

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 FEU4C609030 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: FLDSQ4C60D010 FEU4C609030 F4LC-CSSQ-MW  
 Description: 4 INCH 6000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

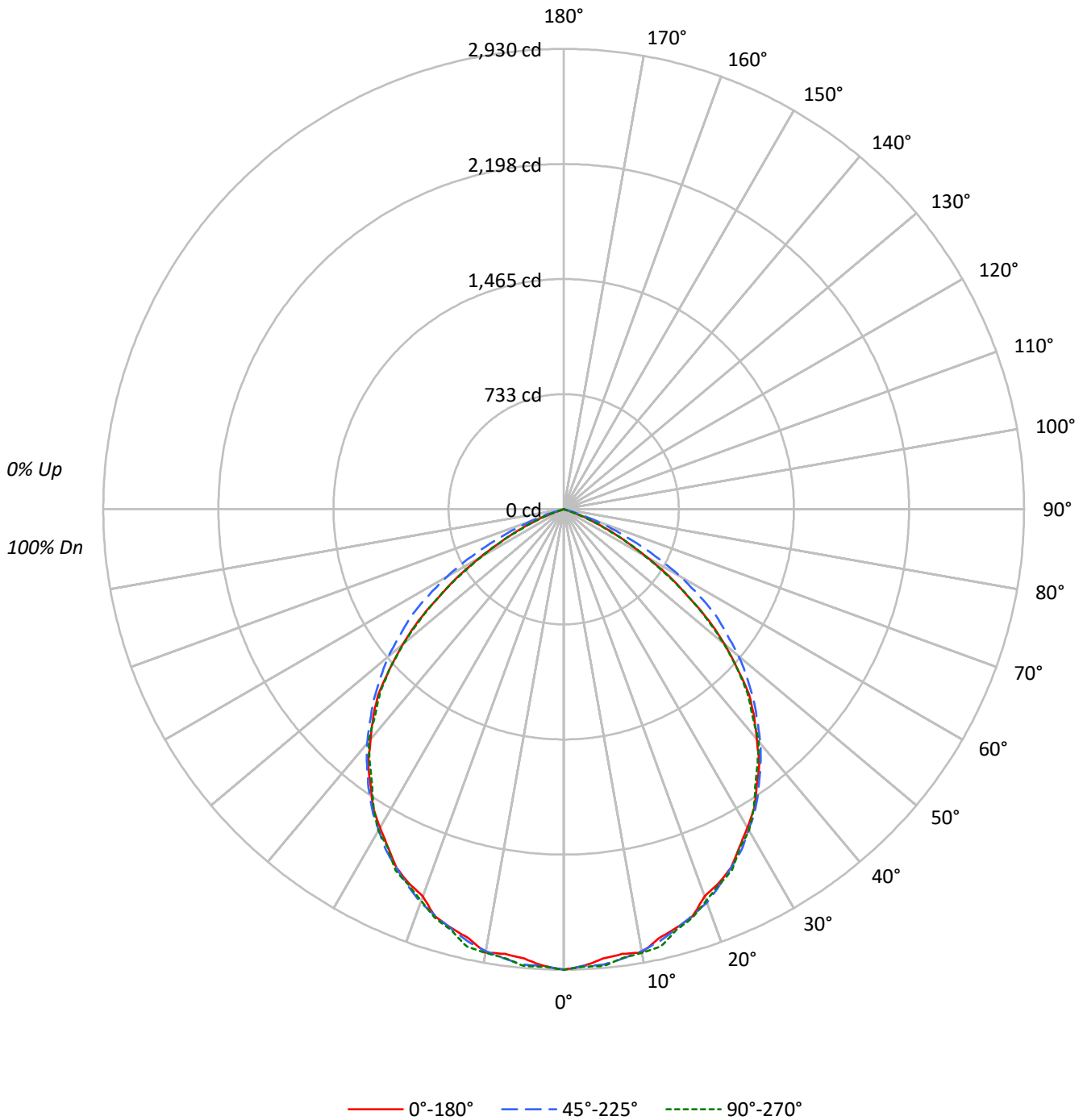
Lumens per Lamp: N/A  
 Luminaire Lumens: 6258.0 lumens  
 Efficiency: N/A  
 Efficacy: 86.9 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

