

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: P1433134

Luminaire Tested: EHBR1-18-UNV-N-L930-UPL30

Issue Date: 3/20/2026

Test Information

Test Method: LM-79-2019
Report Number: P1433134
REPORT IS A COMBINATION OF REPORTS P1431688 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-18-UNV-N-L930-UPL30
Description: Elevate Round Highbay at, 19000 lumens, 3000K 90CRI LEDs with N lens
Light Source: -
Ballast/Driver: -

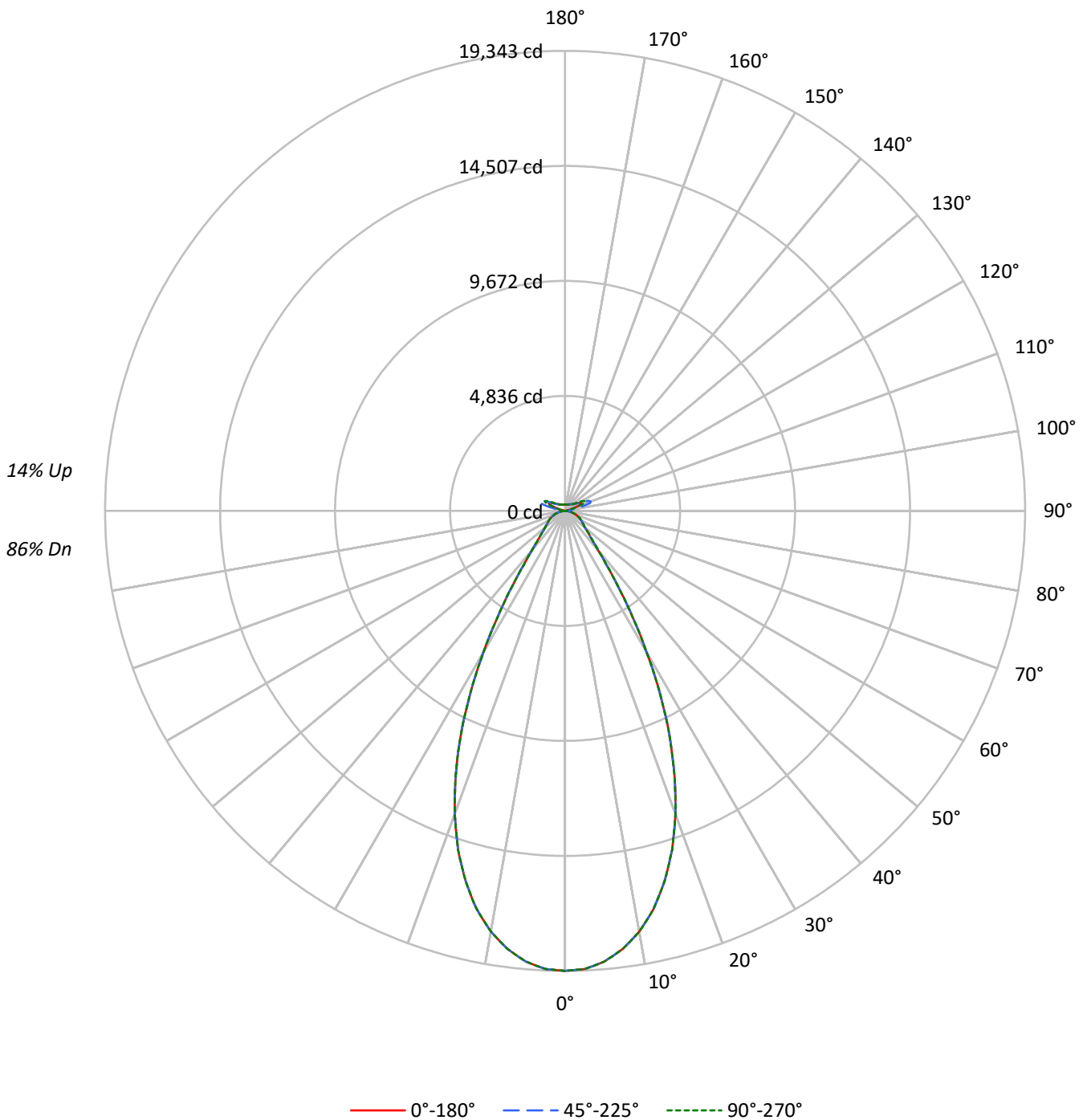
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 19217.7 lumens
Efficiency: N/A
Efficacy: 164.7 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): 116.7
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: P1433134
CATALOG NUMBER: EHBR1-18-UNV-N-L930-UPL30

