

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 FEU4C709027 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 FEU4C709027 F4LC-CSSQ-MMS
 Description: 4 INCH 7000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 2700K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH
 Light Source: -
 Ballast/Driver: -

Summary

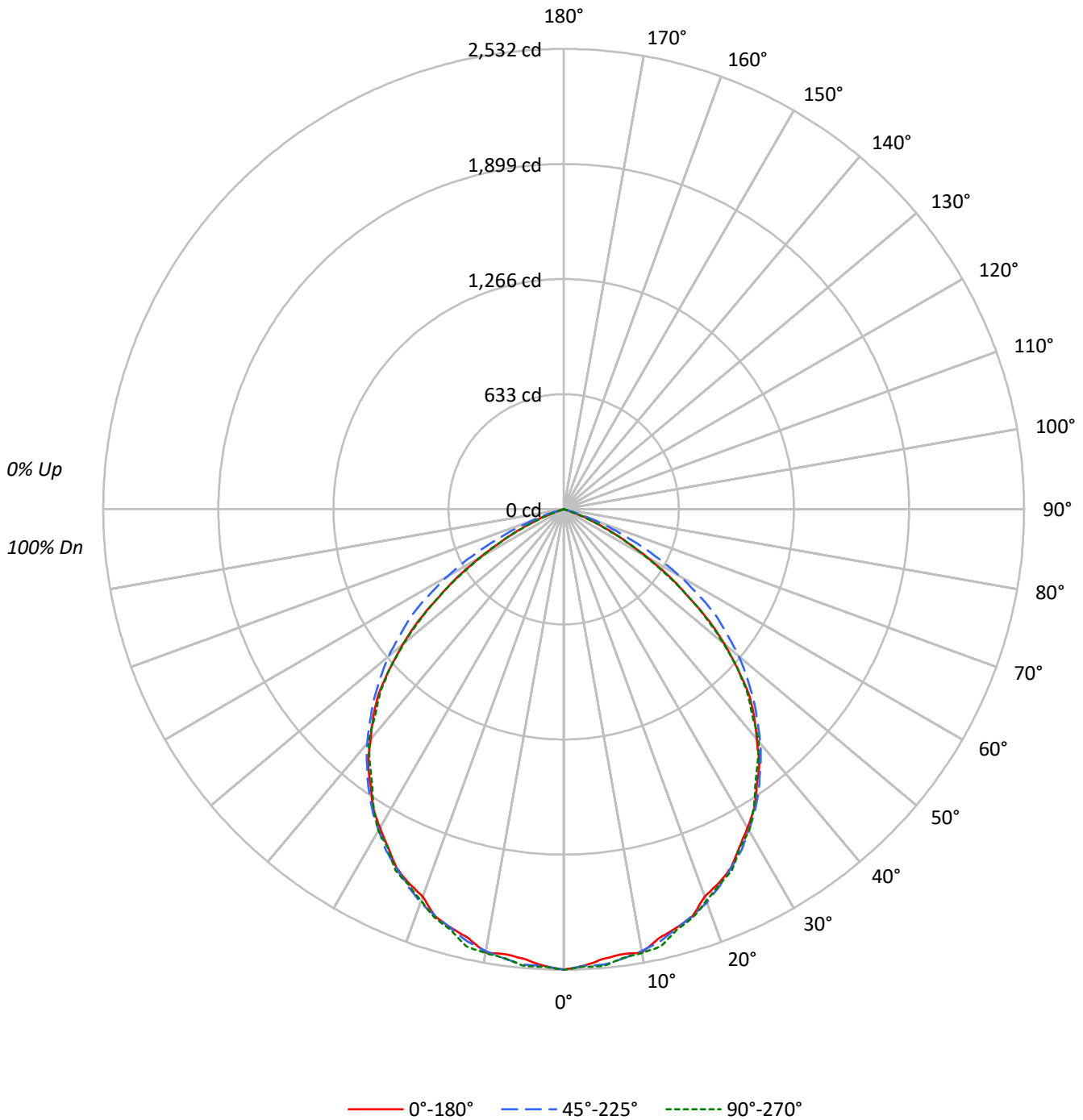
Lumens per Lamp: N/A
 Luminaire Lumens: 5409.0 lumens
 Efficiency: N/A
 Efficacy: 69.3 lumens/watt
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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	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°	244320	244320	244320
5°	240381	243509	244207
10°	242455	241749	242798
15°	238204	238564	239283
20°	232666	236362	235263
25°	231665	231665	233187
30°	225205	226809	227210
35°	218173	220305	216488
40°	207943	212011	210198
45°	196797	201232	194845
50°	173317	188433	172236
55°	140365	172429	140988
60°	102722	142977	100638
65°	62421	101827	60777
70°	24346	54815	23359
75°	2684	14763	2684
80°	2056	2056	2056
85°	0	0	0

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	239.0	4.4
10°-20°	676.3	12.5
20°-30°	1003.5	18.6
30°-40°	1162.8	21.5
40°-50°	1114.9	20.6
50°-60°	819.7	15.2
60°-70°	354.0	6.5
70°-80°	38.2	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°	1918.9	35.5
0°-40°	3081.7	57.0
0°-60°	5016.2	92.7
0°-90°	5409.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5409.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2532	2532	2532	2532	2532	
5°	2482	2507	2514	2518	2521	237
15°	2385	2399	2388	2392	2395	672
25°	2176	2172	2176	2180	2190	996
35°	1852	1863	1870	1867	1838	1158
45°	1442	1446	1475	1453	1428	1096
55°	834	921	1025	917	838	751
65°	273	342	446	338	266	281
75°	7	11	40	7	7	22
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°	2532.1	2532.1	2532.1	2532.1	2532.1	2532.1	2532.1	2532.1	2532.1	2532.1	2532.1
2.5°	2514.1	2542.8	2546.5	2528.5	2521.3	2510.5	2535.6	2517.7	2524.9	2517.7	2514.1
5°	2481.8	2514.1	2517.7	2517.7	2510.5	2506.9	2517.7	2514.1	2510.5	2503.4	2514.1
7.5°	2467.4	2485.3	2503.4	2481.8	2492.5	2489.0	2514.1	2503.4	2499.7	2499.7	2492.5
10°	2474.6	2470.9	2485.3	2463.7	2470.9	2463.7	2485.3	2485.3	2478.1	2470.9	2467.4
12.5°	2416.9	2445.7	2445.7	2442.2	2435.0	2424.1	2445.7	2460.2	2438.5	2438.5	2435.0
