

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: P859993

Luminaire Tested: **SPHB-24HE-M-L840-CD**

Issue Date: 7/11/2024

This test was performed under the Supervised Manufacturer's Testing Program. The results of this test have not been influenced by sources from within Cooper Lighting Solutions or from external interests.



**Test Information**

Test Method: LM-79-08  
Report Number: P859993  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2404-343-1)  
Test Lab: INNOVATION CENTER  
Issue Date: 7/11/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: SPHB-24HE-M-L840-CD  
Description: 24000 Lumen High Efficacy Select Pro High Bay with Medium Lens and, 4000K 80CRI LEDs  
Light Source: -  
Ballast/Driver: -

Luminaire Equipment: Sample No.   Condition   Description

**Summary**

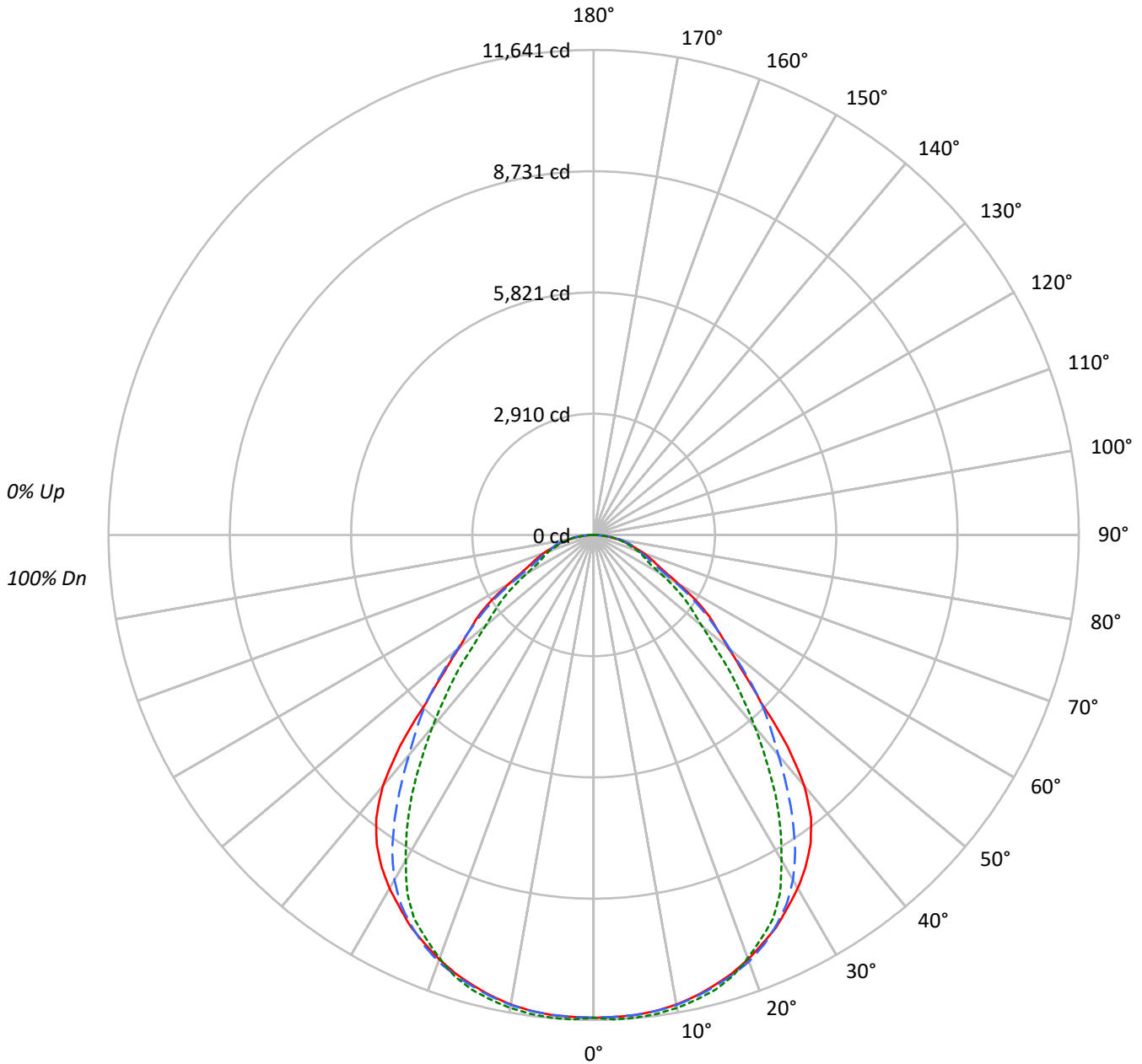
Lumens per Lamp: N/A  
Luminaire Lumens: 24055.0 lumens  
Efficiency: N/A  
Efficacy: 164.8 lumens/watt  
Spacing Criteria (0/90/45): 1.25 / 1.16 / 1.22  
Luminous Opening: Rectangular (W 1' x L: 1.38' x H: 0')  
CIE Type: Direct

