

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: P688213

Luminaire Tested: FLR-HA-24-55-40-CP187

Issue Date: 5/22/2023

Test Information

Test Method: LM-79-2019
Report Number: P688213
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2207-724-13)
Test Lab: INNOVATION CENTER
Issue Date: 5/22/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: FLR-HA-24-55-40-CP187
Description: Fail-Safe - FLR Fully Luminous Recessed 2X4 4000K Luminaire for High Abuse
Light Source: 4000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

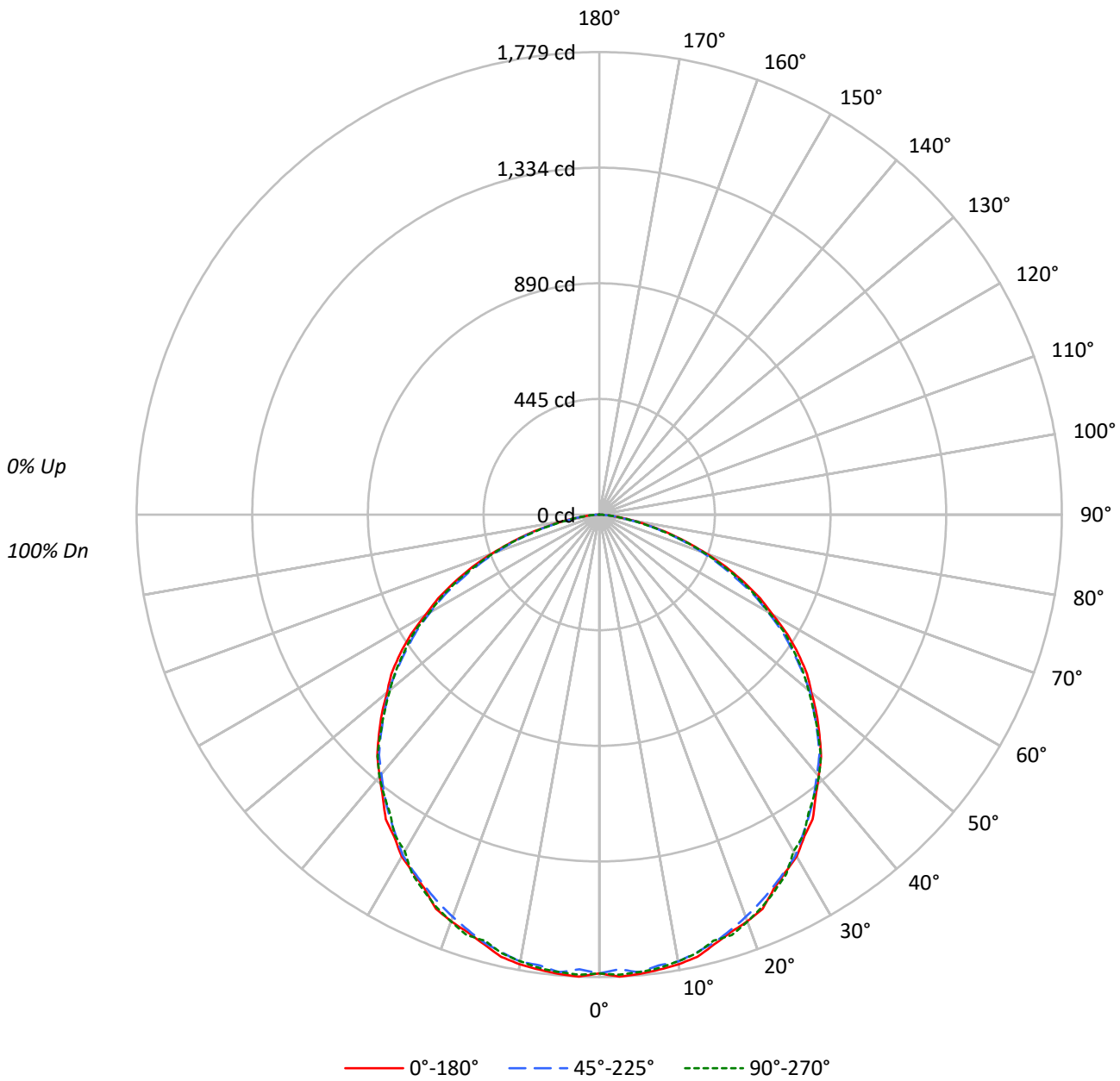
Lumens per Lamp: N/A
Luminaire Lumens: 4898.4 lumens
Efficiency: N/A
Efficacy: 104.7 lumens/watt
Spacing Criteria (0/90/45): 1.27 / 1.27 / 1.38
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 46.8
Input Voltage (V): 120
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 | 109 | 105 | 101 | 97 | 107 | 103 | 99 | 95 | 98 | 95 | 92 | 94 | 92 | 90 | 91 | 89 | 87 | 85 |
| 2 | 100 | 92 | 85 | 79 | 97 | 90 | 84 | 79 | 86 | 81 | 77 | 83 | 79 | 75 | 80 | 76 | 73 | 71 |
| 3 | 91 | 81 | 73 | 66 | 88 | 79 | 72 | 66 | 76 | 70 | 64 | 73 | 68 | 63 | 71 | 66 | 62 | 60 |
| 4 | 83 | 71 | 63 | 56 | 81 | 70 | 62 | 56 | 68 | 61 | 55 | 65 | 59 | 54 | 63 | 58 | 54 | 51 |
| 5 | 77 | 64 | 55 | 48 | 74 | 63 | 54 | 48 | 61 | 53 | 48 | 59 | 52 | 47 | 57 | 51 | 47 | 44 |
| 6 | 71 | 57 | 49 | 42 | 69 | 57 | 48 | 42 | 55 | 47 | 42 | 53 | 46 | 41 | 51 | 46 | 41 | 39 |
| 7 | 66 | 52 | 43 | 37 | 64 | 51 | 43 | 37 | 50 | 42 | 37 | 48 | 42 | 37 | 47 | 41 | 36 | 34 |
| 8 | 61 | 48 | 39 | 33 | 59 | 47 | 39 | 33 | 45 | 38 | 33 | 44 | 38 | 33 | 43 | 37 | 33 | 31 |
| 9 | 57 | 44 | 35 | 30 | 56 | 43 | 35 | 30 | 42 | 35 | 30 | 41 | 34 | 29 | 40 | 34 | 29 | 28 |
| 10 | 53 | 40 | 32 | 27 | 52 | 40 | 32 | 27 | 39 | 32 | 27 | 38 | 31 | 27 | 37 | 31 | 27 | 25 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2375 | 2375 | 2375 |
| 5° | 2396 | 2386 | 2386 |
| 10° | 2400 | 2385 | 2384 |
| 15° | 2383 | 2375 | 2364 |
| 20° | 2384 | 2358 | 2385 |
| 25° | 2358 | 2347 | 2371 |
| 30° | 2359 | 2349 | 2323 |
| 35° | 2350 | 2315 | 2304 |
| 40° | 2306 | 2288 | 2309 |
| 45° | 2279 | 2256 | 2263 |
| 50° | 2229 | 2213 | 2197 |
| 55° | 2193 | 2122 | 2142 |
| 60° | 2071 | 2015 | 2025 |
| 65° | 1949 | 1856 | 1913 |
| 70° | 1725 | 1644 | 1696 |
| 75° | 1422 | 1358 | 1353 |
| 80° | 1016 | 943 | 943 |
| 85° | 496 | 480 | 496 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2279 cd/sqm

