

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: P1436656

Luminaire Tested: EHBR1-30-UNV-M-L950-UPL36

Issue Date: 3/25/2026

Test Information

Test Method: LM-79-2019
Report Number: P1436656
REPORT IS A COMBINATION OF REPORTS P1436090 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/25/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-30-UNV-M-L950-UPL36
Description: Elevate Round Highbay at, 30000 lumens, 5000K 90CRI LEDs with M lens
Light Source: -
Ballast/Driver: -

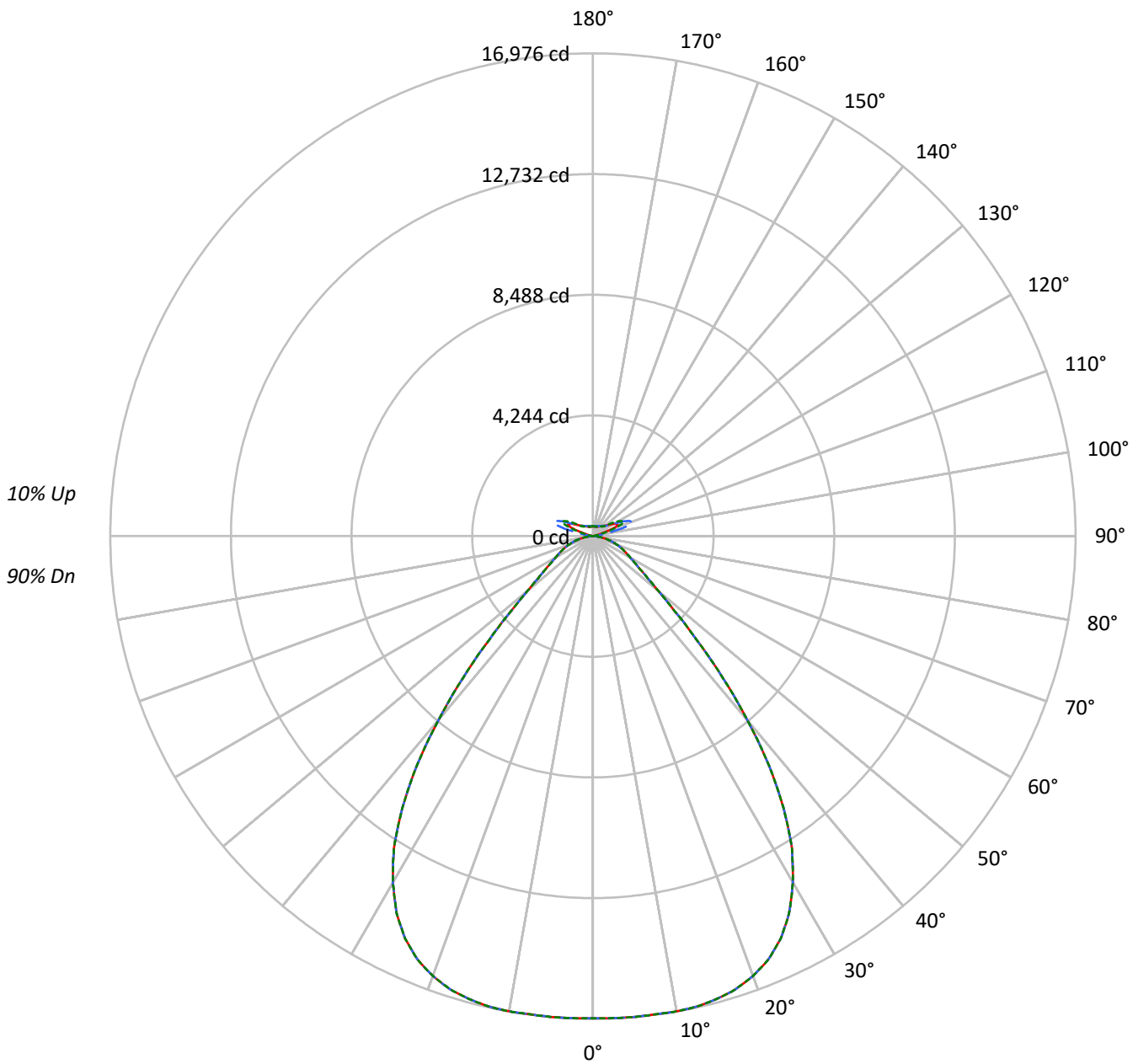
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 32058.5 lumens
Efficiency: N/A
Efficacy: 170.3 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: Semi-Direct

