

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: P1433209

Luminaire Tested: EHBR1-30-UNV-W-L930

Issue Date: 3/13/2026

Test Information

Test Method: LM-79-2019
Report Number: P1433209
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2601-654-2)
Test Lab: INNOVATION CENTER
Issue Date: 3/13/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-30-UNV-W-L930
Description: Elevate Round Highbay at, 30000 lumens, 3000K 90CRI LEDs with W lens
Light Source: -
Ballast/Driver: -

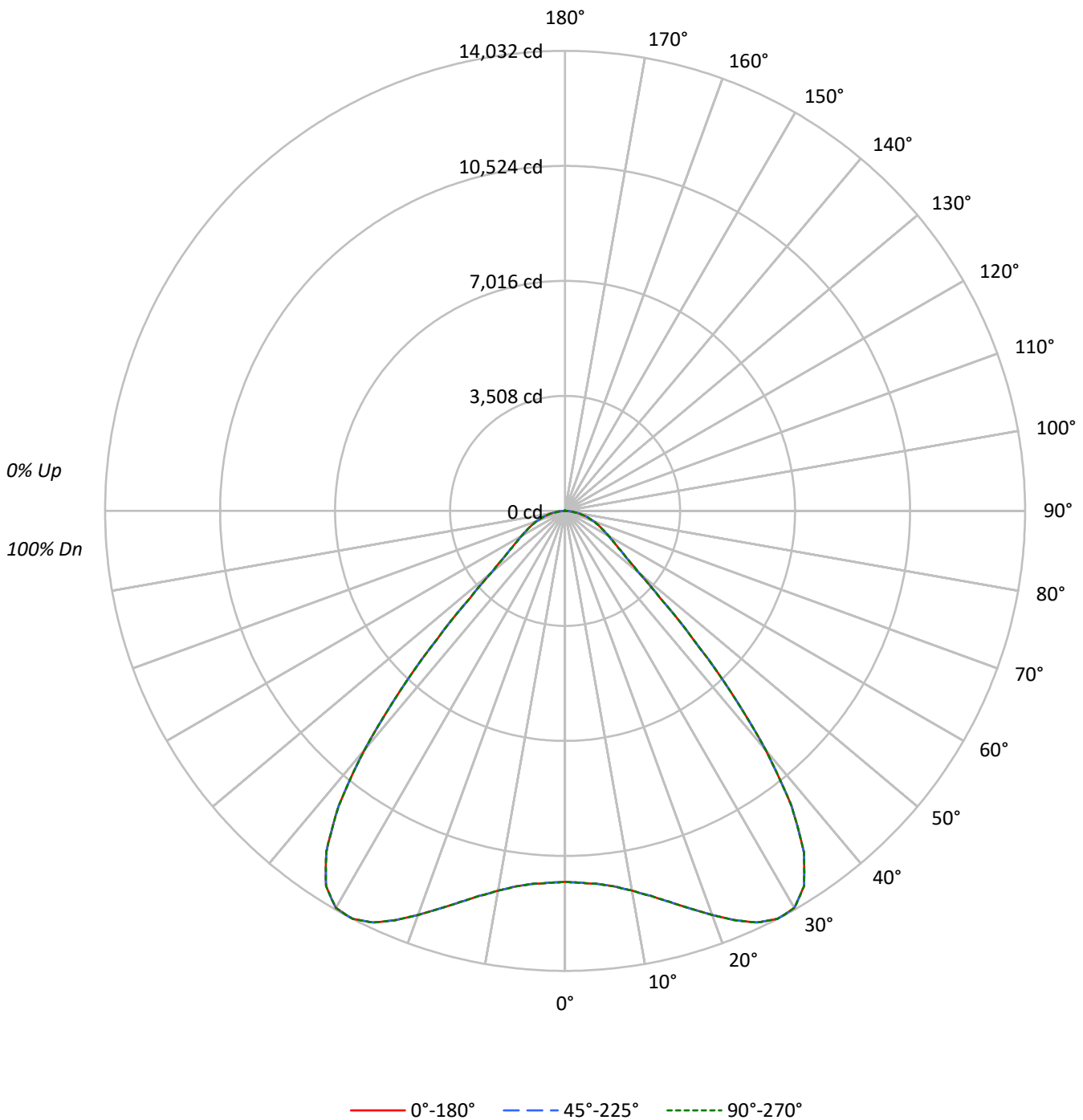
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 27062.1 lumens
Efficiency: N/A
Efficacy: 169.3 lumens/watt
Spacing Criteria (0/90/45): 1.54 / 1.54 / 1.31
Luminous Opening: Circular (Dia: 1.71' x H: 0')
CIE Type: Direct

