

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: P589292

Luminaire Tested: **FMR-24-2-LD4-3HI-35-UNV-82-97-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589292
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-35-UNV-82-97-EDD
Description: 2X2 FMR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .375 CLEAR
TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

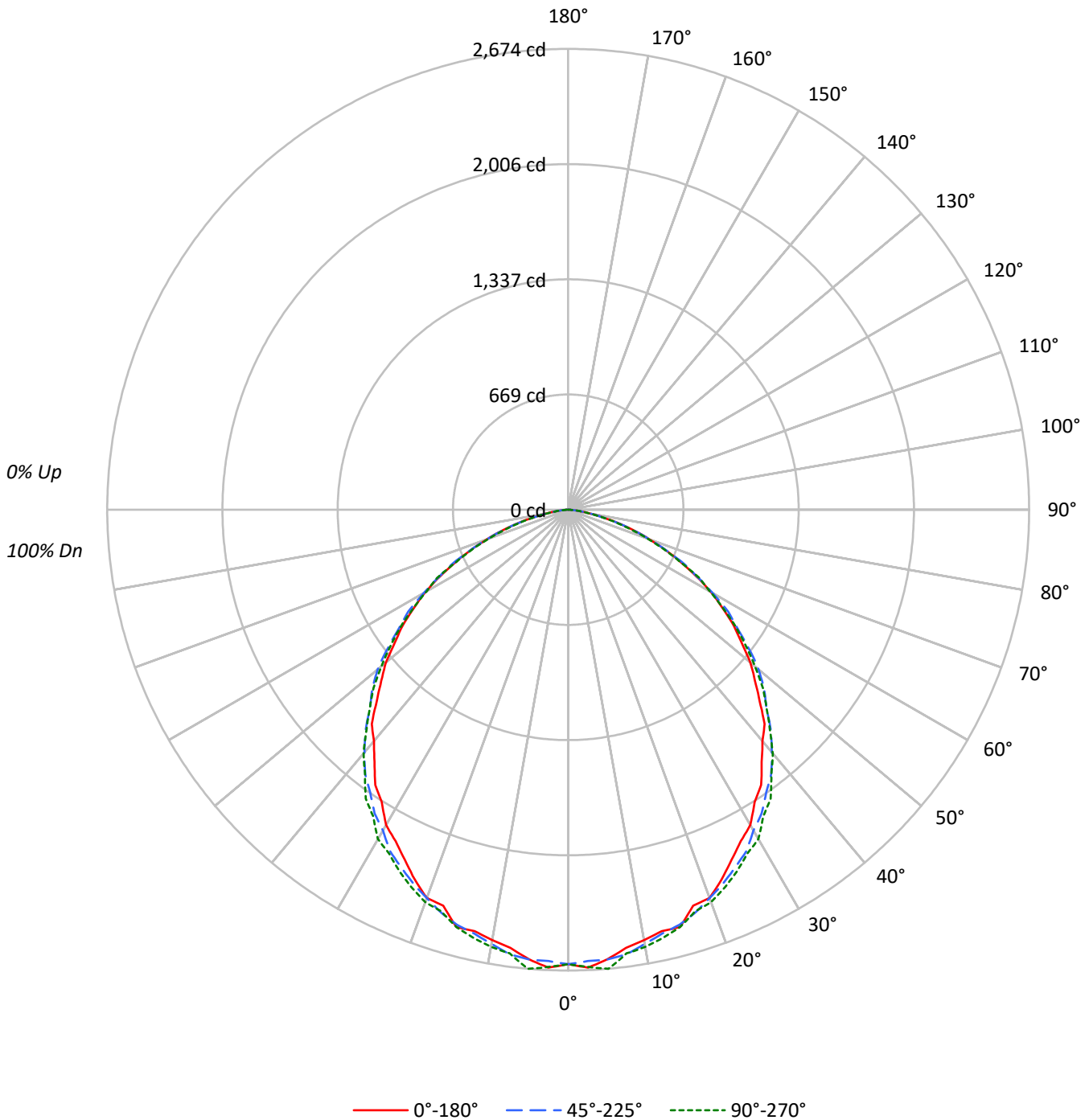
Lumens per Lamp: N/A
Luminaire Lumens: 6646.0 lumens
Efficiency: N/A
Efficacy: 102.6 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 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° | 7096 | 7096 | 7096 |
| 5° | 7072 | 7075 | 7224 |
| 10° | 6929 | 6990 | 7039 |
| 15° | 6984 | 6946 | 6985 |
| 20° | 6866 | 6866 | 6939 |
| 25° | 6655 | 6801 | 6875 |
| 30° | 6563 | 6679 | 6857 |
| 35° | 6409 | 6577 | 6724 |
| 40° | 6159 | 6456 | 6485 |
| 45° | 5973 | 6186 | 6195 |
| 50° | 5777 | 6038 | 5923 |
| 55° | 5505 | 5612 | 5572 |
| 60° | 5147 | 5198 | 5105 |
| 65° | 4590 | 4707 | 4557 |
| 70° | 3938 | 3951 | 3841 |
| 75° | 3119 | 3112 | 2991 |
| 80° | 2089 | 2032 | 1953 |
| 85° | 1136 | 1124 | 1050 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 248.0 | 3.7 |
| 10°-20° | 703.0 | 10.6 |
| 20°-30° | 1053.2 | 15.8 |
| 30°-40° | 1248.3 | 18.8 |
| 40°-50° | 1250.6 | 18.8 |
| 50°-60° | 1061.6 | 16.0 |
| 60°-70° | 715.7 | 10.8 |
| 70°-80° | 314.5 | 4.7 |
| 80°-90° | 51.1 | 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° | 2004.3 | 30.2 |
| 0°-40° | 3252.6 | 48.9 |
| 0°-60° | 5564.7 | 83.7 |
| 0°-90° | 6646.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 6646.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2637 | 2637 | 2637 | 2637 | 2637 | |
| 5° | 2618 | 2612 | 2619 | 2611 | 2674 | 247 |
| 15° | 2507 | 2478 | 2493 | 2506 | 2507 | 698 |
| 25° | 2241 | 2254 | 2290 | 2320 | 2316 | 1036 |
| 35° | 1951 | 1957 | 2002 | 2048 | 2047 | 1211 |
| 45° | 1570 | 1599 | 1625 | 1667 | 1628 | 1214 |
| 55° | 1173 | 1165 | 1196 | 1188 | 1188 | 1044 |
| 65° | 721 | 711 | 739 | 711 | 716 | 717 |
| 75° | 300 | 294 | 299 | 278 | 288 | 321 |
| 85° | 37 | 36 | 36 | 35 | 34 | 53 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589292

