

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: P589436

Luminaire Tested: **FMR-24-2-LD4-3LO-50-UNV-80-97-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589436
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-80-97-EDD
Description: 2X2 FMR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375
CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT
LEDS
Light Source: -
Ballast/Driver: -

Summary

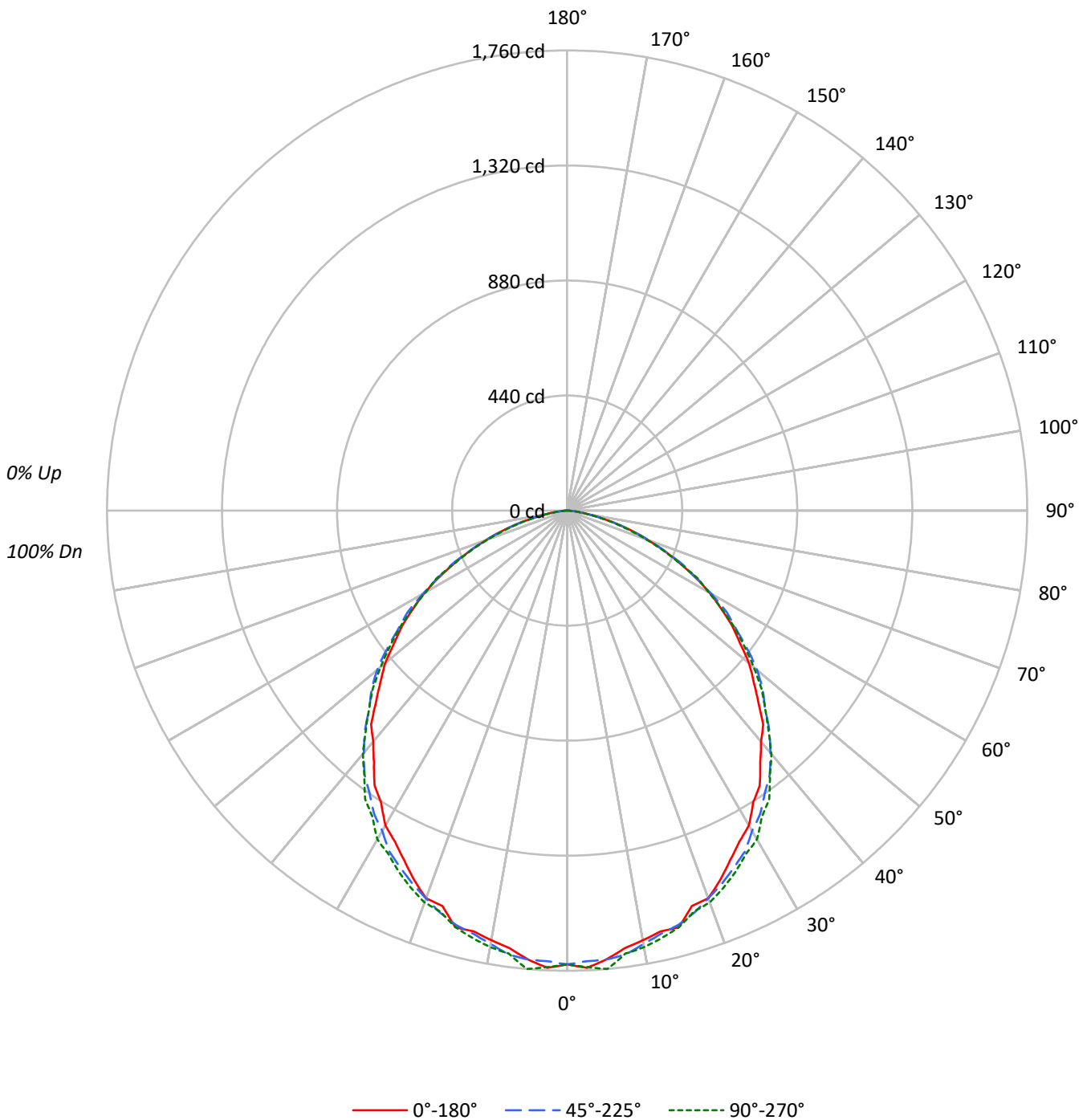
Lumens per Lamp: N/A
Luminaire Lumens: 4374.0 lumens
Efficiency: N/A
Efficacy: 124.6 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 35.1
Input Voltage (V): NR
Input Current (A_{in}): 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° | 4670 | 4670 | 4670 |
| 5° | 4655 | 4656 | 4754 |
| 10° | 4560 | 4600 | 4633 |
| 15° | 4596 | 4571 | 4597 |
| 20° | 4519 | 4519 | 4567 |
| 25° | 4380 | 4476 | 4525 |
| 30° | 4320 | 4396 | 4513 |
| 35° | 4218 | 4328 | 4426 |
| 40° | 4054 | 4249 | 4268 |
| 45° | 3931 | 4071 | 4077 |
| 50° | 3802 | 3974 | 3898 |
| 55° | 3623 | 3693 | 3667 |
| 60° | 3387 | 3421 | 3360 |
| 65° | 3021 | 3098 | 2999 |
| 70° | 2592 | 2600 | 2528 |
| 75° | 2052 | 2048 | 1968 |
| 80° | 1375 | 1337 | 1285 |
| 85° | 747 | 741 | 692 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 163.2 | 3.7 |
| 10°-20° | 462.7 | 10.6 |
| 20°-30° | 693.2 | 15.8 |
| 30°-40° | 821.6 | 18.8 |
| 40°-50° | 823.1 | 18.8 |
| 50°-60° | 698.7 | 16.0 |
| 60°-70° | 471.0 | 10.8 |
| 70°-80° | 207.0 | 4.7 |
| 80°-90° | 33.6 | 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° | 1319.1 | 30.2 |
| 0°-40° | 2140.7 | 48.9 |
| 0°-60° | 3662.4 | 83.7 |
| 0°-90° | 4374.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4374.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1736 | 1736 | 1736 | 1736 | 1736 | |
| 5° | 1723 | 1719 | 1724 | 1719 | 1760 | 162 |
| 15° | 1650 | 1631 | 1641 | 1649 | 1650 | 460 |
| 25° | 1475 | 1483 | 1507 | 1527 | 1524 | 682 |
| 35° | 1284 | 1288 | 1318 | 1348 | 1347 | 797 |
| 45° | 1033 | 1052 | 1070 | 1097 | 1071 | 799 |
| 55° | 772 | 767 | 787 | 782 | 782 | 687 |
| 65° | 474 | 468 | 486 | 468 | 471 | 472 |
| 75° | 197 | 193 | 197 | 183 | 189 | 212 |
| 85° | 24 | 24 | 24 | 23 | 22 | 35 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589436

