

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: METALUX

Report Number: P893278

Luminaire Tested: 4MB-2SL-ASYMR-UNV-L935

Issue Date: 11/11/2024

Test Information

Test Method: LM-79-2019
Report Number: P893278
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2410-248-1)
Test Lab: INNOVATION CENTER
Issue Date: 11/11/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: 4MB-2SL-ASYMR-UNV-L935
Description: 2000 Lumen 4FT MICROBAY LINEAR BAY with ASYMMERIC REFLECTOR, 90CRI, 3500K CCT
Light Source: -
Ballast/Driver: -

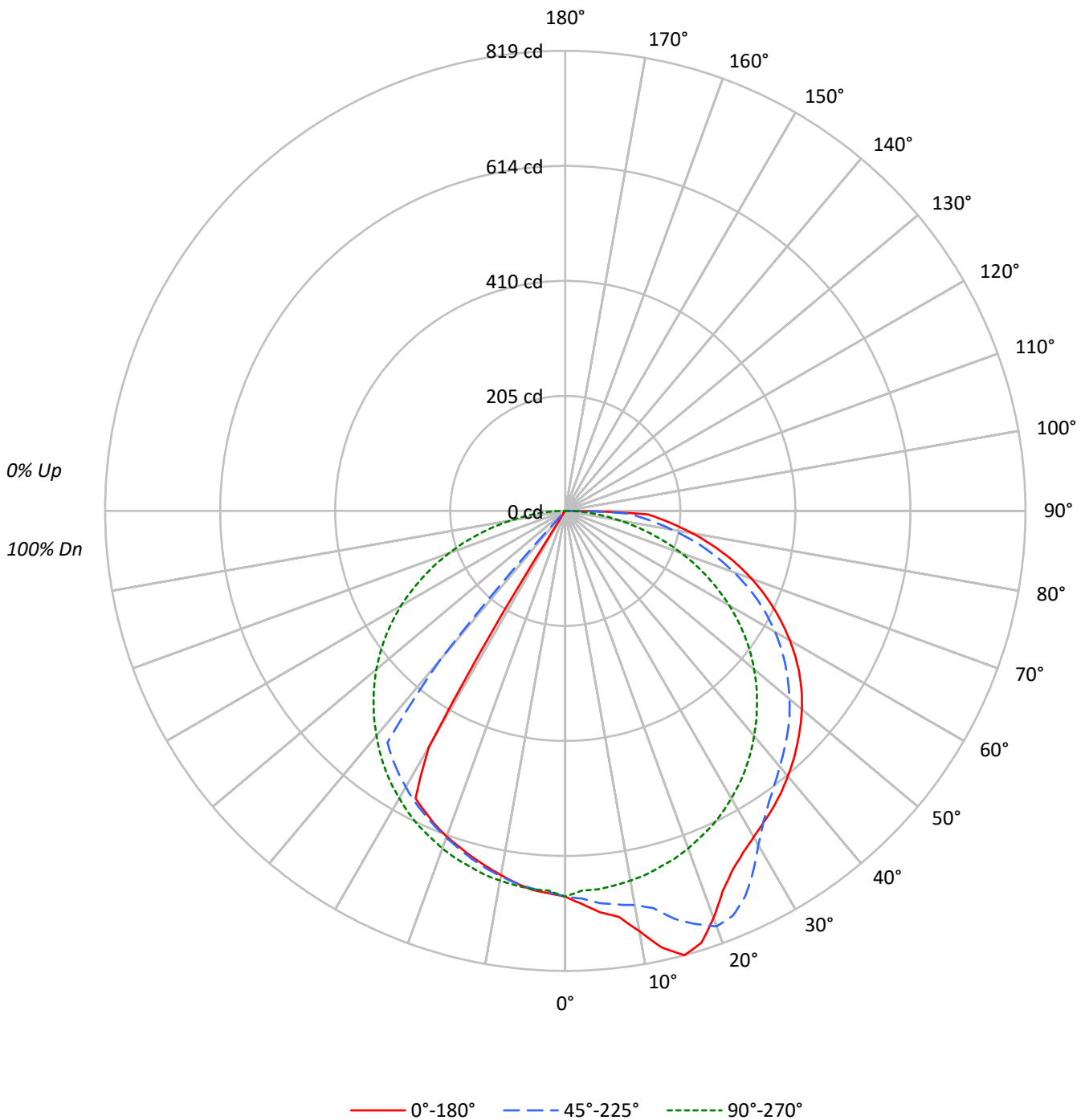
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1858.0 lumens
Efficiency: N/A
Efficacy: 134.6 lumens/watt
Spacing Criteria (0/90/45): 1.18 / 1.28 / 1.25
Luminous Opening: Rectangular (W 0.21' x L: 3.98' x H: 0')
CIE Type: Direct

