

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 FEU4C509040 F4LC-CSSQ-MMS**

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 FEU4C509040 F4LC-CSSQ-MMS  
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

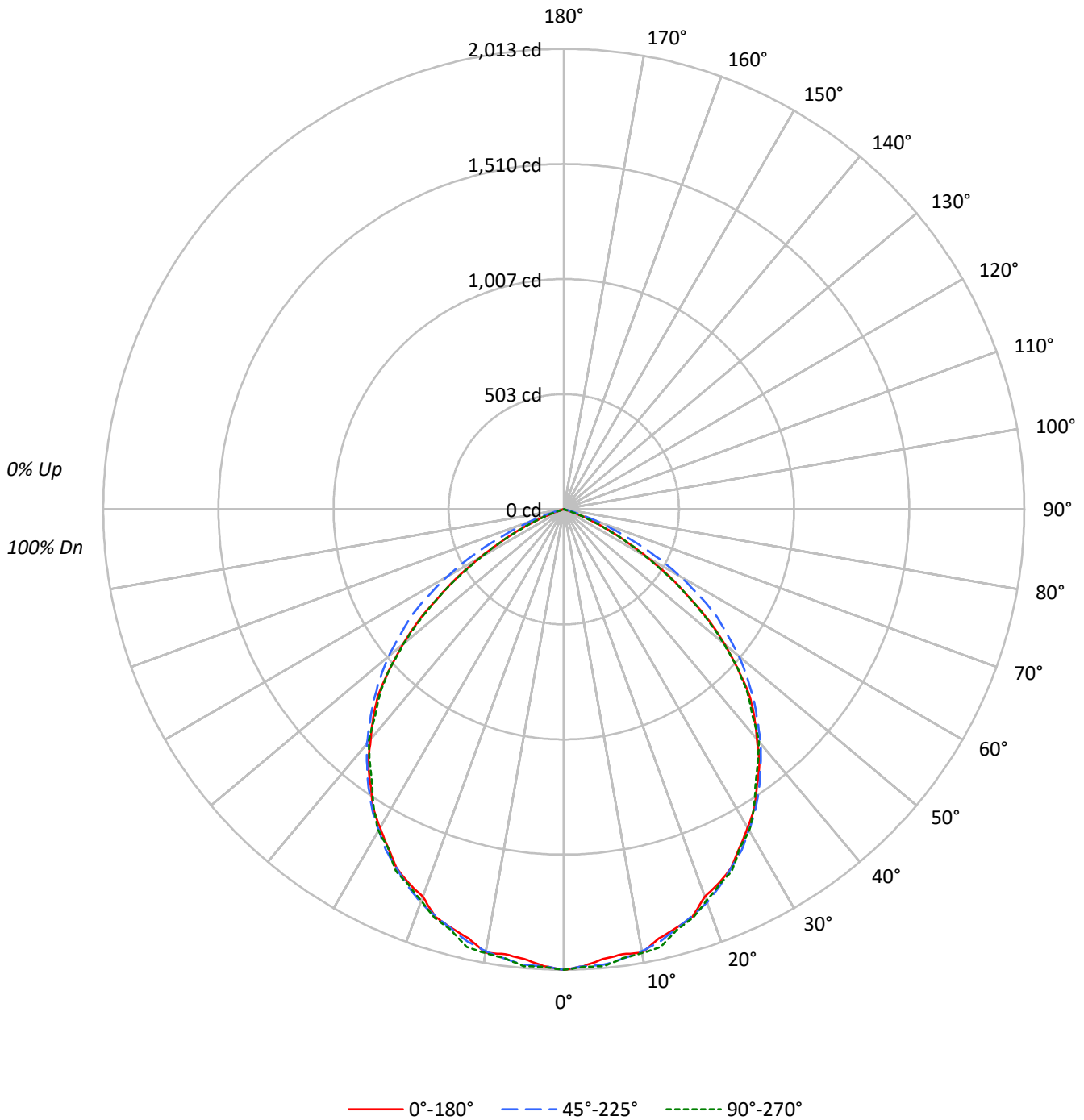
Lumens per Lamp: N/A  
 Luminaire Lumens: 4301.0 lumens  
 Efficiency: N/A  
 Efficacy: 73.6 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 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	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°	194271	194271	194271
5°	191139	193628	194180
10°	192790	192232	193064
15°	189416	189696	190266
20°	185011	187948	187065
25°	184204	184204	185428
30°	179067	180349	180672
35°	173483	175179	172140
40°	165344	168581	167145
45°	156488	160008	154932
50°	137816	149825	136960
55°	111616	137119	112104
60°	81668	113703	80028
65°	49635	80959	48334
70°	19353	43587	18563
75°	2125	11743	2125
80°	1611	1611	1611
85°	0	0	0

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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	190.1	4.4
10°-20°	537.8	12.5
20°-30°	798.0	18.6
30°-40°	924.6	21.5
40°-50°	886.5	20.6
50°-60°	651.8	15.2
60°-70°	281.5	6.5
70°-80°	30.4	0.7
80°-90°	0.4	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°	1525.8	35.5
0°-40°	2450.4	57.0
0°-60°	3988.7	92.7
0°-90°	4301.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4301.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2013	2013	2013	2013	2013	
5°	1973	1993	1999	2002	2005	188
15°	1896	1908	1899	1902	1905	534
25°	1730	1727	1730	1733	1742	792
35°	1473	1482	1487	1484	1461	921
45°	1147	1150	1173	1155	1135	872
55°	664	732	815	729	666	597
65°	217	272	355	269	212	223
75°	6	9	32	6	6	18
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°	2013.4	2013.4	2013.4	2013.4	2013.4	2013.4	2013.4	2013.4	2013.4	2013.4	2013.4
2.5°	1999.1	2022.0	2024.9	2010.5	2004.8	1996.3	2016.2	2002.0	2007.7	2002.0	1999.1
5°	1973.4	1999.1	2002.0	2002.0	1996.3	1993.4	2002.0	1999.1	1996.3	1990.6	1999.1
7.5°	1962.0	1976.2	1990.6	1973.4	1981.9	1979.1	1999.1	1990.6	1987.6	1987.6	1981.9
10°	1967.7	1964.8	1976.2	1959.1	1964.8	1959.1	1976.2	1976.2	1970.5	1964.8	1962.0
12.5°	1921.8	1944.7	1944.7	1941.9	1936.2	1927.6	1944.7	1956.3	1939.0	1939.0	1936.2
