

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: **FLDSQ4C60D010 FEU4C609027 F4LC-CSSQ-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: FLDSQ4C60D010 FEU4C609027 F4LC-CSSQ-MW  
 Description: 4 INCH 6000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

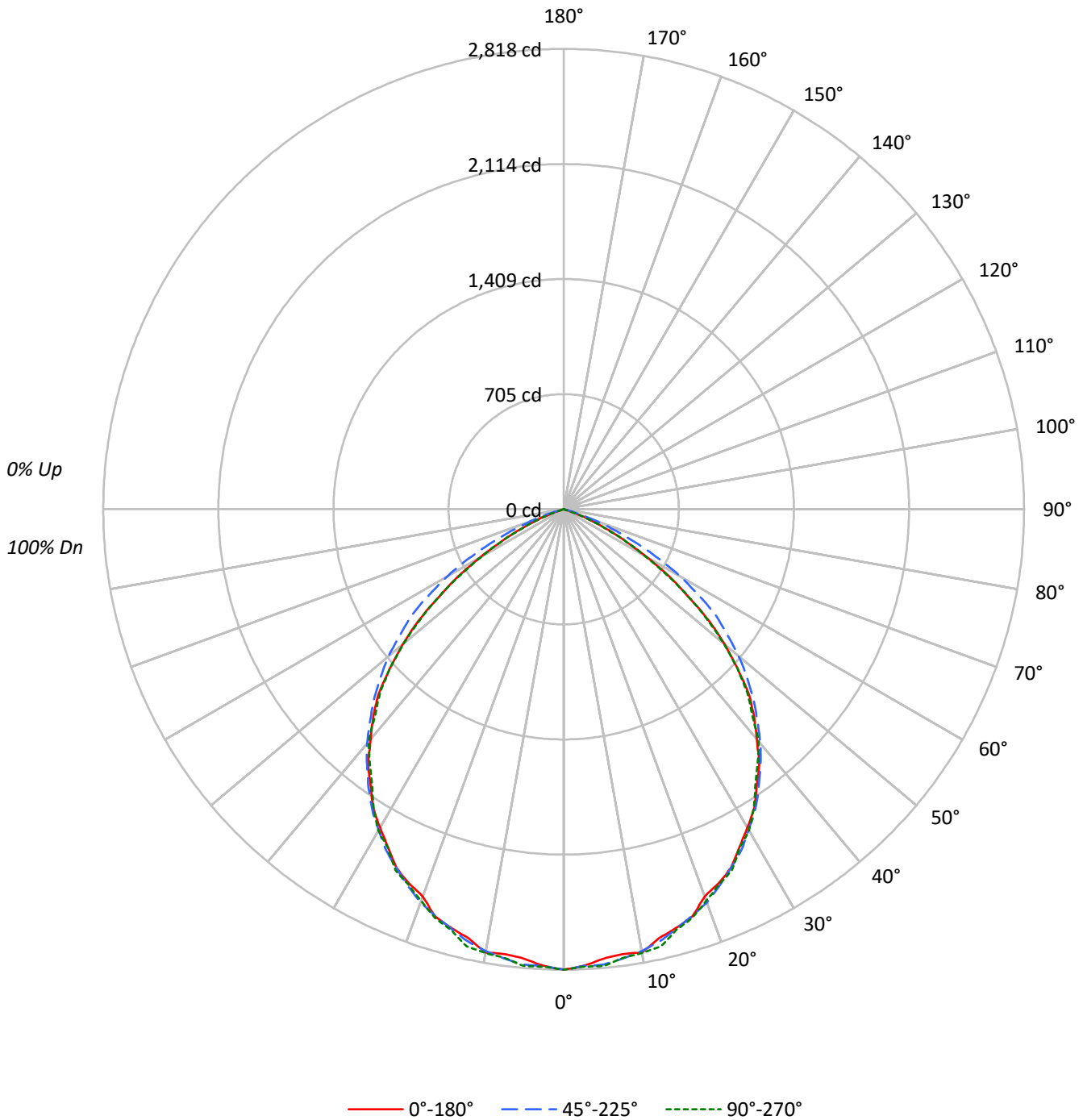
Lumens per Lamp: N/A  
 Luminaire Lumens: 6019.0 lumens  
 Efficiency: N/A  
 Efficacy: 83.6 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 72  
 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: FLDSQ4C60D010 FEU4C609027 F4LC-CSSQ-MW

### Luminous Intensity Polar Plot



TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C60D010 FEU4C609027 F4LC-CSSQ-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°	271877	271877	271877
5°	267491	270968	271743
10°	269800	269017	270182
15°	265075	265465	266264
20°	258911	263018	261786
25°	257791	257791	259495
30°	250596	252390	252836
35°	242779	245147	240895
40°	231396	235918	233903
45°	218998	223924	216815
50°	192861	209674	191661
55°	156195	191875	156885
60°	114301	159110	112004
65°	69453	113311	67626
70°	27083	60993	25983
75°	2982	16441	2982
80°	2278	2278	2278
85°	0	0	0

