

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: P231935

Luminaire Tested: **FVS4M-2-LD4-50-2LO-PA187-UNV-EDC1**

Issue Date: 3/3/2020



Test Information

Test Method: LM-79-08
Report Number: P231935
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-1706-121-10)
Test Lab: INNOVATION CENTER(G3)
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: FAIL-SAFE
Catalog Number: FVS4M-2-LD4-50-2LO-PA187-UNV-EDC1
Description: FAILSAFE FVS LED FIXTURE
2FT LENGTH, 2-MODULE LED WITH PA187 LENS
Light Source: (84) 5000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

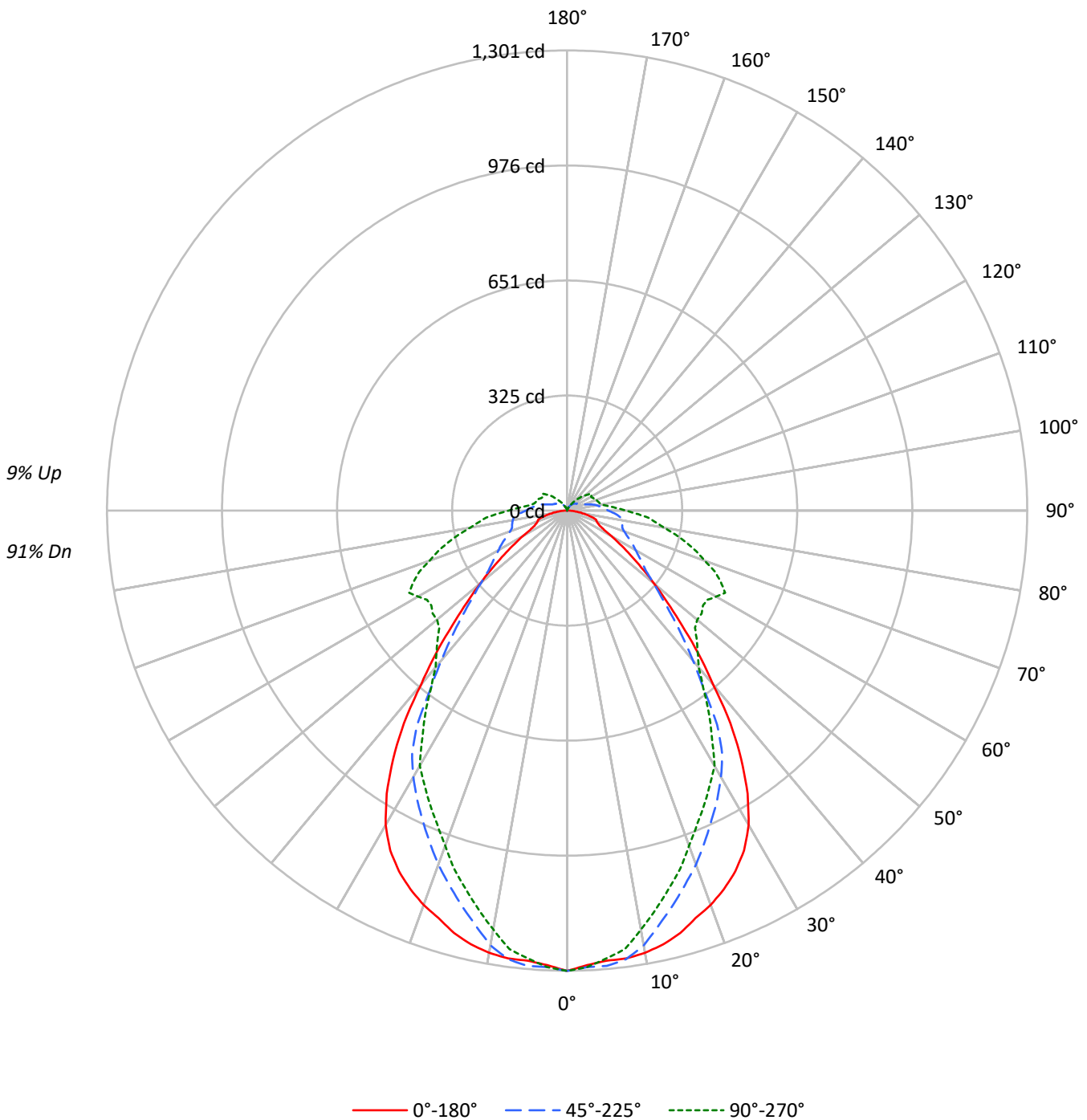
Lumens per Lamp: N/A
Luminaire Lumens: 2878.0 lumens
Efficiency: N/A
Efficacy: 119.4 lumens/watt
Spacing Criteria (0/90/45): 1.17 / 0.98 / 1.07
Luminous Opening: Rectangular w/ Sides (W: 0.31' x L: 1.92' x H: 0.19')
CIE Type: Direct

