

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: P589509

Luminaire Tested: **FMR-24-2-LD4-3STD-40-UNV-82-84-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589509
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-82-84-EDD
Description: 2X2 FMR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

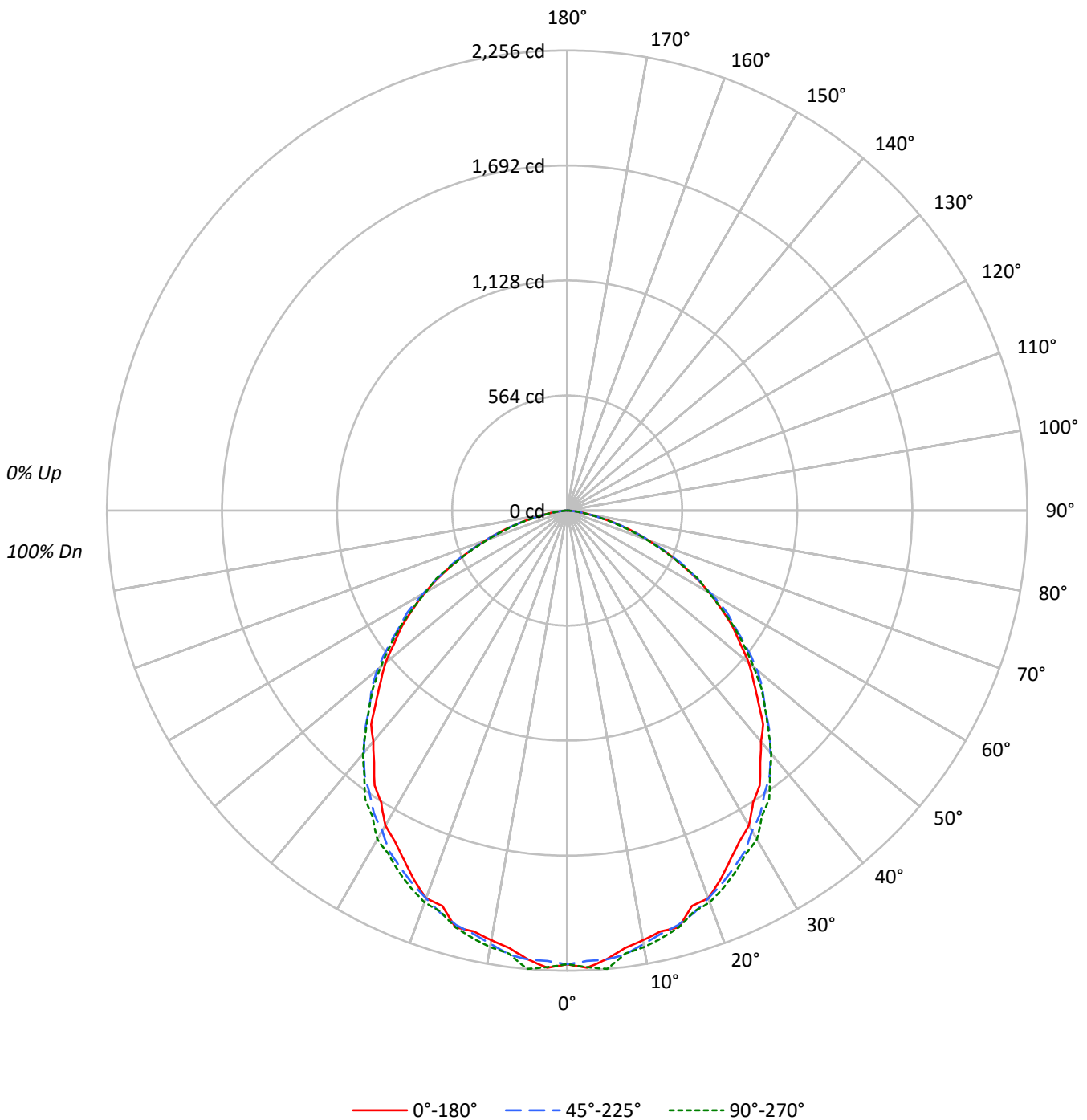
Lumens per Lamp: N/A
Luminaire Lumens: 5606.0 lumens
Efficiency: N/A
Efficacy: 112.1 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

