

Scaled data based on original data using

LM-41-14 Approved Method for Photometric Testing Of Indoor Fluorescent Luminaires

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: METALUX

Report Number: 163P108

Luminaire Tested: **GC2048-232A-PAF**

Issue Date: 3/3/2020



**Test Information**

Test Method: LM-41-14  
Report Number: 163P108  
Test Lab:  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: GC2048-232A-PAF  
Description: 20" x 48" Recessed Troffer with a .095 pattern  
12 acrylic lens.  
Light Source: Two - F32T8/35K - 2850 Lumens ea. - 32 Watts ea.  
Ballast/Driver: Magnetek B232I120RH Electronic - L.O.B.F. = 87.16

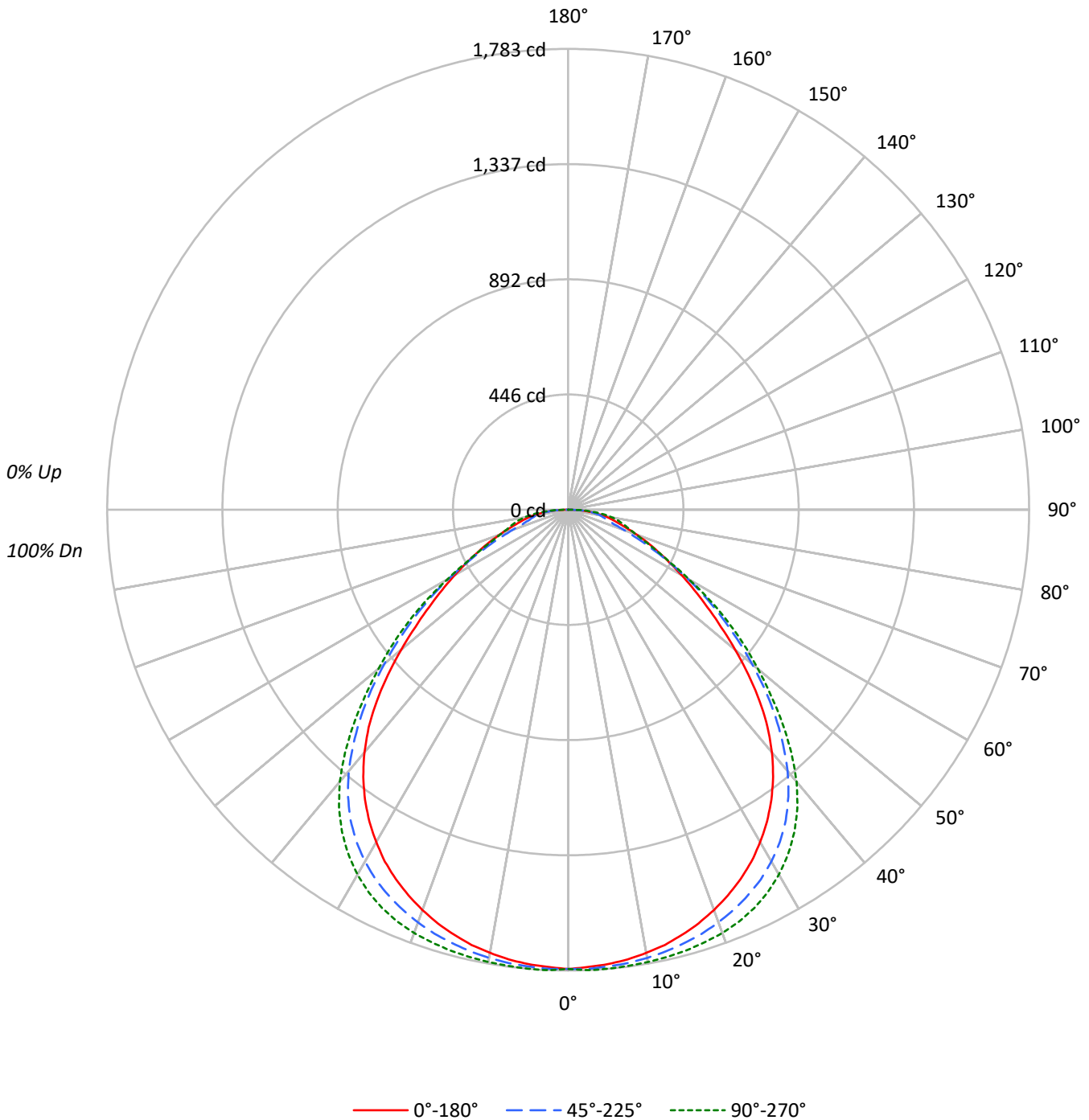
**Summary**

Lumens per Lamp: 2850 (2 lamps)  
Luminaire Lumens: 4486.5 lumens  
Efficiency: 78.7%  
Efficacy: 77.2 lumens/watt  
Spacing Criteria (0/90/45): 1.24 / 1.34 / 1.36  
Luminous Opening: Rectangular (W 1.46' x L: 3.81' x H: 0')  
CIE Type: Direct