Input Watts (W): 13.8
Input Voltage (V):
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 5.92
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P893278
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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RF | 20 | | | | 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 | 99 | 90 | 83 | 77 | 96 | 88 | 82 | 76 | 85 | 79 | 75 | 81 | 77 | 73 | 78 | 75 | 71 | 69 |
| 3 | 90 | 79 | 71 | 65 | 88 | 78 | 70 | 64 | 75 | 68 | 63 | 72 | 67 | 62 | 70 | 65 | 61 | 59 |
| 4 | 83 | 71 | 62 | 55 | 80 | 69 | 61 | 55 | 67 | 60 | 54 | 65 | 58 | 53 | 62 | 57 | 53 | 50 |
| 5 | 76 | 63 | 55 | 48 | 74 | 62 | 54 | 48 | 60 | 53 | 47 | 58 | 52 | 47 | 56 | 51 | 46 | 44 |
| 6 | 71 | 57 | 48 | 42 | 69 | 56 | 48 | 42 | 55 | 47 | 42 | 53 | 46 | 41 | 51 | 45 | 41 | 39 |
| 7 | 66 | 52 | 44 | 37 | 64 | 51 | 43 | 37 | 50 | 42 | 37 | 48 | 42 | 37 | 47 | 41 | 36 | 35 |
| 8 | 61 | 48 | 39 | 34 | 60 | 47 | 39 | 33 | 46 | 38 | 33 | 45 | 38 | 33 | 43 | 37 | 33 | 31 |
| 9 | 57 | 44 | 36 | 30 | 56 | 43 | 36 | 30 | 42 | 35 | 30 | 41 | 35 | 30 | 40 | 34 | 30 | 28 |
| 10 | 54 | 41 | 33 | 28 | 53 | 40 | 33 | 28 | 39 | 32 | 27 | 38 | 32 | 27 | 37 | 32 | 27 | 26 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° | 135° | 180° |
|-----|-------|-------|------|------|------|
| 0° | 8917 | 8917 | 8917 | 8917 | 8917 |
| 5° | 9351 | 9136 | 8813 | 8797 | 8828 |
| 10° | 10020 | 9397 | 8810 | 8708 | 8681 |
| 15° | 11009 | 10109 | 8813 | 8624 | 8581 |
| 20° | 10658 | 10875 | 8837 | 8555 | 8527 |
| 25° | 10098 | 10853 | 8859 | 8526 | 8465 |
| 30° | 10055 | 10302 | 8858 | 8515 | 7289 |
| 35° | 10224 | 10020 | 8872 | 8517 | 100 |
| 40° | 10447 | 10067 | 8860 | 5873 | 66 |
| 45° | 10734 | 10271 | 8862 | 108 | 44 |
| 50° | 11107 | 10527 | 8866 | 79 | 16 |
| 55° | 11530 | 10828 | 8843 | 54 | 9 |
| 60° | 11990 | 11196 | 8765 | 21 | 10 |
| 65° | 12557 | 11639 | 8603 | 25 | 25 |
| 70° | 13394 | 12126 | 8333 | 30 | 30 |
| 75° | 14660 | 12904 | 7972 | 80 | 40 |
| 80° | 17206 | 14440 | 7381 | 120 | 60 |
| 85° | 25611 | 20277 | 6913 | 179 | 119 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 87.5°
 Luminance: 43909 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 65.8 | 3.5 |
| 10°-20° | 196.5 | 10.6 |
| 20°-30° | 302.0 | 16.3 |
| 30°-40° | 323.7 | 17.4 |
| 40°-50° | 294.0 | 15.8 |
| 50°-60° | 268.1 | 14.4 |
| 60°-70° | 199.5 | 10.7 |
| 70°-80° | 140.4 | 7.6 |
| 80°-90° | 68.0 | 3.7 |
| 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° | 564.3 | 30.4 |
| 0°-40° | 888.0 | 47.8 |
| 0°-60° | 1450.1 | 78.0 |
| 0°-90° | 1858.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 1858.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 45° | 90° | 135° | 180° | Flux |
|-----|-----|-----|-----|------|------|------|
| 0° | 687 | 687 | 687 | 687 | 687 | |
| 5° | 717 | 701 | 676 | 675 | 677 | 69 |
| 15° | 819 | 752 | 656 | 642 | 638 | 226 |
| 25° | 705 | 758 | 618 | 595 | 591 | 328 |
| 35° | 645 | 632 | 560 | 537 | 6 | 404 |
| 45° | 584 | 559 | 483 | 6 | 2 | 452 |
| 55° | 509 | 478 | 391 | 2 | 0 | 455 |
| 65° | 409 | 379 | 280 | 1 | 1 | 405 |
| 75° | 292 | 257 | 159 | 2 | 1 | 308 |
| 85° | 172 | 136 | 46 | 1 | 1 | 173 |
| 90° | 0 | 0 | 0 | 0 | 0 | |



