

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: P470194

Luminaire Tested: **VHB2-24-W-UNV-L935-CD-U**

Issue Date: 01/20/2021

**Test Information**

Test Method: LM-79-08  
Report Number: P470194  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 01/20/2021  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: VHB2-24-W-UNV-L935-CD-U  
Description: VHB2 LED HIGH BAY LUMINAIRE WITH WIDE DISTRIBUTION LENS  
Light Source: 3500K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

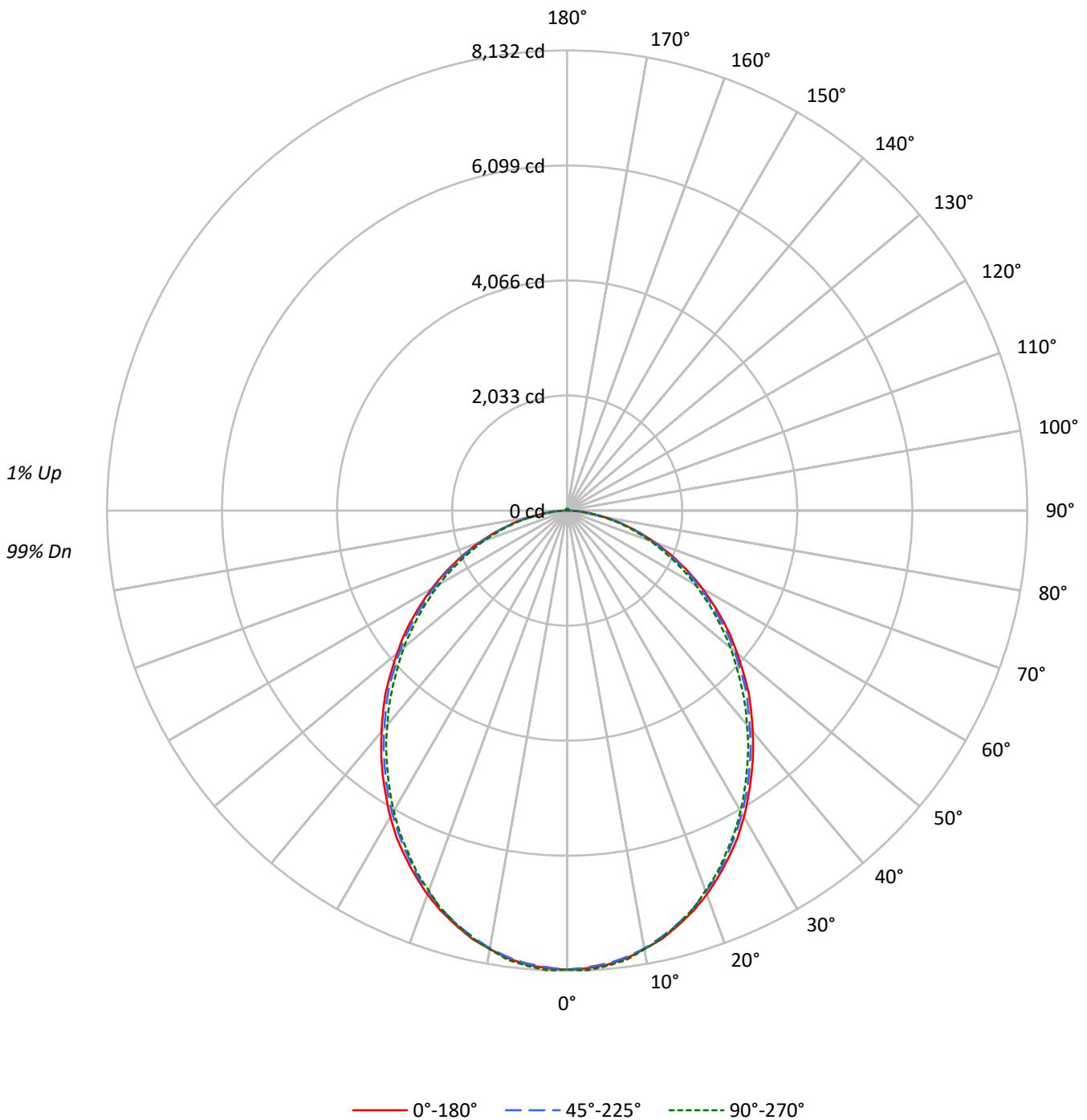
Lumens per Lamp: N/A  
Luminaire Lumens: 19629.7 lumens  
Efficiency: N/A  
Efficacy: 123.3 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.14 / 1.25  
Luminous Opening: Rectangular (W 1.17' x L: 1.5' x H: 0')  
CIE Type: Direct