Input Watts (W): 58.1  
Input Voltage (V): NR  
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   | 94 | 94 | 94 | 94 | 92 | 92 | 92 | 92 | 87 | 87 | 87 |  | 84 | 84 | 84 |  | 80 | 80 | 80 | 79 |
| 1   | 86 | 83 | 80 | 77 | 84 | 81 | 78 | 76 | 78 | 75 | 73 |  | 75 | 73 | 71 |  | 72 | 70 | 69 | 67 |
| 2   | 79 | 73 | 68 | 64 | 77 | 72 | 67 | 63 | 69 | 65 | 62 |  | 66 | 63 | 60 |  | 64 | 61 | 59 | 57 |
| 3   | 73 | 65 | 59 | 54 | 71 | 64 | 58 | 54 | 61 | 57 | 53 |  | 59 | 55 | 52 |  | 57 | 54 | 51 | 49 |
| 4   | 67 | 58 | 51 | 46 | 65 | 57 | 51 | 46 | 55 | 50 | 46 |  | 53 | 49 | 45 |  | 52 | 48 | 44 | 43 |
| 5   | 62 | 52 | 45 | 40 | 60 | 51 | 45 | 40 | 50 | 44 | 40 |  | 48 | 43 | 39 |  | 47 | 42 | 39 | 37 |
| 6   | 57 | 47 | 40 | 36 | 56 | 46 | 40 | 35 | 45 | 39 | 35 |  | 44 | 39 | 35 |  | 43 | 38 | 35 | 33 |
| 7   | 53 | 43 | 36 | 32 | 52 | 42 | 36 | 32 | 41 | 35 | 31 |  | 40 | 35 | 31 |  | 39 | 34 | 31 | 29 |
| 8   | 50 | 39 | 33 | 28 | 48 | 39 | 33 | 28 | 38 | 32 | 28 |  | 37 | 32 | 28 |  | 36 | 31 | 28 | 26 |
| 9   | 46 | 36 | 30 | 26 | 45 | 36 | 30 | 26 | 35 | 29 | 25 |  | 34 | 29 | 25 |  | 33 | 29 | 25 | 24 |
| 10  | 43 | 33 | 27 | 23 | 42 | 33 | 27 | 23 | 32 | 27 | 23 |  | 31 | 27 | 23 |  | 31 | 26 | 23 | 22 |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3440 | 3440 | 3440 |
| 5°  | 3430 | 3448 | 3465 |
| 10° | 3423 | 3462 | 3493 |
| 15° | 3413 | 3480 | 3538 |
| 20° | 3395 | 3500 | 3591 |
| 25° | 3369 | 3516 | 3634 |
| 30° | 3320 | 3514 | 3644 |
| 35° | 3238 | 3467 | 3602 |
| 40° | 3098 | 3336 | 3473 |
| 45° | 2867 | 3105 | 3214 |
| 50° | 2539 | 2798 | 2885 |
| 55° | 2218 | 2447 | 2538 |
| 60° | 1959 | 2064 | 2095 |
| 65° | 1755 | 1640 | 1727 |
| 70° | 1596 | 1291 | 1574 |
| 75° | 1504 | 1174 | 1668 |
| 80° | 1617 | 1405 | 1918 |
| 85° | 1644 | 1666 | 2199 |



