

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: P590877

Luminaire Tested: FSR-24-2-LD4-4LO-50-UNV-81-84-EDD

Issue Date: 12/8/2021

Test Information

Test Method: LM-79-2019
Report Number: P590877
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-LD4-4LO-50-UNV-81-84-EDD
Description: 2X2 FSR TROFFER WITH .156 CLEAR PC FIXTURE SIDE AND .125 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 5000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

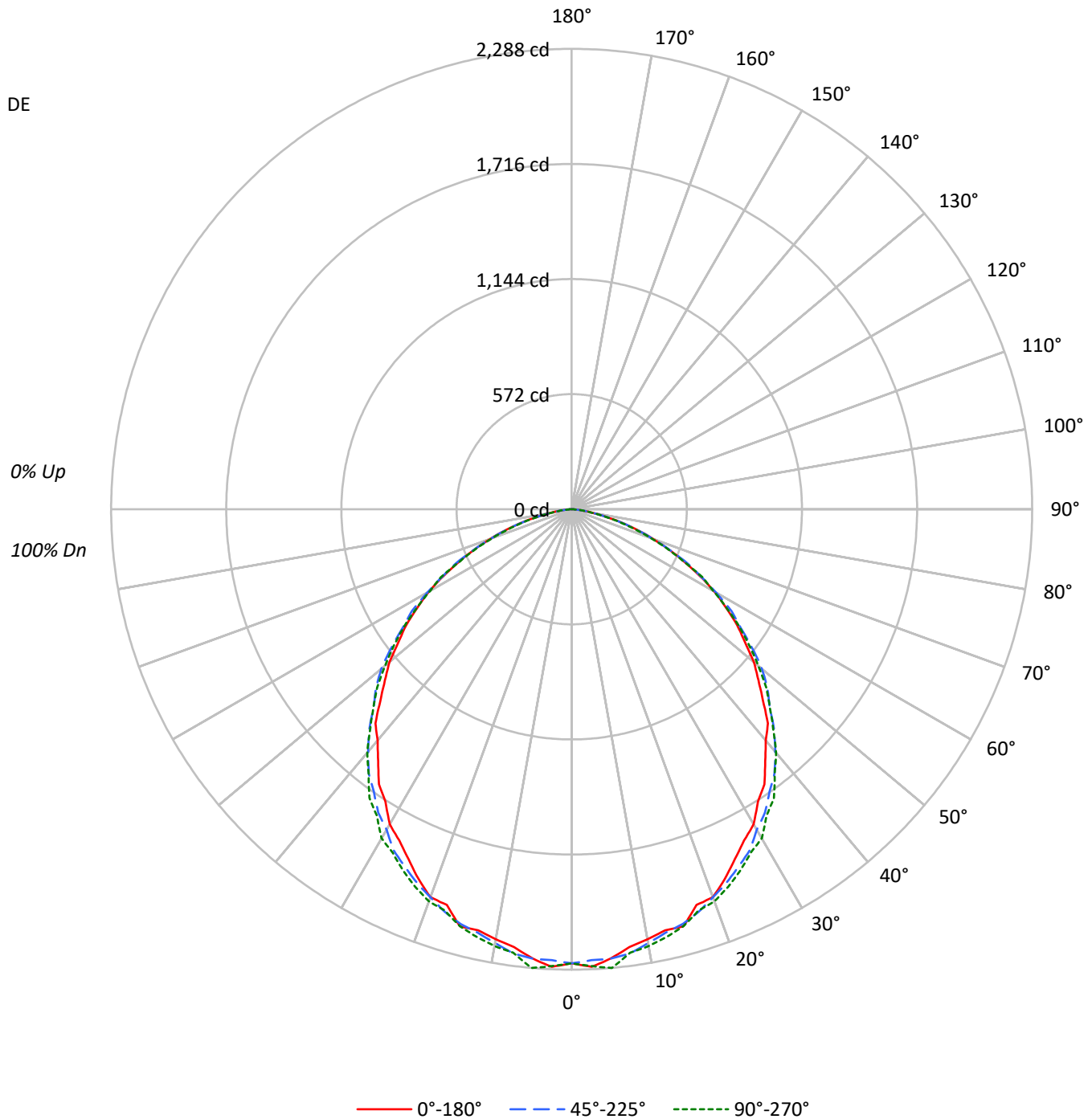
Lumens per Lamp: N/A
Luminaire Lumens: 5687.0 lumens
Efficiency: N/A
Efficacy: 121.5 lumens/watt
Spacing Criteria (0/90/45): 1.19 / 1.23 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 46.8
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° | 6072 | 6072 | 6072 |
| 5° | 6052 | 6054 | 6182 |
| 10° | 5929 | 5981 | 6023 |
| 15° | 5976 | 5944 | 5977 |
| 20° | 5875 | 5875 | 5938 |
| 25° | 5695 | 5819 | 5883 |
| 30° | 5616 | 5715 | 5867 |
| 35° | 5484 | 5628 | 5754 |
| 40° | 5271 | 5525 | 5549 |
| 45° | 5111 | 5293 | 5301 |
| 50° | 4943 | 5166 | 5068 |
| 55° | 4710 | 4802 | 4768 |
| 60° | 4405 | 4448 | 4369 |
| 65° | 3927 | 4027 | 3899 |
| 70° | 3370 | 3381 | 3287 |
| 75° | 2669 | 2663 | 2560 |
| 80° | 1788 | 1739 | 1671 |
| 85° | 973 | 963 | 898 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 67.5°
 Vertical Angle: 45°
 Luminance: 5429 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 212.3 | 3.7 |
| 10°-20° | 601.6 | 10.6 |
| 20°-30° | 901.3 | 15.8 |
| 30°-40° | 1068.2 | 18.8 |
| 40°-50° | 1070.1 | 18.8 |
| 50°-60° | 908.4 | 16.0 |
| 60°-70° | 612.4 | 10.8 |
| 70°-80° | 269.1 | 4.7 |
| 80°-90° | 43.7 | 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° | 1715.1 | 30.2 |
| 0°-40° | 2783.2 | 48.9 |
| 0°-60° | 4761.7 | 83.7 |
| 0°-90° | 5687.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 5687.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2256 | 2256 | 2256 | 2256 | 2256 | |
| 5° | 2240 | 2235 | 2241 | 2235 | 2288 | 211 |
| 15° | 2145 | 2120 | 2134 | 2145 | 2146 | 598 |
| 25° | 1918 | 1928 | 1960 | 1986 | 1981 | 887 |
| 35° | 1669 | 1674 | 1713 | 1753 | 1752 | 1037 |
| 45° | 1343 | 1368 | 1391 | 1427 | 1393 | 1039 |
| 55° | 1004 | 997 | 1024 | 1016 | 1016 | 893 |
| 65° | 617 | 609 | 632 | 608 | 612 | 613 |
| 75° | 257 | 251 | 256 | 238 | 246 | 275 |
| 85° | 32 | 31 | 31 | 30 | 29 | 46 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P590877

