

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: P233111

Luminaire Tested: **FCB-24-2-LD4-24-40-UNV-EDD1-WDP6**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-79-08  
Report Number: P233111  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P25706)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: FAIL-SAFE  
Catalog Number: FCB-24-2-LD4-24-40-UNV-EDD1-WDP6  
Description: FAILSAFE 2X2 FCB LED TROFFER  
.060 POLYCARBONATE LENS  
Light Source: (84)4000K CCT, 80 CRI LEDs  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

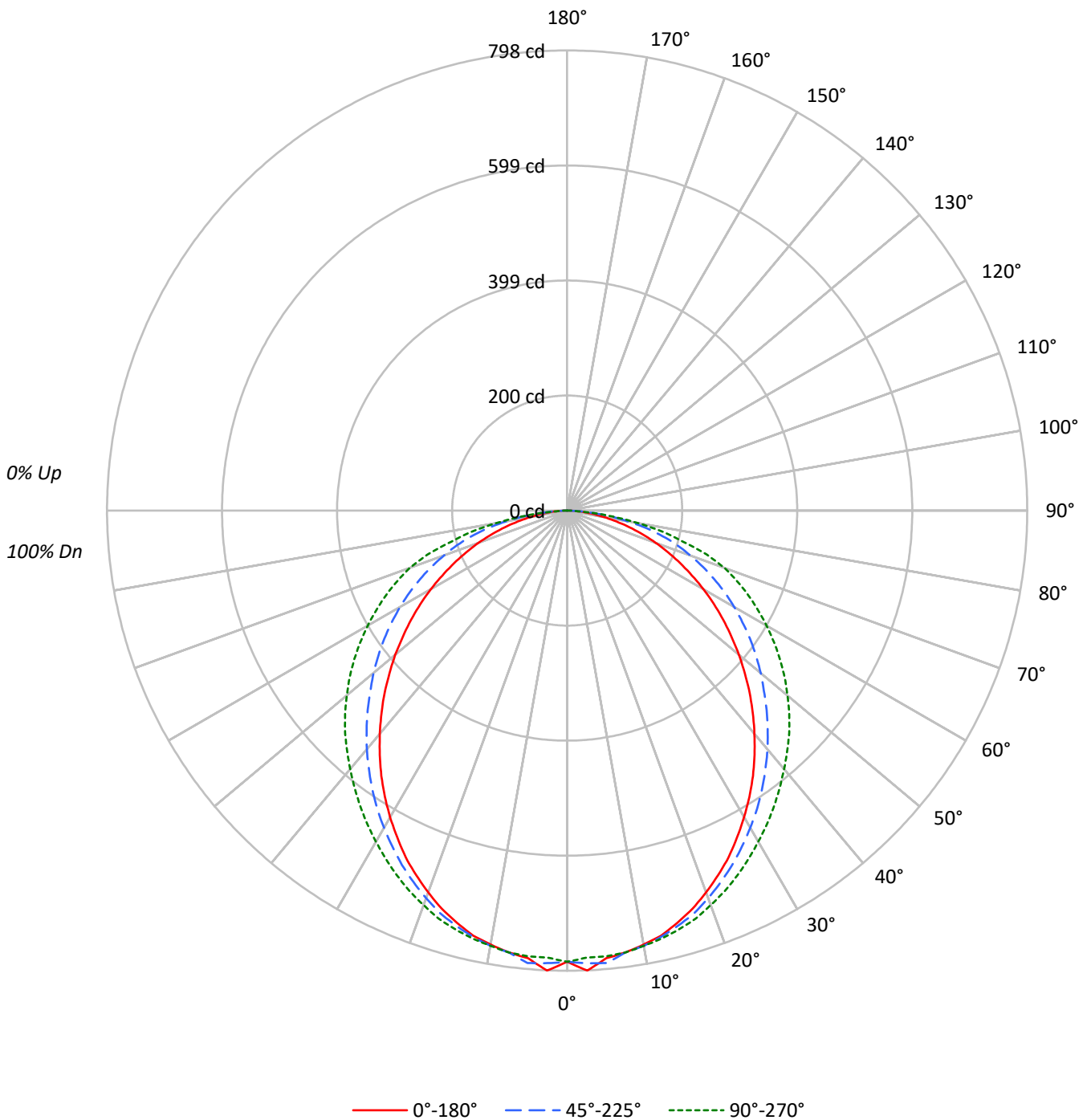
Lumens per Lamp: N/A  
Luminaire Lumens: 2192.0 lumens  
Efficiency: N/A  
Efficacy: 111.8 lumens/watt  
Spacing Criteria (0/90/45): 1.17 / 1.26 / 1.34  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct

