

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: METALUX

Report Number: P1436409

Luminaire Tested: EHBR1-60-UNV-M-L850-UPL40

Issue Date: 3/25/2026

Test Information

Test Method: LM-79-2019
Report Number: P1436409
REPORT IS A COMBINATION OF REPORTS P1436121 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/25/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-60-UNV-M-L850-UPL40
Description: Elevate Round Highbay at, 60000 lumens, 5000K 80CRI LEDs with M lens
Light Source: -
Ballast/Driver: -

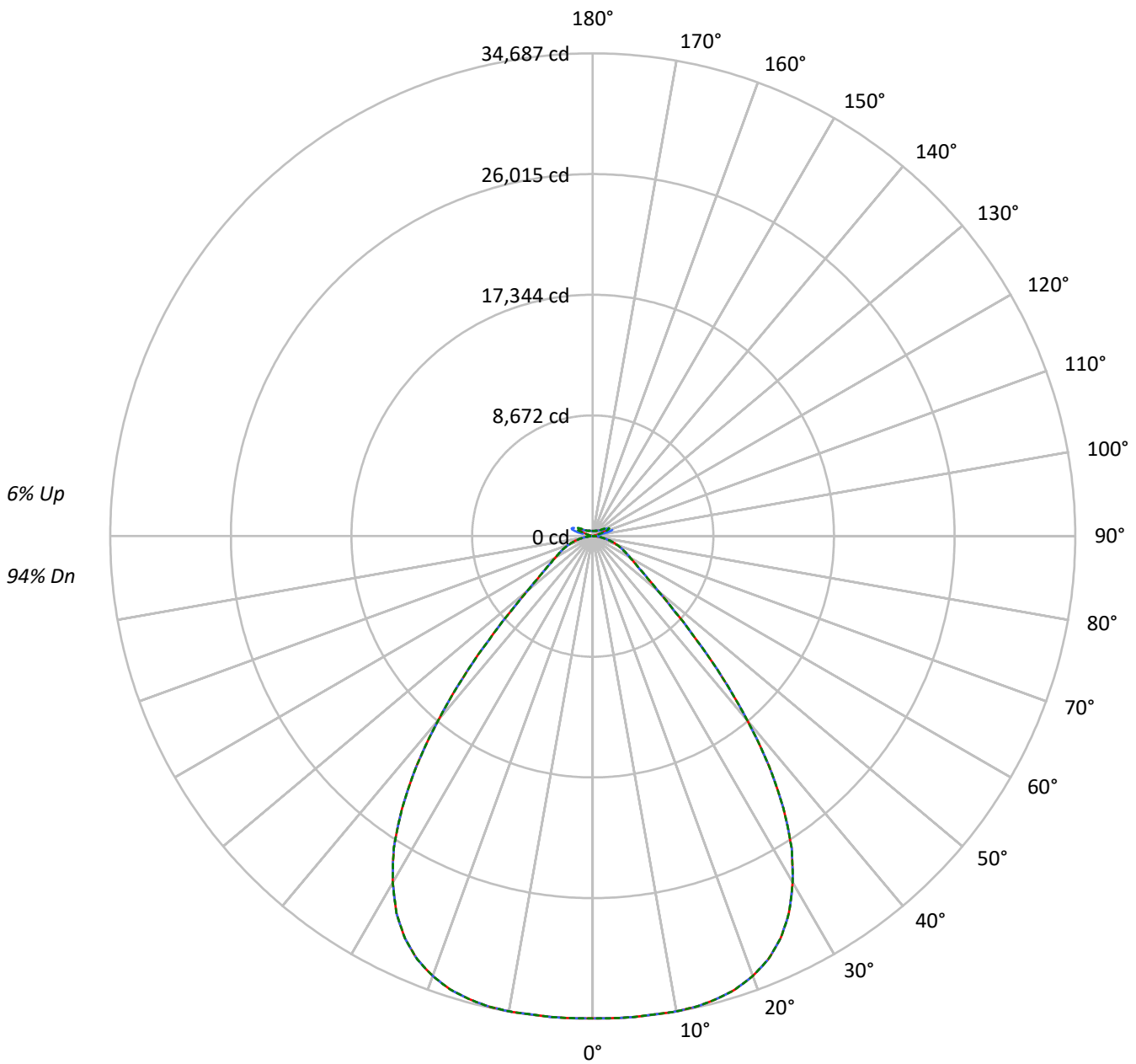
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 62356.3 lumens
Efficiency: N/A
Efficacy: 172.7 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.21 / 1.15
Luminous Opening: Vertical Cylinder (Dia: 1.71' x H: 0.1')
CIE Type: Direct

