

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: **FLDSQ4C65D010 FEU4C659035 F4LC-CSSQ-MMS**

Issue Date: 12/13/2022

Tested By:

Approved By:



Cooper Lighting Solutions laboratories have been accredited by National Voluntary Laboratory Accreditation Program (NVLAP) that it adheres to the requirements of ISO/IEC 17025:2005 and appropriate IESNA test methods. This report must not be used to claim product certification, approval or endorsement by NVLAP, NIST or any agency of the Federal Government. Results contained in this report are valid for luminaire sample tested, as supplied by requestor. Information related to the luminaire tested has been supplied by requestor and can affect the validity of the test results. Report shall not be reproduced except in full without approval of Cooper Lighting Solutions Lighting Laboratory. Test performed at address noted above.

**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: FLDSQ4C65D010 FEU4C659035 F4LC-CSSQ-MMS  
 Description: 4 INCH 6500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-CSSQ TRIM WITH MMS FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

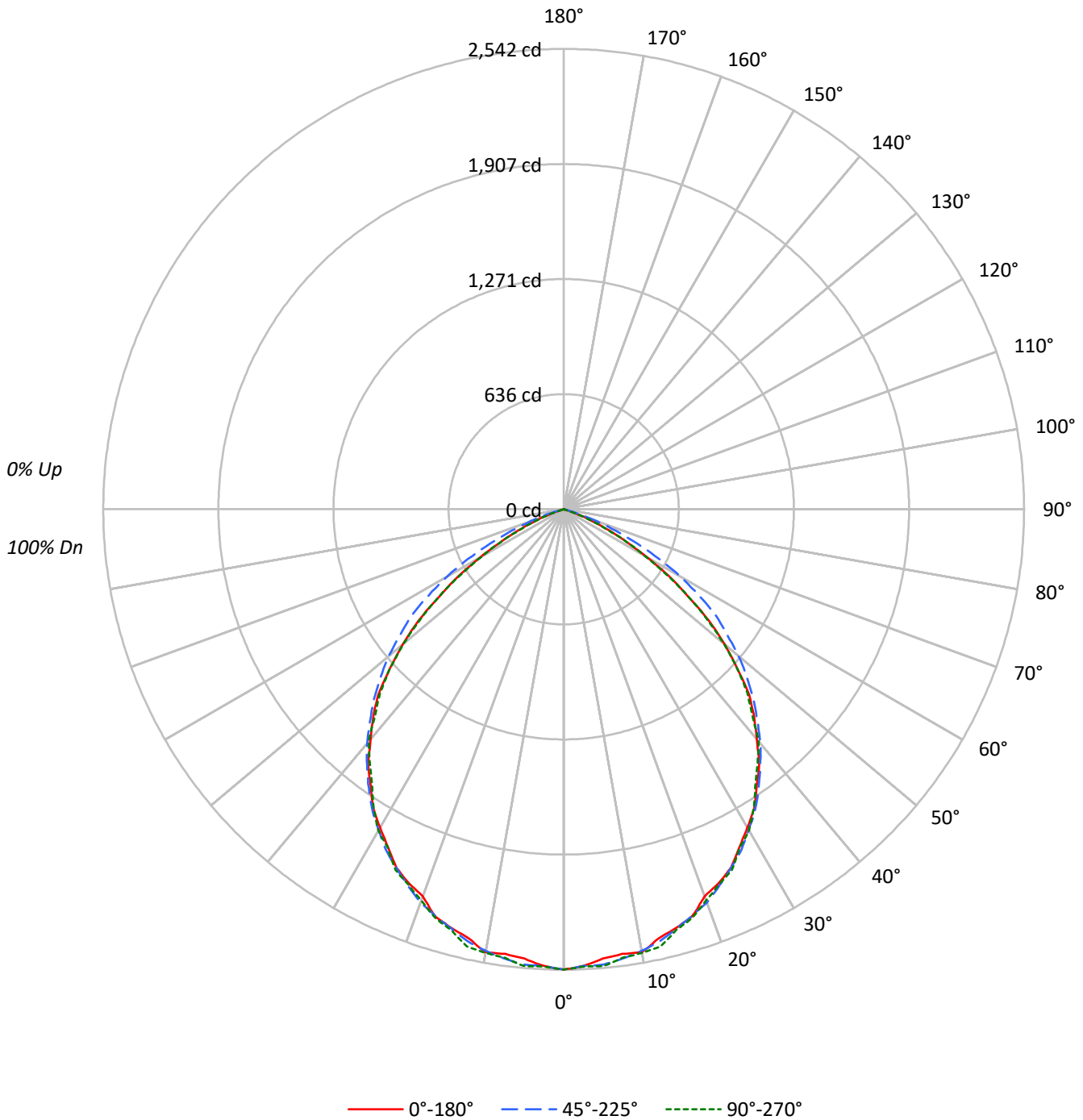
Lumens per Lamp: N/A  
 Luminaire Lumens: 5429.0 lumens  
 Efficiency: N/A  
 Efficacy: 75.0 lumens/watt  
 Spacing Criteria (0/90/45): 1.19 / 1.2 / 1.29  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 72.4  
 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

