

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: P589574

Luminaire Tested: **FMR-24-2-LD4-4HI-35-UNV-82-85-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589574
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-LD4-4HI-35-UNV-82-85-EDD
Description: 2X2 FMR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

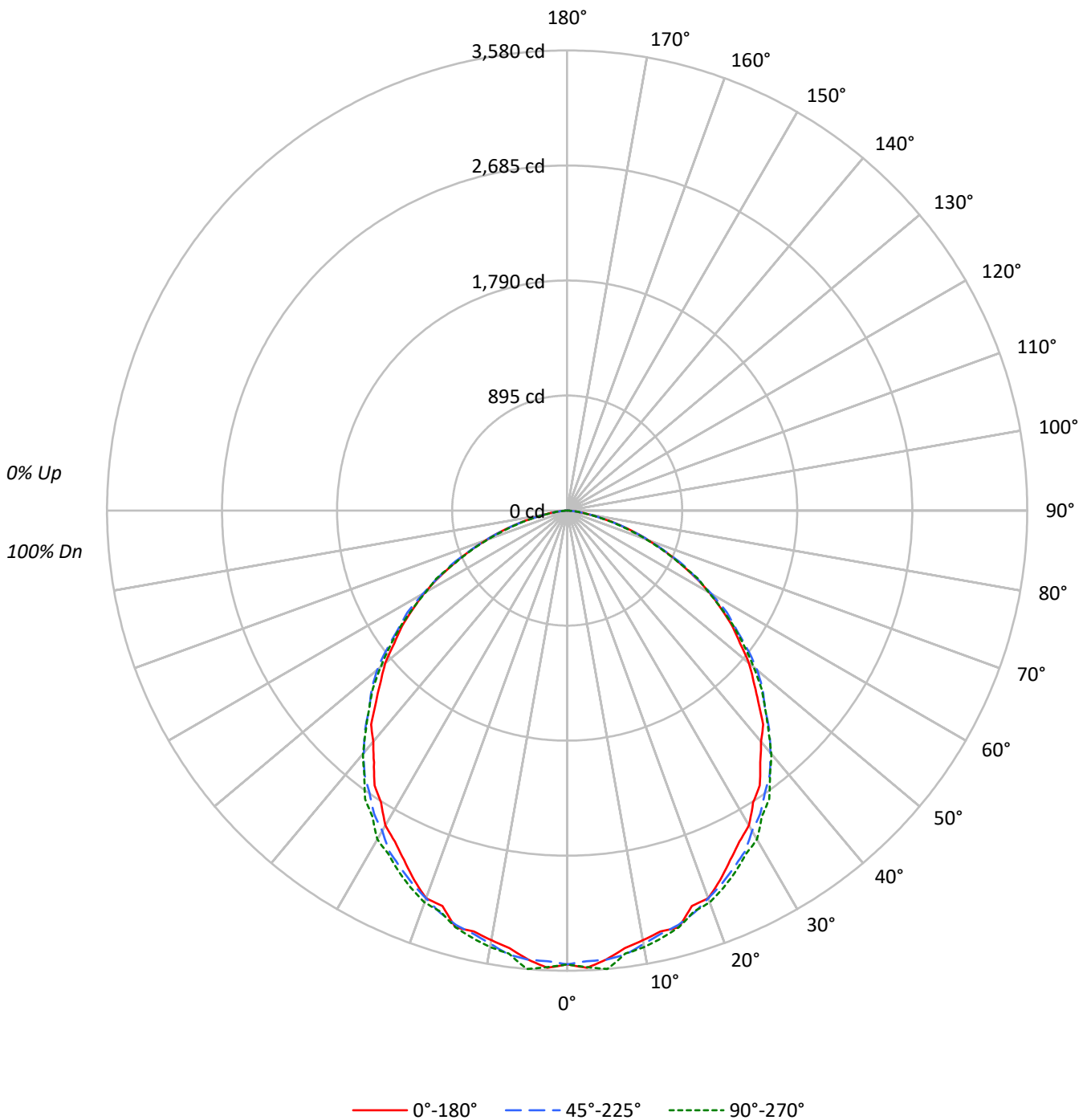
Lumens per Lamp: N/A
Luminaire Lumens: 8897.0 lumens
Efficiency: N/A
Efficacy: 103.0 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 86.4
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° | 9499 | 9499 | 9499 |
| 5° | 9468 | 9472 | 9671 |
| 10° | 9276 | 9357 | 9423 |
| 15° | 9350 | 9299 | 9351 |
| 20° | 9192 | 9192 | 9289 |
| 25° | 8909 | 9104 | 9204 |
| 30° | 8786 | 8941 | 9179 |
| 35° | 8580 | 8804 | 9002 |
| 40° | 8246 | 8643 | 8681 |
| 45° | 7996 | 8281 | 8293 |
| 50° | 7734 | 8083 | 7928 |
| 55° | 7369 | 7512 | 7459 |
| 60° | 6891 | 6959 | 6834 |
| 65° | 6144 | 6301 | 6101 |
| 70° | 5271 | 5290 | 5142 |
| 75° | 4175 | 4165 | 4004 |
| 80° | 2797 | 2720 | 2613 |
| 85° | 1519 | 1507 | 1408 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 332.1 | 3.7 |
| 10°-20° | 941.1 | 10.6 |
| 20°-30° | 1410.0 | 15.8 |
| 30°-40° | 1671.1 | 18.8 |
| 40°-50° | 1674.2 | 18.8 |
| 50°-60° | 1421.1 | 16.0 |
| 60°-70° | 958.1 | 10.8 |
| 70°-80° | 421.0 | 4.7 |
| 80°-90° | 68.4 | 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° | 2683.1 | 30.2 |
| 0°-40° | 4354.2 | 48.9 |
| 0°-60° | 7449.5 | 83.7 |
| 0°-90° | 8897.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 8897.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3530 | 3530 | 3530 | 3530 | 3530 | |
| 5° | 3505 | 3497 | 3506 | 3496 | 3580 | 330 |
| 15° | 3356 | 3317 | 3338 | 3355 | 3356 | 935 |
| 25° | 3000 | 3017 | 3066 | 3106 | 3100 | 1387 |
| 35° | 2612 | 2619 | 2680 | 2742 | 2740 | 1622 |
| 45° | 2101 | 2140 | 2176 | 2232 | 2179 | 1625 |
| 55° | 1571 | 1560 | 1601 | 1590 | 1590 | 1397 |
| 65° | 965 | 952 | 990 | 952 | 958 | 960 |
| 75° | 402 | 393 | 401 | 372 | 385 | 430 |
| 85° | 49 | 48 | 49 | 47 | 46 | 71 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589574

