

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: P563094

Luminaire Tested: FSR-24-4-LD4-3HI-35-UNV-82-87-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563094
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-LD4-3HI-35-UNV-82-87-EDD-90
Description: 2X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10478.0 lumens
Efficiency: N/A
Efficacy: 80.8 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

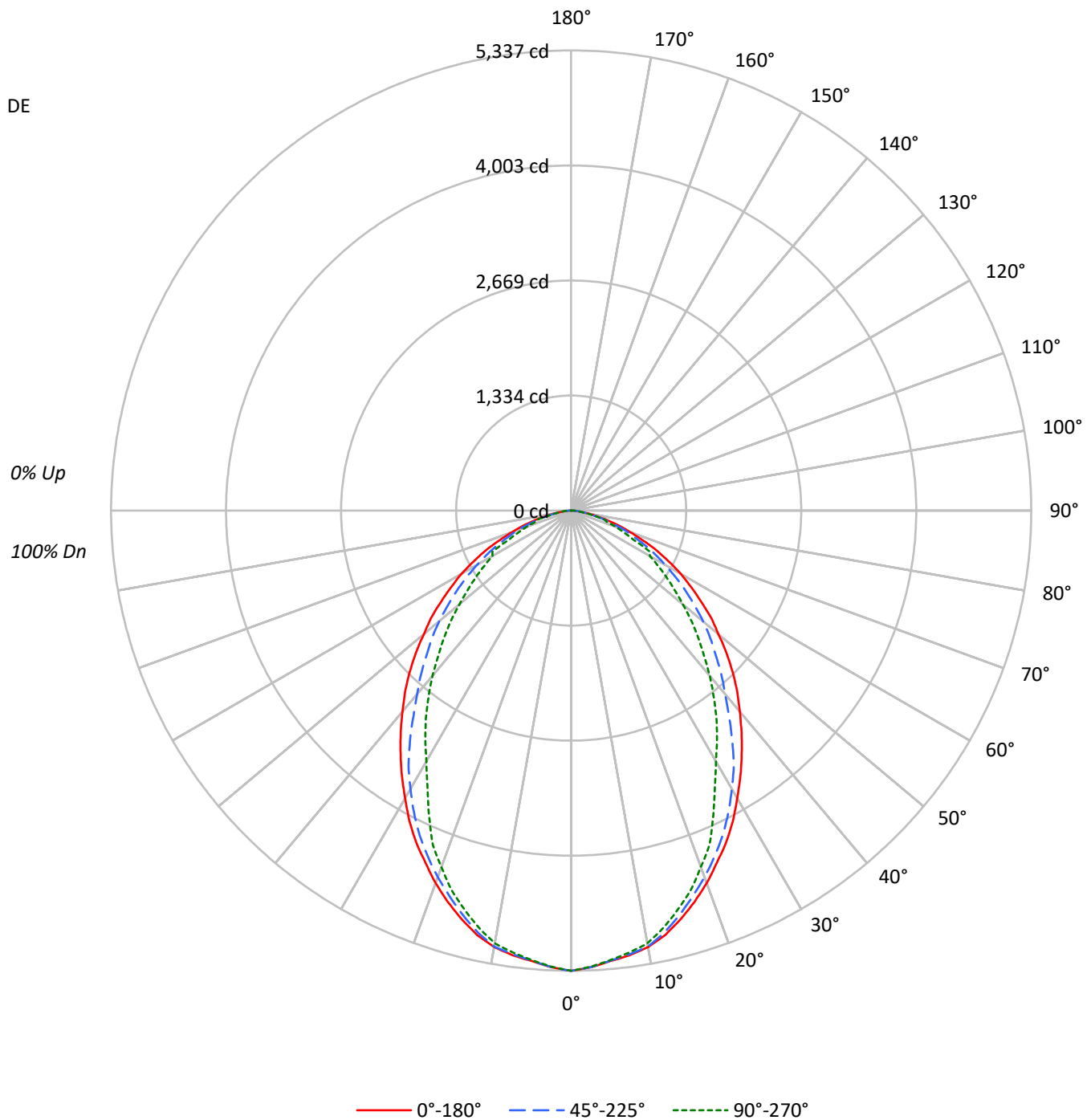
Input Watts (W): 129.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563094

