

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: P1436677

Luminaire Tested: EHBR1-48-UNV-M-L950-UPL18

Issue Date: 3/25/2026

Test Information

Test Method: LM-79-2019
Report Number: P1436677
REPORT IS A COMBINATION OF REPORTS P1436101 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/25/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-48-UNV-M-L950-UPL18
Description: Elevate Round Highbay at, 48000 lumens, 5000K 90CRI LEDs with M lens
Light Source: -
Ballast/Driver: -

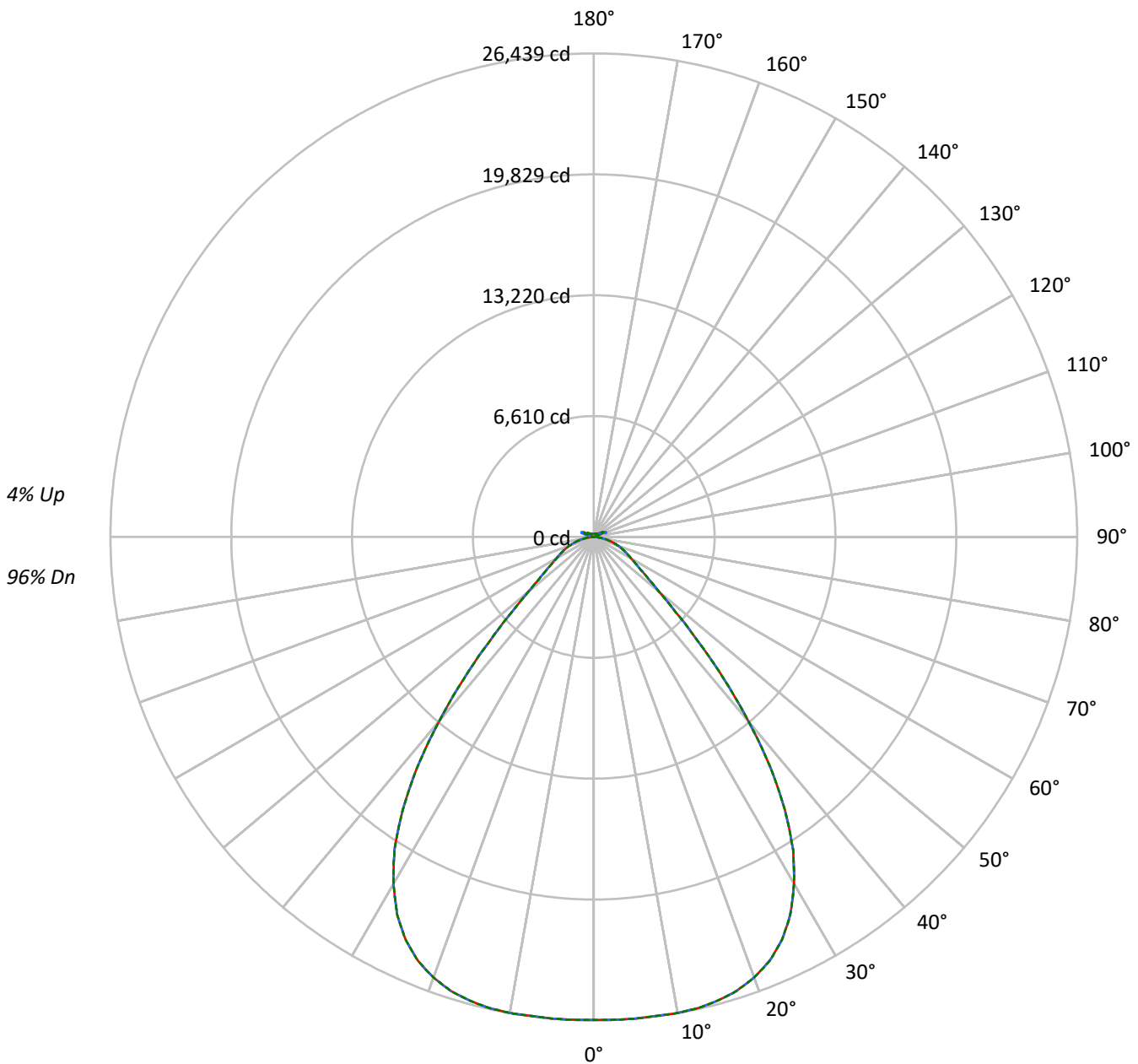
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 46385.5 lumens
Efficiency: N/A
Efficacy: 171.5 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): 270.5
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: P1436677
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Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270°



