

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: P417758

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

Issue Date: 11/17/2020

Test Information

Test Method: LM-79-08
Report Number: P417758
Test Lab: INNOVATION CENTER(G3)
Issue Date: 11/17/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: METALUX
Catalog Number: VHB-1824-W-UNV-L940-CD-U-LEVEL1
Description: VHB 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: 16706.4 lumens
Efficiency: N/A
Efficacy: 133.1 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

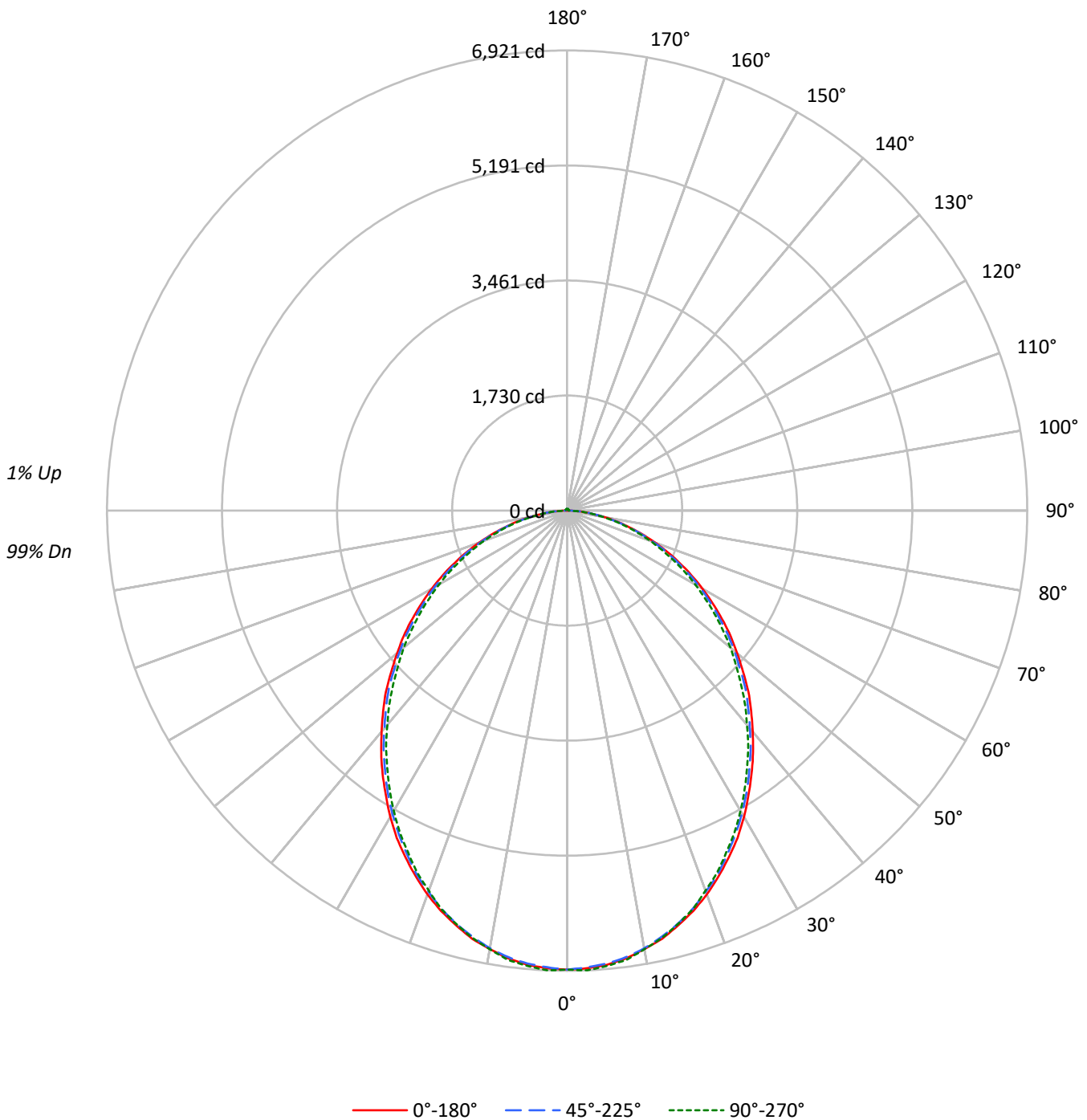
Input Watts (W): 125.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



