

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: P589442

Luminaire Tested: **FMR-24-2-LD4-3LO-50-UNV-81-94-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589442
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-50-UNV-81-94-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .187 CLEAR
TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

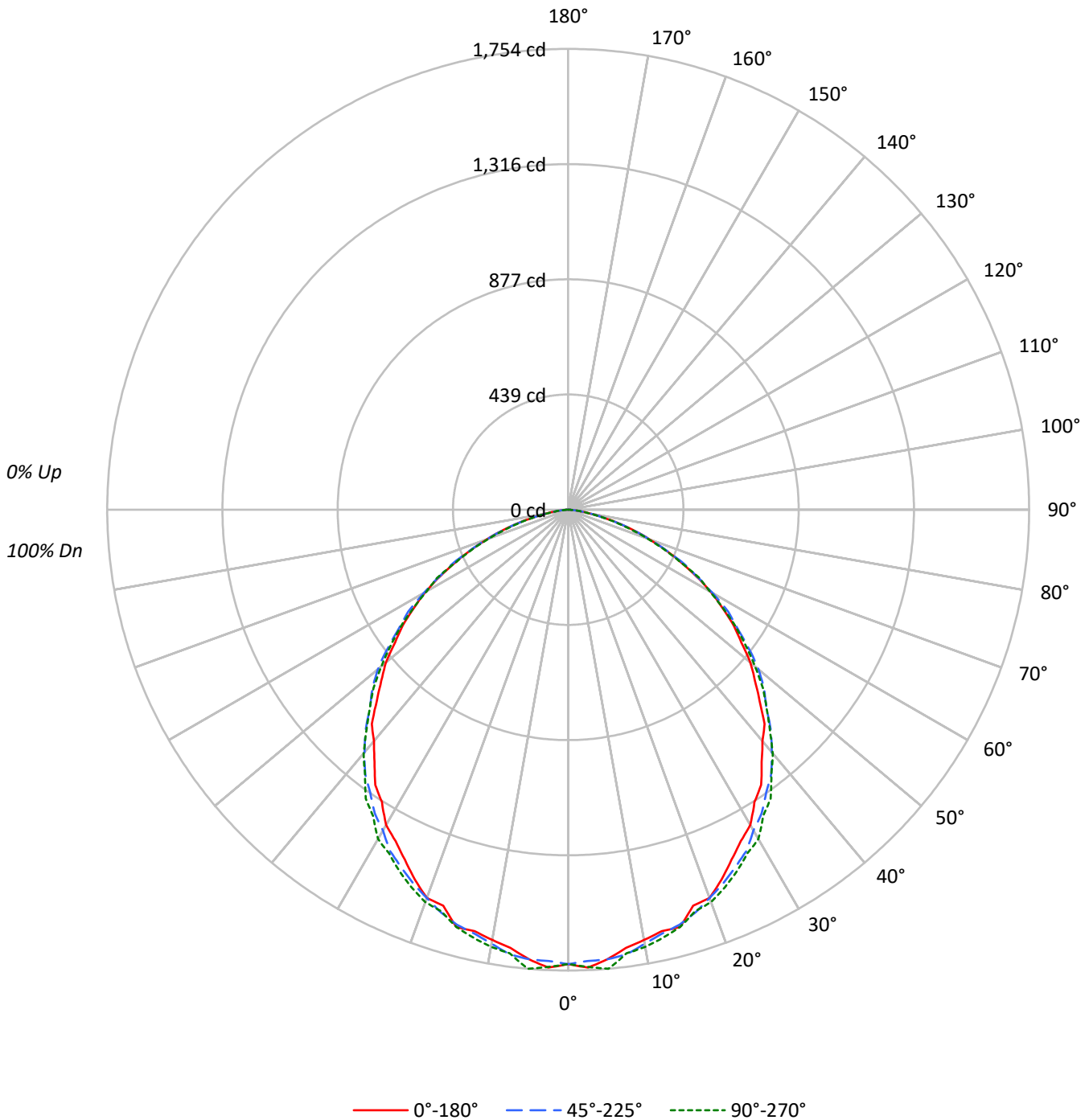
Lumens per Lamp: N/A
Luminaire Lumens: 4359.0 lumens
Efficiency: N/A
Efficacy: 124.2 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

