

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: P474113

Luminaire Tested: **24CZ2-40-S-UNV-L850-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474113  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/28/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-40-S-UNV-L850-CD1-U  
Description: 2'X4' TROFFER LED MODULE, SMOOTH LENS  
Light Source: 5000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

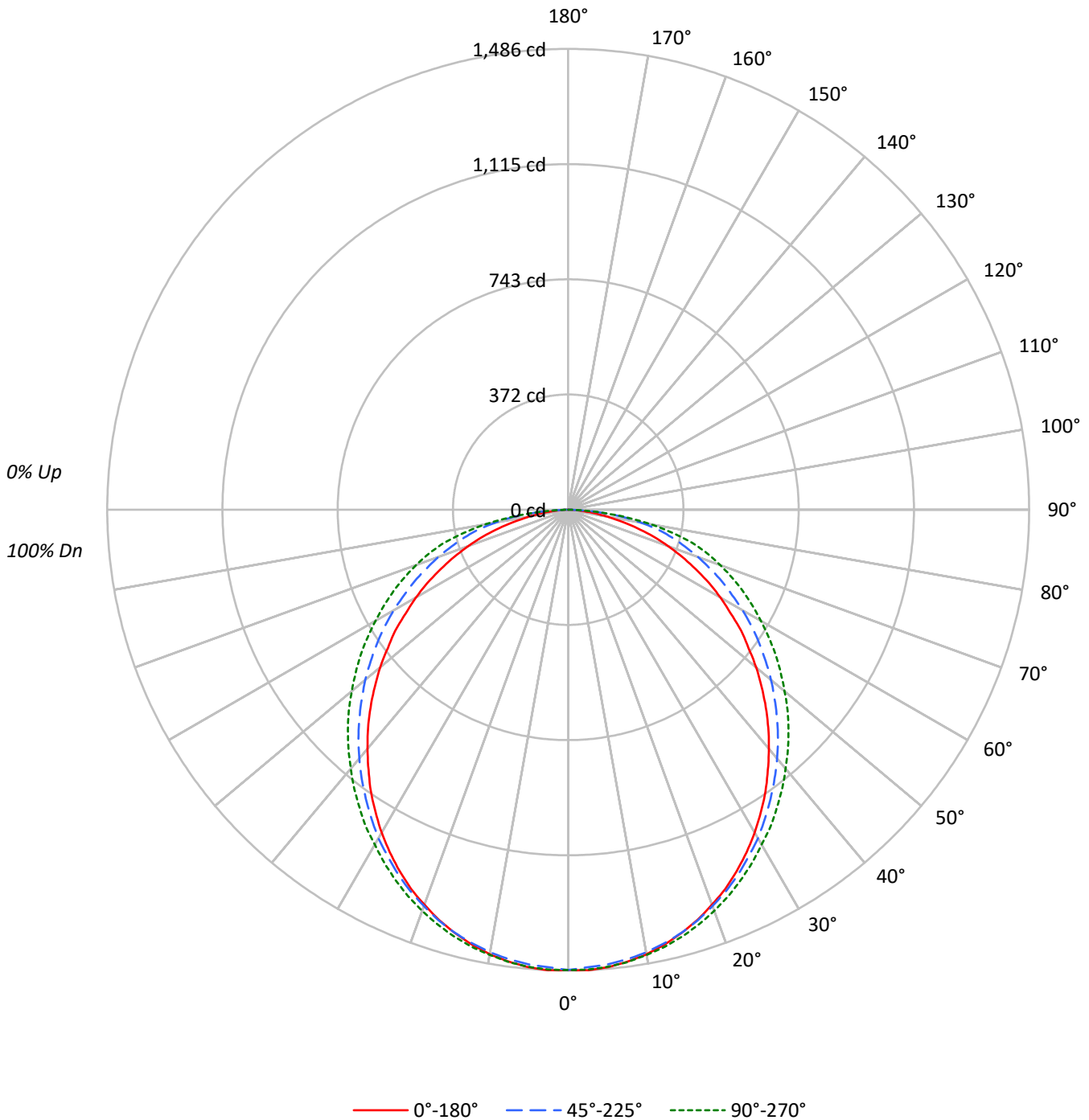
Lumens per Lamp: N/A  
Luminaire Lumens: 4252.1 lumens  
Efficiency: N/A  
Efficacy: 134.6 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.25 / 1.35  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 31.6  
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°  | 1997 | 1997 | 1997 |
| 5°  | 2000 | 1988 | 1998 |
| 10° | 1989 | 1980 | 1991 |
| 15° | 1968 | 1967 | 1984 |
| 20° | 1941 | 1947 | 1971 |
| 25° | 1909 | 1926 | 1956 |
| 30° | 1869 | 1901 | 1937 |
| 35° | 1822 | 1868 | 1926 |
| 40° | 1768 | 1840 | 1915 |
| 45° | 1714 | 1811 | 1911 |
| 50° | 1656 | 1787 | 1906 |
| 55° | 1597 | 1765 | 1917 |
| 60° | 1524 | 1748 | 1930 |
| 65° | 1443 | 1741 | 1977 |
| 70° | 1346 | 1750 | 2047 |
| 75° | 1198 | 1801 | 2157 |
| 80° | 979  | 1840 | 2105 |
| 85° | 690  | 1607 | 1639 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 140.3  | 3.3       |
| 10°-20°   | 399.6  | 9.4       |
| 20°-30°   | 599.0  | 14.1      |
| 30°-40°   | 713.5  | 16.8      |
| 40°-50°   | 735.7  | 17.3      |
| 50°-60°   | 671.3  | 15.8      |
| 60°-70°   | 536.8  | 12.6      |
| 70°-80°   | 350.6  | 8.2       |
| 80°-90°   | 105.3  | 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°    | 1139.0 | 26.8      |
| 0°-40°    | 1852.5 | 43.6      |
| 0°-60°    | 3259.5 | 76.7      |
| 0°-90°    | 4252.1 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4252.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1484 | 1484  | 1484 | 1484  | 1484 |      |
| 5°  | 1481 | 1478  | 1472 | 1481  | 1479 | 140  |
| 15° | 1413 | 1414  | 1412 | 1424  | 1424 | 398  |
| 25° | 1286 | 1288  | 1297 | 1316  | 1317 | 592  |
| 35° | 1109 | 1117  | 1137 | 1166  | 1173 | 693  |
| 45° | 901  | 917   | 952  | 992   | 1004 | 695  |
| 55° | 681  | 700   | 752  | 802   | 817  | 607  |
