

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: METALUX

Report Number: P184165

Luminaire Tested: **24FR-40-HP-UNV-L835-CD1-U**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P184165  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P27148)  
Test Lab: INNOVATION CENTER-P2  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24FR-40-HP-UNV-L835-CD1-U  
Description: METALUX 2X4 FR TROFFER LED HIGH EFFICIENCY FIXTURE  
  
Light Source: EATON LED 3500K  
Ballast/Driver: OSRAM ELECTRONIC DRIVER

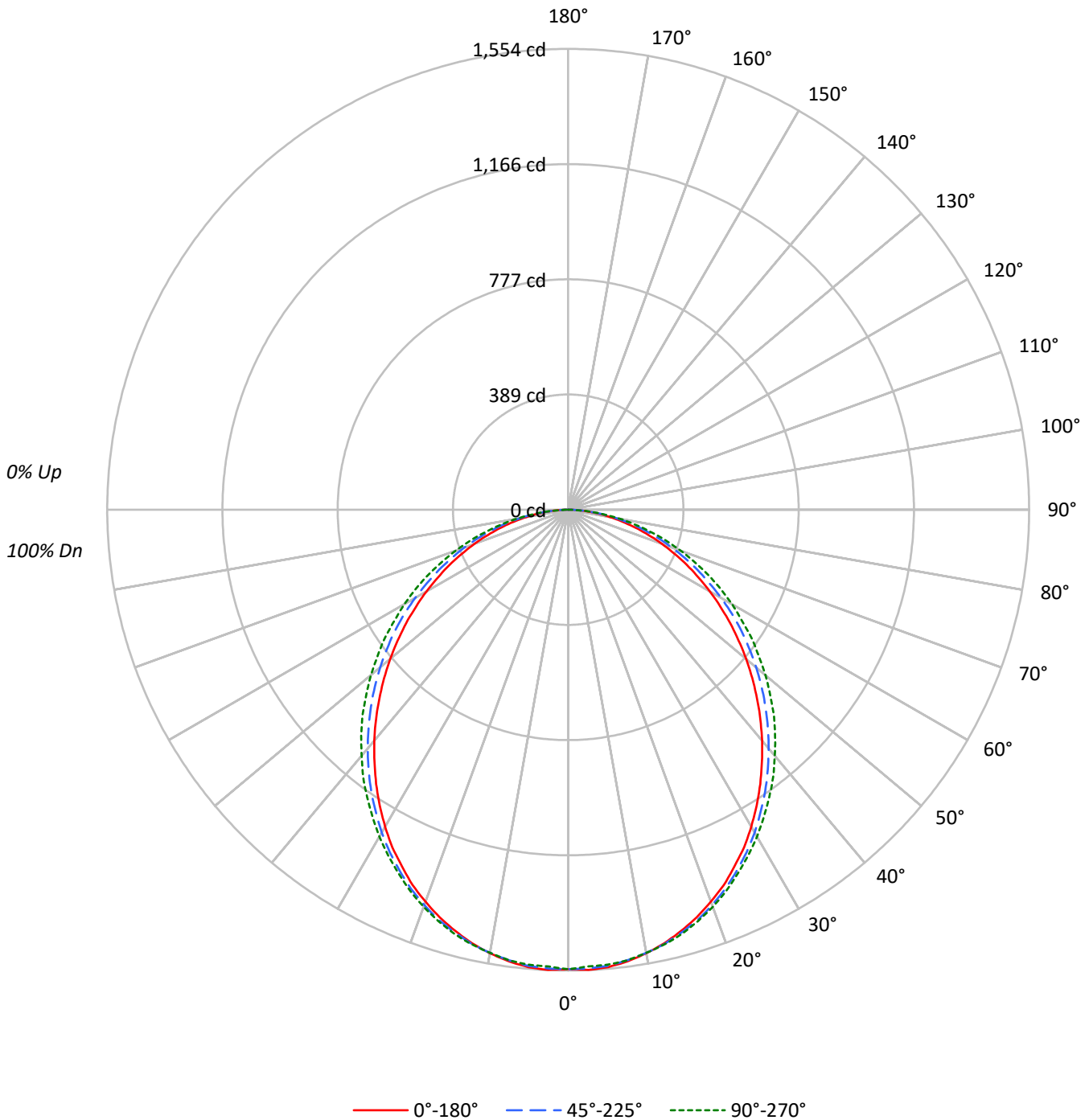
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4097.0 lumens  
Efficiency: N/A  
Efficacy: 130.9 lumens/watt  
Spacing Criteria (0/90/45): 1.19 / 1.22 / 1.32  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 31.3  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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  | 94  | 98  | 94  | 91  | 94  | 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  | 64  | 73  | 67  | 63  | 70  | 65  | 61  | 59  |
| 4   | 83  | 71  | 62  | 56  | 81  | 70  | 61  | 55  | 67  | 60  | 54  | 65  | 59  | 54  | 63  | 57  | 53  | 51  |
| 5   | 76  | 64  | 55  | 48  | 74  | 62  | 54  | 48  | 60  | 53  | 47  | 58  | 52  | 47  | 56  | 51  | 46  | 44  |
| 6   | 71  | 57  | 48  | 42  | 69  | 56  | 48  | 42  | 55  | 47  | 41  | 53  | 46  | 41  | 51  | 45  | 41  | 39  |
| 7   | 65  | 52  | 43  | 37  | 64  | 51  | 43  | 37  | 50  | 42  | 37  | 48  | 42  | 37  | 47  | 41  | 36  | 34  |
| 8   | 61  | 48  | 39  | 33  | 59  | 47  | 39  | 33  | 46  | 38  | 33  | 44  | 38  | 33  | 43  | 37  | 33  | 31  |
| 9   | 57  | 44  | 36  | 30  | 56  | 43  | 35  | 30  | 42  | 35  | 30  | 41  | 34  | 30  | 40  | 34  | 29  | 28  |
| 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°  | 2085 | 2085 | 2085 |
| 5°  | 2091 | 2086 | 2080 |