15°	2384.6	2391.8	2395.4	2395.4	2391.8	2399.0	2409.7	2395.4	2399.0	2381.0	2388.2
17.5°	2348.7	2334.3	2345.0	2337.8	2341.5	2348.7	2363.1	2363.1	2341.5	2337.8	2345.0
20°	2265.9	2309.1	2312.7	2291.2	2294.7	2294.7	2319.9	2298.4	2312.7	2294.7	2301.9
22.5°	2226.3	2255.1	2258.7	2230.0	2247.9	2226.3	2251.5	2219.1	2255.1	2230.0	2240.7
25°	2176.0	2172.4	2183.2	2168.8	2172.4	2172.4	2190.3	2176.0	2186.8	2172.4	2176.0
27.5°	2093.3	2122.1	2118.4	2104.1	2111.3	2107.7	2143.7	2104.1	2125.6	2107.7	2114.9
30°	2021.3	2046.5	2039.3	2025.0	2025.0	2014.1	2053.7	2042.9	2039.3	2039.3	2035.7
32.5°	1949.4	1953.1	1945.9	1949.4	1953.1	1938.7	1971.0	1956.6	1953.1	1956.6	1960.2
35°	1852.2	1852.2	1859.4	1848.7	1863.1	1863.1	1891.9	1873.8	1870.3	1859.4	1870.3
37.5°	1766.0	1755.2	1758.8	1758.8	1766.0	1773.1	1787.5	1780.3	1780.3	1769.6	1776.8
40°	1650.9	1643.7	1654.4	1654.4	1665.3	1665.3	1679.7	1672.5	1683.2	1683.2	1683.2
42.5°	1550.2	1550.2	1543.0	1553.8	1557.4	1553.8	1579.0	1575.3	1579.0	1571.8	1575.3
45°	1442.2	1442.2	1435.0	1431.5	1449.4	1445.9	1474.7	1463.8	1478.2	1471.0	1474.7
47.5°	1294.8	1312.8	1301.9	1312.8	1334.4	1338.0	1355.9	1348.8	1363.1	1352.4	1366.8
50°	1154.6	1154.6	1165.3	1179.7	1201.3	1204.9	1226.5	1240.9	1248.1	1251.6	1255.3
52.5°	1007.1	1003.5	1014.3	1032.2	1050.3	1064.6	1086.2	1107.8	1122.2	1143.7	1132.9
55°	834.4	841.6	852.5	874.0	902.8	920.7	938.7	967.5	992.7	1003.5	1025.0
57.5°	686.9	679.7	686.9	715.7	748.1	762.5	787.7	816.5	852.5	874.0	881.2
60°	532.3	535.9	543.1	568.3	593.4	615.0	625.9	672.5	705.0	726.5	740.9
62.5°	392.1	399.3	406.5	428.1	453.2	471.2	489.1	528.7	557.5	579.1	593.4
65°	273.4	276.9	287.8	298.5	323.7	341.6	356.0	388.4	417.2	435.2	446.0
67.5°	169.1	172.6	179.8	194.3	212.2	226.6	241.0	262.5	287.8	305.7	309.3
70°	86.3	90.0	93.5	104.3	118.7	125.9	136.6	154.7	172.6	187.0	194.3
72.5°	28.8	28.8	32.4	39.6	46.8	54.0	57.5	75.6	90.0	97.1	100.7
75°	7.2	7.2	7.2	7.2	7.2	10.9	10.9	21.6	28.8	36.0	39.6
77.5°	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	7.2	7.2
80°	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
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°	2532.1	2532.1	2532.1	2532.1	2532.1	2532.1	2532.1	2532.1	2532.1	2532.1
2.5°	2532.1	2524.9	2521.3	2524.9	2524.9	2521.3	2532.1	2546.5	2564.4	2517.7
