

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: P1432921

Luminaire Tested: EHBR1-24-UNV-N-L850-UPL40

Issue Date: 3/20/2026

Test Information

Test Method: LM-79-2019
Report Number: P1432921
REPORT IS A COMBINATION OF REPORTS P1431722 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-24-UNV-N-L850-UPL40
Description: Elevate Round Highbay at, 24000 lumens, 5000K 80CRI LEDs with N lens
Light Source: -
Ballast/Driver: -

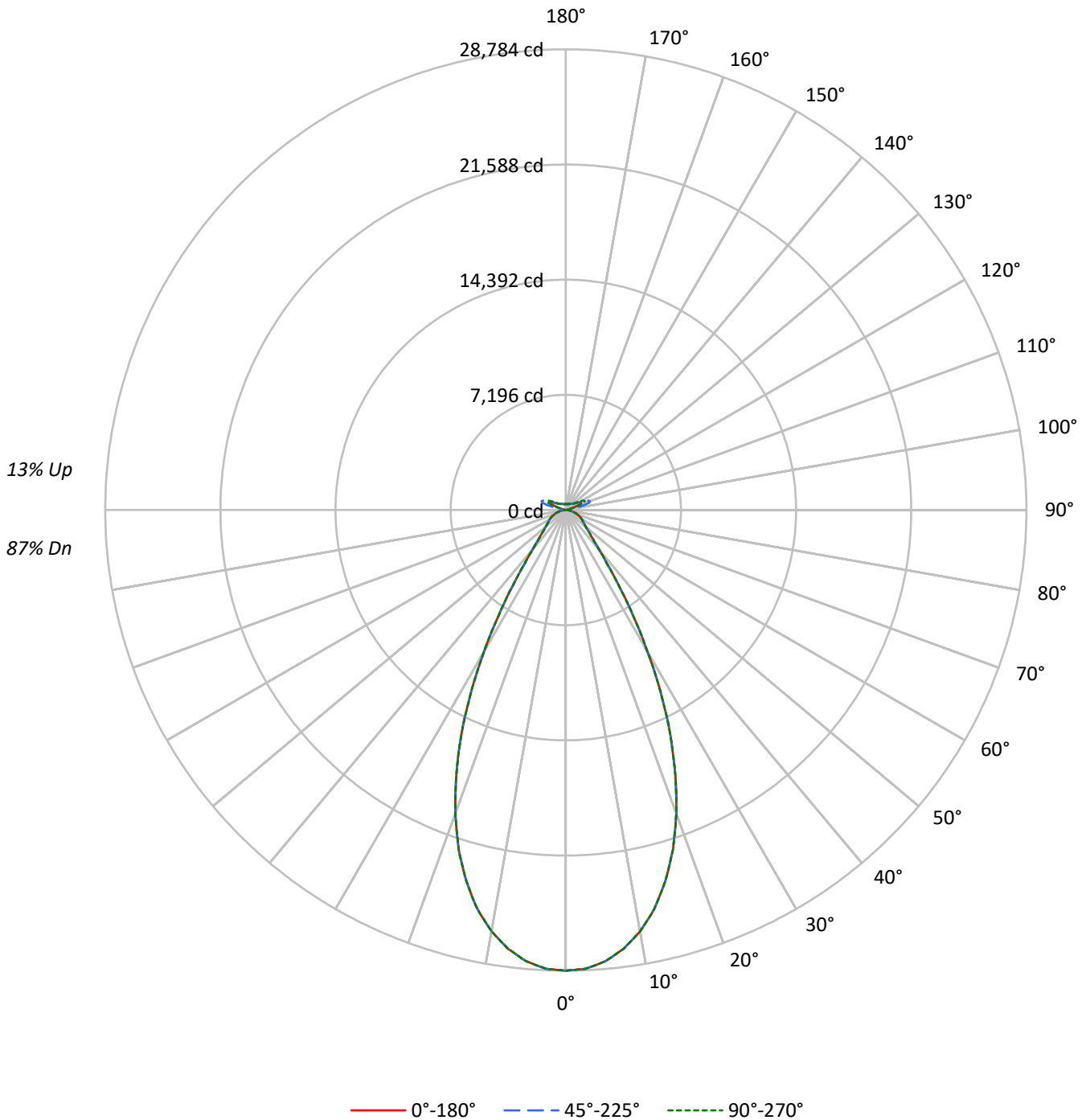
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 28370.2 lumens
Efficiency: N/A
Efficacy: 178.5 lumens/watt
Spacing Criteria (0/90/45): 0.82 / 0.82 / 0.8
Luminous Opening: Vertical Cylinder (Dia: 1.71' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 158.9
Input Voltage (V): NR
Input Current (A_{in}): 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: P1432921
CATALOG NUMBER: EHBR1-24-UNV-N-L850-UPL40