TEST NUMBER: P417758

CATALOG NUMBER: VHB-1824-W-UNV-L940-CD-U-LEVEL1

Luminous Intensity Polar Plot





TEST NUMBER: P417758

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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 | 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° | 42465 | 42465 | 42465 |
| 5° | 42338 | 42230 | 42445 |
| 10° | 41828 | 41746 | 41839 |
| 15° | 41112 | 40973 | 40996 |
| 20° | 40216 | 39926 | 39818 |
| 25° | 39048 | 38700 | 38469 |
| 30° | 37783 | 37350 | 37048 |
| 35° | 36321 | 35851 | 35420 |
| 40° | 34853 | 34315 | 33784 |
| 45° | 33537 | 33007 | 32183 |
| 50° | 31909 | 31418 | 30686 |
| 55° | 30500 | 29838 | 29027 |
| 60° | 28923 | 28281 | 27361 |
| 65° | 27222 | 26563 | 25614 |
| 70° | 25222 | 24755 | 23893 |
| 75° | 22978 | 22669 | 21883 |
| 80° | 20544 | 20204 | 19496 |
| 85° | 17424 | 17424 | 17001 |



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 649.1 | 3.9 |
| 10°-20° | 1813.2 | 10.9 |
| 20°-30° | 2627.2 | 15.7 |
| 30°-40° | 2988.2 | 17.9 |
| 40°-50° | 2913.9 | 17.4 |
| 50°-60° | 2487.7 | 14.9 |
| 60°-70° | 1806.0 | 10.8 |
| 70°-80° | 1008.4 | 6.0 |
| 80°-90° | 283.1 | 1.7 |
| 90°-100° | 20.1 | 0.1 |
| 100°-110° | 19.9 | 0.1 |
| 110°-120° | 19.5 | 0.1 |
| 120°-130° | 18.7 | 0.1 |
| 130°-140° | 17.7 | 0.1 |
| 140°-150° | 15.3 | 0.1 |
| 150°-160° | 10.7 | 0.1 |
| 160°-170° | 5.9 | 0.0 |
| 170°-180° | 1.8 | 0.0 |
| 0°-30° | 5089.6 | 30.5 |
| 0°-40° | 8077.8 | 48.4 |
| 0°-60° | 13479.3 | 80.7 |
| 0°-90° | 16576.8 | 99.2 |
| 90°-120° | 59.5 | 0.4 |
| 90°-150° | 111.2 | 0.7 |
| 90°-180° | 130.0 | 0.8 |
| 0°-180° | 16706.4 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|------|-------|------|-------|------|------|
| 0° | 6904 | 6904 | 6904 | 6904 | 6904 | |
| 5° | 6857 | 6841 | 6840 | 6863 | 6874 | 649 |
| 15° | 6456 | 6445 | 6434 | 6434 | 6438 | 1819 |
| 25° | 5754 | 5734 | 5702 | 5682 | 5668 | 2649 |
| 35° | 4837 | 4822 | 4775 | 4730 | 4717 | 3025 |
| 45° | 3856 | 3819 | 3795 | 3724 | 3700 | 2967 |
| 55° | 2844 | 2832 | 2782 | 2724 | 2707 | 2544 |
| 65° | 1870 | 1856 | 1825 | 1782 | 1760 | 1855 |
| 75° | 967 | 972 | 954 | 930 | 921 | 1034 |
| 85° | 247 | 252 | 247 | 240 | 241 | 270 |
| 90° | 17 | 19 | 23 | 27 | 25 | 21 |
| 95° | 8 | 13 | 19 | 23 | 24 | 8 |
| 105° | 15 | 15 | 18 | 23 | 24 | 16 |
| 115° | 17 | 17 | 19 | 22 | 24 | 17 |
| 125° | 18 | 20 | 20 | 23 | 23 | 17 |
| 135° | 21 | 23 | 24 | 24 | 24 | 16 |
| 145° | 20 | 24 | 25 | 27 | 27 | 13 |
| 155° | 19 | 21 | 24 | 25 | 25 | 9 |
| 165° | 16 | 18 | 21 | 24 | 24 | 5 |
| 175° | 17 | 17 | 18 | 19 | 20 | 2 |
| 180° | 17 | 17 | 17 | 17 | 17 | |



