

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: P562341

Luminaire Tested: FSR-24-4-LD4-1STD-35-UNV-93-86-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562341
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-35-UNV-93-86-EDD
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3789.0 lumens
Efficiency: N/A
Efficacy: 113.8 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

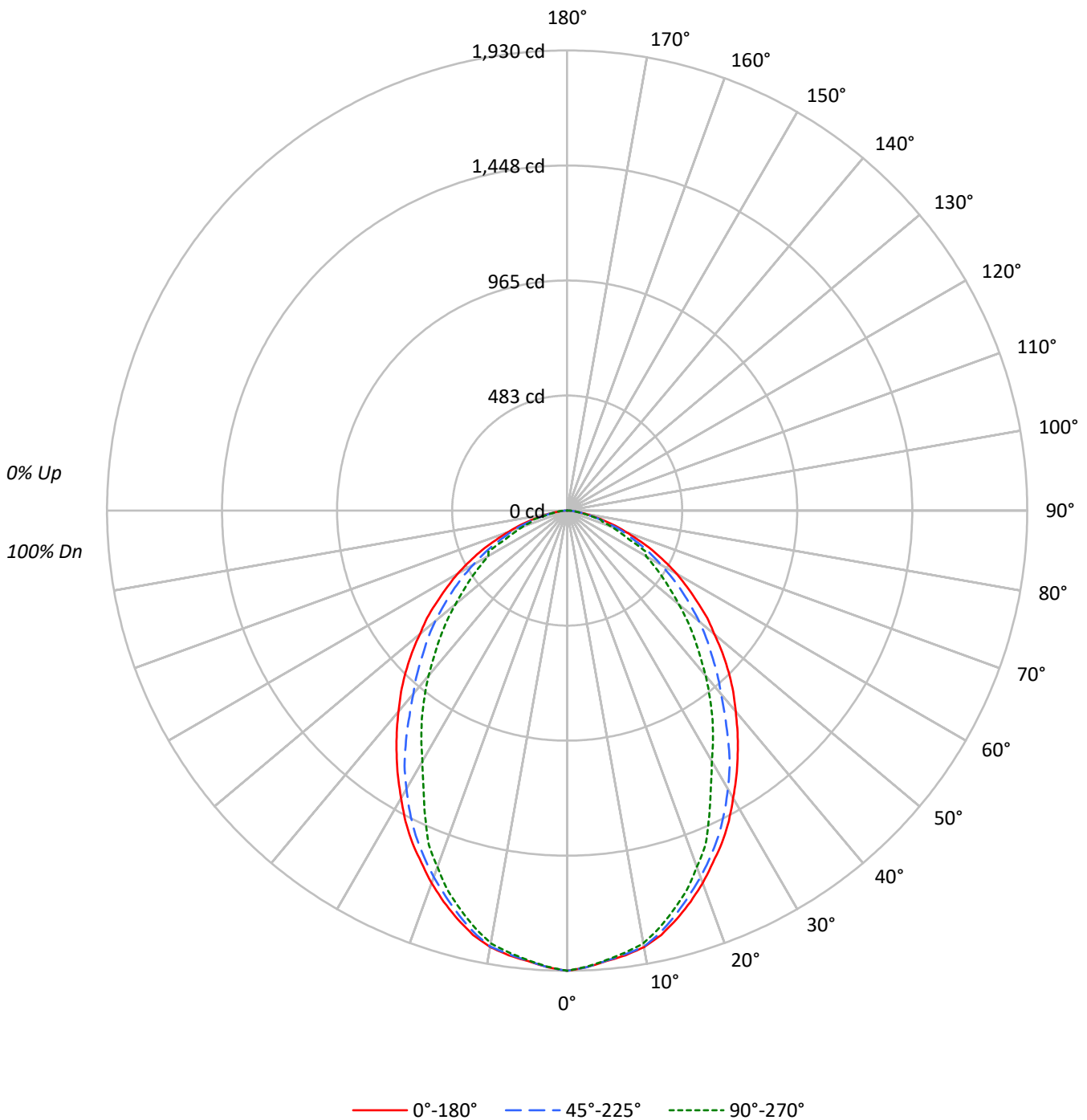
Input Watts (W): 33.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562341