TEST NUMBER: P1436677

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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 | 118 | 118 | 118 | 118 | 115 | 115 | 115 | 115 | 109 | 109 | 109 | 104 | 104 | 104 | 99 | 99 | 99 | 99 | 96 | |
| 1 | 111 | 107 | 104 | 101 | 108 | 105 | 102 | 99 | 100 | 97 | 95 | 95 | 94 | 92 | 91 | 90 | 89 | 89 | 86 | |
| 2 | 103 | 97 | 92 | 87 | 101 | 95 | 90 | 86 | 91 | 87 | 84 | 87 | 84 | 81 | 84 | 81 | 79 | 79 | 77 | |
| 3 | 96 | 88 | 82 | 77 | 94 | 86 | 80 | 76 | 83 | 78 | 74 | 80 | 76 | 72 | 77 | 74 | 71 | 71 | 69 | |
| 4 | 90 | 80 | 73 | 68 | 87 | 79 | 72 | 67 | 76 | 70 | 66 | 73 | 69 | 65 | 71 | 67 | 64 | 64 | 62 | |
| 5 | 84 | 73 | 66 | 61 | 82 | 72 | 65 | 60 | 70 | 64 | 59 | 68 | 63 | 58 | 66 | 61 | 58 | 58 | 56 | |
| 6 | 78 | 67 | 60 | 55 | 77 | 66 | 59 | 54 | 64 | 58 | 54 | 63 | 57 | 53 | 61 | 56 | 52 | 52 | 51 | |
| 7 | 74 | 62 | 55 | 50 | 72 | 61 | 54 | 49 | 60 | 53 | 49 | 58 | 52 | 48 | 56 | 52 | 48 | 48 | 46 | |
| 8 | 69 | 58 | 50 | 45 | 68 | 57 | 50 | 45 | 55 | 49 | 45 | 54 | 48 | 44 | 53 | 48 | 44 | 44 | 42 | |
| 9 | 65 | 53 | 46 | 42 | 64 | 53 | 46 | 41 | 51 | 45 | 41 | 50 | 45 | 41 | 49 | 44 | 40 | 40 | 39 | |
| 10 | 61 | 50 | 43 | 38 | 60 | 49 | 43 | 38 | 48 | 42 | 38 | 47 | 41 | 38 | 46 | 41 | 37 | 37 | 36 | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 124038 | 124038 | 124038 |
| 5° | 123826 | 123826 | 123826 |
| 10° | 124408 | 124408 | 124408 |
| 15° | 125122 | 125122 | 125122 |
| 20° | 124744 | 124744 | 124744 |
| 25° | 121831 | 121831 | 121831 |
| 30° | 113920 | 113920 | 113920 |
| 35° | 99214 | 99214 | 99214 |
| 40° | 76036 | 76036 | 76036 |
| 45° | 49672 | 49672 | 49672 |
| 50° | 31314 | 31314 | 31314 |
| 55° | 23343 | 23343 | 23343 |
| 60° | 19652 | 19652 | 19652 |
| 65° | 17870 | 17870 | 17870 |
| 70° | 16279 | 16279 | 16279 |
| 75° | 13937 | 13937 | 13937 |
| 80° | 10732 | 10732 | 10732 |
