

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: P474147

Luminaire Tested: **24CZ2-115VHE-S-UNV-L850-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474147  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/28/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-115VHE-S-UNV-L850-CD1-U  
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS  
Light Source: 5000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

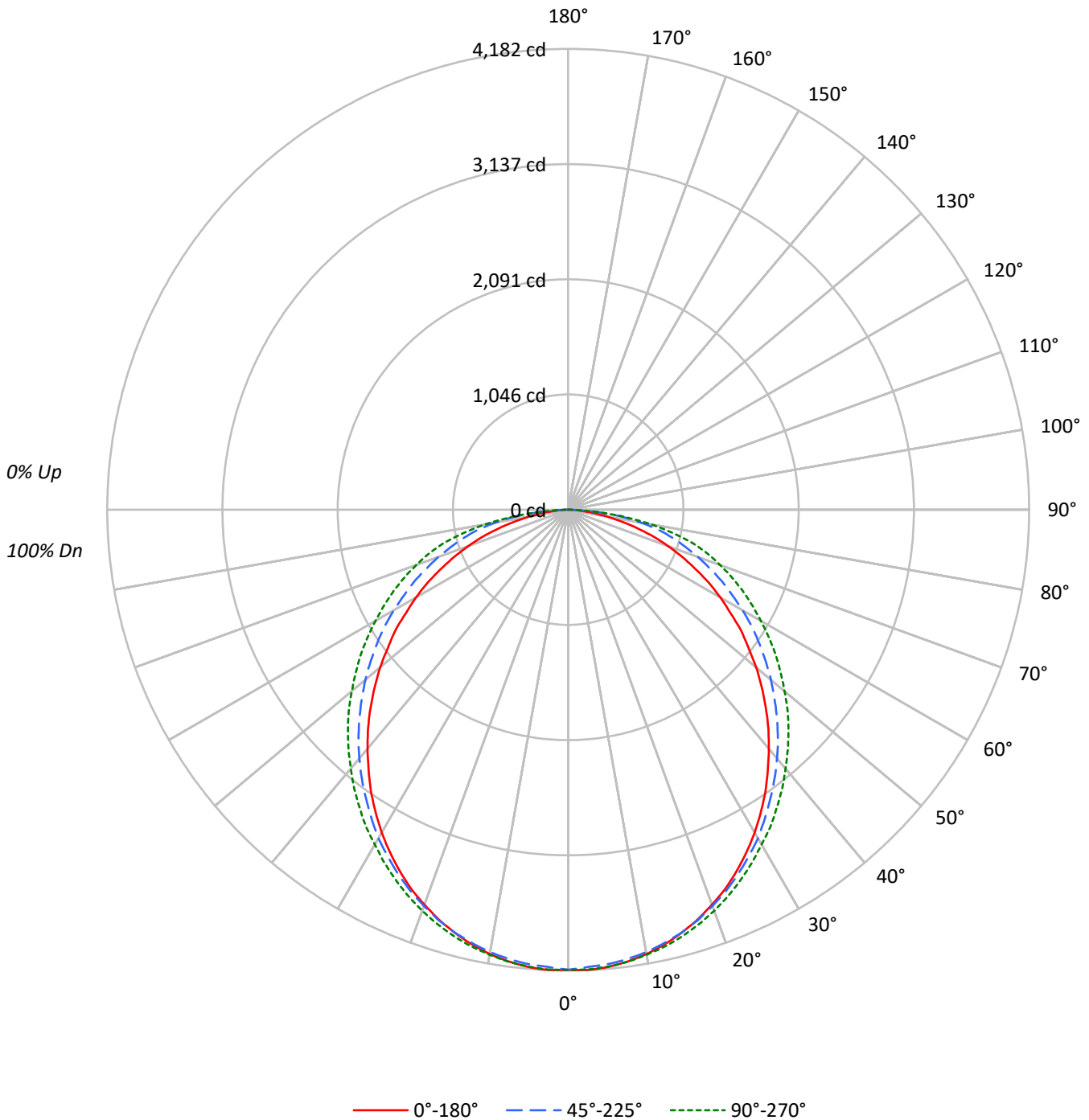
Lumens per Lamp: N/A  
Luminaire Lumens: 11963.4 lumens  
Efficiency: N/A  
Efficacy: 148.4 lumens/watt  
Spacing Criteria (0/90/45): 1.21 / 1.25 / 1.35  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 80.6  
Input Voltage (V): 120  
Input Current (Ain): 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°  | 5618 | 5618 | 5618 |
| 5°  | 5627 | 5592 | 5621 |
| 10° | 5595 | 5571 | 5603 |
| 15° | 5537 | 5535 | 5581 |
| 20° | 5461 | 5478 | 5546 |
| 25° | 5371 | 5417 | 5502 |
| 30° | 5257 | 5349 | 5450 |
| 35° | 5126 | 5255 | 5419 |
| 40° | 4973 | 5177 | 5388 |
| 45° | 4823 | 5096 | 5377 |
| 50° | 4660 | 5026 | 5364 |
| 55° | 4494 | 4965 | 5393 |
| 60° | 4289 | 4918 | 5431 |
| 65° | 4060 | 4898 | 5562 |
| 70° | 3788 | 4924 | 5759 |
| 75° | 3371 | 5067 | 6068 |
| 80° | 2756 | 5177 | 5923 |
| 85° | 1942 | 4520 | 4611 |



