

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: P589314

Luminaire Tested: **FMR-24-2-LD4-3HI-40-UNV-81-94-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P589314
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-40-UNV-81-94-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .187 CLEAR
TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

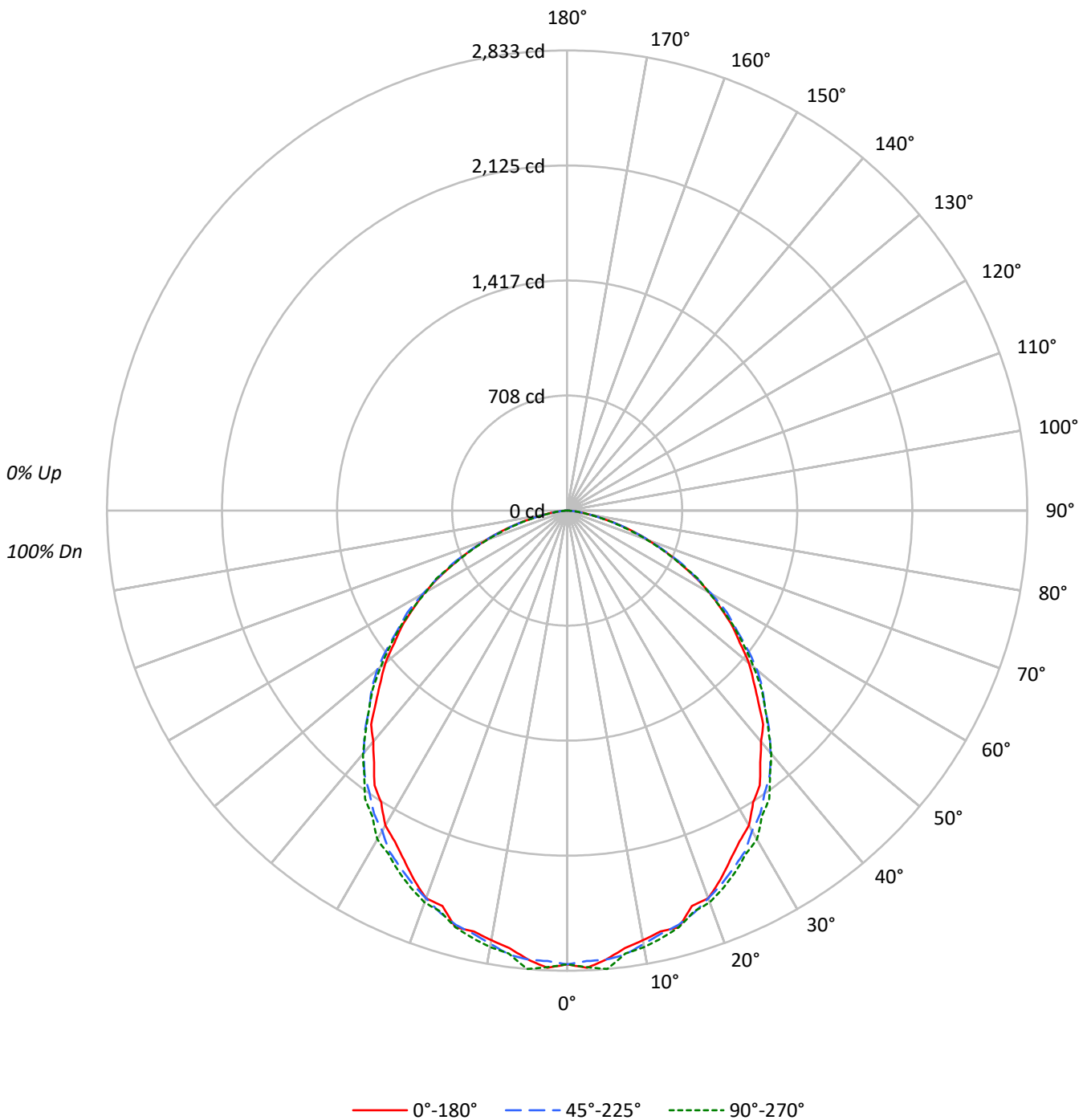
Lumens per Lamp: N/A
Luminaire Lumens: 7040.0 lumens
Efficiency: N/A
Efficacy: 108.6 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

