

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: P560070

Luminaire Tested: FSR-12-2-LD4-1STD-40-UNV-81-87-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P560070
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-81-87-EDD-90
Description: 1X2 FSR TROFFER WITH .156 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: 1153.0 lumens
Efficiency: N/A
Efficacy: 69.5 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

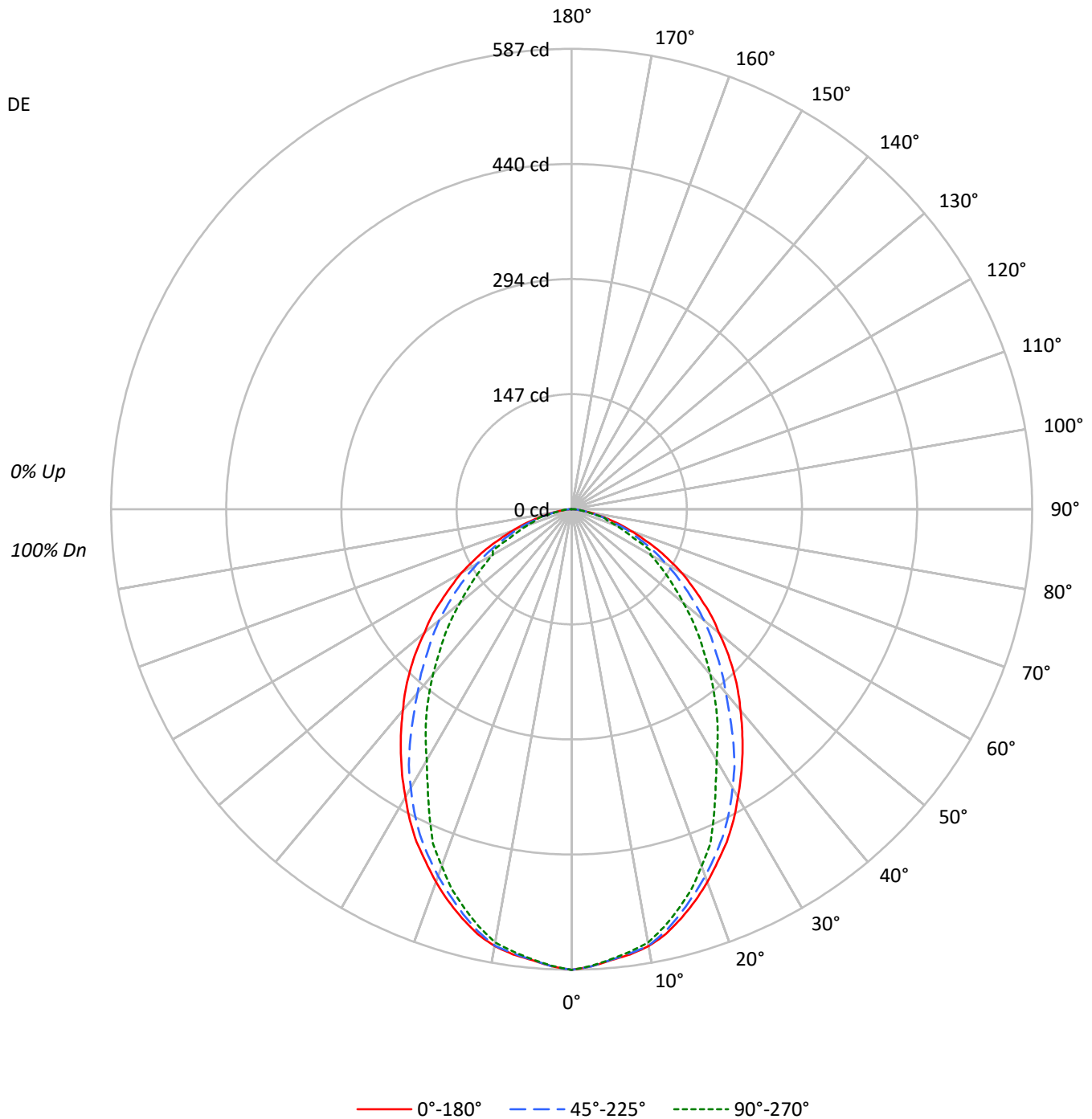
Input Watts (W): 16.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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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 | 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° | 3161 | 3161 | 3161 |
| 5° | 3118 | 3115 | 3111 |
| 10° | 3091 | 3087 | 3065 |
| 15° | 3008 | 2978 | 2936 |
| 20° | 2897 | 2851 | 2773 |
| 25° | 2778 | 2717 | 2548 |
| 30° | 2633 | 2549 | 2296 |
| 35° | 2494 | 2355 | 2123 |
| 40° | 2351 | 2146 | 1932 |
| 45° | 2217 | 1984 | 1747 |
| 50° | 2052 | 1842 | 1557 |
| 55° | 1898 | 1669 | 1395 |
| 60° | 1739 | 1491 | 1250 |
| 65° | 1531 | 1305 | 1107 |
| 70° | 1260 | 1144 | 941 |
| 75° | 1002 | 875 | 917 |
| 80° | 673 | 632 | 589 |
| 85° | 420 | 500 | 587 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2217 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 54.7 | 4.7 |
| 10°-20° | 150.0 | 13.0 |
| 20°-30° | 207.7 | 18.0 |
| 30°-40° | 221.5 | 19.2 |
| 40°-50° | 202.1 | 17.5 |
| 50°-60° | 158.3 | 13.7 |
| 60°-70° | 103.2 | 8.9 |
| 70°-80° | 45.7 | 4.0 |
| 80°-90° | 9.8 | 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° | 412.4 | 35.8 |
| 0°-40° | 633.9 | 55.0 |
| 0°-60° | 994.3 | 86.2 |
| 0°-90° | 1153.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1153.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 587 | 587 | 587 | 587 | 587 | |
| 5° | 577 | 576 | 576 | 576 | 576 | 55 |
| 15° | 540 | 540 | 534 | 529 | 527 | 152 |
| 25° | 468 | 465 | 458 | 441 | 429 | 215 |
| 35° | 380 | 377 | 358 | 331 | 323 | 237 |
