

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: P589399

Luminaire Tested: **FMR-24-2-LD4-3LO-40-UNV-80-86-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589399
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-LD4-3LO-40-UNV-80-86-EDD
Description: 2X2 FMR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

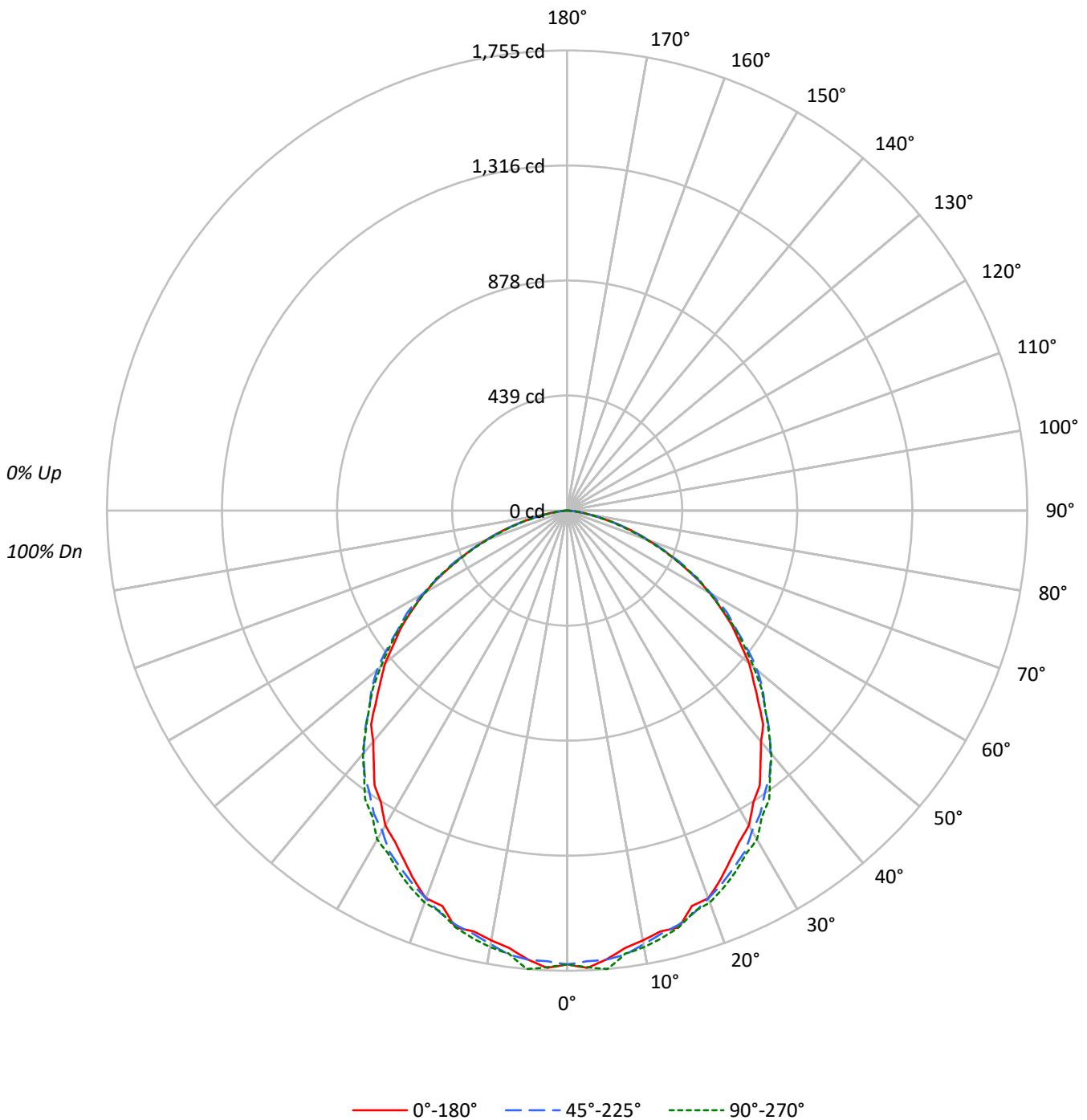
Lumens per Lamp: N/A
Luminaire Lumens: 4362.0 lumens
Efficiency: N/A
Efficacy: 124.3 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 35.1
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 | 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° | 4657 | 4657 | 4657 |
| 5° | 4642 | 4644 | 4742 |
| 10° | 4548 | 4588 | 4620 |
| 15° | 4584 | 4559 | 4584 |
| 20° | 4506 | 4506 | 4554 |
| 25° | 4368 | 4463 | 4513 |
| 30° | 4308 | 4383 | 4500 |
| 35° | 4207 | 4317 | 4414 |
| 40° | 4043 | 4238 | 4256 |
| 45° | 3921 | 4060 | 4066 |
| 50° | 3792 | 3963 | 3887 |
| 55° | 3613 | 3683 | 3657 |
| 60° | 3378 | 3412 | 3351 |
| 65° | 3012 | 3089 | 2991 |
| 70° | 2585 | 2593 | 2521 |
| 75° | 2047 | 2042 | 1963 |
| 80° | 1371 | 1333 | 1282 |
| 85° | 744 | 738 | 689 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 162.8 | 3.7 |
| 10°-20° | 461.4 | 10.6 |
| 20°-30° | 691.3 | 15.8 |
| 30°-40° | 819.3 | 18.8 |
| 40°-50° | 820.8 | 18.8 |
| 50°-60° | 696.7 | 16.0 |
| 60°-70° | 469.7 | 10.8 |
| 70°-80° | 206.4 | 4.7 |
| 80°-90° | 33.5 | 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° | 1315.5 | 30.2 |
| 0°-40° | 2134.8 | 48.9 |
| 0°-60° | 3652.3 | 83.7 |
| 0°-90° | 4362.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4362.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1731 | 1731 | 1731 | 1731 | 1731 | |
| 5° | 1718 | 1714 | 1719 | 1714 | 1755 | 162 |
| 15° | 1645 | 1626 | 1636 | 1645 | 1646 | 458 |
| 25° | 1471 | 1479 | 1503 | 1523 | 1520 | 680 |
| 35° | 1280 | 1284 | 1314 | 1344 | 1344 | 795 |
| 45° | 1030 | 1049 | 1067 | 1094 | 1068 | 797 |
| 55° | 770 | 765 | 785 | 780 | 779 | 685 |
| 65° | 473 | 467 | 485 | 467 | 470 | 470 |
| 75° | 197 | 193 | 196 | 183 | 189 | 211 |
| 85° | 24 | 24 | 24 | 23 | 22 | 35 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589399

