

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

Summary

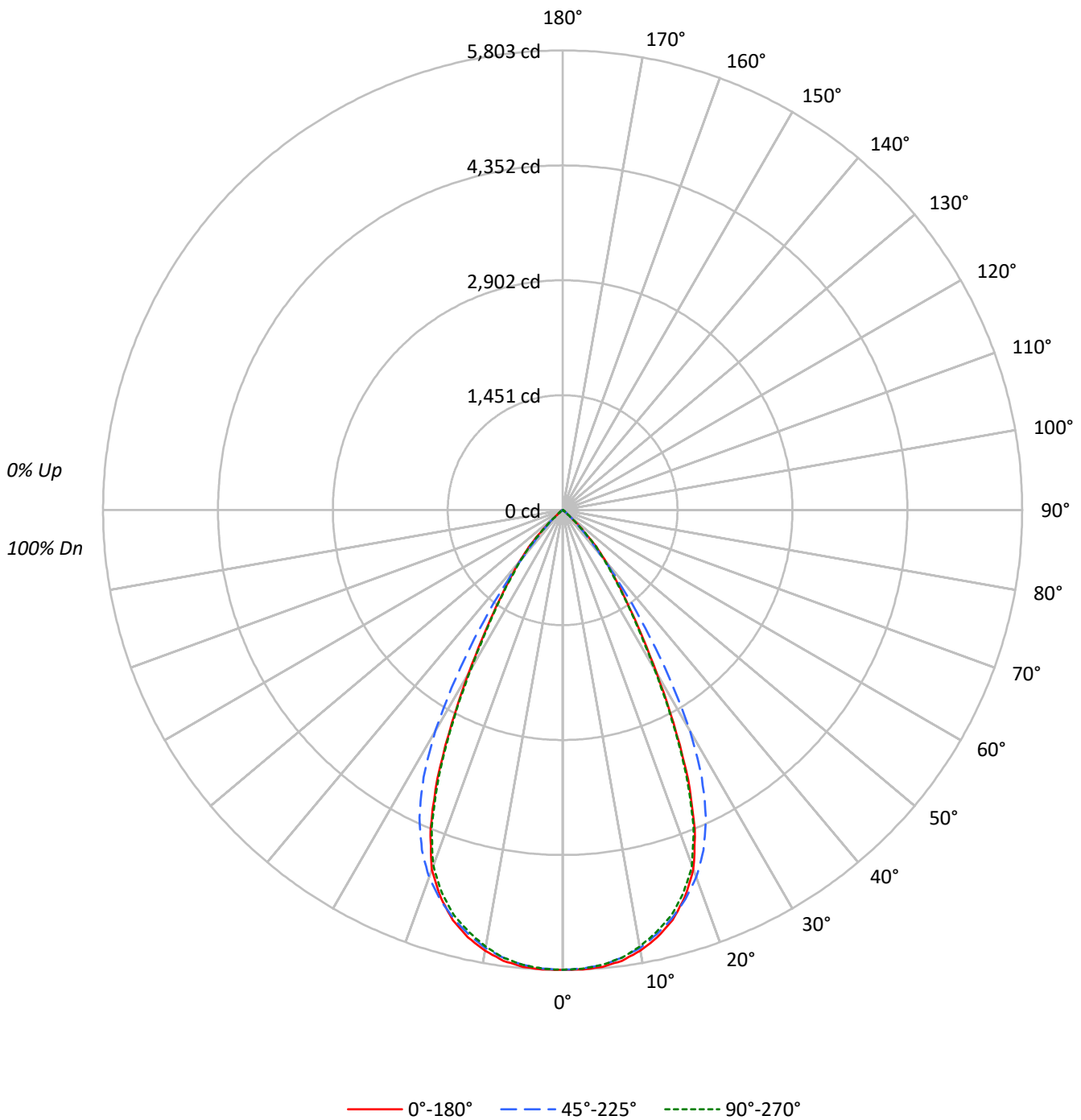
Lumens per Lamp: N/A
 Luminaire Lumens: 5194.0 lumens
 Efficiency: N/A
 Efficacy: 71.7 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.91 / 0.9
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 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 |

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Luminous Intensity Polar Plot



TEST NUMBER: P#

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

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 559809 | 559809 | 559809 |
| 5° | 560398 | 557812 | 557812 |
| 10° | 553033 | 549771 | 548076 |
| 15° | 535085 | 532558 | 528962 |
| 20° | 495561 | 506373 | 490088 |
| 25° | 398451 | 455494 | 393202 |
| 30° | 262986 | 357132 | 256758 |
| 35° | 164378 | 214451 | 161386 |
| 40° | 107278 | 99380 | 103083 |
| 45° | 51649 | 39654 | 48742 |
| 50° | 13000 | 15807 | 12204 |
| 55° | 7183 | 6510 | 6948 |
| 60° | 4882 | 4110 | 4631 |
| 65° | 3356 | 3037 | 3356 |
| 70° | 2624 | 2257 | 2624 |
| 75° | 1976 | 1976 | 1976 |
| 80° | 1500 | 2223 | 2223 |
| 85° | 1439 | 2989 | 2989 |

