

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: P562003

Luminaire Tested: FSR-24-4-LD4-1HI-35-UNV-82-85-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562003
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-LD4-1HI-35-UNV-82-85-EDD
Description: 2X4 FSR TROFFER WITH .187 CLEAR PC FIXTURE SIDE AND .187 CLEAR PC ENVIRONMENTAL SI
LENSES WITH, 80 CRI AND 3500K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4363.0 lumens
Efficiency: N/A
Efficacy: 101.0 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

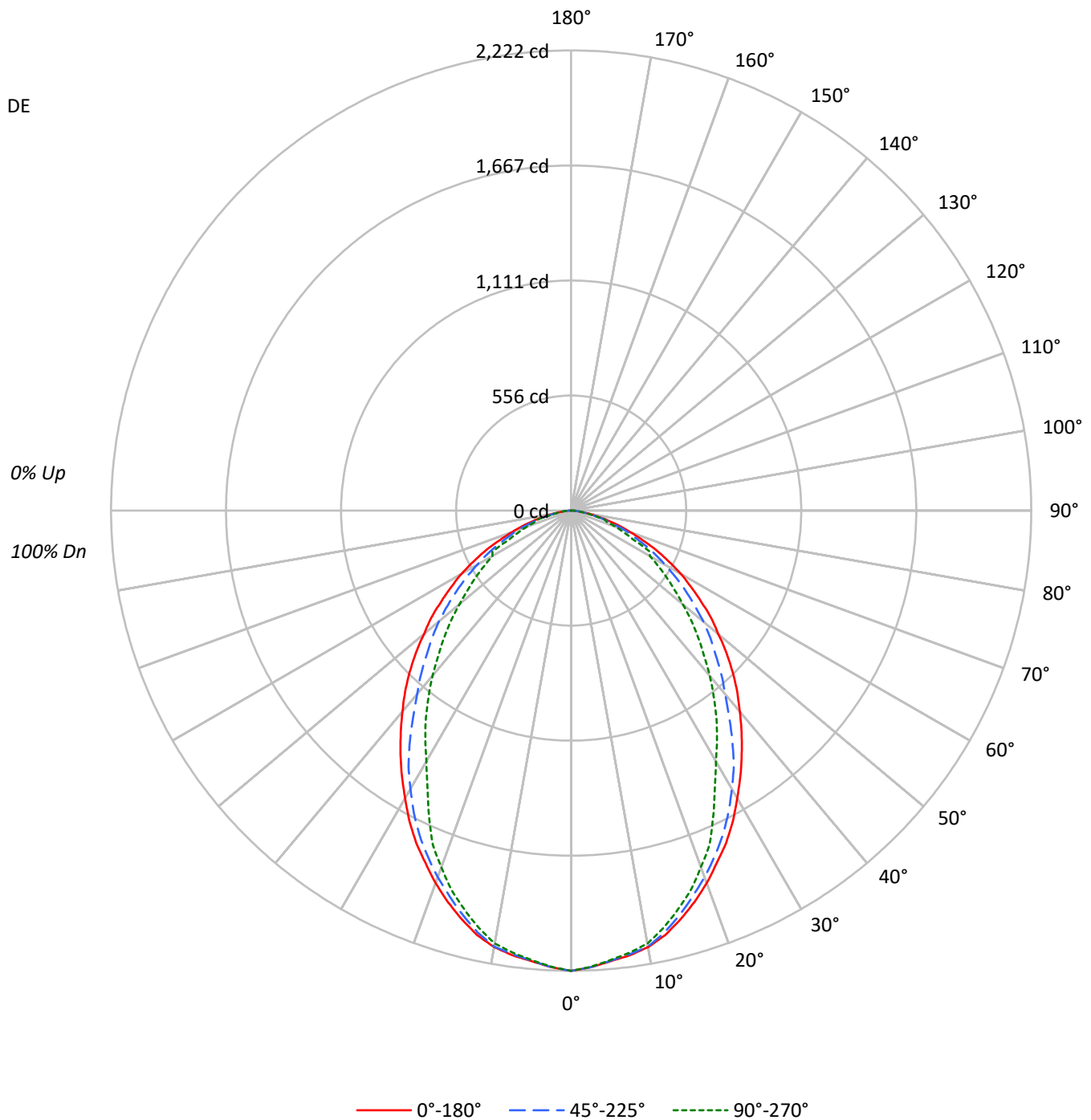
Input Watts (W): 43.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2990 | 2990 | 2990 |
| 5° | 2950 | 2946 | 2943 |
| 10° | 2924 | 2921 | 2900 |
| 15° | 2845 | 2817 | 2777 |
| 20° | 2741 | 2697 | 2623 |
| 25° | 2628 | 2571 | 2411 |
| 30° | 2491 | 2411 | 2172 |
| 35° | 2359 | 2228 | 2009 |
| 40° | 2225 | 2031 | 1828 |
| 45° | 2097 | 1877 | 1652 |
| 50° | 1941 | 1743 | 1474 |
| 55° | 1796 | 1579 | 1320 |
| 60° | 1646 | 1410 | 1182 |
| 65° | 1448 | 1235 | 1047 |
| 70° | 1193 | 1081 | 889 |
| 75° | 948 | 828 | 868 |
| 80° | 637 | 597 | 557 |
| 85° | 397 | 475 | 556 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2097 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 206.9 | 4.7 |
| 10°-20° | 567.8 | 13.0 |
| 20°-30° | 786.0 | 18.0 |
| 30°-40° | 838.1 | 19.2 |
| 40°-50° | 764.6 | 17.5 |
| 50°-60° | 599.0 | 13.7 |
| 60°-70° | 390.4 | 8.9 |
| 70°-80° | 173.0 | 4.0 |
| 80°-90° | 37.1 | 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° | 1560.7 | 35.8 |
| 0°-40° | 2398.8 | 55.0 |
| 0°-60° | 3762.5 | 86.2 |
| 0°-90° | 4363.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4363.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2222 | 2222 | 2222 | 2222 | 2222 | |
| 5° | 2184 | 2181 | 2181 | 2179 | 2179 | 207 |
| 15° | 2043 | 2043 | 2022 | 2002 | 1994 | 574 |
| 25° | 1770 | 1760 | 1732 | 1670 | 1624 | 813 |
| 35° | 1436 | 1426 | 1357 | 1254 | 1223 | 898 |
| 45° | 1102 | 1079 | 987 | 904 | 868 | 849 |
| 55° | 766 | 742 | 673 | 594 | 563 | 687 |
| 65° | 455 | 429 | 388 | 396 | 329 | 448 |
| 75° | 182 | 170 | 159 | 152 | 167 | 196 |
| 85° | 26 | 28 | 31 | 33 | 36 | 36 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P562003

