

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: P893545

Luminaire Tested: 4MB-4SL-RFLW-UNV-L830

Issue Date: 11/11/2024

**Test Information**

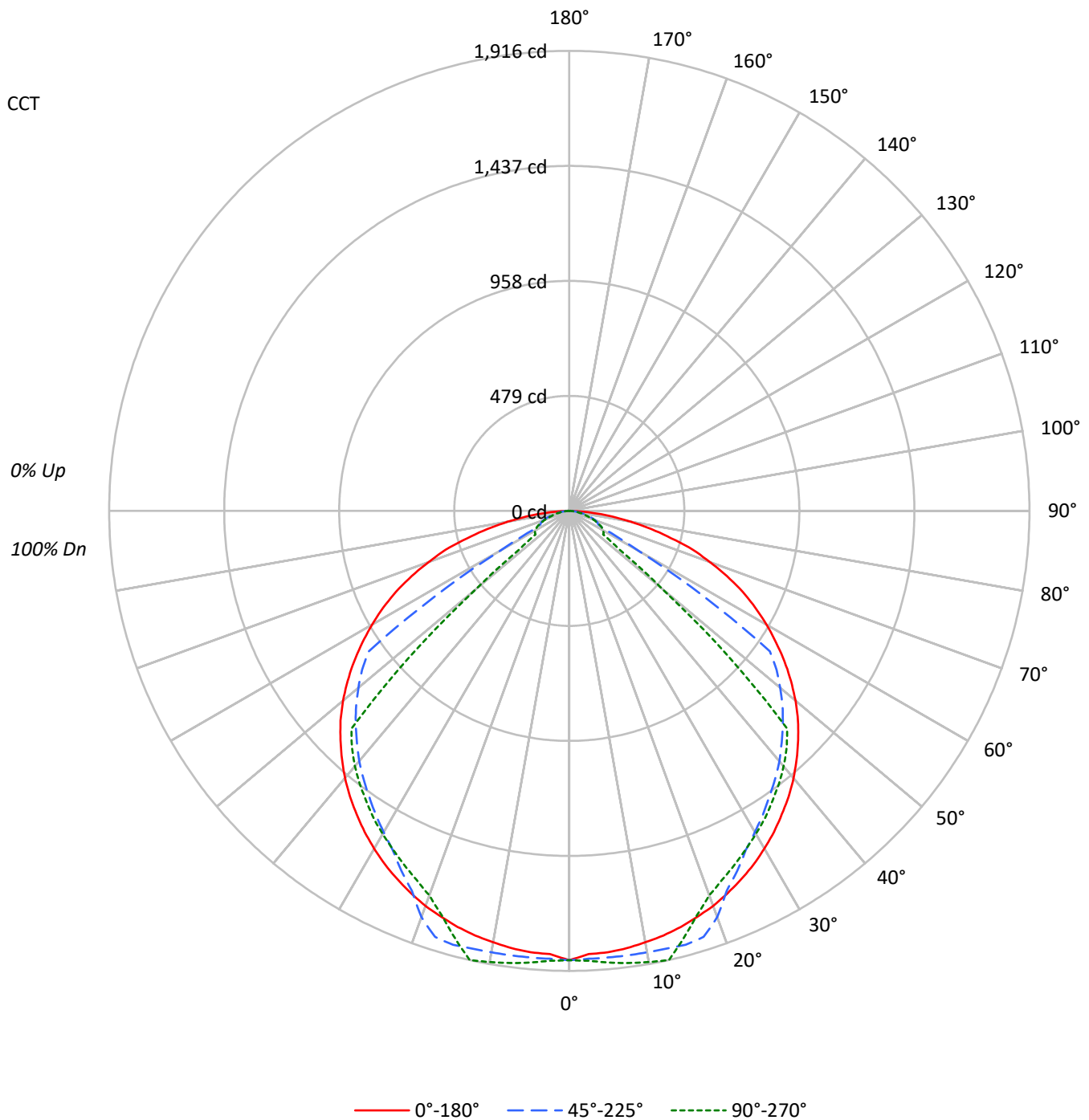
Test Method: LM-79-2019  
Report Number: P893545  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2408-210-3)  
Test Lab: INNOVATION CENTER  
Issue Date: 11/11/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: METALUX  
Catalog Number: 4MB-4SL-RFLW-UNV-L830  
Description: 4000 Lumen 4FT MICROBAY LINEAR BAY with REFLECTOR WITH WHITE FINISH, 80CRI, 3000K  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 4564.0 lumens  
Efficiency: N/A  
Efficacy: 153.2 lumens/watt  
Spacing Criteria (0/90/45): 1.29 / 1.24 / 1.38  
Luminous Opening: Rectangular (W 0.21' x L: 3.98' x H: 0')  
CIE Type: Direct  
  
