

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: P589770

Luminaire Tested: **FMR-24-2-LD4-4STD-35-UNV-82-94-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589770
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-35-UNV-82-94-EDD
Description: 2X2 FMR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .187 CLEAR
TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

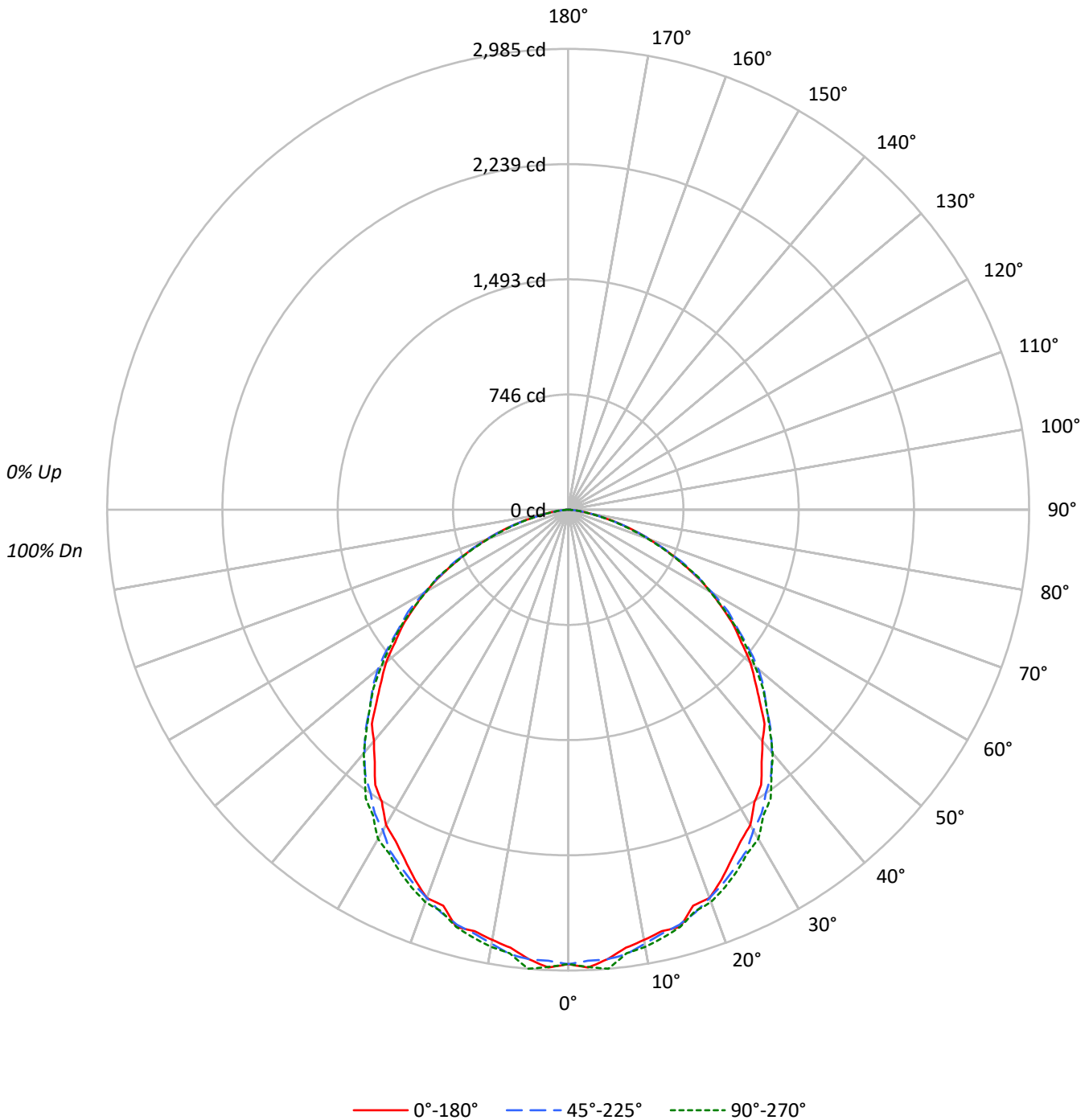
Lumens per Lamp: N/A
Luminaire Lumens: 7417.0 lumens
Efficiency: N/A
Efficacy: 111.4 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 66.6
Input Voltage (V): NR
Input Current (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





