

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: P412040

Luminaire Tested: **MRI-24ATR-20-L850-OPL**

Issue Date: 10/5/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P412040  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2008-915-3)  
Test Lab: INNOVATION CENTER  
Issue Date: 10/5/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: MRI-24ATR-20-L850-OPL  
Description: 2X4 TROFFER, 2000LM, OPAL LENS  
Light Source: (1008) 5000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 2244.0 lumens  
Efficiency: N/A  
Efficacy: 87.0 lumens/watt  
Spacing Criteria (0/90/45): 1.27 / 1.26 / 1.38  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

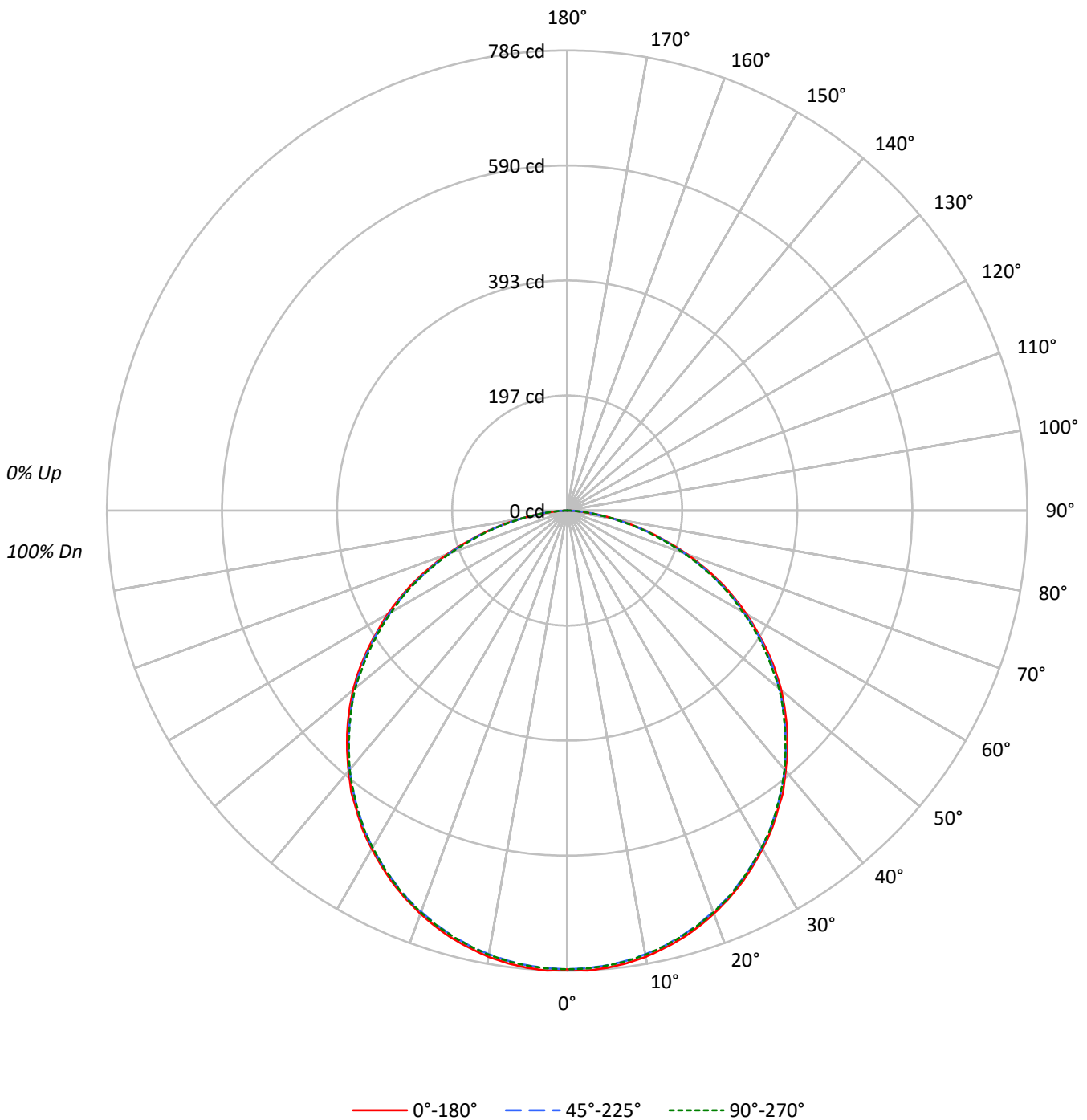
Input Watts (W): 25.8  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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   | 109 | 104 | 100 | 96  | 106 | 102 | 98  | 94  | 98  | 94  | 91  | 94  | 91  | 89  | 90  | 88  | 86  | 84  |
| 2   | 99  | 91  | 84  | 78  | 96  | 89  | 82  | 77  | 85  | 80  | 75  | 82  | 77  | 74  | 79  | 75  | 72  | 70  |
| 3   | 90  | 80  | 71  | 65  | 88  | 78  | 70  | 64  | 75  | 68  | 63  | 72  | 67  | 62  | 70  | 65  | 61  | 59  |
| 4   | 82  | 70  | 62  | 55  | 80  | 69  | 61  | 54  | 67  | 59  | 54  | 64  | 58  | 53  | 62  | 57  | 52  | 50  |
| 5   | 76  | 63  | 54  | 47  | 74  | 62  | 53  | 47  | 60  | 52  | 46  | 58  | 51  | 46  | 56  | 50  | 45  | 43  |
| 6   | 70  | 57  | 48  | 41  | 68  | 56  | 47  | 41  | 54  | 46  | 40  | 52  | 45  | 40  | 50  | 44  | 40  | 38  |
| 7   | 65  | 51  | 42  | 36  | 63  | 50  | 42  | 36  | 49  | 41  | 36  | 47  | 41  | 36  | 46  | 40  | 35  | 33  |
| 8   | 60  | 47  | 38  | 32  | 59  | 46  | 38  | 32  | 45  | 37  | 32  | 43  | 37  | 32  | 42  | 36  | 32  | 30  |
| 9   | 56  | 43  | 35  | 29  | 55  | 42  | 34  | 29  | 41  | 34  | 29  | 40  | 33  | 29  | 39  | 33  | 28  | 27  |
