

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: P563220

Luminaire Tested: FSR-24-4-LD4-3HI-50-UNV-82-86-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563220
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-50-UNV-82-86-EDD-90
Description: 2X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .250 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 90 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11565.0 lumens
Efficiency: N/A
Efficacy: 89.2 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

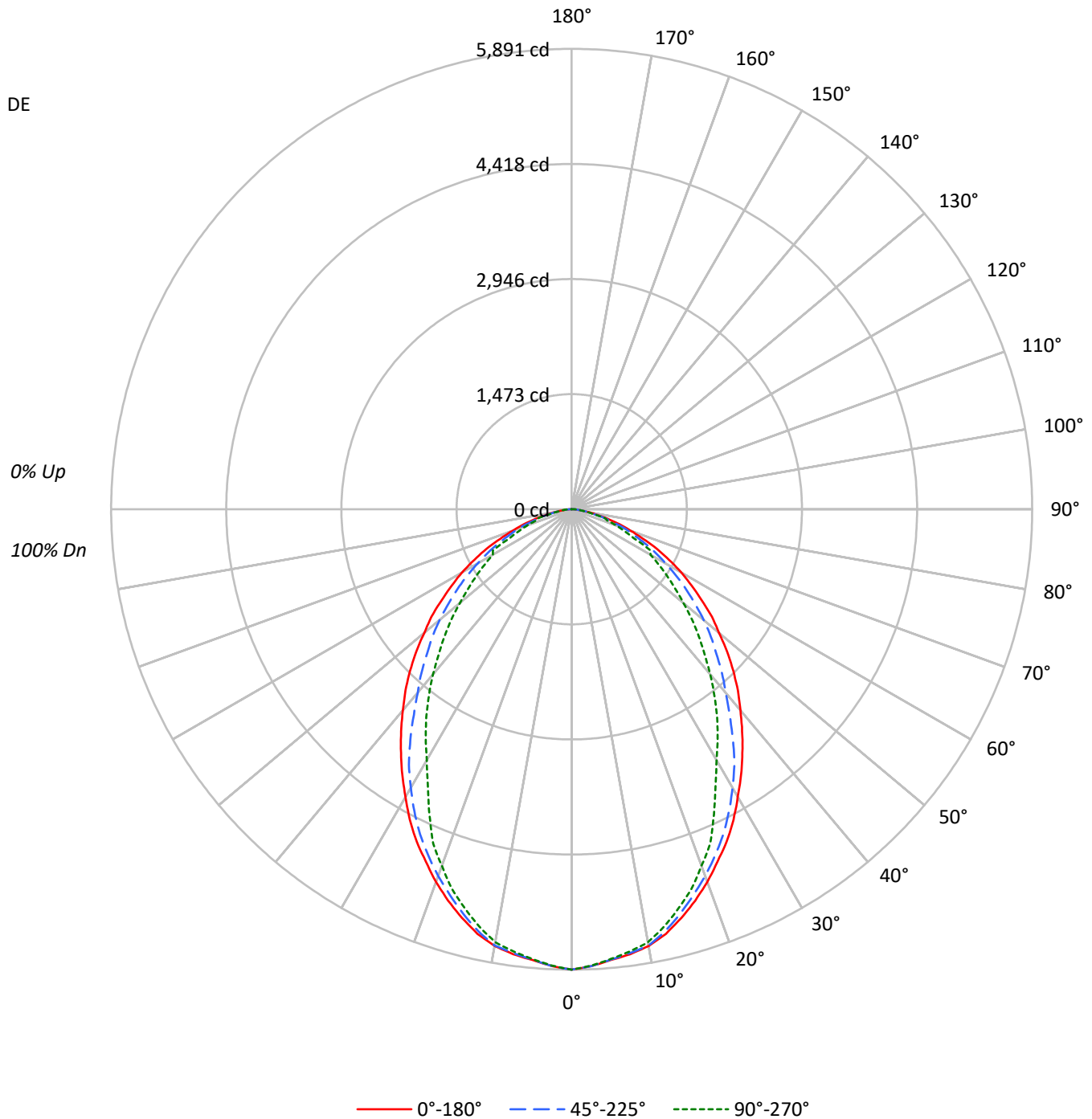
Input Watts (W): 129.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563220

