

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: P590670

Luminaire Tested: FSR-24-2-LD4-3STD-40-UNV-93-85-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590670
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-LD4-3STD-40-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 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5806.0 lumens
Efficiency: N/A
Efficacy: 116.1 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

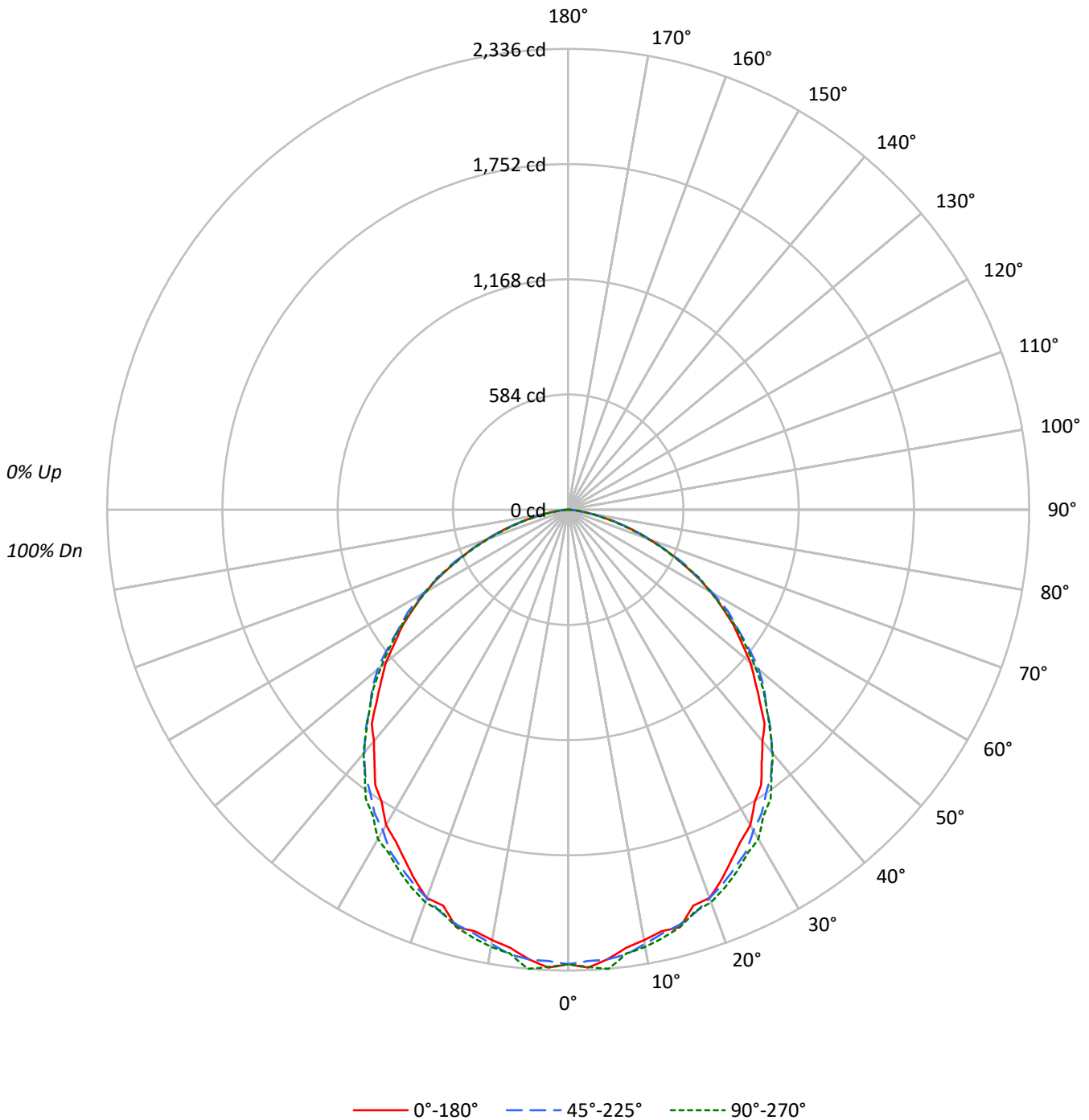
Input Watts (W): 50
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P590670

