

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: P239309

Luminaire Tested: **HDF-2-LD4-UNV-1-STD-30-OPL-EDC-1**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P239309
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1711-412-20)
Test Lab: INNOVATION CENTER(G2)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: HDF-2-LD4-UNV-1-STD-30-OPL-EDC-1
Description: FAILSAFE HDF LED FIXTURE
2FT, 1-ROW LED BOARDS, OPAL LENS
Light Source: (42) 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

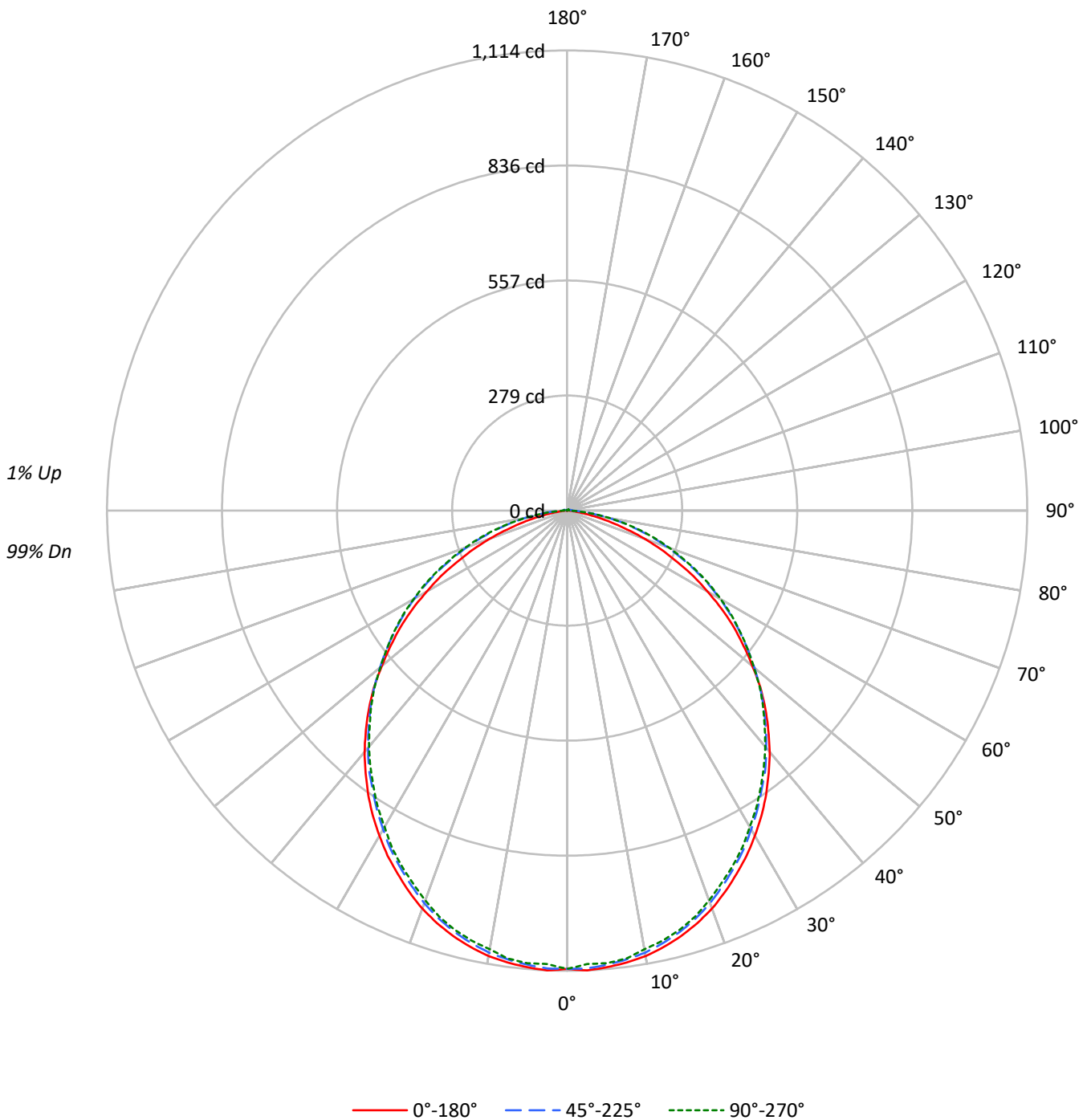
Lumens per Lamp: N/A
Luminaire Lumens: 2892.8 lumens
Efficiency: N/A
Efficacy: 81.0 lumens/watt
Spacing Criteria (0/90/45): 1.22 / 1.19 / 1.31
Luminous Opening: Rectangular (W 0.58' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 35.7
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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CATALOG NUMBER: HDF-2-LD4-UNV-1-STD-30-OPL-EDC-1

