

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: P589238

Luminaire Tested: **FMR-24-2-LD4-2STD-50-UNV-80-85-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589238
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-LD4-2STD-50-UNV-80-85-EDD
Description: 2X2 FMR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

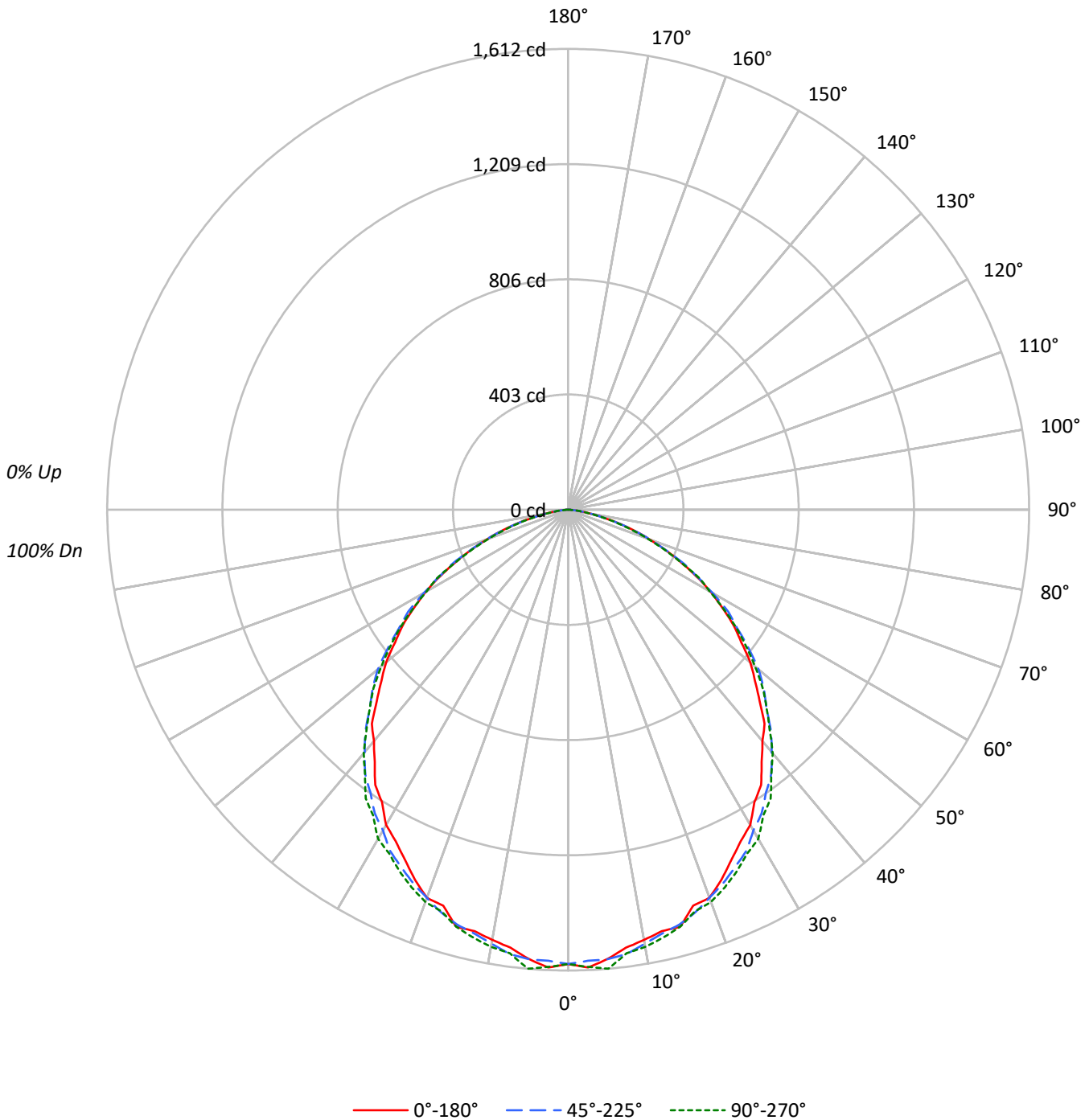
Lumens per Lamp: N/A
Luminaire Lumens: 4005.0 lumens
Efficiency: N/A
Efficacy: 120.3 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 33.3
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° | 4276 | 4276 | 4276 |
| 5° | 4262 | 4264 | 4354 |
| 10° | 4176 | 4212 | 4242 |
| 15° | 4209 | 4186 | 4209 |
| 20° | 4137 | 4137 | 4182 |
| 25° | 4010 | 4098 | 4143 |
| 30° | 3955 | 4025 | 4132 |
| 35° | 3862 | 3963 | 4052 |
| 40° | 3712 | 3890 | 3908 |
| 45° | 3600 | 3728 | 3733 |
| 50° | 3481 | 3638 | 3569 |
| 55° | 3317 | 3382 | 3358 |
| 60° | 3102 | 3133 | 3076 |
| 65° | 2766 | 2836 | 2746 |
| 70° | 2373 | 2381 | 2315 |
| 75° | 1880 | 1875 | 1803 |
| 80° | 1258 | 1224 | 1176 |
| 85° | 685 | 679 | 633 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 149.5 | 3.7 |
| 10°-20° | 423.6 | 10.6 |
| 20°-30° | 634.7 | 15.8 |
| 30°-40° | 752.2 | 18.8 |
| 40°-50° | 753.6 | 18.8 |
| 50°-60° | 639.7 | 16.0 |
| 60°-70° | 431.3 | 10.8 |
| 70°-80° | 189.5 | 4.7 |
| 80°-90° | 30.8 | 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° | 1207.8 | 30.2 |
| 0°-40° | 1960.0 | 48.9 |
| 0°-60° | 3353.4 | 83.7 |
| 0°-90° | 4005.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4005.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1589 | 1589 | 1589 | 1589 | 1589 | |
| 5° | 1578 | 1574 | 1578 | 1574 | 1612 | 149 |
| 15° | 1511 | 1493 | 1502 | 1510 | 1511 | 421 |
| 25° | 1351 | 1358 | 1380 | 1398 | 1395 | 624 |
| 35° | 1176 | 1179 | 1206 | 1234 | 1234 | 730 |
| 45° | 946 | 964 | 980 | 1005 | 981 | 732 |
| 55° | 707 | 702 | 721 | 716 | 716 | 629 |
| 65° | 434 | 429 | 445 | 428 | 431 | 432 |
| 75° | 181 | 177 | 180 | 168 | 173 | 194 |
| 85° | 22 | 22 | 22 | 21 | 20 | 32 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589238

