

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: P473995

Luminaire Tested: **24CZ2-105VHE-S-UNV-L830-CD1-U**

Issue Date: 01/28/2021

Test Information

Test Method: LM-79-08
Report Number: P473995
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/28/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: 24CZ2-105VHE-S-UNV-L830-CD1-U
Description: 2'X4' TROFFER LED MODULE, VERY HIGH EFFICIENCY,SMOOTH LENS
Light Source: 3000K CCT, 80 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 10414.0 lumens
Efficiency: N/A
Efficacy: 137.6 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

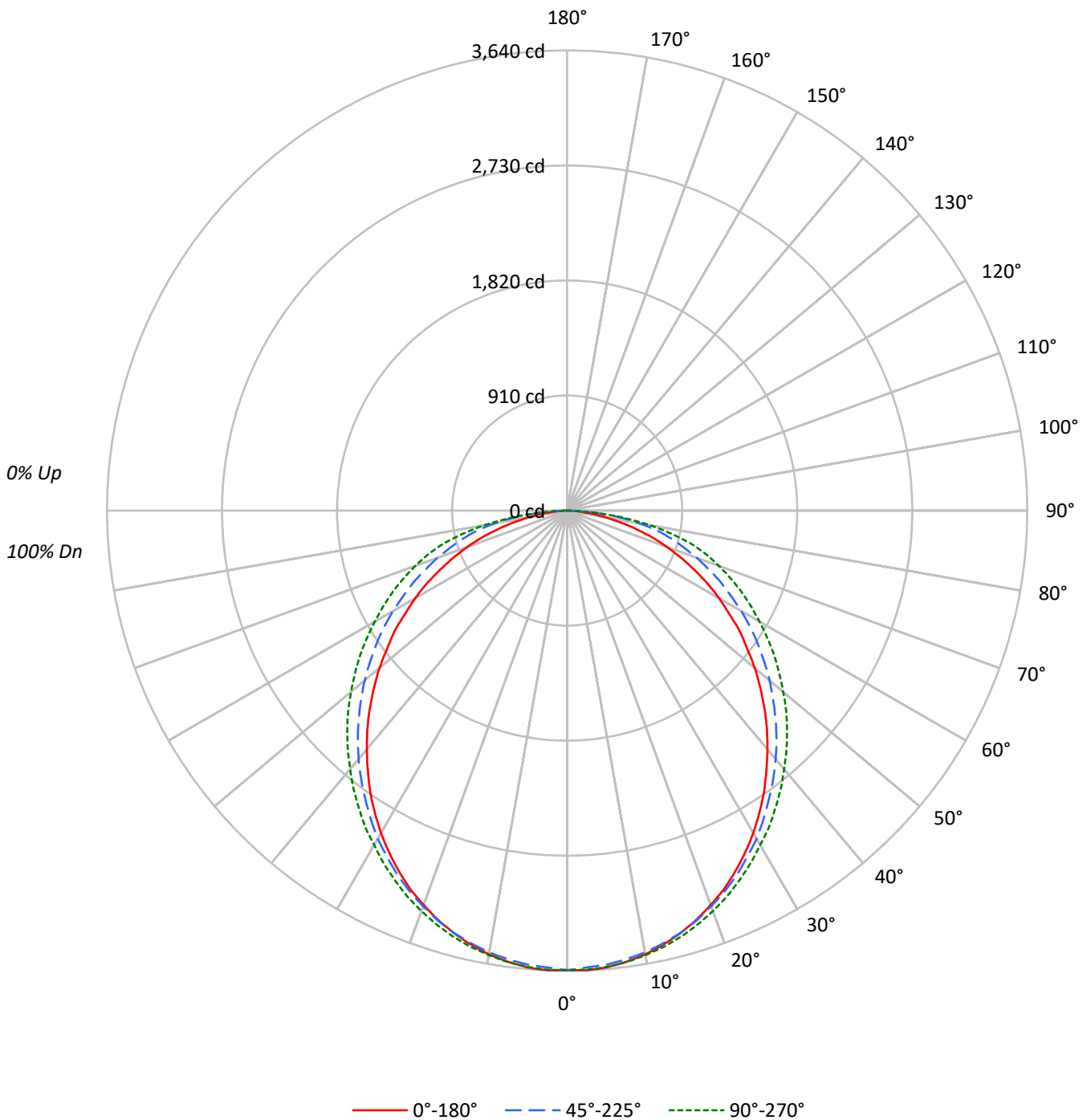
Input Watts (W): 75.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 25 FT



