

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: P563856

Luminaire Tested: **FLDSQ4C05D010 FEU4C059030 F4LC-SQ-WH-D2W**

Issue Date: 12/13/2022

Tested By:

Approved By:



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Test Information

Test Method: LM-79-08
 Report Number: P563856
 Test Lab: INNOVATION CENTER
 Issue Date: 12/13/2022
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
 Product Line: FAIL-SAFE
 Catalog Number: FLDSQ4C05D010 FEU4C059030 F4LC-SQ-WH-
 D2WDescription: 4 INCH 500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 3000K, 90CRI LEDS AND
 F4LC-SQW TRIM WITH H FINISH, DIM TO WARM
 Light Source: -
 Ballast/Driver: -

Summary

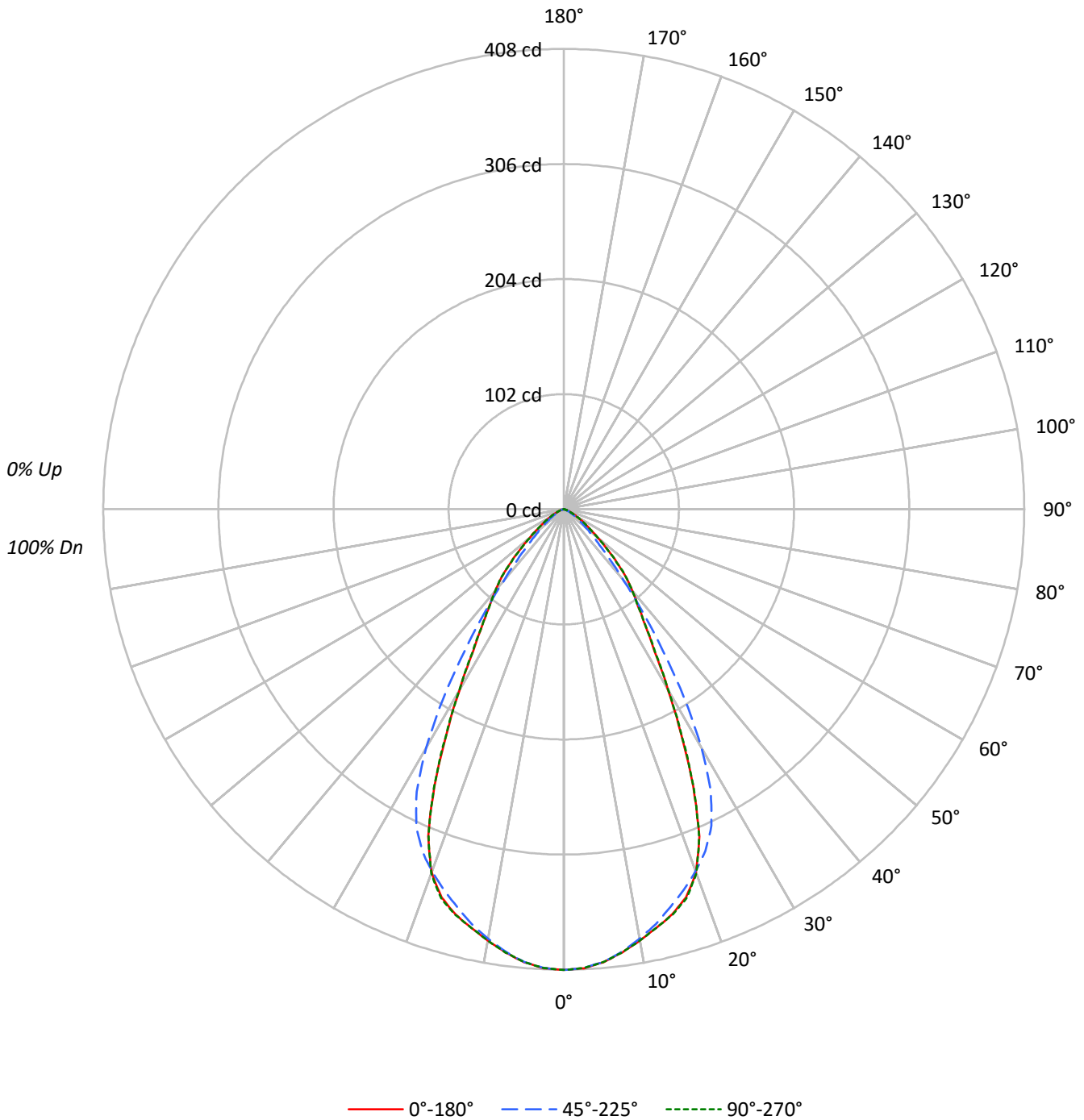
Lumens per Lamp: N/A
 Luminaire Lumens: 432.0 lumens
 Efficiency: N/A
 Efficacy: 60.0 lumens/watt
 Spacing Criteria (0/90/45): 0.93 / 0.93 / 0.94
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 7.2
 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: P563856

