

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: P474061

Luminaire Tested: **24CZ2-30-S-UNV-L840-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474061  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/28/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-30-S-UNV-L840-CD1-U  
Description: 2'X4' TROFFER LED MODULE, SMOOTH LENS  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

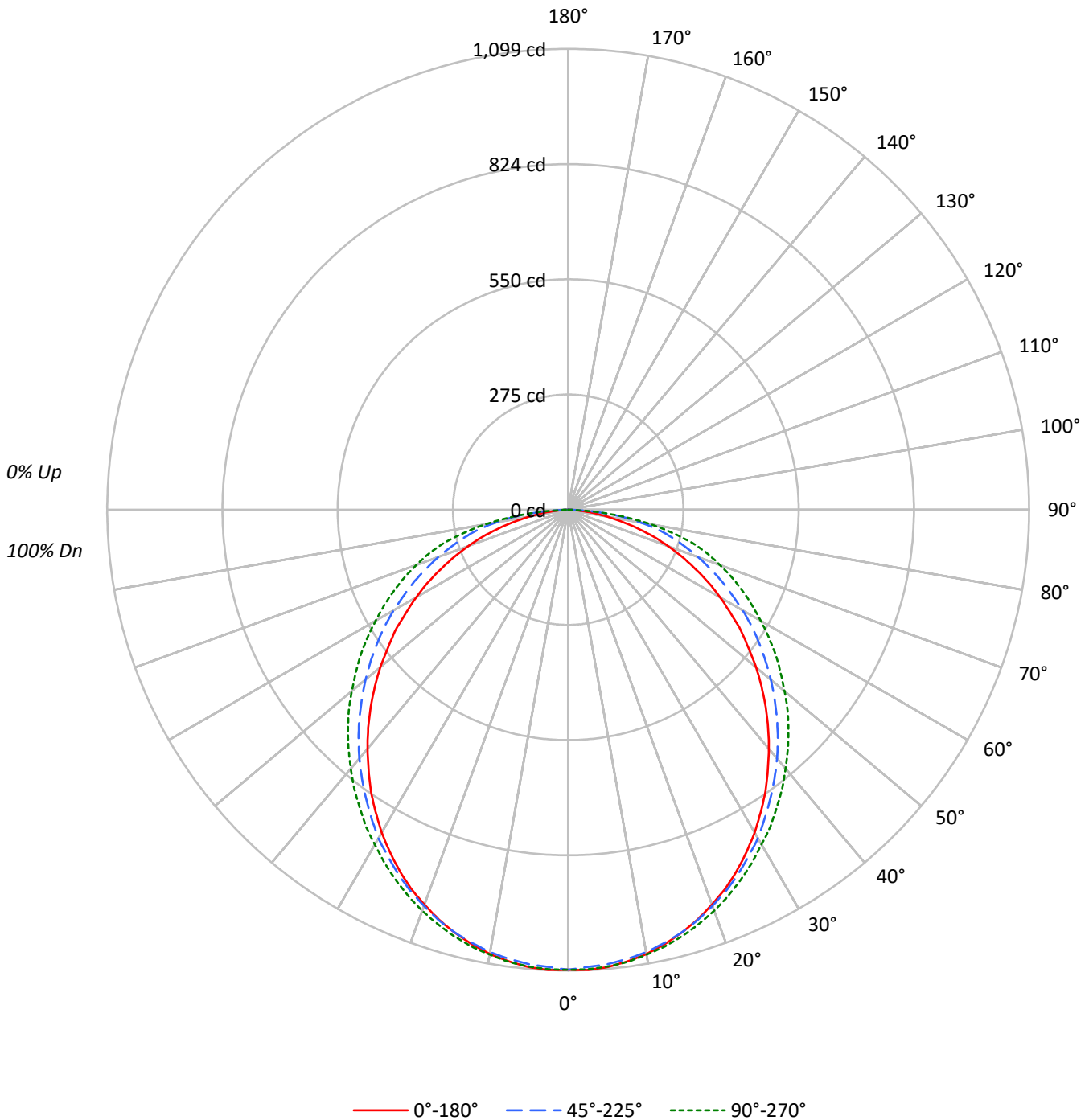
Lumens per Lamp: N/A  
Luminaire Lumens: 3143.1 lumens  
Efficiency: N/A  
Efficacy: 133.2 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.25 / 1.35  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

