

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: **FLDSQ4C45D010 FEU4C459040 F4LC-SQ-H**

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: FLDSQ4C45D010 FEU4C459040 F4LC-SQ-H  
 Description: 4 INCH 4500 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 4000K, 90CRI LEDS AND F4LC-SQ TRIM WITH H FINISH  
 Light Source: -  
 Ballast/Driver: -

**Summary**

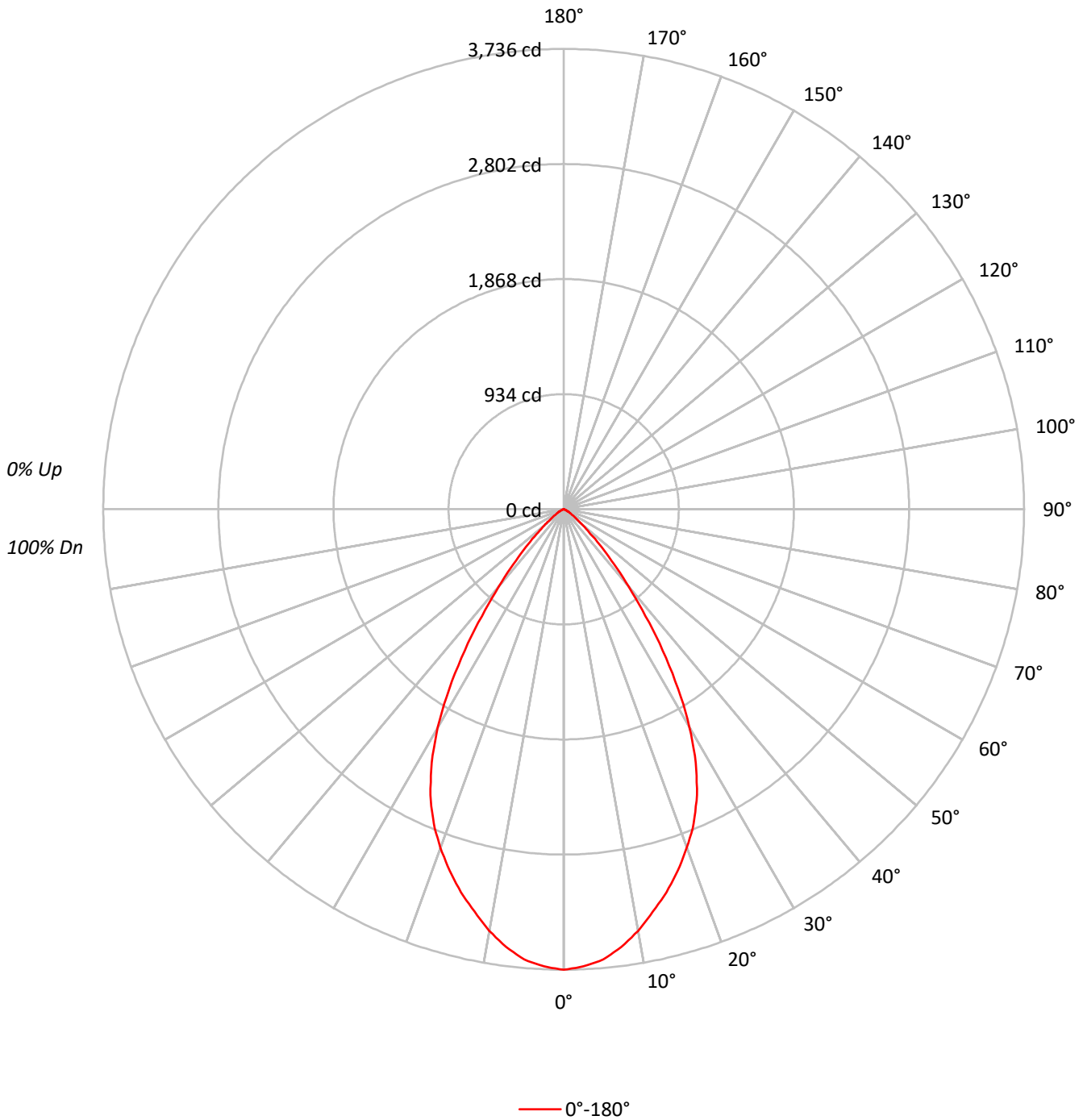
Lumens per Lamp: N/A  
 Luminaire Lumens: 3768.0 lumens  
 Efficiency: N/A  
 Efficacy: 76.0 lumens/watt  
 Spacing Criteria (0/90/45): 0.95 / 0.95 / 0.93  
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')  
 CIE Type: Direct