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 | 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 | | | | | 100 | | | |
| 1 | 110 | 105 | 101 | 98 | 107 | 103 | 100 | 96 | 99 | 96 | 93 | 95 | 93 | 90 | 91 | 90 | 88 | 86 | | | | | 86 | | | |
| 2 | 100 | 93 | 86 | 81 | 98 | 91 | 85 | 80 | 87 | 82 | 78 | 84 | 80 | 76 | 81 | 78 | 75 | 73 | | | | | 73 | | | |
| 3 | 92 | 82 | 74 | 68 | 89 | 80 | 73 | 67 | 77 | 71 | 66 | 75 | 69 | 65 | 72 | 68 | 64 | 62 | | | | | 62 | | | |
| 4 | 84 | 73 | 64 | 58 | 82 | 71 | 64 | 58 | 69 | 62 | 57 | 67 | 61 | 56 | 65 | 59 | 55 | 53 | | | | | 53 | | | |
| 5 | 78 | 65 | 57 | 50 | 76 | 64 | 56 | 50 | 62 | 55 | 49 | 60 | 54 | 49 | 58 | 53 | 48 | 46 | | | | | 46 | | | |
| 6 | 72 | 59 | 50 | 44 | 70 | 58 | 50 | 44 | 56 | 49 | 43 | 54 | 48 | 43 | 53 | 47 | 43 | 41 | | | | | 41 | | | |
| 7 | 67 | 53 | 45 | 39 | 65 | 53 | 45 | 39 | 51 | 44 | 39 | 50 | 43 | 38 | 48 | 42 | 38 | 36 | | | | | 36 | | | |
| 8 | 62 | 49 | 41 | 35 | 61 | 48 | 40 | 35 | 47 | 40 | 34 | 46 | 39 | 34 | 44 | 39 | 34 | 32 | | | | | 32 | | | |
| 9 | 58 | 45 | 37 | 31 | 57 | 44 | 37 | 31 | 43 | 36 | 31 | 42 | 36 | 31 | 41 | 35 | 31 | 29 | | | | | 29 | | | |
| 10 | 54 | 41 | 34 | 29 | 53 | 41 | 33 | 28 | 40 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 26 | | | | | 26 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 7517 | 7517 | 7517 |
| 5° | 7492 | 7495 | 7653 |
| 10° | 7340 | 7404 | 7456 |
| 15° | 7398 | 7358 | 7399 |
| 20° | 7273 | 7273 | 7350 |
| 25° | 7049 | 7203 | 7283 |
| 30° | 6953 | 7075 | 7263 |
| 35° | 6789 | 6967 | 7123 |
| 40° | 6525 | 6839 | 6869 |
| 45° | 6327 | 6553 | 6562 |
| 50° | 6119 | 6396 | 6273 |
| 55° | 5831 | 5944 | 5902 |
| 60° | 5452 | 5507 | 5408 |
| 65° | 4862 | 4986 | 4827 |
| 70° | 4172 | 4186 | 4069 |
| 75° | 3303 | 3296 | 3169 |
| 80° | 2213 | 2152 | 2067 |
| 85° | 1204 | 1192 | 1115 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 262.8 | 3.7 |
| 10°-20° | 744.7 | 10.6 |
| 20°-30° | 1115.7 | 15.8 |
| 30°-40° | 1322.3 | 18.8 |
| 40°-50° | 1324.7 | 18.8 |
| 50°-60° | 1124.5 | 16.0 |
| 60°-70° | 758.1 | 10.8 |
| 70°-80° | 333.1 | 4.7 |
| 80°-90° | 54.1 | 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° | 2123.1 | 30.2 |
| 0°-40° | 3445.4 | 48.9 |
| 0°-60° | 5894.6 | 83.7 |
| 0°-90° | 7040.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7040.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2793 | 2793 | 2793 | 2793 | 2793 | |
| 5° | 2774 | 2767 | 2774 | 2766 | 2833 | 261 |
| 15° | 2656 | 2625 | 2641 | 2655 | 2656 | 740 |
| 25° | 2374 | 2387 | 2426 | 2458 | 2453 | 1098 |
| 35° | 2067 | 2073 | 2121 | 2170 | 2168 | 1283 |
| 45° | 1663 | 1694 | 1722 | 1766 | 1724 | 1286 |
| 55° | 1243 | 1234 | 1267 | 1258 | 1258 | 1106 |
| 65° | 764 | 753 | 783 | 753 | 758 | 759 |
| 75° | 318 | 311 | 317 | 295 | 305 | 341 |
| 85° | 39 | 38 | 39 | 38 | 36 | 56 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589314

