

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 FEU4C809050 F4LC-DFSSQ-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 FEU4C809050 F4LC-DFSSQ-MW  
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-DFSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

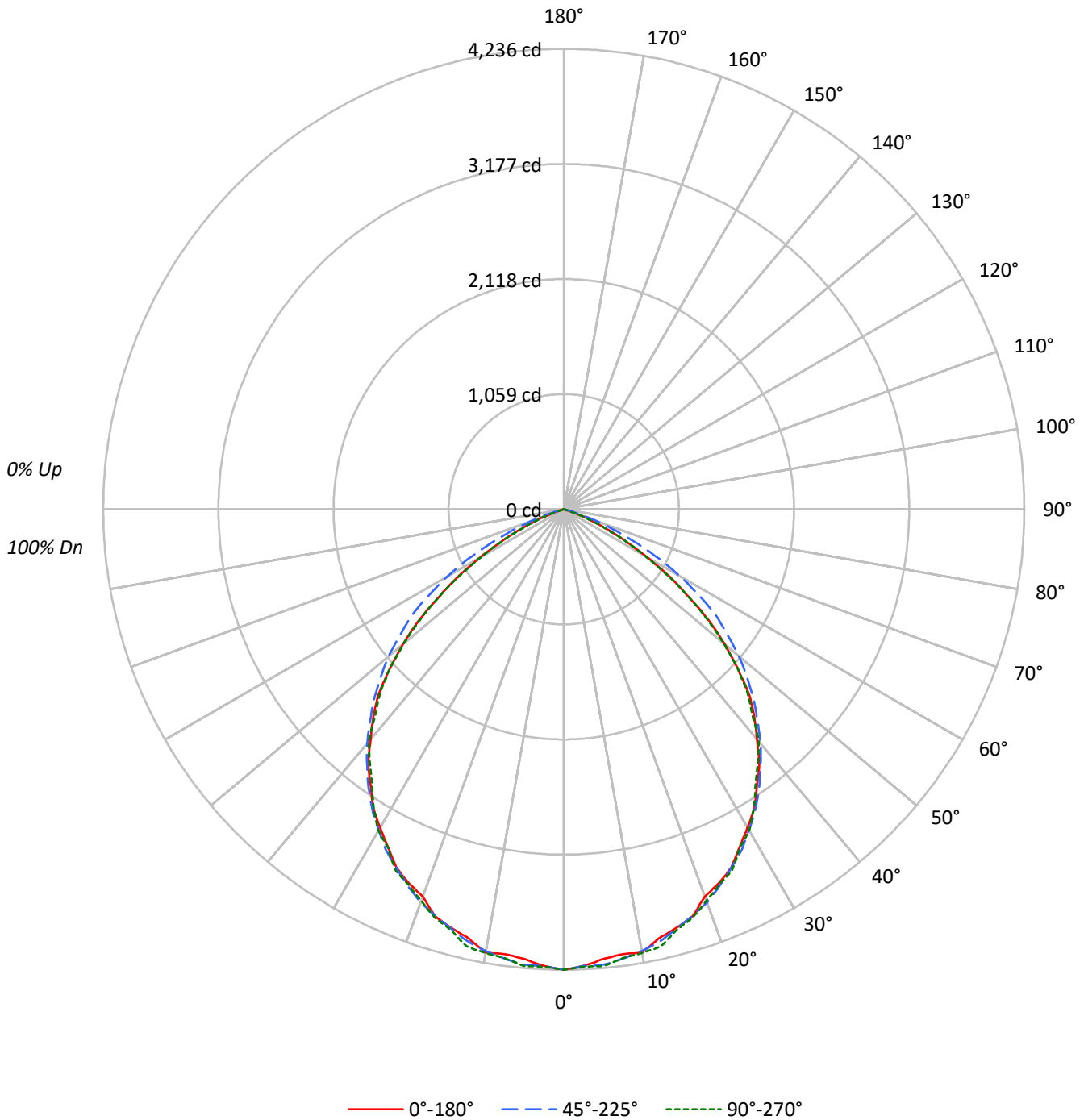
Lumens per Lamp: N/A  
 Luminaire Lumens: 9049.0 lumens  
 Efficiency: N/A  
 Efficacy: 101.1 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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°	408737	408737	408737
5°	402143	407373	408545
10°	405617	404431	406195
15°	398512	399101	400300
20°	389244	395416	393578
25°	387560	387560	390126
30°	376752	379438	380117
35°	365000	368557	362173
40°	347881	354683	351648
45°	329241	336637	325952
50°	289953	315231	288151
55°	234823	288469	235866
60°	171827	239196	168373
65°	104430	170344	101667
70°	40737	91687	39073
75°	4474	24717	4474
80°	3390	3390	3390
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	399.9	4.4
10°-20°	1131.5	12.5
20°-30°	1678.9	18.6
30°-40°	1945.3	21.5
40°-50°	1865.1	20.6
50°-60°	1371.3	15.2
60°-70°	592.3	6.5
70°-80°	63.9	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°	3210.2	35.5
0°-40°	5155.5	57.0
0°-60°	8391.9	92.7
0°-90°	9049.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	9049.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	4236	4236	4236	4236	4236	
5°	4152	4194	4206	4212	4218	396
15°	3989	4013	3995	4001	4007	1124
25°	3640	3634	3640	3646	3664	1667
35°	3099	3117	3129	3123	3075	1938
45°	2413	2419	2467	2431	2389	1834
55°	1396	1540	1715	1534	1402	1256
65°	457	572	746	566	445	470
75°	12	18	66	12	12	37
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C80D010 FEU4C809050 F4LC-DFSSQ-MW

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	4236.1	4236.1	4236.1	4236.1	4236.1	4236.1	4236.1	4236.1	4236.1	4236.1	4236.1
2.5°	4205.9	4254.0	4260.2	4230.0	4218.0	4200.0	4242.0	4212.1	4224.1	4212.1	4205.9
5°	4151.9	4205.9	4212.1	4212.1	4200.0	4193.9	4212.1	4205.9	4200.0	4188.0	4205.9
7.5°	4127.8	4157.8	4188.0	4151.9	4169.8	4163.9	4205.9	4188.0	4181.9	4181.9	4169.8
10°	4139.9	4133.7	4157.8	4121.7	4133.7	4121.7	4157.8	4157.8	4145.8	4133.7	4127.8
12.5°	4043.4	4091.5	4091.5	4085.6	4073.6	4055.4	4091.5	4115.8	4079.5	4079.5	4073.6