| 85° | 5627 | 5627 | 5627 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 49672 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 2522.7 | 5.4 |
| 10°-20° | 7408.4 | 16.0 |
| 20°-30° | 11116.0 | 24.0 |
| 30°-40° | 11183.9 | 24.1 |
| 40°-50° | 6401.9 | 13.8 |
| 50°-60° | 2928.1 | 6.3 |
| 60°-70° | 1857.8 | 4.0 |
| 70°-80° | 1042.1 | 2.2 |
| 80°-90° | 247.5 | 0.5 |
| 90°-100° | 47.8 | 0.1 |
| 100°-110° | 299.7 | 0.6 |
| 110°-120° | 535.8 | 1.2 |
| 120°-130° | 314.4 | 0.7 |
| 130°-140° | 192.9 | 0.4 |
| 140°-150° | 133.8 | 0.3 |
| 150°-160° | 86.9 | 0.2 |
| 160°-170° | 49.5 | 0.1 |
| 170°-180° | 16.4 | 0.0 |
| 0°-30° | 21047.1 | 45.4 |
| 0°-40° | 32231.0 | 69.5 |
| 0°-60° | 41561.0 | 89.6 |
| 0°-90° | 44708.4 | 96.4 |
| 90°-120° | 883.3 | 1.9 |
| 90°-150° | 1524.3 | 3.3 |
| 90°-180° | 1677.0 | 3.6 |
| 0°-180° | 46385.5 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-------|-------|-------|-------|-------|-------|
| 0° | 26413 | 26413 | 26413 | 26413 | 26413 | |
| 5° | 26439 | 26439 | 26439 | 26439 | 26439 | 2523 |
| 15° | 26250 | 26250 | 26250 | 26250 | 26250 | 7408 |
| 25° | 24330 | 24330 | 24330 | 24330 | 24330 | 11116 |
| 35° | 18209 | 18209 | 18209 | 18209 | 18209 | 11184 |
| 45° | 8037 | 8037 | 8037 | 8037 | 8037 | 6402 |
| 55° | 3155 | 3155 | 3155 | 3155 | 3155 | 2928 |
| 65° | 1865 | 1865 | 1865 | 1865 | 1865 | 1858 |
| 75° | 982 | 982 | 982 | 982 | 982 | 1042 |
| 85° | 193 | 193 | 193 | 193 | 193 | 237 |
| 90° | 12 | 20 | 35 | 22 | 12 | 13 |
| 95° | 21 | 36 | 78 | 38 | 24 | 20 |
| 105° | 105 | 206 | 527 | 228 | 138 | 140 |
| 115° | 482 | 507 | 623 | 597 | 593 | 444 |
| 125° | 348 | 324 | 333 | 338 | 379 | 317 |
| 135° | 254 | 246 | 254 | 239 | 238 | 198 |
| 145° | 208 | 205 | 218 | 215 | 214 | 132 |
| 155° | 182 | 180 | 189 | 189 | 189 | 85 |
| 165° | 171 | 171 | 176 | 176 | 175 | 49 |
| 175° | 169 | 169 | 172 | 172 | 172 | 16 |
| 180° | 171 | 171 | 171 | 171 | 171 | |