Luminous Intensity Polar Plot





TEST NUMBER: P1433134

CATALOG NUMBER: EHBR1-18-UNV-N-L930-UPL30

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 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 111 | 103 | 103 | 103 | 96 | 96 | 96 | 89 | 89 | 89 | 86 | | |
| 1 | 109 | 105 | 102 | 100 | 105 | 102 | 99 | 97 | 95 | 93 | 91 | 89 | 88 | 86 | 84 | 82 | 81 | 79 | | |
| 2 | 102 | 96 | 91 | 87 | 99 | 93 | 89 | 85 | 88 | 84 | 81 | 83 | 80 | 78 | 78 | 76 | 74 | 72 | | |
| 3 | 96 | 88 | 83 | 78 | 93 | 86 | 81 | 77 | 81 | 77 | 74 | 77 | 74 | 71 | 73 | 70 | 68 | 66 | | |
| 4 | 90 | 82 | 75 | 71 | 87 | 80 | 74 | 69 | 76 | 71 | 67 | 72 | 68 | 65 | 68 | 65 | 63 | 61 | | |
| 5 | 85 | 76 | 69 | 64 | 82 | 74 | 68 | 63 | 71 | 65 | 62 | 67 | 63 | 60 | 64 | 61 | 58 | 56 | | |
| 6 | 80 | 71 | 64 | 59 | 78 | 69 | 63 | 58 | 66 | 61 | 57 | 63 | 59 | 55 | 61 | 57 | 54 | 52 | | |
| 7 | 76 | 66 | 59 | 55 | 74 | 65 | 59 | 54 | 62 | 57 | 53 | 60 | 55 | 52 | 57 | 54 | 51 | 49 | | |
| 8 | 72 | 62 | 55 | 51 | 70 | 61 | 55 | 50 | 58 | 53 | 49 | 56 | 52 | 48 | 54 | 50 | 47 | 46 | | |
| 9 | 69 | 58 | 52 | 48 | 67 | 57 | 51 | 47 | 55 | 50 | 46 | 53 | 49 | 45 | 52 | 48 | 45 | 43 | | |
| 10 | 65 | 55 | 49 | 45 | 64 | 54 | 48 | 44 | 52 | 47 | 44 | 51 | 46 | 43 | 49 | 45 | 42 | 41 | | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 90835 | 90835 | 90835 |
| 5° | 89072 | 89072 | 89072 |
| 10° | 84540 | 84540 | 84540 |
| 15° | 76919 | 76919 | 76919 |
| 20° | 65980 | 65980 | 65980 |
| 25° | 51904 | 51904 | 51904 |
| 30° | 35620 | 35620 | 35620 |
| 35° | 21159 | 21159 | 21159 |
| 40° | 12519 | 12519 | 12519 |
| 45° | 8987 | 8987 | 8987 |
| 50° | 7387 | 7387 | 7387 |
| 55° | 6714 | 6714 | 6714 |
| 60° | 6427 | 6427 | 6427 |
| 65° | 6130 | 6130 | 6130 |
| 70° | 5701 | 5701 | 5701 |
| 75° | 5154 | 5154 | 5154 |
| 80° | 4277 | 4277 | 4277 |
| 85° | 2709 | 2709 | 2709 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 8987 cd/sqm