CATALOG NUMBER: FSR-24-2-LD4-4LO-50-UNV-81-84-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2256.5 | 2256.5 | 2256.5 | 2256.5 | 2256.5 |
| 2.5° | 2276.0 | 2258.8 | 2242.8 | 2261.4 | 2272.8 |
| 5° | 2240.4 | 2235.2 | 2241.3 | 2234.6 | 2288.5 |
| 7.5° | 2194.4 | 2214.5 | 2226.2 | 2218.9 | 2222.1 |
| 10° | 2169.9 | 2162.9 | 2188.9 | 2206.9 | 2204.3 |
| 12.5° | 2143.7 | 2154.2 | 2155.7 | 2175.2 | 2176.9 |
| 15° | 2145.2 | 2120.4 | 2133.5 | 2144.6 | 2145.5 |
| 17.5° | 2061.8 | 2088.6 | 2097.7 | 2123.0 | 2091.6 |
| 20° | 2051.6 | 2032.1 | 2051.6 | 2077.6 | 2073.5 |
| 22.5° | 1989.0 | 1967.2 | 2009.1 | 2032.1 | 2030.7 |
| 25° | 1917.9 | 1928.4 | 1959.9 | 1985.5 | 1981.4 |
| 27.5° | 1855.6 | 1867.8 | 1912.7 | 1947.9 | 1925.2 |
| 30° | 1807.5 | 1801.4 | 1839.3 | 1870.7 | 1888.2 |
| 32.5° | 1721.6 | 1743.7 | 1788.0 | 1819.2 | 1802.5 |
| 35° | 1669.4 | 1674.4 | 1713.1 | 1752.7 | 1751.6 |
| 37.5° | 1578.2 | 1601.2 | 1655.7 | 1666.8 | 1656.6 |
| 40° | 1500.4 | 1523.4 | 1572.7 | 1584.6 | 1579.7 |
| 42.5° | 1443.0 | 1447.1 | 1489.3 | 1503.0 | 1481.2 |
| 45° | 1343.1 | 1368.2 | 1390.9 | 1426.7 | 1392.9 |
| 47.5° | 1258.0 | 1269.7 | 1318.6 | 1328.2 | 1310.5 |
| 50° | 1180.8 | 1184.9 | 1234.1 | 1222.2 | 1210.5 |
| 52.5° | 1083.8 | 1101.0 | 1128.7 | 1126.3 | 1112.6 |
| 55° | 1004.0 | 997.3 | 1023.5 | 1016.5 | 1016.2 |
| 57.5° | 908.1 | 919.8 | 941.3 | 930.3 | 912.5 |
| 60° | 818.4 | 818.7 | 826.5 | 814.0 | 811.7 |
| 62.5° | 718.5 | 722.0 | 723.7 | 708.3 | 733.3 |
| 65° | 616.8 | 608.6 | 632.5 | 608.3 | 612.4 |
| 67.5° | 523.3 | 527.3 | 525.0 | 509.9 | 515.7 |
| 70° | 428.3 | 433.5 | 429.7 | 412.5 | 417.8 |
| 72.5° | 341.5 | 335.0 | 339.1 | 317.6 | 327.5 |
| 75° | 256.7 | 251.4 | 256.1 | 238.0 | 246.2 |
| 77.5° | 174.8 | 178.9 | 176.0 | 166.4 | 171.9 |
| 80° | 115.4 | 112.2 | 112.2 | 106.6 | 107.8 |
| 82.5° | 67.3 | 64.1 | 63.2 | 61.5 | 64.1 |
| 85° | 31.5 | 30.6 | 31.2 | 30.3 | 29.1 |
| 87.5° | 11.4 | 11.7 | 11.7 | 11.1 | 10.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)