

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: P589180

Luminaire Tested: **FMR-24-2-LD4-2STD-35-UNV-80-97-EDD**

Issue Date: 12/8/2021



**Test Information**

Test Method: LM-79-08  
Report Number: P589180  
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-35-UNV-80-97-EDD  
Description: 2X2 FMR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS  
Light Source: -  
Ballast/Driver: -

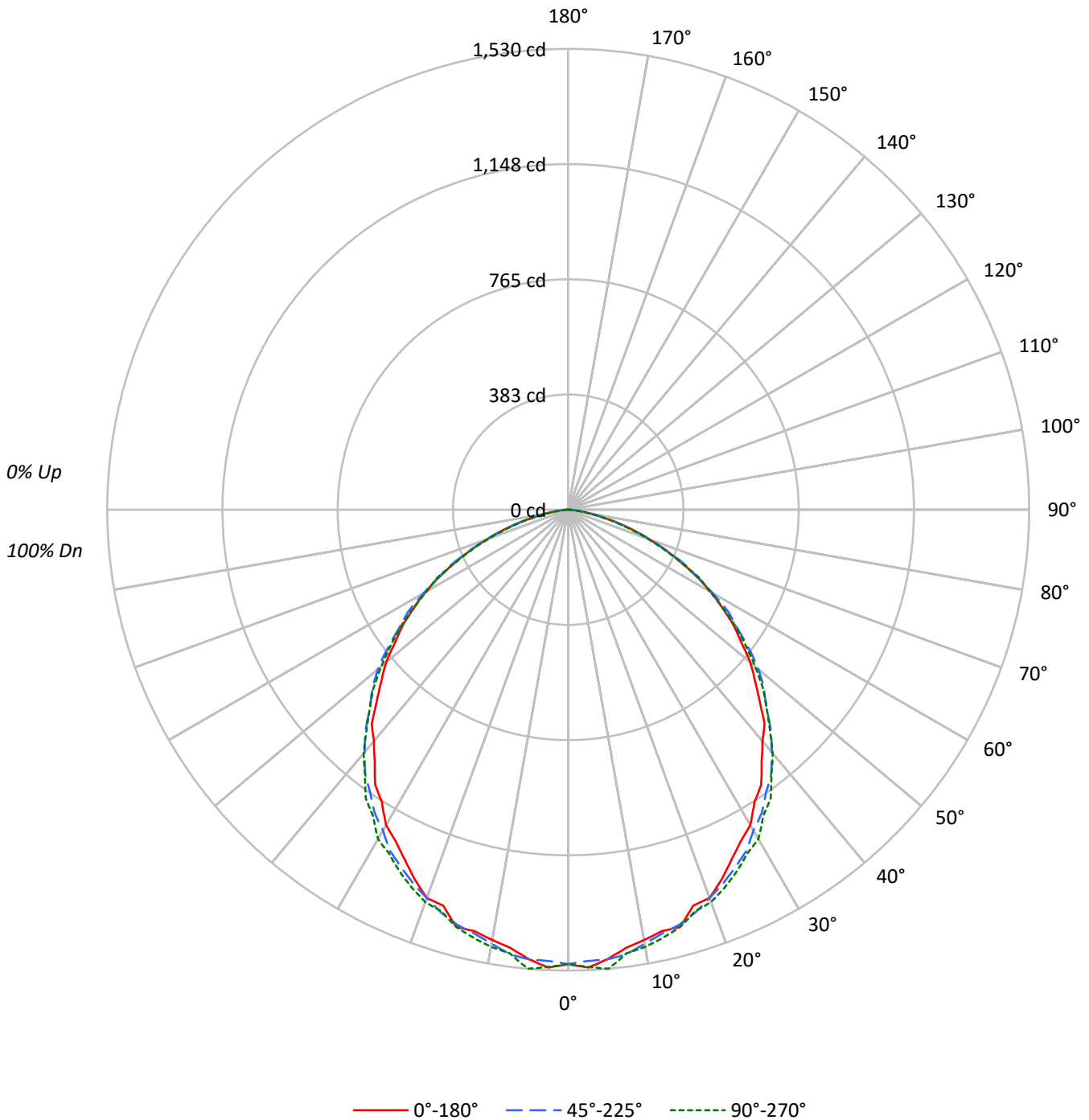
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3802.0 lumens  
Efficiency: N/A  
Efficacy: 114.2 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 (A<sub>in</sub>): 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°  | 4059 | 4059 | 4059 |
| 5°  | 4046 | 4048 | 4133 |
| 10° | 3964 | 3998 | 4027 |
| 15° | 3995 | 3974 | 3996 |
| 20° | 3928 | 3928 | 3970 |
| 25° | 3807 | 3890 | 3933 |
| 30° | 3755 | 3821 | 3922 |
| 35° | 3666 | 3762 | 3847 |
| 40° | 3524 | 3693 | 3710 |
| 45° | 3417 | 3539 | 3544 |
| 50° | 3305 | 3454 | 3388 |
| 55° | 3149 | 3210 | 3187 |
| 60° | 2944 | 2974 | 2920 |
| 65° | 2625 | 2693 | 2607 |
| 70° | 2253 | 2260 | 2198 |
| 75° | 1784 | 1780 | 1711 |
| 80° | 1195 | 1162 | 1117 |
| 85° | 648  | 642  | 602  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 141.9  | 3.7       |
| 10°-20°   | 402.2  | 10.6      |
| 20°-30°   | 602.5  | 15.8      |
| 30°-40°   | 714.1  | 18.8      |
| 40°-50°   | 715.4  | 18.8      |
| 50°-60°   | 607.3  | 16.0      |
| 60°-70°   | 409.4  | 10.8      |
| 70°-80°   | 179.9  | 4.7       |
| 80°-90°   | 29.2   | 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°    | 1146.6 | 30.2      |
| 0°-40°    | 1860.7 | 48.9      |
| 0°-60°    | 3183.4 | 83.7      |
| 0°-90°    | 3802.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3802.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1508 | 1508  | 1508 | 1508  | 1508 |      |
| 5°  | 1498 | 1494  | 1498 | 1494  | 1530 | 141  |
| 15° | 1434 | 1418  | 1426 | 1434  | 1434 | 400  |
| 25° | 1282 | 1289  | 1310 | 1327  | 1325 | 593  |
| 35° | 1116 | 1119  | 1145 | 1172  | 1171 | 693  |
| 45° | 898  | 915   | 930  | 954   | 931  | 695  |
| 55° | 671  | 667   | 684  | 680   | 679  | 597  |
| 65° | 412  | 407   | 423  | 407   | 409  | 410  |
