

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: P589445

Luminaire Tested: **FMR-24-2-LD4-3LO-50-UNV-82-84-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589445
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-82-84-EDD
Description: 2X2 FMR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

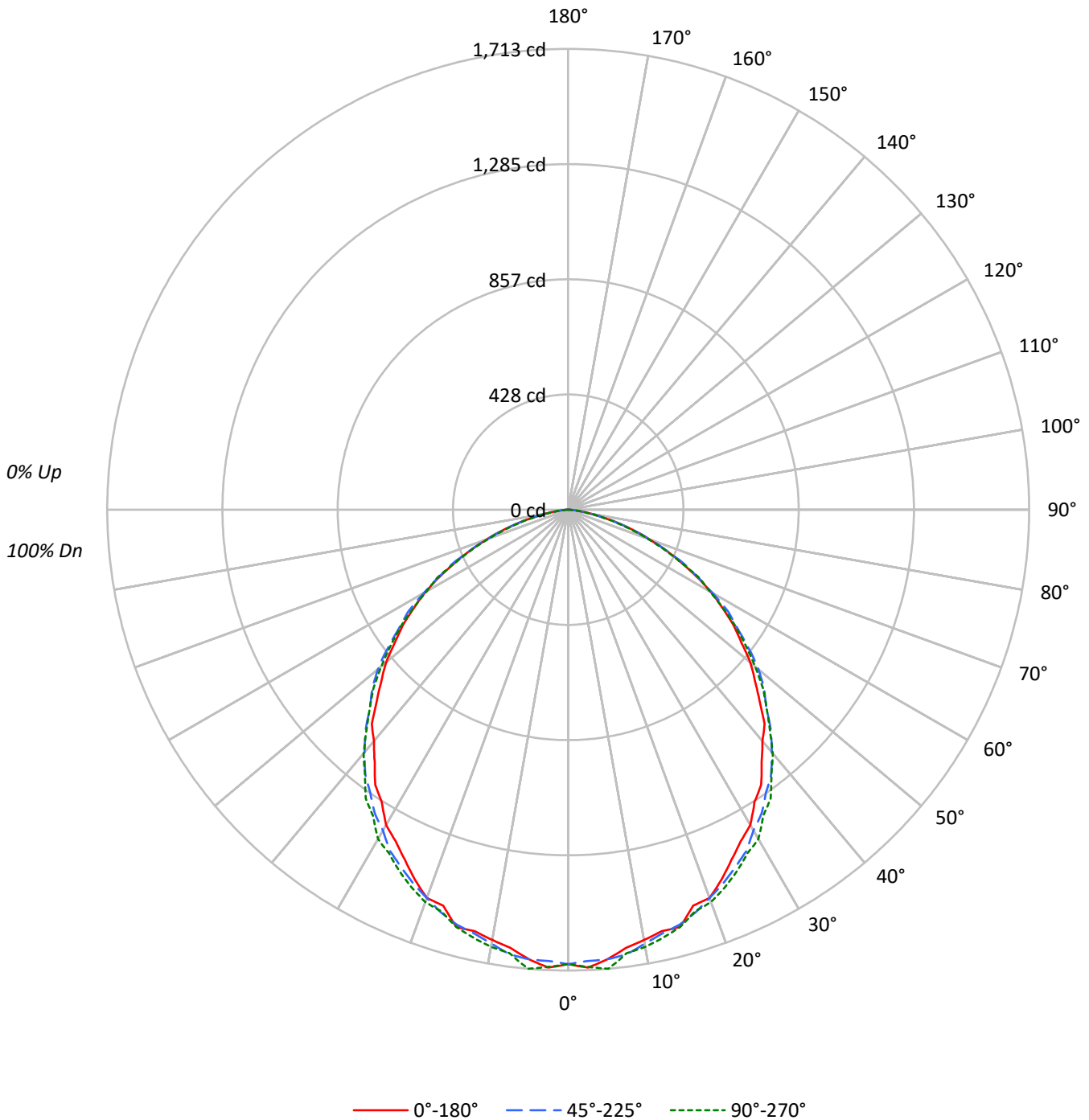
Lumens per Lamp: N/A
Luminaire Lumens: 4257.0 lumens
Efficiency: N/A
Efficacy: 121.3 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

