

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: P588852

Luminaire Tested: **FMR-24-2-LD4-1LO-40-UNV-93-97-EDD**

Issue Date: 12/8/2021



Test Information

Test Method: LM-79-08
Report Number: P588852
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-40-UNV-93-97-EDD
Description: 2X2 FMR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPERED GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

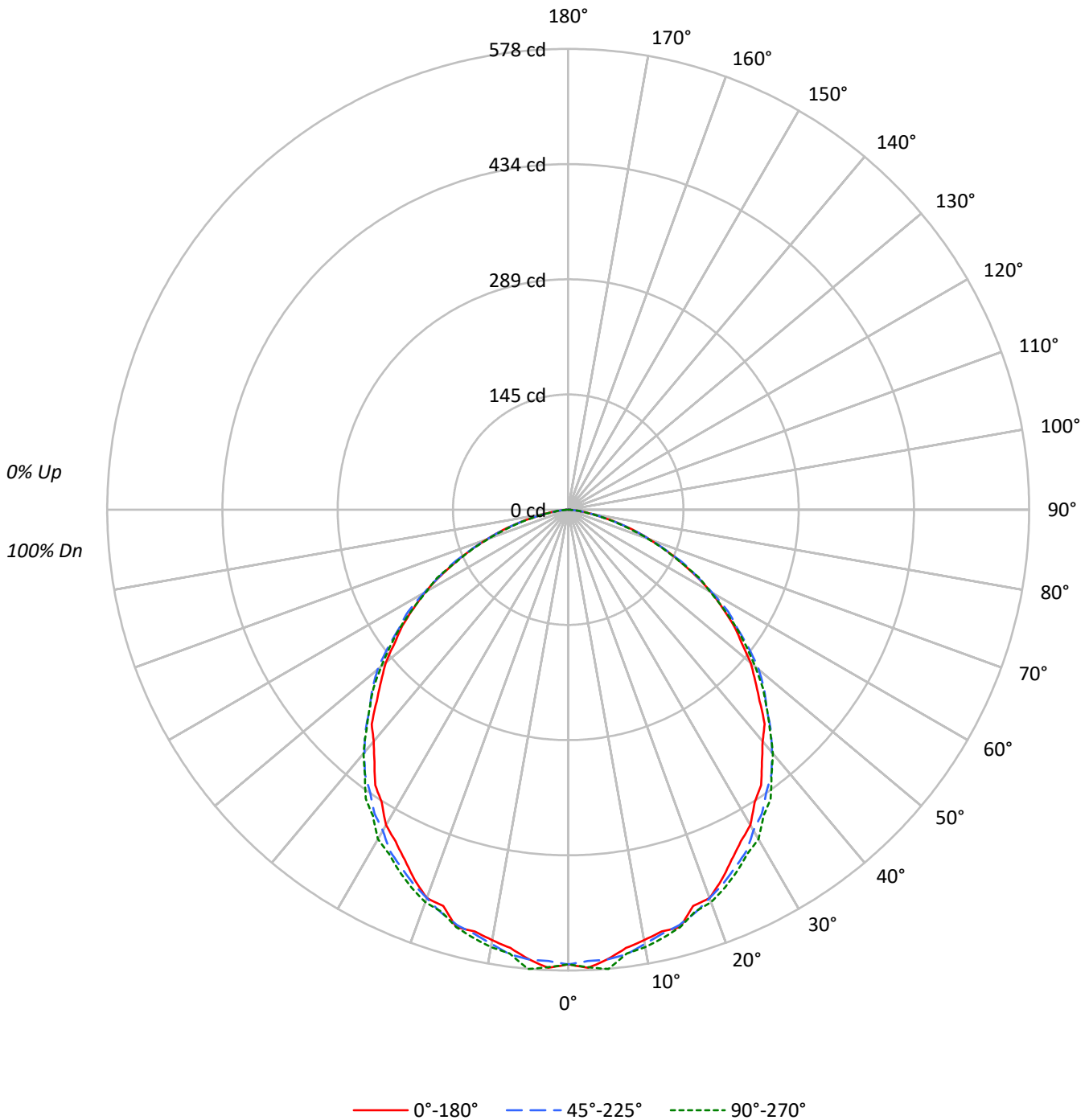
Lumens per Lamp: N/A
Luminaire Lumens: 1437.0 lumens
Efficiency: N/A
Efficacy: 122.8 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 11.7
Input Voltage (V): NR
Input Current (A_{in}): 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° | 1534 | 1534 | 1534 |
| 5° | 1529 | 1530 | 1562 |
| 10° | 1498 | 1511 | 1522 |
| 15° | 1510 | 1502 | 1510 |
| 20° | 1485 | 1485 | 1500 |
| 25° | 1439 | 1470 | 1487 |
| 30° | 1419 | 1444 | 1482 |
| 35° | 1386 | 1422 | 1454 |
| 40° | 1332 | 1396 | 1402 |
| 45° | 1292 | 1337 | 1340 |
| 50° | 1249 | 1305 | 1281 |
| 55° | 1190 | 1213 | 1205 |
| 60° | 1113 | 1124 | 1104 |
| 65° | 992 | 1018 | 985 |
| 70° | 851 | 854 | 831 |
| 75° | 675 | 673 | 647 |
| 80° | 453 | 439 | 422 |
| 85° | 247 | 244 | 228 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 53.6 | 3.7 |
| 10°-20° | 152.0 | 10.6 |
| 20°-30° | 227.7 | 15.8 |
| 30°-40° | 269.9 | 18.8 |
| 40°-50° | 270.4 | 18.8 |
| 50°-60° | 229.5 | 16.0 |
| 60°-70° | 154.7 | 10.8 |
| 70°-80° | 68.0 | 4.7 |
| 80°-90° | 11.0 | 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° | 433.4 | 30.2 |
| 0°-40° | 703.3 | 48.9 |
| 0°-60° | 1203.2 | 83.7 |
| 0°-90° | 1437.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1437.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 570 | 570 | 570 | 570 | 570 | |
| 5° | 566 | 565 | 566 | 565 | 578 | 53 |
| 15° | 542 | 536 | 539 | 542 | 542 | 151 |
| 25° | 485 | 487 | 495 | 502 | 501 | 224 |
| 35° | 422 | 423 | 433 | 443 | 443 | 262 |
| 45° | 339 | 346 | 351 | 360 | 352 | 263 |
| 55° | 254 | 252 | 259 | 257 | 257 | 226 |
| 65° | 156 | 154 | 160 | 154 | 155 | 155 |
| 75° | 65 | 64 | 65 | 60 | 62 | 70 |
| 85° | 8 | 8 | 8 | 8 | 7 | 12 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P588852

