

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: P1432473

Luminaire Tested: EHBR1-48-UNV-N-L830-UPL40

Issue Date: 3/20/2026

Test Information

Test Method: LM-79-2019
Report Number: P1432473
REPORT IS A COMBINATION OF REPORTS P1431850 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-48-UNV-N-L830-UPL40
Description: Elevate Round Highbay at, 48000 lumens, 3000K 80CRI LEDs with N lens
Light Source: -
Ballast/Driver: -

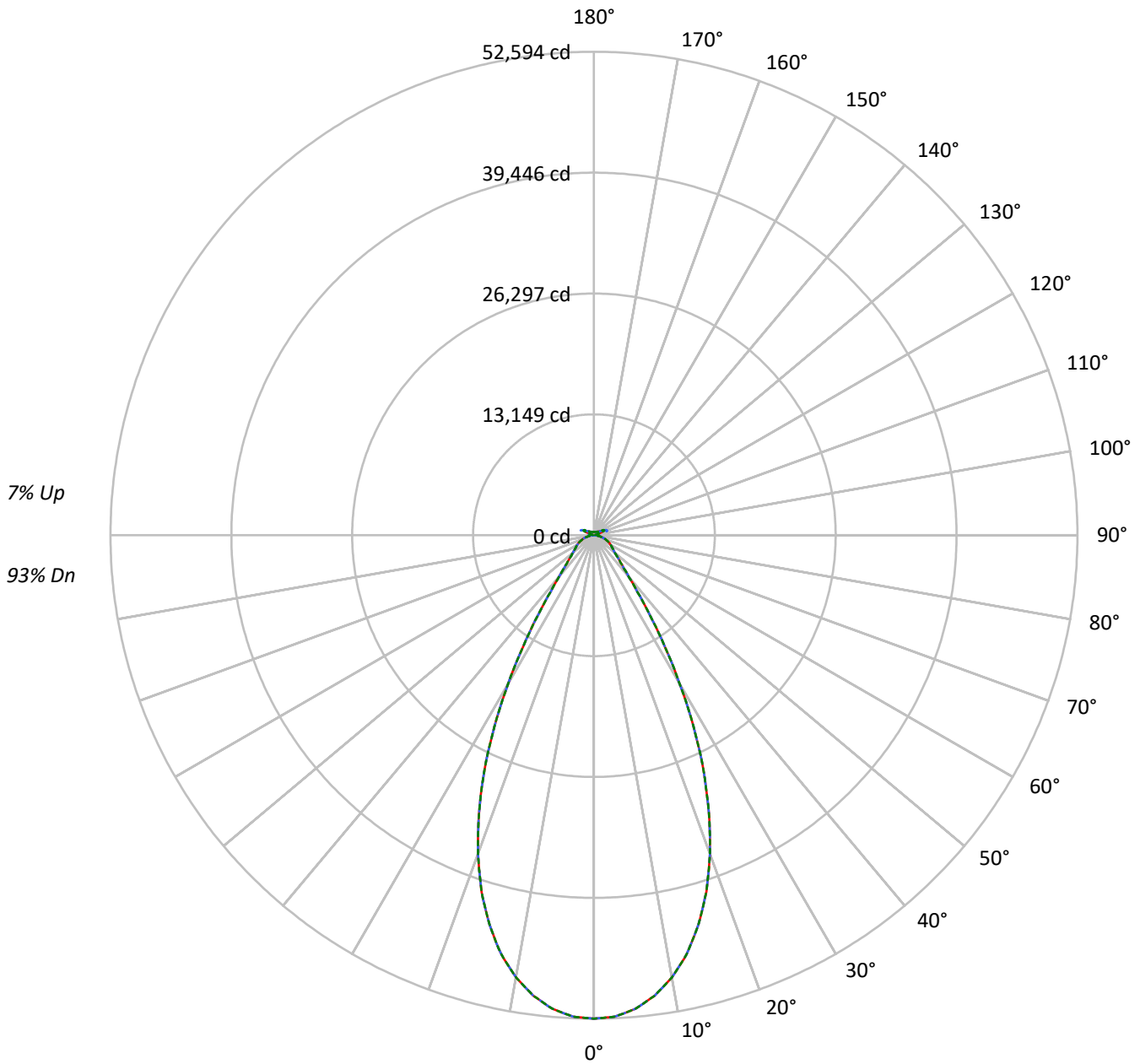
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 48601.6 lumens
Efficiency: N/A
Efficacy: 168.1 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: Direct