Input Watts (W): 159.2  
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  | 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°  | 49896 | 49896 | 49896 |
| 5°  | 49746 | 49620 | 49872 |
| 10° | 49147 | 49051 | 49159 |
| 15° | 48305 | 48143 | 48168 |
| 20° | 47253 | 46912 | 46785 |
| 25° | 45880 | 45471 | 45201 |
| 30° | 44394 | 43886 | 43530 |
| 35° | 42676 | 42124 | 41618 |
| 40° | 40951 | 40319 | 39696 |
| 45° | 39405 | 38783 | 37814 |
| 50° | 37492 | 36915 | 36055 |
| 55° | 35837 | 35059 | 34106 |
| 60° | 33984 | 33230 | 32149 |
| 65° | 31984 | 31211 | 30096 |
| 70° | 29637 | 29085 | 28074 |
| 75° | 26999 | 26636 | 25711 |
| 80° | 24139 | 23739 | 22907 |
| 85° | 20480 | 20480 | 19972 |



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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 762.7   | 3.9       |
| 10°-20°   | 2130.5  | 10.9      |
| 20°-30°   | 3086.9  | 15.7      |
| 30°-40°   | 3511.1  | 17.9      |
| 40°-50°   | 3423.7  | 17.4      |
| 50°-60°   | 2922.9  | 14.9      |
| 60°-70°   | 2122.0  | 10.8      |
| 70°-80°   | 1184.8  | 6.0       |
| 80°-90°   | 332.7   | 1.7       |
| 90°-100°  | 23.6    | 0.1       |
| 100°-110° | 23.4    | 0.1       |
| 110°-120° | 23.0    | 0.1       |
| 120°-130° | 22.0    | 0.1       |
| 130°-140° | 20.8    | 0.1       |
| 140°-150° | 17.9    | 0.1       |
| 150°-160° | 12.6    | 0.1       |
| 160°-170° | 6.9     | 0.0       |
| 170°-180° | 2.1     | 0.0       |
| 0°-30°    | 5980.1  | 30.5      |
| 0°-40°    | 9491.2  | 48.4      |
| 0°-60°    | 15837.8 | 80.7      |
| 0°-90°    | 19477.3 | 99.2      |
| 90°-120°  | 70.0    | 0.4       |
| 90°-150°  | 130.8   | 0.7       |
| 90°-180°  | 152.0   | 0.8       |
| 0°-180°   | 19629.7 | 100.0     |

**CANDELA DISTRIBUTION:**

|      | 0°   | 22.5° | 45°  | 67.5° | 90°  | Flux |
|------|------|-------|------|-------|------|------|
| 0°   | 8112 | 8112  | 8112 | 8112  | 8112 |      |
| 5°   | 8057 | 8038  | 8036 | 8064  | 8077 | 763  |
| 15°  | 7586 | 7573  | 7560 | 7559  | 7564 | 2138 |
| 25°  | 6760 | 6737  | 6700 | 6676  | 6660 | 3113 |
| 35°  | 5684 | 5665  | 5610 | 5558  | 5543 | 3554 |
| 45°  | 4530 | 4487  | 4459 | 4376  | 4347 | 3486 |
| 55°  | 3342 | 3328  | 3269 | 3201  | 3180 | 2989 |
| 65°  | 2198 | 2181  | 2144 | 2094  | 2068 | 2179 |
| 75°  | 1136 | 1142  | 1121 | 1093  | 1082 | 1215 |
| 85°  | 290  | 296   | 290  | 282   | 283  | 317  |
| 90°  | 20   | 22    | 27   | 32    | 30   | 24   |
| 95°  | 9    | 15    | 22   | 27    | 28   | 9    |
| 105° | 17   | 17    | 22   | 27    | 29   | 18   |
| 115° | 20   | 20    | 22   | 26    | 28   | 20   |
| 125° | 22   | 24    | 24   | 27    | 27   | 20   |
| 135° | 24   | 27    | 28   | 28    | 28   | 19   |
| 145° | 24   | 28    | 30   | 32    | 32   | 15   |
| 155° | 22   | 24    | 29   | 30    | 30   | 10   |
| 165° | 18   | 22    | 24   | 28    | 28   | 5    |
| 175° | 20   | 20    | 22   | 22    | 24   | 2    |
| 180° | 20   | 20    | 20   | 20    | 20   |      |



