

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 FEU4C809050 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 FEU4C809050 F4LC-CSSQ-MMS  
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

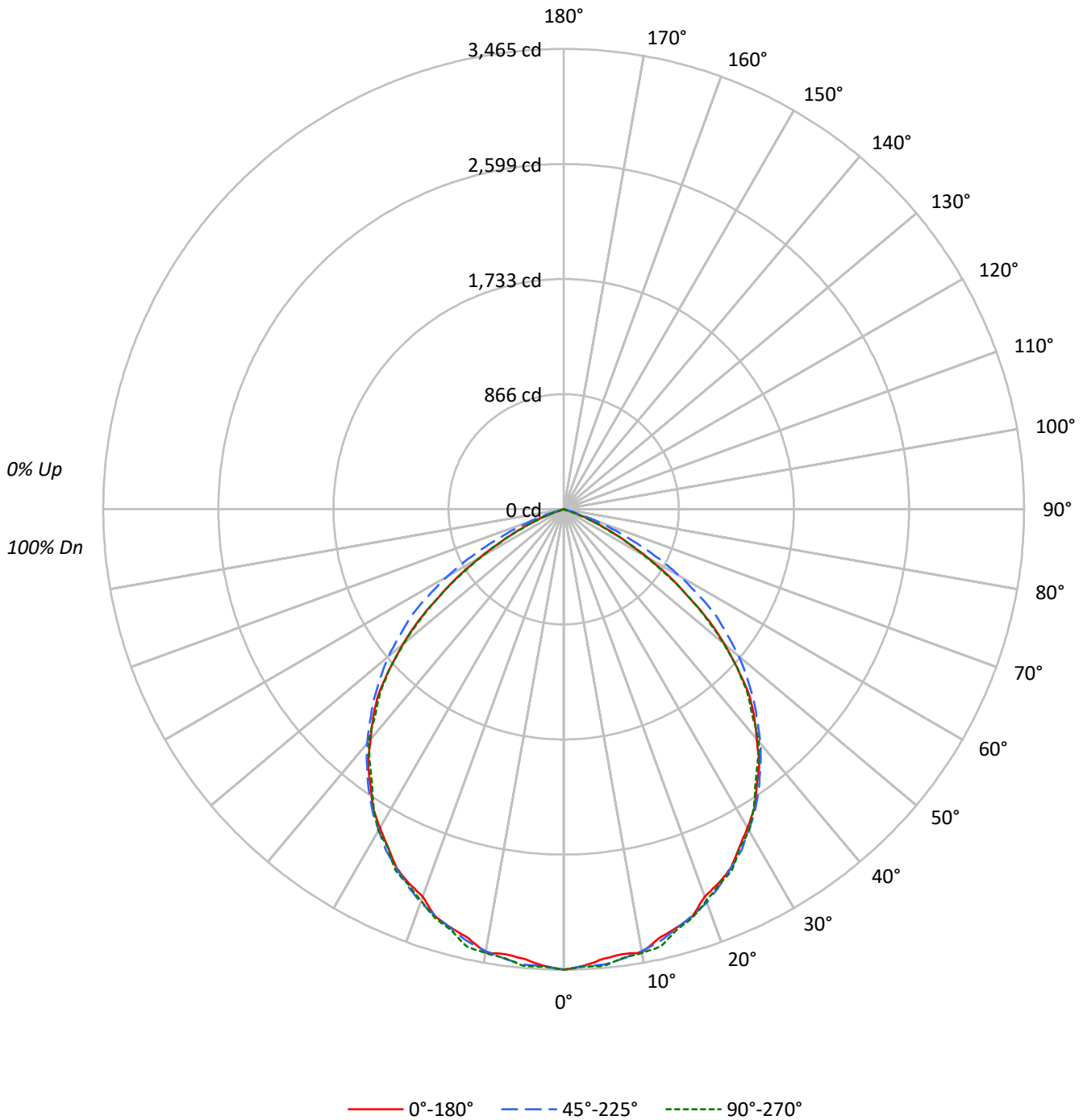
Lumens per Lamp: N/A  
 Luminaire Lumens: 7402.0 lumens  
 Efficiency: N/A  
 Efficacy: 82.7 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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	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°	334344	334344	334344
5°	328947	333228	334178
10°	331791	330821	332261
15°	325980	326459	327438
20°	318394	323446	321947
25°	317017	317017	319114
30°	308187	310371	310939
35°	298565	301475	296245
40°	284563	290130	287649
45°	269309	275368	266635
50°	237174	257859	235703
55°	192094	235967	192935
60°	140565	195660	137728
65°	85412	139339	83174
70°	33318	75014	31964
75°	3653	20206	3653
80°	2778	2778	2778
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	327.1	4.4
10°-20°	925.5	12.5
20°-30°	1373.3	18.6
30°-40°	1591.2	21.5
40°-50°	1525.6	20.6
50°-60°	1121.7	15.2
60°-70°	484.5	6.5
70°-80°	52.3	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°	2625.9	35.5
0°-40°	4217.1	57.0
0°-60°	6864.5	92.7
0°-90°	7402.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7402.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3465	3465	3465	3465	3465	
5°	3396	3431	3440	3445	3450	324
15°	3263	3283	3268	3273	3278	920
25°	2978	2973	2978	2983	2997	1363
35°	2535	2550	2559	2554	2515	1585
45°	1974	1979	2018	1988	1954	1500
55°	1142	1260	1403	1255	1147	1028
65°	374	468	610	463	364	385
75°	10	15	54	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°	3465.1	3465.1	3465.1	3465.1	3465.1	3465.1	3465.1	3465.1	3465.1	3465.1	3465.1
2.5°	3440.4	3479.8	3484.8	3460.1	3450.2	3435.6	3469.9	3445.4	3455.3	3445.4	3440.4
5°	3396.2	3440.4	3445.4	3445.4	3435.6	3430.6	3445.4	3440.4	3435.6	3425.7	3440.4
7.5°	3376.5	3401.0	3425.7	3396.2	3410.9	3406.1	3440.4	3425.7	3420.7	3420.7	3410.9
10°	3386.4	3381.4	3401.0	3371.5	3381.4	3371.5	3401.0	3401.0	3391.2	3381.4	3376.5
12.5°	3307.5	3346.8	3346.8	3342.0	3332.2	3317.3	3346.8	3366.7	3337.0	3337.0	3332.2
15°	3263.3	3273.1	3277.9	3277.9	3273.1	3283.0	3297.6	3277.9	3283.0	3258.3	3268.1
