

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: P470176

Luminaire Tested: **VHB2-12-W-UNV-L835-CD-U**

Issue Date: 01/20/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P470176  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/20/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: VHB2-12-W-UNV-L835-CD-U  
Description: VHB2 LED HIGH BAY LUMINAIRE WITH WIDE DISTRIBUTION LENS  
Light Source: 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

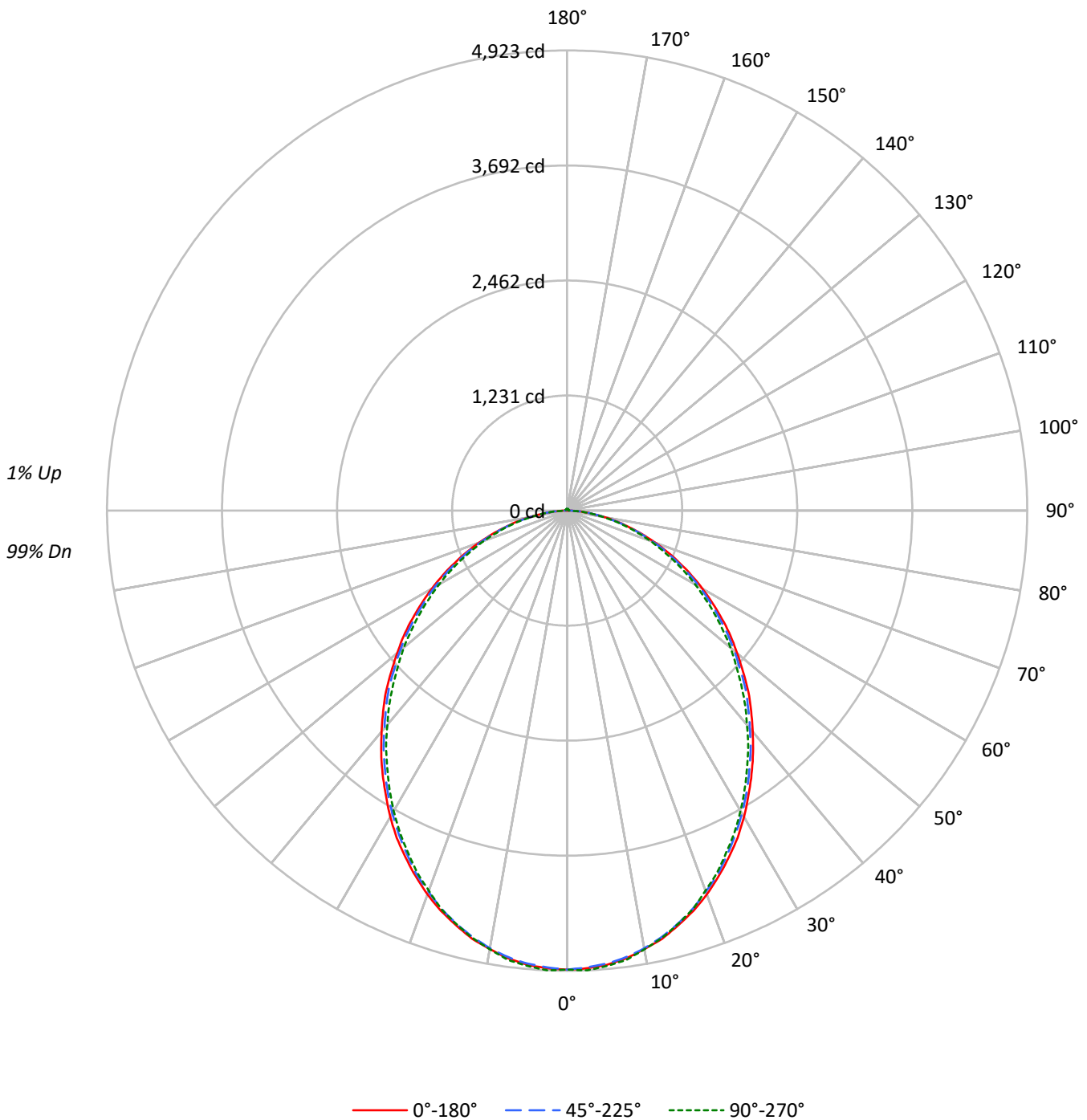
Lumens per Lamp: N/A  
Luminaire Lumens: 11884.0 lumens  
Efficiency: N/A  
Efficacy: 146.0 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.14 / 1.25  
Luminous Opening: Rectangular (W 1.17' x L: 1.5' x H: 0')  
CIE Type: Direct

