

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: P1436347

Luminaire Tested: EHBR1-18-UNV-M-L850-UPL12

Issue Date: 3/25/2026

Test Information

Test Method: LM-79-2019
Report Number: P1436347
REPORT IS A COMBINATION OF REPORTS P1436059 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/25/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-18-UNV-M-L850-UPL12
Description: Elevate Round Highbay at, 18000 lumens, 5000K 80CRI LEDs with M lens
Light Source: -
Ballast/Driver: -

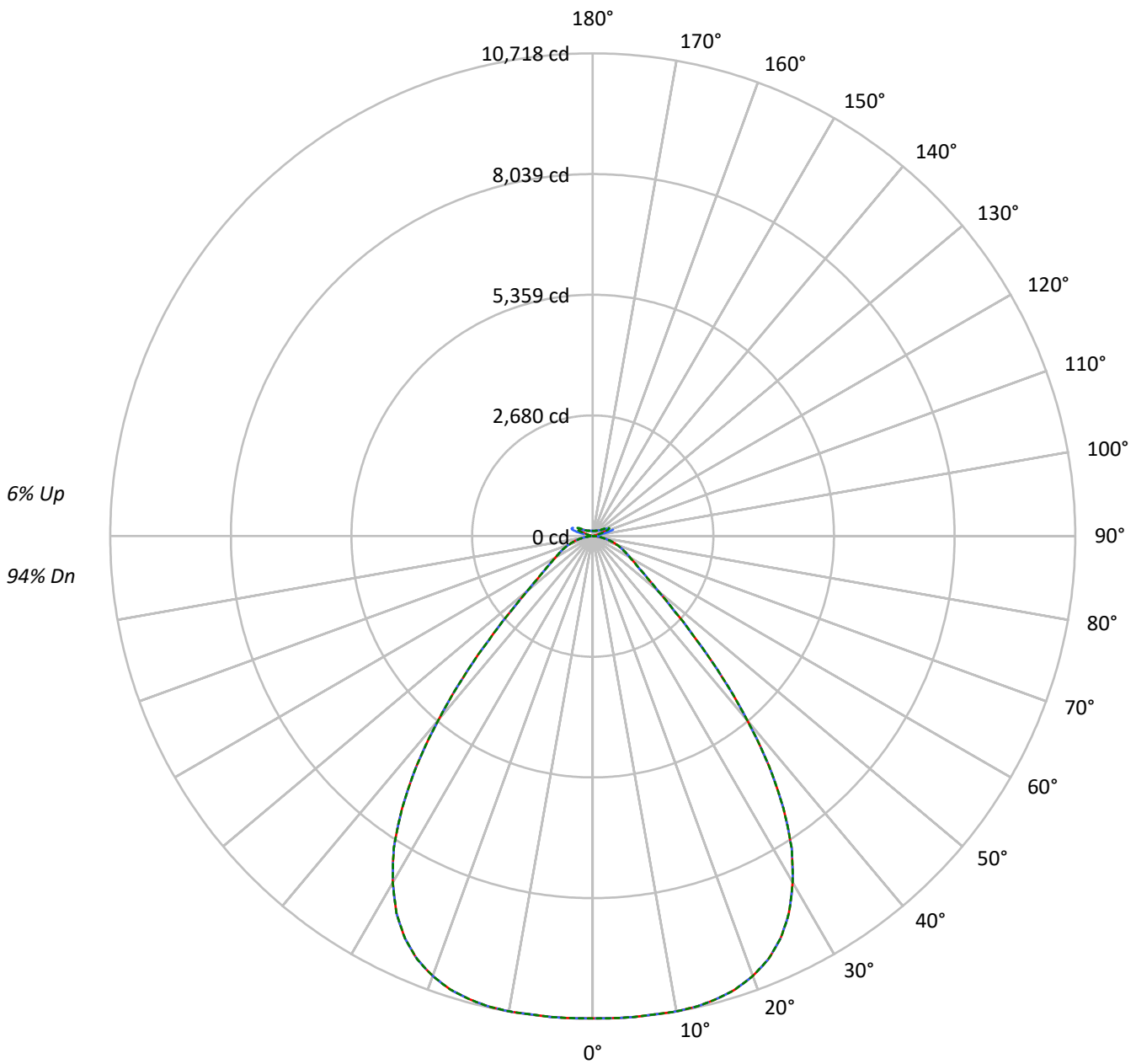
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 19277.7 lumens
Efficiency: N/A
Efficacy: 188.8 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): 102.1
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: P1436347
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Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270°