Input Watts (W): 159.8
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: P1433209
CATALOG NUMBER: EHBR1-30-UNV-W-L930

Luminous Intensity Polar Plot





TEST NUMBER: P1433209
 CATALOG NUMBER: EHBR1-30-UNV-W-L930

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 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 102 | 100 | |
| 1 | 111 | 108 | 104 | 101 | 109 | 105 | 102 | 100 | 101 | 99 | 96 | 97 | 95 | 94 | 94 | 92 | 91 | 91 | 89 | |
| 2 | 103 | 97 | 91 | 87 | 101 | 95 | 90 | 86 | 92 | 88 | 84 | 89 | 85 | 82 | 86 | 83 | 80 | 80 | 78 | |
| 3 | 96 | 88 | 81 | 76 | 94 | 86 | 80 | 75 | 83 | 78 | 74 | 81 | 76 | 72 | 78 | 74 | 71 | 71 | 69 | |
| 4 | 89 | 79 | 72 | 67 | 87 | 78 | 71 | 66 | 76 | 70 | 65 | 74 | 69 | 64 | 72 | 67 | 64 | 64 | 62 | |
| 5 | 83 | 72 | 65 | 59 | 81 | 71 | 64 | 59 | 69 | 63 | 58 | 67 | 62 | 58 | 66 | 61 | 57 | 57 | 55 | |
| 6 | 78 | 66 | 58 | 53 | 76 | 65 | 58 | 53 | 64 | 57 | 52 | 62 | 56 | 52 | 60 | 55 | 51 | 51 | 50 | |
| 7 | 72 | 61 | 53 | 48 | 71 | 60 | 53 | 47 | 58 | 52 | 47 | 57 | 51 | 47 | 56 | 51 | 47 | 47 | 45 | |
| 8 | 68 | 56 | 48 | 43 | 66 | 55 | 48 | 43 | 54 | 47 | 43 | 53 | 47 | 43 | 52 | 46 | 42 | 42 | 41 | |
| 9 | 64 | 52 | 44 | 39 | 62 | 51 | 44 | 39 | 50 | 43 | 39 | 49 | 43 | 39 | 48 | 43 | 39 | 39 | 37 | |
| 10 | 60 | 48 | 41 | 36 | 59 | 47 | 40 | 36 | 46 | 40 | 36 | 45 | 40 | 35 | 45 | 39 | 35 | 35 | 34 | |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|-------|-------|-------|
| 0° | 53136 | 53136 | 53136 |
| 5° | 53838 | 53838 | 53838 |
| 10° | 56075 | 56075 | 56075 |
| 15° | 60031 | 60031 | 60031 |
| 20° | 65531 | 65531 | 65531 |
| 25° | 71767 | 71767 | 71767 |
| 30° | 75826 | 75826 | 75826 |
| 35° | 72807 | 72807 | 72807 |
| 40° | 58341 | 58341 | 58341 |
| 45° | 36467 | 36467 | 36467 |
| 50° | 21397 | 21397 | 21397 |
| 55° | 16451 | 16451 | 16451 |
| 60° | 14401 | 14401 | 14401 |
| 65° | 13361 | 13361 | 13361 |
| 70° | 12767 | 12767 | 12767 |
| 75° | 11966 | 11966 | 11966 |
| 80° | 10855 | 10855 | 10855 |
| 85° | 8330 | 8330 | 8330 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 36467 cd/sqm



