

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: P589333

Luminaire Tested: **FMR-24-2-LD4-3HI-50-UNV-80-84-EDD**

Issue Date: 12/8/2021



**Test Information**

Test Method: LM-79-08  
Report Number: P589333  
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-LD4-3HI-50-UNV-80-84-EDD  
Description: 2X2 FMR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS  
Light Source: -  
Ballast/Driver: -

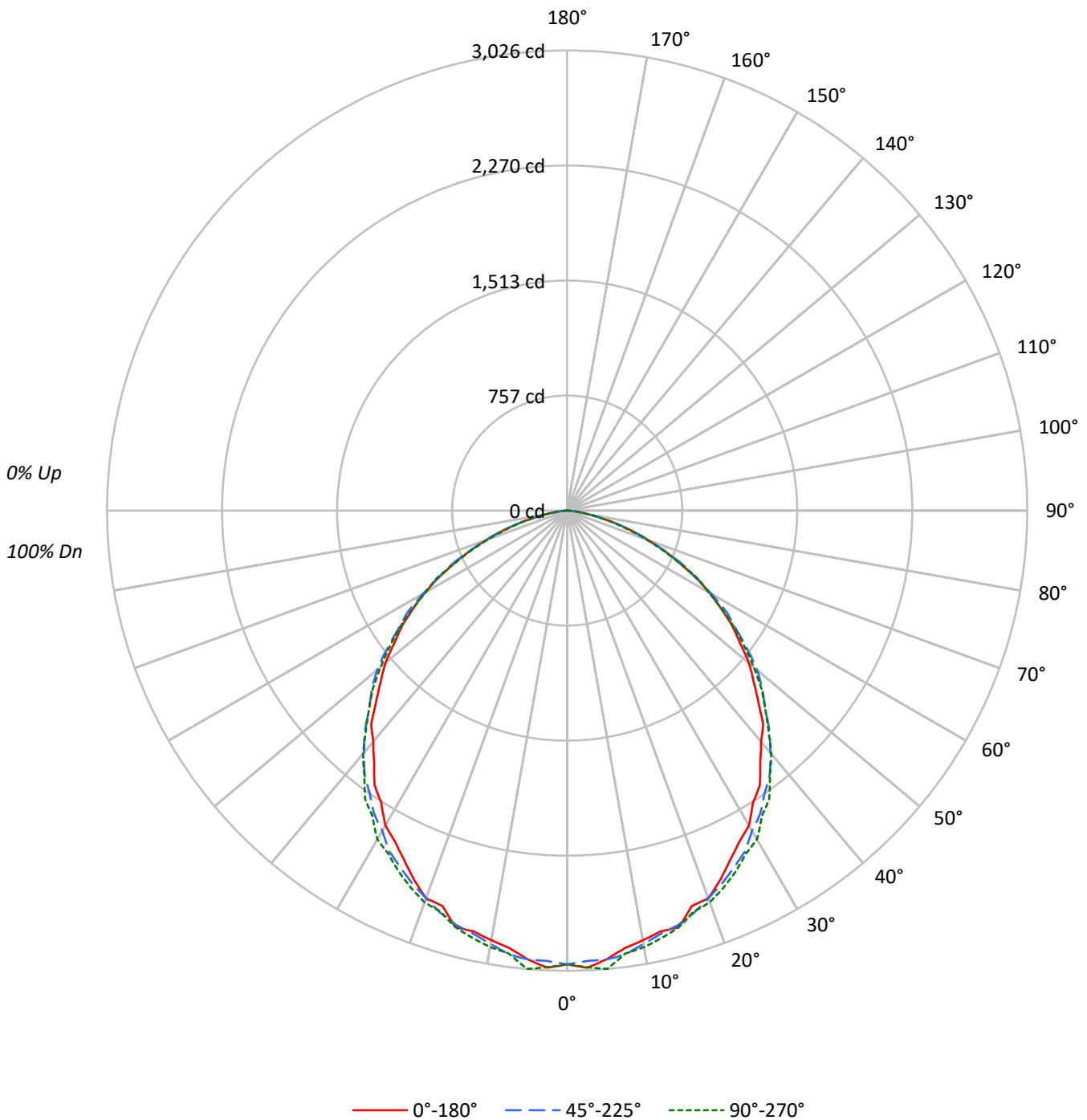
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7519.0 lumens  
Efficiency: N/A  
Efficacy: 116.0 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): 64.8  
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   | 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°  | 8028 | 8028 | 8028 |
| 5°  | 8002 | 8005 | 8173 |
| 10° | 7839 | 7908 | 7964 |
| 15° | 7901 | 7858 | 7903 |
| 20° | 7768 | 7768 | 7850 |
| 25° | 7529 | 7694 | 7778 |
| 30° | 7426 | 7556 | 7757 |
| 35° | 7251 | 7441 | 7608 |
| 40° | 6969 | 7304 | 7337 |
| 45° | 6758 | 6998 | 7008 |
| 50° | 6536 | 6831 | 6700 |
| 55° | 6228 | 6349 | 6304 |
| 60° | 5823 | 5881 | 5776 |
| 65° | 5193 | 5325 | 5156 |
| 70° | 4455 | 4471 | 4346 |
| 75° | 3529 | 3520 | 3384 |
| 80° | 2363 | 2298 | 2208 |
| 85° | 1284 | 1272 | 1189 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 280.6  | 3.7       |
| 10°-20°   | 795.3  | 10.6      |
| 20°-30°   | 1191.6 | 15.8      |
| 30°-40°   | 1412.3 | 18.8      |
| 40°-50°   | 1414.9 | 18.8      |
| 50°-60°   | 1201.0 | 16.0      |
| 60°-70°   | 809.7  | 10.8      |
| 70°-80°   | 355.8  | 4.7       |
| 80°-90°   | 57.8   | 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°    | 2267.5 | 30.2      |
| 0°-40°    | 3679.8 | 48.9      |
| 0°-60°    | 6295.7 | 83.7      |
| 0°-90°    | 7519.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 7519.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2983 | 2983  | 2983 | 2983  | 2983 |      |
| 5°  | 2962 | 2955  | 2963 | 2954  | 3026 | 279  |
| 15° | 2836 | 2804  | 2821 | 2835  | 2837 | 790  |
| 25° | 2536 | 2550  | 2591 | 2625  | 2620 | 1172 |
| 35° | 2207 | 2214  | 2265 | 2317  | 2316 | 1370 |
| 45° | 1776 | 1809  | 1839 | 1886  | 1842 | 1374 |
| 55° | 1327 | 1318  | 1353 | 1344  | 1344 | 1181 |