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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 | 100 | 100 | |
| 1 | 113 | 110 | 107 | 105 | 110 | 108 | 105 | 103 | 104 | 102 | 100 | 100 | 98 | 97 | 96 | 95 | 94 | 92 | 92 | 92 | 92 | |
| 2 | 107 | 101 | 97 | 93 | 104 | 99 | 95 | 92 | 96 | 93 | 90 | 93 | 90 | 88 | 90 | 88 | 86 | 84 | 84 | 84 | 84 | |
| 3 | 101 | 93 | 88 | 84 | 98 | 92 | 87 | 83 | 89 | 85 | 82 | 87 | 83 | 80 | 85 | 82 | 79 | 77 | 77 | 77 | 77 | |
| 4 | 95 | 87 | 80 | 76 | 93 | 85 | 80 | 75 | 83 | 78 | 74 | 81 | 77 | 74 | 79 | 76 | 73 | 71 | 71 | 71 | 71 | |
| 5 | 89 | 80 | 74 | 69 | 88 | 79 | 73 | 69 | 78 | 72 | 68 | 76 | 71 | 68 | 74 | 70 | 67 | 66 | 66 | 66 | 66 | |
| 6 | 85 | 75 | 68 | 64 | 83 | 74 | 68 | 63 | 72 | 67 | 63 | 71 | 66 | 63 | 70 | 65 | 62 | 61 | 61 | 61 | 61 | |
| 7 | 80 | 70 | 63 | 59 | 79 | 69 | 63 | 59 | 68 | 62 | 58 | 67 | 62 | 58 | 65 | 61 | 58 | 56 | 56 | 56 | 56 | |
| 8 | 76 | 65 | 59 | 55 | 74 | 65 | 59 | 54 | 64 | 58 | 54 | 63 | 58 | 54 | 62 | 57 | 54 | 52 | 52 | 52 | 52 | |
| 9 | 72 | 61 | 55 | 51 | 71 | 61 | 55 | 51 | 60 | 54 | 51 | 59 | 54 | 50 | 58 | 54 | 50 | 49 | 49 | 49 | 49 | |
| 10 | 68 | 58 | 52 | 48 | 67 | 57 | 51 | 47 | 57 | 51 | 47 | 56 | 51 | 47 | 55 | 50 | 47 | 46 | 46 | 46 | 46 | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 39387 | 39387 | 39387 |
| 5° | 39024 | 38995 | 39014 |
| 10° | 38025 | 37868 | 38025 |
| 15° | 37110 | 36441 | 37150 |
| 20° | 35179 | 35055 | 35251 |
| 25° | 28862 | 32929 | 29011 |
| 30° | 20578 | 27208 | 20612 |
| 35° | 14842 | 18022 | 14889 |
| 40° | 11903 | 10480 | 11903 |
| 45° | 9074 | 6113 | 9006 |
| 50° | 5989 | 3903 | 5974 |
| 55° | 4021 | 2624 | 3987 |
| 60° | 2702 | 1795 | 2740 |
| 65° | 1849 | 1256 | 1826 |
| 70° | 1241 | 903 | 1241 |
| 75° | 820 | 671 | 820 |
| 80° | 556 | 500 | 556 |
| 85° | 443 | 443 | 443 |

