

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: P588779

Luminaire Tested: **FMR-24-2-LD4-1HI-50-UNV-82-96-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P588779
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-82-96-EDD
Description: 2X2 FMR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .250 CLEAR
TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

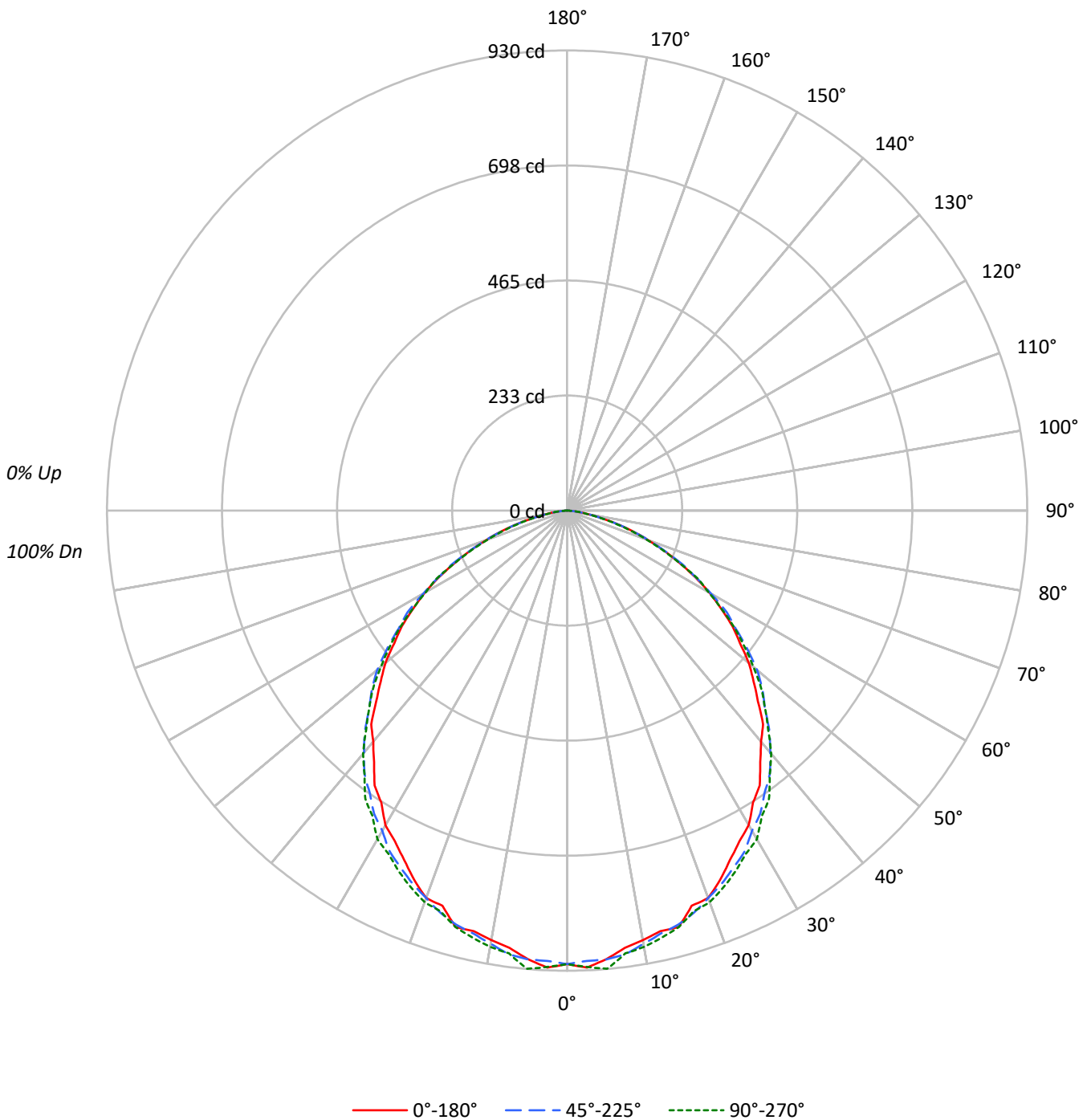
Lumens per Lamp: N/A
Luminaire Lumens: 2310.0 lumens
Efficiency: N/A
Efficacy: 106.9 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