TEST NUMBER: P417758

CATALOG NUMBER: VHB-1824-W-UNV-L940-CD-U-LEVEL1

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 0° | 6904.0 | 6904.0 | 6904.0 | 6904.0 | 6904.0 |
| 2.5° | 6890.1 | 6871.9 | 6875.3 | 6898.0 | 6920.6 |
| 5° | 6857.1 | 6841.4 | 6839.7 | 6863.2 | 6874.5 |
| 7.5° | 6792.7 | 6776.2 | 6775.3 | 6802.3 | 6815.3 |
| 10° | 6697.1 | 6692.7 | 6684.0 | 6702.3 | 6698.8 |
| 12.5° | 6597.1 | 6572.7 | 6568.4 | 6583.2 | 6584.1 |
| 15° | 6456.2 | 6444.9 | 6434.5 | 6433.6 | 6438.0 |
| 17.5° | 6311.9 | 6287.5 | 6281.5 | 6278.0 | 6286.7 |
| 20° | 6144.1 | 6117.1 | 6099.7 | 6096.2 | 6083.2 |
| 22.5° | 5953.6 | 5937.1 | 5920.6 | 5891.9 | 5894.5 |
| 25° | 5753.7 | 5733.7 | 5702.4 | 5681.5 | 5668.4 |
| 27.5° | 5549.3 | 5518.0 | 5485.0 | 5465.8 | 5454.5 |
| 30° | 5319.8 | 5300.6 | 5258.9 | 5223.2 | 5216.3 |
| 32.5° | 5076.3 | 5063.3 | 5021.5 | 4990.2 | 4969.3 |
| 35° | 4837.2 | 4821.5 | 4774.6 | 4730.2 | 4717.2 |
| 37.5° | 4593.7 | 4574.6 | 4534.6 | 4495.5 | 4473.7 |
| 40° | 4340.7 | 4326.8 | 4273.7 | 4226.8 | 4207.6 |
| 42.5° | 4096.3 | 4078.1 | 4030.3 | 3972.9 | 3961.6 |
| 45° | 3855.5 | 3819.0 | 3794.6 | 3724.2 | 3699.8 |
| 47.5° | 3588.5 | 3579.0 | 3526.8 | 3470.3 | 3443.3 |
| 50° | 3334.6 | 3328.5 | 3283.3 | 3219.9 | 3206.8 |
| 52.5° | 3101.6 | 3077.3 | 3035.5 | 2978.1 | 2948.6 |
| 55° | 2844.2 | 2832.0 | 2782.5 | 2724.2 | 2706.8 |
| 57.5° | 2592.1 | 2592.1 | 2539.0 | 2489.5 | 2459.9 |
| 60° | 2351.2 | 2336.4 | 2299.0 | 2251.2 | 2224.2 |
| 62.5° | 2108.6 | 2096.4 | 2064.3 | 2016.4 | 1992.1 |
| 65° | 1870.4 | 1856.4 | 1825.1 | 1782.5 | 1759.9 |
| 67.5° | 1642.5 | 1626.0 | 1606.0 | 1550.4 | 1535.6 |
| 70° | 1402.5 | 1399.1 | 1376.5 | 1338.2 | 1328.6 |
| 72.5° | 1186.9 | 1183.4 | 1157.3 | 1123.4 | 1113.0 |
| 75° | 966.9 | 972.1 | 953.9 | 930.4 | 920.8 |
| 77.5° | 775.6 | 770.4 | 753.0 | 739.1 | 722.6 |
| 80° | 580.0 | 578.2 | 570.4 | 551.3 | 550.4 |
| 82.5° | 400.9 | 407.8 | 401.7 | 387.8 | 382.6 |
| 85° | 246.9 | 252.2 | 246.9 | 240.0 | 240.9 |
| 87.5° | 110.4 | 112.2 | 106.1 | 95.6 | 88.7 |
| 90° | 17.4 | 19.1 | 22.6 | 27.0 | 25.2 |
| 92.5° | 6.1 | 13.0 | 19.1 | 22.6 | 23.5 |
| 95° | 7.8 | 13.0 | 19.1 | 22.6 | 23.5 |
| 97.5° | 11.3 | 13.0 | 19.1 | 22.6 | 24.3 |
| 100° | 13.0 | 13.9 | 19.1 | 22.6 | 24.3 |
| 102.5° | 13.9 | 13.9 | 19.1 | 22.6 | 24.3 |
| 105° | 14.8 | 14.8 | 18.3 | 22.6 | 24.3 |
| 107.5° | 15.7 | 14.8 | 18.3 | 22.6 | 24.3 |
| 110° | 15.7 | 15.7 | 18.3 | 22.6 | 23.5 |