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 37.9 | 8.8 |
| 10°-20° | 103.5 | 23.9 |
| 20°-30° | 129.3 | 29.9 |
| 30°-40° | 87.0 | 20.1 |
| 40°-50° | 45.9 | 10.6 |
| 50°-60° | 18.7 | 4.3 |
| 60°-70° | 6.9 | 1.6 |
| 70°-80° | 2.2 | 0.5 |
| 80°-90° | 0.5 | 0.1 |
| 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° | 270.7 | 62.7 |
| 0°-40° | 357.7 | 82.8 |
| 0°-60° | 422.4 | 97.8 |
| 0°-90° | 432.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 432.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 408 | 408 | 408 | 408 | 408 | |
| 5° | 403 | 402 | 403 | 403 | 403 | 38 |
| 15° | 372 | 368 | 365 | 368 | 372 | 104 |
| 25° | 271 | 286 | 309 | 287 | 272 | 122 |
| 35° | 126 | 132 | 153 | 133 | 126 | 81 |
| 45° | 66 | 63 | 45 | 63 | 66 | 51 |
| 55° | 24 | 20 | 16 | 20 | 24 | 22 |
| 65° | 8 | 7 | 6 | 7 | 8 | 8 |
| 75° | 2 | 2 | 2 | 2 | 2 | 3 |
| 85° | 0 | 0 | 0 | 0 | 0 | 0 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 408.2 | 408.2 | 408.2 | 408.2 | 408.2 |
| 2.5° | 407.1 | 406.9 | 406.7 | 406.7 | 406.9 |
| 5° | 402.9 | 402.5 | 402.6 | 402.6 | 402.8 |
| 7.5° | 396.1 | 395.9 | 395.5 | 396.1 | 396.1 |
| 10° | 388.1 | 387.4 | 386.5 | 387.6 | 388.1 |
| 12.5° | 379.8 | 377.9 | 376.4 | 377.9 | 379.8 |
| 15° | 371.5 | 368.4 | 364.8 | 368.3 | 371.9 |
| 17.5° | 360.5 | 357.4 | 353.5 | 358.1 | 361.6 |
| 20° | 342.6 | 342.9 | 341.4 | 342.6 | 343.3 |
| 22.5° | 313.9 | 319.7 | 327.8 | 319.9 | 313.0 |
| 25° | 271.1 | 286.3 | 309.3 | 286.8 | 272.5 |
| 27.5° | 225.1 | 244.4 | 282.1 | 245.6 | 226.5 |
| 30° | 184.7 | 201.8 | 244.2 | 203.0 | 185.0 |
| 32.5° | 149.6 | 162.3 | 198.5 | 163.9 | 151.2 |
| 35° | 126.0 | 132.3 | 153.0 | 132.6 | 126.4 |
| 37.5° | 108.0 | 108.0 | 113.7 | 108.5 | 107.5 |
| 40° | 94.5 | 90.4 | 83.2 | 90.2 | 94.5 |
| 42.5° | 81.9 | 75.7 | 60.4 | 75.4 | 82.1 |
| 45° | 66.5 | 63.2 | 44.8 | 62.9 | 66.0 |
| 47.5° | 51.1 | 48.8 | 33.7 | 48.5 | 51.5 |
| 50° | 39.9 | 36.3 | 26.0 | 36.0 | 39.8 |
| 52.5° | 30.6 | 26.8 | 20.1 | 26.8 | 30.4 |
| 55° | 23.9 | 20.1 | 15.6 | 20.1 | 23.7 |
| 57.5° | 18.4 | 15.3 | 11.8 | 15.1 | 18.3 |
| 60° | 14.0 | 11.5 | 9.3 | 11.5 | 14.2 |
| 62.5° | 10.7 | 8.8 | 7.1 | 8.6 | 10.6 |
| 65° | 8.1 | 6.6 | 5.5 | 6.6 | 8.0 |
| 67.5° | 5.9 | 4.9 | 4.2 | 4.9 | 6.0 |
| 70° | 4.4 | 3.7 | 3.2 | 3.6 | 4.4 |
| 72.5° | 3.2 | 2.7 | 2.4 | 2.7 | 3.2 |
| 75° | 2.2 | 1.9 | 1.8 | 1.9 | 2.2 |
| 77.5° | 1.5 | 1.4 | 1.3 | 1.4 | 1.5 |
| 80° | 1.0 | 0.9 | 0.9 | 1.0 | 1.0 |
| 82.5° | 0.6 | 0.6 | 0.6 | 0.6 | 0.6 |
| 85° | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 87.5° | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)