| 65° | 816  | 805   | 836  | 804   | 810  | 811  |
| 75° | 339  | 332   | 339  | 315   | 326  | 364  |
| 85° | 42   | 40    | 41   | 40    | 38   | 60   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2983.3 | 2983.3 | 2983.3 | 2983.3 | 2983.3 |
| 2.5°  | 3009.2 | 2986.4 | 2965.2 | 2989.9 | 3004.9 |
| 5°    | 2962.2 | 2955.2 | 2963.3 | 2954.5 | 3025.7 |
| 7.5°  | 2901.3 | 2927.9 | 2943.3 | 2933.7 | 2937.9 |
| 10°   | 2868.9 | 2859.7 | 2894.0 | 2917.9 | 2914.4 |
| 12.5° | 2834.3 | 2848.1 | 2850.1 | 2875.9 | 2878.2 |
| 15°   | 2836.2 | 2803.5 | 2820.8 | 2835.4 | 2836.6 |
| 17.5° | 2726.0 | 2761.5 | 2773.4 | 2806.9 | 2765.3 |
| 20°   | 2712.6 | 2686.7 | 2712.6 | 2746.8 | 2741.4 |
| 22.5° | 2629.7 | 2600.8 | 2656.3 | 2686.7 | 2684.8 |
| 25°   | 2535.8 | 2549.6 | 2591.2 | 2625.1 | 2619.7 |
| 27.5° | 2453.3 | 2469.5 | 2528.8 | 2575.4 | 2545.4 |
| 30°   | 2389.8 | 2381.7 | 2431.7 | 2473.3 | 2496.5 |
| 32.5° | 2276.1 | 2305.4 | 2364.0 | 2405.2 | 2383.2 |
| 35°   | 2207.2 | 2213.7 | 2265.0 | 2317.3 | 2315.8 |
| 37.5° | 2086.6 | 2117.0 | 2189.1 | 2203.7 | 2190.2 |
| 40°   | 1983.8 | 2014.2 | 2079.3 | 2095.1 | 2088.5 |
| 42.5° | 1907.9 | 1913.3 | 1969.1 | 1987.2 | 1958.3 |
| 45°   | 1775.8 | 1808.9 | 1838.9 | 1886.3 | 1841.6 |
| 47.5° | 1663.3 | 1678.7 | 1743.4 | 1756.1 | 1732.6 |
| 50°   | 1561.2 | 1566.6 | 1631.7 | 1615.9 | 1600.5 |
| 52.5° | 1432.9 | 1455.7 | 1492.3 | 1489.2 | 1471.1 |
| 55°   | 1327.4 | 1318.5 | 1353.2 | 1344.0 | 1343.6 |
| 57.5° | 1200.7 | 1216.1 | 1244.6 | 1229.9 | 1206.4 |
| 60°   | 1082.0 | 1082.4 | 1092.8 | 1076.2 | 1073.2 |
| 62.5° | 949.9  | 954.5  | 956.8  | 936.4  | 969.5  |
| 65°   | 815.5  | 804.7  | 836.3  | 804.3  | 809.7  |
| 67.5° | 691.8  | 697.2  | 694.1  | 674.1  | 681.8  |
| 70°   | 566.2  | 573.2  | 568.2  | 545.4  | 552.4  |
| 72.5° | 451.5  | 443.0  | 448.4  | 419.9  | 433.0  |
| 75°   | 339.4  | 332.4  | 338.6  | 314.7  | 325.5  |
| 77.5° | 231.1  | 236.5  | 232.7  | 219.9  | 227.3  |
| 80°   | 152.5  | 148.3  | 148.3  | 141.0  | 142.5  |
| 82.5° | 89.0   | 84.7   | 83.6   | 81.3   | 84.7   |
| 85°   | 41.6   | 40.4   | 41.2   | 40.1   | 38.5   |
| 87.5° | 15.0   | 15.4   | 15.4   | 14.6   | 13.9   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)