

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: P562434

Luminaire Tested: FSR-24-4-LD4-1STD-50-UNV-81-85-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562434
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-5)
Test Lab: INNOVATION CENTER
Issue Date: 7/20/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: FSR-24-4-LD4-1STD-50-UNV-81-85-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3247.0 lumens
Efficiency: N/A
Efficacy: 97.5 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

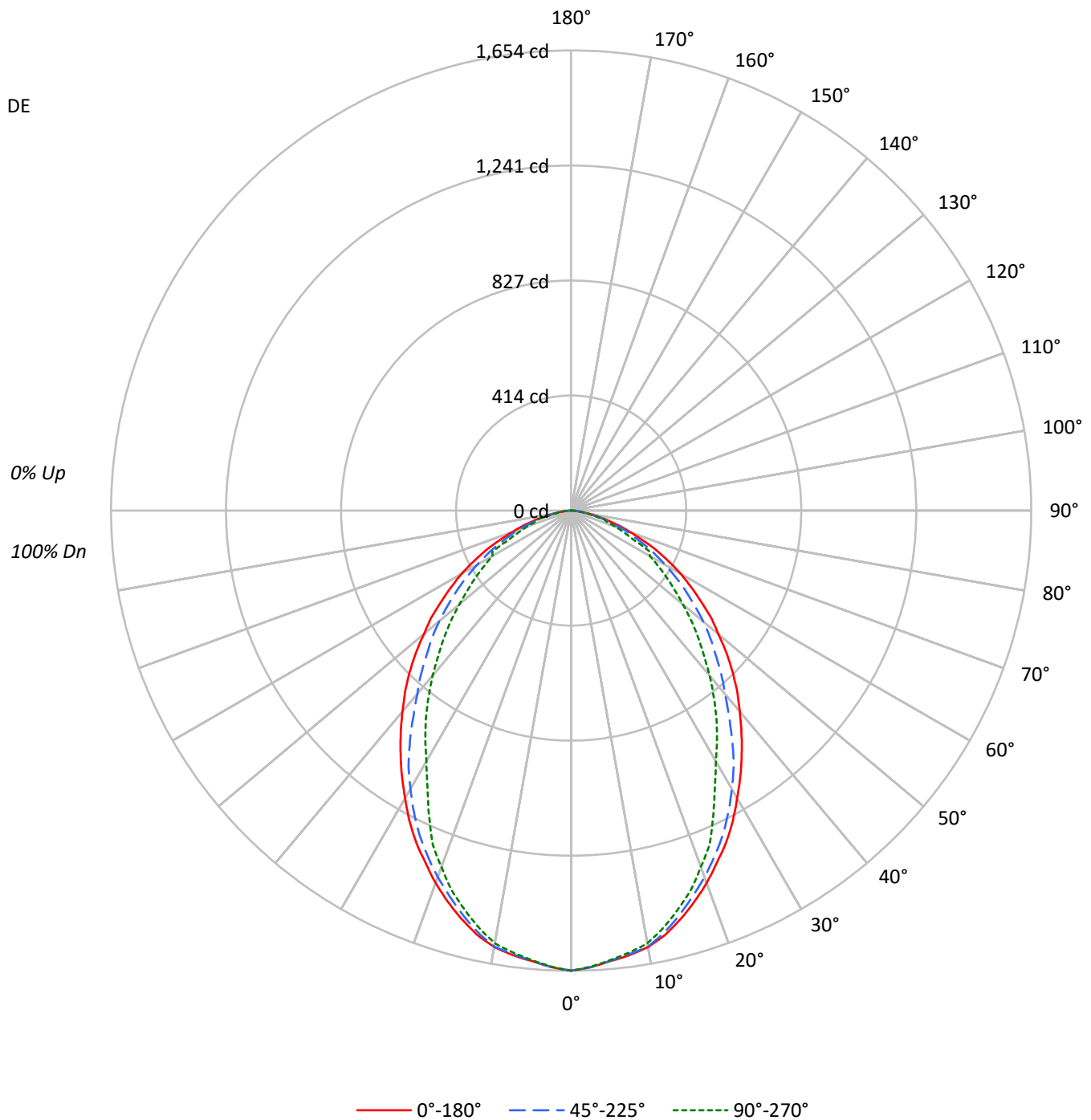
Input Watts (W): 33.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562434

