

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: **FLDSQ4C75D010 FEU4C759027 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: FLDSQ4C75D010 FEU4C759027 F4LC-DFSSQ-MW  
 Description: 4 INCH 7500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

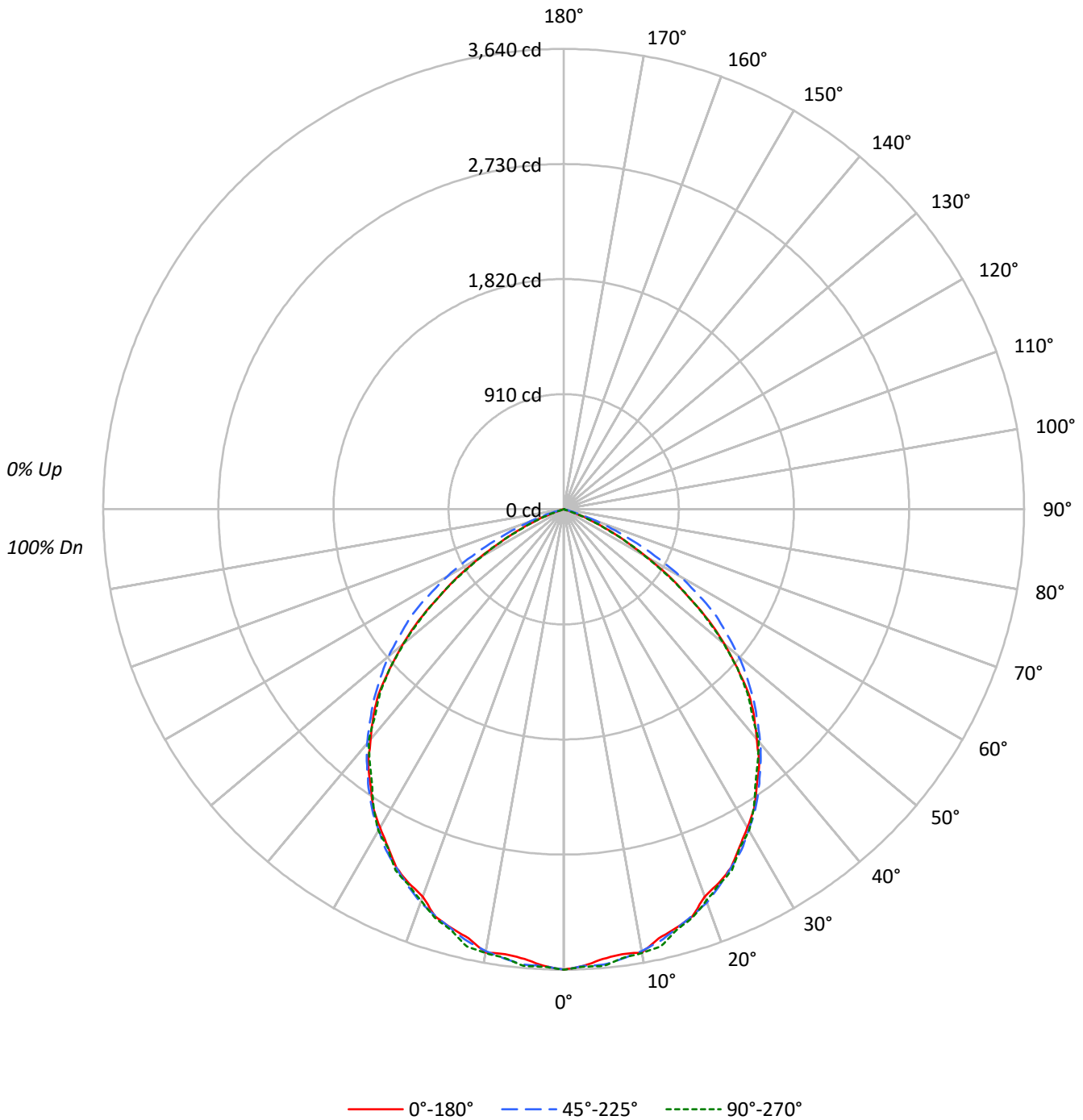
Lumens per Lamp: N/A  
 Luminaire Lumens: 7775.0 lumens  
 Efficiency: N/A  
 Efficacy: 95.4 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 81.5  
 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°	351191	351191	351191
5°	345529	350024	351021
10°	348506	347496	349005
15°	342402	342912	343940
20°	334443	339752	338171
25°	332997	332997	335201
30°	323719	326014	326604
35°	313619	316670	311181
40°	298897	304754	302146
45°	282887	289246	280062
50°	249123	270859	247577
55°	201767	247860	202659
60°	147647	205521	144675
65°	89727	146348	87352
70°	34982	78795	33572
75°	3840	21213	3840
80°	2945	2945	2945
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	343.6	4.4
10°-20°	972.2	12.5
20°-30°	1442.5	18.6
30°-40°	1671.4	21.5
40°-50°	1602.5	20.6
50°-60°	1178.3	15.2
60°-70°	508.9	6.5
70°-80°	54.9	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°	2758.2	35.5
0°-40°	4429.6	57.0
0°-60°	7210.4	92.7
0°-90°	7775.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7775.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	3640	3640	3640	3640	3640	
5°	3567	3603	3614	3619	3624	340
15°	3428	3448	3433	3438	3443	966
25°	3128	3123	3128	3133	3148	1432
35°	2662	2678	2688	2683	2642	1665
45°	2073	2078	2120	2089	2052	1576
55°	1199	1323	1473	1318	1205	1079
65°	393	491	641	486	383	404
75°	10	16	57	10	10	32
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°	3639.7	3639.7	3639.7	3639.7	3639.7	3639.7	3639.7	3639.7	3639.7	3639.7	3639.7
2.5°	3613.8	3655.1	3660.4	3634.4	3624.1	3608.7	3644.8	3619.0	3629.4	3619.0	3613.8
5°	3567.4	3613.8	3619.0	3619.0	3608.7	3603.4	3619.0	3613.8	3608.7	3598.4	3613.8
7.5°	3546.7	3572.4	3598.4	3567.4	3582.8	3577.7	3613.8	3598.4	3593.1	3593.1	3582.8
10°	3557.0	3551.8	3572.4	3541.4	3551.8	3541.4	3572.4	3572.4	3562.1	3551.8	3546.7
12.5°	3474.1	3515.5	3515.5	3510.4	3500.1	3484.5	3515.5	3536.4	3505.1	3505.1	3500.1
15°	3427.7	3438.1	3443.1	3443.1	3438.1	3448.4	3463.8	3443.1	3448.4	3422.5	3432.8