15°	3989.4	4001.4	4007.3	4007.3	4001.4	4013.4	4031.4	4007.3	4013.4	3983.3	3995.3
17.5°	3929.2	3905.2	3923.1	3911.1	3917.2	3929.2	3953.3	3953.3	3917.2	3911.1	3923.1
20°	3790.8	3863.0	3869.1	3833.0	3838.9	3838.9	3881.1	3845.0	3869.1	3838.9	3850.9
22.5°	3724.5	3772.6	3778.8	3730.6	3760.6	3724.5	3766.7	3712.5	3772.6	3730.6	3748.6
25°	3640.3	3634.4	3652.3	3628.3	3634.4	3634.4	3664.4	3640.3	3658.5	3634.4	3640.3
27.5°	3502.1	3550.2	3544.1	3520.0	3532.0	3526.1	3586.3	3520.0	3556.1	3526.1	3538.2
30°	3381.5	3423.8	3411.7	3387.7	3387.7	3369.5	3435.8	3417.6	3411.7	3411.7	3405.6
32.5°	3261.2	3267.4	3255.3	3261.2	3267.4	3243.3	3297.3	3273.3	3267.4	3273.3	3279.4
35°	3098.7	3098.7	3110.7	3092.8	3116.9	3116.9	3165.0	3134.8	3128.9	3110.7	3128.9
37.5°	2954.4	2936.4	2942.3	2942.3	2954.4	2966.4	2990.4	2978.4	2978.4	2960.5	2972.5
40°	2761.9	2749.9	2767.8	2767.8	2785.9	2785.9	2810.0	2798.0	2815.9	2815.9	2815.9
42.5°	2593.5	2593.5	2581.4	2599.4	2605.5	2599.4	2641.6	2635.5	2641.6	2629.6	2635.5
45°	2412.8	2412.8	2400.8	2394.9	2424.8	2418.9	2467.0	2448.9	2472.9	2460.9	2467.0
47.5°	2166.1	2196.3	2178.1	2196.3	2232.3	2238.5	2268.4	2256.4	2280.5	2262.5	2286.6
50°	1931.6	1931.6	1949.5	1973.6	2009.7	2015.8	2051.9	2076.0	2088.0	2093.9	2100.0
52.5°	1684.9	1678.7	1696.9	1726.9	1757.0	1781.1	1817.2	1853.3	1877.3	1913.4	1895.3
55°	1395.9	1408.0	1426.1	1462.2	1510.3	1540.3	1570.5	1618.6	1660.8	1678.7	1714.8
57.5°	1149.2	1137.2	1149.2	1197.3	1251.6	1275.6	1317.8	1366.0	1426.1	1462.2	1474.2
60°	890.4	896.6	908.6	950.8	992.8	1028.9	1047.1	1125.1	1179.4	1215.5	1239.5
62.5°	656.0	668.0	680.0	716.1	758.1	788.3	818.3	884.5	932.7	968.7	992.8
65°	457.4	463.3	481.4	499.4	541.6	571.5	595.6	649.8	698.0	728.2	746.1
67.5°	282.8	288.7	300.7	325.0	355.0	379.1	403.1	439.2	481.4	511.4	517.5
70°	144.4	150.5	156.4	174.5	198.6	210.6	228.6	258.8	288.7	312.8	325.0
72.5°	48.1	48.1	54.3	66.3	78.3	90.3	96.2	126.4	150.5	162.5	168.4
75°	12.0	12.0	12.0	12.0	12.0	18.2	18.2	36.1	48.1	60.1	66.3
77.5°	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	12.0	12.0
80°	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
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°	4236.1	4236.1	4236.1	4236.1	4236.1	4236.1	4236.1	4236.1	4236.1	4236.1
2.5°	4236.1	4224.1	4218.0	4224.1	4224.1	4218.0	4236.1	4260.2	4290.1	4212.1
