

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: P588992

Luminaire Tested: **FMR-24-2-LD4-2HI-35-UNV-81-87-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P588992
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-81-87-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

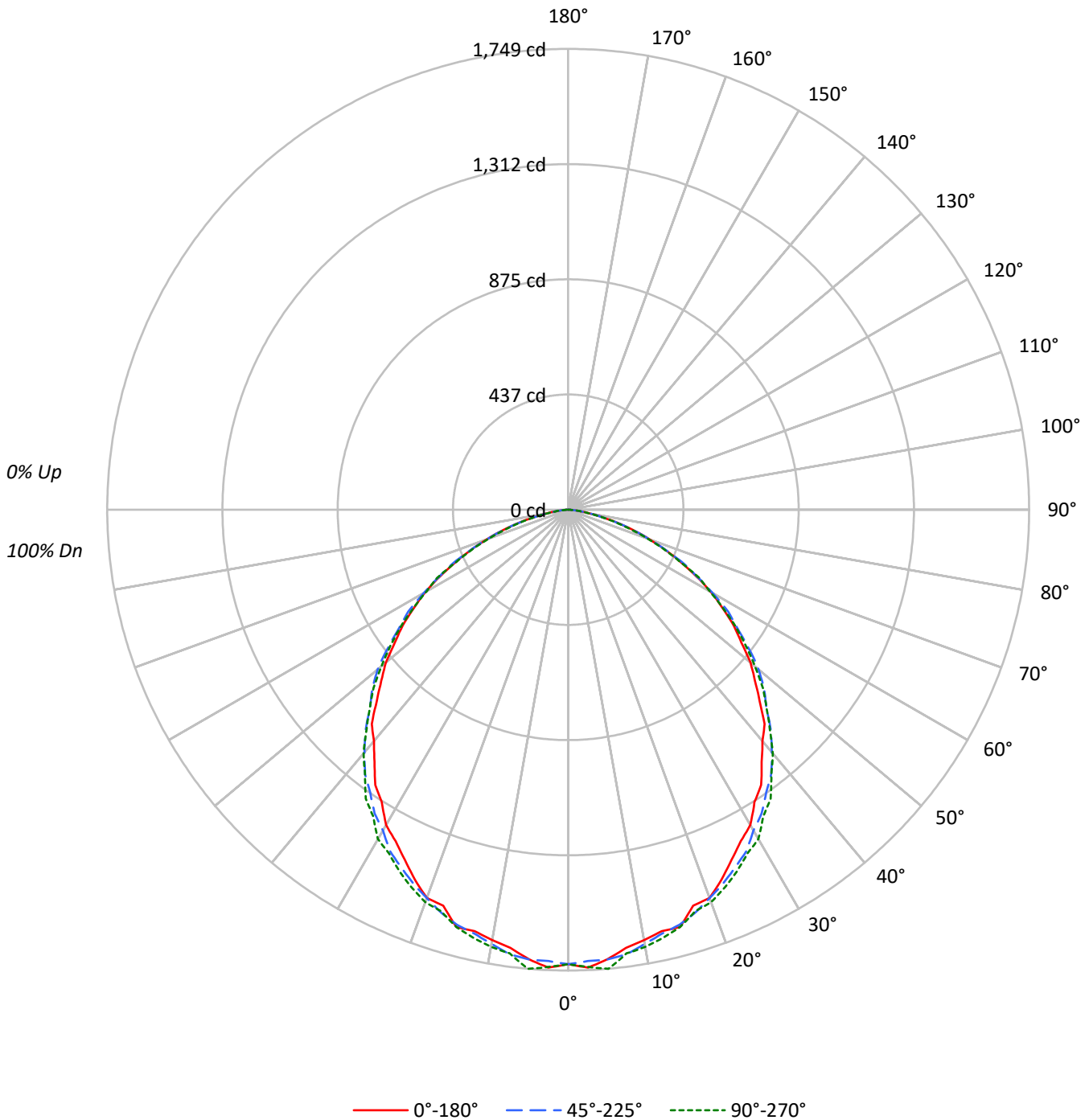
Lumens per Lamp: N/A
Luminaire Lumens: 4347.0 lumens
Efficiency: N/A
Efficacy: 100.6 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