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**ZONAL LUMENS:**

**CANDELA DISTRIBUTION:**

| Zone      | Lumens | % Fixture | % Lamp |      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----------|--------|-----------|--------|------|------|-------|------|-------|------|------|
| 0°-10°    | 168.7  | 3.8       | 3.0    | 0°   | 1777 | 1777  | 1777 | 1777  | 1777 |      |
| 10°-20°   | 489.9  | 10.9      | 8.6    | 5°   | 1765 | 1766  | 1774 | 1775  | 1783 | 168  |
| 20°-30°   | 756.1  | 16.9      | 13.3   | 15°  | 1703 | 1711  | 1736 | 1753  | 1765 | 481  |
| 30°-40°   | 906.5  | 20.2      | 15.9   | 25°  | 1577 | 1599  | 1646 | 1683  | 1701 | 726  |
| 40°-50°   | 860.3  | 19.2      | 15.1   | 35°  | 1370 | 1402  | 1467 | 1504  | 1524 | 854  |
| 50°-60°   | 637.1  | 14.2      | 11.2   | 45°  | 1047 | 1077  | 1134 | 1160  | 1174 | 803  |
| 60°-70°   | 374.2  | 8.3       | 6.6    | 55°  | 657  | 688   | 725  | 730   | 752  | 592  |
| 70°-80°   | 209.7  | 4.7       | 3.7    | 65°  | 383  | 359   | 358  | 380   | 377  | 383  |
| 80°-90°   | 84.1   | 1.9       | 1.5    | 75°  | 201  | 195   | 157  | 219   | 223  | 218  |
| 90°-100°  | 0.0    | 0.0       | 0.0    | 85°  | 74   | 70    | 75   | 90    | 99   | 75   |
| 100°-110° | 0.0    | 0.0       | 0.0    | 90°  | 0    | 0     | 0    | 0     | 0    | 5    |
| 110°-120° | 0.0    | 0.0       | 0.0    | 95°  | 0    | 0     | 0    | 0     | 0    | 0    |
| 120°-130° | 0.0    | 0.0       | 0.0    | 105° | 0    | 0     | 0    | 0     | 0    | 0    |
| 130°-140° | 0.0    | 0.0       | 0.0    | 115° | 0    | 0     | 0    | 0     | 0    | 0    |
| 140°-150° | 0.0    | 0.0       | 0.0    | 125° | 0    | 0     | 0    | 0     | 0    | 0    |
| 150°-160° | 0.0    | 0.0       | 0.0    | 135° | 0    | 0     | 0    | 0     | 0    | 0    |
| 160°-170° | 0.0    | 0.0       | 0.0    | 145° | 0    | 0     | 0    | 0     | 0    | 0    |
| 170°-180° | 0.0    | 0.0       | 0.0    | 155° | 0    | 0     | 0    | 0     | 0    | 0    |
| 0°-30°    | 1414.8 | 31.5      | 24.8   | 165° | 0    | 0     | 0    | 0     | 0    | 0    |
| 0°-40°    | 2321.2 | 51.7      | 40.7   | 175° | 0    | 0     | 0    | 0     | 0    | 0    |
| 0°-60°    | 3818.6 | 85.1      | 67.0   | 180° | 0    | 0     | 0    | 0     | 0    | 0    |
| 0°-90°    | 4486.5 | 100.0     | 78.7   |      |      |       |      |       |      |      |
| 90°-120°  | 0.0    | 0.0       | 0.0    |      |      |       |      |       |      |      |
| 90°-150°  | 0.0    | 0.0       | 0.0    |      |      |       |      |       |      |      |
| 90°-180°  | 0.0    | 0.0       | 0.0    |      |      |       |      |       |      |      |
| 0°-180°   | 4486.5 | 100.0     | 78.7   |      |      |       |      |       |      |      |



