

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: **FLDSQ4C25D010 FEU4C259035 F4LC-SQ-WLI**

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: FLDSQ4C25D010 FEU4C259035 F4LC-SQ-WLI
 Description: 4 INCH 2500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3500K, 90CRI LEDS AND F4LC-SQW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

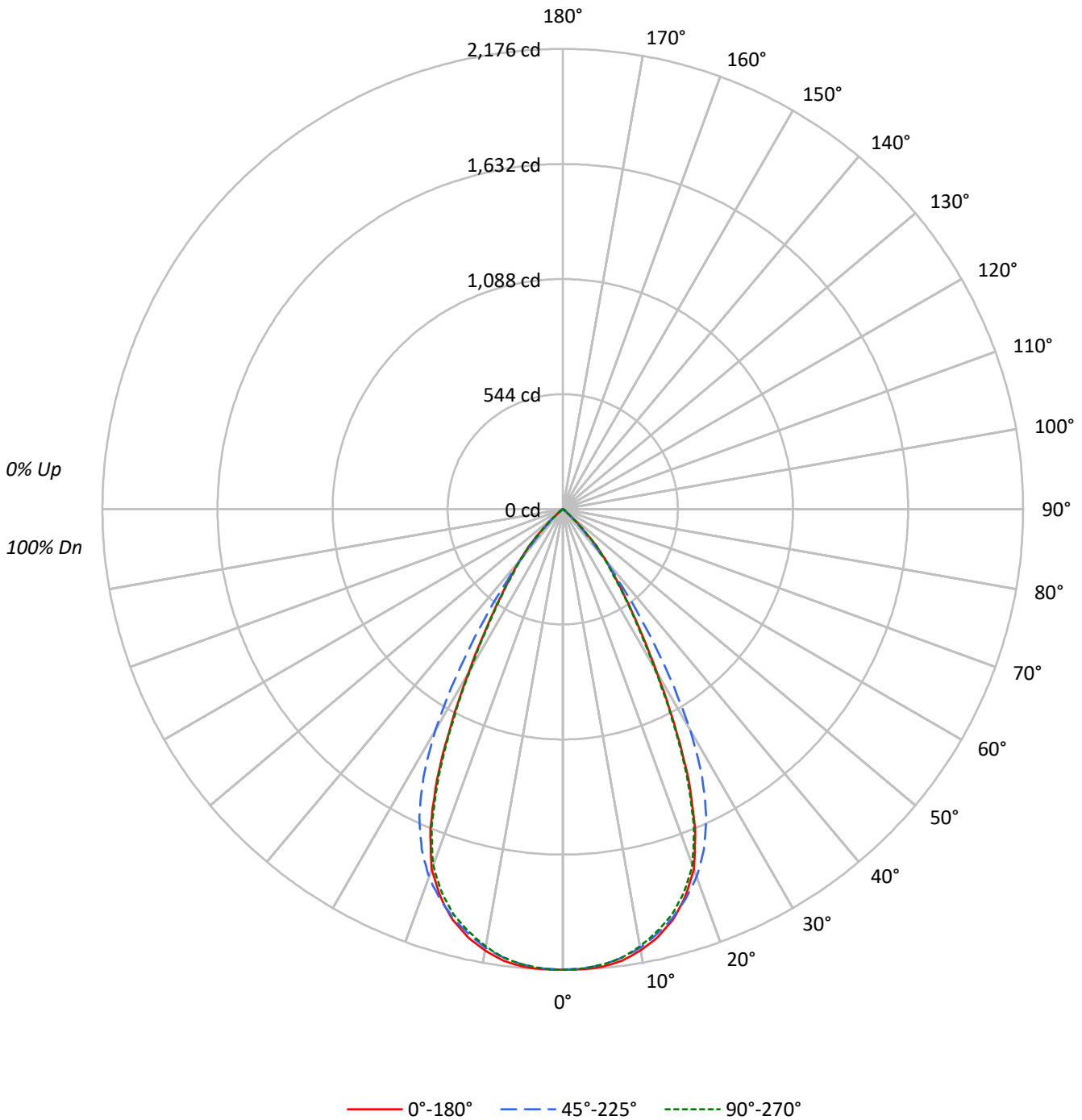
Lumens per Lamp: N/A
 Luminaire Lumens: 1948.0 lumens
 Efficiency: N/A
 Efficacy: 61.8 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.91 / 0.9
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 31.5
 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 | | | |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 |
| RCR | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 | 100 | 100 |
| 1 | 114 | 111 | 108 | 106 | 111 | 109 | 106 | 104 | 105 | 103 | 101 | 101 | 100 | 98 | 97 | 96 | 95 | 94 | 94 | 94 |
| 2 | 108 | 103 | 99 | 96 | 106 | 102 | 98 | 95 | 98 | 95 | 93 | 95 | 93 | 91 | 93 | 91 | 89 | 87 | 87 | 87 |
| 3 | 103 | 96 | 91 | 88 | 101 | 95 | 90 | 87 | 92 | 89 | 85 | 90 | 87 | 84 | 88 | 85 | 83 | 81 | 81 | 81 |
| 4 | 98 | 90 | 85 | 80 | 96 | 89 | 84 | 80 | 87 | 82 | 79 | 85 | 81 | 78 | 83 | 80 | 77 | 76 | 76 | 76 |
| 5 | 93 | 84 | 79 | 74 | 91 | 84 | 78 | 74 | 82 | 77 | 73 | 80 | 76 | 73 | 79 | 75 | 72 | 71 | 71 | 71 |
| 6 | 88 | 79 | 73 | 69 | 87 | 79 | 73 | 69 | 77 | 72 | 68 | 76 | 71 | 68 | 74 | 71 | 68 | 66 | 66 | 66 |
| 7 | 84 | 75 | 69 | 65 | 82 | 74 | 68 | 64 | 73 | 68 | 64 | 71 | 67 | 64 | 70 | 66 | 63 | 62 | 62 | 62 |
| 8 | 80 | 70 | 64 | 60 | 79 | 70 | 64 | 60 | 69 | 64 | 60 | 68 | 63 | 60 | 67 | 63 | 59 | 58 | 58 | 58 |
| 9 | 76 | 66 | 61 | 57 | 75 | 66 | 60 | 57 | 65 | 60 | 56 | 64 | 60 | 56 | 63 | 59 | 56 | 55 | 55 | 55 |
| 10 | 72 | 63 | 57 | 53 | 71 | 62 | 57 | 53 | 62 | 57 | 53 | 61 | 56 | 53 | 60 | 56 | 53 | 52 | 52 | 52 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 209960 | 209960 | 209960 |
| 5° | 210181 | 209212 | 209212 |
| 10° | 207418 | 206193 | 205557 |
| 15° | 200684 | 199735 | 198387 |
| 20° | 185853 | 189909 | 183800 |
| 25° | 149432 | 170832 | 147474 |
| 30° | 98636 | 133944 | 96297 |
| 35° | 61652 | 80428 | 60533 |
| 40° | 40231 | 37271 | 38656 |
| 45° | 19377 | 14874 | 18285 |
| 50° | 4879 | 5929 | 4578 |
| 55° | 2692 | 2439 | 2607 |
| 60° | 1833 | 1544 | 1737 |
| 65° | 1256 | 1142 | 1256 |
| 70° | 987 | 846 | 987 |
| 75° | 746 | 746 | 746 |
| 80° | 556 | 833 | 833 |
| 85° | 554 | 1107 | 1107 |

