

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: P1432884

Luminaire Tested: EHBR1-18-UNV-N-L850-UPL15

Issue Date: 3/20/2026

Test Information

Test Method: LM-79-2019
Report Number: P1432884
REPORT IS A COMBINATION OF REPORTS P1431685 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-18-UNV-N-L850-UPL15
Description: Elevate Round Highbay at, 18000 lumens, 5000K 80CRI LEDs with N lens
Light Source: -
Ballast/Driver: -

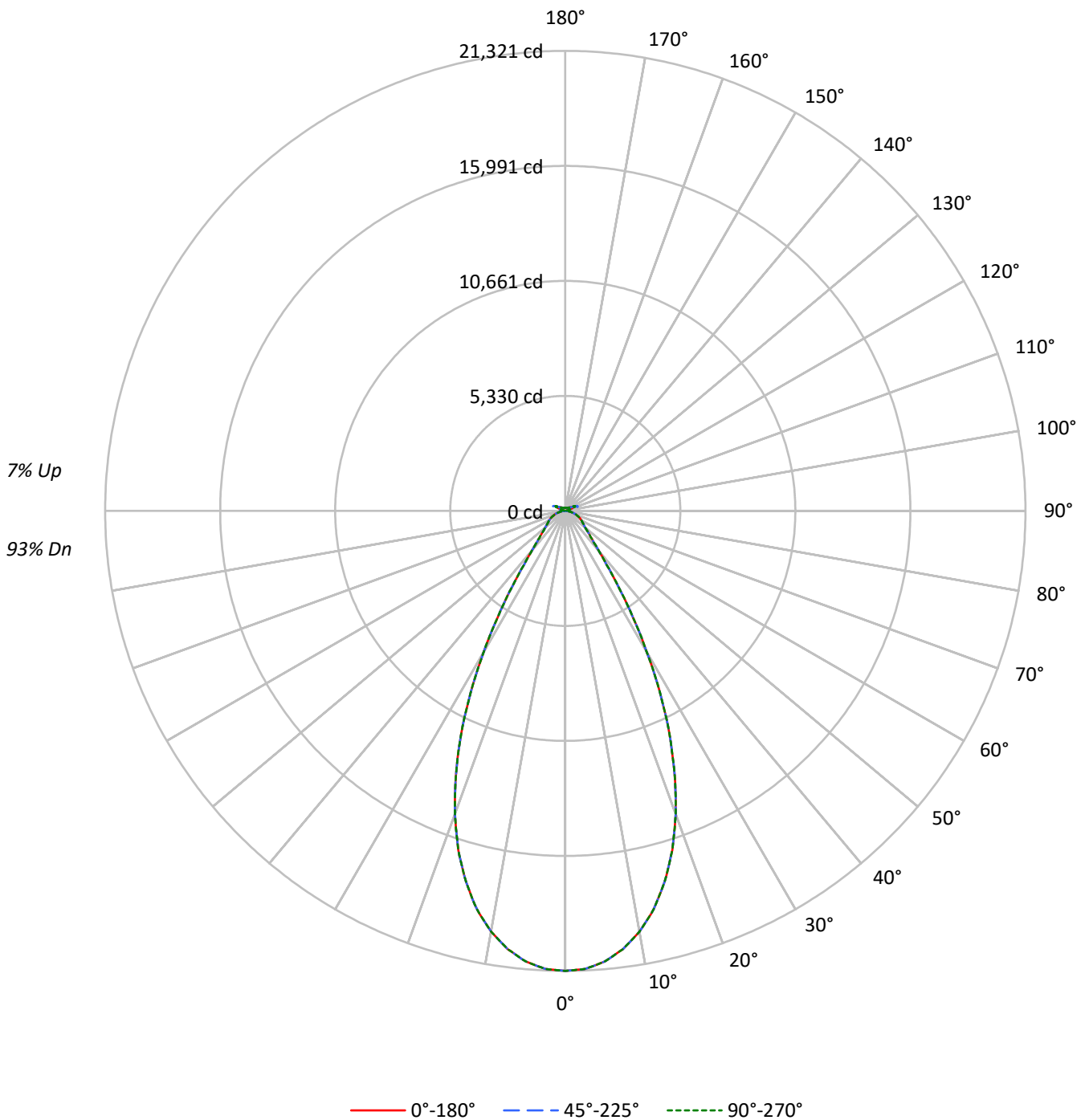
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 19691.9 lumens
Efficiency: N/A
Efficacy: 189.3 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): 104
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: P1432884
CATALOG NUMBER: EHBR1-18-UNV-N-L850-UPL15

