

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: P560813

Luminaire Tested: FSR-12-4-LD4-1HI-35-UNV-93-96-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560813
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-12-4-LD4-1HI-35-UNV-93-96-EDD
Description: 1X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR TEMPER
GLASS ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

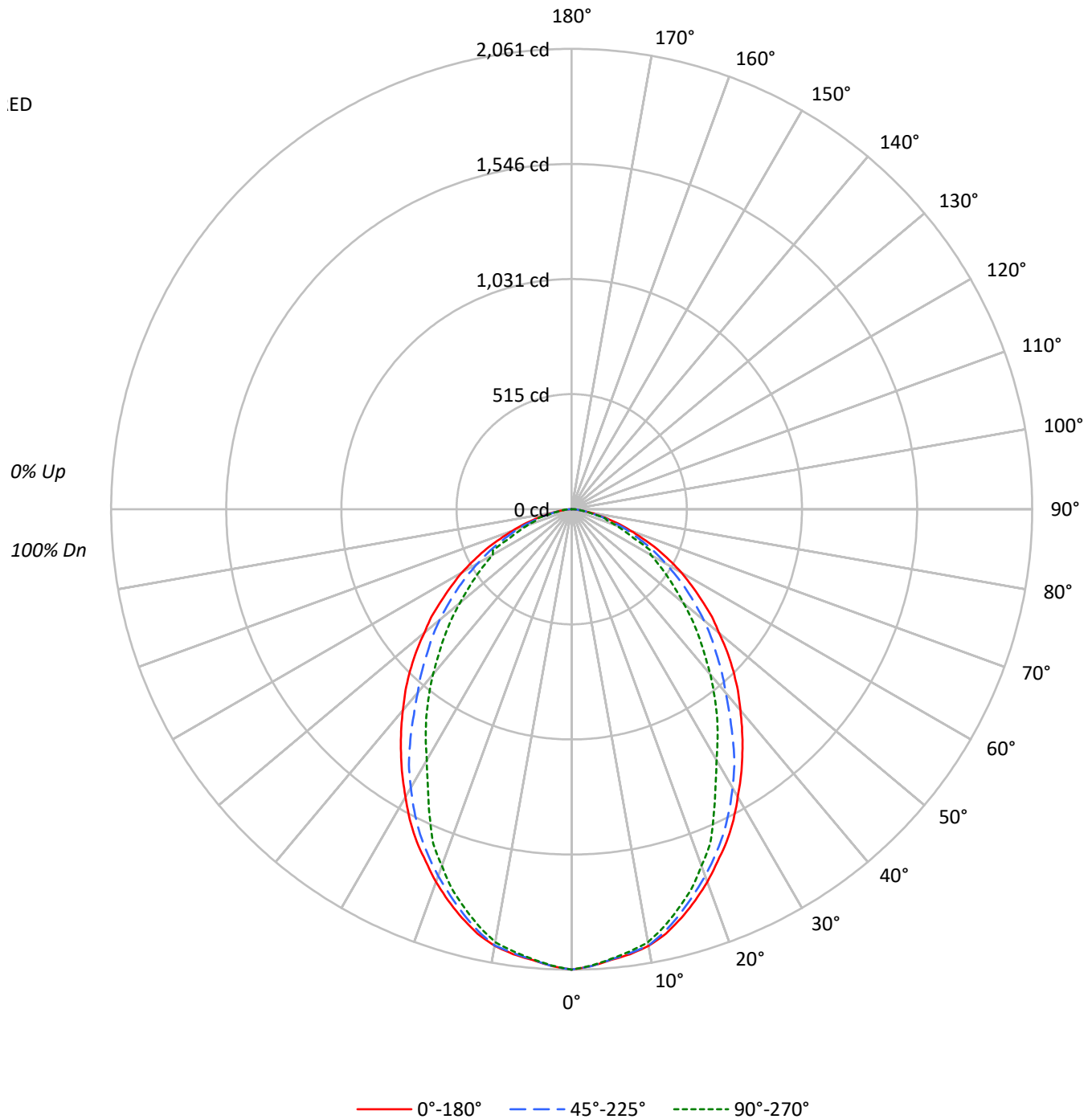
Lumens per Lamp: N/A
Luminaire Lumens: 4046.0 lumens
Efficiency: N/A
Efficacy: 93.7 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 4' x H: 0')
CIE Type: Direct

