

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: P590184

Luminaire Tested: FSR-24-2-LD4-2HI-40-UNV-82-87-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590184
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-LD4-2HI-40-UNV-82-87-EDD
Description: 2X2 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4216.0 lumens
Efficiency: N/A
Efficacy: 97.6 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

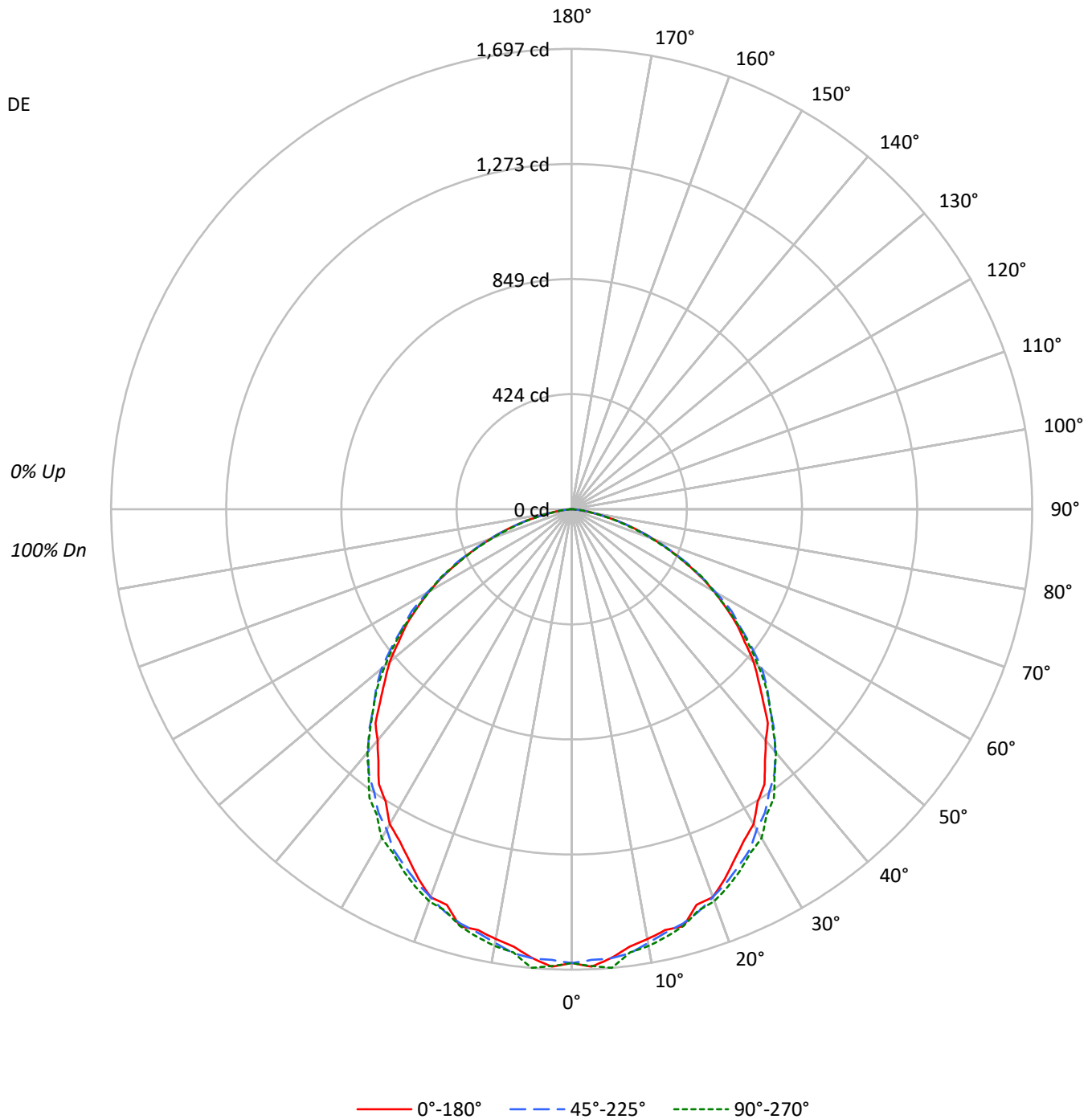
Input Watts (W): 43.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P590184