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C60D010 FEU4C609027 F4LC-CSSQ-MW

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	266.0	4.4
10°-20°	752.6	12.5
20°-30°	1116.7	18.6
30°-40°	1293.9	21.5
40°-50°	1240.6	20.6
50°-60°	912.2	15.2
60°-70°	394.0	6.5
70°-80°	42.5	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°	2135.3	35.5
0°-40°	3429.2	57.0
0°-60°	5582.0	92.7
0°-90°	6019.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6019.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2818	2818	2818	2818	2818	
5°	2762	2790	2798	2802	2806	263
15°	2654	2670	2658	2662	2666	748
25°	2421	2417	2421	2425	2437	1109
35°	2061	2073	2081	2077	2045	1289
45°	1605	1609	1641	1617	1589	1220
55°	928	1024	1141	1021	933	836
65°	304	380	496	376	296	313
75°	8	12	44	8	8	25
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C60D010 FEU4C609027 F4LC-CSSQ-MW

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	2817.7	2817.7	2817.7	2817.7	2817.7	2817.7	2817.7	2817.7	2817.7	2817.7	2817.7
2.5°	2797.6	2829.6	2833.7	2813.6	2805.6	2793.7	2821.6	2801.7	2809.7	2801.7	2797.6
5°	2761.7	2797.6	2801.7	2801.7	2793.7	2789.6	2801.7	2797.6	2793.7	2785.7	2797.6
7.5°	2745.7	2765.6	2785.7	2761.7	2773.6	2769.7	2797.6	2785.7	2781.6	2781.6	2773.6
10°	2753.7	2749.6	2765.6	2741.6	2749.6	2741.6	2765.6	2765.6	2757.6	2749.6	2745.7
12.5°	2689.5	2721.5	2721.5	2717.6	2709.6	2697.5	2721.5	2737.7	2713.5	2713.5	2709.6
15°	2653.6	2661.6	2665.5	2665.5	2661.6	2669.6	2681.5	2665.5	2669.6	2649.5	2657.5
17.5°	2613.6	2597.6	2609.5	2601.5	2605.6	2613.6	2629.6	2629.6	2605.6	2601.5	2609.5
20°	2521.5	2569.5	2573.6	2549.5	2553.5	2553.5	2581.6	2557.5	2573.6	2553.5	2561.5
22.5°	2477.4	2509.4	2513.5	2481.5	2501.4	2477.4	2505.5	2469.4	2509.4	2481.5	2493.4
25°	2421.4	2417.4	2429.4	2413.4	2417.4	2417.4	2437.4	2421.4	2433.4	2417.4	2421.4
27.5°	2329.4	2361.4	2357.3	2341.3	2349.3	2345.4	2385.4	2341.3	2365.4	2345.4	2353.4
30°	2249.2	2277.3	2269.3	2253.3	2253.3	2241.2	2285.3	2273.3	2269.3	2269.3	2265.3
32.5°	2169.2	2173.3	2165.3	2169.2	2173.3	2157.3	2193.2	2177.2	2173.3	2177.2	2181.3
35°	2061.1	2061.1	2069.1	2057.2	2073.2	2073.2	2105.2	2085.1	2081.2	2069.1	2081.2
37.5°	1965.1	1953.2	1957.1	1957.1	1965.1	1973.1	1989.1	1981.1	1981.1	1969.2	1977.2
40°	1837.1	1829.1	1841.0	1841.0	1853.1	1853.1	1869.1	1861.1	1873.0	1873.0	1873.0
42.5°	1725.1	1725.1	1717.1	1729.0	1733.1	1729.0	1757.1	1753.0	1757.1	1749.1	1753.0
45°	1604.9	1604.9	1596.9	1593.0	1612.9	1609.0	1641.0	1628.9	1644.9	1636.9	1641.0
47.5°	1440.8	1460.9	1448.8	1460.9	1484.9	1488.9	1508.9	1500.9	1516.9	1504.9	1520.9
50°	1284.8	1284.8	1296.7	1312.7	1336.7	1340.8	1364.8	1380.8	1388.8	1392.8	1396.8
52.5°	1120.7	1116.6	1128.7	1148.6	1168.7	1184.7	1208.7	1232.7	1248.7	1272.7	1260.7
55°	928.5	936.5	948.6	972.6	1004.6	1024.5	1044.6	1076.6	1104.7	1116.6	1140.6
57.5°	764.4	756.4	764.4	796.4	832.5	848.5	876.6	908.6	948.6	972.6	980.6
60°	592.3	596.4	604.4	632.4	660.4	684.4	696.5	748.4	784.5	808.5	824.5
62.5°	436.3	444.3	452.3	476.3	504.3	524.3	544.3	588.4	620.4	644.4	660.4
65°	304.2	308.1	320.2	332.1	360.2	380.2	396.2	432.2	464.3	484.3	496.3
67.5°	188.1	192.0	200.0	216.2	236.1	252.1	268.1	292.1	320.2	340.1	344.2
70°	96.0	100.1	104.0	116.1	132.1	140.1	152.0	172.1	192.0	208.0	216.2
72.5°	32.0	32.0	36.1	44.1	52.1	60.1	64.0	84.1	100.1	108.1	112.0
75°	8.0	8.0	8.0	8.0	8.0	12.1	12.1	24.0	32.0	40.0	44.1
77.5°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	8.0	8.0
80°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
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