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**CANDELA DISTRIBUTION (FULL):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90°  |
|--------|------|-------|------|-------|------|
| 0°     | 1777 | 1777  | 1777 | 1777  | 1777 |
| 2.5°   | 1771 | 1772  | 1778 | 1777  | 1783 |
| 5°     | 1765 | 1766  | 1774 | 1775  | 1783 |
| 7.5°   | 1755 | 1758  | 1769 | 1773  | 1780 |
| 10°    | 1741 | 1745  | 1761 | 1768  | 1777 |
| 12.5°  | 1725 | 1730  | 1750 | 1762  | 1772 |
| 15°    | 1703 | 1711  | 1736 | 1753  | 1765 |
| 17.5°  | 1678 | 1689  | 1720 | 1743  | 1755 |
| 20°    | 1648 | 1662  | 1699 | 1728  | 1743 |
| 22.5°  | 1615 | 1634  | 1675 | 1708  | 1725 |
| 25°    | 1577 | 1599  | 1646 | 1683  | 1701 |
| 27.5°  | 1535 | 1559  | 1613 | 1651  | 1670 |
| 30°    | 1485 | 1513  | 1572 | 1612  | 1630 |
| 32.5°  | 1431 | 1461  | 1524 | 1562  | 1582 |
| 35°    | 1370 | 1402  | 1467 | 1504  | 1524 |
| 37.5°  | 1302 | 1335  | 1399 | 1436  | 1456 |
| 40°    | 1226 | 1258  | 1320 | 1356  | 1374 |
| 42.5°  | 1142 | 1171  | 1230 | 1265  | 1278 |
| 45°    | 1047 | 1077  | 1134 | 1160  | 1174 |
| 47.5°  | 946  | 979   | 1033 | 1047  | 1064 |
| 50°    | 843  | 880   | 929  | 935   | 958  |
| 52.5°  | 745  | 785   | 825  | 829   | 855  |
| 55°    | 657  | 688   | 725  | 730   | 752  |
| 57.5°  | 578  | 591   | 628  | 633   | 648  |
| 60°    | 506  | 501   | 533  | 536   | 541  |
| 62.5°  | 441  | 423   | 441  | 449   | 450  |
| 65°    | 383  | 359   | 358  | 380   | 377  |
| 67.5°  | 331  | 307   | 287  | 327   | 321  |
| 70°    | 282  | 263   | 228  | 286   | 278  |
| 72.5°  | 238  | 226   | 184  | 251   | 247  |
| 75°    | 201  | 195   | 157  | 219   | 223  |
| 77.5°  | 172  | 164   | 140  | 187   | 199  |
| 80°    | 145  | 133   | 126  | 155   | 172  |
| 82.5°  | 112  | 101   | 104  | 124   | 139  |
| 85°    | 74   | 70    | 75   | 90    | 99   |
| 87.5°  | 38   | 37    | 41   | 50    | 54   |
| 90°    | 0    | 0     | 0    | 0     | 0    |
| 92.5°  | 0    | 0     | 0    | 0     | 0    |
| 95°    | 0    | 0     | 0    | 0     | 0    |
| 97.5°  | 0    | 0     | 0    | 0     | 0    |
| 100°   | 0    | 0     | 0    | 0     | 0    |
| 102.5° | 0    | 0     | 0    | 0     | 0    |
| 105°   | 0    | 0     | 0    | 0     | 0    |
| 107.5° | 0    | 0     | 0    | 0     | 0    |
| 110°   | 0    | 0     | 0    | 0     | 0    |



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**CANDELA DISTRIBUTION (continued):**

|        | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|----|-------|-----|-------|-----|
| 112.5° | 0  | 0     | 0   | 0     | 0   |
| 115°   | 0  | 0     | 0   | 0     | 0   |
| 117.5° | 0  | 0     | 0   | 0     | 0   |
| 120°   | 0  | 0     | 0   | 0     | 0   |
| 122.5° | 0  | 0     | 0   | 0     | 0   |
| 125°   | 0  | 0     | 0   | 0     | 0   |
| 127.5° | 0  | 0     | 0   | 0     | 0   |
| 130°   | 0  | 0     | 0   | 0     | 0   |
| 132.5° | 0  | 0     | 0   | 0     | 0   |
| 135°   | 0  | 0     | 0   | 0     | 0   |
| 137.5° | 0  | 0     | 0   | 0     | 0   |
| 140°   | 0  | 0     | 0   | 0     | 0   |
| 142.5° | 0  | 0     | 0   | 0     | 0   |
| 145°   | 0  | 0     | 0   | 0     | 0   |
| 147.5° | 0  | 0     | 0   | 0     | 0   |
| 150°   | 0  | 0     | 0   | 0     | 0   |
| 152.5° | 0  | 0     | 0   | 0     | 0   |
| 155°   | 0  | 0     | 0   | 0     | 0   |
| 157.5° | 0  | 0     | 0   | 0     | 0   |
| 160°   | 0  | 0     | 0   | 0     | 0   |
| 162.5° | 0  | 0     | 0   | 0     | 0   |
| 165°   | 0  | 0     | 0   | 0     | 0   |
| 167.5° | 0  | 0     | 0   | 0     | 0   |
| 170°   | 0  | 0     | 0   | 0     | 0   |
| 172.5° | 0  | 0     | 0   | 0     | 0   |
| 175°   | 0  | 0     | 0   | 0     | 0   |
| 177.5° | 0  | 0     | 0   | 0     | 0   |
| 180°   | 0  | 0     | 0   | 0     | 0   |

(END OF REPORT)