| 10° | 2075 | 2073 | 2073 |
| 15° | 2049 | 2056 | 2064 |
| 20° | 2014 | 2031 | 2041 |
| 25° | 1969 | 1995 | 2009 |
| 30° | 1918 | 1953 | 1978 |
| 35° | 1854 | 1902 | 1942 |
| 40° | 1785 | 1847 | 1903 |
| 45° | 1713 | 1789 | 1866 |
| 50° | 1639 | 1731 | 1818 |
| 55° | 1564 | 1673 | 1770 |
| 60° | 1485 | 1603 | 1718 |
| 65° | 1408 | 1531 | 1659 |
| 70° | 1319 | 1461 | 1587 |
| 75° | 1222 | 1382 | 1493 |
| 80° | 1118 | 1283 | 1366 |
| 85° | 1011 | 1093 | 1093 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 146.3  | 3.6       |
| 10°-20°   | 415.6  | 10.1      |
| 20°-30°   | 617.0  | 15.1      |
| 30°-40°   | 722.1  | 17.6      |
| 40°-50°   | 724.8  | 17.7      |
| 50°-60°   | 634.8  | 15.5      |
| 60°-70°   | 476.5  | 11.6      |
| 70°-80°   | 280.0  | 6.8       |
| 80°-90°   | 79.8   | 1.9       |
| 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°    | 1179.0 | 28.8      |
| 0°-40°    | 1901.1 | 46.4      |
| 0°-60°    | 3260.6 | 79.6      |
| 0°-90°    | 4097.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4097.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1550 | 1550  | 1550 | 1550  | 1550 |      |
| 5°  | 1548 | 1538  | 1544 | 1542  | 1540 | 147  |
| 15° | 1471 | 1465  | 1476 | 1480  | 1481 | 415  |
| 25° | 1326 | 1326  | 1344 | 1348  | 1353 | 611  |
| 35° | 1129 | 1133  | 1158 | 1173  | 1182 | 705  |
| 45° | 900  | 911   | 940  | 966   | 980  | 695  |
| 55° | 667  | 679   | 713  | 739   | 755  | 596  |
| 65° | 442  | 454   | 481  | 506   | 521  | 438  |
| 75° | 235  | 248   | 266  | 279   | 287  | 250  |
| 85° | 66   | 70    | 71   | 71    | 71   | 73   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1549.5 | 1549.5 | 1549.5 | 1549.5 | 1549.5 |
| 2.5°  | 1553.5 | 1544.2 | 1548.2 | 1546.9 | 1541.5 |
| 5°    | 1548.2 | 1537.5 | 1544.2 | 1541.5 | 1540.2 |