TEST NUMBER: P1433209
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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 1100.9 | 4.1 |
| 10°-20° | 3529.3 | 13.0 |
| 20°-30° | 6370.6 | 23.5 |
| 30°-40° | 7698.2 | 28.4 |
| 40°-50° | 4398.2 | 16.3 |
| 50°-60° | 1862.8 | 6.9 |
| 60°-70° | 1201.5 | 4.4 |
| 70°-80° | 698.6 | 2.6 |
| 80°-90° | 184.9 | 0.7 |
| 90°-100° | 0.8 | 0.0 |
| 100°-110° | 1.0 | 0.0 |
| 110°-120° | 1.3 | 0.0 |
| 120°-130° | 1.5 | 0.0 |
| 130°-140° | 2.8 | 0.0 |
| 140°-150° | 3.6 | 0.0 |
| 150°-160° | 3.1 | 0.0 |
| 160°-170° | 2.2 | 0.0 |
| 170°-180° | 0.8 | 0.0 |
| 0°-30° | 11000.8 | 40.7 |
| 0°-40° | 18699.0 | 69.1 |
| 0°-60° | 24960.0 | 92.2 |
| 0°-90° | 27045.0 | 99.9 |
| 90°-120° | 3.1 | 0.0 |
| 90°-150° | 11.1 | 0.0 |
| 90°-180° | 17.0 | 0.1 |
| 0°-180° | 27062.1 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-------|-------|-------|-------|-------|------|
| 0° | 11315 | 11315 | 11315 | 11315 | 11315 | |
| 5° | 11421 | 11421 | 11421 | 11421 | 11421 | 1101 |
| 15° | 12348 | 12348 | 12348 | 12348 | 12348 | 3529 |
| 25° | 13850 | 13850 | 13850 | 13850 | 13850 | 6371 |
| 35° | 12700 | 12700 | 12700 | 12700 | 12700 | 7698 |
| 45° | 5491 | 5491 | 5491 | 5491 | 5491 | 4398 |
| 55° | 2009 | 2009 | 2009 | 2009 | 2009 | 1863 |
| 65° | 1202 | 1202 | 1202 | 1202 | 1202 | 1201 |
| 75° | 660 | 660 | 660 | 660 | 660 | 699 |
| 85° | 155 | 155 | 155 | 155 | 155 | 178 |
| 90° | 1 | 1 | 1 | 1 | 1 | 7 |
| 95° | 1 | 1 | 1 | 1 | 1 | 1 |
| 105° | 1 | 1 | 1 | 1 | 1 | 1 |
| 115° | 1 | 1 | 1 | 1 | 1 | 1 |
| 125° | 2 | 2 | 2 | 2 | 2 | 1 |
| 135° | 4 | 4 | 4 | 4 | 4 | 3 |
| 145° | 6 | 6 | 6 | 6 | 6 | 4 |
| 155° | 7 | 7 | 7 | 7 | 7 | 3 |
| 165° | 8 | 8 | 8 | 8 | 8 | 2 |
| 175° | 9 | 9 | 9 | 9 | 9 | 1 |
| 180° | 9 | 9 | 9 | 9 | 9 | |



