

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: P590062

Luminaire Tested: FSR-24-2-LD4-1STD-35-UNV-93-85-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590062
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-35-UNV-93-85-EDD
Description: 2X2 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1916.0 lumens
Efficiency: N/A
Efficacy: 115.4 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

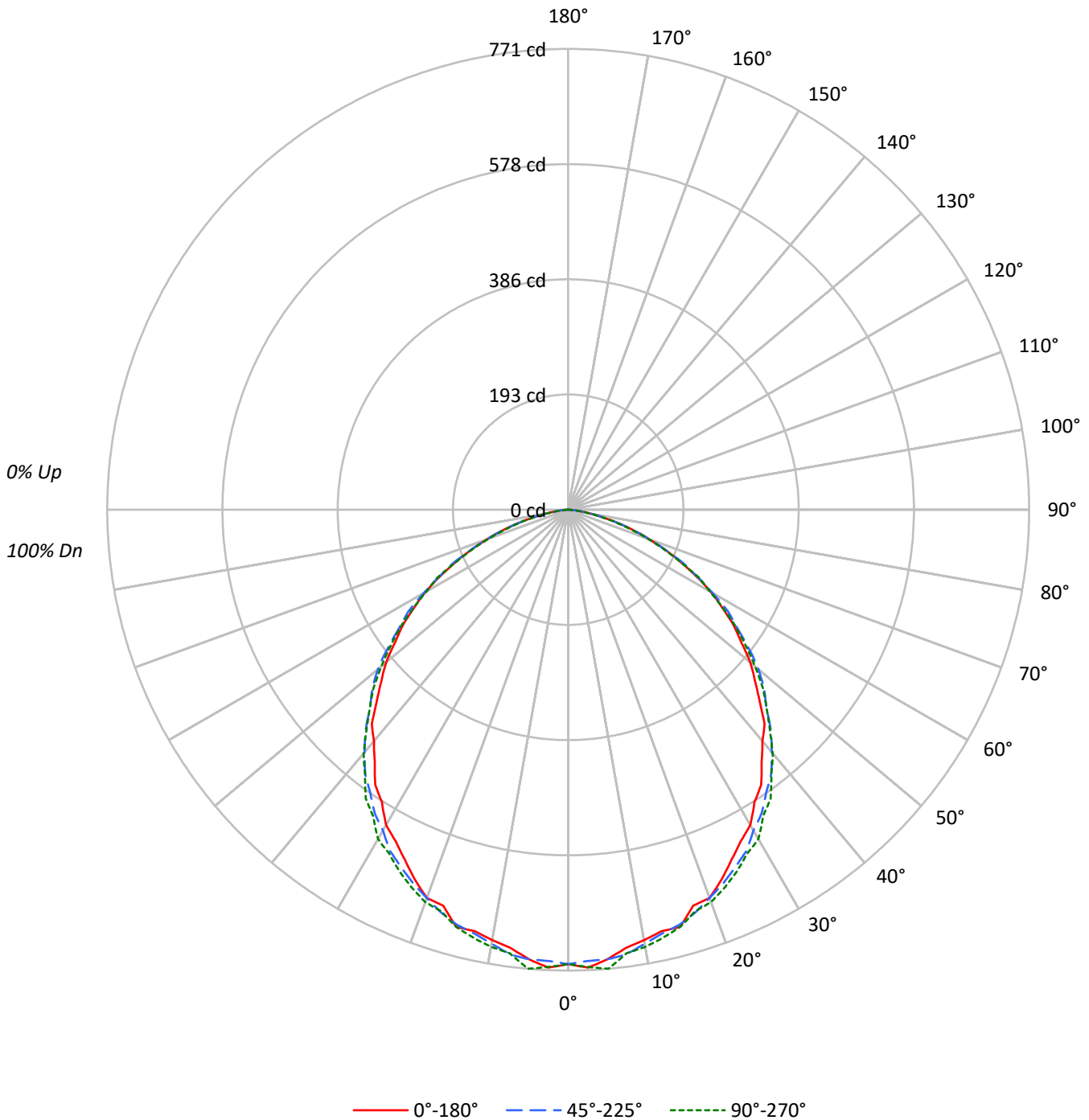
Input Watts (W): 16.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P590062

