

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: **FLDSQ4C55D010 FEU4C559027 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: FLDSQ4C55D010 FEU4C559027 F4LC-CSSQ-MMS
 Description: 4 INCH 5500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

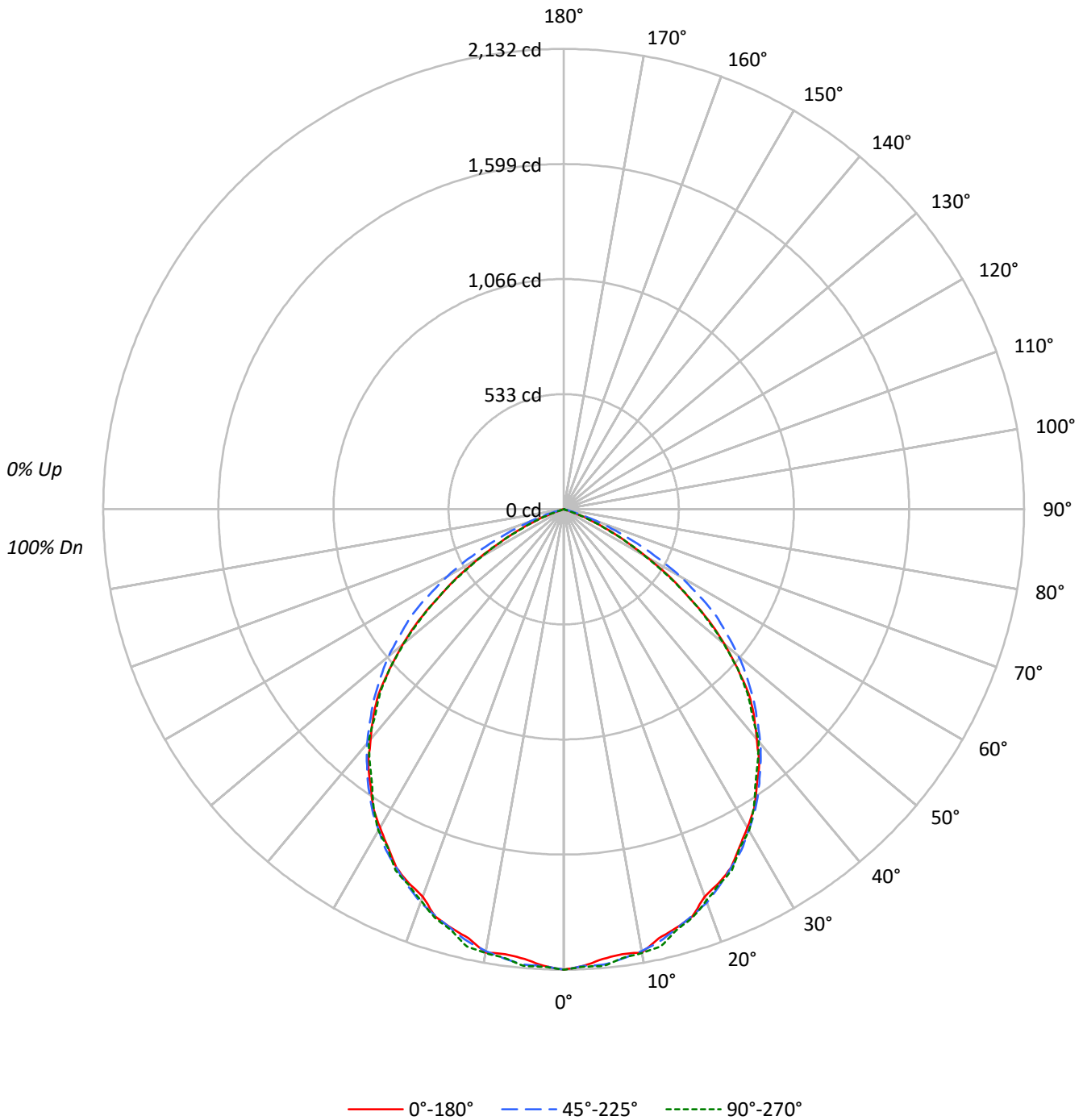
Lumens per Lamp: N/A
 Luminaire Lumens: 4554.0 lumens
 Efficiency: N/A
 Efficacy: 71.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 63.9
 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°	205705	205705	205705
5°	202384	205018	205599
10°	204126	203538	204420
15°	200554	200854	201454
20°	195885	198996	198072
25°	195042	195042	196330
30°	189607	190956	191301
35°	183695	185486	182270
40°	175068	178494	176970
45°	165698	169424	164047
50°	145922	158651	145006
55°	118177	145177	118698
60°	86473	120380	84737
65°	52557	85731	51165
70°	20482	46154	19663
75°	2274	12452	2274
80°	1723	1723	1723
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	201.2	4.4
10°-20°	569.4	12.5
20°-30°	844.9	18.6
30°-40°	979.0	21.5
40°-50°	938.6	20.6
50°-60°	690.1	15.2
60°-70°	298.1	6.5
70°-80°	32.2	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°	1615.6	35.5
0°-40°	2594.6	57.0
0°-60°	4223.3	92.7
0°-90°	4554.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4554.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2132	2132	2132	2132	2132	
5°	2090	2111	2117	2120	2123	199
15°	2008	2020	2011	2014	2017	566
25°	1832	1829	1832	1835	1844	839
35°	1560	1569	1575	1572	1547	975
45°	1214	1217	1242	1223	1202	923
55°	702	775	863	772	706	632
65°	230	288	376	285	224	237
75°	6	9	33	6	6	19
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°	2131.9	2131.9	2131.9	2131.9	2131.9	2131.9	2131.9	2131.9	2131.9	2131.9	2131.9
2.5°	2116.7	2140.9	2144.0	2128.8	2122.7	2113.7	2134.8	2119.8	2125.8	2119.8	2116.7
5°	2089.5	2116.7	2119.8	2119.8	2113.7	2110.6	2119.8	2116.7	2113.7	2107.7	2116.7
7.5°	2077.4	2092.5	2107.7	2089.5	2098.5	2095.5	2116.7	2107.7	2104.6	2104.6	2098.5
10°	2083.4	2080.3	2092.5	2074.3	2080.3	2074.3	2092.5	2092.5	2086.4	2080.3	2077.4
12.5°	2034.9	2059.1	2059.1	2056.1	2050.1	2040.9	2059.1	2071.3	2053.0	2053.0	2050.1
15°	2007.7	2013.8	2016.7	2016.7	2013.8	2019.8	2028.8	2016.7	2019.8	2004.6	2010.7
