

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: P589827

Luminaire Tested: **FMR-24-2-LD4-4STD-50-UNV-81-96-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589827
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-LD4-4STD-50-UNV-81-96-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .250 CLEAR
TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

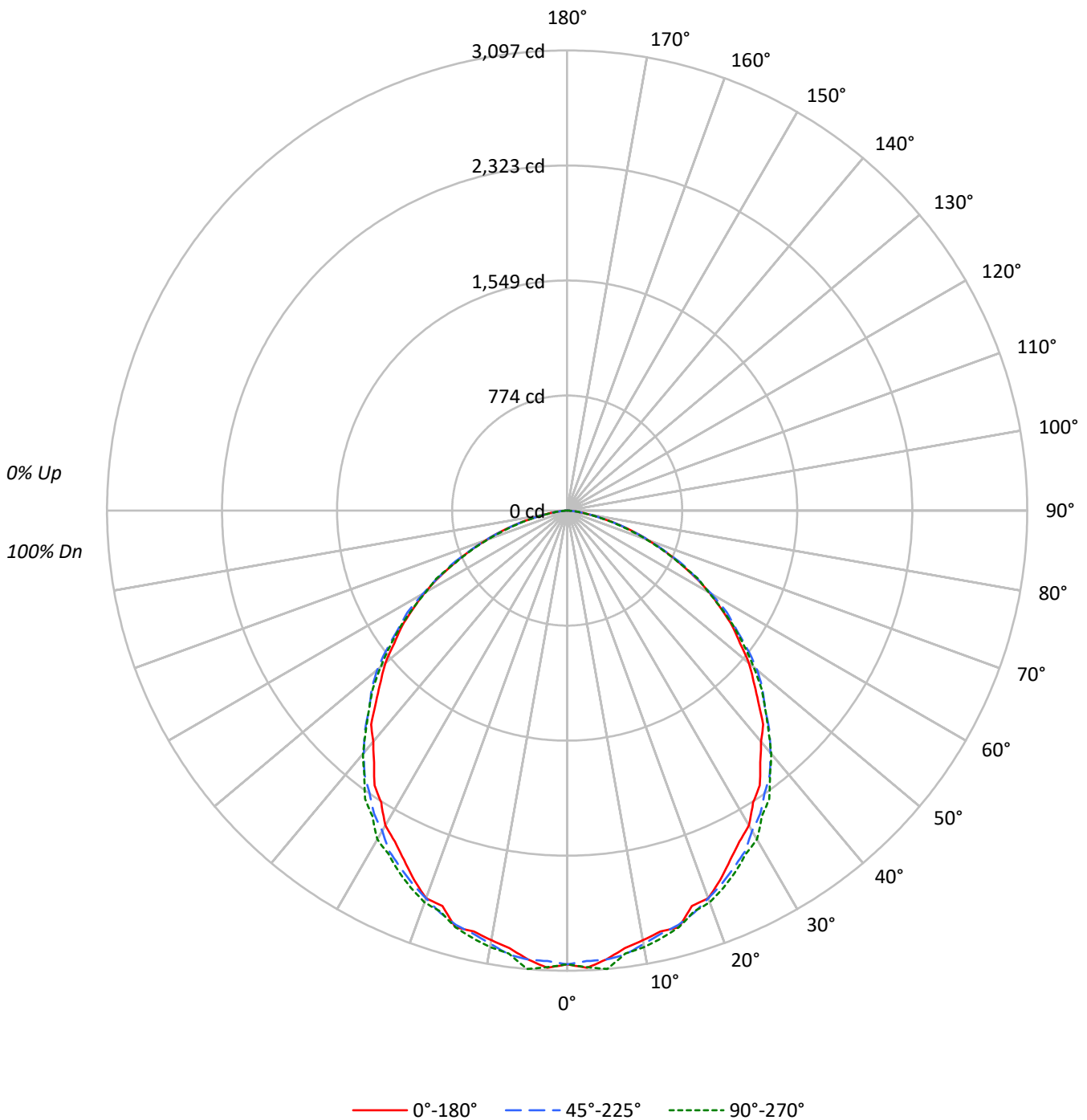
Lumens per Lamp: N/A
Luminaire Lumens: 7696.0 lumens
Efficiency: N/A
Efficacy: 115.6 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 66.6
Input Voltage (V): NR
Input Current (A_{in}): 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