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 204.6 | 10.5 |
| 10°-20° | 558.8 | 28.7 |
| 20°-30° | 666.0 | 34.2 |
| 30°-40° | 377.1 | 19.4 |
| 40°-50° | 116.6 | 6.0 |
| 50°-60° | 16.2 | 0.8 |
| 60°-70° | 5.5 | 0.3 |
| 70°-80° | 2.2 | 0.1 |
| 80°-90° | 0.9 | 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° | 1429.5 | 73.4 |
| 0°-40° | 1806.6 | 92.7 |
| 0°-60° | 1939.4 | 99.6 |
| 0°-90° | 1948.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1948.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2176 | 2176 | 2176 | 2176 | 2176 | |
| 5° | 2170 | 2165 | 2160 | 2158 | 2160 | 205 |
| 15° | 2009 | 2006 | 2000 | 1992 | 1986 | 560 |
| 25° | 1404 | 1486 | 1605 | 1488 | 1385 | 626 |
| 35° | 523 | 571 | 683 | 572 | 514 | 341 |
| 45° | 142 | 166 | 109 | 161 | 134 | 117 |
| 55° | 16 | 16 | 14 | 16 | 16 | 16 |
| 65° | 6 | 6 | 5 | 6 | 6 | 6 |
| 75° | 2 | 2 | 2 | 2 | 2 | 2 |
| 85° | 0 | 1 | 1 | 1 | 1 | 1 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

