

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: P589420

Luminaire Tested: **FMR-24-2-LD4-3LO-40-UNV-82-97-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589420
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-82-97-EDD
Description: 2X2 FMR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .375 CLEAR
TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

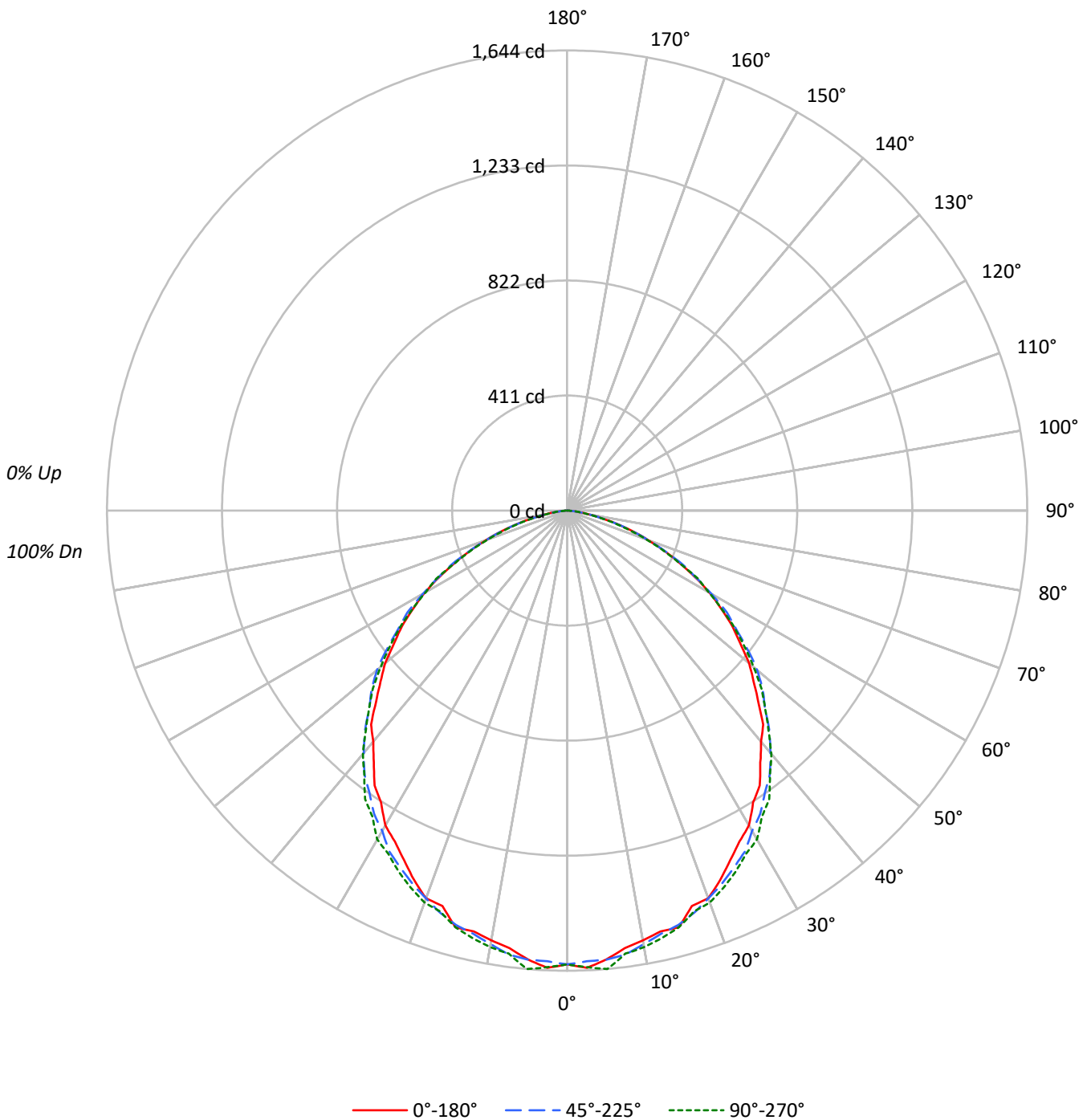
Lumens per Lamp: N/A
Luminaire Lumens: 4086.0 lumens
Efficiency: N/A
Efficacy: 116.4 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

