

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: P1433921

Luminaire Tested: EHBR1-48-UNV-W-L940-UPL40

Issue Date: 3/20/2026

Test Information

Test Method: LM-79-2019
Report Number: P1433921
REPORT IS A COMBINATION OF REPORTS P1431858 AND P1431635
Test Lab: INNOVATION CENTER
Issue Date: 3/20/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-48-UNV-W-L940-UPL40
Description: Elevate Round Highbay at, 49000 lumens, 4000K 90CRI LEDs with W lens
Light Source: -
Ballast/Driver: -

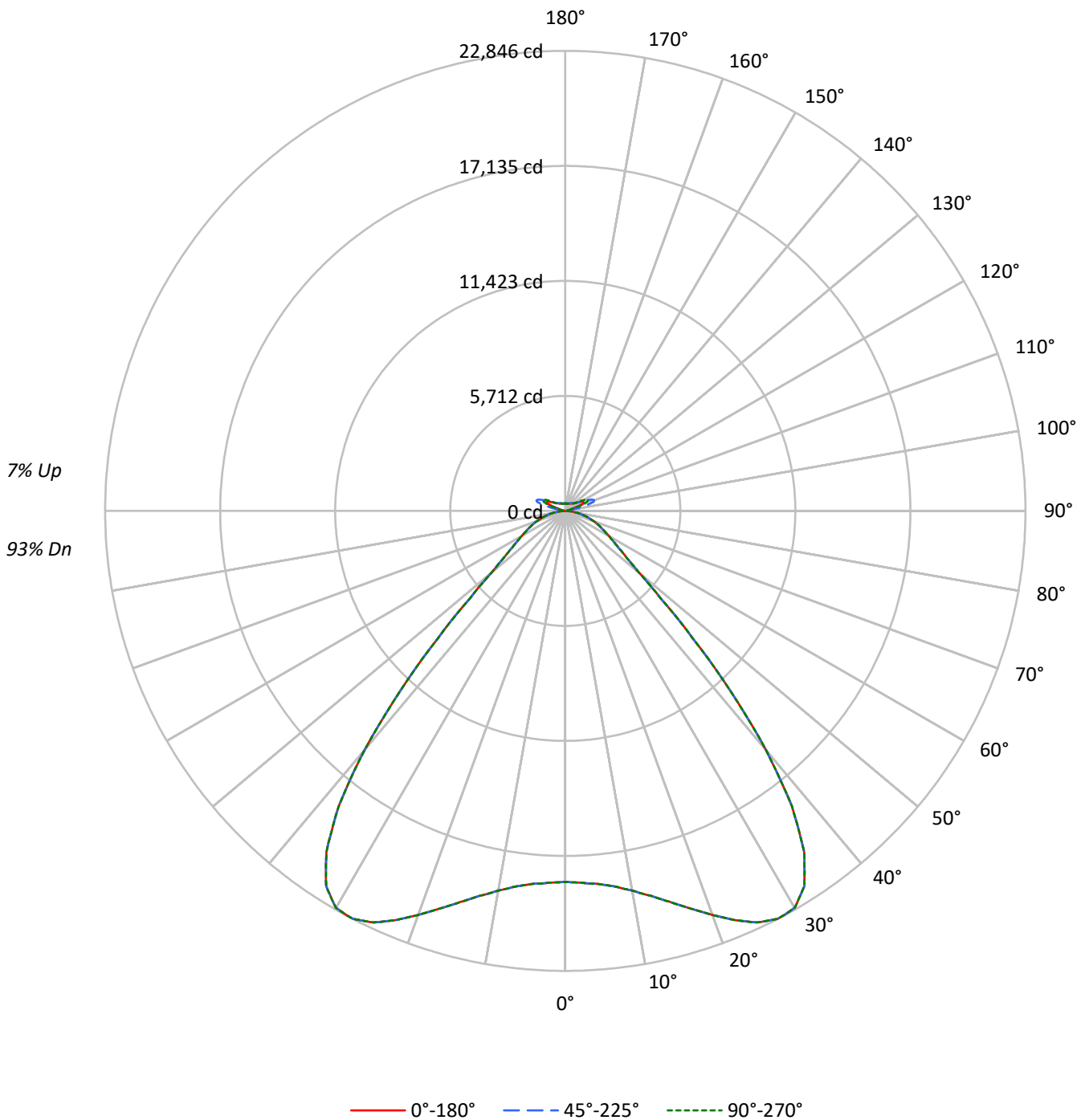
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 47574.8 lumens
Efficiency: N/A
Efficacy: 164.5 lumens/watt
Spacing Criteria (0/90/45): 1.54 / 1.54 / 1.31
Luminous Opening: Vertical Cylinder (Dia: 1.71' x H: 0.1')
CIE Type: Direct

