

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: P589496

Luminaire Tested: **FMR-24-2-LD4-3STD-40-UNV-80-87-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589496
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-LD4-3STD-40-UNV-80-87-EDD
Description: 2X2 FMR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

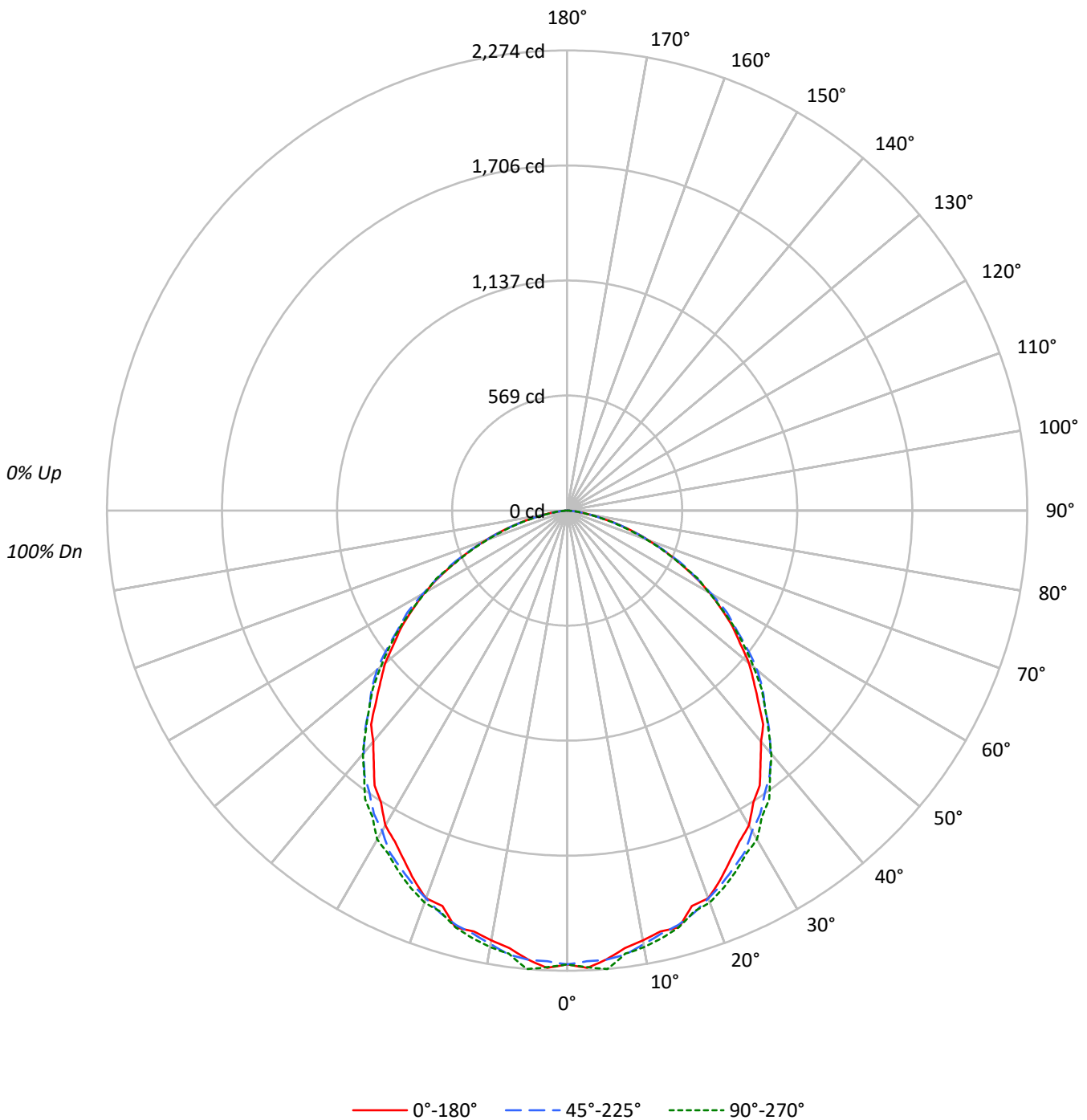
Lumens per Lamp: N/A
Luminaire Lumens: 5652.0 lumens
Efficiency: N/A
Efficacy: 113.0 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 50
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° | 6035 | 6035 | 6035 |
| 5° | 6015 | 6017 | 6144 |
| 10° | 5893 | 5944 | 5986 |
| 15° | 5940 | 5907 | 5940 |
| 20° | 5839 | 5839 | 5901 |
| 25° | 5660 | 5783 | 5847 |
| 30° | 5582 | 5680 | 5831 |
| 35° | 5450 | 5593 | 5719 |
| 40° | 5238 | 5491 | 5515 |
| 45° | 5080 | 5261 | 5268 |
| 50° | 4913 | 5135 | 5037 |
| 55° | 4681 | 4772 | 4738 |
| 60° | 4377 | 4421 | 4342 |
| 65° | 3903 | 4003 | 3875 |
| 70° | 3349 | 3360 | 3267 |
| 75° | 2652 | 2646 | 2544 |
| 80° | 1777 | 1728 | 1660 |
| 85° | 966 | 957 | 895 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 210.9 | 3.7 |
| 10°-20° | 597.9 | 10.6 |
| 20°-30° | 895.7 | 15.8 |
| 30°-40° | 1061.6 | 18.8 |
| 40°-50° | 1063.6 | 18.8 |
| 50°-60° | 902.8 | 16.0 |
| 60°-70° | 608.7 | 10.8 |
| 70°-80° | 267.5 | 4.7 |
| 80°-90° | 43.5 | 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° | 1704.5 | 30.2 |
| 0°-40° | 2766.1 | 48.9 |
| 0°-60° | 4732.4 | 83.7 |
| 0°-90° | 5652.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5652.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2243 | 2243 | 2243 | 2243 | 2243 | |
| 5° | 2227 | 2221 | 2228 | 2221 | 2274 | 210 |
| 15° | 2132 | 2107 | 2120 | 2131 | 2132 | 594 |
| 25° | 1906 | 1916 | 1948 | 1973 | 1969 | 881 |
| 35° | 1659 | 1664 | 1703 | 1742 | 1741 | 1030 |
| 45° | 1335 | 1360 | 1382 | 1418 | 1384 | 1033 |
| 55° | 998 | 991 | 1017 | 1010 | 1010 | 888 |
| 65° | 613 | 605 | 629 | 605 | 609 | 610 |
| 75° | 255 | 250 | 254 | 237 | 245 | 273 |
| 85° | 31 | 30 | 31 | 30 | 29 | 45 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589496

