

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

Summary

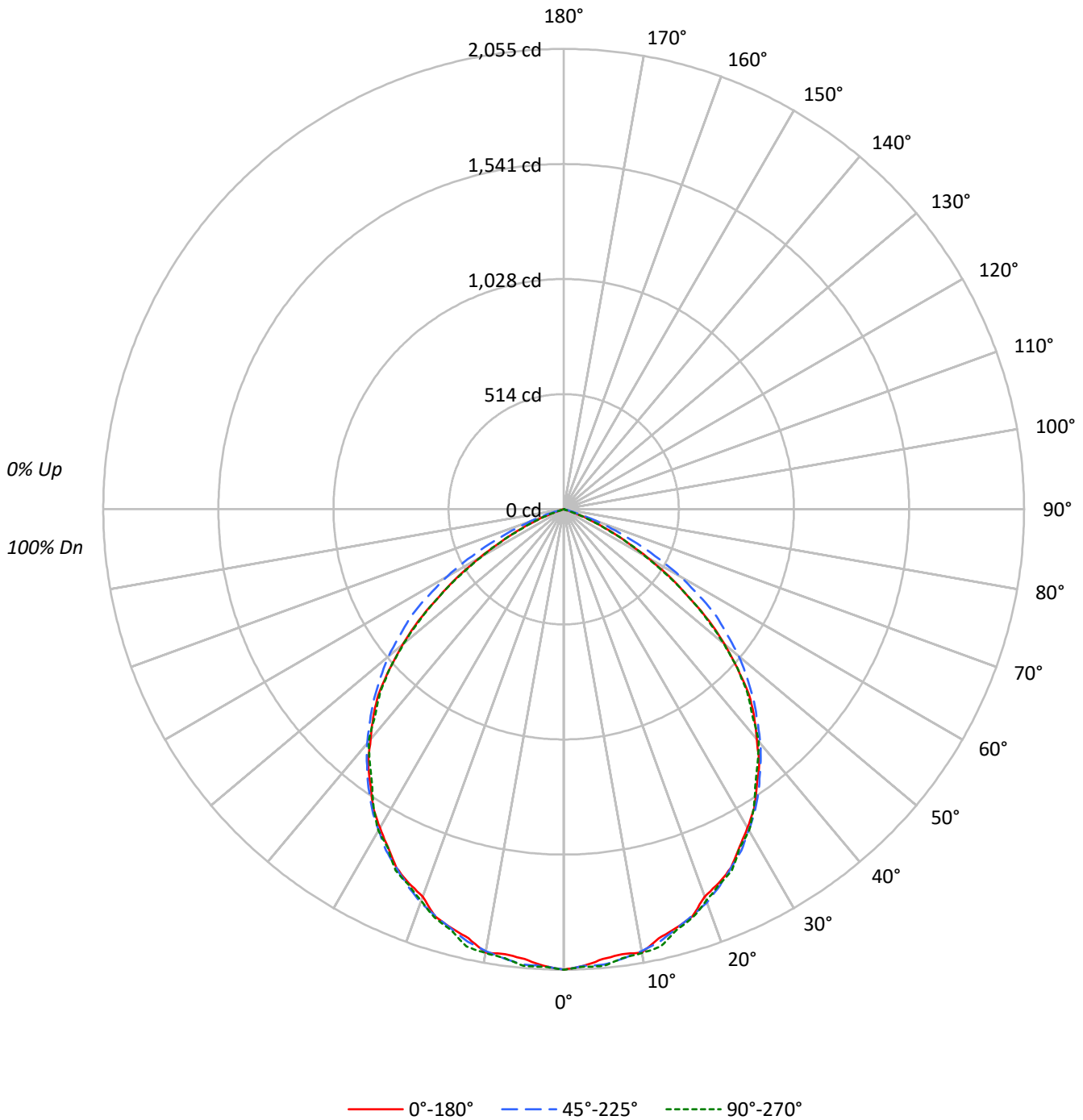
Lumens per Lamp: N/A
 Luminaire Lumens: 4390.0 lumens
 Efficiency: N/A
 Efficacy: 75.2 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	198294	198294	198294
5°	195090	197628	198199
10°	196778	196210	197062
15°	193332	193622	194201
20°	188831	191829	190936
25°	188015	188015	189261
30°	182778	184081	184415
35°	177075	178795	175697
40°	168770	172070	170597
45°	159722	163324	158139
50°	140668	152932	139798
55°	113921	139945	114425
60°	83366	116038	81687
65°	50662	82649	49315
70°	19748	44489	18958
75°	2162	12004	2162
80°	1667	1667	1667
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	194.0	4.4
10°-20°	548.9	12.5
20°-30°	814.5	18.6
30°-40°	943.7	21.5
40°-50°	904.8	20.6
50°-60°	665.3	15.2
60°-70°	287.3	6.5
70°-80°	31.0	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°	1557.4	35.5
0°-40°	2501.1	57.0
0°-60°	4071.2	92.7
0°-90°	4390.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4390.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2055	2055	2055	2055	2055	
5°	2014	2035	2040	2043	2046	192
15°	1935	1947	1938	1941	1944	545
25°	1766	1763	1766	1769	1778	809
35°	1503	1512	1518	1515	1492	940
45°	1170	1174	1197	1179	1159	890
55°	677	747	832	744	680	609
65°	222	277	362	274	216	228
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°	2055.1	2055.1	2055.1	2055.1	2055.1	2055.1	2055.1	2055.1	2055.1	2055.1	2055.1
2.5°	2040.4	2063.8	2066.8	2052.1	2046.3	2037.6	2058.0	2043.4	2049.3	2043.4	2040.4
5°	2014.2	2040.4	2043.4	2043.4	2037.6	2034.6	2043.4	2040.4	2037.6	2031.8	2040.4
7.5°	2002.6	2017.1	2031.8	2014.2	2022.9	2020.1	2040.4	2031.8	2028.8	2028.8	2022.9
10°	2008.4	2005.4	2017.1	1999.6	2005.4	1999.6	2017.1	2017.1	2011.3	2005.4	2002.6
12.5°	1961.6	1984.9	1984.9	1982.1	1976.3	1967.4	1984.9	1996.7	1979.1	1979.1	1976.3
15°	1935.4	1941.2	1944.1	1944.1	1941.2	1947.1	1955.8	1944.1	1947.1	1932.4	1938.3
17.5°	1906.2	1894.5	1903.2	1897.4	1900.4	1906.2	1917.9	1917.9	1900.4	1897.4	1903.2
20°	1839.0	1874.1	1877.0	1859.5	1862.4	1862.4	1882.9	1865.4	1877.0	1862.4	1868.2