Luminous Intensity Polar Plot





TEST NUMBER: P1432921

CATALOG NUMBER: EHBR1-24-UNV-N-L850-UPL40

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 | 116 | 116 | 116 | 116 | 112 | 112 | 112 | 112 | 104 | 104 | 104 | 97 | 97 | 97 | 90 | 90 | 90 | 87 |
| 1 | 109 | 106 | 103 | 100 | 105 | 102 | 99 | 97 | 96 | 94 | 92 | 90 | 88 | 87 | 84 | 83 | 82 | 79 |
| 2 | 102 | 96 | 92 | 88 | 99 | 94 | 89 | 86 | 88 | 85 | 82 | 83 | 81 | 78 | 79 | 77 | 75 | 72 |
| 3 | 96 | 89 | 83 | 78 | 93 | 86 | 81 | 77 | 82 | 77 | 74 | 77 | 74 | 71 | 74 | 71 | 68 | 66 |
| 4 | 91 | 82 | 76 | 71 | 88 | 80 | 74 | 70 | 76 | 71 | 67 | 72 | 68 | 65 | 69 | 66 | 63 | 61 |
| 5 | 85 | 76 | 69 | 65 | 83 | 74 | 68 | 64 | 71 | 66 | 62 | 68 | 64 | 60 | 65 | 61 | 58 | 57 |
| 6 | 81 | 71 | 64 | 59 | 78 | 69 | 63 | 59 | 66 | 61 | 57 | 64 | 59 | 56 | 61 | 57 | 54 | 53 |
| 7 | 76 | 66 | 60 | 55 | 74 | 65 | 59 | 54 | 62 | 57 | 53 | 60 | 55 | 52 | 58 | 54 | 51 | 49 |
| 8 | 72 | 62 | 56 | 51 | 70 | 61 | 55 | 51 | 59 | 53 | 50 | 57 | 52 | 49 | 55 | 51 | 48 | 46 |
| 9 | 69 | 58 | 52 | 48 | 67 | 57 | 52 | 47 | 56 | 50 | 47 | 54 | 49 | 46 | 52 | 48 | 45 | 43 |
| 10 | 65 | 55 | 49 | 45 | 64 | 54 | 48 | 45 | 53 | 47 | 44 | 51 | 46 | 43 | 49 | 45 | 42 | 41 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 135171 | 135171 | 135171 |
| 5° | 132547 | 132547 | 132547 |
| 10° | 125803 | 125803 | 125803 |
| 15° | 114464 | 114464 | 114464 |
| 20° | 98185 | 98185 | 98185 |
| 25° | 77238 | 77238 | 77238 |
| 30° | 53005 | 53005 | 53005 |
| 35° | 31487 | 31487 | 31487 |
| 40° | 18630 | 18630 | 18630 |
| 45° | 13374 | 13374 | 13374 |
| 50° | 10993 | 10993 | 10993 |
| 55° | 9991 | 9991 | 9991 |
| 60° | 9564 | 9564 | 9564 |
| 65° | 9122 | 9122 | 9122 |
| 70° | 8484 | 8484 | 8484 |
| 75° | 7670 | 7670 | 7670 |
| 80° | 6366 | 6366 | 6366 |
| 85° | 4030 | 4030 | 4030 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 13374 cd/sqm