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: P560813

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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° | 5546 | 5546 | 5546 |
| 5° | 5471 | 5464 | 5458 |
| 10° | 5423 | 5417 | 5378 |
| 15° | 5277 | 5224 | 5151 |
| 20° | 5083 | 5001 | 4865 |
| 25° | 4874 | 4768 | 4471 |
| 30° | 4620 | 4472 | 4028 |
| 35° | 4375 | 4133 | 3726 |
| 40° | 4126 | 3766 | 3390 |
| 45° | 3890 | 3482 | 3065 |
| 50° | 3601 | 3232 | 2733 |
| 55° | 3331 | 2929 | 2448 |
| 60° | 3052 | 2616 | 2193 |
| 65° | 2685 | 2291 | 1942 |
| 70° | 2212 | 2006 | 1650 |
| 75° | 1759 | 1536 | 1611 |
| 80° | 1181 | 1108 | 1034 |
| 85° | 735 | 883 | 1031 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3890 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 191.9 | 4.7 |
| 10°-20° | 526.5 | 13.0 |
| 20°-30° | 728.9 | 18.0 |
| 30°-40° | 777.2 | 19.2 |
| 40°-50° | 709.1 | 17.5 |
| 50°-60° | 555.5 | 13.7 |
| 60°-70° | 362.1 | 8.9 |
| 70°-80° | 160.4 | 4.0 |
| 80°-90° | 34.5 | 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° | 1447.3 | 35.8 |
| 0°-40° | 2224.5 | 55.0 |
| 0°-60° | 3489.1 | 86.2 |
| 0°-90° | 4046.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4046.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2061 | 2061 | 2061 | 2061 | 2061 | |
| 5° | 2025 | 2023 | 2023 | 2020 | 2020 | 192 |
| 15° | 1894 | 1894 | 1875 | 1856 | 1849 | 533 |
| 25° | 1642 | 1632 | 1606 | 1549 | 1506 | 754 |
| 35° | 1332 | 1322 | 1258 | 1163 | 1134 | 833 |
| 45° | 1022 | 1001 | 915 | 839 | 805 | 787 |
| 55° | 710 | 689 | 624 | 550 | 522 | 637 |
| 65° | 422 | 398 | 360 | 367 | 305 | 416 |
| 75° | 169 | 157 | 148 | 141 | 155 | 181 |
| 85° | 24 | 26 | 29 | 31 | 33 | 33 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P560813

CATALOG NUMBER: FSR-12-4-LD4-1HI-35-UNV-93-96-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2061.0 | 2061.0 | 2061.0 | 2061.0 | 2061.0 |
| 2.5° | 2046.7 | 2046.7 | 2046.7 | 2044.3 | 2044.3 |
| 5° | 2025.2 | 2022.9 | 2022.9 | 2020.5 | 2020.5 |
| 7.5° | 2008.6 | 2006.2 | 2003.8 | 2001.4 | 1996.6 |
| 10° | 1984.7 | 1984.7 | 1982.4 | 1970.4 | 1968.1 |
| 12.5° | 1946.6 | 1944.2 | 1934.7 | 1918.0 | 1913.3 |
| 15° | 1894.2 | 1894.2 | 1875.1 | 1856.1 | 1848.9 |
| 17.5° | 1837.0 | 1834.6 | 1810.8 | 1791.7 | 1782.2 |
| 20° | 1775.1 | 1770.3 | 1746.5 | 1715.5 | 1698.8 |
| 22.5° | 1706.0 | 1706.0 | 1677.4 | 1636.9 | 1620.2 |
| 25° | 1641.6 | 1632.1 | 1605.9 | 1548.7 | 1505.8 |
| 27.5° | 1567.8 | 1553.5 | 1524.9 | 1443.9 | 1393.8 |
| 30° | 1486.8 | 1479.6 | 1439.1 | 1334.3 | 1296.2 |
| 32.5° | 1410.5 | 1398.6 | 1355.7 | 1246.1 | 1215.1 |
| 35° | 1331.9 | 1322.4 | 1258.0 | 1162.7 | 1134.1 |
| 37.5° | 1253.3 | 1241.4 | 1160.3 | 1084.1 | 1048.4 |
| 40° | 1174.6 | 1160.3 | 1072.2 | 1003.1 | 965.0 |
| 42.5° | 1100.8 | 1081.7 | 995.9 | 922.1 | 879.2 |
| 45° | 1022.1 | 1000.7 | 914.9 | 838.7 | 805.3 |
| 47.5° | 943.5 | 924.5 | 845.8 | 767.2 | 729.1 |
| 50° | 860.1 | 843.5 | 772.0 | 693.3 | 652.8 |
| 52.5° | 791.0 | 764.8 | 695.7 | 617.1 | 583.7 |
| 55° | 710.0 | 688.6 | 624.3 | 550.4 | 521.8 |
| 57.5° | 636.2 | 614.7 | 555.2 | 486.1 | 462.2 |
| 60° | 567.1 | 536.1 | 486.1 | 426.5 | 407.4 |
| 62.5° | 490.8 | 467.0 | 424.1 | 374.1 | 397.9 |
| 65° | 421.7 | 397.9 | 359.8 | 366.9 | 305.0 |
| 67.5° | 345.5 | 333.6 | 300.2 | 266.9 | 257.3 |
| 70° | 281.2 | 266.9 | 254.9 | 219.2 | 209.7 |
| 72.5° | 224.0 | 209.7 | 193.0 | 173.9 | 166.8 |
| 75° | 169.2 | 157.3 | 147.7 | 140.6 | 154.9 |
| 77.5° | 116.7 | 112.0 | 104.8 | 97.7 | 95.3 |
| 80° | 76.2 | 73.9 | 71.5 | 69.1 | 66.7 |
| 82.5° | 45.3 | 45.3 | 45.3 | 45.3 | 45.3 |
| 85° | 23.8 | 26.2 | 28.6 | 31.0 | 33.4 |
| 87.5° | 14.3 | 14.3 | 16.7 | 19.1 | 21.4 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)