

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: P562033

Luminaire Tested: FSR-24-4-LD4-1HI-40-UNV-80-84-EDD

Issue Date: 7/20/2021

Test Information

Test Method: LM-79-2019
Report Number: P562033
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-40-UNV-80-84-EDD
Description: 2X4 FSR TROFFER WITH .125 PRISMATIC ACRYLIC FIXTURE SIDE AND .125 CLEAR PC ENVIRON
SIDE LENSES WITH, 80 CRI AND 4000K CCT LEDS
Light Source: -
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4834.0 lumens
Efficiency: N/A
Efficacy: 111.9 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

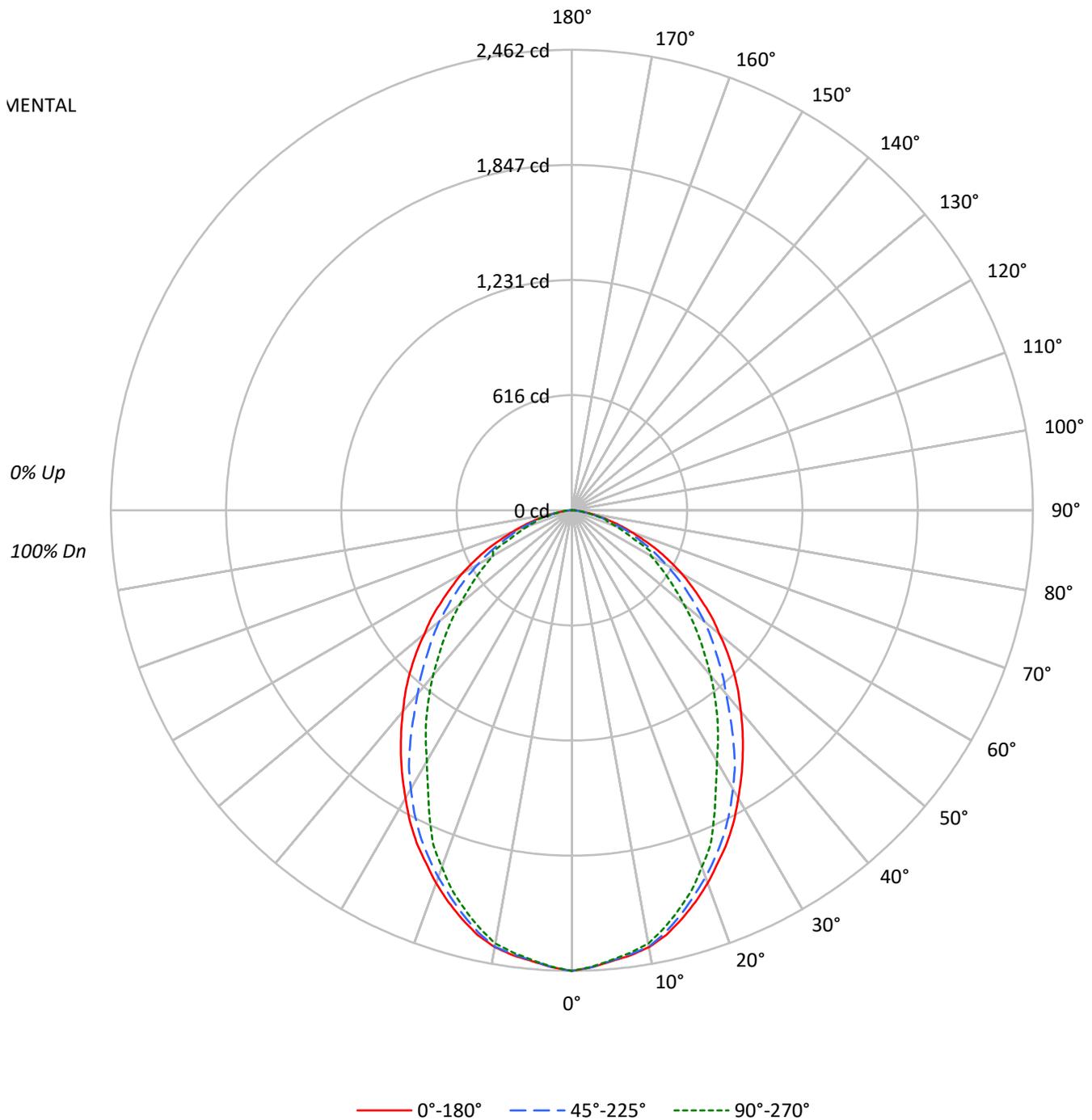
Input Watts (W): 43.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





