

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: **FLDSQ4C60D010 FEU4C609050 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: FLDSQ4C60D010 FEU4C609050 F4LC-DFSSQ-MW  
 Description: 4 INCH 6000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

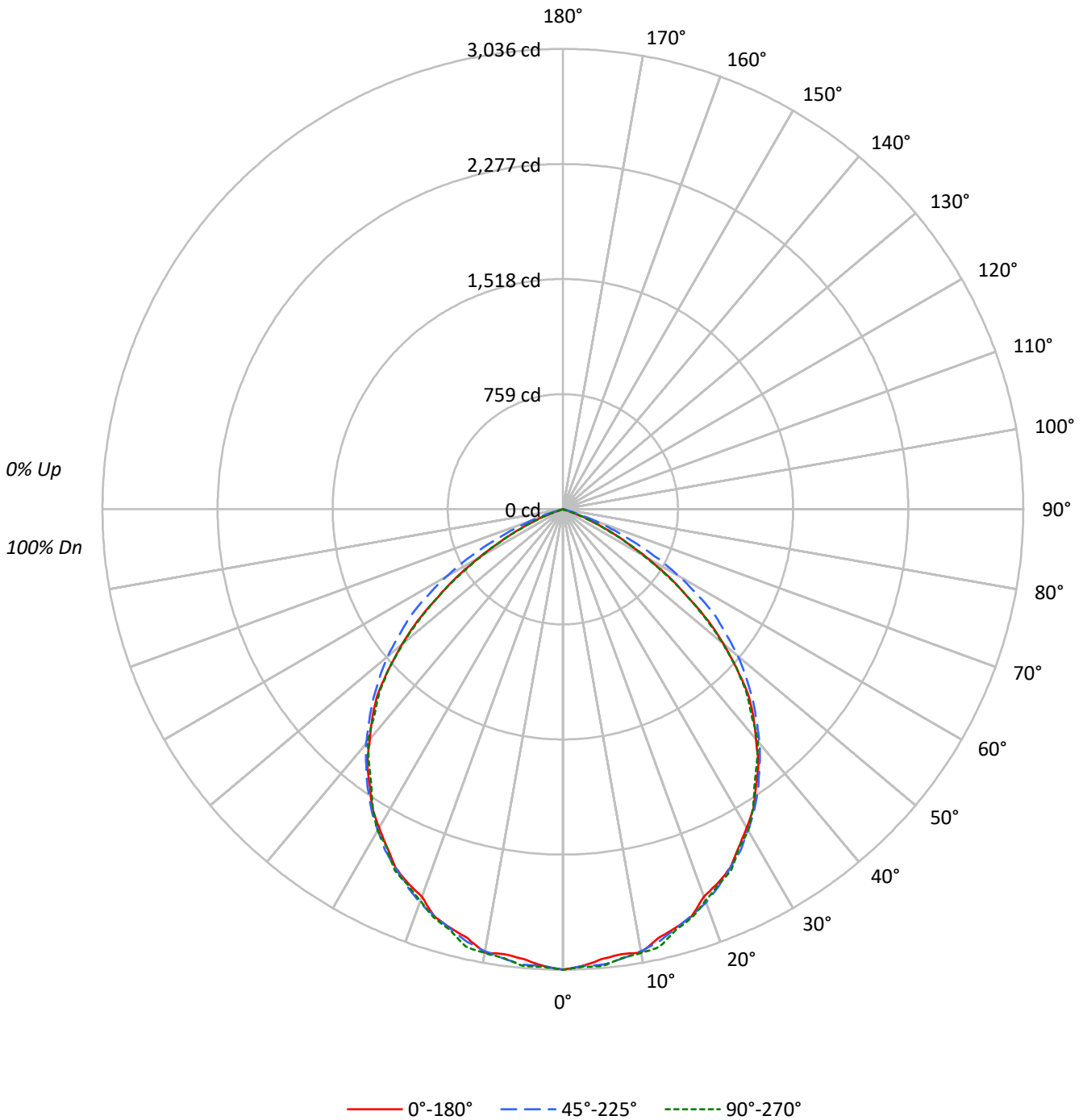
Lumens per Lamp: N/A  
 Luminaire Lumens: 6486.0 lumens  
 Efficiency: N/A  
 Efficacy: 90.1 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 72  
 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°	292969	292969	292969
5°	288238	291996	292829
10°	290728	289886	291140
15°	285643	286063	286922
20°	278995	283421	282107
25°	277785	277785	279627
30°	270050	271966	272456
35°	261614	264170	259588
40°	249345	254220	252053
45°	235987	241295	233640
50°	207827	225946	206536
55°	168307	206763	169048
60°	123158	171461	120688
65°	74841	122101	72877
70°	29199	65733	27986
75°	3206	17708	3206
80°	2445	2445	2445
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	286.6	4.4
10°-20°	811.0	12.5
20°-30°	1203.3	18.6
30°-40°	1394.3	21.5
40°-50°	1336.8	20.6
50°-60°	982.9	15.2
60°-70°	424.5	6.5
70°-80°	45.8	0.7
80°-90°	0.6	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°	2300.9	35.5
0°-40°	3695.3	57.0
0°-60°	6015.0	92.7
0°-90°	6486.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6486.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3036	3036	3036	3036	3036	
5°	2976	3006	3015	3019	3023	284
15°	2860	2877	2864	2868	2872	806
25°	2609	2605	2609	2614	2626	1195
35°	2221	2234	2243	2238	2204	1389
45°	1729	1734	1768	1742	1712	1315
55°	1000	1104	1229	1100	1005	900
65°	328	410	535	405	319	337
75°	9	13	48	9	9	26
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C60D010 FEU4C609050 F4LC-DFSSQ-MW

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	3036.3	3036.3	3036.3	3036.3	3036.3	3036.3	3036.3	3036.3	3036.3	3036.3	3036.3
2.5°	3014.7	3049.1	3053.5	3031.9	3023.3	3010.4	3040.5	3019.1	3027.7	3019.1	3014.7
5°	2975.9	3014.7	3019.1	3019.1	3010.4	3006.0	3019.1	3014.7	3010.4	3001.8	3014.7
7.5°	2958.7	2980.2	3001.8	2975.9	2988.8	2984.6	3014.7	3001.8	2997.4	2997.4	2988.8
10°	2967.3	2962.9	2980.2	2954.3	2962.9	2954.3	2980.2	2980.2	2971.5	2962.9	2958.7
12.5°	2898.2	2932.7	2932.7	2928.4	2919.8	2906.8	2932.7	2950.1	2924.0	2924.0	2919.8
