

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: **FLDSQ4C60D010 FEU4C609027 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: FLDSQ4C60D010 FEU4C609027 F4LC-CSSQ-MMS
 Description: 4 INCH 6000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

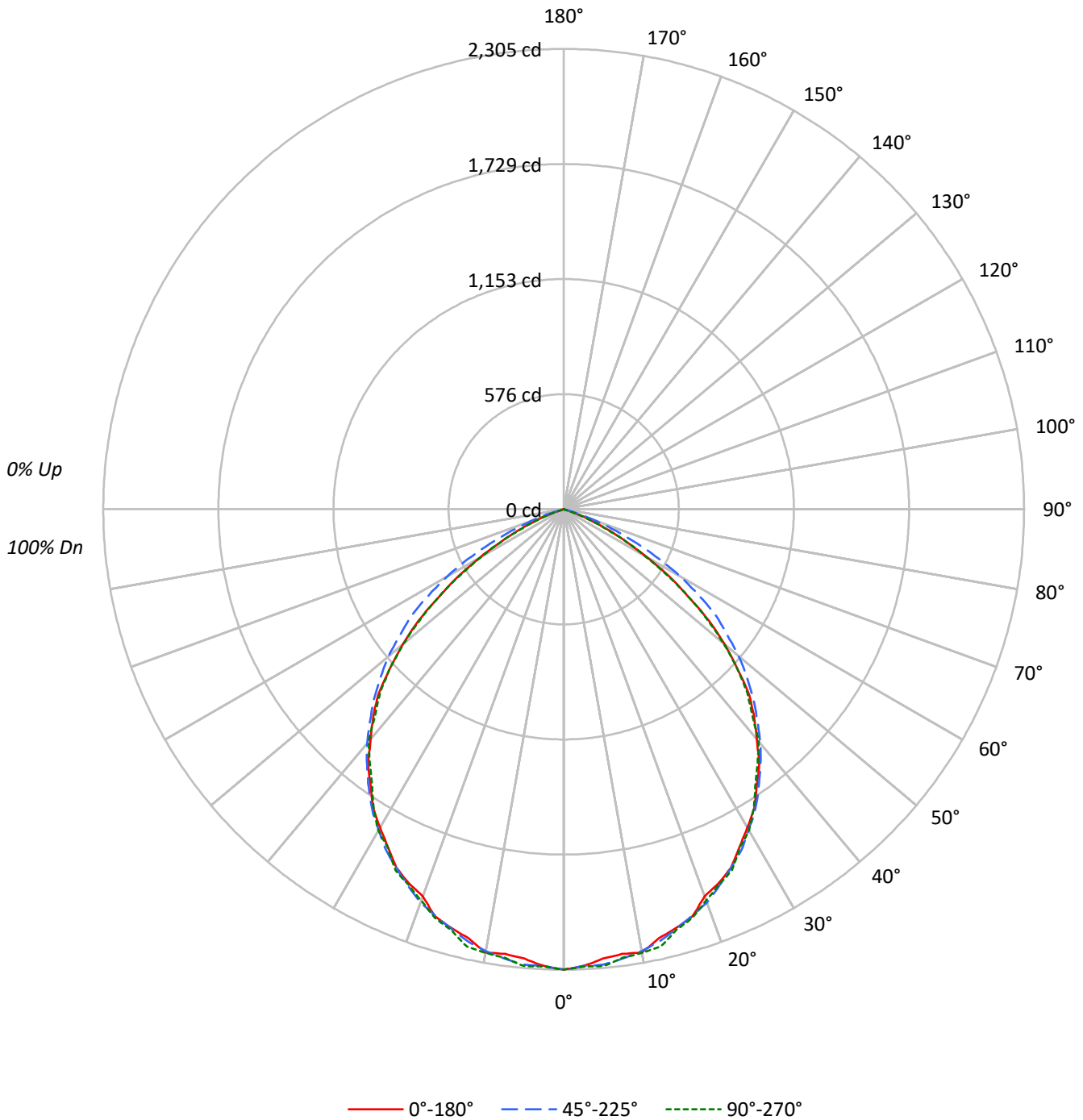
Lumens per Lamp: N/A
 Luminaire Lumens: 4923.0 lumens
 Efficiency: N/A
 Efficacy: 68.4 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 72
 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	50	30	10	0	
RCR																						
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100				100
1	111	108	104	101	109	105	102	100	101	99	96	97	95	94	94	92	91	89				89
2	103	96	91	86	100	94	89	85	91	87	83	88	84	81	85	82	79	77				77
3	95	86	79	74	93	85	78	73	82	76	72	79	74	71	77	73	69	67				67
4	88	77	70	64	86	76	69	63	74	67	63	71	66	62	69	65	61	59				59
5	81	70	62	56	79	69	61	56	67	60	55	65	59	54	63	58	54	52				52
6	75	63	55	49	73	62	55	49	61	54	49	59	53	48	57	52	48	46				46
7	70	58	50	44	68	57	49	44	55	49	44	54	48	43	53	47	43	41				41
8	65	53	45	40	64	52	45	39	51	44	39	50	44	39	49	43	39	37				37
9	61	49	41	36	60	48	41	36	47	40	36	46	40	35	45	39	35	33				33
10	57	45	38	33	56	44	37	33	44	37	32	43	37	32	42	36	32	31				31

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	222368	222368	222368
5°	218782	221629	222259
10°	220674	220028	220988
15°	216807	217127	217776
20°	211760	215128	214121
25°	210851	210851	212235
30°	204972	206431	206799
35°	198572	200504	197029
40°	189263	192967	191317
45°	179112	183151	177338
50°	157751	171501	156760
55°	127749	156935	128321
60°	93478	130144	91607
65°	56804	92672	55320
70°	22146	49878	21243
75°	2423	13458	2423
80°	1834	1834	1834
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	217.5	4.4
10°-20°	615.6	12.5
20°-30°	913.4	18.6
30°-40°	1058.3	21.5
40°-50°	1014.7	20.6
50°-60°	746.1	15.2
60°-70°	322.2	6.5
70°-80°	34.8	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°	1746.5	35.5
0°-40°	2804.8	57.0
0°-60°	4565.5	92.7
0°-90°	4923.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	4923.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2305	2305	2305	2305	2305	
5°	2259	2282	2288	2292	2295	215
15°	2170	2184	2174	2177	2180	612
25°	1980	1977	1980	1984	1994	907
35°	1686	1696	1702	1699	1673	1054
45°	1313	1316	1342	1322	1300	998
55°	759	838	933	835	763	683
65°	249	311	406	308	242	256
75°	6	10	36	6	6	20
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°	2304.6	2304.6	2304.6	2304.6	2304.6	2304.6	2304.6	2304.6	2304.6	2304.6	2304.6
