

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: P562046

Luminaire Tested: FSR-24-4-LD4-1HI-40-UNV-80-97-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562046
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-LD4-1HI-40-UNV-80-97-EDD-90
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .375 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3882.0 lumens
Efficiency: N/A
Efficacy: 89.9 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

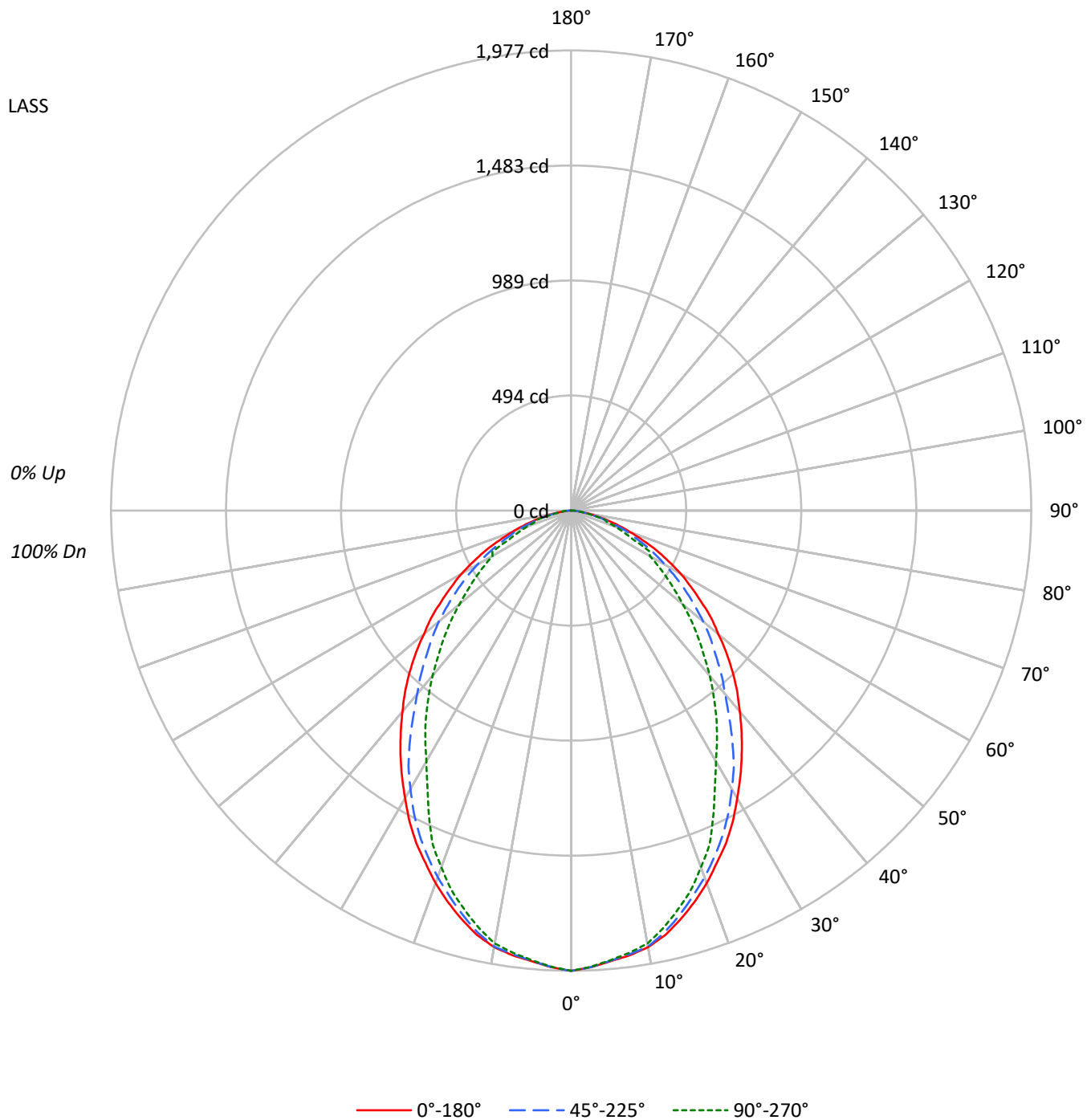
Input Watts (W): 43.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562046