15°	1896.2	1901.9	1904.7	1904.7	1901.9	1907.6	1916.1	1904.7	1907.6	1893.2	1899.0
17.5°	1867.6	1856.1	1864.7	1858.9	1861.9	1867.6	1879.0	1879.0	1861.9	1858.9	1864.7
20°	1801.8	1836.1	1839.0	1821.8	1824.6	1824.6	1844.7	1827.5	1839.0	1824.6	1830.4
22.5°	1770.3	1793.1	1796.0	1773.2	1787.4	1770.3	1790.3	1764.5	1793.1	1773.2	1781.7
25°	1730.2	1727.4	1736.0	1724.5	1727.4	1727.4	1741.7	1730.2	1738.9	1727.4	1730.2
27.5°	1664.5	1687.4	1684.5	1673.1	1678.8	1676.0	1704.6	1673.1	1690.2	1676.0	1681.7
30°	1607.2	1627.3	1621.6	1610.2	1610.2	1601.5	1633.0	1624.4	1621.6	1621.6	1618.7
32.5°	1550.1	1553.0	1547.3	1550.1	1553.0	1541.5	1567.2	1555.8	1553.0	1555.8	1558.7
35°	1472.8	1472.8	1478.5	1470.0	1481.5	1481.5	1504.3	1490.0	1487.2	1478.5	1487.2
37.5°	1404.2	1395.7	1398.5	1398.5	1404.2	1409.9	1421.4	1415.6	1415.6	1407.1	1412.8
40°	1312.7	1307.0	1315.5	1315.5	1324.2	1324.2	1335.6	1329.9	1338.4	1338.4	1338.4
42.5°	1232.7	1232.7	1227.0	1235.5	1238.4	1235.5	1255.5	1252.6	1255.5	1249.8	1252.6
45°	1146.8	1146.8	1141.1	1138.3	1152.5	1149.7	1172.6	1164.0	1175.4	1169.7	1172.6
47.5°	1029.5	1043.9	1035.2	1043.9	1061.0	1063.9	1078.2	1072.5	1083.9	1075.4	1086.8
50°	918.1	918.1	926.6	938.0	955.2	958.1	975.3	986.7	992.4	995.2	998.1
52.5°	800.8	797.9	806.5	820.8	835.1	846.6	863.7	880.9	892.3	909.5	900.8
55°	663.5	669.2	677.8	695.0	717.9	732.1	746.4	769.3	789.4	797.9	815.1
57.5°	546.2	540.5	546.2	569.1	594.9	606.3	626.4	649.2	677.8	695.0	700.7
60°	423.2	426.1	431.9	451.9	471.9	489.0	497.7	534.8	560.6	577.7	589.2
62.5°	311.8	317.5	323.2	340.4	360.3	374.7	388.9	420.4	443.3	460.4	471.9
65°	217.4	220.2	228.8	237.3	257.4	271.6	283.1	308.9	331.7	346.1	354.6
67.5°	134.4	137.2	142.9	154.5	168.7	180.2	191.6	208.8	228.8	243.1	246.0
70°	68.6	71.5	74.3	83.0	94.4	100.1	108.6	123.0	137.2	148.7	154.5
72.5°	22.9	22.9	25.8	31.5	37.2	42.9	45.7	60.1	71.5	77.2	80.0
75°	5.7	5.7	5.7	5.7	5.7	8.6	8.6	17.2	22.9	28.6	31.5
77.5°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	5.7	5.7
80°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
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°	2013.4	2013.4	2013.4	2013.4	2013.4	2013.4	2013.4	2013.4	2013.4	2013.4
2.5°	2013.4	2007.7	2004.8	2007.7	2007.7	2004.8	2013.4	2024.9	2039.1	2002.0
