

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: **FLDSQ4C50D010 FEU4C509035 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: FLDSQ4C50D010 FEU4C509035 F4LC-CSSQ-MW
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

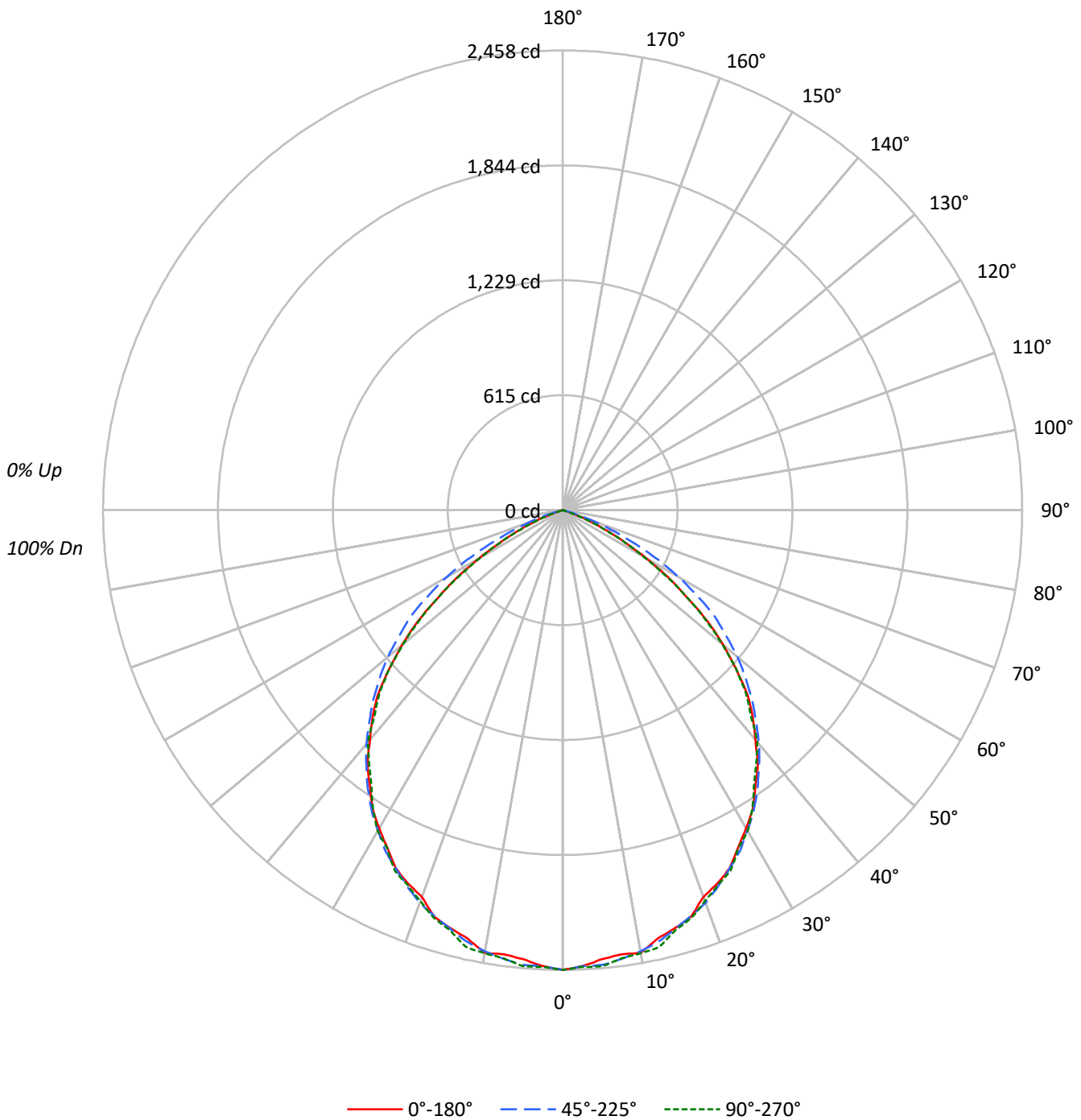
Lumens per Lamp: N/A
 Luminaire Lumens: 5251.0 lumens
 Efficiency: N/A
 Efficacy: 89.9 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 58.4
 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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CATALOG NUMBER: FLDSQ4C50D010 FEU4C509035 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°	237189	237189	237189
5°	233359	236390	237068
10°	235371	234685	235704
15°	231251	231591	232290
20°	225868	229452	228384
25°	224894	224894	226384
30°	218631	220180	220581
35°	211800	213873	210163
40°	201872	205814	204063
45°	191052	195350	189142
50°	168258	182924	167208
55°	136261	167399	136866
60°	99712	138809	97705
65°	60594	98836	58996
70°	23641	53207	22654
75°	2610	14353	2610
80°	2000	2000	2000
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	232.0	4.4
10°-20°	656.6	12.5
20°-30°	974.2	18.6
30°-40°	1128.8	21.5
40°-50°	1082.3	20.6
50°-60°	795.8	15.2
60°-70°	343.7	6.5
70°-80°	37.1	0.7
80°-90°	0.5	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°	1862.8	35.5
0°-40°	2991.6	57.0
0°-60°	4869.7	92.7
0°-90°	5251.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5251.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2458	2458	2458	2458	2458	
5°	2409	2434	2441	2444	2448	230
15°	2315	2329	2318	2322	2325	652
25°	2112	2109	2112	2116	2126	967
35°	1798	1809	1816	1812	1784	1124
45°	1400	1404	1432	1411	1386	1064
55°	810	894	995	890	814	729
65°	265	332	433	328	258	273
75°	7	10	38	7	7	21
85°	0	0	0	0	0	0
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°	2458.2	2458.2	2458.2	2458.2	2458.2	2458.2	2458.2	2458.2	2458.2	2458.2	2458.2
2.5°	2440.6	2468.6	2472.1	2454.6	2447.6	2437.2	2461.6	2444.2	2451.2	2444.2	2440.6
5°	2409.3	2440.6	2444.2	2444.2	2437.2	2433.7	2444.2	2440.6	2437.2	2430.2	2440.6
7.5°	2395.3	2412.7	2430.2	2409.3	2419.7	2416.3	2440.6	2430.2	2426.7	2426.7	2419.7
10°	2402.3	2398.8	2412.7	2391.8	2398.8	2391.8	2412.7	2412.7	2405.7	2398.8	2395.3
12.5°	2346.3	2374.3	2374.3	2370.8	2363.8	2353.3	2374.3	2388.3	2367.3	2367.3	2363.8
