

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: P474878

Luminaire Tested: **22CZ2-24-S-UNV-L830-CD1-U**

Issue Date: 02/10/2021

Test Information

Test Method: LM-79-08
Report Number: P474878
Test Lab: INNOVATION CENTER(G3)
Issue Date: 02/10/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 22CZ2-24-S-UNV-L830-CD1-U
Description: 2'X2' TROFFER LED MODULE, SMOOTH LENS
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

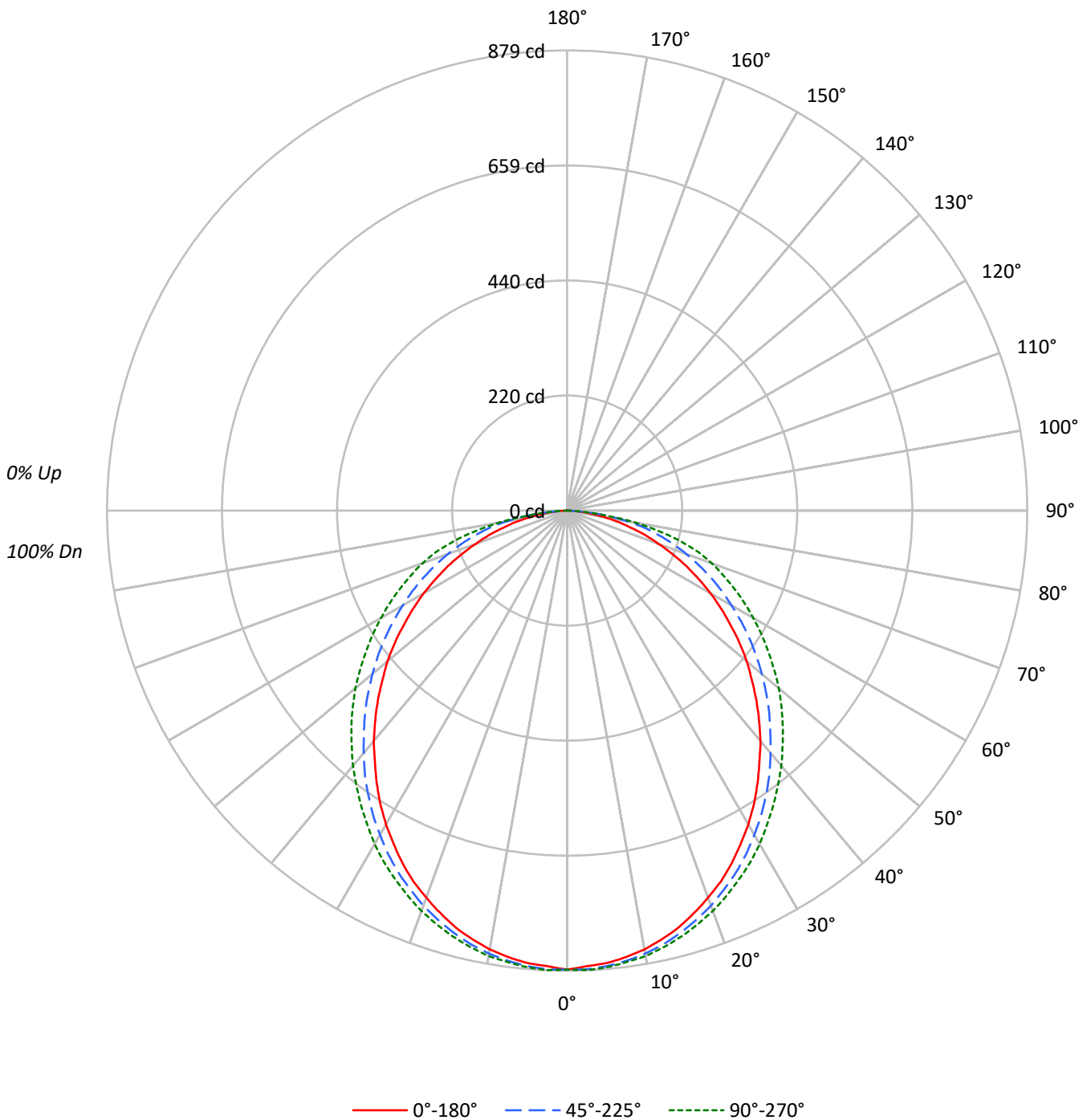
Lumens per Lamp: N/A
Luminaire Lumens: 2415.6 lumens
Efficiency: N/A
Efficacy: 130.6 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.25 / 1.33
Luminous Opening: Rectangular (W 2' x L: 2' x H: 0')
CIE Type: Direct

