

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: **FLDSQ4C100D010 FEU4C1009040 F4LC-SQ-WH**

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: FLDSQ4C100D010 FEU4C1009040 F4LC-SQ-WH  
 Description: 4 INCH 10000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQW TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

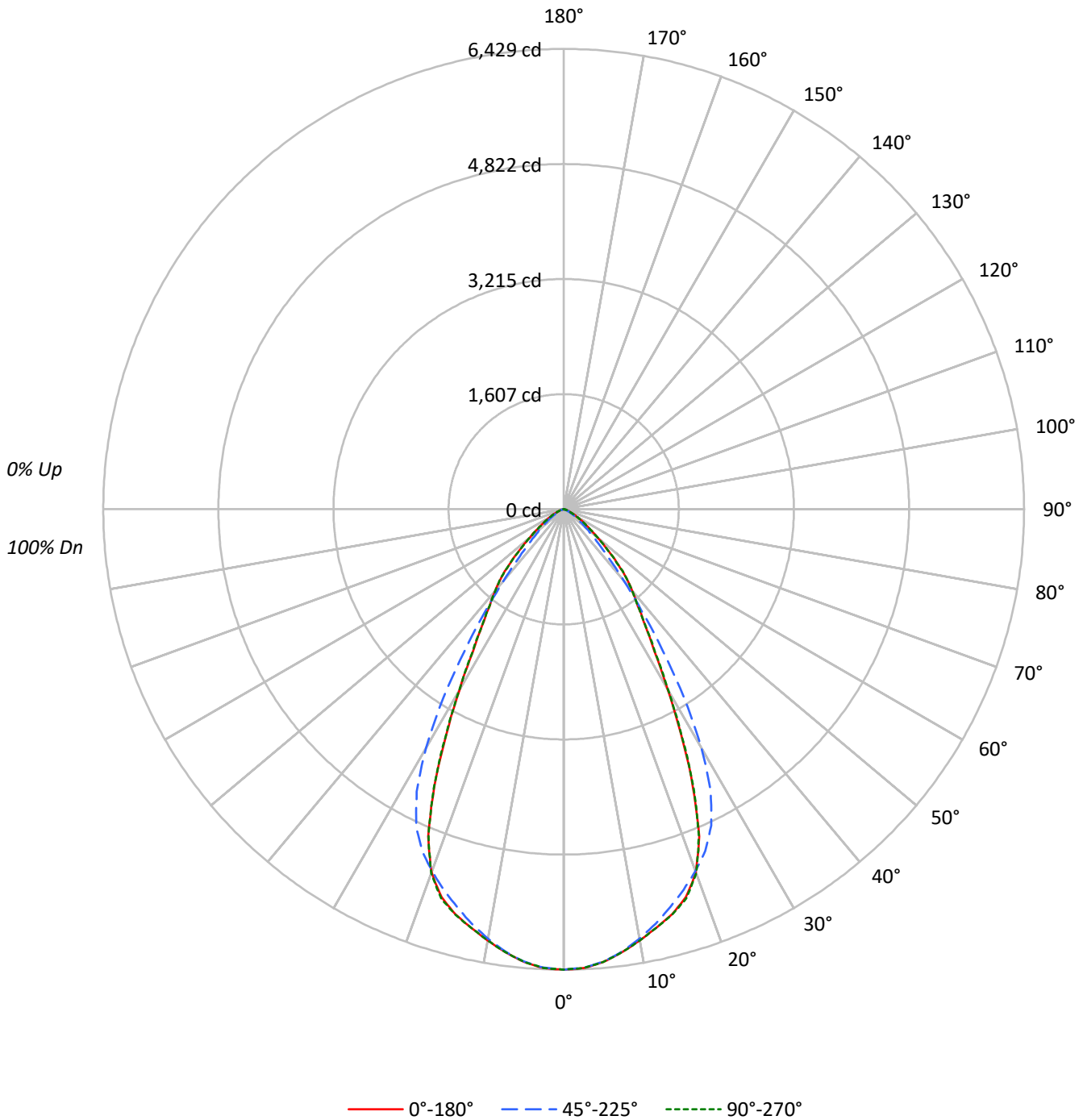
Lumens per Lamp: N/A  
 Luminaire Lumens: 6805.0 lumens  
 Efficiency: N/A  
 Efficacy: 59.5 lumens/watt  
 Spacing Criteria (0/90/45): 0.93 / 0.93 / 0.94  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 114.4  
 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



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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°  | 620366 | 620366 | 620366 |
| 5°  | 614687 | 614299 | 614493 |
| 10° | 598946 | 596565 | 598946 |
| 15° | 584532 | 574003 | 585141 |
| 20° | 554212 | 552128 | 555249 |
| 25° | 454611 | 518723 | 456985 |
| 30° | 324175 | 428539 | 324621 |
| 35° | 233816 | 283971 | 234534 |
| 40° | 187450 | 164979 | 187450 |
| 45° | 143047 | 96283  | 141928 |
| 50° | 94344  | 61485  | 94044  |
| 55° | 63437  | 41265  | 62764  |
| 60° | 42648  | 28175  | 43034  |
| 65° | 29155  | 19909  | 28699  |
| 70° | 19438  | 14303  | 19438  |
| 75° | 12862  | 10588  | 12862  |
| 80° | 9002   | 7890   | 9002   |
| 85° | 6753   | 6753   | 6753   |