TEST NUMBER: P#  
CATALOG NUMBER: FLDSQ4C65D010 FEU4C659035 F4LC-CSSQ-MMS

### Luminous Intensity Polar Plot



TEST NUMBER: P#

CATALOG NUMBER: FLDSQ4C65D010 FEU4C659035 F4LC-CSSQ-MMS

**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				
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°	245227	245227	245227
5°	241272	244410	245108
10°	243346	242641	243699
15°	239093	239443	240162
20°	233528	237235	236126
25°	232517	232517	234050
30°	226040	227645	228057
35°	218986	221118	217289
40°	208711	212792	210978
45°	197534	201968	195555
50°	173963	189124	172882
55°	140887	173068	141509
60°	103089	143518	101024
65°	62649	102193	61005
70°	24431	55012	23444
75°	2684	14838	2684
80°	2056	2056	2056
85°	0	0	0

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C65D010 FEU4C659035 F4LC-CSSQ-MMS

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	239.9	4.4
10°-20°	678.8	12.5
20°-30°	1007.2	18.6
30°-40°	1167.1	21.5
40°-50°	1119.0	20.6
50°-60°	822.7	15.2
60°-70°	355.3	6.5
70°-80°	38.4	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°	1926.0	35.5
0°-40°	3093.1	57.0
0°-60°	5034.8	92.7
0°-90°	5429.0	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	5429.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2542	2542	2542	2542	2542	
5°	2491	2516	2523	2527	2531	238
15°	2394	2408	2397	2401	2404	675
25°	2184	2180	2184	2188	2198	1000
35°	1859	1870	1877	1874	1845	1163
45°	1448	1451	1480	1458	1433	1100
55°	838	924	1029	921	841	754
65°	274	343	448	339	267	282
75°	7	11	40	7	7	22
85°	0	0	0	0	0	1
90°	0	0	0	0	0	

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C65D010 FEU4C659035 F4LC-CSSQ-MMS