Input Watts (W): 361
Input Voltage (V): NR
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: P1436409
CATALOG NUMBER: EHBR1-60-UNV-M-L850-UPL40

Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270°



TEST NUMBER: P1436409
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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 | 118 | 118 | 118 | 118 | 114 | 114 | 114 | 114 | 108 | 108 | 108 | 102 | 102 | 102 | 97 | 97 | 97 | 97 | 97 | 97 | 94 |
| 1 | 110 | 107 | 103 | 100 | 107 | 104 | 101 | 98 | 99 | 96 | 94 | 94 | 92 | 90 | 89 | 88 | 87 | 87 | 87 | 87 | 84 |
| 2 | 103 | 96 | 91 | 87 | 100 | 94 | 89 | 85 | 90 | 86 | 82 | 86 | 83 | 80 | 82 | 79 | 77 | 77 | 77 | 77 | 75 |
| 3 | 96 | 87 | 81 | 76 | 93 | 85 | 80 | 75 | 82 | 77 | 73 | 79 | 74 | 71 | 75 | 72 | 69 | 69 | 69 | 69 | 67 |
| 4 | 89 | 80 | 73 | 67 | 87 | 78 | 72 | 67 | 75 | 69 | 65 | 72 | 67 | 64 | 69 | 66 | 62 | 62 | 62 | 62 | 60 |
| 5 | 83 | 73 | 66 | 60 | 81 | 71 | 65 | 60 | 69 | 63 | 58 | 66 | 61 | 57 | 64 | 60 | 56 | 56 | 56 | 56 | 54 |
| 6 | 78 | 67 | 60 | 54 | 76 | 66 | 59 | 54 | 63 | 57 | 53 | 61 | 56 | 52 | 59 | 55 | 51 | 51 | 51 | 51 | 49 |
| 7 | 73 | 62 | 54 | 49 | 71 | 61 | 54 | 49 | 59 | 53 | 48 | 57 | 51 | 47 | 55 | 50 | 47 | 47 | 47 | 47 | 45 |
| 8 | 69 | 57 | 50 | 45 | 67 | 56 | 49 | 45 | 54 | 48 | 44 | 53 | 47 | 43 | 51 | 47 | 43 | 43 | 43 | 43 | 41 |
| 9 | 65 | 53 | 46 | 41 | 63 | 52 | 45 | 41 | 51 | 45 | 40 | 49 | 44 | 40 | 48 | 43 | 39 | 39 | 39 | 39 | 38 |
| 10 | 61 | 49 | 42 | 38 | 59 | 49 | 42 | 38 | 47 | 41 | 37 | 46 | 41 | 37 | 45 | 40 | 36 | 36 | 36 | 36 | 35 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 162734 | 162734 | 162734 |
| 5° | 162456 | 162456 | 162456 |
| 10° | 163218 | 163218 | 163218 |
| 15° | 164155 | 164155 | 164155 |
| 20° | 163660 | 163660 | 163660 |
| 25° | 159838 | 159838 | 159838 |
| 30° | 149460 | 149460 | 149460 |
| 35° | 130165 | 130165 | 130165 |
| 40° | 99757 | 99757 | 99757 |
| 45° | 65169 | 65169 | 65169 |
| 50° | 41082 | 41082 | 41082 |
| 55° | 30625 | 30625 | 30625 |
| 60° | 25783 | 25783 | 25783 |
| 65° | 23446 | 23446 | 23446 |
| 70° | 21357 | 21357 | 21357 |
| 75° | 18284 | 18284 | 18284 |
| 80° | 14078 | 14078 | 14078 |
| 85° | 7384 | 7384 | 7384 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 65169 cd/sqm