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 597.7  | 8.8       |
| 10°-20°   | 1629.7 | 23.9      |
| 20°-30°   | 2037.3 | 29.9      |
| 30°-40°   | 1370.6 | 20.1      |
| 40°-50°   | 723.7  | 10.6      |
| 50°-60°   | 294.1  | 4.3       |
| 60°-70°   | 109.1  | 1.6       |
| 70°-80°   | 35.2   | 0.5       |
| 80°-90°   | 7.6    | 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°    | 4264.7 | 62.7      |
| 0°-40°    | 5635.3 | 82.8      |
| 0°-60°    | 6653.1 | 97.8      |
| 0°-90°    | 6805.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 6805.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 6429 | 6429  | 6429 | 6429  | 6429 |      |
| 5°  | 6346 | 6340  | 6342 | 6342  | 6344 | 598  |
| 15° | 5852 | 5803  | 5746 | 5801  | 5858 | 1639 |
| 25° | 4270 | 4509  | 4872 | 4517  | 4292 | 1922 |
| 35° | 1985 | 2084  | 2411 | 2088  | 1991 | 1277 |
| 45° | 1048 | 996   | 706  | 992   | 1040 | 804  |
| 55° | 377  | 316   | 245  | 316   | 373  | 350  |
| 65° | 128  | 103   | 87   | 103   | 126  | 132  |
| 75° | 34   | 30    | 28   | 30    | 34   | 40   |
| 85° | 6    | 6     | 6    | 6     | 6    | 8    |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 6429.4 | 6429.4 | 6429.4 | 6429.4 | 6429.4 |
| 2.5°  | 6413.2 | 6409.2 | 6407.1 | 6407.1 | 6409.2 |
| 5°    | 6346.3 | 6340.2 | 6342.3 | 6342.3 | 6344.3 |
| 7.5°  | 6238.9 | 6236.8 | 6230.7 | 6238.9 | 6238.9 |
| 10°   | 6113.1 | 6103.0 | 6088.8 | 6105.0 | 6113.1 |
| 12.5° | 5983.4 | 5953.0 | 5928.6 | 5953.0 | 5983.4 |
| 15°   | 5851.6 | 5802.9 | 5746.2 | 5800.9 | 5857.7 |
| 17.5° | 5679.2 | 5630.6 | 5567.7 | 5640.7 | 5695.5 |
| 20°   | 5397.4 | 5401.5 | 5377.1 | 5397.4 | 5407.5 |
| 22.5° | 4945.3 | 5036.5 | 5164.2 | 5038.5 | 4931.1 |
| 25°   | 4270.1 | 4509.3 | 4872.3 | 4517.4 | 4292.4 |
| 27.5° | 3546.2 | 3850.4 | 4444.4 | 3868.6 | 3568.5 |
| 30°   | 2909.6 | 3179.2 | 3846.3 | 3197.5 | 2913.6 |
| 32.5° | 2356.0 | 2556.8 | 3126.5 | 2581.1 | 2382.4 |
| 35°   | 1985.0 | 2084.3 | 2410.8 | 2088.4 | 1991.1 |
| 37.5° | 1701.1 | 1701.1 | 1790.4 | 1709.2 | 1693.0 |
| 40°   | 1488.2 | 1423.4 | 1309.8 | 1421.3 | 1488.2 |
| 42.5° | 1289.5 | 1192.2 | 950.9  | 1188.2 | 1293.6 |
| 45°   | 1048.3 | 995.5  | 705.6  | 991.5  | 1040.1 |
| 47.5° | 804.9  | 768.5  | 531.2  | 764.4  | 811.0  |
| 50°   | 628.5  | 571.8  | 409.6  | 567.7  | 626.5  |
| 52.5° | 482.6  | 421.7  | 316.3  | 421.7  | 478.5  |
| 55°   | 377.1  | 316.3  | 245.3  | 316.3  | 373.1  |
| 57.5° | 289.9  | 241.3  | 186.5  | 237.2  | 287.9  |
| 60°   | 221.0  | 180.5  | 146.0  | 180.5  | 223.0  |
| 62.5° | 168.3  | 137.9  | 111.5  | 135.8  | 166.3  |
| 65°   | 127.7  | 103.4  | 87.2   | 103.4  | 125.7  |
| 67.5° | 93.3   | 77.0   | 66.9   | 77.0   | 95.3   |
| 70°   | 68.9   | 58.8   | 50.7   | 56.8   | 68.9   |
| 72.5° | 50.7   | 42.6   | 38.5   | 42.6   | 50.7   |
| 75°   | 34.5   | 30.4   | 28.4   | 30.4   | 34.5   |
| 77.5° | 24.3   | 22.3   | 20.3   | 22.3   | 24.3   |
| 80°   | 16.2   | 14.2   | 14.2   | 16.2   | 16.2   |
| 82.5° | 10.1   | 10.1   | 10.1   | 10.1   | 10.1   |
| 85°   | 6.1    | 6.1    | 6.1    | 6.1    | 6.1    |
| 87.5° | 4.1    | 4.1    | 4.1    | 4.1    | 4.1    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)