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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° | 7181 | 7181 | 7181 |
| 5° | 7084 | 7075 | 7067 |
| 10° | 7022 | 7014 | 6963 |
| 15° | 6833 | 6764 | 6670 |
| 20° | 6582 | 6476 | 6299 |
| 25° | 6312 | 6174 | 5789 |
| 30° | 5982 | 5790 | 5215 |
| 35° | 5665 | 5351 | 4824 |
| 40° | 5343 | 4877 | 4389 |
| 45° | 5037 | 4509 | 3968 |
| 50° | 4663 | 4185 | 3539 |
| 55° | 4313 | 3792 | 3170 |
| 60° | 3952 | 3387 | 2839 |
| 65° | 3477 | 2966 | 2514 |
| 70° | 2864 | 2597 | 2136 |
| 75° | 2277 | 1989 | 2085 |
| 80° | 1530 | 1434 | 1339 |
| 85° | 953 | 1142 | 1334 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5037 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 496.8 | 4.7 |
| 10°-20° | 1363.5 | 13.0 |
| 20°-30° | 1887.7 | 18.0 |
| 30°-40° | 2012.8 | 19.2 |
| 40°-50° | 1836.3 | 17.5 |
| 50°-60° | 1438.6 | 13.7 |
| 60°-70° | 937.6 | 8.9 |
| 70°-80° | 415.4 | 4.0 |
| 80°-90° | 89.2 | 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° | 3748.1 | 35.8 |
| 0°-40° | 5760.9 | 55.0 |
| 0°-60° | 9035.8 | 86.2 |
| 0°-90° | 10478.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 10478.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 5337 | 5337 | 5337 | 5337 | 5337 | |
| 5° | 5245 | 5239 | 5239 | 5232 | 5232 | 498 |
| 15° | 4905 | 4905 | 4856 | 4807 | 4788 | 1379 |
| 25° | 4251 | 4227 | 4159 | 4011 | 3900 | 1952 |
| 35° | 3449 | 3424 | 3258 | 3011 | 2937 | 2156 |
| 45° | 2647 | 2592 | 2369 | 2172 | 2086 | 2039 |
| 55° | 1839 | 1783 | 1617 | 1425 | 1351 | 1649 |
| 65° | 1092 | 1030 | 932 | 950 | 790 | 1076 |
| 75° | 438 | 407 | 383 | 364 | 401 | 470 |
| 85° | 62 | 68 | 74 | 80 | 86 | 86 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 5337.4 | 5337.4 | 5337.4 | 5337.4 | 5337.4 |
| 2.5° | 5300.3 | 5300.3 | 5300.3 | 5294.2 | 5294.2 |
| 5° | 5244.8 | 5238.6 | 5238.6 | 5232.5 | 5232.5 |
| 7.5° | 5201.6 | 5195.4 | 5189.3 | 5183.1 | 5170.8 |
| 10° | 5139.9 | 5139.9 | 5133.7 | 5102.9 | 5096.7 |
| 12.5° | 5041.2 | 5035.0 | 5010.3 | 4967.1 | 4954.8 |
| 15° | 4905.4 | 4905.4 | 4856.1 | 4806.7 | 4788.2 |
| 17.5° | 4757.3 | 4751.2 | 4689.5 | 4640.1 | 4615.4 |
| 20° | 4596.9 | 4584.6 | 4522.9 | 4442.7 | 4399.5 |
| 22.5° | 4418.0 | 4418.0 | 4343.9 | 4239.0 | 4195.8 |
| 25° | 4251.4 | 4226.7 | 4158.8 | 4010.7 | 3899.7 |
| 27.5° | 4060.1 | 4023.1 | 3949.0 | 3739.2 | 3609.7 |
| 30° | 3850.3 | 3831.8 | 3726.9 | 3455.4 | 3356.7 |
| 32.5° | 3652.8 | 3622.0 | 3510.9 | 3227.1 | 3146.9 |
| 35° | 3449.2 | 3424.5 | 3257.9 | 3011.1 | 2937.1 |
| 37.5° | 3245.6 | 3214.8 | 3005.0 | 2807.5 | 2715.0 |
| 40° | 3042.0 | 3005.0 | 2776.7 | 2597.7 | 2499.0 |
| 42.5° | 2850.7 | 2801.3 | 2579.2 | 2387.9 | 2276.9 |
| 45° | 2647.1 | 2591.5 | 2369.4 | 2172.0 | 2085.6 |
| 47.5° | 2443.5 | 2394.1 | 2190.5 | 1986.9 | 1888.1 |
| 50° | 2227.5 | 2184.3 | 1999.2 | 1795.6 | 1690.7 |
| 52.5° | 2048.6 | 1980.7 | 1801.7 | 1598.1 | 1511.7 |
| 55° | 1838.8 | 1783.2 | 1616.6 | 1425.4 | 1351.3 |
| 57.5° | 1647.5 | 1592.0 | 1437.7 | 1258.8 | 1197.0 |
| 60° | 1468.5 | 1388.3 | 1258.8 | 1104.5 | 1055.1 |
| 62.5° | 1271.1 | 1209.4 | 1098.3 | 968.7 | 1030.4 |
| 65° | 1092.2 | 1030.4 | 931.7 | 950.2 | 789.8 |
| 67.5° | 894.7 | 863.8 | 777.5 | 691.1 | 666.4 |
| 70° | 728.1 | 691.1 | 660.2 | 567.7 | 543.0 |
| 72.5° | 580.0 | 543.0 | 499.8 | 450.4 | 431.9 |
| 75° | 438.1 | 407.2 | 382.6 | 364.1 | 401.1 |
| 77.5° | 302.3 | 290.0 | 271.5 | 253.0 | 246.8 |
| 80° | 197.5 | 191.3 | 185.1 | 178.9 | 172.8 |
| 82.5° | 117.2 | 117.2 | 117.2 | 117.2 | 117.2 |
| 85° | 61.7 | 67.9 | 74.0 | 80.2 | 86.4 |
| 87.5° | 37.0 | 37.0 | 43.2 | 49.4 | 55.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)