

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: **FLDSQ4C80D010 FEU4C809050 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: FLDSQ4C80D010 FEU4C809050 F4LC-SQ-WLI
 Description: 4 INCH 8000 LUMEN FAIL-SAFE LED DOWNLIGHT WITH, 5000K, 90CRI LEDS AND F4LC-SQW TRIM WITH LI FINISH
 Light Source: -
 Ballast/Driver: -

Summary

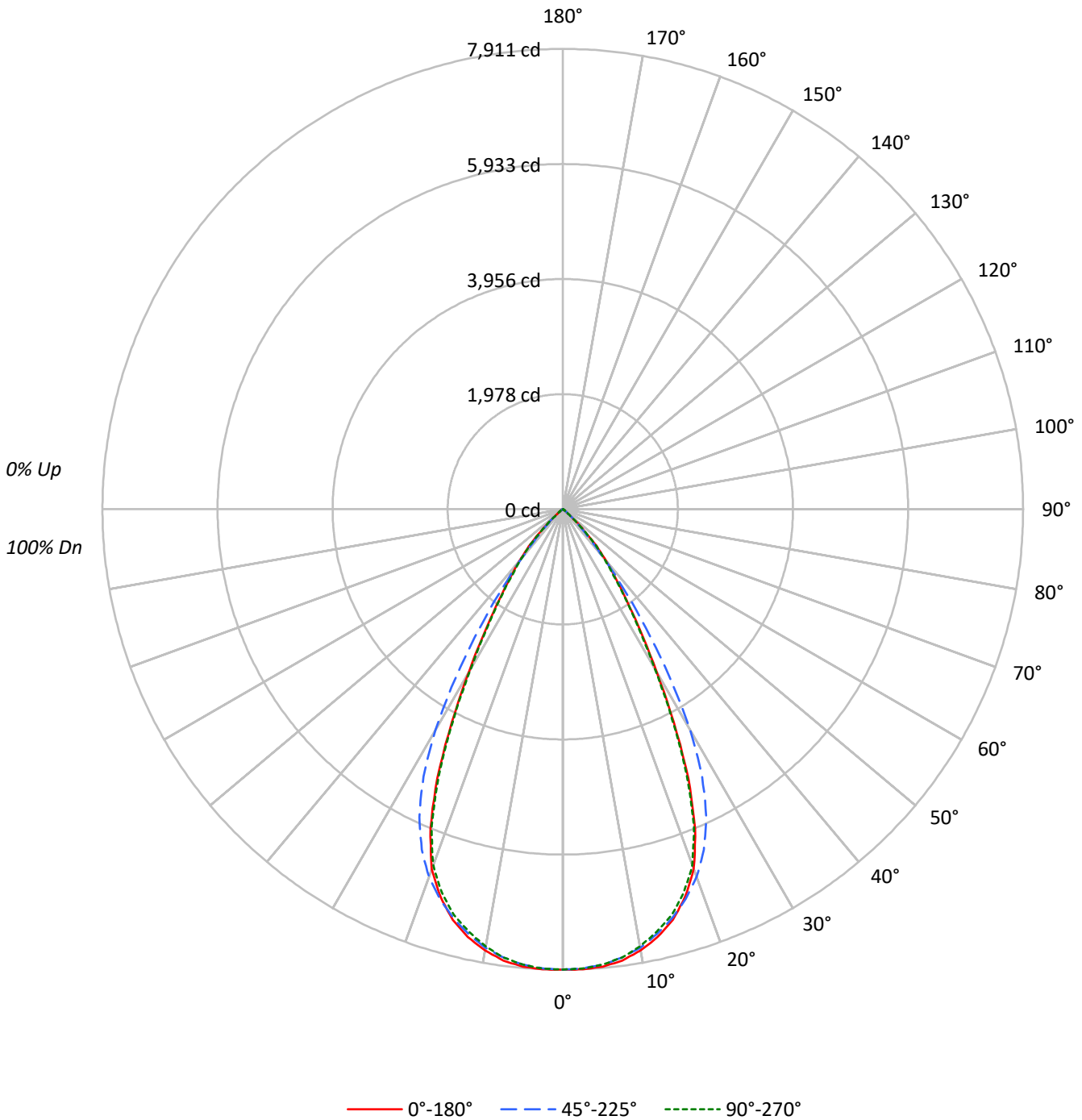
Lumens per Lamp: N/A
 Luminaire Lumens: 7081.0 lumens
 Efficiency: N/A
 Efficacy: 79.1 lumens/watt
 Spacing Criteria (0/90/45): 0.91 / 0.91 / 0.9
 Luminous Opening: Rectangular (W 0.33' x L: 0.33' x H: 0')
 CIE Type: Direct

Input Watts (W): 89.5
 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 | 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 | 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° | 763189 | 763189 | 763189 |
| 5° | 763992 | 760476 | 760476 |
| 10° | 753956 | 749507 | 747185 |
| 15° | 729486 | 726040 | 721135 |
| 20° | 675592 | 690337 | 668127 |
| 25° | 543210 | 620971 | 536045 |
| 30° | 358536 | 486887 | 350035 |
| 35° | 224086 | 292370 | 220022 |
| 40° | 146249 | 135492 | 140531 |
| 45° | 70411 | 54050 | 66454 |
| 50° | 17728 | 21541 | 16632 |
| 55° | 9774 | 8865 | 9471 |
| 60° | 6658 | 5616 | 6310 |
| 65° | 4566 | 4155 | 4566 |
| 70° | 3583 | 3075 | 3583 |
| 75° | 2721 | 2721 | 2721 |
| 80° | 2000 | 3056 | 3056 |
| 85° | 1993 | 3986 | 3986 |

