

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: P562325

Luminaire Tested: FSR-24-4-LD4-1STD-35-UNV-82-86-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562325
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-82-86-EDD
Description: 2X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3517.0 lumens
Efficiency: N/A
Efficacy: 105.6 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

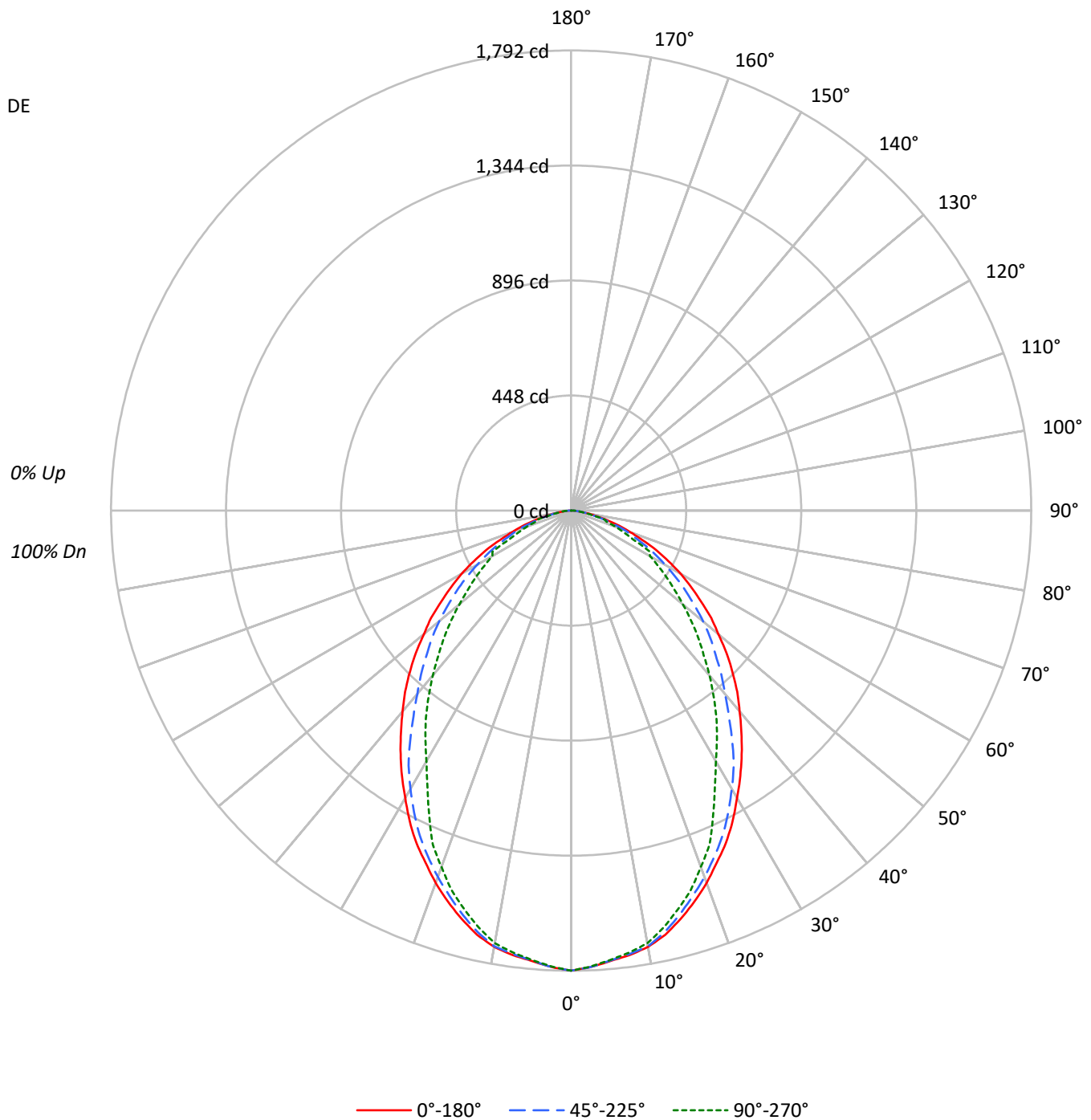
Input Watts (W): 33.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562325

