

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 FEU4C809035 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 FEU4C809035 F4LC-CSSQ-MMS
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

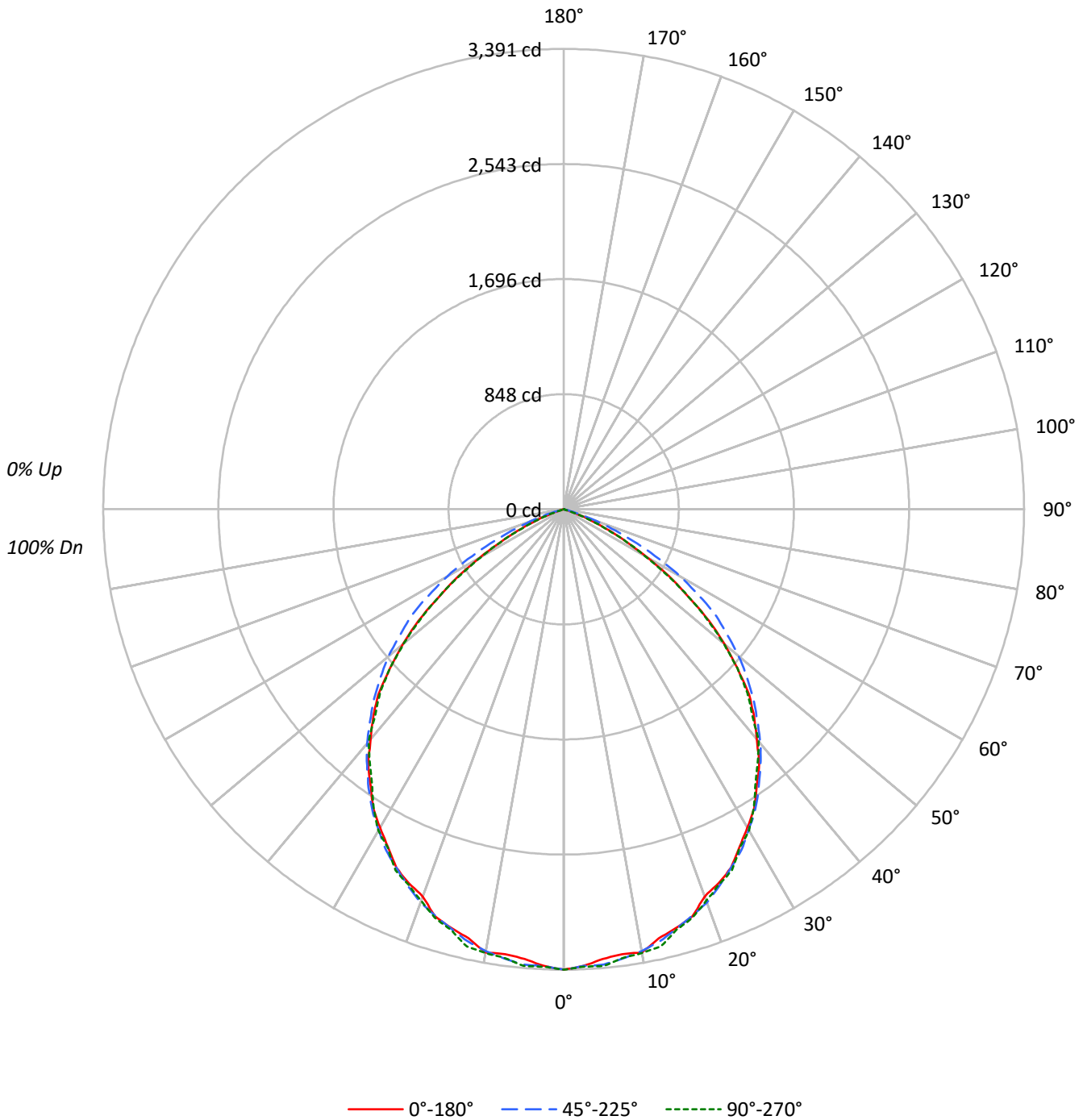
Lumens per Lamp: N/A
 Luminaire Lumens: 7243.0 lumens
 Efficiency: N/A
 Efficacy: 80.9 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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	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°	327165	327165	327165
5°	321886	326071	327000
10°	324658	323717	325128
15°	318977	319447	320406
20°	311556	316505	315026
25°	310214	310214	312258
30°	301558	303708	304254
35°	292157	294996	289884
40°	278454	283895	281464
45°	263524	269459	260904
50°	232085	252320	230644
55°	187956	230903	188780
60°	137535	191453	134776
65°	83585	136348	81393
70°	32584	73406	31258
75°	3579	19796	3579
80°	2723	2723	2723
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	320.0	4.4
10°-20°	905.6	12.5
20°-30°	1343.8	18.6
30°-40°	1557.1	21.5
40°-50°	1492.9	20.6
50°-60°	1097.6	15.2
60°-70°	474.1	6.5
70°-80°	51.2	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°	2569.5	35.5
0°-40°	4126.5	57.0
0°-60°	6717.1	92.7
0°-90°	7243.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	7243.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3391	3391	3391	3391	3391	
5°	3323	3357	3366	3371	3376	317
15°	3193	3212	3198	3203	3208	900
25°	2914	2909	2914	2919	2933	1334
35°	2480	2495	2504	2500	2461	1551
45°	1931	1936	1975	1946	1912	1468
55°	1117	1233	1373	1228	1122	1005
65°	366	458	597	453	356	376
75°	10	14	53	10	10	30
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°	3390.7	3390.7	3390.7	3390.7	3390.7	3390.7	3390.7	3390.7	3390.7	3390.7	3390.7
2.5°	3366.5	3405.0	3409.9	3385.8	3376.1	3361.8	3395.4	3371.4	3381.0	3371.4	3366.5
5°	3323.3	3366.5	3371.4	3371.4	3361.8	3356.9	3371.4	3366.5	3361.8	3352.2	3366.5
7.5°	3304.0	3328.0	3352.2	3323.3	3337.6	3332.9	3366.5	3352.2	3347.2	3347.2	3337.6
10°	3313.6	3308.7	3328.0	3299.1	3308.7	3299.1	3328.0	3328.0	3318.4	3308.7	3304.0
12.5°	3236.4	3274.9	3274.9	3270.2	3260.6	3246.1	3274.9	3294.4	3265.3	3265.3	3260.6
15°	3193.2	3202.8	3207.5	3207.5	3202.8	3212.4	3226.8	3207.5	3212.4	3188.3	3197.9
