

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: P588817

Luminaire Tested: **FMR-24-2-LD4-1LO-35-UNV-93-88-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P588817
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-LD4-1LO-35-UNV-93-88-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .500 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

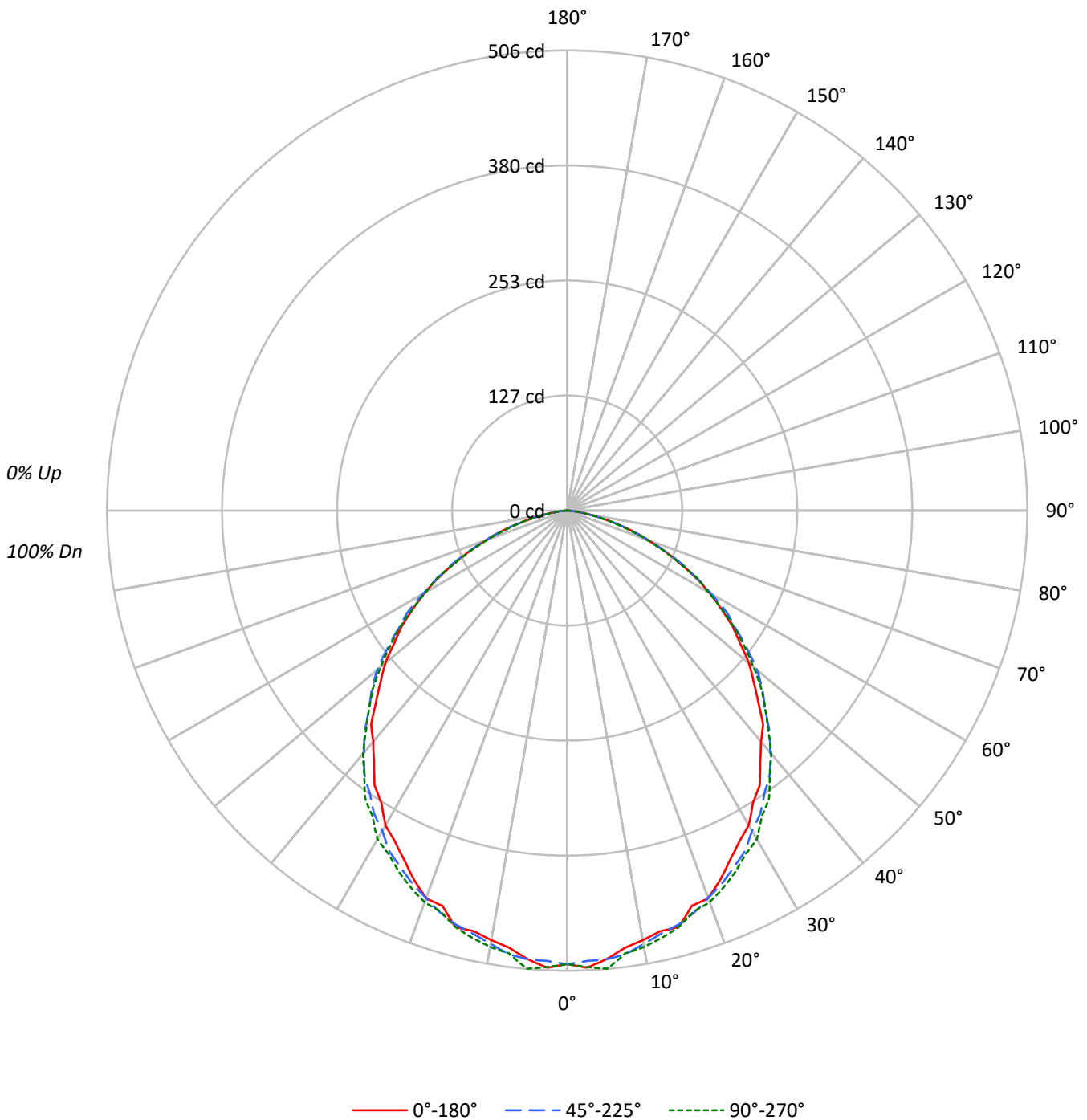
Lumens per Lamp: N/A
Luminaire Lumens: 1257.0 lumens
Efficiency: N/A
Efficacy: 107.4 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 11.7
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° | 1342 | 1342 | 1342 |
| 5° | 1338 | 1338 | 1366 |
| 10° | 1311 | 1322 | 1331 |
| 15° | 1321 | 1314 | 1321 |
| 20° | 1299 | 1299 | 1312 |
| 25° | 1259 | 1286 | 1300 |
| 30° | 1241 | 1263 | 1297 |
| 35° | 1212 | 1244 | 1272 |
| 40° | 1165 | 1221 | 1227 |
| 45° | 1130 | 1170 | 1172 |
| 50° | 1093 | 1142 | 1120 |
| 55° | 1041 | 1061 | 1054 |
| 60° | 974 | 983 | 966 |
| 65° | 868 | 890 | 862 |
| 70° | 745 | 747 | 726 |
| 75° | 590 | 588 | 566 |
| 80° | 395 | 384 | 369 |
| 85° | 216 | 213 | 198 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 46.9 | 3.7 |
| 10°-20° | 133.0 | 10.6 |
| 20°-30° | 199.2 | 15.8 |
| 30°-40° | 236.1 | 18.8 |
| 40°-50° | 236.5 | 18.8 |
| 50°-60° | 200.8 | 16.0 |
| 60°-70° | 135.4 | 10.8 |
| 70°-80° | 59.5 | 4.7 |
| 80°-90° | 9.7 | 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° | 379.1 | 30.2 |
| 0°-40° | 615.2 | 48.9 |
| 0°-60° | 1052.5 | 83.7 |
| 0°-90° | 1257.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1257.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 499 | 499 | 499 | 499 | 499 | |
| 5° | 495 | 494 | 495 | 494 | 506 | 47 |
| 15° | 474 | 469 | 472 | 474 | 474 | 132 |
| 25° | 424 | 426 | 433 | 439 | 438 | 196 |
| 35° | 369 | 370 | 379 | 387 | 387 | 229 |
| 45° | 297 | 302 | 307 | 315 | 308 | 230 |
| 55° | 222 | 220 | 226 | 225 | 225 | 197 |
| 65° | 136 | 134 | 140 | 134 | 135 | 136 |
| 75° | 57 | 56 | 57 | 53 | 54 | 61 |
| 85° | 7 | 7 | 7 | 7 | 6 | 10 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P588817

