

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

Summary

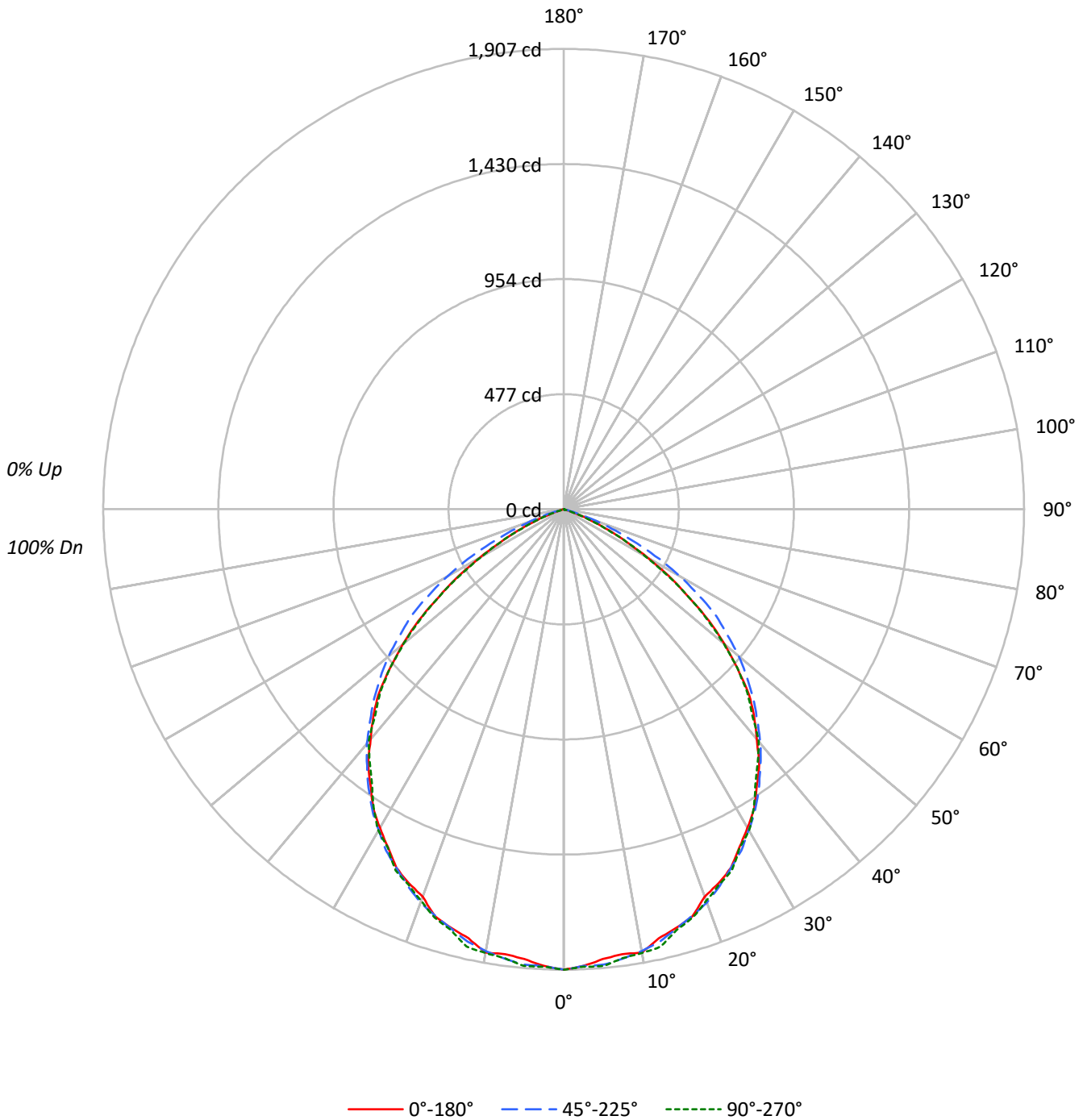
Lumens per Lamp: N/A
 Luminaire Lumens: 4074.0 lumens
 Efficiency: N/A
 Efficacy: 69.8 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	184024	184024	184024
5°	181056	183409	183932
10°	182610	182081	182875
15°	179417	179677	180226
20°	175246	178019	177197
25°	174483	174483	175633
30°	169619	170834	171135
35°	164330	165932	163058
40°	156615	159689	158316
45°	148232	151562	146745
50°	130536	141929	129725
55°	105728	129868	106183
60°	77365	107701	75802
65°	47009	76690	45777
70°	18337	41273	17576
75°	2013	11110	2013
80°	1556	1556	1556
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	180.0	4.4
10°-20°	509.4	12.5
20°-30°	755.8	18.6
30°-40°	875.8	21.5
40°-50°	839.7	20.6
50°-60°	617.4	15.2
60°-70°	266.7	6.5
70°-80°	28.8	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°	1445.3	35.5
0°-40°	2321.1	57.0
0°-60°	3778.2	92.7
0°-90°	4074.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4074.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1907	1907	1907	1907	1907	
5°	1869	1888	1894	1896	1899	178
15°	1796	1807	1799	1802	1804	506
25°	1639	1636	1639	1642	1650	750
35°	1395	1403	1409	1406	1384	872
45°	1086	1089	1111	1094	1075	826
55°	628	694	772	691	631	566
65°	206	257	336	255	200	212
75°	5	8	30	5	5	17
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°	1907.2	1907.2	1907.2	1907.2	1907.2	1907.2	1907.2	1907.2	1907.2	1907.2	1907.2
2.5°	1893.6	1915.2	1918.0	1904.4	1899.0	1890.9	1909.8	1896.3	1901.7	1896.3	1893.6
5°	1869.3	1893.6	1896.3	1896.3	1890.9	1888.2	1896.3	1893.6	1890.9	1885.5	1893.6
7.5°	1858.4	1871.9	1885.5	1869.3	1877.3	1874.7	1893.6	1885.5	1882.7	1882.7	1877.3
10°	1863.8	1861.1	1871.9	1855.7	1861.1	1855.7	1871.9	1871.9	1866.5	1861.1	1858.4
12.5°	1820.4	1842.1	1842.1	1839.4	1834.0	1825.8	1842.1	1853.0	1836.7	1836.7	1834.0
15°	1796.1	1801.5	1804.2	1804.2	1801.5	1806.9	1815.0	1804.2	1806.9	1793.3	1798.7
17.5°	1769.0	1758.2	1766.2	1760.8	1763.6	1769.0	1779.8	1779.8	1763.6	1760.8	1766.2
20°	1706.7	1739.2	1741.9	1725.7	1728.3	1728.3	1747.3	1731.1	1741.9	1728.3	1733.7