TEST NUMBER: P1436347

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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 | 78 | 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 | 65 | 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 | 59 | 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 | 46 | 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° | 50283 | 50283 | 50283 |
| 5° | 50198 | 50198 | 50198 |
| 10° | 50433 | 50433 | 50433 |
| 15° | 50723 | 50723 | 50723 |
| 20° | 50569 | 50569 | 50569 |
| 25° | 49389 | 49389 | 49389 |
| 30° | 46183 | 46183 | 46183 |
| 35° | 40220 | 40220 | 40220 |
| 40° | 30824 | 30824 | 30824 |
| 45° | 20136 | 20136 | 20136 |
| 50° | 12694 | 12694 | 12694 |
| 55° | 9463 | 9463 | 9463 |
| 60° | 7966 | 7966 | 7966 |
| 65° | 7245 | 7245 | 7245 |
| 70° | 6600 | 6600 | 6600 |
| 75° | 5650 | 5650 | 5650 |
| 80° | 4351 | 4351 | 4351 |
| 85° | 2281 | 2281 | 2281 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 20136 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 1022.7 | 5.3 |
| 10°-20° | 3003.3 | 15.6 |
| 20°-30° | 4506.3 | 23.4 |
| 30°-40° | 4533.8 | 23.5 |
| 40°-50° | 2595.3 | 13.5 |
| 50°-60° | 1187.0 | 6.2 |
| 60°-70° | 753.1 | 3.9 |
| 70°-80° | 422.5 | 2.2 |
| 80°-90° | 101.2 | 0.5 |
| 90°-100° | 32.8 | 0.2 |
| 100°-110° | 205.9 | 1.1 |
| 110°-120° | 368.2 | 1.9 |
| 120°-130° | 216.1 | 1.1 |
| 130°-140° | 132.5 | 0.7 |
| 140°-150° | 91.9 | 0.5 |
| 150°-160° | 59.7 | 0.3 |
| 160°-170° | 34.0 | 0.2 |
| 170°-180° | 11.2 | 0.1 |
| 0°-30° | 8532.3 | 44.3 |
| 0°-40° | 13066.1 | 67.8 |
| 0°-60° | 16848.4 | 87.4 |
| 0°-90° | 18125.2 | 94.0 |
| 90°-120° | 607.0 | 3.1 |
| 90°-150° | 1047.5 | 5.4 |
| 90°-180° | 1152.0 | 6.0 |
| 0°-180° | 19277.7 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-------|-------|-------|-------|-------|------|
| 0° | 10708 | 10708 | 10708 | 10708 | 10708 | |
| 5° | 10718 | 10718 | 10718 | 10718 | 10718 | 1023 |
| 15° | 10641 | 10641 | 10641 | 10641 | 10641 | 3003 |
| 25° | 9863 | 9863 | 9863 | 9863 | 9863 | 4506 |
| 35° | 7382 | 7382 | 7382 | 7382 | 7382 | 4534 |
| 45° | 3258 | 3258 | 3258 | 3258 | 3258 | 2595 |
| 55° | 1279 | 1279 | 1279 | 1279 | 1279 | 1187 |
| 65° | 756 | 756 | 756 | 756 | 756 | 753 |
| 75° | 398 | 398 | 398 | 398 | 398 | 422 |
| 85° | 78 | 78 | 78 | 78 | 78 | 96 |
| 90° | 8 | 14 | 24 | 15 | 8 | 7 |
| 95° | 14 | 24 | 53 | 26 | 16 | 14 |
| 105° | 72 | 142 | 362 | 156 | 95 | 96 |
| 115° | 331 | 348 | 428 | 410 | 408 | 305 |
| 125° | 239 | 223 | 229 | 232 | 261 | 218 |
| 135° | 174 | 169 | 175 | 164 | 164 | 136 |
| 145° | 143 | 141 | 150 | 148 | 147 | 91 |
| 155° | 125 | 124 | 130 | 130 | 130 | 58 |
| 165° | 117 | 117 | 121 | 121 | 120 | 34 |
| 175° | 116 | 116 | 118 | 118 | 118 | 11 |
| 180° | 117 | 117 | 117 | 117 | 117 | |



