

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: P688201

Luminaire Tested: FLR-HA-22-L3C3 (HI)-40-CP187

Issue Date: 5/22/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P688201  
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-22-L3C3 (HI)-40-CP187  
Description: Fail-Safe - FLR Fully Luminous Recessed 2X2 4000K Luminaire at High Lumen setting for High Abuse  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: -

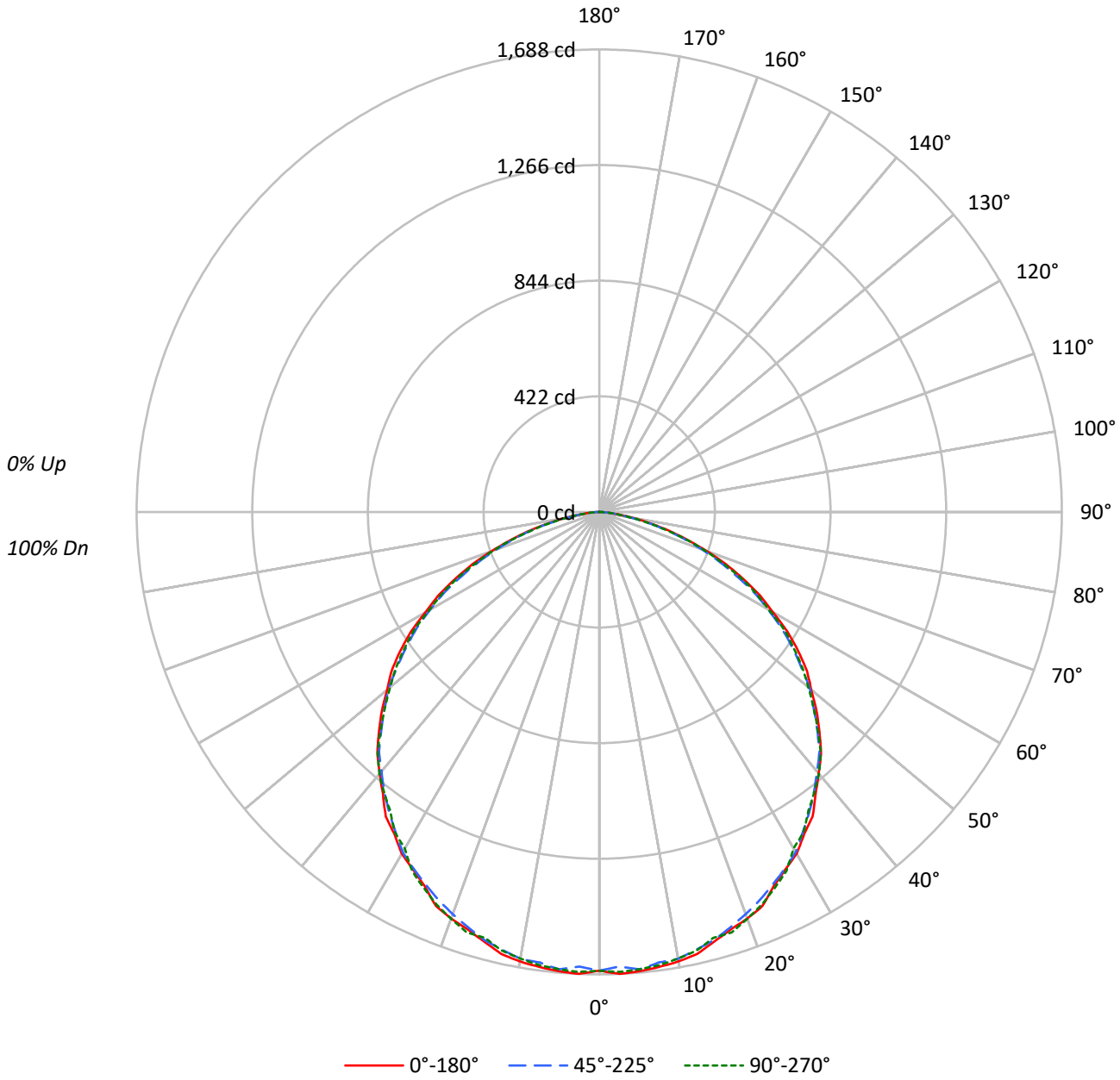
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4646.9 lumens  
Efficiency: N/A  
Efficacy: 120.7 lumens/watt  
Spacing Criteria (0/90/45): 1.27 / 1.27 / 1.38  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 38.5  
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



TEST NUMBER: P688201  
CATALOG NUMBER: FLR-HA-22-L3C3 (HI)-40-CP187

### Luminous Intensity Polar Plot



TEST NUMBER: P688201  
 CATALOG NUMBER: FLR-HA-22-L3C3 (HI)-40-CP187

**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°  | 4505 | 4505 | 4505 |
| 5°  | 4546 | 4527 | 4527 |
| 10° | 4553 | 4526 | 4523 |
| 15° | 4522 | 4507 | 4484 |
| 20° | 4523 | 4474 | 4525 |
| 25° | 4474 | 4453 | 4498 |
| 30° | 4476 | 4457 | 4407 |
| 35° | 4459 | 4391 | 4371 |
| 40° | 4376 | 4341 | 4382 |
| 45° | 4325 | 4281 | 4294 |
| 50° | 4229 | 4199 | 4169 |
| 55° | 4160 | 4026 | 4064 |
| 60° | 3930 | 3824 | 3843 |
| 65° | 3698 | 3521 | 3629 |
| 70° | 3274 | 3119 | 3217 |
| 75° | 2698 | 2577 | 2568 |
| 80° | 1928 | 1788 | 1788 |
| 85° | 939  | 911  | 939  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 4325 cd/sqm