CATALOG NUMBER: FMR-24-2-LD4-2STD-50-UNV-80-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1589.1 | 1589.1 | 1589.1 | 1589.1 | 1589.1 |
| 2.5° | 1602.8 | 1590.7 | 1579.4 | 1592.6 | 1600.6 |
| 5° | 1577.8 | 1574.1 | 1578.4 | 1573.7 | 1611.7 |
| 7.5° | 1545.4 | 1559.5 | 1567.7 | 1562.6 | 1564.9 |
| 10° | 1528.1 | 1523.2 | 1541.5 | 1554.2 | 1552.4 |
| 12.5° | 1509.7 | 1517.1 | 1518.1 | 1531.8 | 1533.1 |
| 15° | 1510.7 | 1493.3 | 1502.5 | 1510.3 | 1510.9 |
| 17.5° | 1452.0 | 1470.9 | 1477.3 | 1495.1 | 1473.0 |
| 20° | 1444.8 | 1431.1 | 1444.8 | 1463.1 | 1460.2 |
| 22.5° | 1400.7 | 1385.3 | 1414.9 | 1431.1 | 1430.1 |
| 25° | 1350.7 | 1358.1 | 1380.2 | 1398.3 | 1395.4 |
| 27.5° | 1306.8 | 1315.4 | 1347.0 | 1371.8 | 1355.8 |
| 30° | 1272.9 | 1268.6 | 1295.3 | 1317.4 | 1329.7 |
| 32.5° | 1212.4 | 1228.0 | 1259.2 | 1281.1 | 1269.4 |
| 35° | 1175.7 | 1179.1 | 1206.4 | 1234.3 | 1233.5 |
| 37.5° | 1111.4 | 1127.6 | 1166.0 | 1173.8 | 1166.6 |
| 40° | 1056.7 | 1072.9 | 1107.5 | 1115.9 | 1112.5 |
| 42.5° | 1016.2 | 1019.1 | 1048.9 | 1058.5 | 1043.1 |
| 45° | 945.9 | 963.5 | 979.5 | 1004.7 | 980.9 |
| 47.5° | 885.9 | 894.2 | 928.6 | 935.4 | 922.9 |
| 50° | 831.6 | 834.4 | 869.1 | 860.7 | 852.5 |
| 52.5° | 763.3 | 775.4 | 794.8 | 793.2 | 783.6 |
| 55° | 707.0 | 702.3 | 720.8 | 715.9 | 715.7 |
| 57.5° | 639.5 | 647.7 | 662.9 | 655.1 | 642.6 |
| 60° | 576.3 | 576.5 | 582.1 | 573.3 | 571.6 |
| 62.5° | 506.0 | 508.4 | 509.7 | 498.8 | 516.4 |
| 65° | 434.4 | 428.6 | 445.4 | 428.4 | 431.3 |
| 67.5° | 368.5 | 371.4 | 369.7 | 359.1 | 363.2 |
| 70° | 301.6 | 305.3 | 302.6 | 290.5 | 294.2 |
| 72.5° | 240.5 | 236.0 | 238.8 | 223.6 | 230.6 |
| 75° | 180.8 | 177.1 | 180.3 | 167.6 | 173.4 |
| 77.5° | 123.1 | 126.0 | 123.9 | 117.2 | 121.1 |
| 80° | 81.2 | 79.0 | 79.0 | 75.1 | 75.9 |
| 82.5° | 47.4 | 45.1 | 44.5 | 43.3 | 45.1 |
| 85° | 22.2 | 21.5 | 22.0 | 21.3 | 20.5 |
| 87.5° | 8.0 | 8.2 | 8.2 | 7.8 | 7.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)