Luminous Intensity Polar Plot





TEST NUMBER: P1432884

CATALOG NUMBER: EHBR1-18-UNV-N-L850-UPL15

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 | 85 | |
| 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 | 69 | 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 | 54 | 49 | 58 | 53 | 49 | 57 | 52 | 48 | 55 | 51 | 48 | 48 | 46 | |
| 10 | 67 | 57 | 51 | 47 | 66 | 56 | 50 | 47 | 55 | 50 | 46 | 54 | 49 | 46 | 52 | 48 | 45 | 45 | 44 | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 100127 | 100127 | 100127 |
| 5° | 98183 | 98183 | 98183 |
| 10° | 93187 | 93187 | 93187 |
| 15° | 84788 | 84788 | 84788 |
| 20° | 72730 | 72730 | 72730 |
| 25° | 57214 | 57214 | 57214 |
| 30° | 39263 | 39263 | 39263 |
| 35° | 23324 | 23324 | 23324 |
| 40° | 13800 | 13800 | 13800 |
| 45° | 9906 | 9906 | 9906 |
| 50° | 8142 | 8142 | 8142 |
| 55° | 7400 | 7400 | 7400 |
| 60° | 7085 | 7085 | 7085 |
| 65° | 6757 | 6757 | 6757 |
| 70° | 6284 | 6284 | 6284 |
| 75° | 5681 | 5681 | 5681 |
| 80° | 4714 | 4714 | 4714 |
| 85° | 2988 | 2988 | 2988 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 9906 cd/sqm



TEST NUMBER: P1432884
 CATALOG NUMBER: EHBR1-18-UNV-N-L850-UPL15

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 1964.0 | 10.0 |
| 10°-20° | 4930.1 | 25.0 |
| 20°-30° | 5154.9 | 26.2 |
| 30°-40° | 2793.1 | 14.2 |
| 40°-50° | 1284.9 | 6.5 |
| 50°-60° | 905.5 | 4.6 |
| 60°-70° | 696.9 | 3.5 |
| 70°-80° | 422.5 | 2.1 |
| 80°-90° | 121.6 | 0.6 |
| 90°-100° | 40.5 | 0.2 |
| 100°-110° | 253.4 | 1.3 |
| 110°-120° | 453.2 | 2.3 |
| 120°-130° | 265.9 | 1.4 |
| 130°-140° | 163.1 | 0.8 |
| 140°-150° | 113.1 | 0.6 |
| 150°-160° | 73.5 | 0.4 |
| 160°-170° | 41.9 | 0.2 |
| 170°-180° | 13.8 | 0.1 |
| 0°-30° | 12049.0 | 61.2 |
| 0°-40° | 14842.0 | 75.4 |
| 0°-60° | 17032.5 | 86.5 |
| 0°-90° | 18273.4 | 92.8 |
| 90°-120° | 747.2 | 3.8 |
| 90°-150° | 1289.3 | 6.5 |
| 90°-180° | 1419.0 | 7.2 |
| 0°-180° | 19691.9 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-------|-------|-------|-------|-------|------|
| 0° | 21321 | 21321 | 21321 | 21321 | 21321 | |
| 5° | 20964 | 20964 | 20964 | 20964 | 20964 | 1964 |
| 15° | 17788 | 17788 | 17788 | 17788 | 17788 | 4930 |
| 25° | 11426 | 11426 | 11426 | 11426 | 11426 | 5155 |
| 35° | 4281 | 4281 | 4281 | 4281 | 4281 | 2793 |
| 45° | 1603 | 1603 | 1603 | 1603 | 1603 | 1285 |
| 55° | 1000 | 1000 | 1000 | 1000 | 1000 | 906 |
| 65° | 705 | 705 | 705 | 705 | 705 | 697 |
| 75° | 400 | 400 | 400 | 400 | 400 | 422 |
| 85° | 103 | 103 | 103 | 103 | 103 | 114 |
| 90° | 11 | 18 | 30 | 19 | 11 | 10 |
| 95° | 18 | 30 | 66 | 32 | 20 | 17 |
| 105° | 88 | 175 | 446 | 192 | 117 | 118 |
| 115° | 408 | 429 | 527 | 505 | 502 | 375 |
| 125° | 294 | 274 | 282 | 286 | 321 | 268 |
| 135° | 214 | 208 | 215 | 202 | 201 | 168 |
| 145° | 176 | 174 | 184 | 182 | 181 | 112 |
| 155° | 154 | 153 | 160 | 160 | 160 | 72 |
| 165° | 144 | 144 | 149 | 149 | 148 | 41 |
| 175° | 143 | 143 | 145 | 145 | 145 | 14 |
| 180° | 144 | 144 | 144 | 144 | 144 | |



