

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: P470197

Luminaire Tested: **VHB2-15-W-UNV-L940-CD-U**

Issue Date: 01/20/2021

Test Information

Test Method: LM-79-08
Report Number: P470197
Test Lab: INNOVATION CENTER(G3)
Issue Date: 01/20/2021
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: VHB2-15-W-UNV-L940-CD-U
Description: VHB2 LED HIGH BAY LUMINAIRE WITH WIDE DISTRIBUTION LENS
Light Source: 4000K CCT, 90 CRI LEDS
Ballast/Driver: ELECTRONIC DRIVER

Summary

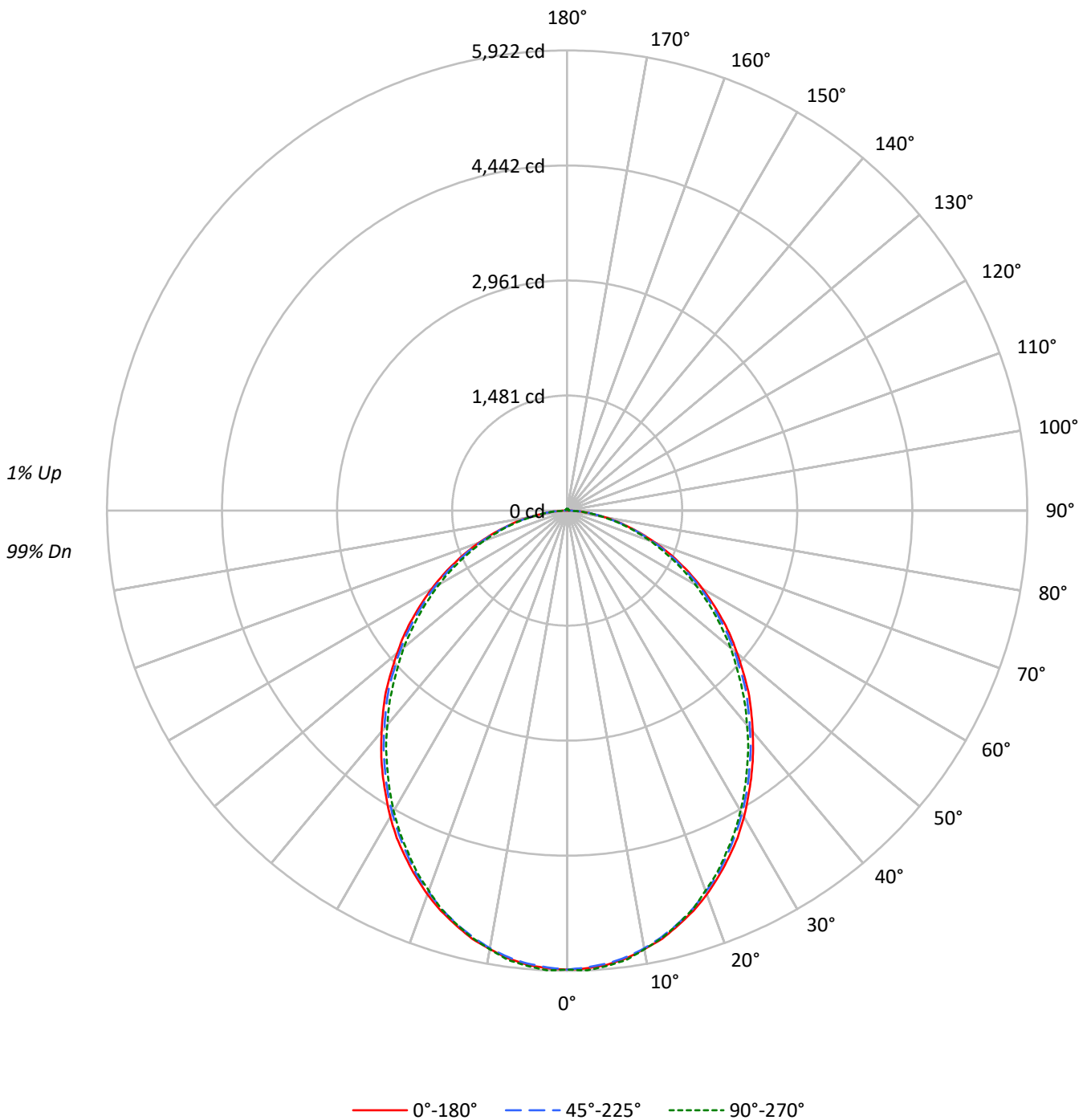
Lumens per Lamp: N/A
Luminaire Lumens: 14295.5 lumens
Efficiency: N/A
Efficacy: 129.3 lumens/watt
Spacing Criteria (0/90/45): 1.16 / 1.14 / 1.25
Luminous Opening: Rectangular (W 1.17' x L: 1.5' x H: 0')
CIE Type: Direct

