

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: P590821

Luminaire Tested: FSR-24-2-LD4-4LO-35-UNV-82-84-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590821
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-LD4-4LO-35-UNV-82-84-EDD
Description: 2X2 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5420.0 lumens
Efficiency: N/A
Efficacy: 115.8 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

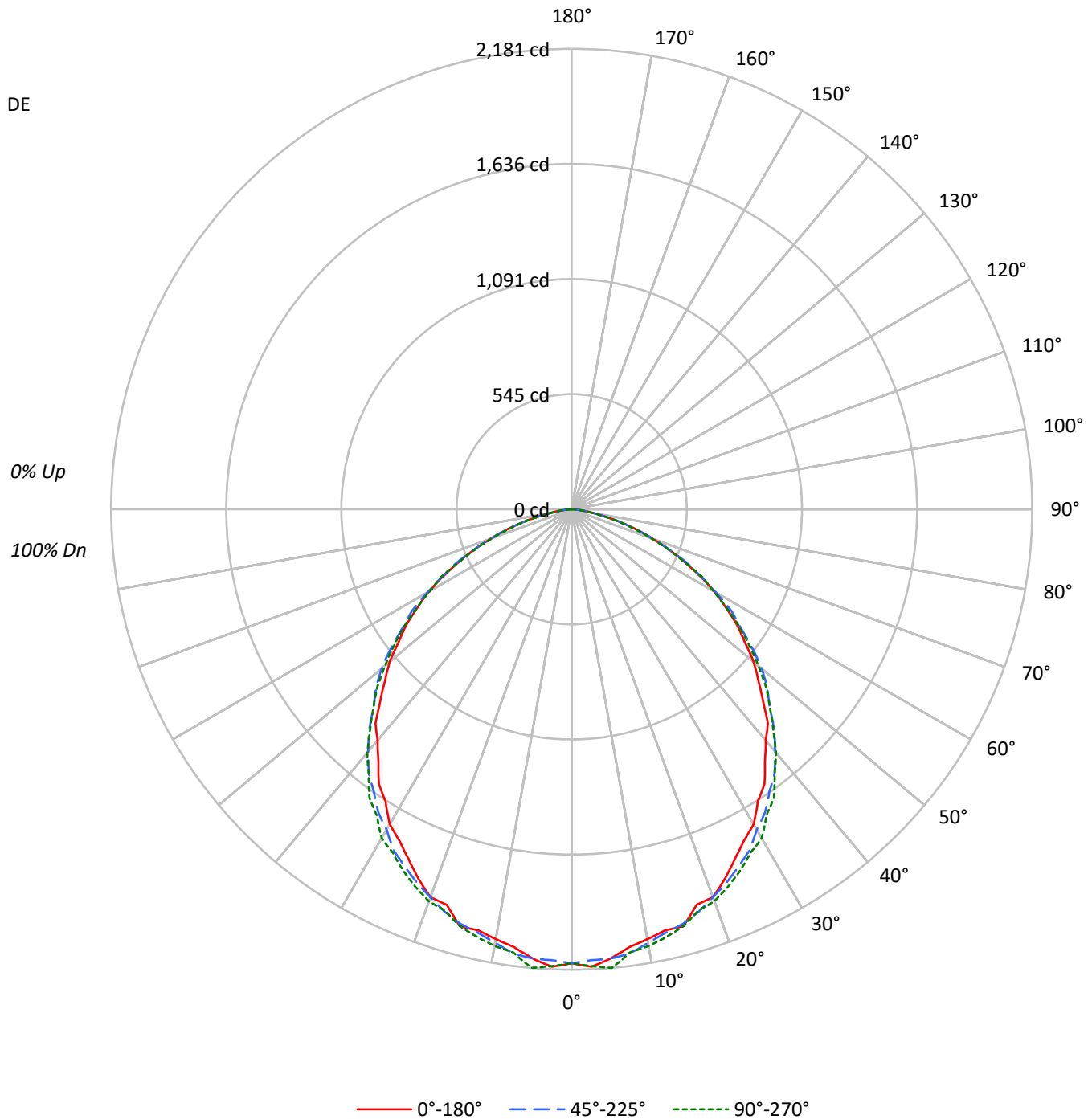
Input Watts (W): 46.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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 | 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° | 5787 | 5787 | 5787 |
| 5° | 5768 | 5770 | 5892 |
| 10° | 5651 | 5700 | 5740 |
| 15° | 5696 | 5665 | 5696 |
| 20° | 5599 | 5599 | 5659 |
| 25° | 5427 | 5546 | 5607 |
| 30° | 5353 | 5447 | 5592 |
| 35° | 5227 | 5364 | 5484 |
| 40° | 5023 | 5265 | 5289 |
| 45° | 4871 | 5045 | 5052 |
| 50° | 4711 | 4924 | 4830 |
| 55° | 4489 | 4576 | 4544 |
| 60° | 4198 | 4239 | 4163 |
| 65° | 3743 | 3838 | 3717 |
| 70° | 3212 | 3223 | 3133 |
| 75° | 2543 | 2538 | 2439 |
| 80° | 1705 | 1657 | 1592 |
| 85° | 926 | 917 | 858 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 5174 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 202.3 | 3.7 |
| 10°-20° | 573.3 | 10.6 |
| 20°-30° | 858.9 | 15.8 |
| 30°-40° | 1018.0 | 18.8 |
| 40°-50° | 1019.9 | 18.8 |
| 50°-60° | 865.7 | 16.0 |
| 60°-70° | 583.7 | 10.8 |
| 70°-80° | 256.5 | 4.7 |
| 80°-90° | 41.7 | 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° | 1634.5 | 30.2 |
| 0°-40° | 2652.5 | 48.9 |
| 0°-60° | 4538.2 | 83.7 |
| 0°-90° | 5420.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5420.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2150 | 2150 | 2150 | 2150 | 2150 | |
| 5° | 2135 | 2130 | 2136 | 2130 | 2181 | 201 |
| 15° | 2044 | 2021 | 2033 | 2044 | 2045 | 570 |
| 25° | 1828 | 1838 | 1868 | 1892 | 1888 | 845 |
| 35° | 1591 | 1596 | 1633 | 1670 | 1669 | 988 |
| 45° | 1280 | 1304 | 1326 | 1360 | 1328 | 990 |
| 55° | 957 | 950 | 975 | 969 | 968 | 851 |
| 65° | 588 | 580 | 603 | 580 | 584 | 585 |
| 75° | 245 | 240 | 244 | 227 | 235 | 262 |
| 85° | 30 | 29 | 30 | 29 | 28 | 43 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590821