Input Watts (W): 29.8  
Input Voltage (V): 120  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: 0.99  
Total Harmonic Distortion (THDi): 5.5  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 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  | 50  | 30  | 10  | 0   |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 102 | 102 | 102 | 100 |
| 1   | 110 | 106 | 102 | 99  | 108 | 104 | 101 | 98  | 100 | 97  | 94  | 96  | 94  | 92  | 92  | 91  | 89  | 89  | 89  | 89  | 87  |
| 2   | 101 | 94  | 88  | 83  | 99  | 92  | 87  | 82  | 89  | 84  | 80  | 86  | 82  | 78  | 83  | 79  | 77  | 77  | 77  | 77  | 75  |
| 3   | 93  | 84  | 76  | 70  | 91  | 82  | 75  | 70  | 79  | 73  | 69  | 77  | 72  | 67  | 74  | 70  | 66  | 66  | 66  | 66  | 64  |
| 4   | 86  | 75  | 67  | 61  | 84  | 74  | 66  | 60  | 71  | 65  | 59  | 69  | 63  | 59  | 67  | 62  | 58  | 58  | 58  | 58  | 56  |
| 5   | 79  | 67  | 59  | 53  | 77  | 66  | 58  | 53  | 64  | 57  | 52  | 62  | 56  | 51  | 61  | 55  | 51  | 51  | 51  | 51  | 49  |
| 6   | 73  | 61  | 53  | 47  | 72  | 60  | 52  | 46  | 58  | 51  | 46  | 57  | 50  | 46  | 55  | 50  | 45  | 45  | 45  | 45  | 43  |
| 7   | 68  | 55  | 47  | 41  | 67  | 55  | 47  | 41  | 53  | 46  | 41  | 52  | 45  | 41  | 50  | 45  | 40  | 40  | 40  | 40  | 38  |
| 8   | 64  | 51  | 43  | 37  | 62  | 50  | 42  | 37  | 49  | 42  | 37  | 48  | 41  | 37  | 46  | 41  | 36  | 36  | 36  | 36  | 35  |
| 9   | 60  | 47  | 39  | 33  | 58  | 46  | 39  | 33  | 45  | 38  | 33  | 44  | 38  | 33  | 43  | 37  | 33  | 33  | 33  | 33  | 31  |
| 10  | 56  | 43  | 35  | 30  | 55  | 43  | 35  | 30  | 42  | 35  | 30  | 41  | 34  | 30  | 40  | 34  | 30  | 30  | 30  | 30  | 28  |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 24299 | 24299 | 24299 |
| 5°  | 24055 | 24336 | 24615 |
| 10° | 24051 | 24617 | 25155 |
| 15° | 24117 | 25156 | 24752 |
| 20° | 24197 | 24880 | 23545 |
| 25° | 24259 | 23705 | 23305 |
| 30° | 24358 | 23167 | 23296 |
| 35° | 24458 | 23030 | 23370 |
| 40° | 24626 | 23062 | 23535 |
| 45° | 24749 | 23092 | 23566 |
| 50° | 24839 | 23149 | 10187 |
| 55° | 24776 | 23076 | 3887  |
| 60° | 24633 | 8806  | 4236  |
| 65° | 24463 | 4086  | 4351  |
| 70° | 23626 | 4400  | 4074  |
| 75° | 22070 | 4199  | 3552  |
| 80° | 19420 | 3694  | 3051  |
| 85° | 15346 | 3203  | 2563  |

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 50°  
 Luminance: 24839 cd/sqm