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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 | 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 | 106 | 102 | 99 | 108 | 104 | 100 | 97 | 100 | 97 | 94 | 96 | 94 | 91 | 92 | 90 | 89 | 87 | | | | | | | | | | | | 87 | | | | | | | | | | | | | | | | |
| 2 | 101 | 94 | 88 | 83 | 99 | 92 | 87 | 82 | 89 | 84 | 80 | 86 | 82 | 78 | 83 | 79 | 77 | 75 | | | | | | | | | | | | 75 | | | | | | | | | | | | | | | | |
| 3 | 93 | 84 | 77 | 71 | 91 | 82 | 76 | 70 | 79 | 74 | 69 | 77 | 72 | 68 | 74 | 70 | 67 | 65 | | | | | | | | | | | | 65 | | | | | | | | | | | | | | | | |
| 4 | 86 | 75 | 67 | 61 | 84 | 74 | 66 | 61 | 72 | 65 | 60 | 69 | 64 | 59 | 67 | 62 | 58 | 56 | | | | | | | | | | | | 56 | | | | | | | | | | | | | | | | |
| 5 | 80 | 68 | 60 | 54 | 78 | 67 | 59 | 53 | 65 | 58 | 53 | 63 | 57 | 52 | 61 | 56 | 52 | 50 | | | | | | | | | | | | 50 | | | | | | | | | | | | | | | | |
| 6 | 74 | 62 | 53 | 48 | 72 | 61 | 53 | 47 | 59 | 52 | 47 | 57 | 51 | 47 | 56 | 50 | 46 | 44 | | | | | | | | | | | | 44 | | | | | | | | | | | | | | | | |
| 7 | 69 | 56 | 48 | 43 | 67 | 56 | 48 | 42 | 54 | 47 | 42 | 53 | 46 | 42 | 51 | 46 | 42 | 40 | | | | | | | | | | | | 40 | | | | | | | | | | | | | | | | |
| 8 | 65 | 52 | 44 | 38 | 63 | 51 | 44 | 38 | 50 | 43 | 38 | 49 | 42 | 38 | 48 | 42 | 38 | 36 | | | | | | | | | | | | 36 | | | | | | | | | | | | | | | | |
| 9 | 61 | 48 | 40 | 35 | 59 | 47 | 40 | 35 | 46 | 39 | 35 | 45 | 39 | 34 | 44 | 38 | 34 | 33 | | | | | | | | | | | | 33 | | | | | | | | | | | | | | | | |
| 10 | 57 | 44 | 37 | 32 | 56 | 44 | 37 | 32 | 43 | 36 | 32 | 42 | 36 | 32 | 41 | 36 | 32 | 30 | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2225 | 2225 | 2225 |
| 5° | 2195 | 2193 | 2190 |
| 10° | 2176 | 2174 | 2158 |
| 15° | 2117 | 2096 | 2067 |
| 20° | 2040 | 2007 | 1952 |
| 25° | 1956 | 1913 | 1794 |
| 30° | 1854 | 1794 | 1616 |
| 35° | 1756 | 1658 | 1495 |
| 40° | 1656 | 1511 | 1360 |
| 45° | 1561 | 1397 | 1230 |
| 50° | 1445 | 1297 | 1097 |
| 55° | 1337 | 1175 | 982 |
| 60° | 1225 | 1050 | 880 |
| 65° | 1077 | 919 | 779 |
| 70° | 887 | 805 | 662 |
| 75° | 706 | 617 | 646 |
| 80° | 474 | 445 | 415 |
| 85° | 295 | 354 | 414 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1561 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 154.0 | 4.7 |
| 10°-20° | 422.5 | 13.0 |
| 20°-30° | 585.0 | 18.0 |
| 30°-40° | 623.8 | 19.2 |
| 40°-50° | 569.1 | 17.5 |
| 50°-60° | 445.8 | 13.7 |
| 60°-70° | 290.6 | 8.9 |
| 70°-80° | 128.7 | 4.0 |
| 80°-90° | 27.6 | 0.9 |
| 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° | 1161.5 | 35.8 |
| 0°-40° | 1785.2 | 55.0 |
| 0°-60° | 2800.1 | 86.2 |
| 0°-90° | 3247.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3247.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1654 | 1654 | 1654 | 1654 | 1654 | |
| 5° | 1625 | 1623 | 1623 | 1622 | 1622 | 154 |
| 15° | 1520 | 1520 | 1505 | 1490 | 1484 | 427 |
| 25° | 1317 | 1310 | 1289 | 1243 | 1208 | 605 |
| 35° | 1069 | 1061 | 1010 | 933 | 910 | 668 |
| 45° | 820 | 803 | 734 | 673 | 646 | 632 |
| 55° | 570 | 553 | 501 | 442 | 419 | 511 |
| 65° | 338 | 319 | 289 | 294 | 245 | 334 |
| 75° | 136 | 126 | 119 | 113 | 124 | 146 |
| 85° | 19 | 21 | 23 | 25 | 27 | 27 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562434