15°	2315.0	2322.0	2325.4	2325.4	2322.0	2328.9	2339.3	2325.4	2328.9	2311.4	2318.4
17.5°	2280.1	2266.1	2276.5	2269.5	2273.1	2280.1	2294.0	2294.0	2273.1	2269.5	2276.5
20°	2199.7	2241.6	2245.2	2224.2	2227.7	2227.7	2252.2	2231.2	2245.2	2227.7	2234.6
22.5°	2161.3	2189.2	2192.8	2164.8	2182.2	2161.3	2185.8	2154.3	2189.2	2164.8	2175.2
25°	2112.4	2109.0	2119.4	2105.4	2109.0	2109.0	2126.4	2112.4	2122.9	2109.0	2112.4
27.5°	2032.2	2060.1	2056.6	2042.6	2049.6	2046.2	2081.1	2042.6	2063.5	2046.2	2053.1
30°	1962.3	1986.8	1979.8	1965.8	1965.8	1955.3	1993.7	1983.2	1979.8	1979.8	1976.2
32.5°	1892.4	1896.0	1889.0	1892.4	1896.0	1882.0	1913.4	1899.4	1896.0	1899.4	1903.0
35°	1798.1	1798.1	1805.1	1794.7	1808.7	1808.7	1836.6	1819.1	1815.7	1805.1	1815.7
37.5°	1714.4	1704.0	1707.4	1707.4	1714.4	1721.4	1735.3	1728.3	1728.3	1717.9	1724.9
40°	1602.7	1595.7	1606.1	1606.1	1616.6	1616.6	1630.6	1623.6	1634.0	1634.0	1634.0
42.5°	1505.0	1505.0	1498.0	1508.4	1511.9	1508.4	1532.9	1529.3	1532.9	1525.9	1529.3
45°	1400.1	1400.1	1393.1	1389.7	1407.1	1403.7	1431.6	1421.0	1435.0	1428.0	1431.6
47.5°	1256.9	1274.5	1263.9	1274.5	1295.4	1299.0	1316.3	1309.4	1323.3	1312.9	1326.9
50°	1120.9	1120.9	1131.3	1145.2	1166.2	1169.7	1190.7	1204.6	1211.6	1215.0	1218.6
52.5°	977.7	974.1	984.7	1002.1	1019.6	1033.6	1054.5	1075.4	1089.4	1110.3	1099.8
55°	810.0	817.0	827.6	848.5	876.4	893.8	911.3	939.2	963.7	974.1	995.1
57.5°	666.9	659.9	666.9	694.8	726.3	740.2	764.7	792.6	827.6	848.5	855.5
60°	516.7	520.3	527.2	551.7	576.1	597.1	607.6	652.9	684.4	705.3	719.3
62.5°	380.7	387.6	394.6	415.6	439.9	457.4	474.8	513.3	541.2	562.1	576.1
65°	265.4	268.8	279.4	289.8	314.3	331.7	345.6	377.1	405.0	422.5	432.9
67.5°	164.1	167.5	174.5	188.6	206.0	220.0	233.9	254.9	279.4	296.7	300.3
70°	83.8	87.3	90.7	101.3	115.2	122.2	132.6	150.2	167.5	181.5	188.6
72.5°	27.9	27.9	31.5	38.5	45.4	52.4	55.8	73.4	87.3	94.3	97.7
75°	7.0	7.0	7.0	7.0	7.0	10.5	10.5	20.9	27.9	34.9	38.5
77.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	7.0	7.0
80°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
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°	2458.2	2458.2	2458.2	2458.2	2458.2	2458.2	2458.2	2458.2	2458.2	2458.2
2.5°	2458.2	2451.2	2447.6	2451.2	2451.2	2447.6	2458.2	2472.1	2489.5	2444.2