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



TEST NUMBER: P#

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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	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°	282674	282674	282674
5°	278107	281729	282533
10°	280509	279696	280911
15°	275594	276003	276833
20°	269189	273461	272188
25°	268022	268022	269790
30°	260557	262406	262874
35°	252427	254888	250459
40°	240578	245289	243186
45°	227690	232807	225425
50°	200517	218005	199271
55°	162403	199496	163109
60°	118836	165421	116443
65°	72215	117809	70320
70°	28155	63419	27027
75°	3094	17074	3094
80°	2334	2334	2334
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	276.5	4.4
10°-20°	782.5	12.5
20°-30°	1161.0	18.6
30°-40°	1345.3	21.5
40°-50°	1289.9	20.6
50°-60°	948.4	15.2
60°-70°	409.6	6.5
70°-80°	44.2	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°	2220.1	35.5
0°-40°	3565.4	57.0
0°-60°	5803.6	92.7
0°-90°	6258.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	6258.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2930	2930	2930	2930	2930	
5°	2871	2900	2909	2913	2917	274
15°	2759	2776	2763	2767	2771	778
25°	2518	2513	2518	2522	2534	1153
35°	2143	2156	2164	2160	2126	1340
45°	1669	1673	1706	1681	1652	1268
55°	965	1065	1186	1061	970	869
65°	316	395	516	391	308	325
75°	8	13	46	8	8	26
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#  
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**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	2929.6	2929.6	2929.6	2929.6	2929.6	2929.6	2929.6	2929.6	2929.6	2929.6	2929.6
2.5°	2908.7	2942.0	2946.2	2925.3	2917.0	2904.6	2933.6	2912.9	2921.2	2912.9	2908.7
5°	2871.3	2908.7	2912.9	2912.9	2904.6	2900.4	2912.9	2908.7	2904.6	2896.3	2908.7
7.5°	2854.7	2875.4	2896.3	2871.3	2883.7	2879.6	2908.7	2896.3	2892.0	2892.0	2883.7
10°	2863.0	2858.8	2875.4	2850.4	2858.8	2850.4	2875.4	2875.4	2867.1	2858.8	2854.7
12.5°	2796.3	2829.6	2829.6	2825.5	2817.2	2804.6	2829.6	2846.4	2821.2	2821.2	2817.2
15°	2758.9	2767.3	2771.3	2771.3	2767.3	2775.6	2788.0	2771.3	2775.6	2754.7	2763.0
17.5°	2717.3	2700.7	2713.1	2704.8	2709.0	2717.3	2734.0	2734.0	2709.0	2704.8	2713.1
20°	2621.6	2671.5	2675.7	2650.8	2654.9	2654.9	2684.1	2659.1	2675.7	2654.9	2663.2
22.5°	2575.7	2609.0	2613.3	2580.0	2600.7	2575.7	2604.9	2567.4	2609.0	2580.0	2592.4
25°	2517.5	2513.4	2525.8	2509.2	2513.4	2513.4	2534.1	2517.5	2530.1	2513.4	2517.5
27.5°	2421.9	2455.2	2451.0	2434.3	2442.6	2438.6	2480.2	2434.3	2459.3	2438.6	2446.9
30°	2338.6	2367.8	2359.4	2342.8	2342.8	2330.2	2376.1	2363.5	2359.4	2359.4	2355.2
32.5°	2255.4	2259.6	2251.3	2255.4	2259.6	2243.0	2280.3	2263.7	2259.6	2263.7	2267.9
35°	2143.0	2143.0	2151.3	2138.9	2155.5	2155.5	2188.8	2167.9	2163.9	2151.3	2163.9
37.5°	2043.1	2030.7	2034.8	2034.8	2043.1	2051.5	2068.1	2059.8	2059.8	2047.4	2055.7
40°	1910.0	1901.7	1914.1	1914.1	1926.7	1926.7	1943.3	1935.0	1947.4	1947.4	1947.4
42.5°	1793.6	1793.6	1785.2	1797.6	1801.9	1797.6	1826.8	1822.6	1826.8	1818.5	1822.6
45°	1668.6	1668.6	1660.3	1656.2	1676.9	1672.8	1706.1	1693.6	1710.2	1701.9	1706.1
47.5°	1498.0	1518.9	1506.3	1518.9	1543.8	1548.1	1568.8	1560.5	1577.1	1564.7	1581.3
50°	1335.8	1335.8	1348.2	1364.9	1389.8	1394.1	1419.0	1435.7	1444.0	1448.1	1452.3