Input Watts (W): 289.2
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: P1433921
CATALOG NUMBER: EHBR1-48-UNV-W-L940-UPL40

Luminous Intensity Polar Plot





TEST NUMBER: P1433921
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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|
| RF | 20 | | | | 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 | 114 | 114 | 114 | 114 | 107 | 107 | 107 | 101 | 101 | 101 | 95 | 95 | 95 | 95 | 95 | 95 | 93 |
| 1 | 109 | 106 | 102 | 99 | 106 | 103 | 100 | 97 | 97 | 95 | 93 | 92 | 90 | 89 | 88 | 86 | 85 | 85 | 85 | 85 | 82 |
| 2 | 102 | 95 | 90 | 85 | 98 | 93 | 88 | 83 | 88 | 84 | 80 | 84 | 81 | 78 | 80 | 77 | 75 | 75 | 75 | 75 | 73 |
| 3 | 94 | 86 | 79 | 74 | 91 | 84 | 78 | 73 | 80 | 75 | 71 | 76 | 72 | 68 | 73 | 69 | 66 | 66 | 66 | 66 | 64 |
| 4 | 88 | 78 | 70 | 65 | 85 | 76 | 69 | 64 | 73 | 67 | 62 | 70 | 65 | 61 | 67 | 63 | 59 | 59 | 59 | 59 | 57 |
| 5 | 81 | 71 | 63 | 57 | 79 | 69 | 62 | 57 | 66 | 60 | 56 | 64 | 58 | 54 | 61 | 57 | 53 | 53 | 53 | 53 | 51 |
| 6 | 76 | 64 | 57 | 51 | 74 | 63 | 56 | 51 | 61 | 54 | 50 | 58 | 53 | 49 | 56 | 52 | 48 | 48 | 48 | 48 | 46 |
| 7 | 71 | 59 | 51 | 46 | 69 | 58 | 51 | 46 | 56 | 49 | 45 | 54 | 48 | 44 | 52 | 47 | 43 | 43 | 43 | 43 | 41 |
| 8 | 66 | 54 | 47 | 42 | 64 | 53 | 46 | 41 | 51 | 45 | 41 | 50 | 44 | 40 | 48 | 43 | 39 | 39 | 39 | 39 | 38 |
| 9 | 62 | 50 | 43 | 38 | 60 | 49 | 42 | 38 | 48 | 41 | 37 | 46 | 40 | 36 | 45 | 40 | 36 | 36 | 36 | 36 | 34 |
| 10 | 58 | 46 | 39 | 35 | 57 | 46 | 39 | 34 | 44 | 38 | 34 | 43 | 37 | 33 | 42 | 37 | 33 | 33 | 33 | 33 | 31 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 86514 | 86514 | 86514 |
| 5° | 87088 | 87088 | 87088 |
| 10° | 90114 | 90114 | 90114 |
| 15° | 95825 | 95825 | 95825 |
| 20° | 103876 | 103876 | 103876 |
| 25° | 112923 | 112923 | 112923 |
| 30° | 118363 | 118363 | 118363 |
| 35° | 112662 | 112662 | 112662 |
| 40° | 89397 | 89397 | 89397 |
| 45° | 55255 | 55255 | 55255 |
| 50° | 31995 | 31995 | 31995 |
| 55° | 24208 | 24208 | 24208 |
| 60° | 20766 | 20766 | 20766 |
| 65° | 18757 | 18757 | 18757 |
| 70° | 17253 | 17253 | 17253 |
| 75° | 15243 | 15243 | 15243 |
| 80° | 12422 | 12422 | 12422 |
| 85° | 7323 | 7323 | 7323 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 55255 cd/sqm



