

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: P563261

Luminaire Tested: FSR-24-4-LD4-3LO-35-UNV-80-96-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563261
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-24-4-LD4-3LO-35-UNV-80-96-EDD
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .250 CLEAR TEMPERED G ENVIRONMENTAL SIDE LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 8665.0 lumens
Efficiency: N/A
Efficacy: 123.4 lumens/watt
Spacing Criteria (0/90/45): 1.1 / 1 / 1.15
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

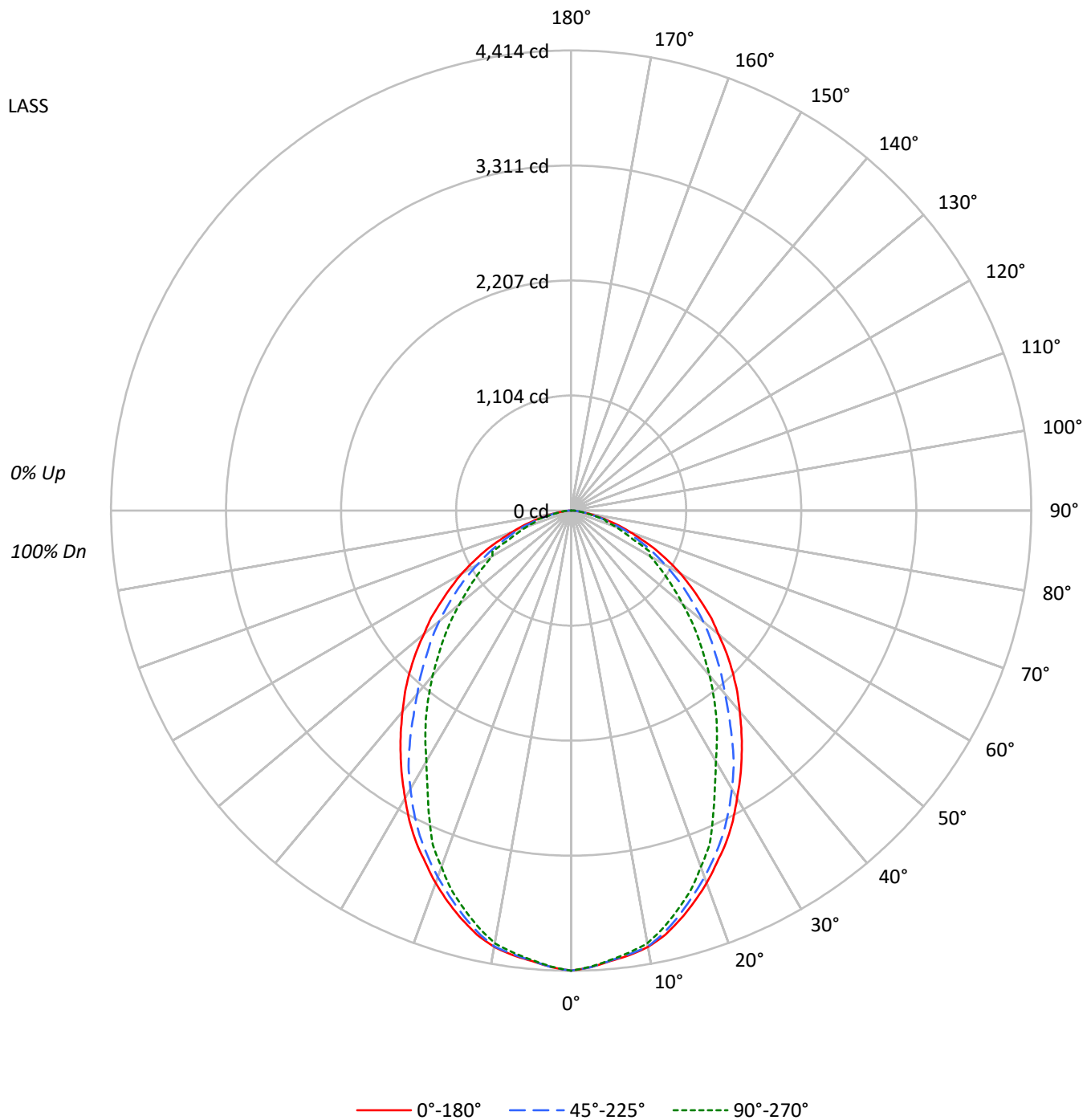
Input Watts (W): 70.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563261

