

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: P417722

Luminaire Tested: **VHB-1824-N-UNV-L940-CD-U-LEVEL1**

Issue Date: 11/17/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P417722  
Test Lab: INNOVATION CENTER(G3)  
Issue Date: 11/17/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: METALUX  
Catalog Number: VHB-1824-N-UNV-L940-CD-U-LEVEL1  
Description: VHB LED HIGH BAY LUMINAIRE WITH NARROW DISTRIBUTION LENS  
Light Source: 4000K CCT, 90 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 16383.1 lumens  
Efficiency: N/A  
Efficacy: 130.5 lumens/watt  
Spacing Criteria (0/90/45): 1.32 / 0.74 / 0.88  
Luminous Opening: Rectangular (W 1.17' x L: 1.5' x H: 0')  
CIE Type: Direct

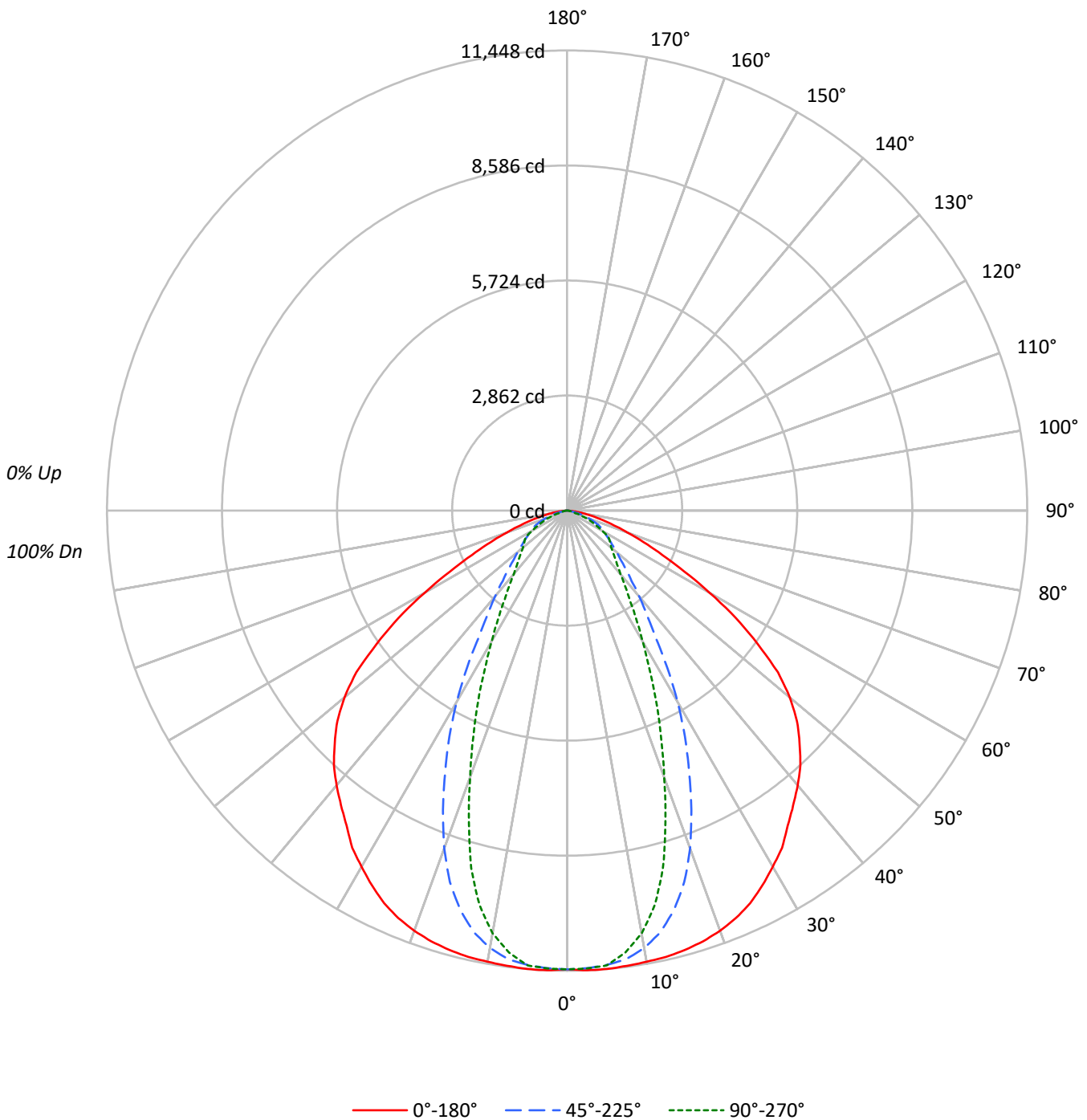
Input Watts (W): 125.5  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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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 | 0  |     |
| RCR |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |    |    |     |
| 0   | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 100 |    |    |    | 100 |
| 1   | 111 | 107 | 104 | 101 | 109 | 105 | 102 | 99  | 101 | 99  | 96  | 97  | 95  | 93  | 94  | 92  | 91  | 89  |    |    |    | 89  |
| 2   | 103 | 97  | 91  | 87  | 101 | 95  | 90  | 86  | 91  | 87  | 84  | 88  | 85  | 82  | 85  | 83  | 80  | 78  |    |    |    | 78  |
| 3   | 96  | 87  | 81  | 75  | 94  | 86  | 80  | 75  | 83  | 78  | 73  | 80  | 76  | 72  | 78  | 74  | 71  | 69  |    |    |    | 69  |
| 4   | 89  | 79  | 72  | 66  | 87  | 78  | 71  | 66  | 76  | 70  | 65  | 73  | 68  | 64  | 71  | 67  | 63  | 62  |    |    |    | 62  |
| 5   | 83  | 72  | 65  | 59  | 81  | 71  | 64  | 59  | 69  | 63  | 58  | 67  | 62  | 58  | 66  | 61  | 57  | 55  |    |    |    | 55  |
| 6   | 78  | 66  | 59  | 53  | 76  | 66  | 58  | 53  | 64  | 57  | 53  | 62  | 57  | 52  | 61  | 56  | 52  | 50  |    |    |    | 50  |
| 7   | 73  | 61  | 54  | 48  | 71  | 61  | 53  | 48  | 59  | 53  | 48  | 58  | 52  | 48  | 56  | 51  | 47  | 46  |    |    |    | 46  |
| 8   | 69  | 57  | 49  | 44  | 67  | 56  | 49  | 44  | 55  | 48  | 44  | 54  | 48  | 44  | 53  | 47  | 43  | 42  |    |    |    | 42  |
| 9   | 65  | 53  | 46  | 41  | 63  | 52  | 45  | 41  | 51  | 45  | 40  | 50  | 44  | 40  | 49  | 44  | 40  | 38  |    |    |    | 38  |
| 10  | 61  | 49  | 42  | 38  | 60  | 49  | 42  | 38  | 48  | 42  | 37  | 47  | 41  | 37  | 46  | 41  | 37  | 36  |    |    |    | 36  |

