

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: **FLDSQ4C100D010 FEU4C1009035 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: FLDSQ4C100D010 FEU4C1009035 F4LC-CSSQ-MMS
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

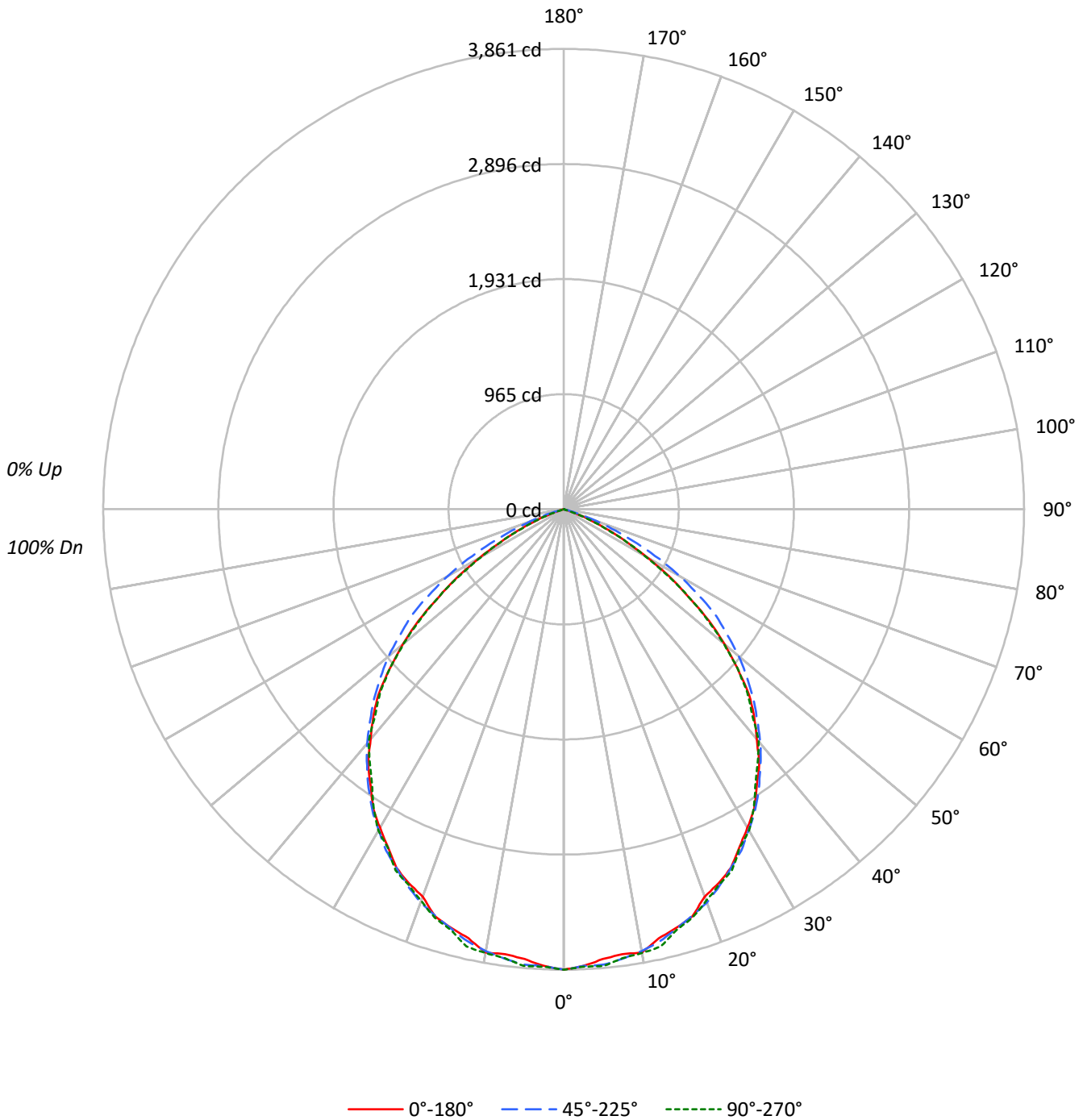
Lumens per Lamp: N/A
 Luminaire Lumens: 8248.0 lumens
 Efficiency: N/A
 Efficacy: 72.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 114.4
 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	0
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111		106	106	106		102	102	102	100
1	111	108	104	101	109	105	102	100	101	99	96		97	95	94		94	92	91	89
2	103	96	91	86	100	94	89	85	91	87	83		88	84	81		85	82	79	77
3	95	86	79	74	93	85	78	73	82	76	72		79	74	71		77	73	69	67
4	88	77	70	64	86	76	69	63	74	67	63		71	66	62		69	65	61	59
5	81	70	62	56	79	69	61	56	67	60	55		65	59	54		63	58	54	52
6	75	63	55	49	73	62	55	49	61	54	49		59	53	48		57	52	48	46
7	70	58	50	44	68	57	49	44	55	49	44		54	48	43		53	47	43	41
8	65	53	45	40	64	52	45	39	51	44	39		50	44	39		49	43	39	37
9	61	49	41	36	60	48	41	36	47	40	36		46	40	35		45	39	35	33
10	57	45	38	33	56	44	37	33	44	37	32		43	37	32		42	36	32	31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	372553	372553	372553
5°	366547	371313	372378
10°	369708	368640	370237
15°	363240	363769	364868
20°	354785	360422	358738
25°	353257	353257	355589
30°	343406	345846	346470
35°	332689	335929	330110
40°	317085	323282	320524
45°	300094	306848	297105
50°	264284	287326	262648
55°	214047	262933	214972
60°	156621	218026	153475
65°	95183	155252	92672
70°	37126	83591	35603
75°	4101	22517	4101
80°	3112	3112	3112
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	364.5	4.4
10°-20°	1031.3	12.5
20°-30°	1530.2	18.6
30°-40°	1773.1	21.5
40°-50°	1700.0	20.6
50°-60°	1249.9	15.2
60°-70°	539.9	6.5
70°-80°	58.3	0.7
80°-90°	0.8	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°	2926.0	35.5
0°-40°	4699.1	57.0
0°-60°	7649.1	92.7
0°-90°	8248.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	8248.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3861	3861	3861	3861	3861	
5°	3784	3823	3834	3839	3845	361
15°	3636	3658	3642	3647	3653	1025
25°	3318	3313	3318	3324	3340	1519
35°	2824	2841	2852	2846	2802	1766
45°	2199	2205	2249	2216	2177	1672
55°	1272	1404	1563	1399	1278	1145
65°	417	521	680	516	406	429
75°	11	17	60	11	11	34
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°	3861.1	3861.1	3861.1	3861.1	3861.1	3861.1	3861.1	3861.1	3861.1	3861.1	3861.1
