

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: P881190

Luminaire Tested: **24CZ2-40VHE-S-UNV-B50**

Issue Date: 10/2/2024

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.



**Test Information**

Test Method: LM-79-08  
Report Number: P881190  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (P473969)  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 10/2/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-40VHE-S-UNV-B50  
Description: 2X4 4000 LUMEN CRUZE TROFFER WITH BIO UP LEDS AT 5000K CCT AND SMOOTH LENS

Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

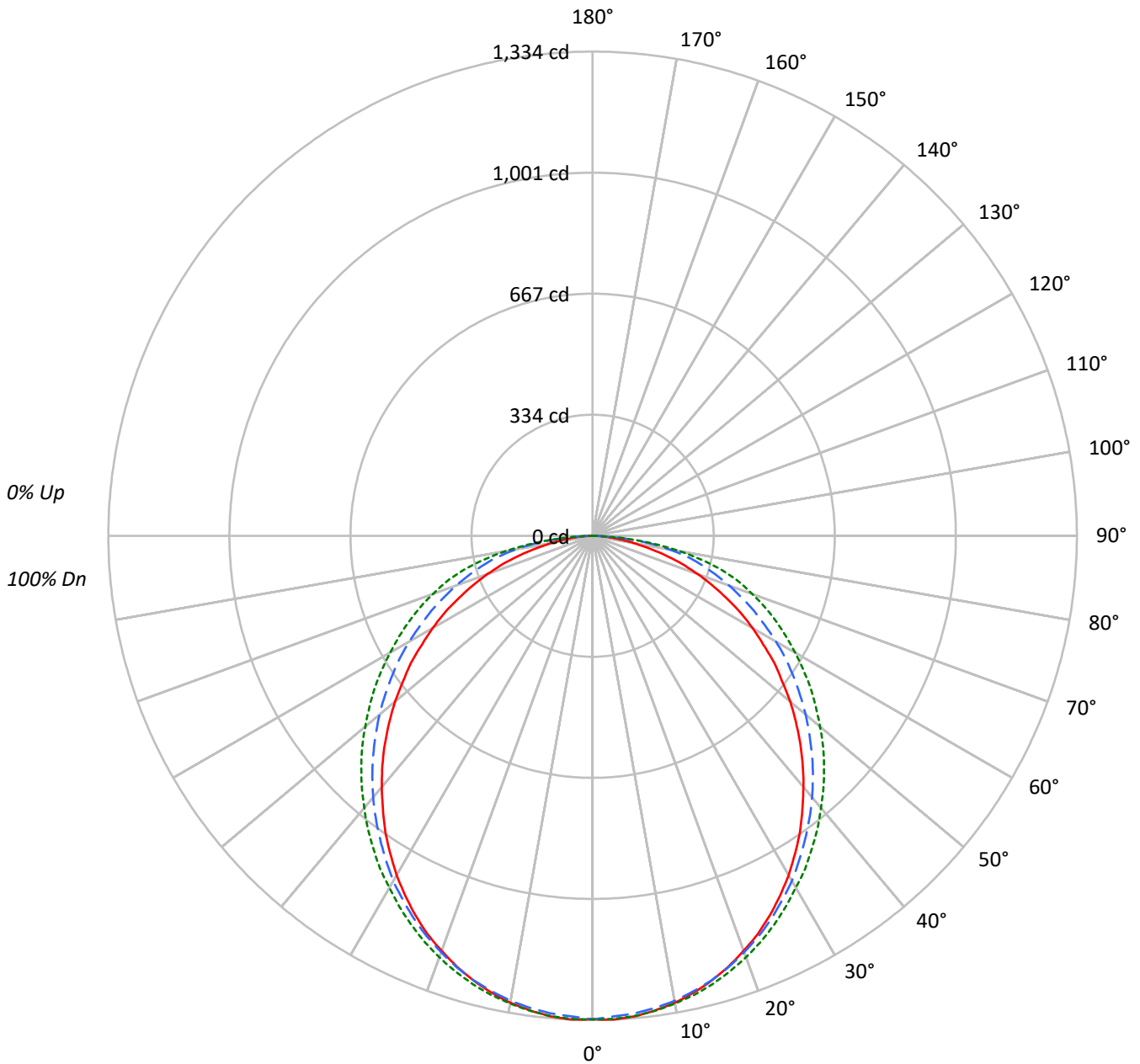
Lumens per Lamp: N/A  
Luminaire Lumens: 3817.0 lumens  
Efficiency: N/A  
Efficacy: 127.2 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.25 / 1.35  
Luminous Opening: Rectangular (W 1.92' x L: 3.98' x H: 0')  
CIE Type: Direct