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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 | 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° | 2661 | 2661 | 2661 |
| 5° | 2624 | 2621 | 2618 |
| 10° | 2602 | 2599 | 2580 |
| 15° | 2532 | 2506 | 2471 |
| 20° | 2439 | 2399 | 2334 |
| 25° | 2338 | 2287 | 2145 |
| 30° | 2216 | 2145 | 1932 |
| 35° | 2099 | 1983 | 1787 |
| 40° | 1979 | 1807 | 1626 |
| 45° | 1866 | 1670 | 1470 |
| 50° | 1728 | 1550 | 1311 |
| 55° | 1598 | 1405 | 1174 |
| 60° | 1464 | 1255 | 1052 |
| 65° | 1288 | 1099 | 932 |
| 70° | 1061 | 962 | 792 |
| 75° | 844 | 737 | 773 |
| 80° | 567 | 532 | 496 |
| 85° | 354 | 423 | 494 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1866 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 184.1 | 4.7 |
| 10°-20° | 505.2 | 13.0 |
| 20°-30° | 699.4 | 18.0 |
| 30°-40° | 745.7 | 19.2 |
| 40°-50° | 680.3 | 17.5 |
| 50°-60° | 533.0 | 13.7 |
| 60°-70° | 347.4 | 8.9 |
| 70°-80° | 153.9 | 4.0 |
| 80°-90° | 33.0 | 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° | 1388.6 | 35.8 |
| 0°-40° | 2134.4 | 55.0 |
| 0°-60° | 3347.7 | 86.2 |
| 0°-90° | 3882.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3882.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1977 | 1977 | 1977 | 1977 | 1977 | |
| 5° | 1943 | 1941 | 1941 | 1939 | 1939 | 184 |
| 15° | 1817 | 1817 | 1799 | 1781 | 1774 | 511 |
| 25° | 1575 | 1566 | 1541 | 1486 | 1445 | 723 |
| 35° | 1278 | 1269 | 1207 | 1116 | 1088 | 799 |
| 45° | 981 | 960 | 878 | 805 | 773 | 755 |
| 55° | 681 | 661 | 599 | 528 | 501 | 611 |
| 65° | 405 | 382 | 345 | 352 | 293 | 399 |
| 75° | 162 | 151 | 142 | 135 | 149 | 174 |
| 85° | 23 | 25 | 27 | 30 | 32 | 32 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562046

CATALOG NUMBER: FSR-24-4-LD4-1HI-40-UNV-80-97-EDD-90

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1977.4 | 1977.4 | 1977.4 | 1977.4 | 1977.4 |
| 2.5° | 1963.7 | 1963.7 | 1963.7 | 1961.4 | 1961.4 |
| 5° | 1943.1 | 1940.9 | 1940.9 | 1938.6 | 1938.6 |
| 7.5° | 1927.1 | 1924.9 | 1922.6 | 1920.3 | 1915.7 |
| 10° | 1904.3 | 1904.3 | 1902.0 | 1890.6 | 1888.3 |
| 12.5° | 1867.7 | 1865.4 | 1856.3 | 1840.3 | 1835.7 |
| 15° | 1817.4 | 1817.4 | 1799.1 | 1780.8 | 1774.0 |
| 17.5° | 1762.5 | 1760.3 | 1737.4 | 1719.1 | 1710.0 |
| 20° | 1703.1 | 1698.5 | 1675.7 | 1646.0 | 1630.0 |
| 22.5° | 1636.8 | 1636.8 | 1609.4 | 1570.5 | 1554.5 |
| 25° | 1575.1 | 1565.9 | 1540.8 | 1485.9 | 1444.8 |
| 27.5° | 1504.2 | 1490.5 | 1463.1 | 1385.4 | 1337.3 |
| 30° | 1426.5 | 1419.6 | 1380.8 | 1280.2 | 1243.6 |
| 32.5° | 1353.3 | 1341.9 | 1300.8 | 1195.6 | 1165.9 |
| 35° | 1277.9 | 1268.8 | 1207.0 | 1115.6 | 1088.2 |
| 37.5° | 1202.5 | 1191.0 | 1113.3 | 1040.2 | 1005.9 |
| 40° | 1127.0 | 1113.3 | 1028.7 | 962.4 | 925.9 |
| 42.5° | 1056.2 | 1037.9 | 955.6 | 884.7 | 843.6 |
| 45° | 980.7 | 960.1 | 877.8 | 804.7 | 772.7 |
| 47.5° | 905.3 | 887.0 | 811.6 | 736.1 | 699.5 |
| 50° | 825.3 | 809.3 | 740.7 | 665.2 | 626.4 |
| 52.5° | 759.0 | 733.8 | 667.5 | 592.1 | 560.1 |
| 55° | 681.2 | 660.7 | 598.9 | 528.1 | 500.6 |
| 57.5° | 610.4 | 589.8 | 532.7 | 466.4 | 443.5 |
| 60° | 544.1 | 514.4 | 466.4 | 409.2 | 390.9 |
| 62.5° | 470.9 | 448.1 | 406.9 | 358.9 | 381.8 |
| 65° | 404.6 | 381.8 | 345.2 | 352.1 | 292.6 |
| 67.5° | 331.5 | 320.0 | 288.0 | 256.0 | 246.9 |
| 70° | 269.8 | 256.0 | 244.6 | 210.3 | 201.2 |
| 72.5° | 214.9 | 201.2 | 185.2 | 166.9 | 160.0 |
| 75° | 162.3 | 150.9 | 141.7 | 134.9 | 148.6 |
| 77.5° | 112.0 | 107.4 | 100.6 | 93.7 | 91.4 |
| 80° | 73.2 | 70.9 | 68.6 | 66.3 | 64.0 |
| 82.5° | 43.4 | 43.4 | 43.4 | 43.4 | 43.4 |
| 85° | 22.9 | 25.1 | 27.4 | 29.7 | 32.0 |
| 87.5° | 13.7 | 13.7 | 16.0 | 18.3 | 20.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)