Input Watts (W): 24.1
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 | 117 | 117 | 117 | 117 | 113 | 113 | 113 | 113 | 106 | 106 | 106 | 99 | 99 | 99 | 93 | 93 | 93 | 91 |
| 1 | 106 | 101 | 96 | 92 | 102 | 98 | 93 | 90 | 92 | 88 | 85 | 86 | 83 | 81 | 81 | 79 | 77 | 74 |
| 2 | 97 | 88 | 81 | 76 | 93 | 86 | 79 | 74 | 81 | 75 | 71 | 76 | 72 | 68 | 72 | 68 | 65 | 62 |
| 3 | 89 | 78 | 70 | 64 | 85 | 76 | 69 | 63 | 72 | 66 | 61 | 68 | 63 | 58 | 64 | 60 | 56 | 54 |
| 4 | 82 | 70 | 62 | 55 | 79 | 68 | 60 | 54 | 65 | 58 | 53 | 61 | 56 | 51 | 58 | 53 | 49 | 47 |
| 5 | 76 | 63 | 55 | 48 | 73 | 62 | 54 | 48 | 59 | 52 | 46 | 56 | 50 | 45 | 53 | 48 | 44 | 41 |
| 6 | 70 | 58 | 49 | 43 | 68 | 56 | 48 | 42 | 53 | 47 | 41 | 51 | 45 | 40 | 49 | 43 | 39 | 37 |
| 7 | 66 | 53 | 44 | 39 | 63 | 51 | 44 | 38 | 49 | 42 | 37 | 47 | 41 | 36 | 45 | 40 | 35 | 33 |
| 8 | 61 | 49 | 40 | 35 | 59 | 47 | 40 | 34 | 45 | 39 | 34 | 43 | 37 | 33 | 42 | 36 | 32 | 30 |
| 9 | 58 | 45 | 37 | 32 | 56 | 44 | 36 | 31 | 42 | 35 | 31 | 40 | 34 | 30 | 39 | 33 | 30 | 28 |
| 10 | 54 | 42 | 34 | 29 | 53 | 41 | 34 | 29 | 39 | 33 | 28 | 38 | 32 | 28 | 36 | 31 | 27 | 25 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 23388 | 23388 | 23388 |
| 5° | 22847 | 22343 | 21790 |
| 10° | 22770 | 20951 | 19844 |
| 15° | 22419 | 18981 | 17754 |
| 20° | 21911 | 17265 | 15824 |
| 25° | 21334 | 15572 | 14213 |
| 30° | 20156 | 14047 | 12840 |
| 35° | 17627 | 12048 | 10795 |
| 40° | 13934 | 9178 | 9017 |
| 45° | 10610 | 7083 | 8225 |
| 50° | 8030 | 5586 | 7830 |
| 55° | 5968 | 4764 | 7902 |
| 60° | 4475 | 4337 | 8573 |
| 65° | 3568 | 4031 | 8920 |
| 70° | 3653 | 3814 | 8192 |
| 75° | 3805 | 3934 | 7475 |
| 80° | 2935 | 4242 | 6532 |
| 85° | 1947 | 4419 | 6048 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 121.3 | 4.2 |
| 10°-20° | 327.2 | 11.4 |
| 20°-30° | 454.3 | 15.8 |
| 30°-40° | 465.8 | 16.2 |
| 40°-50° | 350.2 | 12.2 |
| 50°-60° | 274.5 | 9.5 |
| 60°-70° | 262.2 | 9.1 |
| 70°-80° | 211.3 | 7.3 |
| 80°-90° | 143.1 | 5.0 |
| 90°-100° | 88.3 | 3.1 |
| 100°-110° | 61.9 | 2.2 |
| 110°-120° | 46.5 | 1.6 |
| 120°-130° | 35.0 | 1.2 |
| 130°-140° | 20.9 | 0.7 |
| 140°-150° | 10.7 | 0.4 |
| 150°-160° | 4.0 | 0.1 |