TEST NUMBER: P1433134
 CATALOG NUMBER: EHBR1-18-UNV-N-L930-UPL30

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 1781.8 | 9.3 |
| 10°-20° | 4472.5 | 23.3 |
| 20°-30° | 4676.5 | 24.3 |
| 30°-40° | 2533.9 | 13.2 |
| 40°-50° | 1165.7 | 6.1 |
| 50°-60° | 821.5 | 4.3 |
| 60°-70° | 632.2 | 3.3 |
| 70°-80° | 383.3 | 2.0 |
| 80°-90° | 112.7 | 0.6 |
| 90°-100° | 75.3 | 0.4 |
| 100°-110° | 471.2 | 2.5 |
| 110°-120° | 842.7 | 4.4 |
| 120°-130° | 494.5 | 2.6 |
| 130°-140° | 303.3 | 1.6 |
| 140°-150° | 210.4 | 1.1 |
| 150°-160° | 136.7 | 0.7 |
| 160°-170° | 77.9 | 0.4 |
| 170°-180° | 25.7 | 0.1 |
| 0°-30° | 10930.8 | 56.9 |
| 0°-40° | 13464.7 | 70.1 |
| 0°-60° | 15451.8 | 80.4 |
| 0°-90° | 16580.0 | 86.3 |
| 90°-120° | 1389.2 | 7.2 |
| 90°-150° | 2397.4 | 12.5 |
| 90°-180° | 2638.0 | 13.7 |
| 0°-180° | 19217.7 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-------|-------|-------|-------|-------|------|
| 0° | 19343 | 19343 | 19343 | 19343 | 19343 | |
| 5° | 19018 | 19018 | 19018 | 19018 | 19018 | 1782 |
| 15° | 16137 | 16137 | 16137 | 16137 | 16137 | 4473 |
| 25° | 10365 | 10365 | 10365 | 10365 | 10365 | 4676 |
| 35° | 3884 | 3884 | 3884 | 3884 | 3884 | 2534 |
| 45° | 1454 | 1454 | 1454 | 1454 | 1454 | 1166 |
| 55° | 907 | 907 | 907 | 907 | 907 | 821 |
| 65° | 640 | 640 | 640 | 640 | 640 | 632 |
| 75° | 363 | 363 | 363 | 363 | 363 | 383 |
| 85° | 93 | 93 | 93 | 93 | 93 | 103 |
| 90° | 20 | 32 | 55 | 35 | 20 | 14 |
| 95° | 33 | 56 | 122 | 60 | 38 | 32 |
| 105° | 165 | 325 | 829 | 358 | 217 | 220 |
| 115° | 758 | 797 | 980 | 939 | 933 | 698 |
| 125° | 546 | 510 | 524 | 532 | 596 | 498 |
| 135° | 399 | 386 | 400 | 376 | 374 | 312 |
| 145° | 328 | 323 | 343 | 338 | 337 | 208 |
| 155° | 287 | 284 | 298 | 298 | 298 | 134 |
| 165° | 269 | 269 | 276 | 276 | 275 | 77 |
| 175° | 266 | 266 | 270 | 270 | 270 | 25 |
| 180° | 269 | 269 | 269 | 269 | 269 | |