5°	4230.0	4218.0	4230.0	4193.9	4212.1	4200.0	4224.1	4218.0	4242.0	4218.0
7.5°	4212.1	4188.0	4193.9	4176.0	4200.0	4169.8	4188.0	4224.1	4200.0	4163.9
10°	4151.9	4139.9	4181.9	4121.7	4109.7	4133.7	4181.9	4145.8	4133.7	4145.8
12.5°	4091.5	4091.5	4109.7	4061.6	4067.5	4079.5	4103.6	4079.5	4091.5	4121.7
15°	4025.5	4013.4	4043.4	4007.3	4001.4	3989.4	4013.4	4013.4	4025.5	4007.3
17.5°	3947.2	3929.2	3929.2	3917.2	3911.1	3941.3	3953.3	3959.2	3965.3	3941.3
20°	3850.9	3845.0	3863.0	3845.0	3850.9	3857.1	3857.1	3845.0	3899.0	3833.0
22.5°	3748.6	3766.7	3742.7	3730.6	3742.7	3754.7	3754.7	3760.6	3748.6	3736.5
25°	3646.4	3658.5	3664.4	3628.3	3646.4	3628.3	3670.5	3676.4	3652.3	3664.4
27.5°	3556.1	3538.2	3532.0	3508.0	3520.0	3514.1	3520.0	3520.0	3556.1	3508.0
30°	3417.6	3399.7	3405.6	3387.7	3393.6	3387.7	3393.6	3393.6	3417.6	3411.7
32.5°	3285.3	3267.4	3273.3	3255.3	3255.3	3261.2	3249.2	3249.2	3267.4	3255.3
35°	3158.9	3116.9	3122.8	3116.9	3122.8	3098.7	3098.7	3092.8	3104.9	3074.7
37.5°	2978.4	2960.5	2954.4	2948.5	2954.4	2942.3	2954.4	2936.4	2954.4	2930.3
40°	2815.9	2803.9	2810.0	2773.9	2773.9	2779.8	2767.8	2761.9	2767.8	2791.8
42.5°	2653.6	2629.6	2617.5	2605.5	2611.4	2593.5	2587.3	2575.3	2587.3	2563.3
45°	2460.9	2460.9	2455.0	2424.8	2430.9	2430.9	2406.9	2382.8	2388.7	2388.7
47.5°	2286.6	2274.6	2268.4	2238.5	2232.3	2226.4	2202.1	2184.2	2184.2	2166.1
50°	2093.9	2081.9	2063.9	2033.7	2021.7	1985.6	1967.7	1943.6	1919.6	1919.6
52.5°	1913.4	1871.2	1847.2	1799.0	1781.1	1762.9	1714.8	1696.9	1678.7	1660.8
55°	1696.9	1660.8	1612.7	1558.4	1534.4	1504.2	1456.1	1420.0	1395.9	1402.1
57.5°	1486.3	1426.1	1378.0	1305.8	1275.6	1257.5	1209.3	1161.2	1137.2	1137.2
60°	1227.5	1179.4	1119.2	1053.0	1028.9	998.9	938.6	908.6	890.4	872.5
62.5°	980.8	944.7	890.4	806.2	788.3	758.1	716.1	680.0	661.9	661.9
65°	734.0	698.0	649.8	589.7	565.6	541.6	505.5	469.4	451.2	445.3
67.5°	517.5	475.3	433.3	385.2	367.0	355.0	318.9	294.8	282.8	276.7
70°	312.8	288.7	258.8	222.7	204.5	192.5	168.4	150.5	144.4	138.5
72.5°	162.5	144.4	120.3	96.2	84.2	72.2	60.1	48.1	42.2	42.2
75°	60.1	48.1	30.2	18.2	12.0	12.0	12.0	12.0	12.0	12.0
77.5°	12.0	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
80°	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1	6.1
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)