CATALOG NUMBER: FMR-24-2-LD4-3LO-50-UNV-80-97-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1735.5 | 1735.5 | 1735.5 | 1735.5 | 1735.5 |
| 2.5° | 1750.5 | 1737.3 | 1725.0 | 1739.3 | 1748.0 |
| 5° | 1723.2 | 1719.1 | 1723.8 | 1718.7 | 1760.1 |
| 7.5° | 1687.8 | 1703.2 | 1712.2 | 1706.6 | 1709.1 |
| 10° | 1668.9 | 1663.6 | 1683.5 | 1697.4 | 1695.4 |
| 12.5° | 1648.8 | 1656.8 | 1658.0 | 1673.0 | 1674.3 |
| 15° | 1649.9 | 1630.8 | 1640.9 | 1649.4 | 1650.1 |
| 17.5° | 1585.8 | 1606.4 | 1613.4 | 1632.9 | 1608.7 |
| 20° | 1578.0 | 1563.0 | 1578.0 | 1597.9 | 1594.8 |
| 22.5° | 1529.8 | 1513.0 | 1545.2 | 1563.0 | 1561.8 |
| 25° | 1475.1 | 1483.2 | 1507.4 | 1527.1 | 1524.0 |
| 27.5° | 1427.2 | 1436.6 | 1471.1 | 1498.2 | 1480.7 |
| 30° | 1390.2 | 1385.5 | 1414.6 | 1438.8 | 1452.3 |
| 32.5° | 1324.1 | 1341.1 | 1375.2 | 1399.1 | 1386.4 |
| 35° | 1284.0 | 1287.8 | 1317.6 | 1348.1 | 1347.2 |
| 37.5° | 1213.8 | 1231.5 | 1273.4 | 1282.0 | 1274.1 |
| 40° | 1154.0 | 1171.7 | 1209.6 | 1218.8 | 1215.0 |
| 42.5° | 1109.9 | 1113.0 | 1145.5 | 1156.0 | 1139.2 |
| 45° | 1033.0 | 1052.3 | 1069.8 | 1097.3 | 1071.3 |
| 47.5° | 967.6 | 976.5 | 1014.2 | 1021.6 | 1007.9 |
| 50° | 908.2 | 911.3 | 949.2 | 940.0 | 931.0 |
| 52.5° | 833.6 | 846.8 | 868.1 | 866.3 | 855.8 |
| 55° | 772.2 | 767.0 | 787.2 | 781.8 | 781.6 |
| 57.5° | 698.5 | 707.4 | 724.0 | 715.5 | 701.8 |
| 60° | 629.4 | 629.7 | 635.7 | 626.1 | 624.3 |
| 62.5° | 552.6 | 555.3 | 556.6 | 544.7 | 564.0 |
| 65° | 474.4 | 468.1 | 486.5 | 467.9 | 471.0 |
| 67.5° | 402.4 | 405.6 | 403.8 | 392.1 | 396.6 |
| 70° | 329.4 | 333.4 | 330.5 | 317.3 | 321.3 |
| 72.5° | 262.6 | 257.7 | 260.8 | 244.2 | 251.9 |
| 75° | 197.4 | 193.4 | 197.0 | 183.1 | 189.3 |
| 77.5° | 134.4 | 137.6 | 135.3 | 127.9 | 132.2 |
| 80° | 88.7 | 86.3 | 86.3 | 82.0 | 82.9 |
| 82.5° | 51.8 | 49.3 | 48.6 | 47.3 | 49.3 |
| 85° | 24.2 | 23.5 | 24.0 | 23.3 | 22.4 |
| 87.5° | 8.7 | 9.0 | 9.0 | 8.5 | 8.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)