

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: P589656

Luminaire Tested: **FMR-24-2-LD4-4LO-35-UNV-80-87-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589656
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-LD4-4LO-35-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 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

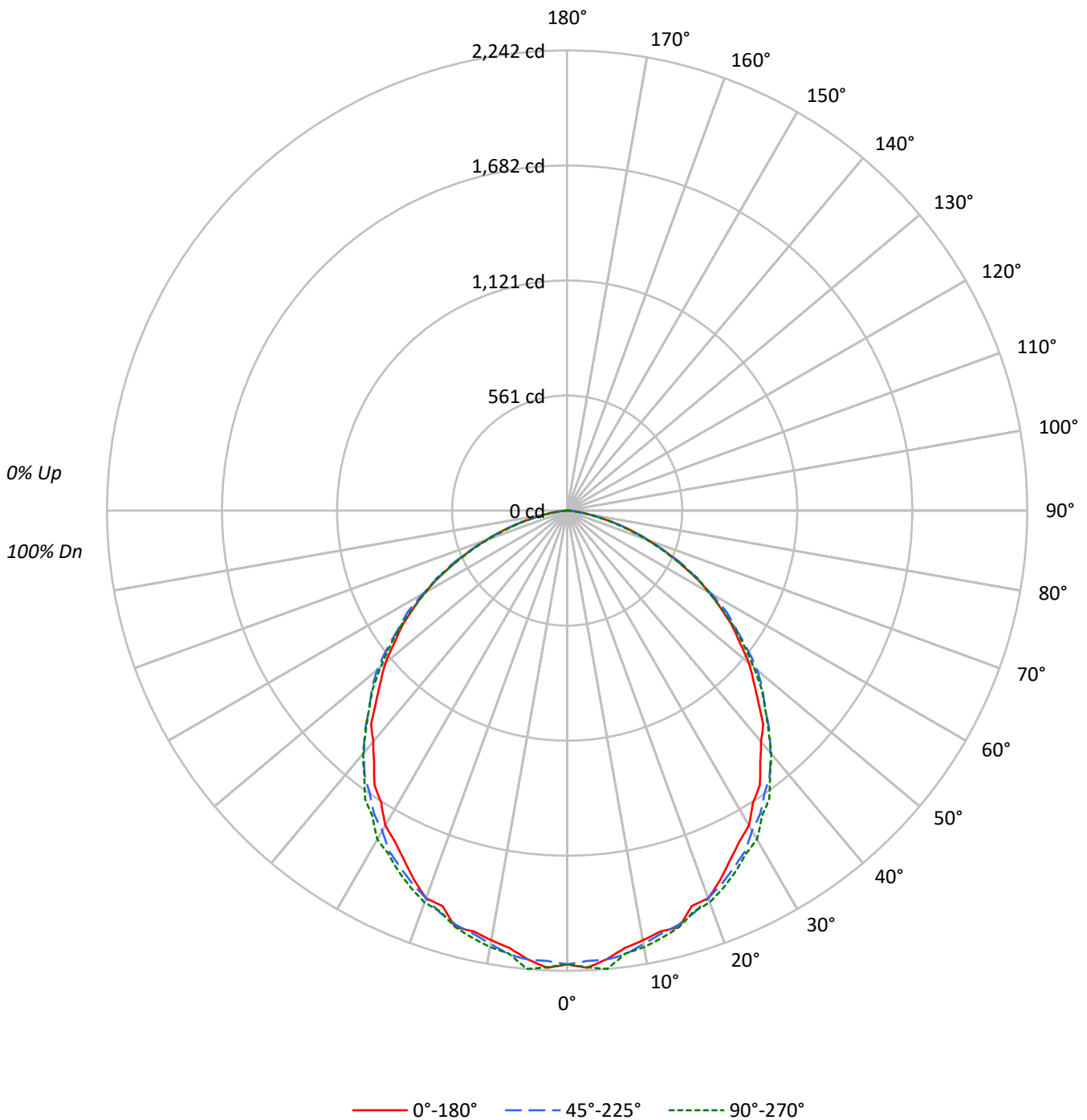
Lumens per Lamp: N/A
Luminaire Lumens: 5571.0 lumens
Efficiency: N/A
Efficacy: 119.0 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 46.8
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° | 5948 | 5948 | 5948 |
| 5° | 5928 | 5931 | 6056 |
| 10° | 5808 | 5859 | 5900 |
| 15° | 5854 | 5823 | 5855 |
| 20° | 5755 | 5755 | 5817 |
| 25° | 5578 | 5701 | 5763 |
| 30° | 5502 | 5598 | 5748 |
| 35° | 5372 | 5513 | 5637 |
| 40° | 5163 | 5412 | 5436 |
| 45° | 5007 | 5185 | 5193 |
| 50° | 4842 | 5061 | 4964 |
| 55° | 4614 | 4704 | 4670 |
| 60° | 4315 | 4358 | 4279 |
| 65° | 3847 | 3945 | 3820 |
| 70° | 3301 | 3312 | 3220 |
| 75° | 2614 | 2609 | 2508 |
| 80° | 1751 | 1703 | 1636 |
| 85° | 951 | 942 | 880 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 207.9 | 3.7 |
| 10°-20° | 589.3 | 10.6 |
| 20°-30° | 882.9 | 15.8 |
| 30°-40° | 1046.4 | 18.8 |
| 40°-50° | 1048.3 | 18.8 |
| 50°-60° | 889.8 | 16.0 |
| 60°-70° | 599.9 | 10.8 |
| 70°-80° | 263.6 | 4.7 |
| 80°-90° | 42.8 | 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° | 1680.1 | 30.2 |
| 0°-40° | 2726.5 | 48.9 |
| 0°-60° | 4664.6 | 83.7 |
| 0°-90° | 5571.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5571.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2210 | 2210 | 2210 | 2210 | 2210 | |
| 5° | 2195 | 2190 | 2196 | 2189 | 2242 | 207 |
| 15° | 2101 | 2077 | 2090 | 2101 | 2102 | 585 |
| 25° | 1879 | 1889 | 1920 | 1945 | 1941 | 869 |
| 35° | 1635 | 1640 | 1678 | 1717 | 1716 | 1015 |
| 45° | 1316 | 1340 | 1362 | 1398 | 1364 | 1018 |
| 55° | 984 | 977 | 1003 | 996 | 996 | 875 |
| 65° | 604 | 596 | 620 | 596 | 600 | 601 |
| 75° | 251 | 246 | 251 | 233 | 241 | 269 |
| 85° | 31 | 30 | 30 | 30 | 28 | 45 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589656

