

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: P563304

Luminaire Tested: FSR-24-4-LD4-3LO-35-UNV-93-88-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P563304
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-93-88-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .500 CLEAR PC ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6189.0 lumens
Efficiency: N/A
Efficacy: 88.2 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

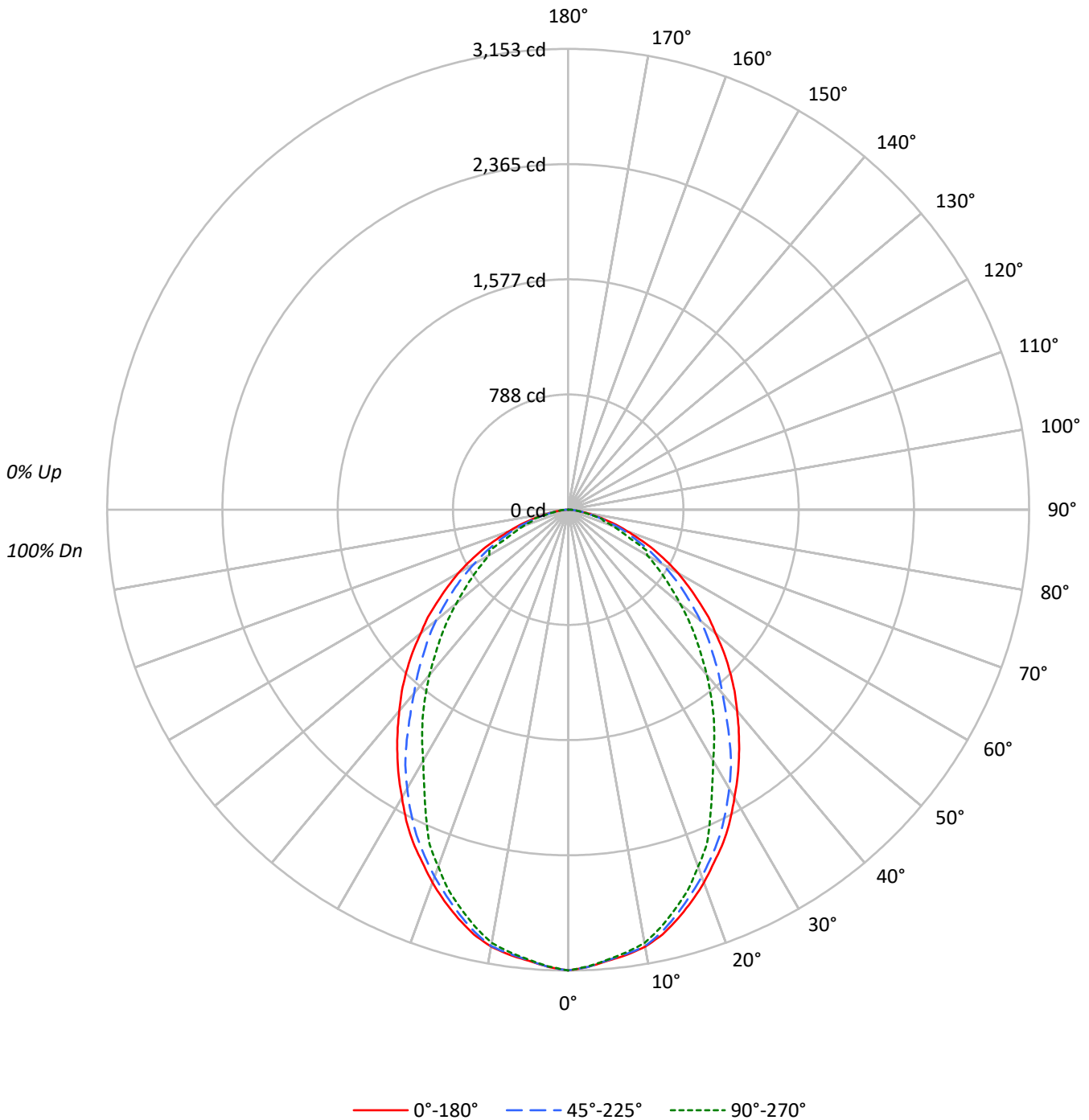
Input Watts (W): 70.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P563304

