

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: P588906

Luminaire Tested: **FMR-24-2-LD4-1STD-35-UNV-82-94-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P588906
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-LD4-1STD-35-UNV-82-94-EDD
Description: 2X2 FMR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .187 CLEAR
TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

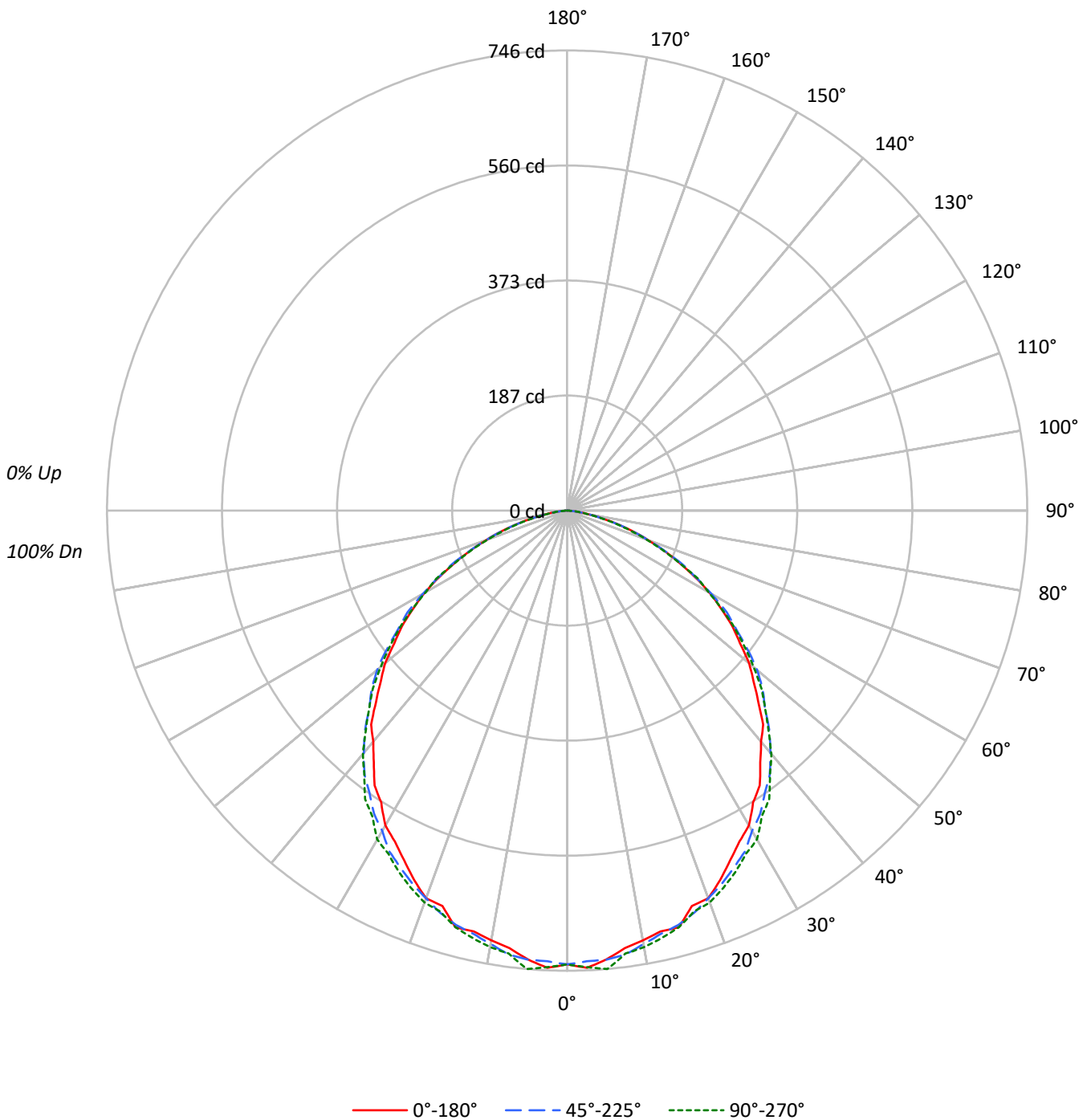
Lumens per Lamp: N/A
Luminaire Lumens: 1854.0 lumens
Efficiency: N/A
Efficacy: 111.7 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 16.6
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





