

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: P589020

Luminaire Tested: **FMR-24-2-LD4-2HI-40-UNV-80-97-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589020
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-LD4-2HI-40-UNV-80-97-EDD
Description: 2X2 FMR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

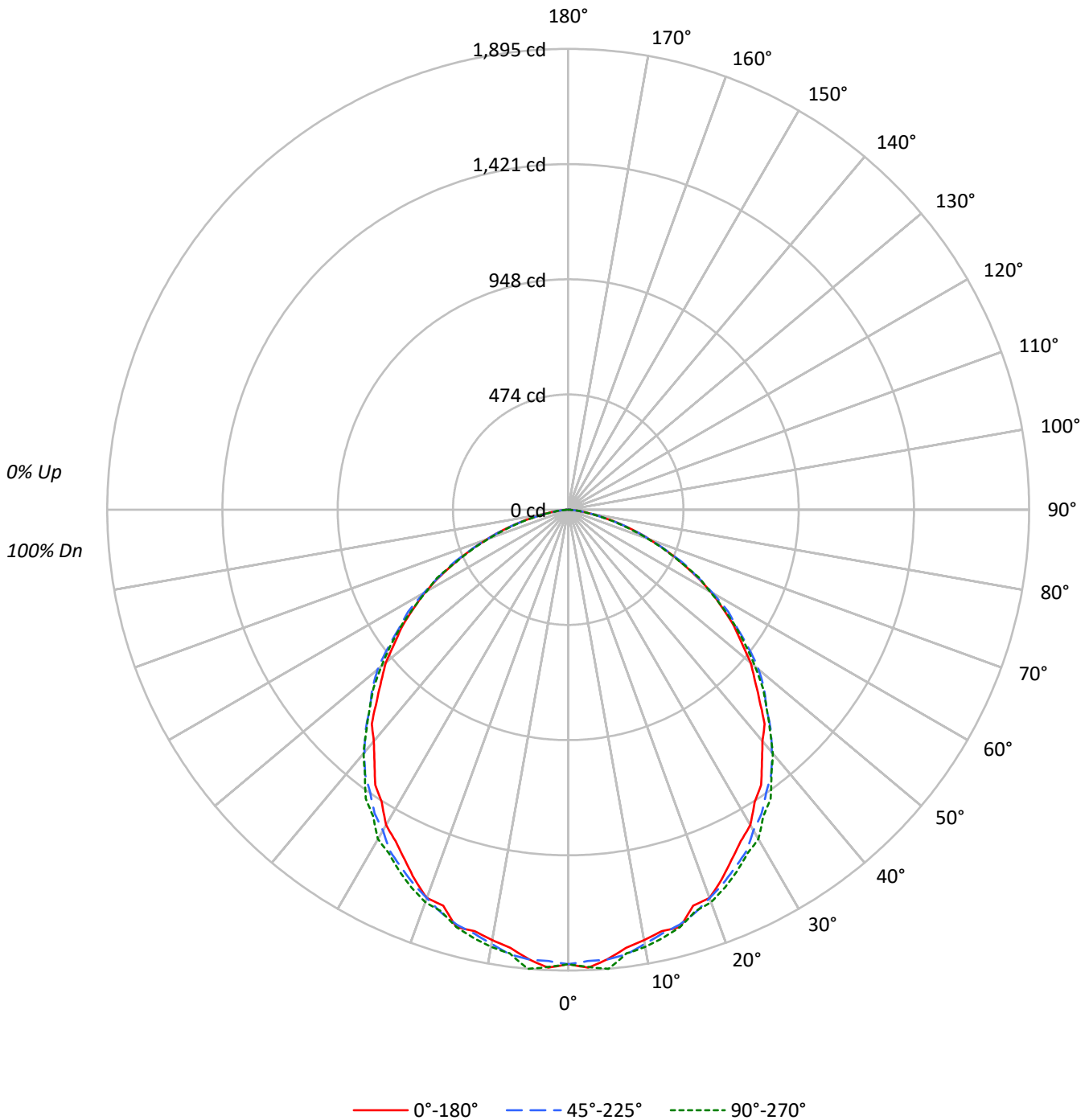
Lumens per Lamp: N/A
Luminaire Lumens: 4710.0 lumens
Efficiency: N/A
Efficacy: 109.0 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 43.2
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: P589020

CATALOG NUMBER: FMR-24-2-LD4-2HI-40-UNV-80-97-EDD

Luminous Intensity Polar Plot





TEST NUMBER: P589020

CATALOG NUMBER: FMR-24-2-LD4-2HI-40-UNV-80-97-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° | 5029 | 5029 | 5029 |
| 5° | 5012 | 5014 | 5120 |
| 10° | 4911 | 4953 | 4988 |
| 15° | 4949 | 4923 | 4950 |
| 20° | 4866 | 4866 | 4918 |
| 25° | 4716 | 4820 | 4872 |
| 30° | 4652 | 4733 | 4859 |
| 35° | 4542 | 4661 | 4765 |
| 40° | 4365 | 4575 | 4596 |
| 45° | 4233 | 4384 | 4390 |
| 50° | 4094 | 4279 | 4197 |
| 55° | 3901 | 3977 | 3948 |
| 60° | 3648 | 3684 | 3618 |
| 65° | 3252 | 3335 | 3230 |
| 70° | 2791 | 2800 | 2722 |
| 75° | 2210 | 2205 | 2120 |
| 80° | 1481 | 1440 | 1384 |
| 85° | 806 | 797 | 744 |



