

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: P589808

Luminaire Tested: **FMR-24-2-LD4-4STD-40-UNV-93-87-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589808
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-40-UNV-93-87-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

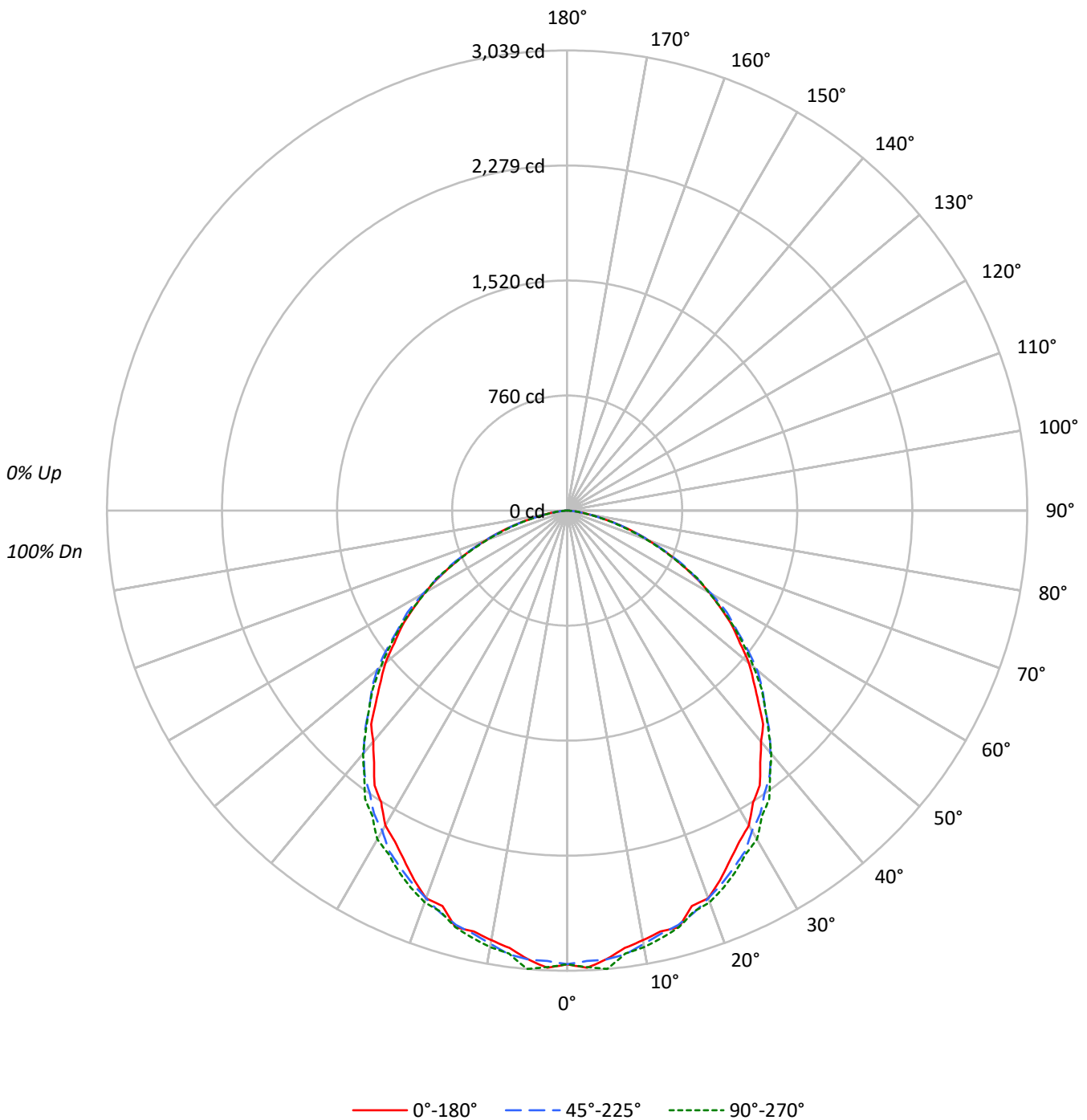
Lumens per Lamp: N/A
Luminaire Lumens: 7551.0 lumens
Efficiency: N/A
Efficacy: 113.4 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