Input Watts (W): 188.2
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: P1436656
CATALOG NUMBER: EHBR1-30-UNV-M-L950-UPL36

Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270°



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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 | 117 | 117 | 117 | 117 | 113 | 113 | 113 | 113 | 105 | 105 | 105 | 99 | 99 | 99 | 92 | 92 | 92 | 92 | 92 | 92 | 90 |
| 1 | 109 | 105 | 102 | 99 | 105 | 102 | 99 | 97 | 96 | 94 | 92 | 91 | 89 | 87 | 85 | 84 | 83 | 85 | 84 | 83 | 80 |
| 2 | 101 | 95 | 90 | 85 | 98 | 92 | 88 | 84 | 87 | 84 | 80 | 83 | 80 | 77 | 78 | 76 | 74 | 78 | 76 | 74 | 71 |
| 3 | 94 | 86 | 80 | 75 | 91 | 84 | 78 | 73 | 80 | 75 | 71 | 76 | 72 | 68 | 72 | 69 | 66 | 72 | 69 | 66 | 64 |
| 4 | 88 | 78 | 71 | 66 | 85 | 77 | 70 | 65 | 73 | 67 | 63 | 70 | 65 | 61 | 66 | 63 | 60 | 66 | 63 | 60 | 57 |
| 5 | 82 | 72 | 64 | 59 | 80 | 70 | 63 | 58 | 67 | 61 | 57 | 64 | 59 | 55 | 61 | 57 | 54 | 61 | 57 | 54 | 52 |
| 6 | 77 | 66 | 58 | 53 | 74 | 64 | 57 | 52 | 62 | 56 | 51 | 59 | 54 | 50 | 57 | 52 | 49 | 57 | 52 | 49 | 47 |
| 7 | 72 | 61 | 53 | 48 | 70 | 59 | 52 | 48 | 57 | 51 | 47 | 55 | 50 | 46 | 53 | 48 | 45 | 53 | 48 | 45 | 43 |
| 8 | 68 | 56 | 49 | 44 | 66 | 55 | 48 | 43 | 53 | 47 | 43 | 51 | 46 | 42 | 49 | 44 | 41 | 49 | 44 | 41 | 39 |
| 9 | 63 | 52 | 45 | 40 | 62 | 51 | 44 | 40 | 49 | 43 | 39 | 47 | 42 | 38 | 46 | 41 | 38 | 46 | 41 | 38 | 36 |
| 10 | 60 | 48 | 41 | 37 | 58 | 48 | 41 | 37 | 46 | 40 | 36 | 44 | 39 | 35 | 43 | 38 | 35 | 43 | 38 | 35 | 33 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 79646 | 79646 | 79646 |
| 5° | 79509 | 79509 | 79509 |
| 10° | 79882 | 79882 | 79882 |
| 15° | 80341 | 80341 | 80341 |
| 20° | 80099 | 80099 | 80099 |
| 25° | 78228 | 78228 | 78228 |
| 30° | 73149 | 73149 | 73149 |
| 35° | 63706 | 63706 | 63706 |
| 40° | 48823 | 48823 | 48823 |
| 45° | 31895 | 31895 | 31895 |
| 50° | 20107 | 20107 | 20107 |
| 55° | 14988 | 14988 | 14988 |
| 60° | 12619 | 12619 | 12619 |
| 65° | 11475 | 11475 | 11475 |
| 70° | 10452 | 10452 | 10452 |
| 75° | 8949 | 8949 | 8949 |
| 80° | 6891 | 6891 | 6891 |
| 85° | 3614 | 3614 | 3614 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 31895 cd/sqm



