

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: P589066

Luminaire Tested: **FMR-24-2-LD4-2HI-50-UNV-82-94-EDD**

Issue Date: 12/8/2021



**Test Information**

Test Method: LM-79-08  
Report Number: P589066  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-1)  
Test Lab: INNOVATION CENTER  
Issue Date: 12/8/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FMR-24-2-LD4-2HI-50-UNV-82-94-EDD  
Description: 2X2 FMR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .187 CLEAR  
TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

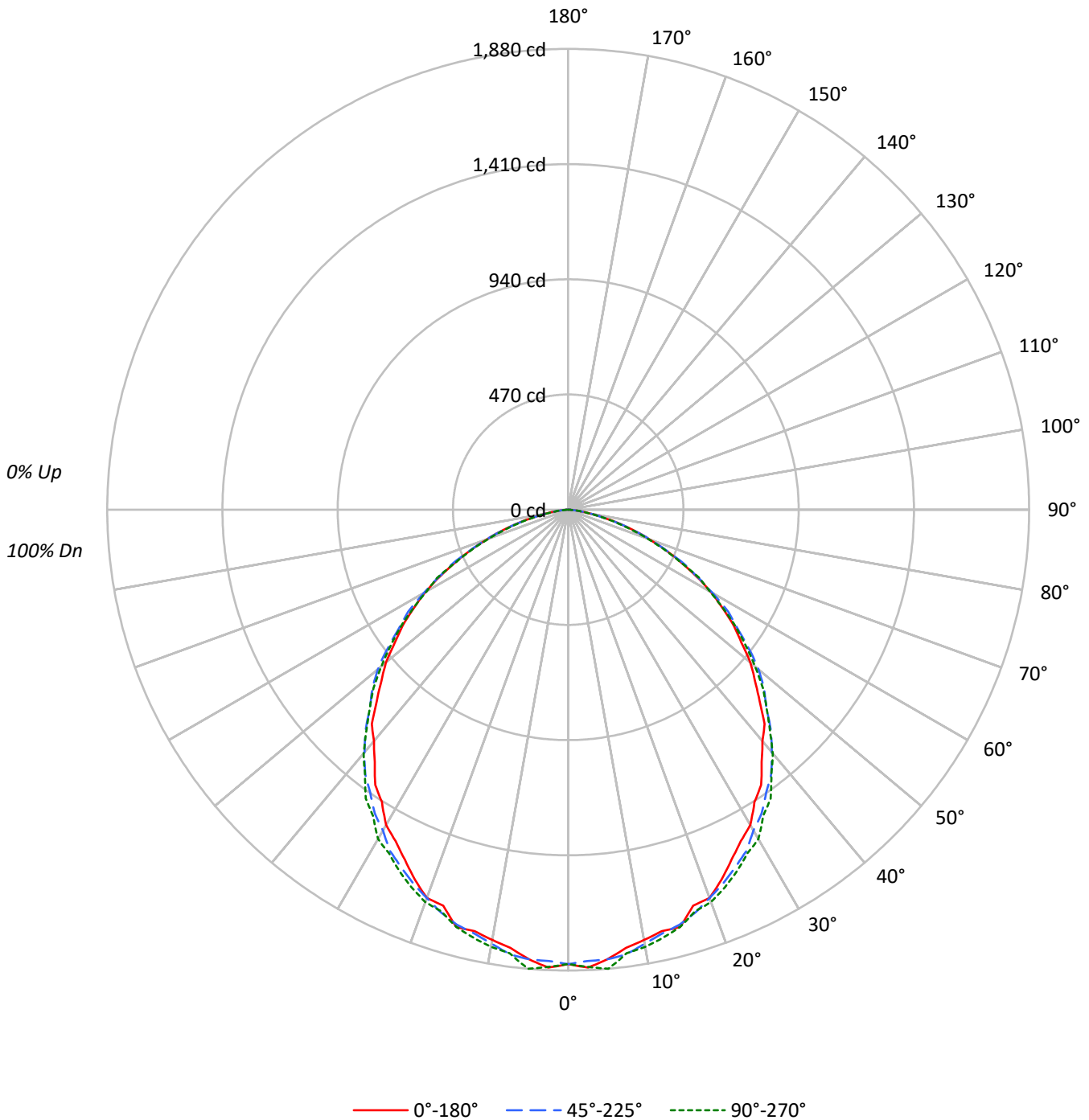
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4672.0 lumens  
Efficiency: N/A  
Efficacy: 108.1 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 43.2  
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