TEST NUMBER: P1433209
 CATALOG NUMBER: EHBR1-30-UNV-W-L930

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|---------|---------|---------|---------|---------|
| 0° | 11315.0 | 11315.0 | 11315.0 | 11315.0 | 11315.0 |
| 2.5° | 11352.9 | 11352.9 | 11352.9 | 11352.9 | 11352.9 |
| 5° | 11420.8 | 11420.8 | 11420.8 | 11420.8 | 11420.8 |
| 7.5° | 11554.1 | 11554.1 | 11554.1 | 11554.1 | 11554.1 |
| 10° | 11759.3 | 11759.3 | 11759.3 | 11759.3 | 11759.3 |
| 12.5° | 12026.0 | 12026.0 | 12026.0 | 12026.0 | 12026.0 |
| 15° | 12347.5 | 12347.5 | 12347.5 | 12347.5 | 12347.5 |
| 17.5° | 12715.4 | 12715.4 | 12715.4 | 12715.4 | 12715.4 |
| 20° | 13112.8 | 13112.8 | 13112.8 | 13112.8 | 13112.8 |
| 22.5° | 13512.8 | 13512.8 | 13512.8 | 13512.8 | 13512.8 |
| 25° | 13850.5 | 13850.5 | 13850.5 | 13850.5 | 13850.5 |
| 27.5° | 14032.2 | 14032.2 | 14032.2 | 14032.2 | 14032.2 |
| 30° | 13983.3 | 13983.3 | 13983.3 | 13983.3 | 13983.3 |
| 32.5° | 13568.9 | 13568.9 | 13568.9 | 13568.9 | 13568.9 |
| 35° | 12700.0 | 12700.0 | 12700.0 | 12700.0 | 12700.0 |
| 37.5° | 11345.3 | 11345.3 | 11345.3 | 11345.3 | 11345.3 |
| 40° | 9516.8 | 9516.8 | 9516.8 | 9516.8 | 9516.8 |
| 42.5° | 7448.7 | 7448.7 | 7448.7 | 7448.7 | 7448.7 |
| 45° | 5490.9 | 5490.9 | 5490.9 | 5490.9 | 5490.9 |
| 47.5° | 3924.6 | 3924.6 | 3924.6 | 3924.6 | 3924.6 |
| 50° | 2928.7 | 2928.7 | 2928.7 | 2928.7 | 2928.7 |
| 52.5° | 2371.4 | 2371.4 | 2371.4 | 2371.4 | 2371.4 |
| 55° | 2009.3 | 2009.3 | 2009.3 | 2009.3 | 2009.3 |
| 57.5° | 1744.9 | 1744.9 | 1744.9 | 1744.9 | 1744.9 |
| 60° | 1533.3 | 1533.3 | 1533.3 | 1533.3 | 1533.3 |
| 62.5° | 1357.0 | 1357.0 | 1357.0 | 1357.0 | 1357.0 |
| 65° | 1202.4 | 1202.4 | 1202.4 | 1202.4 | 1202.4 |
| 67.5° | 1065.9 | 1065.9 | 1065.9 | 1065.9 | 1065.9 |
| 70° | 929.8 | 929.8 | 929.8 | 929.8 | 929.8 |
| 72.5° | 794.3 | 794.3 | 794.3 | 794.3 | 794.3 |
| 75° | 659.5 | 659.5 | 659.5 | 659.5 | 659.5 |
| 77.5° | 529.8 | 529.8 | 529.8 | 529.8 | 529.8 |
| 80° | 401.4 | 401.4 | 401.4 | 401.4 | 401.4 |
| 82.5° | 275.3 | 275.3 | 275.3 | 275.3 | 275.3 |
| 85° | 154.6 | 154.6 | 154.6 | 154.6 | 154.6 |
| 87.5° | 48.8 | 48.8 | 48.8 | 48.8 | 48.8 |
| 90° | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| 92.5° | 0.4 | 0.4 | 0.4 | 0.4 | 0.4 |
| 95° | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| 97.5° | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| 100° | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| 102.5° | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| 105° | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| 107.5° | 0.9 | 0.9 | 0.9 | 0.9 | 0.9 |
| 110° | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |



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CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|-----|-------|-----|
| 112.5° | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 115° | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 117.5° | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 120° | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 122.5° | 1.3 | 1.3 | 1.3 | 1.3 | 1.3 |
| 125° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 127.5° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |
| 130° | 2.2 | 2.2 | 2.2 | 2.2 | 2.2 |
| 132.5° | 3.2 | 3.2 | 3.2 | 3.2 | 3.2 |
| 135° | 3.7 | 3.7 | 3.7 | 3.7 | 3.7 |
| 137.5° | 4.1 | 4.1 | 4.1 | 4.1 | 4.1 |
| 140° | 5.0 | 5.0 | 5.0 | 5.0 | 5.0 |
| 142.5° | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 |
| 145° | 5.9 | 5.9 | 5.9 | 5.9 | 5.9 |
| 147.5° | 6.3 | 6.3 | 6.3 | 6.3 | 6.3 |
| 150° | 6.3 | 6.3 | 6.3 | 6.3 | 6.3 |
| 152.5° | 6.3 | 6.3 | 6.3 | 6.3 | 6.3 |
| 155° | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 |
| 157.5° | 6.8 | 6.8 | 6.8 | 6.8 | 6.8 |
| 160° | 7.2 | 7.2 | 7.2 | 7.2 | 7.2 |
| 162.5° | 7.7 | 7.7 | 7.7 | 7.7 | 7.7 |
| 165° | 7.7 | 7.7 | 7.7 | 7.7 | 7.7 |
| 167.5° | 7.7 | 7.7 | 7.7 | 7.7 | 7.7 |
| 170° | 7.7 | 7.7 | 7.7 | 7.7 | 7.7 |
| 172.5° | 8.1 | 8.1 | 8.1 | 8.1 | 8.1 |
| 175° | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 |
| 177.5° | 8.6 | 8.6 | 8.6 | 8.6 | 8.6 |
| 180° | 9.0 | 9.0 | 9.0 | 9.0 | 9.0 |



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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 | 18.76 | 20.07 | 19.13 | 20.39 | 20.70 | 18.76 | 20.07 | 19.13 | 20.39 | 20.70 |
| | 3H | 20.35 | 21.52 | 20.73 | 21.85 | 22.21 | 20.35 | 21.52 | 20.73 | 21.85 | 22.21 |
| | 4H | 20.98 | 22.06 | 21.38 | 22.41 | 22.80 | 20.98 | 22.06 | 21.38 | 22.41 | 22.80 |
| | 6H | 21.44 | 22.44 | 21.85 | 22.81 | 23.20 | 21.44 | 22.44 | 21.85 | 22.81 | 23.20 |
| | 8H | 21.58 | 22.52 | 22.01 | 22.92 | 23.32 | 21.58 | 22.52 | 22.01 | 22.92 | 23.32 |
| | 12H | 21.65 | 22.56 | 22.09 | 22.94 | 23.37 | 21.65 | 22.56 | 22.09 | 22.94 | 23.37 |
| 4H | 2H | 19.26 | 20.34 | 19.66 | 20.69 | 21.08 | 19.26 | 20.34 | 19.66 | 20.69 | 21.08 |
| | 3H | 21.09 | 21.98 | 21.50 | 22.38 | 22.79 | 21.09 | 21.98 | 21.50 | 22.38 | 22.79 |
| | 4H | 21.84 | 22.64 | 22.28 | 23.06 | 23.50 | 21.84 | 22.64 | 22.28 | 23.06 | 23.50 |
| | 6H | 22.43 | 23.12 | 22.90 | 23.57 | 24.04 | 22.43 | 23.12 | 22.90 | 23.57 | 24.04 |
| | 8H | 22.61 | 23.26 | 23.08 | 23.70 | 24.18 | 22.61 | 23.26 | 23.08 | 23.70 | 24.18 |
| | 12H | 22.72 | 23.29 | 23.21 | 23.77 | 24.25 | 22.72 | 23.29 | 23.21 | 23.77 | 24.25 |
| 8H | 4H | 22.10 | 22.74 | 22.57 | 23.19 | 23.66 | 22.10 | 22.74 | 22.57 | 23.19 | 23.66 |
| | 6H | 22.81 | 23.34 | 23.31 | 23.83 | 24.32 | 22.81 | 23.34 | 23.31 | 23.83 | 24.32 |
| | 8H | 23.06 | 23.53 | 23.58 | 24.05 | 24.54 | 23.06 | 23.53 | 23.58 | 24.05 | 24.54 |
| | 12H | 23.23 | 23.65 | 23.75 | 24.15 | 24.72 | 23.23 | 23.65 | 23.75 | 24.15 | 24.72 |
| 12H | 4H | 22.11 | 22.68 | 22.60 | 23.16 | 23.64 | 22.11 | 22.68 | 22.60 | 23.16 | 23.64 |
| | 6H | 22.85 | 23.32 | 23.37 | 23.84 | 24.33 | 22.85 | 23.32 | 23.37 | 23.84 | 24.33 |
| | 8H | 23.15 | 23.57 | 23.66 | 24.06 | 24.63 | 23.15 | 23.57 | 23.66 | 24.06 | 24.63 |