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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 | | | | |
| 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° | 4501 | 4501 | 4501 |
| 5° | 4487 | 4488 | 4583 |
| 10° | 4396 | 4434 | 4465 |
| 15° | 4430 | 4406 | 4431 |
| 20° | 4356 | 4356 | 4402 |
| 25° | 4222 | 4314 | 4361 |
| 30° | 4164 | 4237 | 4350 |
| 35° | 4066 | 4172 | 4266 |
| 40° | 3907 | 4096 | 4114 |
| 45° | 3789 | 3924 | 3930 |
| 50° | 3665 | 3830 | 3757 |
| 55° | 3492 | 3560 | 3535 |
| 60° | 3265 | 3298 | 3238 |
| 65° | 2911 | 2986 | 2891 |
| 70° | 2498 | 2507 | 2437 |
| 75° | 1979 | 1974 | 1897 |
| 80° | 1325 | 1289 | 1238 |
| 85° | 719 | 713 | 667 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 4025 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 157.4 | 3.7 |
| 10°-20° | 446.0 | 10.6 |
| 20°-30° | 668.1 | 15.8 |
| 30°-40° | 791.9 | 18.8 |
| 40°-50° | 793.3 | 18.8 |
| 50°-60° | 673.4 | 16.0 |
| 60°-70° | 454.0 | 10.8 |
| 70°-80° | 199.5 | 4.7 |
| 80°-90° | 32.4 | 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° | 1271.4 | 30.2 |
| 0°-40° | 2063.3 | 48.9 |
| 0°-60° | 3530.1 | 83.7 |
| 0°-90° | 4216.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4216.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1673 | 1673 | 1673 | 1673 | 1673 | |
| 5° | 1661 | 1657 | 1662 | 1657 | 1697 | 157 |
| 15° | 1590 | 1572 | 1582 | 1590 | 1590 | 443 |
| 25° | 1422 | 1430 | 1453 | 1472 | 1469 | 657 |
| 35° | 1238 | 1241 | 1270 | 1299 | 1298 | 768 |
| 45° | 996 | 1014 | 1031 | 1058 | 1033 | 770 |
| 55° | 744 | 739 | 759 | 754 | 753 | 662 |
| 65° | 457 | 451 | 469 | 451 | 454 | 455 |
| 75° | 190 | 186 | 190 | 176 | 182 | 204 |
| 85° | 23 | 23 | 23 | 22 | 22 | 34 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590184

CATALOG NUMBER: FSR-24-2-LD4-2HI-40-UNV-82-87-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1672.8 | 1672.8 | 1672.8 | 1672.8 | 1672.8 |
| 2.5° | 1687.3 | 1674.5 | 1662.7 | 1676.5 | 1684.9 |
| 5° | 1660.9 | 1657.0 | 1661.6 | 1656.6 | 1696.6 |
| 7.5° | 1626.8 | 1641.7 | 1650.3 | 1644.9 | 1647.3 |
| 10° | 1608.7 | 1603.5 | 1622.7 | 1636.1 | 1634.1 |
| 12.5° | 1589.2 | 1597.0 | 1598.1 | 1612.5 | 1613.8 |
| 15° | 1590.3 | 1571.9 | 1581.7 | 1589.9 | 1590.5 |
| 17.5° | 1528.5 | 1548.4 | 1555.1 | 1573.9 | 1550.6 |
| 20° | 1521.0 | 1506.5 | 1521.0 | 1540.2 | 1537.2 |
| 22.5° | 1474.5 | 1458.3 | 1489.4 | 1506.5 | 1505.4 |
| 25° | 1421.8 | 1429.6 | 1452.9 | 1471.9 | 1468.9 |
| 27.5° | 1375.6 | 1384.7 | 1417.9 | 1444.1 | 1427.2 |
| 30° | 1340.0 | 1335.4 | 1363.5 | 1386.8 | 1399.8 |
| 32.5° | 1276.3 | 1292.7 | 1325.5 | 1348.6 | 1336.3 |
| 35° | 1237.6 | 1241.3 | 1270.0 | 1299.4 | 1298.5 |
| 37.5° | 1170.0 | 1187.1 | 1227.4 | 1235.6 | 1228.1 |
| 40° | 1112.3 | 1129.4 | 1165.9 | 1174.7 | 1171.1 |
| 42.5° | 1069.8 | 1072.8 | 1104.1 | 1114.3 | 1098.1 |
| 45° | 995.7 | 1014.3 | 1031.1 | 1057.7 | 1032.6 |
| 47.5° | 932.6 | 941.3 | 977.5 | 984.7 | 971.5 |
| 50° | 875.4 | 878.4 | 914.9 | 906.1 | 897.4 |
| 52.5° | 803.5 | 816.2 | 836.7 | 835.0 | 824.8 |
| 55° | 744.3 | 739.3 | 758.8 | 753.6 | 753.4 |
| 57.5° | 673.2 | 681.9 | 697.8 | 689.6 | 676.5 |
| 60° | 606.7 | 606.9 | 612.7 | 603.5 | 601.7 |
| 62.5° | 532.6 | 535.2 | 536.5 | 525.1 | 543.6 |
| 65° | 457.2 | 451.2 | 468.9 | 451.0 | 454.0 |
| 67.5° | 387.9 | 390.9 | 389.2 | 378.0 | 382.3 |
| 70° | 317.5 | 321.4 | 318.6 | 305.8 | 309.7 |
| 72.5° | 253.1 | 248.4 | 251.4 | 235.4 | 242.8 |
| 75° | 190.3 | 186.4 | 189.9 | 176.5 | 182.5 |
| 77.5° | 129.6 | 132.6 | 130.5 | 123.3 | 127.4 |
| 80° | 85.5 | 83.2 | 83.2 | 79.1 | 79.9 |
| 82.5° | 49.9 | 47.5 | 46.9 | 45.6 | 47.5 |
| 85° | 23.3 | 22.7 | 23.1 | 22.5 | 21.6 |
| 87.5° | 8.4 | 8.6 | 8.6 | 8.2 | 7.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)