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° | 4363 | 4363 | 4363 |
| 5° | 4348 | 4350 | 4441 |
| 10° | 4260 | 4297 | 4328 |
| 15° | 4294 | 4271 | 4294 |
| 20° | 4221 | 4221 | 4266 |
| 25° | 4092 | 4181 | 4227 |
| 30° | 4035 | 4106 | 4215 |
| 35° | 3940 | 4043 | 4134 |
| 40° | 3787 | 3969 | 3987 |
| 45° | 3672 | 3803 | 3809 |
| 50° | 3552 | 3712 | 3641 |
| 55° | 3384 | 3450 | 3425 |
| 60° | 3165 | 3196 | 3139 |
| 65° | 2821 | 2893 | 2802 |
| 70° | 2421 | 2430 | 2362 |
| 75° | 1917 | 1913 | 1839 |
| 80° | 1285 | 1249 | 1201 |
| 85° | 698 | 692 | 645 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 152.5 | 3.7 |
| 10°-20° | 432.2 | 10.6 |
| 20°-30° | 647.5 | 15.8 |
| 30°-40° | 767.5 | 18.8 |
| 40°-50° | 768.9 | 18.8 |
| 50°-60° | 652.6 | 16.0 |
| 60°-70° | 440.0 | 10.8 |
| 70°-80° | 193.3 | 4.7 |
| 80°-90° | 31.4 | 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° | 1232.2 | 30.2 |
| 0°-40° | 1999.7 | 48.9 |
| 0°-60° | 3421.2 | 83.7 |
| 0°-90° | 4086.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4086.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1621 | 1621 | 1621 | 1621 | 1621 | |
| 5° | 1610 | 1606 | 1610 | 1606 | 1644 | 152 |
| 15° | 1541 | 1524 | 1533 | 1541 | 1542 | 429 |
| 25° | 1378 | 1386 | 1408 | 1426 | 1424 | 637 |
| 35° | 1199 | 1203 | 1231 | 1259 | 1258 | 745 |
| 45° | 965 | 983 | 999 | 1025 | 1001 | 746 |
| 55° | 721 | 716 | 735 | 730 | 730 | 642 |
| 65° | 443 | 437 | 454 | 437 | 440 | 441 |
| 75° | 184 | 181 | 184 | 171 | 177 | 198 |
| 85° | 23 | 22 | 22 | 22 | 21 | 33 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589420

CATALOG NUMBER: FMR-24-2-LD4-3LO-40-UNV-82-97-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1621.2 | 1621.2 | 1621.2 | 1621.2 | 1621.2 |
| 2.5° | 1635.2 | 1622.9 | 1611.4 | 1624.8 | 1632.9 |
| 5° | 1609.7 | 1605.9 | 1610.3 | 1605.5 | 1644.2 |
| 7.5° | 1576.6 | 1591.1 | 1599.5 | 1594.2 | 1596.5 |
| 10° | 1559.1 | 1554.0 | 1572.7 | 1585.6 | 1583.8 |
| 12.5° | 1540.2 | 1547.7 | 1548.8 | 1562.8 | 1564.1 |
| 15° | 1541.3 | 1523.5 | 1532.9 | 1540.8 | 1541.5 |
| 17.5° | 1481.4 | 1500.7 | 1507.1 | 1525.4 | 1502.7 |
| 20° | 1474.1 | 1460.0 | 1474.1 | 1492.7 | 1489.8 |
| 22.5° | 1429.1 | 1413.4 | 1443.5 | 1460.0 | 1459.0 |
| 25° | 1378.0 | 1385.5 | 1408.1 | 1426.5 | 1423.6 |
| 27.5° | 1333.2 | 1342.0 | 1374.2 | 1399.5 | 1383.2 |
| 30° | 1298.7 | 1294.3 | 1321.5 | 1344.1 | 1356.6 |
| 32.5° | 1236.9 | 1252.8 | 1284.6 | 1307.0 | 1295.1 |
| 35° | 1199.4 | 1203.0 | 1230.8 | 1259.3 | 1258.5 |
| 37.5° | 1133.9 | 1150.4 | 1189.6 | 1197.5 | 1190.2 |
| 40° | 1078.0 | 1094.6 | 1129.9 | 1138.5 | 1135.0 |
| 42.5° | 1036.8 | 1039.7 | 1070.1 | 1079.9 | 1064.2 |
| 45° | 965.0 | 983.0 | 999.3 | 1025.1 | 1000.8 |
| 47.5° | 903.9 | 912.2 | 947.4 | 954.3 | 941.5 |
| 50° | 848.4 | 851.3 | 886.7 | 878.1 | 869.7 |
| 52.5° | 778.7 | 791.0 | 810.9 | 809.3 | 799.4 |
| 55° | 721.3 | 716.5 | 735.4 | 730.3 | 730.1 |
| 57.5° | 652.5 | 660.8 | 676.3 | 668.4 | 655.6 |
| 60° | 588.0 | 588.2 | 593.9 | 584.9 | 583.2 |
| 62.5° | 516.2 | 518.7 | 520.0 | 508.9 | 526.9 |
| 65° | 443.1 | 437.3 | 454.4 | 437.1 | 440.0 |
| 67.5° | 375.9 | 378.9 | 377.2 | 366.3 | 370.5 |
| 70° | 307.7 | 311.5 | 308.8 | 296.4 | 300.2 |
| 72.5° | 245.3 | 240.7 | 243.7 | 228.2 | 235.3 |
| 75° | 184.4 | 180.6 | 184.0 | 171.0 | 176.9 |
| 77.5° | 125.6 | 128.5 | 126.4 | 119.5 | 123.5 |
| 80° | 82.9 | 80.6 | 80.6 | 76.6 | 77.5 |
| 82.5° | 48.4 | 46.1 | 45.4 | 44.2 | 46.1 |
| 85° | 22.6 | 22.0 | 22.4 | 21.8 | 20.9 |
| 87.5° | 8.2 | 8.4 | 8.4 | 8.0 | 7.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)