

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: P588764

Luminaire Tested: **FMR-24-2-LD4-1HI-50-UNV-80-97-EDD**

Issue Date: 12/8/2021



**Test Information**

Test Method: LM-79-08  
Report Number: P588764  
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-50-UNV-80-97-EDD  
Description: 2X2 FMR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375  
CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT  
LEDS  
Light Source: -  
Ballast/Driver: -

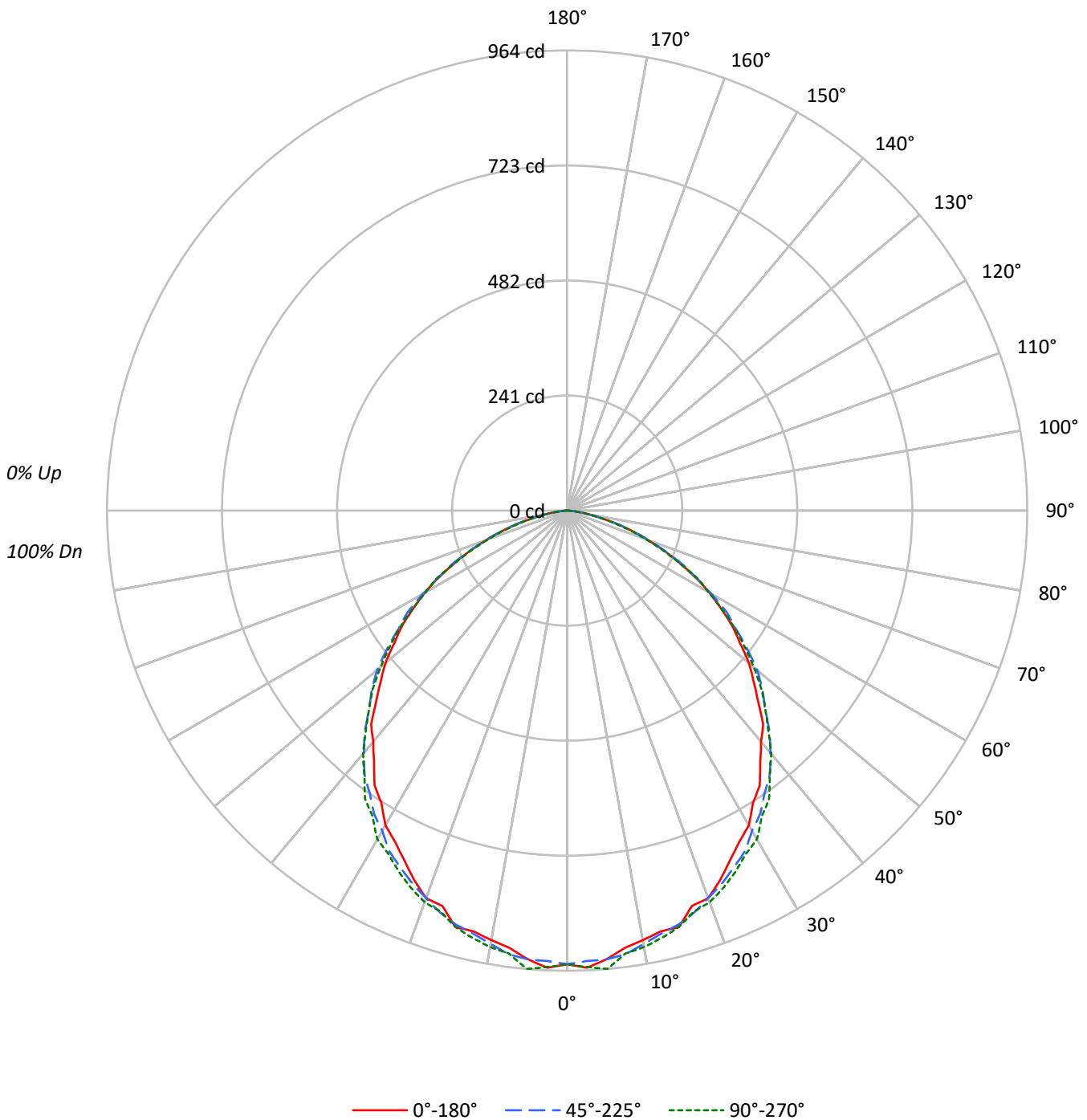
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2395.0 lumens  
Efficiency: N/A  
Efficacy: 110.9 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  | 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°  | 2557 | 2557 | 2557 |
| 5°  | 2549 | 2550 | 2603 |
| 10° | 2497 | 2519 | 2537 |
| 15° | 2517 | 2503 | 2517 |
| 20° | 2474 | 2474 | 2501 |
| 25° | 2398 | 2451 | 2478 |
| 30° | 2365 | 2407 | 2471 |
| 35° | 2309 | 2370 | 2423 |
| 40° | 2220 | 2327 | 2337 |
| 45° | 2152 | 2229 | 2232 |
| 50° | 2082 | 2176 | 2134 |
| 55° | 1984 | 2022 | 2008 |
| 60° | 1855 | 1873 | 1840 |
| 65° | 1654 | 1696 | 1642 |
| 70° | 1419 | 1424 | 1384 |
| 75° | 1124 | 1121 | 1078 |
| 80° | 753  | 731  | 704  |
| 85° | 411  | 404  | 380  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 89.4   | 3.7       |
| 10°-20°   | 253.3  | 10.6      |
| 20°-30°   | 379.5  | 15.8      |
| 30°-40°   | 449.8  | 18.8      |
| 40°-50°   | 450.7  | 18.8      |
| 50°-60°   | 382.5  | 16.0      |
| 60°-70°   | 257.9  | 10.8      |
| 70°-80°   | 113.3  | 4.7       |
| 80°-90°   | 18.4   | 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°    | 722.3  | 30.2      |
| 0°-40°    | 1172.1 | 48.9      |
| 0°-60°    | 2005.3 | 83.7      |
| 0°-90°    | 2395.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2395.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 950 | 950   | 950 | 950   | 950 |      |
| 5°  | 944 | 941   | 944 | 941   | 964 | 89   |
| 15° | 903 | 893   | 898 | 903   | 904 | 252  |
| 25° | 808 | 812   | 825 | 836   | 834 | 373  |
| 35° | 703 | 705   | 721 | 738   | 738 | 436  |