17.5°	3145.0	3125.8	3140.1	3130.5	3135.4	3145.0	3164.3	3164.3	3135.4	3130.5	3140.1
20°	3034.2	3092.0	3096.9	3068.0	3072.7	3072.7	3106.5	3077.6	3096.9	3072.7	3082.4
22.5°	2981.2	3019.7	3024.6	2986.1	3010.0	2981.2	3015.0	2971.5	3019.7	2986.1	3000.4
25°	2913.8	2909.0	2923.4	2904.1	2909.0	2909.0	2933.0	2913.8	2928.3	2909.0	2913.8
27.5°	2803.1	2841.6	2836.7	2817.5	2827.1	2822.4	2870.5	2817.5	2846.4	2822.4	2832.0
30°	2706.6	2740.4	2730.8	2711.6	2711.6	2697.0	2750.1	2735.5	2730.8	2730.8	2725.9
32.5°	2610.4	2615.3	2605.6	2610.4	2615.3	2596.0	2639.2	2620.0	2615.3	2620.0	2624.9
35°	2480.3	2480.3	2489.9	2475.6	2494.8	2494.8	2533.3	2509.2	2504.4	2489.9	2504.4
37.5°	2364.7	2350.4	2355.1	2355.1	2364.7	2374.4	2393.6	2384.0	2384.0	2369.6	2379.3
40°	2210.7	2201.0	2215.4	2215.4	2229.9	2229.9	2249.2	2239.6	2253.9	2253.9	2253.9
42.5°	2075.9	2075.9	2066.2	2080.6	2085.5	2080.6	2114.4	2109.5	2114.4	2104.8	2109.5
45°	1931.2	1931.2	1921.6	1916.9	1940.9	1936.2	1974.7	1960.1	1979.4	1969.8	1974.7
47.5°	1733.8	1757.9	1743.4	1757.9	1786.8	1791.7	1815.7	1806.1	1825.3	1811.0	1830.2
50°	1546.1	1546.1	1560.4	1579.7	1608.6	1613.5	1642.4	1661.6	1671.3	1676.0	1680.9
52.5°	1348.6	1343.7	1358.2	1382.2	1406.4	1425.6	1454.5	1483.4	1502.7	1531.6	1517.0
55°	1117.3	1127.0	1141.5	1170.4	1208.9	1232.9	1257.0	1295.6	1329.3	1343.7	1372.6
57.5°	919.8	910.2	919.8	958.4	1001.8	1021.0	1054.8	1093.3	1141.5	1170.4	1180.0
60°	712.7	717.6	727.3	761.1	794.7	823.5	838.1	900.6	944.0	972.9	992.1
62.5°	525.1	534.7	544.3	573.2	606.8	631.0	654.9	708.0	746.5	775.4	794.7
65°	366.1	370.8	385.3	399.7	433.5	457.5	476.7	520.1	558.7	582.8	597.2
67.5°	226.4	231.1	240.7	260.2	284.1	303.4	322.7	351.5	385.3	409.3	414.2
70°	115.5	120.5	125.2	139.7	159.0	168.6	182.9	207.1	231.1	250.3	260.2
72.5°	38.5	38.5	43.4	53.1	62.7	72.3	77.0	101.2	120.5	130.1	134.8
75°	9.6	9.6	9.6	9.6	9.6	14.5	14.5	28.9	38.5	48.1	53.1
77.5°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	9.6	9.6
80°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
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°	3390.7	3390.7	3390.7	3390.7	3390.7	3390.7	3390.7	3390.7	3390.7	3390.7
2.5°	3390.7	3381.0	3376.1	3381.0	3381.0	3376.1	3390.7	3409.9	3433.9	3371.4
