

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-DFSSQ-MW**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

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

Summary

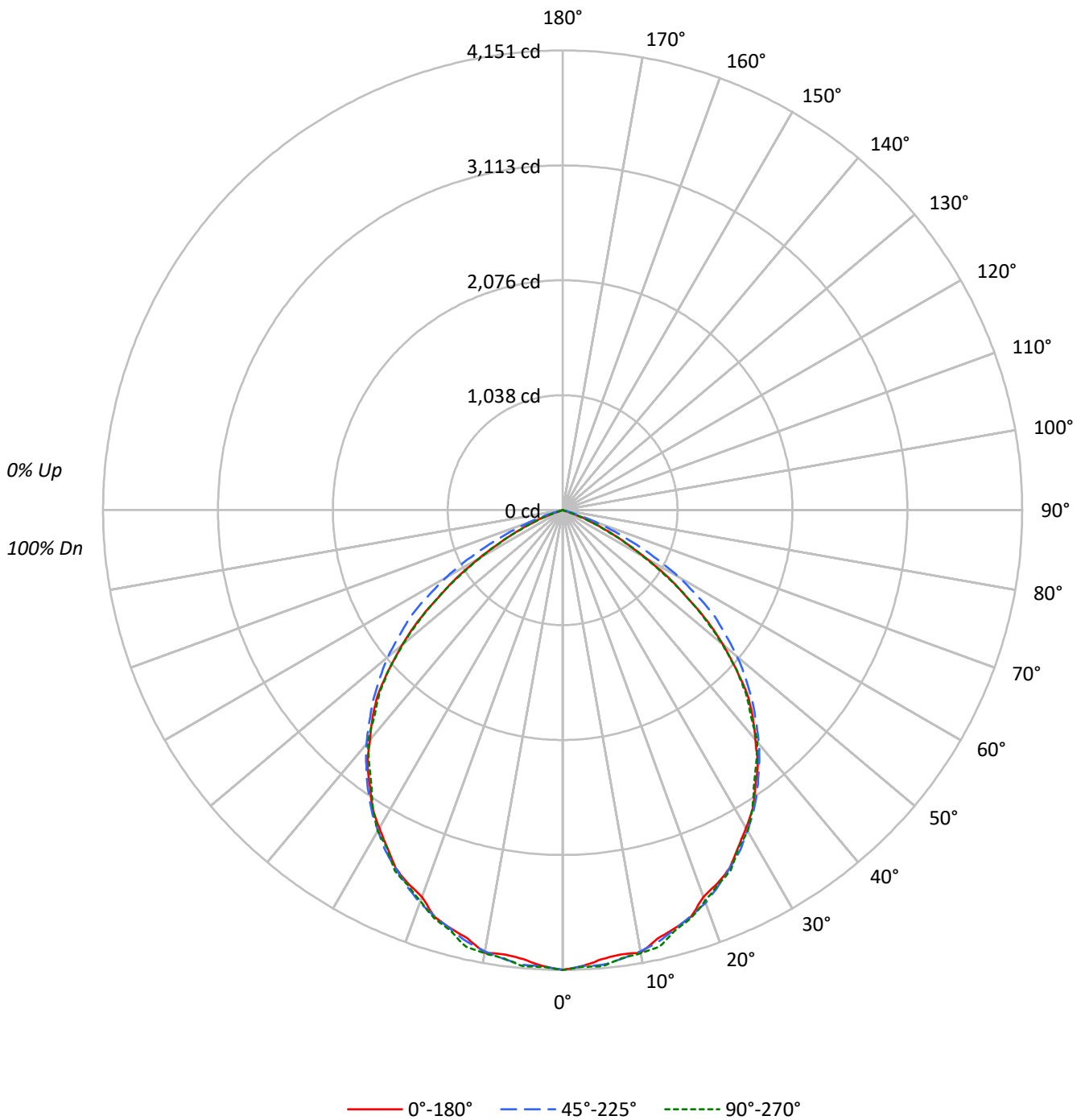
Lumens per Lamp: N/A
 Luminaire Lumens: 8867.0 lumens
 Efficiency: N/A
 Efficacy: 99.1 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

TEST NUMBER: P#
CATALOG NUMBER: FLDSQ4C80D010 FEU4C809040 F4LC-DFSSQ-MW

Luminous Intensity Polar Plot



TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C80D010 FEU4C809040 F4LC-DFSSQ-MW

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°	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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C80D010 FEU4C809040 F4LC-DFSSQ-MW

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	

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C80D010 FEU4C809040 F4LC-DFSSQ-MW

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

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C80D010 FEU4C809040 F4LC-DFSSQ-MW

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)