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° | 2466 | 2466 | 2466 |
| 5° | 2458 | 2459 | 2511 |
| 10° | 2408 | 2429 | 2447 |
| 15° | 2427 | 2414 | 2428 |
| 20° | 2387 | 2387 | 2412 |
| 25° | 2313 | 2364 | 2390 |
| 30° | 2281 | 2321 | 2383 |
| 35° | 2228 | 2286 | 2337 |
| 40° | 2141 | 2244 | 2254 |
| 45° | 2076 | 2150 | 2153 |
| 50° | 2008 | 2099 | 2058 |
| 55° | 1913 | 1950 | 1937 |
| 60° | 1789 | 1807 | 1774 |
| 65° | 1595 | 1636 | 1584 |
| 70° | 1369 | 1374 | 1335 |
| 75° | 1084 | 1081 | 1040 |
| 80° | 727 | 707 | 679 |
| 85° | 395 | 392 | 364 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 86.2 | 3.7 |
| 10°-20° | 244.3 | 10.6 |
| 20°-30° | 366.1 | 15.8 |
| 30°-40° | 433.9 | 18.8 |
| 40°-50° | 434.7 | 18.8 |
| 50°-60° | 369.0 | 16.0 |
| 60°-70° | 248.8 | 10.8 |
| 70°-80° | 109.3 | 4.7 |
| 80°-90° | 17.8 | 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° | 696.6 | 30.2 |
| 0°-40° | 1130.5 | 48.9 |
| 0°-60° | 1934.2 | 83.7 |
| 0°-90° | 2310.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2310.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 916 | 916 | 916 | 916 | 916 | |
| 5° | 910 | 908 | 910 | 908 | 930 | 86 |
| 15° | 871 | 861 | 867 | 871 | 872 | 243 |
| 25° | 779 | 783 | 796 | 806 | 805 | 360 |
| 35° | 678 | 680 | 696 | 712 | 712 | 421 |
| 45° | 546 | 556 | 565 | 580 | 566 | 422 |
| 55° | 408 | 405 | 416 | 413 | 413 | 363 |
| 65° | 250 | 247 | 257 | 247 | 249 | 249 |
| 75° | 104 | 102 | 104 | 97 | 100 | 112 |
| 85° | 13 | 12 | 13 | 12 | 12 | 19 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P588779

CATALOG NUMBER: FMR-24-2-LD4-1HI-50-UNV-82-96-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 916.5 | 916.5 | 916.5 | 916.5 | 916.5 |
| 2.5° | 924.5 | 917.5 | 911.0 | 918.6 | 923.2 |
| 5° | 910.0 | 907.9 | 910.4 | 907.7 | 929.6 |
| 7.5° | 891.3 | 899.5 | 904.2 | 901.3 | 902.6 |
| 10° | 881.4 | 878.6 | 889.1 | 896.4 | 895.4 |
| 12.5° | 870.8 | 875.0 | 875.6 | 883.5 | 884.2 |
| 15° | 871.3 | 861.3 | 866.6 | 871.1 | 871.5 |
| 17.5° | 837.5 | 848.4 | 852.1 | 862.3 | 849.6 |
| 20° | 833.4 | 825.4 | 833.4 | 843.9 | 842.2 |
| 22.5° | 807.9 | 799.0 | 816.1 | 825.4 | 824.8 |
| 25° | 779.0 | 783.3 | 796.1 | 806.5 | 804.8 |
| 27.5° | 753.7 | 758.7 | 776.9 | 791.2 | 782.0 |
| 30° | 734.2 | 731.7 | 747.1 | 759.9 | 767.0 |
| 32.5° | 699.3 | 708.3 | 726.3 | 738.9 | 732.2 |
| 35° | 678.1 | 680.1 | 695.8 | 711.9 | 711.5 |
| 37.5° | 641.1 | 650.4 | 672.5 | 677.0 | 672.9 |
| 40° | 609.5 | 618.8 | 638.8 | 643.7 | 641.6 |
| 42.5° | 586.1 | 587.8 | 605.0 | 610.5 | 601.6 |
| 45° | 545.6 | 555.7 | 565.0 | 579.5 | 565.8 |
| 47.5° | 511.0 | 515.7 | 535.6 | 539.5 | 532.3 |
| 50° | 479.6 | 481.3 | 501.3 | 496.4 | 491.7 |
| 52.5° | 440.2 | 447.2 | 458.5 | 457.5 | 451.9 |
| 55° | 407.8 | 405.1 | 415.7 | 412.9 | 412.8 |
| 57.5° | 368.9 | 373.6 | 382.4 | 377.9 | 370.6 |
| 60° | 332.4 | 332.5 | 335.7 | 330.6 | 329.7 |
| 62.5° | 291.8 | 293.2 | 294.0 | 287.7 | 297.9 |
| 65° | 250.5 | 247.2 | 256.9 | 247.1 | 248.8 |
| 67.5° | 212.5 | 214.2 | 213.3 | 207.1 | 209.5 |
| 70° | 174.0 | 176.1 | 174.6 | 167.6 | 169.7 |
| 72.5° | 138.7 | 136.1 | 137.7 | 129.0 | 133.0 |
| 75° | 104.3 | 102.1 | 104.0 | 96.7 | 100.0 |
| 77.5° | 71.0 | 72.7 | 71.5 | 67.6 | 69.8 |
| 80° | 46.9 | 45.6 | 45.6 | 43.3 | 43.8 |
| 82.5° | 27.3 | 26.0 | 25.7 | 25.0 | 26.0 |
| 85° | 12.8 | 12.4 | 12.7 | 12.3 | 11.8 |
| 87.5° | 4.6 | 4.7 | 4.7 | 4.5 | 4.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)