TEST NUMBER: P589066

CATALOG NUMBER: FMR-24-2-LD4-2HI-50-UNV-82-94-EDD

### Luminous Intensity Polar Plot





TEST NUMBER: P589066

CATALOG NUMBER: FMR-24-2-LD4-2HI-50-UNV-82-94-EDD

**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   | 110 | 105 | 101 | 98  | 107 | 103 | 100 | 96  | 99  | 96  | 93  | 95  | 93  | 90  | 91  | 90  | 88  | 86  |
| 2   | 100 | 93  | 86  | 81  | 98  | 91  | 85  | 80  | 87  | 82  | 78  | 84  | 80  | 76  | 81  | 78  | 75  | 73  |
| 3   | 92  | 82  | 74  | 68  | 89  | 80  | 73  | 67  | 77  | 71  | 66  | 75  | 69  | 65  | 72  | 68  | 64  | 62  |
| 4   | 84  | 73  | 64  | 58  | 82  | 71  | 64  | 58  | 69  | 62  | 57  | 67  | 61  | 56  | 65  | 59  | 55  | 53  |
| 5   | 78  | 65  | 57  | 50  | 76  | 64  | 56  | 50  | 62  | 55  | 49  | 60  | 54  | 49  | 58  | 53  | 48  | 46  |
| 6   | 72  | 59  | 50  | 44  | 70  | 58  | 50  | 44  | 56  | 49  | 43  | 54  | 48  | 43  | 53  | 47  | 43  | 41  |
| 7   | 67  | 53  | 45  | 39  | 65  | 53  | 45  | 39  | 51  | 44  | 39  | 50  | 43  | 38  | 48  | 42  | 38  | 36  |
| 8   | 62  | 49  | 41  | 35  | 61  | 48  | 40  | 35  | 47  | 40  | 34  | 46  | 39  | 34  | 44  | 39  | 34  | 32  |
| 9   | 58  | 45  | 37  | 31  | 57  | 44  | 37  | 31  | 43  | 36  | 31  | 42  | 36  | 31  | 41  | 35  | 31  | 29  |
| 10  | 54  | 41  | 34  | 29  | 53  | 41  | 33  | 28  | 40  | 33  | 28  | 39  | 33  | 28  | 38  | 32  | 28  | 26  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 4988 | 4988 | 4988 |
| 5°  | 4972 | 4974 | 5079 |
| 10° | 4871 | 4914 | 4948 |
| 15° | 4910 | 4883 | 4910 |
| 20° | 4827 | 4827 | 4878 |
| 25° | 4678 | 4781 | 4833 |
| 30° | 4614 | 4695 | 4820 |
| 35° | 4505 | 4623 | 4727 |
| 40° | 4330 | 4539 | 4559 |
| 45° | 4199 | 4348 | 4355 |
| 50° | 4061 | 4245 | 4163 |
| 55° | 3870 | 3945 | 3917 |
| 60° | 3618 | 3654 | 3589 |
| 65° | 3226 | 3309 | 3203 |
| 70° | 2768 | 2777 | 2700 |
| 75° | 2193 | 2188 | 2102 |
| 80° | 1469 | 1427 | 1373 |
| 85° | 797  | 790  | 738  |



TEST NUMBER: P589066

CATALOG NUMBER: FMR-24-2-LD4-2HI-50-UNV-82-94-EDD

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 174.4  | 3.7       |
| 10°-20°   | 494.2  | 10.6      |
| 20°-30°   | 740.4  | 15.8      |
| 30°-40°   | 877.5  | 18.8      |
| 40°-50°   | 879.2  | 18.8      |
| 50°-60°   | 746.2  | 16.0      |
| 60°-70°   | 503.1  | 10.8      |
| 70°-80°   | 221.1  | 4.7       |
| 80°-90°   | 35.9   | 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°    | 1409.0 | 30.2      |
| 0°-40°    | 2286.5 | 48.9      |
| 0°-60°    | 3911.9 | 83.7      |
| 0°-90°    | 4672.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4672.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1854 | 1854  | 1854 | 1854  | 1854 |      |
| 5°  | 1841 | 1836  | 1841 | 1836  | 1880 | 174  |
| 15° | 1762 | 1742  | 1753 | 1762  | 1762 | 491  |
| 25° | 1576 | 1584  | 1610 | 1631  | 1628 | 728  |
| 35° | 1372 | 1376  | 1407 | 1440  | 1439 | 852  |
| 45° | 1103 | 1124  | 1143 | 1172  | 1144 | 854  |
| 55° | 825  | 819   | 841  | 835   | 835  | 734  |
| 65° | 507  | 500   | 520  | 500   | 503  | 504  |
| 75° | 211  | 207   | 210  | 196   | 202  | 226  |
| 85° | 26   | 25    | 26   | 25    | 24   | 37   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