| 160°-170° | 0.6 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-30° | 902.8 | 31.4 |
| 0°-40° | 1368.6 | 47.6 |
| 0°-60° | 1993.2 | 69.3 |
| 0°-90° | 2609.9 | 90.7 |
| 90°-120° | 196.8 | 6.8 |
| 90°-150° | 263.5 | 9.2 |
| 90°-180° | 268.0 | 9.3 |
| 0°-180° | 2878.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 1301 | 1301 | 1301 | 1301 | 1301 | |
| 5° | 1277 | 1287 | 1292 | 1278 | 1271 | 122 |
| 15° | 1237 | 1213 | 1155 | 1116 | 1108 | 348 |
| 25° | 1125 | 1034 | 966 | 931 | 917 | 516 |
| 35° | 858 | 800 | 739 | 698 | 699 | 529 |
| 45° | 458 | 429 | 416 | 455 | 518 | 359 |
| 55° | 217 | 222 | 259 | 378 | 468 | 198 |
| 65° | 102 | 142 | 195 | 438 | 480 | 106 |
| 75° | 75 | 83 | 161 | 341 | 349 | 75 |
| 85° | 20 | 46 | 142 | 212 | 230 | 21 |
| 90° | 0 | 27 | 116 | 173 | 165 | 1 |
| 95° | 0 | 25 | 100 | 130 | 125 | 0 |
| 105° | 0 | 24 | 67 | 96 | 92 | 0 |
| 115° | 0 | 21 | 42 | 80 | 82 | 0 |
| 125° | 0 | 17 | 35 | 64 | 83 | 0 |
| 135° | 1 | 14 | 27 | 39 | 53 | 0 |
| 145° | 1 | 10 | 21 | 23 | 26 | 0 |
| 155° | 1 | 5 | 10 | 12 | 11 | 0 |
| 165° | 1 | 1 | 3 | 1 | 3 | 0 |
| 175° | 0 | 0 | 0 | 0 | 0 | 0 |
| 180° | 0 | 0 | 0 | 0 | 0 | 0 |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 1301.4 | 1301.4 | 1301.4 | 1301.4 | 1301.4 |
| 2.5° | 1286.0 | 1288.7 | 1292.0 | 1294.0 | 1292.0 |
| 5° | 1277.3 | 1286.7 | 1292.0 | 1278.0 | 1271.3 |
| 7.5° | 1277.3 | 1278.7 | 1279.3 | 1259.3 | 1250.6 |
| 10° | 1269.3 | 1265.3 | 1248.0 | 1209.9 | 1202.5 |
| 12.5° | 1256.0 | 1247.3 | 1199.8 | 1163.1 | 1155.8 |
| 15° | 1236.6 | 1213.2 | 1155.1 | 1115.7 | 1107.7 |
| 17.5° | 1207.9 | 1172.5 | 1109.0 | 1070.2 | 1062.2 |
| 20° | 1186.5 | 1131.0 | 1064.9 | 1026.8 | 1008.1 |
| 22.5° | 1158.4 | 1083.6 | 1015.5 | 978.1 | 960.0 |
| 25° | 1125.0 | 1034.2 | 966.0 | 931.3 | 917.3 |
| 27.5° | 1083.6 | 979.4 | 919.3 | 882.5 | 873.8 |
| 30° | 1026.2 | 930.0 | 869.8 | 839.1 | 833.1 |
| 32.5° | 949.3 | 869.2 | 815.7 | 768.9 | 761.6 |
| 35° | 858.5 | 800.3 | 738.9 | 698.1 | 698.8 |
| 37.5° | 758.3 | 724.2 | 632.7 | 632.0 | 632.0 |
| 40° | 642.7 | 609.3 | 553.2 | 560.5 | 577.9 |
| 42.5° | 549.8 | 509.7 | 481.0 | 502.4 | 546.5 |
| 45° | 458.3 | 428.9 | 416.2 | 455.0 | 517.8 |
| 47.5° | 383.5 | 360.8 | 361.4 | 420.2 | 490.4 |
