

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: P562542

Luminaire Tested: FSR-24-4-LD4-2HI-35-UNV-93-97-EDD-90

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562542
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-LD4-2HI-35-UNV-93-97-EDD-90
Description: 2X4 FSR TROFFER WITH .156 CLEAR TEMPERED GLASS FIXTURE SIDE AND .375 CLEAR TEMPER
GLASS ENVIRONMENTAL SIDE LENSES WITH, 90 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7671.0 lumens
Efficiency: N/A
Efficacy: 88.8 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

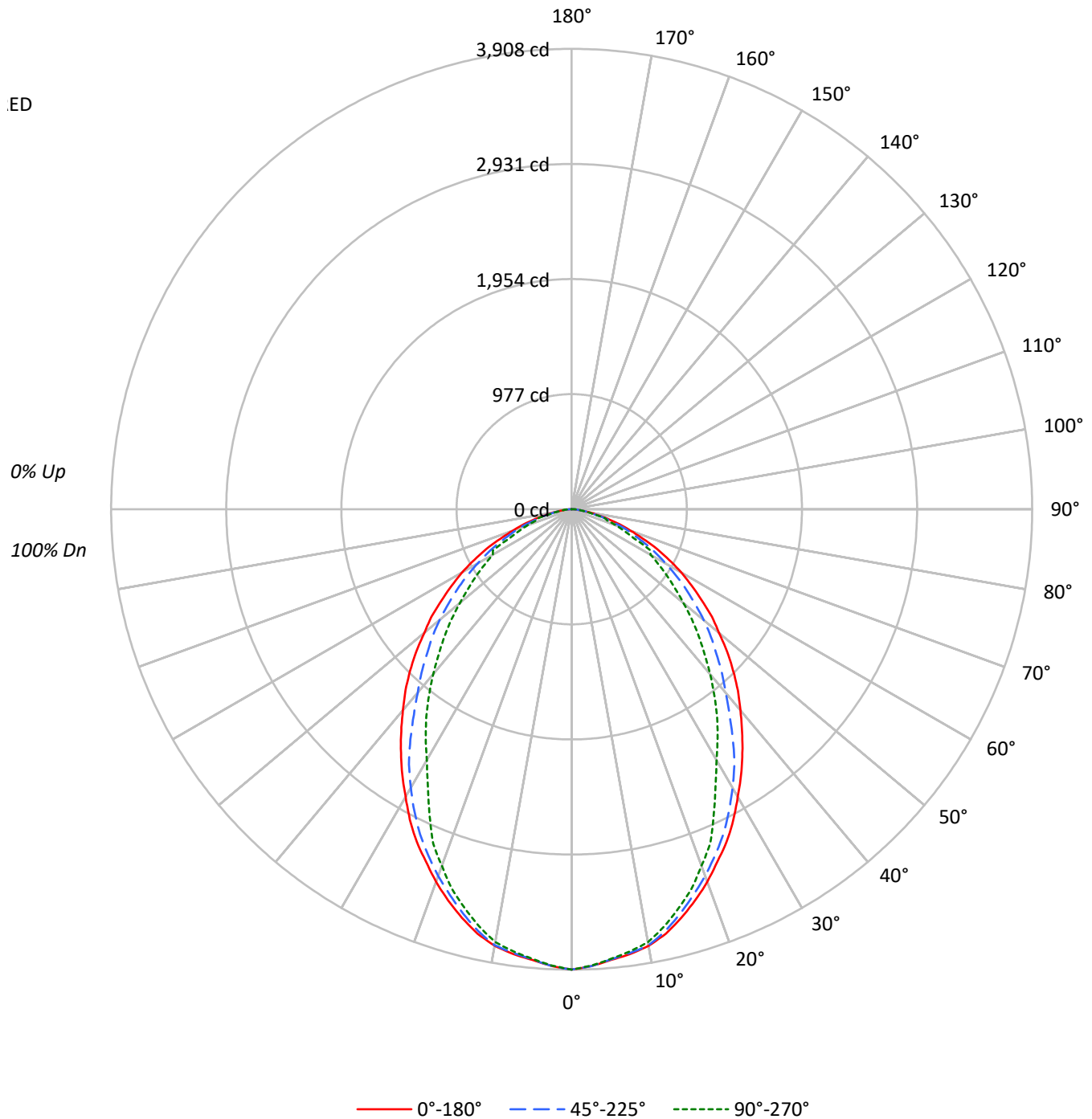
Input Watts (W): 86.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562542

