

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: P239227

Luminaire Tested: **HDF-4-LD4-UNV-1-STD-40-IK12-EDC-1**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P239227
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1711-412-9)
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-STD-40-IK12-EDC-1
Description: FAILSAFE HDF LED FIXTURE
4FT, 1-ROW LED BOARDS, CLEAR LENS
Light Source: (84) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

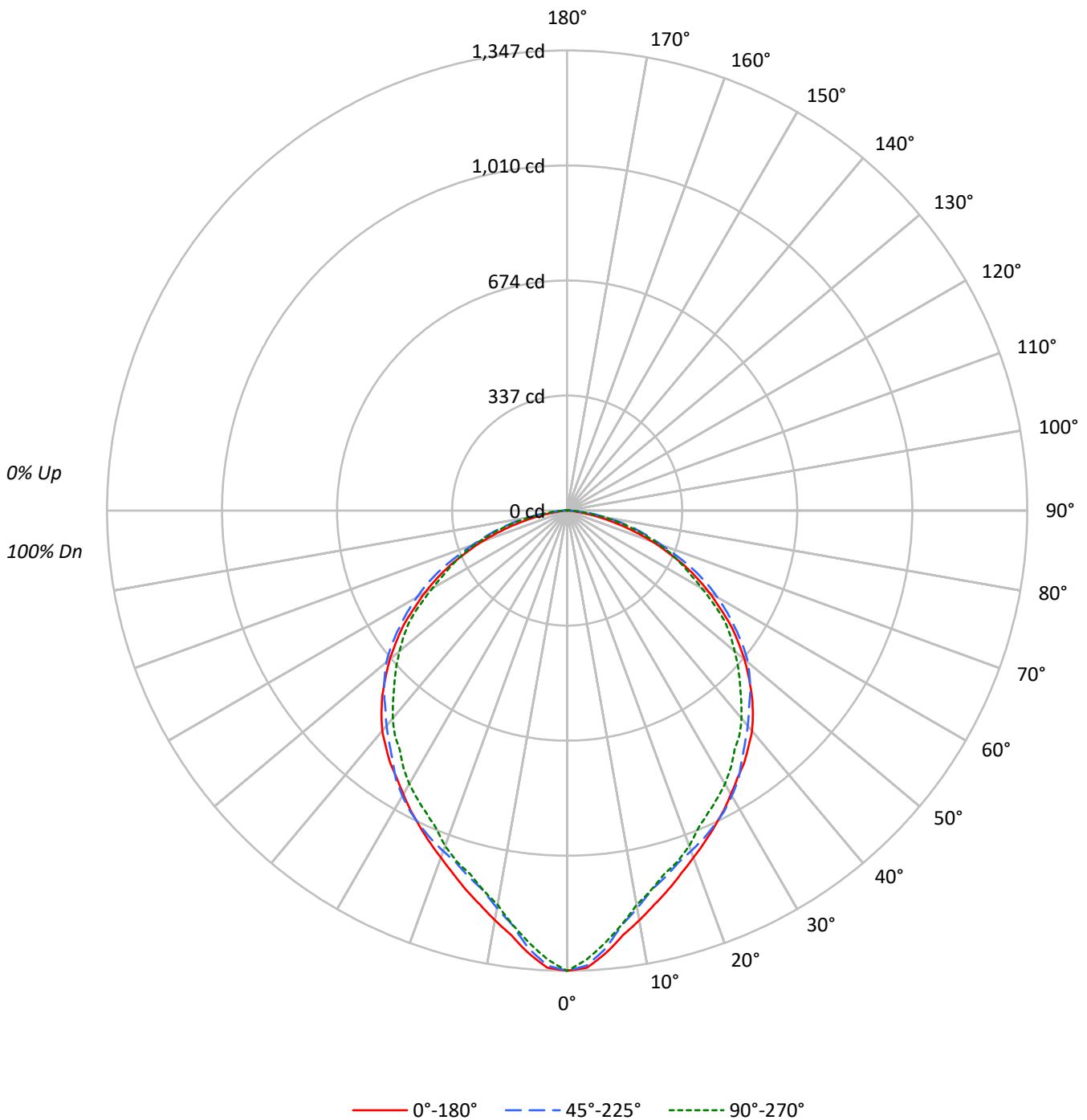
Lumens per Lamp: N/A
Luminaire Lumens: 3186.7 lumens
Efficiency: N/A
Efficacy: 94.6 lumens/watt
Spacing Criteria (0/90/45): 1.07 / 1.02 / 1.25
Luminous Opening: Rectangular (W 0.58' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 33.7
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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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 | 95 | 98 | 94 | 92 | 94 | 91 | 89 | 90 | 88 | 86 | 84 |
| 2 | 99 | 91 | 84 | 79 | 96 | 89 | 83 | 78 | 85 | 80 | 76 | 82 | 78 | 74 | 79 | 75 | 72 | 70 |
| 3 | 90 | 80 | 72 | 66 | 88 | 78 | 71 | 65 | 75 | 69 | 64 | 73 | 67 | 63 | 70 | 65 | 61 | 59 |
| 4 | 83 | 71 | 62 | 56 | 81 | 70 | 61 | 55 | 67 | 60 | 54 | 65 | 59 | 54 | 62 | 57 | 53 | 51 |
| 5 | 76 | 63 | 55 | 48 | 74 | 62 | 54 | 48 | 60 | 53 | 47 | 58 | 52 | 47 | 56 | 51 | 46 | 44 |
| 6 | 70 | 57 | 48 | 42 | 68 | 56 | 48 | 42 | 54 | 47 | 41 | 53 | 46 | 41 | 51 | 45 | 40 | 38 |
| 7 | 65 | 52 | 43 | 37 | 64 | 51 | 43 | 37 | 49 | 42 | 37 | 48 | 41 | 36 | 47 | 41 | 36 | 34 |
| 8 | 61 | 47 | 39 | 33 | 59 | 47 | 39 | 33 | 45 | 38 | 33 | 44 | 37 | 32 | 43 | 37 | 32 | 30 |
| 9 | 57 | 44 | 35 | 30 | 55 | 43 | 35 | 30 | 42 | 35 | 30 | 41 | 34 | 29 | 40 | 34 | 29 | 27 |
| 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° | 6215 | 6215 | 6215 |
| 5° | 6021 | 5959 | 5885 |
