

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: P474198

Luminaire Tested: **24CZ2-120VHE-RDP-UNV-L830-CD1-U**

Issue Date: 01/28/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P474198  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/28/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: 24CZ2-120VHE-RDP-UNV-L830-CD1-U  
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS W/ RDP  
INSERT  
Light Source: 3000K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 7744.5 lumens  
Efficiency: N/A  
Efficacy: 92.0 lumens/watt  
Spacing Criteria (0/90/45): 1.26 / 1.3 / 1.41  
Luminous Opening: Rectangular (W 2' x L: 4' x H: 0')  
CIE Type: Direct

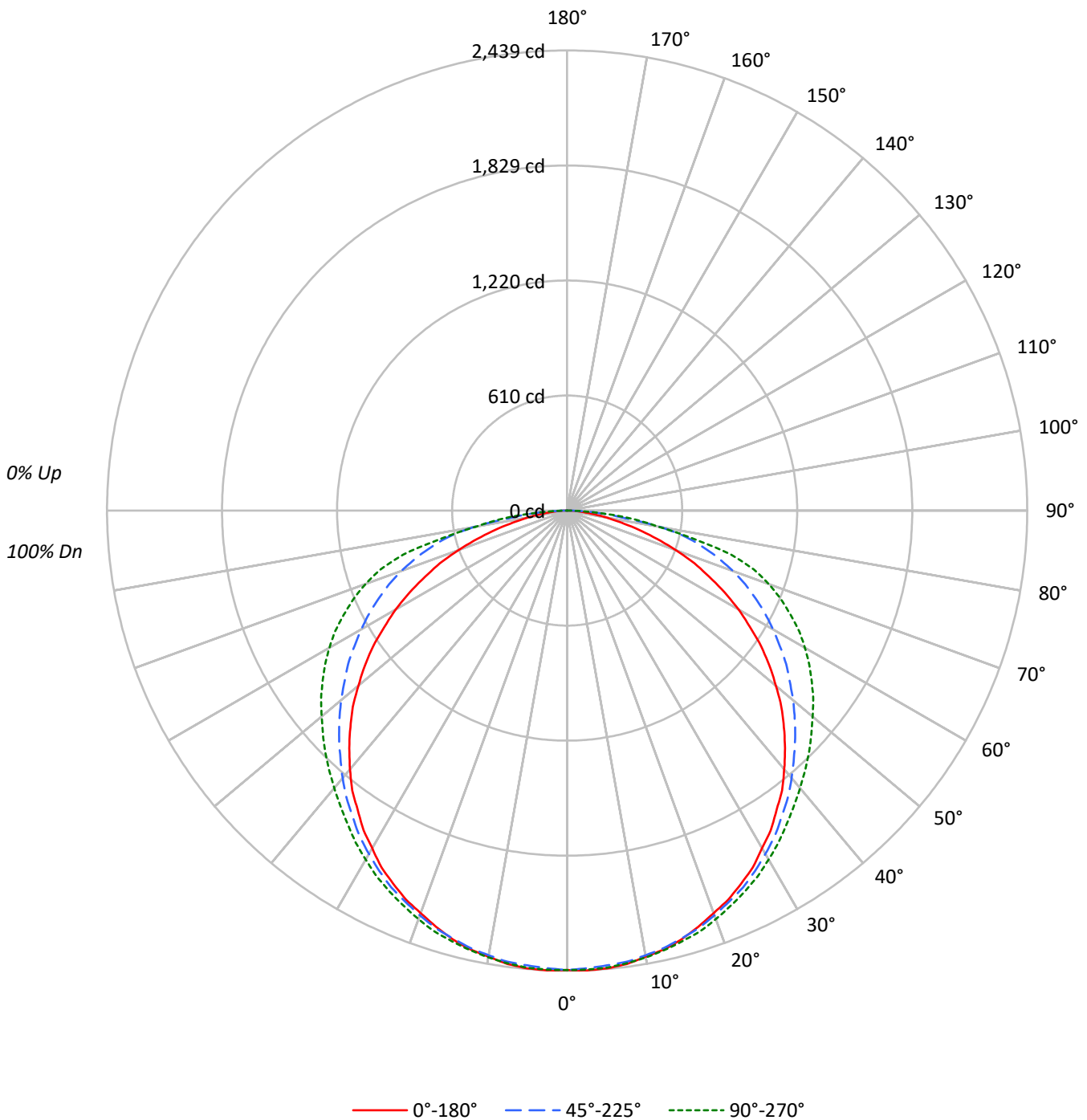
Input Watts (W): 84.2  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 25 FT