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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° | 5257 | 5257 | 5257 |
| 5° | 5186 | 5180 | 5174 |
| 10° | 5141 | 5135 | 5098 |
| 15° | 5003 | 4952 | 4883 |
| 20° | 4819 | 4741 | 4612 |
| 25° | 4621 | 4520 | 4238 |
| 30° | 4379 | 4239 | 3818 |
| 35° | 4148 | 3918 | 3532 |
| 40° | 3912 | 3570 | 3213 |
| 45° | 3687 | 3301 | 2905 |
| 50° | 3414 | 3064 | 2591 |
| 55° | 3158 | 2776 | 2321 |
| 60° | 2893 | 2480 | 2079 |
| 65° | 2546 | 2172 | 1841 |
| 70° | 2097 | 1902 | 1564 |
| 75° | 1667 | 1456 | 1526 |
| 80° | 1120 | 1050 | 980 |
| 85° | 698 | 837 | 976 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3687 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 363.7 | 4.7 |
| 10°-20° | 998.2 | 13.0 |
| 20°-30° | 1382.0 | 18.0 |
| 30°-40° | 1473.6 | 19.2 |
| 40°-50° | 1344.4 | 17.5 |
| 50°-60° | 1053.2 | 13.7 |
| 60°-70° | 686.4 | 8.9 |
| 70°-80° | 304.1 | 4.0 |
| 80°-90° | 65.3 | 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° | 2744.0 | 35.8 |
| 0°-40° | 4217.6 | 55.0 |
| 0°-60° | 6615.2 | 86.2 |
| 0°-90° | 7671.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 7671.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3908 | 3908 | 3908 | 3908 | 3908 | |
| 5° | 3840 | 3835 | 3835 | 3831 | 3831 | 364 |
| 15° | 3591 | 3591 | 3555 | 3519 | 3506 | 1010 |
| 25° | 3112 | 3094 | 3045 | 2936 | 2855 | 1429 |
| 35° | 2525 | 2507 | 2385 | 2204 | 2150 | 1579 |
| 45° | 1938 | 1897 | 1735 | 1590 | 1527 | 1493 |
| 55° | 1346 | 1306 | 1184 | 1044 | 989 | 1207 |
| 65° | 800 | 754 | 682 | 696 | 578 | 788 |
| 75° | 321 | 298 | 280 | 266 | 294 | 344 |
| 85° | 45 | 50 | 54 | 59 | 63 | 63 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562542

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3907.5 | 3907.5 | 3907.5 | 3907.5 | 3907.5 |
| 2.5° | 3880.4 | 3880.4 | 3880.4 | 3875.9 | 3875.9 |
| 5° | 3839.7 | 3835.2 | 3835.2 | 3830.7 | 3830.7 |
| 7.5° | 3808.1 | 3803.6 | 3799.1 | 3794.6 | 3785.5 |
| 10° | 3762.9 | 3762.9 | 3758.4 | 3735.8 | 3731.3 |
| 12.5° | 3690.7 | 3686.2 | 3668.1 | 3636.5 | 3627.4 |
| 15° | 3591.3 | 3591.3 | 3555.2 | 3519.0 | 3505.5 |
| 17.5° | 3482.9 | 3478.4 | 3433.2 | 3397.0 | 3379.0 |
| 20° | 3365.4 | 3356.4 | 3311.2 | 3252.5 | 3220.9 |
| 22.5° | 3234.4 | 3234.4 | 3180.2 | 3103.4 | 3071.8 |
| 25° | 3112.5 | 3094.4 | 3044.7 | 2936.3 | 2855.0 |
| 27.5° | 2972.4 | 2945.3 | 2891.1 | 2737.5 | 2642.6 |
| 30° | 2818.8 | 2805.3 | 2728.5 | 2529.7 | 2457.4 |
| 32.5° | 2674.3 | 2651.7 | 2570.4 | 2362.6 | 2303.8 |
| 35° | 2525.2 | 2507.1 | 2385.2 | 2204.5 | 2150.3 |
| 37.5° | 2376.1 | 2353.5 | 2199.9 | 2055.4 | 1987.6 |
| 40° | 2227.1 | 2199.9 | 2032.8 | 1901.8 | 1829.5 |
| 42.5° | 2087.0 | 2050.9 | 1888.3 | 1748.2 | 1666.9 |
| 45° | 1937.9 | 1897.3 | 1734.7 | 1590.1 | 1526.9 |
| 47.5° | 1788.9 | 1752.7 | 1603.7 | 1454.6 | 1382.3 |
| 50° | 1630.8 | 1599.1 | 1463.6 | 1314.5 | 1237.8 |
| 52.5° | 1499.8 | 1450.1 | 1319.1 | 1170.0 | 1106.7 |
| 55° | 1346.2 | 1305.5 | 1183.5 | 1043.5 | 989.3 |
| 57.5° | 1206.1 | 1165.5 | 1052.5 | 921.5 | 876.4 |
| 60° | 1075.1 | 1016.4 | 921.5 | 808.6 | 772.5 |
| 62.5° | 930.6 | 885.4 | 804.1 | 709.2 | 754.4 |
| 65° | 799.6 | 754.4 | 682.1 | 695.7 | 578.2 |
| 67.5° | 655.0 | 632.4 | 569.2 | 505.9 | 487.9 |
| 70° | 533.0 | 505.9 | 483.4 | 415.6 | 397.5 |
| 72.5° | 424.6 | 397.5 | 365.9 | 329.8 | 316.2 |
| 75° | 320.7 | 298.1 | 280.1 | 266.5 | 293.6 |
| 77.5° | 221.3 | 212.3 | 198.8 | 185.2 | 180.7 |
| 80° | 144.6 | 140.0 | 135.5 | 131.0 | 126.5 |
| 82.5° | 85.8 | 85.8 | 85.8 | 85.8 | 85.8 |
| 85° | 45.2 | 49.7 | 54.2 | 58.7 | 63.2 |
| 87.5° | 27.1 | 27.1 | 31.6 | 36.1 | 40.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)