

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 FEU4C809040 F4LC-CSSQ-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: FLDSQ4C80D010 FEU4C809040 F4LC-CSSQ-MW
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

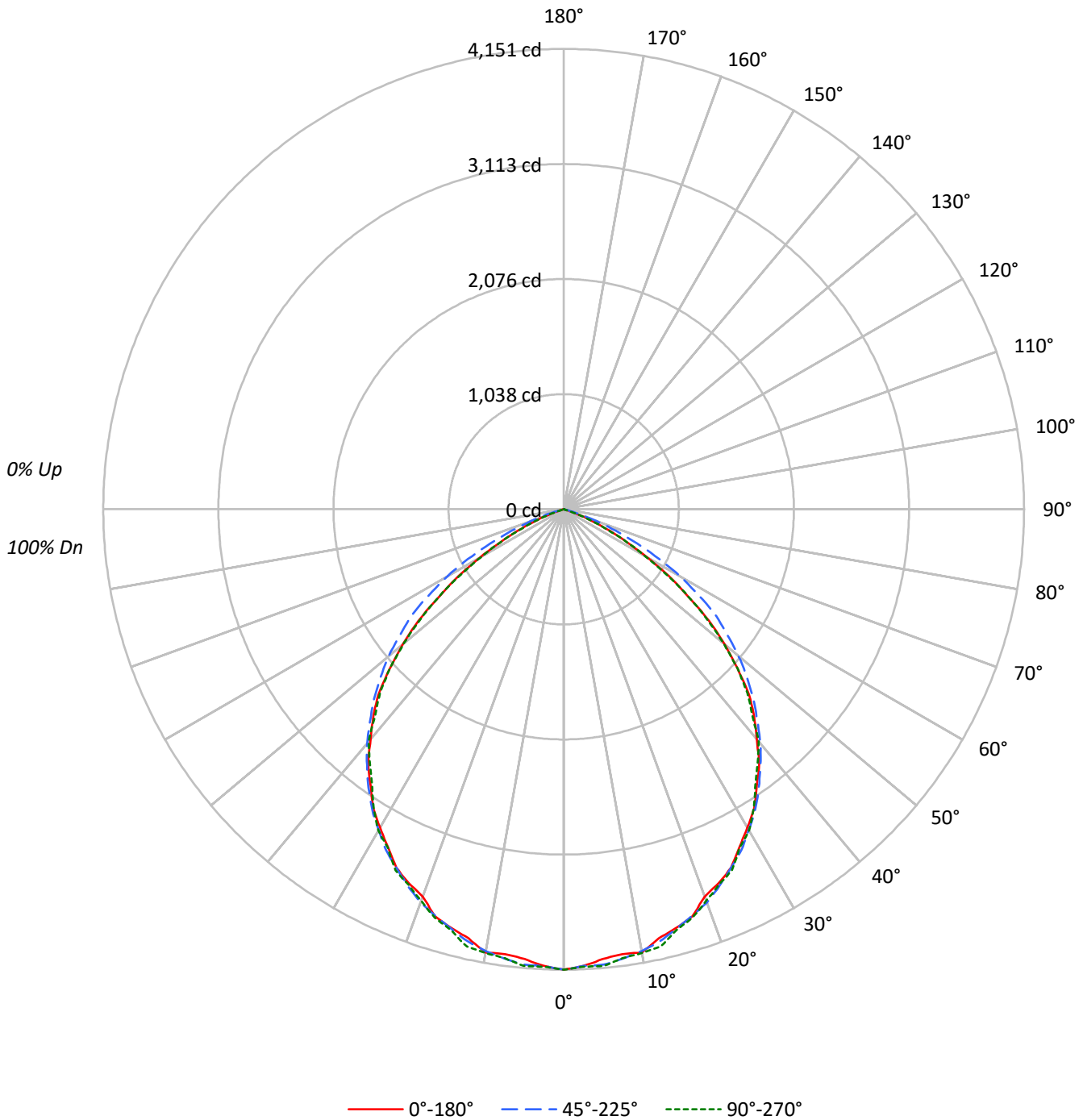
Lumens per Lamp: N/A
 Luminaire Lumens: 8867.0 lumens
 Efficiency: N/A
 Efficacy: 99.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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	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°	400516	400516	400516
5°	394055	399179	400322
10°	397455	396299	398023
15°	390500	391070	392248
20°	381410	387468	385661
25°	379767	379767	382279
30°	369176	371806	372474
35°	357661	361148	354881
40°	340878	347554	344581
45°	322623	329868	319402
50°	284113	308897	282357
55°	230096	282666	231122
60°	168373	234391	164996
65°	102330	166919	99635
70°	39919	89854	38283
75°	4399	24195	4399
80°	3334	3334	3334
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	391.8	4.4
10°-20°	1108.7	12.5
20°-30°	1645.1	18.6
30°-40°	1906.2	21.5
40°-50°	1827.6	20.6
50°-60°	1343.8	15.2
60°-70°	580.4	6.5
70°-80°	62.7	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°	3145.6	35.5
0°-40°	5051.8	57.0
0°-60°	8223.2	92.7
0°-90°	8867.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	8867.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4151	4151	4151	4151	4151	
5°	4068	4110	4121	4127	4133	388
15°	3909	3933	3915	3921	3927	1102
25°	3567	3561	3567	3573	3591	1633
35°	3036	3054	3066	3060	3013	1899
45°	2364	2370	2417	2382	2341	1797
55°	1368	1509	1680	1504	1374	1231
65°	448	560	731	554	436	461
75°	12	18	65	12	12	36
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°	4150.9	4150.9	4150.9	4150.9	4150.9	4150.9	4150.9	4150.9	4150.9	4150.9	4150.9
2.5°	4121.3	4168.5	4174.5	4144.9	4133.1	4115.6	4156.7	4127.3	4139.1	4127.3	4121.3
5°	4068.4	4121.3	4127.3	4127.3	4115.6	4109.5	4127.3	4121.3	4115.6	4103.8	4121.3
7.5°	4044.8	4074.2	4103.8	4068.4	4086.0	4080.2	4121.3	4103.8	4097.8	4097.8	4086.0
10°	4056.6	4050.6	4074.2	4038.8	4050.6	4038.8	4074.2	4074.2	4062.4	4050.6	4044.8
12.5°	3962.1	4009.2	4009.2	4003.5	3991.7	3973.9	4009.2	4033.0	3997.4	3997.4	3991.7
15°	3909.2	3920.9	3926.7	3926.7	3920.9	3932.7	3950.3	3926.7	3932.7	3903.1	3914.9
