

Scaled data based on original data using  
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: P183409

Luminaire Tested: **FSR-12-4-LD4-2LO-80-84**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P183409  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P26851)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FSR-12-4-LD4-2LO-80-84  
Description:  
Light Source: 2UT217042A8404A  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

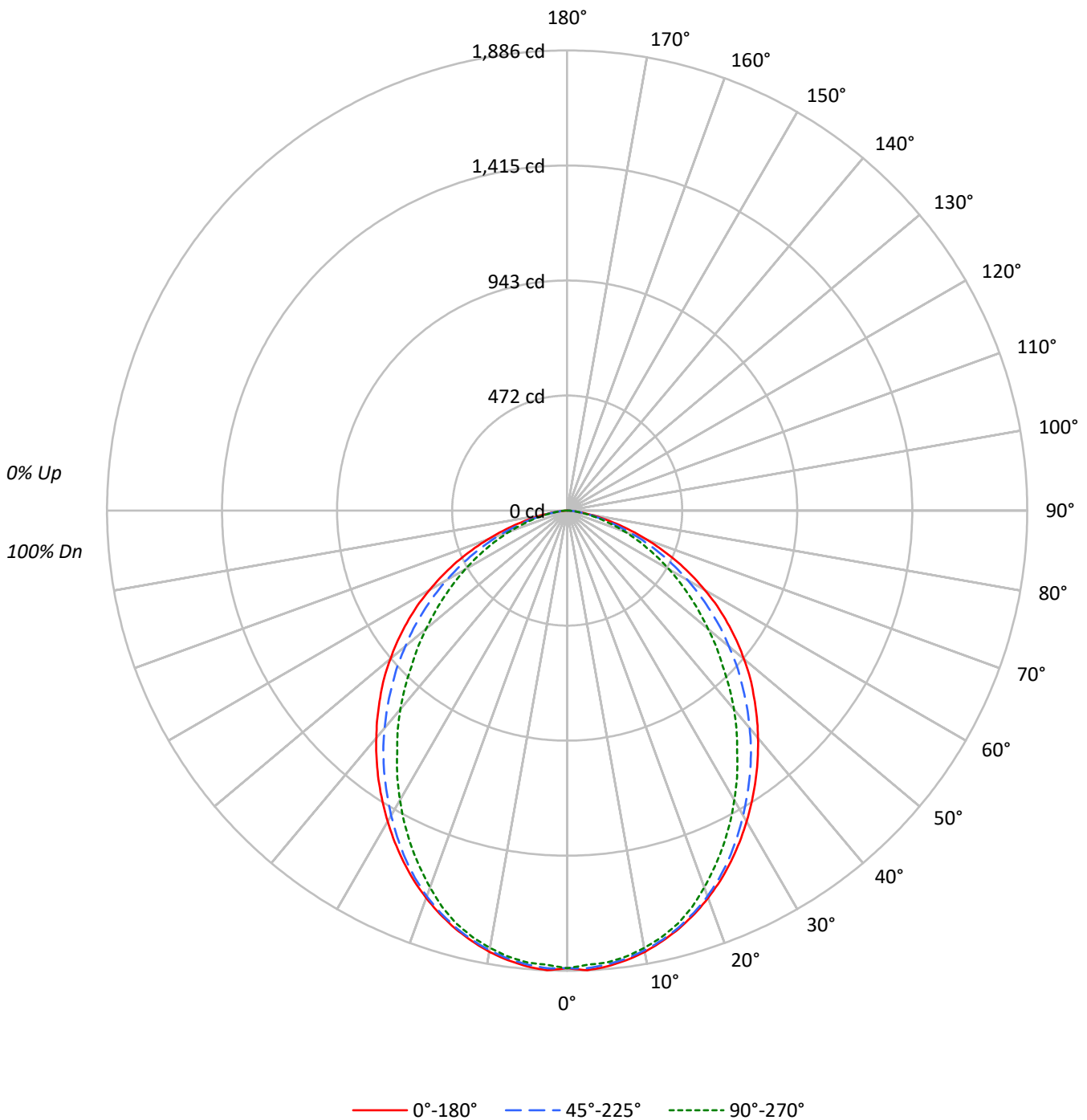
Lumens per Lamp: N/A  
Luminaire Lumens: 4252.6 lumens  
Efficiency: N/A  
Efficacy: 86.1 lumens/watt  
Spacing Criteria (0/90/45): 1.17 / 1.11 / 1.25  
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 49.4  
Input Voltage (V): NR  
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

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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 | 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   | 110 | 106 | 102 | 98  | 107 | 103 | 100 | 97  | 99  | 96  | 94  | 95  | 93  | 91  | 92  | 90  | 88  |     |    |    |    | 86 |     |   |  |   |
| 2   | 101 | 93  | 87  | 82  | 98  | 91  | 86  | 81  | 88  | 83  | 79  | 85  | 81  | 77  | 82  | 78  | 75  |     |    |    |    | 73 |     |   |  |   |
| 3   | 92  | 83  | 75  | 69  | 90  | 81  | 74  | 68  | 78  | 72  | 67  | 76  | 70  | 66  | 73  | 69  | 65  |     |    |    |    | 63 |     |   |  |   |
| 4   | 85  | 74  | 66  | 59  | 83  | 73  | 65  | 59  | 70  | 63  | 58  | 68  | 62  | 57  | 66  | 61  | 57  |     |    |    |    | 55 |     |   |  |   |
| 5   | 79  | 66  | 58  | 52  | 77  | 65  | 57  | 51  | 63  | 56  | 51  | 61  | 55  | 50  | 60  | 54  | 50  |     |    |    |    | 48 |     |   |  |   |
| 6   | 73  | 60  | 52  | 46  | 71  | 59  | 51  | 45  | 57  | 50  | 45  | 56  | 49  | 45  | 54  | 49  | 44  |     |    |    |    | 42 |     |   |  |   |
| 7   | 68  | 55  | 46  | 41  | 66  | 54  | 46  | 40  | 52  | 45  | 40  | 51  | 45  | 40  | 50  | 44  | 40  |     |    |    |    | 38 |     |   |  |   |