TEST NUMBER: P1433921
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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 1792.4 | 3.8 |
| 10°-20° | 5746.3 | 12.1 |
| 20°-30° | 10372.3 | 21.8 |
| 30°-40° | 12533.8 | 26.3 |
| 40°-50° | 7161.0 | 15.1 |
| 50°-60° | 3032.9 | 6.4 |
| 60°-70° | 1956.2 | 4.1 |
| 70°-80° | 1137.4 | 2.4 |
| 80°-90° | 307.4 | 0.6 |
| 90°-100° | 101.4 | 0.2 |
| 100°-110° | 628.3 | 1.3 |
| 110°-120° | 1122.7 | 2.4 |
| 120°-130° | 659.9 | 1.4 |
| 130°-140° | 407.8 | 0.9 |
| 140°-150° | 285.7 | 0.6 |
| 150°-160° | 186.7 | 0.4 |
| 160°-170° | 107.1 | 0.2 |
| 170°-180° | 35.5 | 0.1 |
| 0°-30° | 17911.0 | 37.6 |
| 0°-40° | 30444.8 | 64.0 |
| 0°-60° | 40638.7 | 85.4 |
| 0°-90° | 44039.7 | 92.6 |
| 90°-120° | 1852.4 | 3.9 |
| 90°-150° | 3205.8 | 6.7 |
| 90°-180° | 3535.0 | 7.4 |
| 0°-180° | 47574.8 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-------|-------|-------|-------|-------|-------|
| 0° | 18422 | 18422 | 18422 | 18422 | 18422 | |
| 5° | 18595 | 18595 | 18595 | 18595 | 18595 | 1792 |
| 15° | 20104 | 20104 | 20104 | 20104 | 20104 | 5746 |
| 25° | 22551 | 22551 | 22551 | 22551 | 22551 | 10372 |
| 35° | 20678 | 20678 | 20678 | 20678 | 20678 | 12534 |
| 45° | 8940 | 8940 | 8940 | 8940 | 8940 | 7161 |
| 55° | 3272 | 3272 | 3272 | 3272 | 3272 | 3033 |
| 65° | 1958 | 1958 | 1958 | 1958 | 1958 | 1956 |
| 75° | 1074 | 1074 | 1074 | 1074 | 1074 | 1137 |
| 85° | 252 | 252 | 252 | 252 | 252 | 290 |
| 90° | 28 | 44 | 74 | 48 | 28 | 24 |
| 95° | 46 | 76 | 164 | 82 | 52 | 44 |
| 105° | 220 | 433 | 1104 | 477 | 291 | 295 |
| 115° | 1010 | 1062 | 1305 | 1251 | 1243 | 931 |
| 125° | 730 | 682 | 700 | 710 | 796 | 665 |
| 135° | 536 | 520 | 538 | 506 | 504 | 419 |
| 145° | 445 | 439 | 465 | 459 | 457 | 282 |
| 155° | 392 | 388 | 406 | 406 | 406 | 183 |
| 165° | 370 | 370 | 380 | 380 | 378 | 106 |
| 175° | 367 | 367 | 373 | 373 | 373 | 35 |
| 180° | 372 | 372 | 372 | 372 | 372 | |



