

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: FAIL-SAFE

Report Number: P590089

Luminaire Tested: FSR-24-2-LD4-1STD-40-UNV-82-88-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590089
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
Product Line: FAIL-SAFE
Catalog Number: FSR-24-2-LD4-1STD-40-UNV-82-88-EDD
Description: 2X2 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .500 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1548.0 lumens
Efficiency: N/A
Efficacy: 93.3 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

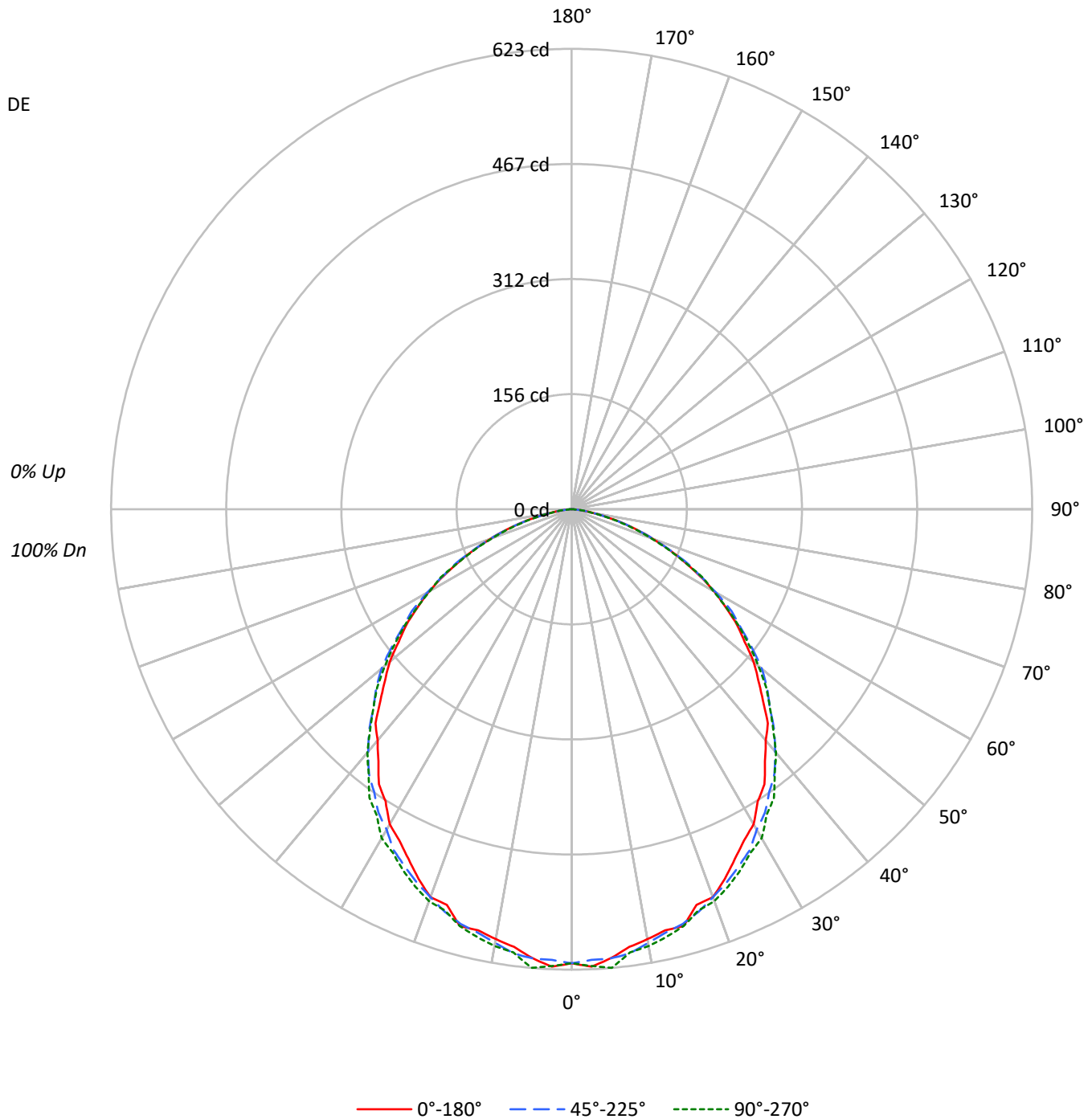
Input Watts (W): 16.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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° | 1653 | 1653 | 1653 |
| 5° | 1647 | 1648 | 1683 |
| 10° | 1614 | 1628 | 1639 |
| 15° | 1627 | 1618 | 1627 |
| 20° | 1599 | 1599 | 1616 |
| 25° | 1550 | 1584 | 1601 |
| 30° | 1529 | 1556 | 1597 |
| 35° | 1493 | 1532 | 1566 |
| 40° | 1435 | 1504 | 1511 |
| 45° | 1391 | 1441 | 1443 |
| 50° | 1346 | 1406 | 1379 |
| 55° | 1282 | 1307 | 1298 |
| 60° | 1199 | 1211 | 1189 |
| 65° | 1069 | 1096 | 1061 |
| 70° | 917 | 921 | 895 |
| 75° | 727 | 725 | 697 |
| 80° | 487 | 473 | 454 |
| 85° | 266 | 262 | 244 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 1478 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 57.8 | 3.7 |
| 10°-20° | 163.7 | 10.6 |
| 20°-30° | 245.3 | 15.8 |
| 30°-40° | 290.8 | 18.8 |
| 40°-50° | 291.3 | 18.8 |
| 50°-60° | 247.3 | 16.0 |
| 60°-70° | 166.7 | 10.8 |
| 70°-80° | 73.2 | 4.7 |
| 80°-90° | 11.9 | 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° | 466.8 | 30.2 |
| 0°-40° | 757.6 | 48.9 |
| 0°-60° | 1296.1 | 83.7 |
| 0°-90° | 1548.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1548.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 614 | 614 | 614 | 614 | 614 | |
| 5° | 610 | 608 | 610 | 608 | 623 | 57 |
| 15° | 584 | 577 | 581 | 584 | 584 | 163 |
| 25° | 522 | 525 | 534 | 540 | 539 | 241 |
| 35° | 454 | 456 | 466 | 477 | 477 | 282 |
| 45° | 366 | 372 | 379 | 388 | 379 | 283 |
| 55° | 273 | 272 | 279 | 277 | 277 | 243 |
| 65° | 168 | 166 | 172 | 166 | 167 | 167 |
| 75° | 70 | 68 | 70 | 65 | 67 | 75 |
| 85° | 9 | 8 | 8 | 8 | 8 | 12 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590089