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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° | 4891 | 4891 | 4891 |
| 5° | 4898 | 4868 | 4893 |
| 10° | 4870 | 4849 | 4877 |
| 15° | 4820 | 4818 | 4858 |
| 20° | 4754 | 4769 | 4827 |
| 25° | 4675 | 4716 | 4789 |
| 30° | 4576 | 4656 | 4744 |
| 35° | 4462 | 4574 | 4717 |
| 40° | 4329 | 4507 | 4690 |
| 45° | 4199 | 4436 | 4681 |
| 50° | 4057 | 4375 | 4669 |
| 55° | 3912 | 4322 | 4695 |
| 60° | 3733 | 4281 | 4727 |
| 65° | 3535 | 4264 | 4841 |
| 70° | 3297 | 4286 | 5013 |
| 75° | 2935 | 4410 | 5282 |
| 80° | 2399 | 4506 | 5156 |
| 85° | 1690 | 3935 | 4014 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 343.6 | 3.3 |
| 10°-20° | 978.8 | 9.4 |
| 20°-30° | 1467.1 | 14.1 |
| 30°-40° | 1747.4 | 16.8 |
| 40°-50° | 1801.7 | 17.3 |
| 50°-60° | 1644.1 | 15.8 |
| 60°-70° | 1314.7 | 12.6 |
| 70°-80° | 858.7 | 8.2 |
| 80°-90° | 257.8 | 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° | 2789.5 | 26.8 |
| 0°-40° | 4536.9 | 43.6 |
| 0°-60° | 7982.7 | 76.7 |
| 0°-90° | 10414.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 10414.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|------|-------|------|-------|------|------|
| 0° | 3635 | 3635 | 3635 | 3635 | 3635 | |
| 5° | 3626 | 3620 | 3604 | 3626 | 3623 | 344 |
| 15° | 3460 | 3462 | 3459 | 3488 | 3488 | 976 |
| 25° | 3149 | 3154 | 3176 | 3223 | 3226 | 1450 |
| 35° | 2716 | 2735 | 2785 | 2855 | 2872 | 1697 |
| 45° | 2207 | 2246 | 2332 | 2429 | 2460 | 1702 |
| 55° | 1668 | 1716 | 1842 | 1964 | 2001 | 1485 |
| 65° | 1110 | 1185 | 1339 | 1471 | 1521 | 1101 |
| 75° | 564 | 659 | 848 | 985 | 1016 | 600 |
| 85° | 110 | 197 | 255 | 260 | 260 | 139 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P473995

CATALOG NUMBER: 24CZ2-105VHE-S-UNV-L830-CD1-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|--------|--------|--------|--------|--------|
| 0° | 3634.9 | 3634.9 | 3634.9 | 3634.9 | 3634.9 |
| 2.5° | 3640.1 | 3634.9 | 3616.1 | 3638.4 | 3634.9 |
| 5° | 3626.4 | 3619.5 | 3604.2 | 3626.4 | 3623.0 |
| 7.5° | 3599.0 | 3595.6 | 3580.2 | 3605.9 | 3602.4 |
| 10° | 3564.8 | 3561.4 | 3549.4 | 3575.1 | 3569.9 |
| 12.5° | 3516.9 | 3515.2 | 3506.6 | 3537.4 | 3534.0 |
| 15° | 3460.5 | 3462.2 | 3458.8 | 3487.8 | 3487.8 |
| 17.5° | 3395.5 | 3393.8 | 3400.6 | 3436.5 | 3433.1 |
| 20° | 3320.2 | 3321.9 | 3330.5 | 3371.5 | 3371.5 |
| 22.5° | 3241.5 | 3239.8 | 3258.6 | 3299.7 | 3303.1 |
| 25° | 3149.1 | 3154.3 | 3176.5 | 3222.7 | 3226.1 |
| 27.5° | 3049.9 | 3058.5 | 3085.9 | 3138.9 | 3144.0 |
| 30° | 2945.6 | 2955.8 | 2996.9 | 3046.5 | 3053.4 |
| 32.5° | 2831.0 | 2853.2 | 2890.8 | 2954.1 | 2971.2 |
| 35° | 2716.4 | 2735.2 | 2784.8 | 2854.9 | 2872.0 |
| 37.5° | 2589.8 | 2620.6 | 2677.0 | 2754.0 | 2776.2 |
| 40° | 2464.9 | 2495.7 | 2565.8 | 2646.2 | 2670.2 |
| 42.5° | 2338.3 | 2370.8 | 2451.2 | 2541.9 | 2567.6 |
| 45° | 2206.6 | 2246.0 | 2331.5 | 2429.0 | 2459.8 |
| 47.5° | 2071.5 | 2117.7 | 2210.0 | 2316.1 | 2350.3 |
| 50° | 1938.1 | 1984.3 | 2090.3 | 2199.8 | 2230.6 |
| 52.5° | 1794.4 | 1852.5 | 1965.4 | 2083.5 | 2114.3 |
| 55° | 1667.8 | 1715.7 | 1842.3 | 1963.7 | 2001.4 |
| 57.5° | 1519.0 | 1584.0 | 1719.1 | 1842.3 | 1878.2 |
| 60° | 1387.3 | 1447.1 | 1590.8 | 1715.7 | 1756.7 |
| 62.5° | 1253.8 | 1315.4 | 1459.1 | 1601.1 | 1638.7 |
| 65° | 1110.2 | 1185.4 | 1339.4 | 1471.1 | 1520.7 |
| 67.5° | 973.3 | 1052.0 | 1209.4 | 1349.6 | 1400.9 |
| 70° | 838.2 | 918.6 | 1089.6 | 1233.3 | 1274.4 |
| 72.5° | 704.8 | 788.6 | 966.5 | 1106.7 | 1154.6 |
| 75° | 564.5 | 658.6 | 848.4 | 985.3 | 1016.1 |
| 77.5° | 432.8 | 537.1 | 728.7 | 821.1 | 843.3 |
| 80° | 309.6 | 424.2 | 581.6 | 648.3 | 665.4 |
| 82.5° | 203.6 | 314.7 | 434.5 | 470.4 | 465.3 |
| 85° | 109.5 | 196.7 | 254.9 | 260.0 | 260.0 |
| 87.5° | 42.8 | 78.7 | 80.4 | 61.6 | 58.2 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

(END OF REPORT)