Input Watts (W): 110.6
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° | 36337 | 36337 | 36337 |
| 5° | 36228 | 36136 | 36320 |
| 10° | 35791 | 35722 | 35801 |
| 15° | 35179 | 35060 | 35079 |
| 20° | 34412 | 34164 | 34071 |
| 25° | 33413 | 33115 | 32918 |
| 30° | 32330 | 31960 | 31701 |
| 35° | 31079 | 30677 | 30308 |
| 40° | 29823 | 29363 | 28909 |
| 45° | 28697 | 28244 | 27539 |
| 50° | 27304 | 26884 | 26257 |
| 55° | 26099 | 25532 | 24838 |
| 60° | 24750 | 24201 | 23414 |
| 65° | 23292 | 22729 | 21917 |
| 70° | 21582 | 21181 | 20446 |
| 75° | 19663 | 19397 | 18724 |
| 80° | 17579 | 17289 | 16683 |
| 85° | 14912 | 14912 | 14545 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 555.5 | 3.9 |
| 10°-20° | 1551.6 | 10.9 |
| 20°-30° | 2248.1 | 15.7 |
| 30°-40° | 2557.0 | 17.9 |
| 40°-50° | 2493.4 | 17.4 |
| 50°-60° | 2128.7 | 14.9 |
| 60°-70° | 1545.4 | 10.8 |
| 70°-80° | 862.9 | 6.0 |
| 80°-90° | 242.3 | 1.7 |
| 90°-100° | 17.2 | 0.1 |
| 100°-110° | 17.0 | 0.1 |
| 110°-120° | 16.7 | 0.1 |
| 120°-130° | 16.0 | 0.1 |
| 130°-140° | 15.2 | 0.1 |
| 140°-150° | 13.1 | 0.1 |
| 150°-160° | 9.1 | 0.1 |
| 160°-170° | 5.0 | 0.0 |
| 170°-180° | 1.5 | 0.0 |
| 0°-30° | 4355.1 | 30.5 |
| 0°-40° | 6912.1 | 48.4 |
| 0°-60° | 11534.1 | 80.7 |
| 0°-90° | 14184.6 | 99.2 |
| 90°-120° | 50.9 | 0.4 |
| 90°-150° | 95.2 | 0.7 |
| 90°-180° | 111.0 | 0.8 |
| 0°-180° | 14295.5 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 5908 | 5908 | 5908 | 5908 | 5908 | |
| 5° | 5868 | 5854 | 5853 | 5873 | 5882 | 556 |
| 15° | 5524 | 5515 | 5506 | 5505 | 5509 | 1557 |
| 25° | 4923 | 4906 | 4879 | 4862 | 4850 | 2267 |
| 35° | 4139 | 4126 | 4086 | 4048 | 4036 | 2588 |
| 45° | 3299 | 3268 | 3247 | 3187 | 3166 | 2539 |
| 55° | 2434 | 2423 | 2381 | 2331 | 2316 | 2177 |
| 65° | 1600 | 1588 | 1562 | 1525 | 1506 | 1587 |
| 75° | 827 | 832 | 816 | 796 | 788 | 885 |
| 85° | 211 | 216 | 211 | 205 | 206 | 231 |
| 90° | 15 | 16 | 19 | 23 | 22 | 18 |
| 95° | 7 | 11 | 16 | 19 | 20 | 7 |
| 105° | 13 | 13 | 16 | 19 | 21 | 13 |
| 115° | 15 | 15 | 16 | 19 | 20 | 14 |
| 125° | 16 | 17 | 17 | 19 | 19 | 14 |
| 135° | 18 | 19 | 20 | 20 | 20 | 14 |
| 145° | 17 | 20 | 22 | 23 | 23 | 11 |
| 155° | 16 | 18 | 21 | 22 | 22 | 8 |
| 165° | 13 | 16 | 18 | 20 | 20 | 4 |
| 175° | 15 | 15 | 16 | 16 | 17 | 1 |
| 180° | 15 | 15 | 15 | 15 | 15 | |



