

Scaled data based on original data using  
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-State  
Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: FAIL-SAFE

Report Number: P239209

Luminaire Tested: **HDF-4-LD4-UNV-1-HI-30-EDC-1**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P239209  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1711-412-8)  
Test Lab: INNOVATION CENTER(G2)  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: HDF-4-LD4-UNV-1-HI-30-EDC-1  
Description: FAILSAFE HDF LED FIXTURE  
4FT, 1-ROW LED BOARDS, NON-OVERLAY  
Light Source: (84) 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

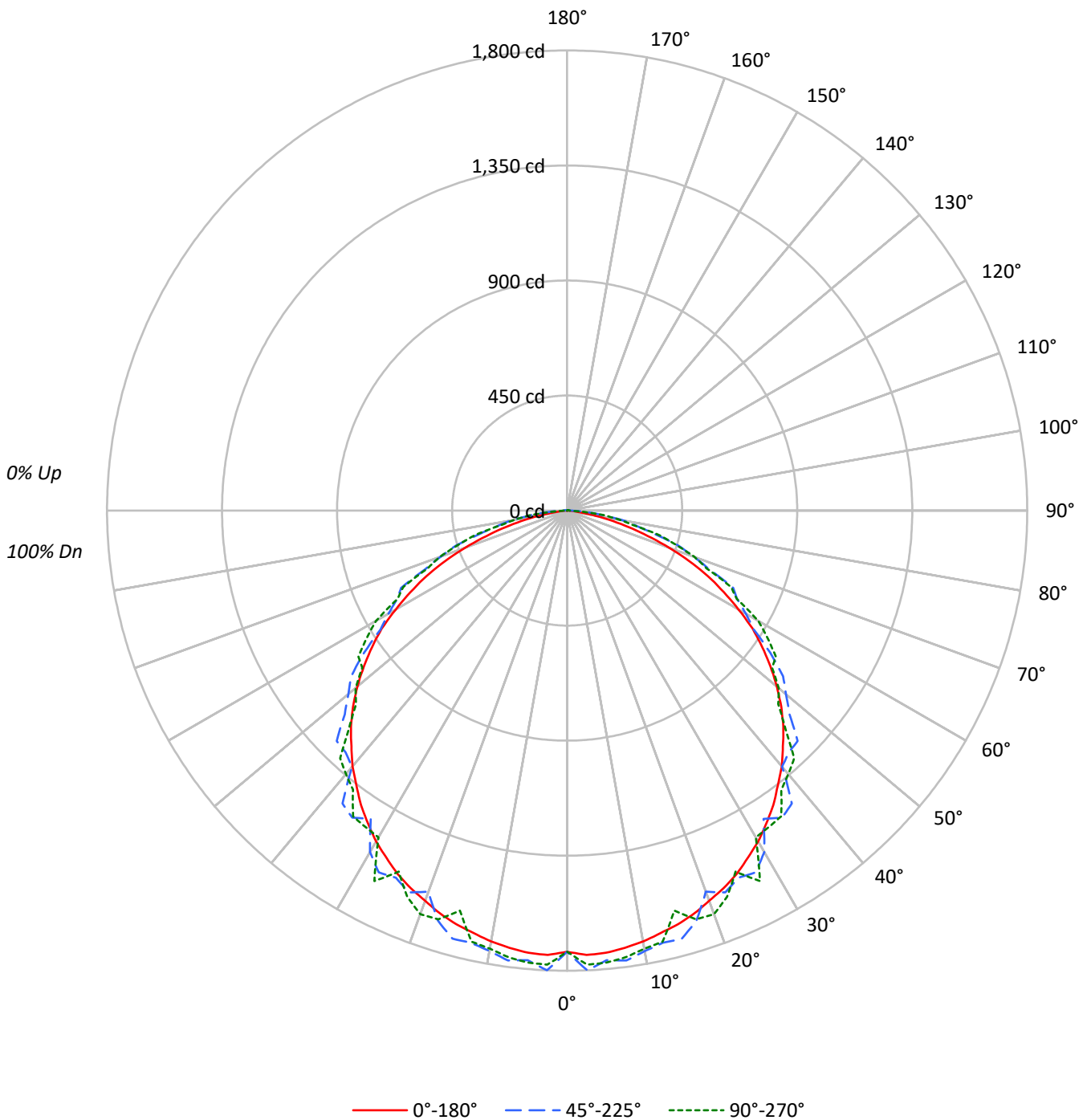
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5190.0 lumens  
Efficiency: N/A  
Efficacy: 116.6 lumens/watt  
Spacing Criteria (0/90/45): 1.28 / 1.3 / 1.44  
Luminous Opening: Rectangular (W 0.58' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 44.5  
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: 25 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 | 104 | 100 | 96  | 106 | 102 | 98  | 94  | 97  | 94  | 91  | 93  | 91  | 88  | 90  | 87  | 86  | 83  |