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 167.6 | 3.4 |
| 10°-20° | 480.8 | 9.8 |
| 20°-30° | 730.7 | 14.9 |
| 30°-40° | 883.3 | 18.0 |
| 40°-50° | 915.3 | 18.7 |
| 50°-60° | 813.6 | 16.6 |
| 60°-70° | 583.4 | 11.9 |
| 70°-80° | 277.7 | 5.7 |
| 80°-90° | 46.0 | 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° | 1379.1 | 28.2 |
| 0°-40° | 2262.4 | 46.2 |
| 0°-60° | 3991.3 | 81.5 |
| 0°-90° | 4898.4 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 4898.4 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 1765 | 1765 | 1765 | 1765 | 1765 | |
| 5° | 1774 | 1766 | 1767 | 1758 | 1767 | 169 |
| 15° | 1711 | 1705 | 1705 | 1696 | 1697 | 484 |
| 25° | 1588 | 1585 | 1581 | 1580 | 1597 | 735 |
| 35° | 1431 | 1408 | 1409 | 1410 | 1403 | 890 |
| 45° | 1198 | 1185 | 1186 | 1181 | 1189 | 924 |
| 55° | 935 | 906 | 904 | 909 | 913 | 831 |
| 65° | 612 | 579 | 583 | 590 | 601 | 604 |
| 75° | 274 | 247 | 261 | 263 | 260 | 291 |
| 85° | 32 | 28 | 31 | 31 | 32 | 49 |
| 90° | 0 | 0 | 0 | 0 | 0 | |