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

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2046 | 2046 | 2046 |
| 5° | 2039 | 2040 | 2083 |
| 10° | 1998 | 2015 | 2029 |
| 15° | 2013 | 2003 | 2014 |
| 20° | 1979 | 1979 | 2001 |
| 25° | 1919 | 1961 | 1982 |
| 30° | 1892 | 1926 | 1977 |
| 35° | 1848 | 1896 | 1939 |
| 40° | 1776 | 1861 | 1870 |
| 45° | 1722 | 1783 | 1786 |
| 50° | 1665 | 1741 | 1707 |
| 55° | 1587 | 1618 | 1606 |
| 60° | 1484 | 1499 | 1472 |
| 65° | 1323 | 1357 | 1314 |
| 70° | 1135 | 1139 | 1108 |
| 75° | 899 | 897 | 862 |
| 80° | 603 | 586 | 563 |
| 85° | 327 | 324 | 303 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 1829 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 71.5 | 3.7 |
| 10°-20° | 202.7 | 10.6 |
| 20°-30° | 303.6 | 15.8 |
| 30°-40° | 359.9 | 18.8 |
| 40°-50° | 360.5 | 18.8 |
| 50°-60° | 306.0 | 16.0 |
| 60°-70° | 206.3 | 10.8 |
| 70°-80° | 90.7 | 4.7 |
| 80°-90° | 14.7 | 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° | 577.8 | 30.2 |
| 0°-40° | 937.7 | 48.9 |
| 0°-60° | 1604.3 | 83.7 |
| 0°-90° | 1916.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1916.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 760 | 760 | 760 | 760 | 760 | |
| 5° | 755 | 753 | 755 | 753 | 771 | 71 |
| 15° | 723 | 714 | 719 | 722 | 723 | 201 |
| 25° | 646 | 650 | 660 | 669 | 668 | 299 |
| 35° | 562 | 564 | 577 | 590 | 590 | 349 |
| 45° | 452 | 461 | 469 | 481 | 469 | 350 |
| 55° | 338 | 336 | 345 | 342 | 342 | 301 |
| 65° | 208 | 205 | 213 | 205 | 206 | 207 |
| 75° | 86 | 85 | 86 | 80 | 83 | 93 |
| 85° | 11 | 10 | 10 | 10 | 10 | 15 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590062

CATALOG NUMBER: FSR-24-2-LD4-1STD-35-UNV-93-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 760.2 | 760.2 | 760.2 | 760.2 | 760.2 |
| 2.5° | 766.8 | 761.0 | 755.6 | 761.9 | 765.7 |
| 5° | 754.8 | 753.1 | 755.1 | 752.9 | 771.0 |
| 7.5° | 739.3 | 746.1 | 750.0 | 747.6 | 748.6 |
| 10° | 731.1 | 728.7 | 737.4 | 743.5 | 742.7 |
| 12.5° | 722.2 | 725.8 | 726.3 | 732.8 | 733.4 |
| 15° | 722.7 | 714.4 | 718.8 | 722.5 | 722.8 |
| 17.5° | 694.7 | 703.7 | 706.7 | 715.3 | 704.7 |
| 20° | 691.2 | 684.6 | 691.2 | 700.0 | 698.6 |
| 22.5° | 670.1 | 662.8 | 676.9 | 684.6 | 684.1 |
| 25° | 646.2 | 649.7 | 660.3 | 668.9 | 667.6 |
| 27.5° | 625.2 | 629.3 | 644.4 | 656.3 | 648.6 |
| 30° | 609.0 | 606.9 | 619.7 | 630.3 | 636.2 |
| 32.5° | 580.0 | 587.5 | 602.4 | 612.9 | 607.3 |
| 35° | 562.4 | 564.1 | 577.2 | 590.5 | 590.1 |
| 37.5° | 531.7 | 539.5 | 557.8 | 561.6 | 558.1 |
| 40° | 505.5 | 513.3 | 529.8 | 533.9 | 532.2 |
| 42.5° | 486.2 | 487.5 | 501.8 | 506.4 | 499.0 |
| 45° | 452.5 | 460.9 | 468.6 | 480.7 | 469.3 |
| 47.5° | 423.8 | 427.8 | 444.3 | 447.5 | 441.5 |
| 50° | 397.8 | 399.2 | 415.8 | 411.8 | 407.8 |
| 52.5° | 365.1 | 370.9 | 380.3 | 379.5 | 374.9 |
| 55° | 338.2 | 336.0 | 344.8 | 342.5 | 342.4 |
| 57.5° | 306.0 | 309.9 | 317.1 | 313.4 | 307.4 |
| 60° | 275.7 | 275.8 | 278.5 | 274.2 | 273.5 |
| 62.5° | 242.1 | 243.2 | 243.8 | 238.6 | 247.1 |
| 65° | 207.8 | 205.0 | 213.1 | 205.0 | 206.3 |
| 67.5° | 176.3 | 177.7 | 176.9 | 171.8 | 173.7 |
| 70° | 144.3 | 146.1 | 144.8 | 139.0 | 140.8 |
| 72.5° | 115.0 | 112.9 | 114.3 | 107.0 | 110.3 |
| 75° | 86.5 | 84.7 | 86.3 | 80.2 | 82.9 |
| 77.5° | 58.9 | 60.3 | 59.3 | 56.0 | 57.9 |
| 80° | 38.9 | 37.8 | 37.8 | 35.9 | 36.3 |
| 82.5° | 22.7 | 21.6 | 21.3 | 20.7 | 21.6 |
| 85° | 10.6 | 10.3 | 10.5 | 10.2 | 9.8 |
| 87.5° | 3.8 | 3.9 | 3.9 | 3.7 | 3.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)