

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: P239187

Luminaire Tested: **HDF-4-LD4-UNV-2-HI-40-IK12-EDC-1**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P239187
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1711-412-4)
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-2-HI-40-IK12-EDC-1
Description: FAILSAFE HDF LED FIXTURE
4FT, 2-ROW LED BOARDS, CLEAR LENS
Light Source: (168) 4000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

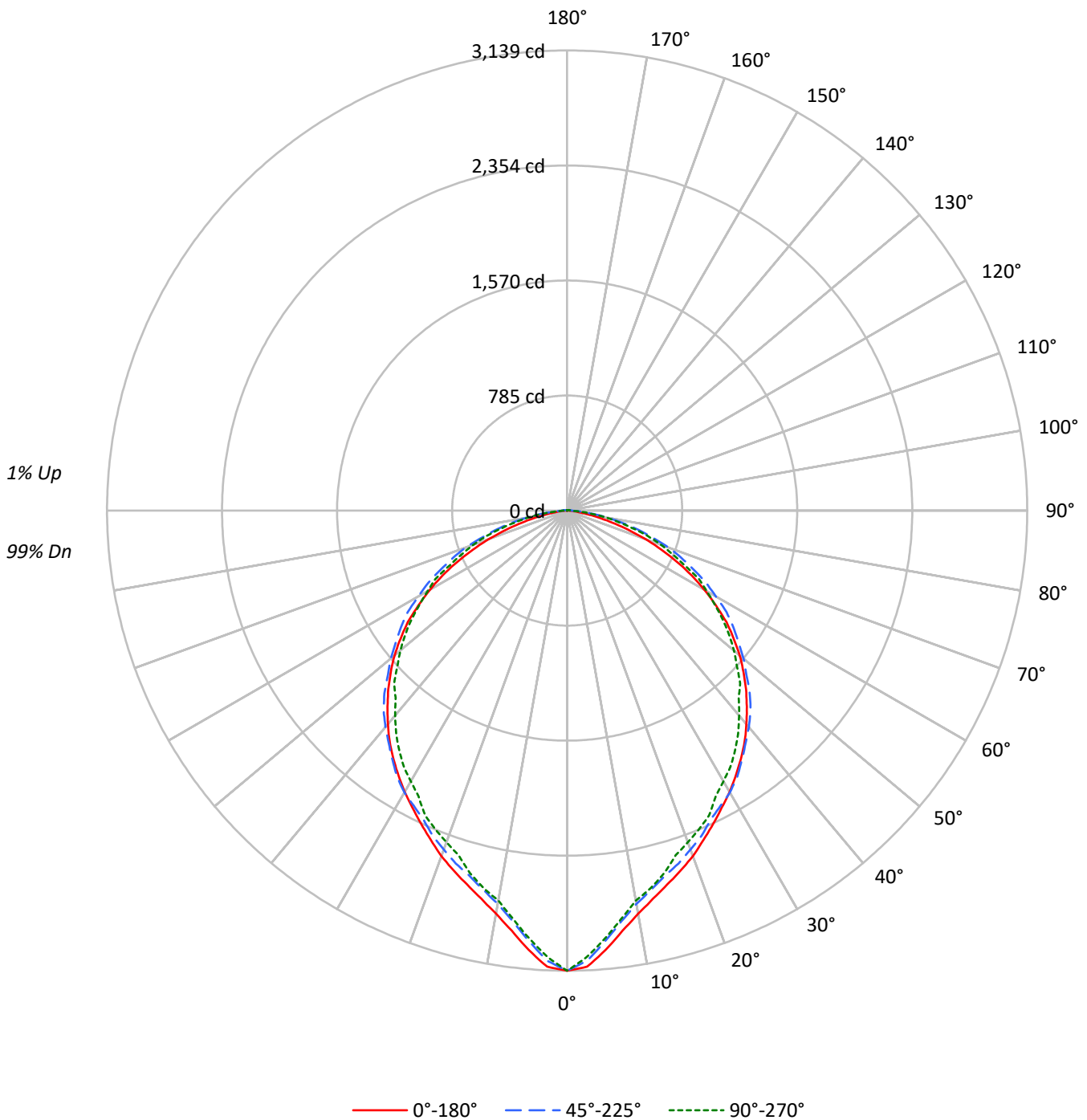
Lumens per Lamp: N/A
Luminaire Lumens: 7398.8 lumens
Efficiency: N/A
Efficacy: 83.4 lumens/watt
Spacing Criteria (0/90/45): 1.06 / 1.02 / 1.25
Luminous Opening: Rectangular (W 0.58' x L: 4' x H: 0')
CIE Type: Direct