TEST NUMBER: P1436409
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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 3309.7 | 5.3 |
| 10°-20° | 9719.6 | 15.6 |
| 20°-30° | 14583.8 | 23.4 |
| 30°-40° | 14672.9 | 23.5 |
| 40°-50° | 8399.1 | 13.5 |
| 50°-60° | 3841.6 | 6.2 |
| 60°-70° | 2437.4 | 3.9 |
| 70°-80° | 1367.2 | 2.2 |
| 80°-90° | 327.4 | 0.5 |
| 90°-100° | 105.4 | 0.2 |
| 100°-110° | 660.6 | 1.1 |
| 110°-120° | 1181.4 | 1.9 |
| 120°-130° | 693.2 | 1.1 |
| 130°-140° | 425.2 | 0.7 |
| 140°-150° | 294.9 | 0.5 |
| 150°-160° | 191.6 | 0.3 |
| 160°-170° | 109.2 | 0.2 |
| 170°-180° | 36.1 | 0.1 |
| 0°-30° | 27613.1 | 44.3 |
| 0°-40° | 42286.0 | 67.8 |
| 0°-60° | 54526.7 | 87.4 |
| 0°-90° | 58658.7 | 94.1 |
| 90°-120° | 1947.4 | 3.1 |
| 90°-150° | 3360.8 | 5.4 |
| 90°-180° | 3698.0 | 5.9 |
| 0°-180° | 62356.3 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-------|-------|-------|-------|-------|-------|
| 0° | 34653 | 34653 | 34653 | 34653 | 34653 | |
| 5° | 34687 | 34687 | 34687 | 34687 | 34687 | 3310 |
| 15° | 34439 | 34439 | 34439 | 34439 | 34439 | 9720 |
| 25° | 31920 | 31920 | 31920 | 31920 | 31920 | 14584 |
| 35° | 23890 | 23890 | 23890 | 23890 | 23890 | 14673 |
| 45° | 10544 | 10544 | 10544 | 10544 | 10544 | 8399 |
| 55° | 4139 | 4139 | 4139 | 4139 | 4139 | 3842 |
| 65° | 2447 | 2447 | 2447 | 2447 | 2447 | 2437 |
| 75° | 1288 | 1288 | 1288 | 1288 | 1288 | 1367 |
| 85° | 254 | 254 | 254 | 254 | 254 | 311 |
| 90° | 28 | 44 | 76 | 49 | 28 | 23 |
| 95° | 47 | 78 | 171 | 85 | 53 | 45 |
| 105° | 231 | 455 | 1162 | 502 | 305 | 309 |
| 115° | 1062 | 1118 | 1374 | 1316 | 1308 | 979 |
| 125° | 766 | 715 | 734 | 745 | 836 | 699 |
| 135° | 559 | 542 | 561 | 527 | 525 | 437 |
| 145° | 459 | 453 | 480 | 474 | 472 | 291 |
| 155° | 402 | 398 | 417 | 417 | 417 | 188 |
| 165° | 377 | 377 | 387 | 387 | 385 | 108 |
| 175° | 373 | 373 | 379 | 379 | 379 | 36 |
| 180° | 377 | 377 | 377 | 377 | 377 | |