52.5°	1165.2	1161.0	1173.5	1194.2	1215.1	1231.8	1256.7	1281.7	1298.3	1323.3	1310.7
55°	965.4	973.7	986.3	1011.2	1044.5	1065.2	1086.1	1119.4	1148.6	1161.0	1185.9
57.5°	794.7	786.4	794.7	828.0	865.5	882.2	911.4	944.7	986.3	1011.2	1019.5
60°	615.8	620.0	628.4	657.6	686.6	711.6	724.1	778.1	815.6	840.6	857.2
62.5°	453.7	462.0	470.3	495.2	524.3	545.2	565.9	611.7	645.0	670.0	686.6
65°	316.3	320.4	332.9	345.3	374.5	395.3	411.9	449.4	482.7	503.6	516.0
67.5°	195.6	199.7	208.0	224.8	245.5	262.1	278.8	303.7	332.9	353.7	357.9
70°	99.8	104.1	108.2	120.7	137.4	145.7	158.1	178.9	199.7	216.3	224.8
72.5°	33.3	33.3	37.5	45.8	54.2	62.5	66.6	87.4	104.1	112.4	116.5
75°	8.3	8.3	8.3	8.3	8.3	12.6	12.6	25.0	33.3	41.6	45.8
77.5°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	8.3	8.3
80°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
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°	2929.6	2929.6	2929.6	2929.6	2929.6	2929.6	2929.6	2929.6	2929.6	2929.6
2.5°	2929.6	2921.2	2917.0	2921.2	2921.2	2917.0	2929.6	2946.2	2966.9	2912.9
5°	2925.3	2917.0	2925.3	2900.4	2912.9	2904.6	2921.2	2917.0	2933.6	2917.0
7.5°	2912.9	2896.3	2900.4	2888.0	2904.6	2883.7	2896.3	2921.2	2904.6	2879.6
10°	2871.3	2863.0	2892.0	2850.4	2842.1	2858.8	2892.0	2867.1	2858.8	2867.1
12.5°	2829.6	2829.6	2842.1	2808.9	2812.9	2821.2	2837.9	2821.2	2829.6	2850.4
15°	2783.9	2775.6	2796.3	2771.3	2767.3	2758.9	2775.6	2775.6	2783.9	2771.3
17.5°	2729.7	2717.3	2717.3	2709.0	2704.8	2725.7	2734.0	2738.1	2742.3	2725.7
20°	2663.2	2659.1	2671.5	2659.1	2663.2	2667.4	2667.4	2659.1	2696.5	2650.8
22.5°	2592.4	2604.9	2588.3	2580.0	2588.3	2596.6	2596.6	2600.7	2592.4	2584.1
25°	2521.8	2530.1	2534.1	2509.2	2521.8	2509.2	2538.4	2542.5	2525.8	2534.1
27.5°	2459.3	2446.9	2442.6	2426.0	2434.3	2430.2	2434.3	2434.3	2459.3	2426.0
30°	2363.5	2351.1	2355.2	2342.8	2346.9	2342.8	2346.9	2346.9	2363.5	2359.4
32.5°	2272.0	2259.6	2263.7	2251.3	2251.3	2255.4	2247.0	2247.0	2259.6	2251.3
35°	2184.6	2155.5	2159.6	2155.5	2159.6	2143.0	2143.0	2138.9	2147.2	2126.3
37.5°	2059.8	2047.4	2043.1	2039.1	2043.1	2034.8	2043.1	2030.7	2043.1	2026.5
40°	1947.4	1939.1	1943.3	1918.4	1918.4	1922.4	1914.1	1910.0	1914.1	1930.7
42.5°	1835.2	1818.5	1810.2	1801.9	1806.0	1793.6	1789.3	1781.0	1789.3	1772.7
45°	1701.9	1701.9	1697.8	1676.9	1681.2	1681.2	1664.5	1647.9	1652.0	1652.0
47.5°	1581.3	1573.0	1568.8	1548.1	1543.8	1539.7	1522.9	1510.5	1510.5	1498.0
50°	1448.1	1439.7	1427.3	1406.5	1398.1	1373.2	1360.8	1344.2	1327.5	1327.5
52.5°	1323.3	1294.1	1277.4	1244.2	1231.8	1219.2	1185.9	1173.5	1161.0	1148.6
55°	1173.5	1148.6	1115.3	1077.8	1061.1	1040.2	1007.0	982.0	965.4	969.6
57.5°	1027.9	986.3	953.0	903.1	882.2	869.6	836.3	803.1	786.4	786.4
60°	848.9	815.6	774.0	728.2	711.6	690.8	649.1	628.4	615.8	603.4
62.5°	678.3	653.3	615.8	557.6	545.2	524.3	495.2	470.3	457.7	457.7
65°	507.6	482.7	449.4	407.8	391.2	374.5	349.6	324.6	312.1	308.0
67.5°	357.9	328.7	299.7	266.4	253.8	245.5	220.5	203.9	195.6	191.3
70°	216.3	199.7	178.9	154.0	141.4	133.1	116.5	104.1	99.8	95.8
72.5°	112.4	99.8	83.2	66.6	58.2	49.9	41.6	33.3	29.2	29.2
75°	41.6	33.3	20.9	12.6	8.3	8.3	8.3	8.3	8.3	8.3
77.5°	8.3	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
80°	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2
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)