2.5°	2288.2	2314.4	2317.7	2301.3	2294.7	2285.0	2307.8	2291.5	2298.1	2291.5	2288.2
5°	2258.8	2288.2	2291.5	2291.5	2285.0	2281.6	2291.5	2288.2	2285.0	2278.4	2288.2
7.5°	2245.7	2262.0	2278.4	2258.8	2268.5	2265.3	2288.2	2278.4	2275.1	2275.1	2268.5
10°	2252.3	2248.9	2262.0	2242.4	2248.9	2242.4	2262.0	2262.0	2255.5	2248.9	2245.7
12.5°	2199.8	2225.9	2225.9	2222.7	2216.2	2206.3	2225.9	2239.2	2219.4	2219.4	2216.2
15°	2170.4	2176.9	2180.1	2180.1	2176.9	2183.5	2193.2	2180.1	2183.5	2167.0	2173.6
17.5°	2137.7	2124.6	2134.3	2127.8	2131.1	2137.7	2150.7	2150.7	2131.1	2127.8	2134.3
20°	2062.3	2101.6	2104.9	2085.3	2088.5	2088.5	2111.5	2091.8	2104.9	2088.5	2095.1
22.5°	2026.3	2052.4	2055.8	2029.6	2045.9	2026.3	2049.2	2019.7	2052.4	2029.6	2039.4
25°	1980.5	1977.2	1987.0	1973.9	1977.2	1977.2	1993.5	1980.5	1990.3	1977.2	1980.5
27.5°	1905.3	1931.4	1928.1	1915.0	1921.6	1918.3	1951.1	1915.0	1934.6	1918.3	1924.9
30°	1839.7	1862.7	1856.1	1843.0	1843.0	1833.1	1869.2	1859.3	1856.1	1856.1	1852.8
32.5°	1774.2	1777.6	1771.0	1774.2	1777.6	1764.5	1793.9	1780.8	1777.6	1780.8	1784.1
35°	1685.8	1685.8	1692.4	1682.6	1695.7	1695.7	1721.9	1705.5	1702.2	1692.4	1702.2
37.5°	1607.3	1597.5	1600.7	1600.7	1607.3	1613.8	1626.9	1620.4	1620.4	1610.6	1617.2
40°	1502.6	1496.0	1505.8	1505.8	1515.7	1515.7	1528.7	1522.2	1532.0	1532.0	1532.0
42.5°	1410.9	1410.9	1404.4	1414.2	1417.5	1414.2	1437.1	1433.8	1437.1	1430.6	1433.8
45°	1312.6	1312.6	1306.1	1302.9	1319.2	1316.0	1342.2	1332.3	1345.4	1338.8	1342.2
47.5°	1178.4	1194.8	1185.0	1194.8	1214.5	1217.8	1234.1	1227.6	1240.7	1230.9	1244.0
50°	1050.9	1050.9	1060.6	1073.7	1093.3	1096.7	1116.3	1129.4	1135.9	1139.2	1142.5
52.5°	916.6	913.3	923.2	939.5	955.9	969.0	988.6	1008.3	1021.3	1041.0	1031.1
55°	759.4	766.0	775.9	795.5	821.7	838.0	854.4	880.6	903.5	913.3	932.9
57.5°	625.2	618.7	625.2	651.4	680.9	694.0	717.0	743.1	775.9	795.5	802.0
60°	484.4	487.8	494.3	517.3	540.1	559.8	569.6	612.1	641.6	661.3	674.4
62.5°	356.9	363.4	370.0	389.6	412.4	428.9	445.2	481.2	507.4	527.0	540.1
65°	248.8	252.0	261.9	271.7	294.6	310.9	324.0	353.5	379.7	396.1	405.9
67.5°	153.9	157.1	163.6	176.8	193.1	206.2	219.3	238.9	261.9	278.2	281.5
70°	78.5	81.9	85.1	95.0	108.1	114.6	124.3	140.8	157.1	170.2	176.8
72.5°	26.2	26.2	29.5	36.1	42.6	49.1	52.4	68.8	81.9	88.4	91.6
75°	6.5	6.5	6.5	6.5	6.5	9.9	9.9	19.6	26.2	32.7	36.1
77.5°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	6.5	6.5
