

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 FEU4C509027 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 FEU4C509027 F4LC-CSSQ-MW
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

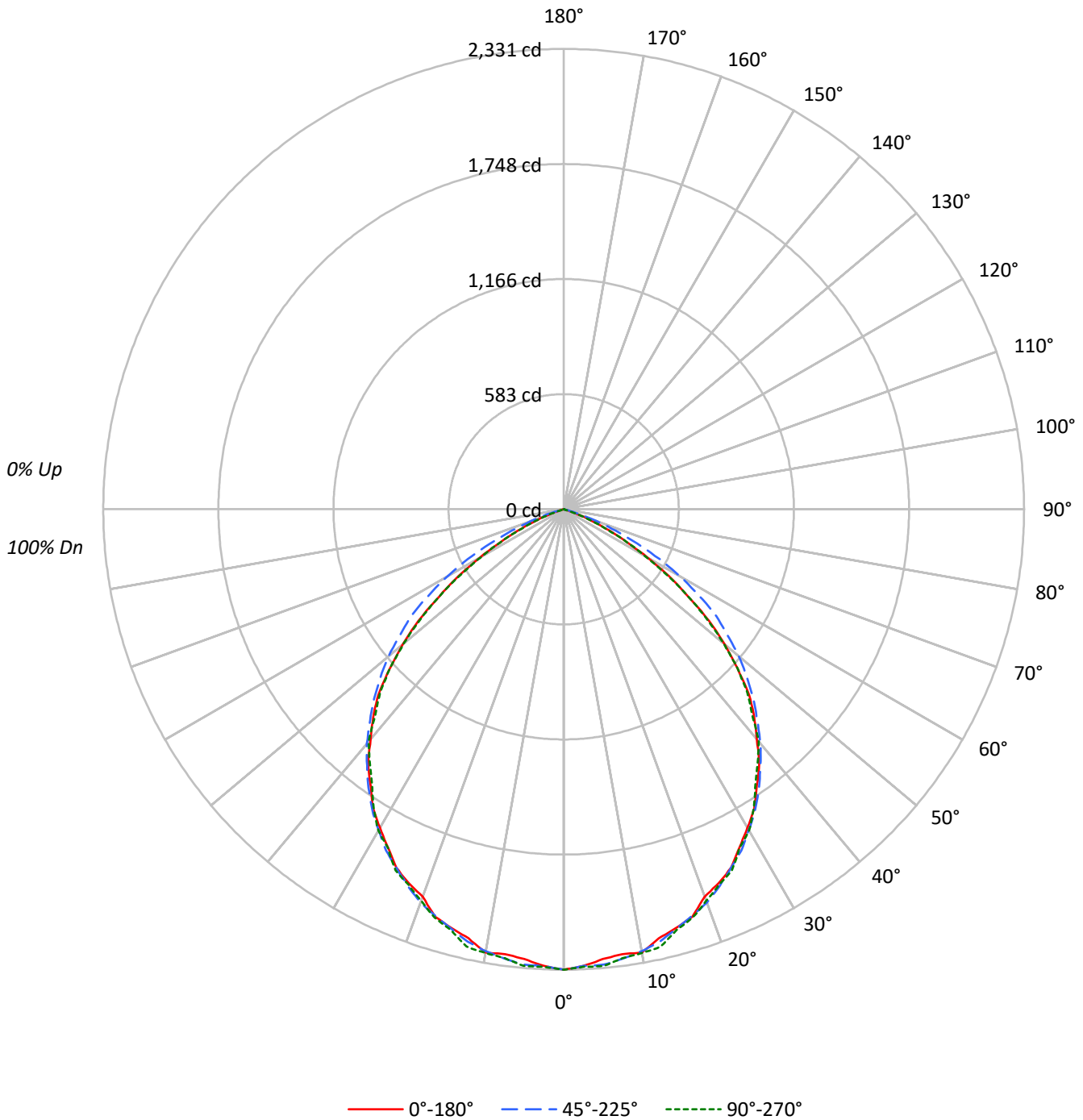
Lumens per Lamp: N/A
 Luminaire Lumens: 4980.0 lumens
 Efficiency: N/A
 Efficacy: 85.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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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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°	224945	224945	224945
5°	221310	224196	224835
10°	223222	222575	223545
15°	219314	219644	220303
20°	214214	217613	216596
25°	213289	213289	214695
30°	207345	208815	209194
35°	200869	202836	199314
40°	191455	195196	193533
45°	181186	185266	179385
50°	159567	173482	158576
55°	129229	158752	129801
60°	94559	131649	92668
65°	57466	93745	55959
70°	22400	50470	21497
75°	2461	13607	2461
80°	1889	1889	1889
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	220.1	4.4
10°-20°	622.7	12.5
20°-30°	923.9	18.6
30°-40°	1070.6	21.5
40°-50°	1026.4	20.6
50°-60°	754.7	15.2
60°-70°	326.0	6.5
70°-80°	35.2	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°	1766.7	35.5
0°-40°	2837.3	57.0
0°-60°	4618.4	92.7
0°-90°	4980.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4980.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2331	2331	2331	2331	2331	
5°	2285	2308	2315	2318	2321	218
15°	2196	2209	2199	2202	2205	619
25°	2003	2000	2003	2007	2017	917
35°	1705	1715	1722	1719	1692	1066
45°	1328	1331	1358	1338	1315	1009
55°	768	848	944	844	772	691
65°	252	314	411	311	245	259
75°	7	10	36	7	7	20
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°	2331.3	2331.3	2331.3	2331.3	2331.3	2331.3	2331.3	2331.3	2331.3	2331.3	2331.3
2.5°	2314.7	2341.2	2344.5	2327.9	2321.3	2311.4	2334.5	2318.1	2324.7	2318.1	2314.7
5°	2284.9	2314.7	2318.1	2318.1	2311.4	2308.1	2318.1	2314.7	2311.4	2304.8	2314.7
7.5°	2271.7	2288.2	2304.8	2284.9	2294.8	2291.6	2314.7	2304.8	2301.4	2301.4	2294.8
10°	2278.3	2275.0	2288.2	2268.3	2275.0	2268.3	2288.2	2288.2	2281.6	2275.0	2271.7
12.5°	2225.2	2251.7	2251.7	2248.5	2241.9	2231.9	2251.7	2265.1	2245.1	2245.1	2241.9
15°	2195.5	2202.1	2205.4	2205.4	2202.1	2208.7	2218.6	2205.4	2208.7	2192.1	2198.8