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	2541.5	2541.5	2541.5	2541.5	2541.5	2541.5	2541.5	2541.5	2541.5	2541.5	2541.5
2.5°	2523.4	2552.2	2555.9	2537.8	2530.6	2519.8	2545.0	2527.0	2534.3	2527.0	2523.4
5°	2491.0	2523.4	2527.0	2527.0	2519.8	2516.2	2527.0	2523.4	2519.8	2512.6	2523.4
7.5°	2476.5	2494.5	2512.6	2491.0	2501.7	2498.2	2523.4	2512.6	2508.9	2508.9	2501.7
10°	2483.7	2480.1	2494.5	2472.8	2480.1	2472.8	2494.5	2494.5	2487.3	2480.1	2476.5
12.5°	2425.9	2454.7	2454.7	2451.2	2444.0	2433.1	2454.7	2469.3	2447.5	2447.5	2444.0
15°	2393.5	2400.7	2404.2	2404.2	2400.7	2407.9	2418.6	2404.2	2407.9	2389.8	2397.0
17.5°	2357.4	2342.9	2353.7	2346.5	2350.2	2357.4	2371.8	2371.8	2350.2	2346.5	2353.7
20°	2274.3	2317.6	2321.3	2299.6	2303.2	2303.2	2328.5	2306.8	2321.3	2303.2	2310.4
22.5°	2234.5	2263.4	2267.1	2238.2	2256.2	2234.5	2259.9	2227.3	2263.4	2238.2	2249.0
25°	2184.0	2180.5	2191.2	2176.8	2180.5	2180.5	2198.4	2184.0	2194.9	2180.5	2184.0
27.5°	2101.1	2130.0	2126.3	2111.8	2119.1	2115.5	2151.6	2111.8	2133.5	2115.5	2122.7
30°	2028.8	2054.1	2046.9	2032.5	2032.5	2021.6	2061.3	2050.4	2046.9	2046.9	2043.2
32.5°	1956.6	1960.3	1953.1	1956.6	1960.3	1945.8	1978.2	1963.8	1960.3	1963.8	1967.5
35°	1859.1	1859.1	1866.3	1855.6	1870.0	1870.0	1898.9	1880.7	1877.2	1866.3	1877.2
37.5°	1772.5	1761.7	1765.3	1765.3	1772.5	1779.7	1794.1	1786.9	1786.9	1776.2	1783.4
40°	1657.0	1649.8	1660.5	1660.5	1671.4	1671.4	1685.9	1678.7	1689.4	1689.4	1689.4
42.5°	1556.0	1556.0	1548.7	1559.5	1563.2	1559.5	1584.8	1581.2	1584.8	1577.6	1581.2
45°	1447.6	1447.6	1440.3	1436.8	1454.8	1451.2	1480.1	1469.2	1483.7	1476.4	1480.1
47.5°	1299.5	1317.7	1306.8	1317.7	1339.3	1343.0	1361.0	1353.7	1368.2	1357.4	1371.9
50°	1158.9	1158.9	1169.6	1184.1	1205.7	1209.4	1231.0	1245.5	1252.7	1256.2	1259.9
52.5°	1010.8	1007.2	1018.1	1036.0	1054.2	1068.6	1090.2	1111.9	1126.3	1148.0	1137.1
55°	837.5	844.7	855.6	877.3	906.1	924.1	942.2	971.1	996.4	1007.2	1028.8
57.5°	689.5	682.2	689.5	718.3	750.9	765.3	790.6	819.5	855.6	877.3	884.5
60°	534.2	537.9	545.1	570.5	595.6	617.3	628.2	675.0	707.6	729.2	743.7
62.5°	393.6	400.8	408.0	429.6	454.8	472.9	490.9	530.7	559.6	581.2	595.6
65°	274.4	277.9	288.8	299.6	324.9	342.9	357.3	389.9	418.7	436.9	447.6
67.5°	169.7	173.2	180.4	195.0	213.0	227.4	241.9	263.5	288.8	306.8	310.5
70°	86.6	90.3	93.8	104.7	119.2	126.4	137.1	155.2	173.2	187.6	195.0
72.5°	28.9	28.9	32.5	39.8	47.0	54.2	57.7	75.9	90.3	97.5	101.0
75°	7.2	7.2	7.2	7.2	7.2	10.9	10.9	21.7	28.9	36.1	39.8
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