CATALOG NUMBER: FMR-24-2-LD4-3LO-40-UNV-80-86-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1730.7 | 1730.7 | 1730.7 | 1730.7 | 1730.7 |
| 2.5° | 1745.7 | 1732.5 | 1720.2 | 1734.5 | 1743.2 |
| 5° | 1718.4 | 1714.4 | 1719.1 | 1714.0 | 1755.3 |
| 7.5° | 1683.1 | 1698.6 | 1707.5 | 1701.9 | 1704.4 |
| 10° | 1664.4 | 1659.0 | 1678.9 | 1692.7 | 1690.7 |
| 12.5° | 1644.3 | 1652.3 | 1653.4 | 1668.4 | 1669.7 |
| 15° | 1645.4 | 1626.4 | 1636.4 | 1644.9 | 1645.6 |
| 17.5° | 1581.5 | 1602.0 | 1608.9 | 1628.4 | 1604.3 |
| 20° | 1573.6 | 1558.7 | 1573.6 | 1593.5 | 1590.4 |
| 22.5° | 1525.6 | 1508.8 | 1541.0 | 1558.7 | 1557.5 |
| 25° | 1471.1 | 1479.1 | 1503.2 | 1522.9 | 1519.8 |
| 27.5° | 1423.2 | 1432.6 | 1467.0 | 1494.1 | 1476.7 |
| 30° | 1386.4 | 1381.7 | 1410.7 | 1434.9 | 1448.3 |
| 32.5° | 1320.5 | 1337.4 | 1371.4 | 1395.3 | 1382.6 |
| 35° | 1280.5 | 1284.2 | 1314.0 | 1344.4 | 1343.5 |
| 37.5° | 1210.5 | 1228.2 | 1269.9 | 1278.4 | 1270.6 |
| 40° | 1150.8 | 1168.5 | 1206.3 | 1215.4 | 1211.6 |
| 42.5° | 1106.8 | 1109.9 | 1142.3 | 1152.9 | 1136.1 |
| 45° | 1030.2 | 1049.4 | 1066.8 | 1094.3 | 1068.4 |
| 47.5° | 964.9 | 973.9 | 1011.4 | 1018.8 | 1005.1 |
| 50° | 905.7 | 908.8 | 946.6 | 937.4 | 928.5 |
| 52.5° | 831.3 | 844.5 | 865.7 | 863.9 | 853.4 |
| 55° | 770.1 | 764.9 | 785.0 | 779.7 | 779.4 |
| 57.5° | 696.5 | 705.5 | 722.0 | 713.5 | 699.9 |
| 60° | 627.7 | 627.9 | 634.0 | 624.4 | 622.6 |
| 62.5° | 551.1 | 553.7 | 555.1 | 543.2 | 562.5 |
| 65° | 473.1 | 466.8 | 485.1 | 466.6 | 469.7 |
| 67.5° | 401.3 | 404.5 | 402.7 | 391.1 | 395.5 |
| 70° | 328.5 | 332.5 | 329.6 | 316.4 | 320.4 |
| 72.5° | 261.9 | 257.0 | 260.1 | 243.6 | 251.2 |
| 75° | 196.9 | 192.8 | 196.4 | 182.6 | 188.8 |
| 77.5° | 134.1 | 137.2 | 135.0 | 127.6 | 131.8 |
| 80° | 88.5 | 86.0 | 86.0 | 81.8 | 82.7 |
| 82.5° | 51.6 | 49.2 | 48.5 | 47.2 | 49.2 |
| 85° | 24.1 | 23.5 | 23.9 | 23.2 | 22.3 |
| 87.5° | 8.7 | 8.9 | 8.9 | 8.5 | 8.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)