TEST NUMBER: P1436677

CATALOG NUMBER: EHBR1-48-UNV-M-L950-UPL18

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|---------|---------|---------|---------|---------|
| 0° | 26413.1 | 26413.1 | 26413.1 | 26413.1 | 26413.1 |
| 2.5° | 26426.0 | 26426.0 | 26426.0 | 26426.0 | 26426.0 |
| 5° | 26438.8 | 26438.8 | 26438.8 | 26438.8 | 26438.8 |
| 7.5° | 26420.7 | 26420.7 | 26420.7 | 26420.7 | 26420.7 |
| 10° | 26432.1 | 26432.1 | 26432.1 | 26432.1 | 26432.1 |
| 12.5° | 26386.6 | 26386.6 | 26386.6 | 26386.6 | 26386.6 |
| 15° | 26249.9 | 26249.9 | 26249.9 | 26249.9 | 26249.9 |
| 17.5° | 26023.9 | 26023.9 | 26023.9 | 26023.9 | 26023.9 |
| 20° | 25638.5 | 25638.5 | 25638.5 | 25638.5 | 25638.5 |
| 22.5° | 25108.7 | 25108.7 | 25108.7 | 25108.7 | 25108.7 |
| 25° | 24329.5 | 24329.5 | 24329.5 | 24329.5 | 24329.5 |
| 27.5° | 23281.2 | 23281.2 | 23281.2 | 23281.2 | 23281.2 |
| 30° | 21912.5 | 21912.5 | 21912.5 | 21912.5 | 21912.5 |
| 32.5° | 20292.2 | 20292.2 | 20292.2 | 20292.2 | 20292.2 |
| 35° | 18209.3 | 18209.3 | 18209.3 | 18209.3 | 18209.3 |
| 37.5° | 15849.9 | 15849.9 | 15849.9 | 15849.9 | 15849.9 |
| 40° | 13178.9 | 13178.9 | 13178.9 | 13178.9 | 13178.9 |
| 42.5° | 10531.5 | 10531.5 | 10531.5 | 10531.5 | 10531.5 |
| 45° | 8036.8 | 8036.8 | 8036.8 | 8036.8 | 8036.8 |
| 47.5° | 6049.8 | 6049.8 | 6049.8 | 6049.8 | 6049.8 |
| 50° | 4666.9 | 4666.9 | 4666.9 | 4666.9 | 4666.9 |
| 52.5° | 3770.5 | 3770.5 | 3770.5 | 3770.5 | 3770.5 |
| 55° | 3154.6 | 3154.6 | 3154.6 | 3154.6 | 3154.6 |
| 57.5° | 2701.1 | 2701.1 | 2701.1 | 2701.1 | 2701.1 |
| 60° | 2362.5 | 2362.5 | 2362.5 | 2362.5 | 2362.5 |
| 62.5° | 2101.0 | 2101.0 | 2101.0 | 2101.0 | 2101.0 |
| 65° | 1865.2 | 1865.2 | 1865.2 | 1865.2 | 1865.2 |
| 67.5° | 1648.3 | 1648.3 | 1648.3 | 1648.3 | 1648.3 |
| 70° | 1428.4 | 1428.4 | 1428.4 | 1428.4 | 1428.4 |
| 72.5° | 1206.9 | 1206.9 | 1206.9 | 1206.9 | 1206.9 |
| 75° | 981.8 | 981.8 | 981.8 | 981.8 | 981.8 |
| 77.5° | 767.8 | 767.8 | 767.8 | 767.8 | 767.8 |
| 80° | 564.6 | 564.6 | 564.6 | 564.6 | 564.6 |
| 82.5° | 368.0 | 368.0 | 368.0 | 368.0 | 368.0 |
| 85° | 193.4 | 193.4 | 193.4 | 193.4 | 193.4 |
| 87.5° | 55.2 | 55.2 | 55.2 | 55.2 | 55.2 |
| 90° | 12.5 | 20.1 | 34.6 | 22.1 | 12.5 |
| 92.5° | 18.3 | 30.7 | 55.6 | 28.8 | 16.3 |
| 95° | 21.1 | 35.5 | 77.7 | 38.4 | 24.0 |
| 97.5° | 26.9 | 39.3 | 89.3 | 47.0 | 37.5 |
| 100° | 35.5 | 46.1 | 139.2 | 57.6 | 49.9 |
| 102.5° | 60.5 | 97.9 | 295.7 | 108.5 | 75.9 |
| 105° | 104.6 | 206.5 | 527.1 | 227.5 | 138.3 |
| 107.5° | 181.4 | 369.6 | 695.0 | 403.3 | 262.1 |
| 110° | 338.9 | 490.6 | 728.7 | 554.0 | 419.6 |