TEST NUMBER: P1432884

CATALOG NUMBER: EHBR1-18-UNV-N-L850-UPL15

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|---------|---------|---------|---------|---------|
| 0° | 21321.3 | 21321.3 | 21321.3 | 21321.3 | 21321.3 |
| 2.5° | 21245.8 | 21245.8 | 21245.8 | 21245.8 | 21245.8 |
| 5° | 20963.7 | 20963.7 | 20963.7 | 20963.7 | 20963.7 |
| 7.5° | 20482.1 | 20482.1 | 20482.1 | 20482.1 | 20482.1 |
| 10° | 19798.9 | 19798.9 | 19798.9 | 19798.9 | 19798.9 |
| 12.5° | 18916.1 | 18916.1 | 18916.1 | 18916.1 | 18916.1 |
| 15° | 17788.1 | 17788.1 | 17788.1 | 17788.1 | 17788.1 |
| 17.5° | 16479.6 | 16479.6 | 16479.6 | 16479.6 | 16479.6 |
| 20° | 14948.1 | 14948.1 | 14948.1 | 14948.1 | 14948.1 |
| 22.5° | 13243.0 | 13243.0 | 13243.0 | 13243.0 | 13243.0 |
| 25° | 11425.5 | 11425.5 | 11425.5 | 11425.5 | 11425.5 |
| 27.5° | 9498.7 | 9498.7 | 9498.7 | 9498.7 | 9498.7 |
| 30° | 7552.2 | 7552.2 | 7552.2 | 7552.2 | 7552.2 |
| 32.5° | 5796.1 | 5796.1 | 5796.1 | 5796.1 | 5796.1 |
| 35° | 4280.8 | 4280.8 | 4280.8 | 4280.8 | 4280.8 |
| 37.5° | 3143.1 | 3143.1 | 3143.1 | 3143.1 | 3143.1 |
| 40° | 2391.9 | 2391.9 | 2391.9 | 2391.9 | 2391.9 |
| 42.5° | 1917.9 | 1917.9 | 1917.9 | 1917.9 | 1917.9 |
| 45° | 1602.8 | 1602.8 | 1602.8 | 1602.8 | 1602.8 |
| 47.5° | 1375.7 | 1375.7 | 1375.7 | 1375.7 | 1375.7 |
| 50° | 1213.5 | 1213.5 | 1213.5 | 1213.5 | 1213.5 |
| 52.5° | 1095.2 | 1095.2 | 1095.2 | 1095.2 | 1095.2 |
| 55° | 1000.1 | 1000.1 | 1000.1 | 1000.1 | 1000.1 |
| 57.5° | 923.0 | 923.0 | 923.0 | 923.0 | 923.0 |
| 60° | 851.7 | 851.7 | 851.7 | 851.7 | 851.7 |
| 62.5° | 780.3 | 780.3 | 780.3 | 780.3 | 780.3 |
| 65° | 705.3 | 705.3 | 705.3 | 705.3 | 705.3 |
| 67.5° | 628.8 | 628.8 | 628.8 | 628.8 | 628.8 |
| 70° | 551.4 | 551.4 | 551.4 | 551.4 | 551.4 |
| 72.5° | 476.1 | 476.1 | 476.1 | 476.1 | 476.1 |
| 75° | 400.2 | 400.2 | 400.2 | 400.2 | 400.2 |
| 77.5° | 325.8 | 325.8 | 325.8 | 325.8 | 325.8 |
| 80° | 248.0 | 248.0 | 248.0 | 248.0 | 248.0 |
| 82.5° | 173.7 | 173.7 | 173.7 | 173.7 | 173.7 |
| 85° | 102.7 | 102.7 | 102.7 | 102.7 | 102.7 |
| 87.5° | 36.7 | 36.7 | 36.7 | 36.7 | 36.7 |
| 90° | 11.1 | 17.7 | 29.9 | 19.3 | 11.1 |
| 92.5° | 15.4 | 26.0 | 47.1 | 24.4 | 13.9 |
| 95° | 17.9 | 30.1 | 65.8 | 32.5 | 20.3 |
| 97.5° | 22.7 | 33.3 | 75.5 | 39.8 | 31.6 |
| 100° | 30.1 | 39.0 | 117.8 | 48.7 | 42.2 |
| 102.5° | 51.2 | 82.8 | 250.1 | 91.7 | 64.1 |
| 105° | 88.5 | 174.6 | 445.8 | 192.4 | 116.9 |
| 107.5° | 153.4 | 312.6 | 587.9 | 341.1 | 221.7 |
| 110° | 286.6 | 414.9 | 616.3 | 468.5 | 354.8 |