| 2   | 99  | 90  | 83  | 78  | 96  | 88  | 82  | 77  | 85  | 79  | 75  | 81  | 77  | 73  | 78  | 75  | 71  | 69  |
| 3   | 90  | 79  | 71  | 64  | 87  | 78  | 70  | 64  | 75  | 68  | 63  | 72  | 66  | 61  | 69  | 64  | 60  | 58  |
| 4   | 82  | 70  | 61  | 54  | 80  | 69  | 60  | 54  | 66  | 59  | 53  | 64  | 57  | 52  | 61  | 56  | 52  | 49  |
| 5   | 75  | 62  | 53  | 47  | 73  | 61  | 53  | 46  | 59  | 52  | 46  | 57  | 50  | 45  | 55  | 49  | 45  | 43  |
| 6   | 70  | 56  | 47  | 41  | 68  | 55  | 47  | 40  | 53  | 46  | 40  | 52  | 45  | 40  | 50  | 44  | 39  | 37  |
| 7   | 64  | 51  | 42  | 36  | 63  | 50  | 42  | 36  | 48  | 41  | 35  | 47  | 40  | 35  | 46  | 39  | 35  | 33  |
| 8   | 60  | 46  | 38  | 32  | 58  | 46  | 37  | 32  | 44  | 37  | 32  | 43  | 36  | 31  | 42  | 36  | 31  | 29  |
| 9   | 56  | 42  | 34  | 29  | 55  | 42  | 34  | 29  | 41  | 33  | 28  | 40  | 33  | 28  | 39  | 32  | 28  | 26  |
| 10  | 53  | 39  | 31  | 26  | 51  | 39  | 31  | 26  | 38  | 31  | 26  | 37  | 30  | 26  | 36  | 30  | 25  | 24  |