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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 1764.8 | 1764.8 | 1764.8 | 1764.8 | 1764.8 |
| 2.5° | 1778.9 | 1769.5 | 1750.6 | 1762.9 | 1771.4 |
| 5° | 1774.2 | 1765.7 | 1766.7 | 1758.2 | 1766.7 |
| 7.5° | 1765.7 | 1757.2 | 1748.7 | 1745.9 | 1759.1 |
| 10° | 1756.3 | 1740.2 | 1745.9 | 1739.3 | 1745.0 |
| 12.5° | 1742.1 | 1728.9 | 1725.2 | 1716.7 | 1728.9 |
| 15° | 1711.0 | 1705.3 | 1705.3 | 1695.9 | 1696.9 |
| 17.5° | 1683.6 | 1672.3 | 1676.1 | 1671.4 | 1695.9 |
| 20° | 1664.8 | 1646.9 | 1646.9 | 1644.0 | 1665.7 |
| 22.5° | 1641.2 | 1620.5 | 1615.7 | 1617.6 | 1634.6 |
| 25° | 1588.4 | 1584.6 | 1580.8 | 1579.9 | 1596.9 |
| 27.5° | 1550.7 | 1540.3 | 1546.9 | 1544.1 | 1558.2 |
| 30° | 1518.6 | 1500.7 | 1512.0 | 1501.6 | 1495.0 |
| 32.5° | 1467.7 | 1461.0 | 1458.2 | 1459.2 | 1462.0 |
| 35° | 1430.9 | 1408.2 | 1409.2 | 1410.1 | 1402.6 |
| 37.5° | 1366.7 | 1369.6 | 1357.3 | 1357.3 | 1359.2 |
| 40° | 1313.0 | 1309.2 | 1302.6 | 1302.6 | 1314.8 |
| 42.5° | 1263.0 | 1246.0 | 1253.5 | 1242.2 | 1261.1 |
| 45° | 1197.9 | 1184.7 | 1185.6 | 1180.9 | 1189.4 |
| 47.5° | 1133.8 | 1122.4 | 1118.7 | 1122.4 | 1118.7 |
| 50° | 1064.9 | 1057.4 | 1057.4 | 1053.6 | 1049.8 |
| 52.5° | 1007.4 | 980.9 | 979.1 | 984.7 | 985.7 |
| 55° | 934.7 | 906.4 | 904.5 | 909.3 | 913.0 |
| 57.5° | 858.3 | 825.3 | 831.9 | 839.5 | 844.2 |
| 60° | 769.7 | 746.1 | 748.9 | 761.2 | 752.7 |
| 62.5° | 698.0 | 665.9 | 670.6 | 681.0 | 681.0 |
| 65° | 612.2 | 579.1 | 582.9 | 590.5 | 600.8 |
| 67.5° | 529.1 | 494.2 | 499.9 | 508.4 | 511.2 |
| 70° | 438.6 | 401.8 | 417.8 | 426.3 | 431.1 |
| 72.5° | 351.8 | 323.5 | 337.7 | 342.4 | 346.2 |
| 75° | 273.5 | 247.1 | 261.3 | 263.2 | 260.3 |
| 77.5° | 194.3 | 175.4 | 186.8 | 190.5 | 187.7 |
| 80° | 131.1 | 112.2 | 121.7 | 124.5 | 121.7 |
| 82.5° | 71.7 | 66.0 | 69.8 | 70.7 | 68.9 |
| 85° | 32.1 | 28.3 | 31.1 | 31.1 | 32.1 |
| 87.5° | 9.4 | 8.5 | 8.5 | 9.4 | 8.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)