2.5°	3833.6	3877.5	3883.1	3855.6	3844.6	3828.2	3866.5	3839.2	3850.2	3839.2	3833.6
5°	3784.4	3833.6	3839.2	3839.2	3828.2	3822.7	3839.2	3833.6	3828.2	3817.3	3833.6
7.5°	3762.5	3789.8	3817.3	3784.4	3800.7	3795.4	3833.6	3817.3	3811.7	3811.7	3800.7
10°	3773.4	3767.8	3789.8	3756.9	3767.8	3756.9	3789.8	3789.8	3778.8	3767.8	3762.5
12.5°	3685.5	3729.4	3729.4	3724.0	3713.0	3696.5	3729.4	3751.5	3718.4	3718.4	3713.0
15°	3636.3	3647.2	3652.6	3652.6	3647.2	3658.2	3674.5	3652.6	3658.2	3630.7	3641.6
17.5°	3581.4	3559.5	3575.8	3564.9	3570.5	3581.4	3603.4	3603.4	3570.5	3564.9	3575.8
20°	3455.2	3521.0	3526.6	3493.7	3499.1	3499.1	3537.6	3504.7	3526.6	3499.1	3510.1
22.5°	3394.8	3438.7	3444.3	3400.4	3427.7	3394.8	3433.3	3383.8	3438.7	3400.4	3416.7
25°	3318.1	3312.7	3329.0	3307.1	3312.7	3312.7	3340.0	3318.1	3334.6	3312.7	3318.1
27.5°	3192.1	3235.9	3230.3	3208.4	3219.4	3214.0	3268.8	3208.4	3241.3	3214.0	3225.0
30°	3082.2	3120.7	3109.7	3087.8	3087.8	3071.2	3131.7	3115.1	3109.7	3109.7	3104.1
32.5°	2972.6	2978.1	2967.2	2972.6	2978.1	2956.2	3005.5	2983.5	2978.1	2983.5	2989.1
35°	2824.4	2824.4	2835.4	2819.0	2841.0	2841.0	2884.8	2857.3	2851.9	2835.4	2851.9
37.5°	2692.8	2676.5	2681.9	2681.9	2692.8	2703.8	2725.7	2714.8	2714.8	2698.4	2709.4
40°	2517.4	2506.4	2522.8	2522.8	2539.3	2539.3	2561.3	2550.3	2566.6	2566.6	2566.6
42.5°	2363.9	2363.9	2352.9	2369.3	2374.9	2369.3	2407.8	2402.2	2407.8	2396.8	2402.2
45°	2199.2	2199.2	2188.2	2182.9	2210.2	2204.8	2248.7	2232.1	2254.0	2243.1	2248.7
47.5°	1974.3	2001.8	1985.3	2001.8	2034.7	2040.3	2067.6	2056.7	2078.6	2062.3	2084.2
50°	1760.6	1760.6	1777.0	1798.9	1831.8	1837.4	1870.3	1892.2	1903.2	1908.5	1914.1
52.5°	1535.7	1530.1	1546.7	1574.0	1601.5	1623.4	1656.3	1689.2	1711.2	1744.1	1727.5
55°	1272.4	1283.3	1299.9	1332.8	1376.6	1403.9	1431.5	1475.3	1513.8	1530.1	1563.0
57.5°	1047.5	1036.5	1047.5	1091.3	1140.8	1162.7	1201.2	1245.1	1299.9	1332.8	1343.7
60°	811.6	817.2	828.2	866.7	904.9	937.8	954.4	1025.5	1075.0	1107.9	1129.8
62.5°	597.9	608.9	619.8	652.7	691.0	718.5	745.8	806.2	850.1	883.0	904.9
65°	416.9	422.3	438.8	455.2	493.6	520.9	542.9	592.3	636.2	663.7	680.0
67.5°	257.8	263.2	274.1	296.3	323.6	345.5	367.4	400.3	438.8	466.1	471.7
70°	131.6	137.2	142.5	159.1	181.0	192.0	208.3	235.9	263.2	285.1	296.3
72.5°	43.9	43.9	49.4	60.4	71.4	82.3	87.7	115.2	137.2	148.1	153.5
75°	11.0	11.0	11.0	11.0	11.0	16.6	16.6	32.9	43.9	54.8	60.4
77.5°	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	11.0	11.0
80°	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