TEST NUMBER: P589066

CATALOG NUMBER: FMR-24-2-LD4-2HI-50-UNV-82-94-EDD

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1853.7 | 1853.7 | 1853.7 | 1853.7 | 1853.7 |
| 2.5°  | 1869.8 | 1855.6 | 1842.5 | 1857.8 | 1867.1 |
| 5°    | 1840.6 | 1836.3 | 1841.3 | 1835.8 | 1880.1 |
| 7.5°  | 1802.8 | 1819.3 | 1828.8 | 1822.9 | 1825.5 |
| 10°   | 1782.6 | 1776.9 | 1798.2 | 1813.0 | 1810.9 |
| 12.5° | 1761.1 | 1769.7 | 1770.9 | 1787.0 | 1788.4 |
| 15°   | 1762.3 | 1742.0 | 1752.7 | 1761.8 | 1762.5 |
| 17.5° | 1693.8 | 1715.9 | 1723.3 | 1744.1 | 1718.3 |
| 20°   | 1685.5 | 1669.4 | 1685.5 | 1706.8 | 1703.4 |
| 22.5° | 1634.0 | 1616.1 | 1650.5 | 1669.4 | 1668.2 |
| 25°   | 1575.6 | 1584.2 | 1610.1 | 1631.1 | 1627.8 |
| 27.5° | 1524.4 | 1534.4 | 1571.3 | 1600.3 | 1581.6 |
| 30°   | 1484.9 | 1479.9 | 1511.0 | 1536.8 | 1551.2 |
| 32.5° | 1414.3 | 1432.5 | 1468.9 | 1494.5 | 1480.8 |
| 35°   | 1371.5 | 1375.5 | 1407.4 | 1439.9 | 1438.9 |
| 37.5° | 1296.5 | 1315.4 | 1360.2 | 1369.3 | 1360.9 |
| 40°   | 1232.6 | 1251.5 | 1292.0 | 1301.8 | 1297.7 |
| 42.5° | 1185.5 | 1188.8 | 1223.5 | 1234.8 | 1216.8 |
| 45°   | 1103.4 | 1124.0 | 1142.6 | 1172.1 | 1144.3 |
| 47.5° | 1033.5 | 1043.1 | 1083.3 | 1091.2 | 1076.6 |
| 50°   | 970.1  | 973.4  | 1013.9 | 1004.1 | 994.5  |
| 52.5° | 890.4  | 904.5  | 927.2  | 925.3  | 914.1  |
| 55°   | 824.8  | 819.3  | 840.8  | 835.1  | 834.8  |
| 57.5° | 746.0  | 755.6  | 773.3  | 764.2  | 749.6  |
| 60°   | 672.3  | 672.6  | 679.0  | 668.7  | 666.8  |
| 62.5° | 590.2  | 593.1  | 594.5  | 581.8  | 602.4  |
| 65°   | 506.7  | 500.0  | 519.6  | 499.8  | 503.1  |
| 67.5° | 429.9  | 433.2  | 431.3  | 418.9  | 423.6  |
| 70°   | 351.8  | 356.1  | 353.0  | 338.9  | 343.2  |
| 72.5° | 280.5  | 275.2  | 278.6  | 260.9  | 269.0  |
| 75°   | 210.9  | 206.6  | 210.4  | 195.5  | 202.2  |
| 77.5° | 143.6  | 147.0  | 144.6  | 136.7  | 141.2  |
| 80°   | 94.8   | 92.1   | 92.1   | 87.6   | 88.6   |
| 82.5° | 55.3   | 52.7   | 51.9   | 50.5   | 52.7   |
| 85°   | 25.8   | 25.1   | 25.6   | 24.9   | 23.9   |
| 87.5° | 9.3    | 9.6    | 9.6    | 9.1    | 8.6    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)