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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 | 100 | 96  | 92  | 96  | 93  | 89  | 92  | 89  | 87  | 88  | 86  | 84  | 82  |
| 2   | 97  | 89  | 81  | 75  | 95  | 87  | 80  | 74  | 83  | 77  | 72  | 80  | 75  | 71  | 77  | 73  | 69  | 67  |
| 3   | 88  | 77  | 68  | 62  | 86  | 76  | 67  | 61  | 72  | 66  | 60  | 70  | 64  | 59  | 67  | 62  | 58  | 56  |
| 4   | 81  | 68  | 59  | 52  | 78  | 67  | 58  | 51  | 64  | 57  | 51  | 62  | 55  | 50  | 59  | 54  | 49  | 47  |
| 5   | 74  | 60  | 51  | 44  | 72  | 59  | 51  | 44  | 57  | 49  | 43  | 55  | 48  | 43  | 53  | 47  | 42  | 40  |
| 6   | 68  | 54  | 45  | 38  | 66  | 53  | 45  | 38  | 51  | 44  | 38  | 50  | 43  | 37  | 48  | 42  | 37  | 35  |
| 7   | 63  | 49  | 40  | 34  | 61  | 48  | 40  | 34  | 47  | 39  | 33  | 45  | 38  | 33  | 44  | 38  | 33  | 31  |
| 8   | 59  | 45  | 36  | 30  | 57  | 44  | 36  | 30  | 43  | 35  | 30  | 41  | 34  | 29  | 40  | 34  | 29  | 27  |
| 9   | 55  | 41  | 33  | 27  | 53  | 40  | 32  | 27  | 39  | 32  | 27  | 38  | 31  | 26  | 37  | 31  | 26  | 24  |
| 10  | 51  | 38  | 30  | 24  | 50  | 37  | 29  | 24  | 36  | 29  | 24  | 35  | 29  | 24  | 34  | 28  | 24  | 22  |

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

|     | 0°   | 45°  | 90°  |
|-----|------|------|------|
| 0°  | 3277 | 3277 | 3277 |
| 5°  | 3289 | 3269 | 3284 |
| 10° | 3280 | 3270 | 3286 |
| 15° | 3275 | 3269 | 3291 |
| 20° | 3251 | 3267 | 3300 |
| 25° | 3239 | 3273 | 3308 |
| 30° | 3211 | 3265 | 3318 |
| 35° | 3180 | 3256 | 3331 |
| 40° | 3144 | 3252 | 3373 |
| 45° | 3092 | 3253 | 3450 |
| 50° | 3023 | 3273 | 3554 |
| 55° | 2946 | 3325 | 3713 |
| 60° | 2823 | 3390 | 3918 |
| 65° | 2642 | 3509 | 4158 |
| 70° | 2402 | 3673 | 4473 |
| 75° | 2036 | 3874 | 4674 |
| 80° | 1608 | 3898 | 3779 |
| 85° | 1187 | 2967 | 3322 |