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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 | | | | | | | | | | | | 100 | | | | | | | | | | | | | | | | |
| 1 | 110 | 106 | 102 | 99 | 108 | 104 | 100 | 97 | 100 | 97 | 94 | 96 | 94 | 91 | 92 | 90 | 89 | 87 | | | | | | | | | | | | 87 | | | | | | | | | | | | | | | | |
| 2 | 101 | 94 | 88 | 83 | 99 | 92 | 87 | 82 | 89 | 84 | 80 | 86 | 82 | 78 | 83 | 79 | 77 | 75 | | | | | | | | | | | | 75 | | | | | | | | | | | | | | | | |
| 3 | 93 | 84 | 77 | 71 | 91 | 82 | 76 | 70 | 79 | 74 | 69 | 77 | 72 | 68 | 74 | 70 | 67 | 65 | | | | | | | | | | | | 65 | | | | | | | | | | | | | | | | |
| 4 | 86 | 75 | 67 | 61 | 84 | 74 | 66 | 61 | 72 | 65 | 60 | 69 | 64 | 59 | 67 | 62 | 58 | 56 | | | | | | | | | | | | 56 | | | | | | | | | | | | | | | | |
| 5 | 80 | 68 | 60 | 54 | 78 | 67 | 59 | 53 | 65 | 58 | 53 | 63 | 57 | 52 | 61 | 56 | 52 | 50 | | | | | | | | | | | | 50 | | | | | | | | | | | | | | | | |
| 6 | 74 | 62 | 53 | 48 | 72 | 61 | 53 | 47 | 59 | 52 | 47 | 57 | 51 | 47 | 56 | 50 | 46 | 44 | | | | | | | | | | | | 44 | | | | | | | | | | | | | | | | |
| 7 | 69 | 56 | 48 | 43 | 67 | 56 | 48 | 42 | 54 | 47 | 42 | 53 | 46 | 42 | 51 | 46 | 42 | 40 | | | | | | | | | | | | 40 | | | | | | | | | | | | | | | | |
| 8 | 65 | 52 | 44 | 38 | 63 | 51 | 44 | 38 | 50 | 43 | 38 | 49 | 42 | 38 | 48 | 42 | 38 | 36 | | | | | | | | | | | | 36 | | | | | | | | | | | | | | | | |
| 9 | 61 | 48 | 40 | 35 | 59 | 47 | 40 | 35 | 46 | 39 | 35 | 45 | 39 | 34 | 44 | 38 | 34 | 33 | | | | | | | | | | | | 33 | | | | | | | | | | | | | | | | |
| 10 | 57 | 44 | 37 | 32 | 56 | 44 | 37 | 32 | 43 | 36 | 32 | 42 | 36 | 32 | 41 | 36 | 32 | 30 | | | | | | | | | | | | 30 | | | | | | | | | | | | | | | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 5939 | 5939 | 5939 |
| 5° | 5858 | 5851 | 5844 |
| 10° | 5807 | 5800 | 5758 |
| 15° | 5651 | 5594 | 5516 |
| 20° | 5443 | 5356 | 5209 |
| 25° | 5219 | 5106 | 4788 |
| 30° | 4947 | 4788 | 4313 |
| 35° | 4685 | 4425 | 3990 |
| 40° | 4418 | 4033 | 3630 |
| 45° | 4165 | 3728 | 3282 |
| 50° | 3856 | 3461 | 2927 |
| 55° | 3567 | 3136 | 2621 |
| 60° | 3268 | 2801 | 2348 |
| 65° | 2876 | 2453 | 2079 |
| 70° | 2369 | 2148 | 1766 |
| 75° | 1883 | 1645 | 1724 |
| 80° | 1265 | 1186 | 1107 |
| 85° | 787 | 945 | 1102 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4165 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 410.9 | 4.7 |
| 10°-20° | 1127.6 | 13.0 |
| 20°-30° | 1561.1 | 18.0 |
| 30°-40° | 1664.6 | 19.2 |
| 40°-50° | 1518.6 | 17.5 |
| 50°-60° | 1189.7 | 13.7 |
| 60°-70° | 775.4 | 8.9 |
| 70°-80° | 343.5 | 4.0 |
| 80°-90° | 73.8 | 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° | 3099.5 | 35.8 |
| 0°-40° | 4764.1 | 55.0 |
| 0°-60° | 7472.3 | 86.2 |
| 0°-90° | 8665.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 8665.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 4414 | 4414 | 4414 | 4414 | 4414 | |
| 5° | 4337 | 4332 | 4332 | 4327 | 4327 | 412 |
| 15° | 4057 | 4057 | 4016 | 3975 | 3960 | 1140 |
| 25° | 3516 | 3495 | 3439 | 3317 | 3225 | 1614 |
| 35° | 2852 | 2832 | 2694 | 2490 | 2429 | 1783 |
| 45° | 2189 | 2143 | 1959 | 1796 | 1725 | 1686 |
| 55° | 1521 | 1475 | 1337 | 1179 | 1118 | 1364 |
| 65° | 903 | 852 | 770 | 786 | 653 | 890 |
| 75° | 362 | 337 | 316 | 301 | 332 | 388 |
| 85° | 51 | 56 | 61 | 66 | 71 | 71 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563261

