

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 FEU4C509035 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 FEU4C509035 F4LC-CSSQ-MMS
 Description: 4 INCH 5000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

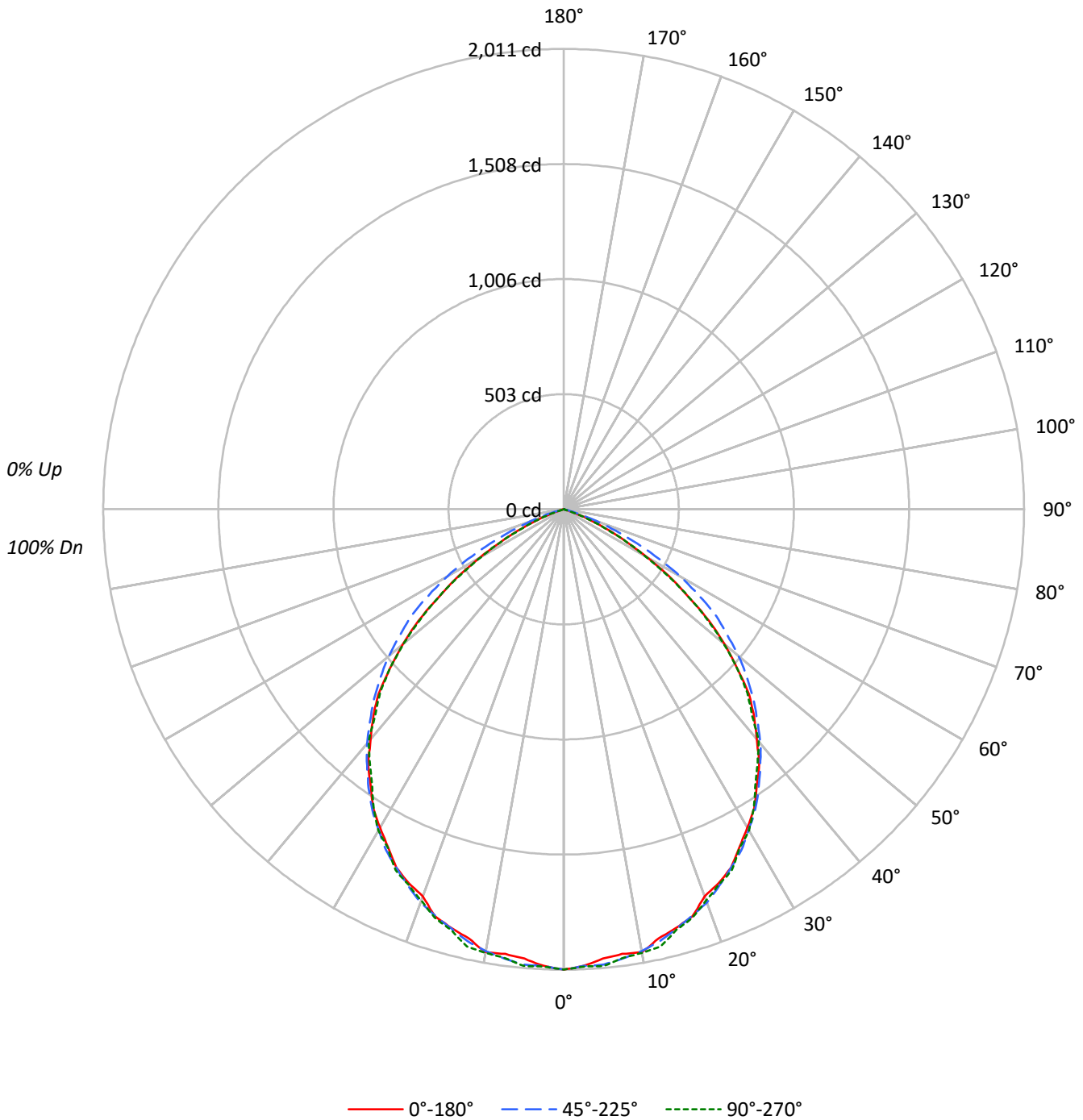
Lumens per Lamp: N/A
 Luminaire Lumens: 4295.0 lumens
 Efficiency: N/A
 Efficacy: 73.5 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

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°	194001	194001	194001
5°	190877	193357	193909
10°	192516	191957	192790
15°	189147	189426	189996
20°	184744	187681	186808
25°	183948	183948	185162
30°	178822	180092	180416
35°	173247	174932	171893
40°	165117	168342	166906
45°	156269	159790	154714
50°	137621	149615	136765
55°	111465	136917	111953
60°	81552	113529	79912
65°	49567	80845	48265
70°	19325	43530	18535
75°	2125	11743	2125
80°	1611	1611	1611
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	189.8	4.4
10°-20°	537.0	12.5
20°-30°	796.8	18.6
30°-40°	923.3	21.5
40°-50°	885.3	20.6
50°-60°	650.9	15.2
60°-70°	281.1	6.5
70°-80°	30.3	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°	1523.7	35.5
0°-40°	2447.0	57.0
0°-60°	3983.1	92.7
0°-90°	4295.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4295.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2011	2011	2011	2011	2011	
5°	1971	1991	1996	1999	2002	188
15°	1894	1905	1896	1899	1902	534
25°	1728	1725	1728	1731	1739	791
35°	1471	1479	1485	1482	1459	920
45°	1145	1148	1171	1154	1134	871
55°	663	731	814	728	666	596
65°	217	271	354	268	211	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°	2010.6	2010.6	2010.6	2010.6	2010.6	2010.6	2010.6	2010.6	2010.6	2010.6	2010.6
2.5°	1996.3	2019.1	2022.0	2007.7	2002.0	1993.5	2013.4	1999.2	2004.9	1999.2	1996.3
5°	1970.7	1996.3	1999.2	1999.2	1993.5	1990.6	1999.2	1996.3	1993.5	1987.8	1996.3
7.5°	1959.2	1973.5	1987.8	1970.7	1979.2	1976.4	1996.3	1987.8	1984.9	1984.9	1979.2
10°	1964.9	1962.0	1973.5	1956.3	1962.0	1956.3	1973.5	1973.5	1967.7	1962.0	1959.2
12.5°	1919.2	1942.0	1942.0	1939.2	1933.5	1924.9	1942.0	1953.5	1936.3	1936.3	1933.5