CATALOG NUMBER: FMR-24-2-LD4-1LO-35-UNV-93-88-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 498.7 | 498.7 | 498.7 | 498.7 | 498.7 |
| 2.5° | 503.1 | 499.3 | 495.7 | 499.8 | 502.4 |
| 5° | 495.2 | 494.0 | 495.4 | 493.9 | 505.8 |
| 7.5° | 485.0 | 489.5 | 492.0 | 490.4 | 491.1 |
| 10° | 479.6 | 478.1 | 483.8 | 487.8 | 487.2 |
| 12.5° | 473.8 | 476.1 | 476.5 | 480.8 | 481.2 |
| 15° | 474.1 | 468.7 | 471.6 | 474.0 | 474.2 |
| 17.5° | 455.7 | 461.7 | 463.7 | 469.3 | 462.3 |
| 20° | 453.5 | 449.2 | 453.5 | 459.2 | 458.3 |
| 22.5° | 439.6 | 434.8 | 444.1 | 449.2 | 448.8 |
| 25° | 423.9 | 426.2 | 433.2 | 438.9 | 438.0 |
| 27.5° | 410.1 | 412.8 | 422.8 | 430.6 | 425.5 |
| 30° | 399.5 | 398.2 | 406.5 | 413.5 | 417.3 |
| 32.5° | 380.5 | 385.4 | 395.2 | 402.1 | 398.4 |
| 35° | 369.0 | 370.1 | 378.6 | 387.4 | 387.1 |
| 37.5° | 348.8 | 353.9 | 366.0 | 368.4 | 366.2 |
| 40° | 331.6 | 336.7 | 347.6 | 350.2 | 349.2 |
| 42.5° | 319.0 | 319.9 | 329.2 | 332.2 | 327.4 |
| 45° | 296.9 | 302.4 | 307.4 | 315.3 | 307.9 |
| 47.5° | 278.1 | 280.6 | 291.5 | 293.6 | 289.7 |
| 50° | 261.0 | 261.9 | 272.8 | 270.1 | 267.6 |
| 52.5° | 239.6 | 243.4 | 249.5 | 249.0 | 245.9 |
| 55° | 221.9 | 220.4 | 226.2 | 224.7 | 224.6 |
| 57.5° | 200.7 | 203.3 | 208.1 | 205.6 | 201.7 |
| 60° | 180.9 | 181.0 | 182.7 | 179.9 | 179.4 |
| 62.5° | 158.8 | 159.6 | 160.0 | 156.5 | 162.1 |
| 65° | 136.3 | 134.5 | 139.8 | 134.5 | 135.4 |
| 67.5° | 115.7 | 116.6 | 116.0 | 112.7 | 114.0 |
| 70° | 94.7 | 95.8 | 95.0 | 91.2 | 92.3 |
| 72.5° | 75.5 | 74.1 | 75.0 | 70.2 | 72.4 |
| 75° | 56.7 | 55.6 | 56.6 | 52.6 | 54.4 |
| 77.5° | 38.6 | 39.5 | 38.9 | 36.8 | 38.0 |
| 80° | 25.5 | 24.8 | 24.8 | 23.6 | 23.8 |
| 82.5° | 14.9 | 14.2 | 14.0 | 13.6 | 14.2 |
| 85° | 7.0 | 6.8 | 6.9 | 6.7 | 6.4 |
| 87.5° | 2.5 | 2.6 | 2.6 | 2.4 | 2.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)