

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: P474047

Luminaire Tested: **24CZ2-115VHE-S-UNV-L835-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474047  
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-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: 11740.3 lumens  
Efficiency: N/A  
Efficacy: 145.7 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

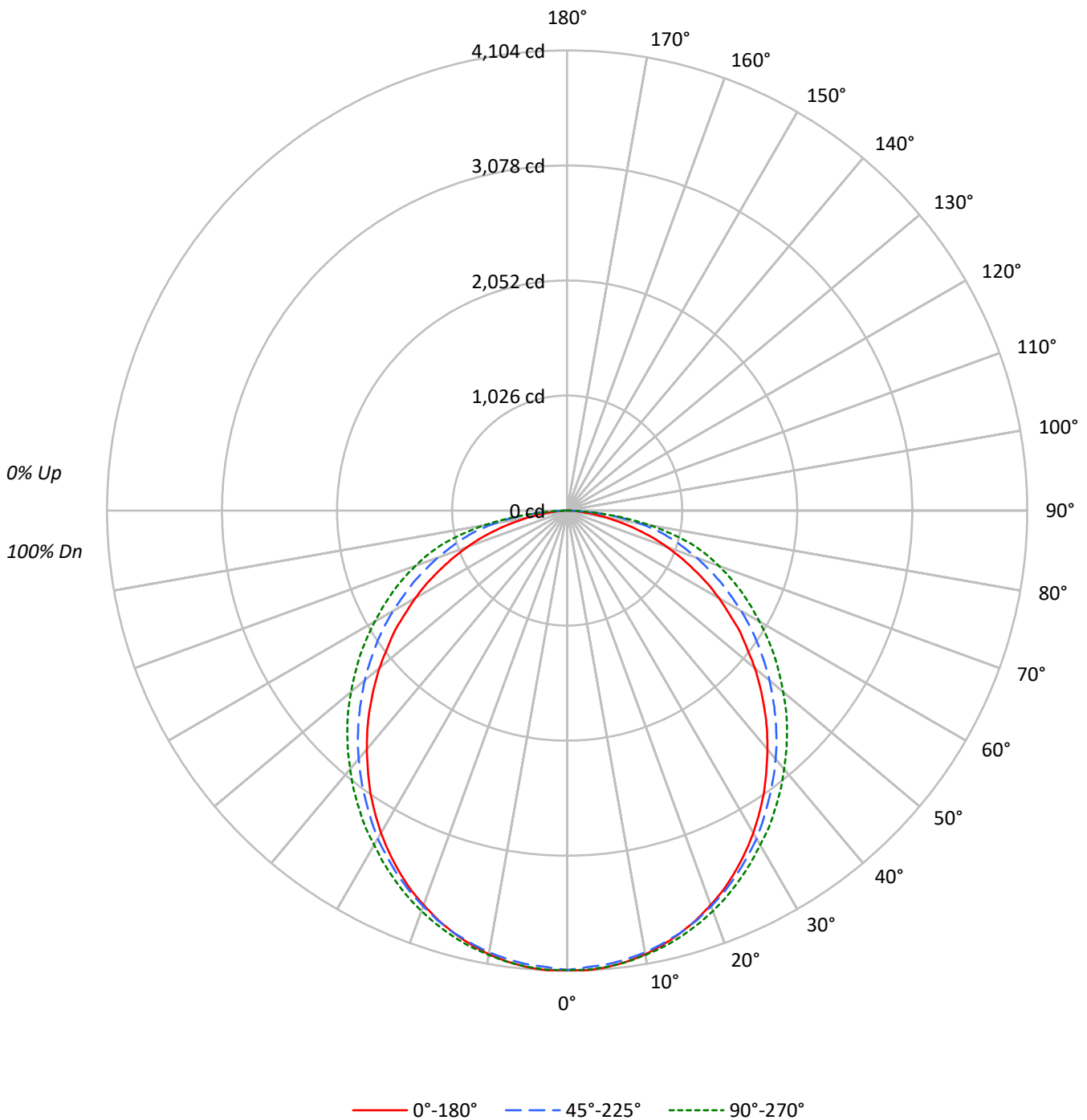
Input Watts (W): 80.6  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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°  | 5514 | 5514 | 5514 |
| 5°  | 5522 | 5488 | 5517 |
| 10° | 5491 | 5467 | 5499 |
| 15° | 5434 | 5432 | 5477 |
| 20° | 5360 | 5376 | 5442 |
| 25° | 5271 | 5316 | 5399 |
| 30° | 5159 | 5249 | 5348 |
| 35° | 5030 | 5157 | 5318 |
| 40° | 4881 | 5081 | 5287 |
| 45° | 4734 | 5001 | 5277 |
| 50° | 4573 | 4933 | 5264 |
| 55° | 4411 | 4872 | 5293 |
| 60° | 4208 | 4826 | 5329 |
| 65° | 3984 | 4807 | 5458 |
| 70° | 3717 | 4832 | 5652 |
| 75° | 3308 | 4972 | 5955 |
| 80° | 2704 | 5081 | 5813 |
| 85° | 1905 | 4435 | 4525 |