Input Watts (W): 88.7
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-4-LD4-UNV-2-HI-40-IK12-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 | 102 | 102 | 102 | 99 |
| 1 | 109 | 104 | 100 | 96 | 106 | 102 | 98 | 95 | 97 | 94 | 91 | 93 | 91 | 89 | 90 | 88 | 86 | 84 |
| 2 | 99 | 91 | 84 | 78 | 96 | 89 | 83 | 77 | 85 | 80 | 76 | 82 | 78 | 74 | 79 | 75 | 72 | 70 |
| 3 | 90 | 80 | 72 | 65 | 88 | 78 | 71 | 65 | 75 | 69 | 63 | 72 | 67 | 62 | 70 | 65 | 61 | 59 |
| 4 | 83 | 71 | 62 | 55 | 80 | 69 | 61 | 55 | 67 | 60 | 54 | 64 | 58 | 53 | 62 | 57 | 53 | 50 |
| 5 | 76 | 63 | 54 | 48 | 74 | 62 | 54 | 47 | 60 | 53 | 47 | 58 | 51 | 46 | 56 | 50 | 46 | 44 |
| 6 | 70 | 57 | 48 | 42 | 68 | 56 | 48 | 42 | 54 | 47 | 41 | 52 | 46 | 41 | 51 | 45 | 40 | 38 |
| 7 | 65 | 52 | 43 | 37 | 63 | 51 | 43 | 37 | 49 | 42 | 36 | 48 | 41 | 36 | 46 | 40 | 36 | 34 |
| 8 | 61 | 47 | 39 | 33 | 59 | 47 | 38 | 33 | 45 | 38 | 33 | 44 | 37 | 32 | 43 | 37 | 32 | 30 |
| 9 | 57 | 43 | 35 | 30 | 55 | 43 | 35 | 30 | 42 | 34 | 29 | 40 | 34 | 29 | 39 | 33 | 29 | 27 |
| 10 | 53 | 40 | 32 | 27 | 52 | 40 | 32 | 27 | 39 | 32 | 27 | 38 | 31 | 27 | 37 | 31 | 26 | 25 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 14480 | 14480 | 14480 |
| 5° | 13932 | 13663 | 13582 |
| 10° | 13076 | 12759 | 12654 |
| 15° | 12610 | 12310 | 12226 |
| 20° | 12315 | 12078 | 11817 |
| 25° | 11999 | 11818 | 11671 |
| 30° | 11803 | 11829 | 11358 |
| 35° | 11637 | 11700 | 11247 |
| 40° | 11455 | 11610 | 10991 |
| 45° | 11256 | 11497 | 10889 |
| 50° | 11032 | 11275 | 10663 |
| 55° | 10669 | 11122 | 10423 |
| 60° | 9985 | 10800 | 10148 |
| 65° | 9004 | 10373 | 9636 |
| 70° | 7634 | 9911 | 9153 |
| 75° | 5675 | 8857 | 8169 |
| 80° | 3547 | 7348 | 7005 |
| 85° | 1620 | 5531 | 5108 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 274.5 | 3.7 |
| 10°-20° | 728.6 | 9.8 |
| 20°-30° | 1071.0 | 14.5 |
| 30°-40° | 1279.8 | 17.3 |
| 40°-50° | 1322.2 | 17.9 |
| 50°-60° | 1197.5 | 16.2 |
| 60°-70° | 894.7 | 12.1 |
| 70°-80° | 477.8 | 6.5 |
| 80°-90° | 114.9 | 1.6 |
| 90°-100° | 18.6 | 0.3 |
| 100°-110° | 9.4 | 0.1 |
| 110°-120° | 4.7 | 0.1 |
| 120°-130° | 3.3 | 0.0 |
| 130°-140° | 1.7 | 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° | 2074.2 | 28.0 |
| 0°-40° | 3354.0 | 45.3 |
| 0°-60° | 5873.6 | 79.4 |
| 0°-90° | 7361.1 | 99.5 |
| 90°-120° | 32.7 | 0.4 |
| 90°-150° | 37.7 | 0.5 |
| 90°-180° | 38.0 | 0.5 |
| 0°-180° | 7398.8 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 3139 | 3139 | 3139 | 3139 | 3139 | |
| 5° | 3008 | 2947 | 2951 | 2931 | 2933 | 280 |
| 15° | 2640 | 2590 | 2578 | 2557 | 2560 | 745 |
| 25° | 2357 | 2340 | 2322 | 2303 | 2293 | 1088 |
| 35° | 2066 | 2058 | 2078 | 2028 | 1997 | 1293 |
| 45° | 1725 | 1725 | 1762 | 1674 | 1669 | 1330 |
| 55° | 1327 | 1341 | 1383 | 1333 | 1296 | 1178 |
| 65° | 825 | 884 | 950 | 929 | 883 | 816 |
| 75° | 318 | 426 | 497 | 492 | 458 | 349 |
| 85° | 31 | 88 | 104 | 101 | 96 | 47 |
| 90° | 0 | 26 | 27 | 24 | 22 | 1 |
| 95° | 0 | 14 | 22 | 21 | 19 | 0 |
| 105° | 2 | 5 | 10 | 13 | 13 | 1 |
| 115° | 2 | 3 | 5 | 6 | 6 | 2 |
| 125° | 3 | 3 | 3 | 3 | 5 | 3 |
| 135° | 3 | 3 | 3 | 3 | 3 | 2 |
| 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: P239187