| 75° | 172  | 168   | 171  | 159   | 165  | 184  |
| 85° | 21   | 20    | 21   | 20    | 20   | 30   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1508.5 | 1508.5 | 1508.5 | 1508.5 | 1508.5 |
| 2.5°  | 1521.6 | 1510.1 | 1499.4 | 1511.8 | 1519.4 |
| 5°    | 1497.8 | 1494.3 | 1498.4 | 1493.9 | 1530.0 |
| 7.5°  | 1467.1 | 1480.5 | 1488.3 | 1483.4 | 1485.6 |
| 10°   | 1450.7 | 1446.0 | 1463.3 | 1475.4 | 1473.7 |
| 12.5° | 1433.2 | 1440.2 | 1441.1 | 1454.2 | 1455.4 |
| 15°   | 1434.1 | 1417.6 | 1426.3 | 1433.7 | 1434.3 |
| 17.5° | 1378.4 | 1396.3 | 1402.4 | 1419.3 | 1398.3 |
| 20°   | 1371.6 | 1358.6 | 1371.6 | 1388.9 | 1386.2 |
| 22.5° | 1329.7 | 1315.1 | 1343.2 | 1358.6 | 1357.6 |
| 25°   | 1282.2 | 1289.2 | 1310.3 | 1327.4 | 1324.7 |
| 27.5° | 1240.5 | 1248.7 | 1278.7 | 1302.3 | 1287.1 |
| 30°   | 1208.4 | 1204.3 | 1229.6 | 1250.7 | 1262.3 |
| 32.5° | 1150.9 | 1165.7 | 1195.3 | 1216.2 | 1205.1 |
| 35°   | 1116.1 | 1119.4 | 1145.3 | 1171.8 | 1171.0 |
| 37.5° | 1055.1 | 1070.5 | 1106.9 | 1114.3 | 1107.5 |
| 40°   | 1003.1 | 1018.5 | 1051.4 | 1059.4 | 1056.1 |
| 42.5° | 964.7  | 967.5  | 995.7  | 1004.8 | 990.2  |
| 45°   | 897.9  | 914.7  | 929.9  | 953.8  | 931.2  |
| 47.5° | 841.0  | 848.8  | 881.6  | 888.0  | 876.1  |
| 50°   | 789.4  | 792.2  | 825.1  | 817.1  | 809.3  |
| 52.5° | 724.6  | 736.1  | 754.6  | 753.0  | 743.8  |
| 55°   | 671.2  | 666.7  | 684.2  | 679.6  | 679.4  |
| 57.5° | 607.1  | 614.9  | 629.3  | 621.9  | 610.0  |
| 60°   | 547.1  | 547.3  | 552.6  | 544.2  | 542.6  |
| 62.5° | 480.3  | 482.7  | 483.8  | 473.5  | 490.3  |
| 65°   | 412.3  | 406.9  | 422.9  | 406.7  | 409.4  |
| 67.5° | 349.8  | 352.5  | 351.0  | 340.9  | 344.8  |
| 70°   | 286.3  | 289.8  | 287.3  | 275.8  | 279.3  |
| 72.5° | 228.3  | 224.0  | 226.7  | 212.3  | 218.9  |
| 75°   | 171.6  | 168.1  | 171.2  | 159.1  | 164.6  |
| 77.5° | 116.9  | 119.6  | 117.6  | 111.2  | 114.9  |
| 80°   | 77.1   | 75.0   | 75.0   | 71.3   | 72.1   |
| 82.5° | 45.0   | 42.9   | 42.3   | 41.1   | 42.9   |
| 85°   | 21.0   | 20.5   | 20.8   | 20.3   | 19.5   |
| 87.5° | 7.6    | 7.8    | 7.8    | 7.4    | 7.0    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)