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

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP1-2506-472-5

Test Date: 08/01/2025

Luminaire Tested: EHBR-60-L930-N

Data in this report applies to families of products including EHBR-60-L930-N

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-472-5
 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-L930-N**
 Description: Elevate Round Highbay at, 60000 lumens, 3000K 90CRI LEDs with N lens

Spectral Parameters

CCT (K): 2996
 CIE u': 0.2519
 CIE v': 0.5169
 Duv: -0.0033
 CIE x: 0.4325
 CIE y: 0.3945
 CIE z: 0.1730
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 584
 Purity: 48.21818
 Rf: 91.3
 Rg: 102

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 94.4 | | |
| R1: | 96.8 | R9: | 61.4 |
| R2: | 98.1 | R10: | 94.4 |
| R3: | 97.8 | R11: | 95.7 |
| R4: | 95.6 | R12: | 88.5 |
| R5: | 96.9 | R13: | 97.3 |
| R6: | 95.7 | R14: | 97.8 |
| R7: | 90.9 | R15: | 92.3 |
| R8: | 83.0 | | |



Test Conditions

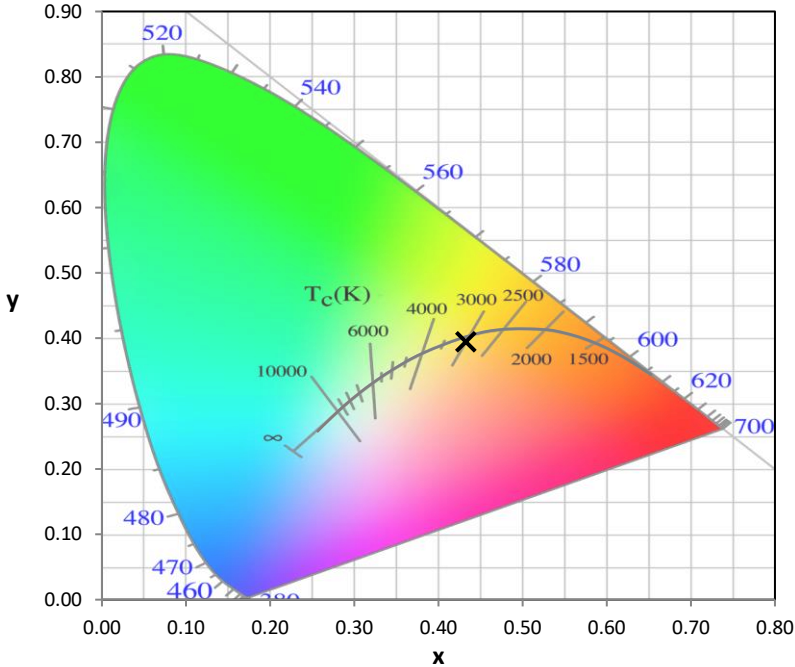
Stabilization Time: 40M
 Operation Time: 1H 40M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2506-472-5

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 6/16/2025 | 12/16/2025 |
| Power Meter | XITRON INXT2011004 | 1/21/2025 | 1/21/2026 |
| AC Power Source | CHROMA 61603 IN0063 | 10/22/2024 | 10/22/2025 |
| DC Power Source | AGILENT E3634A IN0208 | 10/22/2024 | 10/22/2025 |
| Sphere Thermometer | ONSET IN0085 | 10/22/2024 | 10/22/2025 |
| Room Thermometer | ONSET IN0046 | 10/22/2024 | 10/22/2025 |