TEST NUMBER: P470194

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**CANDELA DISTRIBUTION (FULL):**

|        | 0°     | 22.5°  | 45°    | 67.5°  | 90°    |
|--------|--------|--------|--------|--------|--------|
| 0°     | 8112.1 | 8112.1 | 8112.1 | 8112.1 | 8112.1 |
| 2.5°   | 8095.7 | 8074.3 | 8078.3 | 8104.9 | 8131.5 |
| 5°     | 8056.9 | 8038.5 | 8036.5 | 8064.0 | 8077.3 |
| 7.5°   | 7981.3 | 7961.9 | 7960.8 | 7992.5 | 8007.8 |
| 10°    | 7868.9 | 7863.8 | 7853.6 | 7875.0 | 7870.9 |
| 12.5°  | 7751.4 | 7722.8 | 7717.7 | 7735.1 | 7736.1 |
| 15°    | 7585.9 | 7572.6 | 7560.4 | 7559.3 | 7564.4 |
| 17.5°  | 7416.3 | 7387.7 | 7380.5 | 7376.5 | 7386.7 |
| 20°    | 7219.1 | 7187.4 | 7167.0 | 7162.9 | 7147.6 |
| 22.5°  | 6995.4 | 6976.0 | 6956.5 | 6922.8 | 6925.9 |
| 25°    | 6760.4 | 6736.9 | 6700.1 | 6675.6 | 6660.3 |
| 27.5°  | 6520.3 | 6483.5 | 6444.7 | 6422.2 | 6408.9 |
| 30°    | 6250.6 | 6228.1 | 6179.1 | 6137.2 | 6129.0 |
| 32.5°  | 5964.5 | 5949.2 | 5900.1 | 5863.4 | 5838.8 |
| 35°    | 5683.5 | 5665.2 | 5610.0 | 5557.9 | 5542.6 |
| 37.5°  | 5397.5 | 5375.0 | 5328.0 | 5282.0 | 5256.5 |
| 40°    | 5100.2 | 5083.8 | 5021.5 | 4966.3 | 4943.9 |
| 42.5°  | 4813.1 | 4791.6 | 4735.4 | 4668.0 | 4654.7 |
| 45°    | 4530.1 | 4487.2 | 4458.6 | 4375.8 | 4347.2 |
| 47.5°  | 4216.4 | 4205.2 | 4143.9 | 4077.5 | 4045.8 |
| 50°    | 3918.1 | 3911.0 | 3857.8 | 3783.2 | 3767.9 |
| 52.5°  | 3644.3 | 3615.7 | 3566.6 | 3499.2 | 3464.5 |
| 55°    | 3341.9 | 3327.6 | 3269.3 | 3200.9 | 3180.5 |
| 57.5°  | 3045.6 | 3045.6 | 2983.3 | 2925.0 | 2890.3 |
| 60°    | 2762.6 | 2745.2 | 2701.3 | 2645.1 | 2613.4 |
| 62.5°  | 2477.5 | 2463.2 | 2425.4 | 2369.3 | 2340.6 |
| 65°    | 2197.6 | 2181.3 | 2144.5 | 2094.4 | 2067.9 |
| 67.5°  | 1929.9 | 1910.5 | 1887.0 | 1821.6 | 1804.3 |
| 70°    | 1648.0 | 1643.9 | 1617.3 | 1572.3 | 1561.1 |
| 72.5°  | 1394.6 | 1390.5 | 1359.8 | 1320.0 | 1307.7 |
| 75°    | 1136.1 | 1142.2 | 1120.8 | 1093.2 | 1081.9 |
| 77.5°  | 911.3  | 905.2  | 884.8  | 868.4  | 849.0  |
| 80°    | 681.5  | 679.4  | 670.2  | 647.7  | 646.7  |
| 82.5°  | 471.0  | 479.2  | 472.0  | 455.7  | 449.5  |
| 85°    | 290.2  | 296.3  | 290.2  | 282.0  | 283.0  |
| 87.5°  | 129.8  | 131.8  | 124.6  | 112.4  | 104.2  |
| 90°    | 20.4   | 22.5   | 26.6   | 31.7   | 29.6   |
| 92.5°  | 7.2    | 15.3   | 22.5   | 26.6   | 27.6   |
| 95°    | 9.2    | 15.3   | 22.5   | 26.6   | 27.6   |
| 97.5°  | 13.3   | 15.3   | 22.5   | 26.6   | 28.6   |
| 100°   | 15.3   | 16.3   | 22.5   | 26.6   | 28.6   |
| 102.5° | 16.3   | 16.3   | 22.5   | 26.6   | 28.6   |
| 105°   | 17.4   | 17.4   | 21.5   | 26.6   | 28.6   |
| 107.5° | 18.4   | 17.4   | 21.5   | 26.6   | 28.6   |
| 110°   | 18.4   | 18.4   | 21.5   | 26.6   | 27.6   |