CATALOG NUMBER: HDF-4-LD4-UNV-2-HI-40-IK12-EDC-1

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 3138.8 | 3138.8 | 3138.8 | 3138.8 | 3138.8 |
| 2.5° | 3114.7 | 3069.6 | 3074.5 | 3064.8 | 3048.7 |
| 5° | 3008.5 | 2947.4 | 2950.6 | 2931.3 | 2933.0 |
| 7.5° | 2891.2 | 2828.4 | 2826.8 | 2796.3 | 2810.8 |
| 10° | 2791.5 | 2743.2 | 2723.9 | 2696.6 | 2701.4 |
| 12.5° | 2711.1 | 2656.4 | 2648.3 | 2614.6 | 2637.1 |
| 15° | 2640.3 | 2590.5 | 2577.6 | 2556.7 | 2559.9 |
| 17.5° | 2574.4 | 2534.2 | 2524.5 | 2497.2 | 2465.0 |
| 20° | 2508.5 | 2465.0 | 2460.2 | 2412.0 | 2407.1 |
| 22.5° | 2431.3 | 2410.4 | 2399.1 | 2366.9 | 2352.5 |
| 25° | 2357.3 | 2339.6 | 2321.9 | 2302.6 | 2293.0 |
| 27.5° | 2284.9 | 2265.6 | 2268.9 | 2241.5 | 2196.5 |
| 30° | 2215.8 | 2198.1 | 2220.6 | 2159.5 | 2132.2 |
| 32.5° | 2141.8 | 2130.6 | 2156.3 | 2100.0 | 2072.7 |
| 35° | 2066.3 | 2058.2 | 2077.5 | 2027.7 | 1997.1 |
| 37.5° | 1989.1 | 1973.0 | 1998.7 | 1936.0 | 1916.7 |
| 40° | 1902.2 | 1894.2 | 1928.0 | 1847.6 | 1825.1 |
| 42.5° | 1813.8 | 1804.2 | 1852.4 | 1755.9 | 1731.8 |
| 45° | 1725.4 | 1725.4 | 1762.3 | 1673.9 | 1669.1 |
| 47.5° | 1632.1 | 1635.3 | 1657.8 | 1616.0 | 1569.4 |
| 50° | 1537.2 | 1540.4 | 1571.0 | 1517.9 | 1485.8 |
| 52.5° | 1431.1 | 1440.8 | 1471.3 | 1431.1 | 1392.5 |
| 55° | 1326.6 | 1341.1 | 1382.9 | 1333.0 | 1296.0 |
| 57.5° | 1201.2 | 1236.5 | 1289.6 | 1238.1 | 1193.1 |
| 60° | 1082.2 | 1127.2 | 1170.6 | 1135.2 | 1099.9 |
| 62.5° | 956.7 | 1009.8 | 1067.7 | 1032.3 | 1014.6 |
