

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: P589762

Luminaire Tested: **FMR-24-2-LD4-4STD-35-UNV-81-94-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589762
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-LD4-4STD-35-UNV-81-94-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .187 CLEAR
TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

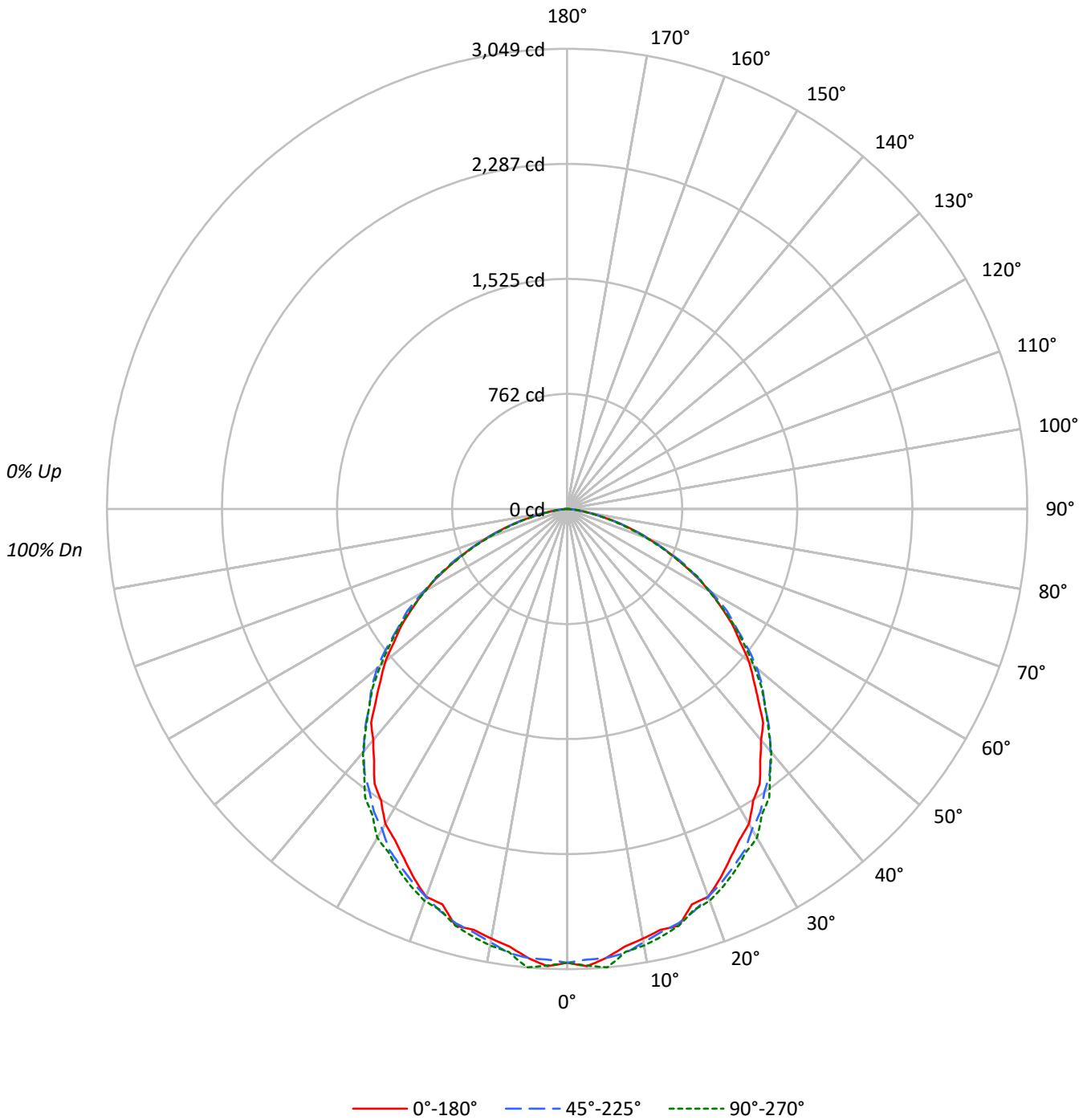
Lumens per Lamp: N/A
Luminaire Lumens: 7577.0 lumens
Efficiency: N/A
Efficacy: 113.8 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 66.6
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° | 8090 | 8090 | 8090 |
| 5° | 8063 | 8066 | 8236 |
| 10° | 7900 | 7969 | 8025 |
| 15° | 7962 | 7919 | 7964 |
| 20° | 7828 | 7828 | 7911 |
| 25° | 7587 | 7753 | 7838 |
| 30° | 7483 | 7614 | 7817 |
| 35° | 7307 | 7498 | 7666 |
| 40° | 7022 | 7360 | 7393 |
| 45° | 6810 | 7052 | 7062 |
| 50° | 6586 | 6884 | 6752 |
| 55° | 6275 | 6397 | 6352 |
| 60° | 5868 | 5927 | 5820 |
| 65° | 5233 | 5366 | 5195 |
| 70° | 4489 | 4504 | 4379 |
| 75° | 3556 | 3548 | 3410 |
| 80° | 2382 | 2315 | 2225 |
| 85° | 1294 | 1281 | 1198 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 282.8 | 3.7 |
| 10°-20° | 801.5 | 10.6 |
| 20°-30° | 1200.8 | 15.8 |
| 30°-40° | 1423.2 | 18.8 |
| 40°-50° | 1425.8 | 18.8 |
| 50°-60° | 1210.3 | 16.0 |
| 60°-70° | 816.0 | 10.8 |
| 70°-80° | 358.5 | 4.7 |
| 80°-90° | 58.3 | 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° | 2285.0 | 30.2 |
| 0°-40° | 3708.2 | 48.9 |
| 0°-60° | 6344.2 | 83.7 |
| 0°-90° | 7577.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7577.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3006 | 3006 | 3006 | 3006 | 3006 | |
| 5° | 2985 | 2978 | 2986 | 2977 | 3049 | 281 |
| 15° | 2858 | 2825 | 2843 | 2857 | 2858 | 796 |
| 25° | 2555 | 2569 | 2611 | 2645 | 2640 | 1181 |
| 35° | 2224 | 2231 | 2282 | 2335 | 2334 | 1381 |
| 45° | 1790 | 1823 | 1853 | 1901 | 1856 | 1384 |
| 55° | 1338 | 1329 | 1364 | 1354 | 1354 | 1190 |
| 65° | 822 | 811 | 843 | 810 | 816 | 817 |
| 75° | 342 | 335 | 341 | 317 | 328 | 366 |
| 85° | 42 | 41 | 42 | 40 | 39 | 61 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589762

