

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: P590633

Luminaire Tested: FSR-24-2-LD4-3STD-35-UNV-82-88-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590633
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-LD4-3STD-35-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 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4597.0 lumens
Efficiency: N/A
Efficacy: 91.9 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

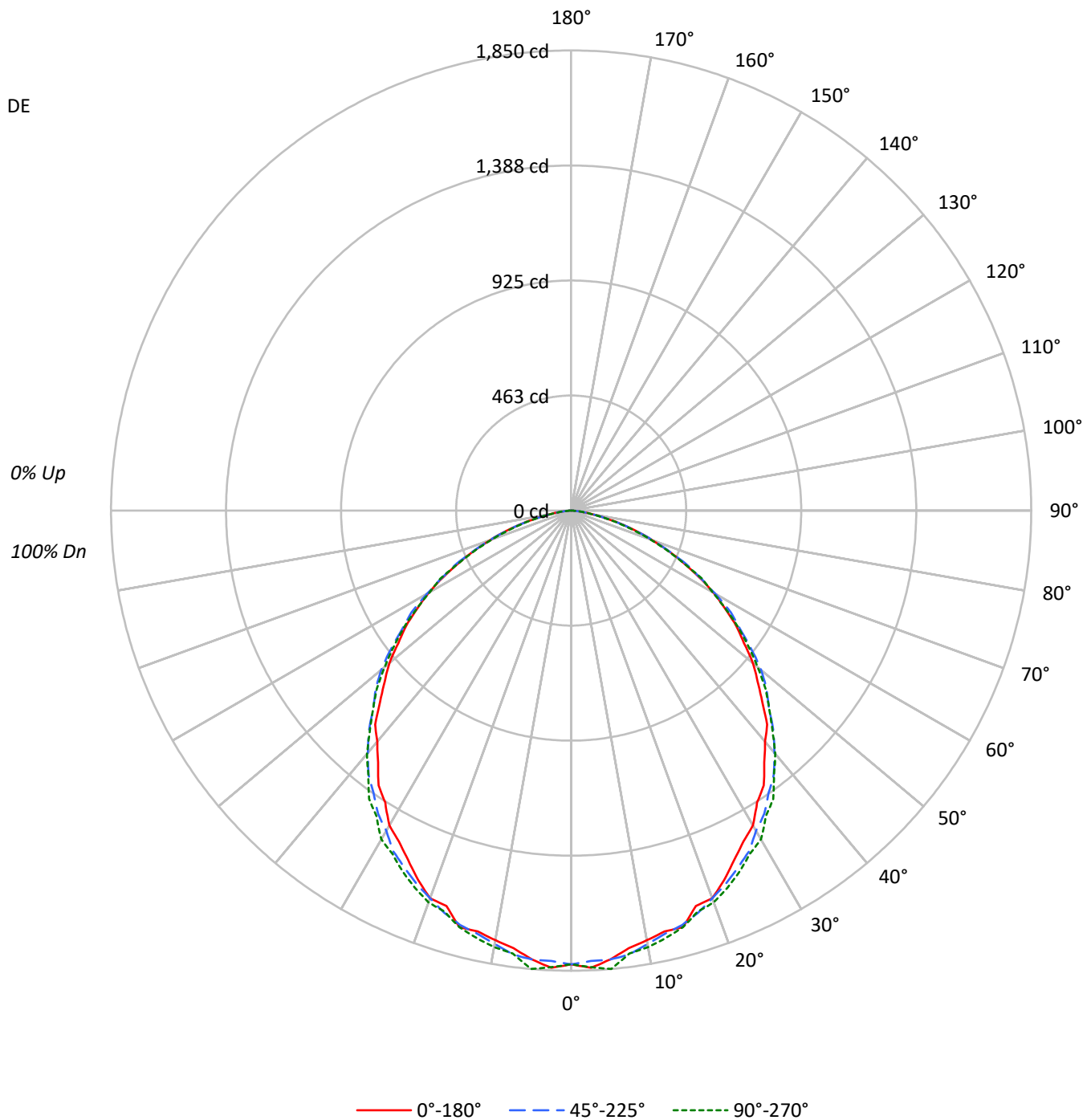
Input Watts (W): 50
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P590633