TEST NUMBER: P1432884

CATALOG NUMBER: EHBR1-18-UNV-N-L850-UPL15

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 112.5° | 387.3 | 445.8 | 590.3 | 517.2 | 462.0 |
| 115° | 407.7 | 428.7 | 527.0 | 505.0 | 501.8 |
| 117.5° | 393.8 | 391.3 | 447.4 | 453.9 | 484.8 |
| 120° | 364.5 | 348.3 | 373.5 | 396.3 | 437.6 |
| 122.5° | 328.0 | 308.5 | 319.9 | 336.9 | 378.4 |
| 125° | 293.9 | 274.5 | 281.7 | 285.8 | 320.7 |
| 127.5° | 263.8 | 250.9 | 255.0 | 250.1 | 272.0 |
| 130° | 243.6 | 232.2 | 237.9 | 226.5 | 237.1 |
| 132.5° | 226.5 | 219.2 | 225.7 | 211.9 | 215.1 |
| 135° | 214.3 | 207.9 | 215.1 | 202.2 | 201.4 |
| 137.5° | 203.8 | 198.1 | 205.4 | 195.7 | 193.2 |
| 140° | 194.1 | 189.2 | 197.3 | 190.0 | 188.4 |
| 142.5° | 183.5 | 180.3 | 190.0 | 185.2 | 183.5 |
| 145° | 176.2 | 173.8 | 184.3 | 181.9 | 181.0 |
| 147.5° | 169.7 | 168.1 | 177.8 | 177.0 | 177.0 |
| 150° | 164.0 | 162.4 | 172.1 | 171.3 | 172.1 |
| 152.5° | 158.3 | 156.7 | 165.6 | 164.8 | 165.6 |
| 155° | 154.3 | 152.6 | 159.9 | 159.9 | 159.9 |
| 157.5° | 151.0 | 150.2 | 155.9 | 155.9 | 155.9 |
| 160° | 148.6 | 147.7 | 152.6 | 152.6 | 151.9 |
| 162.5° | 146.2 | 145.4 | 151.0 | 150.2 | 150.2 |
| 165° | 144.5 | 144.5 | 148.6 | 148.6 | 147.7 |
| 167.5° | 144.5 | 143.7 | 147.7 | 147.7 | 147.0 |
| 170° | 143.7 | 143.7 | 147.0 | 146.2 | 145.4 |
| 172.5° | 143.7 | 143.7 | 147.0 | 146.2 | 145.4 |
| 175° | 142.9 | 142.9 | 145.4 | 145.4 | 145.4 |
| 177.5° | 143.7 | 143.7 | 145.4 | 145.4 | 144.5 |
| 180° | 144.5 | 144.5 | 144.5 | 144.5 | 144.5 |