17.5°	2162.4	2149.2	2159.0	2152.4	2155.8	2162.4	2175.6	2175.6	2155.8	2152.4	2159.0
20°	2086.2	2125.9	2129.3	2109.4	2112.7	2112.7	2135.9	2116.1	2129.3	2112.7	2119.3
22.5°	2049.7	2076.2	2079.6	2053.1	2069.6	2049.7	2073.0	2043.1	2076.2	2053.1	2063.0
25°	2003.4	2000.1	2010.0	1996.8	2000.1	2000.1	2016.6	2003.4	2013.4	2000.1	2003.4
27.5°	1927.3	1953.8	1950.4	1937.2	1943.8	1940.6	1973.7	1937.2	1957.0	1940.6	1947.2
30°	1861.0	1884.2	1877.6	1864.4	1864.4	1854.4	1890.8	1880.8	1877.6	1877.6	1874.2
32.5°	1794.8	1798.2	1791.5	1794.8	1798.2	1784.9	1814.6	1801.4	1798.2	1801.4	1804.8
35°	1705.3	1705.3	1712.0	1702.1	1715.3	1715.3	1741.8	1725.2	1722.0	1712.0	1722.0
37.5°	1625.9	1616.0	1619.3	1619.3	1625.9	1632.5	1645.8	1639.1	1639.1	1629.3	1635.9
40°	1520.0	1513.3	1523.2	1523.2	1533.2	1533.2	1546.4	1539.8	1549.7	1549.7	1549.7
42.5°	1427.3	1427.3	1420.7	1430.5	1433.9	1430.5	1453.8	1450.4	1453.8	1447.1	1450.4
45°	1327.8	1327.8	1321.2	1318.0	1334.5	1331.2	1357.7	1347.7	1360.9	1354.3	1357.7
47.5°	1192.1	1208.7	1198.7	1208.7	1228.5	1231.9	1248.4	1241.8	1255.0	1245.2	1258.4
50°	1063.0	1063.0	1072.9	1086.1	1106.0	1109.4	1129.2	1142.5	1149.1	1152.3	1155.7
52.5°	927.2	923.9	933.9	950.4	967.0	980.2	1000.1	1019.9	1033.2	1053.0	1043.0
55°	768.2	774.8	784.8	804.7	831.2	847.7	864.3	890.8	914.0	923.9	943.7
57.5°	632.4	625.8	632.4	658.9	688.8	702.0	725.3	751.7	784.8	804.7	811.3
60°	490.0	493.4	500.0	523.3	546.4	566.2	576.2	619.2	649.1	668.9	682.2
62.5°	361.0	367.6	374.2	394.1	417.2	433.8	450.3	486.8	513.3	533.1	546.4
65°	251.7	255.0	264.9	274.8	298.0	314.5	327.8	357.6	384.1	400.7	410.6
67.5°	155.6	158.9	165.5	178.9	195.4	208.6	221.8	241.7	264.9	281.4	284.8
70°	79.4	82.8	86.1	96.1	109.3	115.9	125.8	142.4	158.9	172.1	178.9
72.5°	26.5	26.5	29.9	36.5	43.1	49.7	53.0	69.6	82.8	89.4	92.7
75°	6.6	6.6	6.6	6.6	6.6	10.0	10.0	19.9	26.5	33.1	36.5
77.5°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	6.6	6.6
80°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
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°	2331.3	2331.3	2331.3	2331.3	2331.3	2331.3	2331.3	2331.3	2331.3	2331.3
2.5°	2331.3	2324.7	2321.3	2324.7	2324.7	2321.3	2331.3	2344.5	2361.0	2318.1