TEST NUMBER: P1433921

CATALOG NUMBER: EHBR1-48-UNV-W-L940-UPL40

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|---------|---------|---------|---------|---------|
| 0° | 18422.5 | 18422.5 | 18422.5 | 18422.5 | 18422.5 |
| 2.5° | 18484.3 | 18484.3 | 18484.3 | 18484.3 | 18484.3 |
| 5° | 18594.7 | 18594.7 | 18594.7 | 18594.7 | 18594.7 |
| 7.5° | 18811.8 | 18811.8 | 18811.8 | 18811.8 | 18811.8 |
| 10° | 19146.0 | 19146.0 | 19146.0 | 19146.0 | 19146.0 |
| 12.5° | 19580.2 | 19580.2 | 19580.2 | 19580.2 | 19580.2 |
| 15° | 20103.5 | 20103.5 | 20103.5 | 20103.5 | 20103.5 |
| 17.5° | 20702.6 | 20702.6 | 20702.6 | 20702.6 | 20702.6 |
| 20° | 21349.5 | 21349.5 | 21349.5 | 21349.5 | 21349.5 |
| 22.5° | 22000.8 | 22000.8 | 22000.8 | 22000.8 | 22000.8 |
| 25° | 22550.7 | 22550.7 | 22550.7 | 22550.7 | 22550.7 |
| 27.5° | 22846.5 | 22846.5 | 22846.5 | 22846.5 | 22846.5 |
| 30° | 22767.0 | 22767.0 | 22767.0 | 22767.0 | 22767.0 |
| 32.5° | 22092.1 | 22092.1 | 22092.1 | 22092.1 | 22092.1 |
| 35° | 20677.5 | 20677.5 | 20677.5 | 20677.5 | 20677.5 |
| 37.5° | 18471.8 | 18471.8 | 18471.8 | 18471.8 | 18471.8 |
| 40° | 15494.8 | 15494.8 | 15494.8 | 15494.8 | 15494.8 |
| 42.5° | 12127.6 | 12127.6 | 12127.6 | 12127.6 | 12127.6 |
| 45° | 8940.1 | 8940.1 | 8940.1 | 8940.1 | 8940.1 |
| 47.5° | 6389.9 | 6389.9 | 6389.9 | 6389.9 | 6389.9 |
| 50° | 4768.4 | 4768.4 | 4768.4 | 4768.4 | 4768.4 |
| 52.5° | 3861.0 | 3861.0 | 3861.0 | 3861.0 | 3861.0 |
| 55° | 3271.5 | 3271.5 | 3271.5 | 3271.5 | 3271.5 |
| 57.5° | 2840.9 | 2840.9 | 2840.9 | 2840.9 | 2840.9 |
| 60° | 2496.4 | 2496.4 | 2496.4 | 2496.4 | 2496.4 |
| 62.5° | 2209.4 | 2209.4 | 2209.4 | 2209.4 | 2209.4 |
| 65° | 1957.8 | 1957.8 | 1957.8 | 1957.8 | 1957.8 |
| 67.5° | 1735.5 | 1735.5 | 1735.5 | 1735.5 | 1735.5 |
| 70° | 1513.9 | 1513.9 | 1513.9 | 1513.9 | 1513.9 |
| 72.5° | 1293.1 | 1293.1 | 1293.1 | 1293.1 | 1293.1 |
| 75° | 1073.8 | 1073.8 | 1073.8 | 1073.8 | 1073.8 |
| 77.5° | 862.6 | 862.6 | 862.6 | 862.6 | 862.6 |
| 80° | 653.5 | 653.5 | 653.5 | 653.5 | 653.5 |
| 82.5° | 448.2 | 448.2 | 448.2 | 448.2 | 448.2 |
| 85° | 251.7 | 251.7 | 251.7 | 251.7 | 251.7 |
| 87.5° | 79.5 | 79.5 | 79.5 | 79.5 | 79.5 |
| 90° | 27.6 | 43.7 | 73.8 | 47.7 | 27.6 |
| 92.5° | 38.8 | 65.0 | 117.2 | 60.9 | 34.8 |
| 95° | 45.7 | 75.7 | 164.1 | 81.8 | 51.7 |
| 97.5° | 57.7 | 83.8 | 188.2 | 99.9 | 79.7 |
| 100° | 75.7 | 97.8 | 292.6 | 122.0 | 105.9 |
| 102.5° | 128.0 | 206.3 | 619.8 | 228.3 | 160.1 |
| 105° | 220.3 | 433.1 | 1103.6 | 477.3 | 290.6 |
| 107.5° | 381.0 | 774.4 | 1455.0 | 844.6 | 549.6 |
| 110° | 710.9 | 1028.1 | 1525.9 | 1160.6 | 879.6 |