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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 | 14.85 | 15.91 | 15.34 | 16.37 | 16.87 | 14.85 | 15.91 | 15.34 | 16.37 | 16.87 |
| | 3H | 16.63 | 17.57 | 17.14 | 18.05 | 18.59 | 16.63 | 17.57 | 17.14 | 18.05 | 18.59 |
| | 4H | 17.28 | 18.16 | 17.81 | 18.66 | 19.22 | 17.28 | 18.16 | 17.81 | 18.66 | 19.22 |
| | 6H | 17.74 | 18.55 | 18.29 | 19.06 | 19.63 | 17.74 | 18.55 | 18.29 | 19.06 | 19.63 |
| | 8H | 17.87 | 18.63 | 18.42 | 19.16 | 19.74 | 17.87 | 18.63 | 18.42 | 19.16 | 19.74 |
| | 12H | 17.92 | 18.65 | 18.48 | 19.17 | 19.77 | 17.92 | 18.65 | 18.48 | 19.17 | 19.77 |
| 4H | 2H | 15.39 | 16.27 | 15.92 | 16.76 | 17.32 | 15.39 | 16.27 | 15.92 | 16.76 | 17.32 |
| | 3H | 17.36 | 18.08 | 17.90 | 18.63 | 19.20 | 17.36 | 18.08 | 17.90 | 18.63 | 19.20 |
| | 4H | 18.13 | 18.78 | 18.69 | 19.34 | 19.95 | 18.13 | 18.78 | 18.69 | 19.34 | 19.95 |
| | 6H | 18.70 | 19.26 | 19.29 | 19.84 | 20.47 | 18.70 | 19.26 | 19.29 | 19.84 | 20.47 |
| | 8H | 18.86 | 19.38 | 19.45 | 19.96 | 20.60 | 18.86 | 19.38 | 19.45 | 19.96 | 20.60 |
| | 12H | 18.94 | 19.40 | 19.55 | 20.01 | 20.65 | 18.94 | 19.40 | 19.55 | 20.01 | 20.65 |
| 8H | 4H | 18.36 | 18.88 | 18.95 | 19.46 | 20.10 | 18.36 | 18.88 | 18.95 | 19.46 | 20.10 |
| | 6H | 19.04 | 19.47 | 19.66 | 20.09 | 20.73 | 19.04 | 19.47 | 19.66 | 20.09 | 20.73 |
| | 8H | 19.26 | 19.64 | 19.91 | 20.28 | 20.93 | 19.26 | 19.64 | 19.91 | 20.28 | 20.93 |
| | 12H | 19.40 | 19.73 | 20.04 | 20.35 | 21.08 | 19.40 | 19.73 | 20.04 | 20.35 | 21.08 |
| 12H | 4H | 18.36 | 18.82 | 18.96 | 19.42 | 20.07 | 18.36 | 18.82 | 18.96 | 19.42 | 20.07 |
| | 6H | 19.07 | 19.44 | 19.71 | 20.08 | 20.74 | 19.07 | 19.44 | 19.71 | 20.08 | 20.74 |
| | 8H | 19.33 | 19.66 | 19.96 | 20.27 | 21.01 | 19.33 | 19.66 | 19.96 | 20.27 | 21.01 |

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)