22.5°	1806.9	1830.2	1833.2	1809.9	1824.4	1806.9	1827.4	1801.1	1830.2	1809.9	1818.6
25°	1766.0	1763.2	1771.9	1760.2	1763.2	1763.2	1777.7	1766.0	1774.8	1763.2	1766.0
27.5°	1699.0	1722.3	1719.3	1707.7	1713.5	1710.7	1739.8	1707.7	1725.2	1710.7	1716.5
30°	1640.5	1661.0	1655.2	1643.5	1643.5	1634.7	1666.8	1658.0	1655.2	1655.2	1652.2
32.5°	1582.1	1585.1	1579.3	1582.1	1585.1	1573.4	1599.7	1588.0	1585.1	1588.0	1591.0
35°	1503.3	1503.3	1509.1	1500.4	1512.1	1512.1	1535.5	1520.8	1517.9	1509.1	1517.9
37.5°	1433.3	1424.6	1427.4	1427.4	1433.3	1439.1	1450.8	1444.9	1444.9	1436.2	1442.1
40°	1339.9	1334.1	1342.8	1342.8	1351.6	1351.6	1363.2	1357.4	1366.1	1366.1	1366.1
42.5°	1258.2	1258.2	1252.4	1261.0	1264.0	1261.0	1281.5	1278.6	1281.5	1275.7	1278.6
45°	1170.5	1170.5	1164.7	1161.8	1176.4	1173.5	1196.9	1188.0	1199.7	1193.9	1196.9
47.5°	1050.8	1065.5	1056.7	1065.5	1083.0	1086.0	1100.5	1094.7	1106.3	1097.6	1109.3
50°	937.1	937.1	945.8	957.5	975.0	977.9	995.4	1007.1	1013.0	1015.8	1018.8
52.5°	817.4	814.4	823.2	837.8	852.4	864.1	881.6	899.1	910.8	928.3	919.5
55°	677.2	683.0	691.9	709.4	732.7	747.2	761.9	785.2	805.7	814.4	831.9
57.5°	557.5	551.7	557.5	580.9	607.2	618.9	639.3	662.7	691.9	709.4	715.2
60°	432.0	435.0	440.8	461.3	481.6	499.2	508.0	545.8	572.2	589.7	601.3
62.5°	318.2	324.1	329.9	347.4	367.8	382.4	397.0	429.1	452.5	470.0	481.6
65°	221.9	224.7	233.6	242.3	262.7	277.3	288.9	315.3	338.6	353.3	362.0
67.5°	137.2	140.1	145.9	157.7	172.2	183.9	195.6	213.1	233.6	248.1	251.1
70°	70.0	73.0	75.9	84.7	96.4	102.2	110.9	125.5	140.1	151.7	157.7
72.5°	23.3	23.3	26.3	32.2	38.0	43.8	46.7	61.3	73.0	78.8	81.7
75°	5.8	5.8	5.8	5.8	5.8	8.8	8.8	17.5	23.3	29.2	32.2
77.5°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	5.8	5.8
80°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
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°	2055.1	2055.1	2055.1	2055.1	2055.1	2055.1	2055.1	2055.1	2055.1	2055.1
2.5°	2055.1	2049.3	2046.3	2049.3	2049.3	2046.3	2055.1	2066.8	2081.3	2043.4
5°	2052.1	2046.3	2052.1	2034.6	2043.4	2037.6	2049.3	2046.3	2058.0	2046.3
7.5°	2043.4	2031.8	2034.6	2025.9	2037.6	2022.9	2031.8	2049.3	2037.6	2020.1