Input Watts (W): 289.2
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: P1432473
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Luminous Intensity Polar Plot



7% Up
93% Dn

— 0°-180° - - 45°-225° - - - 90°-270°



TEST NUMBER: P1432473

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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 |
| RCR | | | | | | | | | | | | | | | | | | | | |
| 0 | 117 | 117 | 117 | 117 | 114 | 114 | 114 | 114 | 107 | 107 | 107 | 101 | 101 | 101 | 95 | 95 | 95 | 95 | 93 | |
| 1 | 110 | 107 | 104 | 102 | 107 | 104 | 102 | 99 | 99 | 97 | 95 | 94 | 92 | 91 | 89 | 88 | 87 | 87 | 84 | |
| 2 | 104 | 98 | 93 | 89 | 101 | 96 | 91 | 88 | 91 | 88 | 85 | 87 | 84 | 82 | 83 | 81 | 79 | 79 | 77 | |
| 3 | 98 | 90 | 85 | 80 | 95 | 88 | 83 | 79 | 85 | 80 | 77 | 81 | 78 | 75 | 78 | 75 | 73 | 73 | 71 | |
| 4 | 92 | 84 | 77 | 73 | 90 | 82 | 76 | 72 | 79 | 74 | 70 | 76 | 72 | 69 | 73 | 70 | 67 | 67 | 65 | |
| 5 | 87 | 78 | 71 | 66 | 85 | 76 | 70 | 66 | 74 | 68 | 65 | 71 | 67 | 63 | 69 | 65 | 62 | 62 | 60 | |
| 6 | 82 | 73 | 66 | 61 | 80 | 71 | 65 | 61 | 69 | 64 | 60 | 67 | 62 | 59 | 65 | 61 | 58 | 58 | 56 | |
| 7 | 78 | 68 | 61 | 57 | 76 | 67 | 61 | 56 | 65 | 60 | 56 | 63 | 58 | 55 | 61 | 57 | 54 | 54 | 52 | |
| 8 | 74 | 64 | 57 | 53 | 72 | 63 | 57 | 53 | 61 | 56 | 52 | 60 | 55 | 51 | 58 | 54 | 51 | 51 | 49 | |
| 9 | 71 | 60 | 54 | 50 | 69 | 59 | 53 | 49 | 58 | 53 | 49 | 56 | 52 | 48 | 55 | 51 | 48 | 48 | 46 | |
| 10 | 67 | 57 | 51 | 47 | 66 | 56 | 50 | 46 | 55 | 50 | 46 | 54 | 49 | 46 | 52 | 48 | 45 | 45 | 44 | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 246985 | 246985 | 246985 |
| 5° | 242190 | 242190 | 242190 |
| 10° | 229867 | 229867 | 229867 |
| 15° | 209149 | 209149 | 209149 |
| 20° | 179403 | 179403 | 179403 |
| 25° | 141129 | 141129 | 141129 |
| 30° | 96851 | 96851 | 96851 |
| 35° | 57533 | 57533 | 57533 |
| 40° | 34041 | 34041 | 34041 |
| 45° | 24436 | 24436 | 24436 |
| 50° | 20086 | 20086 | 20086 |
| 55° | 18255 | 18255 | 18255 |
| 60° | 17475 | 17475 | 17475 |
| 65° | 16667 | 16667 | 16667 |
| 70° | 15501 | 15501 | 15501 |
| 75° | 14013 | 14013 | 14013 |
| 80° | 11632 | 11632 | 11632 |
| 85° | 7364 | 7364 | 7364 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 24436 cd/sqm