TEST NUMBER: P1433134

CATALOG NUMBER: EHBR1-18-UNV-N-L930-UPL30

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|---------|---------|---------|---------|---------|
| 0° | 19342.6 | 19342.6 | 19342.6 | 19342.6 | 19342.6 |
| 2.5° | 19274.1 | 19274.1 | 19274.1 | 19274.1 | 19274.1 |
| 5° | 19018.2 | 19018.2 | 19018.2 | 19018.2 | 19018.2 |
| 7.5° | 18581.3 | 18581.3 | 18581.3 | 18581.3 | 18581.3 |
| 10° | 17961.6 | 17961.6 | 17961.6 | 17961.6 | 17961.6 |
| 12.5° | 17160.6 | 17160.6 | 17160.6 | 17160.6 | 17160.6 |
| 15° | 16137.3 | 16137.3 | 16137.3 | 16137.3 | 16137.3 |
| 17.5° | 14950.2 | 14950.2 | 14950.2 | 14950.2 | 14950.2 |
| 20° | 13560.8 | 13560.8 | 13560.8 | 13560.8 | 13560.8 |
| 22.5° | 12014.0 | 12014.0 | 12014.0 | 12014.0 | 12014.0 |
| 25° | 10365.2 | 10365.2 | 10365.2 | 10365.2 | 10365.2 |
| 27.5° | 8617.2 | 8617.2 | 8617.2 | 8617.2 | 8617.2 |
| 30° | 6851.4 | 6851.4 | 6851.4 | 6851.4 | 6851.4 |
| 32.5° | 5258.2 | 5258.2 | 5258.2 | 5258.2 | 5258.2 |
| 35° | 3883.5 | 3883.5 | 3883.5 | 3883.5 | 3883.5 |
| 37.5° | 2851.4 | 2851.4 | 2851.4 | 2851.4 | 2851.4 |
| 40° | 2169.9 | 2169.9 | 2169.9 | 2169.9 | 2169.9 |
| 42.5° | 1740.0 | 1740.0 | 1740.0 | 1740.0 | 1740.0 |
| 45° | 1454.1 | 1454.1 | 1454.1 | 1454.1 | 1454.1 |
| 47.5° | 1248.0 | 1248.0 | 1248.0 | 1248.0 | 1248.0 |
| 50° | 1100.9 | 1100.9 | 1100.9 | 1100.9 | 1100.9 |
| 52.5° | 993.5 | 993.5 | 993.5 | 993.5 | 993.5 |
| 55° | 907.3 | 907.3 | 907.3 | 907.3 | 907.3 |
| 57.5° | 837.3 | 837.3 | 837.3 | 837.3 | 837.3 |
| 60° | 772.6 | 772.6 | 772.6 | 772.6 | 772.6 |
| 62.5° | 707.9 | 707.9 | 707.9 | 707.9 | 707.9 |
| 65° | 639.8 | 639.8 | 639.8 | 639.8 | 639.8 |
| 67.5° | 570.4 | 570.4 | 570.4 | 570.4 | 570.4 |
| 70° | 500.2 | 500.2 | 500.2 | 500.2 | 500.2 |
| 72.5° | 431.9 | 431.9 | 431.9 | 431.9 | 431.9 |
| 75° | 363.1 | 363.1 | 363.1 | 363.1 | 363.1 |
| 77.5° | 295.6 | 295.6 | 295.6 | 295.6 | 295.6 |
| 80° | 225.0 | 225.0 | 225.0 | 225.0 | 225.0 |
| 82.5° | 157.6 | 157.6 | 157.6 | 157.6 | 157.6 |
| 85° | 93.1 | 93.1 | 93.1 | 93.1 | 93.1 |
| 87.5° | 33.3 | 33.3 | 33.3 | 33.3 | 33.3 |
| 90° | 20.1 | 32.3 | 54.9 | 35.3 | 20.1 |
| 92.5° | 28.7 | 48.3 | 87.6 | 45.3 | 25.7 |
| 95° | 33.2 | 55.9 | 122.3 | 60.4 | 37.8 |
| 97.5° | 42.2 | 61.9 | 140.4 | 74.0 | 58.9 |
| 100° | 55.9 | 72.4 | 219.0 | 90.6 | 78.5 |
| 102.5° | 95.1 | 154.0 | 465.0 | 170.7 | 119.3 |
| 105° | 164.6 | 324.6 | 828.9 | 357.9 | 217.4 |
| 107.5° | 285.3 | 581.3 | 1093.2 | 634.1 | 412.2 |
| 110° | 533.0 | 771.5 | 1146.0 | 871.2 | 659.8 |