5°	3385.8	3376.1	3385.8	3356.9	3371.4	3361.8	3381.0	3376.1	3395.4	3376.1
7.5°	3371.4	3352.2	3356.9	3342.5	3361.8	3337.6	3352.2	3381.0	3361.8	3332.9
10°	3323.3	3313.6	3347.2	3299.1	3289.5	3308.7	3347.2	3318.4	3308.7	3318.4
12.5°	3274.9	3274.9	3289.5	3251.0	3255.7	3265.3	3284.6	3265.3	3274.9	3299.1
15°	3222.1	3212.4	3236.4	3207.5	3202.8	3193.2	3212.4	3212.4	3222.1	3207.5
17.5°	3159.4	3145.0	3145.0	3135.4	3130.5	3154.7	3164.3	3169.0	3173.9	3154.7
20°	3082.4	3077.6	3092.0	3077.6	3082.4	3087.3	3087.3	3077.6	3120.9	3068.0
22.5°	3000.4	3015.0	2995.7	2986.1	2995.7	3005.3	3005.3	3010.0	3000.4	2990.8
25°	2918.7	2928.3	2933.0	2904.1	2918.7	2904.1	2937.9	2942.6	2923.4	2933.0
27.5°	2846.4	2832.0	2827.1	2807.8	2817.5	2812.8	2817.5	2817.5	2846.4	2807.8
30°	2735.5	2721.2	2725.9	2711.6	2716.3	2711.6	2716.3	2716.3	2735.5	2730.8
32.5°	2629.6	2615.3	2620.0	2605.6	2605.6	2610.4	2600.7	2600.7	2615.3	2605.6
35°	2528.4	2494.8	2499.5	2494.8	2499.5	2480.3	2480.3	2475.6	2485.2	2461.0
37.5°	2384.0	2369.6	2364.7	2360.0	2364.7	2355.1	2364.7	2350.4	2364.7	2345.5
40°	2253.9	2244.3	2249.2	2220.3	2220.3	2225.0	2215.4	2210.7	2215.4	2234.6
42.5°	2124.0	2104.8	2095.1	2085.5	2090.2	2075.9	2071.0	2061.3	2071.0	2051.7
45°	1969.8	1969.8	1965.0	1940.9	1945.8	1945.8	1926.5	1907.3	1912.0	1912.0
47.5°	1830.2	1820.6	1815.7	1791.7	1786.8	1782.1	1762.6	1748.3	1748.3	1733.8
50°	1676.0	1666.4	1652.0	1627.8	1618.2	1589.3	1575.0	1555.7	1536.5	1536.5
52.5°	1531.6	1497.8	1478.5	1440.0	1425.6	1411.1	1372.6	1358.2	1343.7	1329.3
55°	1358.2	1329.3	1290.8	1247.4	1228.1	1204.0	1165.5	1136.6	1117.3	1122.2
57.5°	1189.6	1141.5	1103.0	1045.2	1021.0	1006.5	968.0	929.5	910.2	910.2
60°	982.5	944.0	895.9	842.8	823.5	799.6	751.2	727.3	712.7	698.4
62.5°	785.0	756.1	712.7	645.3	631.0	606.8	573.2	544.3	529.8	529.8
65°	587.5	558.7	520.1	472.0	452.7	433.5	404.6	375.7	361.2	356.5
67.5°	414.2	380.4	346.8	308.3	293.8	284.1	255.3	236.0	226.4	221.5
70°	250.3	231.1	207.1	178.2	163.7	154.1	134.8	120.5	115.5	110.8
72.5°	130.1	115.5	96.3	77.0	67.4	57.8	48.1	38.5	33.8	33.8
75°	48.1	38.5	24.2	14.5	9.6	9.6	9.6	9.6	9.6	9.6
77.5°	9.6	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
80°	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9	4.9
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)