15°	1893.5	1899.2	1902.0	1902.0	1899.2	1904.9	1913.4	1902.0	1904.9	1890.6	1896.3
17.5°	1865.0	1853.5	1862.1	1856.3	1859.3	1865.0	1876.4	1876.4	1859.3	1856.3	1862.1
20°	1799.2	1833.5	1836.4	1819.3	1822.1	1822.1	1842.1	1825.0	1836.4	1822.1	1827.8
22.5°	1767.8	1790.6	1793.5	1770.7	1784.9	1767.8	1787.8	1762.1	1790.6	1770.7	1779.2
25°	1727.8	1725.0	1733.5	1722.1	1725.0	1725.0	1739.2	1727.8	1736.4	1725.0	1727.8
27.5°	1662.2	1685.1	1682.1	1670.7	1676.4	1673.6	1702.2	1670.7	1687.9	1673.6	1679.3
30°	1605.0	1625.0	1619.3	1607.9	1607.9	1599.3	1630.8	1622.1	1619.3	1619.3	1616.4
32.5°	1547.9	1550.8	1545.1	1547.9	1550.8	1539.4	1565.0	1553.6	1550.8	1553.6	1556.5
35°	1470.8	1470.8	1476.5	1468.0	1479.4	1479.4	1502.2	1487.9	1485.1	1476.5	1485.1
37.5°	1402.3	1393.7	1396.5	1396.5	1402.3	1408.0	1419.4	1413.7	1413.7	1405.2	1410.9
40°	1310.9	1305.2	1313.7	1313.7	1322.3	1322.3	1333.7	1328.0	1336.5	1336.5	1336.5
42.5°	1231.0	1231.0	1225.2	1233.8	1236.7	1233.8	1253.8	1250.9	1253.8	1248.1	1250.9
45°	1145.2	1145.2	1139.5	1136.7	1150.9	1148.1	1171.0	1162.3	1173.7	1168.0	1171.0
47.5°	1028.1	1042.4	1033.8	1042.4	1059.6	1062.5	1076.7	1071.0	1082.4	1073.9	1085.3
50°	916.8	916.8	925.3	936.7	953.9	956.8	973.9	985.3	991.0	993.8	996.7
52.5°	799.7	796.8	805.4	819.6	834.0	845.4	862.5	879.6	891.1	908.2	899.6
55°	662.6	668.3	676.9	694.0	716.9	731.1	745.4	768.2	788.3	796.8	813.9
57.5°	545.5	539.7	545.5	568.3	594.0	605.5	625.5	648.3	676.9	694.0	699.7
60°	422.6	425.5	431.3	451.3	471.2	488.4	497.0	534.0	559.8	576.9	588.3
62.5°	311.4	317.1	322.8	339.9	359.8	374.2	388.4	419.8	442.7	459.8	471.2
65°	217.1	219.9	228.5	237.0	257.1	271.3	282.7	308.4	331.3	345.6	354.1
67.5°	134.2	137.0	142.7	154.3	168.5	179.9	191.3	208.5	228.5	242.7	245.6
70°	68.5	71.4	74.2	82.8	94.3	100.0	108.5	122.8	137.0	148.5	154.3
72.5°	22.8	22.8	25.7	31.5	37.2	42.9	45.7	60.0	71.4	77.1	79.9
75°	5.7	5.7	5.7	5.7	5.7	8.6	8.6	17.1	22.8	28.5	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°	2010.6	2010.6	2010.6	2010.6	2010.6	2010.6	2010.6	2010.6	2010.6	2010.6
2.5°	2010.6	2004.9	2002.0	2004.9	2004.9	2002.0	2010.6	2022.0	2036.3	1999.2