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

|     | 0°    | 45°   | 90°   |
|-----|-------|-------|-------|
| 0°  | 70205 | 70205 | 70205 |
| 5°  | 70681 | 70051 | 70128 |
| 10° | 71183 | 69000 | 66691 |
| 15° | 72077 | 65442 | 58661 |
| 20° | 72807 | 58540 | 46172 |
| 25° | 73141 | 48715 | 35578 |
| 30° | 72652 | 38990 | 26634 |
| 35° | 71822 | 28683 | 20388 |
| 40° | 71646 | 22385 | 16582 |
| 45° | 71139 | 18010 | 14701 |
| 50° | 69212 | 15350 | 13711 |
| 55° | 62046 | 13807 | 13836 |
| 60° | 50417 | 12981 | 12447 |
| 65° | 38033 | 12583 | 10118 |
| 70° | 28848 | 10429 | 6920  |
| 75° | 21830 | 7840  | 3710  |
| 80° | 15766 | 3864  | 3046  |
| 85° | 10134 | 3317  | 2569  |



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**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 1073.9  | 6.6       |
| 10°-20°   | 2854.2  | 17.4      |
| 20°-30°   | 3491.5  | 21.3      |
| 30°-40°   | 3132.6  | 19.1      |
| 40°-50°   | 2428.8  | 14.8      |
| 50°-60°   | 1802.7  | 11.0      |
| 60°-70°   | 1087.3  | 6.6       |
| 70°-80°   | 433.7   | 2.6       |
| 80°-90°   | 78.3    | 0.5       |
| 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°    | 7419.7  | 45.3      |
| 0°-40°    | 10552.3 | 64.4      |
| 0°-60°    | 14783.8 | 90.2      |
| 0°-90°    | 16383.1 | 100.0     |
| 90°-120°  | 0.0     | 0.0       |
| 90°-150°  | 0.0     | 0.0       |
| 90°-180°  | 0.0     | 0.0       |
| 0°-180°   | 16383.1 | 100.0     |