5°	2528.5	2521.3	2528.5	2506.9	2517.7	2510.5	2524.9	2521.3	2535.6	2521.3
7.5°	2517.7	2503.4	2506.9	2496.2	2510.5	2492.5	2503.4	2524.9	2510.5	2489.0
10°	2481.8	2474.6	2499.7	2463.7	2456.5	2470.9	2499.7	2478.1	2470.9	2478.1
12.5°	2445.7	2445.7	2456.5	2427.8	2431.3	2438.5	2452.9	2438.5	2445.7	2463.7
15°	2406.2	2399.0	2416.9	2395.4	2391.8	2384.6	2399.0	2399.0	2406.2	2395.4
17.5°	2359.4	2348.7	2348.7	2341.5	2337.8	2355.9	2363.1	2366.6	2370.3	2355.9
20°	2301.9	2298.4	2309.1	2298.4	2301.9	2305.5	2305.5	2298.4	2330.6	2291.2
22.5°	2240.7	2251.5	2237.2	2230.0	2237.2	2244.4	2244.4	2247.9	2240.7	2233.5
25°	2179.6	2186.8	2190.3	2168.8	2179.6	2168.8	2194.0	2197.5	2183.2	2190.3
27.5°	2125.6	2114.9	2111.3	2096.9	2104.1	2100.5	2104.1	2104.1	2125.6	2096.9
30°	2042.9	2032.2	2035.7	2025.0	2028.5	2025.0	2028.5	2028.5	2042.9	2039.3
32.5°	1963.8	1953.1	1956.6	1945.9	1945.9	1949.4	1942.2	1942.2	1953.1	1945.9
35°	1888.2	1863.1	1866.6	1863.1	1866.6	1852.2	1852.2	1848.7	1855.9	1837.9
37.5°	1780.3	1769.6	1766.0	1762.4	1766.0	1758.8	1766.0	1755.2	1766.0	1751.6
40°	1683.2	1676.0	1679.7	1658.1	1658.1	1661.6	1654.4	1650.9	1654.4	1668.8
42.5°	1586.2	1571.8	1564.6	1557.4	1561.0	1550.2	1546.6	1539.4	1546.6	1532.2
45°	1471.0	1471.0	1467.5	1449.4	1453.1	1453.1	1438.7	1424.3	1427.9	1427.9
47.5°	1366.8	1359.6	1355.9	1338.0	1334.4	1330.8	1316.3	1305.6	1305.6	1294.8
50°	1251.6	1244.4	1233.7	1215.7	1208.5	1186.9	1176.2	1161.8	1147.4	1147.4
52.5°	1143.7	1118.5	1104.1	1075.4	1064.6	1053.8	1025.0	1014.3	1003.5	992.7
55°	1014.3	992.7	964.0	931.6	917.2	899.1	870.4	848.8	834.4	838.1
57.5°	888.4	852.5	823.7	780.5	762.5	751.6	722.9	694.1	679.7	679.7
60°	733.7	705.0	669.0	629.4	615.0	597.1	561.0	543.1	532.3	521.5
62.5°	586.3	564.7	532.3	481.9	471.2	453.2	428.1	406.5	395.6	395.6
65°	438.8	417.2	388.4	352.5	338.1	323.7	302.2	280.6	269.7	266.2
67.5°	309.3	284.1	259.0	230.2	219.4	212.2	190.6	176.2	169.1	165.4
70°	187.0	172.6	154.7	133.1	122.2	115.1	100.7	90.0	86.3	82.8
72.5°	97.1	86.3	71.9	57.5	50.3	43.1	36.0	28.8	25.2	25.2
75°	36.0	28.8	18.0	10.9	7.2	7.2	7.2	7.2	7.2	7.2
77.5°	7.2	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
80°	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7	3.7
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)