

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: **FLDSQ4C70D010 FEU4C709050 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: FLDSQ4C70D010 FEU4C709050 F4LC-CSSQ-MMS
 Description: 4 INCH 7000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

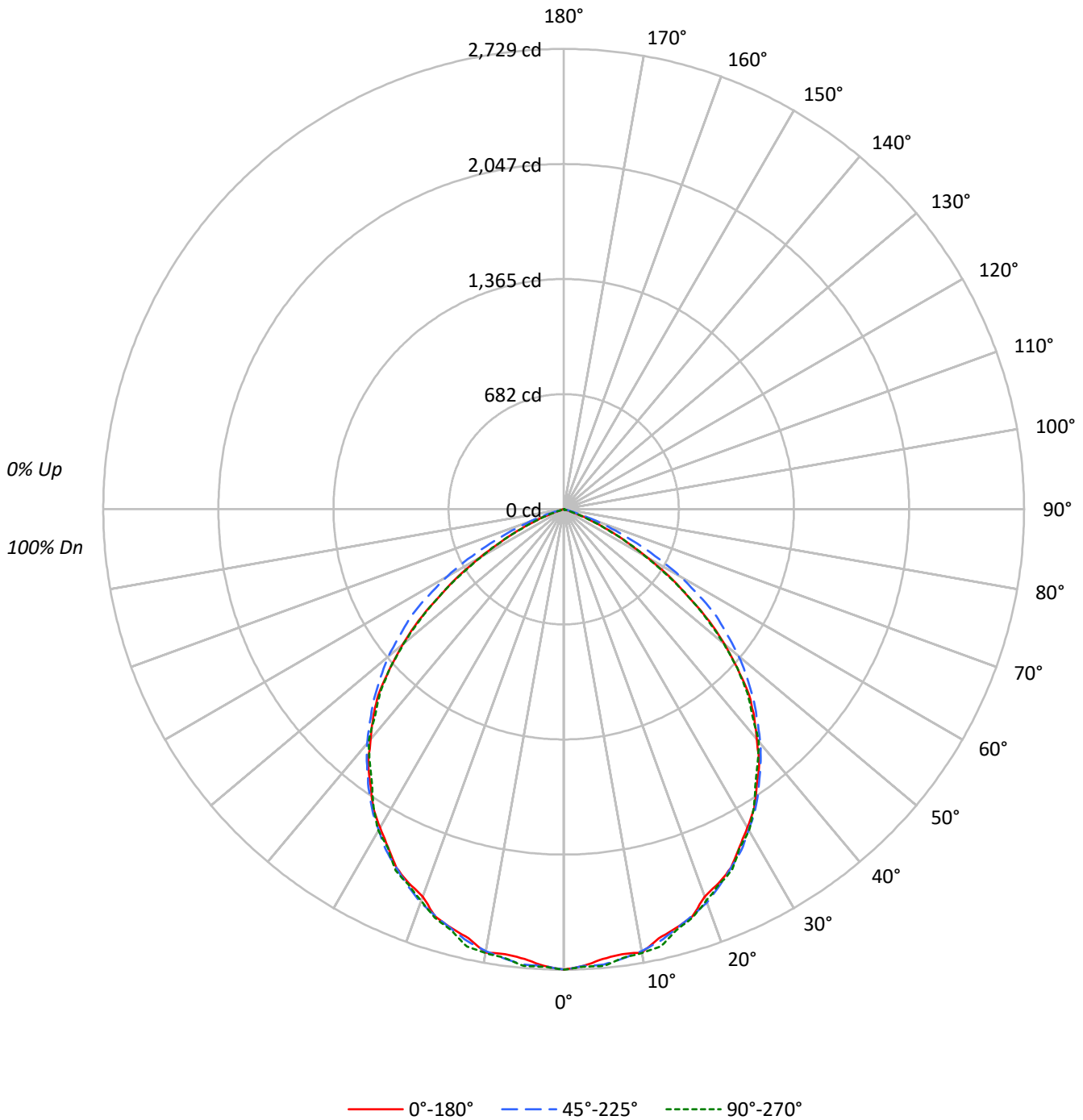
Lumens per Lamp: N/A
 Luminaire Lumens: 5829.0 lumens
 Efficiency: N/A
 Efficacy: 74.7 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 78
 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°	263289	263289	263289
5°	259045	262416	263162
10°	261276	260522	261649
15°	256704	257084	257863
20°	250738	254711	253530
25°	249647	249647	251297
30°	242686	244413	244858
35°	235123	237408	233297
40°	224091	228474	226522
45°	212080	216856	209965
50°	186782	203054	185611
55°	151266	185819	151922
60°	110692	154093	108454
65°	67261	109727	65503
70°	26237	59075	25165
75°	2871	15919	2871
80°	2223	2223	2223
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	257.6	4.4
10°-20°	728.9	12.5
20°-30°	1081.5	18.6
30°-40°	1253.1	21.5
40°-50°	1201.4	20.6
50°-60°	883.4	15.2
60°-70°	381.5	6.5
70°-80°	41.2	0.7
80°-90°	0.5	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°	2067.9	35.5
0°-40°	3321.0	57.0
0°-60°	5405.7	92.7
0°-90°	5829.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5829.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2729	2729	2729	2729	2729	
5°	2674	2702	2709	2713	2717	255
15°	2570	2585	2574	2578	2581	724
25°	2345	2341	2345	2349	2360	1074
35°	1996	2008	2016	2012	1981	1248
45°	1554	1558	1589	1566	1539	1181
55°	899	992	1105	988	903	809
65°	295	368	481	364	287	303
75°	8	12	43	8	8	24
85°	0	0	0	0	0	1
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°	2728.7	2728.7	2728.7	2728.7	2728.7	2728.7	2728.7	2728.7	2728.7	2728.7	2728.7
2.5°	2709.3	2740.3	2744.2	2724.8	2717.0	2705.5	2732.5	2713.2	2721.0	2713.2	2709.3
5°	2674.5	2709.3	2713.2	2713.2	2705.5	2701.5	2713.2	2709.3	2705.5	2697.7	2709.3
7.5°	2659.0	2678.3	2697.7	2674.5	2686.0	2682.2	2709.3	2697.7	2693.8	2693.8	2686.0
10°	2666.7	2662.8	2678.3	2655.0	2662.8	2655.0	2678.3	2678.3	2670.5	2662.8	2659.0
12.5°	2604.6	2635.6	2635.6	2631.8	2624.0	2612.3	2635.6	2651.2	2627.8	2627.8	2624.0
15°	2569.8	2577.6	2581.4	2581.4	2577.6	2585.3	2596.8	2581.4	2585.3	2565.9	2573.6