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 231.0  | 3.0       |
| 10°-20°   | 664.9  | 8.6       |
| 20°-30°   | 1016.7 | 13.1      |
| 30°-40°   | 1242.9 | 16.0      |
| 40°-50°   | 1324.8 | 17.1      |
| 50°-60°   | 1266.6 | 16.4      |
| 60°-70°   | 1073.0 | 13.9      |
| 70°-80°   | 721.1  | 9.3       |
| 80°-90°   | 203.5  | 2.6       |
| 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°    | 1912.7 | 24.7      |
| 0°-40°    | 3155.6 | 40.7      |
| 0°-60°    | 5746.9 | 74.2      |
| 0°-90°    | 7744.5 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 7744.5 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 2436 | 2436  | 2436 | 2436  | 2436 |      |
| 5°  | 2436 | 2432  | 2420 | 2432  | 2432 | 231  |
| 15° | 2351 | 2351  | 2347 | 2366  | 2362 | 663  |
| 25° | 2182 | 2190  | 2205 | 2224  | 2228 | 1006 |
| 35° | 1936 | 1951  | 1982 | 2020  | 2028 | 1213 |
| 45° | 1625 | 1652  | 1710 | 1783  | 1813 | 1253 |
| 55° | 1256 | 1302  | 1417 | 1529  | 1583 | 1119 |
| 65° | 830  | 914   | 1102 | 1248  | 1306 | 824  |
| 75° | 392  | 534   | 745  | 872   | 899  | 419  |
| 85° | 77   | 158   | 192  | 208   | 215  | 95   |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 2435.5 | 2435.5 | 2435.5 | 2435.5 | 2435.5 |
| 2.5°  | 2439.4 | 2439.4 | 2427.9 | 2435.5 | 2435.5 |
| 5°    | 2435.5 | 2431.7 | 2420.2 | 2431.7 | 2431.7 |
| 7.5°  | 2424.0 | 2420.2 | 2412.5 | 2424.0 | 2420.2 |
| 10°   | 2400.9 | 2400.9 | 2393.3 | 2404.8 | 2404.8 |
| 12.5° | 2381.7 | 2377.9 | 2374.0 | 2389.4 | 2385.6 |
| 15°   | 2351.0 | 2351.0 | 2347.1 | 2366.4 | 2362.5 |
| 17.5° | 2312.6 | 2316.4 | 2320.2 | 2335.6 | 2339.5 |
| 20°   | 2270.3 | 2278.0 | 2281.8 | 2304.9 | 2304.9 |
| 22.5° | 2231.8 | 2235.7 | 2243.4 | 2266.4 | 2266.4 |
| 25°   | 2181.9 | 2189.6 | 2204.9 | 2224.2 | 2228.0 |
| 27.5° | 2131.9 | 2135.8 | 2155.0 | 2181.9 | 2185.7 |
| 30°   | 2066.6 | 2078.1 | 2101.2 | 2131.9 | 2135.8 |
| 32.5° | 2008.9 | 2020.5 | 2047.4 | 2078.1 | 2085.8 |
| 35°   | 1935.9 | 1951.3 | 1982.0 | 2020.5 | 2028.1 |
| 37.5° | 1870.6 | 1882.1 | 1920.5 | 1962.8 | 1974.3 |
| 40°   | 1790.2 | 1812.9 | 1851.3 | 1901.3 | 1920.5 |
| 42.5° | 1709.5 | 1732.6 | 1778.7 | 1843.7 | 1866.7 |
| 45°   | 1625.0 | 1651.9 | 1709.5 | 1782.6 | 1812.9 |
| 47.5° | 1540.4 | 1571.2 | 1636.5 | 1721.1 | 1755.6 |
| 50°   | 1444.3 | 1482.8 | 1563.5 | 1659.6 | 1698.0 |
| 52.5° | 1352.1 | 1398.2 | 1486.6 | 1594.2 | 1644.2 |
| 55°   | 1256.0 | 1302.1 | 1417.4 | 1528.9 | 1582.7 |
| 57.5° | 1148.4 | 1209.9 | 1336.7 | 1463.6 | 1521.2 |
| 60°   | 1048.9 | 1106.1 | 1259.9 | 1398.2 | 1455.9 |
| 62.5° | 941.2  | 1018.1 | 1183.0 | 1329.0 | 1386.7 |
| 65°   | 829.8  | 914.3  | 1102.3 | 1248.3 | 1306.0 |
| 67.5° | 729.9  | 822.1  | 1022.0 | 1167.6 | 1225.3 |
| 70°   | 610.7  | 726.0  | 933.6  | 1079.2 | 1136.9 |
| 72.5° | 499.3  | 626.1  | 841.3  | 983.5  | 1037.3 |
| 75°   | 391.6  | 533.8  | 745.2  | 872.1  | 899.0  |
| 77.5° | 292.1  | 441.6  | 645.3  | 699.1  | 679.9  |
| 80°   | 207.5  | 353.6  | 503.1  | 476.2  | 487.7  |
| 82.5° | 134.5  | 269.0  | 311.3  | 353.6  | 364.7  |
| 85°   | 76.9   | 157.6  | 192.2  | 207.5  | 215.2  |
| 87.5° | 34.6   | 57.7   | 76.9   | 76.9   | 73.0   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

(END OF REPORT)