

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: P474694

Luminaire Tested: **24CZ2-100VHE-SQR-UNV-L840-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474694  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/28/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-100VHE-SQR-UNV-L840-CD1-U  
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SQUARE LENS  
Light Source: 4000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9688.8 lumens  
Efficiency: N/A  
Efficacy: 136.3 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

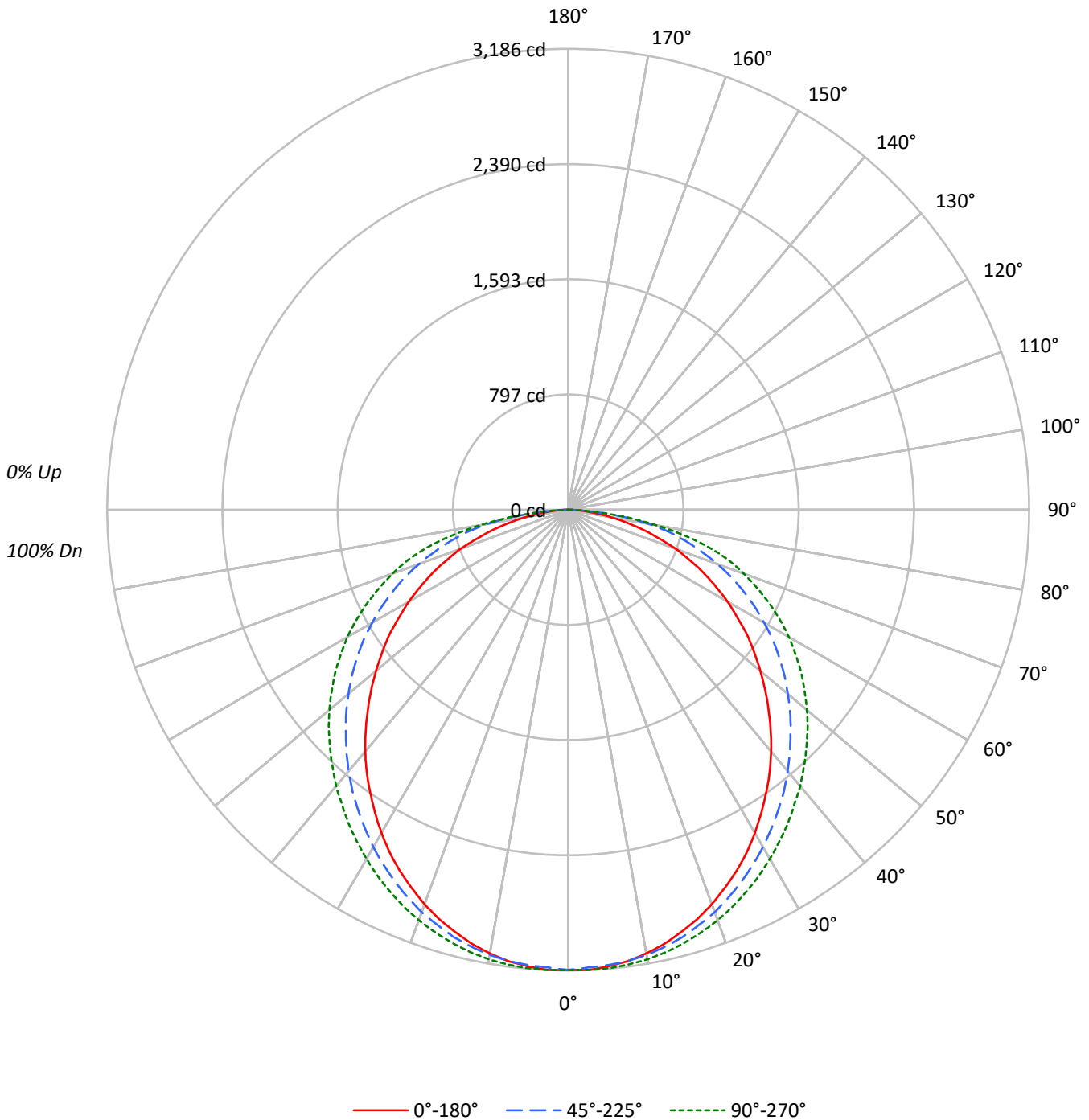
Input Watts (W): 71.1  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°  | 8564 | 8564 | 8564  |
| 5°  | 8563 | 8538 | 8597  |
| 10° | 8510 | 8540 | 8624  |
| 15° | 8418 | 8521 | 8637  |
| 20° | 8311 | 8480 | 8648  |
| 25° | 8176 | 8420 | 8649  |
| 30° | 8018 | 8369 | 8662  |
| 35° | 7836 | 8319 | 8695  |
| 40° | 7667 | 8292 | 8765  |
| 45° | 7457 | 8270 | 8859  |
| 50° | 7258 | 8295 | 9020  |
| 55° | 7088 | 8351 | 9223  |
| 60° | 6848 | 8414 | 9480  |
| 65° | 6574 | 8516 | 9768  |
| 70° | 6235 | 8635 | 10157 |
| 75° | 5584 | 8755 | 10493 |
| 80° | 4702 | 8779 | 9523  |
| 85° | 3489 | 6644 | 6262  |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 301.6  | 3.1       |
| 10°-20°   | 864.3  | 8.9       |
| 20°-30°   | 1308.4 | 13.5      |
| 30°-40°   | 1582.8 | 16.3      |
| 40°-50°   | 1670.8 | 17.2      |
| 50°-60°   | 1575.5 | 16.3      |
| 60°-70°   | 1298.9 | 13.4      |
| 70°-80°   | 852.1  | 8.8       |
| 80°-90°   | 234.3  | 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°    | 2474.3 | 25.5      |
| 0°-40°    | 4057.1 | 41.9      |
| 0°-60°    | 7303.4 | 75.4      |
| 0°-90°    | 9688.8 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 9688.8 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 3182 | 3182  | 3182 | 3182  | 3182 |      |
| 5°  | 3170 | 3170  | 3161 | 3182  | 3182 | 301  |
| 15° | 3022 | 3038  | 3059 | 3094  | 3100 | 852  |
| 25° | 2754 | 2788  | 2836 | 2895  | 2913 | 1268 |
| 35° | 2385 | 2447  | 2532 | 2619  | 2647 | 1493 |
| 45° | 1960 | 2048  | 2173 | 2289  | 2328 | 1512 |
| 55° | 1511 | 1618  | 1780 | 1913  | 1966 | 1346 |