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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° | 4242 | 4242 | 4242 |
| 5° | 4184 | 4179 | 4174 |
| 10° | 4148 | 4143 | 4113 |
| 15° | 4036 | 3995 | 3940 |
| 20° | 3888 | 3825 | 3721 |
| 25° | 3728 | 3647 | 3420 |
| 30° | 3533 | 3420 | 3080 |
| 35° | 3346 | 3161 | 2849 |
| 40° | 3156 | 2881 | 2593 |
| 45° | 2975 | 2663 | 2344 |
| 50° | 2754 | 2472 | 2090 |
| 55° | 2548 | 2240 | 1872 |
| 60° | 2334 | 2001 | 1677 |
| 65° | 2054 | 1752 | 1485 |
| 70° | 1692 | 1534 | 1262 |
| 75° | 1345 | 1175 | 1232 |
| 80° | 903 | 847 | 790 |
| 85° | 562 | 675 | 787 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2975 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 293.5 | 4.7 |
| 10°-20° | 805.4 | 13.0 |
| 20°-30° | 1115.0 | 18.0 |
| 30°-40° | 1188.9 | 19.2 |
| 40°-50° | 1084.6 | 17.5 |
| 50°-60° | 849.7 | 13.7 |
| 60°-70° | 553.8 | 8.9 |
| 70°-80° | 245.4 | 4.0 |
| 80°-90° | 52.7 | 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° | 2213.9 | 35.8 |
| 0°-40° | 3402.8 | 55.0 |
| 0°-60° | 5337.2 | 86.2 |
| 0°-90° | 6189.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 6189.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3153 | 3153 | 3153 | 3153 | 3153 | |
| 5° | 3098 | 3094 | 3094 | 3091 | 3091 | 294 |
| 15° | 2898 | 2898 | 2868 | 2839 | 2828 | 815 |
| 25° | 2511 | 2497 | 2456 | 2369 | 2303 | 1153 |
| 35° | 2037 | 2023 | 1924 | 1779 | 1735 | 1274 |
| 45° | 1564 | 1531 | 1400 | 1283 | 1232 | 1204 |
| 55° | 1086 | 1053 | 955 | 842 | 798 | 974 |
| 65° | 645 | 609 | 550 | 561 | 466 | 636 |
| 75° | 259 | 240 | 226 | 215 | 237 | 277 |
| 85° | 36 | 40 | 44 | 47 | 51 | 51 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P563304

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3152.6 | 3152.6 | 3152.6 | 3152.6 | 3152.6 |
| 2.5° | 3130.7 | 3130.7 | 3130.7 | 3127.1 | 3127.1 |
| 5° | 3097.9 | 3094.3 | 3094.3 | 3090.6 | 3090.6 |
| 7.5° | 3072.4 | 3068.8 | 3065.1 | 3061.5 | 3054.2 |
| 10° | 3036.0 | 3036.0 | 3032.3 | 3014.1 | 3010.5 |
| 12.5° | 2977.7 | 2974.0 | 2959.4 | 2933.9 | 2926.6 |
| 15° | 2897.5 | 2897.5 | 2868.3 | 2839.2 | 2828.2 |
| 17.5° | 2810.0 | 2806.4 | 2769.9 | 2740.8 | 2726.2 |
| 20° | 2715.2 | 2708.0 | 2671.5 | 2624.1 | 2598.6 |
| 22.5° | 2609.5 | 2609.5 | 2565.8 | 2503.9 | 2478.3 |
| 25° | 2511.1 | 2496.6 | 2456.5 | 2369.0 | 2303.4 |
| 27.5° | 2398.2 | 2376.3 | 2332.6 | 2208.6 | 2132.1 |
| 30° | 2274.2 | 2263.3 | 2201.3 | 2041.0 | 1982.7 |
| 32.5° | 2157.6 | 2139.4 | 2073.8 | 1906.1 | 1858.8 |
| 35° | 2037.3 | 2022.8 | 1924.4 | 1778.6 | 1734.8 |
| 37.5° | 1917.1 | 1898.8 | 1774.9 | 1658.3 | 1603.6 |
| 40° | 1796.8 | 1774.9 | 1640.1 | 1534.4 | 1476.1 |
| 42.5° | 1683.8 | 1654.7 | 1523.5 | 1410.5 | 1344.9 |
| 45° | 1563.5 | 1530.7 | 1399.5 | 1282.9 | 1231.9 |
| 47.5° | 1443.3 | 1414.1 | 1293.8 | 1173.6 | 1115.3 |
| 50° | 1315.7 | 1290.2 | 1180.9 | 1060.6 | 998.6 |
| 52.5° | 1210.0 | 1169.9 | 1064.2 | 944.0 | 892.9 |
| 55° | 1086.1 | 1053.3 | 954.9 | 841.9 | 798.2 |
| 57.5° | 973.1 | 940.3 | 849.2 | 743.5 | 707.1 |
| 60° | 867.4 | 820.0 | 743.5 | 652.4 | 623.2 |
| 62.5° | 750.8 | 714.3 | 648.7 | 572.2 | 608.7 |
| 65° | 645.1 | 608.7 | 550.3 | 561.3 | 466.5 |
| 67.5° | 528.5 | 510.2 | 459.2 | 408.2 | 393.6 |
| 70° | 430.1 | 408.2 | 390.0 | 335.3 | 320.7 |
| 72.5° | 342.6 | 320.7 | 295.2 | 266.1 | 255.1 |
| 75° | 258.8 | 240.5 | 226.0 | 215.0 | 236.9 |
| 77.5° | 178.6 | 171.3 | 160.4 | 149.4 | 145.8 |
| 80° | 116.6 | 113.0 | 109.3 | 105.7 | 102.0 |
| 82.5° | 69.2 | 69.2 | 69.2 | 69.2 | 69.2 |
| 85° | 36.4 | 40.1 | 43.7 | 47.4 | 51.0 |
| 87.5° | 21.9 | 21.9 | 25.5 | 29.2 | 32.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)