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 | 101 | 101 | 101 | 99 |
| 1 | 109 | 104 | 100 | 97 | 106 | 102 | 98 | 95 | 98 | 95 | 92 | 94 | 91 | 89 | 90 | 88 | 86 | 84 |
| 2 | 99 | 91 | 85 | 79 | 97 | 89 | 83 | 78 | 86 | 81 | 76 | 82 | 78 | 74 | 79 | 76 | 73 | 70 |
| 3 | 91 | 80 | 73 | 66 | 88 | 79 | 71 | 66 | 76 | 69 | 64 | 73 | 68 | 63 | 70 | 66 | 62 | 60 |
| 4 | 83 | 72 | 63 | 56 | 81 | 70 | 62 | 56 | 68 | 61 | 55 | 65 | 59 | 54 | 63 | 58 | 53 | 51 |
| 5 | 77 | 64 | 55 | 49 | 75 | 63 | 55 | 48 | 61 | 53 | 48 | 59 | 52 | 47 | 57 | 51 | 47 | 45 |
| 6 | 71 | 58 | 49 | 43 | 69 | 57 | 48 | 42 | 55 | 48 | 42 | 53 | 47 | 42 | 52 | 46 | 41 | 39 |
| 7 | 66 | 52 | 44 | 38 | 64 | 52 | 43 | 38 | 50 | 43 | 37 | 49 | 42 | 37 | 47 | 41 | 37 | 35 |
| 8 | 61 | 48 | 40 | 34 | 60 | 47 | 39 | 34 | 46 | 39 | 33 | 45 | 38 | 33 | 43 | 37 | 33 | 31 |
| 9 | 57 | 44 | 36 | 30 | 56 | 43 | 36 | 30 | 42 | 35 | 30 | 41 | 35 | 30 | 40 | 34 | 30 | 28 |
| 10 | 54 | 41 | 33 | 28 | 52 | 40 | 33 | 28 | 39 | 32 | 27 | 38 | 32 | 27 | 37 | 31 | 27 | 25 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 10236 | 10236 | 10236 |
| 5° | 10276 | 10220 | 10187 |
| 10° | 10259 | 10181 | 10102 |
| 15° | 10186 | 10083 | 10037 |
| 20° | 10070 | 9928 | 9858 |
| 25° | 9879 | 9720 | 9659 |
| 30° | 9686 | 9494 | 9418 |
| 35° | 9457 | 9255 | 9201 |
| 40° | 9188 | 9029 | 8986 |
| 45° | 8858 | 8780 | 8749 |
| 50° | 8403 | 8489 | 8471 |
| 55° | 7930 | 8200 | 8220 |
| 60° | 7237 | 7879 | 7923 |
| 65° | 6416 | 7464 | 7569 |
| 70° | 5371 | 6925 | 7087 |
| 75° | 3935 | 6285 | 6456 |
| 80° | 2295 | 5419 | 5547 |
| 85° | 1143 | 4573 | 4319 |



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CATALOG NUMBER: HDF-2-LD4-UNV-1-STD-30-OPL-EDC-1

