

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: P589438

Luminaire Tested: **FMR-24-2-LD4-3LO-50-UNV-81-85-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589438
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-81-85-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

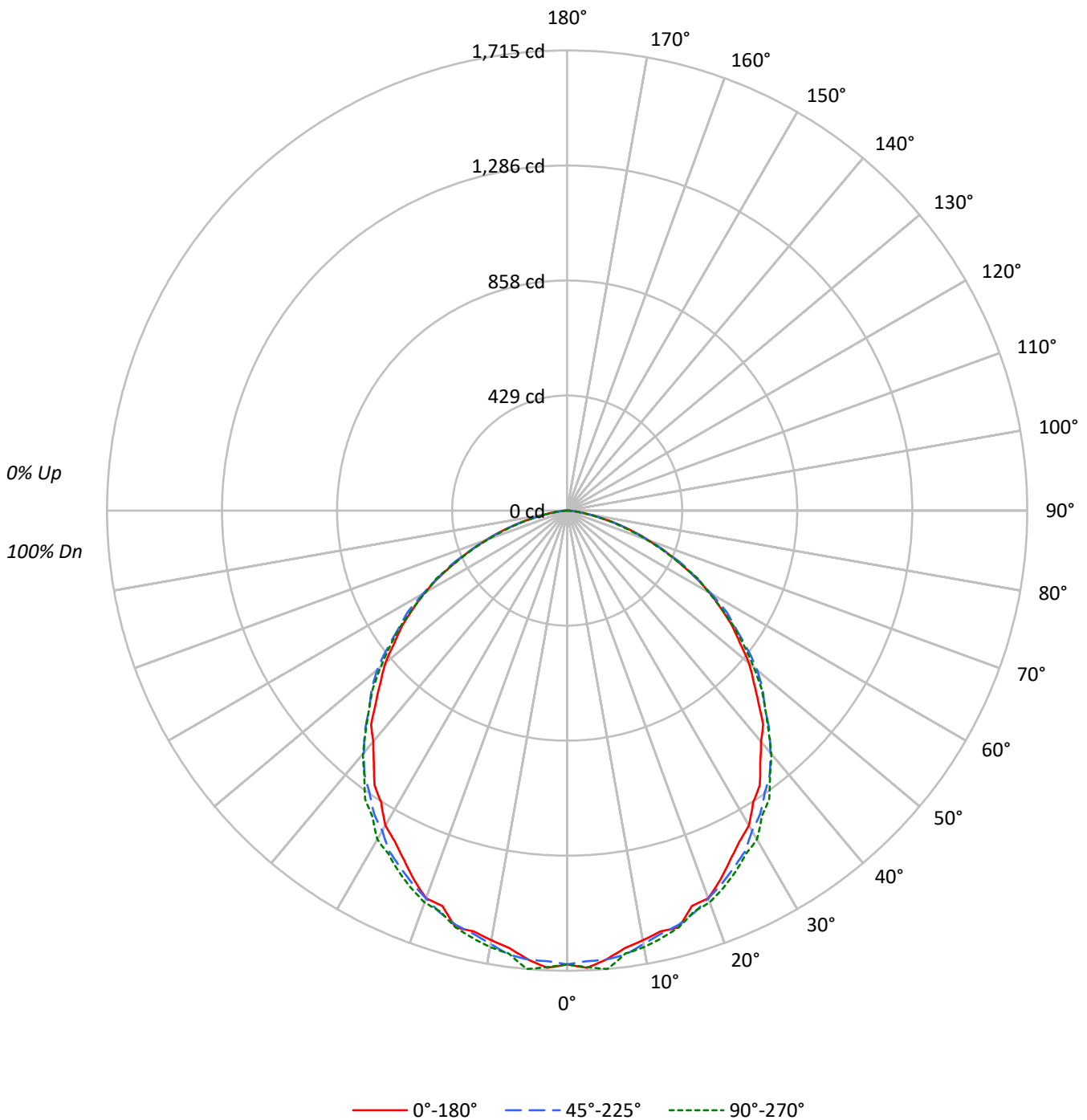
Lumens per Lamp: N/A
Luminaire Lumens: 4262.0 lumens
Efficiency: N/A
Efficacy: 121.4 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

