

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: P474721

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

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474721  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/28/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-40HE-SQR-UNV-L850-CD1-U  
Description: 2'X4' TROFFER LED MODULE, HIGH EFFICIENCY,SQUARE LENS  
Light Source: 5000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4011.8 lumens  
Efficiency: N/A  
Efficacy: 130.7 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.3 / 1.39  
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')  
CIE Type: Direct

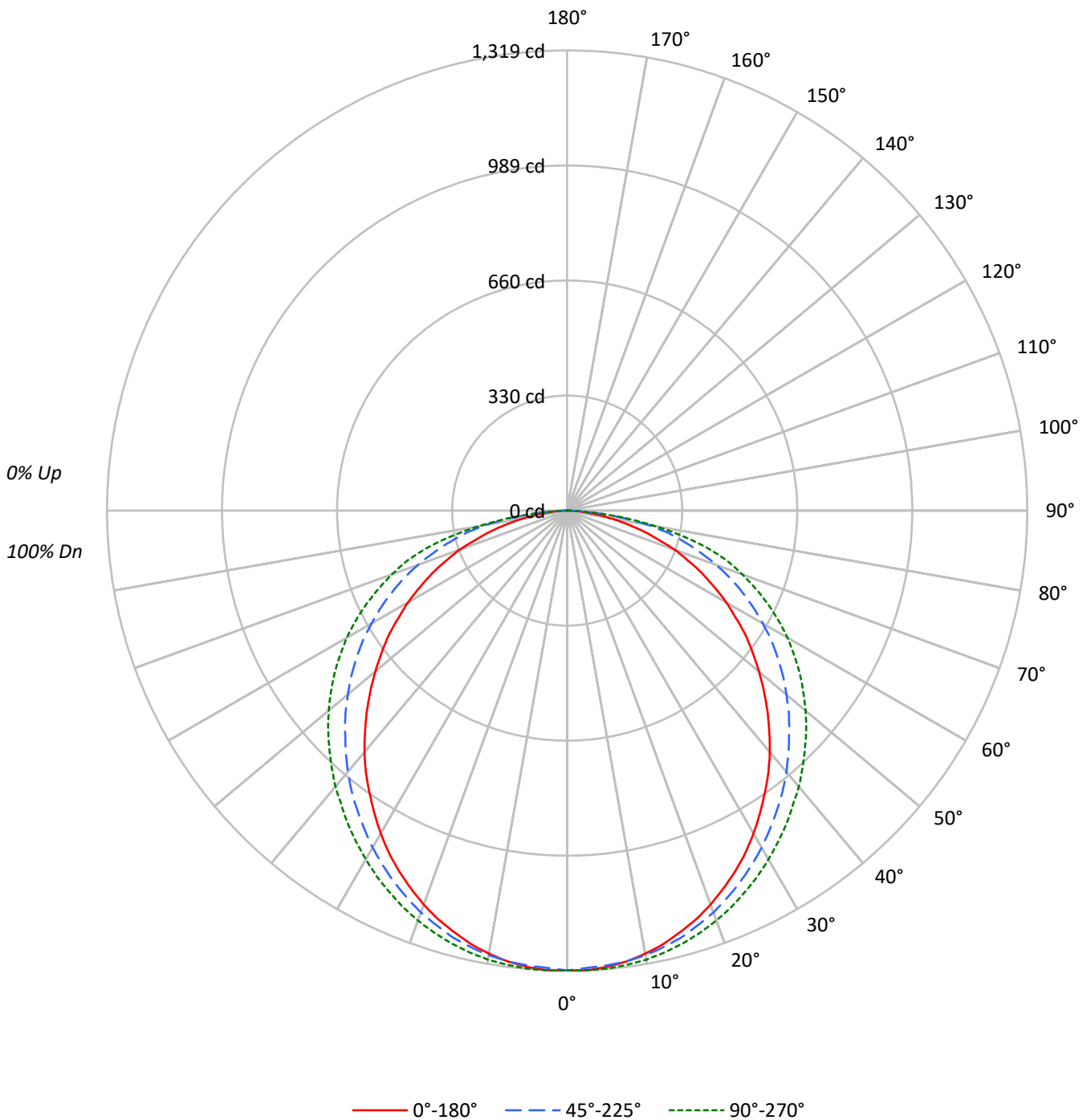
Input Watts (W): 30.7  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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 | 98  | 94  | 105 | 101 | 96  | 93  | 96  | 93  | 90  | 92  | 90  | 87  | 89  | 87  | 84  | 82  |
| 2   | 98  | 89  | 82  | 76  | 95  | 87  | 81  | 75  | 84  | 78  | 73  | 80  | 76  | 71  | 77  | 73  | 70  | 68  |
| 3   | 89  | 78  | 69  | 62  | 86  | 76  | 68  | 62  | 73  | 66  | 61  | 70  | 64  | 60  | 68  | 63  | 59  | 56  |
| 4   | 81  | 69  | 59  | 53  | 79  | 67  | 59  | 52  | 65  | 57  | 51  | 62  | 56  | 51  | 60  | 55  | 50  | 48  |
| 5   | 74  | 61  | 52  | 45  | 72  | 60  | 51  | 45  | 58  | 50  | 44  | 56  | 49  | 44  | 54  | 48  | 43  | 41  |
| 6   | 69  | 55  | 46  | 39  | 67  | 54  | 45  | 39  | 52  | 44  | 39  | 50  | 43  | 38  | 49  | 43  | 38  | 36  |
| 7   | 64  | 50  | 41  | 34  | 62  | 49  | 40  | 34  | 47  | 40  | 34  | 46  | 39  | 34  | 44  | 38  | 33  | 31  |
| 8   | 59  | 45  | 37  | 31  | 58  | 45  | 36  | 31  | 43  | 36  | 30  | 42  | 35  | 30  | 41  | 35  | 30  | 28  |
| 9   | 55  | 42  | 33  | 28  | 54  | 41  | 33  | 27  | 40  | 32  | 27  | 39  | 32  | 27  | 38  | 31  | 27  | 25  |