TEST NUMBER: P470197

CATALOG NUMBER: VHB2-15-W-UNV-L940-CD-U

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 5907.7 | 5907.7 | 5907.7 | 5907.7 | 5907.7 |
| 2.5° | 5895.8 | 5880.2 | 5883.2 | 5902.5 | 5921.8 |
| 5° | 5867.5 | 5854.1 | 5852.7 | 5872.7 | 5882.4 |
| 7.5° | 5812.5 | 5798.3 | 5797.6 | 5820.7 | 5831.8 |
| 10° | 5730.6 | 5726.9 | 5719.5 | 5735.1 | 5732.1 |
| 12.5° | 5645.1 | 5624.2 | 5620.5 | 5633.2 | 5633.9 |
| 15° | 5524.5 | 5514.9 | 5505.9 | 5505.2 | 5508.9 |
| 17.5° | 5401.0 | 5380.2 | 5375.0 | 5372.0 | 5379.4 |
| 20° | 5257.4 | 5234.4 | 5219.5 | 5216.5 | 5205.3 |
| 22.5° | 5094.5 | 5080.3 | 5066.2 | 5041.6 | 5043.9 |
| 25° | 4923.3 | 4906.2 | 4879.4 | 4861.6 | 4850.4 |
| 27.5° | 4748.5 | 4721.7 | 4693.4 | 4677.1 | 4667.4 |
| 30° | 4552.1 | 4535.7 | 4500.0 | 4469.5 | 4463.5 |
| 32.5° | 4343.7 | 4332.6 | 4296.9 | 4270.1 | 4252.2 |
| 35° | 4139.1 | 4125.7 | 4085.5 | 4047.6 | 4036.4 |
| 37.5° | 3930.8 | 3914.4 | 3880.2 | 3846.7 | 3828.1 |
| 40° | 3714.3 | 3702.4 | 3657.0 | 3616.8 | 3600.4 |
| 42.5° | 3505.2 | 3489.6 | 3448.6 | 3399.5 | 3389.9 |
| 45° | 3299.1 | 3267.8 | 3247.0 | 3186.7 | 3165.9 |
| 47.5° | 3070.7 | 3062.5 | 3017.8 | 2969.5 | 2946.4 |
| 50° | 2853.4 | 2848.2 | 2809.5 | 2755.2 | 2744.0 |
| 52.5° | 2654.0 | 2633.2 | 2597.5 | 2548.4 | 2523.1 |
| 55° | 2433.8 | 2423.4 | 2380.9 | 2331.1 | 2316.2 |
| 57.5° | 2218.0 | 2218.0 | 2172.6 | 2130.2 | 2104.9 |
| 60° | 2011.9 | 1999.2 | 1967.3 | 1926.3 | 1903.3 |
| 62.5° | 1804.3 | 1793.9 | 1766.4 | 1725.4 | 1704.6 |
| 65° | 1600.4 | 1588.5 | 1561.7 | 1525.3 | 1505.9 |
| 67.5° | 1405.5 | 1391.4 | 1374.3 | 1326.6 | 1314.0 |
| 70° | 1200.1 | 1197.2 | 1177.8 | 1145.1 | 1136.9 |
| 72.5° | 1015.6 | 1012.6 | 990.3 | 961.3 | 952.4 |
| 75° | 827.4 | 831.8 | 816.2 | 796.1 | 787.9 |
| 77.5° | 663.7 | 659.2 | 644.3 | 632.4 | 618.3 |
| 80° | 496.3 | 494.8 | 488.1 | 471.7 | 471.0 |
| 82.5° | 343.0 | 349.0 | 343.7 | 331.8 | 327.4 |
| 85° | 211.3 | 215.8 | 211.3 | 205.4 | 206.1 |
| 87.5° | 94.5 | 96.0 | 90.8 | 81.8 | 75.9 |
| 90° | 14.9 | 16.4 | 19.3 | 23.1 | 21.6 |
| 92.5° | 5.2 | 11.2 | 16.4 | 19.3 | 20.1 |
| 95° | 6.7 | 11.2 | 16.4 | 19.3 | 20.1 |
| 97.5° | 9.7 | 11.2 | 16.4 | 19.3 | 20.8 |
| 100° | 11.2 | 11.9 | 16.4 | 19.3 | 20.8 |
| 102.5° | 11.9 | 11.9 | 16.4 | 19.3 | 20.8 |
| 105° | 12.6 | 12.6 | 15.6 | 19.3 | 20.8 |
| 107.5° | 13.4 | 12.6 | 15.6 | 19.3 | 20.8 |
| 110° | 13.4 | 13.4 | 15.6 | 19.3 | 20.1 |