Input Watts (W): 49.6  
 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  | 0   |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1   | 113 | 110 | 108 | 105 | 111 | 108 | 106 | 104 | 104 | 102 | 100 | 100 | 99  | 97  | 97  | 96  | 95  | 93  |
| 2   | 107 | 102 | 98  | 94  | 105 | 100 | 96  | 93  | 97  | 94  | 91  | 94  | 91  | 89  | 91  | 89  | 87  | 85  |
| 3   | 101 | 94  | 89  | 85  | 99  | 93  | 88  | 84  | 90  | 86  | 83  | 88  | 84  | 82  | 86  | 83  | 80  | 79  |
| 4   | 96  | 88  | 82  | 77  | 94  | 86  | 81  | 77  | 84  | 80  | 76  | 82  | 78  | 75  | 80  | 77  | 74  | 73  |
| 5   | 90  | 82  | 75  | 71  | 89  | 81  | 75  | 70  | 79  | 74  | 70  | 77  | 73  | 69  | 75  | 72  | 69  | 67  |
| 6   | 86  | 76  | 70  | 65  | 84  | 75  | 69  | 65  | 74  | 68  | 64  | 72  | 68  | 64  | 71  | 67  | 64  | 62  |
| 7   | 81  | 71  | 65  | 60  | 80  | 70  | 64  | 60  | 69  | 64  | 60  | 68  | 63  | 59  | 67  | 62  | 59  | 58  |
| 8   | 77  | 67  | 60  | 56  | 75  | 66  | 60  | 56  | 65  | 59  | 56  | 64  | 59  | 55  | 63  | 58  | 55  | 54  |
| 9   | 73  | 63  | 56  | 52  | 72  | 62  | 56  | 52  | 61  | 56  | 52  | 60  | 55  | 52  | 59  | 55  | 52  | 50  |
| 10  | 69  | 59  | 53  | 49  | 68  | 59  | 53  | 49  | 58  | 52  | 49  | 57  | 52  | 48  | 56  | 52  | 48  | 47  |

**AVERAGE LUMINANCE (cd/sqm):**

|     |        |
|-----|--------|
|     | 0°     |
| 0°  | 360502 |
| 5°  | 355263 |
| 10° | 340422 |
| 15° | 321534 |
| 20° | 300127 |
| 25° | 272451 |
| 30° | 227466 |
| 35° | 164790 |
| 40° | 103159 |
| 45° | 58963  |
| 50° | 30743  |
| 55° | 17226  |
| 60° | 10980  |
| 65° | 6484   |
| 70° | 4824   |
| 75° | 2125   |
| 80° | 3167   |
| 85° | 0      |

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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 343.8  | 9.1       |
| 10°-20°   | 901.9  | 23.9      |
| 20°-30°   | 1159.1 | 30.8      |
| 30°-40°   | 872.1  | 23.1      |
| 40°-50°   | 350.2  | 9.3       |
| 50°-60°   | 99.6   | 2.6       |
| 60°-70°   | 31.5   | 0.8       |
| 70°-80°   | 9.0    | 0.2       |
| 80°-90°   | 0.8    | 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°    | 2404.8 | 63.8      |
| 0°-40°    | 3276.9 | 87.0      |
| 0°-60°    | 3726.7 | 98.9      |
| 0°-90°    | 3768.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3768.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | Flux |
|-----|------|------|
| 0°  | 3736 |      |
| 5°  | 3668 | 344  |
| 15° | 3219 | 902  |
| 25° | 2559 | 1159 |
| 35° | 1399 | 872  |
| 45° | 432  | 350  |
| 55° | 102  | 100  |
| 65° | 28   | 32   |
| 75° | 6    | 9    |
| 85° | 0    | 1    |
| 90° | 0    |      |

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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     |
|-------|--------|
| 0°    | 3736.2 |
| 2.5°  | 3713.4 |
| 5°    | 3667.9 |
| 7.5°  | 3582.6 |
| 10°   | 3474.5 |
| 12.5° | 3343.9 |
| 15°   | 3218.8 |
| 17.5° | 3076.5 |
| 20°   | 2922.9 |
| 22.5° | 2758.2 |
| 25°   | 2559.1 |
| 27.5° | 2320.1 |
| 30°   | 2041.6 |
| 32.5° | 1728.7 |
| 35°   | 1399.0 |
| 37.5° | 1091.8 |
| 40°   | 819.0  |
| 42.5° | 602.8  |
| 45°   | 432.1  |
| 47.5° | 295.8  |
| 50°   | 204.8  |
| 52.5° | 142.2  |
| 55°   | 102.4  |
| 57.5° | 74.0   |
| 60°   | 56.9   |
| 62.5° | 39.8   |
| 65°   | 28.4   |
| 67.5° | 22.8   |
| 70°   | 17.1   |
| 72.5° | 11.4   |
| 75°   | 5.7    |
| 77.5° | 5.7    |
| 80°   | 5.7    |
| 82.5° | 0.0    |
| 85°   | 0.0    |
| 87.5° | 0.0    |
| 90°   | 0.0    |

(END OF REPORT)