

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: P589881

Luminaire Tested: FSR-24-2-LD4-1HI-40-UNV-80-88-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P589881
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-LD4-1HI-40-UNV-80-88-EDD
Description: 2X2 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .500 CLEAR PC ENVIRON
SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2041.0 lumens
Efficiency: N/A
Efficacy: 94.5 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

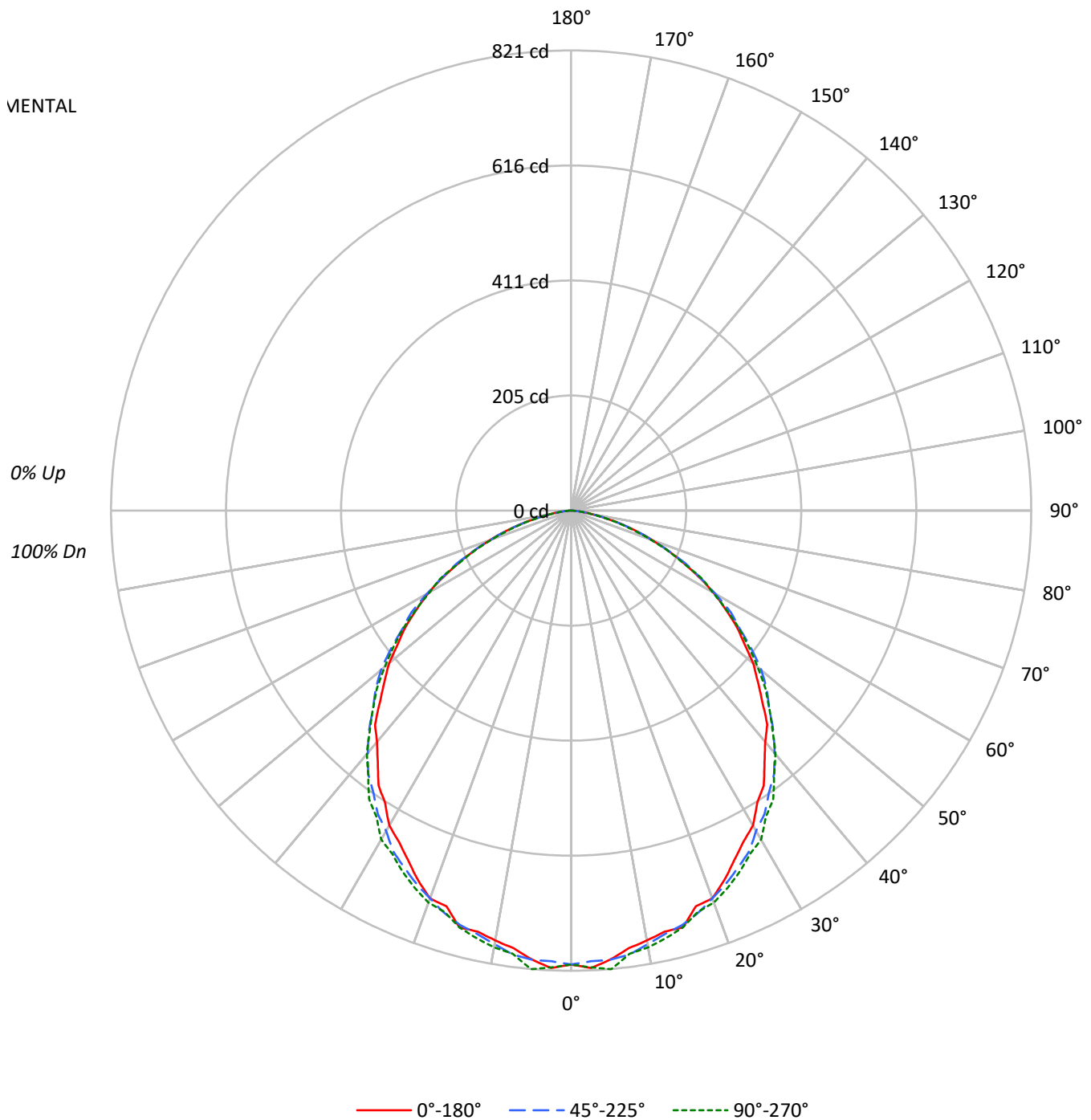
Input Watts (W): 21.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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° | 2179 | 2179 | 2179 |
| 5° | 2172 | 2173 | 2219 |
| 10° | 2128 | 2147 | 2162 |
| 15° | 2145 | 2133 | 2145 |
| 20° | 2109 | 2109 | 2131 |
| 25° | 2044 | 2089 | 2111 |
| 30° | 2016 | 2051 | 2106 |
| 35° | 1968 | 2020 | 2065 |
| 40° | 1892 | 1983 | 1991 |
| 45° | 1834 | 1900 | 1902 |
| 50° | 1774 | 1854 | 1819 |
| 55° | 1690 | 1723 | 1711 |
| 60° | 1581 | 1596 | 1568 |
| 65° | 1410 | 1445 | 1400 |
| 70° | 1209 | 1213 | 1179 |
| 75° | 958 | 955 | 919 |
| 80° | 642 | 625 | 600 |
| 85° | 349 | 346 | 324 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 1948 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 76.2 | 3.7 |
| 10°-20° | 215.9 | 10.6 |
| 20°-30° | 323.4 | 15.8 |
| 30°-40° | 383.4 | 18.8 |
| 40°-50° | 384.1 | 18.8 |
| 50°-60° | 326.0 | 16.0 |
| 60°-70° | 219.8 | 10.8 |
| 70°-80° | 96.6 | 4.7 |
| 80°-90° | 15.7 | 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° | 615.5 | 30.2 |
| 0°-40° | 998.9 | 48.9 |
| 0°-60° | 1708.9 | 83.7 |
| 0°-90° | 2041.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2041.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 810 | 810 | 810 | 810 | 810 | |
| 5° | 804 | 802 | 804 | 802 | 821 | 76 |
| 15° | 770 | 761 | 766 | 770 | 770 | 215 |
| 25° | 688 | 692 | 703 | 713 | 711 | 318 |
| 35° | 599 | 601 | 615 | 629 | 629 | 372 |
| 45° | 482 | 491 | 499 | 512 | 500 | 373 |
| 55° | 360 | 358 | 367 | 365 | 365 | 321 |
| 65° | 221 | 218 | 227 | 218 | 220 | 220 |
| 75° | 92 | 90 | 92 | 85 | 88 | 99 |
| 85° | 11 | 11 | 11 | 11 | 10 | 16 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P589881