TEST NUMBER: P589020

CATALOG NUMBER: FMR-24-2-LD4-2HI-40-UNV-80-97-EDD

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 175.8 | 3.7 |
| 10°-20° | 498.2 | 10.6 |
| 20°-30° | 746.4 | 15.8 |
| 30°-40° | 884.7 | 18.8 |
| 40°-50° | 886.3 | 18.8 |
| 50°-60° | 752.3 | 16.0 |
| 60°-70° | 507.2 | 10.8 |
| 70°-80° | 222.9 | 4.7 |
| 80°-90° | 36.2 | 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° | 1420.4 | 30.2 |
| 0°-40° | 2305.1 | 48.9 |
| 0°-60° | 3943.7 | 83.7 |
| 0°-90° | 4710.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4710.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1869 | 1869 | 1869 | 1869 | 1869 | |
| 5° | 1856 | 1851 | 1856 | 1851 | 1895 | 175 |
| 15° | 1777 | 1756 | 1767 | 1776 | 1777 | 495 |
| 25° | 1588 | 1597 | 1623 | 1644 | 1641 | 734 |
| 35° | 1383 | 1387 | 1419 | 1452 | 1451 | 858 |
| 45° | 1112 | 1133 | 1152 | 1182 | 1154 | 860 |
| 55° | 832 | 826 | 848 | 842 | 842 | 740 |
| 65° | 511 | 504 | 524 | 504 | 507 | 508 |
| 75° | 213 | 208 | 212 | 197 | 204 | 228 |
| 85° | 26 | 25 | 26 | 25 | 24 | 38 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589020

CATALOG NUMBER: FMR-24-2-LD4-2HI-40-UNV-80-97-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1868.8 | 1868.8 | 1868.8 | 1868.8 | 1868.8 |
| 2.5° | 1885.0 | 1870.7 | 1857.5 | 1872.9 | 1882.3 |
| 5° | 1855.5 | 1851.2 | 1856.3 | 1850.7 | 1895.4 |
| 7.5° | 1817.4 | 1834.1 | 1843.7 | 1837.7 | 1840.3 |
| 10° | 1797.1 | 1791.4 | 1812.8 | 1827.8 | 1825.6 |
| 12.5° | 1775.4 | 1784.1 | 1785.3 | 1801.5 | 1802.9 |
| 15° | 1776.6 | 1756.1 | 1767.0 | 1776.2 | 1776.9 |
| 17.5° | 1707.6 | 1729.8 | 1737.3 | 1758.3 | 1732.2 |
| 20° | 1699.2 | 1683.0 | 1699.2 | 1720.7 | 1717.3 |
| 22.5° | 1647.3 | 1629.2 | 1664.0 | 1683.0 | 1681.8 |
| 25° | 1588.4 | 1597.1 | 1623.2 | 1644.4 | 1641.0 |
| 27.5° | 1536.8 | 1546.9 | 1584.1 | 1613.3 | 1594.5 |
| 30° | 1497.0 | 1491.9 | 1523.3 | 1549.3 | 1563.8 |
| 32.5° | 1425.8 | 1444.1 | 1480.8 | 1506.6 | 1492.9 |
| 35° | 1382.6 | 1386.7 | 1418.8 | 1451.6 | 1450.6 |
| 37.5° | 1307.1 | 1326.1 | 1371.3 | 1380.4 | 1372.0 |
| 40° | 1242.7 | 1261.7 | 1302.5 | 1312.4 | 1308.3 |
| 42.5° | 1195.1 | 1198.5 | 1233.5 | 1244.8 | 1226.7 |
| 45° | 1112.4 | 1133.1 | 1151.9 | 1181.6 | 1153.6 |
| 47.5° | 1041.9 | 1051.6 | 1092.1 | 1100.1 | 1085.3 |
| 50° | 978.0 | 981.3 | 1022.1 | 1012.2 | 1002.6 |
| 52.5° | 897.6 | 911.8 | 934.8 | 932.8 | 921.5 |
| 55° | 831.5 | 825.9 | 847.7 | 841.9 | 841.6 |
| 57.5° | 752.1 | 761.8 | 779.6 | 770.4 | 755.7 |
| 60° | 677.8 | 678.0 | 684.5 | 674.2 | 672.2 |
| 62.5° | 595.0 | 597.9 | 599.4 | 586.6 | 607.3 |
| 65° | 510.8 | 504.1 | 523.8 | 503.8 | 507.2 |
| 67.5° | 433.4 | 436.7 | 434.8 | 422.3 | 427.1 |
| 70° | 354.7 | 359.0 | 355.9 | 341.7 | 346.0 |
| 72.5° | 282.8 | 277.5 | 280.9 | 263.0 | 271.2 |
| 75° | 212.6 | 208.2 | 212.1 | 197.1 | 203.9 |
| 77.5° | 144.8 | 148.2 | 145.7 | 137.8 | 142.4 |
| 80° | 95.6 | 92.9 | 92.9 | 88.3 | 89.3 |
| 82.5° | 55.7 | 53.1 | 52.4 | 50.9 | 53.1 |
| 85° | 26.1 | 25.3 | 25.8 | 25.1 | 24.1 |
| 87.5° | 9.4 | 9.7 | 9.7 | 9.2 | 8.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)