

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: **FLDSQ4C55D010 FEU4C559040 F4LC-DFSSQ-MW**

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: FLDSQ4C55D010 FEU4C559040 F4LC-DFSSQ-MW  
 Description: 4 INCH 5500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

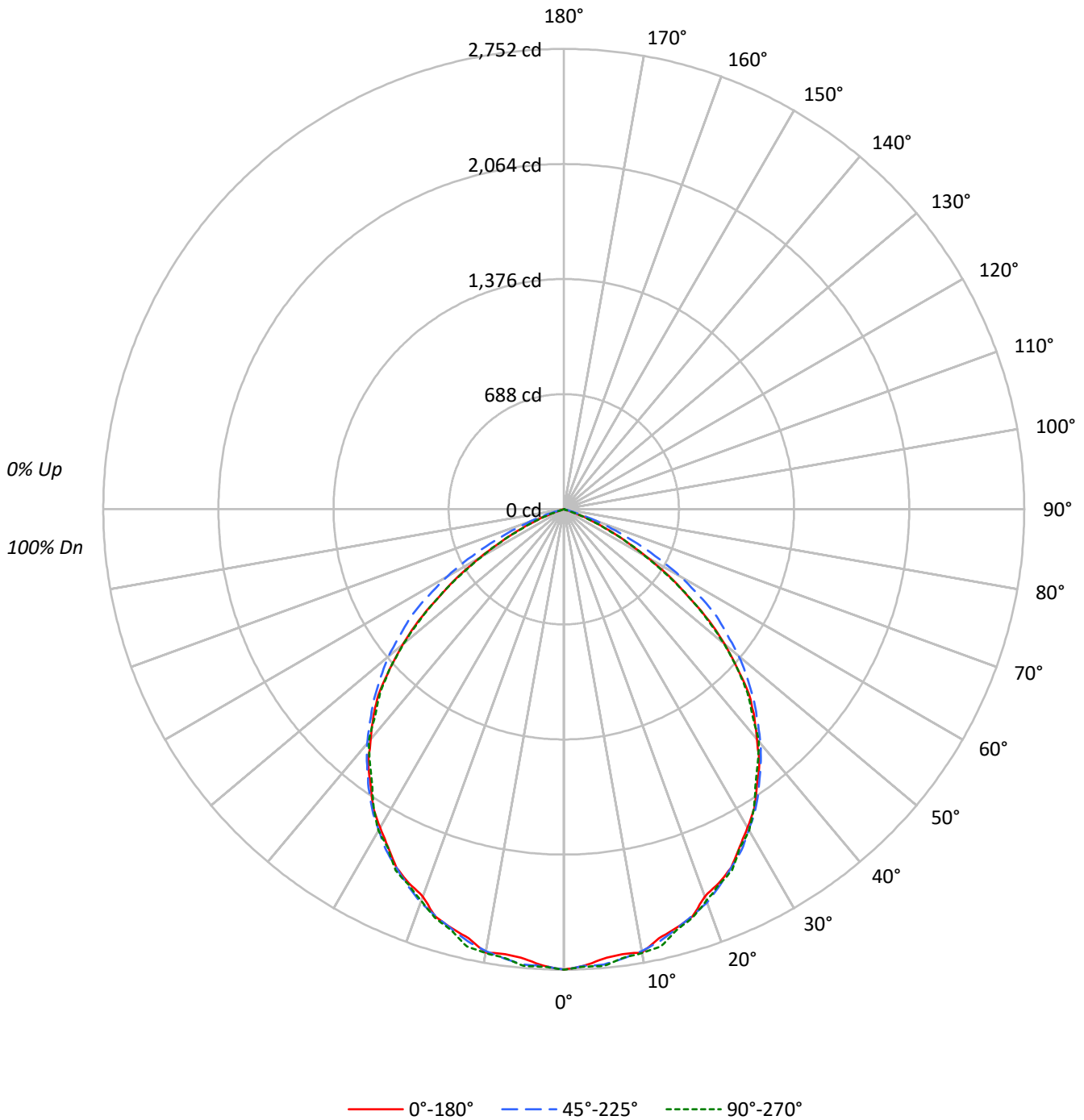
Lumens per Lamp: N/A  
 Luminaire Lumens: 5878.0 lumens  
 Efficiency: N/A  
 Efficacy: 92.0 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 63.9  
 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



