

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: P560229

Luminaire Tested: FSR-12-2-LD4-2HI-35-UNV-93-86-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560229
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-12-2-LD4-2HI-35-UNV-93-86-EDD
Description: 1X2 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: 3633.0 lumens
Efficiency: N/A
Efficacy: 84.1 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 1' x L: 2' x H: 0')
CIE Type: Direct

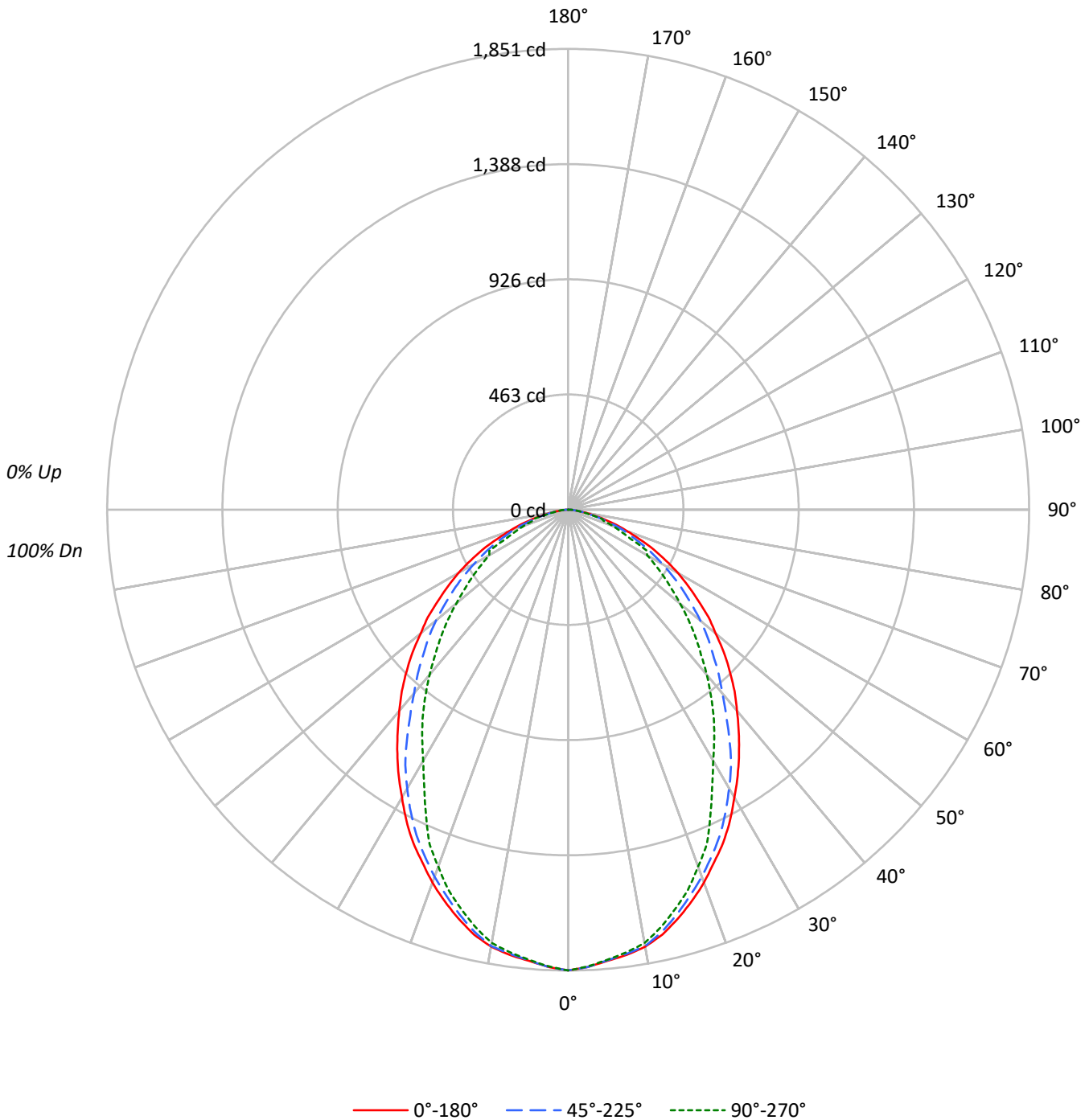
Input Watts (W): 43.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P560229

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Luminous Intensity Polar Plot