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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 | | | | | 86 | | | |
| 2 | 100 | 93 | 86 | 81 | 98 | 91 | 85 | 80 | 87 | 82 | 78 | 84 | 80 | 76 | 81 | 78 | 75 | 73 | | | | | 73 | | | |
| 3 | 92 | 82 | 74 | 68 | 89 | 80 | 73 | 67 | 77 | 71 | 66 | 75 | 69 | 65 | 72 | 68 | 64 | 62 | | | | | 62 | | | |
| 4 | 84 | 73 | 64 | 58 | 82 | 71 | 64 | 58 | 69 | 62 | 57 | 67 | 61 | 56 | 65 | 59 | 55 | 53 | | | | | 53 | | | |
| 5 | 78 | 65 | 57 | 50 | 76 | 64 | 56 | 50 | 62 | 55 | 49 | 60 | 54 | 49 | 58 | 53 | 48 | 46 | | | | | 46 | | | |
| 6 | 72 | 59 | 50 | 44 | 70 | 58 | 50 | 44 | 56 | 49 | 43 | 54 | 48 | 43 | 53 | 47 | 43 | 41 | | | | | 41 | | | |
| 7 | 67 | 53 | 45 | 39 | 65 | 53 | 45 | 39 | 51 | 44 | 39 | 50 | 43 | 38 | 48 | 42 | 38 | 36 | | | | | 36 | | | |
| 8 | 62 | 49 | 41 | 35 | 61 | 48 | 40 | 35 | 47 | 40 | 34 | 46 | 39 | 34 | 44 | 39 | 34 | 32 | | | | | 32 | | | |
| 9 | 58 | 45 | 37 | 31 | 57 | 44 | 37 | 31 | 43 | 36 | 31 | 42 | 36 | 31 | 41 | 35 | 31 | 29 | | | | | 29 | | | |
| 10 | 54 | 41 | 34 | 29 | 53 | 41 | 33 | 28 | 40 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 26 | | | | | 26 | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 4908 | 4908 | 4908 |
| 5° | 4892 | 4894 | 4997 |
| 10° | 4793 | 4835 | 4869 |
| 15° | 4831 | 4805 | 4831 |
| 20° | 4749 | 4749 | 4800 |
| 25° | 4603 | 4704 | 4756 |
| 30° | 4540 | 4620 | 4743 |
| 35° | 4433 | 4549 | 4651 |
| 40° | 4260 | 4466 | 4486 |
| 45° | 4132 | 4279 | 4285 |
| 50° | 3996 | 4176 | 4096 |
| 55° | 3807 | 3881 | 3854 |
| 60° | 3560 | 3596 | 3531 |
| 65° | 3175 | 3256 | 3152 |
| 70° | 2724 | 2733 | 2657 |
| 75° | 2157 | 2152 | 2069 |
| 80° | 1446 | 1406 | 1350 |
| 85° | 784 | 778 | 729 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 4389 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 171.6 | 3.7 |
| 10°-20° | 486.3 | 10.6 |
| 20°-30° | 728.5 | 15.8 |
| 30°-40° | 863.4 | 18.8 |
| 40°-50° | 865.0 | 18.8 |
| 50°-60° | 734.3 | 16.0 |
| 60°-70° | 495.1 | 10.8 |
| 70°-80° | 217.5 | 4.7 |
| 80°-90° | 35.3 | 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° | 1386.3 | 30.2 |
| 0°-40° | 2249.8 | 48.9 |
| 0°-60° | 3849.1 | 83.7 |
| 0°-90° | 4597.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4597.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1824 | 1824 | 1824 | 1824 | 1824 | |
| 5° | 1811 | 1807 | 1812 | 1806 | 1850 | 171 |
| 15° | 1734 | 1714 | 1725 | 1734 | 1734 | 483 |
| 25° | 1550 | 1559 | 1584 | 1605 | 1602 | 717 |
| 35° | 1349 | 1353 | 1385 | 1417 | 1416 | 838 |
| 45° | 1086 | 1106 | 1124 | 1153 | 1126 | 840 |
| 55° | 812 | 806 | 827 | 822 | 821 | 722 |
| 65° | 499 | 492 | 511 | 492 | 495 | 496 |
| 75° | 208 | 203 | 207 | 192 | 199 | 222 |
| 85° | 25 | 25 | 25 | 24 | 24 | 37 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590633