| 10° | 5702 | 5533 | 5489 |
| 15° | 5481 | 5302 | 5257 |
| 20° | 5305 | 5207 | 5128 |
| 25° | 5194 | 5181 | 4969 |
| 30° | 5107 | 5136 | 4922 |
| 35° | 5083 | 5015 | 4812 |
| 40° | 5072 | 4952 | 4782 |
| 45° | 4989 | 4945 | 4665 |
| 50° | 4863 | 4959 | 4594 |
| 55° | 4696 | 4836 | 4524 |
| 60° | 4436 | 4682 | 4201 |
| 65° | 4108 | 4444 | 4020 |
| 70° | 3577 | 3956 | 3812 |
| 75° | 2793 | 3652 | 3436 |
| 80° | 1780 | 3023 | 2776 |
| 85° | 778 | 2128 | 1985 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 119.1 | 3.7 |
| 10°-20° | 314.9 | 9.9 |
| 20°-30° | 463.8 | 14.6 |
| 30°-40° | 553.2 | 17.4 |
| 40°-50° | 569.8 | 17.9 |
| 50°-60° | 521.8 | 16.4 |
| 60°-70° | 382.9 | 12.0 |
| 70°-80° | 200.8 | 6.3 |
| 80°-90° | 46.1 | 1.4 |
| 90°-100° | 7.0 | 0.2 |
| 100°-110° | 3.6 | 0.1 |
| 110°-120° | 1.9 | 0.1 |
| 120°-130° | 1.2 | 0.0 |
| 130°-140° | 0.6 | 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° | 897.9 | 28.2 |
| 0°-40° | 1451.0 | 45.5 |
| 0°-60° | 2542.6 | 79.8 |
| 0°-90° | 3172.4 | 99.6 |
| 90°-120° | 12.5 | 0.4 |
| 90°-150° | 14.3 | 0.4 |
| 90°-180° | 14.0 | 0.4 |
| 0°-180° | 3186.7 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1347 | 1347 | 1347 | 1347 | 1347 | |
| 5° | 1300 | 1287 | 1287 | 1274 | 1271 | 121 |
| 15° | 1148 | 1125 | 1110 | 1102 | 1101 | 323 |
| 25° | 1020 | 1010 | 1018 | 991 | 976 | 471 |
| 35° | 903 | 892 | 891 | 872 | 854 | 564 |
| 45° | 765 | 735 | 758 | 715 | 715 | 589 |
| 55° | 584 | 589 | 601 | 585 | 562 | 520 |
| 65° | 376 | 382 | 407 | 387 | 368 | 370 |
| 75° | 157 | 179 | 205 | 201 | 193 | 169 |
| 85° | 15 | 34 | 40 | 40 | 38 | 23 |
| 90° | 0 | 9 | 9 | 8 | 7 | 1 |
| 95° | 0 | 5 | 9 | 8 | 7 | 0 |
| 105° | 0 | 1 | 4 | 5 | 5 | 0 |
| 115° | 1 | 1 | 1 | 3 | 3 | 1 |
| 125° | 1 | 1 | 1 | 1 | 1 | 1 |
| 135° | 1 | 1 | 1 | 1 | 1 | 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: P239227