TEST NUMBER: P688201  
 CATALOG NUMBER: FLR-HA-22-L3C3 (HI)-40-CP187

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 159.0  | 3.4       |
| 10°-20°   | 456.1  | 9.8       |
| 20°-30°   | 693.2  | 14.9      |
| 30°-40°   | 838.0  | 18.0      |
| 40°-50°   | 868.3  | 18.7      |
| 50°-60°   | 771.8  | 16.6      |
| 60°-70°   | 553.4  | 11.9      |
| 70°-80°   | 263.4  | 5.7       |
| 80°-90°   | 43.6   | 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°    | 1308.3 | 28.2      |
| 0°-40°    | 2146.3 | 46.2      |
| 0°-60°    | 3786.4 | 81.5      |
| 0°-90°    | 4646.9 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4646.9 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1674 | 1674  | 1674 | 1674  | 1674 |      |
| 5°  | 1683 | 1675  | 1676 | 1668  | 1676 | 160  |
| 15° | 1623 | 1618  | 1618 | 1609  | 1610 | 459  |
| 25° | 1507 | 1503  | 1500 | 1499  | 1515 | 697  |
| 35° | 1357 | 1336  | 1337 | 1338  | 1331 | 844  |
| 45° | 1136 | 1124  | 1125 | 1120  | 1128 | 876  |
| 55° | 887  | 860   | 858  | 863   | 866  | 789  |
| 65° | 581  | 549   | 553  | 560   | 570  | 573  |
| 75° | 260  | 234   | 248  | 250   | 247  | 276  |
| 85° | 30   | 27    | 30   | 30    | 30   | 46   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |

TEST NUMBER: P688201

CATALOG NUMBER: FLR-HA-22-L3C3 (HI)-40-CP187

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1674.2 | 1674.2 | 1674.2 | 1674.2 | 1674.2 |
| 2.5°  | 1687.6 | 1678.6 | 1660.7 | 1672.4 | 1680.4 |
| 5°    | 1683.1 | 1675.1 | 1676.0 | 1667.9 | 1676.0 |
| 7.5°  | 1675.1 | 1667.0 | 1659.0 | 1656.3 | 1668.8 |
| 10°   | 1666.1 | 1650.9 | 1656.3 | 1650.0 | 1655.4 |
| 12.5° | 1652.7 | 1640.2 | 1636.6 | 1628.5 | 1640.2 |
| 15°   | 1623.2 | 1617.8 | 1617.8 | 1608.8 | 1609.7 |
| 17.5° | 1597.2 | 1586.5 | 1590.1 | 1585.6 | 1608.8 |
| 20°   | 1579.3 | 1562.3 | 1562.3 | 1559.6 | 1580.2 |
| 22.5° | 1556.9 | 1537.3 | 1532.8 | 1534.6 | 1550.7 |
| 25°   | 1506.8 | 1503.3 | 1499.7 | 1498.8 | 1514.9 |
| 27.5° | 1471.0 | 1461.2 | 1467.5 | 1464.8 | 1478.2 |
| 30°   | 1440.6 | 1423.6 | 1434.4 | 1424.5 | 1418.3 |
| 32.5° | 1392.3 | 1386.0 | 1383.4 | 1384.2 | 1386.9 |
| 35°   | 1357.4 | 1335.9 | 1336.8 | 1337.7 | 1330.6 |
| 37.5° | 1296.6 | 1299.2 | 1287.6 | 1287.6 | 1289.4 |
| 40°   | 1245.6 | 1242.0 | 1235.7 | 1235.7 | 1247.3 |
| 42.5° | 1198.1 | 1182.0 | 1189.2 | 1178.4 | 1196.3 |
| 45°   | 1136.4 | 1123.9 | 1124.8 | 1120.3 | 1128.3 |
| 47.5° | 1075.5 | 1064.8 | 1061.2 | 1064.8 | 1061.2 |
| 50°   | 1010.2 | 1003.1 | 1003.1 | 999.5  | 995.9  |
| 52.5° | 955.6  | 930.6  | 928.8  | 934.2  | 935.1  |
| 55°   | 886.7  | 859.9  | 858.1  | 862.6  | 866.2  |
| 57.5° | 814.3  | 782.9  | 789.2  | 796.4  | 800.8  |
| 60°   | 730.2  | 707.8  | 710.5  | 722.1  | 714.0  |
| 62.5° | 662.1  | 631.7  | 636.2  | 646.0  | 646.0  |
| 65°   | 580.7  | 549.4  | 553.0  | 560.1  | 570.0  |
| 67.5° | 502.0  | 468.9  | 474.2  | 482.3  | 485.0  |
| 70°   | 416.1  | 381.2  | 396.4  | 404.4  | 408.9  |
| 72.5° | 333.8  | 306.9  | 320.3  | 324.8  | 328.4  |
| 75°   | 259.5  | 234.4  | 247.9  | 249.6  | 247.0  |
| 77.5° | 184.3  | 166.4  | 177.2  | 180.7  | 178.1  |
| 80°   | 124.4  | 106.5  | 115.4  | 118.1  | 115.4  |
| 82.5° | 68.0   | 62.6   | 66.2   | 67.1   | 65.3   |
| 85°   | 30.4   | 26.8   | 29.5   | 29.5   | 30.4   |
| 87.5° | 8.9    | 8.1    | 8.1    | 8.9    | 8.1    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)