15°	2859.5	2868.1	2872.3	2872.3	2868.1	2876.7	2889.5	2872.3	2876.7	2855.1	2863.7
17.5°	2816.3	2799.1	2811.9	2803.3	2807.7	2816.3	2833.6	2833.6	2807.7	2803.3	2811.9
20°	2717.1	2768.8	2773.2	2747.4	2751.6	2751.6	2781.8	2756.0	2773.2	2751.6	2760.2
22.5°	2669.6	2704.1	2708.5	2674.0	2695.5	2669.6	2699.9	2661.0	2704.1	2674.0	2686.8
25°	2609.2	2605.0	2617.9	2600.6	2605.0	2605.0	2626.5	2609.2	2622.2	2605.0	2609.2
27.5°	2510.2	2544.6	2540.3	2523.0	2531.6	2527.4	2570.5	2523.0	2548.9	2527.4	2536.0
30°	2423.8	2454.0	2445.4	2428.2	2428.2	2415.1	2462.6	2449.6	2445.4	2445.4	2441.0
32.5°	2337.5	2341.9	2333.3	2337.5	2341.9	2324.7	2363.4	2346.2	2341.9	2346.2	2350.6
35°	2221.0	2221.0	2229.7	2216.8	2234.1	2234.1	2268.6	2246.9	2242.7	2229.7	2242.7
37.5°	2117.6	2104.7	2109.0	2109.0	2117.6	2126.2	2143.4	2134.8	2134.8	2122.0	2130.6
40°	1979.6	1971.0	1983.8	1983.8	1996.9	1996.9	2014.1	2005.5	2018.3	2018.3	2018.3
42.5°	1858.9	1858.9	1850.3	1863.1	1867.5	1863.1	1893.4	1889.0	1893.4	1884.8	1889.0
45°	1729.4	1729.4	1720.8	1716.6	1738.0	1733.8	1768.3	1755.3	1772.5	1763.9	1768.3
47.5°	1552.6	1574.2	1561.2	1574.2	1600.1	1604.5	1625.9	1617.3	1634.6	1621.7	1638.9
50°	1384.5	1384.5	1397.3	1414.6	1440.5	1444.9	1470.7	1488.0	1496.6	1500.8	1505.2
52.5°	1207.7	1203.3	1216.3	1237.7	1259.4	1276.6	1302.5	1328.4	1345.6	1371.5	1358.5
55°	1000.5	1009.2	1022.2	1048.1	1082.5	1104.0	1125.7	1160.1	1190.4	1203.3	1229.1
57.5°	823.7	815.1	823.7	858.2	897.1	914.3	944.6	979.1	1022.2	1048.1	1056.7
60°	638.2	642.6	651.3	681.5	711.6	737.5	750.5	806.5	845.3	871.2	888.5
62.5°	470.2	478.8	487.4	513.3	543.4	565.0	586.5	634.0	668.5	694.4	711.6
65°	327.8	332.1	345.1	357.9	388.2	409.7	426.9	465.8	500.3	521.9	534.8
67.5°	202.7	206.9	215.6	233.0	254.4	271.7	288.9	314.8	345.1	366.5	370.9
70°	103.5	107.9	112.1	125.1	142.4	151.0	163.8	185.5	206.9	224.2	233.0
72.5°	34.5	34.5	38.9	47.5	56.1	64.8	69.0	90.6	107.9	116.5	120.7
75°	8.6	8.6	8.6	8.6	8.6	13.0	13.0	25.9	34.5	43.1	47.5
77.5°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	8.6	8.6
80°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
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°	3036.3	3036.3	3036.3	3036.3	3036.3	3036.3	3036.3	3036.3	3036.3	3036.3
2.5°	3036.3	3027.7	3023.3	3027.7	3027.7	3023.3	3036.3	3053.5	3075.0	3019.1