| 7.5°  | 1536.2 | 1525.5 | 1532.2 | 1532.2 | 1532.2 |
| 10°   | 1518.8 | 1510.8 | 1517.5 | 1517.5 | 1517.5 |
| 12.5° | 1497.4 | 1490.7 | 1500.1 | 1501.4 | 1501.4 |
| 15°   | 1470.7 | 1465.4 | 1476.1 | 1480.1 | 1481.4 |
| 17.5° | 1441.3 | 1437.3 | 1450.7 | 1454.7 | 1454.7 |
| 20°   | 1406.6 | 1403.9 | 1418.6 | 1422.6 | 1425.3 |
| 22.5° | 1370.5 | 1366.5 | 1383.9 | 1386.6 | 1391.9 |
| 25°   | 1326.4 | 1326.4 | 1343.8 | 1347.8 | 1353.2 |
| 27.5° | 1283.7 | 1282.4 | 1302.4 | 1309.1 | 1314.4 |
| 30°   | 1234.3 | 1234.3 | 1257.0 | 1266.3 | 1273.0 |
| 32.5° | 1182.2 | 1186.2 | 1207.6 | 1219.6 | 1227.6 |
| 35°   | 1128.7 | 1132.8 | 1158.1 | 1172.8 | 1182.2 |
| 37.5° | 1072.6 | 1079.3 | 1104.7 | 1123.4 | 1135.4 |
| 40°   | 1016.5 | 1025.9 | 1051.3 | 1072.6 | 1083.3 |
| 42.5° | 959.1  | 967.1  | 996.5  | 1020.5 | 1032.6 |
| 45°   | 900.3  | 911.0  | 940.4  | 965.8  | 980.5  |
| 47.5° | 841.6  | 854.9  | 884.3  | 912.3  | 923.0  |
| 50°   | 782.8  | 794.8  | 826.9  | 854.9  | 868.3  |
| 52.5° | 724.0  | 736.0  | 769.4  | 796.1  | 809.5  |
| 55°   | 666.6  | 678.6  | 713.3  | 738.7  | 754.7  |
| 57.5° | 607.8  | 621.1  | 654.5  | 681.3  | 693.3  |
| 60°   | 551.7  | 563.7  | 595.8  | 622.5  | 638.5  |
| 62.5° | 495.6  | 508.9  | 537.0  | 565.0  | 579.7  |
| 65°   | 442.1  | 454.2  | 480.9  | 506.3  | 521.0  |
| 67.5° | 387.4  | 402.1  | 424.8  | 450.2  | 460.8  |
| 70°   | 335.3  | 351.3  | 371.4  | 392.7  | 403.4  |
| 72.5° | 284.5  | 299.2  | 317.9  | 335.3  | 344.6  |
| 75°   | 235.1  | 248.5  | 265.8  | 279.2  | 287.2  |
| 77.5° | 188.3  | 203.0  | 215.1  | 227.1  | 231.1  |
| 80°   | 144.3  | 156.3  | 165.6  | 173.7  | 176.3  |
| 82.5° | 104.2  | 112.2  | 116.2  | 122.9  | 124.2  |
| 85°   | 65.5   | 69.5   | 70.8   | 70.8   | 70.8   |
| 87.5° | 28.1   | 29.4   | 26.7   | 21.4   | 20.0   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)