TEST NUMBER: P1433921
 CATALOG NUMBER: EHBR1-48-UNV-W-L940-UPL40

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|--------|--------|--------|--------|--------|
| 112.5° | 959.9 | 1104.4 | 1461.8 | 1281.0 | 1144.5 |
| 115° | 1010.0 | 1062.3 | 1305.1 | 1250.9 | 1242.9 |
| 117.5° | 975.9 | 969.8 | 1108.4 | 1124.5 | 1200.7 |
| 120° | 903.6 | 863.4 | 925.7 | 982.0 | 1084.3 |
| 122.5° | 813.3 | 765.1 | 793.2 | 835.4 | 937.8 |
| 125° | 729.7 | 681.5 | 699.6 | 709.6 | 796.0 |
| 127.5° | 655.4 | 623.3 | 633.3 | 621.3 | 675.5 |
| 130° | 605.9 | 577.8 | 591.9 | 563.7 | 589.8 |
| 132.5° | 565.2 | 547.2 | 563.2 | 529.1 | 537.1 |
| 135° | 535.9 | 519.8 | 537.8 | 505.8 | 503.7 |
| 137.5° | 510.5 | 496.5 | 514.5 | 490.4 | 484.5 |
| 140° | 487.9 | 475.9 | 495.9 | 477.8 | 473.8 |
| 142.5° | 462.6 | 454.6 | 478.6 | 466.6 | 462.6 |
| 145° | 445.2 | 439.2 | 465.3 | 459.3 | 457.3 |
| 147.5° | 430.0 | 425.9 | 450.0 | 448.0 | 448.0 |
| 150° | 415.9 | 411.9 | 435.9 | 434.0 | 435.9 |
| 152.5° | 401.8 | 397.8 | 419.9 | 417.8 | 419.9 |
| 155° | 392.4 | 388.4 | 406.5 | 406.5 | 406.5 |
| 157.5° | 384.4 | 382.3 | 396.4 | 396.4 | 396.4 |
| 160° | 379.1 | 377.1 | 389.1 | 389.1 | 387.2 |
| 162.5° | 373.9 | 371.8 | 385.9 | 383.8 | 383.8 |
| 165° | 369.9 | 369.9 | 379.8 | 379.8 | 377.9 |
| 167.5° | 369.9 | 367.8 | 377.9 | 377.9 | 375.8 |
| 170° | 367.8 | 367.8 | 375.8 | 373.9 | 371.8 |
| 172.5° | 368.6 | 368.6 | 376.6 | 374.6 | 372.6 |
| 175° | 367.3 | 367.3 | 373.3 | 373.3 | 373.3 |
| 177.5° | 369.3 | 369.3 | 373.3 | 373.3 | 371.4 |
| 180° | 372.1 | 372.1 | 372.1 | 372.1 | 372.1 |