| 50° | 320.7 | 306.0 | 317.3 | 395.5 | 480.3 |
| 52.5° | 264.6 | 257.9 | 281.9 | 382.8 | 479.0 |
| 55° | 217.1 | 222.5 | 259.2 | 377.5 | 468.3 |
| 57.5° | 176.4 | 195.1 | 239.8 | 386.8 | 469.7 |
| 60° | 145.6 | 173.7 | 223.8 | 398.8 | 486.4 |
| 62.5° | 117.6 | 155.7 | 210.4 | 414.9 | 503.7 |
| 65° | 101.5 | 141.6 | 195.1 | 437.6 | 479.7 |
| 67.5° | 94.2 | 124.9 | 181.7 | 457.6 | 452.3 |
| 70° | 88.2 | 108.9 | 171.0 | 430.2 | 412.9 |
| 72.5° | 86.2 | 94.9 | 163.7 | 382.1 | 383.5 |
| 75° | 74.8 | 82.8 | 161.0 | 340.7 | 348.7 |
| 77.5° | 58.1 | 74.8 | 159.0 | 302.6 | 313.3 |
| 80° | 44.1 | 65.5 | 155.7 | 269.9 | 277.9 |
| 82.5° | 32.1 | 55.4 | 152.3 | 239.8 | 251.9 |
| 85° | 20.0 | 46.1 | 142.3 | 212.4 | 230.5 |
| 87.5° | 8.7 | 34.7 | 128.9 | 193.7 | 194.4 |
| 90° | 0.0 | 26.7 | 116.2 | 173.0 | 165.0 |
| 92.5° | 0.0 | 26.1 | 108.9 | 149.0 | 143.0 |
| 95° | 0.0 | 25.4 | 100.2 | 129.6 | 124.9 |
| 97.5° | 0.0 | 25.4 | 92.2 | 116.9 | 108.9 |
| 100° | 0.0 | 24.7 | 85.5 | 106.9 | 100.2 |
| 102.5° | 0.0 | 24.1 | 77.5 | 99.5 | 94.9 |
| 105° | 0.0 | 24.1 | 66.8 | 96.2 | 92.2 |
| 107.5° | 0.0 | 23.4 | 58.1 | 92.2 | 89.5 |
| 110° | 0.0 | 22.7 | 50.8 | 86.2 | 88.2 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|------|-------|------|
| 112.5° | 0.0 | 22.0 | 46.1 | 82.2 | 86.8 |
| 115° | 0.0 | 20.7 | 42.1 | 79.5 | 82.2 |
| 117.5° | 0.0 | 20.0 | 40.1 | 81.5 | 79.5 |
| 120° | 0.0 | 19.4 | 38.1 | 80.8 | 78.2 |
| 122.5° | 0.0 | 18.7 | 36.7 | 72.2 | 81.5 |
| 125° | 0.0 | 17.4 | 34.7 | 64.1 | 82.8 |
| 127.5° | 0.0 | 16.7 | 32.7 | 56.8 | 74.2 |
| 130° | 0.0 | 15.4 | 30.7 | 50.1 | 66.8 |
| 132.5° | 0.0 | 14.7 | 28.7 | 44.1 | 60.8 |
| 135° | 0.7 | 14.0 | 27.4 | 38.7 | 52.8 |
| 137.5° | 0.7 | 13.4 | 26.1 | 34.7 | 45.4 |
| 140° | 0.7 | 12.7 | 24.1 | 30.7 | 38.1 |
| 142.5° | 0.7 | 11.4 | 22.7 | 26.7 | 32.1 |
| 145° | 0.7 | 10.0 | 20.7 | 23.4 | 26.1 |
| 147.5° | 0.7 | 9.4 | 18.0 | 20.0 | 20.7 |
| 150° | 0.7 | 8.0 | 15.4 | 17.4 | 16.0 |
| 152.5° | 0.7 | 6.7 | 12.7 | 14.7 | 12.7 |
| 155° | 0.7 | 5.3 | 10.0 | 12.0 | 10.7 |
| 157.5° | 0.7 | 4.0 | 8.0 | 10.0 | 8.7 |
| 160° | 0.7 | 2.7 | 6.7 | 6.7 | 7.3 |
| 162.5° | 0.7 | 2.0 | 4.7 | 4.0 | 5.3 |
| 165° | 0.7 | 1.3 | 2.7 | 1.3 | 2.7 |
| 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)