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 | 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° | 4641 | 4641 | 4641 |
| 5° | 4626 | 4628 | 4725 |
| 10° | 4532 | 4572 | 4604 |
| 15° | 4568 | 4543 | 4569 |
| 20° | 4491 | 4491 | 4539 |
| 25° | 4353 | 4448 | 4497 |
| 30° | 4293 | 4369 | 4485 |
| 35° | 4192 | 4302 | 4398 |
| 40° | 4029 | 4223 | 4242 |
| 45° | 3907 | 4046 | 4052 |
| 50° | 3779 | 3949 | 3874 |
| 55° | 3600 | 3670 | 3644 |
| 60° | 3367 | 3400 | 3339 |
| 65° | 3002 | 3079 | 2981 |
| 70° | 2576 | 2585 | 2512 |
| 75° | 2040 | 2035 | 1957 |
| 80° | 1367 | 1328 | 1277 |
| 85° | 744 | 735 | 689 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 162.2 | 3.7 |
| 10°-20° | 459.8 | 10.6 |
| 20°-30° | 688.9 | 15.8 |
| 30°-40° | 816.5 | 18.8 |
| 40°-50° | 818.0 | 18.8 |
| 50°-60° | 694.3 | 16.0 |
| 60°-70° | 468.1 | 10.8 |
| 70°-80° | 205.7 | 4.7 |
| 80°-90° | 33.4 | 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° | 1310.9 | 30.2 |
| 0°-40° | 2127.4 | 48.9 |
| 0°-60° | 3639.7 | 83.7 |
| 0°-90° | 4347.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4347.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1725 | 1725 | 1725 | 1725 | 1725 | |
| 5° | 1712 | 1708 | 1713 | 1708 | 1749 | 161 |
| 15° | 1640 | 1621 | 1631 | 1639 | 1640 | 457 |
| 25° | 1466 | 1474 | 1498 | 1518 | 1515 | 678 |
| 35° | 1276 | 1280 | 1310 | 1340 | 1339 | 792 |
| 45° | 1027 | 1046 | 1063 | 1090 | 1065 | 794 |
| 55° | 767 | 762 | 782 | 777 | 777 | 683 |
| 65° | 471 | 465 | 484 | 465 | 468 | 469 |
| 75° | 196 | 192 | 196 | 182 | 188 | 210 |
| 85° | 24 | 23 | 24 | 23 | 22 | 35 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P588992

CATALOG NUMBER: FMR-24-2-LD4-2HI-35-UNV-81-87-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1724.8 | 1724.8 | 1724.8 | 1724.8 | 1724.8 |
| 2.5° | 1739.7 | 1726.6 | 1714.3 | 1728.6 | 1737.3 |
| 5° | 1712.5 | 1708.5 | 1713.2 | 1708.1 | 1749.3 |
| 7.5° | 1677.3 | 1692.7 | 1701.6 | 1696.1 | 1698.5 |
| 10° | 1658.6 | 1653.3 | 1673.1 | 1686.9 | 1684.9 |
| 12.5° | 1638.6 | 1646.6 | 1647.7 | 1662.6 | 1664.0 |
| 15° | 1639.7 | 1620.8 | 1630.8 | 1639.3 | 1639.9 |
| 17.5° | 1576.0 | 1596.5 | 1603.4 | 1622.8 | 1598.7 |
| 20° | 1568.2 | 1553.3 | 1568.2 | 1588.0 | 1584.9 |
| 22.5° | 1520.3 | 1503.6 | 1535.7 | 1553.3 | 1552.2 |
| 25° | 1466.0 | 1474.0 | 1498.1 | 1517.7 | 1514.6 |
| 27.5° | 1418.4 | 1427.7 | 1462.0 | 1488.9 | 1471.6 |
| 30° | 1381.6 | 1376.9 | 1405.9 | 1429.9 | 1443.3 |
| 32.5° | 1315.9 | 1332.8 | 1366.7 | 1390.5 | 1377.8 |
| 35° | 1276.0 | 1279.8 | 1309.5 | 1339.7 | 1338.8 |
| 37.5° | 1206.3 | 1223.9 | 1265.6 | 1274.0 | 1266.2 |
| 40° | 1146.9 | 1164.5 | 1202.1 | 1211.2 | 1207.5 |
| 42.5° | 1103.0 | 1106.1 | 1138.4 | 1148.9 | 1132.2 |
| 45° | 1026.6 | 1045.8 | 1063.2 | 1090.5 | 1064.7 |
| 47.5° | 961.6 | 970.5 | 1007.9 | 1015.3 | 1001.7 |
| 50° | 902.6 | 905.7 | 943.3 | 934.2 | 925.3 |
| 52.5° | 828.4 | 841.6 | 862.7 | 860.9 | 850.5 |
| 55° | 767.4 | 762.3 | 782.3 | 777.0 | 776.8 |
| 57.5° | 694.1 | 703.1 | 719.5 | 711.1 | 697.5 |
| 60° | 625.6 | 625.8 | 631.8 | 622.2 | 620.4 |
| 62.5° | 549.2 | 551.8 | 553.2 | 541.4 | 560.5 |
| 65° | 471.4 | 465.2 | 483.5 | 465.0 | 468.1 |
| 67.5° | 400.0 | 403.1 | 401.3 | 389.7 | 394.2 |
| 70° | 327.4 | 331.4 | 328.5 | 315.3 | 319.3 |
| 72.5° | 261.0 | 256.1 | 259.2 | 242.7 | 250.3 |
| 75° | 196.2 | 192.2 | 195.7 | 181.9 | 188.2 |
| 77.5° | 133.6 | 136.7 | 134.5 | 127.2 | 131.4 |
| 80° | 88.2 | 85.7 | 85.7 | 81.5 | 82.4 |
| 82.5° | 51.4 | 49.0 | 48.3 | 47.0 | 49.0 |
| 85° | 24.1 | 23.4 | 23.8 | 23.2 | 22.3 |
| 87.5° | 8.7 | 8.9 | 8.9 | 8.5 | 8.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)