TEST NUMBER: P1433921
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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 | 19.40 | 20.59 | 19.89 | 21.05 | 21.55 | 19.40 | 20.59 | 19.89 | 21.05 | 21.55 |
| | 3H | 20.90 | 21.95 | 21.41 | 22.43 | 22.98 | 20.90 | 21.95 | 21.41 | 22.43 | 22.98 |
| | 4H | 21.46 | 22.44 | 21.99 | 22.94 | 23.50 | 21.46 | 22.44 | 21.99 | 22.94 | 23.50 |
| | 6H | 21.84 | 22.75 | 22.38 | 23.26 | 23.83 | 21.84 | 22.75 | 22.38 | 23.26 | 23.83 |
| | 8H | 21.94 | 22.80 | 22.50 | 23.33 | 23.91 | 21.94 | 22.80 | 22.50 | 23.33 | 23.91 |
| | 12H | 21.98 | 22.80 | 22.54 | 23.32 | 23.93 | 21.98 | 22.80 | 22.54 | 23.32 | 23.93 |
| 4H | 2H | 19.84 | 20.83 | 20.37 | 21.32 | 21.89 | 19.84 | 20.83 | 20.37 | 21.32 | 21.89 |
| | 3H | 21.56 | 22.37 | 22.10 | 22.91 | 23.49 | 21.56 | 22.37 | 22.10 | 22.91 | 23.49 |
| | 4H | 22.24 | 22.96 | 22.80 | 23.52 | 24.13 | 22.24 | 22.96 | 22.80 | 23.52 | 24.13 |
| | 6H | 22.74 | 23.36 | 23.32 | 23.94 | 24.58 | 22.74 | 23.36 | 23.32 | 23.94 | 24.58 |
| | 8H | 22.87 | 23.45 | 23.46 | 24.03 | 24.67 | 22.87 | 23.45 | 23.46 | 24.03 | 24.67 |
| | 12H | 22.93 | 23.44 | 23.53 | 24.05 | 24.70 | 22.93 | 23.44 | 23.53 | 24.05 | 24.70 |
| 8H | 4H | 22.44 | 23.03 | 23.03 | 23.60 | 24.24 | 22.44 | 23.03 | 23.03 | 23.60 | 24.24 |
| | 6H | 23.04 | 23.52 | 23.66 | 24.14 | 24.79 | 23.04 | 23.52 | 23.66 | 24.14 | 24.79 |
| | 8H | 23.22 | 23.65 | 23.86 | 24.29 | 24.95 | 23.22 | 23.65 | 23.86 | 24.29 | 24.95 |
| | 12H | 23.33 | 23.71 | 23.96 | 24.33 | 25.06 | 23.33 | 23.71 | 23.96 | 24.33 | 25.06 |
| 12H | 4H | 22.44 | 22.95 | 23.04 | 23.56 | 24.21 | 22.44 | 22.95 | 23.04 | 23.56 | 24.21 |
| | 6H | 23.05 | 23.48 | 23.69 | 24.12 | 24.78 | 23.05 | 23.48 | 23.69 | 24.12 | 24.78 |
| | 8H | 23.28 | 23.65 | 23.91 | 24.27 | 25.01 | 23.28 | 23.65 | 23.91 | 24.27 | 25.01 |

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

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP1-2506-472-7

Test Date: 08/04/2025

Luminaire Tested: EHBR-60-L940-N

Data in this report applies to families of products including EHBR-60-L940-N

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-472-7
 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-L940-N**
 Description: Elevate Round Highbay at, 60000 lumens, 4000K 90CRI LEDs with N lens

Spectral Parameters

CCT (K): 3963
 CIE u': 0.2267
 CIE v': 0.5003
 Duv: -0.0016
 CIE x: 0.3810
 CIE y: 0.3738
 CIE z: 0.2453
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 580
 Purity: 26.49712
 Rf: 90.7
 Rg: 101

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 93.4 | | |
| R1: | 95.2 | R9: | 66.4 |
| R2: | 95.1 | R10: | 86.6 |
| R3: | 93.3 | R11: | 94.4 |
| R4: | 94.5 | R12: | 75.4 |
| R5: | 94.2 | R13: | 95.0 |
| R6: | 92.9 | R14: | 95.4 |
| R7: | 94.0 | R15: | 92.8 |
| R8: | 87.7 | | |