5°	2327.9	2321.3	2327.9	2308.1	2318.1	2311.4	2324.7	2321.3	2334.5	2321.3
7.5°	2318.1	2304.8	2308.1	2298.2	2311.4	2294.8	2304.8	2324.7	2311.4	2291.6
10°	2284.9	2278.3	2301.4	2268.3	2261.7	2275.0	2301.4	2281.6	2275.0	2281.6
12.5°	2251.7	2251.7	2261.7	2235.2	2238.5	2245.1	2258.3	2245.1	2251.7	2268.3
15°	2215.4	2208.7	2225.2	2205.4	2202.1	2195.5	2208.7	2208.7	2215.4	2205.4
17.5°	2172.3	2162.4	2162.4	2155.8	2152.4	2169.0	2175.6	2178.9	2182.3	2169.0
20°	2119.3	2116.1	2125.9	2116.1	2119.3	2122.7	2122.7	2116.1	2145.8	2109.4
22.5°	2063.0	2073.0	2059.7	2053.1	2059.7	2066.3	2066.3	2069.6	2063.0	2056.4
25°	2006.8	2013.4	2016.6	1996.8	2006.8	1996.8	2020.0	2023.2	2010.0	2016.6
27.5°	1957.0	1947.2	1943.8	1930.6	1937.2	1933.9	1937.2	1937.2	1957.0	1930.6
30°	1880.8	1871.0	1874.2	1864.4	1867.6	1864.4	1867.6	1867.6	1880.8	1877.6
32.5°	1808.0	1798.2	1801.4	1791.5	1791.5	1794.8	1788.2	1788.2	1798.2	1791.5
35°	1738.4	1715.3	1718.6	1715.3	1718.6	1705.3	1705.3	1702.1	1708.7	1692.1
37.5°	1639.1	1629.3	1625.9	1622.6	1625.9	1619.3	1625.9	1616.0	1625.9	1612.7
40°	1549.7	1543.1	1546.4	1526.6	1526.6	1529.8	1523.2	1520.0	1523.2	1536.5
42.5°	1460.4	1447.1	1440.5	1433.9	1437.1	1427.3	1423.9	1417.3	1423.9	1410.7
45°	1354.3	1354.3	1351.1	1334.5	1337.8	1337.8	1324.6	1311.4	1314.6	1314.6
47.5°	1258.4	1251.8	1248.4	1231.9	1228.5	1225.3	1211.9	1202.1	1202.1	1192.1
50°	1152.3	1145.7	1135.9	1119.2	1112.6	1092.8	1082.9	1069.7	1056.4	1056.4
52.5°	1053.0	1029.8	1016.6	990.1	980.2	970.2	943.7	933.9	923.9	914.0
55°	933.9	914.0	887.5	857.7	844.4	827.8	801.3	781.5	768.2	771.6
57.5°	817.9	784.8	758.4	718.6	702.0	692.0	665.5	639.1	625.8	625.8
60°	675.5	649.1	616.0	579.5	566.2	549.8	516.5	500.0	490.0	480.2
62.5°	539.8	519.9	490.0	443.7	433.8	417.2	394.1	374.2	364.3	364.3
65°	404.0	384.1	357.6	324.5	311.3	298.0	278.2	258.3	248.3	245.1
67.5°	284.8	261.6	238.5	212.0	202.0	195.4	175.5	162.3	155.6	152.3
70°	172.1	158.9	142.4	122.5	112.5	105.9	92.7	82.8	79.4	76.2
72.5°	89.4	79.4	66.2	53.0	46.3	39.7	33.1	26.5	23.2	23.2
75°	33.1	26.5	16.6	10.0	6.6	6.6	6.6	6.6	6.6	6.6
77.5°	6.6	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
80°	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4	3.4
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)