17.5°	2531.1	2515.6	2527.1	2519.4	2523.3	2531.1	2546.6	2546.6	2523.3	2519.4	2527.1
20°	2441.9	2488.4	2492.3	2469.1	2472.9	2472.9	2500.1	2476.8	2492.3	2472.9	2480.6
22.5°	2399.2	2430.2	2434.1	2403.1	2422.4	2399.2	2426.4	2391.4	2430.2	2403.1	2414.7
25°	2344.9	2341.1	2352.7	2337.2	2341.1	2341.1	2360.4	2344.9	2356.6	2341.1	2344.9
27.5°	2255.9	2286.9	2282.9	2267.4	2275.2	2271.4	2310.1	2267.4	2290.7	2271.4	2279.1
30°	2178.2	2205.4	2197.7	2182.2	2182.2	2170.5	2213.2	2201.5	2197.7	2197.7	2193.7
32.5°	2100.8	2104.7	2097.0	2100.8	2104.7	2089.2	2124.0	2108.5	2104.7	2108.5	2112.5
35°	1996.1	1996.1	2003.8	1992.3	2007.8	2007.8	2038.8	2019.3	2015.5	2003.8	2015.5
37.5°	1903.1	1891.5	1895.3	1895.3	1903.1	1910.8	1926.3	1918.6	1918.6	1907.0	1914.8
40°	1779.1	1771.3	1782.9	1782.9	1794.6	1794.6	1810.1	1802.3	1813.9	1813.9	1813.9
42.5°	1670.6	1670.6	1662.9	1674.4	1678.4	1674.4	1701.6	1697.7	1701.6	1693.9	1697.7
45°	1554.2	1554.2	1546.5	1542.7	1562.0	1558.2	1589.2	1577.5	1593.0	1585.2	1589.2
47.5°	1395.3	1414.7	1403.0	1414.7	1438.0	1441.9	1461.2	1453.5	1469.0	1457.4	1472.9
50°	1244.3	1244.3	1255.8	1271.3	1294.5	1298.5	1321.7	1337.2	1345.0	1348.8	1352.7
52.5°	1085.3	1081.4	1093.1	1112.4	1131.8	1147.3	1170.6	1193.8	1209.3	1232.6	1220.9
55°	899.2	906.9	918.6	941.9	972.9	992.2	1011.6	1042.6	1069.8	1081.4	1104.6
57.5°	740.3	732.5	740.3	771.3	806.2	821.7	848.9	879.9	918.6	941.9	949.6
60°	573.6	577.5	585.3	612.5	639.5	662.8	674.5	724.8	759.7	783.0	798.5
62.5°	422.6	430.3	438.1	461.3	488.3	507.8	527.1	569.8	600.8	624.0	639.5
65°	294.6	298.4	310.1	321.7	348.9	368.2	383.7	418.6	449.6	469.0	480.6
67.5°	182.2	186.0	193.7	209.4	228.7	244.2	259.7	282.9	310.1	329.4	333.4
70°	93.0	96.9	100.7	112.4	127.9	135.7	147.2	166.7	186.0	201.5	209.4
72.5°	31.0	31.0	34.9	42.7	50.4	58.2	62.0	81.4	96.9	104.7	108.5
75°	7.7	7.7	7.7	7.7	7.7	11.7	11.7	23.2	31.0	38.7	42.7
77.5°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	7.7	7.7
80°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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°	2728.7	2728.7	2728.7	2728.7	2728.7	2728.7	2728.7	2728.7	2728.7	2728.7
2.5°	2728.7	2721.0	2717.0	2721.0	2721.0	2717.0	2728.7	2744.2	2763.5	2713.2