TEST NUMBER: P1436347

CATALOG NUMBER: EHBR1-18-UNV-M-L850-UPL12

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|---------|---------|---------|---------|---------|
| 0° | 10707.5 | 10707.5 | 10707.5 | 10707.5 | 10707.5 |
| 2.5° | 10712.8 | 10712.8 | 10712.8 | 10712.8 | 10712.8 |
| 5° | 10718.0 | 10718.0 | 10718.0 | 10718.0 | 10718.0 |
| 7.5° | 10710.7 | 10710.7 | 10710.7 | 10710.7 | 10710.7 |
| 10° | 10715.2 | 10715.2 | 10715.2 | 10715.2 | 10715.2 |
| 12.5° | 10696.8 | 10696.8 | 10696.8 | 10696.8 | 10696.8 |
| 15° | 10641.4 | 10641.4 | 10641.4 | 10641.4 | 10641.4 |
| 17.5° | 10549.8 | 10549.8 | 10549.8 | 10549.8 | 10549.8 |
| 20° | 10393.5 | 10393.5 | 10393.5 | 10393.5 | 10393.5 |
| 22.5° | 10178.8 | 10178.8 | 10178.8 | 10178.8 | 10178.8 |
| 25° | 9862.9 | 9862.9 | 9862.9 | 9862.9 | 9862.9 |
| 27.5° | 9437.9 | 9437.9 | 9437.9 | 9437.9 | 9437.9 |
| 30° | 8883.2 | 8883.2 | 8883.2 | 8883.2 | 8883.2 |
| 32.5° | 8226.2 | 8226.2 | 8226.2 | 8226.2 | 8226.2 |
| 35° | 7381.8 | 7381.8 | 7381.8 | 7381.8 | 7381.8 |
| 37.5° | 6425.4 | 6425.4 | 6425.4 | 6425.4 | 6425.4 |
| 40° | 5342.6 | 5342.6 | 5342.6 | 5342.6 | 5342.6 |
| 42.5° | 4269.4 | 4269.4 | 4269.4 | 4269.4 | 4269.4 |
| 45° | 3258.0 | 3258.0 | 3258.0 | 3258.0 | 3258.0 |
| 47.5° | 2452.6 | 2452.6 | 2452.6 | 2452.6 | 2452.6 |
| 50° | 1891.9 | 1891.9 | 1891.9 | 1891.9 | 1891.9 |
| 52.5° | 1528.5 | 1528.5 | 1528.5 | 1528.5 | 1528.5 |
| 55° | 1278.8 | 1278.8 | 1278.8 | 1278.8 | 1278.8 |
| 57.5° | 1094.9 | 1094.9 | 1094.9 | 1094.9 | 1094.9 |
| 60° | 957.7 | 957.7 | 957.7 | 957.7 | 957.7 |
| 62.5° | 851.7 | 851.7 | 851.7 | 851.7 | 851.7 |
| 65° | 756.2 | 756.2 | 756.2 | 756.2 | 756.2 |
| 67.5° | 668.2 | 668.2 | 668.2 | 668.2 | 668.2 |
| 70° | 579.1 | 579.1 | 579.1 | 579.1 | 579.1 |
| 72.5° | 489.3 | 489.3 | 489.3 | 489.3 | 489.3 |
| 75° | 398.0 | 398.0 | 398.0 | 398.0 | 398.0 |
| 77.5° | 311.3 | 311.3 | 311.3 | 311.3 | 311.3 |
| 80° | 228.9 | 228.9 | 228.9 | 228.9 | 228.9 |
| 82.5° | 149.2 | 149.2 | 149.2 | 149.2 | 149.2 |
| 85° | 78.4 | 78.4 | 78.4 | 78.4 | 78.4 |
| 87.5° | 22.4 | 22.4 | 22.4 | 22.4 | 22.4 |
| 90° | 8.5 | 13.9 | 23.8 | 15.1 | 8.5 |
| 92.5° | 12.6 | 21.1 | 38.3 | 19.7 | 11.2 |
| 95° | 14.5 | 24.4 | 53.4 | 26.4 | 16.5 |
| 97.5° | 18.5 | 27.0 | 61.4 | 32.3 | 25.7 |
| 100° | 24.4 | 31.6 | 95.7 | 39.6 | 34.3 |
| 102.5° | 41.6 | 67.3 | 203.2 | 74.6 | 52.2 |
| 105° | 71.9 | 141.8 | 362.2 | 156.4 | 95.0 |
| 107.5° | 124.7 | 254.0 | 477.6 | 277.1 | 180.2 |
| 110° | 232.9 | 337.1 | 500.8 | 380.6 | 288.3 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 112.5° | 314.7 | 362.2 | 479.6 | 420.2 | 375.3 |
| 115° | 331.2 | 348.3 | 428.2 | 410.3 | 407.7 |
| 117.5° | 319.9 | 318.0 | 363.5 | 368.7 | 393.9 |
| 120° | 296.3 | 283.0 | 303.4 | 321.9 | 355.6 |
| 122.5° | 266.5 | 250.7 | 259.9 | 273.8 | 307.5 |
| 125° | 238.8 | 223.0 | 229.0 | 232.2 | 260.6 |
| 127.5° | 214.4 | 203.8 | 207.2 | 203.2 | 221.0 |
| 130° | 197.9 | 188.7 | 193.3 | 184.1 | 192.6 |
| 132.5° | 184.1 | 178.1 | 183.4 | 172.2 | 174.8 |
| 135° | 174.2 | 168.9 | 174.8 | 164.2 | 163.6 |
| 137.5° | 165.6 | 161.0 | 166.9 | 159.0 | 157.0 |
| 140° | 157.7 | 153.7 | 160.3 | 154.4 | 153.0 |
| 142.5° | 149.1 | 146.5 | 154.4 | 150.4 | 149.1 |
| 145° | 143.1 | 141.2 | 149.8 | 147.7 | 147.1 |
| 147.5° | 137.9 | 136.5 | 144.5 | 143.8 | 143.8 |
| 150° | 133.3 | 131.9 | 139.9 | 139.2 | 139.9 |
| 152.5° | 128.7 | 127.3 | 134.6 | 133.9 | 134.6 |
| 155° | 125.3 | 124.1 | 130.0 | 130.0 | 130.0 |
| 157.5° | 122.7 | 122.0 | 126.7 | 126.7 | 126.7 |
| 160° | 120.7 | 120.0 | 124.1 | 124.1 | 123.4 |
| 162.5° | 118.8 | 118.1 | 122.7 | 122.0 | 122.0 |
| 165° | 117.4 | 117.4 | 120.7 | 120.7 | 120.0 |
| 167.5° | 117.4 | 116.8 | 120.0 | 120.0 | 119.4 |
| 170° | 116.8 | 116.8 | 119.4 | 118.8 | 118.1 |
| 172.5° | 116.8 | 116.8 | 119.4 | 118.8 | 118.1 |
| 175° | 116.1 | 116.1 | 118.1 | 118.1 | 118.1 |
| 177.5° | 116.8 | 116.8 | 118.1 | 118.1 | 117.4 |
| 180° | 117.4 | 117.4 | 117.4 | 117.4 | 117.4 |