17.5°	1977.4	1965.3	1974.3	1968.3	1971.4	1977.4	1989.5	1989.5	1971.4	1968.3	1974.3
20°	1907.7	1944.1	1947.2	1929.0	1932.0	1932.0	1953.2	1935.1	1947.2	1932.0	1938.0
22.5°	1874.4	1898.6	1901.7	1877.5	1892.6	1874.4	1895.6	1868.3	1898.6	1877.5	1886.5
25°	1832.0	1829.0	1838.1	1826.0	1829.0	1829.0	1844.1	1832.0	1841.2	1829.0	1832.0
27.5°	1762.5	1786.7	1783.6	1771.5	1777.5	1774.6	1804.8	1771.5	1789.6	1774.6	1780.6
30°	1701.8	1723.0	1717.0	1704.9	1704.9	1695.7	1729.1	1720.0	1717.0	1717.0	1713.9
32.5°	1641.3	1644.3	1638.3	1641.3	1644.3	1632.2	1659.4	1647.3	1644.3	1647.3	1650.4
35°	1559.5	1559.5	1565.5	1556.5	1568.6	1568.6	1592.8	1577.6	1574.7	1565.5	1574.7
37.5°	1486.8	1477.8	1480.8	1480.8	1486.8	1492.9	1505.0	1498.9	1498.9	1489.9	1496.0
40°	1389.9	1383.9	1392.9	1392.9	1402.1	1402.1	1414.2	1408.1	1417.1	1417.1	1417.1
42.5°	1305.2	1305.2	1299.1	1308.2	1311.2	1308.2	1329.4	1326.3	1329.4	1323.4	1326.3
45°	1214.3	1214.3	1208.2	1205.2	1220.3	1217.3	1241.6	1232.4	1244.5	1238.5	1241.6
47.5°	1090.1	1105.3	1096.1	1105.3	1123.4	1126.5	1141.6	1135.6	1147.7	1138.6	1150.8
50°	972.1	972.1	981.1	993.2	1011.4	1014.5	1032.6	1044.7	1050.8	1053.8	1056.9
52.5°	847.9	844.8	854.0	869.1	884.3	896.4	914.5	932.7	944.8	963.0	953.8
55°	702.5	708.6	717.7	735.9	760.1	775.2	790.4	814.6	835.8	844.8	863.0
57.5°	578.3	572.3	578.3	602.6	629.9	642.0	663.2	687.4	717.7	735.9	741.9
60°	448.1	451.2	457.3	478.5	499.6	517.8	526.9	566.2	593.5	611.7	623.8
62.5°	330.1	336.2	342.2	360.4	381.5	396.7	411.8	445.2	469.4	487.5	499.6
65°	230.2	233.1	242.3	251.3	272.6	287.6	299.7	327.0	351.3	366.5	375.5
67.5°	142.3	145.3	151.4	163.6	178.7	190.8	202.9	221.0	242.3	257.4	260.4
70°	72.6	75.7	78.7	87.8	100.0	106.0	115.0	130.2	145.3	157.4	163.6
72.5°	24.2	24.2	27.3	33.4	39.4	45.5	48.4	63.6	75.7	81.8	84.8
75°	6.1	6.1	6.1	6.1	6.1	9.1	9.1	18.2	24.2	30.3	33.4
77.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	6.1	6.1
80°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
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°	2131.9	2131.9	2131.9	2131.9	2131.9	2131.9	2131.9	2131.9	2131.9	2131.9
2.5°	2131.9	2125.8	2122.7	2125.8	2125.8	2122.7	2131.9	2144.0	2159.1	2119.8