TEST NUMBER: P1432921
 CATALOG NUMBER: EHBR1-24-UNV-N-L850-UPL40

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 2651.4 | 9.3 |
| 10°-20° | 6655.6 | 23.5 |
| 20°-30° | 6959.1 | 24.5 |
| 30°-40° | 3770.6 | 13.3 |
| 40°-50° | 1734.7 | 6.1 |
| 50°-60° | 1222.5 | 4.3 |
| 60°-70° | 940.8 | 3.3 |
| 70°-80° | 570.3 | 2.0 |
| 80°-90° | 167.3 | 0.6 |
| 90°-100° | 105.5 | 0.4 |
| 100°-110° | 660.7 | 2.3 |
| 110°-120° | 1181.4 | 4.2 |
| 120°-130° | 693.2 | 2.4 |
| 130°-140° | 425.2 | 1.5 |
| 140°-150° | 294.9 | 1.0 |
| 150°-160° | 191.6 | 0.7 |
| 160°-170° | 109.2 | 0.4 |
| 170°-180° | 36.1 | 0.1 |
| 0°-30° | 16266.1 | 57.3 |
| 0°-40° | 20036.7 | 70.6 |
| 0°-60° | 22993.9 | 81.0 |
| 0°-90° | 24672.3 | 87.0 |
| 90°-120° | 1947.6 | 6.9 |
| 90°-150° | 3361.0 | 11.8 |
| 90°-180° | 3698.0 | 13.0 |
| 0°-180° | 28370.2 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-------|-------|-------|-------|-------|------|
| 0° | 28784 | 28784 | 28784 | 28784 | 28784 | |
| 5° | 28301 | 28301 | 28301 | 28301 | 28301 | 2651 |
| 15° | 24014 | 24014 | 24014 | 24014 | 24014 | 6656 |
| 25° | 15424 | 15424 | 15424 | 15424 | 15424 | 6959 |
| 35° | 5779 | 5779 | 5779 | 5779 | 5779 | 3771 |
| 45° | 2164 | 2164 | 2164 | 2164 | 2164 | 1735 |
| 55° | 1350 | 1350 | 1350 | 1350 | 1350 | 1222 |
| 65° | 952 | 952 | 952 | 952 | 952 | 941 |
| 75° | 540 | 540 | 540 | 540 | 540 | 570 |
| 85° | 138 | 138 | 138 | 138 | 138 | 154 |
| 90° | 28 | 45 | 77 | 50 | 28 | 20 |
| 95° | 47 | 78 | 171 | 85 | 53 | 45 |
| 105° | 231 | 455 | 1162 | 502 | 305 | 309 |
| 115° | 1063 | 1118 | 1374 | 1317 | 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: P1432921

CATALOG NUMBER: EHBR1-24-UNV-N-L850-UPL40

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|---------|---------|---------|---------|---------|
| 0° | 28783.7 | 28783.7 | 28783.7 | 28783.7 | 28783.7 |
| 2.5° | 28681.7 | 28681.7 | 28681.7 | 28681.7 | 28681.7 |
| 5° | 28300.9 | 28300.9 | 28300.9 | 28300.9 | 28300.9 |
| 7.5° | 27650.9 | 27650.9 | 27650.9 | 27650.9 | 27650.9 |
| 10° | 26728.6 | 26728.6 | 26728.6 | 26728.6 | 26728.6 |
| 12.5° | 25536.7 | 25536.7 | 25536.7 | 25536.7 | 25536.7 |
| 15° | 24014.0 | 24014.0 | 24014.0 | 24014.0 | 24014.0 |
| 17.5° | 22247.3 | 22247.3 | 22247.3 | 22247.3 | 22247.3 |
| 20° | 20179.9 | 20179.9 | 20179.9 | 20179.9 | 20179.9 |
| 22.5° | 17878.0 | 17878.0 | 17878.0 | 17878.0 | 17878.0 |
| 25° | 15424.4 | 15424.4 | 15424.4 | 15424.4 | 15424.4 |
| 27.5° | 12823.2 | 12823.2 | 12823.2 | 12823.2 | 12823.2 |
| 30° | 10195.5 | 10195.5 | 10195.5 | 10195.5 | 10195.5 |
| 32.5° | 7824.7 | 7824.7 | 7824.7 | 7824.7 | 7824.7 |
| 35° | 5779.0 | 5779.0 | 5779.0 | 5779.0 | 5779.0 |
| 37.5° | 4243.1 | 4243.1 | 4243.1 | 4243.1 | 4243.1 |
| 40° | 3229.1 | 3229.1 | 3229.1 | 3229.1 | 3229.1 |
| 42.5° | 2589.2 | 2589.2 | 2589.2 | 2589.2 | 2589.2 |
| 45° | 2163.8 | 2163.8 | 2163.8 | 2163.8 | 2163.8 |
| 47.5° | 1857.2 | 1857.2 | 1857.2 | 1857.2 | 1857.2 |
| 50° | 1638.3 | 1638.3 | 1638.3 | 1638.3 | 1638.3 |
| 52.5° | 1478.5 | 1478.5 | 1478.5 | 1478.5 | 1478.5 |
| 55° | 1350.2 | 1350.2 | 1350.2 | 1350.2 | 1350.2 |
| 57.5° | 1246.0 | 1246.0 | 1246.0 | 1246.0 | 1246.0 |
| 60° | 1149.7 | 1149.7 | 1149.7 | 1149.7 | 1149.7 |
| 62.5° | 1053.4 | 1053.4 | 1053.4 | 1053.4 | 1053.4 |
| 65° | 952.1 | 952.1 | 952.1 | 952.1 | 952.1 |
| 67.5° | 848.9 | 848.9 | 848.9 | 848.9 | 848.9 |
| 70° | 744.4 | 744.4 | 744.4 | 744.4 | 744.4 |
| 72.5° | 642.7 | 642.7 | 642.7 | 642.7 | 642.7 |
| 75° | 540.3 | 540.3 | 540.3 | 540.3 | 540.3 |
| 77.5° | 439.8 | 439.8 | 439.8 | 439.8 | 439.8 |
| 80° | 334.9 | 334.9 | 334.9 | 334.9 | 334.9 |
| 82.5° | 234.5 | 234.5 | 234.5 | 234.5 | 234.5 |
| 85° | 138.5 | 138.5 | 138.5 | 138.5 | 138.5 |
| 87.5° | 49.6 | 49.6 | 49.6 | 49.6 | 49.6 |
| 90° | 28.3 | 45.3 | 77.0 | 49.5 | 28.3 |
| 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 | 196.9 | 103.7 | 82.5 |
| 100° | 78.3 | 101.6 | 307.0 | 127.0 | 110.1 |
| 102.5° | 133.4 | 215.9 | 652.0 | 239.2 | 167.2 |
| 105° | 230.7 | 455.1 | 1162.1 | 501.7 | 304.8 |
| 107.5° | 400.1 | 814.9 | 1532.5 | 889.0 | 577.9 |
| 110° | 747.2 | 1081.6 | 1606.6 | 1221.3 | 925.0 |