17.5°	3214.1	3194.4	3209.1	3199.2	3204.2	3214.1	3233.8	3233.8	3204.2	3199.2	3209.1
20°	3100.8	3159.9	3164.9	3135.4	3140.2	3140.2	3174.7	3145.2	3164.9	3140.2	3150.0
22.5°	3046.6	3086.0	3091.0	3051.6	3076.1	3046.6	3081.1	3036.8	3086.0	3051.6	3066.3
25°	2977.7	2972.9	2987.6	2967.9	2972.9	2972.9	2997.4	2977.7	2992.6	2972.9	2977.7
27.5°	2864.7	2904.0	2899.0	2879.3	2889.2	2884.3	2933.5	2879.3	2908.8	2884.3	2894.2
30°	2766.1	2800.6	2790.8	2771.1	2771.1	2756.2	2810.4	2795.6	2790.8	2790.8	2785.7
32.5°	2667.7	2672.7	2662.8	2667.7	2672.7	2653.0	2697.2	2677.5	2672.7	2677.5	2682.5
35°	2534.7	2534.7	2544.6	2529.9	2549.6	2549.6	2588.9	2564.2	2559.4	2544.6	2559.4
37.5°	2416.6	2402.0	2406.8	2406.8	2416.6	2426.5	2446.2	2436.3	2436.3	2421.7	2431.5
40°	2259.2	2249.4	2264.0	2264.0	2278.9	2278.9	2298.6	2288.7	2303.4	2303.4	2303.4
42.5°	2121.4	2121.4	2111.6	2126.3	2131.3	2126.3	2160.8	2155.8	2160.8	2151.0	2155.8
45°	1973.6	1973.6	1963.8	1959.0	1983.5	1978.7	2018.0	2003.2	2022.8	2013.0	2018.0
47.5°	1771.8	1796.5	1781.7	1796.5	1826.0	1831.1	1855.6	1845.7	1865.4	1850.7	1870.4
50°	1580.0	1580.0	1594.7	1614.4	1643.9	1648.9	1678.4	1698.1	1708.0	1712.8	1717.8
52.5°	1378.2	1373.2	1388.0	1412.6	1437.2	1456.9	1486.5	1516.0	1535.7	1565.2	1550.3
55°	1141.9	1151.7	1166.5	1196.1	1235.4	1259.9	1284.6	1324.0	1358.5	1373.2	1402.7
57.5°	940.0	930.2	940.0	979.4	1023.8	1043.4	1078.0	1117.3	1166.5	1196.1	1205.9
60°	728.4	733.4	743.2	777.8	812.1	841.6	856.5	920.3	964.7	994.2	1013.9
62.5°	536.6	546.4	556.3	585.8	620.1	644.8	669.3	723.5	762.9	792.4	812.1
65°	374.1	378.9	393.8	408.5	443.0	467.5	487.2	531.6	570.9	595.6	610.3
67.5°	231.3	236.2	246.0	265.9	290.4	310.1	329.7	359.3	393.8	418.3	423.3
70°	118.1	123.1	127.9	142.8	162.5	172.3	187.0	211.7	236.2	255.8	265.9
72.5°	39.4	39.4	44.4	54.2	64.1	73.9	78.7	103.4	123.1	132.9	137.8
75°	9.8	9.8	9.8	9.8	9.8	14.9	14.9	29.5	39.4	49.2	54.2
77.5°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	9.8	9.8
80°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
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°	3465.1	3465.1	3465.1	3465.1	3465.1	3465.1	3465.1	3465.1	3465.1	3465.1
2.5°	3465.1	3455.3	3450.2	3455.3	3455.3	3450.2	3465.1	3484.8	3509.3	3445.4