| 65° | 453  | 484   | 547  | 601   | 621  | 449  |
| 75° | 230  | 269   | 346  | 402   | 415  | 245  |
| 85° | 45   | 80    | 104  | 106   | 106  | 57   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1484.2 | 1484.2 | 1484.2 | 1484.2 | 1484.2 |
| 2.5°  | 1486.3 | 1484.2 | 1476.5 | 1485.6 | 1484.2 |
| 5°    | 1480.7 | 1477.9 | 1471.6 | 1480.7 | 1479.3 |
| 7.5°  | 1469.5 | 1468.1 | 1461.8 | 1472.3 | 1470.9 |
| 10°   | 1455.5 | 1454.2 | 1449.3 | 1459.7 | 1457.6 |
| 12.5° | 1436.0 | 1435.3 | 1431.8 | 1444.4 | 1443.0 |
| 15°   | 1412.9 | 1413.6 | 1412.2 | 1424.1 | 1424.1 |
| 17.5° | 1386.4 | 1385.7 | 1388.5 | 1403.2 | 1401.8 |
| 20°   | 1355.7 | 1356.4 | 1359.9 | 1376.6 | 1376.6 |
| 22.5° | 1323.5 | 1322.8 | 1330.5 | 1347.3 | 1348.7 |
| 25°   | 1285.8 | 1287.9 | 1297.0 | 1315.9 | 1317.3 |
| 27.5° | 1245.3 | 1248.8 | 1260.0 | 1281.6 | 1283.7 |
| 30°   | 1202.7 | 1206.9 | 1223.7 | 1243.9 | 1246.7 |
| 32.5° | 1155.9 | 1165.0 | 1180.4 | 1206.2 | 1213.2 |
| 35°   | 1109.1 | 1116.8 | 1137.1 | 1165.7 | 1172.7 |
| 37.5° | 1057.4 | 1070.0 | 1093.1 | 1124.5 | 1133.6 |
| 40°   | 1006.5 | 1019.0 | 1047.7 | 1080.5 | 1090.3 |
| 42.5° | 954.8  | 968.0  | 1000.9 | 1037.9 | 1048.4 |
| 45°   | 901.0  | 917.1  | 952.0  | 991.8  | 1004.4 |
| 47.5° | 845.8  | 864.7  | 902.4  | 945.7  | 959.7  |
| 50°   | 791.3  | 810.2  | 853.5  | 898.2  | 910.8  |
| 52.5° | 732.7  | 756.4  | 802.5  | 850.7  | 863.3  |
| 55°   | 681.0  | 700.5  | 752.2  | 801.8  | 817.2  |
| 57.5° | 620.2  | 646.8  | 701.9  | 752.2  | 766.9  |
| 60°   | 566.4  | 590.9  | 649.5  | 700.5  | 717.3  |
| 62.5° | 512.0  | 537.1  | 595.8  | 653.7  | 669.1  |
| 65°   | 453.3  | 484.0  | 546.9  | 600.7  | 620.9  |
| 67.5° | 397.4  | 429.5  | 493.8  | 551.1  | 572.0  |
| 70°   | 342.2  | 375.1  | 444.9  | 503.6  | 520.3  |
| 72.5° | 287.8  | 322.0  | 394.6  | 451.9  | 471.4  |
| 75°   | 230.5  | 268.9  | 346.4  | 402.3  | 414.9  |
| 77.5° | 176.7  | 219.3  | 297.5  | 335.3  | 344.3  |
| 80°   | 126.4  | 173.2  | 237.5  | 264.7  | 271.7  |
| 82.5° | 83.1   | 128.5  | 177.4  | 192.1  | 190.0  |
| 85°   | 44.7   | 80.3   | 104.1  | 106.2  | 106.2  |
| 87.5° | 17.5   | 32.1   | 32.8   | 25.1   | 23.7   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)