CATALOG NUMBER: FMR-24-2-LD4-3STD-40-UNV-80-87-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2242.6 | 2242.6 | 2242.6 | 2242.6 | 2242.6 |
| 2.5° | 2262.0 | 2244.9 | 2229.0 | 2247.5 | 2258.8 |
| 5° | 2226.6 | 2221.4 | 2227.5 | 2220.9 | 2274.4 |
| 7.5° | 2180.9 | 2200.9 | 2212.5 | 2205.2 | 2208.4 |
| 10° | 2156.6 | 2149.6 | 2175.4 | 2193.3 | 2190.7 |
| 12.5° | 2130.5 | 2140.9 | 2142.4 | 2161.8 | 2163.5 |
| 15° | 2132.0 | 2107.4 | 2120.4 | 2131.4 | 2132.3 |
| 17.5° | 2049.2 | 2075.8 | 2084.8 | 2110.0 | 2078.7 |
| 20° | 2039.0 | 2019.6 | 2039.0 | 2064.8 | 2060.7 |
| 22.5° | 1976.8 | 1955.0 | 1996.7 | 2019.6 | 2018.2 |
| 25° | 1906.1 | 1916.5 | 1947.8 | 1973.3 | 1969.2 |
| 27.5° | 1844.1 | 1856.3 | 1900.9 | 1935.9 | 1913.4 |
| 30° | 1796.4 | 1790.3 | 1827.9 | 1859.2 | 1876.6 |
| 32.5° | 1711.0 | 1733.0 | 1777.0 | 1808.0 | 1791.5 |
| 35° | 1659.1 | 1664.0 | 1702.6 | 1741.9 | 1740.8 |
| 37.5° | 1568.5 | 1591.4 | 1645.5 | 1656.5 | 1646.4 |
| 40° | 1491.2 | 1514.1 | 1563.0 | 1574.9 | 1569.9 |
| 42.5° | 1434.1 | 1438.2 | 1480.2 | 1493.8 | 1472.1 |
| 45° | 1334.8 | 1359.7 | 1382.3 | 1417.9 | 1384.3 |
| 47.5° | 1250.3 | 1261.9 | 1310.5 | 1320.1 | 1302.4 |
| 50° | 1173.5 | 1177.6 | 1226.5 | 1214.7 | 1203.1 |
| 52.5° | 1077.1 | 1094.2 | 1121.7 | 1119.4 | 1105.8 |
| 55° | 997.8 | 991.1 | 1017.2 | 1010.2 | 1010.0 |
| 57.5° | 902.5 | 914.1 | 935.5 | 924.5 | 906.9 |
| 60° | 813.3 | 813.6 | 821.5 | 809.0 | 806.7 |
| 62.5° | 714.0 | 717.5 | 719.2 | 703.9 | 728.8 |
| 65° | 613.0 | 604.9 | 628.6 | 604.6 | 608.6 |
| 67.5° | 520.0 | 524.1 | 521.8 | 506.7 | 512.5 |
| 70° | 425.6 | 430.9 | 427.1 | 410.0 | 415.2 |
| 72.5° | 339.4 | 333.0 | 337.0 | 315.6 | 325.5 |
| 75° | 255.1 | 249.9 | 254.5 | 236.6 | 244.7 |
| 77.5° | 173.7 | 177.8 | 174.9 | 165.3 | 170.8 |
| 80° | 114.7 | 111.5 | 111.5 | 106.0 | 107.1 |
| 82.5° | 66.9 | 63.7 | 62.8 | 61.1 | 63.7 |
| 85° | 31.3 | 30.4 | 31.0 | 30.1 | 29.0 |
| 87.5° | 11.3 | 11.6 | 11.6 | 11.0 | 10.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)