

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 FEU4C509050 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 FEU4C509050 F4LC-CSSQ-MW
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MW FINISH
 Light Source: -
 Ballast/Driver: -

Summary

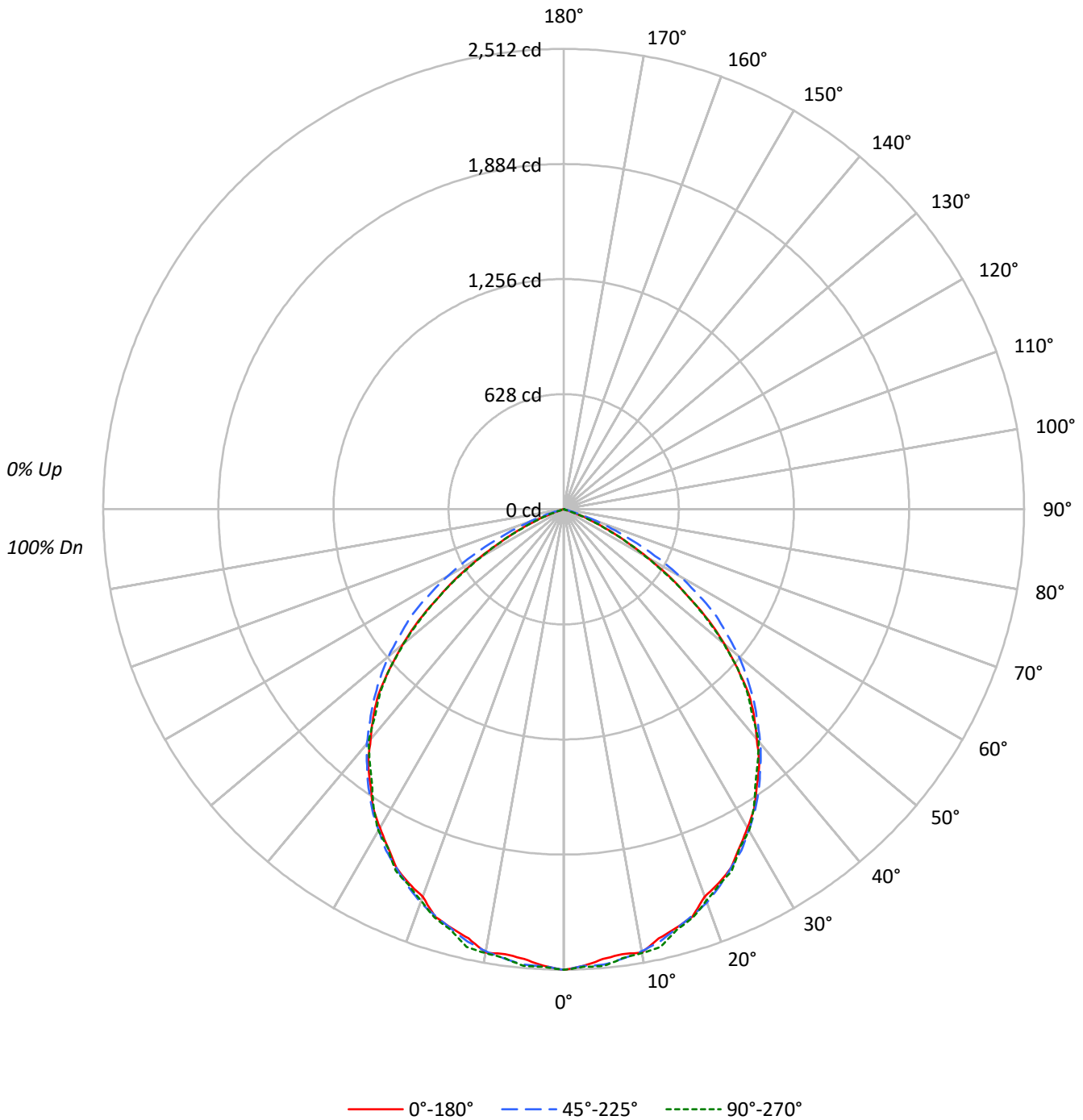
Lumens per Lamp: N/A
 Luminaire Lumens: 5367.0 lumens
 Efficiency: N/A
 Efficacy: 91.9 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C50D010 FEU4C509050 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				
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°	242428	242428	242428
5°	238512	241621	242308
10°	240574	239868	240917
15°	236356	236706	237425
20°	230858	234524	233436
25°	229866	229866	231378
30°	223455	225049	225450
35°	216488	218597	214804
40°	206331	210361	208573
45°	195268	199662	193331
50°	171966	186962	170900
55°	139272	171100	139894
60°	101912	141877	99866
65°	61941	101028	60297
70°	24149	54392	23162
75°	2647	14651	2647
80°	2000	2000	2000
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	237.2	4.4
10°-20°	671.1	12.5
20°-30°	995.7	18.6
30°-40°	1153.8	21.5
40°-50°	1106.2	20.6
50°-60°	813.3	15.2
60°-70°	351.3	6.5
70°-80°	37.9	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°	1904.0	35.5
0°-40°	3057.7	57.0
0°-60°	4977.3	92.7
0°-90°	5367.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5367.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2512	2512	2512	2512	2512	
5°	2462	2487	2495	2498	2502	235
15°	2366	2380	2370	2373	2377	667
25°	2159	2156	2159	2163	2173	989
35°	1838	1849	1856	1852	1824	1149
45°	1431	1435	1463	1442	1417	1088
55°	828	914	1017	910	832	745
65°	271	339	442	336	264	279
75°	7	11	39	7	7	22
85°	0	0	0	0	0	0
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°	2512.5	2512.5	2512.5	2512.5	2512.5	2512.5	2512.5	2512.5	2512.5	2512.5	2512.5
2.5°	2494.6	2523.1	2526.7	2508.8	2501.7	2491.1	2516.0	2498.2	2505.3	2498.2	2494.6
5°	2462.5	2494.6	2498.2	2498.2	2491.1	2487.4	2498.2	2494.6	2491.1	2483.9	2494.6
7.5°	2448.2	2466.0	2483.9	2462.5	2473.1	2469.6	2494.6	2483.9	2480.3	2480.3	2473.1
10°	2455.4	2451.7	2466.0	2444.6	2451.7	2444.6	2466.0	2466.0	2458.9	2451.7	2448.2