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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 387.4   | 3.3       |
| 10°-20°   | 1103.4  | 9.4       |
| 20°-30°   | 1654.0  | 14.1      |
| 30°-40°   | 1969.9  | 16.8      |
| 40°-50°   | 2031.2  | 17.3      |
| 50°-60°   | 1853.5  | 15.8      |
| 60°-70°   | 1482.1  | 12.6      |
| 70°-80°   | 968.1   | 8.2       |
| 80°-90°   | 290.7   | 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°    | 3144.8  | 26.8      |
| 0°-40°    | 5114.8  | 43.6      |
| 0°-60°    | 8999.4  | 76.7      |
| 0°-90°    | 11740.3 | 100.0     |
| 90°-120°  | 0.0     | 0.0       |
| 90°-150°  | 0.0     | 0.0       |
| 90°-180°  | 0.0     | 0.0       |
| 0°-180°   | 11740.3 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 4098 | 4098  | 4098 | 4098  | 4098 |      |
| 5°  | 4088 | 4080  | 4063 | 4088  | 4084 | 388  |
| 15° | 3901 | 3903  | 3899 | 3932  | 3932 | 1100 |
| 25° | 3550 | 3556  | 3581 | 3633  | 3637 | 1634 |
| 35° | 3062 | 3084  | 3140 | 3218  | 3238 | 1913 |
| 45° | 2488 | 2532  | 2628 | 2738  | 2773 | 1918 |
| 55° | 1880 | 1934  | 2077 | 2214  | 2256 | 1675 |
| 65° | 1252 | 1336  | 1510 | 1658  | 1714 | 1241 |
| 75° | 636  | 742   | 956  | 1111  | 1146 | 676  |
| 85° | 123  | 222   | 287  | 293   | 293  | 157  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 4097.9 | 4097.9 | 4097.9 | 4097.9 | 4097.9 |
| 2.5°  | 4103.7 | 4097.9 | 4076.7 | 4101.7 | 4097.9 |
| 5°    | 4088.2 | 4080.5 | 4063.2 | 4088.2 | 4084.4 |
| 7.5°  | 4057.4 | 4053.5 | 4036.2 | 4065.1 | 4061.2 |
| 10°   | 4018.8 | 4015.0 | 4001.5 | 4030.4 | 4024.6 |
| 12.5° | 3964.8 | 3962.9 | 3953.3 | 3988.0 | 3984.1 |
| 15°   | 3901.2 | 3903.1 | 3899.3 | 3932.0 | 3932.0 |
| 17.5° | 3827.9 | 3826.0 | 3833.7 | 3874.2 | 3870.3 |
| 20°   | 3743.1 | 3745.0 | 3754.6 | 3800.9 | 3800.9 |
| 22.5° | 3654.3 | 3652.4 | 3673.6 | 3719.9 | 3723.8 |
| 25°   | 3550.2 | 3556.0 | 3581.1 | 3633.1 | 3637.0 |
| 27.5° | 3438.4 | 3448.0 | 3478.9 | 3538.6 | 3544.4 |
| 30°   | 3320.7 | 3332.3 | 3378.6 | 3434.5 | 3442.2 |
| 32.5° | 3191.5 | 3216.6 | 3259.0 | 3330.4 | 3349.7 |
| 35°   | 3062.3 | 3083.5 | 3139.5 | 3218.5 | 3237.8 |
| 37.5° | 2919.6 | 2954.3 | 3018.0 | 3104.8 | 3129.8 |
| 40°   | 2778.8 | 2813.6 | 2892.6 | 2983.3 | 3010.3 |
| 42.5° | 2636.1 | 2672.8 | 2763.4 | 2865.6 | 2894.6 |
| 45°   | 2487.7 | 2532.0 | 2628.4 | 2738.4 | 2773.1 |
| 47.5° | 2335.3 | 2387.4 | 2491.5 | 2611.1 | 2649.6 |
| 50°   | 2184.9 | 2237.0 | 2356.5 | 2479.9 | 2514.7 |
| 52.5° | 2022.9 | 2088.5 | 2215.8 | 2348.8 | 2383.5 |
| 55°   | 1880.2 | 1934.2 | 2076.9 | 2213.8 | 2256.2 |
| 57.5° | 1712.4 | 1785.7 | 1938.1 | 2076.9 | 2117.4 |
| 60°   | 1563.9 | 1631.4 | 1793.4 | 1934.2 | 1980.5 |
| 62.5° | 1413.5 | 1483.0 | 1644.9 | 1805.0 | 1847.4 |
| 65°   | 1251.5 | 1336.4 | 1510.0 | 1658.4 | 1714.4 |
| 67.5° | 1097.3 | 1186.0 | 1363.4 | 1521.5 | 1579.4 |
| 70°   | 944.9  | 1035.6 | 1228.4 | 1390.4 | 1436.7 |
| 72.5° | 794.5  | 889.0  | 1089.6 | 1247.7 | 1301.7 |
| 75°   | 636.4  | 742.4  | 956.5  | 1110.8 | 1145.5 |
| 77.5° | 487.9  | 605.5  | 821.5  | 925.6  | 950.7  |
| 80°   | 349.0  | 478.2  | 655.7  | 730.9  | 750.2  |
| 82.5° | 229.5  | 354.8  | 489.8  | 530.3  | 524.5  |
| 85°   | 123.4  | 221.8  | 287.3  | 293.1  | 293.1  |
| 87.5° | 48.2   | 88.7   | 90.6   | 69.4   | 65.6   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)