**AVERAGE LUMINANCE (cd/sqm):**

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 7960 | 7960 | 7960 |
| 5°  | 8042 | 8174 | 8218 |
| 10° | 8016 | 8194 | 8150 |
| 15° | 8000 | 8279 | 7735 |
| 20° | 7974 | 7788 | 8246 |
| 25° | 7986 | 8067 | 7930 |
| 30° | 7961 | 8214 | 7861 |
| 35° | 7919 | 8257 | 8222 |
| 40° | 7867 | 7877 | 8106 |
| 45° | 7801 | 8317 | 7873 |
| 50° | 7685 | 8014 | 7753 |
| 55° | 7493 | 7797 | 8014 |
| 60° | 7150 | 7442 | 7968 |
| 65° | 6629 | 7821 | 7717 |
| 70° | 5739 | 7082 | 7146 |
| 75° | 4426 | 6315 | 6709 |
| 80° | 2688 | 5967 | 5547 |
| 85° | 1254 | 4435 | 4102 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 167.7  | 3.2       |
| 10°-20°   | 478.8  | 9.2       |
| 20°-30°   | 734.8  | 14.2      |
| 30°-40°   | 889.3  | 17.1      |
| 40°-50°   | 942.9  | 18.2      |
| 50°-60°   | 857.2  | 16.5      |
| 60°-70°   | 660.4  | 12.7      |
| 70°-80°   | 354.8  | 6.8       |
| 80°-90°   | 87.3   | 1.7       |
| 90°-100°  | 7.4    | 0.1       |
| 100°-110° | 4.2    | 0.1       |
| 110°-120° | 2.7    | 0.1       |
| 120°-130° | 1.6    | 0.0       |
| 130°-140° | 0.8    | 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°    | 1381.3 | 26.6      |
| 0°-40°    | 2270.6 | 43.7      |
| 0°-60°    | 4070.8 | 78.4      |
| 0°-90°    | 5173.2 | 99.7      |
| 90°-120°  | 14.3   | 0.3       |
| 90°-150°  | 16.8   | 0.3       |
| 90°-180°  | 17.0   | 0.3       |
| 0°-180°   | 5190.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 1726 | 1726  | 1726 | 1726  | 1726 |      |
| 5°   | 1737 | 1792  | 1765 | 1770  | 1775 | 165  |
| 15°  | 1675 | 1716  | 1734 | 1635  | 1620 | 473  |
| 25°  | 1569 | 1599  | 1585 | 1550  | 1558 | 722  |
| 35°  | 1406 | 1349  | 1466 | 1414  | 1460 | 879  |
| 45°  | 1196 | 1254  | 1275 | 1256  | 1207 | 921  |
| 55°  | 932  | 979   | 970  | 943   | 996  | 831  |
| 65°  | 607  | 630   | 716  | 696   | 707  | 597  |
| 75°  | 248  | 305   | 354  | 368   | 376  | 266  |
| 85°  | 24   | 73    | 84   | 78    | 78   | 35   |
| 90°  | 0    | 14    | 13   | 10    | 8    | 1    |
| 95°  | 0    | 8     | 8    | 6     | 6    | 0    |
| 105° | 0    | 3     | 5    | 5     | 5    | 0    |
| 115° | 2    | 2     | 3    | 3     | 3    | 1    |
| 125° | 2    | 2     | 2    | 2     | 2    | 1    |
| 135° | 2    | 2     | 2    | 2     | 2    | 1    |
| 145° | 0    | 0     | 0    | 0     | 0    | 0    |
| 155° | 0    | 0     | 0    | 0     | 0    | 0    |
| 165° | 0    | 0     | 0    | 0     | 0    | 0    |
| 175° | 0    | 0     | 0    | 0     | 0    | 0    |
| 180° | 0    | 0     | 0    | 0     | 0    | 0    |



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CATALOG NUMBER: HDF-4-LD4-UNV-1-HI-30-EDC-1

