548.2	1562.6	1581.9	1610.8	1615.7	1644.6	1663.9	1673.6	1678.3	1683.2
52.5°	1350.5	1345.5	1360.1	1384.1	1408.3	1427.6	1456.5	1485.5	1504.7	1533.7	1519.1
55°	1118.9	1128.5	1143.1	1172.0	1210.6	1234.6	1258.8	1297.3	1331.2	1345.5	1374.5
57.5°	921.1	911.5	921.1	959.7	1003.2	1022.4	1056.3	1094.9	1143.1	1172.0	1181.6
60°	713.7	718.6	728.3	762.1	795.8	824.7	839.2	901.8	945.3	974.2	993.5
62.5°	525.8	535.4	545.1	574.0	607.6	631.8	655.9	709.0	747.5	776.5	795.8
65°	366.6	371.3	385.9	400.2	434.1	458.1	477.4	520.9	559.4	583.6	598.0
67.5°	226.7	231.4	241.1	260.5	284.5	303.8	323.1	352.0	385.9	409.9	414.8
70°	115.7	120.6	125.3	139.9	159.2	168.8	183.2	207.4	231.4	250.7	260.5
72.5°	38.6	38.6	43.5	53.1	62.8	72.4	77.1	101.3	120.6	130.3	135.0
75°	9.6	9.6	9.6	9.6	9.6	14.6	14.6	28.9	38.6	48.2	53.1
77.5°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	9.6	9.6
80°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
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°	3395.4	3395.4	3395.4	3395.4	3395.4	3395.4	3395.4	3395.4	3395.4	3395.4
2.5°	3395.4	3385.7	3380.8	3385.7	3385.7	3380.8	3395.4	3414.6	3438.6	3376.1
5°	3390.4	3380.8	3390.4	3361.5	3376.1	3366.4	3385.7	3380.8	3400.1	3380.8
7.5°	3376.1	3356.8	3361.5	3347.1	3366.4	3342.2	3356.8	3385.7	3366.4	3337.5
10°	3327.9	3318.2	3351.9	3303.7	3294.0	3313.3	3351.9	3322.9	3313.3	3322.9
12.5°	3279.5	3279.5	3294.0	3255.4	3260.2	3269.8	3289.1	3269.8	3279.5	3303.7
15°	3226.5	3216.9	3240.9	3212.0	3207.2	3197.6	3216.9	3216.9	3226.5	3212.0
17.5°	3163.8	3149.4	3149.4	3139.7	3134.8	3159.0	3168.7	3173.4	3178.3	3159.0
20°	3086.6	3081.9	3096.3	3081.9	3086.6	3091.5	3091.5	3081.9	3125.2	3072.2
22.5°	3004.6	3019.1	2999.8	2990.2	2999.8	3009.5	3009.5	3014.2	3004.6	2994.9
25°	2922.7	2932.3	2937.1	2908.1	2922.7	2908.1	2942.0	2946.7	2927.4	2937.1
27.5°	2850.3	2835.9	2831.0	2811.7	2821.4	2816.6	2821.4	2821.4	2850.3	2811.7
30°	2739.3	2724.9	2729.7	2715.3	2720.0	2715.3	2720.0	2720.0	2739.3	2734.6
32.5°	2633.2	2618.9	2623.6	2609.2	2609.2	2614.0	2604.3	2604.3	2618.9	2609.2
35°	2531.9	2498.3	2503.0	2498.3	2503.0	2483.7	2483.7	2479.0	2488.6	2464.4
37.5°	2387.3	2372.9	2368.0	2363.3	2368.0	2358.4	2368.0	2353.6	2368.0	2348.7
40°	2257.0	2247.4	2252.3	2223.4	2223.4	2228.1	2218.4	2213.7	2218.4	2237.7
42.5°	2126.9	2107.7	2098.0	2088.4	2093.1	2078.7	2073.8	2064.2	2073.8	2054.5
45°	1972.5	1972.5	1967.8	1943.6	1948.5	1948.5	1929.2	1909.9	1914.6	1914.6
47.5°	1832.8	1823.1	1818.2	1794.2	1789.3	1784.6	1765.1	1750.7	1750.7	1736.2
50°	1678.3	1668.7	1654.3	1630.1	1620.4	1591.5	1577.2	1557.9	1538.6	1538.6
52.5°	1533.7	1499.8	1480.5	1442.0	1427.6	1413.0	1374.5	1360.1	1345.5	1331.2
55°	1360.1	1331.2	1292.6	1249.1	1229.8	1205.6	1167.1	1138.1	1118.9	1123.8
57.5°	1191.3	1143.1	1104.5	1046.6	1022.4	1007.9	969.3	930.7	911.5	911.5
60°	983.9	945.3	897.1	844.0	824.7	800.7	752.3	728.3	713.7	699.3
62.5°	786.1	757.2	713.7	646.2	631.8	607.6	574.0	545.1	530.5	530.5
65°	588.4	559.4	520.9	472.7	453.4	434.1	405.2	376.2	361.7	356.9
67.5°	414.8	381.0	347.3	308.7	294.2	284.5	255.6	236.3	226.7	221.8
70°	250.7	231.4	207.4	178.5	163.9	154.3	135.0	120.6	115.7	111.0
72.5°	130.3	115.7	96.4	77.1	67.5	57.9	48.2	38.6	33.8	33.8
75°	48.2	38.6	24.2	14.6	9.6	9.6	9.6	9.6	9.6	9.6
77.5°	9.6	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
80°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
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)