

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 FEU4C709035 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: FLDSQ4C70D010 FEU4C709035 F4LC-DFSSQ-MW
 Description: 4 INCH 7000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

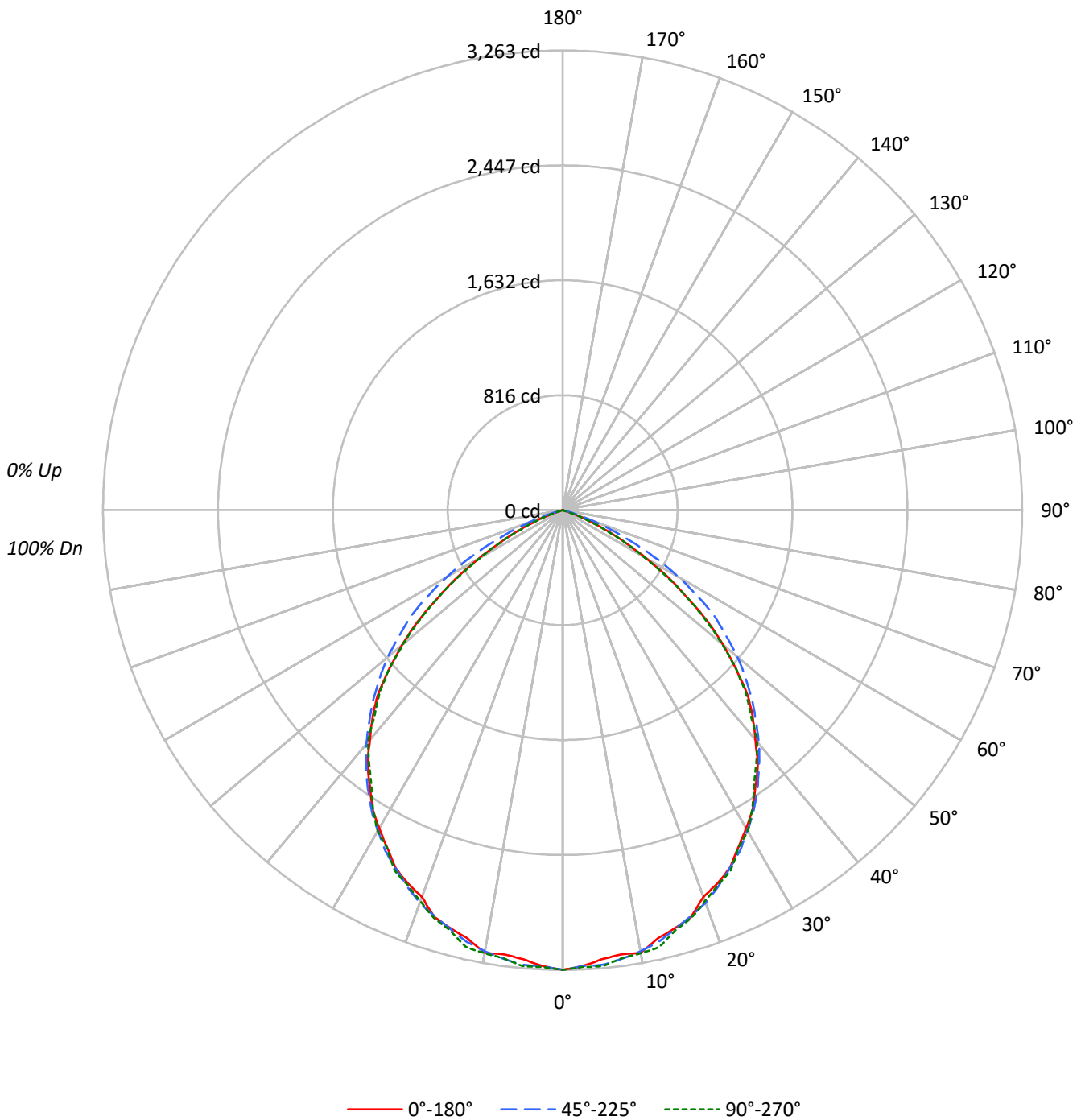
Lumens per Lamp: N/A
 Luminaire Lumens: 6971.0 lumens
 Efficiency: N/A
 Efficacy: 89.4 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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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CATALOG NUMBER: FLDSQ4C70D010 FEU4C709035 F4LC-DFSSQ-MW

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°	314872	314872	314872
5°	309799	313828	314719
10°	312469	311558	312910
15°	307000	307450	308379
20°	299860	304614	303197
25°	298556	298556	300536
30°	290238	292299	292834
35°	281179	283924	279000
40°	267987	273239	270896
45°	253631	259334	251106
50°	223364	242848	221983
55°	180907	222223	181698
60°	132383	184274	129700
65°	80434	131234	78334
70°	31371	70642	30102
75°	3467	19050	3467
80°	2612	2612	2612
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	308.0	4.4
10°-20°	871.6	12.5
20°-30°	1293.3	18.6
30°-40°	1498.6	21.5
40°-50°	1436.8	20.6
50°-60°	1056.4	15.2
60°-70°	456.3	6.5
70°-80°	49.3	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°	2473.0	35.5
0°-40°	3971.6	57.0
0°-60°	6464.8	92.7
0°-90°	6971.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6971.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3263	3263	3263	3263	3263	
5°	3198	3231	3240	3245	3249	305
15°	3073	3092	3078	3082	3087	866
25°	2804	2800	2804	2809	2823	1284
35°	2387	2401	2410	2406	2369	1493
45°	1859	1863	1900	1873	1840	1413
55°	1075	1187	1321	1182	1080	968
65°	352	440	575	436	343	362
75°	9	14	51	9	9	28
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°	3263.3	3263.3	3263.3	3263.3	3263.3	3263.3	3263.3	3263.3	3263.3	3263.3	3263.3
2.5°	3240.1	3277.2	3281.9	3258.6	3249.3	3235.5	3267.9	3244.8	3254.1	3244.8	3240.1
5°	3198.5	3240.1	3244.8	3244.8	3235.5	3230.8	3244.8	3240.1	3235.5	3226.3	3240.1
7.5°	3179.9	3203.0	3226.3	3198.5	3212.3	3207.7	3240.1	3226.3	3221.5	3221.5	3212.3
10°	3189.2	3184.5	3203.0	3175.2	3184.5	3175.2	3203.0	3203.0	3193.7	3184.5	3179.9
12.5°	3114.9	3152.0	3152.0	3147.4	3138.1	3124.2	3152.0	3170.7	3142.7	3142.7	3138.1
