

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 FEU4C809027 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 FEU4C809027 F4LC-CSSQ-MMS
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

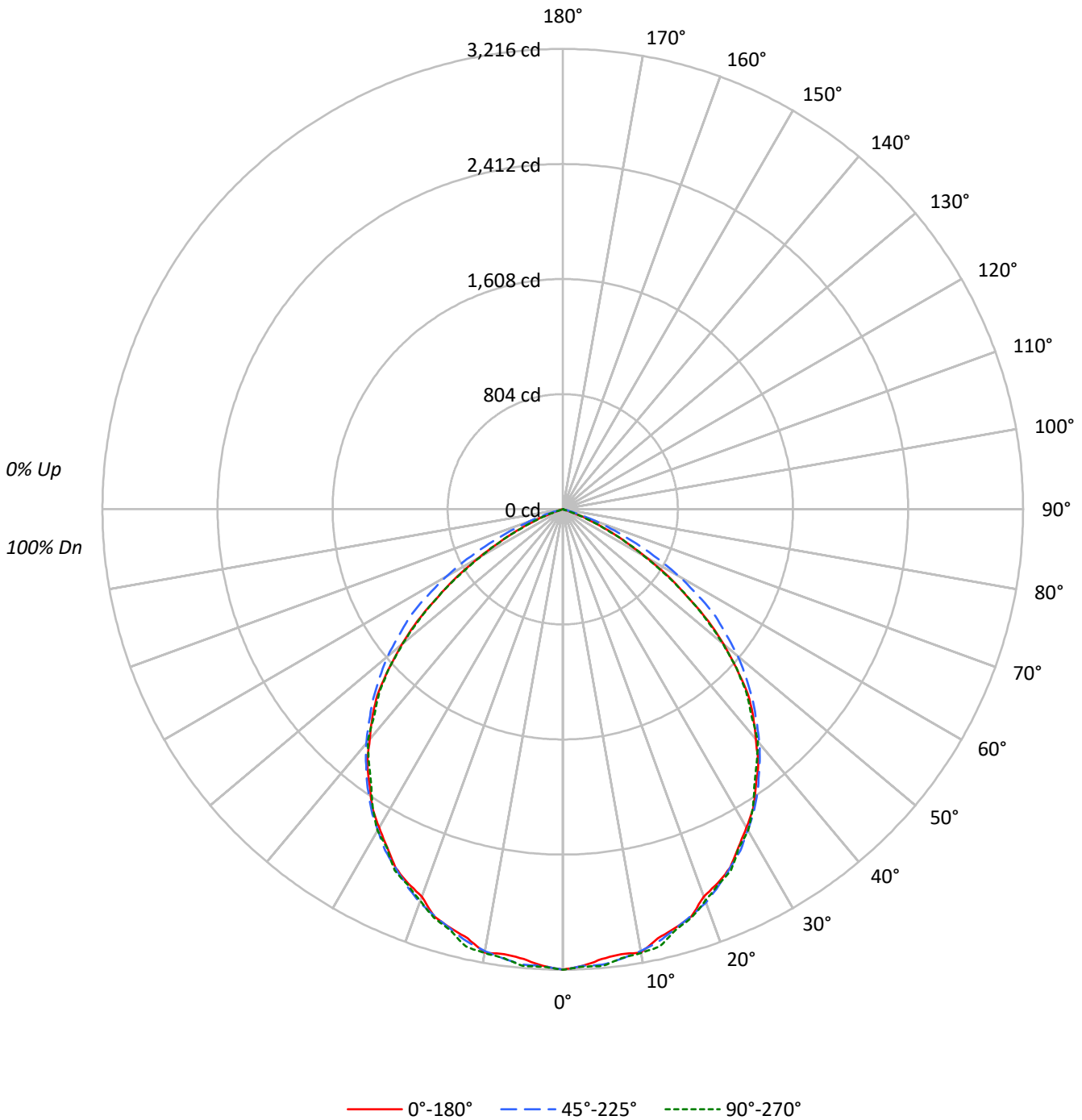
Lumens per Lamp: N/A
 Luminaire Lumens: 6870.0 lumens
 Efficiency: N/A
 Efficacy: 76.8 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	310318	310318	310318
5°	305304	309276	310167
10°	307943	307051	308384
15°	302545	302994	303913
20°	295517	300199	298803
25°	294234	294234	296182
30°	286038	288065	288589
35°	277104	279813	274960
40°	264107	269272	266979
45°	249960	255582	247463
50°	220136	239320	218755
55°	178283	219010	179057
60°	130453	181611	127828
65°	79270	129316	77192
70°	30920	69626	29650
75°	3393	18752	3393
80°	2612	2612	2612
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	303.6	4.4
10°-20°	859.0	12.5
20°-30°	1274.6	18.6
30°-40°	1476.9	21.5
40°-50°	1416.0	20.6
50°-60°	1041.1	15.2
60°-70°	449.7	6.5
70°-80°	48.6	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°	2437.2	35.5
0°-40°	3914.0	57.0
0°-60°	6371.2	92.7
0°-90°	6870.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6870.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3216	3216	3216	3216	3216	
5°	3152	3184	3193	3198	3202	301
15°	3029	3047	3033	3038	3042	854
25°	2764	2759	2764	2768	2782	1265
35°	2352	2366	2376	2371	2334	1471
45°	1832	1836	1873	1846	1814	1392
55°	1060	1169	1302	1165	1064	954
65°	347	434	566	429	338	357
75°	9	14	50	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°	3216.1	3216.1	3216.1	3216.1	3216.1	3216.1	3216.1	3216.1	3216.1	3216.1	3216.1
2.5°	3193.1	3229.7	3234.3	3211.4	3202.3	3188.7	3220.5	3197.8	3206.9	3197.8	3193.1
5°	3152.1	3193.1	3197.8	3197.8	3188.7	3184.0	3197.8	3193.1	3188.7	3179.5	3193.1
7.5°	3133.9	3156.6	3179.5	3152.1	3165.7	3161.3	3193.1	3179.5	3174.9	3174.9	3165.7
10°	3143.0	3138.3	3156.6	3129.2	3138.3	3129.2	3156.6	3156.6	3147.5	3138.3	3133.9
12.5°	3069.8	3106.3	3106.3	3101.8	3092.7	3078.9	3106.3	3124.7	3097.2	3097.2	3092.7
15°	3028.7	3037.9	3042.4	3042.4	3037.9	3047.0	3060.6	3042.4	3047.0	3024.1	3033.2