TEST NUMBER: P589770

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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° | 7919 | 7919 | 7919 |
| 5° | 7893 | 7896 | 8062 |
| 10° | 7733 | 7800 | 7856 |
| 15° | 7794 | 7752 | 7795 |
| 20° | 7663 | 7663 | 7744 |
| 25° | 7427 | 7589 | 7673 |
| 30° | 7325 | 7454 | 7652 |
| 35° | 7152 | 7340 | 7504 |
| 40° | 6874 | 7205 | 7237 |
| 45° | 6666 | 6903 | 6913 |
| 50° | 6447 | 6738 | 6610 |
| 55° | 6143 | 6262 | 6218 |
| 60° | 5744 | 5802 | 5697 |
| 65° | 5122 | 5252 | 5086 |
| 70° | 4395 | 4410 | 4287 |
| 75° | 3481 | 3473 | 3339 |
| 80° | 2332 | 2267 | 2179 |
| 85° | 1266 | 1257 | 1173 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 276.8 | 3.7 |
| 10°-20° | 784.5 | 10.6 |
| 20°-30° | 1175.4 | 15.8 |
| 30°-40° | 1393.1 | 18.8 |
| 40°-50° | 1395.7 | 18.8 |
| 50°-60° | 1184.7 | 16.0 |
| 60°-70° | 798.7 | 10.8 |
| 70°-80° | 351.0 | 4.7 |
| 80°-90° | 57.0 | 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° | 2236.8 | 30.2 |
| 0°-40° | 3629.9 | 48.9 |
| 0°-60° | 6210.3 | 83.7 |
| 0°-90° | 7417.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7417.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2943 | 2943 | 2943 | 2943 | 2943 | |
| 5° | 2922 | 2915 | 2923 | 2914 | 2985 | 275 |
| 15° | 2798 | 2765 | 2782 | 2797 | 2798 | 779 |
| 25° | 2501 | 2515 | 2556 | 2590 | 2584 | 1156 |
| 35° | 2177 | 2184 | 2234 | 2286 | 2284 | 1352 |
| 45° | 1752 | 1784 | 1814 | 1861 | 1817 | 1355 |
| 55° | 1309 | 1301 | 1335 | 1326 | 1325 | 1165 |
| 65° | 804 | 794 | 825 | 793 | 799 | 800 |
| 75° | 335 | 328 | 334 | 310 | 321 | 359 |
| 85° | 41 | 40 | 41 | 40 | 38 | 59 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589770

CATALOG NUMBER: FMR-24-2-LD4-4STD-35-UNV-82-94-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2942.9 | 2942.9 | 2942.9 | 2942.9 | 2942.9 |
| 2.5° | 2968.3 | 2945.9 | 2925.0 | 2949.3 | 2964.2 |
| 5° | 2922.0 | 2915.1 | 2923.1 | 2914.4 | 2984.7 |
| 7.5° | 2861.9 | 2888.2 | 2903.4 | 2893.9 | 2898.0 |
| 10° | 2830.0 | 2820.9 | 2854.7 | 2878.3 | 2874.9 |
| 12.5° | 2795.8 | 2809.5 | 2811.4 | 2836.9 | 2839.1 |
| 15° | 2797.7 | 2765.4 | 2782.5 | 2797.0 | 2798.1 |
| 17.5° | 2689.1 | 2724.0 | 2735.8 | 2768.9 | 2727.8 |
| 20° | 2675.8 | 2650.3 | 2675.8 | 2709.6 | 2704.3 |
| 22.5° | 2594.1 | 2565.6 | 2620.3 | 2650.3 | 2648.4 |
| 25° | 2501.4 | 2515.0 | 2556.1 | 2589.5 | 2584.2 |
| 27.5° | 2420.0 | 2436.0 | 2494.5 | 2540.5 | 2510.9 |
| 30° | 2357.3 | 2349.4 | 2398.8 | 2439.8 | 2462.6 |
| 32.5° | 2245.3 | 2274.1 | 2331.9 | 2372.5 | 2350.9 |
| 35° | 2177.2 | 2183.7 | 2234.2 | 2285.9 | 2284.4 |
| 37.5° | 2058.3 | 2088.3 | 2159.4 | 2173.8 | 2160.5 |
| 40° | 1956.9 | 1986.9 | 2051.1 | 2066.7 | 2060.2 |
| 42.5° | 1882.0 | 1887.3 | 1942.4 | 1960.3 | 1931.8 |
| 45° | 1751.7 | 1784.3 | 1814.0 | 1860.7 | 1816.6 |
| 47.5° | 1640.7 | 1655.9 | 1719.8 | 1732.3 | 1709.1 |
| 50° | 1540.0 | 1545.3 | 1609.6 | 1594.0 | 1578.8 |
| 52.5° | 1413.5 | 1435.9 | 1472.0 | 1469.0 | 1451.1 |
| 55° | 1309.4 | 1300.6 | 1334.8 | 1325.7 | 1325.3 |
| 57.5° | 1184.4 | 1199.6 | 1227.7 | 1213.2 | 1190.1 |
| 60° | 1067.3 | 1067.7 | 1078.0 | 1061.6 | 1058.6 |
| 62.5° | 937.0 | 941.6 | 943.8 | 923.7 | 956.4 |
| 65° | 804.4 | 793.8 | 824.9 | 793.4 | 798.7 |
| 67.5° | 682.4 | 687.7 | 684.7 | 664.9 | 672.5 |
| 70° | 558.6 | 565.4 | 560.5 | 538.0 | 544.9 |
| 72.5° | 445.3 | 437.0 | 442.3 | 414.2 | 427.1 |
| 75° | 334.8 | 327.9 | 334.0 | 310.4 | 321.1 |
| 77.5° | 228.0 | 233.3 | 229.5 | 217.0 | 224.2 |
| 80° | 150.5 | 146.3 | 146.3 | 139.1 | 140.6 |
| 82.5° | 87.8 | 83.6 | 82.5 | 80.2 | 83.6 |
| 85° | 41.0 | 39.9 | 40.7 | 39.5 | 38.0 |
| 87.5° | 14.8 | 15.2 | 15.2 | 14.4 | 13.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)