

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: P589744

Luminaire Tested: **FMR-24-2-LD4-4LO-50-UNV-93-87-EDD**

Issue Date: 12/8/2021



**Test Information**

Test Method: LM-79-08  
Report Number: P589744  
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-LD4-4LO-50-UNV-93-87-EDD  
Description: 2X2 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

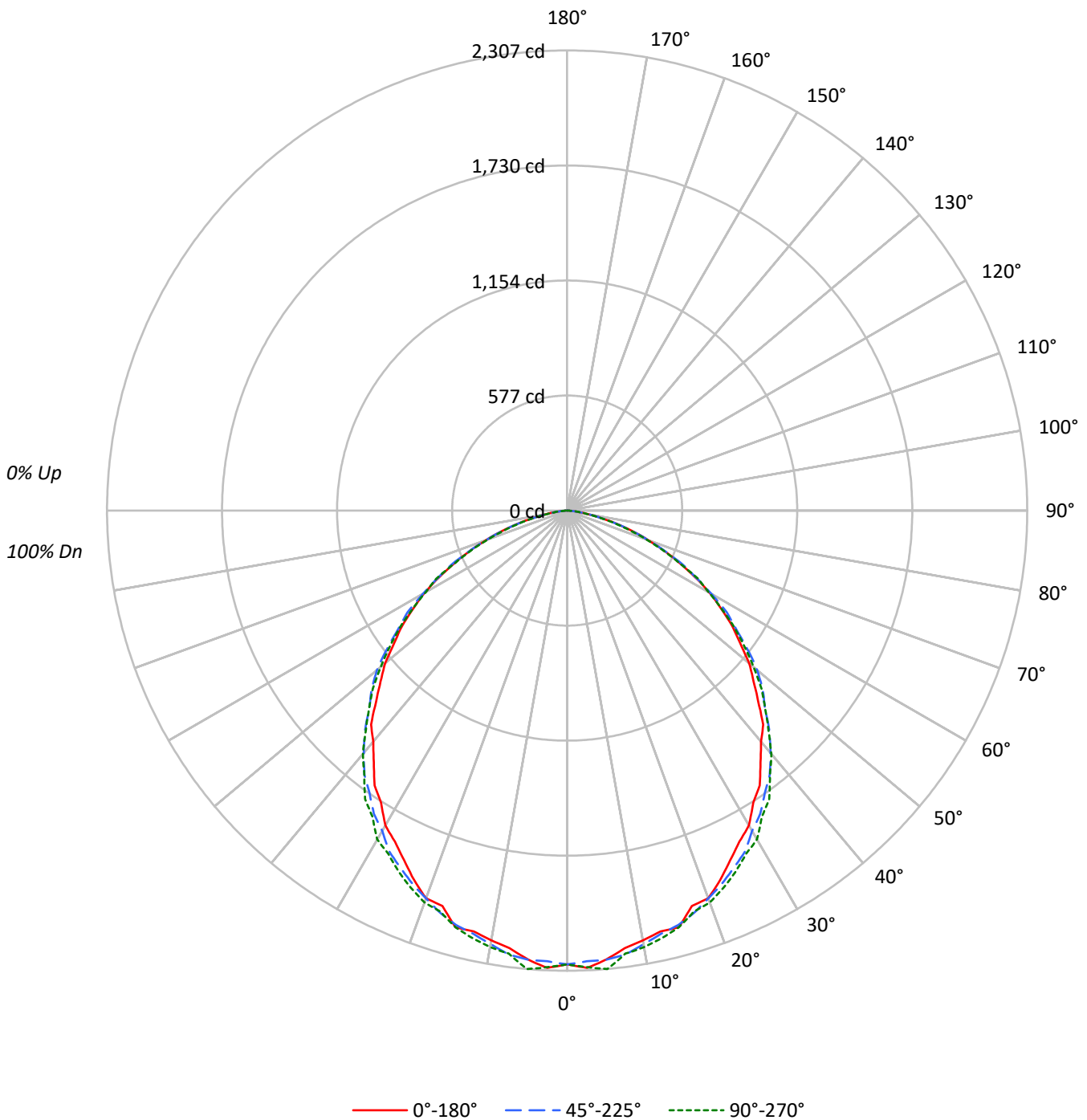
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5734.0 lumens  
Efficiency: N/A  
Efficacy: 122.5 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): 46.8  
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: P589744

CATALOG NUMBER: FMR-24-2-LD4-4LO-50-UNV-93-87-EDD

### Luminous Intensity Polar Plot





TEST NUMBER: P589744

CATALOG NUMBER: FMR-24-2-LD4-4LO-50-UNV-93-87-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°  | 6122 | 6122 | 6122 |
| 5°  | 6102 | 6104 | 6233 |
| 10° | 5978 | 6031 | 6073 |
| 15° | 6026 | 5993 | 6026 |
| 20° | 5924 | 5924 | 5987 |
| 25° | 5742 | 5867 | 5932 |
| 30° | 5663 | 5762 | 5916 |
| 35° | 5529 | 5674 | 5801 |
| 40° | 5314 | 5570 | 5595 |
| 45° | 5154 | 5337 | 5345 |
| 50° | 4984 | 5209 | 5110 |
| 55° | 4749 | 4841 | 4807 |
| 60° | 4441 | 4485 | 4405 |
| 65° | 3960 | 4060 | 3932 |
| 70° | 3397 | 3409 | 3314 |
| 75° | 2691 | 2685 | 2581 |
| 80° | 1802 | 1753 | 1684 |
| 85° | 979  | 969  | 908  |