CATALOG NUMBER: FSR-24-2-LD4-4LO-35-UNV-82-84-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2150.5 | 2150.5 | 2150.5 | 2150.5 | 2150.5 |
| 2.5° | 2169.1 | 2152.7 | 2137.5 | 2155.2 | 2166.1 |
| 5° | 2135.2 | 2130.2 | 2136.1 | 2129.7 | 2181.1 |
| 7.5° | 2091.4 | 2110.5 | 2121.6 | 2114.7 | 2117.8 |
| 10° | 2068.1 | 2061.4 | 2086.1 | 2103.3 | 2100.8 |
| 12.5° | 2043.1 | 2053.1 | 2054.4 | 2073.1 | 2074.7 |
| 15° | 2044.5 | 2020.8 | 2033.3 | 2043.9 | 2044.7 |
| 17.5° | 1965.0 | 1990.6 | 1999.2 | 2023.3 | 1993.4 |
| 20° | 1955.3 | 1936.7 | 1955.3 | 1980.0 | 1976.1 |
| 22.5° | 1895.6 | 1874.8 | 1914.8 | 1936.7 | 1935.3 |
| 25° | 1827.9 | 1837.9 | 1867.9 | 1892.3 | 1888.4 |
| 27.5° | 1768.5 | 1780.1 | 1822.9 | 1856.5 | 1834.8 |
| 30° | 1722.6 | 1716.8 | 1752.9 | 1782.9 | 1799.5 |
| 32.5° | 1640.7 | 1661.8 | 1704.0 | 1733.7 | 1717.9 |
| 35° | 1591.0 | 1595.7 | 1632.7 | 1670.4 | 1669.3 |
| 37.5° | 1504.1 | 1526.0 | 1578.0 | 1588.5 | 1578.8 |
| 40° | 1430.0 | 1451.9 | 1498.8 | 1510.2 | 1505.5 |
| 42.5° | 1375.3 | 1379.2 | 1419.4 | 1432.5 | 1411.7 |
| 45° | 1280.0 | 1303.9 | 1325.6 | 1359.7 | 1327.5 |
| 47.5° | 1199.0 | 1210.1 | 1256.7 | 1265.9 | 1248.9 |
| 50° | 1125.4 | 1129.3 | 1176.2 | 1164.8 | 1153.7 |
| 52.5° | 1032.9 | 1049.3 | 1075.7 | 1073.5 | 1060.4 |
| 55° | 956.8 | 950.4 | 975.4 | 968.8 | 968.5 |
| 57.5° | 865.5 | 876.6 | 897.1 | 886.6 | 869.6 |
| 60° | 780.0 | 780.2 | 787.7 | 775.8 | 773.6 |
| 62.5° | 684.7 | 688.1 | 689.7 | 675.0 | 698.9 |
| 65° | 587.8 | 580.0 | 602.8 | 579.8 | 583.7 |
| 67.5° | 498.7 | 502.6 | 500.4 | 485.9 | 491.5 |
| 70° | 408.2 | 413.2 | 409.6 | 393.2 | 398.2 |
| 72.5° | 325.4 | 319.3 | 323.2 | 302.7 | 312.1 |
| 75° | 244.6 | 239.6 | 244.1 | 226.9 | 234.6 |
| 77.5° | 166.6 | 170.5 | 167.7 | 158.5 | 163.8 |
| 80° | 110.0 | 106.9 | 106.9 | 101.6 | 102.7 |
| 82.5° | 64.1 | 61.1 | 60.3 | 58.6 | 61.1 |
| 85° | 30.0 | 29.2 | 29.7 | 28.9 | 27.8 |
| 87.5° | 10.8 | 11.1 | 11.1 | 10.6 | 10.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)