| 10  | 52  | 38  | 30  | 25  | 50  | 38  | 30  | 25  | 37  | 30  | 25  | 36  | 29  | 25  | 35  | 29  | 24  | 23  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3546 | 3546 | 3546 |
| 5°  | 3546 | 3535 | 3560 |
| 10° | 3524 | 3536 | 3571 |
| 15° | 3485 | 3528 | 3577 |
| 20° | 3441 | 3511 | 3581 |
| 25° | 3385 | 3486 | 3581 |
| 30° | 3320 | 3465 | 3587 |
| 35° | 3245 | 3445 | 3600 |
| 40° | 3175 | 3433 | 3629 |
| 45° | 3088 | 3425 | 3669 |
| 50° | 3005 | 3435 | 3735 |
| 55° | 2935 | 3458 | 3819 |
| 60° | 2835 | 3484 | 3926 |
| 65° | 2722 | 3526 | 4045 |
| 70° | 2582 | 3575 | 4205 |
| 75° | 2312 | 3625 | 4345 |
| 80° | 1946 | 3636 | 3944 |
| 85° | 1445 | 2751 | 2594 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 124.9  | 3.1       |
| 10°-20°   | 357.9  | 8.9       |
| 20°-30°   | 541.8  | 13.5      |
| 30°-40°   | 655.4  | 16.3      |
| 40°-50°   | 691.8  | 17.2      |
| 50°-60°   | 652.4  | 16.3      |
| 60°-70°   | 537.8  | 13.4      |
| 70°-80°   | 352.8  | 8.8       |
| 80°-90°   | 97.0   | 2.4       |
| 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°    | 1024.5 | 25.5      |
| 0°-40°    | 1679.9 | 41.9      |
| 0°-60°    | 3024.1 | 75.4      |
| 0°-90°    | 4011.8 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4011.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1318 | 1318  | 1318 | 1318  | 1318 |      |
| 5°  | 1313 | 1313  | 1309 | 1318  | 1318 | 125  |
| 15° | 1251 | 1258  | 1266 | 1281  | 1284 | 353  |
| 25° | 1140 | 1154  | 1174 | 1198  | 1206 | 525  |
| 35° | 988  | 1013  | 1049 | 1084  | 1096 | 618  |
| 45° | 811  | 848   | 900  | 948   | 964  | 626  |
| 55° | 626  | 670   | 737  | 792   | 814  | 557  |
| 65° | 428  | 479   | 554  | 613   | 635  | 422  |
| 75° | 222  | 279   | 349  | 404   | 418  | 235  |
| 85° | 47   | 81    | 89   | 86    | 84   | 58   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1317.8 | 1317.8 | 1317.8 | 1317.8 | 1317.8 |
| 2.5°  | 1319.0 | 1317.8 | 1312.0 | 1319.7 | 1319.0 |