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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 | 16.01 | 17.19 | 16.48 | 17.62 | 18.09 | 16.01 | 17.19 | 16.48 | 17.62 | 18.09 |
| | 3H | 17.50 | 18.54 | 17.98 | 18.99 | 19.51 | 17.50 | 18.54 | 17.98 | 18.99 | 19.51 |
| | 4H | 18.02 | 18.99 | 18.53 | 19.47 | 20.00 | 18.02 | 18.99 | 18.53 | 19.47 | 20.00 |
| | 6H | 18.35 | 19.24 | 18.87 | 19.73 | 20.27 | 18.35 | 19.24 | 18.87 | 19.73 | 20.27 |
| | 8H | 18.42 | 19.26 | 18.95 | 19.77 | 20.32 | 18.42 | 19.26 | 18.95 | 19.77 | 20.32 |
| | 12H | 18.43 | 19.24 | 18.97 | 19.74 | 20.31 | 18.43 | 19.24 | 18.97 | 19.74 | 20.31 |
| 4H | 2H | 16.45 | 17.42 | 16.96 | 17.90 | 18.43 | 16.45 | 17.42 | 16.96 | 17.90 | 18.43 |
| | 3H | 18.15 | 18.95 | 18.67 | 19.47 | 20.01 | 18.15 | 18.95 | 18.67 | 19.47 | 20.01 |
| | 4H | 18.78 | 19.50 | 19.32 | 20.03 | 20.61 | 18.78 | 19.50 | 19.32 | 20.03 | 20.61 |
| | 6H | 19.20 | 19.82 | 19.77 | 20.38 | 20.98 | 19.20 | 19.82 | 19.77 | 20.38 | 20.98 |
| | 8H | 19.30 | 19.87 | 19.87 | 20.43 | 21.04 | 19.30 | 19.87 | 19.87 | 20.43 | 21.04 |
| | 12H | 19.33 | 19.84 | 19.91 | 20.42 | 21.04 | 19.33 | 19.84 | 19.91 | 20.42 | 21.04 |
| 8H | 4H | 18.96 | 19.53 | 19.53 | 20.09 | 20.70 | 18.96 | 19.53 | 19.53 | 20.09 | 20.70 |
| | 6H | 19.47 | 19.94 | 20.07 | 20.54 | 21.16 | 19.47 | 19.94 | 20.07 | 20.54 | 21.16 |
| | 8H | 19.61 | 20.03 | 20.22 | 20.64 | 21.27 | 19.61 | 20.03 | 20.22 | 20.64 | 21.27 |
| | 12H | 19.67 | 20.04 | 20.29 | 20.64 | 21.34 | 19.67 | 20.04 | 20.29 | 20.64 | 21.34 |
| 12H | 4H | 18.94 | 19.45 | 19.53 | 20.04 | 20.65 | 18.94 | 19.45 | 19.53 | 20.04 | 20.65 |
| | 6H | 19.47 | 19.89 | 20.09 | 20.50 | 21.13 | 19.47 | 19.89 | 20.09 | 20.50 | 21.13 |
| | 8H | 19.64 | 20.01 | 20.25 | 20.61 | 21.31 | 19.64 | 20.01 | 20.25 | 20.61 | 21.31 |