CATALOG NUMBER: FSR-24-4-LD4-1STD-50-UNV-81-85-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1654.0 | 1654.0 | 1654.0 | 1654.0 | 1654.0 |
| 2.5° | 1642.5 | 1642.5 | 1642.5 | 1640.6 | 1640.6 |
| 5° | 1625.3 | 1623.4 | 1623.4 | 1621.5 | 1621.5 |
| 7.5° | 1611.9 | 1610.0 | 1608.1 | 1606.2 | 1602.4 |
| 10° | 1592.8 | 1592.8 | 1590.9 | 1581.3 | 1579.4 |
| 12.5° | 1562.2 | 1560.3 | 1552.6 | 1539.3 | 1535.4 |
| 15° | 1520.1 | 1520.1 | 1504.8 | 1489.5 | 1483.8 |
| 17.5° | 1474.2 | 1472.3 | 1453.2 | 1437.9 | 1430.3 |
| 20° | 1424.5 | 1420.7 | 1401.6 | 1376.7 | 1363.3 |
| 22.5° | 1369.1 | 1369.1 | 1346.1 | 1313.6 | 1300.2 |
| 25° | 1317.4 | 1309.8 | 1288.8 | 1242.9 | 1208.5 |
| 27.5° | 1258.2 | 1246.7 | 1223.8 | 1158.7 | 1118.6 |
| 30° | 1193.2 | 1187.4 | 1154.9 | 1070.8 | 1040.2 |
| 32.5° | 1132.0 | 1122.4 | 1088.0 | 1000.0 | 975.2 |
| 35° | 1068.9 | 1061.2 | 1009.6 | 933.1 | 910.2 |
| 37.5° | 1005.8 | 996.2 | 931.2 | 870.0 | 841.3 |
| 40° | 942.7 | 931.2 | 860.5 | 805.0 | 774.4 |
| 42.5° | 883.4 | 868.1 | 799.3 | 740.0 | 705.6 |
| 45° | 820.3 | 803.1 | 734.3 | 673.1 | 646.3 |
| 47.5° | 757.2 | 741.9 | 678.8 | 615.7 | 585.1 |
| 50° | 690.3 | 676.9 | 619.5 | 556.4 | 523.9 |
| 52.5° | 634.8 | 613.8 | 558.3 | 495.2 | 468.5 |
| 55° | 569.8 | 552.6 | 501.0 | 441.7 | 418.8 |
| 57.5° | 510.5 | 493.3 | 445.5 | 390.1 | 371.0 |
| 60° | 455.1 | 430.2 | 390.1 | 342.3 | 327.0 |
| 62.5° | 393.9 | 374.8 | 340.4 | 300.2 | 319.3 |
| 65° | 338.4 | 319.3 | 288.7 | 294.5 | 244.8 |
| 67.5° | 277.3 | 267.7 | 240.9 | 214.2 | 206.5 |
| 70° | 225.6 | 214.2 | 204.6 | 175.9 | 168.3 |
| 72.5° | 179.7 | 168.3 | 154.9 | 139.6 | 133.8 |
| 75° | 135.8 | 126.2 | 118.6 | 112.8 | 124.3 |
| 77.5° | 93.7 | 89.9 | 84.1 | 78.4 | 76.5 |
| 80° | 61.2 | 59.3 | 57.4 | 55.5 | 53.5 |
| 82.5° | 36.3 | 36.3 | 36.3 | 36.3 | 36.3 |
| 85° | 19.1 | 21.0 | 22.9 | 24.9 | 26.8 |
| 87.5° | 11.5 | 11.5 | 13.4 | 15.3 | 17.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)