| 45° | 566 | 576   | 586 | 601   | 587 | 438  |
| 55° | 423 | 420   | 431 | 428   | 428 | 376  |
| 65° | 260 | 256   | 266 | 256   | 258 | 258  |
| 75° | 108 | 106   | 108 | 100   | 104 | 116  |
| 85° | 13  | 13    | 13  | 13    | 12  | 19   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 950.3 | 950.3 | 950.3 | 950.3 | 950.3 |
| 2.5°  | 958.5 | 951.3 | 944.5 | 952.4 | 957.1 |
| 5°    | 943.5 | 941.3 | 943.9 | 941.1 | 963.8 |
| 7.5°  | 924.1 | 932.6 | 937.5 | 934.4 | 935.8 |
| 10°   | 913.8 | 910.9 | 921.8 | 929.4 | 928.3 |
| 12.5° | 902.8 | 907.2 | 907.8 | 916.0 | 916.8 |
| 15°   | 903.4 | 893.0 | 898.5 | 903.2 | 903.5 |
| 17.5° | 868.3 | 879.6 | 883.4 | 894.1 | 880.8 |
| 20°   | 864.0 | 855.8 | 864.0 | 874.9 | 873.2 |
| 22.5° | 837.6 | 828.4 | 846.1 | 855.8 | 855.2 |
| 25°   | 807.7 | 812.1 | 825.4 | 836.2 | 834.5 |
| 27.5° | 781.4 | 786.6 | 805.5 | 820.3 | 810.8 |
| 30°   | 761.2 | 758.6 | 774.6 | 787.8 | 795.2 |
| 32.5° | 725.0 | 734.3 | 753.0 | 766.1 | 759.1 |
| 35°   | 703.0 | 705.1 | 721.4 | 738.1 | 737.6 |
| 37.5° | 664.6 | 674.3 | 697.3 | 701.9 | 697.6 |
| 40°   | 631.9 | 641.6 | 662.3 | 667.3 | 665.3 |
| 42.5° | 607.7 | 609.4 | 627.2 | 633.0 | 623.8 |
| 45°   | 565.6 | 576.2 | 585.7 | 600.8 | 586.6 |
| 47.5° | 529.8 | 534.7 | 555.3 | 559.4 | 551.9 |
| 50°   | 497.3 | 499.0 | 519.7 | 514.7 | 509.8 |
| 52.5° | 456.4 | 463.7 | 475.3 | 474.3 | 468.6 |
| 55°   | 422.8 | 420.0 | 431.0 | 428.1 | 428.0 |
| 57.5° | 382.4 | 387.3 | 396.4 | 391.8 | 384.3 |
| 60°   | 344.7 | 344.8 | 348.1 | 342.8 | 341.8 |
| 62.5° | 302.6 | 304.0 | 304.8 | 298.3 | 308.8 |
| 65°   | 259.7 | 256.3 | 266.4 | 256.2 | 257.9 |
| 67.5° | 220.4 | 222.1 | 221.1 | 214.7 | 217.2 |
| 70°   | 180.4 | 182.6 | 181.0 | 173.7 | 175.9 |
| 72.5° | 143.8 | 141.1 | 142.8 | 133.7 | 137.9 |
| 75°   | 108.1 | 105.9 | 107.8 | 100.2 | 103.7 |
| 77.5° | 73.6  | 75.3  | 74.1  | 70.1  | 72.4  |
| 80°   | 48.6  | 47.2  | 47.2  | 44.9  | 45.4  |
| 82.5° | 28.3  | 27.0  | 26.6  | 25.9  | 27.0  |
| 85°   | 13.3  | 12.9  | 13.1  | 12.8  | 12.3  |
| 87.5° | 4.8   | 4.9   | 4.9   | 4.7   | 4.4   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)