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



CCT = 4875K
 CIE x = 0.3488
 CIE y = 0.3555
 Duv = 0.0005

Point lies inside the ANSI 5000K 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 | 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 ($R_{f,i}$)

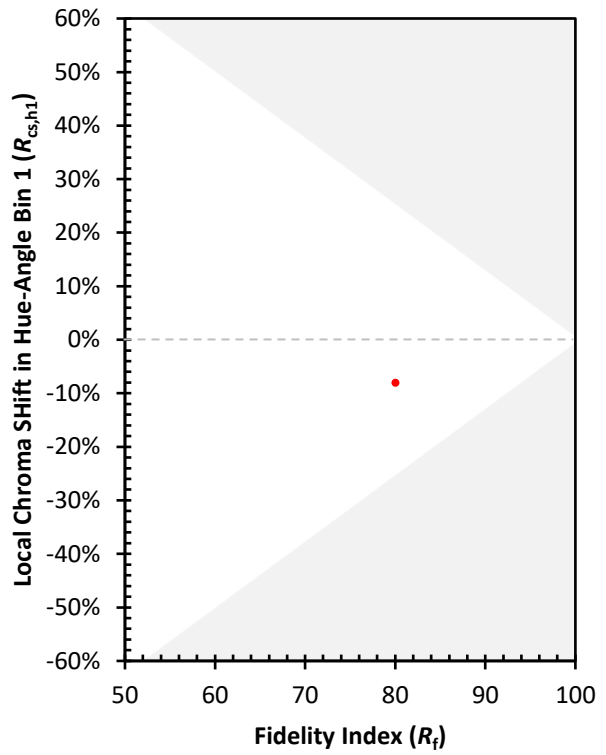
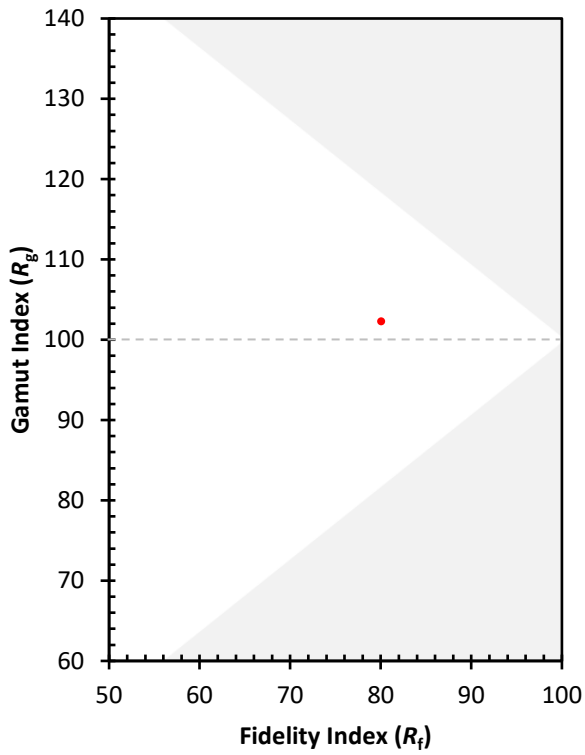
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 67 | CES51 = 92 | CES76 = 54 |
| CES02 = 60 | CES27 = 88 | CES52 = 91 | CES77 = 71 |
| CES03 = 31 | CES28 = 81 | CES53 = 82 | CES78 = 55 |
| CES04 = 69 | CES29 = 66 | CES54 = 92 | CES79 = 81 |
| CES05 = 47 | CES30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