5°	2128.8	2122.7	2128.8	2110.6	2119.8	2113.7	2125.8	2122.7	2134.8	2122.7
7.5°	2119.8	2107.7	2110.6	2101.6	2113.7	2098.5	2107.7	2125.8	2113.7	2095.5
10°	2089.5	2083.4	2104.6	2074.3	2068.2	2080.3	2104.6	2086.4	2080.3	2086.4
12.5°	2059.1	2059.1	2068.2	2044.0	2047.0	2053.0	2065.2	2053.0	2059.1	2074.3
15°	2025.9	2019.8	2034.9	2016.7	2013.8	2007.7	2019.8	2019.8	2025.9	2016.7
17.5°	1986.5	1977.4	1977.4	1971.4	1968.3	1983.5	1989.5	1992.5	1995.6	1983.5
20°	1938.0	1935.1	1944.1	1935.1	1938.0	1941.1	1941.1	1935.1	1962.2	1929.0
22.5°	1886.5	1895.6	1883.5	1877.5	1883.5	1889.6	1889.6	1892.6	1886.5	1880.4
25°	1835.1	1841.2	1844.1	1826.0	1835.1	1826.0	1847.2	1850.2	1838.1	1844.1
27.5°	1789.6	1780.6	1777.5	1765.4	1771.5	1768.5	1771.5	1771.5	1789.6	1765.4
30°	1720.0	1710.9	1713.9	1704.9	1707.8	1704.9	1707.8	1707.8	1720.0	1717.0
32.5°	1653.4	1644.3	1647.3	1638.3	1638.3	1641.3	1635.2	1635.2	1644.3	1638.3
35°	1589.7	1568.6	1571.6	1568.6	1571.6	1559.5	1559.5	1556.5	1562.5	1547.4
37.5°	1498.9	1489.9	1486.8	1483.8	1486.8	1480.8	1486.8	1477.8	1486.8	1474.7
40°	1417.1	1411.1	1414.2	1396.0	1396.0	1399.0	1392.9	1389.9	1392.9	1405.0
42.5°	1335.5	1323.4	1317.3	1311.2	1314.2	1305.2	1302.1	1296.0	1302.1	1290.0
45°	1238.5	1238.5	1235.5	1220.3	1223.4	1223.4	1211.3	1199.2	1202.2	1202.2
47.5°	1150.8	1144.7	1141.6	1126.5	1123.4	1120.5	1108.3	1099.2	1099.2	1090.1
50°	1053.8	1047.7	1038.7	1023.5	1017.4	999.3	990.3	978.1	966.0	966.0
52.5°	963.0	941.7	929.6	905.4	896.4	887.2	863.0	854.0	844.8	835.8
55°	854.0	835.8	811.6	784.3	772.2	757.0	732.8	714.6	702.5	705.6
57.5°	748.0	717.7	693.5	657.2	642.0	632.8	608.6	584.4	572.3	572.3
60°	617.8	593.5	563.3	529.9	517.8	502.7	472.3	457.3	448.1	439.1
62.5°	493.6	475.4	448.1	405.7	396.7	381.5	360.4	342.2	333.1	333.1
65°	369.4	351.3	327.0	296.8	284.7	272.6	254.4	236.2	227.1	224.1
67.5°	260.4	239.2	218.1	193.8	184.7	178.7	160.5	148.4	142.3	139.2
70°	157.4	145.3	130.2	112.1	102.9	96.9	84.8	75.7	72.6	69.7
72.5°	81.8	72.6	60.5	48.4	42.4	36.3	30.3	24.2	21.2	21.2
75°	30.3	24.2	15.2	9.1	6.1	6.1	6.1	6.1	6.1	6.1
77.5°	6.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
80°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
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)