TEST NUMBER: P470197

CATALOG NUMBER: VHB2-15-W-UNV-L940-CD-U

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|------|-------|------|-------|------|
| 112.5° | 14.1 | 14.1 | 16.4 | 18.6 | 20.1 |
| 115° | 14.9 | 14.9 | 16.4 | 18.6 | 20.1 |
| 117.5° | 14.9 | 15.6 | 16.4 | 19.3 | 20.1 |
| 120° | 15.6 | 16.4 | 16.4 | 19.3 | 19.3 |
| 122.5° | 15.6 | 17.1 | 17.1 | 19.3 | 19.3 |
| 125° | 15.6 | 17.1 | 17.1 | 19.3 | 19.3 |
| 127.5° | 16.4 | 17.9 | 17.1 | 19.3 | 19.3 |
| 130° | 17.1 | 17.9 | 18.6 | 19.3 | 19.3 |
| 132.5° | 17.1 | 18.6 | 19.3 | 20.1 | 19.3 |
| 135° | 17.9 | 19.3 | 20.1 | 20.1 | 20.1 |
| 137.5° | 18.6 | 19.3 | 20.8 | 20.8 | 20.8 |
| 140° | 18.6 | 20.1 | 20.8 | 21.6 | 21.6 |
| 142.5° | 17.1 | 20.1 | 20.8 | 22.3 | 22.3 |
| 145° | 17.1 | 20.1 | 21.6 | 23.1 | 23.1 |
| 147.5° | 16.4 | 19.3 | 20.8 | 23.1 | 23.1 |
| 150° | 16.4 | 18.6 | 20.8 | 22.3 | 22.3 |
| 152.5° | 17.1 | 17.9 | 20.8 | 21.6 | 22.3 |
| 155° | 16.4 | 17.9 | 20.8 | 21.6 | 21.6 |
| 157.5° | 15.6 | 17.1 | 20.1 | 21.6 | 22.3 |
| 160° | 14.9 | 17.1 | 19.3 | 21.6 | 21.6 |
| 162.5° | 14.1 | 16.4 | 18.6 | 20.8 | 21.6 |
| 165° | 13.4 | 15.6 | 17.9 | 20.1 | 20.1 |
| 167.5° | 13.4 | 15.6 | 17.1 | 18.6 | 19.3 |
| 170° | 14.1 | 14.9 | 16.4 | 17.1 | 17.9 |
| 172.5° | 14.9 | 14.9 | 16.4 | 16.4 | 16.4 |
| 175° | 14.9 | 14.9 | 15.6 | 16.4 | 17.1 |
| 177.5° | 15.6 | 14.9 | 14.9 | 16.4 | 16.4 |
| 180° | 14.9 | 14.9 | 14.9 | 14.9 | 14.9 |

(END OF REPORT)