TEST NUMBER: P417758

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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|------|-------|------|-------|------|
| 112.5° | 16.5 | 16.5 | 19.1 | 21.7 | 23.5 |
| 115° | 17.4 | 17.4 | 19.1 | 21.7 | 23.5 |
| 117.5° | 17.4 | 18.3 | 19.1 | 22.6 | 23.5 |
| 120° | 18.3 | 19.1 | 19.1 | 22.6 | 22.6 |
| 122.5° | 18.3 | 20.0 | 20.0 | 22.6 | 22.6 |
| 125° | 18.3 | 20.0 | 20.0 | 22.6 | 22.6 |
| 127.5° | 19.1 | 20.9 | 20.0 | 22.6 | 22.6 |
| 130° | 20.0 | 20.9 | 21.7 | 22.6 | 22.6 |
| 132.5° | 20.0 | 21.7 | 22.6 | 23.5 | 22.6 |
| 135° | 20.9 | 22.6 | 23.5 | 23.5 | 23.5 |
| 137.5° | 21.7 | 22.6 | 24.3 | 24.3 | 24.3 |
| 140° | 21.7 | 23.5 | 24.3 | 25.2 | 25.2 |
| 142.5° | 20.0 | 23.5 | 24.3 | 26.1 | 26.1 |
| 145° | 20.0 | 23.5 | 25.2 | 27.0 | 27.0 |
| 147.5° | 19.1 | 22.6 | 24.3 | 27.0 | 27.0 |
| 150° | 19.1 | 21.7 | 24.3 | 26.1 | 26.1 |
| 152.5° | 20.0 | 20.9 | 24.3 | 25.2 | 26.1 |
| 155° | 19.1 | 20.9 | 24.3 | 25.2 | 25.2 |
| 157.5° | 18.3 | 20.0 | 23.5 | 25.2 | 26.1 |
| 160° | 17.4 | 20.0 | 22.6 | 25.2 | 25.2 |
| 162.5° | 16.5 | 19.1 | 21.7 | 24.3 | 25.2 |
| 165° | 15.7 | 18.3 | 20.9 | 23.5 | 23.5 |
| 167.5° | 15.7 | 18.3 | 20.0 | 21.7 | 22.6 |
| 170° | 16.5 | 17.4 | 19.1 | 20.0 | 20.9 |
| 172.5° | 17.4 | 17.4 | 19.1 | 19.1 | 19.1 |
| 175° | 17.4 | 17.4 | 18.3 | 19.1 | 20.0 |
| 177.5° | 18.3 | 17.4 | 17.4 | 19.1 | 19.1 |
| 180° | 17.4 | 17.4 | 17.4 | 17.4 | 17.4 |

(END OF REPORT)