5°	3031.9	3023.3	3031.9	3006.0	3019.1	3010.4	3027.7	3023.3	3040.5	3023.3
7.5°	3019.1	3001.8	3006.0	2993.2	3010.4	2988.8	3001.8	3027.7	3010.4	2984.6
10°	2975.9	2967.3	2997.4	2954.3	2945.7	2962.9	2997.4	2971.5	2962.9	2971.5
12.5°	2932.7	2932.7	2945.7	2911.2	2915.4	2924.0	2941.3	2924.0	2932.7	2954.3
15°	2885.3	2876.7	2898.2	2872.3	2868.1	2859.5	2876.7	2876.7	2885.3	2872.3
17.5°	2829.2	2816.3	2816.3	2807.7	2803.3	2825.0	2833.6	2837.8	2842.2	2825.0
20°	2760.2	2756.0	2768.8	2756.0	2760.2	2764.6	2764.6	2756.0	2794.7	2747.4
22.5°	2686.8	2699.9	2682.6	2674.0	2682.6	2691.2	2691.2	2695.5	2686.8	2678.2
25°	2613.6	2622.2	2626.5	2600.6	2613.6	2600.6	2630.9	2635.1	2617.9	2626.5
27.5°	2548.9	2536.0	2531.6	2514.4	2523.0	2518.8	2523.0	2523.0	2548.9	2514.4
30°	2449.6	2436.8	2441.0	2428.2	2432.4	2428.2	2432.4	2432.4	2449.6	2445.4
32.5°	2354.8	2341.9	2346.2	2333.3	2333.3	2337.5	2328.9	2328.9	2341.9	2333.3
35°	2264.2	2234.1	2238.3	2234.1	2238.3	2221.0	2221.0	2216.8	2225.4	2203.8
37.5°	2134.8	2122.0	2117.6	2113.4	2117.6	2109.0	2117.6	2104.7	2117.6	2100.3
40°	2018.3	2009.7	2014.1	1988.2	1988.2	1992.5	1983.8	1979.6	1983.8	2001.1
42.5°	1902.0	1884.8	1876.2	1867.5	1871.8	1858.9	1854.5	1845.9	1854.5	1837.3
45°	1763.9	1763.9	1759.7	1738.0	1742.4	1742.4	1725.2	1707.9	1712.2	1712.2
47.5°	1638.9	1630.3	1625.9	1604.5	1600.1	1595.8	1578.4	1565.6	1565.6	1552.6
50°	1500.8	1492.2	1479.3	1457.7	1449.1	1423.2	1410.4	1393.1	1375.9	1375.9
52.5°	1371.5	1341.2	1324.0	1289.5	1276.6	1263.6	1229.1	1216.3	1203.3	1190.4
55°	1216.3	1190.4	1155.9	1117.0	1099.8	1078.1	1043.7	1017.8	1000.5	1004.9
57.5°	1065.3	1022.2	987.7	936.0	914.3	901.3	866.8	832.3	815.1	815.1
60°	879.8	845.3	802.2	754.7	737.5	716.0	672.7	651.3	638.2	625.4
62.5°	703.0	677.1	638.2	577.9	565.0	543.4	513.3	487.4	474.4	474.4
65°	526.1	500.3	465.8	422.7	405.4	388.2	362.3	336.4	323.4	319.2
67.5°	370.9	340.7	310.6	276.1	263.1	254.4	228.6	211.3	202.7	198.3
70°	224.2	206.9	185.5	159.6	146.6	138.0	120.7	107.9	103.5	99.2
72.5°	116.5	103.5	86.2	69.0	60.4	51.7	43.1	34.5	30.3	30.3
75°	43.1	34.5	21.6	13.0	8.6	8.6	8.6	8.6	8.6	8.6
77.5°	8.6	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
80°	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
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)