

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: P588724

Luminaire Tested: **FMR-24-2-LD4-1HI-35-UNV-93-97-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P588724
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-35-UNV-93-97-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

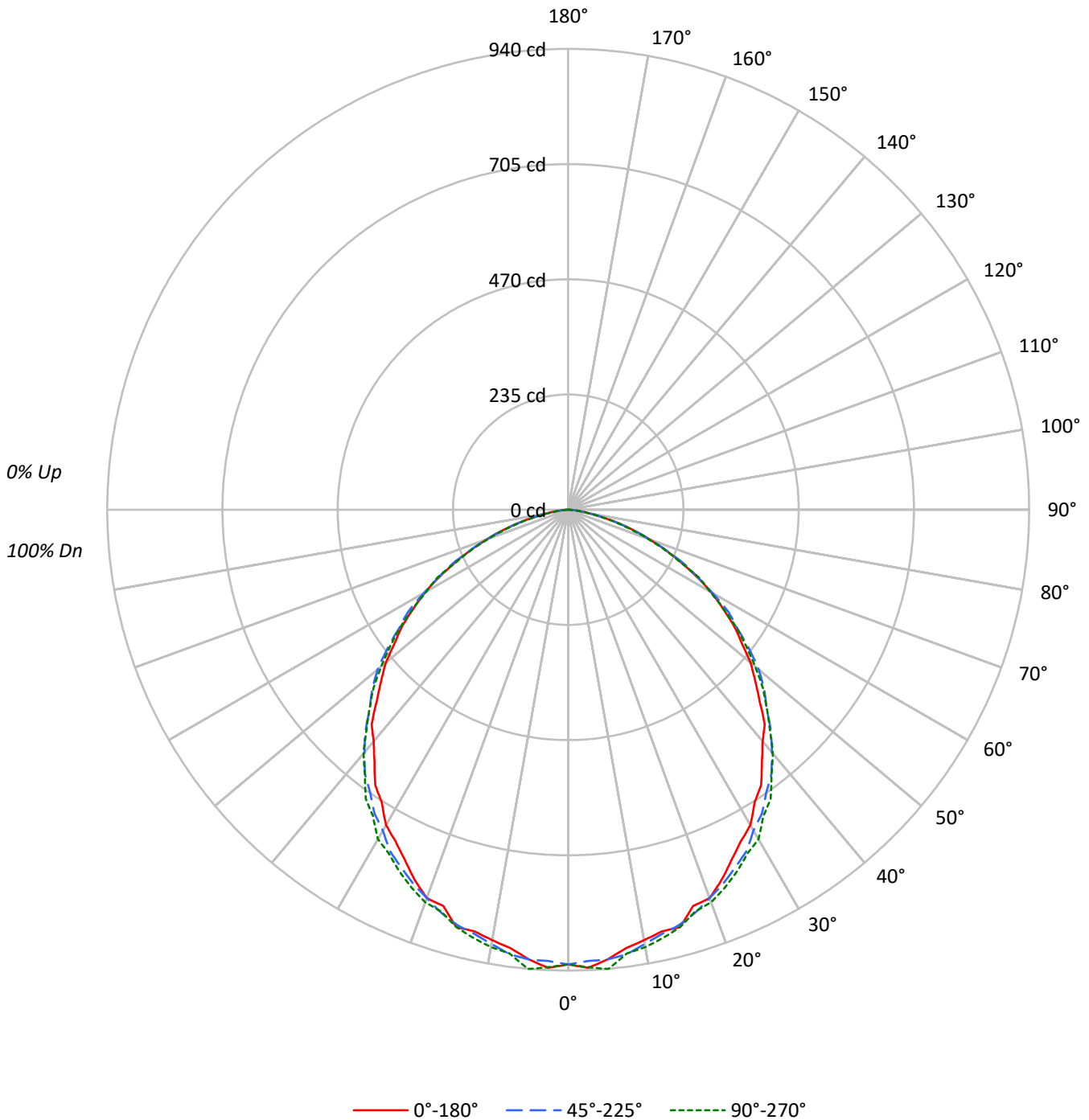
Lumens per Lamp: N/A
Luminaire Lumens: 2337.0 lumens
Efficiency: N/A
Efficacy: 108.2 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 21.6
Input Voltage (V): NR
Input Current (A_{in}): 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

TEST NUMBER: P588724

CATALOG NUMBER: FMR-24-2-LD4-1HI-35-UNV-93-97-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P588724

CATALOG NUMBER: FMR-24-2-LD4-1HI-35-UNV-93-97-EDD

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° | 2495 | 2495 | 2495 |
| 5° | 2487 | 2488 | 2540 |
| 10° | 2437 | 2458 | 2475 |
| 15° | 2456 | 2442 | 2456 |
| 20° | 2414 | 2414 | 2440 |
| 25° | 2340 | 2391 | 2417 |
| 30° | 2308 | 2348 | 2411 |
| 35° | 2254 | 2313 | 2365 |
| 40° | 2166 | 2270 | 2280 |
| 45° | 2100 | 2175 | 2178 |
| 50° | 2031 | 2123 | 2083 |
| 55° | 1936 | 1973 | 1959 |
| 60° | 1810 | 1828 | 1795 |
| 65° | 1614 | 1655 | 1603 |
| 70° | 1385 | 1389 | 1351 |
| 75° | 1097 | 1094 | 1052 |
| 80° | 735 | 714 | 687 |
| 85° | 398 | 395 | 371 |



