

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: P590070

Luminaire Tested: FSR-24-2-LD4-1STD-40-UNV-80-85-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590070
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2102-135-1)
Test Lab: INNOVATION CENTER
Issue Date: 12/8/2021
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: FSR-24-2-LD4-1STD-40-UNV-80-85-EDD
Description: 2X2 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .187 CLEAR PC ENVIRONM
SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1932.0 lumens
Efficiency: N/A
Efficacy: 116.4 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

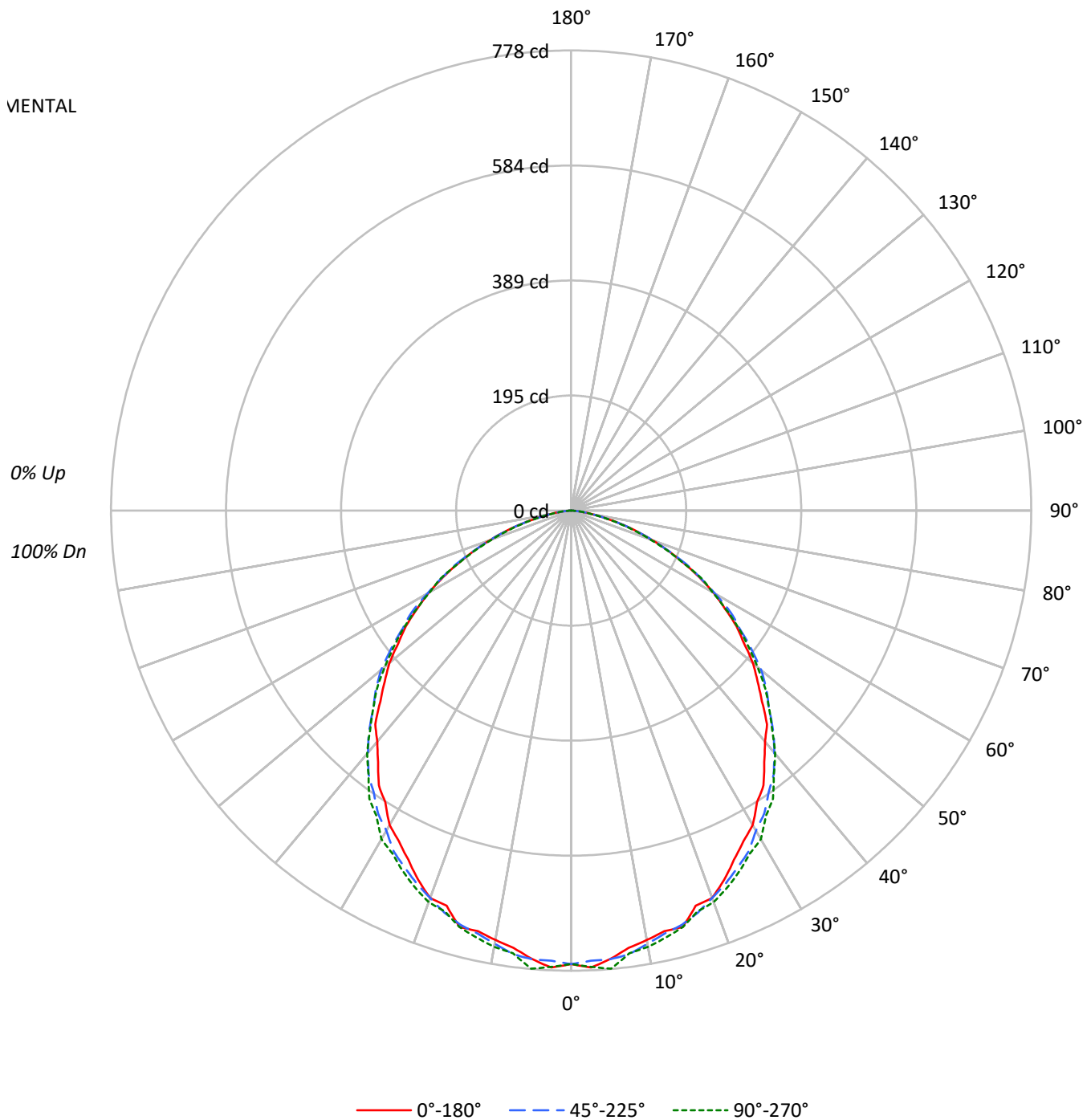
Input Watts (W): 16.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |
| 1 | 110 | 105 | 101 | 98 | 107 | 103 | 100 | 96 | 99 | 96 | 93 | 95 | 93 | 90 | 91 | 90 | 88 | 86 |
| 2 | 100 | 93 | 86 | 81 | 98 | 91 | 85 | 80 | 87 | 82 | 78 | 84 | 80 | 76 | 81 | 78 | 75 | 73 |
| 3 | 92 | 82 | 74 | 68 | 89 | 80 | 73 | 67 | 77 | 71 | 66 | 75 | 69 | 65 | 72 | 68 | 64 | 62 |
| 4 | 84 | 73 | 64 | 58 | 82 | 71 | 64 | 58 | 69 | 62 | 57 | 67 | 61 | 56 | 65 | 59 | 55 | 53 |
| 5 | 78 | 65 | 57 | 50 | 76 | 64 | 56 | 50 | 62 | 55 | 49 | 60 | 54 | 49 | 58 | 53 | 48 | 46 |
| 6 | 72 | 59 | 50 | 44 | 70 | 58 | 50 | 44 | 56 | 49 | 43 | 54 | 48 | 43 | 53 | 47 | 43 | 41 |
| 7 | 67 | 53 | 45 | 39 | 65 | 53 | 45 | 39 | 51 | 44 | 39 | 50 | 43 | 38 | 48 | 42 | 38 | 36 |
| 8 | 62 | 49 | 41 | 35 | 61 | 48 | 40 | 35 | 47 | 40 | 34 | 46 | 39 | 34 | 44 | 39 | 34 | 32 |
| 9 | 58 | 45 | 37 | 31 | 57 | 44 | 37 | 31 | 43 | 36 | 31 | 42 | 36 | 31 | 41 | 35 | 31 | 29 |
| 10 | 54 | 41 | 34 | 29 | 53 | 41 | 33 | 28 | 40 | 33 | 28 | 39 | 33 | 28 | 38 | 32 | 28 | 26 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2063 | 2063 | 2063 |