17.5°	3850.2	3826.6	3844.2	3832.4	3838.4	3850.2	3873.8	3873.8	3838.4	3832.4	3844.2
20°	3714.5	3785.3	3791.3	3755.9	3761.7	3761.7	3803.1	3767.7	3791.3	3761.7	3773.5
22.5°	3649.6	3696.7	3702.7	3655.6	3685.0	3649.6	3691.0	3637.8	3696.7	3655.6	3673.2
25°	3567.1	3561.3	3578.9	3555.3	3561.3	3561.3	3590.7	3567.1	3584.9	3561.3	3567.1
27.5°	3431.6	3478.8	3472.8	3449.2	3461.0	3455.2	3514.1	3449.2	3484.6	3455.2	3467.0
30°	3313.5	3354.9	3343.1	3319.5	3319.5	3301.7	3366.7	3348.9	3343.1	3343.1	3337.1
32.5°	3195.6	3201.7	3189.9	3195.6	3201.7	3178.1	3231.0	3207.4	3201.7	3207.4	3213.4
35°	3036.4	3036.4	3048.2	3030.6	3054.2	3054.2	3101.3	3071.8	3066.0	3048.2	3066.0
37.5°	2894.9	2877.4	2883.2	2883.2	2894.9	2906.7	2930.3	2918.5	2918.5	2900.9	2912.7
40°	2706.3	2694.5	2712.1	2712.1	2729.9	2729.9	2753.5	2741.7	2759.3	2759.3	2759.3
42.5°	2541.3	2541.3	2529.5	2547.1	2553.1	2547.1	2588.5	2582.4	2588.5	2576.7	2582.4
45°	2364.3	2364.3	2352.5	2346.7	2376.0	2370.3	2417.4	2399.6	2423.2	2411.4	2417.4
47.5°	2122.5	2152.1	2134.3	2152.1	2187.4	2193.5	2222.8	2211.0	2234.6	2217.0	2240.6
50°	1892.7	1892.7	1910.3	1933.9	1969.3	1975.3	2010.6	2034.2	2046.0	2051.8	2057.8
52.5°	1651.0	1645.0	1662.8	1692.1	1721.7	1745.3	1780.6	1816.0	1839.6	1875.0	1857.2
55°	1367.8	1379.6	1397.4	1432.8	1479.9	1509.3	1538.9	1586.0	1627.4	1645.0	1680.3
57.5°	1126.1	1114.3	1126.1	1173.2	1226.4	1250.0	1291.3	1338.5	1397.4	1432.8	1444.6
60°	872.5	878.5	890.3	931.7	972.8	1008.2	1026.0	1102.5	1155.7	1191.0	1214.6
62.5°	642.8	654.6	666.4	701.7	742.9	772.4	801.8	866.7	913.9	949.3	972.8
65°	448.2	453.9	471.7	489.3	530.7	560.0	583.6	636.8	683.9	713.5	731.1
67.5°	277.1	282.9	294.7	318.5	347.9	371.4	395.0	430.4	471.7	501.1	507.1
70°	141.5	147.5	153.2	171.0	194.6	206.4	224.0	253.6	282.9	306.5	318.5
72.5°	47.2	47.2	53.2	64.9	76.7	88.5	94.3	123.9	147.5	159.3	165.0
75°	11.8	11.8	11.8	11.8	11.8	17.8	17.8	35.4	47.2	58.9	64.9
77.5°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	11.8	11.8
80°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
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°	4150.9	4150.9	4150.9	4150.9	4150.9	4150.9	4150.9	4150.9	4150.9	4150.9
2.5°	4150.9	4139.1	4133.1	4139.1	4139.1	4133.1	4150.9	4174.5	4203.8	4127.3