TEST NUMBER: P1433134

CATALOG NUMBER: EHBR1-18-UNV-N-L930-UPL30

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|--------|-------|-------|
| 112.5° | 720.2 | 828.9 | 1097.7 | 961.8 | 859.1 |
| 115° | 757.9 | 797.2 | 979.9 | 939.2 | 933.1 |
| 117.5° | 732.2 | 727.8 | 832.0 | 844.0 | 901.4 |
| 120° | 677.9 | 647.8 | 694.6 | 736.8 | 813.8 |
| 122.5° | 610.0 | 573.7 | 594.9 | 626.6 | 703.6 |
| 125° | 546.5 | 510.4 | 523.9 | 531.5 | 596.4 |
| 127.5° | 490.8 | 466.5 | 474.1 | 465.0 | 505.8 |
| 130° | 453.0 | 431.8 | 442.4 | 421.2 | 440.8 |
| 132.5° | 421.2 | 407.7 | 419.7 | 394.1 | 400.1 |
| 135° | 398.6 | 386.5 | 400.1 | 376.0 | 374.5 |
| 137.5° | 379.0 | 368.4 | 382.0 | 363.9 | 359.3 |
| 140° | 360.8 | 351.8 | 366.9 | 353.3 | 350.3 |
| 142.5° | 341.2 | 335.2 | 353.3 | 344.2 | 341.2 |
| 145° | 327.7 | 323.1 | 342.7 | 338.2 | 336.7 |
| 147.5° | 315.6 | 312.5 | 330.7 | 329.2 | 329.2 |
| 150° | 305.0 | 302.0 | 320.1 | 318.6 | 320.1 |
| 152.5° | 294.4 | 291.4 | 308.0 | 306.5 | 308.0 |
| 155° | 286.9 | 283.8 | 297.5 | 297.5 | 297.5 |
| 157.5° | 280.8 | 279.3 | 289.9 | 289.9 | 289.9 |
| 160° | 276.3 | 274.8 | 283.8 | 283.8 | 282.3 |
| 162.5° | 271.8 | 270.3 | 280.8 | 279.3 | 279.3 |
| 165° | 268.8 | 268.8 | 276.3 | 276.3 | 274.8 |
| 167.5° | 268.8 | 267.3 | 274.8 | 274.8 | 273.3 |
| 170° | 267.3 | 267.3 | 273.3 | 271.8 | 270.3 |
| 172.5° | 267.3 | 267.3 | 273.3 | 271.8 | 270.3 |
| 175° | 265.7 | 265.7 | 270.3 | 270.3 | 270.3 |
| 177.5° | 267.3 | 267.3 | 270.3 | 270.3 | 268.8 |
| 180° | 268.8 | 268.8 | 268.8 | 268.8 | 268.8 |



TEST NUMBER: P1433134
 CATALOG NUMBER: EHBR1-18-UNV-N-L930-UPL30

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 | 13.99 | 14.97 | 14.58 | 15.54 | 16.19 | 13.99 | 14.97 | 14.58 | 15.54 | 16.19 |
| | 3H | 15.76 | 16.63 | 16.37 | 17.22 | 17.91 | 15.76 | 16.63 | 16.37 | 17.22 | 17.91 |
| | 4H | 16.42 | 17.23 | 17.05 | 17.84 | 18.54 | 16.42 | 17.23 | 17.05 | 17.84 | 18.54 |
| | 6H | 16.87 | 17.62 | 17.51 | 18.24 | 18.95 | 16.87 | 17.62 | 17.51 | 18.24 | 18.95 |
| | 8H | 16.99 | 17.70 | 17.65 | 18.34 | 19.06 | 16.99 | 17.70 | 17.65 | 18.34 | 19.06 |
| | 12H | 17.05 | 17.72 | 17.70 | 18.35 | 19.09 | 17.05 | 17.72 | 17.70 | 18.35 | 19.09 |
| 4H | 2H | 14.52 | 15.34 | 15.15 | 15.94 | 16.64 | 14.52 | 15.34 | 15.15 | 15.94 | 16.64 |
| | 3H | 16.49 | 17.16 | 17.13 | 17.81 | 18.53 | 16.49 | 17.16 | 17.13 | 17.81 | 18.53 |
| | 4H | 17.26 | 17.87 | 17.92 | 18.52 | 19.27 | 17.26 | 17.87 | 17.92 | 18.52 | 19.27 |
| | 6H | 17.83 | 18.35 | 18.51 | 19.03 | 19.80 | 17.83 | 18.35 | 18.51 | 19.03 | 19.80 |
| | 8H | 17.99 | 18.47 | 18.67 | 19.15 | 19.92 | 17.99 | 18.47 | 18.67 | 19.15 | 19.92 |
| | 12H | 18.06 | 18.49 | 18.76 | 19.20 | 19.97 | 18.06 | 18.49 | 18.76 | 19.20 | 19.97 |
| 8H | 4H | 17.49 | 17.97 | 18.17 | 18.65 | 19.42 | 17.49 | 17.97 | 18.17 | 18.65 | 19.42 |
| | 6H | 18.17 | 18.56 | 18.88 | 19.28 | 20.06 | 18.17 | 18.56 | 18.88 | 19.28 | 20.06 |
| | 8H | 18.39 | 18.74 | 19.12 | 19.47 | 20.26 | 18.39 | 18.74 | 19.12 | 19.47 | 20.26 |
| | 12H | 18.53 | 18.83 | 19.25 | 19.54 | 20.40 | 18.53 | 18.83 | 19.25 | 19.54 | 20.40 |
| 12H | 4H | 17.48 | 17.91 | 18.18 | 18.61 | 19.39 | 17.48 | 17.91 | 18.18 | 18.61 | 19.39 |
| | 6H | 18.19 | 18.54 | 18.92 | 19.27 | 20.06 | 18.19 | 18.54 | 18.92 | 19.27 | 20.06 |
| | 8H | 18.45 | 18.76 | 19.18 | 19.47 | 20.33 | 18.45 | 18.76 | 19.18 | 19.47 | 20.33 |