Input Watts (W): 146  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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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CATALOG NUMBER: SPHB-24HE-M-L840-CD

### 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 | 100 |    |    |    |  |  |  |  |   |
| 1   | 110 | 106 | 103 | 99  | 108 | 104 | 101 | 98  | 100 | 97  | 95  | 96  | 94  | 92  | 92  | 91  | 89  | 87  |    |    |    |  |  |  |  |   |
| 2   | 102 | 95  | 89  | 84  | 99  | 93  | 87  | 83  | 89  | 85  | 81  | 86  | 82  | 79  | 83  | 80  | 77  | 75  |    |    |    |  |  |  |  |   |
| 3   | 94  | 85  | 78  | 72  | 92  | 83  | 77  | 71  | 80  | 75  | 70  | 78  | 73  | 69  | 75  | 71  | 68  | 66  |    |    |    |  |  |  |  |   |
| 4   | 87  | 76  | 69  | 63  | 85  | 75  | 68  | 62  | 73  | 66  | 61  | 70  | 65  | 61  | 68  | 64  | 60  | 58  |    |    |    |  |  |  |  |   |
| 5   | 81  | 69  | 61  | 55  | 79  | 68  | 61  | 55  | 66  | 59  | 54  | 64  | 58  | 54  | 62  | 57  | 53  | 51  |    |    |    |  |  |  |  |   |
| 6   | 75  | 63  | 55  | 49  | 73  | 62  | 54  | 49  | 60  | 54  | 48  | 59  | 53  | 48  | 57  | 52  | 48  | 46  |    |    |    |  |  |  |  |   |
| 7   | 70  | 58  | 50  | 44  | 68  | 57  | 49  | 44  | 55  | 49  | 44  | 54  | 48  | 43  | 53  | 47  | 43  | 41  |    |    |    |  |  |  |  |   |
| 8   | 66  | 53  | 45  | 40  | 64  | 52  | 45  | 40  | 51  | 44  | 39  | 50  | 44  | 39  | 49  | 43  | 39  | 37  |    |    |    |  |  |  |  |   |
| 9   | 61  | 49  | 41  | 36  | 60  | 48  | 41  | 36  | 47  | 41  | 36  | 46  | 40  | 36  | 45  | 40  | 36  | 34  |    |    |    |  |  |  |  |   |
| 10  | 58  | 45  | 38  | 33  | 57  | 45  | 38  | 33  | 44  | 37  | 33  | 43  | 37  | 33  | 42  | 37  | 33  | 31  |    |    |    |  |  |  |  |   |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 90395 | 90395 | 90395 |
| 5°  | 90573 | 90549 | 91064 |
| 10° | 90652 | 90749 | 91306 |
| 15° | 90388 | 90622 | 91252 |
| 20° | 89993 | 90449 | 89726 |
| 25° | 89335 | 89084 | 87572 |
| 30° | 88203 | 86125 | 81210 |
| 35° | 86352 | 79235 | 72379 |
| 40° | 80137 | 70129 | 61304 |
| 45° | 62520 | 62688 | 50734 |
| 50° | 51062 | 51785 | 40972 |
| 55° | 45750 | 44025 | 36001 |
| 60° | 36625 | 34671 | 28805 |
| 65° | 30693 | 28098 | 25475 |
| 70° | 29141 | 26771 | 25934 |
| 75° | 26442 | 28422 | 25013 |
| 80° | 26569 | 29044 | 26367 |
| 85° | 23116 | 27081 | 22025 |