| 5°    | 1312.6 | 1312.6 | 1308.8 | 1317.8 | 1317.8 |
| 7.5°  | 1303.7 | 1304.3 | 1303.0 | 1313.3 | 1313.3 |
| 10°   | 1289.6 | 1292.1 | 1294.0 | 1305.6 | 1306.9 |
| 12.5° | 1272.9 | 1277.4 | 1281.2 | 1295.3 | 1296.6 |
| 15°   | 1251.1 | 1258.2 | 1266.5 | 1281.2 | 1283.8 |
| 17.5° | 1228.7 | 1237.0 | 1246.0 | 1265.2 | 1268.4 |
| 20°   | 1201.7 | 1211.4 | 1226.1 | 1245.3 | 1250.5 |
| 22.5° | 1171.6 | 1185.1 | 1200.5 | 1223.5 | 1230.0 |
| 25°   | 1140.2 | 1154.3 | 1174.2 | 1198.5 | 1206.2 |
| 27.5° | 1106.3 | 1122.9 | 1145.3 | 1173.5 | 1181.9 |
| 30°   | 1068.4 | 1087.7 | 1115.2 | 1145.3 | 1154.3 |
| 32.5° | 1028.7 | 1051.1 | 1081.9 | 1115.2 | 1125.5 |
| 35°   | 987.7  | 1013.3 | 1048.6 | 1084.5 | 1096.0 |
| 37.5° | 947.3  | 972.9  | 1014.6 | 1052.4 | 1063.3 |
| 40°   | 903.7  | 931.9  | 977.4  | 1017.8 | 1033.2 |
| 42.5° | 857.6  | 890.9  | 939.0  | 983.8  | 998.6  |
| 45°   | 811.4  | 848.0  | 899.9  | 947.9  | 964.0  |
| 47.5° | 764.6  | 805.0  | 862.1  | 910.8  | 929.4  |
| 50°   | 717.8  | 760.8  | 820.4  | 873.0  | 892.2  |
| 52.5° | 670.4  | 715.3  | 780.0  | 835.8  | 853.1  |
| 55°   | 625.6  | 669.8  | 737.1  | 792.2  | 814.0  |
| 57.5° | 573.6  | 623.6  | 694.8  | 750.5  | 771.7  |
| 60°   | 526.8  | 575.6  | 647.3  | 706.3  | 729.4  |
| 62.5° | 476.2  | 526.2  | 601.8  | 660.8  | 683.2  |
| 65°   | 427.5  | 478.8  | 553.8  | 612.7  | 635.2  |
| 67.5° | 374.9  | 428.8  | 505.7  | 562.7  | 584.5  |
| 70°   | 328.2  | 378.8  | 454.4  | 512.7  | 534.5  |
| 72.5° | 271.1  | 328.8  | 401.2  | 458.9  | 482.6  |
| 75°   | 222.4  | 279.4  | 348.7  | 403.8  | 417.9  |
| 77.5° | 171.1  | 228.2  | 296.8  | 332.6  | 342.3  |
| 80°   | 125.6  | 179.5  | 234.6  | 253.8  | 254.5  |
| 82.5° | 84.6   | 132.0  | 163.4  | 173.1  | 171.8  |
| 85°   | 46.8   | 80.8   | 89.1   | 86.5   | 84.0   |
| 87.5° | 19.2   | 26.9   | 21.8   | 15.4   | 12.2   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)