TEST NUMBER: P588724

CATALOG NUMBER: FMR-24-2-LD4-1HI-35-UNV-93-97-EDD

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 87.2 | 3.7 |
| 10°-20° | 247.2 | 10.6 |
| 20°-30° | 370.4 | 15.8 |
| 30°-40° | 438.9 | 18.8 |
| 40°-50° | 439.8 | 18.8 |
| 50°-60° | 373.3 | 16.0 |
| 60°-70° | 251.7 | 10.8 |
| 70°-80° | 110.6 | 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° | 704.8 | 30.2 |
| 0°-40° | 1143.7 | 48.9 |
| 0°-60° | 1956.8 | 83.7 |
| 0°-90° | 2337.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2337.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 927 | 927 | 927 | 927 | 927 | |
| 5° | 921 | 918 | 921 | 918 | 940 | 87 |
| 15° | 882 | 871 | 877 | 881 | 882 | 246 |
| 25° | 788 | 792 | 805 | 816 | 814 | 364 |
| 35° | 686 | 688 | 704 | 720 | 720 | 426 |
| 45° | 552 | 562 | 572 | 586 | 572 | 427 |
| 55° | 413 | 410 | 421 | 418 | 418 | 367 |
| 65° | 254 | 250 | 260 | 250 | 252 | 252 |
| 75° | 106 | 103 | 105 | 98 | 101 | 113 |
| 85° | 13 | 13 | 13 | 12 | 12 | 19 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P588724

CATALOG NUMBER: FMR-24-2-LD4-1HI-35-UNV-93-97-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 927.3 | 927.3 | 927.3 | 927.3 | 927.3 |
| 2.5° | 935.3 | 928.2 | 921.6 | 929.3 | 934.0 |
| 5° | 920.7 | 918.5 | 921.0 | 918.3 | 940.4 |
| 7.5° | 901.8 | 910.0 | 914.8 | 911.8 | 913.1 |
| 10° | 891.7 | 888.8 | 899.5 | 906.9 | 905.8 |
| 12.5° | 880.9 | 885.2 | 885.8 | 893.9 | 894.6 |
| 15° | 881.5 | 871.4 | 876.7 | 881.3 | 881.6 |
| 17.5° | 847.3 | 858.3 | 862.0 | 872.4 | 859.5 |
| 20° | 843.1 | 835.1 | 843.1 | 853.8 | 852.1 |
| 22.5° | 817.4 | 808.4 | 825.6 | 835.1 | 834.5 |
| 25° | 788.1 | 792.5 | 805.4 | 815.9 | 814.2 |
| 27.5° | 762.5 | 767.6 | 786.0 | 800.5 | 791.1 |
| 30° | 742.8 | 740.3 | 755.8 | 768.7 | 775.9 |
| 32.5° | 707.4 | 716.5 | 734.7 | 747.6 | 740.7 |
| 35° | 686.0 | 688.1 | 704.0 | 720.3 | 719.8 |
| 37.5° | 648.5 | 658.0 | 680.4 | 684.9 | 680.8 |
| 40° | 616.6 | 626.0 | 646.3 | 651.2 | 649.1 |
| 42.5° | 593.0 | 594.7 | 612.0 | 617.7 | 608.7 |
| 45° | 551.9 | 562.2 | 571.6 | 586.3 | 572.4 |
| 47.5° | 517.0 | 521.8 | 541.9 | 545.8 | 538.5 |
| 50° | 485.2 | 486.9 | 507.2 | 502.2 | 497.5 |
| 52.5° | 445.4 | 452.4 | 463.8 | 462.9 | 457.2 |
| 55° | 412.6 | 409.8 | 420.6 | 417.7 | 417.6 |
| 57.5° | 373.2 | 378.0 | 386.8 | 382.3 | 375.0 |
| 60° | 336.3 | 336.4 | 339.7 | 334.5 | 333.6 |
| 62.5° | 295.2 | 296.7 | 297.4 | 291.0 | 301.3 |
| 65° | 253.5 | 250.1 | 259.9 | 250.0 | 251.7 |
| 67.5° | 215.0 | 216.7 | 215.7 | 209.5 | 211.9 |
| 70° | 176.0 | 178.1 | 176.6 | 169.5 | 171.7 |
| 72.5° | 140.3 | 137.7 | 139.4 | 130.5 | 134.6 |
| 75° | 105.5 | 103.3 | 105.2 | 97.8 | 101.2 |
| 77.5° | 71.8 | 73.5 | 72.3 | 68.4 | 70.6 |
| 80° | 47.4 | 46.1 | 46.1 | 43.8 | 44.3 |
| 82.5° | 27.7 | 26.3 | 26.0 | 25.3 | 26.3 |
| 85° | 12.9 | 12.6 | 12.8 | 12.5 | 12.0 |
| 87.5° | 4.7 | 4.8 | 4.8 | 4.5 | 4.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)