TEST NUMBER: P560229

CATALOG NUMBER: FSR-12-2-LD4-2HI-35-UNV-93-86-EDD

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 | 0 | | | | | | | | | | | | | | | | | | | |
| RCR | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 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° | 9960 | 9960 | 9960 |
| 5° | 9824 | 9813 | 9801 |
| 10° | 9739 | 9728 | 9658 |
| 15° | 9477 | 9381 | 9250 |
| 20° | 9129 | 8982 | 8737 |
| 25° | 8754 | 8563 | 8029 |
| 30° | 8296 | 8030 | 7232 |
| 35° | 7857 | 7422 | 6691 |
| 40° | 7410 | 6764 | 6088 |
| 45° | 6986 | 6253 | 5504 |
| 50° | 6466 | 5804 | 4908 |
| 55° | 5982 | 5259 | 4396 |
| 60° | 5481 | 4697 | 3937 |
| 65° | 4823 | 4115 | 3487 |
| 70° | 3973 | 3602 | 2963 |
| 75° | 3159 | 2757 | 2892 |
| 80° | 2123 | 1990 | 1857 |
| 85° | 1321 | 1587 | 1853 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 6986 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 172.3 | 4.7 |
| 10°-20° | 472.8 | 13.0 |
| 20°-30° | 654.5 | 18.0 |
| 30°-40° | 697.9 | 19.2 |
| 40°-50° | 636.7 | 17.5 |
| 50°-60° | 498.8 | 13.7 |
| 60°-70° | 325.1 | 8.9 |
| 70°-80° | 144.0 | 4.0 |
| 80°-90° | 30.9 | 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° | 1299.6 | 35.8 |
| 0°-40° | 1997.4 | 55.0 |
| 0°-60° | 3132.9 | 86.2 |
| 0°-90° | 3633.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 3633.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1851 | 1851 | 1851 | 1851 | 1851 | |
| 5° | 1818 | 1816 | 1816 | 1814 | 1814 | 173 |
| 15° | 1701 | 1701 | 1684 | 1667 | 1660 | 478 |
| 25° | 1474 | 1466 | 1442 | 1391 | 1352 | 677 |
| 35° | 1196 | 1187 | 1130 | 1044 | 1018 | 748 |
| 45° | 918 | 899 | 822 | 753 | 723 | 707 |
| 55° | 638 | 618 | 560 | 494 | 468 | 572 |
| 65° | 379 | 357 | 323 | 330 | 274 | 373 |
| 75° | 152 | 141 | 133 | 126 | 139 | 163 |
| 85° | 21 | 24 | 26 | 28 | 30 | 30 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P560229

CATALOG NUMBER: FSR-12-2-LD4-2HI-35-UNV-93-86-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1850.6 | 1850.6 | 1850.6 | 1850.6 | 1850.6 |
| 2.5° | 1837.8 | 1837.8 | 1837.8 | 1835.6 | 1835.6 |
| 5° | 1818.5 | 1816.4 | 1816.4 | 1814.2 | 1814.2 |
| 7.5° | 1803.5 | 1801.4 | 1799.3 | 1797.1 | 1792.8 |
| 10° | 1782.1 | 1782.1 | 1780.0 | 1769.3 | 1767.2 |
| 12.5° | 1747.9 | 1745.8 | 1737.2 | 1722.2 | 1718.0 |
| 15° | 1700.8 | 1700.8 | 1683.7 | 1666.6 | 1660.2 |
| 17.5° | 1649.5 | 1647.4 | 1626.0 | 1608.8 | 1600.3 |
| 20° | 1593.9 | 1589.6 | 1568.2 | 1540.4 | 1525.4 |
| 22.5° | 1531.8 | 1531.8 | 1506.2 | 1469.8 | 1454.8 |
| 25° | 1474.1 | 1465.5 | 1442.0 | 1390.6 | 1352.1 |
| 27.5° | 1407.7 | 1394.9 | 1369.2 | 1296.5 | 1251.6 |
| 30° | 1335.0 | 1328.6 | 1292.2 | 1198.1 | 1163.8 |
| 32.5° | 1266.5 | 1255.8 | 1217.3 | 1118.9 | 1091.1 |
| 35° | 1195.9 | 1187.4 | 1129.6 | 1044.0 | 1018.4 |
| 37.5° | 1125.3 | 1114.6 | 1041.9 | 973.4 | 941.3 |
| 40° | 1054.7 | 1041.9 | 962.7 | 900.7 | 866.5 |
| 42.5° | 988.4 | 971.3 | 894.3 | 828.0 | 789.4 |
| 45° | 917.8 | 898.6 | 821.5 | 753.1 | 723.1 |
| 47.5° | 847.2 | 830.1 | 759.5 | 688.9 | 654.7 |
| 50° | 772.3 | 757.4 | 693.2 | 622.6 | 586.2 |
| 52.5° | 710.3 | 686.8 | 624.7 | 554.1 | 524.2 |
| 55° | 637.5 | 618.3 | 560.5 | 494.2 | 468.5 |
| 57.5° | 571.2 | 552.0 | 498.5 | 436.4 | 415.0 |
| 60° | 509.2 | 481.4 | 436.4 | 383.0 | 365.8 |
| 62.5° | 440.7 | 419.3 | 380.8 | 335.9 | 357.3 |
| 65° | 378.7 | 357.3 | 323.1 | 329.5 | 273.8 |
| 67.5° | 310.2 | 299.5 | 269.6 | 239.6 | 231.1 |
| 70° | 252.5 | 239.6 | 228.9 | 196.8 | 188.3 |
| 72.5° | 201.1 | 188.3 | 173.3 | 156.2 | 149.8 |
| 75° | 151.9 | 141.2 | 132.6 | 126.2 | 139.1 |
| 77.5° | 104.8 | 100.6 | 94.1 | 87.7 | 85.6 |
| 80° | 68.5 | 66.3 | 64.2 | 62.0 | 59.9 |
| 82.5° | 40.6 | 40.6 | 40.6 | 40.6 | 40.6 |
| 85° | 21.4 | 23.5 | 25.7 | 27.8 | 30.0 |
| 87.5° | 12.8 | 12.8 | 15.0 | 17.1 | 19.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)