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° | 4545 | 4545 | 4545 |
| 5° | 4530 | 4532 | 4628 |
| 10° | 4438 | 4477 | 4509 |
| 15° | 4474 | 4449 | 4474 |
| 20° | 4398 | 4398 | 4445 |
| 25° | 4263 | 4356 | 4404 |
| 30° | 4204 | 4278 | 4392 |
| 35° | 4105 | 4212 | 4307 |
| 40° | 3945 | 4135 | 4154 |
| 45° | 3826 | 3962 | 3968 |
| 50° | 3700 | 3867 | 3793 |
| 55° | 3526 | 3594 | 3569 |
| 60° | 3297 | 3330 | 3270 |
| 65° | 2940 | 3015 | 2919 |
| 70° | 2522 | 2531 | 2460 |
| 75° | 1997 | 1993 | 1916 |
| 80° | 1339 | 1302 | 1251 |
| 85° | 729 | 719 | 673 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 158.9 | 3.7 |
| 10°-20° | 450.3 | 10.6 |
| 20°-30° | 674.6 | 15.8 |
| 30°-40° | 799.6 | 18.8 |
| 40°-50° | 801.1 | 18.8 |
| 50°-60° | 680.0 | 16.0 |
| 60°-70° | 458.4 | 10.8 |
| 70°-80° | 201.4 | 4.7 |
| 80°-90° | 32.7 | 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° | 1283.8 | 30.2 |
| 0°-40° | 2083.4 | 48.9 |
| 0°-60° | 3564.4 | 83.7 |
| 0°-90° | 4257.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4257.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1689 | 1689 | 1689 | 1689 | 1689 | |
| 5° | 1677 | 1673 | 1678 | 1673 | 1713 | 158 |
| 15° | 1606 | 1587 | 1597 | 1605 | 1606 | 447 |
| 25° | 1436 | 1444 | 1467 | 1486 | 1483 | 664 |
| 35° | 1250 | 1253 | 1282 | 1312 | 1311 | 776 |
| 45° | 1005 | 1024 | 1041 | 1068 | 1043 | 778 |
| 55° | 752 | 746 | 766 | 761 | 761 | 669 |
| 65° | 462 | 456 | 474 | 455 | 458 | 459 |
| 75° | 192 | 188 | 192 | 178 | 184 | 206 |
| 85° | 24 | 23 | 23 | 23 | 22 | 34 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589445

CATALOG NUMBER: FMR-24-2-LD4-3LO-50-UNV-82-84-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1689.1 | 1689.1 | 1689.1 | 1689.1 | 1689.1 |
| 2.5° | 1703.7 | 1690.8 | 1678.8 | 1692.8 | 1701.3 |
| 5° | 1677.1 | 1673.1 | 1677.7 | 1672.7 | 1713.1 |
| 7.5° | 1642.6 | 1657.7 | 1666.4 | 1660.9 | 1663.3 |
| 10° | 1624.3 | 1619.1 | 1638.5 | 1652.0 | 1650.0 |
| 12.5° | 1604.7 | 1612.5 | 1613.6 | 1628.2 | 1629.5 |
| 15° | 1605.8 | 1587.2 | 1597.0 | 1605.3 | 1606.0 |
| 17.5° | 1543.4 | 1563.5 | 1570.2 | 1589.2 | 1565.6 |
| 20° | 1535.8 | 1521.1 | 1535.8 | 1555.2 | 1552.1 |
| 22.5° | 1488.9 | 1472.5 | 1503.9 | 1521.1 | 1520.1 |
| 25° | 1435.7 | 1443.5 | 1467.1 | 1486.3 | 1483.2 |
| 27.5° | 1389.0 | 1398.1 | 1431.7 | 1458.1 | 1441.1 |
| 30° | 1353.0 | 1348.4 | 1376.8 | 1400.3 | 1413.4 |
| 32.5° | 1288.7 | 1305.2 | 1338.4 | 1361.7 | 1349.3 |
| 35° | 1249.6 | 1253.3 | 1282.3 | 1312.0 | 1311.1 |
| 37.5° | 1181.4 | 1198.6 | 1239.4 | 1247.7 | 1240.0 |
| 40° | 1123.1 | 1140.4 | 1177.2 | 1186.2 | 1182.5 |
| 42.5° | 1080.2 | 1083.2 | 1114.9 | 1125.1 | 1108.7 |
| 45° | 1005.4 | 1024.1 | 1041.1 | 1068.0 | 1042.7 |
| 47.5° | 941.7 | 950.4 | 987.1 | 994.3 | 980.9 |
| 50° | 883.9 | 887.0 | 923.8 | 914.9 | 906.1 |
| 52.5° | 811.3 | 824.1 | 844.9 | 843.1 | 832.9 |
| 55° | 751.5 | 746.5 | 766.1 | 760.9 | 760.7 |
| 57.5° | 679.8 | 688.5 | 704.6 | 696.3 | 683.0 |
| 60° | 612.6 | 612.8 | 618.7 | 609.3 | 607.6 |
| 62.5° | 537.8 | 540.4 | 541.7 | 530.2 | 548.9 |
| 65° | 461.7 | 455.6 | 473.5 | 455.4 | 458.4 |
| 67.5° | 391.7 | 394.7 | 393.0 | 381.6 | 386.0 |
| 70° | 320.6 | 324.5 | 321.7 | 308.8 | 312.7 |
| 72.5° | 255.6 | 250.8 | 253.9 | 237.7 | 245.1 |
| 75° | 192.1 | 188.2 | 191.7 | 178.2 | 184.3 |
| 77.5° | 130.9 | 133.9 | 131.7 | 124.5 | 128.7 |
| 80° | 86.4 | 84.0 | 84.0 | 79.8 | 80.7 |
| 82.5° | 50.4 | 48.0 | 47.3 | 46.0 | 48.0 |
| 85° | 23.6 | 22.9 | 23.3 | 22.7 | 21.8 |
| 87.5° | 8.5 | 8.7 | 8.7 | 8.3 | 7.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)