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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° | 7926 | 7926 | 7926 |
| 5° | 7819 | 7809 | 7800 |
| 10° | 7751 | 7742 | 7686 |
| 15° | 7542 | 7466 | 7362 |
| 20° | 7265 | 7148 | 6953 |
| 25° | 6966 | 6815 | 6390 |
| 30° | 6602 | 6391 | 5756 |
| 35° | 6253 | 5906 | 5325 |
| 40° | 5897 | 5383 | 4845 |
| 45° | 5559 | 4976 | 4380 |
| 50° | 5146 | 4619 | 3906 |
| 55° | 4761 | 4186 | 3499 |
| 60° | 4362 | 3739 | 3134 |
| 65° | 3838 | 3274 | 2775 |
| 70° | 3161 | 2867 | 2358 |
| 75° | 2514 | 2195 | 2301 |
| 80° | 1688 | 1583 | 1478 |
| 85° | 1051 | 1261 | 1471 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 5559 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 548.4 | 4.7 |
| 10°-20° | 1505.0 | 13.0 |
| 20°-30° | 2083.5 | 18.0 |
| 30°-40° | 2221.7 | 19.2 |
| 40°-50° | 2026.8 | 17.5 |
| 50°-60° | 1587.8 | 13.7 |
| 60°-70° | 1034.9 | 8.9 |
| 70°-80° | 458.5 | 4.0 |
| 80°-90° | 98.4 | 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° | 4136.9 | 35.8 |
| 0°-40° | 6358.6 | 55.0 |
| 0°-60° | 9973.2 | 86.2 |
| 0°-90° | 11565.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 11565.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 5891 | 5891 | 5891 | 5891 | 5891 | |
| 5° | 5789 | 5782 | 5782 | 5775 | 5775 | 550 |
| 15° | 5414 | 5414 | 5360 | 5305 | 5285 | 1522 |
| 25° | 4692 | 4665 | 4590 | 4427 | 4304 | 2154 |
| 35° | 3807 | 3780 | 3596 | 3324 | 3242 | 2380 |
| 45° | 2922 | 2860 | 2615 | 2397 | 2302 | 2251 |
| 55° | 2030 | 1968 | 1784 | 1573 | 1492 | 1820 |
| 65° | 1206 | 1137 | 1028 | 1049 | 872 | 1188 |
| 75° | 484 | 450 | 422 | 402 | 443 | 518 |
| 85° | 68 | 75 | 82 | 88 | 95 | 94 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 5891.1 | 5891.1 | 5891.1 | 5891.1 | 5891.1 |
| 2.5° | 5850.2 | 5850.2 | 5850.2 | 5843.4 | 5843.4 |
| 5° | 5788.9 | 5782.1 | 5782.1 | 5775.3 | 5775.3 |
| 7.5° | 5741.2 | 5734.4 | 5727.6 | 5720.8 | 5707.2 |
| 10° | 5673.1 | 5673.1 | 5666.3 | 5632.3 | 5625.4 |
| 12.5° | 5564.2 | 5557.3 | 5530.1 | 5482.4 | 5468.8 |
| 15° | 5414.3 | 5414.3 | 5359.8 | 5305.4 | 5284.9 |
| 17.5° | 5250.9 | 5244.1 | 5176.0 | 5121.5 | 5094.2 |
| 20° | 5073.8 | 5060.2 | 4992.1 | 4903.5 | 4855.9 |
| 22.5° | 4876.3 | 4876.3 | 4794.6 | 4678.8 | 4631.1 |
| 25° | 4692.4 | 4665.2 | 4590.3 | 4426.8 | 4304.2 |
| 27.5° | 4481.3 | 4440.4 | 4358.7 | 4127.1 | 3984.1 |
| 30° | 4249.7 | 4229.3 | 4113.5 | 3813.9 | 3704.9 |
| 32.5° | 4031.8 | 3997.7 | 3875.2 | 3561.9 | 3473.3 |
| 35° | 3807.1 | 3779.8 | 3595.9 | 3323.5 | 3241.8 |
| 37.5° | 3582.3 | 3548.3 | 3316.7 | 3098.8 | 2996.6 |
| 40° | 3357.6 | 3316.7 | 3064.7 | 2867.2 | 2758.2 |
| 42.5° | 3146.4 | 3092.0 | 2846.8 | 2635.7 | 2513.1 |
| 45° | 2921.7 | 2860.4 | 2615.2 | 2397.3 | 2301.9 |
| 47.5° | 2696.9 | 2642.5 | 2417.7 | 2193.0 | 2084.0 |
| 50° | 2458.6 | 2410.9 | 2206.6 | 1981.8 | 1866.1 |
| 52.5° | 2261.1 | 2186.2 | 1988.7 | 1763.9 | 1668.6 |
| 55° | 2029.5 | 1968.2 | 1784.3 | 1573.2 | 1491.5 |
| 57.5° | 1818.4 | 1757.1 | 1586.8 | 1389.3 | 1321.2 |
| 60° | 1620.9 | 1532.4 | 1389.3 | 1219.1 | 1164.6 |
| 62.5° | 1403.0 | 1334.9 | 1212.3 | 1069.2 | 1137.3 |
| 65° | 1205.5 | 1137.3 | 1028.4 | 1048.8 | 871.7 |
| 67.5° | 987.5 | 953.5 | 858.1 | 762.8 | 735.5 |
| 70° | 803.6 | 762.8 | 728.7 | 626.6 | 599.3 |
| 72.5° | 640.2 | 599.3 | 551.6 | 497.2 | 476.7 |
| 75° | 483.5 | 449.5 | 422.2 | 401.8 | 442.7 |
| 77.5° | 333.7 | 320.1 | 299.7 | 279.2 | 272.4 |
| 80° | 217.9 | 211.1 | 204.3 | 197.5 | 190.7 |
| 82.5° | 129.4 | 129.4 | 129.4 | 129.4 | 129.4 |
| 85° | 68.1 | 74.9 | 81.7 | 88.5 | 95.3 |
| 87.5° | 40.9 | 40.9 | 47.7 | 54.5 | 61.3 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)