15°	3073.3	3082.5	3087.1	3087.1	3082.5	3091.8	3105.6	3087.1	3091.8	3068.5	3077.8
17.5°	3026.9	3008.4	3022.2	3012.9	3017.7	3026.9	3045.5	3045.5	3017.7	3012.9	3022.2
20°	2920.3	2975.9	2980.6	2952.8	2957.3	2957.3	2989.9	2962.1	2980.6	2957.3	2966.6
22.5°	2869.2	2906.3	2911.0	2873.9	2897.0	2869.2	2901.7	2859.9	2906.3	2873.9	2887.7
25°	2804.3	2799.8	2813.6	2795.1	2799.8	2799.8	2822.9	2804.3	2818.3	2799.8	2804.3
27.5°	2697.9	2734.9	2730.2	2711.7	2720.9	2716.4	2762.7	2711.7	2739.5	2716.4	2725.7
30°	2605.0	2637.5	2628.3	2609.7	2609.7	2595.7	2646.8	2632.8	2628.3	2628.3	2623.5
32.5°	2512.3	2517.1	2507.8	2512.3	2517.1	2498.5	2540.1	2521.6	2517.1	2521.6	2526.3
35°	2387.1	2387.1	2396.4	2382.6	2401.1	2401.1	2438.2	2414.9	2410.4	2396.4	2410.4
37.5°	2275.9	2262.1	2266.7	2266.7	2275.9	2285.2	2303.7	2294.5	2294.5	2280.6	2289.9
40°	2127.6	2118.4	2132.2	2132.2	2146.2	2146.2	2164.7	2155.5	2169.3	2169.3	2169.3
42.5°	1997.9	1997.9	1988.6	2002.5	2007.2	2002.5	2035.0	2030.3	2035.0	2025.7	2030.3
45°	1858.7	1858.7	1849.5	1844.9	1868.0	1863.4	1900.5	1886.5	1905.1	1895.8	1900.5
47.5°	1668.6	1691.9	1677.9	1691.9	1719.7	1724.4	1747.5	1738.2	1756.8	1743.0	1761.5
50°	1488.0	1488.0	1501.8	1520.4	1548.2	1552.9	1580.7	1599.2	1608.5	1613.0	1617.8
52.5°	1298.0	1293.2	1307.2	1330.3	1353.6	1372.1	1399.9	1427.7	1446.2	1474.0	1460.0
55°	1075.4	1084.6	1098.6	1126.4	1163.5	1186.6	1209.8	1246.9	1279.4	1293.2	1321.0
57.5°	885.3	876.0	885.3	922.4	964.2	982.7	1015.2	1052.3	1098.6	1126.4	1135.7
60°	686.0	690.7	699.9	732.5	764.8	792.6	806.6	866.8	908.6	936.4	954.9
62.5°	505.3	514.6	523.9	551.7	584.0	607.3	630.4	681.4	718.5	746.3	764.8
65°	352.3	356.9	370.9	384.7	417.2	440.3	458.8	500.6	537.7	560.9	574.8
67.5°	217.9	222.4	231.7	250.4	273.5	292.0	310.5	338.3	370.9	393.9	398.7
70°	111.2	115.9	120.5	134.5	153.0	162.3	176.1	199.3	222.4	240.9	250.4
72.5°	37.1	37.1	41.8	51.1	60.3	69.6	74.1	97.4	115.9	125.2	129.7
75°	9.3	9.3	9.3	9.3	9.3	14.0	14.0	27.8	37.1	46.3	51.1
77.5°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	9.3	9.3
80°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
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°	3263.3	3263.3	3263.3	3263.3	3263.3	3263.3	3263.3	3263.3	3263.3	3263.3
2.5°	3263.3	3254.1	3249.3	3254.1	3254.1	3249.3	3263.3	3281.9	3305.0	3244.8