12.5°	2398.2	2426.7	2426.7	2423.2	2416.1	2405.3	2426.7	2441.1	2419.6	2419.6	2416.1
15°	2366.1	2373.3	2376.8	2376.8	2373.3	2380.4	2391.0	2376.8	2380.4	2362.5	2369.6
17.5°	2330.4	2316.2	2326.8	2319.7	2323.3	2330.4	2344.7	2344.7	2323.3	2319.7	2326.8
20°	2248.3	2291.1	2294.8	2273.4	2276.9	2276.9	2301.9	2280.5	2294.8	2276.9	2284.0
22.5°	2209.0	2237.6	2241.2	2212.7	2230.4	2209.0	2234.1	2201.9	2237.6	2212.7	2223.3
25°	2159.1	2155.6	2166.2	2151.9	2155.6	2155.6	2173.3	2159.1	2169.8	2155.6	2159.1
27.5°	2077.1	2105.6	2102.0	2087.7	2094.9	2091.4	2127.0	2087.7	2109.1	2091.4	2098.5
30°	2005.6	2030.6	2023.5	2009.2	2009.2	1998.5	2037.8	2027.0	2023.5	2023.5	2019.9
32.5°	1934.3	1937.9	1930.8	1934.3	1937.9	1923.6	1955.7	1941.4	1937.9	1941.4	1945.0
35°	1837.9	1837.9	1845.0	1834.4	1848.6	1848.6	1877.2	1859.3	1855.8	1845.0	1855.8
37.5°	1752.2	1741.6	1745.1	1745.1	1752.2	1759.4	1773.6	1766.5	1766.5	1755.9	1763.0
40°	1638.1	1631.0	1641.6	1641.6	1652.4	1652.4	1666.6	1659.5	1670.1	1670.1	1670.1
42.5°	1538.2	1538.2	1531.1	1541.7	1545.3	1541.7	1566.7	1563.1	1566.7	1559.6	1563.1
45°	1431.0	1431.0	1423.9	1420.4	1438.2	1434.7	1463.2	1452.4	1466.7	1459.6	1463.2
47.5°	1284.7	1302.6	1291.8	1302.6	1324.0	1327.6	1345.4	1338.3	1352.6	1341.9	1356.2
50°	1145.6	1145.6	1156.3	1170.5	1191.9	1195.6	1217.0	1231.3	1238.4	1241.9	1245.5
52.5°	999.3	995.7	1006.4	1024.2	1042.1	1056.4	1077.8	1099.2	1113.5	1134.9	1124.1
55°	827.9	835.1	845.8	867.2	895.8	913.5	931.5	960.0	985.0	995.7	1017.1
57.5°	681.6	674.5	681.6	710.1	742.3	756.6	781.6	810.2	845.8	867.2	874.4
60°	528.1	531.8	538.9	563.9	588.8	610.2	621.0	667.3	699.5	720.9	735.2
62.5°	389.1	396.2	403.3	424.7	449.6	467.5	485.3	524.6	553.2	574.6	588.8
65°	271.3	274.8	285.5	296.2	321.2	339.0	353.2	385.4	414.0	431.9	442.5
67.5°	167.7	171.2	178.4	192.8	210.5	224.8	239.1	260.5	285.5	303.3	306.9
70°	85.6	89.3	92.8	103.5	117.8	124.9	135.6	153.5	171.2	185.5	192.8
72.5°	28.5	28.5	32.2	39.3	46.4	53.6	57.1	75.0	89.3	96.4	99.9
75°	7.1	7.1	7.1	7.1	7.1	10.8	10.8	21.4	28.5	35.7	39.3
77.5°	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	3.6	7.1	7.1
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°	2512.5	2512.5	2512.5	2512.5	2512.5	2512.5	2512.5	2512.5	2512.5	2512.5