TEST NUMBER: P#

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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°	265508	265508	265508
5°	261225	264624	265380
10°	263481	262707	263853
15°	258862	259241	260031
20°	252843	256857	255656
25°	251744	251744	253416
30°	244736	246474	246920
35°	237090	239411	235253
40°	225980	230389	228424
45°	213867	218671	211739
50°	188343	204765	187172
55°	152545	187384	153201
60°	111618	155386	109380
65°	67832	110640	66051
70°	26462	59554	25362
75°	2908	16068	2908
80°	2223	2223	2223
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	259.7	4.4
10°-20°	735.0	12.5
20°-30°	1090.5	18.6
30°-40°	1263.6	21.5
40°-50°	1211.5	20.6
50°-60°	890.8	15.2
60°-70°	384.7	6.5
70°-80°	41.5	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°	2085.3	35.5
0°-40°	3348.9	57.0
0°-60°	5451.2	92.7
0°-90°	5878.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5878.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2752	2752	2752	2752	2752	
5°	2697	2724	2732	2736	2740	257
15°	2591	2607	2595	2599	2603	730
25°	2365	2361	2365	2369	2380	1083
35°	2013	2025	2032	2028	1997	1259
45°	1567	1571	1602	1579	1552	1191
55°	907	1000	1114	997	911	816
65°	297	371	485	367	289	305
75°	8	12	43	8	8	24
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°	2751.7	2751.7	2751.7	2751.7	2751.7	2751.7	2751.7	2751.7	2751.7	2751.7	2751.7
2.5°	2732.1	2763.3	2767.3	2747.7	2739.9	2728.2	2755.5	2736.0	2743.9	2736.0	2732.1
5°	2697.0	2732.1	2736.0	2736.0	2728.2	2724.2	2736.0	2732.1	2728.2	2720.4	2732.1
7.5°	2681.3	2700.8	2720.4	2697.0	2708.6	2704.8	2732.1	2720.4	2716.4	2716.4	2708.6
10°	2689.2	2685.2	2700.8	2677.4	2685.2	2677.4	2700.8	2700.8	2693.0	2685.2	2681.3
12.5°	2626.5	2657.7	2657.7	2653.9	2646.1	2634.3	2657.7	2673.5	2649.9	2649.9	2646.1
15°	2591.4	2599.2	2603.1	2603.1	2599.2	2607.0	2618.7	2603.1	2607.0	2587.4	2595.2
17.5°	2552.3	2536.7	2548.4	2540.5	2544.5	2552.3	2568.0	2568.0	2544.5	2540.5	2548.4
20°	2462.4	2509.3	2513.3	2489.8	2493.7	2493.7	2521.1	2497.6	2513.3	2493.7	2501.5
22.5°	2419.3	2450.6	2454.6	2423.3	2442.8	2419.3	2446.8	2411.5	2450.6	2423.3	2435.0
25°	2364.6	2360.8	2372.5	2356.8	2360.8	2360.8	2380.3	2364.6	2376.4	2360.8	2364.6
27.5°	2274.9	2306.1	2302.1	2286.5	2294.3	2290.5	2329.6	2286.5	2309.9	2290.5	2298.3
30°	2196.6	2224.0	2216.2	2200.5	2200.5	2188.7	2231.8	2220.0	2216.2	2216.2	2212.2
32.5°	2118.4	2122.4	2114.6	2118.4	2122.4	2106.8	2141.9	2126.2	2122.4	2126.2	2130.2
35°	2012.8	2012.8	2020.7	2009.0	2024.6	2024.6	2055.9	2036.3	2032.5	2020.7	2032.5
37.5°	1919.1	1907.4	1911.3	1911.3	1919.1	1926.9	1942.5	1934.7	1934.7	1923.1	1930.9
40°	1794.1	1786.2	1797.9	1797.9	1809.7	1809.7	1825.3	1817.5	1829.1	1829.1	1829.1
42.5°	1684.7	1684.7	1676.8	1688.5	1692.5	1688.5	1715.9	1711.9	1715.9	1708.1	1711.9
45°	1567.3	1567.3	1559.5	1555.6	1575.1	1571.3	1602.5	1590.7	1606.4	1598.5	1602.5
47.5°	1407.0	1426.6	1414.8	1426.6	1450.1	1454.1	1473.5	1465.7	1481.3	1469.7	1485.3
50°	1254.7	1254.7	1266.4	1282.0	1305.4	1309.4	1332.9	1348.5	1356.3	1360.1	1364.1
52.5°	1094.4	1090.5	1102.3	1121.7	1141.3	1157.0	1180.4	1203.8	1219.5	1242.9	1231.1