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**CANDELA DISTRIBUTION (continued):**

|        | 0°   | 22.5° | 45°  | 67.5° | 90°  |
|--------|------|-------|------|-------|------|
| 112.5° | 19.4 | 19.4  | 22.5 | 25.5  | 27.6 |
| 115°   | 20.4 | 20.4  | 22.5 | 25.5  | 27.6 |
| 117.5° | 20.4 | 21.5  | 22.5 | 26.6  | 27.6 |
| 120°   | 21.5 | 22.5  | 22.5 | 26.6  | 26.6 |
| 122.5° | 21.5 | 23.5  | 23.5 | 26.6  | 26.6 |
| 125°   | 21.5 | 23.5  | 23.5 | 26.6  | 26.6 |
| 127.5° | 22.5 | 24.5  | 23.5 | 26.6  | 26.6 |
| 130°   | 23.5 | 24.5  | 25.5 | 26.6  | 26.6 |
| 132.5° | 23.5 | 25.5  | 26.6 | 27.6  | 26.6 |
| 135°   | 24.5 | 26.6  | 27.6 | 27.6  | 27.6 |
| 137.5° | 25.5 | 26.6  | 28.6 | 28.6  | 28.6 |
| 140°   | 25.5 | 27.6  | 28.6 | 29.6  | 29.6 |
| 142.5° | 23.5 | 27.6  | 28.6 | 30.7  | 30.7 |
| 145°   | 23.5 | 27.6  | 29.6 | 31.7  | 31.7 |
| 147.5° | 22.5 | 26.6  | 28.6 | 31.7  | 31.7 |
| 150°   | 22.5 | 25.5  | 28.6 | 30.7  | 30.7 |
| 152.5° | 23.5 | 24.5  | 28.6 | 29.6  | 30.7 |
| 155°   | 22.5 | 24.5  | 28.6 | 29.6  | 29.6 |
| 157.5° | 21.5 | 23.5  | 27.6 | 29.6  | 30.7 |
| 160°   | 20.4 | 23.5  | 26.6 | 29.6  | 29.6 |
| 162.5° | 19.4 | 22.5  | 25.5 | 28.6  | 29.6 |
| 165°   | 18.4 | 21.5  | 24.5 | 27.6  | 27.6 |
| 167.5° | 18.4 | 21.5  | 23.5 | 25.5  | 26.6 |
| 170°   | 19.4 | 20.4  | 22.5 | 23.5  | 24.5 |
| 172.5° | 20.4 | 20.4  | 22.5 | 22.5  | 22.5 |
| 175°   | 20.4 | 20.4  | 21.5 | 22.5  | 23.5 |
| 177.5° | 21.5 | 20.4  | 20.4 | 22.5  | 22.5 |
| 180°   | 20.4 | 20.4  | 20.4 | 20.4  | 20.4 |

(END OF REPORT)