TEST NUMBER: P589827

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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° | 8217 | 8217 | 8217 |
| 5° | 8190 | 8193 | 8366 |
| 10° | 8024 | 8094 | 8151 |
| 15° | 8087 | 8043 | 8089 |
| 20° | 7951 | 7951 | 8035 |
| 25° | 7706 | 7875 | 7962 |
| 30° | 7600 | 7734 | 7940 |
| 35° | 7421 | 7616 | 7787 |
| 40° | 7133 | 7476 | 7509 |
| 45° | 6917 | 7163 | 7174 |
| 50° | 6690 | 6992 | 6858 |
| 55° | 6374 | 6498 | 6452 |
| 60° | 5961 | 6020 | 5912 |
| 65° | 5315 | 5450 | 5277 |
| 70° | 4560 | 4575 | 4449 |
| 75° | 3611 | 3604 | 3464 |
| 80° | 2419 | 2352 | 2261 |
| 85° | 1315 | 1303 | 1216 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 287.2 | 3.7 |
| 10°-20° | 814.1 | 10.6 |
| 20°-30° | 1219.6 | 15.8 |
| 30°-40° | 1445.5 | 18.8 |
| 40°-50° | 1448.2 | 18.8 |
| 50°-60° | 1229.3 | 16.0 |
| 60°-70° | 828.8 | 10.8 |
| 70°-80° | 364.2 | 4.7 |
| 80°-90° | 59.2 | 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° | 2320.9 | 30.2 |
| 0°-40° | 3766.4 | 48.9 |
| 0°-60° | 6443.9 | 83.7 |
| 0°-90° | 7696.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7696.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3054 | 3054 | 3054 | 3054 | 3054 | |
| 5° | 3032 | 3025 | 3033 | 3024 | 3097 | 286 |
| 15° | 2903 | 2870 | 2887 | 2902 | 2903 | 809 |
| 25° | 2595 | 2610 | 2652 | 2687 | 2681 | 1200 |
| 35° | 2259 | 2266 | 2318 | 2372 | 2370 | 1403 |
| 45° | 1818 | 1852 | 1882 | 1931 | 1885 | 1406 |
| 55° | 1359 | 1350 | 1385 | 1376 | 1375 | 1209 |
| 65° | 835 | 824 | 856 | 823 | 829 | 830 |
| 75° | 347 | 340 | 347 | 322 | 333 | 372 |
| 85° | 43 | 41 | 42 | 41 | 39 | 62 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589827

CATALOG NUMBER: FMR-24-2-LD4-4STD-50-UNV-81-96-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3053.6 | 3053.6 | 3053.6 | 3053.6 | 3053.6 |
| 2.5° | 3080.0 | 3056.7 | 3035.0 | 3060.3 | 3075.7 |
| 5° | 3031.9 | 3024.8 | 3033.1 | 3024.0 | 3096.9 |
| 7.5° | 2969.6 | 2996.8 | 3012.6 | 3002.7 | 3007.1 |
| 10° | 2936.5 | 2927.0 | 2962.1 | 2986.6 | 2983.0 |
| 12.5° | 2901.0 | 2915.2 | 2917.2 | 2943.6 | 2945.9 |
| 15° | 2903.0 | 2869.5 | 2887.2 | 2902.2 | 2903.4 |
| 17.5° | 2790.2 | 2826.5 | 2838.7 | 2873.0 | 2830.4 |
| 20° | 2776.4 | 2750.0 | 2776.4 | 2811.5 | 2806.0 |
| 22.5° | 2691.6 | 2662.1 | 2718.8 | 2750.0 | 2748.0 |
| 25° | 2595.4 | 2609.6 | 2652.2 | 2686.9 | 2681.4 |
| 27.5° | 2511.1 | 2527.6 | 2588.3 | 2636.1 | 2605.3 |
| 30° | 2446.0 | 2437.7 | 2489.0 | 2531.6 | 2555.2 |
| 32.5° | 2329.7 | 2359.7 | 2419.6 | 2461.8 | 2439.3 |
| 35° | 2259.1 | 2265.8 | 2318.3 | 2371.9 | 2370.3 |
| 37.5° | 2135.7 | 2166.9 | 2240.6 | 2255.6 | 2241.8 |
| 40° | 2030.5 | 2061.6 | 2128.2 | 2144.4 | 2137.7 |
| 42.5° | 1952.8 | 1958.3 | 2015.5 | 2034.0 | 2004.4 |
| 45° | 1817.6 | 1851.5 | 1882.2 | 1930.7 | 1885.0 |
| 47.5° | 1702.4 | 1718.2 | 1784.4 | 1797.5 | 1773.4 |
| 50° | 1598.0 | 1603.5 | 1670.1 | 1653.9 | 1638.2 |
| 52.5° | 1466.7 | 1489.9 | 1527.4 | 1524.2 | 1505.7 |
| 55° | 1358.6 | 1349.6 | 1385.1 | 1375.6 | 1375.2 |
| 57.5° | 1228.9 | 1244.7 | 1273.9 | 1258.9 | 1234.8 |
| 60° | 1107.5 | 1107.9 | 1118.5 | 1101.6 | 1098.4 |
| 62.5° | 972.3 | 977.0 | 979.4 | 958.5 | 992.4 |
| 65° | 834.7 | 823.6 | 855.9 | 823.2 | 828.7 |
| 67.5° | 708.1 | 713.6 | 710.5 | 690.0 | 697.8 |
| 70° | 579.6 | 586.7 | 581.5 | 558.3 | 565.4 |
| 72.5° | 462.1 | 453.4 | 458.9 | 429.7 | 443.2 |
| 75° | 347.3 | 340.3 | 346.6 | 322.1 | 333.2 |
| 77.5° | 236.6 | 242.1 | 238.1 | 225.1 | 232.6 |
| 80° | 156.1 | 151.8 | 151.8 | 144.3 | 145.9 |
| 82.5° | 91.1 | 86.7 | 85.6 | 83.2 | 86.7 |
| 85° | 42.6 | 41.4 | 42.2 | 41.0 | 39.4 |
| 87.5° | 15.4 | 15.8 | 15.8 | 15.0 | 14.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)