TEST NUMBER: P562033

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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 | 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° | 3313 | 3313 | 3313 |
| 5° | 3268 | 3264 | 3260 |
| 10° | 3240 | 3236 | 3213 |
| 15° | 3152 | 3121 | 3077 |
| 20° | 3037 | 2988 | 2906 |
| 25° | 2912 | 2848 | 2671 |
| 30° | 2760 | 2671 | 2406 |
| 35° | 2614 | 2469 | 2226 |
| 40° | 2465 | 2250 | 2025 |
| 45° | 2324 | 2080 | 1831 |
| 50° | 2151 | 1931 | 1633 |
| 55° | 1990 | 1749 | 1462 |
| 60° | 1823 | 1563 | 1310 |
| 65° | 1604 | 1368 | 1160 |
| 70° | 1321 | 1198 | 985 |
| 75° | 1051 | 918 | 962 |
| 80° | 706 | 662 | 618 |
| 85° | 440 | 528 | 616 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2324 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 229.2 | 4.7 |
| 10°-20° | 629.1 | 13.0 |
| 20°-30° | 870.9 | 18.0 |
| 30°-40° | 928.6 | 19.2 |
| 40°-50° | 847.2 | 17.5 |
| 50°-60° | 663.7 | 13.7 |
| 60°-70° | 432.6 | 8.9 |
| 70°-80° | 191.7 | 4.0 |
| 80°-90° | 41.2 | 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° | 1729.2 | 35.8 |
| 0°-40° | 2657.8 | 55.0 |
| 0°-60° | 4168.6 | 86.2 |
| 0°-90° | 4834.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4834.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 2462 | 2462 | 2462 | 2462 | 2462 | |
| 5° | 2420 | 2417 | 2417 | 2414 | 2414 | 230 |
| 15° | 2263 | 2263 | 2240 | 2218 | 2209 | 636 |
| 25° | 1961 | 1950 | 1919 | 1850 | 1799 | 900 |
| 35° | 1591 | 1580 | 1503 | 1389 | 1355 | 995 |
| 45° | 1221 | 1196 | 1093 | 1002 | 962 | 941 |
| 55° | 848 | 823 | 746 | 658 | 623 | 761 |
| 65° | 504 | 475 | 430 | 438 | 364 | 497 |
| 75° | 202 | 188 | 176 | 168 | 185 | 217 |
| 85° | 28 | 31 | 34 | 37 | 40 | 40 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

TEST NUMBER: P562033

CATALOG NUMBER: FSR-24-4-LD4-1HI-40-UNV-80-84-EDD

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 2462.4 | 2462.4 | 2462.4 | 2462.4 | 2462.4 |
| 2.5° | 2445.3 | 2445.3 | 2445.3 | 2442.4 | 2442.4 |
| 5° | 2419.7 | 2416.8 | 2416.8 | 2414.0 | 2414.0 |
| 7.5° | 2399.7 | 2396.9 | 2394.1 | 2391.2 | 2385.5 |
| 10° | 2371.3 | 2371.3 | 2368.4 | 2354.2 | 2351.4 |
| 12.5° | 2325.7 | 2322.9 | 2311.5 | 2291.6 | 2285.9 |
| 15° | 2263.1 | 2263.1 | 2240.3 | 2217.6 | 2209.0 |
| 17.5° | 2194.8 | 2191.9 | 2163.5 | 2140.7 | 2129.3 |
| 20° | 2120.8 | 2115.1 | 2086.6 | 2049.6 | 2029.7 |
| 22.5° | 2038.2 | 2038.2 | 2004.1 | 1955.7 | 1935.7 |
| 25° | 1961.4 | 1950.0 | 1918.7 | 1850.3 | 1799.1 |
| 27.5° | 1873.1 | 1856.0 | 1821.9 | 1725.1 | 1665.3 |
| 30° | 1776.3 | 1767.8 | 1719.4 | 1594.1 | 1548.6 |
| 32.5° | 1685.2 | 1671.0 | 1619.8 | 1488.8 | 1451.8 |
| 35° | 1591.3 | 1579.9 | 1503.0 | 1389.2 | 1355.0 |
| 37.5° | 1497.4 | 1483.1 | 1386.3 | 1295.2 | 1252.5 |
| 40° | 1403.4 | 1386.3 | 1281.0 | 1198.5 | 1152.9 |
| 42.5° | 1315.2 | 1292.4 | 1189.9 | 1101.7 | 1050.4 |
| 45° | 1221.2 | 1195.6 | 1093.1 | 1002.0 | 962.2 |
| 47.5° | 1127.3 | 1104.5 | 1010.6 | 916.6 | 871.1 |
| 50° | 1027.7 | 1007.7 | 922.3 | 828.4 | 780.0 |
| 52.5° | 945.1 | 913.8 | 831.2 | 737.3 | 697.4 |
| 55° | 848.3 | 822.7 | 745.8 | 657.6 | 623.4 |
| 57.5° | 760.1 | 734.4 | 663.3 | 580.7 | 552.3 |
| 60° | 677.5 | 640.5 | 580.7 | 509.6 | 486.8 |
| 62.5° | 586.4 | 557.9 | 506.7 | 446.9 | 475.4 |
| 65° | 503.9 | 475.4 | 429.8 | 438.4 | 364.4 |
| 67.5° | 412.8 | 398.5 | 358.7 | 318.8 | 307.4 |
| 70° | 335.9 | 318.8 | 304.6 | 261.9 | 250.5 |
| 72.5° | 267.6 | 250.5 | 230.6 | 207.8 | 199.3 |
| 75° | 202.1 | 187.9 | 176.5 | 168.0 | 185.0 |
| 77.5° | 139.5 | 133.8 | 125.3 | 116.7 | 113.9 |
| 80° | 91.1 | 88.2 | 85.4 | 82.6 | 79.7 |
| 82.5° | 54.1 | 54.1 | 54.1 | 54.1 | 54.1 |
| 85° | 28.5 | 31.3 | 34.2 | 37.0 | 39.9 |
| 87.5° | 17.1 | 17.1 | 19.9 | 22.8 | 25.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)