

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: P474037

Luminaire Tested: **24CZ2-60VHE-S-UNV-L835-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474037  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/28/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-60VHE-S-UNV-L835-CD1-U  
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 6127.2 lumens  
Efficiency: N/A  
Efficacy: 150.5 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

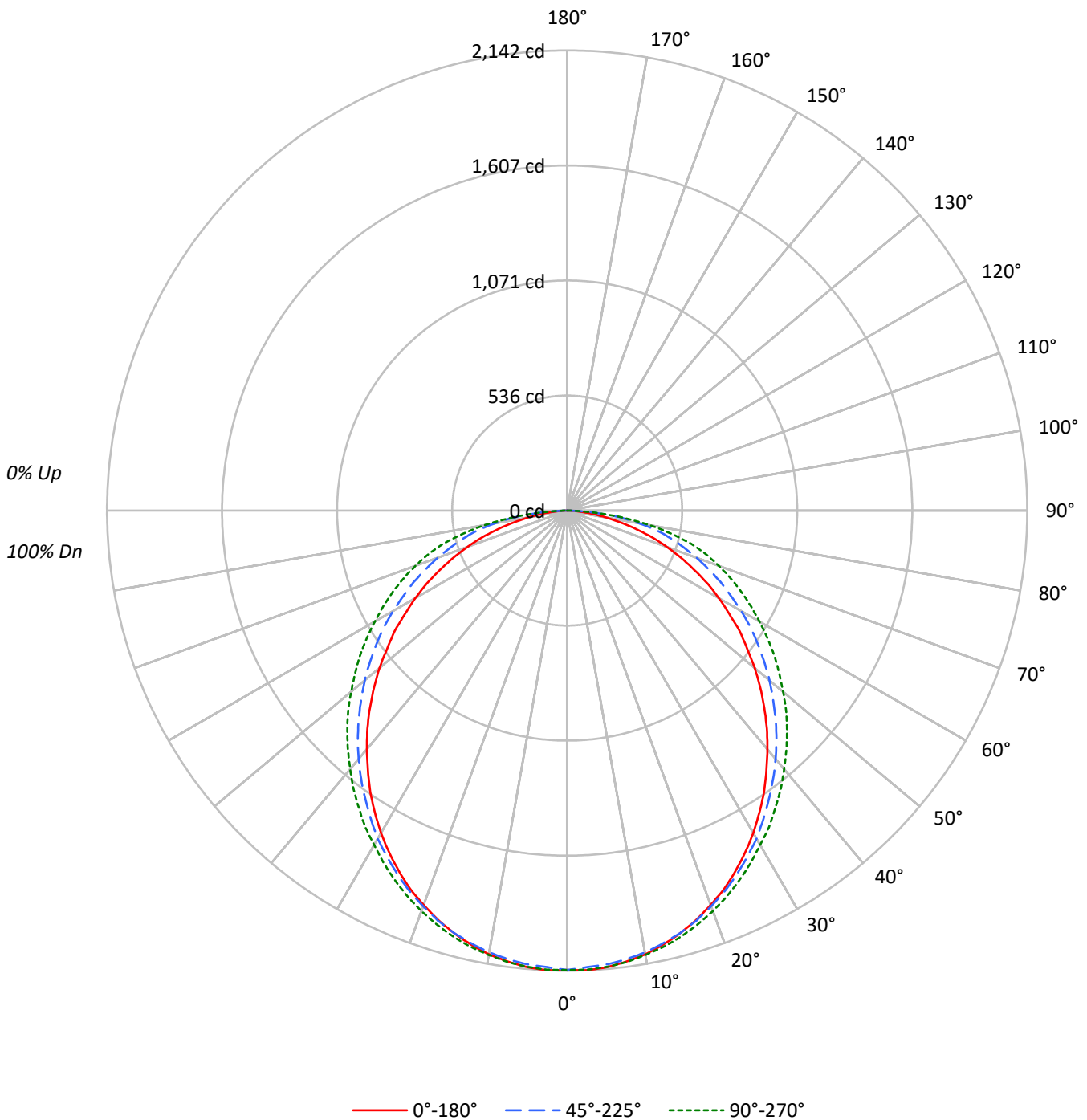
Input Watts (W): 40.7  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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 | 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°  | 2878 | 2878 | 2878 |
| 5°  | 2882 | 2864 | 2879 |
| 10° | 2866 | 2853 | 2870 |
| 15° | 2836 | 2835 | 2858 |
| 20° | 2797 | 2806 | 2840 |
| 25° | 2751 | 2775 | 2818 |
| 30° | 2693 | 2740 | 2791 |
| 35° | 2625 | 2691 | 2776 |
| 40° | 2547 | 2651 | 2759 |
| 45° | 2470 | 2610 | 2754 |
| 50° | 2387 | 2574 | 2747 |
| 55° | 2302 | 2543 | 2762 |
| 60° | 2196 | 2519 | 2781 |
| 65° | 2080 | 2509 | 2848 |
| 70° | 1940 | 2522 | 2950 |
| 75° | 1726 | 2595 | 3108 |
| 80° | 1412 | 2651 | 3033 |
| 85° | 994  | 2316 | 2362 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 202.2  | 3.3       |
| 10°-20°   | 575.9  | 9.4       |
| 20°-30°   | 863.2  | 14.1      |
| 30°-40°   | 1028.1 | 16.8      |
| 40°-50°   | 1060.1 | 17.3      |
| 50°-60°   | 967.3  | 15.8      |
| 60°-70°   | 773.5  | 12.6      |
| 70°-80°   | 505.2  | 8.2       |
| 80°-90°   | 151.7  | 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°    | 1641.3 | 26.8      |
| 0°-40°    | 2669.4 | 43.6      |
| 0°-60°    | 4696.8 | 76.7      |
| 0°-90°    | 6127.2 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 6127.2 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2139 | 2139  | 2139 | 2139  | 2139 |      |
| 5°  | 2134 | 2130  | 2120 | 2134  | 2132 | 202  |
| 15° | 2036 | 2037  | 2035 | 2052  | 2052 | 574  |
| 25° | 1853 | 1856  | 1869 | 1896  | 1898 | 853  |
| 35° | 1598 | 1609  | 1638 | 1680  | 1690 | 998  |
| 45° | 1298 | 1321  | 1372 | 1429  | 1447 | 1001 |
| 55° | 981  | 1009  | 1084 | 1155  | 1178 | 874  |
