

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: P473973

Luminaire Tested: **24CZ2-50HE-S-UNV-L830-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P473973  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/28/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-50HE-S-UNV-L830-CD1-U  
Description: 2'X4' TROFFER LED MODULE, HIGH EFFICIENCY,SMOOTH LENS  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

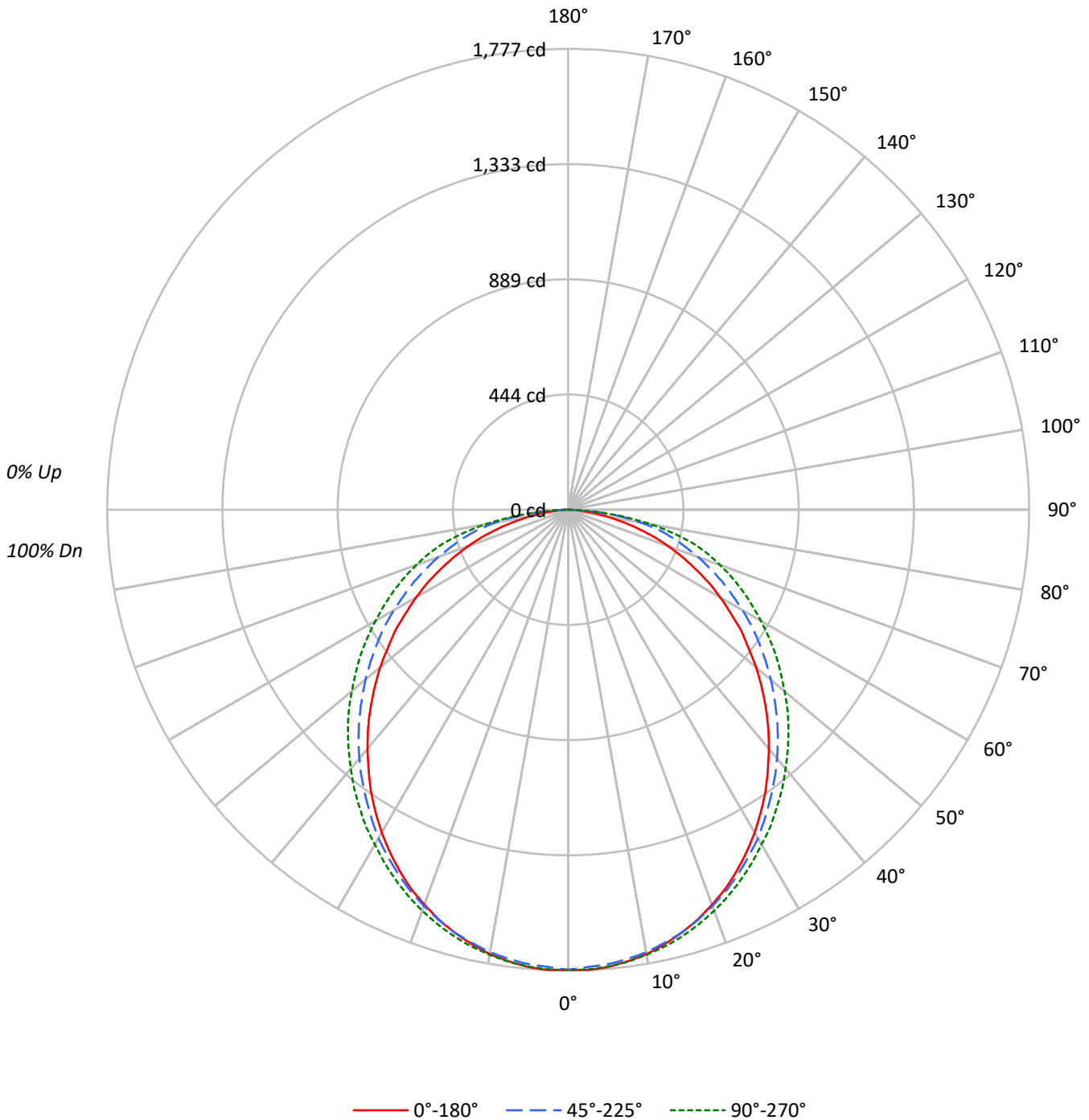
Lumens per Lamp: N/A  
Luminaire Lumens: 5083.0 lumens  
Efficiency: N/A  
Efficacy: 131.7 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.25 / 1.35  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 38.6  
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 | 103 | 99  | 95  | 105 | 101 | 97  | 93  | 97  | 93  | 90  | 93  | 90  | 87  | 89  | 87  | 85  | 83  |
| 2   | 98  | 90  | 83  | 77  | 95  | 88  | 81  | 76  | 84  | 79  | 74  | 81  | 76  | 72  | 78  | 74  | 71  | 68  |
| 3   | 89  | 78  | 70  | 63  | 87  | 77  | 69  | 63  | 74  | 67  | 62  | 71  | 65  | 61  | 68  | 64  | 59  | 57  |
| 4   | 82  | 69  | 60  | 54  | 79  | 68  | 60  | 53  | 66  | 58  | 52  | 63  | 57  | 52  | 61  | 55  | 51  | 49  |
| 5   | 75  | 62  | 53  | 46  | 73  | 61  | 52  | 46  | 59  | 51  | 45  | 57  | 50  | 45  | 55  | 49  | 44  | 42  |
| 6   | 69  | 56  | 47  | 40  | 67  | 55  | 46  | 40  | 53  | 45  | 40  | 51  | 44  | 39  | 50  | 44  | 39  | 37  |
| 7   | 64  | 51  | 42  | 35  | 63  | 50  | 41  | 35  | 48  | 41  | 35  | 47  | 40  | 35  | 45  | 39  | 34  | 32  |
| 8   | 60  | 46  | 38  | 32  | 58  | 45  | 37  | 31  | 44  | 37  | 31  | 43  | 36  | 31  | 42  | 35  | 31  | 29  |
| 9   | 56  | 42  | 34  | 28  | 54  | 42  | 34  | 28  | 41  | 33  | 28  | 39  | 33  | 28  | 38  | 32  | 28  | 26  |
| 10  | 52  | 39  | 31  | 26  | 51  | 39  | 31  | 26  | 38  | 30  | 26  | 37  | 30  | 25  | 36  | 30  | 25  | 24  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 2387 | 2387 | 2387 |