TEST NUMBER: P1432473

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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 4844.7 | 10.0 |
| 10°-20° | 12161.0 | 25.0 |
| 20°-30° | 12715.6 | 26.2 |
| 30°-40° | 6889.7 | 14.2 |
| 40°-50° | 3169.6 | 6.5 |
| 50°-60° | 2233.7 | 4.6 |
| 60°-70° | 1719.0 | 3.5 |
| 70°-80° | 1042.1 | 2.1 |
| 80°-90° | 299.9 | 0.6 |
| 90°-100° | 100.7 | 0.2 |
| 100°-110° | 630.0 | 1.3 |
| 110°-120° | 1126.6 | 2.3 |
| 120°-130° | 661.0 | 1.4 |
| 130°-140° | 405.5 | 0.8 |
| 140°-150° | 281.2 | 0.6 |
| 150°-160° | 182.7 | 0.4 |
| 160°-170° | 104.1 | 0.2 |
| 170°-180° | 34.4 | 0.1 |
| 0°-30° | 29721.4 | 61.2 |
| 0°-40° | 36611.0 | 75.3 |
| 0°-60° | 42014.3 | 86.4 |
| 0°-90° | 45075.2 | 92.7 |
| 90°-120° | 1857.3 | 3.8 |
| 90°-150° | 3205.1 | 6.6 |
| 90°-180° | 3526.0 | 7.3 |
| 0°-180° | 48601.6 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-------|-------|-------|-------|-------|-------|
| 0° | 52594 | 52594 | 52594 | 52594 | 52594 | |
| 5° | 51711 | 51711 | 51711 | 51711 | 51711 | 4845 |
| 15° | 43878 | 43878 | 43878 | 43878 | 43878 | 12161 |
| 25° | 28183 | 28183 | 28183 | 28183 | 28183 | 12716 |
| 35° | 10559 | 10559 | 10559 | 10559 | 10559 | 6890 |
| 45° | 3954 | 3954 | 3954 | 3954 | 3954 | 3170 |
| 55° | 2467 | 2467 | 2467 | 2467 | 2467 | 2234 |
| 65° | 1740 | 1740 | 1740 | 1740 | 1740 | 1719 |
| 75° | 987 | 987 | 987 | 987 | 987 | 1042 |
| 85° | 253 | 253 | 253 | 253 | 253 | 281 |
| 90° | 28 | 44 | 74 | 48 | 28 | 25 |
| 95° | 44 | 75 | 164 | 81 | 50 | 43 |
| 105° | 220 | 434 | 1108 | 478 | 291 | 295 |
| 115° | 1013 | 1066 | 1310 | 1256 | 1247 | 933 |
| 125° | 731 | 682 | 700 | 710 | 797 | 666 |
| 135° | 533 | 517 | 535 | 503 | 501 | 417 |
| 145° | 438 | 432 | 458 | 452 | 450 | 277 |
| 155° | 384 | 380 | 398 | 398 | 398 | 179 |
| 165° | 359 | 359 | 369 | 369 | 367 | 103 |
| 175° | 355 | 355 | 361 | 361 | 361 | 34 |
| 180° | 359 | 359 | 359 | 359 | 359 | |



