

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: P588733

Luminaire Tested: **FMR-24-2-LD4-1HI-40-UNV-81-84-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P588733
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-81-84-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

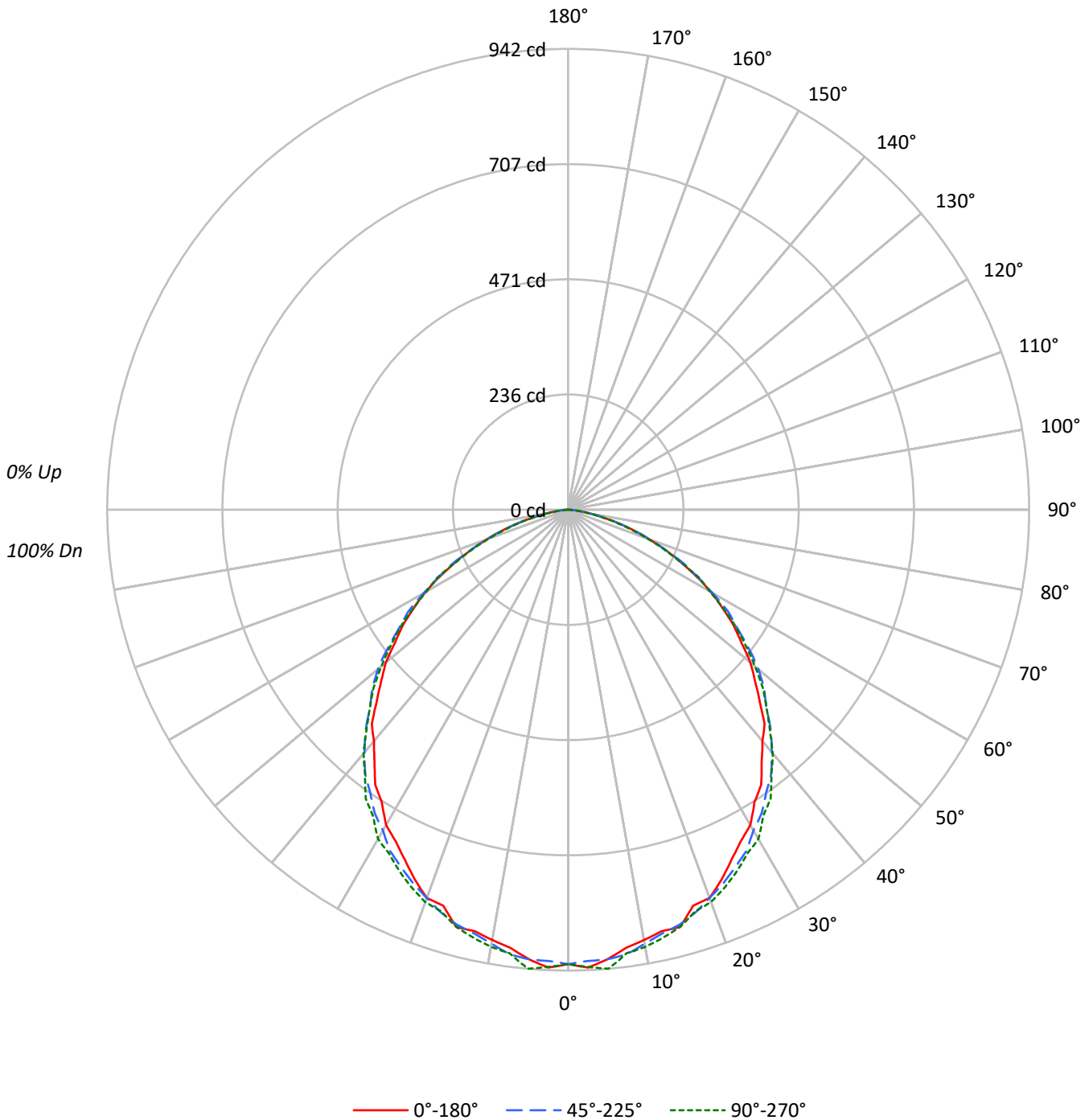
Lumens per Lamp: N/A
Luminaire Lumens: 2341.0 lumens
Efficiency: N/A
Efficacy: 108.4 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 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° | 2499 | 2499 | 2499 |
| 5° | 2491 | 2492 | 2545 |
| 10° | 2441 | 2462 | 2479 |
| 15° | 2460 | 2447 | 2461 |
| 20° | 2418 | 2418 | 2444 |
| 25° | 2344 | 2396 | 2422 |
| 30° | 2312 | 2353 | 2415 |
| 35° | 2258 | 2317 | 2369 |
| 40° | 2170 | 2274 | 2284 |
| 45° | 2104 | 2179 | 2182 |
| 50° | 2035 | 2127 | 2086 |
| 55° | 1939 | 1977 | 1962 |
| 60° | 1813 | 1831 | 1798 |
| 65° | 1617 | 1658 | 1605 |
| 70° | 1387 | 1392 | 1353 |
| 75° | 1099 | 1096 | 1053 |
| 80° | 736 | 716 | 688 |
| 85° | 401 | 395 | 371 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 87.4 | 3.7 |
| 10°-20° | 247.6 | 10.6 |
| 20°-30° | 371.0 | 15.8 |
| 30°-40° | 439.7 | 18.8 |
| 40°-50° | 440.5 | 18.8 |
| 50°-60° | 373.9 | 16.0 |
| 60°-70° | 252.1 | 10.8 |
| 70°-80° | 110.8 | 4.7 |
| 80°-90° | 18.0 | 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° | 706.0 | 30.2 |
| 0°-40° | 1145.7 | 48.9 |
| 0°-60° | 1960.1 | 83.7 |
| 0°-90° | 2341.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2341.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 929 | 929 | 929 | 929 | 929 | |
| 5° | 922 | 920 | 923 | 920 | 942 | 87 |
| 15° | 883 | 873 | 878 | 883 | 883 | 246 |
| 25° | 790 | 794 | 807 | 817 | 816 | 365 |
| 35° | 687 | 689 | 705 | 722 | 721 | 427 |
| 45° | 553 | 563 | 572 | 587 | 573 | 428 |
| 55° | 413 | 410 | 421 | 418 | 418 | 368 |
| 65° | 254 | 250 | 260 | 250 | 252 | 252 |
| 75° | 106 | 104 | 105 | 98 | 101 | 113 |
| 85° | 13 | 13 | 13 | 12 | 12 | 19 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P588733