CATALOG NUMBER: FMR-24-2-LD4-4HI-35-UNV-82-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3530.1 | 3530.1 | 3530.1 | 3530.1 | 3530.1 |
| 2.5° | 3560.6 | 3533.8 | 3508.7 | 3537.9 | 3555.6 |
| 5° | 3505.0 | 3496.8 | 3506.4 | 3495.9 | 3580.2 |
| 7.5° | 3433.0 | 3464.5 | 3482.7 | 3471.3 | 3476.3 |
| 10° | 3394.7 | 3383.8 | 3424.4 | 3452.6 | 3448.5 |
| 12.5° | 3353.7 | 3370.1 | 3372.4 | 3402.9 | 3405.7 |
| 15° | 3356.0 | 3317.3 | 3337.8 | 3355.1 | 3356.4 |
| 17.5° | 3225.6 | 3267.6 | 3281.7 | 3321.4 | 3272.1 |
| 20° | 3209.7 | 3179.1 | 3209.7 | 3250.2 | 3243.9 |
| 22.5° | 3111.7 | 3077.5 | 3143.1 | 3179.1 | 3176.9 |
| 25° | 3000.5 | 3016.9 | 3066.1 | 3106.2 | 3099.8 |
| 27.5° | 2902.9 | 2922.1 | 2992.3 | 3047.4 | 3011.9 |
| 30° | 2827.7 | 2818.2 | 2877.4 | 2926.6 | 2954.0 |
| 32.5° | 2693.3 | 2727.9 | 2797.2 | 2846.0 | 2820.0 |
| 35° | 2611.7 | 2619.4 | 2680.1 | 2742.0 | 2740.2 |
| 37.5° | 2469.0 | 2505.0 | 2590.3 | 2607.6 | 2591.6 |
| 40° | 2347.3 | 2383.3 | 2460.4 | 2479.0 | 2471.3 |
| 42.5° | 2257.5 | 2263.9 | 2330.0 | 2351.4 | 2317.2 |
| 45° | 2101.2 | 2140.4 | 2175.9 | 2232.0 | 2179.1 |
| 47.5° | 1968.1 | 1986.3 | 2062.9 | 2078.0 | 2050.1 |
| 50° | 1847.3 | 1853.7 | 1930.7 | 1912.0 | 1893.8 |
| 52.5° | 1695.5 | 1722.4 | 1765.7 | 1762.1 | 1740.7 |
| 55° | 1570.7 | 1560.2 | 1601.2 | 1590.3 | 1589.8 |
| 57.5° | 1420.7 | 1438.9 | 1472.7 | 1455.3 | 1427.5 |
| 60° | 1280.3 | 1280.8 | 1293.1 | 1273.5 | 1269.8 |
| 62.5° | 1124.0 | 1129.5 | 1132.2 | 1108.0 | 1147.2 |
| 65° | 964.9 | 952.1 | 989.5 | 951.7 | 958.1 |
| 67.5° | 818.6 | 825.0 | 821.3 | 797.6 | 806.8 |
| 70° | 670.0 | 678.2 | 672.3 | 645.4 | 653.6 |
| 72.5° | 534.2 | 524.2 | 530.5 | 496.8 | 512.3 |
| 75° | 401.6 | 393.3 | 400.6 | 372.4 | 385.1 |
| 77.5° | 273.5 | 279.9 | 275.3 | 260.3 | 268.9 |
| 80° | 180.5 | 175.5 | 175.5 | 166.8 | 168.6 |
| 82.5° | 105.3 | 100.3 | 98.9 | 96.2 | 100.3 |
| 85° | 49.2 | 47.9 | 48.8 | 47.4 | 45.6 |
| 87.5° | 17.8 | 18.2 | 18.2 | 17.3 | 16.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)