17.5°	2983.1	2964.8	2978.4	2969.3	2973.9	2983.1	3001.3	3001.3	2973.9	2969.3	2978.4
20°	2878.0	2932.8	2937.4	2910.0	2914.5	2914.5	2946.5	2919.1	2937.4	2914.5	2923.6
22.5°	2827.6	2864.2	2868.8	2832.3	2855.0	2827.6	2859.7	2818.5	2864.2	2832.3	2845.9
25°	2763.7	2759.2	2772.8	2754.6	2759.2	2759.2	2782.0	2763.7	2777.5	2759.2	2763.7
27.5°	2658.8	2695.3	2690.6	2672.4	2681.5	2677.0	2722.7	2672.4	2699.8	2677.0	2686.2
30°	2567.3	2599.3	2590.2	2571.9	2571.9	2558.1	2608.4	2594.7	2590.2	2590.2	2585.5
32.5°	2475.9	2480.6	2471.5	2475.9	2480.6	2462.3	2503.3	2485.1	2480.6	2485.1	2489.7
35°	2352.5	2352.5	2361.7	2348.1	2366.3	2366.3	2402.9	2379.9	2375.5	2361.7	2375.5
37.5°	2243.0	2229.3	2233.8	2233.8	2243.0	2252.1	2270.3	2261.2	2261.2	2247.6	2256.7
40°	2096.8	2087.7	2101.3	2101.3	2115.1	2115.1	2133.4	2124.2	2137.8	2137.8	2137.8
42.5°	1969.0	1969.0	1959.8	1973.4	1978.1	1973.4	2005.5	2000.8	2005.5	1996.4	2000.8
45°	1831.8	1831.8	1822.7	1818.2	1840.9	1836.4	1873.0	1859.2	1877.5	1868.3	1873.0
47.5°	1644.5	1667.4	1653.6	1667.4	1694.8	1699.4	1722.2	1713.1	1731.3	1717.7	1736.0
50°	1466.5	1466.5	1480.1	1498.3	1525.7	1530.4	1557.8	1576.1	1585.2	1589.7	1594.3
52.5°	1279.2	1274.5	1288.3	1311.0	1334.0	1352.2	1379.6	1407.0	1425.3	1452.7	1438.9
55°	1059.8	1068.9	1082.7	1110.1	1146.6	1169.4	1192.3	1228.8	1260.9	1274.5	1301.9
57.5°	872.5	863.3	872.5	909.0	950.2	968.5	1000.5	1037.0	1082.7	1110.1	1119.2
60°	676.0	680.7	689.8	721.9	753.7	781.1	794.9	854.2	895.4	922.8	941.1
62.5°	498.0	507.1	516.3	543.7	575.6	598.5	621.2	671.5	708.1	735.5	753.7
65°	347.2	351.7	365.5	379.1	411.2	433.9	452.2	493.4	529.9	552.8	566.4
67.5°	214.7	219.2	228.3	246.8	269.5	287.8	306.0	333.4	365.5	388.2	392.9
70°	109.6	114.3	118.7	132.5	150.8	159.9	173.5	196.4	219.2	237.5	246.8
72.5°	36.5	36.5	41.2	50.3	59.5	68.6	73.1	96.0	114.3	123.4	127.9
75°	9.1	9.1	9.1	9.1	9.1	13.8	13.8	27.4	36.5	45.7	50.3
77.5°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7	9.1	9.1
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°	3216.1	3216.1	3216.1	3216.1	3216.1	3216.1	3216.1	3216.1	3216.1	3216.1
2.5°	3216.1	3206.9	3202.3	3206.9	3206.9	3202.3	3216.1	3234.3	3257.1	3197.8