CATALOG NUMBER: FMR-24-2-LD4-1LO-40-UNV-93-97-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 570.2 | 570.2 | 570.2 | 570.2 | 570.2 |
| 2.5° | 575.1 | 570.8 | 566.7 | 571.4 | 574.3 |
| 5° | 566.1 | 564.8 | 566.3 | 564.6 | 578.3 |
| 7.5° | 554.5 | 559.6 | 562.5 | 560.7 | 561.5 |
| 10° | 548.3 | 546.5 | 553.1 | 557.7 | 557.0 |
| 12.5° | 541.7 | 544.3 | 544.7 | 549.6 | 550.1 |
| 15° | 542.0 | 535.8 | 539.1 | 541.9 | 542.1 |
| 17.5° | 521.0 | 527.8 | 530.0 | 536.4 | 528.5 |
| 20° | 518.4 | 513.5 | 518.4 | 525.0 | 523.9 |
| 22.5° | 502.6 | 497.1 | 507.7 | 513.5 | 513.1 |
| 25° | 484.6 | 487.3 | 495.2 | 501.7 | 500.7 |
| 27.5° | 468.9 | 472.0 | 483.3 | 492.2 | 486.5 |
| 30° | 456.7 | 455.2 | 464.7 | 472.7 | 477.1 |
| 32.5° | 435.0 | 440.6 | 451.8 | 459.7 | 455.5 |
| 35° | 421.8 | 423.1 | 432.9 | 442.9 | 442.6 |
| 37.5° | 398.8 | 404.6 | 418.4 | 421.2 | 418.6 |
| 40° | 379.1 | 384.9 | 397.4 | 400.4 | 399.2 |
| 42.5° | 364.6 | 365.7 | 376.3 | 379.8 | 374.3 |
| 45° | 339.4 | 345.7 | 351.4 | 360.5 | 352.0 |
| 47.5° | 317.9 | 320.8 | 333.2 | 335.6 | 331.1 |
| 50° | 298.4 | 299.4 | 311.8 | 308.8 | 305.9 |
| 52.5° | 273.9 | 278.2 | 285.2 | 284.6 | 281.1 |
| 55° | 253.7 | 252.0 | 258.6 | 256.9 | 256.8 |
| 57.5° | 229.5 | 232.4 | 237.9 | 235.1 | 230.6 |
| 60° | 206.8 | 206.9 | 208.9 | 205.7 | 205.1 |
| 62.5° | 181.5 | 182.4 | 182.9 | 179.0 | 185.3 |
| 65° | 155.8 | 153.8 | 159.8 | 153.7 | 154.7 |
| 67.5° | 132.2 | 133.2 | 132.7 | 128.8 | 130.3 |
| 70° | 108.2 | 109.5 | 108.6 | 104.2 | 105.6 |
| 72.5° | 86.3 | 84.7 | 85.7 | 80.2 | 82.7 |
| 75° | 64.9 | 63.5 | 64.7 | 60.1 | 62.2 |
| 77.5° | 44.2 | 45.2 | 44.5 | 42.0 | 43.4 |
| 80° | 29.2 | 28.3 | 28.3 | 26.9 | 27.2 |
| 82.5° | 17.0 | 16.2 | 16.0 | 15.5 | 16.2 |
| 85° | 8.0 | 7.7 | 7.9 | 7.7 | 7.4 |
| 87.5° | 2.9 | 2.9 | 2.9 | 2.8 | 2.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)