

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: P589735

Luminaire Tested: **FMR-24-2-LD4-4LO-50-UNV-82-86-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589735
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-82-86-EDD
Description: 2X2 FMR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

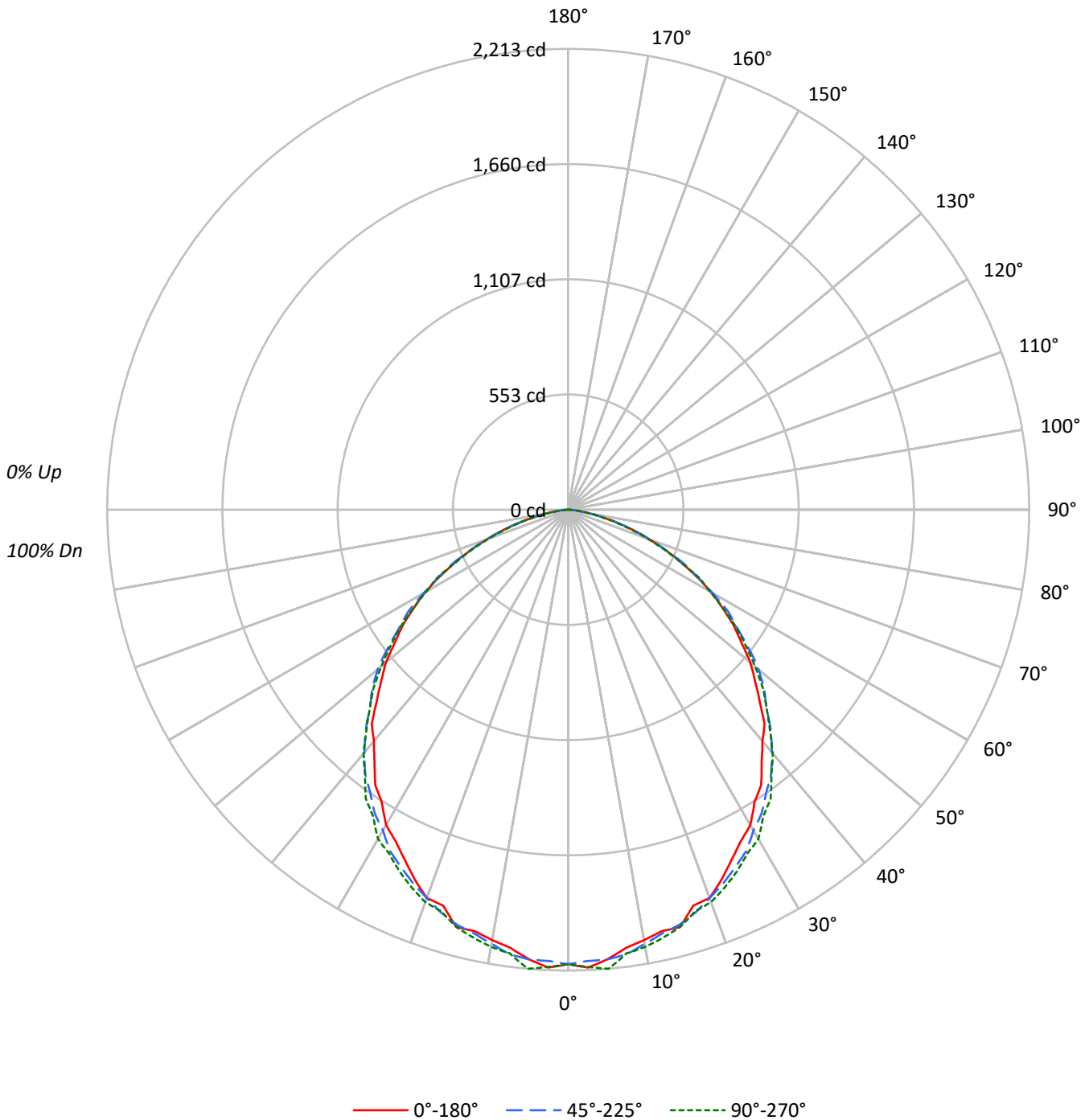
Lumens per Lamp: N/A
Luminaire Lumens: 5500.0 lumens
Efficiency: N/A
Efficacy: 117.5 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

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

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Luminous Intensity Polar Plot