Input Watts (W): 81.4  
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: 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  | 0  |
| RCR |     |     |     |     |     |     |     |     |     |     |     |  |     |     |     |  |     |     |     |    |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 |  | 106 | 106 | 106 |  | 101 | 101 | 101 | 99 |
| 1   | 109 | 104 | 100 | 97  | 106 | 102 | 98  | 95  | 98  | 95  | 92  |  | 94  | 91  | 89  |  | 90  | 88  | 86  | 84 |
| 2   | 100 | 92  | 85  | 79  | 97  | 90  | 84  | 78  | 86  | 81  | 76  |  | 83  | 78  | 75  |  | 79  | 76  | 73  | 71 |
| 3   | 91  | 81  | 73  | 67  | 89  | 79  | 72  | 66  | 76  | 70  | 65  |  | 73  | 68  | 64  |  | 71  | 66  | 62  | 60 |
| 4   | 84  | 72  | 63  | 57  | 81  | 71  | 63  | 57  | 68  | 61  | 56  |  | 66  | 60  | 55  |  | 63  | 58  | 54  | 52 |
| 5   | 77  | 65  | 56  | 49  | 75  | 63  | 55  | 49  | 61  | 54  | 48  |  | 59  | 53  | 48  |  | 57  | 52  | 47  | 45 |
| 6   | 71  | 58  | 50  | 43  | 69  | 57  | 49  | 43  | 56  | 48  | 43  |  | 54  | 47  | 42  |  | 52  | 46  | 42  | 40 |
| 7   | 66  | 53  | 45  | 39  | 65  | 52  | 44  | 38  | 51  | 43  | 38  |  | 49  | 43  | 38  |  | 48  | 42  | 37  | 35 |
| 8   | 62  | 49  | 40  | 35  | 60  | 48  | 40  | 34  | 47  | 39  | 34  |  | 45  | 39  | 34  |  | 44  | 38  | 34  | 32 |
| 9   | 58  | 45  | 37  | 31  | 56  | 44  | 36  | 31  | 43  | 36  | 31  |  | 42  | 35  | 31  |  | 41  | 35  | 31  | 29 |
| 10  | 54  | 41  | 34  | 28  | 53  | 41  | 33  | 28  | 40  | 33  | 28  |  | 39  | 33  | 28  |  | 38  | 32  | 28  | 26 |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 30207 | 30207 | 30207 |
| 5°  | 30116 | 30040 | 30193 |
| 10° | 29754 | 29696 | 29762 |
| 15° | 29245 | 29146 | 29162 |
| 20° | 28607 | 28401 | 28324 |
| 25° | 27776 | 27529 | 27365 |
| 30° | 26877 | 26569 | 26354 |
| 35° | 25837 | 25503 | 25196 |
| 40° | 24792 | 24410 | 24032 |
| 45° | 23857 | 23480 | 22894 |
| 50° | 22698 | 22349 | 21828 |
| 55° | 21696 | 21225 | 20648 |
| 60° | 20574 | 20118 | 19464 |
| 65° | 19364 | 18895 | 18220 |
| 70° | 17942 | 17608 | 16996 |
| 75° | 16345 | 16124 | 15566 |
| 80° | 14615 | 14374 | 13867 |
| 85° | 12400 | 12400 | 12089 |