CATALOG NUMBER: HDF-4-LD4-UNV-1-STD-40-IK12-EDC-1

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1347.2 | 1347.2 | 1347.2 | 1347.2 | 1347.2 |
| 2.5° | 1339.2 | 1329.8 | 1332.5 | 1323.1 | 1315.1 |
| 5° | 1300.3 | 1286.9 | 1286.9 | 1273.6 | 1270.9 |
| 7.5° | 1253.5 | 1229.4 | 1224.0 | 1221.3 | 1222.7 |
| 10° | 1217.3 | 1185.2 | 1181.2 | 1165.1 | 1171.8 |
| 12.5° | 1181.2 | 1155.7 | 1138.3 | 1123.6 | 1137.0 |
| 15° | 1147.7 | 1124.9 | 1110.2 | 1102.1 | 1100.8 |
| 17.5° | 1112.9 | 1094.1 | 1080.7 | 1080.7 | 1076.7 |
| 20° | 1080.7 | 1063.3 | 1060.6 | 1055.3 | 1044.6 |
| 22.5° | 1051.3 | 1033.8 | 1040.5 | 1025.8 | 1004.4 |
| 25° | 1020.5 | 1009.7 | 1017.8 | 991.0 | 976.3 |
| 27.5° | 991.0 | 988.3 | 993.7 | 962.9 | 950.8 |
| 30° | 958.8 | 960.2 | 964.2 | 936.1 | 924.0 |
| 32.5° | 928.0 | 929.4 | 933.4 | 908.0 | 891.9 |
| 35° | 902.6 | 891.9 | 890.6 | 871.8 | 854.4 |
| 37.5° | 871.8 | 853.1 | 855.7 | 833.0 | 828.9 |
| 40° | 842.3 | 816.9 | 822.3 | 794.1 | 794.1 |
| 42.5° | 804.8 | 772.7 | 787.4 | 758.0 | 754.0 |
| 45° | 764.7 | 735.2 | 758.0 | 715.1 | 715.1 |
| 47.5° | 720.5 | 696.4 | 724.5 | 680.3 | 679.0 |
| 50° | 677.6 | 662.9 | 691.0 | 650.8 | 640.1 |
| 52.5° | 630.8 | 629.4 | 648.2 | 613.3 | 602.6 |
| 55° | 583.9 | 589.2 | 601.3 | 585.2 | 562.5 |
| 57.5° | 530.3 | 545.0 | 555.8 | 545.0 | 508.9 |
| 60° | 480.8 | 494.2 | 507.5 | 488.8 | 455.3 |
| 62.5° | 429.9 | 439.2 | 460.7 | 437.9 | 408.4 |
| 65° | 376.3 | 381.7 | 407.1 | 387.0 | 368.3 |
| 67.5° | 317.4 | 325.4 | 348.2 | 342.8 | 328.1 |
| 70° | 265.2 | 270.5 | 293.3 | 300.0 | 282.6 |
| 72.5° | 210.3 | 223.6 | 247.7 | 245.1 | 238.4 |
| 75° | 156.7 | 179.4 | 204.9 | 200.9 | 192.8 |
| 77.5° | 108.5 | 133.9 | 158.0 | 155.3 | 151.3 |
| 80° | 67.0 | 91.1 | 113.8 | 112.5 | 104.5 |
| 82.5° | 33.5 | 58.9 | 76.3 | 72.3 | 65.6 |
| 85° | 14.7 | 33.5 | 40.2 | 40.2 | 37.5 |
| 87.5° | 4.0 | 16.1 | 20.1 | 17.4 | 16.1 |
| 90° | 0.0 | 9.4 | 9.4 | 8.0 | 6.7 |
| 92.5° | 0.0 | 8.0 | 9.4 | 8.0 | 6.7 |
| 95° | 0.0 | 5.4 | 9.4 | 8.0 | 6.7 |
| 97.5° | 0.0 | 4.0 | 8.0 | 8.0 | 6.7 |
| 100° | 0.0 | 2.7 | 6.7 | 6.7 | 6.7 |
| 102.5° | 0.0 | 2.7 | 5.4 | 5.4 | 5.4 |
| 105° | 0.0 | 1.3 | 4.0 | 5.4 | 5.4 |
| 107.5° | 0.0 | 1.3 | 2.7 | 4.0 | 4.0 |
| 110° | 0.0 | 1.3 | 2.7 | 2.7 | 4.0 |



TEST NUMBER: P239227

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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|-----|-------|-----|
| 112.5° | 0.0 | 1.3 | 2.7 | 2.7 | 2.7 |
| 115° | 1.3 | 1.3 | 1.3 | 2.7 | 2.7 |
| 117.5° | 1.3 | 1.3 | 1.3 | 2.7 | 2.7 |
| 120° | 1.3 | 1.3 | 1.3 | 1.3 | 2.7 |
| 122.5° | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 125° | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 127.5° | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 130° | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 132.5° | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 135° | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 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)