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° | 4551 | 4551 | 4551 |
| 5° | 4535 | 4537 | 4633 |
| 10° | 4444 | 4482 | 4514 |
| 15° | 4479 | 4454 | 4479 |
| 20° | 4403 | 4403 | 4450 |
| 25° | 4268 | 4361 | 4409 |
| 30° | 4209 | 4283 | 4397 |
| 35° | 4110 | 4217 | 4312 |
| 40° | 3950 | 4140 | 4158 |
| 45° | 3831 | 3967 | 3973 |
| 50° | 3705 | 3872 | 3798 |
| 55° | 3530 | 3598 | 3573 |
| 60° | 3301 | 3334 | 3274 |
| 65° | 2943 | 3018 | 2923 |
| 70° | 2526 | 2534 | 2463 |
| 75° | 2000 | 1995 | 1918 |
| 80° | 1340 | 1303 | 1252 |
| 85° | 729 | 722 | 673 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 159.1 | 3.7 |
| 10°-20° | 450.8 | 10.6 |
| 20°-30° | 675.4 | 15.8 |
| 30°-40° | 800.5 | 18.8 |
| 40°-50° | 802.0 | 18.8 |
| 50°-60° | 680.8 | 16.0 |
| 60°-70° | 459.0 | 10.8 |
| 70°-80° | 201.7 | 4.7 |
| 80°-90° | 32.8 | 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° | 1285.3 | 30.2 |
| 0°-40° | 2085.8 | 48.9 |
| 0°-60° | 3568.6 | 83.7 |
| 0°-90° | 4262.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4262.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1691 | 1691 | 1691 | 1691 | 1691 | |
| 5° | 1679 | 1675 | 1680 | 1675 | 1715 | 158 |
| 15° | 1608 | 1589 | 1599 | 1607 | 1608 | 448 |
| 25° | 1437 | 1445 | 1469 | 1488 | 1485 | 664 |
| 35° | 1251 | 1255 | 1284 | 1314 | 1313 | 777 |
| 45° | 1007 | 1025 | 1042 | 1069 | 1044 | 779 |
| 55° | 752 | 747 | 767 | 762 | 762 | 669 |
| 65° | 462 | 456 | 474 | 456 | 459 | 460 |
| 75° | 192 | 188 | 192 | 178 | 184 | 206 |
| 85° | 24 | 23 | 23 | 23 | 22 | 34 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589438

CATALOG NUMBER: FMR-24-2-LD4-3LO-50-UNV-81-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1691.1 | 1691.1 | 1691.1 | 1691.1 | 1691.1 |
| 2.5° | 1705.7 | 1692.8 | 1680.8 | 1694.8 | 1703.3 |
| 5° | 1679.0 | 1675.1 | 1679.7 | 1674.7 | 1715.1 |
| 7.5° | 1644.5 | 1659.6 | 1668.3 | 1662.9 | 1665.3 |
| 10° | 1626.2 | 1621.0 | 1640.4 | 1653.9 | 1652.0 |
| 12.5° | 1606.6 | 1614.4 | 1615.5 | 1630.1 | 1631.4 |
| 15° | 1607.6 | 1589.1 | 1598.9 | 1607.2 | 1607.9 |
| 17.5° | 1545.2 | 1565.3 | 1572.1 | 1591.1 | 1567.5 |
| 20° | 1537.6 | 1522.9 | 1537.6 | 1557.0 | 1553.9 |
| 22.5° | 1490.6 | 1474.2 | 1505.7 | 1522.9 | 1521.8 |
| 25° | 1437.3 | 1445.2 | 1468.8 | 1488.0 | 1484.9 |
| 27.5° | 1390.6 | 1399.8 | 1433.4 | 1459.8 | 1442.8 |
| 30° | 1354.6 | 1350.0 | 1378.4 | 1402.0 | 1415.1 |
| 32.5° | 1290.2 | 1306.8 | 1340.0 | 1363.3 | 1350.9 |
| 35° | 1251.1 | 1254.8 | 1283.8 | 1313.5 | 1312.7 |
| 37.5° | 1182.8 | 1200.0 | 1240.8 | 1249.1 | 1241.5 |
| 40° | 1124.5 | 1141.7 | 1178.6 | 1187.6 | 1183.8 |
| 42.5° | 1081.4 | 1084.5 | 1116.2 | 1126.4 | 1110.0 |
| 45° | 1006.6 | 1025.3 | 1042.4 | 1069.2 | 1043.9 |
| 47.5° | 942.8 | 951.5 | 988.2 | 995.4 | 982.1 |
| 50° | 884.9 | 888.0 | 924.9 | 915.9 | 907.2 |
| 52.5° | 812.2 | 825.1 | 845.9 | 844.1 | 833.8 |
| 55° | 752.4 | 747.4 | 767.0 | 761.8 | 761.6 |
| 57.5° | 680.6 | 689.3 | 705.5 | 697.2 | 683.8 |
| 60° | 613.3 | 613.5 | 619.4 | 610.0 | 608.3 |
| 62.5° | 538.4 | 541.0 | 542.4 | 530.8 | 549.6 |
| 65° | 462.2 | 456.1 | 474.0 | 455.9 | 459.0 |
| 67.5° | 392.1 | 395.2 | 393.5 | 382.1 | 386.5 |
| 70° | 321.0 | 324.9 | 322.1 | 309.2 | 313.1 |
| 72.5° | 255.9 | 251.1 | 254.1 | 238.0 | 245.4 |
| 75° | 192.4 | 188.4 | 191.9 | 178.4 | 184.5 |
| 77.5° | 131.0 | 134.1 | 131.9 | 124.7 | 128.8 |
| 80° | 86.5 | 84.1 | 84.1 | 79.9 | 80.8 |
| 82.5° | 50.4 | 48.0 | 47.4 | 46.1 | 48.0 |
| 85° | 23.6 | 22.9 | 23.4 | 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)