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 4413.8 | 4413.8 | 4413.8 | 4413.8 | 4413.8 |
| 2.5° | 4383.2 | 4383.2 | 4383.2 | 4378.1 | 4378.1 |
| 5° | 4337.3 | 4332.2 | 4332.2 | 4327.1 | 4327.1 |
| 7.5° | 4301.6 | 4296.5 | 4291.4 | 4286.3 | 4276.1 |
| 10° | 4250.5 | 4250.5 | 4245.4 | 4219.9 | 4214.8 |
| 12.5° | 4168.9 | 4163.8 | 4143.4 | 4107.7 | 4097.5 |
| 15° | 4056.6 | 4056.6 | 4015.8 | 3975.0 | 3959.7 |
| 17.5° | 3934.2 | 3929.1 | 3878.1 | 3837.2 | 3816.8 |
| 20° | 3801.5 | 3791.3 | 3740.3 | 3673.9 | 3638.2 |
| 22.5° | 3653.5 | 3653.5 | 3592.3 | 3505.6 | 3469.8 |
| 25° | 3515.8 | 3495.3 | 3439.2 | 3316.8 | 3224.9 |
| 27.5° | 3357.6 | 3327.0 | 3265.7 | 3092.2 | 2985.1 |
| 30° | 3184.1 | 3168.8 | 3082.0 | 2857.5 | 2775.9 |
| 32.5° | 3020.8 | 2995.3 | 2903.4 | 2668.7 | 2602.4 |
| 35° | 2852.4 | 2832.0 | 2694.2 | 2490.1 | 2428.9 |
| 37.5° | 2684.0 | 2658.5 | 2485.0 | 2321.7 | 2245.2 |
| 40° | 2515.6 | 2485.0 | 2296.2 | 2148.2 | 2066.6 |
| 42.5° | 2357.4 | 2316.6 | 2132.9 | 1974.7 | 1882.9 |
| 45° | 2189.1 | 2143.1 | 1959.4 | 1796.2 | 1724.7 |
| 47.5° | 2020.7 | 1979.8 | 1811.5 | 1643.1 | 1561.4 |
| 50° | 1842.1 | 1806.4 | 1653.3 | 1484.9 | 1398.1 |
| 52.5° | 1694.1 | 1638.0 | 1490.0 | 1321.6 | 1250.2 |
| 55° | 1520.6 | 1474.7 | 1336.9 | 1178.7 | 1117.5 |
| 57.5° | 1362.4 | 1316.5 | 1188.9 | 1041.0 | 989.9 |
| 60° | 1214.4 | 1148.1 | 1041.0 | 913.4 | 872.6 |
| 62.5° | 1051.2 | 1000.1 | 908.3 | 801.1 | 852.2 |
| 65° | 903.2 | 852.2 | 770.5 | 785.8 | 653.1 |
| 67.5° | 739.9 | 714.4 | 642.9 | 571.5 | 551.1 |
| 70° | 602.1 | 571.5 | 546.0 | 469.4 | 449.0 |
| 72.5° | 479.7 | 449.0 | 413.3 | 372.5 | 357.2 |
| 75° | 362.3 | 336.8 | 316.4 | 301.1 | 331.7 |
| 77.5° | 250.0 | 239.8 | 224.5 | 209.2 | 204.1 |
| 80° | 163.3 | 158.2 | 153.1 | 148.0 | 142.9 |
| 82.5° | 97.0 | 97.0 | 97.0 | 97.0 | 97.0 |
| 85° | 51.0 | 56.1 | 61.2 | 66.3 | 71.4 |
| 87.5° | 30.6 | 30.6 | 35.7 | 40.8 | 45.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)