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





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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° | 8062 | 8062 | 8062 |
| 5° | 8036 | 8039 | 8208 |
| 10° | 7873 | 7941 | 7997 |
| 15° | 7935 | 7892 | 7936 |
| 20° | 7801 | 7801 | 7884 |
| 25° | 7561 | 7726 | 7812 |
| 30° | 7457 | 7588 | 7790 |
| 35° | 7282 | 7472 | 7640 |
| 40° | 6998 | 7335 | 7368 |
| 45° | 6787 | 7028 | 7038 |
| 50° | 6563 | 6860 | 6729 |
| 55° | 6254 | 6376 | 6330 |
| 60° | 5848 | 5907 | 5800 |
| 65° | 5214 | 5347 | 5177 |
| 70° | 4474 | 4489 | 4364 |
| 75° | 3543 | 3535 | 3399 |
| 80° | 2374 | 2307 | 2218 |
| 85° | 1291 | 1278 | 1195 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 281.8 | 3.7 |
| 10°-20° | 798.7 | 10.6 |
| 20°-30° | 1196.7 | 15.8 |
| 30°-40° | 1418.3 | 18.8 |
| 40°-50° | 1420.9 | 18.8 |
| 50°-60° | 1206.1 | 16.0 |
| 60°-70° | 813.2 | 10.8 |
| 70°-80° | 357.3 | 4.7 |
| 80°-90° | 58.1 | 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° | 2277.2 | 30.2 |
| 0°-40° | 3695.5 | 48.9 |
| 0°-60° | 6322.5 | 83.7 |
| 0°-90° | 7551.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7551.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2996 | 2996 | 2996 | 2996 | 2996 | |
| 5° | 2975 | 2968 | 2976 | 2967 | 3039 | 280 |
| 15° | 2848 | 2815 | 2833 | 2848 | 2849 | 794 |
| 25° | 2546 | 2560 | 2602 | 2636 | 2631 | 1177 |
| 35° | 2217 | 2223 | 2275 | 2327 | 2326 | 1376 |
| 45° | 1783 | 1817 | 1847 | 1894 | 1850 | 1379 |
| 55° | 1333 | 1324 | 1359 | 1350 | 1349 | 1186 |
| 65° | 819 | 808 | 840 | 808 | 813 | 814 |
| 75° | 341 | 334 | 340 | 316 | 327 | 365 |
| 85° | 42 | 41 | 41 | 40 | 39 | 61 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589808

CATALOG NUMBER: FMR-24-2-LD4-4STD-40-UNV-93-87-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2996.0 | 2996.0 | 2996.0 | 2996.0 | 2996.0 |
| 2.5° | 3022.0 | 2999.1 | 2977.9 | 3002.6 | 3017.7 |
| 5° | 2974.8 | 2967.8 | 2975.9 | 2967.0 | 3038.6 |
| 7.5° | 2913.6 | 2940.3 | 2955.8 | 2946.1 | 2950.4 |
| 10° | 2881.2 | 2871.9 | 2906.3 | 2930.3 | 2926.8 |
| 12.5° | 2846.3 | 2860.3 | 2862.2 | 2888.1 | 2890.4 |
| 15° | 2848.3 | 2815.4 | 2832.8 | 2847.5 | 2848.7 |
| 17.5° | 2737.6 | 2773.2 | 2785.2 | 2818.9 | 2777.1 |
| 20° | 2724.1 | 2698.2 | 2724.1 | 2758.5 | 2753.1 |
| 22.5° | 2640.9 | 2611.9 | 2667.6 | 2698.2 | 2696.2 |
| 25° | 2546.5 | 2560.5 | 2602.2 | 2636.3 | 2630.9 |
| 27.5° | 2463.8 | 2480.0 | 2539.6 | 2586.4 | 2556.2 |
| 30° | 2399.9 | 2391.8 | 2442.1 | 2483.9 | 2507.1 |
| 32.5° | 2285.8 | 2315.2 | 2374.0 | 2415.4 | 2393.4 |
| 35° | 2216.6 | 2223.1 | 2274.6 | 2327.2 | 2325.7 |
| 37.5° | 2095.5 | 2126.1 | 2198.4 | 2213.1 | 2199.6 |
| 40° | 1992.2 | 2022.8 | 2088.1 | 2104.0 | 2097.4 |
| 42.5° | 1916.0 | 1921.4 | 1977.5 | 1995.7 | 1966.7 |
| 45° | 1783.3 | 1816.6 | 1846.8 | 1894.3 | 1849.5 |
| 47.5° | 1670.4 | 1685.8 | 1750.8 | 1763.6 | 1740.0 |
| 50° | 1567.8 | 1573.3 | 1638.6 | 1622.8 | 1607.3 |
| 52.5° | 1439.0 | 1461.9 | 1498.6 | 1495.5 | 1477.3 |
| 55° | 1333.0 | 1324.1 | 1359.0 | 1349.7 | 1349.3 |
| 57.5° | 1205.8 | 1221.2 | 1249.9 | 1235.2 | 1211.6 |
| 60° | 1086.6 | 1087.0 | 1097.5 | 1080.8 | 1077.7 |
| 62.5° | 953.9 | 958.6 | 960.9 | 940.4 | 973.7 |
| 65° | 818.9 | 808.1 | 839.8 | 807.7 | 813.1 |
| 67.5° | 694.8 | 700.2 | 697.1 | 677.0 | 684.7 |
| 70° | 568.6 | 575.6 | 570.6 | 547.8 | 554.7 |
| 72.5° | 453.4 | 444.9 | 450.3 | 421.7 | 434.8 |
| 75° | 340.8 | 333.8 | 340.0 | 316.0 | 326.9 |
| 77.5° | 232.1 | 237.5 | 233.6 | 220.9 | 228.2 |
| 80° | 153.2 | 148.9 | 148.9 | 141.6 | 143.1 |
| 82.5° | 89.4 | 85.1 | 83.9 | 81.6 | 85.1 |
| 85° | 41.8 | 40.6 | 41.4 | 40.2 | 38.7 |
| 87.5° | 15.1 | 15.5 | 15.5 | 14.7 | 13.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)