CATALOG NUMBER: FMR-24-2-LD4-4LO-35-UNV-80-87-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2210.4 | 2210.4 | 2210.4 | 2210.4 | 2210.4 |
| 2.5° | 2229.6 | 2212.7 | 2197.0 | 2215.3 | 2226.4 |
| 5° | 2194.7 | 2189.6 | 2195.6 | 2189.0 | 2241.8 |
| 7.5° | 2149.6 | 2169.3 | 2180.8 | 2173.6 | 2176.8 |
| 10° | 2125.7 | 2118.8 | 2144.2 | 2161.9 | 2159.3 |
| 12.5° | 2100.0 | 2110.3 | 2111.7 | 2130.8 | 2132.5 |
| 15° | 2101.4 | 2077.1 | 2090.0 | 2100.8 | 2101.7 |
| 17.5° | 2019.8 | 2046.0 | 2054.9 | 2079.7 | 2048.9 |
| 20° | 2009.8 | 1990.7 | 2009.8 | 2035.2 | 2031.2 |
| 22.5° | 1948.4 | 1927.0 | 1968.1 | 1990.7 | 1989.2 |
| 25° | 1878.8 | 1889.1 | 1919.9 | 1945.0 | 1941.0 |
| 27.5° | 1817.7 | 1829.7 | 1873.7 | 1908.2 | 1885.9 |
| 30° | 1770.6 | 1764.6 | 1801.7 | 1832.6 | 1849.7 |
| 32.5° | 1686.4 | 1708.1 | 1751.5 | 1782.0 | 1765.8 |
| 35° | 1635.3 | 1640.2 | 1678.2 | 1717.0 | 1715.8 |
| 37.5° | 1546.0 | 1568.6 | 1621.9 | 1632.8 | 1622.8 |
| 40° | 1469.8 | 1492.4 | 1540.6 | 1552.3 | 1547.4 |
| 42.5° | 1413.6 | 1417.6 | 1459.0 | 1472.4 | 1451.0 |
| 45° | 1315.7 | 1340.2 | 1362.5 | 1397.6 | 1364.5 |
| 47.5° | 1232.4 | 1243.8 | 1291.7 | 1301.1 | 1283.7 |
| 50° | 1156.7 | 1160.7 | 1209.0 | 1197.3 | 1185.8 |
| 52.5° | 1061.7 | 1078.5 | 1105.6 | 1103.4 | 1089.9 |
| 55° | 983.5 | 976.9 | 1002.6 | 995.8 | 995.5 |
| 57.5° | 889.6 | 901.0 | 922.1 | 911.3 | 893.9 |
| 60° | 801.7 | 802.0 | 809.7 | 797.4 | 795.1 |
| 62.5° | 703.8 | 707.2 | 708.9 | 693.8 | 718.4 |
| 65° | 604.2 | 596.2 | 619.6 | 595.9 | 599.9 |
| 67.5° | 512.6 | 516.6 | 514.3 | 499.5 | 505.2 |
| 70° | 419.5 | 424.7 | 421.0 | 404.1 | 409.3 |
| 72.5° | 334.5 | 328.2 | 332.2 | 311.1 | 320.8 |
| 75° | 251.4 | 246.3 | 250.9 | 233.2 | 241.2 |
| 77.5° | 171.2 | 175.2 | 172.4 | 163.0 | 168.4 |
| 80° | 113.0 | 109.9 | 109.9 | 104.5 | 105.6 |
| 82.5° | 65.9 | 62.8 | 61.9 | 60.2 | 62.8 |
| 85° | 30.8 | 30.0 | 30.5 | 29.7 | 28.5 |
| 87.5° | 11.1 | 11.4 | 11.4 | 10.8 | 10.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)