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C60D010 FEU4C609027 F4LC-CSSQ-MW

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	2817.7	2817.7	2817.7	2817.7	2817.7	2817.7	2817.7	2817.7	2817.7	2817.7
2.5°	2817.7	2809.7	2805.6	2809.7	2809.7	2805.6	2817.7	2833.7	2853.6	2801.7
5°	2813.6	2805.6	2813.6	2789.6	2801.7	2793.7	2809.7	2805.6	2821.6	2805.6
7.5°	2801.7	2785.7	2789.6	2777.7	2793.7	2773.6	2785.7	2809.7	2793.7	2769.7
10°	2761.7	2753.7	2781.6	2741.6	2733.6	2749.6	2781.6	2757.6	2749.6	2757.6
12.5°	2721.5	2721.5	2733.6	2701.6	2705.5	2713.5	2729.5	2713.5	2721.5	2741.6
15°	2677.6	2669.6	2689.5	2665.5	2661.6	2653.6	2669.6	2669.6	2677.6	2665.5
17.5°	2625.5	2613.6	2613.6	2605.6	2601.5	2621.6	2629.6	2633.5	2637.6	2621.6
20°	2561.5	2557.5	2569.5	2557.5	2561.5	2565.5	2565.5	2557.5	2593.5	2549.5
22.5°	2493.4	2505.5	2489.5	2481.5	2489.5	2497.5	2497.5	2501.4	2493.4	2485.4
25°	2425.4	2433.4	2437.4	2413.4	2425.4	2413.4	2441.4	2445.4	2429.4	2437.4
27.5°	2365.4	2353.4	2349.3	2333.3	2341.3	2337.4	2341.3	2341.3	2365.4	2333.3
30°	2273.3	2261.3	2265.3	2253.3	2257.3	2253.3	2257.3	2257.3	2273.3	2269.3
32.5°	2185.2	2173.3	2177.2	2165.3	2165.3	2169.2	2161.2	2161.2	2173.3	2165.3
35°	2101.1	2073.2	2077.1	2073.2	2077.1	2061.1	2061.1	2057.2	2065.2	2045.1
37.5°	1981.1	1969.2	1965.1	1961.2	1965.1	1957.1	1965.1	1953.2	1965.1	1949.1
40°	1873.0	1865.0	1869.1	1845.1	1845.1	1849.0	1841.0	1837.1	1841.0	1857.0
42.5°	1765.1	1749.1	1741.1	1733.1	1737.0	1725.1	1721.0	1713.0	1721.0	1705.0
45°	1636.9	1636.9	1633.0	1612.9	1617.0	1617.0	1601.0	1585.0	1588.9	1588.9
47.5°	1520.9	1512.9	1508.9	1488.9	1484.9	1480.9	1464.8	1452.8	1452.8	1440.8
50°	1392.8	1384.8	1372.8	1352.7	1344.7	1320.7	1308.8	1292.8	1276.8	1276.8
52.5°	1272.7	1244.6	1228.6	1196.6	1184.7	1172.6	1140.6	1128.7	1116.6	1104.7
55°	1128.7	1104.7	1072.7	1036.6	1020.6	1000.5	968.5	944.5	928.5	932.6
57.5°	988.6	948.6	916.6	868.6	848.5	836.4	804.4	772.4	756.4	756.4
60°	816.5	784.5	744.5	700.4	684.4	664.5	624.3	604.4	592.3	580.4
62.5°	652.4	628.4	592.3	536.3	524.3	504.3	476.3	452.3	440.2	440.2
65°	488.3	464.3	432.2	392.2	376.2	360.2	336.2	312.2	300.1	296.2
67.5°	344.2	316.1	288.2	256.2	244.1	236.1	212.1	196.1	188.1	184.0
70°	208.0	192.0	172.1	148.1	136.0	128.0	112.0	100.1	96.0	92.1
72.5°	108.1	96.0	80.0	64.0	56.0	48.0	40.0	32.0	28.1	28.1
75°	40.0	32.0	20.1	12.1	8.0	8.0	8.0	8.0	8.0	8.0
77.5°	8.0	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
80°	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1	4.1
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)