TEST NUMBER: P#  
 CATALOG NUMBER: FLDSQ4C65D010 FEU4C659035 F4LC-CSSQ-MMS

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°
0°	2541.5	2541.5	2541.5	2541.5	2541.5	2541.5	2541.5	2541.5	2541.5	2541.5
2.5°	2541.5	2534.3	2530.6	2534.3	2534.3	2530.6	2541.5	2555.9	2573.9	2527.0
5°	2537.8	2530.6	2537.8	2516.2	2527.0	2519.8	2534.3	2530.6	2545.0	2530.6
7.5°	2527.0	2512.6	2516.2	2505.4	2519.8	2501.7	2512.6	2534.3	2519.8	2498.2
10°	2491.0	2483.7	2508.9	2472.8	2465.6	2480.1	2508.9	2487.3	2480.1	2487.3
12.5°	2454.7	2454.7	2465.6	2436.8	2440.3	2447.5	2462.0	2447.5	2454.7	2472.8
15°	2415.1	2407.9	2425.9	2404.2	2400.7	2393.5	2407.9	2407.9	2415.1	2404.2
17.5°	2368.1	2357.4	2357.4	2350.2	2346.5	2364.6	2371.8	2375.3	2379.0	2364.6
20°	2310.4	2306.8	2317.6	2306.8	2310.4	2314.1	2314.1	2306.8	2339.3	2299.6
22.5°	2249.0	2259.9	2245.4	2238.2	2245.4	2252.6	2252.6	2256.2	2249.0	2241.8
25°	2187.7	2194.9	2198.4	2176.8	2187.7	2176.8	2202.1	2205.7	2191.2	2198.4
27.5°	2133.5	2122.7	2119.1	2104.6	2111.8	2108.3	2111.8	2111.8	2133.5	2104.6
30°	2050.4	2039.7	2043.2	2032.5	2036.0	2032.5	2036.0	2036.0	2050.4	2046.9
32.5°	1971.0	1960.3	1963.8	1953.1	1953.1	1956.6	1949.4	1949.4	1960.3	1953.1
35°	1895.2	1870.0	1873.5	1870.0	1873.5	1859.1	1859.1	1855.6	1862.8	1844.7
37.5°	1786.9	1776.2	1772.5	1768.9	1772.5	1765.3	1772.5	1761.7	1772.5	1758.1
40°	1689.4	1682.2	1685.9	1664.2	1664.2	1667.8	1660.5	1657.0	1660.5	1675.0
42.5°	1592.1	1577.6	1570.4	1563.2	1566.7	1556.0	1552.3	1545.1	1552.3	1537.9
45°	1476.4	1476.4	1472.9	1454.8	1458.5	1458.5	1444.0	1429.6	1433.1	1433.1
47.5°	1371.9	1364.6	1361.0	1343.0	1339.3	1335.8	1321.2	1310.4	1310.4	1299.5
50°	1256.2	1249.0	1238.3	1220.1	1212.9	1191.3	1180.5	1166.1	1151.7	1151.7
52.5°	1148.0	1122.6	1108.2	1079.3	1068.6	1057.7	1028.8	1018.1	1007.2	996.4
55°	1018.1	996.4	967.5	935.0	920.6	902.4	873.6	851.9	837.5	841.2
57.5°	891.7	855.6	826.7	783.4	765.3	754.4	725.6	696.7	682.2	682.2
60°	736.4	707.6	671.5	631.7	617.3	599.3	563.1	545.1	534.2	523.5
62.5°	588.4	566.8	534.2	483.7	472.9	454.8	429.6	408.0	397.1	397.1
65°	440.4	418.7	389.9	353.8	339.4	324.9	303.3	281.6	270.7	267.2
67.5°	310.5	285.2	260.0	231.1	220.2	213.0	191.3	176.9	169.7	166.0
70°	187.6	173.2	155.2	133.6	122.7	115.5	101.0	90.3	86.6	83.1
72.5°	97.5	86.6	72.2	57.7	50.5	43.3	36.1	28.9	25.3	25.3
75°	36.1	28.9	18.1	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)