| 5°  | 2391 | 2376 | 2388 |
| 10° | 2377 | 2367 | 2381 |
| 15° | 2353 | 2352 | 2371 |
| 20° | 2320 | 2328 | 2356 |
| 25° | 2282 | 2302 | 2338 |
| 30° | 2234 | 2273 | 2315 |
| 35° | 2178 | 2233 | 2303 |
| 40° | 2113 | 2200 | 2289 |
| 45° | 2049 | 2165 | 2285 |
| 50° | 1980 | 2136 | 2279 |
| 55° | 1909 | 2109 | 2291 |
| 60° | 1822 | 2090 | 2308 |
| 65° | 1725 | 2081 | 2363 |
| 70° | 1609 | 2092 | 2447 |
| 75° | 1432 | 2153 | 2578 |
| 80° | 1171 | 2200 | 2517 |
| 85° | 824  | 1920 | 1959 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 167.7  | 3.3       |
| 10°-20°   | 477.7  | 9.4       |
| 20°-30°   | 716.1  | 14.1      |
| 30°-40°   | 852.9  | 16.8      |
| 40°-50°   | 879.4  | 17.3      |
| 50°-60°   | 802.5  | 15.8      |
| 60°-70°   | 641.7  | 12.6      |
| 70°-80°   | 419.1  | 8.2       |
| 80°-90°   | 125.9  | 2.5       |
| 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°    | 1361.6 | 26.8      |
| 0°-40°    | 2214.4 | 43.6      |
| 0°-60°    | 3896.3 | 76.7      |
| 0°-90°    | 5083.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 5083.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1774 | 1774  | 1774 | 1774  | 1774 |      |
| 5°  | 1770 | 1767  | 1759 | 1770  | 1768 | 168  |
| 15° | 1689 | 1690  | 1688 | 1702  | 1702 | 476  |
| 25° | 1537 | 1540  | 1550 | 1573  | 1575 | 708  |
| 35° | 1326 | 1335  | 1359 | 1394  | 1402 | 828  |
| 45° | 1077 | 1096  | 1138 | 1186  | 1201 | 831  |
| 55° | 814  | 837   | 899  | 958   | 977  | 725  |
| 65° | 542  | 579   | 654  | 718   | 742  | 537  |
| 75° | 276  | 321   | 414  | 481   | 496  | 293  |
| 85° | 53   | 96    | 124  | 127   | 127  | 68   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1774.2 | 1774.2 | 1774.2 | 1774.2 | 1774.2 |
| 2.5°  | 1776.7 | 1774.2 | 1765.0 | 1775.9 | 1774.2 |
| 5°    | 1770.0 | 1766.7 | 1759.2 | 1770.0 | 1768.3 |