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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 | | | | |
| 2 | 101 | 94 | 88 | 83 | 99 | 92 | 87 | 82 | 89 | 84 | 80 | 86 | 82 | 78 | 83 | 79 | 77 | | | | | 75 | | | | |
| 3 | 93 | 84 | 77 | 71 | 91 | 82 | 76 | 70 | 79 | 74 | 69 | 77 | 72 | 68 | 74 | 70 | 67 | | | | | 65 | | | | |
| 4 | 86 | 75 | 67 | 61 | 84 | 74 | 66 | 61 | 72 | 65 | 60 | 69 | 64 | 59 | 67 | 62 | 58 | | | | | 56 | | | | |
| 5 | 80 | 68 | 60 | 54 | 78 | 67 | 59 | 53 | 65 | 58 | 53 | 63 | 57 | 52 | 61 | 56 | 52 | | | | | 50 | | | | |
| 6 | 74 | 62 | 53 | 48 | 72 | 61 | 53 | 47 | 59 | 52 | 47 | 57 | 51 | 47 | 56 | 50 | 46 | | | | | 44 | | | | |
| 7 | 69 | 56 | 48 | 43 | 67 | 56 | 48 | 42 | 54 | 47 | 42 | 53 | 46 | 42 | 51 | 46 | 42 | | | | | 40 | | | | |
| 8 | 65 | 52 | 44 | 38 | 63 | 51 | 44 | 38 | 50 | 43 | 38 | 49 | 42 | 38 | 48 | 42 | 38 | | | | | 36 | | | | |
| 9 | 61 | 48 | 40 | 35 | 59 | 47 | 40 | 35 | 46 | 39 | 35 | 45 | 39 | 34 | 44 | 38 | 34 | | | | | 33 | | | | |
| 10 | 57 | 44 | 37 | 32 | 56 | 44 | 37 | 32 | 43 | 36 | 32 | 42 | 36 | 32 | 41 | 36 | 32 | | | | | 30 | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2410 | 2410 | 2410 |
| 5° | 2378 | 2375 | 2372 |
| 10° | 2357 | 2354 | 2337 |
| 15° | 2293 | 2271 | 2239 |
| 20° | 2209 | 2174 | 2114 |
| 25° | 2119 | 2072 | 1943 |
| 30° | 2008 | 1944 | 1750 |
| 35° | 1902 | 1796 | 1619 |
| 40° | 1793 | 1637 | 1473 |
| 45° | 1691 | 1513 | 1332 |
| 50° | 1565 | 1405 | 1188 |
| 55° | 1448 | 1273 | 1064 |
| 60° | 1326 | 1137 | 953 |
| 65° | 1167 | 996 | 844 |
| 70° | 961 | 872 | 717 |
| 75° | 764 | 667 | 700 |
| 80° | 514 | 481 | 449 |
| 85° | 320 | 384 | 448 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1691 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 166.8 | 4.7 |
| 10°-20° | 457.7 | 13.0 |
| 20°-30° | 633.6 | 18.0 |
| 30°-40° | 675.6 | 19.2 |
| 40°-50° | 616.4 | 17.5 |
| 50°-60° | 482.9 | 13.7 |
| 60°-70° | 314.7 | 8.9 |
| 70°-80° | 139.4 | 4.0 |
| 80°-90° | 30.0 | 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° | 1258.1 | 35.8 |
| 0°-40° | 1933.7 | 55.0 |
| 0°-60° | 3032.9 | 86.2 |
| 0°-90° | 3517.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3517.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1792 | 1792 | 1792 | 1792 | 1792 | |
| 5° | 1760 | 1758 | 1758 | 1756 | 1756 | 167 |
| 15° | 1646 | 1646 | 1630 | 1613 | 1607 | 463 |
| 25° | 1427 | 1419 | 1396 | 1346 | 1309 | 655 |
| 35° | 1158 | 1150 | 1094 | 1011 | 986 | 724 |
| 45° | 888 | 870 | 795 | 729 | 700 | 684 |
| 55° | 617 | 599 | 543 | 478 | 454 | 554 |
| 65° | 367 | 346 | 313 | 319 | 265 | 361 |
| 75° | 147 | 137 | 128 | 122 | 135 | 158 |
| 85° | 21 | 23 | 25 | 27 | 29 | 29 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562325