Input Watts (W): 18.5
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 | 109 | 104 | 99 | 95 | 106 | 101 | 97 | 94 | 97 | 94 | 91 | 93 | 91 | 88 | 90 | 88 | 85 | 83 |
| 2 | 99 | 90 | 83 | 77 | 96 | 88 | 82 | 77 | 85 | 79 | 75 | 81 | 77 | 73 | 78 | 75 | 71 | 69 |
| 3 | 90 | 79 | 71 | 64 | 87 | 78 | 70 | 64 | 75 | 68 | 63 | 72 | 66 | 61 | 69 | 64 | 60 | 58 |
| 4 | 82 | 70 | 61 | 54 | 80 | 69 | 60 | 54 | 66 | 59 | 53 | 64 | 58 | 53 | 62 | 56 | 52 | 50 |
| 5 | 76 | 63 | 54 | 47 | 74 | 62 | 53 | 47 | 59 | 52 | 46 | 57 | 51 | 46 | 56 | 50 | 45 | 43 |
| 6 | 70 | 56 | 47 | 41 | 68 | 55 | 47 | 41 | 54 | 46 | 40 | 52 | 45 | 40 | 50 | 44 | 40 | 38 |
| 7 | 65 | 51 | 42 | 36 | 63 | 50 | 42 | 36 | 49 | 41 | 36 | 47 | 41 | 36 | 46 | 40 | 35 | 33 |
| 8 | 60 | 47 | 38 | 32 | 59 | 46 | 38 | 32 | 45 | 37 | 32 | 43 | 37 | 32 | 42 | 36 | 32 | 30 |
| 9 | 56 | 43 | 35 | 29 | 55 | 42 | 34 | 29 | 41 | 34 | 29 | 40 | 33 | 29 | 39 | 33 | 29 | 27 |
| 10 | 53 | 40 | 32 | 26 | 52 | 39 | 32 | 26 | 38 | 31 | 26 | 37 | 31 | 26 | 36 | 30 | 26 | 24 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 2360 | 2360 | 2360 |
| 5° | 2343 | 2359 | 2365 |
| 10° | 2326 | 2348 | 2361 |
| 15° | 2296 | 2327 | 2347 |
| 20° | 2253 | 2300 | 2330 |
| 25° | 2208 | 2265 | 2307 |
| 30° | 2151 | 2221 | 2285 |
| 35° | 2084 | 2176 | 2257 |
| 40° | 2018 | 2124 | 2236 |
| 45° | 1944 | 2078 | 2218 |
| 50° | 1875 | 2031 | 2210 |
| 55° | 1786 | 1991 | 2199 |
| 60° | 1705 | 1950 | 2209 |
| 65° | 1601 | 1928 | 2241 |
| 70° | 1463 | 1904 | 2313 |
| 75° | 1313 | 1890 | 2315 |
| 80° | 1105 | 1785 | 2056 |
| 85° | 831 | 1210 | 1118 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 82.8 | 3.4 |
| 10°-20° | 235.2 | 9.7 |
| 20°-30° | 350.7 | 14.5 |
| 30°-40° | 413.8 | 17.1 |
| 40°-50° | 421.6 | 17.5 |
| 50°-60° | 380.2 | 15.7 |
| 60°-70° | 298.6 | 12.4 |
| 70°-80° | 186.7 | 7.7 |
| 80°-90° | 46.0 | 1.9 |
| 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° | 668.7 | 27.7 |
| 0°-40° | 1082.5 | 44.8 |
| 0°-60° | 1884.3 | 78.0 |
| 0°-90° | 2415.6 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 2415.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-----|-------|-----|-------|-----|------|
| 0° | 877 | 877 | 877 | 877 | 877 | |
| 5° | 868 | 869 | 873 | 875 | 876 | 82 |
| 15° | 824 | 827 | 835 | 841 | 842 | 232 |
| 25° | 744 | 748 | 763 | 774 | 777 | 342 |
| 35° | 634 | 643 | 662 | 680 | 687 | 397 |
| 45° | 511 | 520 | 546 | 572 | 583 | 394 |
| 55° | 381 | 393 | 424 | 457 | 469 | 341 |
| 65° | 251 | 265 | 303 | 337 | 352 | 248 |
| 75° | 126 | 144 | 182 | 213 | 223 | 135 |
| 85° | 27 | 34 | 39 | 39 | 36 | 33 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P474878