Input Watts (W): 19.6  
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   | 108 | 104 | 99  | 95  | 106 | 101 | 97  | 94  | 97  | 94  | 91  | 93  | 90  | 88  | 89  | 87  | 85  | 83  |
| 2   | 98  | 90  | 83  | 77  | 96  | 88  | 82  | 76  | 84  | 79  | 74  | 81  | 77  | 73  | 78  | 74  | 71  | 69  |
| 3   | 90  | 79  | 70  | 64  | 87  | 77  | 69  | 63  | 74  | 68  | 62  | 71  | 66  | 61  | 69  | 64  | 60  | 58  |
| 4   | 82  | 70  | 61  | 54  | 80  | 68  | 60  | 54  | 66  | 59  | 53  | 64  | 57  | 52  | 61  | 56  | 51  | 49  |
| 5   | 75  | 62  | 53  | 46  | 73  | 61  | 53  | 46  | 59  | 51  | 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   | 65  | 51  | 42  | 36  | 63  | 50  | 42  | 36  | 48  | 41  | 35  | 47  | 40  | 35  | 46  | 40  | 35  | 33  |
| 8   | 60  | 46  | 38  | 32  | 58  | 46  | 38  | 32  | 44  | 37  | 32  | 43  | 36  | 31  | 42  | 36  | 31  | 29  |
| 9   | 56  | 43  | 34  | 29  | 55  | 42  | 34  | 29  | 41  | 34  | 29  | 40  | 33  | 28  | 39  | 33  | 28  | 26  |
| 10  | 53  | 39  | 31  | 26  | 51  | 39  | 31  | 26  | 38  | 31  | 26  | 37  | 30  | 26  | 36  | 30  | 26  | 24  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2105 | 2105 | 2105 |
| 5°  | 2105 | 2128 | 2096 |
| 10° | 2088 | 2094 | 2094 |
| 15° | 2061 | 2076 | 2094 |
| 20° | 2018 | 2048 | 2085 |
| 25° | 1969 | 2013 | 2073 |
| 30° | 1908 | 1974 | 2060 |
| 35° | 1845 | 1937 | 2055 |
| 40° | 1775 | 1898 | 2056 |
| 45° | 1704 | 1862 | 2073 |
| 50° | 1629 | 1834 | 2089 |
| 55° | 1550 | 1815 | 2115 |
| 60° | 1469 | 1801 | 2151 |
| 65° | 1378 | 1792 | 2206 |
| 70° | 1283 | 1786 | 2281 |
| 75° | 1163 | 1784 | 2162 |
| 80° | 1007 | 1652 | 1915 |
| 85° | 855  | 1250 | 1216 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 74.2   | 3.4       |
| 10°-20°   | 210.2  | 9.6       |
| 20°-30°   | 312.7  | 14.3      |
| 30°-40°   | 369.8  | 16.9      |
| 40°-50°   | 380.1  | 17.3      |
| 50°-60°   | 347.3  | 15.8      |
| 60°-70°   | 277.9  | 12.7      |
| 70°-80°   | 174.4  | 8.0       |
| 80°-90°   | 45.4   | 2.1       |
| 90°-100°  | 0.0    | 0.0       |
| 100°-110° | 0.0    | 0.0       |
| 110°-120° | 0.0    | 0.0       |
| 120°-130° | 0.0    | 0.0       |
| 130°-140° | 0.0    | 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°    | 597.1  | 27.2      |
| 0°-40°    | 966.9  | 44.1      |
| 0°-60°    | 1694.3 | 77.3      |
| 0°-90°    | 2192.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 2192.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°  | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0°  | 782 | 782   | 782 | 782   | 782 |      |
| 5°  | 779 | 779   | 788 | 782   | 776 | 74   |
| 15° | 740 | 741   | 745 | 749   | 752 | 208  |
| 25° | 663 | 667   | 678 | 690   | 698 | 305  |
| 35° | 562 | 569   | 590 | 612   | 626 | 351  |
| 45° | 448 | 459   | 489 | 526   | 545 | 345  |
| 55° | 330 | 346   | 387 | 430   | 451 | 296  |
| 65° | 216 | 236   | 281 | 324   | 346 | 215  |
| 75° | 112 | 133   | 172 | 197   | 208 | 119  |
| 85° | 28  | 35    | 40  | 39    | 39  | 32   |
| 90° | 0   | 0     | 0   | 0     | 0   |      |



