

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: P589546

Luminaire Tested: **FMR-24-2-LD4-3STD-50-UNV-82-94-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589546
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-50-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 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

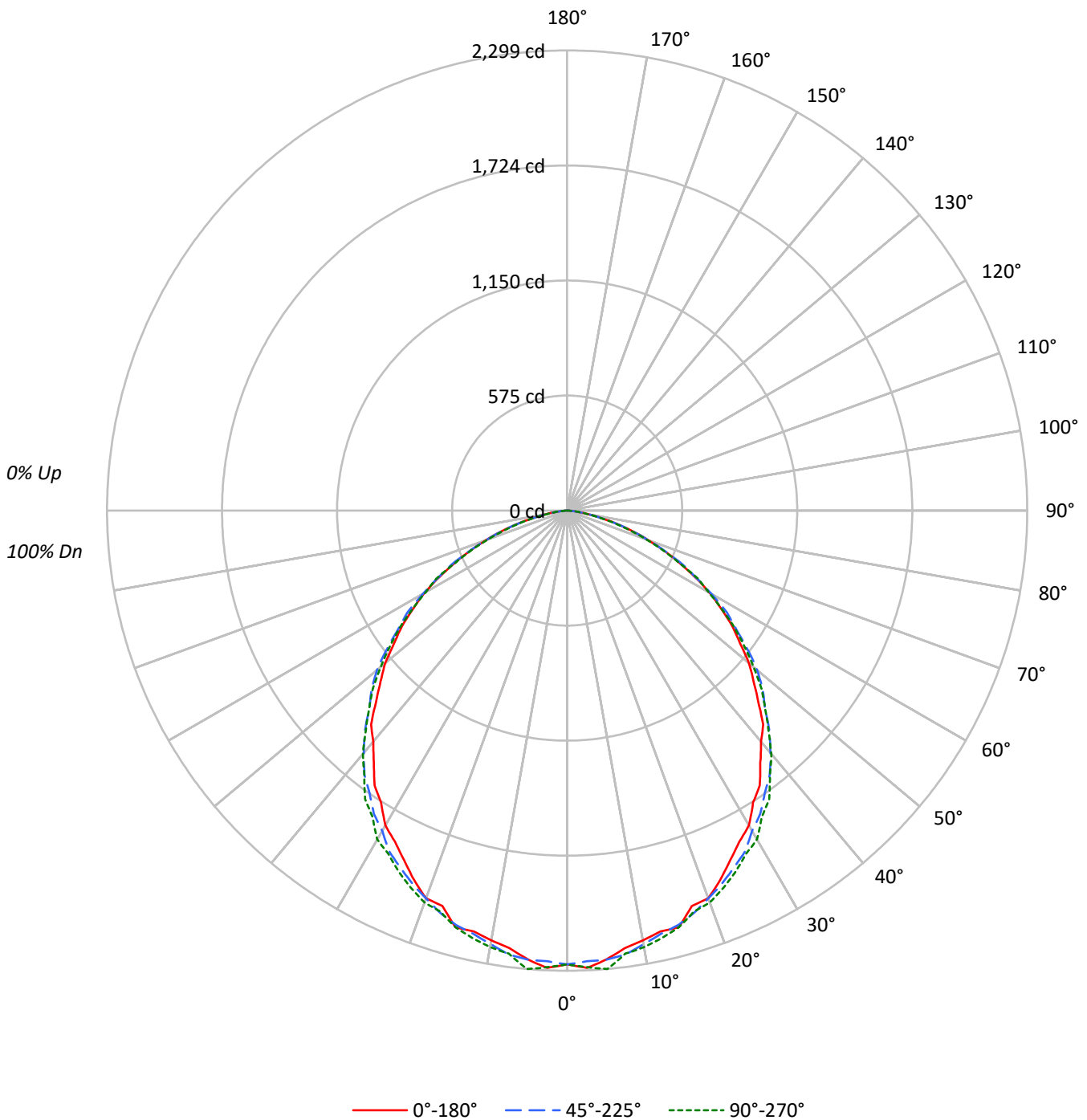
Lumens per Lamp: N/A
Luminaire Lumens: 5714.0 lumens
Efficiency: N/A
Efficacy: 114.3 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