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**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 178.7  | 3.9       |
| 10°-20°   | 518.9  | 11.4      |
| 20°-30°   | 774.2  | 17.0      |
| 30°-40°   | 938.5  | 20.6      |
| 40°-50°   | 960.9  | 21.1      |
| 50°-60°   | 639.0  | 14.0      |
| 60°-70°   | 364.2  | 8.0       |
| 70°-80°   | 153.0  | 3.4       |
| 80°-90°   | 36.5   | 0.8       |
| 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°    | 1471.9 | 32.2      |
| 0°-40°    | 2410.3 | 52.8      |
| 0°-60°    | 4010.3 | 87.9      |
| 0°-90°    | 4564.0 | 100.0     |
| 90°-120°  | 0.0    | 0.0       |
| 90°-150°  | 0.0    | 0.0       |
| 90°-180°  | 0.0    | 0.0       |
| 0°-180°   | 4564.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|-----|------|-------|------|-------|------|------|
| 0°  | 1871 | 1871  | 1871 | 1871  | 1871 |      |
| 5°  | 1846 | 1882  | 1867 | 1871  | 1888 | 176  |
| 15° | 1794 | 1843  | 1871 | 1865  | 1841 | 507  |
| 25° | 1693 | 1775  | 1654 | 1618  | 1627 | 781  |
| 35° | 1543 | 1571  | 1453 | 1459  | 1474 | 966  |
| 45° | 1348 | 1266  | 1258 | 1273  | 1283 | 1040 |
| 55° | 1094 | 1002  | 1019 | 223   | 172  | 977  |
| 65° | 796  | 712   | 133  | 142   | 142  | 783  |
| 75° | 440  | 92    | 84   | 73    | 71   | 467  |
| 85° | 103  | 26    | 22   | 17    | 17   | 123  |
| 90° | 0    | 0     | 0    | 0     | 0    |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|-------|--------|--------|--------|--------|--------|
| 0°    | 1871.3 | 1871.3 | 1871.3 | 1871.3 | 1871.3 |
| 2.5°  | 1847.7 | 1886.3 | 1867.0 | 1869.1 | 1875.6 |
| 5°    | 1845.5 | 1882.0 | 1867.0 | 1871.3 | 1888.4 |
| 7.5°  | 1836.9 | 1875.6 | 1867.0 | 1879.9 | 1899.2 |
| 10°   | 1824.1 | 1869.1 | 1867.0 | 1888.4 | 1907.8 |
| 12.5° | 1811.2 | 1856.3 | 1867.0 | 1899.2 | 1916.3 |
| 15°   | 1794.0 | 1843.4 | 1871.3 | 1864.8 | 1841.2 |
| 17.5° | 1772.6 | 1830.5 | 1860.5 | 1768.3 | 1766.1 |
| 20°   | 1751.1 | 1813.3 | 1800.5 | 1712.5 | 1703.9 |
| 22.5° | 1723.2 | 1796.2 | 1712.5 | 1652.4 | 1663.1 |
| 25°   | 1693.2 | 1774.7 | 1654.5 | 1618.1 | 1626.6 |
| 27.5° | 1661.0 | 1753.2 | 1592.3 | 1579.4 | 1590.2 |
| 30°   | 1624.5 | 1723.2 | 1545.1 | 1540.8 | 1553.7 |
| 32.5° | 1585.9 | 1665.3 | 1500.0 | 1502.2 | 1517.2 |
| 35°   | 1542.9 | 1570.8 | 1452.8 | 1459.3 | 1474.3 |
| 37.5° | 1500.0 | 1482.9 | 1407.7 | 1418.5 | 1433.5 |
| 40°   | 1452.8 | 1414.2 | 1360.5 | 1371.3 | 1388.4 |
| 42.5° | 1401.3 | 1341.2 | 1309.0 | 1324.1 | 1339.1 |
| 45°   | 1347.7 | 1266.1 | 1257.5 | 1272.6 | 1283.3 |
| 47.5° | 1291.9 | 1201.7 | 1203.9 | 1214.6 | 909.9  |
| 50°   | 1229.6 | 1137.4 | 1145.9 | 794.0  | 504.3  |
| 52.5° | 1163.1 | 1070.8 | 1088.0 | 442.1  | 255.4  |
| 55°   | 1094.4 | 1002.2 | 1019.3 | 223.2  | 171.7  |
| 57.5° | 1021.5 | 933.5  | 665.2  | 160.9  | 169.5  |
| 60°   | 948.5  | 860.5  | 339.1  | 158.8  | 163.1  |
| 62.5° | 873.4  | 787.6  | 160.9  | 152.4  | 154.5  |
| 65°   | 796.2  | 712.5  | 133.0  | 141.6  | 141.6  |