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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 1619.8 | 5.1 |
| 10°-20° | 4756.9 | 14.8 |
| 20°-30° | 7137.6 | 22.3 |
| 30°-40° | 7181.2 | 22.4 |
| 40°-50° | 4110.7 | 12.8 |
| 50°-60° | 1880.1 | 5.9 |
| 60°-70° | 1192.9 | 3.7 |
| 70°-80° | 669.2 | 2.1 |
| 80°-90° | 163.0 | 0.5 |
| 90°-100° | 95.4 | 0.3 |
| 100°-110° | 598.0 | 1.9 |
| 110°-120° | 1069.4 | 3.3 |
| 120°-130° | 627.5 | 2.0 |
| 130°-140° | 384.9 | 1.2 |
| 140°-150° | 267.0 | 0.8 |
| 150°-160° | 173.5 | 0.5 |
| 160°-170° | 98.8 | 0.3 |
| 170°-180° | 32.7 | 0.1 |
| 0°-30° | 13514.4 | 42.2 |
| 0°-40° | 20695.6 | 64.6 |
| 0°-60° | 26686.4 | 83.2 |
| 0°-90° | 28711.5 | 89.6 |
| 90°-120° | 1762.8 | 5.5 |
| 90°-150° | 3042.1 | 9.5 |
| 90°-180° | 3347.0 | 10.4 |
| 0°-180° | 32058.5 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-------|-------|-------|-------|-------|------|
| 0° | 16960 | 16960 | 16960 | 16960 | 16960 | |
| 5° | 16976 | 16976 | 16976 | 16976 | 16976 | 1620 |
| 15° | 16855 | 16855 | 16855 | 16855 | 16855 | 4757 |
| 25° | 15622 | 15622 | 15622 | 15622 | 15622 | 7138 |
| 35° | 11692 | 11692 | 11692 | 11692 | 11692 | 7181 |
| 45° | 5160 | 5160 | 5160 | 5160 | 5160 | 4111 |
| 55° | 2026 | 2026 | 2026 | 2026 | 2026 | 1880 |
| 65° | 1198 | 1198 | 1198 | 1198 | 1198 | 1193 |
| 75° | 630 | 630 | 630 | 630 | 630 | 669 |
| 85° | 124 | 124 | 124 | 124 | 124 | 152 |
| 90° | 25 | 40 | 69 | 44 | 25 | 17 |
| 95° | 42 | 71 | 155 | 77 | 48 | 41 |
| 105° | 209 | 412 | 1052 | 454 | 276 | 280 |
| 115° | 962 | 1012 | 1244 | 1192 | 1184 | 886 |
| 125° | 694 | 648 | 665 | 674 | 757 | 632 |
| 135° | 506 | 490 | 508 | 477 | 475 | 396 |
| 145° | 416 | 410 | 435 | 429 | 427 | 263 |
| 155° | 364 | 360 | 377 | 377 | 377 | 170 |
| 165° | 341 | 341 | 351 | 351 | 349 | 97 |
| 175° | 337 | 337 | 343 | 343 | 343 | 32 |
| 180° | 341 | 341 | 341 | 341 | 341 | |