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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 | | | | |
| 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° | 6199 | 6199 | 6199 |
| 5° | 6179 | 6181 | 6311 |
| 10° | 6053 | 6106 | 6149 |
| 15° | 6101 | 6068 | 6102 |
| 20° | 5998 | 5998 | 6062 |
| 25° | 5814 | 5941 | 6006 |
| 30° | 5734 | 5835 | 5990 |
| 35° | 5599 | 5745 | 5874 |
| 40° | 5381 | 5640 | 5665 |
| 45° | 5218 | 5404 | 5412 |
| 50° | 5047 | 5275 | 5174 |
| 55° | 4809 | 4902 | 4868 |
| 60° | 4497 | 4541 | 4460 |
| 65° | 4010 | 4111 | 3981 |
| 70° | 3440 | 3452 | 3356 |
| 75° | 2724 | 2718 | 2613 |
| 80° | 1826 | 1774 | 1706 |
| 85° | 991 | 982 | 917 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 5543 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 216.7 | 3.7 |
| 10°-20° | 614.1 | 10.6 |
| 20°-30° | 920.1 | 15.8 |
| 30°-40° | 1090.5 | 18.8 |
| 40°-50° | 1092.5 | 18.8 |
| 50°-60° | 927.4 | 16.0 |
| 60°-70° | 625.2 | 10.8 |
| 70°-80° | 274.7 | 4.7 |
| 80°-90° | 44.6 | 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° | 1750.9 | 30.2 |
| 0°-40° | 2841.5 | 48.9 |
| 0°-60° | 4861.4 | 83.7 |
| 0°-90° | 5806.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5806.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2304 | 2304 | 2304 | 2304 | 2304 | |
| 5° | 2287 | 2282 | 2288 | 2281 | 2336 | 216 |
| 15° | 2190 | 2165 | 2178 | 2190 | 2190 | 610 |
| 25° | 1958 | 1969 | 2001 | 2027 | 2023 | 905 |
| 35° | 1704 | 1709 | 1749 | 1789 | 1788 | 1058 |
| 45° | 1371 | 1397 | 1420 | 1457 | 1422 | 1061 |
| 55° | 1025 | 1018 | 1045 | 1038 | 1038 | 912 |
| 65° | 630 | 621 | 646 | 621 | 625 | 626 |
| 75° | 262 | 257 | 261 | 243 | 251 | 281 |
| 85° | 32 | 31 | 32 | 31 | 30 | 47 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590670

CATALOG NUMBER: FSR-24-2-LD4-3STD-40-UNV-93-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2303.7 | 2303.7 | 2303.7 | 2303.7 | 2303.7 |
| 2.5° | 2323.6 | 2306.1 | 2289.7 | 2308.7 | 2320.3 |
| 5° | 2287.3 | 2282.0 | 2288.2 | 2281.4 | 2336.4 |
| 7.5° | 2240.3 | 2260.8 | 2272.7 | 2265.3 | 2268.6 |
| 10° | 2215.3 | 2208.2 | 2234.7 | 2253.1 | 2250.4 |
| 12.5° | 2188.6 | 2199.3 | 2200.8 | 2220.7 | 2222.5 |
| 15° | 2190.1 | 2164.8 | 2178.2 | 2189.5 | 2190.3 |
| 17.5° | 2105.0 | 2132.3 | 2141.6 | 2167.4 | 2135.3 |
| 20° | 2094.6 | 2074.6 | 2094.6 | 2121.0 | 2116.9 |
| 22.5° | 2030.6 | 2008.3 | 2051.1 | 2074.6 | 2073.2 |
| 25° | 1958.0 | 1968.8 | 2000.9 | 2027.1 | 2022.9 |
| 27.5° | 1894.4 | 1906.9 | 1952.7 | 1988.7 | 1965.5 |
| 30° | 1845.3 | 1839.1 | 1877.7 | 1909.9 | 1927.7 |
| 32.5° | 1757.6 | 1780.2 | 1825.4 | 1857.2 | 1840.3 |
| 35° | 1704.3 | 1709.4 | 1748.9 | 1789.4 | 1788.2 |
| 37.5° | 1611.2 | 1634.7 | 1690.4 | 1701.7 | 1691.2 |
| 40° | 1531.8 | 1555.3 | 1605.6 | 1617.8 | 1612.7 |
| 42.5° | 1473.2 | 1477.4 | 1520.5 | 1534.5 | 1512.2 |
| 45° | 1371.2 | 1396.8 | 1420.0 | 1456.6 | 1422.1 |
| 47.5° | 1284.3 | 1296.2 | 1346.2 | 1356.0 | 1337.9 |
| 50° | 1205.5 | 1209.7 | 1260.0 | 1247.8 | 1235.9 |
| 52.5° | 1106.5 | 1124.0 | 1152.3 | 1149.9 | 1135.9 |
| 55° | 1025.0 | 1018.1 | 1044.9 | 1037.8 | 1037.5 |
| 57.5° | 927.1 | 939.0 | 961.0 | 949.7 | 931.6 |
| 60° | 835.5 | 835.8 | 843.8 | 831.0 | 828.7 |
| 62.5° | 733.5 | 737.1 | 738.8 | 723.1 | 748.7 |
| 65° | 629.7 | 621.4 | 645.7 | 621.1 | 625.2 |
| 67.5° | 534.2 | 538.4 | 536.0 | 520.5 | 526.5 |
| 70° | 437.2 | 442.6 | 438.7 | 421.2 | 426.5 |
| 72.5° | 348.6 | 342.1 | 346.2 | 324.2 | 334.3 |
| 75° | 262.0 | 256.7 | 261.4 | 243.0 | 251.3 |
| 77.5° | 178.5 | 182.6 | 179.7 | 169.8 | 175.5 |
| 80° | 117.8 | 114.5 | 114.5 | 108.9 | 110.1 |
| 82.5° | 68.7 | 65.4 | 64.5 | 62.8 | 65.4 |
| 85° | 32.1 | 31.2 | 31.8 | 30.9 | 29.7 |
| 87.5° | 11.6 | 11.9 | 11.9 | 11.3 | 10.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)