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 743.9 | 10.5 |
| 10°-20° | 2031.4 | 28.7 |
| 20°-30° | 2420.8 | 34.2 |
| 30°-40° | 1370.8 | 19.4 |
| 40°-50° | 423.8 | 6.0 |
| 50°-60° | 58.9 | 0.8 |
| 60°-70° | 20.1 | 0.3 |
| 70°-80° | 8.0 | 0.1 |
| 80°-90° | 3.3 | 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° | 5196.1 | 73.4 |
| 0°-40° | 6566.9 | 92.7 |
| 0°-60° | 7049.5 | 99.6 |
| 0°-90° | 7081.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7081.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 7910 | 7910 | 7910 | 7910 | 7910 | |
| 5° | 7888 | 7870 | 7852 | 7846 | 7852 | 747 |
| 15° | 7303 | 7290 | 7268 | 7239 | 7219 | 2036 |
| 25° | 5102 | 5400 | 5833 | 5409 | 5035 | 2275 |
| 35° | 1902 | 2075 | 2482 | 2080 | 1868 | 1238 |
| 45° | 516 | 601 | 396 | 585 | 487 | 426 |
| 55° | 58 | 58 | 53 | 56 | 56 | 57 |
| 65° | 20 | 20 | 18 | 20 | 20 | 21 |
| 75° | 7 | 7 | 7 | 7 | 7 | 8 |
| 85° | 2 | 4 | 4 | 4 | 4 | 2 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

TEST NUMBER: P#
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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 7909.6 | 7909.6 | 7909.6 | 7909.6 | 7909.6 |
| 2.5° | 7911.4 | 7898.7 | 7895.1 | 7891.4 | 7898.7 |
| 5° | 7887.8 | 7869.6 | 7851.5 | 7846.0 | 7851.5 |
| 7.5° | 7820.6 | 7802.4 | 7771.5 | 7764.2 | 7769.7 |
| 10° | 7695.2 | 7678.8 | 7649.8 | 7633.4 | 7626.1 |
| 12.5° | 7529.8 | 7502.6 | 7475.3 | 7457.2 | 7439.0 |
| 15° | 7302.7 | 7290.0 | 7268.2 | 7239.1 | 7219.1 |
| 17.5° | 6988.4 | 7006.5 | 7019.3 | 6961.1 | 6908.4 |
| 20° | 6579.5 | 6646.8 | 6723.1 | 6605.0 | 6506.8 |
| 22.5° | 5941.7 | 6134.4 | 6328.8 | 6105.3 | 5887.2 |
| 25° | 5102.3 | 5400.3 | 5832.7 | 5409.4 | 5035.0 |
| 27.5° | 4122.9 | 4500.8 | 5182.2 | 4502.6 | 4068.4 |
| 30° | 3218.0 | 3606.8 | 4370.0 | 3556.0 | 3141.7 |
| 32.5° | 2471.2 | 2761.9 | 3414.2 | 2718.3 | 2418.5 |
| 35° | 1902.4 | 2075.1 | 2482.1 | 2080.5 | 1867.9 |
| 37.5° | 1479.1 | 1566.3 | 1669.9 | 1535.4 | 1435.5 |
| 40° | 1161.1 | 1164.7 | 1075.7 | 1146.6 | 1115.7 |
| 42.5° | 861.3 | 857.6 | 661.4 | 835.8 | 841.3 |
| 45° | 516.0 | 601.4 | 396.1 | 585.1 | 487.0 |
| 47.5° | 245.3 | 339.8 | 238.0 | 321.6 | 227.1 |
| 50° | 118.1 | 163.5 | 143.5 | 152.6 | 110.8 |
| 52.5° | 80.0 | 83.6 | 81.8 | 80.0 | 76.3 |
| 55° | 58.1 | 58.1 | 52.7 | 56.3 | 56.3 |
| 57.5° | 43.6 | 43.6 | 38.2 | 41.8 | 41.8 |
| 60° | 34.5 | 32.7 | 29.1 | 32.7 | 32.7 |
| 62.5° | 25.4 | 25.4 | 21.8 | 25.4 | 25.4 |
| 65° | 20.0 | 20.0 | 18.2 | 20.0 | 20.0 |
| 67.5° | 16.4 | 16.4 | 12.7 | 16.4 | 14.5 |
| 70° | 12.7 | 12.7 | 10.9 | 12.7 | 12.7 |
| 72.5° | 9.1 | 9.1 | 9.1 | 9.1 | 9.1 |
| 75° | 7.3 | 7.3 | 7.3 | 7.3 | 7.3 |
| 77.5° | 5.5 | 5.5 | 5.5 | 5.5 | 5.5 |
| 80° | 3.6 | 3.6 | 5.5 | 5.5 | 5.5 |
| 82.5° | 3.6 | 3.6 | 3.6 | 3.6 | 3.6 |
| 85° | 1.8 | 3.6 | 3.6 | 3.6 | 3.6 |
| 87.5° | 1.8 | 1.8 | 3.6 | 3.6 | 3.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)