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CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|---------|---------|---------|---------|---------|
| 0° | 52593.7 | 52593.7 | 52593.7 | 52593.7 | 52593.7 |
| 2.5° | 52407.2 | 52407.2 | 52407.2 | 52407.2 | 52407.2 |
| 5° | 51711.4 | 51711.4 | 51711.4 | 51711.4 | 51711.4 |
| 7.5° | 50523.6 | 50523.6 | 50523.6 | 50523.6 | 50523.6 |
| 10° | 48838.4 | 48838.4 | 48838.4 | 48838.4 | 48838.4 |
| 12.5° | 46660.6 | 46660.6 | 46660.6 | 46660.6 | 46660.6 |
| 15° | 43878.3 | 43878.3 | 43878.3 | 43878.3 | 43878.3 |
| 17.5° | 40650.3 | 40650.3 | 40650.3 | 40650.3 | 40650.3 |
| 20° | 36872.6 | 36872.6 | 36872.6 | 36872.6 | 36872.6 |
| 22.5° | 32666.6 | 32666.6 | 32666.6 | 32666.6 | 32666.6 |
| 25° | 28183.4 | 28183.4 | 28183.4 | 28183.4 | 28183.4 |
| 27.5° | 23430.7 | 23430.7 | 23430.7 | 23430.7 | 23430.7 |
| 30° | 18629.2 | 18629.2 | 18629.2 | 18629.2 | 18629.2 |
| 32.5° | 14297.3 | 14297.3 | 14297.3 | 14297.3 | 14297.3 |
| 35° | 10559.3 | 10559.3 | 10559.3 | 10559.3 | 10559.3 |
| 37.5° | 7753.0 | 7753.0 | 7753.0 | 7753.0 | 7753.0 |
| 40° | 5900.1 | 5900.1 | 5900.1 | 5900.1 | 5900.1 |
| 42.5° | 4731.0 | 4731.0 | 4731.0 | 4731.0 | 4731.0 |
| 45° | 3953.7 | 3953.7 | 3953.7 | 3953.7 | 3953.7 |
| 47.5° | 3393.4 | 3393.4 | 3393.4 | 3393.4 | 3393.4 |
| 50° | 2993.5 | 2993.5 | 2993.5 | 2993.5 | 2993.5 |
| 52.5° | 2701.5 | 2701.5 | 2701.5 | 2701.5 | 2701.5 |
| 55° | 2467.0 | 2467.0 | 2467.0 | 2467.0 | 2467.0 |
| 57.5° | 2276.8 | 2276.8 | 2276.8 | 2276.8 | 2276.8 |
| 60° | 2100.8 | 2100.8 | 2100.8 | 2100.8 | 2100.8 |
| 62.5° | 1924.7 | 1924.7 | 1924.7 | 1924.7 | 1924.7 |
| 65° | 1739.7 | 1739.7 | 1739.7 | 1739.7 | 1739.7 |
| 67.5° | 1551.1 | 1551.1 | 1551.1 | 1551.1 | 1551.1 |
| 70° | 1360.1 | 1360.1 | 1360.1 | 1360.1 | 1360.1 |
| 72.5° | 1174.4 | 1174.4 | 1174.4 | 1174.4 | 1174.4 |
| 75° | 987.1 | 987.1 | 987.1 | 987.1 | 987.1 |
| 77.5° | 803.6 | 803.6 | 803.6 | 803.6 | 803.6 |
| 80° | 611.9 | 611.9 | 611.9 | 611.9 | 611.9 |
| 82.5° | 428.4 | 428.4 | 428.4 | 428.4 | 428.4 |
| 85° | 253.1 | 253.1 | 253.1 | 253.1 | 253.1 |
| 87.5° | 90.6 | 90.6 | 90.6 | 90.6 | 90.6 |
| 90° | 27.7 | 43.9 | 74.2 | 48.0 | 27.7 |
| 92.5° | 38.3 | 64.6 | 117.1 | 60.5 | 34.3 |
| 95° | 44.4 | 74.7 | 163.5 | 80.7 | 50.5 |
| 97.5° | 56.5 | 82.7 | 187.7 | 98.9 | 78.7 |
| 100° | 74.7 | 96.9 | 292.7 | 121.1 | 105.0 |
| 102.5° | 127.2 | 205.9 | 621.7 | 228.1 | 159.4 |
| 105° | 220.0 | 434.0 | 1108.1 | 478.4 | 290.7 |
| 107.5° | 381.5 | 777.1 | 1461.4 | 847.7 | 551.1 |
| 110° | 712.6 | 1031.4 | 1532.0 | 1164.6 | 882.1 |



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CATALOG NUMBER: EHBR1-48-UNV-N-L830-UPL40