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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 461.8   | 3.9       |
| 10°-20°   | 1289.8  | 10.9      |
| 20°-30°   | 1868.8  | 15.7      |
| 30°-40°   | 2125.7  | 17.9      |
| 40°-50°   | 2072.8  | 17.4      |
| 50°-60°   | 1769.6  | 14.9      |
| 60°-70°   | 1284.7  | 10.8      |
| 70°-80°   | 717.3   | 6.0       |
| 80°-90°   | 201.4   | 1.7       |
| 90°-100°  | 14.3    | 0.1       |
| 100°-110° | 14.1    | 0.1       |
| 110°-120° | 13.9    | 0.1       |
| 120°-130° | 13.3    | 0.1       |
| 130°-140° | 12.6    | 0.1       |
| 140°-150° | 10.9    | 0.1       |
| 150°-160° | 7.6     | 0.1       |
| 160°-170° | 4.2     | 0.0       |
| 170°-180° | 1.3     | 0.0       |
| 0°-30°    | 3620.4  | 30.5      |
| 0°-40°    | 5746.1  | 48.4      |
| 0°-60°    | 9588.4  | 80.7      |
| 0°-90°    | 11791.8 | 99.2      |
| 90°-120°  | 42.4    | 0.4       |
| 90°-150°  | 79.2    | 0.7       |
| 90°-180°  | 92.0    | 0.8       |
| 0°-180°   | 11884.0 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 4911 | 4911  | 4911 | 4911  | 4911 |      |
| 5°   | 4878 | 4867  | 4865 | 4882  | 4890 | 462  |
| 15°  | 4593 | 4585  | 4577 | 4576  | 4580 | 1294 |
| 25°  | 4093 | 4079  | 4056 | 4042  | 4032 | 1884 |
| 35°  | 3441 | 3430  | 3396 | 3365  | 3356 | 2152 |
| 45°  | 2743 | 2717  | 2699 | 2649  | 2632 | 2110 |
| 55°  | 2023 | 2015  | 1979 | 1938  | 1926 | 1810 |
| 65°  | 1330 | 1321  | 1298 | 1268  | 1252 | 1319 |
| 75°  | 688  | 692   | 678  | 662   | 655  | 735  |
| 85°  | 176  | 179   | 176  | 171   | 171  | 192  |
| 90°  | 12   | 14    | 16   | 19    | 18   | 15   |
| 95°  | 6    | 9     | 14   | 16    | 17   | 6    |
| 105° | 10   | 10    | 13   | 16    | 17   | 11   |
| 115° | 12   | 12    | 14   | 16    | 17   | 12   |
| 125° | 13   | 14    | 14   | 16    | 16   | 12   |
| 135° | 15   | 16    | 17   | 17    | 17   | 11   |
| 145° | 14   | 17    | 18   | 19    | 19   | 9    |
| 155° | 14   | 15    | 17   | 18    | 18   | 6    |
| 165° | 11   | 13    | 15   | 17    | 17   | 3    |
| 175° | 12   | 12    | 13   | 14    | 14   | 1    |
| 180° | 12   | 12    | 12   | 12    | 12   |      |