22.5°	1676.8	1698.5	1701.3	1679.6	1693.1	1676.8	1695.8	1671.4	1698.5	1679.6	1687.7
25°	1638.9	1636.3	1644.3	1633.5	1636.3	1636.3	1649.7	1638.9	1647.1	1636.3	1638.9
27.5°	1576.7	1598.3	1595.6	1584.8	1590.2	1587.5	1614.6	1584.8	1601.0	1587.5	1592.9
30°	1522.4	1541.4	1536.0	1525.2	1525.2	1517.0	1546.8	1538.7	1536.0	1536.0	1533.3
32.5°	1468.3	1471.0	1465.6	1468.3	1471.0	1460.2	1484.5	1473.7	1471.0	1473.7	1476.4
35°	1395.1	1395.1	1400.5	1392.4	1403.3	1403.3	1424.9	1411.3	1408.7	1400.5	1408.7
37.5°	1330.1	1322.0	1324.7	1324.7	1330.1	1335.5	1346.3	1340.9	1340.9	1332.9	1338.3
40°	1243.4	1238.0	1246.1	1246.1	1254.3	1254.3	1265.1	1259.7	1267.8	1267.8	1267.8
42.5°	1167.6	1167.6	1162.2	1170.3	1173.0	1170.3	1189.3	1186.5	1189.3	1183.9	1186.5
45°	1086.3	1086.3	1080.9	1078.2	1091.7	1089.0	1110.7	1102.5	1113.4	1107.9	1110.7
47.5°	975.2	988.8	980.6	988.8	1005.0	1007.8	1021.3	1015.9	1026.7	1018.6	1029.5
50°	869.6	869.6	877.7	888.5	904.8	907.5	923.8	934.6	940.0	942.7	945.5
52.5°	758.6	755.8	764.0	777.5	791.1	801.9	818.1	834.4	845.2	861.5	853.3
55°	628.5	633.9	642.1	658.3	680.0	693.5	707.0	728.7	747.7	755.8	772.0
57.5°	517.4	512.0	517.4	539.0	563.5	574.3	593.3	615.0	642.1	658.3	663.7
60°	400.9	403.6	409.1	428.1	447.0	463.2	471.4	506.6	531.0	547.2	558.1
62.5°	295.3	300.7	306.2	322.4	341.3	354.9	368.4	398.2	419.9	436.1	447.0
65°	205.9	208.6	216.7	224.8	243.8	257.3	268.1	292.6	314.2	327.8	335.9
67.5°	127.3	130.0	135.4	146.3	159.8	170.7	181.5	197.7	216.7	230.2	233.0
70°	65.0	67.8	70.4	78.6	89.4	94.8	102.9	116.5	130.0	140.8	146.3
72.5°	21.7	21.7	24.4	29.8	35.3	40.7	43.3	56.9	67.8	73.2	75.8
75°	5.4	5.4	5.4	5.4	5.4	8.2	8.2	16.2	21.7	27.1	29.8
77.5°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	5.4	5.4
80°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
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°	1907.2	1907.2	1907.2	1907.2	1907.2	1907.2	1907.2	1907.2	1907.2	1907.2
2.5°	1907.2	1901.7	1899.0	1901.7	1901.7	1899.0	1907.2	1918.0	1931.5	1896.3
5°	1904.4	1899.0	1904.4	1888.2	1896.3	1890.9	1901.7	1899.0	1909.8	1899.0