Input Watts (W): 30  
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 |  |  |  |  |  |  |  |  |   |
| RC  | 80  |     |     |     |     |     |     |     |     | 50  |     |     |     |     |     |     |     |     | 30 |    |   |  |  |  |  |  |  | 10 |  |  |  |  |  |  |  |  | 0 |
| RW  | 70  | 50  | 30  | 10  | 70  | 50  | 30  | 10  | 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°  | 1880 | 1880 | 1880 |
| 5°  | 1883 | 1872 | 1881 |
| 10° | 1873 | 1864 | 1875 |
| 15° | 1853 | 1852 | 1868 |
| 20° | 1828 | 1833 | 1856 |
| 25° | 1797 | 1813 | 1841 |
| 30° | 1760 | 1790 | 1824 |
| 35° | 1715 | 1759 | 1814 |
| 40° | 1664 | 1733 | 1803 |
| 45° | 1614 | 1706 | 1799 |
| 50° | 1560 | 1682 | 1795 |
| 55° | 1504 | 1661 | 1805 |
| 60° | 1435 | 1646 | 1817 |
| 65° | 1359 | 1639 | 1861 |
| 70° | 1268 | 1648 | 1927 |
| 75° | 1128 | 1696 | 2031 |
| 80° | 922  | 1733 | 1982 |
| 85° | 651  | 1512 | 1543 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 126.0  | 3.3       |
| 10°-20°   | 358.7  | 9.4       |
| 20°-30°   | 537.7  | 14.1      |
| 30°-40°   | 640.5  | 16.8      |
| 40°-50°   | 660.4  | 17.3      |
| 50°-60°   | 602.6  | 15.8      |
| 60°-70°   | 481.8  | 12.6      |
| 70°-80°   | 314.8  | 8.2       |
| 80°-90°   | 94.5   | 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°    | 1022.4 | 26.8      |
| 0°-40°    | 1662.9 | 43.6      |
| 0°-60°    | 2925.9 | 76.7      |
| 0°-90°    | 3817.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3817.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1332 | 1332  | 1332 | 1332  | 1332 |      |
| 5°  | 1329 | 1327  | 1321 | 1329  | 1328 | 126  |
| 15° | 1268 | 1269  | 1268 | 1278  | 1278 | 358  |
| 25° | 1154 | 1156  | 1164 | 1181  | 1182 | 531  |
| 35° | 996  | 1002  | 1021 | 1046  | 1053 | 622  |
| 45° | 809  | 823   | 854  | 890   | 902  | 624  |
| 55° | 611  | 629   | 675  | 720   | 734  | 544  |
| 65° | 407  | 434   | 491  | 539   | 557  | 403  |
| 75° | 207  | 241   | 311  | 361   | 372  | 220  |
| 85° | 40   | 72    | 93   | 95    | 95   | 51   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1332.4 | 1332.4 | 1332.4 | 1332.4 | 1332.4 |
| 2.5°  | 1334.2 | 1332.4 | 1325.3 | 1333.6 | 1332.4 |
| 5°    | 1329.2 | 1326.6 | 1321.0 | 1329.2 | 1328.0 |
| 7.5°  | 1319.1 | 1317.8 | 1312.2 | 1321.6 | 1320.3 |
| 10°   | 1306.6 | 1305.3 | 1301.0 | 1310.3 | 1308.5 |
| 12.5° | 1289.1 | 1288.4 | 1285.3 | 1296.6 | 1295.3 |
| 15°   | 1268.3 | 1268.9 | 1267.7 | 1278.4 | 1278.4 |
| 17.5° | 1244.5 | 1243.9 | 1246.4 | 1259.6 | 1258.3 |
| 20°   | 1216.9 | 1217.5 | 1220.6 | 1235.8 | 1235.8 |
| 22.5° | 1188.1 | 1187.5 | 1194.4 | 1209.4 | 1210.6 |
| 25°   | 1154.2 | 1156.1 | 1164.2 | 1181.2 | 1182.5 |
| 27.5° | 1117.8 | 1121.1 | 1131.1 | 1150.5 | 1152.3 |
| 30°   | 1079.7 | 1083.4 | 1098.4 | 1116.6 | 1119.1 |
| 32.5° | 1037.6 | 1045.8 | 1059.5 | 1082.8 | 1089.1 |
| 35°   | 995.6  | 1002.5 | 1020.8 | 1046.4 | 1052.6 |
| 37.5° | 949.2  | 960.5  | 981.2  | 1009.4 | 1017.6 |
| 40°   | 903.4  | 914.8  | 940.4  | 970.0  | 978.7  |
| 42.5° | 857.0  | 869.0  | 898.4  | 931.7  | 941.1  |
| 45°   | 808.8  | 823.2  | 854.5  | 890.3  | 901.5  |
| 47.5° | 759.3  | 776.2  | 810.1  | 848.9  | 861.5  |
| 50°   | 710.4  | 727.3  | 766.2  | 806.2  | 817.6  |
| 52.5° | 657.7  | 679.0  | 720.4  | 763.7  | 774.9  |
| 55°   | 611.3  | 628.8  | 675.2  | 719.8  | 733.5  |
| 57.5° | 556.8  | 580.6  | 630.1  | 675.2  | 688.4  |
| 60°   | 508.5  | 530.4  | 583.1  | 628.8  | 643.8  |
| 62.5° | 459.6  | 482.1  | 534.8  | 586.8  | 600.7  |
| 65°   | 406.9  | 434.4  | 490.9  | 539.1  | 557.4  |
| 67.5° | 356.8  | 385.5  | 443.3  | 494.6  | 513.5  |
| 70°   | 307.2  | 336.6  | 399.4  | 452.1  | 467.1  |
| 72.5° | 258.3  | 289.1  | 354.3  | 405.7  | 423.2  |
| 75°   | 206.9  | 241.4  | 311.0  | 361.1  | 372.4  |
| 77.5° | 158.6  | 196.9  | 267.1  | 301.0  | 309.1  |
| 80°   | 113.5  | 155.5  | 213.2  | 237.7  | 243.9  |
| 82.5° | 74.6   | 115.3  | 159.2  | 172.4  | 170.5  |
| 85°   | 40.2   | 72.1   | 93.4   | 95.3   | 95.3   |
| 87.5° | 15.6   | 28.9   | 29.5   | 22.5   | 21.3   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



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— 0°-180°    - - 45°-225°    - - - - 90°-270°







(END OF REPORT)