5°	3258.6	3249.3	3258.6	3230.8	3244.8	3235.5	3254.1	3249.3	3267.9	3249.3
7.5°	3244.8	3226.3	3230.8	3217.0	3235.5	3212.3	3226.3	3254.1	3235.5	3207.7
10°	3198.5	3189.2	3221.5	3175.2	3165.9	3184.5	3221.5	3193.7	3184.5	3193.7
12.5°	3152.0	3152.0	3165.9	3128.9	3133.4	3142.7	3161.2	3142.7	3152.0	3175.2
15°	3101.1	3091.8	3114.9	3087.1	3082.5	3073.3	3091.8	3091.8	3101.1	3087.1
17.5°	3040.7	3026.9	3026.9	3017.7	3012.9	3036.2	3045.5	3050.0	3054.7	3036.2
20°	2966.6	2962.1	2975.9	2962.1	2966.6	2971.3	2971.3	2962.1	3003.7	2952.8
22.5°	2887.7	2901.7	2883.2	2873.9	2883.2	2892.5	2892.5	2897.0	2887.7	2878.5
25°	2809.1	2818.3	2822.9	2795.1	2809.1	2795.1	2827.6	2832.1	2813.6	2822.9
27.5°	2739.5	2725.7	2720.9	2702.4	2711.7	2707.1	2711.7	2711.7	2739.5	2702.4
30°	2632.8	2619.0	2623.5	2609.7	2614.3	2609.7	2614.3	2614.3	2632.8	2628.3
32.5°	2530.9	2517.1	2521.6	2507.8	2507.8	2512.3	2503.1	2503.1	2517.1	2507.8
35°	2433.5	2401.1	2405.7	2401.1	2405.7	2387.1	2387.1	2382.6	2391.9	2368.6
37.5°	2294.5	2280.6	2275.9	2271.4	2275.9	2266.7	2275.9	2262.1	2275.9	2257.4
40°	2169.3	2160.0	2164.7	2136.9	2136.9	2141.5	2132.2	2127.6	2132.2	2150.7
42.5°	2044.2	2025.7	2016.4	2007.2	2011.7	1997.9	1993.2	1983.9	1993.2	1974.6
45°	1895.8	1895.8	1891.2	1868.0	1872.7	1872.7	1854.2	1835.6	1840.2	1840.2
47.5°	1761.5	1752.2	1747.5	1724.4	1719.7	1715.2	1696.5	1682.6	1682.6	1668.6
50°	1613.0	1603.8	1590.0	1566.7	1557.4	1529.6	1515.8	1497.3	1478.8	1478.8
52.5°	1474.0	1441.5	1423.0	1385.9	1372.1	1358.1	1321.0	1307.2	1293.2	1279.4
55°	1307.2	1279.4	1242.4	1200.6	1182.0	1158.8	1121.7	1093.9	1075.4	1080.1
57.5°	1145.0	1098.6	1061.6	1005.9	982.7	968.7	931.6	894.6	876.0	876.0
60°	945.6	908.6	862.2	811.2	792.6	769.5	723.0	699.9	686.0	672.1
62.5°	755.6	727.8	686.0	621.1	607.3	584.0	551.7	523.9	509.9	509.9
65°	565.5	537.7	500.6	454.3	435.7	417.2	389.4	361.6	347.6	343.1
67.5°	398.7	366.1	333.8	296.7	282.7	273.5	245.7	227.1	217.9	213.1
70°	240.9	222.4	199.3	171.5	157.5	148.3	129.7	115.9	111.2	106.7
72.5°	125.2	111.2	92.7	74.1	64.9	55.6	46.3	37.1	32.5	32.5
75°	46.3	37.1	23.3	14.0	9.3	9.3	9.3	9.3	9.3	9.3
77.5°	9.3	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
80°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
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)