10°	2014.2	2008.4	2028.8	1999.6	1993.8	2005.4	2028.8	2011.3	2005.4	2011.3
12.5°	1984.9	1984.9	1993.8	1970.4	1973.3	1979.1	1990.8	1979.1	1984.9	1999.6
15°	1952.9	1947.1	1961.6	1944.1	1941.2	1935.4	1947.1	1947.1	1952.9	1944.1
17.5°	1914.9	1906.2	1906.2	1900.4	1897.4	1912.1	1917.9	1920.8	1923.7	1912.1
20°	1868.2	1865.4	1874.1	1865.4	1868.2	1871.2	1871.2	1865.4	1891.6	1859.5
22.5°	1818.6	1827.4	1815.7	1809.9	1815.7	1821.5	1821.5	1824.4	1818.6	1812.7
25°	1769.0	1774.8	1777.7	1760.2	1769.0	1760.2	1780.7	1783.5	1771.9	1777.7
27.5°	1725.2	1716.5	1713.5	1701.8	1707.7	1704.8	1707.7	1707.7	1725.2	1701.8
30°	1658.0	1649.3	1652.2	1643.5	1646.3	1643.5	1646.3	1646.3	1658.0	1655.2
32.5°	1593.8	1585.1	1588.0	1579.3	1579.3	1582.1	1576.3	1576.3	1585.1	1579.3
35°	1532.5	1512.1	1515.0	1512.1	1515.0	1503.3	1503.3	1500.4	1506.3	1491.6
37.5°	1444.9	1436.2	1433.3	1430.4	1433.3	1427.4	1433.3	1424.6	1433.3	1421.6
40°	1366.1	1360.3	1363.2	1345.7	1345.7	1348.6	1342.8	1339.9	1342.8	1354.4
42.5°	1287.4	1275.7	1269.9	1264.0	1266.9	1258.2	1255.2	1249.4	1255.2	1243.5
45°	1193.9	1193.9	1191.0	1176.4	1179.3	1179.3	1167.7	1156.0	1158.9	1158.9
47.5°	1109.3	1103.5	1100.5	1086.0	1083.0	1080.1	1068.3	1059.6	1059.6	1050.8
50°	1015.8	1010.0	1001.3	986.6	980.8	963.3	954.6	942.9	931.3	931.3
52.5°	928.3	907.8	896.1	872.8	864.1	855.3	831.9	823.2	814.4	805.7
55°	823.2	805.7	782.4	756.1	744.4	729.7	706.4	688.9	677.2	680.2
57.5°	721.0	691.9	668.5	633.5	618.9	610.0	586.7	563.4	551.7	551.7
60°	595.5	572.2	543.0	510.8	499.2	484.6	455.3	440.8	432.0	423.3
62.5°	475.8	458.3	432.0	391.1	382.4	367.8	347.4	329.9	321.1	321.1
65°	356.1	338.6	315.3	286.1	274.4	262.7	245.2	227.7	218.9	216.0
67.5°	251.1	230.6	210.2	186.9	178.1	172.2	154.7	143.0	137.2	134.2
70°	151.7	140.1	125.5	108.0	99.2	93.4	81.7	73.0	70.0	67.2
72.5°	78.8	70.0	58.4	46.7	40.9	35.0	29.2	23.3	20.5	20.5
75°	29.2	23.3	14.6	8.8	5.8	5.8	5.8	5.8	5.8	5.8
77.5°	5.8	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
80°	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
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)