TEST NUMBER: P1436656

CATALOG NUMBER: EHBR1-30-UNV-M-L950-UPL36

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|---------|---------|---------|---------|---------|
| 0° | 16960.0 | 16960.0 | 16960.0 | 16960.0 | 16960.0 |
| 2.5° | 16968.2 | 16968.2 | 16968.2 | 16968.2 | 16968.2 |
| 5° | 16976.4 | 16976.4 | 16976.4 | 16976.4 | 16976.4 |
| 7.5° | 16964.8 | 16964.8 | 16964.8 | 16964.8 | 16964.8 |
| 10° | 16972.0 | 16972.0 | 16972.0 | 16972.0 | 16972.0 |
| 12.5° | 16942.9 | 16942.9 | 16942.9 | 16942.9 | 16942.9 |
| 15° | 16855.1 | 16855.1 | 16855.1 | 16855.1 | 16855.1 |
| 17.5° | 16710.0 | 16710.0 | 16710.0 | 16710.0 | 16710.0 |
| 20° | 16462.6 | 16462.6 | 16462.6 | 16462.6 | 16462.6 |
| 22.5° | 16122.4 | 16122.4 | 16122.4 | 16122.4 | 16122.4 |
| 25° | 15622.1 | 15622.1 | 15622.1 | 15622.1 | 15622.1 |
| 27.5° | 14948.9 | 14948.9 | 14948.9 | 14948.9 | 14948.9 |
| 30° | 14070.1 | 14070.1 | 14070.1 | 14070.1 | 14070.1 |
| 32.5° | 13029.7 | 13029.7 | 13029.7 | 13029.7 | 13029.7 |
| 35° | 11692.3 | 11692.3 | 11692.3 | 11692.3 | 11692.3 |
| 37.5° | 10177.2 | 10177.2 | 10177.2 | 10177.2 | 10177.2 |
| 40° | 8462.2 | 8462.2 | 8462.2 | 8462.2 | 8462.2 |
| 42.5° | 6762.3 | 6762.3 | 6762.3 | 6762.3 | 6762.3 |
| 45° | 5160.4 | 5160.4 | 5160.4 | 5160.4 | 5160.4 |
| 47.5° | 3884.6 | 3884.6 | 3884.6 | 3884.6 | 3884.6 |
| 50° | 2996.6 | 2996.6 | 2996.6 | 2996.6 | 2996.6 |
| 52.5° | 2421.0 | 2421.0 | 2421.0 | 2421.0 | 2421.0 |
| 55° | 2025.5 | 2025.5 | 2025.5 | 2025.5 | 2025.5 |
| 57.5° | 1734.4 | 1734.4 | 1734.4 | 1734.4 | 1734.4 |
| 60° | 1517.0 | 1517.0 | 1517.0 | 1517.0 | 1517.0 |
| 62.5° | 1349.0 | 1349.0 | 1349.0 | 1349.0 | 1349.0 |
| 65° | 1197.7 | 1197.7 | 1197.7 | 1197.7 | 1197.7 |
| 67.5° | 1058.4 | 1058.4 | 1058.4 | 1058.4 | 1058.4 |
| 70° | 917.1 | 917.1 | 917.1 | 917.1 | 917.1 |
| 72.5° | 775.0 | 775.0 | 775.0 | 775.0 | 775.0 |
| 75° | 630.4 | 630.4 | 630.4 | 630.4 | 630.4 |
| 77.5° | 493.1 | 493.1 | 493.1 | 493.1 | 493.1 |
| 80° | 362.5 | 362.5 | 362.5 | 362.5 | 362.5 |
| 82.5° | 236.3 | 236.3 | 236.3 | 236.3 | 236.3 |
| 85° | 124.2 | 124.2 | 124.2 | 124.2 | 124.2 |
| 87.5° | 35.4 | 35.4 | 35.4 | 35.4 | 35.4 |
| 90° | 24.9 | 40.3 | 68.9 | 44.0 | 24.9 |
| 92.5° | 36.4 | 61.4 | 111.1 | 57.5 | 32.6 |
| 95° | 42.2 | 70.9 | 155.2 | 76.6 | 47.9 |
| 97.5° | 53.7 | 78.6 | 178.2 | 93.9 | 74.7 |
| 100° | 70.9 | 92.0 | 277.8 | 114.9 | 99.7 |
| 102.5° | 120.7 | 195.4 | 590.1 | 216.5 | 151.4 |
| 105° | 208.8 | 412.0 | 1051.8 | 454.1 | 275.9 |
| 107.5° | 362.1 | 737.7 | 1387.2 | 804.7 | 523.1 |
| 110° | 676.3 | 979.0 | 1454.2 | 1105.5 | 837.2 |



TEST NUMBER: P1436656

CATALOG NUMBER: EHBR1-30-UNV-M-L950-UPL36

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|--------|--------|--------|--------|
| 112.5° | 913.9 | 1051.8 | 1392.9 | 1220.4 | 1090.1 |
| 115° | 961.8 | 1011.6 | 1243.5 | 1191.7 | 1184.1 |
| 117.5° | 929.2 | 923.5 | 1055.7 | 1071.0 | 1143.8 |
| 120° | 860.3 | 822.0 | 881.3 | 935.0 | 1032.7 |
| 122.5° | 774.0 | 728.1 | 754.9 | 795.1 | 892.9 |
| 125° | 693.5 | 647.5 | 664.9 | 674.4 | 756.8 |
| 127.5° | 622.7 | 592.0 | 601.6 | 590.1 | 641.8 |
| 130° | 574.8 | 548.0 | 561.4 | 534.6 | 559.5 |
| 132.5° | 534.6 | 517.3 | 532.6 | 500.0 | 507.7 |
| 135° | 505.8 | 490.5 | 507.7 | 477.1 | 475.2 |
| 137.5° | 480.9 | 467.5 | 484.7 | 461.7 | 456.0 |
| 140° | 458.0 | 446.4 | 465.5 | 448.3 | 444.5 |
| 142.5° | 433.0 | 425.4 | 448.3 | 436.9 | 433.0 |
| 145° | 415.8 | 410.0 | 434.9 | 429.2 | 427.2 |
| 147.5° | 400.4 | 396.6 | 419.6 | 417.7 | 417.7 |
| 150° | 387.0 | 383.2 | 406.2 | 404.3 | 406.2 |
| 152.5° | 373.7 | 369.8 | 390.9 | 388.9 | 390.9 |
| 155° | 364.0 | 360.2 | 377.4 | 377.4 | 377.4 |
| 157.5° | 356.3 | 354.5 | 367.8 | 367.8 | 367.8 |
| 160° | 350.6 | 348.7 | 360.2 | 360.2 | 358.3 |
| 162.5° | 344.9 | 342.9 | 356.3 | 354.5 | 354.5 |
| 165° | 341.1 | 341.1 | 350.6 | 350.6 | 348.7 |
| 167.5° | 341.1 | 339.1 | 348.7 | 348.7 | 346.8 |
| 170° | 339.1 | 339.1 | 346.8 | 344.9 | 342.9 |
| 172.5° | 339.1 | 339.1 | 346.8 | 344.9 | 342.9 |
| 175° | 337.2 | 337.2 | 342.9 | 342.9 | 342.9 |
| 177.5° | 339.1 | 339.1 | 342.9 | 342.9 | 341.1 |
| 180° | 341.1 | 341.1 | 341.1 | 341.1 | 341.1 |