| 5° | 2056 | 2057 | 2100 |
| 10° | 2014 | 2032 | 2046 |
| 15° | 2030 | 2019 | 2031 |
| 20° | 1996 | 1996 | 2017 |
| 25° | 1935 | 1977 | 1999 |
| 30° | 1908 | 1941 | 1993 |
| 35° | 1863 | 1912 | 1955 |
| 40° | 1790 | 1877 | 1885 |
| 45° | 1737 | 1798 | 1801 |
| 50° | 1679 | 1755 | 1721 |
| 55° | 1600 | 1631 | 1620 |
| 60° | 1496 | 1511 | 1484 |
| 65° | 1334 | 1368 | 1324 |
| 70° | 1145 | 1149 | 1116 |
| 75° | 907 | 905 | 869 |
| 80° | 607 | 590 | 567 |
| 85° | 330 | 327 | 306 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 1845 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 72.1 | 3.7 |
| 10°-20° | 204.4 | 10.6 |
| 20°-30° | 306.2 | 15.8 |
| 30°-40° | 362.9 | 18.8 |
| 40°-50° | 363.5 | 18.8 |
| 50°-60° | 308.6 | 16.0 |
| 60°-70° | 208.1 | 10.8 |
| 70°-80° | 91.4 | 4.7 |
| 80°-90° | 14.9 | 0.8 |
| 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° | 582.6 | 30.2 |
| 0°-40° | 945.5 | 48.9 |
| 0°-60° | 1617.7 | 83.7 |
| 0°-90° | 1932.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1932.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 767 | 767 | 767 | 767 | 767 | |
| 5° | 761 | 759 | 761 | 759 | 778 | 72 |
| 15° | 729 | 720 | 725 | 729 | 729 | 203 |
| 25° | 652 | 655 | 666 | 674 | 673 | 301 |
| 35° | 567 | 569 | 582 | 595 | 595 | 352 |
| 45° | 456 | 465 | 472 | 485 | 473 | 353 |
| 55° | 341 | 339 | 348 | 345 | 345 | 303 |
| 65° | 210 | 207 | 215 | 207 | 208 | 208 |
| 75° | 87 | 85 | 87 | 81 | 84 | 93 |
| 85° | 11 | 10 | 11 | 10 | 10 | 16 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590070

CATALOG NUMBER: FSR-24-2-LD4-1STD-40-UNV-80-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 766.6 | 766.6 | 766.6 | 766.6 | 766.6 |
