

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: P560086

Luminaire Tested: FSR-12-2-LD4-1STD-40-UNV-82-87-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560086
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-LD4-1STD-40-UNV-82-87-EDD-90
Description: 1X2 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .375 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 90 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1129.0 lumens
Efficiency: N/A
Efficacy: 68.0 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

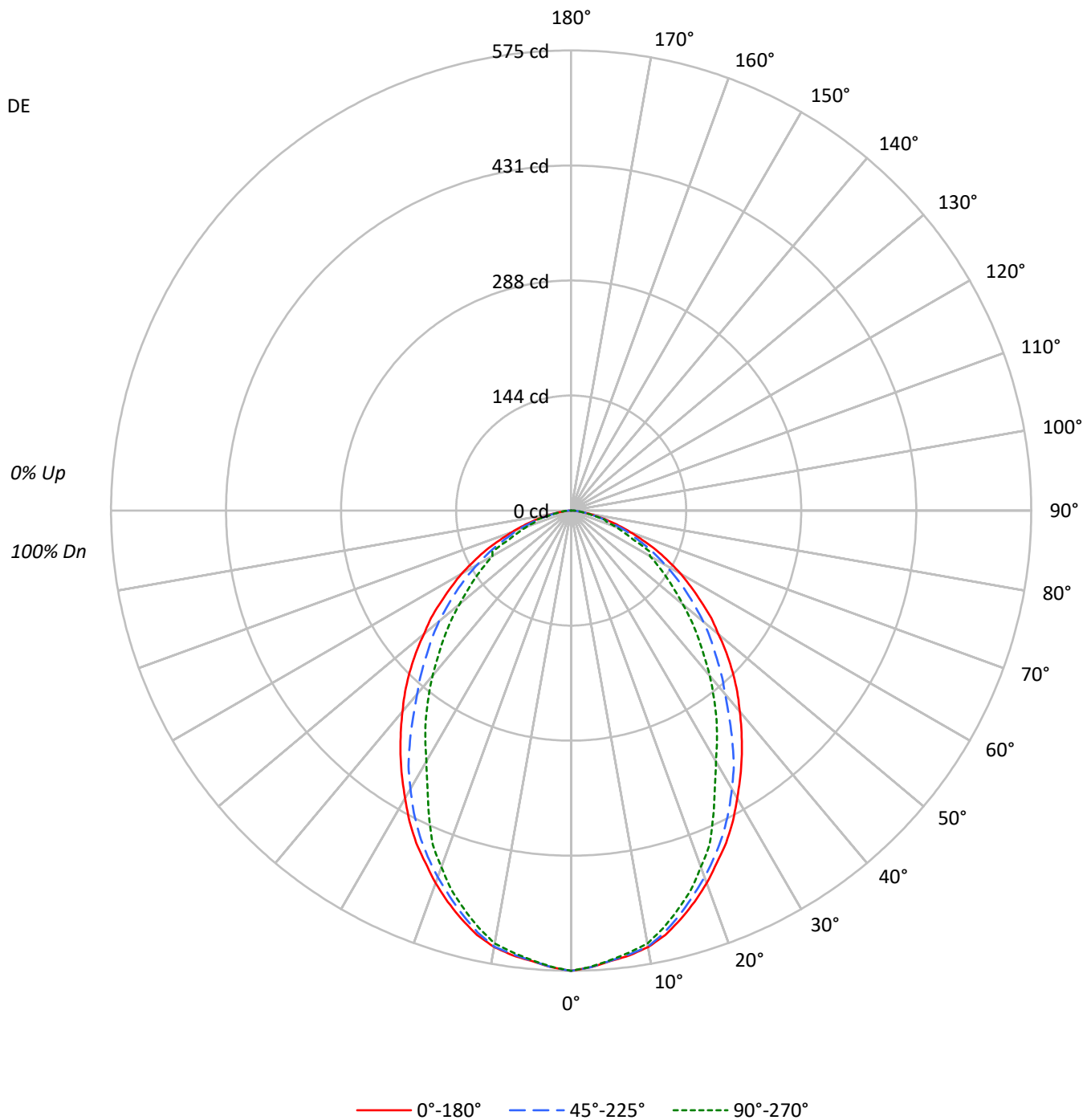
Input Watts (W): 16.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P560086