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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 4911.1 | 4911.1 | 4911.1 | 4911.1 | 4911.1 |
| 2.5°   | 4901.2 | 4888.3 | 4890.7 | 4906.8 | 4922.9 |
| 5°     | 4877.7 | 4866.6 | 4865.4 | 4882.1 | 4890.1 |
| 7.5°   | 4832.0 | 4820.2 | 4819.6 | 4838.8 | 4848.0 |
| 10°    | 4763.9 | 4760.8 | 4754.6 | 4767.6 | 4765.2 |
| 12.5°  | 4692.8 | 4675.5 | 4672.4 | 4682.9 | 4683.5 |
| 15°    | 4592.6 | 4584.6 | 4577.1 | 4576.5 | 4579.6 |
| 17.5°  | 4489.9 | 4472.6 | 4468.3 | 4465.8 | 4472.0 |
| 20°    | 4370.5 | 4351.4 | 4339.0 | 4336.5 | 4327.2 |
| 22.5°  | 4235.1 | 4223.3 | 4211.6 | 4191.2 | 4193.0 |
| 25°    | 4092.8 | 4078.6 | 4056.3 | 4041.5 | 4032.2 |
| 27.5°  | 3947.5 | 3925.2 | 3901.7 | 3888.1 | 3880.0 |
| 30°    | 3784.2 | 3770.6 | 3740.9 | 3715.5 | 3710.6 |
| 32.5°  | 3611.0 | 3601.7 | 3572.0 | 3549.8 | 3534.9 |
| 35°    | 3440.9 | 3429.8 | 3396.4 | 3364.8 | 3355.5 |
| 37.5°  | 3267.7 | 3254.1 | 3225.6 | 3197.8 | 3182.3 |
| 40°    | 3087.7 | 3077.8 | 3040.1 | 3006.7 | 2993.1 |
| 42.5°  | 2913.9 | 2900.9 | 2866.9 | 2826.1 | 2818.0 |
| 45°    | 2742.6 | 2716.6 | 2699.3 | 2649.2 | 2631.9 |
| 47.5°  | 2552.7 | 2545.9 | 2508.8 | 2468.6 | 2449.4 |
| 50°    | 2372.1 | 2367.7 | 2335.6 | 2290.4 | 2281.1 |
| 52.5°  | 2206.3 | 2189.0 | 2159.3 | 2118.5 | 2097.4 |
| 55°    | 2023.2 | 2014.6 | 1979.3 | 1937.9 | 1925.5 |
| 57.5°  | 1843.8 | 1843.8 | 1806.1 | 1770.9 | 1749.8 |
| 60°    | 1672.5 | 1662.0 | 1635.4 | 1601.4 | 1582.2 |
| 62.5°  | 1499.9 | 1491.3 | 1468.4 | 1434.4 | 1417.1 |
| 65°    | 1330.5 | 1320.6 | 1298.3 | 1268.0 | 1251.9 |
| 67.5°  | 1168.4 | 1156.7 | 1142.4 | 1102.8 | 1092.3 |
| 70°    | 997.7  | 995.2  | 979.1  | 951.9  | 945.1  |
| 72.5°  | 844.3  | 841.8  | 823.3  | 799.1  | 791.7  |
| 75°    | 687.8  | 691.5  | 678.5  | 661.8  | 655.0  |
| 77.5°  | 551.7  | 548.0  | 535.6  | 525.8  | 514.0  |
| 80°    | 412.6  | 411.3  | 405.8  | 392.1  | 391.5  |
| 82.5°  | 285.1  | 290.1  | 285.8  | 275.9  | 272.2  |
| 85°    | 175.7  | 179.4  | 175.7  | 170.7  | 171.3  |
| 87.5°  | 78.6   | 79.8   | 75.5   | 68.0   | 63.1   |
| 90°    | 12.4   | 13.6   | 16.1   | 19.2   | 17.9   |
| 92.5°  | 4.3    | 9.3    | 13.6   | 16.1   | 16.7   |
| 95°    | 5.6    | 9.3    | 13.6   | 16.1   | 16.7   |
| 97.5°  | 8.0    | 9.3    | 13.6   | 16.1   | 17.3   |
| 100°   | 9.3    | 9.9    | 13.6   | 16.1   | 17.3   |
| 102.5° | 9.9    | 9.9    | 13.6   | 16.1   | 17.3   |
| 105°   | 10.5   | 10.5   | 13.0   | 16.1   | 17.3   |
| 107.5° | 11.1   | 10.5   | 13.0   | 16.1   | 17.3   |
| 110°   | 11.1   | 11.1   | 13.0   | 16.1   | 16.7   |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90°  |
|--------|------|-------|------|-------|------|
| 112.5° | 11.8 | 11.8  | 13.6 | 15.5  | 16.7 |
| 115°   | 12.4 | 12.4  | 13.6 | 15.5  | 16.7 |
| 117.5° | 12.4 | 13.0  | 13.6 | 16.1  | 16.7 |
| 120°   | 13.0 | 13.6  | 13.6 | 16.1  | 16.1 |
| 122.5° | 13.0 | 14.2  | 14.2 | 16.1  | 16.1 |
| 125°   | 13.0 | 14.2  | 14.2 | 16.1  | 16.1 |
| 127.5° | 13.6 | 14.8  | 14.2 | 16.1  | 16.1 |
| 130°   | 14.2 | 14.8  | 15.5 | 16.1  | 16.1 |
| 132.5° | 14.2 | 15.5  | 16.1 | 16.7  | 16.1 |
| 135°   | 14.8 | 16.1  | 16.7 | 16.7  | 16.7 |
| 137.5° | 15.5 | 16.1  | 17.3 | 17.3  | 17.3 |
| 140°   | 15.5 | 16.7  | 17.3 | 17.9  | 17.9 |
| 142.5° | 14.2 | 16.7  | 17.3 | 18.6  | 18.6 |
| 145°   | 14.2 | 16.7  | 17.9 | 19.2  | 19.2 |
| 147.5° | 13.6 | 16.1  | 17.3 | 19.2  | 19.2 |
| 150°   | 13.6 | 15.5  | 17.3 | 18.6  | 18.6 |
| 152.5° | 14.2 | 14.8  | 17.3 | 17.9  | 18.6 |
| 155°   | 13.6 | 14.8  | 17.3 | 17.9  | 17.9 |
| 157.5° | 13.0 | 14.2  | 16.7 | 17.9  | 18.6 |
| 160°   | 12.4 | 14.2  | 16.1 | 17.9  | 17.9 |
| 162.5° | 11.8 | 13.6  | 15.5 | 17.3  | 17.9 |
| 165°   | 11.1 | 13.0  | 14.8 | 16.7  | 16.7 |
| 167.5° | 11.1 | 13.0  | 14.2 | 15.5  | 16.1 |
| 170°   | 11.8 | 12.4  | 13.6 | 14.2  | 14.8 |
| 172.5° | 12.4 | 12.4  | 13.6 | 13.6  | 13.6 |
| 175°   | 12.4 | 12.4  | 13.0 | 13.6  | 14.2 |
| 177.5° | 13.0 | 12.4  | 12.4 | 13.6  | 13.6 |
| 180°   | 12.4 | 12.4  | 12.4 | 12.4  | 12.4 |

(END OF REPORT)