TEST NUMBER: P1436677

CATALOG NUMBER: EHBR1-48-UNV-M-L950-UPL18

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 112.5° | 458.0 | 527.1 | 697.9 | 611.6 | 546.3 |
| 115° | 481.9 | 506.9 | 623.1 | 597.2 | 593.3 |
| 117.5° | 465.6 | 462.7 | 529.0 | 536.6 | 573.2 |
| 120° | 431.1 | 411.9 | 441.7 | 468.5 | 517.4 |
| 122.5° | 387.9 | 364.8 | 378.2 | 398.4 | 447.4 |
| 125° | 347.5 | 324.5 | 333.1 | 338.0 | 379.2 |
| 127.5° | 312.0 | 296.7 | 301.4 | 295.7 | 321.6 |
| 130° | 288.0 | 274.5 | 281.3 | 267.9 | 280.4 |
| 132.5° | 267.9 | 259.2 | 266.9 | 250.6 | 254.4 |
| 135° | 253.5 | 245.8 | 254.4 | 239.0 | 238.1 |
| 137.5° | 241.0 | 234.3 | 242.9 | 231.4 | 228.5 |
| 140° | 229.5 | 223.7 | 233.3 | 224.6 | 222.7 |
| 142.5° | 216.9 | 213.1 | 224.6 | 218.9 | 216.9 |
| 145° | 208.3 | 205.4 | 218.0 | 215.1 | 214.1 |
| 147.5° | 200.6 | 198.8 | 210.3 | 209.3 | 209.3 |
| 150° | 193.9 | 192.0 | 203.5 | 202.6 | 203.5 |
| 152.5° | 187.2 | 185.3 | 195.9 | 194.9 | 195.9 |
| 155° | 182.4 | 180.5 | 189.1 | 189.1 | 189.1 |
| 157.5° | 178.5 | 177.6 | 184.3 | 184.3 | 184.3 |
| 160° | 175.7 | 174.7 | 180.5 | 180.5 | 179.6 |
| 162.5° | 172.8 | 171.9 | 178.5 | 177.6 | 177.6 |
| 165° | 170.9 | 170.9 | 175.7 | 175.7 | 174.7 |
| 167.5° | 170.9 | 169.9 | 174.7 | 174.7 | 173.8 |
| 170° | 169.9 | 169.9 | 173.8 | 172.8 | 171.9 |
| 172.5° | 169.9 | 169.9 | 173.8 | 172.8 | 171.9 |
| 175° | 169.0 | 169.0 | 171.9 | 171.9 | 171.9 |
| 177.5° | 169.9 | 169.9 | 171.9 | 171.9 | 170.9 |
| 180° | 170.9 | 170.9 | 170.9 | 170.9 | 170.9 |



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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 | 19.33 | 20.55 | 19.76 | 20.94 | 21.35 | 19.33 | 20.55 | 19.76 | 20.94 | 21.35 |
| | 3H | 20.82 | 21.90 | 21.27 | 22.31 | 22.76 | 20.82 | 21.90 | 21.27 | 22.31 | 22.76 |
| | 4H | 21.35 | 22.35 | 21.81 | 22.78 | 23.25 | 21.35 | 22.35 | 21.81 | 22.78 | 23.25 |
| | 6H | 21.67 | 22.60 | 22.15 | 23.04 | 23.52 | 21.67 | 22.60 | 22.15 | 23.04 | 23.52 |
| | 8H | 21.74 | 22.62 | 22.24 | 23.08 | 23.57 | 21.74 | 22.62 | 22.24 | 23.08 | 23.57 |
| | 12H | 21.76 | 22.59 | 22.25 | 23.05 | 23.57 | 21.76 | 22.59 | 22.25 | 23.05 | 23.57 |
| 4H | 2H | 19.78 | 20.78 | 20.25 | 21.21 | 21.68 | 19.78 | 20.78 | 20.25 | 21.21 | 21.68 |
| | 3H | 21.48 | 22.30 | 21.95 | 22.78 | 23.27 | 21.48 | 22.30 | 21.95 | 22.78 | 23.27 |
| | 4H | 22.11 | 22.85 | 22.61 | 23.33 | 23.86 | 22.11 | 22.85 | 22.61 | 23.33 | 23.86 |
| | 6H | 22.53 | 23.17 | 23.06 | 23.68 | 24.24 | 22.53 | 23.17 | 23.06 | 23.68 | 24.24 |
| | 8H | 22.63 | 23.22 | 23.16 | 23.74 | 24.29 | 22.63 | 23.22 | 23.16 | 23.74 | 24.29 |
| | 12H | 22.66 | 23.18 | 23.21 | 23.73 | 24.29 | 22.66 | 23.18 | 23.21 | 23.73 | 24.29 |
| 8H | 4H | 22.29 | 22.88 | 22.82 | 23.39 | 23.95 | 22.29 | 22.88 | 22.82 | 23.39 | 23.95 |
| | 6H | 22.80 | 23.28 | 23.36 | 23.84 | 24.41 | 22.80 | 23.28 | 23.36 | 23.84 | 24.41 |
| | 8H | 22.94 | 23.37 | 23.52 | 23.95 | 24.52 | 22.94 | 23.37 | 23.52 | 23.95 | 24.52 |
| | 12H | 23.00 | 23.38 | 23.58 | 23.94 | 24.60 | 23.00 | 23.38 | 23.58 | 23.94 | 24.60 |
| 12H | 4H | 22.28 | 22.80 | 22.82 | 23.35 | 23.91 | 22.28 | 22.80 | 22.82 | 23.35 | 23.91 |
| | 6H | 22.80 | 23.23 | 23.38 | 23.81 | 24.39 | 22.80 | 23.23 | 23.38 | 23.81 | 24.39 |
| | 8H | 22.97 | 23.35 | 23.55 | 23.91 | 24.56 | 22.97 | 23.35 | 23.55 | 23.91 | 24.56 |