| 65° | 1032 | 1156  | 1337 | 1480  | 1534 | 1019 |
| 75° | 537  | 675   | 842  | 975   | 1009 | 568  |
| 85° | 113  | 195   | 215  | 209   | 203  | 140  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 3182.5 | 3182.5 | 3182.5 | 3182.5 | 3182.5 |
| 2.5°  | 3185.6 | 3182.5 | 3168.5 | 3187.1 | 3185.6 |
| 5°    | 3170.1 | 3170.1 | 3160.8 | 3182.5 | 3182.5 |
| 7.5°  | 3148.4 | 3150.0 | 3146.9 | 3171.6 | 3171.6 |
| 10°   | 3114.4 | 3120.5 | 3125.2 | 3153.1 | 3156.1 |
| 12.5° | 3074.1 | 3084.9 | 3094.2 | 3128.3 | 3131.4 |
| 15°   | 3021.5 | 3038.5 | 3058.6 | 3094.2 | 3100.4 |
| 17.5° | 2967.3 | 2987.4 | 3009.1 | 3055.5 | 3063.3 |
| 20°   | 2902.3 | 2925.5 | 2961.1 | 3007.6 | 3019.9 |
| 22.5° | 2829.5 | 2862.0 | 2899.2 | 2954.9 | 2970.4 |
| 25°   | 2753.7 | 2787.8 | 2835.7 | 2894.6 | 2913.1 |
| 27.5° | 2671.7 | 2711.9 | 2766.1 | 2834.2 | 2854.3 |
| 30°   | 2580.3 | 2626.8 | 2693.3 | 2766.1 | 2787.8 |
| 32.5° | 2484.4 | 2538.5 | 2612.8 | 2693.3 | 2718.1 |
| 35°   | 2385.3 | 2447.2 | 2532.3 | 2619.0 | 2646.9 |
| 37.5° | 2287.8 | 2349.7 | 2450.3 | 2541.6 | 2567.9 |
| 40°   | 2182.5 | 2250.6 | 2360.5 | 2458.0 | 2495.2 |
| 42.5° | 2071.1 | 2151.6 | 2267.7 | 2376.0 | 2411.6 |
| 45°   | 1959.6 | 2047.9 | 2173.2 | 2289.3 | 2328.0 |
| 47.5° | 1846.6 | 1944.2 | 2081.9 | 2199.6 | 2244.4 |
| 50°   | 1733.6 | 1837.3 | 1981.3 | 2108.2 | 2154.7 |
| 52.5° | 1619.1 | 1727.4 | 1883.8 | 2018.4 | 2060.2 |
| 55°   | 1510.7 | 1617.5 | 1780.1 | 1913.2 | 1965.8 |
| 57.5° | 1385.4 | 1506.1 | 1677.9 | 1812.6 | 1863.7 |
| 60°   | 1272.4 | 1390.0 | 1563.4 | 1705.8 | 1761.5 |
| 62.5° | 1150.1 | 1270.8 | 1453.5 | 1595.9 | 1650.1 |
| 65°   | 1032.4 | 1156.3 | 1337.4 | 1479.8 | 1534.0 |
| 67.5° | 905.5  | 1035.5 | 1221.3 | 1359.0 | 1411.7 |
| 70°   | 792.5  | 914.8  | 1097.5 | 1238.3 | 1290.9 |
| 72.5° | 654.8  | 794.1  | 969.0  | 1108.3 | 1165.6 |
| 75°   | 537.1  | 674.9  | 842.1  | 975.2  | 1009.2 |
| 77.5° | 413.3  | 551.0  | 716.7  | 803.4  | 826.6  |
| 80°   | 303.4  | 433.4  | 566.5  | 613.0  | 614.5  |
| 82.5° | 204.3  | 318.9  | 394.7  | 417.9  | 414.8  |
| 85°   | 113.0  | 195.0  | 215.2  | 209.0  | 202.8  |
| 87.5° | 46.4   | 65.0   | 52.6   | 37.1   | 29.4   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)