7.5°	1896.3	1885.5	1888.2	1880.1	1890.9	1877.3	1885.5	1901.7	1890.9	1874.7
10°	1869.3	1863.8	1882.7	1855.7	1850.2	1861.1	1882.7	1866.5	1861.1	1866.5
12.5°	1842.1	1842.1	1850.2	1828.6	1831.2	1836.7	1847.5	1836.7	1842.1	1855.7
15°	1812.3	1806.9	1820.4	1804.2	1801.5	1796.1	1806.9	1806.9	1812.3	1804.2
17.5°	1777.1	1769.0	1769.0	1763.6	1760.8	1774.4	1779.8	1782.5	1785.3	1774.4
20°	1733.7	1731.1	1739.2	1731.1	1733.7	1736.5	1736.5	1731.1	1755.4	1725.7
22.5°	1687.7	1695.8	1685.0	1679.6	1685.0	1690.4	1690.4	1693.1	1687.7	1682.2
25°	1641.7	1647.1	1649.7	1633.5	1641.7	1633.5	1652.5	1655.2	1644.3	1649.7
27.5°	1601.0	1592.9	1590.2	1579.3	1584.8	1582.1	1584.8	1584.8	1601.0	1579.3
30°	1538.7	1530.6	1533.3	1525.2	1527.8	1525.2	1527.8	1527.8	1538.7	1536.0
32.5°	1479.1	1471.0	1473.7	1465.6	1465.6	1468.3	1462.8	1462.8	1471.0	1465.6
35°	1422.2	1403.3	1405.9	1403.3	1405.9	1395.1	1395.1	1392.4	1397.9	1384.3
37.5°	1340.9	1332.9	1330.1	1327.4	1330.1	1324.7	1330.1	1322.0	1330.1	1319.3
40°	1267.8	1262.3	1265.1	1248.9	1248.9	1251.5	1246.1	1243.4	1246.1	1256.9
42.5°	1194.7	1183.9	1178.5	1173.0	1175.7	1167.6	1164.9	1159.4	1164.9	1154.0
45°	1107.9	1107.9	1105.3	1091.7	1094.5	1094.5	1083.6	1072.8	1075.4	1075.4
47.5°	1029.5	1024.0	1021.3	1007.8	1005.0	1002.4	991.4	983.4	983.4	975.2
50°	942.7	937.3	929.2	915.6	910.2	894.0	885.9	875.1	864.2	864.2
52.5°	861.5	842.4	831.6	810.0	801.9	793.7	772.0	764.0	755.8	747.7
55°	764.0	747.7	726.1	701.6	690.8	677.2	655.5	639.3	628.5	631.2
57.5°	669.1	642.1	620.4	587.9	574.3	566.1	544.5	522.8	512.0	512.0
60°	552.6	531.0	503.9	474.1	463.2	449.7	422.6	409.1	400.9	392.8
62.5°	441.6	425.3	400.9	363.0	354.9	341.3	322.4	306.2	298.0	298.0
65°	330.5	314.2	292.6	265.5	254.7	243.8	227.6	211.3	203.2	200.5
67.5°	233.0	214.0	195.1	173.4	165.2	159.8	143.6	132.7	127.3	124.6
70°	140.8	130.0	116.5	100.2	92.1	86.7	75.8	67.8	65.0	62.3
72.5°	73.2	65.0	54.2	43.3	37.9	32.5	27.1	21.7	19.0	19.0
75°	27.1	21.7	13.6	8.2	5.4	5.4	5.4	5.4	5.4	5.4
77.5°	5.4	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
80°	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
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)