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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° | 2597 | 2597 | 2597 |
| 5° | 2562 | 2559 | 2556 |
| 10° | 2539 | 2536 | 2518 |
| 15° | 2471 | 2446 | 2412 |
| 20° | 2380 | 2342 | 2278 |
| 25° | 2282 | 2233 | 2094 |
| 30° | 2163 | 2094 | 1886 |
| 35° | 2049 | 1935 | 1745 |
| 40° | 1932 | 1764 | 1587 |
| 45° | 1821 | 1630 | 1435 |
| 50° | 1686 | 1513 | 1280 |
| 55° | 1560 | 1371 | 1146 |
| 60° | 1429 | 1225 | 1027 |
| 65° | 1257 | 1073 | 909 |
| 70° | 1036 | 939 | 773 |
| 75° | 823 | 719 | 754 |
| 80° | 553 | 518 | 484 |
| 85° | 344 | 414 | 482 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1821 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 179.7 | 4.7 |
| 10°-20° | 493.1 | 13.0 |
| 20°-30° | 682.6 | 18.0 |
| 30°-40° | 727.9 | 19.2 |
| 40°-50° | 664.0 | 17.5 |
| 50°-60° | 520.2 | 13.7 |
| 60°-70° | 339.0 | 8.9 |
| 70°-80° | 150.2 | 4.0 |
| 80°-90° | 32.3 | 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° | 1355.4 | 35.8 |
| 0°-40° | 2083.2 | 55.0 |
| 0°-60° | 3267.5 | 86.2 |
| 0°-90° | 3789.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3789.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1930 | 1930 | 1930 | 1930 | 1930 | |
| 5° | 1897 | 1894 | 1894 | 1892 | 1892 | 180 |
| 15° | 1774 | 1774 | 1756 | 1738 | 1732 | 499 |
| 25° | 1537 | 1528 | 1504 | 1450 | 1410 | 706 |
| 35° | 1247 | 1238 | 1178 | 1089 | 1062 | 780 |
| 45° | 957 | 937 | 857 | 785 | 754 | 737 |
| 55° | 665 | 645 | 585 | 515 | 489 | 596 |
| 65° | 395 | 373 | 337 | 344 | 286 | 389 |
| 75° | 158 | 147 | 138 | 132 | 145 | 170 |
| 85° | 22 | 24 | 27 | 29 | 31 | 31 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562341

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1930.1 | 1930.1 | 1930.1 | 1930.1 | 1930.1 |
| 2.5° | 1916.7 | 1916.7 | 1916.7 | 1914.4 | 1914.4 |
| 5° | 1896.6 | 1894.4 | 1894.4 | 1892.1 | 1892.1 |
| 7.5° | 1881.0 | 1878.7 | 1876.5 | 1874.3 | 1869.8 |
| 10° | 1858.7 | 1858.7 | 1856.4 | 1845.3 | 1843.0 |
| 12.5° | 1823.0 | 1820.7 | 1811.8 | 1796.2 | 1791.7 |
| 15° | 1773.9 | 1773.9 | 1756.0 | 1738.2 | 1731.5 |
| 17.5° | 1720.3 | 1718.1 | 1695.8 | 1677.9 | 1669.0 |
| 20° | 1662.3 | 1657.8 | 1635.5 | 1606.5 | 1590.9 |
| 22.5° | 1597.6 | 1597.6 | 1570.8 | 1532.9 | 1517.3 |
| 25° | 1537.4 | 1528.4 | 1503.9 | 1450.3 | 1410.2 |
| 27.5° | 1468.2 | 1454.8 | 1428.0 | 1352.2 | 1305.3 |
| 30° | 1392.3 | 1385.6 | 1347.7 | 1249.5 | 1213.8 |
| 32.5° | 1320.9 | 1309.8 | 1269.6 | 1167.0 | 1138.0 |
| 35° | 1247.3 | 1238.4 | 1178.1 | 1088.9 | 1062.1 |
| 37.5° | 1173.7 | 1162.5 | 1086.6 | 1015.2 | 981.8 |
| 40° | 1100.0 | 1086.6 | 1004.1 | 939.4 | 903.7 |
| 42.5° | 1030.9 | 1013.0 | 932.7 | 863.5 | 823.3 |
| 45° | 957.2 | 937.1 | 856.8 | 785.4 | 754.2 |
| 47.5° | 883.6 | 865.7 | 792.1 | 718.5 | 682.8 |
| 50° | 805.5 | 789.9 | 722.9 | 649.3 | 611.4 |
| 52.5° | 740.8 | 716.2 | 651.5 | 577.9 | 546.7 |
| 55° | 664.9 | 644.8 | 584.6 | 515.4 | 488.7 |
| 57.5° | 595.8 | 575.7 | 519.9 | 455.2 | 432.9 |
| 60° | 531.0 | 502.0 | 455.2 | 399.4 | 381.6 |
| 62.5° | 459.6 | 437.3 | 397.2 | 350.3 | 372.6 |
| 65° | 394.9 | 372.6 | 336.9 | 343.6 | 285.6 |
| 67.5° | 323.5 | 312.4 | 281.1 | 249.9 | 241.0 |
| 70° | 263.3 | 249.9 | 238.7 | 205.3 | 196.4 |
| 72.5° | 209.7 | 196.4 | 180.7 | 162.9 | 156.2 |
| 75° | 158.4 | 147.3 | 138.3 | 131.6 | 145.0 |
| 77.5° | 109.3 | 104.9 | 98.2 | 91.5 | 89.3 |
| 80° | 71.4 | 69.2 | 66.9 | 64.7 | 62.5 |
| 82.5° | 42.4 | 42.4 | 42.4 | 42.4 | 42.4 |
| 85° | 22.3 | 24.5 | 26.8 | 29.0 | 31.2 |
| 87.5° | 13.4 | 13.4 | 15.6 | 17.9 | 20.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)