| 7.5°  | 1756.6 | 1755.0 | 1747.5 | 1760.0 | 1758.3 |
| 10°   | 1740.0 | 1738.3 | 1732.4 | 1745.0 | 1742.5 |
| 12.5° | 1716.6 | 1715.7 | 1711.6 | 1726.6 | 1724.9 |
| 15°   | 1689.0 | 1689.9 | 1688.2 | 1702.4 | 1702.4 |
| 17.5° | 1657.3 | 1656.5 | 1659.8 | 1677.3 | 1675.7 |
| 20°   | 1620.6 | 1621.4 | 1625.6 | 1645.6 | 1645.6 |
| 22.5° | 1582.2 | 1581.3 | 1590.5 | 1610.5 | 1612.2 |
| 25°   | 1537.1 | 1539.6 | 1550.4 | 1573.0 | 1574.6 |
| 27.5° | 1488.6 | 1492.8 | 1506.2 | 1532.1 | 1534.6 |
| 30°   | 1437.7 | 1442.7 | 1462.8 | 1487.0 | 1490.3 |
| 32.5° | 1381.8 | 1392.6 | 1411.0 | 1441.9 | 1450.2 |
| 35°   | 1325.8 | 1335.0 | 1359.2 | 1393.5 | 1401.8 |
| 37.5° | 1264.1 | 1279.1 | 1306.6 | 1344.2 | 1355.1 |
| 40°   | 1203.1 | 1218.1 | 1252.4 | 1291.6 | 1303.3 |
| 42.5° | 1141.3 | 1157.2 | 1196.4 | 1240.7 | 1253.2 |
| 45°   | 1077.0 | 1096.2 | 1138.0 | 1185.6 | 1200.6 |
| 47.5° | 1011.1 | 1033.6 | 1078.7 | 1130.5 | 1147.2 |
| 50°   | 946.0  | 968.5  | 1020.3 | 1073.7 | 1088.7 |
| 52.5° | 875.8  | 904.2  | 959.3  | 1016.9 | 1031.9 |
| 55°   | 814.0  | 837.4  | 899.2  | 958.5  | 976.8  |
| 57.5° | 741.4  | 773.1  | 839.1  | 899.2  | 916.7  |
| 60°   | 677.1  | 706.3  | 776.5  | 837.4  | 857.5  |
| 62.5° | 612.0  | 642.0  | 712.2  | 781.5  | 799.8  |
| 65°   | 541.9  | 578.6  | 653.7  | 718.0  | 742.2  |
| 67.5° | 475.1  | 513.5  | 590.3  | 658.7  | 683.8  |
| 70°   | 409.1  | 448.3  | 531.8  | 602.0  | 622.0  |
| 72.5° | 344.0  | 384.9  | 471.7  | 540.2  | 563.6  |
| 75°   | 275.5  | 321.4  | 414.1  | 480.9  | 495.9  |
| 77.5° | 211.2  | 262.2  | 355.7  | 400.8  | 411.6  |
| 80°   | 151.1  | 207.1  | 283.9  | 316.4  | 324.8  |
| 82.5° | 99.4   | 153.6  | 212.1  | 229.6  | 227.1  |
| 85°   | 53.4   | 96.0   | 124.4  | 126.9  | 126.9  |
| 87.5° | 20.9   | 38.4   | 39.2   | 30.1   | 28.4   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)