5°	2724.8	2717.0	2724.8	2701.5	2713.2	2705.5	2721.0	2717.0	2732.5	2717.0
7.5°	2713.2	2697.7	2701.5	2690.0	2705.5	2686.0	2697.7	2721.0	2705.5	2682.2
10°	2674.5	2666.7	2693.8	2655.0	2647.3	2662.8	2693.8	2670.5	2662.8	2670.5
12.5°	2635.6	2635.6	2647.3	2616.3	2620.1	2627.8	2643.3	2627.8	2635.6	2655.0
15°	2593.1	2585.3	2604.6	2581.4	2577.6	2569.8	2585.3	2585.3	2593.1	2581.4
17.5°	2542.6	2531.1	2531.1	2523.3	2519.4	2538.8	2546.6	2550.4	2554.3	2538.8
20°	2480.6	2476.8	2488.4	2476.8	2480.6	2484.6	2484.6	2476.8	2511.6	2469.1
22.5°	2414.7	2426.4	2410.9	2403.1	2410.9	2418.6	2418.6	2422.4	2414.7	2406.9
25°	2348.9	2356.6	2360.4	2337.2	2348.9	2337.2	2364.4	2368.2	2352.7	2360.4
27.5°	2290.7	2279.1	2275.2	2259.7	2267.4	2263.6	2267.4	2267.4	2290.7	2259.7
30°	2201.5	2189.9	2193.7	2182.2	2186.0	2182.2	2186.0	2186.0	2201.5	2197.7
32.5°	2116.3	2104.7	2108.5	2097.0	2097.0	2100.8	2093.0	2093.0	2104.7	2097.0
35°	2034.8	2007.8	2011.6	2007.8	2011.6	1996.1	1996.1	1992.3	2000.0	1980.6
37.5°	1918.6	1907.0	1903.1	1899.3	1903.1	1895.3	1903.1	1891.5	1903.1	1887.6
40°	1813.9	1806.1	1810.1	1786.8	1786.8	1790.6	1782.9	1779.1	1782.9	1798.4
42.5°	1709.4	1693.9	1686.1	1678.4	1682.2	1670.6	1666.7	1658.9	1666.7	1651.2
45°	1585.2	1585.2	1581.4	1562.0	1565.9	1565.9	1550.4	1534.9	1538.7	1538.7
47.5°	1472.9	1465.2	1461.2	1441.9	1438.0	1434.2	1418.5	1407.0	1407.0	1395.3
50°	1348.8	1341.0	1329.5	1310.0	1302.3	1279.1	1267.5	1252.0	1236.5	1236.5
52.5°	1232.6	1205.4	1189.9	1158.9	1147.3	1135.6	1104.6	1093.1	1081.4	1069.8
55°	1093.1	1069.8	1038.8	1003.9	988.4	968.9	937.9	914.7	899.2	903.1
57.5°	957.4	918.6	887.6	841.2	821.7	810.0	779.0	748.0	732.5	732.5
60°	790.7	759.7	721.0	678.3	662.8	643.5	604.6	585.3	573.6	562.0
62.5°	631.8	608.5	573.6	519.3	507.8	488.3	461.3	438.1	426.4	426.4
65°	472.8	449.6	418.6	379.9	364.4	348.9	325.6	302.4	290.7	286.9
67.5°	333.4	306.2	279.1	248.1	236.4	228.7	205.4	189.9	182.2	178.2
70°	201.5	186.0	166.7	143.4	131.7	124.0	108.5	96.9	93.0	89.2
72.5°	104.7	93.0	77.5	62.0	54.2	46.5	38.7	31.0	27.2	27.2
75°	38.7	31.0	19.4	11.7	7.7	7.7	7.7	7.7	7.7	7.7
77.5°	7.7	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
80°	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
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)