| 65° | 824.9 | 884.4 | 950.3 | 929.4 | 882.8 |
| 67.5° | 694.6 | 754.1 | 842.6 | 812.0 | 776.7 |
| 70° | 566.0 | 643.2 | 734.8 | 699.5 | 678.6 |
| 72.5° | 439.0 | 533.8 | 606.2 | 598.2 | 574.0 |
| 75° | 318.4 | 426.1 | 496.9 | 492.0 | 458.3 |
| 77.5° | 220.3 | 326.4 | 385.9 | 368.2 | 350.5 |
| 80° | 133.5 | 234.8 | 276.6 | 265.3 | 263.7 |
| 82.5° | 70.8 | 151.2 | 181.7 | 176.9 | 170.4 |
| 85° | 30.6 | 88.4 | 104.5 | 101.3 | 96.5 |
| 87.5° | 9.6 | 45.0 | 51.5 | 46.6 | 43.4 |
| 90° | 0.0 | 25.7 | 27.3 | 24.1 | 22.5 |
| 92.5° | 0.0 | 19.3 | 24.1 | 20.9 | 19.3 |
| 95° | 0.0 | 14.5 | 22.5 | 20.9 | 19.3 |
| 97.5° | 1.6 | 11.3 | 20.9 | 19.3 | 19.3 |
| 100° | 0.0 | 8.0 | 16.1 | 17.7 | 16.1 |
| 102.5° | 1.6 | 6.4 | 12.9 | 14.5 | 14.5 |
| 105° | 1.6 | 4.8 | 9.6 | 12.9 | 12.9 |
| 107.5° | 1.6 | 3.2 | 8.0 | 11.3 | 11.3 |
| 110° | 1.6 | 3.2 | 6.4 | 8.0 | 9.6 |



TEST NUMBER: P239187

CATALOG NUMBER: HDF-4-LD4-UNV-2-HI-40-IK12-EDC-1

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|-----|-------|-----|
| 112.5° | 1.6 | 3.2 | 6.4 | 6.4 | 8.0 |
| 115° | 1.6 | 3.2 | 4.8 | 6.4 | 6.4 |
| 117.5° | 1.6 | 3.2 | 4.8 | 4.8 | 6.4 |
| 120° | 3.2 | 3.2 | 4.8 | 4.8 | 4.8 |
| 122.5° | 3.2 | 3.2 | 4.8 | 4.8 | 4.8 |
| 125° | 3.2 | 3.2 | 3.2 | 3.2 | 4.8 |
| 127.5° | 3.2 | 3.2 | 3.2 | 3.2 | 4.8 |
| 130° | 3.2 | 3.2 | 3.2 | 3.2 | 4.8 |
| 132.5° | 3.2 | 3.2 | 3.2 | 3.2 | 4.8 |
| 135° | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| 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)