| 67.5° | 710.3  | 633.1  | 126.6  | 126.6  | 124.5  |
| 70°   | 622.3  | 525.8  | 115.9  | 109.4  | 107.3  |
| 72.5° | 540.8  | 201.7  | 100.9  | 90.1   | 88.0   |
| 75°   | 439.9  | 92.3   | 83.7   | 73.0   | 70.8   |
| 77.5° | 349.8  | 77.3   | 66.5   | 57.9   | 55.8   |
| 80°   | 259.7  | 60.1   | 49.4   | 42.9   | 40.8   |
| 82.5° | 180.3  | 40.8   | 34.3   | 27.9   | 27.9   |
| 85°   | 103.0  | 25.8   | 21.5   | 17.2   | 17.2   |
| 87.5° | 40.8   | 12.9   | 10.7   | 6.4    | 6.4    |
| 90°   | 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 | 24.01            | 25.53 | 24.38 | 25.85 | 26.16 | 11.77          | 13.30 | 12.14 | 13.61 | 13.92 |
|                 | 3H   | 26.03            | 27.39 | 26.41 | 27.72 | 28.08 | 14.09          | 15.45 | 14.47 | 15.78 | 16.14 |
|                 | 4H   | 26.49            | 27.76 | 26.89 | 28.11 | 28.49 | 14.80          | 16.07 | 15.20 | 16.42 | 16.80 |
|                 | 6H   | 26.90            | 28.07 | 27.31 | 28.44 | 28.83 | 15.29          | 16.46 | 15.70 | 16.83 | 17.22 |
|                 | 8H   | 27.05            | 28.16 | 27.48 | 28.55 | 28.96 | 15.42          | 16.54 | 15.85 | 16.93 | 17.33 |
|                 | 12H  | 27.15            | 28.21 | 27.58 | 28.60 | 29.03 | 15.51          | 16.58 | 15.94 | 16.96 | 17.39 |
| 4H              | 2H   | 23.85            | 25.12 | 24.25 | 25.47 | 25.85 | 12.57          | 13.84 | 12.97 | 14.19 | 14.57 |
|                 | 3H   | 26.06            | 27.10 | 26.47 | 27.50 | 27.90 | 15.08          | 16.13 | 15.49 | 16.53 | 16.93 |
|                 | 4H   | 26.50            | 27.44 | 26.94 | 27.86 | 28.30 | 15.90          | 16.84 | 16.34 | 17.26 | 17.70 |
|                 | 6H   | 26.97            | 27.78 | 27.43 | 28.23 | 28.69 | 16.50          | 17.31 | 16.95 | 17.75 | 18.21 |
|                 | 8H   | 27.16            | 27.92 | 27.62 | 28.37 | 28.83 | 16.67          | 17.43 | 17.13 | 17.87 | 18.34 |
|                 | 12H  | 27.31            | 27.99 | 27.79 | 28.47 | 28.94 | 16.78          | 17.46 | 17.27 | 17.94 | 18.41 |
| 8H              | 4H   | 26.42            | 27.18 | 26.89 | 27.63 | 28.09 | 16.74          | 17.50 | 17.21 | 17.95 | 18.42 |
|                 | 6H   | 26.88            | 27.51 | 27.38 | 28.00 | 28.48 | 17.37          | 17.99 | 17.86 | 18.49 | 18.96 |
|                 | 8H   | 27.08            | 27.65 | 27.60 | 28.16 | 28.64 | 17.57          | 18.13 | 18.08 | 18.64 | 19.13 |
|                 | 12H  | 27.27            | 27.77 | 27.78 | 28.26 | 28.82 | 17.72          | 18.23 | 18.23 | 18.72 | 19.28 |
| 12H             | 4H   | 26.39            | 27.07 | 26.87 | 27.55 | 28.02 | 16.81          | 17.49 | 17.30 | 17.97 | 18.44 |
|                 | 6H   | 26.83            | 27.40 | 27.35 | 27.91 | 28.40 | 17.46          | 18.02 | 17.97 | 18.54 | 19.02 |
|                 | 8H   | 27.06            | 27.56 | 27.57 | 28.05 | 28.62 | 17.71          | 18.21 | 18.22 | 18.71 | 19.27 |