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°	3861.1	3861.1	3861.1	3861.1	3861.1	3861.1	3861.1	3861.1	3861.1	3861.1
2.5°	3861.1	3850.2	3844.6	3850.2	3850.2	3844.6	3861.1	3883.1	3910.4	3839.2
5°	3855.6	3844.6	3855.6	3822.7	3839.2	3828.2	3850.2	3844.6	3866.5	3844.6
7.5°	3839.2	3817.3	3822.7	3806.3	3828.2	3800.7	3817.3	3850.2	3828.2	3795.4
10°	3784.4	3773.4	3811.7	3756.9	3745.9	3767.8	3811.7	3778.8	3767.8	3778.8
12.5°	3729.4	3729.4	3745.9	3702.0	3707.4	3718.4	3740.3	3718.4	3729.4	3756.9
15°	3669.2	3658.2	3685.5	3652.6	3647.2	3636.3	3658.2	3658.2	3669.2	3652.6
17.5°	3597.8	3581.4	3581.4	3570.5	3564.9	3592.4	3603.4	3608.7	3614.3	3592.4
20°	3510.1	3504.7	3521.0	3504.7	3510.1	3515.6	3515.6	3504.7	3553.9	3493.7
22.5°	3416.7	3433.3	3411.4	3400.4	3411.4	3422.3	3422.3	3427.7	3416.7	3405.8
25°	3323.6	3334.6	3340.0	3307.1	3323.6	3307.1	3345.6	3351.0	3329.0	3340.0
27.5°	3241.3	3225.0	3219.4	3197.4	3208.4	3203.0	3208.4	3208.4	3241.3	3197.4
30°	3115.1	3098.8	3104.1	3087.8	3093.2	3087.8	3093.2	3093.2	3115.1	3109.7
32.5°	2994.5	2978.1	2983.5	2967.2	2967.2	2972.6	2961.6	2961.6	2978.1	2967.2
35°	2879.2	2841.0	2846.4	2841.0	2846.4	2824.4	2824.4	2819.0	2830.0	2802.5
37.5°	2714.8	2698.4	2692.8	2687.5	2692.8	2681.9	2692.8	2676.5	2692.8	2670.9
40°	2566.6	2555.7	2561.3	2528.4	2528.4	2533.7	2522.8	2517.4	2522.8	2544.7
42.5°	2418.7	2396.8	2385.8	2374.9	2380.2	2363.9	2358.3	2347.3	2358.3	2336.4
45°	2243.1	2243.1	2237.7	2210.2	2215.8	2215.8	2193.8	2171.9	2177.3	2177.3
47.5°	2084.2	2073.2	2067.6	2040.3	2034.7	2029.4	2007.2	1990.9	1990.9	1974.3
50°	1908.5	1897.6	1881.2	1853.7	1842.7	1809.9	1793.5	1771.6	1749.7	1749.7
52.5°	1744.1	1705.6	1683.6	1639.8	1623.4	1606.9	1563.0	1546.7	1530.1	1513.8
55°	1546.7	1513.8	1469.9	1420.5	1398.6	1371.0	1327.2	1294.3	1272.4	1277.9
57.5°	1354.7	1299.9	1256.0	1190.2	1162.7	1146.2	1102.3	1058.4	1036.5	1036.5
60°	1118.8	1075.0	1020.2	959.7	937.8	910.5	855.5	828.2	811.6	795.3
62.5°	894.0	861.1	811.6	734.9	718.5	691.0	652.7	619.8	603.3	603.3
65°	669.1	636.2	592.3	537.5	515.6	493.6	460.7	427.8	411.3	405.9
67.5°	471.7	433.2	395.0	351.1	334.5	323.6	290.7	268.7	257.8	252.2
70°	285.1	263.2	235.9	203.0	186.4	175.4	153.5	137.2	131.6	126.2
72.5°	148.1	131.6	109.6	87.7	76.8	65.8	54.8	43.9	38.5	38.5
75°	54.8	43.9	27.5	16.6	11.0	11.0	11.0	11.0	11.0	11.0
77.5°	11.0	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
80°	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6	5.6
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)