

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: P588995

Luminaire Tested: **FMR-24-2-LD4-2HI-35-UNV-81-96-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P588995
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-35-UNV-81-96-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .250 CLEAR
TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

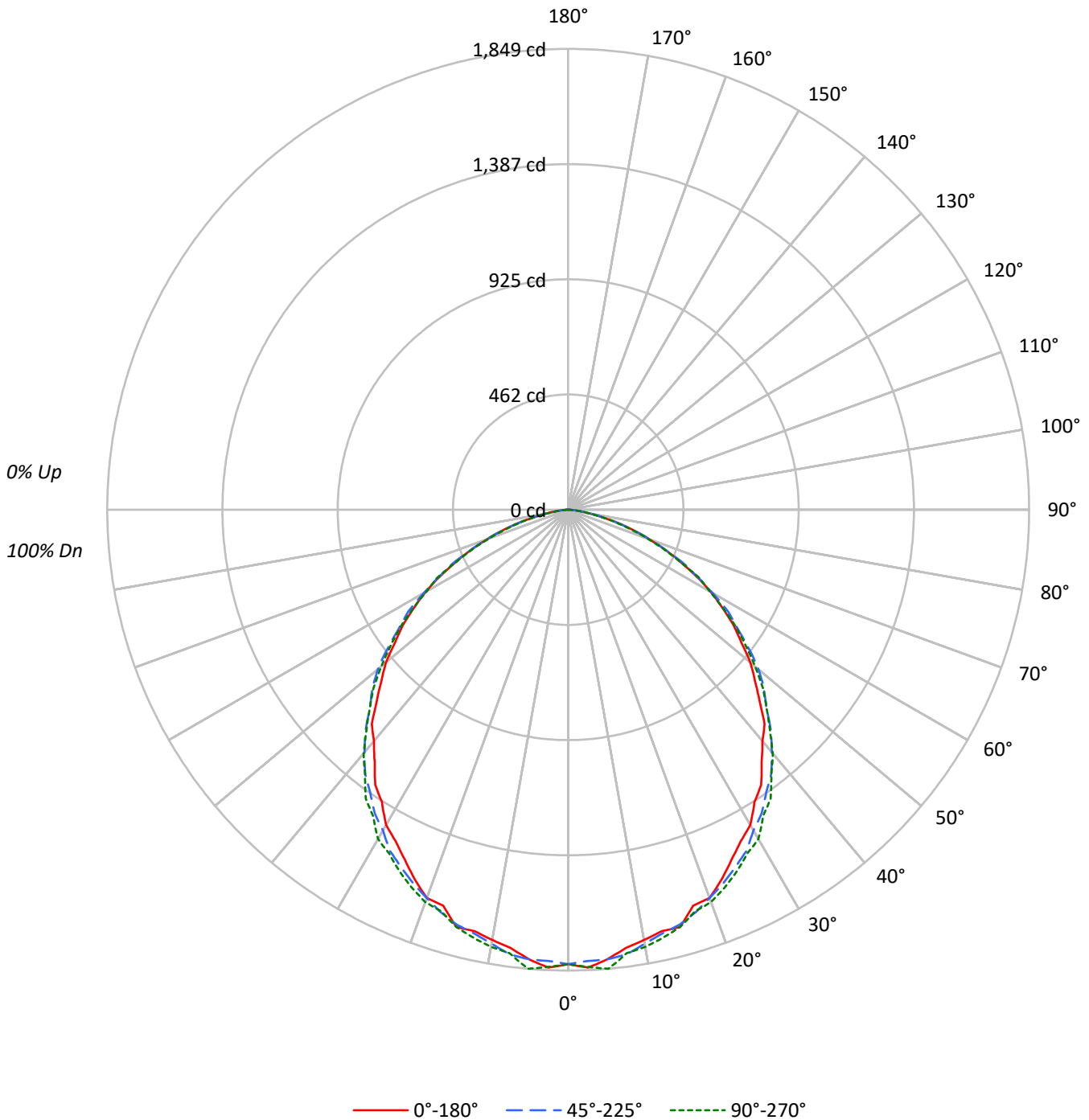
Lumens per Lamp: N/A
Luminaire Lumens: 4595.0 lumens
Efficiency: N/A
Efficacy: 106.4 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 43.2
Input Voltage (V): NR
Input Current (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 | 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 | | | | | 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° | 4906 | 4906 | 4906 |
| 5° | 4890 | 4892 | 4995 |
| 10° | 4791 | 4833 | 4867 |
| 15° | 4829 | 4802 | 4829 |
| 20° | 4747 | 4747 | 4798 |
| 25° | 4601 | 4702 | 4754 |
| 30° | 4538 | 4618 | 4740 |
| 35° | 4431 | 4547 | 4649 |
| 40° | 4259 | 4464 | 4483 |
| 45° | 4130 | 4277 | 4283 |
| 50° | 3994 | 4175 | 4095 |
| 55° | 3806 | 3880 | 3852 |
| 60° | 3559 | 3594 | 3529 |
| 65° | 3173 | 3254 | 3151 |
| 70° | 2722 | 2732 | 2656 |
| 75° | 2156 | 2151 | 2068 |
| 80° | 1444 | 1404 | 1350 |
| 85° | 784 | 778 | 726 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 171.5 | 3.7 |
| 10°-20° | 486.0 | 10.6 |
| 20°-30° | 728.2 | 15.8 |
| 30°-40° | 863.1 | 18.8 |
| 40°-50° | 864.7 | 18.8 |
| 50°-60° | 734.0 | 16.0 |
| 60°-70° | 494.8 | 10.8 |
| 70°-80° | 217.4 | 4.7 |
| 80°-90° | 35.3 | 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° | 1385.7 | 30.2 |
| 0°-40° | 2248.8 | 48.9 |
| 0°-60° | 3847.4 | 83.7 |
| 0°-90° | 4595.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4595.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1823 | 1823 | 1823 | 1823 | 1823 | |
| 5° | 1810 | 1806 | 1811 | 1806 | 1849 | 171 |
| 15° | 1733 | 1713 | 1724 | 1733 | 1734 | 483 |
| 25° | 1550 | 1558 | 1584 | 1604 | 1601 | 716 |
| 35° | 1349 | 1353 | 1384 | 1416 | 1415 | 837 |
| 45° | 1085 | 1105 | 1124 | 1153 | 1126 | 839 |
| 55° | 811 | 806 | 827 | 821 | 821 | 722 |
| 65° | 498 | 492 | 511 | 492 | 495 | 496 |
| 75° | 207 | 203 | 207 | 192 | 199 | 222 |
| 85° | 25 | 25 | 25 | 24 | 24 | 37 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P588995