TEST NUMBER: P893278

CATALOG NUMBER: 4MB-2SL-ASYMR-UNV-L935

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° |
|-------|-------|-------|-------|-------|-------|--------|-------|--------|-------|
| 0° | 686.7 | 686.7 | 686.7 | 686.7 | 686.7 | 686.7 | 686.7 | 686.7 | 686.7 |
| 2.5° | 700.9 | 693.0 | 691.0 | 696.6 | 676.5 | 689.9 | 678.9 | 681.2 | 681.2 |
| 5° | 717.4 | 706.4 | 700.9 | 699.3 | 676.1 | 685.1 | 674.9 | 674.9 | 677.3 |
| 7.5° | 728.8 | 716.6 | 706.8 | 702.8 | 672.6 | 680.4 | 668.6 | 668.6 | 668.6 |
| 10° | 759.9 | 737.1 | 712.7 | 705.6 | 668.2 | 674.1 | 660.4 | 661.2 | 658.4 |
| 12.5° | 796.5 | 776.0 | 724.1 | 704.4 | 663.5 | 666.3 | 651.7 | 651.3 | 648.2 |
| 15° | 818.9 | 803.5 | 752.0 | 702.8 | 655.6 | 658.0 | 641.5 | 640.3 | 638.3 |
| 17.5° | 806.3 | 803.9 | 771.3 | 701.7 | 648.6 | 646.6 | 630.1 | 628.9 | 627.3 |
| 20° | 771.3 | 777.2 | 787.0 | 699.3 | 639.5 | 635.6 | 619.1 | 618.3 | 617.1 |
| 22.5° | 732.3 | 738.2 | 779.9 | 703.2 | 628.5 | 623.8 | 607.3 | 606.5 | 604.9 |
| 25° | 704.8 | 704.8 | 757.5 | 712.7 | 618.3 | 609.6 | 595.1 | 593.9 | 590.8 |
| 27.5° | 685.5 | 682.0 | 724.1 | 723.3 | 605.3 | 595.5 | 582.1 | 580.9 | 577.0 |
| 30° | 670.6 | 664.7 | 687.1 | 728.4 | 590.8 | 580.1 | 567.9 | 566.8 | 486.1 |
| 32.5° | 657.2 | 650.9 | 656.0 | 732.7 | 576.2 | 563.6 | 553.0 | 394.5 | 17.3 |
| 35° | 645.0 | 638.0 | 632.1 | 729.6 | 559.7 | 547.1 | 537.3 | 11.4 | 6.3 |
| 37.5° | 631.3 | 625.8 | 612.4 | 713.1 | 542.0 | 529.4 | 520.0 | 6.3 | 5.5 |
| 40° | 616.3 | 611.2 | 593.9 | 688.7 | 522.7 | 512.1 | 346.5 | 5.5 | 3.9 |
| 42.5° | 601.0 | 597.0 | 576.6 | 653.3 | 503.4 | 492.8 | 11.0 | 4.3 | 3.1 |
| 45° | 584.5 | 580.9 | 559.3 | 610.4 | 482.6 | 472.8 | 5.9 | 3.1 | 2.4 |
| 47.5° | 567.5 | 562.4 | 541.2 | 564.4 | 461.4 | 451.5 | 5.1 | 2.4 | 1.6 |
| 50° | 549.8 | 544.3 | 521.1 | 523.9 | 438.9 | 429.1 | 3.9 | 1.6 | 0.8 |
| 52.5° | 530.2 | 523.5 | 499.9 | 487.3 | 415.3 | 406.3 | 3.1 | 0.8 | 0.4 |
| 55° | 509.3 | 501.9 | 478.3 | 455.5 | 390.6 | 380.3 | 2.4 | 0.8 | 0.4 |
| 57.5° | 486.1 | 477.9 | 455.5 | 425.2 | 364.2 | 257.2 | 1.6 | 0.8 | 0.4 |
| 60° | 461.7 | 453.5 | 431.1 | 396.9 | 337.5 | 17.7 | 0.8 | 0.8 | 0.4 |
| 62.5° | 435.8 | 427.1 | 405.5 | 368.1 | 308.7 | 14.6 | 0.8 | 0.8 | 0.8 |
| 65° | 408.7 | 398.4 | 378.8 | 338.6 | 280.0 | 12.2 | 0.8 | 0.8 | 0.8 |
| 67.5° | 381.5 | 368.5 | 350.0 | 308.4 | 250.5 | 10.2 | 0.8 | 0.8 | 0.8 |
| 70° | 352.8 | 338.6 | 319.4 | 277.7 | 219.5 | 8.3 | 0.8 | 0.8 | 0.8 |
| 72.5° | 323.3 | 309.5 | 288.7 | 246.6 | 190.4 | 6.3 | 0.8 | 0.8 | 0.8 |
| 75° | 292.2 | 279.6 | 257.2 | 215.5 | 158.9 | 4.7 | 1.6 | 0.8 | 0.8 |
| 77.5° | 260.0 | 250.1 | 225.0 | 183.7 | 128.2 | 3.1 | 1.6 | 0.8 | 0.8 |
| 80° | 230.1 | 219.1 | 193.1 | 151.4 | 98.7 | 2.4 | 1.6 | 1.2 | 0.8 |
| 82.5° | 199.4 | 189.6 | 163.6 | 121.9 | 70.8 | 2.0 | 1.6 | 1.2 | 0.8 |
| 85° | 171.9 | 162.4 | 136.1 | 95.2 | 46.4 | 1.6 | 1.2 | 1.2 | 0.8 |
| 87.5° | 147.5 | 138.8 | 112.9 | 69.6 | 26.4 | 1.2 | 1.2 | 1.2 | 0.8 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