| 10  | 53  | 40  | 32  | 26  | 51  | 39  | 31  | 26  | 38  | 31  | 26  | 37  | 31  | 26  | 36  | 30  | 26  | 24  |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 1054 | 1054 | 1054 |
| 5°  | 1059 | 1053 | 1054 |
| 10° | 1057 | 1051 | 1053 |
| 15° | 1054 | 1048 | 1049 |
| 20° | 1049 | 1044 | 1046 |
| 25° | 1044 | 1039 | 1040 |
| 30° | 1037 | 1033 | 1032 |
| 35° | 1029 | 1024 | 1024 |
| 40° | 1020 | 1015 | 1015 |
| 45° | 1010 | 1002 | 1000 |
| 50° | 1000 | 989  | 989  |
| 55° | 979  | 971  | 963  |
| 60° | 952  | 939  | 932  |
| 65° | 918  | 901  | 896  |
| 70° | 859  | 841  | 832  |
| 75° | 767  | 757  | 744  |
| 80° | 618  | 615  | 613  |
| 85° | 406  | 406  | 386  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 74.2   | 3.3       |
| 10°-20°   | 212.7  | 9.5       |
| 20°-30°   | 322.8  | 14.4      |
| 30°-40°   | 390.4  | 17.4      |
| 40°-50°   | 407.0  | 18.1      |
| 50°-60°   | 369.4  | 16.5      |
| 60°-70°   | 280.2  | 12.5      |
| 70°-80°   | 153.4  | 6.8       |
| 80°-90°   | 33.9   | 1.5       |
| 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°    | 609.7  | 27.2      |
| 0°-40°    | 1000.1 | 44.6      |
| 0°-60°    | 1776.5 | 79.2      |
| 0°-90°    | 2244.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2244.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 784 | 784   | 784 | 784   | 784 |      |
| 5°  | 784 | 781   | 780 | 779   | 780 | 75   |
| 15° | 757 | 754   | 753 | 752   | 753 | 214  |
| 25° | 703 | 701   | 700 | 699   | 700 | 324  |
| 35° | 626 | 625   | 624 | 622   | 624 | 392  |
| 45° | 531 | 529   | 526 | 526   | 526 | 410  |
| 55° | 417 | 415   | 414 | 412   | 411 | 373  |
| 65° | 288 | 286   | 283 | 282   | 282 | 284  |
| 75° | 148 | 146   | 146 | 143   | 143 | 156  |
| 85° | 26  | 26    | 26  | 26    | 25  | 34   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 783.6 | 783.6 | 783.6 | 783.6 | 783.6 |