CATALOG NUMBER: FSR-24-4-LD4-1HI-35-UNV-82-85-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2222.5 | 2222.5 | 2222.5 | 2222.5 | 2222.5 |
| 2.5° | 2207.0 | 2207.0 | 2207.0 | 2204.5 | 2204.5 |
| 5° | 2183.9 | 2181.3 | 2181.3 | 2178.8 | 2178.8 |
| 7.5° | 2165.9 | 2163.4 | 2160.8 | 2158.2 | 2153.1 |
| 10° | 2140.2 | 2140.2 | 2137.7 | 2124.8 | 2122.3 |
| 12.5° | 2099.1 | 2096.6 | 2086.3 | 2068.3 | 2063.2 |
| 15° | 2042.6 | 2042.6 | 2022.0 | 2001.5 | 1993.8 |
| 17.5° | 1980.9 | 1978.4 | 1952.7 | 1932.1 | 1921.8 |
| 20° | 1914.1 | 1909.0 | 1883.3 | 1849.9 | 1831.9 |
| 22.5° | 1839.6 | 1839.6 | 1808.8 | 1765.1 | 1747.1 |
| 25° | 1770.3 | 1760.0 | 1731.7 | 1670.1 | 1623.8 |
| 27.5° | 1690.6 | 1675.2 | 1644.4 | 1557.0 | 1503.0 |
| 30° | 1603.2 | 1595.5 | 1551.9 | 1438.8 | 1397.7 |
| 32.5° | 1521.0 | 1508.2 | 1461.9 | 1343.7 | 1310.3 |
| 35° | 1436.2 | 1426.0 | 1356.6 | 1253.8 | 1223.0 |
| 37.5° | 1351.5 | 1338.6 | 1251.3 | 1169.0 | 1130.5 |
| 40° | 1266.7 | 1251.3 | 1156.2 | 1081.7 | 1040.6 |
| 42.5° | 1187.0 | 1166.5 | 1074.0 | 994.3 | 948.1 |
| 45° | 1102.2 | 1079.1 | 986.6 | 904.4 | 868.4 |
| 47.5° | 1017.4 | 996.9 | 912.1 | 827.3 | 786.2 |
| 50° | 927.5 | 909.5 | 832.5 | 747.7 | 704.0 |
| 52.5° | 853.0 | 824.7 | 750.2 | 665.5 | 629.5 |
| 55° | 765.7 | 742.5 | 673.2 | 593.5 | 562.7 |
| 57.5° | 686.0 | 662.9 | 598.6 | 524.1 | 498.4 |
| 60° | 611.5 | 578.1 | 524.1 | 459.9 | 439.4 |
| 62.5° | 529.3 | 503.6 | 457.3 | 403.4 | 429.1 |
| 65° | 454.8 | 429.1 | 388.0 | 395.7 | 328.9 |
| 67.5° | 372.6 | 359.7 | 323.7 | 287.8 | 277.5 |
| 70° | 303.2 | 287.8 | 274.9 | 236.4 | 226.1 |
| 72.5° | 241.5 | 226.1 | 208.1 | 187.6 | 179.9 |
| 75° | 182.4 | 169.6 | 159.3 | 151.6 | 167.0 |
| 77.5° | 125.9 | 120.8 | 113.0 | 105.3 | 102.8 |
| 80° | 82.2 | 79.6 | 77.1 | 74.5 | 71.9 |
| 82.5° | 48.8 | 48.8 | 48.8 | 48.8 | 48.8 |
| 85° | 25.7 | 28.3 | 30.8 | 33.4 | 36.0 |
| 87.5° | 15.4 | 15.4 | 18.0 | 20.6 | 23.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)