CATALOG NUMBER: FSR-24-2-LD4-1STD-40-UNV-82-88-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 614.2 | 614.2 | 614.2 | 614.2 | 614.2 |
| 2.5° | 619.5 | 614.8 | 610.5 | 615.6 | 618.6 |
| 5° | 609.8 | 608.4 | 610.1 | 608.3 | 622.9 |
| 7.5° | 597.3 | 602.8 | 606.0 | 604.0 | 604.8 |
| 10° | 590.7 | 588.8 | 595.8 | 600.7 | 600.0 |
| 12.5° | 583.5 | 586.4 | 586.8 | 592.1 | 592.6 |
| 15° | 583.9 | 577.2 | 580.7 | 583.8 | 584.0 |
| 17.5° | 561.2 | 568.5 | 571.0 | 577.9 | 569.3 |
| 20° | 558.5 | 553.1 | 558.5 | 565.5 | 564.4 |
| 22.5° | 541.4 | 535.5 | 546.9 | 553.1 | 552.7 |
| 25° | 522.1 | 524.9 | 533.5 | 540.5 | 539.3 |
| 27.5° | 505.1 | 508.4 | 520.6 | 530.2 | 524.0 |
| 30° | 492.0 | 490.3 | 500.6 | 509.2 | 514.0 |
| 32.5° | 468.6 | 474.6 | 486.7 | 495.2 | 490.7 |
| 35° | 454.4 | 455.8 | 466.3 | 477.1 | 476.8 |
| 37.5° | 429.6 | 435.9 | 450.7 | 453.7 | 450.9 |
| 40° | 408.4 | 414.7 | 428.1 | 431.3 | 430.0 |
| 42.5° | 392.8 | 393.9 | 405.4 | 409.1 | 403.2 |
| 45° | 365.6 | 372.4 | 378.6 | 388.4 | 379.2 |
| 47.5° | 342.4 | 345.6 | 358.9 | 361.5 | 356.7 |
| 50° | 321.4 | 322.5 | 335.9 | 332.7 | 329.5 |
| 52.5° | 295.0 | 299.7 | 307.2 | 306.6 | 302.9 |
| 55° | 273.3 | 271.5 | 278.6 | 276.7 | 276.6 |
| 57.5° | 247.2 | 250.4 | 256.2 | 253.2 | 248.4 |
| 60° | 222.8 | 222.8 | 225.0 | 221.6 | 220.9 |
| 62.5° | 195.6 | 196.5 | 197.0 | 192.8 | 199.6 |
| 65° | 167.9 | 165.7 | 172.2 | 165.6 | 166.7 |
| 67.5° | 142.4 | 143.5 | 142.9 | 138.8 | 140.4 |
| 70° | 116.6 | 118.0 | 117.0 | 112.3 | 113.7 |
| 72.5° | 92.9 | 91.2 | 92.3 | 86.4 | 89.1 |
| 75° | 69.9 | 68.4 | 69.7 | 64.8 | 67.0 |
| 77.5° | 47.6 | 48.7 | 47.9 | 45.3 | 46.8 |
| 80° | 31.4 | 30.5 | 30.5 | 29.0 | 29.3 |
| 82.5° | 18.3 | 17.4 | 17.2 | 16.7 | 17.4 |
| 85° | 8.6 | 8.3 | 8.5 | 8.2 | 7.9 |
| 87.5° | 3.1 | 3.2 | 3.2 | 3.0 | 2.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)