| 65° | 653  | 698   | 788  | 866   | 895  | 648  |
| 75° | 332  | 388   | 499  | 580   | 598  | 353  |
| 85° | 64   | 116   | 150  | 153   | 153  | 82   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2138.7 | 2138.7 | 2138.7 | 2138.7 | 2138.7 |
| 2.5°  | 2141.7 | 2138.7 | 2127.6 | 2140.7 | 2138.7 |
| 5°    | 2133.6 | 2129.6 | 2120.5 | 2133.6 | 2131.6 |
| 7.5°  | 2117.5 | 2115.5 | 2106.5 | 2121.6 | 2119.5 |
| 10°   | 2097.4 | 2095.4 | 2088.3 | 2103.4 | 2100.4 |
| 12.5° | 2069.2 | 2068.2 | 2063.2 | 2081.3 | 2079.3 |
| 15°   | 2036.0 | 2037.0 | 2035.0 | 2052.1 | 2052.1 |
| 17.5° | 1997.8 | 1996.8 | 2000.8 | 2021.9 | 2019.9 |
| 20°   | 1953.5 | 1954.5 | 1959.5 | 1983.7 | 1983.7 |
| 22.5° | 1907.2 | 1906.2 | 1917.2 | 1941.4 | 1943.4 |
| 25°   | 1852.8 | 1855.9 | 1868.9 | 1896.1 | 1898.1 |
| 27.5° | 1794.5 | 1799.5 | 1815.6 | 1846.8 | 1849.8 |
| 30°   | 1733.1 | 1739.1 | 1763.3 | 1792.5 | 1796.5 |
| 32.5° | 1665.6 | 1678.7 | 1700.9 | 1738.1 | 1748.2 |
| 35°   | 1598.2 | 1609.3 | 1638.5 | 1679.7 | 1689.8 |
| 37.5° | 1523.7 | 1541.8 | 1575.1 | 1620.4 | 1633.4 |
| 40°   | 1450.3 | 1468.4 | 1509.6 | 1556.9 | 1571.0 |
| 42.5° | 1375.8 | 1394.9 | 1442.2 | 1495.6 | 1510.6 |
| 45°   | 1298.3 | 1321.4 | 1371.8 | 1429.1 | 1447.2 |
| 47.5° | 1218.8 | 1246.0 | 1300.3 | 1362.7 | 1382.8 |
| 50°   | 1140.3 | 1167.5 | 1229.9 | 1294.3 | 1312.4 |
| 52.5° | 1055.7 | 1090.0 | 1156.4 | 1225.8 | 1243.9 |
| 55°   | 981.3  | 1009.4 | 1083.9 | 1155.4 | 1177.5 |
| 57.5° | 893.7  | 932.0  | 1011.5 | 1083.9 | 1105.1 |
| 60°   | 816.2  | 851.4  | 936.0  | 1009.4 | 1033.6 |
| 62.5° | 737.7  | 773.9  | 858.5  | 942.0  | 964.2  |
| 65°   | 653.2  | 697.5  | 788.0  | 865.5  | 894.7  |
| 67.5° | 572.7  | 619.0  | 711.5  | 794.1  | 824.3  |
| 70°   | 493.2  | 540.5  | 641.1  | 725.6  | 749.8  |
| 72.5° | 414.6  | 464.0  | 568.6  | 651.2  | 679.3  |
| 75°   | 332.1  | 387.5  | 499.2  | 579.7  | 597.8  |
| 77.5° | 254.6  | 316.0  | 428.7  | 483.1  | 496.2  |
| 80°   | 182.2  | 249.6  | 342.2  | 381.4  | 391.5  |
| 82.5° | 119.8  | 185.2  | 255.6  | 276.8  | 273.7  |
| 85°   | 64.4   | 115.7  | 150.0  | 153.0  | 153.0  |
| 87.5° | 25.2   | 46.3   | 47.3   | 36.2   | 34.2   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)