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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 1101.9  | 4.6       |
| 10°-20°   | 3169.1  | 13.2      |
| 20°-30°   | 4731.0  | 19.7      |
| 30°-40°   | 5162.3  | 21.5      |
| 40°-50°   | 4223.0  | 17.6      |
| 50°-60°   | 2776.6  | 11.5      |
| 60°-70°   | 1593.0  | 6.6       |
| 70°-80°   | 965.3   | 4.0       |
| 80°-90°   | 324.1   | 1.3       |
| 90°-100°  | 8.4     | 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°    | 9002.1  | 37.4      |
| 0°-40°    | 14164.4 | 58.9      |
| 0°-60°    | 21164.1 | 88.0      |
| 0°-90°    | 24046.6 | 100.0     |
| 90°-120°  | 8.4     | 0.0       |
| 90°-150°  | 8.4     | 0.0       |
| 90°-180°  | 8.0     | 0.0       |
| 0°-180°   | 24055.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°    | 22.5° | 45°   | 67.5° | 90°   | Flux |
|------|-------|-------|-------|-------|-------|------|
| 0°   | 11589 | 11589 | 11589 | 11589 | 11589 |      |
| 5°   | 11568 | 11550 | 11565 | 11612 | 11630 | ###  |
| 15°  | 11193 | 11192 | 11222 | 11294 | 11300 | 3159 |
| 25°  | 10380 | 10405 | 10351 | 10226 | 10175 | 4775 |
| 35°  | 9069  | 8864  | 8321  | 7754  | 7601  | 5621 |
| 45°  | 5668  | 6091  | 5683  | 5017  | 4599  | 4499 |
| 55°  | 3364  | 3273  | 3237  | 2782  | 2647  | 2963 |
| 65°  | 1663  | 1639  | 1522  | 1481  | 1380  | 1700 |
| 75°  | 877   | 949   | 943   | 905   | 830   | 950  |
| 85°  | 258   | 294   | 303   | 264   | 246   | 280  |
| 90°  | 2     | 21    | 43    | 50    | 54    | 12   |
| 95°  | 2     | 3     | 5     | 5     | 3     | 1    |
| 105° | 0     | 0     | 0     | 0     | 0     | 0    |
| 115° | 0     | 0     | 0     | 0     | 0     | 0    |
| 125° | 0     | 0     | 0     | 0     | 0     | 0    |
| 135° | 0     | 0     | 0     | 0     | 0     | 0    |
| 145° | 0     | 0     | 0     | 0     | 0     | 0    |
| 155° | 0     | 0     | 0     | 0     | 0     | 0    |
| 165° | 0     | 0     | 0     | 0     | 0     | 0    |
| 175° | 0     | 0     | 0     | 0     | 0     | 0    |
| 180° | 0     | 0     | 0     | 0     | 0     | 0    |



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**CANDELA DISTRIBUTION (FULL):**