CATALOG NUMBER: FMR-24-2-LD4-3HI-40-UNV-81-94-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2793.3 | 2793.3 | 2793.3 | 2793.3 | 2793.3 |
| 2.5° | 2817.5 | 2796.2 | 2776.3 | 2799.4 | 2813.5 |
| 5° | 2773.5 | 2767.0 | 2774.5 | 2766.2 | 2833.0 |
| 7.5° | 2716.5 | 2741.4 | 2755.8 | 2746.8 | 2750.7 |
| 10° | 2686.2 | 2677.5 | 2709.6 | 2732.0 | 2728.7 |
| 12.5° | 2653.7 | 2666.7 | 2668.5 | 2692.7 | 2694.8 |
| 15° | 2655.5 | 2624.9 | 2641.1 | 2654.8 | 2655.9 |
| 17.5° | 2552.4 | 2585.6 | 2596.7 | 2628.1 | 2589.2 |
| 20° | 2539.8 | 2515.6 | 2539.8 | 2571.9 | 2566.8 |
| 22.5° | 2462.2 | 2435.2 | 2487.1 | 2515.6 | 2513.8 |
| 25° | 2374.2 | 2387.2 | 2426.1 | 2457.9 | 2452.8 |
| 27.5° | 2297.0 | 2312.2 | 2367.7 | 2411.4 | 2383.2 |
| 30° | 2237.5 | 2229.9 | 2276.8 | 2315.8 | 2337.4 |
| 32.5° | 2131.1 | 2158.5 | 2213.4 | 2251.9 | 2231.4 |
| 35° | 2066.6 | 2072.7 | 2120.7 | 2169.7 | 2168.3 |
| 37.5° | 1953.7 | 1982.2 | 2049.6 | 2063.3 | 2050.7 |
| 40° | 1857.4 | 1885.9 | 1946.8 | 1961.6 | 1955.5 |
| 42.5° | 1786.3 | 1791.4 | 1843.7 | 1860.6 | 1833.6 |
| 45° | 1662.6 | 1693.6 | 1721.8 | 1766.1 | 1724.3 |
| 47.5° | 1557.3 | 1571.7 | 1632.3 | 1644.2 | 1622.2 |
| 50° | 1461.7 | 1466.8 | 1527.7 | 1513.0 | 1498.5 |
| 52.5° | 1341.6 | 1362.9 | 1397.2 | 1394.3 | 1377.4 |
| 55° | 1242.8 | 1234.5 | 1267.0 | 1258.3 | 1258.0 |
| 57.5° | 1124.2 | 1138.6 | 1165.3 | 1151.6 | 1129.6 |
| 60° | 1013.1 | 1013.4 | 1023.2 | 1007.7 | 1004.8 |
| 62.5° | 889.4 | 893.7 | 895.9 | 876.8 | 907.8 |
| 65° | 763.5 | 753.4 | 783.0 | 753.1 | 758.1 |
| 67.5° | 647.7 | 652.8 | 649.9 | 631.2 | 638.4 |
| 70° | 530.2 | 536.7 | 532.0 | 510.7 | 517.2 |
| 72.5° | 422.7 | 414.8 | 419.8 | 393.1 | 405.4 |
| 75° | 317.7 | 311.2 | 317.0 | 294.7 | 304.8 |
| 77.5° | 216.4 | 221.4 | 217.8 | 205.9 | 212.8 |
| 80° | 142.8 | 138.9 | 138.9 | 132.0 | 133.4 |
| 82.5° | 83.3 | 79.3 | 78.3 | 76.1 | 79.3 |
| 85° | 39.0 | 37.9 | 38.6 | 37.5 | 36.1 |
| 87.5° | 14.1 | 14.4 | 14.4 | 13.7 | 13.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)