5°	2007.7	2002.0	2007.7	1990.6	1999.2	1993.5	2004.9	2002.0	2013.4	2002.0
7.5°	1999.2	1987.8	1990.6	1982.1	1993.5	1979.2	1987.8	2004.9	1993.5	1976.4
10°	1970.7	1964.9	1984.9	1956.3	1950.6	1962.0	1984.9	1967.7	1962.0	1967.7
12.5°	1942.0	1942.0	1950.6	1927.8	1930.6	1936.3	1947.7	1936.3	1942.0	1956.3
15°	1910.6	1904.9	1919.2	1902.0	1899.2	1893.5	1904.9	1904.9	1910.6	1902.0
17.5°	1873.5	1865.0	1865.0	1859.3	1856.3	1870.7	1876.4	1879.2	1882.1	1870.7
20°	1827.8	1825.0	1833.5	1825.0	1827.8	1830.7	1830.7	1825.0	1850.6	1819.3
22.5°	1779.2	1787.8	1776.4	1770.7	1776.4	1782.1	1782.1	1784.9	1779.2	1773.5
25°	1730.7	1736.4	1739.2	1722.1	1730.7	1722.1	1742.2	1745.0	1733.5	1739.2
27.5°	1687.9	1679.3	1676.4	1665.0	1670.7	1667.9	1670.7	1670.7	1687.9	1665.0
30°	1622.1	1613.6	1616.4	1607.9	1610.7	1607.9	1610.7	1610.7	1622.1	1619.3
32.5°	1559.3	1550.8	1553.6	1545.1	1545.1	1547.9	1542.2	1542.2	1550.8	1545.1
35°	1499.3	1479.4	1482.2	1479.4	1482.2	1470.8	1470.8	1468.0	1473.7	1459.3
37.5°	1413.7	1405.2	1402.3	1399.5	1402.3	1396.5	1402.3	1393.7	1402.3	1390.8
40°	1336.5	1330.8	1333.7	1316.6	1316.6	1319.4	1313.7	1310.9	1313.7	1325.1
42.5°	1259.5	1248.1	1242.4	1236.7	1239.5	1231.0	1228.0	1222.3	1228.0	1216.6
45°	1168.0	1168.0	1165.2	1150.9	1153.8	1153.8	1142.4	1131.0	1133.8	1133.8
47.5°	1085.3	1079.6	1076.7	1062.5	1059.6	1056.8	1045.2	1036.7	1036.7	1028.1
50°	993.8	988.1	979.6	965.3	959.6	942.4	933.9	922.5	911.1	911.1
52.5°	908.2	888.1	876.7	853.9	845.4	836.8	813.9	805.4	796.8	788.3
55°	805.4	788.3	765.4	739.7	728.3	713.9	691.1	674.0	662.6	665.5
57.5°	705.4	676.9	654.0	619.8	605.5	596.8	574.0	551.2	539.7	539.7
60°	582.6	559.8	531.2	499.8	488.4	474.1	445.5	431.3	422.6	414.1
62.5°	465.5	448.4	422.6	382.7	374.2	359.8	339.9	322.8	314.1	314.1
65°	348.4	331.3	308.4	279.9	268.5	257.1	239.9	222.8	214.2	211.4
67.5°	245.6	225.6	205.7	182.8	174.2	168.5	151.4	139.9	134.2	131.3
70°	148.5	137.0	122.8	105.7	97.1	91.4	79.9	71.4	68.5	65.7
72.5°	77.1	68.5	57.1	45.7	40.0	34.3	28.5	22.8	20.0	20.0
75°	28.5	22.8	14.3	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)