2.5°	2512.5	2505.3	2501.7	2505.3	2505.3	2501.7	2512.5	2526.7	2544.5	2498.2
5°	2508.8	2501.7	2508.8	2487.4	2498.2	2491.1	2505.3	2501.7	2516.0	2501.7
7.5°	2498.2	2483.9	2487.4	2476.8	2491.1	2473.1	2483.9	2505.3	2491.1	2469.6
10°	2462.5	2455.4	2480.3	2444.6	2437.5	2451.7	2480.3	2458.9	2451.7	2458.9
12.5°	2426.7	2426.7	2437.5	2408.9	2412.4	2419.6	2433.8	2419.6	2426.7	2444.6
15°	2387.5	2380.4	2398.2	2376.8	2373.3	2366.1	2380.4	2380.4	2387.5	2376.8
17.5°	2341.1	2330.4	2330.4	2323.3	2319.7	2337.6	2344.7	2348.2	2351.9	2337.6
20°	2284.0	2280.5	2291.1	2280.5	2284.0	2287.6	2287.6	2280.5	2312.5	2273.4
22.5°	2223.3	2234.1	2219.8	2212.7	2219.8	2226.9	2226.9	2230.4	2223.3	2216.2
25°	2162.7	2169.8	2173.3	2151.9	2162.7	2151.9	2177.0	2180.5	2166.2	2173.3
27.5°	2109.1	2098.5	2094.9	2080.6	2087.7	2084.2	2087.7	2087.7	2109.1	2080.6
30°	2027.0	2016.4	2019.9	2009.2	2012.7	2009.2	2012.7	2012.7	2027.0	2023.5
32.5°	1948.5	1937.9	1941.4	1930.8	1930.8	1934.3	1927.1	1927.1	1937.9	1930.8
35°	1873.5	1848.6	1852.1	1848.6	1852.1	1837.9	1837.9	1834.4	1841.5	1823.6
37.5°	1766.5	1755.9	1752.2	1748.7	1752.2	1745.1	1752.2	1741.6	1752.2	1738.0
40°	1670.1	1663.0	1666.6	1645.2	1645.2	1648.7	1641.6	1638.1	1641.6	1655.9
42.5°	1573.9	1559.6	1552.5	1545.3	1548.8	1538.2	1534.6	1527.4	1534.6	1520.3
45°	1459.6	1459.6	1456.1	1438.2	1441.8	1441.8	1427.5	1413.3	1416.8	1416.8
47.5°	1356.2	1349.1	1345.4	1327.6	1324.0	1320.5	1306.1	1295.5	1295.5	1284.7
50°	1241.9	1234.8	1224.1	1206.2	1199.1	1177.7	1167.0	1152.8	1138.5	1138.5
52.5°	1134.9	1109.8	1095.6	1067.0	1056.4	1045.6	1017.1	1006.4	995.7	985.0
55°	1006.4	985.0	956.5	924.3	910.0	892.1	863.6	842.2	827.9	831.6
57.5°	881.5	845.8	817.3	774.5	756.6	745.8	717.3	688.7	674.5	674.5
60°	728.0	699.5	663.8	624.5	610.2	592.5	556.7	538.9	528.1	517.5
62.5°	581.7	560.3	528.1	478.2	467.5	449.6	424.7	403.3	392.6	392.6
65°	435.4	414.0	385.4	349.7	335.5	321.2	299.8	278.4	267.6	264.1
67.5°	306.9	281.9	257.0	228.5	217.7	210.5	189.1	174.9	167.7	164.1
70°	185.5	171.2	153.5	132.1	121.3	114.2	99.9	89.3	85.6	82.1
72.5°	96.4	85.6	71.3	57.1	49.9	42.8	35.7	28.5	25.0	25.0
75°	35.7	28.5	17.9	10.8	7.1	7.1	7.1	7.1	7.1	7.1
77.5°	7.1	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)