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 104.8 | 3.6 |
| 10°-20° | 297.7 | 10.3 |
| 20°-30° | 440.6 | 15.2 |
| 30°-40° | 515.8 | 17.8 |
| 40°-50° | 518.4 | 17.9 |
| 50°-60° | 450.8 | 15.6 |
| 60°-70° | 327.2 | 11.3 |
| 70°-80° | 173.4 | 6.0 |
| 80°-90° | 44.9 | 1.6 |
| 90°-100° | 8.4 | 0.3 |
| 100°-110° | 5.1 | 0.2 |
| 110°-120° | 2.7 | 0.1 |
| 120°-130° | 1.9 | 0.1 |
| 130°-140° | 1.0 | 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° | 843.1 | 29.1 |
| 0°-40° | 1358.9 | 47.0 |
| 0°-60° | 2328.1 | 80.5 |
| 0°-90° | 2873.6 | 99.3 |
| 90°-120° | 16.2 | 0.6 |
| 90°-150° | 19.1 | 0.7 |
| 90°-180° | 19.0 | 0.7 |
| 0°-180° | 2892.8 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1110 | 1110 | 1110 | 1110 | 1110 | |
| 5° | 1110 | 1108 | 1104 | 1099 | 1100 | 105 |
| 15° | 1066 | 1062 | 1056 | 1052 | 1051 | 301 |
| 25° | 970 | 963 | 955 | 950 | 949 | 447 |
| 35° | 840 | 829 | 822 | 818 | 817 | 525 |
| 45° | 679 | 670 | 673 | 672 | 670 | 523 |
| 55° | 493 | 493 | 510 | 513 | 511 | 439 |
| 65° | 294 | 311 | 342 | 349 | 347 | 292 |
| 75° | 110 | 145 | 176 | 184 | 181 | 120 |
| 85° | 11 | 34 | 43 | 43 | 41 | 16 |
| 90° | 0 | 11 | 12 | 11 | 7 | 1 |
| 95° | 0 | 7 | 11 | 10 | 7 | 0 |
| 105° | 0 | 2 | 6 | 7 | 6 | 1 |
| 115° | 1 | 1 | 4 | 4 | 4 | 1 |
| 125° | 1 | 1 | 2 | 2 | 4 | 1 |
| 135° | 1 | 1 | 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 |