17.5°	3376.0	3355.4	3370.8	3360.4	3365.7	3376.0	3396.7	3396.7	3365.7	3360.4	3370.8
20°	3257.1	3319.1	3324.4	3293.4	3298.4	3298.4	3334.7	3303.7	3324.4	3298.4	3308.8
22.5°	3200.1	3241.5	3246.7	3205.4	3231.1	3200.1	3236.4	3189.8	3241.5	3205.4	3220.8
25°	3127.8	3122.7	3138.1	3117.4	3122.7	3122.7	3148.5	3127.8	3143.4	3122.7	3127.8
27.5°	3009.0	3050.4	3045.1	3024.4	3034.8	3029.7	3081.4	3024.4	3055.4	3029.7	3040.0
30°	2905.5	2941.7	2931.4	2910.7	2910.7	2895.1	2952.1	2936.5	2931.4	2931.4	2926.1
32.5°	2802.1	2807.4	2797.0	2802.1	2807.4	2786.7	2833.1	2812.4	2807.4	2812.4	2817.7
35°	2662.5	2662.5	2672.8	2657.4	2678.1	2678.1	2719.4	2693.5	2688.4	2672.8	2688.4
37.5°	2538.4	2523.0	2528.1	2528.1	2538.4	2548.8	2569.4	2559.1	2559.1	2543.7	2554.0
40°	2373.0	2362.7	2378.1	2378.1	2393.7	2393.7	2414.4	2404.0	2419.5	2419.5	2419.5
42.5°	2228.3	2228.3	2218.0	2233.4	2238.7	2233.4	2269.7	2264.4	2269.7	2259.3	2264.4
45°	2073.1	2073.1	2062.8	2057.7	2083.4	2078.4	2119.7	2104.1	2124.8	2114.4	2119.7
47.5°	1861.1	1887.0	1871.4	1887.0	1918.1	1923.3	1949.1	1938.7	1959.4	1944.0	1964.7
50°	1659.6	1659.6	1675.1	1695.7	1726.7	1732.0	1763.0	1783.7	1794.0	1799.1	1804.4
52.5°	1447.7	1442.4	1458.0	1483.7	1509.7	1530.3	1561.4	1592.4	1613.0	1644.0	1628.4
55°	1199.4	1209.7	1225.3	1256.3	1297.7	1323.4	1349.4	1390.7	1427.0	1442.4	1473.4
57.5°	987.4	977.1	987.4	1028.7	1075.4	1096.0	1132.3	1173.7	1225.3	1256.3	1266.7
60°	765.1	770.3	780.7	817.0	853.0	884.0	899.6	966.7	1013.3	1044.3	1065.0
62.5°	563.6	574.0	584.3	615.3	651.4	677.3	703.1	760.0	801.3	832.4	853.0
65°	393.0	398.0	413.6	429.0	465.3	491.1	511.7	558.4	599.7	625.6	641.0
67.5°	243.0	248.1	258.4	279.3	305.0	325.7	346.4	377.4	413.6	439.4	444.7
70°	124.0	129.3	134.4	150.0	170.6	181.0	196.4	222.3	248.1	268.7	279.3
72.5°	41.3	41.3	46.6	56.9	67.3	77.6	82.7	108.6	129.3	139.6	144.7
75°	10.3	10.3	10.3	10.3	10.3	15.6	15.6	31.0	41.3	51.7	56.9
77.5°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	10.3	10.3
80°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
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°	3639.7	3639.7	3639.7	3639.7	3639.7	3639.7	3639.7	3639.7	3639.7	3639.7
2.5°	3639.7	3629.4	3624.1	3629.4	3629.4	3624.1	3639.7	3660.4	3686.1	3619.0