Input Watts (W): 23.6  
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°  | 1476 | 1476 | 1476 |
| 5°  | 1478 | 1469 | 1477 |
| 10° | 1470 | 1464 | 1472 |
| 15° | 1455 | 1454 | 1466 |
| 20° | 1435 | 1439 | 1457 |
| 25° | 1411 | 1423 | 1446 |
| 30° | 1381 | 1405 | 1432 |
| 35° | 1347 | 1381 | 1424 |
| 40° | 1307 | 1360 | 1415 |
| 45° | 1267 | 1339 | 1413 |
| 50° | 1224 | 1321 | 1409 |
| 55° | 1181 | 1304 | 1417 |
| 60° | 1127 | 1292 | 1427 |
| 65° | 1067 | 1287 | 1461 |
| 70° | 995  | 1294 | 1513 |
| 75° | 886  | 1331 | 1594 |
| 80° | 724  | 1360 | 1556 |
| 85° | 509  | 1187 | 1212 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 103.7  | 3.3       |
| 10°-20°   | 295.4  | 9.4       |
| 20°-30°   | 442.8  | 14.1      |
| 30°-40°   | 527.4  | 16.8      |
| 40°-50°   | 543.8  | 17.3      |
| 50°-60°   | 496.2  | 15.8      |
| 60°-70°   | 396.8  | 12.6      |
| 70°-80°   | 259.2  | 8.2       |
| 80°-90°   | 77.8   | 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°    | 841.9  | 26.8      |
| 0°-40°    | 1369.3 | 43.6      |
| 0°-60°    | 2409.3 | 76.7      |
| 0°-90°    | 3143.1 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 3143.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1097 | 1097  | 1097 | 1097  | 1097 |      |
| 5°  | 1094 | 1092  | 1088 | 1094  | 1094 | 104  |
| 15° | 1044 | 1045  | 1044 | 1053  | 1053 | 294  |
| 25° | 950  | 952   | 959  | 973   | 974  | 438  |
| 35° | 820  | 826   | 840  | 862   | 867  | 512  |
| 45° | 666  | 678   | 704  | 733   | 742  | 514  |
| 55° | 503  | 518   | 556  | 593   | 604  | 448  |
| 65° | 335  | 358   | 404  | 444   | 459  | 332  |
| 75° | 170  | 199   | 256  | 297   | 307  | 181  |
| 85° | 33   | 59    | 77   | 78    | 78   | 42   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1097.1 | 1097.1 | 1097.1 | 1097.1 | 1097.1 |
| 2.5°  | 1098.6 | 1097.1 | 1091.4 | 1098.1 | 1097.1 |
| 5°    | 1094.5 | 1092.4 | 1087.8 | 1094.5 | 1093.5 |
| 7.5°  | 1086.2 | 1085.2 | 1080.6 | 1088.3 | 1087.3 |
| 10°   | 1075.9 | 1074.9 | 1071.3 | 1079.0 | 1077.5 |
| 12.5° | 1061.5 | 1060.9 | 1058.4 | 1067.7 | 1066.6 |
| 15°   | 1044.4 | 1044.9 | 1043.9 | 1052.7 | 1052.7 |
| 17.5° | 1024.8 | 1024.3 | 1026.4 | 1037.2 | 1036.2 |
| 20°   | 1002.1 | 1002.6 | 1005.2 | 1017.6 | 1017.6 |
| 22.5° | 978.3  | 977.8  | 983.5  | 995.9  | 996.9  |
| 25°   | 950.5  | 952.0  | 958.7  | 972.7  | 973.7  |
| 27.5° | 920.5  | 923.1  | 931.4  | 947.4  | 948.9  |
| 30°   | 889.0  | 892.1  | 904.5  | 919.5  | 921.6  |
| 32.5° | 854.4  | 861.1  | 872.5  | 891.6  | 896.8  |
| 35°   | 819.8  | 825.5  | 840.5  | 861.7  | 866.8  |
| 37.5° | 781.6  | 790.9  | 808.0  | 831.2  | 837.9  |
| 40°   | 744.0  | 753.2  | 774.4  | 798.7  | 805.9  |
| 42.5° | 705.7  | 715.6  | 739.8  | 767.2  | 774.9  |
| 45°   | 666.0  | 677.9  | 703.7  | 733.1  | 742.4  |
| 47.5° | 625.2  | 639.1  | 667.0  | 699.0  | 709.4  |
| 50°   | 584.9  | 598.9  | 630.9  | 663.9  | 673.2  |
| 52.5° | 541.6  | 559.1  | 593.2  | 628.8  | 638.1  |
| 55°   | 503.4  | 517.8  | 556.0  | 592.7  | 604.0  |
| 57.5° | 458.5  | 478.1  | 518.9  | 556.0  | 566.9  |
| 60°   | 418.7  | 436.8  | 480.1  | 517.8  | 530.2  |
| 62.5° | 378.4  | 397.0  | 440.4  | 483.2  | 494.6  |
| 65°   | 335.1  | 357.8  | 404.2  | 444.0  | 459.0  |
| 67.5° | 293.8  | 317.5  | 365.0  | 407.3  | 422.8  |
| 70°   | 253.0  | 277.2  | 328.9  | 372.2  | 384.6  |
| 72.5° | 212.7  | 238.0  | 291.7  | 334.0  | 348.5  |
| 75°   | 170.4  | 198.8  | 256.1  | 297.4  | 306.7  |
| 77.5° | 130.6  | 162.1  | 219.9  | 247.8  | 254.5  |
| 80°   | 93.4   | 128.0  | 175.5  | 195.7  | 200.8  |
| 82.5° | 61.4   | 95.0   | 131.1  | 142.0  | 140.4  |
| 85°   | 33.0   | 59.4   | 76.9   | 78.5   | 78.5   |
| 87.5° | 12.9   | 23.7   | 24.3   | 18.6   | 17.6   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)