80°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
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°	2304.6	2304.6	2304.6	2304.6	2304.6	2304.6	2304.6	2304.6	2304.6	2304.6
2.5°	2304.6	2298.1	2294.7	2298.1	2298.1	2294.7	2304.6	2317.7	2334.0	2291.5
5°	2301.3	2294.7	2301.3	2281.6	2291.5	2285.0	2298.1	2294.7	2307.8	2294.7
7.5°	2291.5	2278.4	2281.6	2271.9	2285.0	2268.5	2278.4	2298.1	2285.0	2265.3
10°	2258.8	2252.3	2275.1	2242.4	2235.8	2248.9	2275.1	2255.5	2248.9	2255.5
12.5°	2225.9	2225.9	2235.8	2209.6	2212.9	2219.4	2232.5	2219.4	2225.9	2242.4
15°	2190.0	2183.5	2199.8	2180.1	2176.9	2170.4	2183.5	2183.5	2190.0	2180.1
17.5°	2147.4	2137.7	2137.7	2131.1	2127.8	2144.2	2150.7	2154.0	2157.3	2144.2
20°	2095.1	2091.8	2101.6	2091.8	2095.1	2098.4	2098.4	2091.8	2121.2	2085.3
22.5°	2039.4	2049.2	2036.2	2029.6	2036.2	2042.7	2042.7	2045.9	2039.4	2032.8
25°	1983.8	1990.3	1993.5	1973.9	1983.8	1973.9	1996.9	2000.1	1987.0	1993.5
27.5°	1934.6	1924.9	1921.6	1908.5	1915.0	1911.8	1915.0	1915.0	1934.6	1908.5
30°	1859.3	1849.6	1852.8	1843.0	1846.2	1843.0	1846.2	1846.2	1859.3	1856.1
32.5°	1787.3	1777.6	1780.8	1771.0	1771.0	1774.2	1767.7	1767.7	1777.6	1771.0
35°	1718.5	1695.7	1698.9	1695.7	1698.9	1685.8	1685.8	1682.6	1689.2	1672.7
37.5°	1620.4	1610.6	1607.3	1604.1	1607.3	1600.7	1607.3	1597.5	1607.3	1594.2
40°	1532.0	1525.4	1528.7	1509.1	1509.1	1512.3	1505.8	1502.6	1505.8	1518.9
42.5°	1443.7	1430.6	1424.0	1417.5	1420.7	1410.9	1407.6	1401.1	1407.6	1394.5
45°	1338.8	1338.8	1335.6	1319.2	1322.5	1322.5	1309.4	1296.4	1299.6	1299.6
47.5°	1244.0	1237.4	1234.1	1217.8	1214.5	1211.3	1198.1	1188.3	1188.3	1178.4
50°	1139.2	1132.6	1122.9	1106.4	1099.9	1080.2	1070.5	1057.4	1044.3	1044.3
52.5°	1041.0	1018.0	1004.9	978.7	969.0	959.1	932.9	923.2	913.3	903.5
55°	923.2	903.5	877.4	847.9	834.8	818.3	792.2	772.5	759.4	762.8
57.5°	808.6	775.9	749.7	710.4	694.0	684.1	657.9	631.7	618.7	618.7
60°	667.8	641.6	608.9	572.8	559.8	543.5	510.6	494.3	484.4	474.7
62.5°	533.6	513.9	484.4	438.6	428.9	412.4	389.6	370.0	360.1	360.1
65°	399.4	379.7	353.5	320.8	307.7	294.6	275.0	255.4	245.5	242.3
67.5°	281.5	258.6	235.7	209.6	199.7	193.1	173.5	160.4	153.9	150.5
70°	170.2	157.1	140.8	121.1	111.3	104.7	91.6	81.9	78.5	75.3
72.5°	88.4	78.5	65.4	52.4	45.8	39.3	32.7	26.2	23.0	23.0
75°	32.7	26.2	16.4	9.9	6.5	6.5	6.5	6.5	6.5	6.5
77.5°	6.5	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
80°	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3	3.3
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)