CATALOG NUMBER: FMR-24-2-LD4-4STD-35-UNV-81-94-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3006.4 | 3006.4 | 3006.4 | 3006.4 | 3006.4 |
| 2.5° | 3032.4 | 3009.5 | 2988.1 | 3013.0 | 3028.1 |
| 5° | 2985.0 | 2978.0 | 2986.2 | 2977.2 | 3049.1 |
| 7.5° | 2923.7 | 2950.5 | 2966.0 | 2956.3 | 2960.6 |
| 10° | 2891.1 | 2881.8 | 2916.3 | 2940.4 | 2936.9 |
| 12.5° | 2856.1 | 2870.1 | 2872.1 | 2898.1 | 2900.4 |
| 15° | 2858.1 | 2825.1 | 2842.6 | 2857.3 | 2858.5 |
| 17.5° | 2747.1 | 2782.8 | 2794.8 | 2828.6 | 2786.7 |
| 20° | 2733.5 | 2707.5 | 2733.5 | 2768.0 | 2762.6 |
| 22.5° | 2650.0 | 2620.9 | 2676.8 | 2707.5 | 2705.5 |
| 25° | 2555.3 | 2569.3 | 2611.2 | 2645.4 | 2639.9 |
| 27.5° | 2472.2 | 2488.5 | 2548.3 | 2595.3 | 2565.0 |
| 30° | 2408.2 | 2400.0 | 2450.5 | 2492.4 | 2515.7 |
| 32.5° | 2293.7 | 2323.2 | 2382.2 | 2423.7 | 2401.6 |
| 35° | 2224.2 | 2230.8 | 2282.4 | 2335.2 | 2333.7 |
| 37.5° | 2102.7 | 2133.4 | 2206.0 | 2220.7 | 2207.1 |
| 40° | 1999.1 | 2029.7 | 2095.3 | 2111.2 | 2104.6 |
| 42.5° | 1922.6 | 1928.0 | 1984.3 | 2002.6 | 1973.4 |
| 45° | 1789.5 | 1822.8 | 1853.1 | 1900.9 | 1855.8 |
| 47.5° | 1676.1 | 1691.6 | 1756.8 | 1769.7 | 1746.0 |
| 50° | 1573.2 | 1578.7 | 1644.3 | 1628.4 | 1612.8 |
| 52.5° | 1444.0 | 1466.9 | 1503.8 | 1500.7 | 1482.4 |
| 55° | 1337.6 | 1328.7 | 1363.6 | 1354.3 | 1353.9 |
| 57.5° | 1209.9 | 1225.4 | 1254.2 | 1239.4 | 1215.7 |
| 60° | 1090.4 | 1090.8 | 1101.2 | 1084.5 | 1081.4 |
| 62.5° | 957.2 | 961.9 | 964.2 | 943.6 | 977.0 |
| 65° | 821.8 | 810.9 | 842.7 | 810.5 | 815.9 |
| 67.5° | 697.1 | 702.6 | 699.5 | 679.3 | 687.1 |
| 70° | 570.6 | 577.6 | 572.5 | 549.6 | 556.6 |
| 72.5° | 454.9 | 446.4 | 451.8 | 423.1 | 436.3 |
| 75° | 342.0 | 335.0 | 341.2 | 317.1 | 328.0 |
| 77.5° | 232.9 | 238.3 | 234.5 | 221.6 | 229.0 |
| 80° | 153.7 | 149.4 | 149.4 | 142.1 | 143.6 |
| 82.5° | 89.7 | 85.4 | 84.2 | 81.9 | 85.4 |
| 85° | 41.9 | 40.8 | 41.5 | 40.4 | 38.8 |
| 87.5° | 15.1 | 15.5 | 15.5 | 14.8 | 14.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)