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 962.8 | 1108.1 | 1467.4 | 1285.7 | 1148.5 |
| 115° | 1013.2 | 1065.8 | 1310.0 | 1255.5 | 1247.4 |
| 117.5° | 979.0 | 972.9 | 1112.2 | 1128.4 | 1205.0 |
| 120° | 906.3 | 865.9 | 928.5 | 985.0 | 1088.0 |
| 122.5° | 815.5 | 767.0 | 795.3 | 837.7 | 940.6 |
| 125° | 730.6 | 682.2 | 700.4 | 710.5 | 797.3 |
| 127.5° | 656.0 | 623.7 | 633.8 | 621.7 | 676.2 |
| 130° | 605.6 | 577.3 | 591.4 | 563.1 | 589.4 |
| 132.5° | 563.1 | 545.0 | 561.1 | 526.8 | 534.9 |
| 135° | 532.9 | 516.7 | 534.9 | 502.6 | 500.6 |
| 137.5° | 506.7 | 492.5 | 510.7 | 486.4 | 480.4 |
| 140° | 482.4 | 470.3 | 490.5 | 472.3 | 468.3 |
| 142.5° | 456.2 | 448.1 | 472.3 | 460.2 | 456.2 |
| 145° | 438.0 | 431.9 | 458.1 | 452.1 | 450.1 |
| 147.5° | 421.9 | 417.9 | 442.0 | 440.1 | 440.1 |
| 150° | 407.7 | 403.7 | 427.9 | 425.9 | 427.9 |
| 152.5° | 393.6 | 389.6 | 411.8 | 409.7 | 411.8 |
| 155° | 383.5 | 379.5 | 397.6 | 397.6 | 397.6 |
| 157.5° | 375.4 | 373.4 | 387.5 | 387.5 | 387.5 |
| 160° | 369.3 | 367.4 | 379.5 | 379.5 | 377.5 |
| 162.5° | 363.3 | 361.3 | 375.4 | 373.4 | 373.4 |
| 165° | 359.3 | 359.3 | 369.3 | 369.3 | 367.4 |
| 167.5° | 359.3 | 357.3 | 367.4 | 367.4 | 365.3 |
| 170° | 357.3 | 357.3 | 365.3 | 363.3 | 361.3 |
| 172.5° | 357.3 | 357.3 | 365.3 | 363.3 | 361.3 |
| 175° | 355.3 | 355.3 | 361.3 | 361.3 | 361.3 |
| 177.5° | 357.3 | 357.3 | 361.3 | 361.3 | 359.3 |
| 180° | 359.3 | 359.3 | 359.3 | 359.3 | 359.3 |



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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 | 17.98 | 19.04 | 18.48 | 19.50 | 20.00 | 17.98 | 19.04 | 18.48 | 19.50 | 20.00 |
| | 3H | 19.76 | 20.70 | 20.27 | 21.18 | 21.72 | 19.76 | 20.70 | 20.27 | 21.18 | 21.72 |
| | 4H | 20.42 | 21.29 | 20.95 | 21.79 | 22.35 | 20.42 | 21.29 | 20.95 | 21.79 | 22.35 |
| | 6H | 20.88 | 21.68 | 21.42 | 22.20 | 22.77 | 20.88 | 21.68 | 21.42 | 22.20 | 22.77 |
| | 8H | 21.00 | 21.76 | 21.56 | 22.29 | 22.87 | 21.00 | 21.76 | 21.56 | 22.29 | 22.87 |
| | 12H | 21.05 | 21.78 | 21.61 | 22.30 | 22.91 | 21.05 | 21.78 | 21.61 | 22.30 | 22.91 |
| 4H | 2H | 18.52 | 19.40 | 19.05 | 19.90 | 20.46 | 18.52 | 19.40 | 19.05 | 19.90 | 20.46 |
| | 3H | 20.49 | 21.22 | 21.03 | 21.76 | 22.34 | 20.49 | 21.22 | 21.03 | 21.76 | 22.34 |
| | 4H | 21.26 | 21.92 | 21.82 | 22.47 | 23.08 | 21.26 | 21.92 | 21.82 | 22.47 | 23.08 |
| | 6H | 21.83 | 22.40 | 22.42 | 22.97 | 23.61 | 21.83 | 22.40 | 22.42 | 22.97 | 23.61 |
| | 8H | 21.99 | 22.52 | 22.58 | 23.09 | 23.73 | 21.99 | 22.52 | 22.58 | 23.09 | 23.73 |
| | 12H | 22.07 | 22.53 | 22.68 | 23.14 | 23.78 | 22.07 | 22.53 | 22.68 | 23.14 | 23.78 |
| 8H | 4H | 21.49 | 22.02 | 22.08 | 22.59 | 23.23 | 21.49 | 22.02 | 22.08 | 22.59 | 23.23 |
| | 6H | 22.17 | 22.60 | 22.80 | 23.22 | 23.87 | 22.17 | 22.60 | 22.80 | 23.22 | 23.87 |
| | 8H | 22.40 | 22.77 | 23.04 | 23.41 | 24.07 | 22.40 | 22.77 | 23.04 | 23.41 | 24.07 |
| | 12H | 22.54 | 22.86 | 23.17 | 23.48 | 24.21 | 22.54 | 22.86 | 23.17 | 23.48 | 24.21 |
| 12H | 4H | 21.49 | 21.95 | 22.10 | 22.56 | 23.20 | 21.49 | 21.95 | 22.10 | 22.56 | 23.20 |
| | 6H | 22.20 | 22.58 | 22.84 | 23.21 | 23.87 | 22.20 | 22.58 | 22.84 | 23.21 | 23.87 |
| | 8H | 22.46 | 22.79 | 23.10 | 23.41 | 24.14 | 22.46 | 22.79 | 23.10 | 23.41 | 24.14 |