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CIE UGR TABLE:

| Reflectances: | | | | | | | | | | | |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling | | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 |
| Wall | | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 |
| Reference plane | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Room dimensions | | Viewed crosswise | | | | | Viewed endwise | | | | |
| X=2H | Y=2H | 17.26 | 18.37 | 17.80 | 18.89 | 19.46 | 17.26 | 18.37 | 17.80 | 18.89 | 19.46 |
| | 3H | 18.75 | 19.73 | 19.30 | 20.26 | 20.88 | 18.75 | 19.73 | 19.30 | 20.26 | 20.88 |
| | 4H | 19.27 | 20.19 | 19.84 | 20.74 | 21.37 | 19.27 | 20.19 | 19.84 | 20.74 | 21.37 |
| | 6H | 19.59 | 20.43 | 20.18 | 21.00 | 21.64 | 19.59 | 20.43 | 20.18 | 21.00 | 21.64 |
| | 8H | 19.66 | 20.46 | 20.26 | 21.04 | 21.69 | 19.66 | 20.46 | 20.26 | 21.04 | 21.69 |
| | 12H | 19.67 | 20.43 | 20.27 | 21.01 | 21.68 | 19.67 | 20.43 | 20.27 | 21.01 | 21.68 |
| 4H | 2H | 17.70 | 18.62 | 18.27 | 19.17 | 19.80 | 17.70 | 18.62 | 18.27 | 19.17 | 19.80 |
| | 3H | 19.39 | 20.14 | 19.98 | 20.74 | 21.39 | 19.39 | 20.14 | 19.98 | 20.74 | 21.39 |
| | 4H | 20.02 | 20.70 | 20.62 | 21.30 | 21.98 | 20.02 | 20.70 | 20.62 | 21.30 | 21.98 |
| | 6H | 20.44 | 21.03 | 21.07 | 21.65 | 22.35 | 20.44 | 21.03 | 21.07 | 21.65 | 22.35 |
| | 8H | 20.53 | 21.08 | 21.17 | 21.70 | 22.41 | 20.53 | 21.08 | 21.17 | 21.70 | 22.41 |
| | 12H | 20.56 | 21.04 | 21.21 | 21.70 | 22.41 | 20.56 | 21.04 | 21.21 | 21.70 | 22.41 |
| 8H | 4H | 20.19 | 20.74 | 20.83 | 21.36 | 22.07 | 20.19 | 20.74 | 20.83 | 21.36 | 22.07 |
| | 6H | 20.70 | 21.15 | 21.37 | 21.82 | 22.53 | 20.70 | 21.15 | 21.37 | 21.82 | 22.53 |
| | 8H | 20.84 | 21.24 | 21.52 | 21.92 | 22.64 | 20.84 | 21.24 | 21.52 | 21.92 | 22.64 |
| | 12H | 20.90 | 21.25 | 21.58 | 21.92 | 22.71 | 20.90 | 21.25 | 21.58 | 21.92 | 22.71 |
| 12H | 4H | 20.18 | 20.66 | 20.83 | 21.32 | 22.02 | 20.18 | 20.66 | 20.83 | 21.32 | 22.02 |
| | 6H | 20.70 | 21.10 | 21.39 | 21.78 | 22.51 | 20.70 | 21.10 | 21.39 | 21.78 | 22.51 |
| | 8H | 20.87 | 21.22 | 21.55 | 21.89 | 22.68 | 20.87 | 21.22 | 21.55 | 21.89 | 22.68 |

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

REPORT NUMBER: SP1-2506-472-8

| 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 ² /nm | Lumens (φ/nm) | λ (nm) | Power W ² /nm | Lumens (φ/nm) | λ (nm) | Power W ² /nm | Lumens (φ/nm) | λ (nm) | Power W ² /nm | Lumens (φ/nm) | λ (nm) | Power W ² /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)