**CANDELA DISTRIBUTION:**

|     | 0°    | 22.5° | 45°   | 67.5° | 90°   | Flux |
|-----|-------|-------|-------|-------|-------|------|
| 0°  | 11414 | 11414 | 11414 | 11414 | 11414 |      |
| 5°  | 11448 | 11376 | 11346 | 11313 | 11358 | ###  |
| 15° | 11319 | 11010 | 10277 | 9513  | 9212  | 3198 |
| 25° | 10777 | 9589  | 7178  | 5694  | 5242  | 4957 |
| 35° | 9565  | 7030  | 3820  | 2918  | 2715  | 6003 |
| 45° | 8178  | 3693  | 2070  | 1734  | 1690  | 6294 |
| 55° | 5786  | 1974  | 1288  | 1244  | 1290  | 5141 |
| 65° | 2613  | 1095  | 865   | 738   | 695   | 2666 |
| 75° | 919   | 533   | 330   | 174   | 156   | 1007 |
| 85° | 144   | 59    | 47    | 40    | 36    | 189  |
| 90° | 0     | 0     | 0     | 0     | 0     |      |



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 22.5°   | 45°     | 67.5°   | 90°     |
|-------|---------|---------|---------|---------|---------|
| 0°    | 11413.9 | 11413.9 | 11413.9 | 11413.9 | 11413.9 |
| 2.5°  | 11446.7 | 11378.4 | 11395.3 | 11395.3 | 11398.8 |
| 5°    | 11447.6 | 11375.8 | 11345.6 | 11312.8 | 11358.1 |
| 7.5°  | 11421.9 | 11338.5 | 11255.2 | 11116.0 | 11086.7 |
| 10°   | 11397.1 | 11275.6 | 11047.7 | 10780.8 | 10677.9 |
| 12.5° | 11372.2 | 11186.9 | 10740.9 | 10236.3 | 10059.0 |
| 15°   | 11319.0 | 11009.6 | 10277.1 | 9512.8  | 9212.2  |
| 17.5° | 11236.6 | 10759.5 | 9692.8  | 8592.4  | 8130.4  |
| 20°   | 11123.1 | 10449.2 | 8943.5  | 7562.9  | 7053.9  |
| 22.5° | 10974.1 | 10080.3 | 8070.1  | 6578.6  | 6106.9  |
| 25°   | 10777.2 | 9589.0  | 7178.0  | 5694.5  | 5242.3  |
| 27.5° | 10515.7 | 9039.3  | 6341.0  | 4869.9  | 4420.3  |
| 30°   | 10229.3 | 8444.3  | 5489.7  | 4089.6  | 3750.0  |
| 32.5° | 9948.2  | 7796.1  | 4634.0  | 3433.4  | 3190.4  |
| 35°   | 9565.1  | 7030.0  | 3820.0  | 2918.2  | 2715.2  |
| 37.5° | 9239.7  | 6204.4  | 3237.4  | 2513.0  | 2366.7  |
| 40°   | 8923.1  | 5327.4  | 2787.9  | 2197.3  | 2065.2  |
| 42.5° | 8589.7  | 4459.3  | 2372.0  | 1928.6  | 1850.6  |
| 45°   | 8178.3  | 3693.2  | 2070.5  | 1733.5  | 1690.1  |
| 47.5° | 7755.3  | 3127.5  | 1795.6  | 1586.3  | 1552.7  |
| 50°   | 7233.0  | 2649.5  | 1604.1  | 1440.9  | 1432.9  |
| 52.5° | 6607.0  | 2275.3  | 1427.6  | 1332.7  | 1349.6  |
| 55°   | 5785.9  | 1973.8  | 1287.5  | 1244.1  | 1290.2  |
| 57.5° | 4982.5  | 1706.9  | 1163.4  | 1176.7  | 1215.7  |
| 60°   | 4098.4  | 1467.5  | 1055.2  | 1078.3  | 1011.8  |
| 62.5° | 3285.3  | 1274.2  | 961.2   | 895.6   | 840.6   |
| 65°   | 2613.2  | 1095.1  | 864.6   | 737.8   | 695.2   |
| 67.5° | 2056.3  | 933.7   | 729.8   | 603.9   | 550.7   |
| 70°   | 1604.1  | 787.4   | 579.9   | 470.0   | 384.8   |
| 72.5° | 1223.7  | 657.9   | 459.3   | 284.6   | 227.9   |
| 75°   | 918.6   | 532.9   | 329.9   | 173.8   | 156.1   |
| 77.5° | 657.9   | 399.9   | 192.4   | 126.8   | 119.7   |
| 80°   | 445.1   | 261.6   | 109.1   | 93.1    | 86.0    |
| 82.5° | 277.5   | 144.5   | 74.5    | 65.6    | 61.2    |
| 85°   | 143.6   | 59.4    | 47.0    | 39.9    | 36.4    |
| 87.5° | 50.5    | 26.6    | 21.3    | 16.8    | 13.3    |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |

(END OF REPORT)