TEST NUMBER: P1436409

CATALOG NUMBER: EHBR1-60-UNV-M-L850-UPL40

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|---------|---------|---------|---------|---------|
| 0° | 34653.1 | 34653.1 | 34653.1 | 34653.1 | 34653.1 |
| 2.5° | 34670.0 | 34670.0 | 34670.0 | 34670.0 | 34670.0 |
| 5° | 34686.9 | 34686.9 | 34686.9 | 34686.9 | 34686.9 |
| 7.5° | 34663.0 | 34663.0 | 34663.0 | 34663.0 | 34663.0 |
| 10° | 34677.9 | 34677.9 | 34677.9 | 34677.9 | 34677.9 |
| 12.5° | 34618.4 | 34618.4 | 34618.4 | 34618.4 | 34618.4 |
| 15° | 34438.9 | 34438.9 | 34438.9 | 34438.9 | 34438.9 |
| 17.5° | 34142.5 | 34142.5 | 34142.5 | 34142.5 | 34142.5 |
| 20° | 33636.8 | 33636.8 | 33636.8 | 33636.8 | 33636.8 |
| 22.5° | 32941.7 | 32941.7 | 32941.7 | 32941.7 | 32941.7 |
| 25° | 31919.5 | 31919.5 | 31919.5 | 31919.5 | 31919.5 |
| 27.5° | 30544.2 | 30544.2 | 30544.2 | 30544.2 | 30544.2 |
| 30° | 28748.5 | 28748.5 | 28748.5 | 28748.5 | 28748.5 |
| 32.5° | 26622.6 | 26622.6 | 26622.6 | 26622.6 | 26622.6 |
| 35° | 23890.0 | 23890.0 | 23890.0 | 23890.0 | 23890.0 |
| 37.5° | 20794.5 | 20794.5 | 20794.5 | 20794.5 | 20794.5 |
| 40° | 17290.4 | 17290.4 | 17290.4 | 17290.4 | 17290.4 |
| 42.5° | 13817.0 | 13817.0 | 13817.0 | 13817.0 | 13817.0 |
| 45° | 10544.0 | 10544.0 | 10544.0 | 10544.0 | 10544.0 |
| 47.5° | 7937.2 | 7937.2 | 7937.2 | 7937.2 | 7937.2 |
| 50° | 6122.7 | 6122.7 | 6122.7 | 6122.7 | 6122.7 |
| 52.5° | 4946.8 | 4946.8 | 4946.8 | 4946.8 | 4946.8 |
| 55° | 4138.6 | 4138.6 | 4138.6 | 4138.6 | 4138.6 |
| 57.5° | 3543.8 | 3543.8 | 3543.8 | 3543.8 | 3543.8 |
| 60° | 3099.5 | 3099.5 | 3099.5 | 3099.5 | 3099.5 |
| 62.5° | 2756.5 | 2756.5 | 2756.5 | 2756.5 | 2756.5 |
| 65° | 2447.2 | 2447.2 | 2447.2 | 2447.2 | 2447.2 |
| 67.5° | 2162.5 | 2162.5 | 2162.5 | 2162.5 | 2162.5 |
| 70° | 1874.0 | 1874.0 | 1874.0 | 1874.0 | 1874.0 |
| 72.5° | 1583.4 | 1583.4 | 1583.4 | 1583.4 | 1583.4 |
| 75° | 1288.0 | 1288.0 | 1288.0 | 1288.0 | 1288.0 |
| 77.5° | 1007.4 | 1007.4 | 1007.4 | 1007.4 | 1007.4 |
| 80° | 740.6 | 740.6 | 740.6 | 740.6 | 740.6 |
| 82.5° | 482.9 | 482.9 | 482.9 | 482.9 | 482.9 |
| 85° | 253.8 | 253.8 | 253.8 | 253.8 | 253.8 |
| 87.5° | 72.4 | 72.4 | 72.4 | 72.4 | 72.4 |
| 90° | 27.5 | 44.5 | 76.2 | 48.7 | 27.5 |
| 92.5° | 40.2 | 67.8 | 122.8 | 63.5 | 36.0 |
| 95° | 46.6 | 78.3 | 171.4 | 84.7 | 52.9 |
| 97.5° | 59.2 | 86.7 | 196.8 | 103.7 | 82.5 |
| 100° | 78.3 | 101.6 | 307.0 | 127.0 | 110.1 |
| 102.5° | 133.4 | 215.9 | 651.9 | 239.2 | 167.2 |
| 105° | 230.7 | 455.1 | 1162.0 | 501.7 | 304.8 |
| 107.5° | 400.1 | 814.9 | 1532.5 | 889.0 | 577.9 |
| 110° | 747.2 | 1081.6 | 1606.5 | 1221.3 | 925.0 |