|        | 0°             | 22.5°          | 45°            | 67.5°          | 90°            |
|--------|----------------|----------------|----------------|----------------|----------------|
| 0°     | 11589.2        | 11589.2        | 11589.2        | 11589.2        | <i>11589.2</i> |
| 2.5°   | <i>11581.6</i> | <i>11564.8</i> | <i>11580.1</i> | <i>11627.5</i> | <i>11641.2</i> |
| 5°     | 11567.8        | 11549.5        | 11564.8        | 11612.2        | <i>11630.5</i> |
| 7.5°   | 11520.5        | 11509.8        | 11525.0        | 11572.4        | <i>11595.4</i> |
| 10°    | 11445.6        | 11433.3        | 11457.8        | 11499.1        | <i>11528.1</i> |
| 12.5°  | 11334.0        | 11329.4        | 11352.3        | 11411.9        | <i>11424.2</i> |
| 15°    | 11193.4        | 11191.8        | 11222.4        | 11294.2        | <i>11300.4</i> |
| 17.5°  | 11034.4        | 11032.9        | 11071.1        | 11118.5        | <i>11101.6</i> |
| 20°    | 10841.8        | 10852.5        | 10896.8        | 10852.5        | <i>10809.7</i> |
| 22.5°  | 10611.0        | 10644.6        | 10655.3        | 10516.2        | <i>10494.8</i> |
| 25°    | 10380.2        | 10404.6        | 10351.1        | 10225.8        | <i>10175.4</i> |
| 27.5°  | 10082.1        | 10111.2        | 10011.8        | 9833.0         | <i>9689.3</i>  |
| 30°    | 9793.2         | 9765.7         | 9562.4         | 9217.0         | <i>9016.7</i>  |
| 32.5°  | 9461.5         | 9363.7         | 8998.4         | 8521.5         | <i>8339.6</i>  |
| 35°    | 9068.7         | 8863.9         | 8321.3         | 7754.2         | <i>7601.3</i>  |
| 37.5°  | 8571.9         | 8197.5         | 7604.4         | 7012.9         | <i>6782.0</i>  |
| 40°    | 7870.4         | 7437.8         | 6887.5         | 6276.1         | <i>6020.8</i>  |
| 42.5°  | 6887.5         | 6727.0         | 6271.5         | 5583.7         | <i>5279.5</i>  |
| 45°    | 5667.8         | 6091.2         | 5683.0         | 5016.6         | <i>4599.3</i>  |
| 47.5°  | 4851.5         | 5440.0         | 4949.3         | 4467.9         | <i>3893.1</i>  |
| 50°    | 4208.0         | 4613.1         | 4267.6         | 3833.5         | <i>3376.5</i>  |
| 52.5°  | 3743.3         | 3865.6         | 3726.5         | 3249.6         | <i>2989.8</i>  |
| 55°    | 3364.3         | 3272.6         | 3237.4         | 2781.9         | <i>2647.4</i>  |
| 57.5°  | 2893.5         | 2843.0         | 2752.9         | 2425.8         | <i>2248.5</i>  |
| 60°    | 2347.8         | 2454.8         | 2222.5         | 2129.2         | <i>1846.5</i>  |
| 62.5°  | 1929.0         | 2034.5         | 1785.3         | 1779.2         | <i>1543.8</i>  |
| 65°    | 1663.0         | 1638.6         | 1522.4         | 1481.1         | <i>1380.3</i>  |
| 67.5°  | 1472.0         | 1395.5         | 1355.8         | 1302.3         | <i>1267.1</i>  |
| 70°    | 1277.8         | 1245.7         | 1173.9         | 1184.6         | <i>1137.2</i>  |
| 72.5°  | 1065.4         | 1106.6         | 1034.8         | 1054.7         | <i>969.1</i>   |
| 75°    | 877.4          | 949.2          | 943.1          | 904.9          | <i>830.0</i>   |
| 77.5°  | 723.0          | 799.4          | 813.2          | 778.0          | <i>716.9</i>   |
| 80°    | 591.5          | 643.5          | 646.6          | 625.2          | <i>587.0</i>   |
| 82.5°  | 434.1          | 464.7          | 487.6          | 450.9          | <i>426.5</i>   |
| 85°    | 258.3          | 293.5          | 302.6          | 264.4          | <i>246.1</i>   |
| 87.5°  | 84.1           | 117.7          | 131.5          | 136.0          | <i>137.6</i>   |
| 90°    | 1.5            | 21.4           | 42.8           | 50.4           | <i>53.5</i>    |
| 92.5°  | 1.5            | 6.1            | 9.2            | 13.8           | <i>15.3</i>    |
| 95°    | 1.5            | 3.1            | 4.6            | 4.6            | <i>3.1</i>     |
| 97.5°  | 0.0            | 0.0            | 0.0            | 0.0            | <i>0.0</i>     |
| 100°   | 0.0            | 0.0            | 0.0            | 0.0            | <i>0.0</i>     |
| 102.5° | 0.0            | 0.0            | 0.0            | 0.0            | <i>0.0</i>     |
| 105°   | 0.0            | 0.0            | 0.0            | 0.0            | <i>0.0</i>     |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°  | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|-----|-------|-----|
| 112.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 115°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 117.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 120°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 122.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 125°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 127.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 130°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 132.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 135°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 137.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 140°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 142.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 145°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 147.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 150°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 152.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 155°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 157.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 160°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 162.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 165°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 167.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 170°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 172.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 175°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 177.5° | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |
| 180°   | 0.0 | 0.0   | 0.0 | 0.0   | 0.0 |



Report Generated By 670246072 / DESKTOP-50001EG







— 0°-180°    - - 45°-225°    - - - - 90°-270°







|        |     |     |     |     |     |
|--------|-----|-----|-----|-----|-----|
| 107.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 110°   | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



(END OF REPORT)