5°	3211.4	3202.3	3211.4	3184.0	3197.8	3188.7	3206.9	3202.3	3220.5	3202.3
7.5°	3197.8	3179.5	3184.0	3170.4	3188.7	3165.7	3179.5	3206.9	3188.7	3161.3
10°	3152.1	3143.0	3174.9	3129.2	3120.1	3138.3	3174.9	3147.5	3138.3	3147.5
12.5°	3106.3	3106.3	3120.1	3083.5	3088.0	3097.2	3115.4	3097.2	3106.3	3129.2
15°	3056.1	3047.0	3069.8	3042.4	3037.9	3028.7	3047.0	3047.0	3056.1	3042.4
17.5°	2996.7	2983.1	2983.1	2973.9	2969.3	2992.2	3001.3	3005.8	3010.5	2992.2
20°	2923.6	2919.1	2932.8	2919.1	2923.6	2928.3	2928.3	2919.1	2960.2	2910.0
22.5°	2845.9	2859.7	2841.4	2832.3	2841.4	2850.6	2850.6	2855.0	2845.9	2836.8
25°	2768.4	2777.5	2782.0	2754.6	2768.4	2754.6	2786.6	2791.1	2772.8	2782.0
27.5°	2699.8	2686.2	2681.5	2663.2	2672.4	2667.9	2672.4	2672.4	2699.8	2663.2
30°	2594.7	2581.0	2585.5	2571.9	2576.4	2571.9	2576.4	2576.4	2594.7	2590.2
32.5°	2494.2	2480.6	2485.1	2471.5	2471.5	2475.9	2466.8	2466.8	2480.6	2471.5
35°	2398.2	2366.3	2370.8	2366.3	2370.8	2352.5	2352.5	2348.1	2357.2	2334.3
37.5°	2261.2	2247.6	2243.0	2238.5	2243.0	2233.8	2243.0	2229.3	2243.0	2224.7
40°	2137.8	2128.7	2133.4	2106.0	2106.0	2110.4	2101.3	2096.8	2101.3	2119.6
42.5°	2014.6	1996.4	1987.2	1978.1	1982.6	1969.0	1964.3	1955.2	1964.3	1946.0
45°	1868.3	1868.3	1863.8	1840.9	1845.6	1845.6	1827.3	1809.0	1813.5	1813.5
47.5°	1736.0	1726.8	1722.2	1699.4	1694.8	1690.3	1671.9	1658.3	1658.3	1644.5
50°	1589.7	1580.5	1566.9	1544.0	1534.9	1507.5	1493.9	1475.6	1457.3	1457.3
52.5°	1452.7	1420.6	1402.4	1365.8	1352.2	1338.4	1301.9	1288.3	1274.5	1260.9
55°	1288.3	1260.9	1224.4	1183.2	1164.9	1142.0	1105.4	1078.0	1059.8	1064.4
57.5°	1128.4	1082.7	1046.2	991.4	968.5	954.7	918.1	881.6	863.3	863.3
60°	931.9	895.4	849.7	799.4	781.1	758.4	712.6	689.8	676.0	662.4
62.5°	744.6	717.2	676.0	612.1	598.5	575.6	543.7	516.3	502.5	502.5
65°	557.3	529.9	493.4	447.7	429.4	411.2	383.8	356.4	342.6	338.1
67.5°	392.9	360.8	329.0	292.4	278.6	269.5	242.1	223.8	214.7	210.1
70°	237.5	219.2	196.4	169.0	155.3	146.1	127.9	114.3	109.6	105.1
72.5°	123.4	109.6	91.3	73.1	63.9	54.8	45.7	36.5	32.1	32.1
75°	45.7	36.5	22.9	13.8	9.1	9.1	9.1	9.1	9.1	9.1
77.5°	9.1	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)