TEST NUMBER: P239309

CATALOG NUMBER: HDF-2-LD4-UNV-1-STD-30-OPL-EDC-1

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1109.5 | 1109.5 | 1109.5 | 1109.5 | 1109.5 |
| 2.5° | 1114.3 | 1113.1 | 1109.5 | 1102.3 | 1098.7 |
| 5° | 1109.5 | 1108.3 | 1103.5 | 1098.7 | 1099.9 |
| 7.5° | 1103.5 | 1101.1 | 1096.3 | 1092.7 | 1093.9 |
| 10° | 1095.1 | 1091.5 | 1086.7 | 1080.7 | 1078.3 |
| 12.5° | 1081.9 | 1079.5 | 1072.4 | 1066.4 | 1066.4 |
| 15° | 1066.4 | 1061.6 | 1055.6 | 1052.0 | 1050.8 |
| 17.5° | 1047.2 | 1041.2 | 1035.2 | 1030.4 | 1030.4 |
| 20° | 1025.6 | 1018.4 | 1011.2 | 1005.2 | 1004.0 |
| 22.5° | 999.2 | 992.0 | 983.6 | 977.6 | 976.4 |
| 25° | 970.4 | 963.2 | 954.8 | 950.0 | 948.8 |
| 27.5° | 941.6 | 932.0 | 924.8 | 918.8 | 918.8 |
| 30° | 909.2 | 899.6 | 891.2 | 886.4 | 884.0 |
| 32.5° | 875.6 | 864.8 | 857.6 | 852.8 | 852.8 |
| 35° | 839.6 | 828.9 | 821.7 | 818.1 | 816.9 |
| 37.5° | 801.3 | 791.7 | 788.1 | 784.5 | 782.1 |
| 40° | 762.9 | 753.3 | 749.7 | 747.3 | 746.1 |
| 42.5° | 720.9 | 712.5 | 711.3 | 708.9 | 707.7 |
| 45° | 678.9 | 670.5 | 672.9 | 671.7 | 670.5 |
| 47.5° | 634.5 | 628.5 | 633.3 | 633.3 | 632.1 |
| 50° | 585.4 | 583.0 | 591.4 | 593.8 | 590.2 |
| 52.5° | 538.6 | 537.4 | 550.6 | 553.0 | 550.6 |
| 55° | 493.0 | 493.0 | 509.8 | 513.4 | 511.0 |
| 57.5° | 443.8 | 447.4 | 469.0 | 473.8 | 471.4 |
| 60° | 392.2 | 401.8 | 427.0 | 431.8 | 429.4 |
| 62.5° | 345.5 | 356.3 | 385.0 | 392.2 | 388.6 |
| 65° | 293.9 | 310.7 | 341.9 | 349.1 | 346.7 |
| 67.5° | 245.9 | 266.3 | 298.7 | 307.1 | 303.5 |
| 70° | 199.1 | 223.1 | 256.7 | 263.9 | 262.7 |
| 72.5° | 152.3 | 183.5 | 215.9 | 223.1 | 221.9 |
| 75° | 110.4 | 145.1 | 176.3 | 183.5 | 181.1 |
| 77.5° | 73.2 | 111.6 | 139.1 | 143.9 | 141.5 |
| 80° | 43.2 | 81.6 | 102.0 | 105.6 | 104.4 |
| 82.5° | 22.8 | 55.2 | 69.6 | 72.0 | 69.6 |
| 85° | 10.8 | 33.6 | 43.2 | 43.2 | 40.8 |
| 87.5° | 4.8 | 18.0 | 21.6 | 20.4 | 18.0 |
| 90° | 0.0 | 10.8 | 12.0 | 10.8 | 7.2 |
| 92.5° | 0.0 | 8.4 | 10.8 | 9.6 | 7.2 |
| 95° | 0.0 | 7.2 | 10.8 | 9.6 | 7.2 |
| 97.5° | 0.0 | 4.8 | 9.6 | 9.6 | 7.2 |
| 100° | 0.0 | 3.6 | 8.4 | 9.6 | 7.2 |
| 102.5° | 0.0 | 3.6 | 7.2 | 8.4 | 7.2 |
| 105° | 0.0 | 2.4 | 6.0 | 7.2 | 6.0 |
| 107.5° | 1.2 | 2.4 | 4.8 | 6.0 | 4.8 |
| 110° | 1.2 | 2.4 | 3.6 | 4.8 | 4.8 |



TEST NUMBER: P239309

CATALOG NUMBER: HDF-2-LD4-UNV-1-STD-30-OPL-EDC-1

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|-----|-------|-----|
| 112.5° | 1.2 | 1.2 | 3.6 | 4.8 | 3.6 |
| 115° | 1.2 | 1.2 | 3.6 | 3.6 | 3.6 |
| 117.5° | 1.2 | 1.2 | 2.4 | 3.6 | 3.6 |
| 120° | 1.2 | 1.2 | 2.4 | 3.6 | 3.6 |
| 122.5° | 1.2 | 1.2 | 2.4 | 3.6 | 3.6 |
| 125° | 1.2 | 1.2 | 2.4 | 2.4 | 3.6 |
| 127.5° | 1.2 | 1.2 | 2.4 | 2.4 | 2.4 |
| 130° | 1.2 | 1.2 | 2.4 | 2.4 | 2.4 |
| 132.5° | 1.2 | 1.2 | 2.4 | 2.4 | 2.4 |
| 135° | 1.2 | 1.2 | 2.4 | 2.4 | 2.4 |
| 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)