**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 1725.6 | 1725.6 | 1725.6 | 1725.6 | 1725.6 |
| 2.5°   | 1739.8 | 1758.8 | 1799.9 | 1790.4 | 1777.8 |
| 5°     | 1736.6 | 1792.0 | 1765.1 | 1769.9 | 1774.6 |
| 7.5°   | 1725.6 | 1739.8 | 1774.6 | 1757.2 | 1761.9 |
| 10°    | 1711.3 | 1739.8 | 1749.3 | 1743.0 | 1739.8 |
| 12.5°  | 1692.4 | 1733.5 | 1731.9 | 1758.8 | 1727.2 |
| 15°    | 1675.0 | 1716.1 | 1733.5 | 1635.4 | 1619.6 |
| 17.5°  | 1652.8 | 1687.6 | 1681.3 | 1656.0 | 1676.5 |
| 20°    | 1624.3 | 1671.8 | 1586.4 | 1644.9 | 1679.7 |
| 22.5°  | 1599.0 | 1630.7 | 1616.4 | 1646.5 | 1635.4 |
| 25°    | 1569.0 | 1599.0 | 1584.8 | 1550.0 | 1557.9 |
| 27.5°  | 1531.0 | 1583.2 | 1595.9 | 1537.4 | 1633.8 |
| 30°    | 1494.6 | 1515.2 | 1542.1 | 1591.1 | 1475.7 |
| 32.5°  | 1450.4 | 1423.5 | 1429.8 | 1431.4 | 1467.8 |
| 35°    | 1406.1 | 1349.1 | 1466.2 | 1414.0 | 1459.9 |
| 37.5°  | 1353.9 | 1350.7 | 1444.0 | 1420.3 | 1376.0 |
| 40°    | 1306.4 | 1334.9 | 1308.0 | 1323.8 | 1346.0 |
| 42.5°  | 1249.5 | 1289.0 | 1282.7 | 1282.7 | 1314.3 |
| 45°    | 1195.7 | 1254.2 | 1274.8 | 1255.8 | 1206.8 |
| 47.5°  | 1135.6 | 1156.2 | 1179.9 | 1159.3 | 1119.8 |
| 50°    | 1070.8 | 1039.1 | 1116.6 | 1056.5 | 1080.3 |
| 52.5°  | 1002.8 | 1062.9 | 1064.4 | 1005.9 | 1010.7 |
| 55°    | 931.6  | 979.0  | 969.5  | 942.7  | 996.4  |
| 57.5°  | 860.4  | 855.7  | 865.2  | 934.7  | 930.0  |
| 60°    | 775.0  | 803.5  | 806.6  | 849.3  | 863.6  |
| 62.5°  | 691.2  | 754.4  | 749.7  | 787.7  | 748.1  |
| 65°    | 607.3  | 629.5  | 716.5  | 695.9  | 707.0  |
| 67.5°  | 517.2  | 558.3  | 602.6  | 613.7  | 590.0  |
| 70°    | 425.5  | 474.5  | 525.1  | 521.9  | 529.8  |
| 72.5°  | 330.6  | 368.5  | 455.5  | 417.6  | 446.0  |
| 75°    | 248.3  | 305.3  | 354.3  | 368.5  | 376.4  |
| 77.5°  | 169.2  | 242.0  | 278.4  | 292.6  | 265.7  |
| 80°    | 101.2  | 180.3  | 224.6  | 207.2  | 208.8  |
| 82.5°  | 52.2   | 107.6  | 142.3  | 136.0  | 150.3  |
| 85°    | 23.7   | 72.8   | 83.8   | 77.5   | 77.5   |
| 87.5°  | 7.9    | 33.2   | 34.8   | 25.3   | 22.1   |
| 90°    | 0.0    | 14.2   | 12.7   | 9.5    | 7.9    |
| 92.5°  | 0.0    | 9.5    | 9.5    | 7.9    | 6.3    |
| 95°    | 0.0    | 7.9    | 7.9    | 6.3    | 6.3    |
| 97.5°  | 0.0    | 6.3    | 7.9    | 6.3    | 4.7    |
| 100°   | 0.0    | 4.7    | 6.3    | 6.3    | 4.7    |
| 102.5° | 0.0    | 3.2    | 6.3    | 6.3    | 4.7    |
| 105°   | 0.0    | 3.2    | 4.7    | 4.7    | 4.7    |
| 107.5° | 0.0    | 3.2    | 4.7    | 4.7    | 4.7    |
| 110°   | 0.0    | 1.6    | 4.7    | 4.7    | 3.2    |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|-----|-------|-----|
| 112.5° | 1.6 | 1.6   | 3.2 | 4.7   | 3.2 |
| 115°   | 1.6 | 1.6   | 3.2 | 3.2   | 3.2 |
| 117.5° | 1.6 | 1.6   | 3.2 | 3.2   | 3.2 |
| 120°   | 1.6 | 1.6   | 1.6 | 3.2   | 3.2 |
| 122.5° | 1.6 | 1.6   | 1.6 | 3.2   | 3.2 |
| 125°   | 1.6 | 1.6   | 1.6 | 1.6   | 1.6 |
| 127.5° | 1.6 | 1.6   | 1.6 | 1.6   | 1.6 |
| 130°   | 1.6 | 1.6   | 1.6 | 1.6   | 1.6 |
| 132.5° | 1.6 | 1.6   | 1.6 | 1.6   | 1.6 |
| 135°   | 1.6 | 1.6   | 1.6 | 1.6   | 1.6 |
| 137.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 140°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 142.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 145°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 147.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 150°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 152.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 155°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 157.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 160°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 162.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 165°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 167.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 170°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 172.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 175°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 177.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 180°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |

(END OF REPORT)