CATALOG NUMBER: FMR-24-2-LD4-3HI-35-UNV-82-97-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2637.0 | 2637.0 | 2637.0 | 2637.0 | 2637.0 |
| 2.5° | 2659.8 | 2639.7 | 2621.0 | 2642.8 | 2656.0 |
| 5° | 2618.2 | 2612.1 | 2619.3 | 2611.4 | 2674.4 |
| 7.5° | 2564.4 | 2587.9 | 2601.6 | 2593.0 | 2596.8 |
| 10° | 2535.8 | 2527.7 | 2558.0 | 2579.1 | 2576.0 |
| 12.5° | 2505.2 | 2517.5 | 2519.2 | 2542.0 | 2544.0 |
| 15° | 2506.9 | 2478.0 | 2493.3 | 2506.2 | 2507.2 |
| 17.5° | 2409.5 | 2440.9 | 2451.4 | 2481.0 | 2444.3 |
| 20° | 2397.6 | 2374.8 | 2397.6 | 2427.9 | 2423.1 |
| 22.5° | 2324.4 | 2298.9 | 2347.9 | 2374.8 | 2373.1 |
| 25° | 2241.3 | 2253.6 | 2290.4 | 2320.3 | 2315.6 |
| 27.5° | 2168.5 | 2182.8 | 2235.2 | 2276.4 | 2249.8 |
| 30° | 2112.3 | 2105.1 | 2149.4 | 2186.2 | 2206.6 |
| 32.5° | 2011.9 | 2037.7 | 2089.5 | 2125.9 | 2106.5 |
| 35° | 1950.9 | 1956.7 | 2002.0 | 2048.3 | 2046.9 |
| 37.5° | 1844.3 | 1871.2 | 1934.9 | 1947.8 | 1935.9 |
| 40° | 1753.4 | 1780.3 | 1837.9 | 1851.8 | 1846.0 |
| 42.5° | 1686.4 | 1691.1 | 1740.5 | 1756.5 | 1731.0 |
| 45° | 1569.6 | 1598.9 | 1625.4 | 1667.3 | 1627.8 |
| 47.5° | 1470.2 | 1483.8 | 1541.0 | 1552.2 | 1531.4 |
| 50° | 1379.9 | 1384.7 | 1442.2 | 1428.3 | 1414.7 |
| 52.5° | 1266.6 | 1286.6 | 1319.0 | 1316.3 | 1300.3 |
| 55° | 1173.3 | 1165.4 | 1196.1 | 1187.9 | 1187.6 |
| 57.5° | 1061.3 | 1074.9 | 1100.1 | 1087.1 | 1066.4 |
| 60° | 956.4 | 956.7 | 965.9 | 951.3 | 948.6 |
| 62.5° | 839.6 | 843.7 | 845.7 | 827.7 | 857.0 |
| 65° | 720.8 | 711.2 | 739.2 | 710.9 | 715.7 |
| 67.5° | 611.5 | 616.3 | 613.5 | 595.8 | 602.6 |
| 70° | 500.5 | 506.6 | 502.2 | 482.1 | 488.2 |
| 72.5° | 399.0 | 391.5 | 396.3 | 371.1 | 382.7 |
| 75° | 300.0 | 293.8 | 299.3 | 278.2 | 287.7 |
| 77.5° | 204.3 | 209.1 | 205.6 | 194.4 | 200.9 |
| 80° | 134.8 | 131.1 | 131.1 | 124.6 | 126.0 |
| 82.5° | 78.6 | 74.9 | 73.9 | 71.8 | 74.9 |
| 85° | 36.8 | 35.7 | 36.4 | 35.4 | 34.0 |
| 87.5° | 13.3 | 13.6 | 13.6 | 12.9 | 12.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)