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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 394.8   | 3.3       |
| 10°-20°   | 1124.4  | 9.4       |
| 20°-30°   | 1685.4  | 14.1      |
| 30°-40°   | 2007.4  | 16.8      |
| 40°-50°   | 2069.8  | 17.3      |
| 50°-60°   | 1888.7  | 15.8      |
| 60°-70°   | 1510.3  | 12.6      |
| 70°-80°   | 986.5   | 8.2       |
| 80°-90°   | 296.2   | 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°    | 3204.6  | 26.8      |
| 0°-40°    | 5211.9  | 43.6      |
| 0°-60°    | 9170.4  | 76.7      |
| 0°-90°    | 11963.4 | 100.0     |
| 90°-120°  | 0.0     | 0.0       |
| 90°-150°  | 0.0     | 0.0       |
| 90°-180°  | 0.0     | 0.0       |
| 0°-180°   | 11963.4 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 4176 | 4176  | 4176 | 4176  | 4176 |      |
| 5°  | 4166 | 4158  | 4140 | 4166  | 4162 | 395  |
| 15° | 3975 | 3977  | 3973 | 4007  | 4007 | 1121 |
| 25° | 3618 | 3624  | 3649 | 3702  | 3706 | 1666 |
| 35° | 3120 | 3142  | 3199 | 3280  | 3299 | 1949 |
| 45° | 2535 | 2580  | 2678 | 2790  | 2826 | 1955 |
| 55° | 1916 | 1971  | 2116 | 2256  | 2299 | 1706 |
| 65° | 1275 | 1362  | 1539 | 1690  | 1747 | 1265 |
| 75° | 648  | 756   | 975  | 1132  | 1167 | 689  |
| 85° | 126  | 226   | 293  | 299   | 299  | 160  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 4175.7 | 4175.7 | 4175.7 | 4175.7 | 4175.7 |
| 2.5°  | 4181.6 | 4175.7 | 4154.1 | 4179.7 | 4175.7 |
| 5°    | 4165.9 | 4158.1 | 4140.4 | 4165.9 | 4162.0 |
| 7.5°  | 4134.5 | 4130.5 | 4112.9 | 4142.3 | 4138.4 |
| 10°   | 4095.2 | 4091.2 | 4077.5 | 4107.0 | 4101.1 |
| 12.5° | 4040.2 | 4038.2 | 4028.4 | 4063.7 | 4059.8 |
| 15°   | 3975.3 | 3977.3 | 3973.3 | 4006.8 | 4006.8 |
| 17.5° | 3900.6 | 3898.7 | 3906.5 | 3947.8 | 3943.9 |
| 20°   | 3814.2 | 3816.1 | 3826.0 | 3873.1 | 3873.1 |
| 22.5° | 3723.8 | 3721.8 | 3743.4 | 3790.6 | 3794.5 |
| 25°   | 3617.7 | 3623.6 | 3649.1 | 3702.2 | 3706.1 |
| 27.5° | 3503.7 | 3513.5 | 3545.0 | 3605.9 | 3611.8 |
| 30°   | 3383.8 | 3395.6 | 3442.8 | 3499.8 | 3507.6 |
| 32.5° | 3252.2 | 3277.7 | 3320.9 | 3393.7 | 3413.3 |
| 35°   | 3120.5 | 3142.1 | 3199.1 | 3279.7 | 3299.3 |
| 37.5° | 2975.1 | 3010.5 | 3075.3 | 3163.7 | 3189.3 |
| 40°   | 2831.6 | 2867.0 | 2947.6 | 3039.9 | 3067.5 |
| 42.5° | 2686.2 | 2723.6 | 2815.9 | 2920.1 | 2949.5 |
| 45°   | 2534.9 | 2580.1 | 2678.4 | 2790.4 | 2825.8 |
| 47.5° | 2379.7 | 2432.7 | 2538.9 | 2660.7 | 2700.0 |
| 50°   | 2226.4 | 2279.5 | 2401.3 | 2527.1 | 2562.4 |
| 52.5° | 2061.3 | 2128.2 | 2257.8 | 2393.4 | 2428.8 |
| 55°   | 1915.9 | 1971.0 | 2116.4 | 2255.9 | 2299.1 |
| 57.5° | 1745.0 | 1819.6 | 1974.9 | 2116.4 | 2157.6 |
| 60°   | 1593.7 | 1662.4 | 1827.5 | 1971.0 | 2018.1 |
| 62.5° | 1440.4 | 1511.1 | 1676.2 | 1839.3 | 1882.5 |
| 65°   | 1275.3 | 1361.8 | 1538.6 | 1689.9 | 1746.9 |
| 67.5° | 1118.1 | 1208.5 | 1389.3 | 1550.4 | 1609.4 |
| 70°   | 962.9  | 1055.2 | 1251.7 | 1416.8 | 1464.0 |
| 72.5° | 809.6  | 905.9  | 1110.3 | 1271.4 | 1326.4 |
| 75°   | 648.5  | 756.5  | 974.7  | 1131.9 | 1167.2 |
| 77.5° | 497.2  | 617.0  | 837.1  | 943.2  | 968.8  |
| 80°   | 355.7  | 487.3  | 668.1  | 744.8  | 764.4  |
| 82.5° | 233.8  | 361.6  | 499.1  | 540.4  | 534.5  |
| 85°   | 125.8  | 226.0  | 292.8  | 298.7  | 298.7  |
| 87.5° | 49.1   | 90.4   | 92.4   | 70.7   | 66.8   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)