5°	2454.6	2447.6	2454.6	2433.7	2444.2	2437.2	2451.2	2447.6	2461.6	2447.6
7.5°	2444.2	2430.2	2433.7	2423.3	2437.2	2419.7	2430.2	2451.2	2437.2	2416.3
10°	2409.3	2402.3	2426.7	2391.8	2384.8	2398.8	2426.7	2405.7	2398.8	2405.7
12.5°	2374.3	2374.3	2384.8	2356.9	2360.3	2367.3	2381.2	2367.3	2374.3	2391.8
15°	2335.9	2328.9	2346.3	2325.4	2322.0	2315.0	2328.9	2328.9	2335.9	2325.4
17.5°	2290.5	2280.1	2280.1	2273.1	2269.5	2287.1	2294.0	2297.5	2301.0	2287.1
20°	2234.6	2231.2	2241.6	2231.2	2234.6	2238.2	2238.2	2231.2	2262.6	2224.2
22.5°	2175.2	2185.8	2171.8	2164.8	2171.8	2178.8	2178.8	2182.2	2175.2	2168.3
25°	2116.0	2122.9	2126.4	2105.4	2116.0	2105.4	2129.9	2133.3	2119.4	2126.4
27.5°	2063.5	2053.1	2049.6	2035.6	2042.6	2039.2	2042.6	2042.6	2063.5	2035.6
30°	1983.2	1972.8	1976.2	1965.8	1969.2	1965.8	1969.2	1969.2	1983.2	1979.8
32.5°	1906.4	1896.0	1899.4	1889.0	1889.0	1892.4	1885.5	1885.5	1896.0	1889.0
35°	1833.0	1808.7	1812.1	1808.7	1812.1	1798.1	1798.1	1794.7	1801.7	1784.2
37.5°	1728.3	1717.9	1714.4	1710.9	1714.4	1707.4	1714.4	1704.0	1714.4	1700.4
40°	1634.0	1627.0	1630.6	1609.7	1609.7	1613.1	1606.1	1602.7	1606.1	1620.1
42.5°	1539.9	1525.9	1518.9	1511.9	1515.4	1505.0	1501.4	1494.4	1501.4	1487.4
45°	1428.0	1428.0	1424.6	1407.1	1410.6	1410.6	1396.7	1382.7	1386.1	1386.1
47.5°	1326.9	1319.9	1316.3	1299.0	1295.4	1292.0	1277.9	1267.5	1267.5	1256.9
50°	1215.0	1208.1	1197.7	1180.1	1173.2	1152.2	1141.8	1127.9	1113.9	1113.9
52.5°	1110.3	1085.8	1071.9	1044.0	1033.6	1023.0	995.1	984.7	974.1	963.7
55°	984.7	963.7	935.8	904.3	890.4	872.9	844.9	824.0	810.0	813.6
57.5°	862.5	827.6	799.6	757.7	740.2	729.7	701.8	673.8	659.9	659.9
60°	712.3	684.4	649.5	611.0	597.1	579.7	544.6	527.2	516.7	506.3
62.5°	569.1	548.2	516.7	467.8	457.4	439.9	415.6	394.6	384.1	384.1
65°	426.0	405.0	377.1	342.2	328.2	314.3	293.3	272.4	261.8	258.4
67.5°	300.3	275.8	251.4	223.5	213.0	206.0	185.1	171.1	164.1	160.6
70°	181.5	167.5	150.2	129.2	118.7	111.7	97.7	87.3	83.8	80.3
72.5°	94.3	83.8	69.8	55.8	48.9	41.9	34.9	27.9	24.5	24.5
75°	34.9	27.9	17.5	10.5	7.0	7.0	7.0	7.0	7.0	7.0
77.5°	7.0	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
80°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6
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)