TEST NUMBER: P1436409

CATALOG NUMBER: EHBR1-60-UNV-M-L850-UPL40

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 1009.7 | 1162.0 | 1538.8 | 1348.3 | 1204.4 |
| 115° | 1062.5 | 1117.6 | 1373.7 | 1316.5 | 1308.1 |
| 117.5° | 1026.6 | 1020.2 | 1166.3 | 1183.3 | 1263.6 |
| 120° | 950.4 | 908.0 | 973.6 | 1033.0 | 1140.9 |
| 122.5° | 855.2 | 804.3 | 834.0 | 878.5 | 986.4 |
| 125° | 766.2 | 715.4 | 734.5 | 745.1 | 836.1 |
| 127.5° | 687.9 | 654.0 | 664.6 | 651.9 | 709.1 |
| 130° | 635.0 | 605.4 | 620.2 | 590.5 | 618.1 |
| 132.5° | 590.5 | 571.5 | 588.4 | 552.4 | 560.9 |
| 135° | 558.8 | 541.8 | 560.9 | 527.1 | 524.9 |
| 137.5° | 531.3 | 516.5 | 535.5 | 510.1 | 503.8 |
| 140° | 505.9 | 493.2 | 514.3 | 495.3 | 491.0 |
| 142.5° | 478.4 | 469.9 | 495.3 | 482.6 | 478.4 |
| 145° | 459.3 | 452.9 | 480.4 | 474.1 | 472.0 |
| 147.5° | 442.4 | 438.2 | 463.5 | 461.5 | 461.5 |
| 150° | 427.6 | 423.4 | 448.7 | 446.6 | 448.7 |
| 152.5° | 412.8 | 408.5 | 431.8 | 429.6 | 431.8 |
| 155° | 402.1 | 397.9 | 417.0 | 417.0 | 417.0 |
| 157.5° | 393.7 | 391.5 | 406.4 | 406.4 | 406.4 |
| 160° | 387.3 | 385.3 | 397.9 | 397.9 | 395.9 |
| 162.5° | 381.0 | 378.9 | 393.7 | 391.5 | 391.5 |
| 165° | 376.8 | 376.8 | 387.3 | 387.3 | 385.3 |
| 167.5° | 376.8 | 374.6 | 385.3 | 385.3 | 383.1 |
| 170° | 374.6 | 374.6 | 383.1 | 381.0 | 378.9 |
| 172.5° | 374.6 | 374.6 | 383.1 | 381.0 | 378.9 |
| 175° | 372.6 | 372.6 | 378.9 | 378.9 | 378.9 |
| 177.5° | 374.6 | 374.6 | 378.9 | 378.9 | 376.8 |
| 180° | 376.8 | 376.8 | 376.8 | 376.8 | 376.8 |



TEST NUMBER: P1436409
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CIE UGR TABLE:

| Reflectances: | | | | | | | | | | | |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling | | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 |
| Wall | | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 |
| Reference plane | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Room dimensions | | Viewed crosswise | | | | | Viewed endwise | | | | |
| X=2H | Y=2H | 20.10 | 21.27 | 20.57 | 21.71 | 22.17 | 20.10 | 21.27 | 20.57 | 21.71 | 22.17 |
| | 3H | 21.58 | 22.63 | 22.07 | 23.08 | 23.59 | 21.58 | 22.63 | 22.07 | 23.08 | 23.59 |
| | 4H | 22.11 | 23.08 | 22.61 | 23.55 | 24.08 | 22.11 | 23.08 | 22.61 | 23.55 | 24.08 |
| | 6H | 22.43 | 23.33 | 22.95 | 23.81 | 24.35 | 22.43 | 23.33 | 22.95 | 23.81 | 24.35 |
| | 8H | 22.50 | 23.35 | 23.03 | 23.85 | 24.40 | 22.50 | 23.35 | 23.03 | 23.85 | 24.40 |
| | 12H | 22.51 | 23.32 | 23.05 | 23.82 | 24.39 | 22.51 | 23.32 | 23.05 | 23.82 | 24.39 |
| 4H | 2H | 20.54 | 21.51 | 21.04 | 21.98 | 22.51 | 20.54 | 21.51 | 21.04 | 21.98 | 22.51 |
| | 3H | 22.23 | 23.03 | 22.75 | 23.55 | 24.10 | 22.23 | 23.03 | 22.75 | 23.55 | 24.10 |
| | 4H | 22.86 | 23.58 | 23.40 | 24.11 | 24.69 | 22.86 | 23.58 | 23.40 | 24.11 | 24.69 |
| | 6H | 23.29 | 23.91 | 23.85 | 24.46 | 25.06 | 23.29 | 23.91 | 23.85 | 24.46 | 25.06 |
| | 8H | 23.38 | 23.96 | 23.95 | 24.51 | 25.12 | 23.38 | 23.96 | 23.95 | 24.51 | 25.12 |
| | 12H | 23.41 | 23.92 | 24.00 | 24.51 | 25.12 | 23.41 | 23.92 | 24.00 | 24.51 | 25.12 |
| 8H | 4H | 23.04 | 23.62 | 23.61 | 24.17 | 24.78 | 23.04 | 23.62 | 23.61 | 24.17 | 24.78 |
| | 6H | 23.55 | 24.02 | 24.15 | 24.62 | 25.24 | 23.55 | 24.02 | 24.15 | 24.62 | 25.24 |
| | 8H | 23.69 | 24.11 | 24.31 | 24.72 | 25.35 | 23.69 | 24.11 | 24.31 | 24.72 | 25.35 |
| | 12H | 23.76 | 24.13 | 24.37 | 24.72 | 25.42 | 23.76 | 24.13 | 24.37 | 24.72 | 25.42 |
| 12H | 4H | 23.03 | 23.54 | 23.61 | 24.12 | 24.74 | 23.03 | 23.54 | 23.61 | 24.12 | 24.74 |
| | 6H | 23.55 | 23.97 | 24.17 | 24.59 | 25.22 | 23.55 | 23.97 | 24.17 | 24.59 | 25.22 |
| | 8H | 23.73 | 24.09 | 24.34 | 24.69 | 25.39 | 23.73 | 24.09 | 24.34 | 24.69 | 25.39 |

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP1-2506-472-4

Test Date: 07/31/2025

Luminaire Tested: EHBR-60-L850-N

Data in this report applies to families of products including EHBR-60-L850-N

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-472-4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/05/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Metalux
 Catalog Number: **EHBR-60-L850-N**
 Description: Elevate Round Highbay at, 60000 lumens, 5000K 80CRI LEDs with N lens

Spectral Parameters

CCT (K): 4875
 CIE u': 0.2124
 CIE v': 0.4871
 Duv: 0.0005
 CIE x: 0.3488
 CIE y: 0.3555
 CIE z: 0.2957
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 573
 Purity: 11.33556
 Rf: 80
 Rg: 102.3

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 82.3 | | |
| R1: | 85.0 | R9: | 43.9 |
| R2: | 83.1 | R10: | 57.4 |
| R3: | 78.8 | R11: | 83.1 |
| R4: | 84.0 | R12: | 51.0 |
| R5: | 83.0 | R13: | 83.4 |
| R6: | 76.3 | R14: | 87.4 |
| R7: | 86.8 | R15: | 83.4 |
| R8: | 81.7 | | |