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





TEST NUMBER: P589546

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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° | 6101 | 6101 | 6101 |
| 5° | 6081 | 6083 | 6211 |
| 10° | 5957 | 6010 | 6052 |
| 15° | 6004 | 5972 | 6005 |
| 20° | 5903 | 5903 | 5966 |
| 25° | 5722 | 5847 | 5911 |
| 30° | 5643 | 5742 | 5895 |
| 35° | 5510 | 5654 | 5781 |
| 40° | 5296 | 5551 | 5576 |
| 45° | 5136 | 5318 | 5326 |
| 50° | 4967 | 5191 | 5092 |
| 55° | 4732 | 4825 | 4790 |
| 60° | 4426 | 4470 | 4389 |
| 65° | 3946 | 4046 | 3918 |
| 70° | 3386 | 3397 | 3303 |
| 75° | 2681 | 2675 | 2572 |
| 80° | 1796 | 1746 | 1678 |
| 85° | 976 | 966 | 905 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 213.3 | 3.7 |
| 10°-20° | 604.4 | 10.6 |
| 20°-30° | 905.5 | 15.8 |
| 30°-40° | 1073.2 | 18.8 |
| 40°-50° | 1075.2 | 18.8 |
| 50°-60° | 912.7 | 16.0 |
| 60°-70° | 615.3 | 10.8 |
| 70°-80° | 270.4 | 4.7 |
| 80°-90° | 43.9 | 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° | 1723.2 | 30.2 |
| 0°-40° | 2796.4 | 48.9 |
| 0°-60° | 4784.3 | 83.7 |
| 0°-90° | 5714.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5714.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2267 | 2267 | 2267 | 2267 | 2267 | |
| 5° | 2251 | 2246 | 2252 | 2245 | 2299 | 212 |
| 15° | 2155 | 2130 | 2144 | 2155 | 2156 | 601 |
| 25° | 1927 | 1938 | 1969 | 1995 | 1991 | 891 |
| 35° | 1677 | 1682 | 1721 | 1761 | 1760 | 1041 |
| 45° | 1350 | 1375 | 1398 | 1434 | 1400 | 1044 |
| 55° | 1009 | 1002 | 1028 | 1021 | 1021 | 897 |
| 65° | 620 | 612 | 636 | 611 | 615 | 616 |
| 75° | 258 | 253 | 257 | 239 | 247 | 276 |
| 85° | 32 | 31 | 31 | 30 | 29 | 46 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589546

CATALOG NUMBER: FMR-24-2-LD4-3STD-50-UNV-82-94-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2267.2 | 2267.2 | 2267.2 | 2267.2 | 2267.2 |
| 2.5° | 2286.8 | 2269.5 | 2253.4 | 2272.1 | 2283.6 |
| 5° | 2251.1 | 2245.8 | 2251.9 | 2245.2 | 2299.4 |
| 7.5° | 2204.8 | 2225.0 | 2236.7 | 2229.4 | 2232.6 |
| 10° | 2180.2 | 2173.2 | 2199.3 | 2217.4 | 2214.8 |
| 12.5° | 2153.9 | 2164.4 | 2165.9 | 2185.5 | 2187.3 |
| 15° | 2155.3 | 2130.5 | 2143.6 | 2154.8 | 2155.6 |
| 17.5° | 2071.6 | 2098.6 | 2107.6 | 2133.1 | 2101.5 |
| 20° | 2061.4 | 2041.8 | 2061.4 | 2087.4 | 2083.3 |
| 22.5° | 1998.4 | 1976.5 | 2018.6 | 2041.8 | 2040.3 |
| 25° | 1927.0 | 1937.6 | 1969.2 | 1994.9 | 1990.8 |
| 27.5° | 1864.4 | 1876.7 | 1921.8 | 1957.2 | 1934.3 |
| 30° | 1816.1 | 1809.9 | 1848.0 | 1879.6 | 1897.2 |
| 32.5° | 1729.7 | 1752.0 | 1796.5 | 1827.8 | 1811.1 |
| 35° | 1677.3 | 1682.3 | 1721.2 | 1761.0 | 1759.9 |
| 37.5° | 1585.7 | 1608.8 | 1663.6 | 1674.7 | 1664.4 |
| 40° | 1507.5 | 1530.7 | 1580.1 | 1592.1 | 1587.2 |
| 42.5° | 1449.9 | 1454.0 | 1496.4 | 1510.2 | 1488.2 |
| 45° | 1349.5 | 1374.6 | 1397.5 | 1433.5 | 1399.5 |
| 47.5° | 1264.0 | 1275.7 | 1324.9 | 1334.5 | 1316.7 |
| 50° | 1186.4 | 1190.5 | 1240.0 | 1228.0 | 1216.3 |
| 52.5° | 1088.9 | 1106.2 | 1134.0 | 1131.7 | 1117.9 |
| 55° | 1008.7 | 1002.0 | 1028.4 | 1021.3 | 1021.0 |
| 57.5° | 912.4 | 924.1 | 945.8 | 934.7 | 916.8 |
| 60° | 822.3 | 822.6 | 830.5 | 817.9 | 815.5 |
| 62.5° | 721.9 | 725.4 | 727.1 | 711.6 | 736.8 |
| 65° | 619.7 | 611.5 | 635.5 | 611.2 | 615.3 |
| 67.5° | 525.7 | 529.8 | 527.5 | 512.3 | 518.1 |
| 70° | 430.3 | 435.6 | 431.8 | 414.5 | 419.8 |
| 72.5° | 343.1 | 336.6 | 340.7 | 319.1 | 329.0 |
| 75° | 257.9 | 252.6 | 257.3 | 239.2 | 247.4 |
| 77.5° | 175.6 | 179.7 | 176.8 | 167.1 | 172.7 |
| 80° | 115.9 | 112.7 | 112.7 | 107.1 | 108.3 |
| 82.5° | 67.6 | 64.4 | 63.5 | 61.8 | 64.4 |
| 85° | 31.6 | 30.7 | 31.3 | 30.4 | 29.3 |
| 87.5° | 11.4 | 11.7 | 11.7 | 11.1 | 10.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)