CATALOG NUMBER: FSR-24-4-LD4-1STD-35-UNV-82-86-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1791.5 | 1791.5 | 1791.5 | 1791.5 | 1791.5 |
| 2.5° | 1779.1 | 1779.1 | 1779.1 | 1777.0 | 1777.0 |
| 5° | 1760.4 | 1758.4 | 1758.4 | 1756.3 | 1756.3 |
| 7.5° | 1745.9 | 1743.9 | 1741.8 | 1739.7 | 1735.6 |
| 10° | 1725.2 | 1725.2 | 1723.2 | 1712.8 | 1710.7 |
| 12.5° | 1692.1 | 1690.0 | 1681.7 | 1667.2 | 1663.1 |
| 15° | 1646.5 | 1646.5 | 1630.0 | 1613.4 | 1607.2 |
| 17.5° | 1596.8 | 1594.8 | 1574.0 | 1557.5 | 1549.2 |
| 20° | 1543.0 | 1538.8 | 1518.1 | 1491.2 | 1476.7 |
| 22.5° | 1482.9 | 1482.9 | 1458.1 | 1422.9 | 1408.4 |
| 25° | 1427.0 | 1418.7 | 1395.9 | 1346.2 | 1308.9 |
| 27.5° | 1362.8 | 1350.4 | 1325.5 | 1255.1 | 1211.6 |
| 30° | 1292.4 | 1286.2 | 1251.0 | 1159.8 | 1126.7 |
| 32.5° | 1226.1 | 1215.7 | 1178.5 | 1083.2 | 1056.3 |
| 35° | 1157.8 | 1149.5 | 1093.5 | 1010.7 | 985.8 |
| 37.5° | 1089.4 | 1079.0 | 1008.6 | 942.4 | 911.3 |
| 40° | 1021.1 | 1008.6 | 932.0 | 871.9 | 838.8 |
| 42.5° | 956.9 | 940.3 | 865.7 | 801.5 | 764.2 |
| 45° | 888.5 | 869.9 | 795.3 | 729.0 | 700.0 |
| 47.5° | 820.2 | 803.6 | 735.2 | 666.9 | 633.8 |
| 50° | 747.7 | 733.2 | 671.0 | 602.7 | 567.5 |
| 52.5° | 687.6 | 664.8 | 604.8 | 536.4 | 507.4 |
| 55° | 617.2 | 598.6 | 542.6 | 478.4 | 453.6 |
| 57.5° | 553.0 | 534.3 | 482.6 | 422.5 | 401.8 |
| 60° | 492.9 | 466.0 | 422.5 | 370.7 | 354.2 |
| 62.5° | 426.6 | 405.9 | 368.7 | 325.2 | 345.9 |
| 65° | 366.6 | 345.9 | 312.7 | 319.0 | 265.1 |
| 67.5° | 300.3 | 290.0 | 261.0 | 232.0 | 223.7 |
| 70° | 244.4 | 232.0 | 221.6 | 190.5 | 182.3 |
| 72.5° | 194.7 | 182.3 | 167.8 | 151.2 | 145.0 |
| 75° | 147.0 | 136.7 | 128.4 | 122.2 | 134.6 |
| 77.5° | 101.5 | 97.3 | 91.1 | 84.9 | 82.8 |
| 80° | 66.3 | 64.2 | 62.1 | 60.1 | 58.0 |
| 82.5° | 39.4 | 39.4 | 39.4 | 39.4 | 39.4 |
| 85° | 20.7 | 22.8 | 24.9 | 26.9 | 29.0 |
| 87.5° | 12.4 | 12.4 | 14.5 | 16.6 | 18.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)