CATALOG NUMBER: FSR-24-2-LD4-3STD-35-UNV-82-88-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1824.0 | 1824.0 | 1824.0 | 1824.0 | 1824.0 |
| 2.5° | 1839.8 | 1825.9 | 1812.9 | 1828.0 | 1837.2 |
| 5° | 1811.0 | 1806.8 | 1811.7 | 1806.3 | 1849.9 |
| 7.5° | 1773.8 | 1790.1 | 1799.5 | 1793.6 | 1796.2 |
| 10° | 1754.0 | 1748.4 | 1769.3 | 1783.9 | 1781.8 |
| 12.5° | 1732.8 | 1741.3 | 1742.5 | 1758.3 | 1759.7 |
| 15° | 1734.0 | 1714.0 | 1724.6 | 1733.5 | 1734.2 |
| 17.5° | 1666.7 | 1688.3 | 1695.6 | 1716.1 | 1690.7 |
| 20° | 1658.4 | 1642.6 | 1658.4 | 1679.4 | 1676.1 |
| 22.5° | 1607.8 | 1590.1 | 1624.0 | 1642.6 | 1641.5 |
| 25° | 1550.3 | 1558.8 | 1584.2 | 1605.0 | 1601.7 |
| 27.5° | 1499.9 | 1509.8 | 1546.1 | 1574.6 | 1556.2 |
| 30° | 1461.1 | 1456.1 | 1486.7 | 1512.2 | 1526.3 |
| 32.5° | 1391.6 | 1409.5 | 1445.3 | 1470.5 | 1457.1 |
| 35° | 1349.4 | 1353.4 | 1384.8 | 1416.8 | 1415.8 |
| 37.5° | 1275.7 | 1294.3 | 1338.4 | 1347.3 | 1339.1 |
| 40° | 1212.8 | 1231.4 | 1271.2 | 1280.9 | 1276.9 |
| 42.5° | 1166.4 | 1169.7 | 1203.9 | 1215.0 | 1197.3 |
| 45° | 1085.7 | 1105.9 | 1124.3 | 1153.3 | 1125.9 |
| 47.5° | 1016.9 | 1026.3 | 1065.9 | 1073.7 | 1059.3 |
| 50° | 954.5 | 957.8 | 997.6 | 987.9 | 978.5 |
| 52.5° | 876.1 | 890.0 | 912.3 | 910.5 | 899.4 |
| 55° | 811.5 | 806.1 | 827.3 | 821.7 | 821.4 |
| 57.5° | 734.1 | 743.5 | 760.9 | 752.0 | 737.6 |
| 60° | 661.5 | 661.8 | 668.1 | 658.0 | 656.1 |
| 62.5° | 580.8 | 583.6 | 585.0 | 572.5 | 592.8 |
| 65° | 498.6 | 492.0 | 511.3 | 491.7 | 495.0 |
| 67.5° | 423.0 | 426.3 | 424.4 | 412.1 | 416.8 |
| 70° | 346.2 | 350.4 | 347.4 | 333.5 | 337.7 |
| 72.5° | 276.0 | 270.8 | 274.1 | 256.7 | 264.7 |
| 75° | 207.5 | 203.2 | 207.0 | 192.4 | 199.0 |
| 77.5° | 141.3 | 144.6 | 142.2 | 134.5 | 138.9 |
| 80° | 93.3 | 90.7 | 90.7 | 86.2 | 87.1 |
| 82.5° | 54.4 | 51.8 | 51.1 | 49.7 | 51.8 |
| 85° | 25.4 | 24.7 | 25.2 | 24.5 | 23.6 |
| 87.5° | 9.2 | 9.4 | 9.4 | 8.9 | 8.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)