55°	906.8	914.6	926.4	949.8	981.1	1000.5	1020.1	1051.4	1078.8	1090.5	1113.9
57.5°	746.5	738.7	746.5	777.7	813.0	828.6	856.0	887.3	926.4	949.8	957.6
60°	578.4	582.4	590.2	617.6	644.9	668.3	680.1	730.9	766.1	789.5	805.2
62.5°	426.1	433.9	441.7	465.2	492.4	512.1	531.5	574.6	605.8	629.3	644.9
65°	297.1	300.9	312.7	324.4	351.8	371.3	386.9	422.1	453.4	473.0	484.6
67.5°	183.7	187.5	195.4	211.1	230.6	246.2	261.9	285.3	312.7	332.2	336.2
70°	93.8	97.8	101.6	113.4	129.0	136.8	148.5	168.1	187.5	203.2	211.1
72.5°	31.3	31.3	35.2	43.1	50.9	58.7	62.5	82.1	97.8	105.6	109.4
75°	7.8	7.8	7.8	7.8	7.8	11.8	11.8	23.4	31.3	39.1	43.1
77.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	7.8	7.8
80°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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°	2751.7	2751.7	2751.7	2751.7	2751.7	2751.7	2751.7	2751.7	2751.7	2751.7
2.5°	2751.7	2743.9	2739.9	2743.9	2743.9	2739.9	2751.7	2767.3	2786.8	2736.0
5°	2747.7	2739.9	2747.7	2724.2	2736.0	2728.2	2743.9	2739.9	2755.5	2739.9
7.5°	2736.0	2720.4	2724.2	2712.6	2728.2	2708.6	2720.4	2743.9	2728.2	2704.8
10°	2697.0	2689.2	2716.4	2677.4	2669.5	2685.2	2716.4	2693.0	2685.2	2693.0
12.5°	2657.7	2657.7	2669.5	2638.3	2642.1	2649.9	2665.6	2649.9	2657.7	2677.4
15°	2614.8	2607.0	2626.5	2603.1	2599.2	2591.4	2607.0	2607.0	2614.8	2603.1
17.5°	2564.0	2552.3	2552.3	2544.5	2540.5	2560.1	2568.0	2571.8	2575.8	2560.1
20°	2501.5	2497.6	2509.3	2497.6	2501.5	2505.4	2505.4	2497.6	2532.7	2489.8
22.5°	2435.0	2446.8	2431.1	2423.3	2431.1	2439.0	2439.0	2442.8	2435.0	2427.2
25°	2368.6	2376.4	2380.3	2356.8	2368.6	2356.8	2384.3	2388.1	2372.5	2380.3
27.5°	2309.9	2298.3	2294.3	2278.7	2286.5	2282.7	2286.5	2286.5	2309.9	2278.7
30°	2220.0	2208.4	2212.2	2200.5	2204.4	2200.5	2204.4	2204.4	2220.0	2216.2
32.5°	2134.0	2122.4	2126.2	2114.6	2114.6	2118.4	2110.6	2110.6	2122.4	2114.6
35°	2051.9	2024.6	2028.5	2024.6	2028.5	2012.8	2012.8	2009.0	2016.8	1997.2
37.5°	1934.7	1923.1	1919.1	1915.2	1919.1	1911.3	1919.1	1907.4	1919.1	1903.4
40°	1829.1	1821.3	1825.3	1801.9	1801.9	1805.7	1797.9	1794.1	1797.9	1813.5
42.5°	1723.7	1708.1	1700.3	1692.5	1696.3	1684.7	1680.7	1672.9	1680.7	1665.0
45°	1598.5	1598.5	1594.7	1575.1	1579.1	1579.1	1563.5	1547.8	1551.7	1551.7
47.5°	1485.3	1477.5	1473.5	1454.1	1450.1	1446.2	1430.5	1418.8	1418.8	1407.0
50°	1360.1	1352.3	1340.7	1321.1	1313.2	1289.8	1278.2	1262.5	1246.9	1246.9
52.5°	1242.9	1215.5	1199.9	1168.6	1157.0	1145.2	1113.9	1102.3	1090.5	1078.8
55°	1102.3	1078.8	1047.6	1012.3	996.7	977.1	945.8	922.4	906.8	910.7
57.5°	965.4	926.4	895.1	848.2	828.6	816.8	785.6	754.3	738.7	738.7
60°	797.4	766.1	727.0	684.0	668.3	648.9	609.7	590.2	578.4	566.8
62.5°	637.1	613.6	578.4	523.7	512.1	492.4	465.2	441.7	429.9	429.9
65°	476.8	453.4	422.1	383.0	367.4	351.8	328.3	304.9	293.1	289.3
67.5°	336.2	308.7	281.5	250.2	238.4	230.6	207.2	191.5	183.7	179.7
70°	203.2	187.5	168.1	144.6	132.8	125.0	109.4	97.8	93.8	89.9
72.5°	105.6	93.8	78.1	62.5	54.7	46.9	39.1	31.3	27.4	27.4
75°	39.1	31.3	19.6	11.8	7.8	7.8	7.8	7.8	7.8	7.8
77.5°	7.8	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
80°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)