TEST NUMBER: P589744

CATALOG NUMBER: FMR-24-2-LD4-4LO-50-UNV-93-87-EDD

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 214.0  | 3.7       |
| 10°-20°   | 606.5  | 10.6      |
| 20°-30°   | 908.7  | 15.8      |
| 30°-40°   | 1077.0 | 18.8      |
| 40°-50°   | 1079.0 | 18.8      |
| 50°-60°   | 915.9  | 16.0      |
| 60°-70°   | 617.5  | 10.8      |
| 70°-80°   | 271.3  | 4.7       |
| 80°-90°   | 44.1   | 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°    | 1729.2 | 30.2      |
| 0°-40°    | 2806.2 | 48.9      |
| 0°-60°    | 4801.1 | 83.7      |
| 0°-90°    | 5734.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5734.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2275 | 2275  | 2275 | 2275  | 2275 |      |
| 5°  | 2259 | 2254  | 2260 | 2253  | 2307 | 213  |
| 15° | 2163 | 2138  | 2151 | 2162  | 2163 | 603  |
| 25° | 1934 | 1944  | 1976 | 2002  | 1998 | 894  |
| 35° | 1683 | 1688  | 1727 | 1767  | 1766 | 1045 |
| 45° | 1354 | 1380  | 1402 | 1438  | 1404 | 1048 |
| 55° | 1012 | 1006  | 1032 | 1025  | 1025 | 900  |
| 65° | 622  | 614   | 638  | 613   | 618  | 618  |
| 75° | 259  | 254   | 258  | 240   | 248  | 277  |
| 85° | 32   | 31    | 31   | 31    | 29   | 46   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



TEST NUMBER: P589744

CATALOG NUMBER: FMR-24-2-LD4-4LO-50-UNV-93-87-EDD

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2275.1 | 2275.1 | 2275.1 | 2275.1 | 2275.1 |
| 2.5°  | 2294.8 | 2277.5 | 2261.3 | 2280.1 | 2291.6 |
| 5°    | 2259.0 | 2253.7 | 2259.8 | 2253.1 | 2307.4 |
| 7.5°  | 2212.5 | 2232.8 | 2244.6 | 2237.2 | 2240.4 |
| 10°   | 2187.9 | 2180.8 | 2207.0 | 2225.2 | 2222.5 |
| 12.5° | 2161.4 | 2172.0 | 2173.5 | 2193.1 | 2194.9 |
| 15°   | 2162.9 | 2137.9 | 2151.1 | 2162.3 | 2163.2 |
| 17.5° | 2078.9 | 2105.9 | 2115.0 | 2140.6 | 2108.8 |
| 20°   | 2068.6 | 2048.9 | 2068.6 | 2094.7 | 2090.6 |
| 22.5° | 2005.4 | 1983.4 | 2025.7 | 2048.9 | 2047.4 |
| 25°   | 1933.8 | 1944.3 | 1976.1 | 2001.9 | 1997.8 |
| 27.5° | 1870.9 | 1883.2 | 1928.5 | 1964.0 | 1941.1 |
| 30°   | 1822.4 | 1816.3 | 1854.5 | 1886.2 | 1903.8 |
| 32.5° | 1735.8 | 1758.1 | 1802.8 | 1834.2 | 1817.4 |
| 35°   | 1683.2 | 1688.2 | 1727.3 | 1767.2 | 1766.0 |
| 37.5° | 1591.3 | 1614.5 | 1669.4 | 1680.6 | 1670.3 |
| 40°   | 1512.8 | 1536.0 | 1585.7 | 1597.7 | 1592.7 |
| 42.5° | 1455.0 | 1459.1 | 1501.7 | 1515.5 | 1493.4 |
| 45°   | 1354.2 | 1379.5 | 1402.4 | 1438.5 | 1404.4 |
| 47.5° | 1268.4 | 1280.2 | 1329.5 | 1339.2 | 1321.3 |
| 50°   | 1190.6 | 1194.7 | 1244.3 | 1232.3 | 1220.5 |
| 52.5° | 1092.8 | 1110.1 | 1138.0 | 1135.6 | 1121.8 |
| 55°   | 1012.3 | 1005.5 | 1031.9 | 1024.9 | 1024.6 |
| 57.5° | 915.6  | 927.4  | 949.1  | 937.9  | 920.0  |
| 60°   | 825.1  | 825.4  | 833.4  | 820.7  | 818.4  |
| 62.5° | 724.4  | 727.9  | 729.7  | 714.1  | 739.4  |
| 65°   | 621.9  | 613.6  | 637.7  | 613.4  | 617.5  |
| 67.5° | 527.6  | 531.7  | 529.3  | 514.1  | 519.9  |
| 70°   | 431.8  | 437.1  | 433.3  | 416.0  | 421.2  |
| 72.5° | 344.3  | 337.8  | 341.9  | 320.2  | 330.2  |
| 75°   | 258.8  | 253.5  | 258.2  | 240.0  | 248.2  |
| 77.5° | 176.3  | 180.4  | 177.4  | 167.7  | 173.3  |
| 80°   | 116.3  | 113.1  | 113.1  | 107.5  | 108.7  |
| 82.5° | 67.9   | 64.6   | 63.7   | 62.0   | 64.6   |
| 85°   | 31.7   | 30.8   | 31.4   | 30.6   | 29.4   |
| 87.5° | 11.5   | 11.8   | 11.8   | 11.2   | 10.6   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)