| 8   | 63  | 50  | 42  | 36  | 62  | 49  | 42  | 36  | 48  | 41  | 36  | 47  | 41  | 36  | 46  | 40  | 36  |     |    |    |    | 34 |     |   |  |   |
| 9   | 59  | 46  | 38  | 33  | 58  | 46  | 38  | 33  | 44  | 38  | 33  | 43  | 37  | 33  | 42  | 37  | 32  |     |    |    |    | 31 |     |   |  |   |
| 10  | 56  | 43  | 35  | 30  | 54  | 42  | 35  | 30  | 41  | 35  | 30  | 40  | 34  | 30  | 39  | 34  | 30  |     |    |    |    | 28 |     |   |  |   |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 5047 | 5047 | 5047 |
| 5°  | 5066 | 5046 | 5022 |
| 10° | 5019 | 5000 | 4974 |
| 15° | 4940 | 4926 | 4882 |
| 20° | 4839 | 4818 | 4707 |
| 25° | 4714 | 4668 | 4497 |
| 30° | 4572 | 4484 | 4259 |
| 35° | 4427 | 4295 | 3991 |
| 40° | 4275 | 4086 | 3736 |
| 45° | 4123 | 3862 | 3434 |
| 50° | 3959 | 3621 | 3159 |
| 55° | 3761 | 3366 | 2879 |
| 60° | 3504 | 3066 | 2601 |
| 65° | 3181 | 2721 | 2294 |
| 70° | 2734 | 2294 | 1960 |
| 75° | 2171 | 1799 | 1590 |
| 80° | 1491 | 1271 | 1167 |
| 85° | 784  | 827  | 852  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 176.7  | 4.2       |
| 10°-20°   | 495.7  | 11.7      |
| 20°-30°   | 716.4  | 16.8      |
| 30°-40°   | 808.2  | 19.0      |
| 40°-50°   | 774.3  | 18.2      |
| 50°-60°   | 635.0  | 14.9      |
| 60°-70°   | 421.8  | 9.9       |
| 70°-80°   | 188.9  | 4.4       |
| 80°-90°   | 35.5   | 0.8       |
| 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°    | 1388.8 | 32.7      |
| 0°-40°    | 2197.0 | 51.7      |
| 0°-60°    | 3606.3 | 84.8      |
| 0°-90°    | 4252.6 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4252.6 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1876 | 1876  | 1876 | 1876  | 1876 |      |
| 5°  | 1876 | 1857  | 1868 | 1863  | 1859 | 178  |
| 15° | 1773 | 1758  | 1768 | 1759  | 1752 | 499  |
| 25° | 1588 | 1577  | 1572 | 1530  | 1515 | 731  |
| 35° | 1348 | 1336  | 1307 | 1245  | 1215 | 843  |
| 45° | 1084 | 1066  | 1015 | 940   | 902  | 836  |
| 55° | 802  | 771   | 717  | 643   | 614  | 716  |
| 65° | 500  | 466   | 427  | 378   | 360  | 494  |
| 75° | 209  | 188   | 173  | 156   | 153  | 225  |