Test Conditions

Stabilization Time: 39M
 Operation Time: 1H 39M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2506-472-4

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 6/16/2025 | 12/16/2025 |
| Power Meter | XITRON INXT2011004 | 1/21/2025 | 1/21/2026 |
| AC Power Source | CHROMA 61603 IN0063 | 10/22/2024 | 10/22/2025 |
| DC Power Source | AGILENT E3634A IN0208 | 10/22/2024 | 10/22/2025 |
| Sphere Thermometer | ONSET IN0085 | 10/22/2024 | 10/22/2025 |
| Room Thermometer | ONSET IN0046 | 10/22/2024 | 10/22/2025 |

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CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP1-2506-472-4

Photopic Flux vs. Wavelength



Photopic Lumens: NR

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 89 | NR | 620 | 280 | NR | 750 | 6 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 121 | NR | 625 | 280 | NR | 755 | 5 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 168 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 224 | NR | 635 | 626 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 1 | NR | 510 | 275 | NR | 640 | 163 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 321 | NR | 645 | 160 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 354 | NR | 650 | 136 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 375 | NR | 655 | 111 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 388 | NR | 660 | 93 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 10 | NR | 535 | 395 | NR | 665 | 76 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 15 | NR | 540 | 397 | NR | 670 | 72 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 28 | NR | 545 | 398 | NR | 675 | 57 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 53 | NR | 550 | 396 | NR | 680 | 49 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 97 | NR | 555 | 395 | NR | 685 | 42 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 163 | NR | 560 | 392 | NR | 690 | 37 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 261 | NR | 565 | 388 | NR | 695 | 32 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 409 | NR | 570 | 381 | NR | 700 | 27 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 637 | NR | 575 | 374 | NR | 705 | 23 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 699 | NR | 580 | 365 | NR | 710 | 20 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 436 | NR | 585 | 354 | NR | 715 | 17 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 274 | NR | 590 | 342 | NR | 720 | 15 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 205 | NR | 595 | 325 | NR | 725 | 13 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 130 | NR | 600 | 313 | NR | 730 | 11 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 90 | NR | 605 | 301 | NR | 735 | 10 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 78 | NR | 610 | 323 | NR | 740 | 8 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 77 | NR | 615 | 340 | NR | 745 | 7 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-4

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.82

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|
| 360 | 0 | NR | 490 | 89 | NR | 620 | 280 | NR | 750 | 6 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 121 | NR | 625 | 280 | NR | 755 | 5 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 168 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 224 | NR | 635 | 626 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 1 | NR | 510 | 275 | NR | 640 | 163 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 321 | NR | 645 | 160 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 354 | NR | 650 | 136 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 375 | NR | 655 | 111 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 388 | NR | 660 | 93 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 10 | NR | 535 | 395 | NR | 665 | 76 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 15 | NR | 540 | 397 | NR | 670 | 72 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 28 | NR | 545 | 398 | NR | 675 | 57 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 53 | NR | 550 | 396 | NR | 680 | 49 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 97 | NR | 555 | 395 | NR | 685 | 42 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 163 | NR | 560 | 392 | NR | 690 | 37 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 261 | NR | 565 | 388 | NR | 695 | 32 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 409 | NR | 570 | 381 | NR | 700 | 27 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 637 | NR | 575 | 374 | NR | 705 | 23 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 699 | NR | 580 | 365 | NR | 710 | 20 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 436 | NR | 585 | 354 | NR | 715 | 17 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 274 | NR | 590 | 342 | NR | 720 | 15 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 205 | NR | 595 | 325 | NR | 725 | 13 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 130 | NR | 600 | 313 | NR | 730 | 11 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 90 | NR | 605 | 301 | NR | 735 | 10 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 78 | NR | 610 | 323 | NR | 740 | 8 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 77 | NR | 615 | 340 | NR | 745 | 7 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-4

