

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

Summary

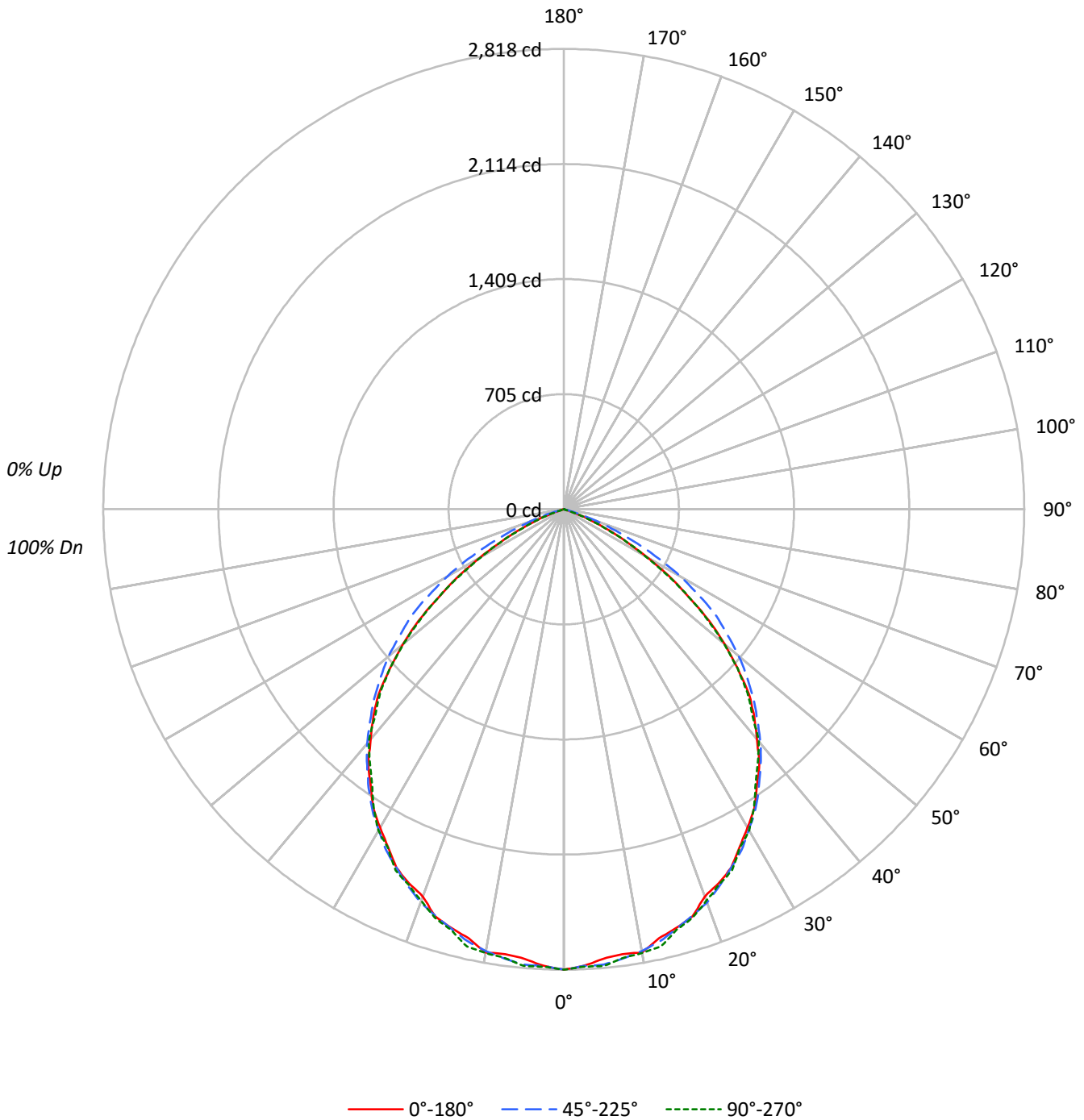
Lumens per Lamp: N/A
 Luminaire Lumens: 6019.0 lumens
 Efficiency: N/A
 Efficacy: 83.6 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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

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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°	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

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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	

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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

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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)