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

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP1-2506-472-5

Test Date: 08/01/2025

Luminaire Tested: EHBR-60-L930-N

Data in this report applies to families of products including EHBR-60-L930-N

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-472-5
 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-L930-N**
 Description: Elevate Round Highbay at, 60000 lumens, 3000K 90CRI LEDs with N lens

Spectral Parameters

CCT (K): 2996
 CIE u': 0.2519
 CIE v': 0.5169
 Duv: -0.0033
 CIE x: 0.4325
 CIE y: 0.3945
 CIE z: 0.1730
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 584
 Purity: 48.21818
 Rf: 91.3
 Rg: 102

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 94.4 | | |
| R1: | 96.8 | R9: | 61.4 |
| R2: | 98.1 | R10: | 94.4 |
| R3: | 97.8 | R11: | 95.7 |
| R4: | 95.6 | R12: | 88.5 |
| R5: | 96.9 | R13: | 97.3 |
| R6: | 95.7 | R14: | 97.8 |
| R7: | 90.9 | R15: | 92.3 |
| R8: | 83.0 | | |



Test Conditions

Stabilization Time: 40M
 Operation Time: 1H 40M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2506-472-5

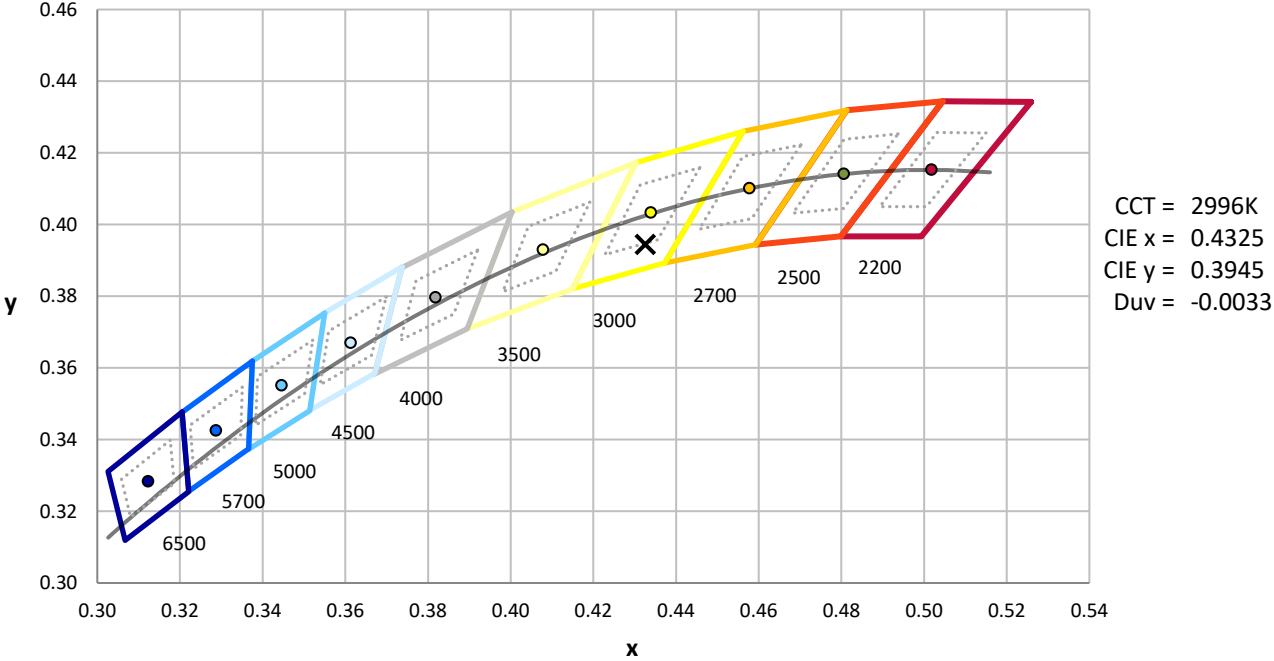
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 6/16/2025 | 12/16/2025 |
| Power Meter | 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: SP1-2506-472-5

CIE 1931 Chromaticity Diagram



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



CCT = 2996K
 CIE x = 0.4325
 CIE y = 0.3945
 Duv = -0.0033

Point lies inside the ANSI 3000K 7-step quadrangle

REPORT NUMBER: SP1-2506-472-5

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 | 101 | NR | 620 | 317 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 121 | NR | 625 | 320 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 141 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 158 | NR | 635 | 651 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 171 | NR | 640 | 207 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 182 | NR | 645 | 201 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 189 | NR | 650 | 174 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 194 | NR | 655 | 146 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 199 | NR | 660 | 124 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 205 | NR | 665 | 105 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 210 | NR | 670 | 96 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 7 | NR | 545 | 216 | NR | 675 | 79 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 13 | NR | 550 | 222 | NR | 680 | 67 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 22 | NR | 555 | 230 | NR | 685 | 58 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 37 | NR | 560 | 240 | NR | 690 | 49 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 60 | NR | 565 | 248 | NR | 695 | 42 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 101 | NR | 570 | 258 | NR | 700 | 36 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 172 | NR | 575 | 268 | NR | 705 | 30 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 223 | NR | 580 | 278 | NR | 710 | 26 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 167 | NR | 585 | 287 | NR | 715 | 22 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 126 | NR | 590 | 295 | NR | 720 | 19 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 111 | NR | 595 | 298 | NR | 725 | 16 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 86 | NR | 600 | 303 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 74 | NR | 605 | 307 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 77 | NR | 610 | 341 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 86 | NR | 615 | 368 | NR | 745 | 8 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-5

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.44

| 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 | 101 | NR | 620 | 317 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 121 | NR | 625 | 320 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 141 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 158 | NR | 635 | 651 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 171 | NR | 640 | 207 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 182 | NR | 645 | 201 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 189 | NR | 650 | 174 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 194 | NR | 655 | 146 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 199 | NR | 660 | 124 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 205 | NR | 665 | 105 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 210 | NR | 670 | 96 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 7 | NR | 545 | 216 | NR | 675 | 79 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 13 | NR | 550 | 222 | NR | 680 | 67 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 22 | NR | 555 | 230 | NR | 685 | 58 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 37 | NR | 560 | 240 | NR | 690 | 49 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 60 | NR | 565 | 248 | NR | 695 | 42 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 101 | NR | 570 | 258 | NR | 700 | 36 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 172 | NR | 575 | 268 | NR | 705 | 30 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 223 | NR | 580 | 278 | NR | 710 | 26 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 167 | NR | 585 | 287 | NR | 715 | 22 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 126 | NR | 590 | 295 | NR | 720 | 19 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 111 | NR | 595 | 298 | NR | 725 | 16 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 86 | NR | 600 | 303 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 74 | NR | 605 | 307 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 77 | NR | 610 | 341 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 86 | NR | 615 | 368 | NR | 745 | 8 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-5