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CIE UGR TABLE:

| Reflectances: | | | | | | | | | | | |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling | | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 |
| Wall | | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 |
| Reference plane | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Room dimensions | | Viewed crosswise | | | | | Viewed endwise | | | | |
| X=2H | Y=2H | 22.13 | 23.75 | 22.50 | 24.06 | 24.38 | 17.57 | 19.18 | 17.93 | 19.49 | 19.81 |
| | 3H | 24.58 | 26.04 | 24.96 | 26.37 | 26.73 | 18.21 | 19.67 | 18.59 | 20.00 | 20.36 |
| | 4H | 25.70 | 27.09 | 26.10 | 27.43 | 27.81 | 18.35 | 19.74 | 18.75 | 20.08 | 20.46 |
| | 6H | 26.80 | 28.08 | 27.21 | 28.45 | 28.84 | 18.39 | 19.68 | 18.80 | 20.04 | 20.43 |
| | 8H | 27.33 | 28.55 | 27.75 | 28.94 | 29.34 | 18.38 | 19.61 | 18.81 | 20.00 | 20.40 |
| | 12H | 27.90 | 29.07 | 28.32 | 29.45 | 29.88 | 18.36 | 19.54 | 18.79 | 19.92 | 20.35 |
| 4H | 2H | 22.79 | 24.17 | 23.19 | 24.52 | 24.90 | 18.69 | 20.08 | 19.09 | 20.42 | 20.80 |
| | 3H | 25.48 | 26.65 | 25.89 | 27.04 | 27.44 | 20.04 | 21.20 | 20.44 | 21.60 | 22.00 |
| | 4H | 26.77 | 27.84 | 27.21 | 28.25 | 28.69 | 20.57 | 21.63 | 21.00 | 22.05 | 22.48 |
| | 6H | 28.06 | 28.99 | 28.51 | 29.43 | 29.88 | 20.85 | 21.78 | 21.30 | 22.22 | 22.67 |
| | 8H | 28.68 | 29.56 | 29.14 | 30.00 | 30.47 | 20.88 | 21.76 | 21.34 | 22.20 | 22.67 |
| | 12H | 29.37 | 30.16 | 29.85 | 30.64 | 31.10 | 20.89 | 21.69 | 21.37 | 22.16 | 22.63 |
| 8H | 4H | 27.14 | 28.02 | 27.60 | 28.46 | 28.92 | 21.52 | 22.39 | 21.98 | 22.84 | 23.30 |
| | 6H | 28.62 | 29.36 | 29.11 | 29.84 | 30.32 | 22.11 | 22.84 | 22.60 | 23.33 | 23.81 |
| | 8H | 29.40 | 30.07 | 29.91 | 30.57 | 31.06 | 22.29 | 22.95 | 22.79 | 23.46 | 23.94 |
| | 12H | 30.30 | 30.89 | 30.80 | 31.38 | 31.93 | 22.39 | 22.98 | 22.89 | 23.47 | 24.03 |
| 12H | 4H | 27.18 | 27.97 | 27.66 | 28.44 | 28.91 | 21.74 | 22.53 | 22.21 | 23.00 | 23.47 |
| | 6H | 28.71 | 29.37 | 29.22 | 29.88 | 30.36 | 22.46 | 23.12 | 22.97 | 23.63 | 24.11 |
| | 8H | 29.59 | 30.18 | 30.09 | 30.67 | 31.23 | 22.77 | 23.36 | 23.28 | 23.85 | 24.41 |