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

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP1-2506-472-2

Test Date: 07/31/2025

Luminaire Tested: EHBR-60-L830-N

Data in this report applies to families of products including EHBR-60-L830-N

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-472-2
 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-L830-N**
 Description: Elevate Round Highbay at, 60000 lumens, 3000K 80CRI LEDs with N lens

Spectral Parameters

CCT (K): 2983
 CIE u': 0.2516
 CIE v': 0.5201
 Duv: -0.0012
 CIE x: 0.4364
 CIE y: 0.4010
 CIE z: 0.1626
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 583
 Purity: 51.34918
 Rf: 81.2
 Rg: 101.5

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 83.4 | | |
| R1: | 84.0 | R9: | 29.4 |
| R2: | 87.5 | R10: | 68.6 |
| R3: | 88.9 | R11: | 82.2 |
| R4: | 83.8 | R12: | 61.6 |
| R5: | 81.9 | R13: | 83.9 |
| R6: | 83.1 | R14: | 92.5 |
| R7: | 87.1 | R15: | 79.8 |
| R8: | 70.9 | | |



Test Conditions

Stabilization Time: 38M
 Operation Time: 1H 38M
 Sphere Temperature (°C): 25.0

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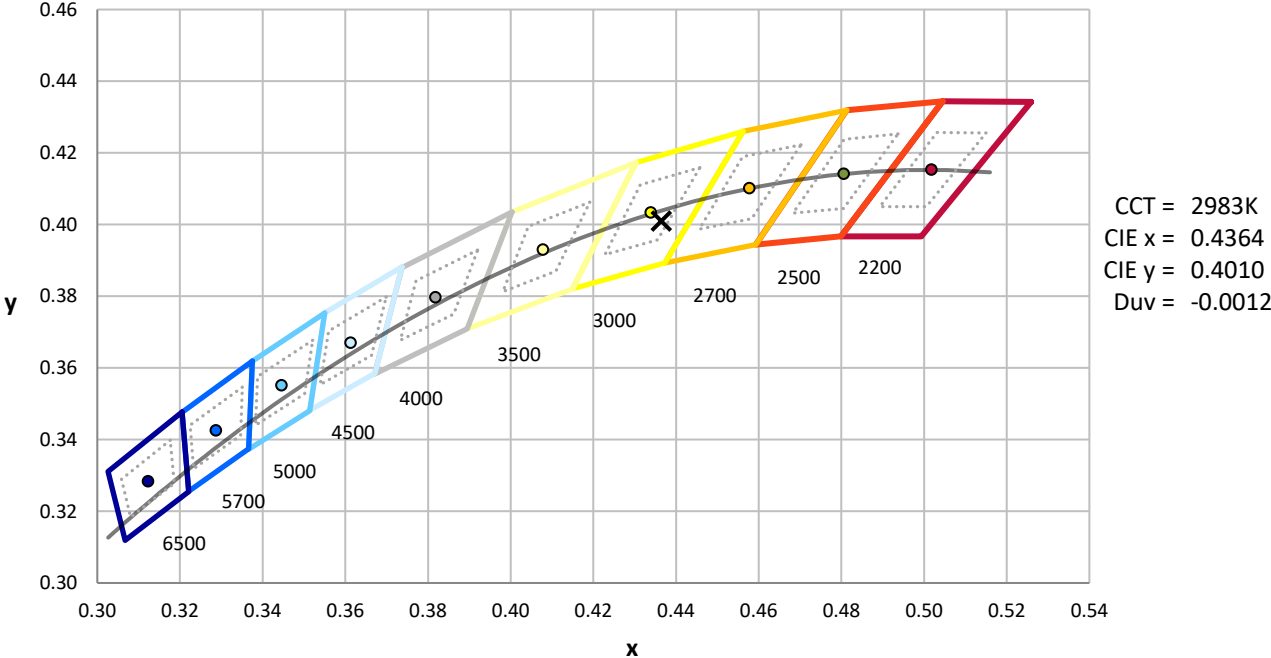
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 6/16/2025 | 12/16/2025 |
| Power Meter | 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