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

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP1-2506-472-8

Test Date: 08/04/2025

Luminaire Tested: EHBR-60-L950-N

Data in this report applies to families of products including EHBR-60-L950-N

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-472-8
 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-L950-N**
 Description: Elevate Round Highbay at, 60000 lumens, 5000K 90CRI LEDs with N lens

Spectral Parameters

CCT (K): 4901
 CIE u': 0.2131
 CIE v': 0.4853
 Duv: -0.0008
 CIE x: 0.3477
 CIE y: 0.3520
 CIE z: 0.3003
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 574
 Purity: 9.953987
 Rf: 90.7
 Rg: 100.5

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 94.3 | | |
| R1: | 95.8 | R9: | 72.3 |
| R2: | 96.5 | R10: | 89.1 |
| R3: | 94.4 | R11: | 94.9 |
| R4: | 95.3 | R12: | 68.4 |
| R5: | 94.1 | R13: | 96.4 |
| R6: | 92.5 | R14: | 96.4 |
| R7: | 95.5 | R15: | 93.9 |
| R8: | 90.1 | | |



Test Conditions

Stabilization Time: 35M
 Operation Time: 1H 35M
 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



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 | 221 | NR | 620 | 326 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 250 | NR | 625 | 325 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 284 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 311 | NR | 635 | 643 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 329 | NR | 640 | 206 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 344 | NR | 645 | 199 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 353 | NR | 650 | 172 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 3 | NR | 525 | 357 | NR | 655 | 143 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 5 | NR | 530 | 362 | NR | 660 | 122 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 365 | NR | 665 | 102 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 9 | NR | 540 | 367 | NR | 670 | 94 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 369 | NR | 675 | 76 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 26 | NR | 550 | 370 | NR | 680 | 65 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 47 | NR | 555 | 372 | NR | 685 | 56 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 81 | NR | 560 | 372 | NR | 690 | 48 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 143 | NR | 565 | 371 | NR | 695 | 41 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 243 | NR | 570 | 370 | NR | 700 | 35 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 434 | NR | 575 | 367 | NR | 705 | 30 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 675 | NR | 580 | 365 | NR | 710 | 25 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 615 | NR | 585 | 361 | NR | 715 | 22 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 418 | NR | 590 | 356 | NR | 720 | 19 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 344 | NR | 595 | 348 | NR | 725 | 16 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 272 | NR | 600 | 343 | NR | 730 | 13 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 206 | NR | 605 | 337 | NR | 735 | 11 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 190 | NR | 610 | 362 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 202 | NR | 615 | 381 | NR | 745 | 8 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-8

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 2.04

| 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 | 221 | NR | 620 | 326 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 250 | NR | 625 | 325 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 284 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 311 | NR | 635 | 643 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 329 | NR | 640 | 206 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 344 | NR | 645 | 199 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 353 | NR | 650 | 172 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 3 | NR | 525 | 357 | NR | 655 | 143 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 5 | NR | 530 | 362 | NR | 660 | 122 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 365 | NR | 665 | 102 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 9 | NR | 540 | 367 | NR | 670 | 94 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 369 | NR | 675 | 76 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 26 | NR | 550 | 370 | NR | 680 | 65 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 47 | NR | 555 | 372 | NR | 685 | 56 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 81 | NR | 560 | 372 | NR | 690 | 48 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 143 | NR | 565 | 371 | NR | 695 | 41 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 243 | NR | 570 | 370 | NR | 700 | 35 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 434 | NR | 575 | 367 | NR | 705 | 30 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 675 | NR | 580 | 365 | NR | 710 | 25 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 615 | NR | 585 | 361 | NR | 715 | 22 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 418 | NR | 590 | 356 | NR | 720 | 19 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 344 | NR | 595 | 348 | NR | 725 | 16 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 272 | NR | 600 | 343 | NR | 730 | 13 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 206 | NR | 605 | 337 | NR | 735 | 11 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 190 | NR | 610 | 362 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 202 | NR | 615 | 381 | NR | 745 | 8 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-8