| 2.5° | 773.2 | 767.4 | 761.9 | 768.3 | 772.1 |
| 5° | 761.1 | 759.3 | 761.4 | 759.1 | 777.5 |
| 7.5° | 745.5 | 752.3 | 756.3 | 753.8 | 754.9 |
| 10° | 737.2 | 734.8 | 743.6 | 749.7 | 748.9 |
| 12.5° | 728.3 | 731.8 | 732.3 | 739.0 | 739.5 |
| 15° | 728.8 | 720.3 | 724.8 | 728.6 | 728.9 |
| 17.5° | 700.5 | 709.6 | 712.6 | 721.2 | 710.5 |
| 20° | 697.0 | 690.4 | 697.0 | 705.8 | 704.4 |
| 22.5° | 675.7 | 668.3 | 682.5 | 690.4 | 689.9 |
| 25° | 651.6 | 655.1 | 665.8 | 674.5 | 673.1 |
| 27.5° | 630.4 | 634.5 | 649.8 | 661.8 | 654.0 |
| 30° | 614.0 | 612.0 | 624.8 | 635.5 | 641.5 |
| 32.5° | 584.8 | 592.4 | 607.4 | 618.0 | 612.4 |
| 35° | 567.1 | 568.8 | 582.0 | 595.4 | 595.0 |
| 37.5° | 536.2 | 544.0 | 562.5 | 566.2 | 562.8 |
| 40° | 509.7 | 517.5 | 534.3 | 538.3 | 536.6 |
| 42.5° | 490.2 | 491.6 | 506.0 | 510.6 | 503.2 |
| 45° | 456.3 | 464.8 | 472.5 | 484.7 | 473.2 |
| 47.5° | 427.4 | 431.3 | 448.0 | 451.2 | 445.2 |
| 50° | 401.1 | 402.5 | 419.3 | 415.2 | 411.2 |
| 52.5° | 368.2 | 374.0 | 383.4 | 382.6 | 378.0 |
| 55° | 341.1 | 338.8 | 347.7 | 345.3 | 345.2 |
| 57.5° | 308.5 | 312.5 | 319.8 | 316.0 | 310.0 |
| 60° | 278.0 | 278.1 | 280.8 | 276.5 | 275.7 |
| 62.5° | 244.1 | 245.3 | 245.9 | 240.6 | 249.1 |
| 65° | 209.5 | 206.8 | 214.9 | 206.7 | 208.0 |
| 67.5° | 177.8 | 179.1 | 178.4 | 173.2 | 175.2 |
| 70° | 145.5 | 147.3 | 146.0 | 140.1 | 141.9 |
| 72.5° | 116.0 | 113.8 | 115.2 | 107.9 | 111.2 |
| 75° | 87.2 | 85.4 | 87.0 | 80.9 | 83.6 |
| 77.5° | 59.4 | 60.8 | 59.8 | 56.5 | 58.4 |
| 80° | 39.2 | 38.1 | 38.1 | 36.2 | 36.6 |
| 82.5° | 22.9 | 21.8 | 21.5 | 20.9 | 21.8 |
| 85° | 10.7 | 10.4 | 10.6 | 10.3 | 9.9 |
| 87.5° | 3.9 | 4.0 | 4.0 | 3.8 | 3.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)