TEST NUMBER: P589735

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

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 5873 | 5873 | 5873 |
| 5° | 5853 | 5855 | 5979 |
| 10° | 5734 | 5784 | 5825 |
| 15° | 5780 | 5748 | 5780 |
| 20° | 5682 | 5682 | 5743 |
| 25° | 5508 | 5628 | 5690 |
| 30° | 5432 | 5527 | 5674 |
| 35° | 5304 | 5443 | 5565 |
| 40° | 5097 | 5343 | 5367 |
| 45° | 4943 | 5119 | 5127 |
| 50° | 4781 | 4997 | 4901 |
| 55° | 4556 | 4644 | 4611 |
| 60° | 4260 | 4302 | 4225 |
| 65° | 3798 | 3895 | 3771 |
| 70° | 3259 | 3270 | 3179 |
| 75° | 2581 | 2575 | 2476 |
| 80° | 1729 | 1681 | 1616 |
| 85° | 939 | 929 | 871 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 205.3 | 3.7 |
| 10°-20° | 581.8 | 10.6 |
| 20°-30° | 871.6 | 15.8 |
| 30°-40° | 1033.0 | 18.8 |
| 40°-50° | 1035.0 | 18.8 |
| 50°-60° | 878.5 | 16.0 |
| 60°-70° | 592.3 | 10.8 |
| 70°-80° | 260.3 | 4.7 |
| 80°-90° | 42.3 | 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° | 1658.7 | 30.2 |
| 0°-40° | 2691.7 | 48.9 |
| 0°-60° | 4605.2 | 83.7 |
| 0°-90° | 5500.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5500.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2182 | 2182 | 2182 | 2182 | 2182 | |
| 5° | 2167 | 2162 | 2168 | 2161 | 2213 | 204 |
| 15° | 2075 | 2051 | 2063 | 2074 | 2075 | 578 |
| 25° | 1855 | 1865 | 1895 | 1920 | 1916 | 858 |
| 35° | 1614 | 1619 | 1657 | 1695 | 1694 | 1002 |
| 45° | 1299 | 1323 | 1345 | 1380 | 1347 | 1005 |
| 55° | 971 | 964 | 990 | 983 | 983 | 864 |
| 65° | 596 | 589 | 612 | 588 | 592 | 593 |
| 75° | 248 | 243 | 248 | 230 | 238 | 266 |
| 85° | 30 | 30 | 30 | 29 | 28 | 44 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589735

CATALOG NUMBER: FMR-24-2-LD4-4LO-50-UNV-82-86-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2182.3 | 2182.3 | 2182.3 | 2182.3 | 2182.3 |
| 2.5° | 2201.1 | 2184.5 | 2169.0 | 2187.1 | 2198.0 |
| 5° | 2166.8 | 2161.7 | 2167.6 | 2161.1 | 2213.3 |
| 7.5° | 2122.2 | 2141.7 | 2153.0 | 2145.9 | 2149.0 |
| 10° | 2098.6 | 2091.8 | 2116.9 | 2134.4 | 2131.8 |
| 12.5° | 2073.2 | 2083.4 | 2084.8 | 2103.6 | 2105.3 |
| 15° | 2074.6 | 2050.7 | 2063.4 | 2074.1 | 2074.9 |
| 17.5° | 1994.0 | 2020.0 | 2028.7 | 2053.2 | 2022.8 |
| 20° | 1984.2 | 1965.3 | 1984.2 | 2009.3 | 2005.3 |
| 22.5° | 1923.6 | 1902.5 | 1943.0 | 1965.3 | 1963.9 |
| 25° | 1854.9 | 1865.0 | 1895.4 | 1920.2 | 1916.3 |
| 27.5° | 1794.6 | 1806.4 | 1849.8 | 1883.9 | 1861.9 |
| 30° | 1748.1 | 1742.1 | 1778.8 | 1809.2 | 1826.1 |
| 32.5° | 1664.9 | 1686.4 | 1729.2 | 1759.3 | 1743.3 |
| 35° | 1614.5 | 1619.3 | 1656.8 | 1695.1 | 1694.0 |
| 37.5° | 1526.3 | 1548.6 | 1601.3 | 1612.0 | 1602.1 |
| 40° | 1451.1 | 1473.3 | 1521.0 | 1532.5 | 1527.7 |
| 42.5° | 1395.6 | 1399.5 | 1440.4 | 1453.6 | 1432.5 |
| 45° | 1298.9 | 1323.2 | 1345.1 | 1379.8 | 1347.1 |
| 47.5° | 1216.7 | 1227.9 | 1275.3 | 1284.6 | 1267.4 |
| 50° | 1142.0 | 1145.9 | 1193.6 | 1182.0 | 1170.7 |
| 52.5° | 1048.2 | 1064.8 | 1091.6 | 1089.3 | 1076.1 |
| 55° | 971.0 | 964.5 | 989.8 | 983.1 | 982.8 |
| 57.5° | 878.3 | 889.5 | 910.4 | 899.7 | 882.5 |
| 60° | 791.5 | 791.8 | 799.4 | 787.2 | 785.0 |
| 62.5° | 694.8 | 698.2 | 699.9 | 685.0 | 709.2 |
| 65° | 596.5 | 588.6 | 611.7 | 588.3 | 592.3 |
| 67.5° | 506.0 | 510.0 | 507.7 | 493.1 | 498.7 |
| 70° | 414.2 | 419.3 | 415.6 | 399.0 | 404.0 |
| 72.5° | 330.2 | 324.0 | 328.0 | 307.1 | 316.7 |
| 75° | 248.2 | 243.2 | 247.7 | 230.2 | 238.1 |
| 77.5° | 169.1 | 173.0 | 170.2 | 160.9 | 166.2 |
| 80° | 111.6 | 108.5 | 108.5 | 103.1 | 104.3 |
| 82.5° | 65.1 | 62.0 | 61.1 | 59.5 | 62.0 |
| 85° | 30.4 | 29.6 | 30.1 | 29.3 | 28.2 |
| 87.5° | 11.0 | 11.3 | 11.3 | 10.7 | 10.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)