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° | 5986 | 5986 | 5986 |
| 5° | 5966 | 5968 | 6094 |
| 10° | 5845 | 5896 | 5937 |
| 15° | 5891 | 5859 | 5892 |
| 20° | 5792 | 5792 | 5853 |
| 25° | 5614 | 5736 | 5799 |
| 30° | 5537 | 5634 | 5784 |
| 35° | 5406 | 5548 | 5672 |
| 40° | 5196 | 5446 | 5470 |
| 45° | 5039 | 5218 | 5225 |
| 50° | 4873 | 5093 | 4996 |
| 55° | 4643 | 4733 | 4700 |
| 60° | 4342 | 4385 | 4306 |
| 65° | 3871 | 3970 | 3844 |
| 70° | 3322 | 3333 | 3240 |
| 75° | 2630 | 2624 | 2523 |
| 80° | 1762 | 1714 | 1647 |
| 85° | 957 | 948 | 886 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 209.2 | 3.7 |
| 10°-20° | 593.0 | 10.6 |
| 20°-30° | 888.4 | 15.8 |
| 30°-40° | 1052.9 | 18.8 |
| 40°-50° | 1054.9 | 18.8 |
| 50°-60° | 895.4 | 16.0 |
| 60°-70° | 603.7 | 10.8 |
| 70°-80° | 265.3 | 4.7 |
| 80°-90° | 43.1 | 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° | 1690.6 | 30.2 |
| 0°-40° | 2743.6 | 48.9 |
| 0°-60° | 4693.9 | 83.7 |
| 0°-90° | 5606.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5606.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2224 | 2224 | 2224 | 2224 | 2224 | |
| 5° | 2208 | 2203 | 2209 | 2203 | 2256 | 208 |
| 15° | 2115 | 2090 | 2103 | 2114 | 2115 | 589 |
| 25° | 1891 | 1901 | 1932 | 1957 | 1953 | 874 |
| 35° | 1646 | 1650 | 1689 | 1728 | 1727 | 1022 |
| 45° | 1324 | 1349 | 1371 | 1406 | 1373 | 1024 |
| 55° | 990 | 983 | 1009 | 1002 | 1002 | 880 |
| 65° | 608 | 600 | 624 | 600 | 604 | 605 |
| 75° | 253 | 248 | 252 | 235 | 243 | 271 |
| 85° | 31 | 30 | 31 | 30 | 29 | 45 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589509

CATALOG NUMBER: FMR-24-2-LD4-3STD-40-UNV-82-84-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2224.3 | 2224.3 | 2224.3 | 2224.3 | 2224.3 |
| 2.5° | 2243.6 | 2226.6 | 2210.8 | 2229.2 | 2240.4 |
| 5° | 2208.5 | 2203.4 | 2209.4 | 2202.8 | 2255.9 |
| 7.5° | 2163.1 | 2183.0 | 2194.5 | 2187.3 | 2190.4 |
| 10° | 2139.0 | 2132.1 | 2157.7 | 2175.5 | 2172.9 |
| 12.5° | 2113.2 | 2123.5 | 2124.9 | 2144.2 | 2145.9 |
| 15° | 2114.6 | 2090.2 | 2103.1 | 2114.0 | 2114.9 |
| 17.5° | 2032.5 | 2058.9 | 2067.8 | 2092.8 | 2061.8 |
| 20° | 2022.4 | 2003.2 | 2022.4 | 2048.0 | 2044.0 |
| 22.5° | 1960.7 | 1939.1 | 1980.5 | 2003.2 | 2001.7 |
| 25° | 1890.6 | 1900.9 | 1932.0 | 1957.2 | 1953.2 |
| 27.5° | 1829.1 | 1841.2 | 1885.4 | 1920.2 | 1897.8 |
| 30° | 1781.8 | 1775.7 | 1813.1 | 1844.1 | 1861.3 |
| 32.5° | 1697.0 | 1718.9 | 1762.5 | 1793.2 | 1776.9 |
| 35° | 1645.6 | 1650.5 | 1688.7 | 1727.8 | 1726.6 |
| 37.5° | 1555.7 | 1578.4 | 1632.1 | 1643.0 | 1633.0 |
| 40° | 1479.1 | 1501.7 | 1550.3 | 1562.0 | 1557.2 |
| 42.5° | 1422.5 | 1426.5 | 1468.1 | 1481.6 | 1460.1 |
| 45° | 1324.0 | 1348.7 | 1371.1 | 1406.4 | 1373.1 |
| 47.5° | 1240.1 | 1251.6 | 1299.8 | 1309.3 | 1291.8 |
| 50° | 1164.0 | 1168.0 | 1216.6 | 1204.8 | 1193.3 |
| 52.5° | 1068.4 | 1085.3 | 1112.6 | 1110.3 | 1096.8 |
| 55° | 989.7 | 983.1 | 1008.9 | 1002.0 | 1001.7 |
| 57.5° | 895.2 | 906.7 | 927.9 | 917.0 | 899.5 |
| 60° | 806.7 | 807.0 | 814.8 | 802.4 | 800.1 |
| 62.5° | 708.2 | 711.7 | 713.4 | 698.2 | 722.9 |
| 65° | 608.0 | 599.9 | 623.5 | 599.7 | 603.7 |
| 67.5° | 515.8 | 519.8 | 517.5 | 502.6 | 508.3 |
| 70° | 422.2 | 427.3 | 423.6 | 406.7 | 411.8 |
| 72.5° | 336.6 | 330.3 | 334.3 | 313.0 | 322.8 |
| 75° | 253.0 | 247.8 | 252.4 | 234.6 | 242.7 |
| 77.5° | 172.3 | 176.3 | 173.5 | 164.0 | 169.4 |
| 80° | 113.7 | 110.6 | 110.6 | 105.1 | 106.3 |
| 82.5° | 66.3 | 63.2 | 62.3 | 60.6 | 63.2 |
| 85° | 31.0 | 30.2 | 30.7 | 29.9 | 28.7 |
| 87.5° | 11.2 | 11.5 | 11.5 | 10.9 | 10.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)