5°	2010.5	2004.8	2010.5	1993.4	2002.0	1996.3	2007.7	2004.8	2016.2	2004.8
7.5°	2002.0	1990.6	1993.4	1984.8	1996.3	1981.9	1990.6	2007.7	1996.3	1979.1
10°	1973.4	1967.7	1987.6	1959.1	1953.3	1964.8	1987.6	1970.5	1964.8	1970.5
12.5°	1944.7	1944.7	1953.3	1930.5	1933.3	1939.0	1950.4	1939.0	1944.7	1959.1
15°	1913.3	1907.6	1921.8	1904.7	1901.9	1896.2	1907.6	1907.6	1913.3	1904.7
17.5°	1876.1	1867.6	1867.6	1861.9	1858.9	1873.3	1879.0	1881.8	1884.7	1873.3
20°	1830.4	1827.5	1836.1	1827.5	1830.4	1833.3	1833.3	1827.5	1853.2	1821.8
22.5°	1781.7	1790.3	1778.9	1773.2	1778.9	1784.6	1784.6	1787.4	1781.7	1776.0
25°	1733.1	1738.9	1741.7	1724.5	1733.1	1724.5	1744.6	1747.4	1736.0	1741.7
27.5°	1690.2	1681.7	1678.8	1667.3	1673.1	1670.3	1673.1	1673.1	1690.2	1667.3
30°	1624.4	1615.9	1618.7	1610.2	1613.0	1610.2	1613.0	1613.0	1624.4	1621.6
32.5°	1561.5	1553.0	1555.8	1547.3	1547.3	1550.1	1544.4	1544.4	1553.0	1547.3
35°	1501.4	1481.5	1484.3	1481.5	1484.3	1472.8	1472.8	1470.0	1475.7	1461.4
37.5°	1415.6	1407.1	1404.2	1401.4	1404.2	1398.5	1404.2	1395.7	1404.2	1392.8
40°	1338.4	1332.7	1335.6	1318.4	1318.4	1321.2	1315.5	1312.7	1315.5	1327.0
42.5°	1261.3	1249.8	1244.1	1238.4	1241.2	1232.7	1229.8	1224.0	1229.8	1218.3
45°	1169.7	1169.7	1166.9	1152.5	1155.4	1155.4	1144.0	1132.6	1135.4	1135.4
47.5°	1086.8	1081.1	1078.2	1063.9	1061.0	1058.2	1046.7	1038.2	1038.2	1029.5
50°	995.2	989.5	981.0	966.6	960.9	943.8	935.2	923.8	912.4	912.4
52.5°	909.5	889.4	878.0	855.1	846.6	837.9	815.1	806.5	797.9	789.4
55°	806.5	789.4	766.5	740.7	729.3	714.9	692.1	674.9	663.5	666.4
57.5°	706.4	677.8	655.0	620.7	606.3	597.7	574.8	551.9	540.5	540.5
60°	583.4	560.6	532.0	500.5	489.0	474.8	446.1	431.9	423.2	414.7
62.5°	466.2	449.0	423.2	383.2	374.7	360.3	340.4	323.2	314.6	314.6
65°	348.9	331.7	308.9	280.3	268.8	257.4	240.3	223.1	214.5	211.7
67.5°	246.0	225.9	206.0	183.1	174.4	168.7	151.6	140.1	134.4	131.5
70°	148.7	137.2	123.0	105.8	97.2	91.5	80.0	71.5	68.6	65.8
72.5°	77.2	68.6	57.2	45.7	40.0	34.3	28.6	22.9	20.1	20.1
75°	28.6	22.9	14.4	8.6	5.7	5.7	5.7	5.7	5.7	5.7
77.5°	5.7	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
80°	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9	2.9
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)