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.85

| 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 | 101 | NR | 620 | 317 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 121 | NR | 625 | 320 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 141 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 158 | NR | 635 | 651 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 171 | NR | 640 | 207 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 182 | NR | 645 | 201 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 189 | NR | 650 | 174 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 194 | NR | 655 | 146 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 199 | NR | 660 | 124 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 205 | NR | 665 | 105 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 210 | NR | 670 | 96 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 7 | NR | 545 | 216 | NR | 675 | 79 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 13 | NR | 550 | 222 | NR | 680 | 67 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 22 | NR | 555 | 230 | NR | 685 | 58 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 37 | NR | 560 | 240 | NR | 690 | 49 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 60 | NR | 565 | 248 | NR | 695 | 42 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 101 | NR | 570 | 258 | NR | 700 | 36 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 172 | NR | 575 | 268 | NR | 705 | 30 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 223 | NR | 580 | 278 | NR | 710 | 26 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 167 | NR | 585 | 287 | NR | 715 | 22 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 126 | NR | 590 | 295 | NR | 720 | 19 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 111 | NR | 595 | 298 | NR | 725 | 16 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 86 | NR | 600 | 303 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 74 | NR | 605 | 307 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 77 | NR | 610 | 341 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 86 | NR | 615 | 368 | NR | 745 | 8 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 91.3$
 $R_g = 102$
 $CIE R_a = 94.4$
 $R_9 = 61.4$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 91 | CES51 = 96 | CES76 = 89 |
| CES02 = 63 | CES27 = 96 | CES52 = 95 | CES77 = 85 |
| CES03 = 32 | CES28 = 96 | CES53 = 93 | CES78 = 86 |
| CES04 = 70 | CES29 = 90 | CES54 = 98 | CES79 = 89 |
| CES05 = 51 | CES30 = 96 | CES55 = 98 | CES80 = 91 |
| CES06 = 51 | CES31 = 90 | CES56 = 95 | CES81 = 72 |
| CES07 = 44 | CES32 = 84 | CES57 = 95 | CES82 = 95 |
| CES08 = 42 | CES33 = 91 | CES58 = 95 | CES83 = 93 |
| CES09 = 29 | CES34 = 92 | CES59 = 99 | CES84 = 96 |
| CES10 = 76 | CES35 = 96 | CES60 = 96 | CES85 = 80 |
| CES11 = 59 | CES36 = 90 | CES61 = 96 | CES86 = 77 |
| CES12 = 65 | CES37 = 94 | CES62 = 95 | CES87 = 91 |
| CES13 = 44 | CES38 = 99 | CES63 = 94 | CES88 = 96 |
| CES14 = 74 | CES39 = 97 | CES64 = 96 | CES89 = 82 |
| CES15 = 72 | CES40 = 94 | CES65 = 92 | CES90 = 97 |
| CES16 = 48 | CES41 = 94 | CES66 = 95 | CES91 = 82 |
| CES17 = 50 | CES42 = 91 | CES67 = 94 | CES92 = 78 |
| CES18 = 57 | CES43 = 88 | CES68 = 93 | CES93 = 87 |
| CES19 = 72 | CES44 = 99 | CES69 = 94 | CES94 = 73 |
| CES20 = 67 | CES45 = 93 | CES70 = 90 | CES95 = 85 |
| CES21 = 86 | CES46 = 93 | CES71 = 90 | CES96 = 92 |
| CES22 = 79 | CES47 = 86 | CES72 = 96 | CES97 = 93 |
| CES23 = 92 | CES48 = 95 | CES73 = 85 | CES98 = 94 |
| CES24 = 91 | CES49 = 91 | CES74 = 90 | CES99 = 93 |
| CES25 = 72 | CES50 = 96 | CES75 = 90 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)