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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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 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° | 3095 | 3095 | 3095 |
| 5° | 3053 | 3050 | 3046 |
| 10° | 3027 | 3023 | 3001 |
| 15° | 2945 | 2915 | 2874 |
| 20° | 2837 | 2791 | 2715 |
| 25° | 2720 | 2661 | 2495 |
| 30° | 2578 | 2496 | 2248 |
| 35° | 2442 | 2306 | 2079 |
| 40° | 2303 | 2102 | 1892 |
| 45° | 2171 | 1943 | 1710 |
| 50° | 2009 | 1804 | 1526 |
| 55° | 1859 | 1635 | 1366 |
| 60° | 1703 | 1460 | 1224 |
| 65° | 1499 | 1279 | 1084 |
| 70° | 1235 | 1119 | 921 |
| 75° | 981 | 857 | 898 |
| 80° | 660 | 617 | 576 |
| 85° | 408 | 494 | 574 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2171 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 53.5 | 4.7 |
| 10°-20° | 146.9 | 13.0 |
| 20°-30° | 203.4 | 18.0 |
| 30°-40° | 216.9 | 19.2 |
| 40°-50° | 197.9 | 17.5 |
| 50°-60° | 155.0 | 13.7 |
| 60°-70° | 101.0 | 8.9 |
| 70°-80° | 44.8 | 4.0 |
| 80°-90° | 9.6 | 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° | 403.9 | 35.8 |
| 0°-40° | 620.7 | 55.0 |
| 0°-60° | 973.6 | 86.2 |
| 0°-90° | 1129.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1129.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 575 | 575 | 575 | 575 | 575 | |
| 5° | 565 | 564 | 564 | 564 | 564 | 54 |
| 15° | 529 | 529 | 523 | 518 | 516 | 149 |
| 25° | 458 | 455 | 448 | 432 | 420 | 210 |
| 35° | 372 | 369 | 351 | 324 | 316 | 232 |
| 45° | 285 | 279 | 255 | 234 | 225 | 220 |
| 55° | 198 | 192 | 174 | 154 | 146 | 178 |
| 65° | 118 | 111 | 100 | 102 | 85 | 116 |
| 75° | 47 | 44 | 41 | 39 | 43 | 51 |
| 85° | 7 | 7 | 8 | 9 | 9 | 9 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 575.1 | 575.1 | 575.1 | 575.1 | 575.1 |
| 2.5° | 571.1 | 571.1 | 571.1 | 570.4 | 570.4 |
| 5° | 565.1 | 564.5 | 564.5 | 563.8 | 563.8 |
| 7.5° | 560.5 | 559.8 | 559.1 | 558.5 | 557.1 |
| 10° | 553.8 | 553.8 | 553.2 | 549.8 | 549.2 |
| 12.5° | 543.2 | 542.5 | 539.9 | 535.2 | 533.9 |
| 15° | 528.6 | 528.6 | 523.2 | 517.9 | 515.9 |
| 17.5° | 512.6 | 511.9 | 505.3 | 500.0 | 497.3 |
| 20° | 495.3 | 494.0 | 487.3 | 478.7 | 474.0 |
| 22.5° | 476.0 | 476.0 | 468.1 | 456.8 | 452.1 |
| 25° | 458.1 | 455.4 | 448.1 | 432.2 | 420.2 |
| 27.5° | 437.5 | 433.5 | 425.5 | 402.9 | 388.9 |
| 30° | 414.9 | 412.9 | 401.6 | 372.3 | 361.7 |
| 32.5° | 393.6 | 390.3 | 378.3 | 347.7 | 339.1 |
| 35° | 371.7 | 369.0 | 351.0 | 324.4 | 316.5 |
| 37.5° | 349.7 | 346.4 | 323.8 | 302.5 | 292.5 |
| 40° | 327.8 | 323.8 | 299.2 | 279.9 | 269.3 |
| 42.5° | 307.2 | 301.8 | 277.9 | 257.3 | 245.3 |
| 45° | 285.2 | 279.2 | 255.3 | 234.0 | 224.7 |
| 47.5° | 263.3 | 258.0 | 236.0 | 214.1 | 203.4 |
| 50° | 240.0 | 235.4 | 215.4 | 193.5 | 182.2 |
| 52.5° | 220.7 | 213.4 | 194.1 | 172.2 | 162.9 |
| 55° | 198.1 | 192.1 | 174.2 | 153.6 | 145.6 |
| 57.5° | 177.5 | 171.5 | 154.9 | 135.6 | 129.0 |
| 60° | 158.2 | 149.6 | 135.6 | 119.0 | 113.7 |
| 62.5° | 137.0 | 130.3 | 118.3 | 104.4 | 111.0 |
| 65° | 117.7 | 111.0 | 100.4 | 102.4 | 85.1 |
| 67.5° | 96.4 | 93.1 | 83.8 | 74.5 | 71.8 |
| 70° | 78.5 | 74.5 | 71.1 | 61.2 | 58.5 |
| 72.5° | 62.5 | 58.5 | 53.9 | 48.5 | 46.5 |
| 75° | 47.2 | 43.9 | 41.2 | 39.2 | 43.2 |
| 77.5° | 32.6 | 31.2 | 29.3 | 27.3 | 26.6 |
| 80° | 21.3 | 20.6 | 19.9 | 19.3 | 18.6 |
| 82.5° | 12.6 | 12.6 | 12.6 | 12.6 | 12.6 |
| 85° | 6.6 | 7.3 | 8.0 | 8.6 | 9.3 |
| 87.5° | 4.0 | 4.0 | 4.7 | 5.3 | 6.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)