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° | 4654 | 4654 | 4654 |
| 5° | 4639 | 4640 | 4738 |
| 10° | 4545 | 4584 | 4617 |
| 15° | 4581 | 4556 | 4581 |
| 20° | 4503 | 4503 | 4551 |
| 25° | 4365 | 4460 | 4509 |
| 30° | 4305 | 4381 | 4497 |
| 35° | 4204 | 4314 | 4410 |
| 40° | 4040 | 4234 | 4253 |
| 45° | 3918 | 4057 | 4063 |
| 50° | 3789 | 3960 | 3885 |
| 55° | 3610 | 3681 | 3654 |
| 60° | 3376 | 3409 | 3348 |
| 65° | 3010 | 3087 | 2989 |
| 70° | 2583 | 2592 | 2519 |
| 75° | 2045 | 2041 | 1962 |
| 80° | 1370 | 1333 | 1280 |
| 85° | 744 | 738 | 689 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 162.7 | 3.7 |
| 10°-20° | 461.1 | 10.6 |
| 20°-30° | 690.8 | 15.8 |
| 30°-40° | 818.7 | 18.8 |
| 40°-50° | 820.3 | 18.8 |
| 50°-60° | 696.2 | 16.0 |
| 60°-70° | 469.4 | 10.8 |
| 70°-80° | 206.3 | 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° | 1314.6 | 30.2 |
| 0°-40° | 2133.3 | 48.9 |
| 0°-60° | 3649.8 | 83.7 |
| 0°-90° | 4359.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4359.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1730 | 1730 | 1730 | 1730 | 1730 | |
| 5° | 1717 | 1713 | 1718 | 1713 | 1754 | 162 |
| 15° | 1644 | 1625 | 1635 | 1644 | 1644 | 458 |
| 25° | 1470 | 1478 | 1502 | 1522 | 1519 | 680 |
| 35° | 1280 | 1283 | 1313 | 1343 | 1342 | 794 |
| 45° | 1030 | 1049 | 1066 | 1094 | 1068 | 796 |
| 55° | 770 | 764 | 784 | 779 | 779 | 685 |
| 65° | 473 | 466 | 485 | 466 | 469 | 470 |
| 75° | 197 | 193 | 196 | 182 | 189 | 211 |
| 85° | 24 | 23 | 24 | 23 | 22 | 35 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589442

CATALOG NUMBER: FMR-24-2-LD4-3LO-50-UNV-81-94-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1729.5 | 1729.5 | 1729.5 | 1729.5 | 1729.5 |
| 2.5° | 1744.5 | 1731.3 | 1719.0 | 1733.3 | 1742.0 |
| 5° | 1717.3 | 1713.2 | 1717.9 | 1712.8 | 1754.1 |
| 7.5° | 1682.0 | 1697.4 | 1706.3 | 1700.7 | 1703.2 |
| 10° | 1663.2 | 1657.9 | 1677.7 | 1691.6 | 1689.6 |
| 12.5° | 1643.1 | 1651.2 | 1652.3 | 1667.2 | 1668.6 |
| 15° | 1644.2 | 1625.3 | 1635.3 | 1643.8 | 1644.5 |
| 17.5° | 1580.4 | 1600.9 | 1607.8 | 1627.3 | 1603.1 |
| 20° | 1572.6 | 1557.6 | 1572.6 | 1592.4 | 1589.3 |
| 22.5° | 1524.5 | 1507.8 | 1540.0 | 1557.6 | 1556.5 |
| 25° | 1470.1 | 1478.1 | 1502.2 | 1521.9 | 1518.7 |
| 27.5° | 1422.3 | 1431.6 | 1466.0 | 1493.1 | 1475.6 |
| 30° | 1385.4 | 1380.7 | 1409.8 | 1433.9 | 1447.3 |
| 32.5° | 1319.5 | 1336.5 | 1370.5 | 1394.4 | 1381.6 |
| 35° | 1279.6 | 1283.4 | 1313.1 | 1343.4 | 1342.5 |
| 37.5° | 1209.7 | 1227.3 | 1269.1 | 1277.6 | 1269.7 |
| 40° | 1150.0 | 1167.7 | 1205.4 | 1214.6 | 1210.8 |
| 42.5° | 1106.1 | 1109.2 | 1141.6 | 1152.1 | 1135.3 |
| 45° | 1029.5 | 1048.7 | 1066.1 | 1093.6 | 1067.6 |
| 47.5° | 964.3 | 973.2 | 1010.7 | 1018.1 | 1004.5 |
| 50° | 905.1 | 908.2 | 945.9 | 936.8 | 927.9 |
| 52.5° | 830.7 | 843.9 | 865.1 | 863.3 | 852.8 |
| 55° | 769.5 | 764.4 | 784.5 | 779.1 | 778.9 |
| 57.5° | 696.1 | 705.0 | 721.5 | 713.0 | 699.4 |
| 60° | 627.3 | 627.5 | 633.5 | 623.9 | 622.1 |
| 62.5° | 550.7 | 553.4 | 554.7 | 542.9 | 562.1 |
| 65° | 472.7 | 466.5 | 484.8 | 466.3 | 469.4 |
| 67.5° | 401.1 | 404.2 | 402.4 | 390.8 | 395.3 |
| 70° | 328.3 | 332.3 | 329.4 | 316.2 | 320.2 |
| 72.5° | 261.7 | 256.8 | 259.9 | 243.4 | 251.0 |
| 75° | 196.7 | 192.7 | 196.3 | 182.4 | 188.7 |
| 77.5° | 134.0 | 137.1 | 134.9 | 127.5 | 131.8 |
| 80° | 88.4 | 86.0 | 86.0 | 81.7 | 82.6 |
| 82.5° | 51.6 | 49.1 | 48.5 | 47.1 | 49.1 |
| 85° | 24.1 | 23.4 | 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)