CATALOG NUMBER: FSR-24-2-LD4-1HI-40-UNV-80-88-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 809.8 | 809.8 | 809.8 | 809.8 | 809.8 |
| 2.5° | 816.8 | 810.7 | 804.9 | 811.6 | 815.7 |
| 5° | 804.1 | 802.2 | 804.4 | 802.0 | 821.3 |
| 7.5° | 787.5 | 794.8 | 798.9 | 796.3 | 797.5 |
| 10° | 778.8 | 776.3 | 785.6 | 792.0 | 791.1 |
| 12.5° | 769.4 | 773.1 | 773.6 | 780.6 | 781.3 |
| 15° | 769.9 | 761.0 | 765.7 | 769.7 | 770.0 |
| 17.5° | 740.0 | 749.6 | 752.8 | 761.9 | 750.6 |
| 20° | 736.3 | 729.3 | 736.3 | 745.6 | 744.2 |
| 22.5° | 713.8 | 706.0 | 721.0 | 729.3 | 728.8 |
| 25° | 688.3 | 692.1 | 703.4 | 712.6 | 711.1 |
| 27.5° | 665.9 | 670.3 | 686.4 | 699.1 | 690.9 |
| 30° | 648.7 | 646.5 | 660.1 | 671.4 | 677.7 |
| 32.5° | 617.8 | 625.8 | 641.7 | 652.9 | 646.9 |
| 35° | 599.1 | 600.9 | 614.8 | 629.0 | 628.6 |
| 37.5° | 566.4 | 574.7 | 594.2 | 598.2 | 594.5 |
| 40° | 538.5 | 546.7 | 564.4 | 568.7 | 566.9 |
| 42.5° | 517.9 | 519.3 | 534.5 | 539.4 | 531.6 |
| 45° | 482.0 | 491.0 | 499.2 | 512.0 | 499.9 |
| 47.5° | 451.5 | 455.7 | 473.2 | 476.7 | 470.3 |
| 50° | 423.8 | 425.2 | 442.9 | 438.6 | 434.4 |
| 52.5° | 389.0 | 395.1 | 405.1 | 404.2 | 399.3 |
| 55° | 360.3 | 357.9 | 367.3 | 364.8 | 364.7 |
| 57.5° | 325.9 | 330.1 | 337.8 | 333.9 | 327.5 |
| 60° | 293.7 | 293.8 | 296.6 | 292.1 | 291.3 |
| 62.5° | 257.8 | 259.1 | 259.7 | 254.2 | 263.2 |
| 65° | 221.4 | 218.4 | 227.0 | 218.3 | 219.8 |
| 67.5° | 187.8 | 189.3 | 188.4 | 183.0 | 185.1 |
| 70° | 153.7 | 155.6 | 154.2 | 148.1 | 149.9 |
| 72.5° | 122.5 | 120.2 | 121.7 | 114.0 | 117.5 |
| 75° | 92.1 | 90.2 | 91.9 | 85.4 | 88.4 |
| 77.5° | 62.7 | 64.2 | 63.2 | 59.7 | 61.7 |
| 80° | 41.4 | 40.3 | 40.3 | 38.3 | 38.7 |
| 82.5° | 24.2 | 23.0 | 22.7 | 22.1 | 23.0 |
| 85° | 11.3 | 11.0 | 11.2 | 10.9 | 10.5 |
| 87.5° | 4.1 | 4.2 | 4.2 | 4.0 | 3.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)