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 545.6 | 10.5 |
| 10°-20° | 1490.0 | 28.7 |
| 20°-30° | 1775.7 | 34.2 |
| 30°-40° | 1005.5 | 19.4 |
| 40°-50° | 310.9 | 6.0 |
| 50°-60° | 43.2 | 0.8 |
| 60°-70° | 14.7 | 0.3 |
| 70°-80° | 5.9 | 0.1 |
| 80°-90° | 2.5 | 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° | 3811.4 | 73.4 |
| 0°-40° | 4816.9 | 92.7 |
| 0°-60° | 5170.9 | 99.6 |
| 0°-90° | 5194.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5194.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 5802 | 5802 | 5802 | 5802 | 5802 | |
| 5° | 5786 | 5772 | 5759 | 5755 | 5759 | 548 |
| 15° | 5357 | 5347 | 5331 | 5310 | 5295 | 1494 |
| 25° | 3743 | 3961 | 4278 | 3968 | 3693 | 1669 |
| 35° | 1396 | 1522 | 1821 | 1526 | 1370 | 908 |
| 45° | 378 | 441 | 291 | 429 | 357 | 313 |
| 55° | 43 | 43 | 39 | 41 | 41 | 42 |
| 65° | 15 | 15 | 13 | 15 | 15 | 15 |
| 75° | 5 | 5 | 5 | 5 | 5 | 6 |
| 85° | 1 | 3 | 3 | 3 | 3 | 2 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 5801.8 | 5801.8 | 5801.8 | 5801.8 | 5801.8 |
| 2.5° | 5803.1 | 5793.8 | 5791.1 | 5788.5 | 5793.8 |
| 5° | 5785.8 | 5772.5 | 5759.1 | 5755.1 | 5759.1 |
| 7.5° | 5736.5 | 5723.2 | 5700.5 | 5695.2 | 5699.2 |
| 10° | 5644.5 | 5632.5 | 5611.2 | 5599.2 | 5593.9 |
| 12.5° | 5523.2 | 5503.2 | 5483.2 | 5469.9 | 5456.6 |
| 15° | 5356.6 | 5347.3 | 5331.3 | 5310.0 | 5295.3 |
| 17.5° | 5126.1 | 5139.4 | 5148.7 | 5106.1 | 5067.4 |
| 20° | 4826.2 | 4875.5 | 4931.5 | 4844.8 | 4772.9 |
| 22.5° | 4358.3 | 4499.6 | 4642.2 | 4478.3 | 4318.4 |
| 25° | 3742.6 | 3961.2 | 4278.4 | 3967.8 | 3693.3 |
| 27.5° | 3024.2 | 3301.4 | 3801.2 | 3302.7 | 2984.2 |
| 30° | 2360.4 | 2645.7 | 3205.4 | 2608.3 | 2304.5 |
| 32.5° | 1812.6 | 2025.9 | 2504.4 | 1993.9 | 1774.0 |
| 35° | 1395.5 | 1522.1 | 1820.6 | 1526.1 | 1370.1 |
| 37.5° | 1084.9 | 1148.9 | 1224.9 | 1126.2 | 1052.9 |
| 40° | 851.7 | 854.3 | 789.0 | 841.0 | 818.4 |
| 42.5° | 631.8 | 629.1 | 485.1 | 613.1 | 617.1 |
| 45° | 378.5 | 441.2 | 290.6 | 429.2 | 357.2 |
| 47.5° | 179.9 | 249.2 | 174.6 | 235.9 | 166.6 |
| 50° | 86.6 | 120.0 | 105.3 | 112.0 | 81.3 |
| 52.5° | 58.6 | 61.3 | 60.0 | 58.6 | 56.0 |
| 55° | 42.7 | 42.7 | 38.7 | 41.3 | 41.3 |
| 57.5° | 32.0 | 32.0 | 28.0 | 30.7 | 30.7 |
| 60° | 25.3 | 24.0 | 21.3 | 24.0 | 24.0 |
| 62.5° | 18.7 | 18.7 | 16.0 | 18.7 | 18.7 |
| 65° | 14.7 | 14.7 | 13.3 | 14.7 | 14.7 |
| 67.5° | 12.0 | 12.0 | 9.3 | 12.0 | 10.7 |
| 70° | 9.3 | 9.3 | 8.0 | 9.3 | 9.3 |
| 72.5° | 6.7 | 6.7 | 6.7 | 6.7 | 6.7 |
| 75° | 5.3 | 5.3 | 5.3 | 5.3 | 5.3 |
| 77.5° | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 |
| 80° | 2.7 | 2.7 | 4.0 | 4.0 | 4.0 |
| 82.5° | 2.7 | 2.7 | 2.7 | 2.7 | 2.7 |
| 85° | 1.3 | 2.7 | 2.7 | 2.7 | 2.7 |
| 87.5° | 1.3 | 1.3 | 2.7 | 2.7 | 2.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)