CCT = 2983K
 CIE x = 0.4364
 CIE y = 0.4010
 Duv = -0.0012

Point lies inside the ANSI 3000K 4-step quadrangle

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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 | 43 | NR | 620 | 294 | NR | 750 | 6 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 59 | NR | 625 | 294 | NR | 755 | 5 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 81 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 109 | NR | 635 | 637 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 135 | NR | 640 | 175 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 160 | NR | 645 | 171 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 180 | NR | 650 | 146 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 195 | NR | 655 | 119 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 2 | NR | 530 | 207 | NR | 660 | 99 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 218 | NR | 665 | 82 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 5 | NR | 540 | 227 | NR | 670 | 76 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 237 | NR | 675 | 61 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 247 | NR | 680 | 52 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 35 | NR | 555 | 259 | NR | 685 | 44 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 58 | NR | 560 | 271 | NR | 690 | 38 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 90 | NR | 565 | 283 | NR | 695 | 33 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 135 | NR | 570 | 293 | NR | 700 | 27 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 204 | NR | 575 | 303 | NR | 705 | 24 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 233 | NR | 580 | 310 | NR | 710 | 20 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 153 | NR | 585 | 313 | NR | 715 | 17 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 98 | NR | 590 | 314 | NR | 720 | 15 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 76 | NR | 595 | 310 | NR | 725 | 13 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 53 | NR | 600 | 307 | NR | 730 | 11 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 39 | NR | 605 | 303 | NR | 735 | 9 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 35 | NR | 610 | 331 | NR | 740 | 8 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 36 | NR | 615 | 353 | NR | 745 | 7 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-2

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.27

| 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 | 43 | NR | 620 | 294 | NR | 750 | 6 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 59 | NR | 625 | 294 | NR | 755 | 5 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 81 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 109 | NR | 635 | 637 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 135 | NR | 640 | 175 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 160 | NR | 645 | 171 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 180 | NR | 650 | 146 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 195 | NR | 655 | 119 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 2 | NR | 530 | 207 | NR | 660 | 99 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 218 | NR | 665 | 82 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 5 | NR | 540 | 227 | NR | 670 | 76 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 237 | NR | 675 | 61 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 247 | NR | 680 | 52 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 35 | NR | 555 | 259 | NR | 685 | 44 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 58 | NR | 560 | 271 | NR | 690 | 38 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 90 | NR | 565 | 283 | NR | 695 | 33 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 135 | NR | 570 | 293 | NR | 700 | 27 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 204 | NR | 575 | 303 | NR | 705 | 24 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 233 | NR | 580 | 310 | NR | 710 | 20 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 153 | NR | 585 | 313 | NR | 715 | 17 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 98 | NR | 590 | 314 | NR | 720 | 15 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 76 | NR | 595 | 310 | NR | 725 | 13 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 53 | NR | 600 | 307 | NR | 730 | 11 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 39 | NR | 605 | 303 | NR | 735 | 9 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 35 | NR | 610 | 331 | NR | 740 | 8 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 36 | NR | 615 | 353 | NR | 745 | 7 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-2