Test Conditions

Stabilization Time: 44M
 Operation Time: 1H 44M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2506-472-7

| 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 4000K 4-step quadrangle

REPORT NUMBER: SP1-2506-472-7

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 | 141 | NR | 620 | 276 | NR | 750 | 5 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 167 | NR | 625 | 279 | NR | 755 | 4 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 193 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 215 | NR | 635 | 628 | NR | 765 | 3 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 230 | NR | 640 | 164 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 243 | NR | 645 | 161 | NR | 775 | 2 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 251 | NR | 650 | 137 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 256 | NR | 655 | 111 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 262 | NR | 660 | 92 | NR | 790 | 1 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 267 | NR | 665 | 76 | NR | 795 | 1 | NR | 925 | 0 | NR |
| 410 | 6 | NR | 540 | 271 | NR | 670 | 71 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 276 | NR | 675 | 56 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 280 | NR | 680 | 47 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 37 | NR | 555 | 285 | NR | 685 | 40 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 63 | NR | 560 | 290 | NR | 690 | 34 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 108 | NR | 565 | 294 | NR | 695 | 29 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 186 | NR | 570 | 296 | NR | 700 | 25 | NR | 830 | 0 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 298 | NR | 705 | 21 | NR | 835 | 0 | NR | 965 | 0 | NR |
| 450 | 403 | NR | 580 | 299 | NR | 710 | 18 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 293 | NR | 585 | 298 | NR | 715 | 15 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 214 | NR | 590 | 296 | NR | 720 | 13 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 180 | NR | 595 | 288 | NR | 725 | 11 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 132 | NR | 600 | 286 | NR | 730 | 9 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 109 | NR | 605 | 282 | NR | 735 | 8 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 110 | NR | 610 | 311 | NR | 740 | 7 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 121 | NR | 615 | 334 | NR | 745 | 6 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-7

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.76

| 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 | 141 | NR | 620 | 276 | NR | 750 | 5 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 167 | NR | 625 | 279 | NR | 755 | 4 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 193 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 215 | NR | 635 | 628 | NR | 765 | 3 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 230 | NR | 640 | 164 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 243 | NR | 645 | 161 | NR | 775 | 2 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 251 | NR | 650 | 137 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 256 | NR | 655 | 111 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 262 | NR | 660 | 92 | NR | 790 | 1 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 267 | NR | 665 | 76 | NR | 795 | 1 | NR | 925 | 0 | NR |
| 410 | 6 | NR | 540 | 271 | NR | 670 | 71 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 276 | NR | 675 | 56 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 280 | NR | 680 | 47 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 37 | NR | 555 | 285 | NR | 685 | 40 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 63 | NR | 560 | 290 | NR | 690 | 34 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 108 | NR | 565 | 294 | NR | 695 | 29 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 186 | NR | 570 | 296 | NR | 700 | 25 | NR | 830 | 0 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 298 | NR | 705 | 21 | NR | 835 | 0 | NR | 965 | 0 | NR |
| 450 | 403 | NR | 580 | 299 | NR | 710 | 18 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 293 | NR | 585 | 298 | NR | 715 | 15 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 214 | NR | 590 | 296 | NR | 720 | 13 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 180 | NR | 595 | 288 | NR | 725 | 11 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 132 | NR | 600 | 286 | NR | 730 | 9 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 109 | NR | 605 | 282 | NR | 735 | 8 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 110 | NR | 610 | 311 | NR | 740 | 7 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 121 | NR | 615 | 334 | NR | 745 | 6 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-7