TEST NUMBER: P588906

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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° | 1979 | 1979 | 1979 |
| 5° | 1973 | 1974 | 2015 |
| 10° | 1933 | 1950 | 1964 |
| 15° | 1948 | 1938 | 1948 |
| 20° | 1915 | 1915 | 1936 |
| 25° | 1857 | 1897 | 1918 |
| 30° | 1831 | 1863 | 1913 |
| 35° | 1788 | 1835 | 1876 |
| 40° | 1718 | 1801 | 1809 |
| 45° | 1666 | 1725 | 1728 |
| 50° | 1612 | 1684 | 1652 |
| 55° | 1536 | 1566 | 1554 |
| 60° | 1436 | 1450 | 1424 |
| 65° | 1280 | 1313 | 1271 |
| 70° | 1098 | 1102 | 1072 |
| 75° | 870 | 868 | 835 |
| 80° | 583 | 567 | 544 |
| 85° | 318 | 315 | 293 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 69.2 | 3.7 |
| 10°-20° | 196.1 | 10.6 |
| 20°-30° | 293.8 | 15.8 |
| 30°-40° | 348.2 | 18.8 |
| 40°-50° | 348.9 | 18.8 |
| 50°-60° | 296.1 | 16.0 |
| 60°-70° | 199.7 | 10.8 |
| 70°-80° | 87.7 | 4.7 |
| 80°-90° | 14.3 | 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° | 559.1 | 30.2 |
| 0°-40° | 907.4 | 48.9 |
| 0°-60° | 1552.4 | 83.7 |
| 0°-90° | 1854.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1854.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 736 | 736 | 736 | 736 | 736 | |
| 5° | 730 | 729 | 731 | 728 | 746 | 69 |
| 15° | 699 | 691 | 696 | 699 | 699 | 195 |
| 25° | 625 | 629 | 639 | 647 | 646 | 289 |
| 35° | 544 | 546 | 558 | 571 | 571 | 338 |
| 45° | 438 | 446 | 453 | 465 | 454 | 339 |
| 55° | 327 | 325 | 334 | 331 | 331 | 291 |
| 65° | 201 | 198 | 206 | 198 | 200 | 200 |
| 75° | 84 | 82 | 84 | 78 | 80 | 90 |
| 85° | 10 | 10 | 10 | 10 | 10 | 15 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P588906

CATALOG NUMBER: FMR-24-2-LD4-1STD-35-UNV-82-94-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 735.6 | 735.6 | 735.6 | 735.6 | 735.6 |
| 2.5° | 742.0 | 736.4 | 731.2 | 737.2 | 740.9 |
| 5° | 730.4 | 728.7 | 730.7 | 728.5 | 746.1 |
| 7.5° | 715.4 | 721.9 | 725.7 | 723.4 | 724.4 |
| 10° | 707.4 | 705.1 | 713.6 | 719.5 | 718.6 |
| 12.5° | 698.9 | 702.3 | 702.8 | 709.1 | 709.7 |
| 15° | 699.3 | 691.3 | 695.5 | 699.1 | 699.4 |
| 17.5° | 672.2 | 680.9 | 683.9 | 692.1 | 681.9 |
| 20° | 668.8 | 662.5 | 668.8 | 677.3 | 676.0 |
| 22.5° | 648.4 | 641.3 | 655.0 | 662.5 | 662.0 |
| 25° | 625.3 | 628.7 | 638.9 | 647.3 | 646.0 |
| 27.5° | 604.9 | 608.9 | 623.5 | 635.0 | 627.6 |
| 30° | 589.3 | 587.3 | 599.6 | 609.9 | 615.6 |
| 32.5° | 561.2 | 568.5 | 582.9 | 593.1 | 587.6 |
| 35° | 544.2 | 545.9 | 558.5 | 571.4 | 571.0 |
| 37.5° | 514.5 | 522.0 | 539.8 | 543.4 | 540.1 |
| 40° | 489.1 | 496.7 | 512.7 | 516.6 | 515.0 |
| 42.5° | 470.4 | 471.8 | 485.5 | 490.0 | 482.9 |
| 45° | 437.9 | 446.0 | 453.4 | 465.1 | 454.1 |
| 47.5° | 410.1 | 413.9 | 429.9 | 433.0 | 427.2 |
| 50° | 385.0 | 386.3 | 402.3 | 398.4 | 394.6 |
| 52.5° | 353.3 | 358.9 | 368.0 | 367.2 | 362.7 |
| 55° | 327.3 | 325.1 | 333.7 | 331.4 | 331.3 |
| 57.5° | 296.1 | 299.9 | 306.9 | 303.3 | 297.5 |
| 60° | 266.8 | 266.9 | 269.5 | 265.4 | 264.6 |
| 62.5° | 234.2 | 235.4 | 235.9 | 230.9 | 239.1 |
| 65° | 201.1 | 198.4 | 206.2 | 198.3 | 199.6 |
| 67.5° | 170.6 | 171.9 | 171.2 | 166.2 | 168.1 |
| 70° | 139.6 | 141.3 | 140.1 | 134.5 | 136.2 |
| 72.5° | 111.3 | 109.2 | 110.6 | 103.5 | 106.8 |
| 75° | 83.7 | 82.0 | 83.5 | 77.6 | 80.3 |
| 77.5° | 57.0 | 58.3 | 57.4 | 54.2 | 56.0 |
| 80° | 37.6 | 36.6 | 36.6 | 34.8 | 35.1 |
| 82.5° | 21.9 | 20.9 | 20.6 | 20.0 | 20.9 |
| 85° | 10.3 | 10.0 | 10.2 | 9.9 | 9.5 |
| 87.5° | 3.7 | 3.8 | 3.8 | 3.6 | 3.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)