CATALOG NUMBER: 22CZ2-24-S-UNV-L830-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|-------|-------|-------|-------|-------|
| 0° | 876.9 | 876.9 | 876.9 | 876.9 | 876.9 |
| 2.5° | 871.0 | 872.8 | 876.9 | 878.6 | 878.6 |
| 5° | 867.5 | 869.3 | 873.4 | 875.1 | 875.7 |
| 7.5° | 860.5 | 862.8 | 867.5 | 869.9 | 869.9 |
| 10° | 851.1 | 854.1 | 859.3 | 862.8 | 864.0 |
| 12.5° | 838.3 | 841.8 | 848.8 | 852.9 | 854.1 |
| 15° | 824.3 | 827.2 | 835.4 | 841.2 | 842.4 |
| 17.5° | 806.1 | 810.8 | 819.6 | 827.2 | 828.9 |
| 20° | 786.8 | 792.1 | 803.2 | 812.0 | 813.7 |
| 22.5° | 767.0 | 771.1 | 783.3 | 793.9 | 796.2 |
| 25° | 743.6 | 747.7 | 762.9 | 774.0 | 776.9 |
| 27.5° | 717.9 | 724.9 | 740.1 | 752.9 | 757.6 |
| 30° | 692.1 | 699.2 | 714.9 | 730.1 | 735.4 |
| 32.5° | 664.1 | 671.7 | 689.8 | 705.6 | 710.8 |
| 35° | 634.3 | 643.0 | 662.3 | 680.4 | 686.9 |
| 37.5° | 603.3 | 613.2 | 634.9 | 654.1 | 661.2 |
| 40° | 574.6 | 581.7 | 604.5 | 626.7 | 636.6 |
| 42.5° | 542.5 | 551.8 | 574.6 | 599.8 | 609.1 |
| 45° | 510.9 | 519.7 | 546.0 | 572.3 | 582.8 |
| 47.5° | 478.2 | 489.3 | 515.6 | 544.8 | 555.3 |
| 50° | 447.8 | 457.1 | 485.2 | 516.2 | 527.9 |
| 52.5° | 415.0 | 425.0 | 455.4 | 487.5 | 498.1 |
| 55° | 380.6 | 392.8 | 424.4 | 457.1 | 468.8 |
| 57.5° | 349.0 | 360.7 | 394.0 | 427.9 | 440.2 |
| 60° | 316.8 | 328.5 | 362.4 | 396.9 | 410.4 |
| 62.5° | 282.9 | 296.4 | 333.2 | 366.5 | 381.7 |
| 65° | 251.4 | 264.8 | 302.8 | 336.7 | 351.9 |
| 67.5° | 218.0 | 233.8 | 271.8 | 307.5 | 322.7 |
| 70° | 185.9 | 204.6 | 242.0 | 277.1 | 294.0 |
| 72.5° | 157.3 | 172.5 | 211.6 | 248.4 | 262.5 |
| 75° | 126.3 | 143.8 | 181.8 | 212.8 | 222.7 |
| 77.5° | 100.0 | 115.2 | 151.4 | 171.9 | 178.3 |
| 80° | 71.3 | 88.3 | 115.2 | 127.4 | 132.7 |
| 82.5° | 47.4 | 61.4 | 78.3 | 80.7 | 79.5 |
| 85° | 26.9 | 34.5 | 39.2 | 38.6 | 36.2 |
| 87.5° | 10.5 | 11.7 | 8.8 | 5.3 | 4.1 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)