CATALOG NUMBER: FMR-24-2-LD4-2HI-35-UNV-81-96-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1823.2 | 1823.2 | 1823.2 | 1823.2 | 1823.2 |
| 2.5° | 1839.0 | 1825.1 | 1812.1 | 1827.2 | 1836.4 |
| 5° | 1810.2 | 1806.0 | 1810.9 | 1805.5 | 1849.1 |
| 7.5° | 1773.0 | 1789.3 | 1798.7 | 1792.8 | 1795.4 |
| 10° | 1753.3 | 1747.6 | 1768.6 | 1783.2 | 1781.0 |
| 12.5° | 1732.1 | 1740.6 | 1741.7 | 1757.5 | 1758.9 |
| 15° | 1733.3 | 1713.2 | 1723.8 | 1732.8 | 1733.5 |
| 17.5° | 1665.9 | 1687.6 | 1694.9 | 1715.4 | 1689.9 |
| 20° | 1657.7 | 1641.9 | 1657.7 | 1678.6 | 1675.3 |
| 22.5° | 1607.1 | 1589.4 | 1623.3 | 1641.9 | 1640.7 |
| 25° | 1549.6 | 1558.1 | 1583.5 | 1604.3 | 1601.0 |
| 27.5° | 1499.3 | 1509.2 | 1545.4 | 1573.9 | 1555.5 |
| 30° | 1460.4 | 1455.5 | 1486.1 | 1511.5 | 1525.6 |
| 32.5° | 1391.0 | 1408.9 | 1444.7 | 1469.8 | 1456.4 |
| 35° | 1348.8 | 1352.8 | 1384.2 | 1416.2 | 1415.2 |
| 37.5° | 1275.2 | 1293.8 | 1337.8 | 1346.7 | 1338.5 |
| 40° | 1212.3 | 1230.9 | 1270.7 | 1280.3 | 1276.3 |
| 42.5° | 1165.9 | 1169.2 | 1203.4 | 1214.4 | 1196.8 |
| 45° | 1085.2 | 1105.4 | 1123.8 | 1152.8 | 1125.5 |
| 47.5° | 1016.5 | 1025.9 | 1065.4 | 1073.2 | 1058.8 |
| 50° | 954.1 | 957.4 | 997.2 | 987.5 | 978.1 |
| 52.5° | 875.7 | 889.6 | 911.9 | 910.1 | 899.0 |
| 55° | 811.2 | 805.8 | 827.0 | 821.3 | 821.1 |
| 57.5° | 733.7 | 743.2 | 760.6 | 751.6 | 737.3 |
| 60° | 661.2 | 661.5 | 667.8 | 657.7 | 655.8 |
| 62.5° | 580.5 | 583.3 | 584.7 | 572.3 | 592.5 |
| 65° | 498.3 | 491.8 | 511.1 | 491.5 | 494.8 |
| 67.5° | 422.8 | 426.1 | 424.2 | 412.0 | 416.7 |
| 70° | 346.0 | 350.3 | 347.2 | 333.3 | 337.6 |
| 72.5° | 275.9 | 270.7 | 274.0 | 256.6 | 264.6 |
| 75° | 207.4 | 203.2 | 206.9 | 192.3 | 198.9 |
| 77.5° | 141.2 | 144.5 | 142.2 | 134.4 | 138.9 |
| 80° | 93.2 | 90.6 | 90.6 | 86.2 | 87.1 |
| 82.5° | 54.4 | 51.8 | 51.1 | 49.7 | 51.8 |
| 85° | 25.4 | 24.7 | 25.2 | 24.5 | 23.5 |
| 87.5° | 9.2 | 9.4 | 9.4 | 8.9 | 8.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)