TEST NUMBER: P#
 CATALOG NUMBER: FLDSQ4C25D010 FEU4C259035 F4LC-SQ-WLI

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2176.0 | 2176.0 | 2176.0 | 2176.0 | 2176.0 |
| 2.5° | 2176.5 | 2173.0 | 2172.0 | 2171.0 | 2173.0 |
| 5° | 2170.0 | 2165.0 | 2160.0 | 2158.5 | 2160.0 |
| 7.5° | 2151.5 | 2146.5 | 2138.0 | 2136.0 | 2137.5 |
| 10° | 2117.0 | 2112.5 | 2104.5 | 2100.0 | 2098.0 |
| 12.5° | 2071.5 | 2064.0 | 2056.5 | 2051.5 | 2046.5 |
| 15° | 2009.0 | 2005.5 | 1999.5 | 1991.5 | 1986.0 |
| 17.5° | 1922.5 | 1927.5 | 1931.0 | 1915.0 | 1900.5 |
| 20° | 1810.0 | 1828.5 | 1849.5 | 1817.0 | 1790.0 |
| 22.5° | 1634.6 | 1687.6 | 1741.1 | 1679.6 | 1619.6 |
| 25° | 1403.6 | 1485.6 | 1604.6 | 1488.1 | 1385.2 |
| 27.5° | 1134.2 | 1238.2 | 1425.6 | 1238.7 | 1119.2 |
| 30° | 885.3 | 992.3 | 1202.2 | 978.3 | 864.3 |
| 32.5° | 679.8 | 759.8 | 939.3 | 747.8 | 665.3 |
| 35° | 523.4 | 570.9 | 682.8 | 572.4 | 513.9 |
| 37.5° | 406.9 | 430.9 | 459.4 | 422.4 | 394.9 |
| 40° | 319.4 | 320.4 | 295.9 | 315.4 | 306.9 |
| 42.5° | 236.9 | 235.9 | 182.0 | 229.9 | 231.4 |
| 45° | 142.0 | 165.5 | 109.0 | 161.0 | 134.0 |
| 47.5° | 67.5 | 93.5 | 65.5 | 88.5 | 62.5 |
| 50° | 32.5 | 45.0 | 39.5 | 42.0 | 30.5 |
| 52.5° | 22.0 | 23.0 | 22.5 | 22.0 | 21.0 |
| 55° | 16.0 | 16.0 | 14.5 | 15.5 | 15.5 |
| 57.5° | 12.0 | 12.0 | 10.5 | 11.5 | 11.5 |
| 60° | 9.5 | 9.0 | 8.0 | 9.0 | 9.0 |
| 62.5° | 7.0 | 7.0 | 6.0 | 7.0 | 7.0 |
| 65° | 5.5 | 5.5 | 5.0 | 5.5 | 5.5 |
| 67.5° | 4.5 | 4.5 | 3.5 | 4.5 | 4.0 |
| 70° | 3.5 | 3.5 | 3.0 | 3.5 | 3.5 |
| 72.5° | 2.5 | 2.5 | 2.5 | 2.5 | 2.5 |
| 75° | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |
| 77.5° | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |
| 80° | 1.0 | 1.0 | 1.5 | 1.5 | 1.5 |
| 82.5° | 1.0 | 1.0 | 1.0 | 1.0 | 1.0 |
| 85° | 0.5 | 1.0 | 1.0 | 1.0 | 1.0 |
| 87.5° | 0.5 | 0.5 | 1.0 | 1.0 | 1.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)