

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: P588749

Luminaire Tested: **FMR-24-2-LD4-1HI-40-UNV-93-84-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P588749
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-LD4-1HI-40-UNV-93-84-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

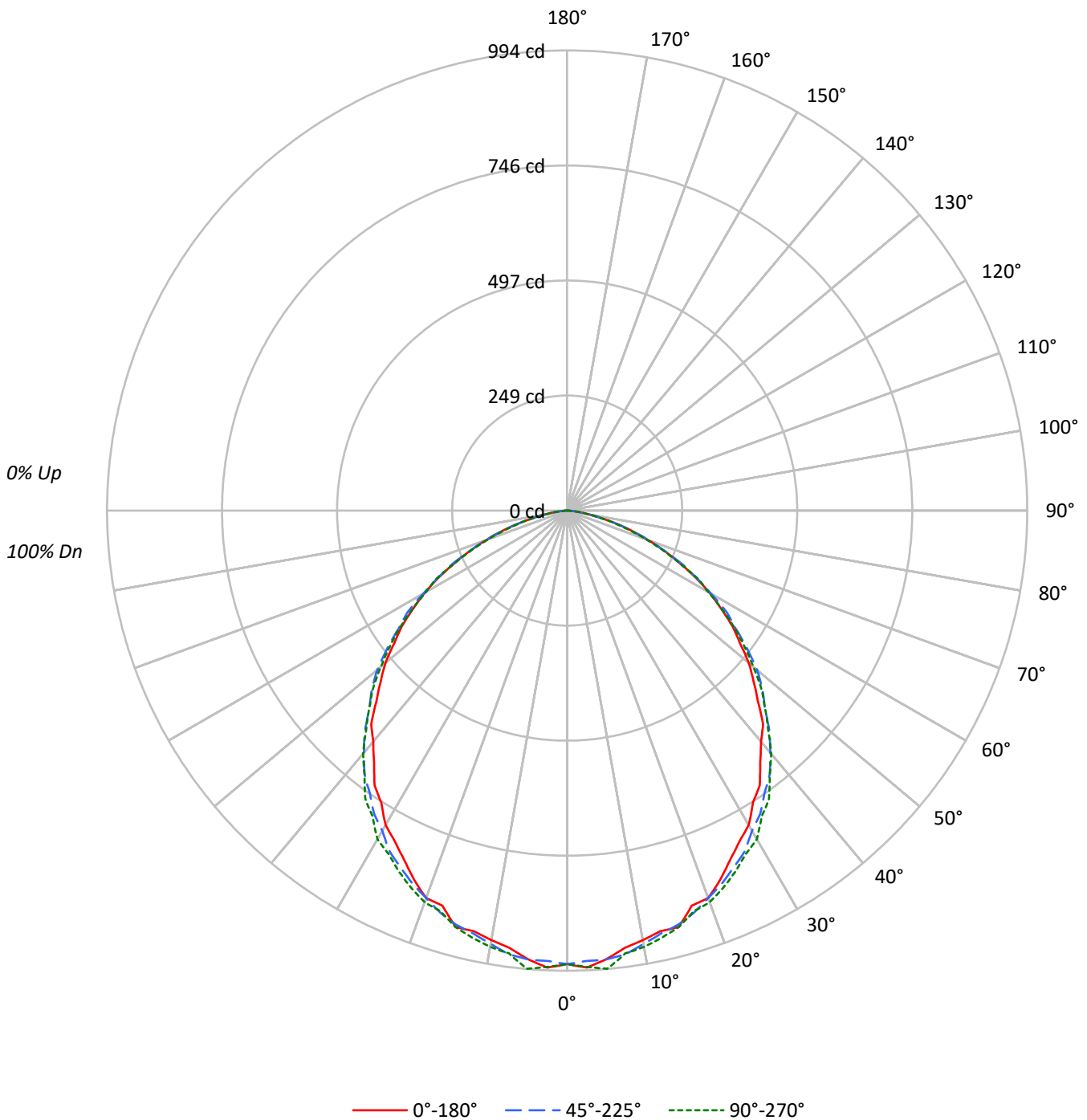
Lumens per Lamp: N/A
Luminaire Lumens: 2469.0 lumens
Efficiency: N/A
Efficacy: 114.3 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 21.6
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 | 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 | | | | | 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° | 2636 | 2636 | 2636 |
| 5° | 2628 | 2629 | 2684 |
| 10° | 2574 | 2597 | 2615 |
| 15° | 2595 | 2581 | 2595 |
| 20° | 2551 | 2551 | 2578 |
| 25° | 2472 | 2526 | 2554 |
| 30° | 2438 | 2481 | 2547 |
| 35° | 2381 | 2443 | 2498 |
| 40° | 2288 | 2399 | 2409 |
| 45° | 2219 | 2298 | 2301 |
| 50° | 2146 | 2243 | 2200 |
| 55° | 2045 | 2084 | 2070 |
| 60° | 1912 | 1931 | 1897 |
| 65° | 1705 | 1748 | 1693 |
| 70° | 1463 | 1468 | 1427 |
| 75° | 1158 | 1156 | 1111 |
| 80° | 776 | 755 | 725 |
| 85° | 423 | 417 | 389 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 92.1 | 3.7 |
| 10°-20° | 261.2 | 10.6 |
| 20°-30° | 391.3 | 15.8 |
| 30°-40° | 463.7 | 18.8 |
| 40°-50° | 464.6 | 18.8 |
| 50°-60° | 394.4 | 16.0 |
| 60°-70° | 265.9 | 10.8 |
| 70°-80° | 116.8 | 4.7 |
| 80°-90° | 19.0 | 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° | 744.6 | 30.2 |
| 0°-40° | 1208.3 | 48.9 |
| 0°-60° | 2067.3 | 83.7 |
| 0°-90° | 2469.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2469.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 980 | 980 | 980 | 980 | 980 | |
| 5° | 973 | 970 | 973 | 970 | 994 | 92 |
| 15° | 931 | 921 | 926 | 931 | 931 | 259 |
| 25° | 833 | 837 | 851 | 862 | 860 | 385 |
| 35° | 725 | 727 | 744 | 761 | 760 | 450 |
| 45° | 583 | 594 | 604 | 619 | 605 | 451 |
| 55° | 436 | 433 | 444 | 441 | 441 | 388 |
| 65° | 268 | 264 | 275 | 264 | 266 | 266 |
| 75° | 111 | 109 | 111 | 103 | 107 | 119 |
| 85° | 14 | 13 | 14 | 13 | 13 | 20 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P588749