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.34

| 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 | 43 | NR | 620 | 294 | NR | 750 | 6 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 59 | NR | 625 | 294 | NR | 755 | 5 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 81 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 109 | NR | 635 | 637 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 135 | NR | 640 | 175 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 160 | NR | 645 | 171 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 180 | NR | 650 | 146 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 195 | NR | 655 | 119 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 2 | NR | 530 | 207 | NR | 660 | 99 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 218 | NR | 665 | 82 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 5 | NR | 540 | 227 | NR | 670 | 76 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 237 | NR | 675 | 61 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 247 | NR | 680 | 52 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 35 | NR | 555 | 259 | NR | 685 | 44 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 58 | NR | 560 | 271 | NR | 690 | 38 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 90 | NR | 565 | 283 | NR | 695 | 33 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 135 | NR | 570 | 293 | NR | 700 | 27 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 204 | NR | 575 | 303 | NR | 705 | 24 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 233 | NR | 580 | 310 | NR | 710 | 20 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 153 | NR | 585 | 313 | NR | 715 | 17 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 98 | NR | 590 | 314 | NR | 720 | 15 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 76 | NR | 595 | 310 | NR | 725 | 13 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 53 | NR | 600 | 307 | NR | 730 | 11 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 39 | NR | 605 | 303 | NR | 735 | 9 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 35 | NR | 610 | 331 | NR | 740 | 8 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 36 | NR | 615 | 353 | NR | 745 | 7 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 81.2$
 $R_g = 101.5$
 CIE $R_a = 83.4$
 $R_9 = 29.4$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 71 | CES51 = 89 | CES76 = 65 |
| CES02 = 63 | CES27 = 89 | CES52 = 89 | CES77 = 82 |
| CES03 = 31 | CES28 = 86 | CES53 = 80 | CES78 = 67 |
| CES04 = 70 | CES29 = 68 | CES54 = 92 | CES79 = 89 |
| CES05 = 50 | CES30 = 77 | CES55 = 90 | CES80 = 85 |
| CES06 = 51 | CES31 = 70 | CES56 = 81 | CES81 = 75 |
| CES07 = 43 | CES32 = 64 | CES57 = 79 | CES82 = 93 |
| CES08 = 41 | CES33 = 74 | CES58 = 81 | CES83 = 89 |
| CES09 = 29 | CES34 = 76 | CES59 = 92 | CES84 = 91 |
| CES10 = 76 | CES35 = 87 | CES60 = 96 | CES85 = 81 |
| CES11 = 59 | CES36 = 99 | CES61 = 91 | CES86 = 74 |
| CES12 = 65 | CES37 = 81 | CES62 = 93 | CES87 = 83 |
| CES13 = 44 | CES38 = 83 | CES63 = 79 | CES88 = 86 |
| CES14 = 74 | CES39 = 94 | CES64 = 81 | CES89 = 74 |
| CES15 = 72 | CES40 = 89 | CES65 = 78 | CES90 = 85 |
| CES16 = 48 | CES41 = 88 | CES66 = 76 | CES91 = 87 |
| CES17 = 50 | CES42 = 80 | CES67 = 74 | CES92 = 73 |
| CES18 = 57 | CES43 = 75 | CES68 = 79 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 83 | CES94 = 64 |
| CES20 = 67 | CES45 = 83 | CES70 = 72 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 70 | CES96 = 86 |
| CES22 = 79 | CES47 = 79 | CES72 = 90 | CES97 = 85 |
| CES23 = 92 | CES48 = 78 | CES73 = 65 | CES98 = 83 |
| CES24 = 91 | CES49 = 79 | CES74 = 94 | CES99 = 82 |
| CES25 = 72 | CES50 = 88 | CES75 = 70 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)