TEST NUMBER: P1432921

CATALOG NUMBER: EHBR1-24-UNV-N-L850-UPL40

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 1009.7 | 1162.1 | 1538.9 | 1348.3 | 1204.4 |
| 115° | 1062.6 | 1117.7 | 1373.7 | 1316.6 | 1308.1 |
| 117.5° | 1026.6 | 1020.2 | 1166.3 | 1183.3 | 1263.6 |
| 120° | 950.4 | 908.0 | 973.7 | 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 | 652.0 | 709.1 |
| 130° | 635.1 | 605.4 | 620.2 | 590.6 | 618.1 |
| 132.5° | 590.6 | 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 | 491.1 |
| 142.5° | 478.4 | 469.9 | 495.3 | 482.6 | 478.4 |
| 145° | 459.3 | 452.9 | 480.4 | 474.2 | 472.0 |
| 147.5° | 442.4 | 438.2 | 463.5 | 461.5 | 461.5 |
| 150° | 427.6 | 423.4 | 448.7 | 446.7 | 448.7 |
| 152.5° | 412.8 | 408.5 | 431.8 | 429.7 | 431.8 |
| 155° | 402.2 | 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 |



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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 | 15.42 | 16.41 | 16.01 | 16.98 | 17.61 | 15.42 | 16.41 | 16.01 | 16.98 | 17.61 |
| | 3H | 17.20 | 18.08 | 17.80 | 18.66 | 19.33 | 17.20 | 18.08 | 17.80 | 18.66 | 19.33 |
| | 4H | 17.85 | 18.68 | 18.47 | 19.27 | 19.96 | 17.85 | 18.68 | 18.47 | 19.27 | 19.96 |
| | 6H | 18.31 | 19.07 | 18.94 | 19.67 | 20.37 | 18.31 | 19.07 | 18.94 | 19.67 | 20.37 |
| | 8H | 18.43 | 19.15 | 19.08 | 19.77 | 20.48 | 18.43 | 19.15 | 19.08 | 19.77 | 20.48 |
| | 12H | 18.48 | 19.17 | 19.13 | 19.78 | 20.51 | 18.48 | 19.17 | 19.13 | 19.78 | 20.51 |
| 4H | 2H | 15.96 | 16.78 | 16.58 | 17.37 | 18.06 | 15.96 | 16.78 | 16.58 | 17.37 | 18.06 |
| | 3H | 17.92 | 18.60 | 18.55 | 19.24 | 19.94 | 17.92 | 18.60 | 18.55 | 19.24 | 19.94 |
| | 4H | 18.70 | 19.31 | 19.34 | 19.95 | 20.69 | 18.70 | 19.31 | 19.34 | 19.95 | 20.69 |
| | 6H | 19.27 | 19.79 | 19.94 | 20.46 | 21.21 | 19.27 | 19.79 | 19.94 | 20.46 | 21.21 |
| | 8H | 19.42 | 19.92 | 20.10 | 20.58 | 21.34 | 19.42 | 19.92 | 20.10 | 20.58 | 21.34 |
| | 12H | 19.50 | 19.93 | 20.19 | 20.63 | 21.39 | 19.50 | 19.93 | 20.19 | 20.63 | 21.39 |
| 8H | 4H | 18.92 | 19.42 | 19.60 | 20.08 | 20.84 | 18.92 | 19.42 | 19.60 | 20.08 | 20.84 |
| | 6H | 19.61 | 20.00 | 20.31 | 20.71 | 21.48 | 19.61 | 20.00 | 20.31 | 20.71 | 21.48 |
| | 8H | 19.83 | 20.18 | 20.55 | 20.90 | 21.68 | 19.83 | 20.18 | 20.55 | 20.90 | 21.68 |
| | 12H | 19.96 | 20.27 | 20.68 | 20.97 | 21.82 | 19.96 | 20.27 | 20.68 | 20.97 | 21.82 |
| 12H | 4H | 18.92 | 19.35 | 19.61 | 20.04 | 20.81 | 18.92 | 19.35 | 19.61 | 20.04 | 20.81 |
| | 6H | 19.63 | 19.98 | 20.35 | 20.70 | 21.48 | 19.63 | 19.98 | 20.35 | 20.70 | 21.48 |
| | 8H | 19.89 | 20.20 | 20.61 | 20.90 | 21.75 | 19.89 | 20.20 | 20.61 | 20.90 | 21.75 |