CATALOG NUMBER: FMR-24-2-LD4-1HI-40-UNV-93-84-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 979.6 | 979.6 | 979.6 | 979.6 | 979.6 |
| 2.5° | 988.1 | 980.6 | 973.7 | 981.8 | 986.7 |
| 5° | 972.7 | 970.4 | 973.1 | 970.2 | 993.6 |
| 7.5° | 952.7 | 961.4 | 966.5 | 963.3 | 964.7 |
| 10° | 942.1 | 939.0 | 950.3 | 958.1 | 957.0 |
| 12.5° | 930.7 | 935.2 | 935.9 | 944.3 | 945.1 |
| 15° | 931.3 | 920.6 | 926.3 | 931.1 | 931.4 |
| 17.5° | 895.1 | 906.8 | 910.7 | 921.7 | 908.0 |
| 20° | 890.7 | 882.2 | 890.7 | 902.0 | 900.2 |
| 22.5° | 863.5 | 854.0 | 872.2 | 882.2 | 881.6 |
| 25° | 832.7 | 837.2 | 850.9 | 862.0 | 860.2 |
| 27.5° | 805.6 | 810.9 | 830.4 | 845.7 | 835.8 |
| 30° | 784.7 | 782.1 | 798.5 | 812.2 | 819.8 |
| 32.5° | 747.4 | 757.0 | 776.2 | 789.8 | 782.6 |
| 35° | 724.8 | 726.9 | 743.7 | 760.9 | 760.4 |
| 37.5° | 685.2 | 695.2 | 718.8 | 723.6 | 719.2 |
| 40° | 651.4 | 661.4 | 682.8 | 688.0 | 685.8 |
| 42.5° | 626.5 | 628.3 | 646.6 | 652.5 | 643.1 |
| 45° | 583.1 | 594.0 | 603.8 | 619.4 | 604.7 |
| 47.5° | 546.2 | 551.2 | 572.5 | 576.7 | 568.9 |
| 50° | 512.6 | 514.4 | 535.8 | 530.6 | 525.6 |
| 52.5° | 470.5 | 478.0 | 490.0 | 489.0 | 483.1 |
| 55° | 435.9 | 433.0 | 444.3 | 441.3 | 441.2 |
| 57.5° | 394.3 | 399.3 | 408.7 | 403.9 | 396.2 |
| 60° | 355.3 | 355.4 | 358.8 | 353.4 | 352.4 |
| 62.5° | 311.9 | 313.4 | 314.2 | 307.5 | 318.4 |
| 65° | 267.8 | 264.2 | 274.6 | 264.1 | 265.9 |
| 67.5° | 227.2 | 228.9 | 227.9 | 221.4 | 223.9 |
| 70° | 185.9 | 188.2 | 186.6 | 179.1 | 181.4 |
| 72.5° | 148.2 | 145.5 | 147.2 | 137.9 | 142.2 |
| 75° | 111.4 | 109.2 | 111.2 | 103.3 | 106.9 |
| 77.5° | 75.9 | 77.7 | 76.4 | 72.2 | 74.6 |
| 80° | 50.1 | 48.7 | 48.7 | 46.3 | 46.8 |
| 82.5° | 29.2 | 27.8 | 27.4 | 26.7 | 27.8 |
| 85° | 13.7 | 13.3 | 13.5 | 13.2 | 12.6 |
| 87.5° | 4.9 | 5.1 | 5.1 | 4.8 | 4.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)