| 85° | 25   | 25    | 27   | 28    | 28   | 37   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1875.5 | 1875.5 | 1875.5 | 1875.5 | 1875.5 |
| 2.5°  | 1885.9 | 1866.6 | 1877.7 | 1872.5 | 1863.6 |
| 5°    | 1875.5 | 1856.9 | 1868.0 | 1862.8 | 1859.1 |
| 7.5°  | 1859.1 | 1841.2 | 1852.4 | 1847.2 | 1844.2 |
| 10°   | 1836.7 | 1818.8 | 1830.0 | 1823.3 | 1820.3 |
| 12.5° | 1806.9 | 1790.5 | 1802.4 | 1794.2 | 1790.5 |
| 15°   | 1773.3 | 1757.7 | 1768.1 | 1759.2 | 1752.5 |
| 17.5° | 1733.8 | 1720.4 | 1727.8 | 1713.7 | 1703.2 |
| 20°   | 1689.8 | 1677.9 | 1682.4 | 1656.3 | 1643.6 |
| 22.5° | 1641.3 | 1629.4 | 1629.4 | 1593.6 | 1580.2 |
| 25°   | 1587.7 | 1577.2 | 1572.0 | 1530.2 | 1514.6 |
| 27.5° | 1531.0 | 1521.3 | 1508.6 | 1464.6 | 1444.5 |
| 30°   | 1471.3 | 1461.6 | 1443.0 | 1393.8 | 1370.6 |
| 32.5° | 1410.2 | 1400.5 | 1375.1 | 1320.7 | 1296.1 |
| 35°   | 1347.5 | 1336.3 | 1307.3 | 1244.6 | 1214.8 |
| 37.5° | 1283.4 | 1271.5 | 1237.9 | 1170.0 | 1141.7 |
| 40°   | 1217.0 | 1204.3 | 1163.3 | 1093.2 | 1063.4 |
| 42.5° | 1151.4 | 1135.7 | 1090.3 | 1017.2 | 984.4  |
| 45°   | 1083.5 | 1065.6 | 1014.9 | 940.4  | 902.3  |
| 47.5° | 1017.9 | 994.1  | 943.3  | 863.6  | 830.0  |
| 50°   | 945.6  | 920.2  | 865.0  | 787.5  | 754.7  |
| 52.5° | 875.5  | 846.4  | 794.2  | 714.4  | 683.1  |
| 55°   | 801.7  | 771.1  | 717.4  | 642.8  | 613.7  |
| 57.5° | 730.1  | 695.0  | 644.3  | 574.2  | 547.4  |
| 60°   | 651.0  | 619.0  | 569.7  | 507.1  | 483.2  |
| 62.5° | 575.7  | 542.9  | 498.1  | 440.7  | 420.6  |
| 65°   | 499.6  | 466.1  | 427.3  | 378.1  | 360.2  |
| 67.5° | 422.8  | 391.5  | 358.7  | 316.9  | 303.5  |
| 70°   | 347.5  | 319.2  | 291.6  | 259.5  | 249.1  |
| 72.5° | 275.9  | 250.6  | 229.7  | 205.8  | 199.1  |
| 75°   | 208.8  | 187.9  | 173.0  | 155.9  | 152.9  |
| 77.5° | 147.7  | 132.0  | 124.5  | 113.4  | 110.4  |
| 80°   | 96.2   | 86.5   | 82.0   | 76.1   | 75.3   |
| 82.5° | 55.2   | 50.7   | 49.2   | 47.0   | 47.0   |
| 85°   | 25.4   | 25.4   | 26.8   | 27.6   | 27.6   |
| 87.5° | 8.2    | 11.2   | 14.2   | 15.7   | 16.4   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)