5°	3460.1	3450.2	3460.1	3430.6	3445.4	3435.6	3455.3	3450.2	3469.9	3450.2
7.5°	3445.4	3425.7	3430.6	3415.9	3435.6	3410.9	3425.7	3455.3	3435.6	3406.1
10°	3396.2	3386.4	3420.7	3371.5	3361.7	3381.4	3420.7	3391.2	3381.4	3391.2
12.5°	3346.8	3346.8	3361.7	3322.3	3327.1	3337.0	3356.7	3337.0	3346.8	3371.5
15°	3292.8	3283.0	3307.5	3277.9	3273.1	3263.3	3283.0	3283.0	3292.8	3277.9
17.5°	3228.7	3214.1	3214.1	3204.2	3199.2	3223.9	3233.8	3238.6	3243.6	3223.9
20°	3150.0	3145.2	3159.9	3145.2	3150.0	3155.0	3155.0	3145.2	3189.4	3135.4
22.5°	3066.3	3081.1	3061.5	3051.6	3061.5	3071.3	3071.3	3076.1	3066.3	3056.4
25°	2982.7	2992.6	2997.4	2967.9	2982.7	2967.9	3002.4	3007.2	2987.6	2997.4
27.5°	2908.8	2894.2	2889.2	2869.5	2879.3	2874.5	2879.3	2879.3	2908.8	2869.5
30°	2795.6	2780.9	2785.7	2771.1	2775.9	2771.1	2775.9	2775.9	2795.6	2790.8
32.5°	2687.3	2672.7	2677.5	2662.8	2662.8	2667.7	2657.8	2657.8	2672.7	2662.8
35°	2583.9	2549.6	2554.4	2549.6	2554.4	2534.7	2534.7	2529.9	2539.7	2515.0
37.5°	2436.3	2421.7	2416.6	2411.8	2416.6	2406.8	2416.6	2402.0	2416.6	2397.0
40°	2303.4	2293.5	2298.6	2269.0	2269.0	2273.9	2264.0	2259.2	2264.0	2283.7
42.5°	2170.6	2151.0	2141.1	2131.3	2136.1	2121.4	2116.4	2106.6	2116.4	2096.7
45°	2013.0	2013.0	2008.2	1983.5	1988.5	1988.5	1968.8	1949.1	1954.0	1954.0
47.5°	1870.4	1860.6	1855.6	1831.1	1826.0	1821.2	1801.3	1786.7	1786.7	1771.8
50°	1712.8	1702.9	1688.3	1663.6	1653.7	1624.2	1609.5	1589.9	1570.2	1570.2
52.5°	1565.2	1530.6	1511.0	1471.6	1456.9	1442.1	1402.7	1388.0	1373.2	1358.5
55°	1388.0	1358.5	1319.2	1274.8	1255.1	1230.4	1191.1	1161.5	1141.9	1146.9
57.5°	1215.7	1166.5	1127.2	1068.1	1043.4	1028.6	989.2	949.9	930.2	930.2
60°	1004.1	964.7	915.5	861.3	841.6	817.1	767.7	743.2	728.4	713.7
62.5°	802.3	772.7	728.4	659.5	644.8	620.1	585.8	556.3	541.4	541.4
65°	600.4	570.9	531.6	482.4	462.7	443.0	413.5	384.0	369.1	364.3
67.5°	423.3	388.8	354.4	315.1	300.2	290.4	260.9	241.2	231.3	226.3
70°	255.8	236.2	211.7	182.1	167.3	157.4	137.8	123.1	118.1	113.3
72.5°	132.9	118.1	98.4	78.7	68.9	59.0	49.2	39.4	34.5	34.5
75°	49.2	39.4	24.7	14.9	9.8	9.8	9.8	9.8	9.8	9.8
77.5°	9.8	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
80°	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
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)