5°	4144.9	4133.1	4144.9	4109.5	4127.3	4115.6	4139.1	4133.1	4156.7	4133.1
7.5°	4127.3	4103.8	4109.5	4092.0	4115.6	4086.0	4103.8	4139.1	4115.6	4080.2
10°	4068.4	4056.6	4097.8	4038.8	4027.0	4050.6	4097.8	4062.4	4050.6	4062.4
12.5°	4009.2	4009.2	4027.0	3979.9	3985.7	3997.4	4021.0	3997.4	4009.2	4038.8
15°	3944.5	3932.7	3962.1	3926.7	3920.9	3909.2	3932.7	3932.7	3944.5	3926.7
17.5°	3867.8	3850.2	3850.2	3838.4	3832.4	3862.0	3873.8	3879.6	3885.6	3862.0
20°	3773.5	3767.7	3785.3	3767.7	3773.5	3779.5	3779.5	3767.7	3820.6	3755.9
22.5°	3673.2	3691.0	3667.4	3655.6	3667.4	3679.2	3679.2	3685.0	3673.2	3661.4
25°	3573.1	3584.9	3590.7	3555.3	3573.1	3555.3	3596.7	3602.4	3578.9	3590.7
27.5°	3484.6	3467.0	3461.0	3437.4	3449.2	3443.4	3449.2	3449.2	3484.6	3437.4
30°	3348.9	3331.3	3337.1	3319.5	3325.3	3319.5	3325.3	3325.3	3348.9	3343.1
32.5°	3219.2	3201.7	3207.4	3189.9	3189.9	3195.6	3183.9	3183.9	3201.7	3189.9
35°	3095.3	3054.2	3060.0	3054.2	3060.0	3036.4	3036.4	3030.6	3042.4	3012.8
37.5°	2918.5	2900.9	2894.9	2889.2	2894.9	2883.2	2894.9	2877.4	2894.9	2871.4
40°	2759.3	2747.5	2753.5	2718.1	2718.1	2723.9	2712.1	2706.3	2712.1	2735.7
42.5°	2600.2	2576.7	2564.9	2553.1	2558.9	2541.3	2535.3	2523.5	2535.3	2511.7
45°	2411.4	2411.4	2405.6	2376.0	2382.1	2382.1	2358.5	2334.9	2340.7	2340.7
47.5°	2240.6	2228.8	2222.8	2193.5	2187.4	2181.7	2157.9	2140.3	2140.3	2122.5
50°	2051.8	2040.0	2022.4	1992.8	1981.0	1945.7	1928.1	1904.5	1881.0	1881.0
52.5°	1875.0	1833.6	1810.0	1762.9	1745.3	1727.5	1680.3	1662.8	1645.0	1627.4
55°	1662.8	1627.4	1580.3	1527.1	1503.5	1473.9	1426.8	1391.4	1367.8	1373.9
57.5°	1456.4	1397.4	1350.3	1279.6	1250.0	1232.2	1185.0	1137.9	1114.3	1114.3
60°	1202.8	1155.7	1096.7	1031.8	1008.2	978.8	919.7	890.3	872.5	855.0
62.5°	961.1	925.7	872.5	790.0	772.4	742.9	701.7	666.4	648.6	648.6
65°	719.3	683.9	636.8	577.8	554.3	530.7	495.3	460.0	442.2	436.4
67.5°	507.1	465.7	424.6	377.4	359.6	347.9	312.5	288.9	277.1	271.1
70°	306.5	282.9	253.6	218.2	200.4	188.6	165.0	147.5	141.5	135.7
72.5°	159.3	141.5	117.9	94.3	82.5	70.7	58.9	47.2	41.4	41.4
75°	58.9	47.2	29.6	17.8	11.8	11.8	11.8	11.8	11.8	11.8
77.5°	11.8	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
80°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
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)