| 45° | 291 | 285 | 261 | 239 | 230 | 224 |
| 55° | 202 | 196 | 178 | 157 | 149 | 181 |
| 65° | 120 | 113 | 102 | 105 | 87 | 118 |
| 75° | 48 | 45 | 42 | 40 | 44 | 52 |
| 85° | 7 | 8 | 8 | 9 | 10 | 9 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 587.3 | 587.3 | 587.3 | 587.3 | 587.3 |
| 2.5° | 583.2 | 583.2 | 583.2 | 582.6 | 582.6 |
| 5° | 577.1 | 576.5 | 576.5 | 575.8 | 575.8 |
| 7.5° | 572.4 | 571.7 | 571.0 | 570.3 | 569.0 |
| 10° | 565.6 | 565.6 | 564.9 | 561.5 | 560.8 |
| 12.5° | 554.7 | 554.1 | 551.3 | 546.6 | 545.2 |
| 15° | 539.8 | 539.8 | 534.4 | 528.9 | 526.9 |
| 17.5° | 523.5 | 522.8 | 516.0 | 510.6 | 507.9 |
| 20° | 505.8 | 504.5 | 497.7 | 488.9 | 484.1 |
| 22.5° | 486.2 | 486.2 | 478.0 | 466.5 | 461.7 |
| 25° | 467.8 | 465.1 | 457.6 | 441.3 | 429.1 |
| 27.5° | 446.8 | 442.7 | 434.6 | 411.5 | 397.2 |
| 30° | 423.7 | 421.7 | 410.1 | 380.2 | 369.4 |
| 32.5° | 402.0 | 398.6 | 386.3 | 355.1 | 346.3 |
| 35° | 379.6 | 376.8 | 358.5 | 331.3 | 323.2 |
| 37.5° | 357.1 | 353.8 | 330.7 | 308.9 | 298.8 |
| 40° | 334.7 | 330.7 | 305.5 | 285.9 | 275.0 |
| 42.5° | 313.7 | 308.3 | 283.8 | 262.8 | 250.5 |
| 45° | 291.3 | 285.2 | 260.7 | 239.0 | 229.5 |
| 47.5° | 268.9 | 263.4 | 241.0 | 218.6 | 207.8 |
| 50° | 245.1 | 240.4 | 220.0 | 197.6 | 186.0 |
| 52.5° | 225.4 | 218.0 | 198.3 | 175.9 | 166.4 |
| 55° | 202.3 | 196.2 | 177.9 | 156.8 | 148.7 |
| 57.5° | 181.3 | 175.2 | 158.2 | 138.5 | 131.7 |
| 60° | 161.6 | 152.8 | 138.5 | 121.5 | 116.1 |
| 62.5° | 139.9 | 133.1 | 120.9 | 106.6 | 113.4 |
| 65° | 120.2 | 113.4 | 102.5 | 104.6 | 86.9 |
| 67.5° | 98.5 | 95.1 | 85.6 | 76.0 | 73.3 |
| 70° | 80.1 | 76.0 | 72.7 | 62.5 | 59.8 |
| 72.5° | 63.8 | 59.8 | 55.0 | 49.6 | 47.5 |
| 75° | 48.2 | 44.8 | 42.1 | 40.1 | 44.1 |
| 77.5° | 33.3 | 31.9 | 29.9 | 27.8 | 27.2 |
| 80° | 21.7 | 21.0 | 20.4 | 19.7 | 19.0 |
| 82.5° | 12.9 | 12.9 | 12.9 | 12.9 | 12.9 |
| 85° | 6.8 | 7.5 | 8.1 | 8.8 | 9.5 |
| 87.5° | 4.1 | 4.1 | 4.8 | 5.4 | 6.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)