CATALOG NUMBER: FMR-24-2-LD4-1HI-40-UNV-81-84-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 928.8 | 928.8 | 928.8 | 928.8 | 928.8 |
| 2.5° | 936.9 | 929.8 | 923.2 | 930.9 | 935.6 |
| 5° | 922.3 | 920.1 | 922.6 | 919.9 | 942.0 |
| 7.5° | 903.3 | 911.6 | 916.4 | 913.4 | 914.7 |
| 10° | 893.2 | 890.4 | 901.0 | 908.5 | 907.4 |
| 12.5° | 882.4 | 886.8 | 887.4 | 895.4 | 896.1 |
| 15° | 883.0 | 872.8 | 878.2 | 882.8 | 883.2 |
| 17.5° | 848.7 | 859.8 | 863.5 | 873.9 | 861.0 |
| 20° | 844.5 | 836.5 | 844.5 | 855.2 | 853.5 |
| 22.5° | 818.8 | 809.8 | 827.0 | 836.5 | 835.9 |
| 25° | 789.5 | 793.8 | 806.8 | 817.3 | 815.6 |
| 27.5° | 763.8 | 768.9 | 787.3 | 801.8 | 792.5 |
| 30° | 744.0 | 741.5 | 757.1 | 770.1 | 777.3 |
| 32.5° | 708.7 | 717.8 | 736.0 | 748.8 | 742.0 |
| 35° | 687.2 | 689.2 | 705.2 | 721.5 | 721.0 |
| 37.5° | 649.7 | 659.1 | 681.6 | 686.1 | 681.9 |
| 40° | 617.6 | 627.1 | 647.4 | 652.3 | 650.3 |
| 42.5° | 594.0 | 595.7 | 613.1 | 618.7 | 609.7 |
| 45° | 552.9 | 563.2 | 572.5 | 587.3 | 573.4 |
| 47.5° | 517.9 | 522.7 | 542.8 | 546.8 | 539.4 |
| 50° | 486.1 | 487.8 | 508.0 | 503.1 | 498.3 |
| 52.5° | 446.1 | 453.2 | 464.6 | 463.6 | 458.0 |
| 55° | 413.3 | 410.5 | 421.3 | 418.4 | 418.3 |
| 57.5° | 373.8 | 378.6 | 387.5 | 382.9 | 375.6 |
| 60° | 336.9 | 337.0 | 340.2 | 335.1 | 334.1 |
| 62.5° | 295.7 | 297.2 | 297.9 | 291.5 | 301.9 |
| 65° | 253.9 | 250.5 | 260.4 | 250.4 | 252.1 |
| 67.5° | 215.4 | 217.1 | 216.1 | 209.9 | 212.3 |
| 70° | 176.3 | 178.5 | 176.9 | 169.8 | 172.0 |
| 72.5° | 140.6 | 137.9 | 139.6 | 130.7 | 134.8 |
| 75° | 105.7 | 103.5 | 105.4 | 98.0 | 101.3 |
| 77.5° | 72.0 | 73.6 | 72.4 | 68.5 | 70.8 |
| 80° | 47.5 | 46.2 | 46.2 | 43.9 | 44.4 |
| 82.5° | 27.7 | 26.4 | 26.0 | 25.3 | 26.4 |
| 85° | 13.0 | 12.6 | 12.8 | 12.5 | 12.0 |
| 87.5° | 4.7 | 4.8 | 4.8 | 4.6 | 4.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)