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.71

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 89 | NR | 620 | 280 | NR | 750 | 6 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 121 | NR | 625 | 280 | NR | 755 | 5 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 168 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 224 | NR | 635 | 626 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 1 | NR | 510 | 275 | NR | 640 | 163 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 321 | NR | 645 | 160 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 3 | NR | 520 | 354 | NR | 650 | 136 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 5 | NR | 525 | 375 | NR | 655 | 111 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 7 | NR | 530 | 388 | NR | 660 | 93 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 10 | NR | 535 | 395 | NR | 665 | 76 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 15 | NR | 540 | 397 | NR | 670 | 72 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 28 | NR | 545 | 398 | NR | 675 | 57 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 53 | NR | 550 | 396 | NR | 680 | 49 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 97 | NR | 555 | 395 | NR | 685 | 42 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 163 | NR | 560 | 392 | NR | 690 | 37 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 261 | NR | 565 | 388 | NR | 695 | 32 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 409 | NR | 570 | 381 | NR | 700 | 27 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 637 | NR | 575 | 374 | NR | 705 | 23 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 699 | NR | 580 | 365 | NR | 710 | 20 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 436 | NR | 585 | 354 | NR | 715 | 17 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 274 | NR | 590 | 342 | NR | 720 | 15 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 205 | NR | 595 | 325 | NR | 725 | 13 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 130 | NR | 600 | 313 | NR | 730 | 11 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 90 | NR | 605 | 301 | NR | 735 | 10 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 78 | NR | 610 | 323 | NR | 740 | 8 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 77 | NR | 615 | 340 | NR | 745 | 7 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 80$
 $R_g = 102.3$
 CIE $R_a = 82.3$
 $R_9 = 43.9$



Color Vector Graphics



Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 67 | CES51 = 92 | CES76 = 54 |
| CES02 = 60 | CES27 = 88 | CES52 = 91 | CES77 = 71 |
| CES03 = 31 | CES28 = 81 | CES53 = 82 | CES78 = 55 |
| CES04 = 69 | CES29 = 66 | CES54 = 92 | CES79 = 81 |
| CES05 = 47 | CES30 = 80 | CES55 = 90 | CES80 = 75 |
| CES06 = 50 | CES31 = 69 | CES56 = 81 | CES81 = 79 |
| CES07 = 40 | CES32 = 61 | CES57 = 80 | CES82 = 90 |
| CES08 = 39 | CES33 = 76 | CES58 = 81 | CES83 = 87 |
| CES09 = 29 | CES34 = 68 | CES59 = 93 | CES84 = 87 |
| CES10 = 73 | CES35 = 82 | CES60 = 94 | CES85 = 82 |
| CES11 = 56 | CES36 = 95 | CES61 = 91 | CES86 = 83 |
| CES12 = 62 | CES37 = 75 | CES62 = 89 | CES87 = 78 |
| CES13 = 42 | CES38 = 87 | CES63 = 80 | CES88 = 85 |
| CES14 = 74 | CES39 = 94 | CES64 = 79 | CES89 = 81 |
| CES15 = 71 | CES40 = 87 | CES65 = 75 | CES90 = 86 |
| CES16 = 46 | CES41 = 91 | CES66 = 72 | CES91 = 80 |
| CES17 = 48 | CES42 = 71 | CES67 = 69 | CES92 = 77 |
| CES18 = 56 | CES43 = 72 | CES68 = 75 | CES93 = 86 |
| CES19 = 70 | CES44 = 99 | CES69 = 80 | CES94 = 71 |
| CES20 = 65 | CES45 = 81 | CES70 = 66 | CES95 = 79 |
| CES21 = 85 | CES46 = 83 | CES71 = 59 | CES96 = 86 |
| CES22 = 77 | CES47 = 83 | CES72 = 87 | CES97 = 85 |
| CES23 = 91 | CES48 = 83 | CES73 = 56 | CES98 = 82 |
| CES24 = 90 | CES49 = 82 | CES74 = 95 | CES99 = 84 |
| CES25 = 71 | CES50 = 91 | CES75 = 58 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)