| 2.5°  | 786.5 | 783.6 | 782.4 | 781.4 | 783.0 |
| 5°    | 784.0 | 781.1 | 779.8 | 778.8 | 780.4 |
| 7.5°  | 779.8 | 777.2 | 775.6 | 774.7 | 776.3 |
| 10°   | 774.0 | 771.1 | 769.5 | 768.9 | 770.5 |
| 12.5° | 765.7 | 763.5 | 762.2 | 761.5 | 762.5 |
| 15°   | 756.7 | 754.5 | 752.6 | 751.6 | 753.2 |
| 17.5° | 745.5 | 743.3 | 742.0 | 741.0 | 742.6 |
| 20°   | 732.7 | 730.8 | 729.2 | 728.6 | 730.5 |
| 22.5° | 718.6 | 717.0 | 715.7 | 714.8 | 716.7 |
| 25°   | 702.9 | 701.0 | 699.7 | 698.8 | 700.4 |
| 27.5° | 685.6 | 684.0 | 682.8 | 681.8 | 683.1 |
| 30°   | 667.4 | 666.1 | 665.1 | 663.5 | 664.5 |
| 32.5° | 648.5 | 645.9 | 645.0 | 644.6 | 645.6 |
| 35°   | 626.4 | 624.8 | 623.5 | 622.2 | 623.5 |
| 37.5° | 605.6 | 602.4 | 601.1 | 600.5 | 600.8 |
| 40°   | 580.6 | 579.0 | 578.0 | 575.8 | 577.7 |
| 42.5° | 556.3 | 555.0 | 552.7 | 551.8 | 551.8 |
| 45°   | 531.0 | 528.7 | 526.5 | 526.5 | 525.8 |
| 47.5° | 504.7 | 503.1 | 500.5 | 499.6 | 499.9 |
| 50°   | 477.5 | 474.6 | 472.7 | 470.4 | 472.4 |
| 52.5° | 448.0 | 445.8 | 443.9 | 441.9 | 440.7 |
| 55°   | 417.3 | 415.0 | 413.8 | 411.8 | 410.6 |
| 57.5° | 384.9 | 384.6 | 382.4 | 380.1 | 379.2 |
| 60°   | 353.9 | 351.6 | 349.1 | 349.1 | 346.5 |
| 62.5° | 321.2 | 319.3 | 318.0 | 315.1 | 315.8 |
| 65°   | 288.2 | 286.0 | 283.1 | 282.1 | 281.5 |
| 67.5° | 252.4 | 251.1 | 248.5 | 246.3 | 246.6 |
| 70°   | 218.4 | 215.8 | 213.9 | 212.0 | 211.4 |
| 72.5° | 182.2 | 180.6 | 179.3 | 177.4 | 175.8 |
| 75°   | 147.6 | 145.7 | 145.7 | 142.8 | 143.1 |
| 77.5° | 113.7 | 112.7 | 111.1 | 110.2 | 109.2 |
| 80°   | 79.7  | 80.1  | 79.4  | 77.5  | 79.1  |
| 82.5° | 51.6  | 50.6  | 50.0  | 50.0  | 49.6  |
| 85°   | 26.3  | 25.6  | 26.3  | 26.3  | 25.0  |
| 87.5° | 8.0   | 9.0   | 9.3   | 9.3   | 9.0   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)