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



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 |

REPORT NUMBER: SP1-2506-472-4

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 ($R_{f,i}$)

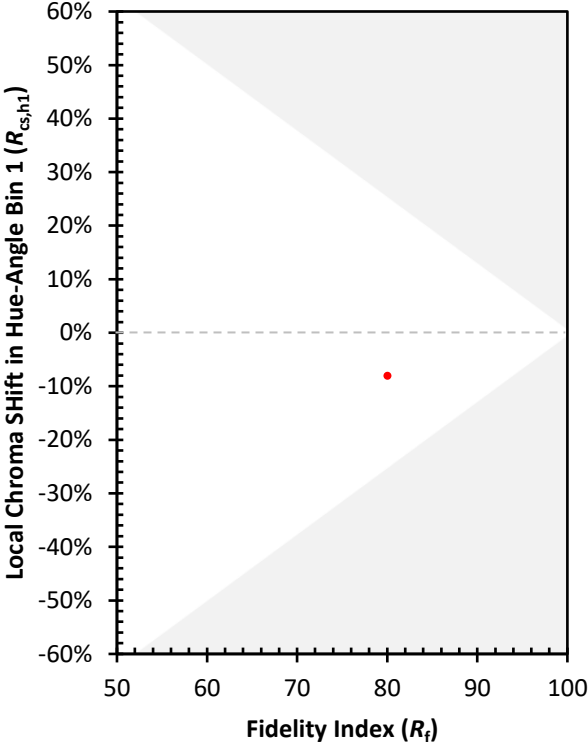
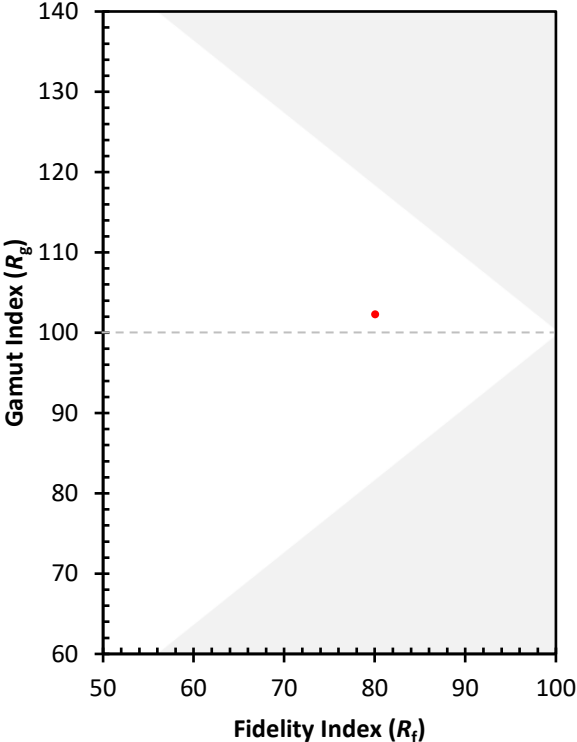
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 67 | CES51 = 92 | CES76 = 54 |
| CES02 = 60 | CES27 = 88 | CES52 = 91 | CES77 = 71 |
| CES03 = 31 | CES28 = 81 | CES53 = 82 | CES78 = 55 |
| CES04 = 69 | CES29 = 66 | CES54 = 92 | CES79 = 81 |
| CES05 = 47 | CES30 = 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)