5°	3634.4	3624.1	3634.4	3603.4	3619.0	3608.7	3629.4	3624.1	3644.8	3624.1
7.5°	3619.0	3598.4	3603.4	3588.0	3608.7	3582.8	3598.4	3629.4	3608.7	3577.7
10°	3567.4	3557.0	3593.1	3541.4	3531.1	3551.8	3593.1	3562.1	3551.8	3562.1
12.5°	3515.5	3515.5	3531.1	3489.7	3494.8	3505.1	3525.8	3505.1	3515.5	3541.4
15°	3458.7	3448.4	3474.1	3443.1	3438.1	3427.7	3448.4	3448.4	3458.7	3443.1
17.5°	3391.4	3376.0	3376.0	3365.7	3360.4	3386.4	3396.7	3401.8	3407.1	3386.4
20°	3308.8	3303.7	3319.1	3303.7	3308.8	3314.0	3314.0	3303.7	3350.1	3293.4
22.5°	3220.8	3236.4	3215.7	3205.4	3215.7	3226.1	3226.1	3231.1	3220.8	3210.5
25°	3133.0	3143.4	3148.5	3117.4	3133.0	3117.4	3153.7	3158.8	3138.1	3148.5
27.5°	3055.4	3040.0	3034.8	3014.1	3024.4	3019.4	3024.4	3024.4	3055.4	3014.1
30°	2936.5	2921.1	2926.1	2910.7	2915.8	2910.7	2915.8	2915.8	2936.5	2931.4
32.5°	2822.8	2807.4	2812.4	2797.0	2797.0	2802.1	2791.8	2791.8	2807.4	2797.0
35°	2714.1	2678.1	2683.1	2678.1	2683.1	2662.5	2662.5	2657.4	2667.7	2641.8
37.5°	2559.1	2543.7	2538.4	2533.4	2538.4	2528.1	2538.4	2523.0	2538.4	2517.7
40°	2419.5	2409.1	2414.4	2383.4	2383.4	2388.4	2378.1	2373.0	2378.1	2398.8
42.5°	2280.0	2259.3	2249.0	2238.7	2243.7	2228.3	2223.1	2212.7	2223.1	2202.4
45°	2114.4	2114.4	2109.4	2083.4	2088.7	2088.7	2068.0	2047.4	2052.4	2052.4
47.5°	1964.7	1954.3	1949.1	1923.3	1918.1	1913.0	1892.1	1876.7	1876.7	1861.1
50°	1799.1	1788.7	1773.3	1747.4	1737.1	1706.1	1690.7	1670.0	1649.3	1649.3
52.5°	1644.0	1607.8	1587.1	1545.8	1530.3	1514.7	1473.4	1458.0	1442.4	1427.0
55°	1458.0	1427.0	1385.6	1339.0	1318.4	1292.4	1251.1	1220.1	1199.4	1204.7
57.5°	1277.0	1225.3	1184.0	1122.0	1096.0	1080.4	1039.1	997.7	977.1	977.1
60°	1054.7	1013.3	961.7	904.7	884.0	858.3	806.4	780.7	765.1	749.7
62.5°	842.7	811.7	765.1	692.7	677.3	651.4	615.3	584.3	568.7	568.7
65°	630.7	599.7	558.4	506.7	486.0	465.3	434.3	403.3	387.7	382.6
67.5°	444.7	408.4	372.3	331.0	315.4	305.0	274.0	253.3	243.0	237.7
70°	268.7	248.1	222.3	191.3	175.7	165.4	144.7	129.3	124.0	119.0
72.5°	139.6	124.0	103.4	82.7	72.4	62.0	51.7	41.3	36.3	36.3
75°	51.7	41.3	25.9	15.6	10.3	10.3	10.3	10.3	10.3	10.3
77.5°	10.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
80°	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
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)