TEST NUMBER: P233111

CATALOG NUMBER: FCB-24-2-LD4-24-40-UNV-EDD1-WDP6

**CANDELA DISTRIBUTION (FULL):**

|       | 0°    | 22.5° | 45°   | 67.5° | 90°   |
|-------|-------|-------|-------|-------|-------|
| 0°    | 782.4 | 782.4 | 782.4 | 782.4 | 782.4 |
| 2.5°  | 798.4 | 795.2 | 785.6 | 779.2 | 776.0 |
| 5°    | 779.2 | 779.2 | 787.7 | 782.4 | 776.0 |
| 7.5°  | 772.8 | 772.8 | 772.8 | 788.8 | 772.8 |
| 10°   | 764.3 | 765.3 | 766.4 | 772.8 | 766.4 |
| 12.5° | 754.7 | 754.7 | 756.8 | 758.9 | 760.0 |
| 15°   | 739.8 | 740.8 | 745.1 | 749.4 | 751.5 |
| 17.5° | 723.8 | 727.0 | 732.3 | 737.6 | 741.9 |
| 20°   | 704.6 | 708.8 | 715.2 | 723.8 | 728.0 |
| 22.5° | 684.3 | 688.6 | 697.1 | 706.7 | 714.2 |
| 25°   | 663.0 | 667.3 | 677.9 | 689.7 | 698.2 |
| 27.5° | 638.5 | 643.8 | 656.6 | 672.6 | 681.1 |
| 30°   | 614.0 | 620.4 | 635.3 | 653.4 | 663.0 |
| 32.5° | 588.4 | 595.9 | 612.9 | 633.2 | 644.9 |
| 35°   | 561.7 | 569.2 | 589.5 | 611.8 | 625.7 |
| 37.5° | 534.0 | 542.6 | 564.9 | 590.5 | 605.5 |
| 40°   | 505.3 | 514.8 | 540.4 | 568.1 | 585.2 |
| 42.5° | 476.5 | 487.1 | 514.8 | 547.9 | 564.9 |
| 45°   | 447.7 | 459.4 | 489.3 | 525.5 | 544.7 |
| 47.5° | 417.8 | 431.7 | 462.6 | 503.1 | 522.3 |
| 50°   | 389.1 | 402.9 | 438.1 | 479.7 | 498.9 |
| 52.5° | 359.2 | 375.2 | 412.5 | 455.2 | 475.4 |
| 55°   | 330.4 | 346.4 | 386.9 | 429.6 | 450.9 |
| 57.5° | 301.7 | 317.6 | 360.3 | 404.0 | 425.3 |
| 60°   | 272.9 | 289.9 | 334.7 | 377.3 | 399.7 |
| 62.5° | 244.1 | 262.2 | 308.1 | 351.8 | 373.1 |
| 65°   | 216.4 | 235.6 | 281.4 | 324.0 | 346.4 |
| 67.5° | 189.7 | 210.0 | 254.8 | 296.3 | 318.7 |
| 70°   | 163.1 | 183.3 | 227.0 | 267.6 | 289.9 |
| 72.5° | 137.5 | 157.8 | 200.4 | 236.6 | 253.7 |
| 75°   | 111.9 | 133.2 | 171.6 | 197.2 | 207.9 |
| 77.5° | 87.4  | 108.7 | 141.8 | 158.8 | 170.6 |
| 80°   | 65.0  | 83.1  | 106.6 | 119.4 | 123.6 |
| 82.5° | 44.8  | 59.7  | 74.6  | 77.8  | 79.9  |
| 85°   | 27.7  | 35.2  | 40.5  | 39.4  | 39.4  |
| 87.5° | 12.8  | 13.9  | 11.7  | 8.5   | 5.3   |
| 90°   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |

(END OF REPORT)