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 3.64

| 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 | 141 | NR | 620 | 276 | NR | 750 | 5 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 167 | NR | 625 | 279 | NR | 755 | 4 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 193 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 215 | NR | 635 | 628 | NR | 765 | 3 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 230 | NR | 640 | 164 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 243 | NR | 645 | 161 | NR | 775 | 2 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 251 | NR | 650 | 137 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 256 | NR | 655 | 111 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 3 | NR | 530 | 262 | NR | 660 | 92 | NR | 790 | 1 | NR | 920 | 0 | NR |
| 405 | 4 | NR | 535 | 267 | NR | 665 | 76 | NR | 795 | 1 | NR | 925 | 0 | NR |
| 410 | 6 | NR | 540 | 271 | NR | 670 | 71 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 11 | NR | 545 | 276 | NR | 675 | 56 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 280 | NR | 680 | 47 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 37 | NR | 555 | 285 | NR | 685 | 40 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 63 | NR | 560 | 290 | NR | 690 | 34 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 108 | NR | 565 | 294 | NR | 695 | 29 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 186 | NR | 570 | 296 | NR | 700 | 25 | NR | 830 | 0 | NR | 960 | 0 | NR |
| 445 | 323 | NR | 575 | 298 | NR | 705 | 21 | NR | 835 | 0 | NR | 965 | 0 | NR |
| 450 | 403 | NR | 580 | 299 | NR | 710 | 18 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 293 | NR | 585 | 298 | NR | 715 | 15 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 214 | NR | 590 | 296 | NR | 720 | 13 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 180 | NR | 595 | 288 | NR | 725 | 11 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 132 | NR | 600 | 286 | NR | 730 | 9 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 109 | NR | 605 | 282 | NR | 735 | 8 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 110 | NR | 610 | 311 | NR | 740 | 7 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 121 | NR | 615 | 334 | NR | 745 | 6 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 90.7$
 $R_g = 101$
 $CIE R_a = 93.4$
 $R_9 = 66.4$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 90 | CES51 = 99 | CES76 = 83 |
| CES02 = 62 | CES27 = 93 | CES52 = 97 | CES77 = 87 |
| CES03 = 31 | CES28 = 94 | CES53 = 95 | CES78 = 79 |
| CES04 = 69 | CES29 = 91 | CES54 = 96 | CES79 = 94 |
| CES05 = 49 | CES30 = 98 | CES55 = 95 | CES80 = 91 |
| CES06 = 50 | CES31 = 92 | CES56 = 95 | CES81 = 80 |
| CES07 = 42 | CES32 = 84 | CES57 = 94 | CES82 = 96 |
| CES08 = 41 | CES33 = 95 | CES58 = 95 | CES83 = 95 |
| CES09 = 29 | CES34 = 90 | CES59 = 98 | CES84 = 93 |
| CES10 = 74 | CES35 = 94 | CES60 = 93 | CES85 = 82 |
| CES11 = 57 | CES36 = 84 | CES61 = 93 | CES86 = 84 |
| CES12 = 63 | CES37 = 92 | CES62 = 90 | CES87 = 90 |
| CES13 = 43 | CES38 = 93 | CES63 = 92 | CES88 = 97 |
| CES14 = 74 | CES39 = 98 | CES64 = 91 | CES89 = 84 |
| CES15 = 71 | CES40 = 96 | CES65 = 88 | CES90 = 99 |
| CES16 = 47 | CES41 = 98 | CES66 = 88 | CES91 = 74 |
| CES17 = 49 | CES42 = 89 | CES67 = 87 | CES92 = 78 |
| CES18 = 56 | CES43 = 89 | CES68 = 87 | CES93 = 87 |
| CES19 = 71 | CES44 = 99 | CES69 = 88 | CES94 = 75 |
| CES20 = 66 | CES45 = 93 | CES70 = 84 | CES95 = 83 |
| CES21 = 85 | CES46 = 95 | CES71 = 80 | CES96 = 91 |
| CES22 = 78 | CES47 = 92 | CES72 = 93 | CES97 = 93 |
| CES23 = 91 | CES48 = 96 | CES73 = 78 | CES98 = 93 |
| CES24 = 90 | CES49 = 93 | CES74 = 92 | CES99 = 94 |
| CES25 = 71 | CES50 = 99 | CES75 = 81 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)