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 4.41

| 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 | 221 | NR | 620 | 326 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 250 | NR | 625 | 325 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 284 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 311 | NR | 635 | 643 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 329 | NR | 640 | 206 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 344 | NR | 645 | 199 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 353 | NR | 650 | 172 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 3 | NR | 525 | 357 | NR | 655 | 143 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 5 | NR | 530 | 362 | NR | 660 | 122 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 6 | NR | 535 | 365 | NR | 665 | 102 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 9 | NR | 540 | 367 | NR | 670 | 94 | NR | 800 | 2 | NR | 930 | 0 | NR |
| 415 | 15 | NR | 545 | 369 | NR | 675 | 76 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 26 | NR | 550 | 370 | NR | 680 | 65 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 47 | NR | 555 | 372 | NR | 685 | 56 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 81 | NR | 560 | 372 | NR | 690 | 48 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 143 | NR | 565 | 371 | NR | 695 | 41 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 243 | NR | 570 | 370 | NR | 700 | 35 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 434 | NR | 575 | 367 | NR | 705 | 30 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 675 | NR | 580 | 365 | NR | 710 | 25 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 615 | NR | 585 | 361 | NR | 715 | 22 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 418 | NR | 590 | 356 | NR | 720 | 19 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 344 | NR | 595 | 348 | NR | 725 | 16 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 272 | NR | 600 | 343 | NR | 730 | 13 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 206 | NR | 605 | 337 | NR | 735 | 11 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 190 | NR | 610 | 362 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 202 | NR | 615 | 381 | NR | 745 | 8 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 90.7$
 $R_g = 100.5$
 CIE $R_a = 94.3$
 $R_9 = 72.3$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 91 | CES51 = 98 | CES76 = 83 |
| CES02 = 61 | CES27 = 92 | CES52 = 98 | CES77 = 87 |
| CES03 = 31 | CES28 = 94 | CES53 = 97 | CES78 = 80 |
| CES04 = 69 | CES29 = 94 | CES54 = 93 | CES79 = 94 |
| CES05 = 48 | CES30 = 93 | CES55 = 92 | CES80 = 91 |
| CES06 = 50 | CES31 = 95 | CES56 = 95 | CES81 = 84 |
| CES07 = 41 | CES32 = 86 | CES57 = 94 | CES82 = 96 |
| CES08 = 40 | CES33 = 99 | CES58 = 94 | CES83 = 96 |
| CES09 = 29 | CES34 = 90 | CES59 = 97 | CES84 = 93 |
| CES10 = 73 | CES35 = 94 | CES60 = 92 | CES85 = 83 |
| CES11 = 56 | CES36 = 81 | CES61 = 92 | CES86 = 86 |
| CES12 = 62 | CES37 = 92 | CES62 = 86 | CES87 = 91 |
| CES13 = 43 | CES38 = 88 | CES63 = 92 | CES88 = 98 |
| CES14 = 74 | CES39 = 99 | CES64 = 89 | CES89 = 87 |
| CES15 = 71 | CES40 = 97 | CES65 = 88 | CES90 = 98 |
| CES16 = 47 | CES41 = 97 | CES66 = 85 | CES91 = 73 |
| CES17 = 48 | CES42 = 90 | CES67 = 84 | CES92 = 79 |
| CES18 = 56 | CES43 = 91 | CES68 = 86 | CES93 = 87 |
| CES19 = 70 | CES44 = 99 | CES69 = 87 | CES94 = 78 |
| CES20 = 65 | CES45 = 95 | CES70 = 83 | CES95 = 83 |
| CES21 = 85 | CES46 = 97 | CES71 = 77 | CES96 = 92 |
| CES22 = 77 | CES47 = 95 | CES72 = 92 | CES97 = 95 |
| CES23 = 91 | CES48 = 93 | CES73 = 77 | CES98 = 95 |
| CES24 = 90 | CES49 = 95 | CES74 = 92 | CES99 = 94 |
| CES25 = 70 | CES50 = 98 | CES75 = 79 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)