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CIE 1931 Chromaticity Diagram



CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



CCT = 2996K
 CIE x = 0.4325
 CIE y = 0.3945
 Duv = -0.0033

Point lies inside the ANSI 3000K 7-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 | 101 | NR | 620 | 317 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 121 | NR | 625 | 320 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 141 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 158 | NR | 635 | 651 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 171 | NR | 640 | 207 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 182 | NR | 645 | 201 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 189 | NR | 650 | 174 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 194 | NR | 655 | 146 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 199 | NR | 660 | 124 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 205 | NR | 665 | 105 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 210 | NR | 670 | 96 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 7 | NR | 545 | 216 | NR | 675 | 79 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 13 | NR | 550 | 222 | NR | 680 | 67 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 22 | NR | 555 | 230 | NR | 685 | 58 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 37 | NR | 560 | 240 | NR | 690 | 49 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 60 | NR | 565 | 248 | NR | 695 | 42 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 101 | NR | 570 | 258 | NR | 700 | 36 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 172 | NR | 575 | 268 | NR | 705 | 30 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 223 | NR | 580 | 278 | NR | 710 | 26 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 167 | NR | 585 | 287 | NR | 715 | 22 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 126 | NR | 590 | 295 | NR | 720 | 19 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 111 | NR | 595 | 298 | NR | 725 | 16 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 86 | NR | 600 | 303 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 74 | NR | 605 | 307 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 77 | NR | 610 | 341 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 86 | NR | 615 | 368 | NR | 745 | 8 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-5

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.44

| 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 | 101 | NR | 620 | 317 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 121 | NR | 625 | 320 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 141 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 158 | NR | 635 | 651 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 171 | NR | 640 | 207 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 182 | NR | 645 | 201 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 189 | NR | 650 | 174 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 194 | NR | 655 | 146 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 199 | NR | 660 | 124 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 205 | NR | 665 | 105 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 210 | NR | 670 | 96 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 7 | NR | 545 | 216 | NR | 675 | 79 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 13 | NR | 550 | 222 | NR | 680 | 67 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 22 | NR | 555 | 230 | NR | 685 | 58 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 37 | NR | 560 | 240 | NR | 690 | 49 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 60 | NR | 565 | 248 | NR | 695 | 42 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 101 | NR | 570 | 258 | NR | 700 | 36 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 172 | NR | 575 | 268 | NR | 705 | 30 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 223 | NR | 580 | 278 | NR | 710 | 26 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 167 | NR | 585 | 287 | NR | 715 | 22 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 126 | NR | 590 | 295 | NR | 720 | 19 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 111 | NR | 595 | 298 | NR | 725 | 16 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 86 | NR | 600 | 303 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 74 | NR | 605 | 307 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 77 | NR | 610 | 341 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 86 | NR | 615 | 368 | NR | 745 | 8 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-5

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.85

| 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 | 101 | NR | 620 | 317 | NR | 750 | 7 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 121 | NR | 625 | 320 | NR | 755 | 6 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 141 | NR | 630 | 1000 | NR | 760 | 5 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 158 | NR | 635 | 651 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 171 | NR | 640 | 207 | NR | 770 | 4 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 182 | NR | 645 | 201 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 189 | NR | 650 | 174 | NR | 780 | 3 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 194 | NR | 655 | 146 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 1 | NR | 530 | 199 | NR | 660 | 124 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 205 | NR | 665 | 105 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 4 | NR | 540 | 210 | NR | 670 | 96 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 7 | NR | 545 | 216 | NR | 675 | 79 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 13 | NR | 550 | 222 | NR | 680 | 67 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 22 | NR | 555 | 230 | NR | 685 | 58 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 37 | NR | 560 | 240 | NR | 690 | 49 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 60 | NR | 565 | 248 | NR | 695 | 42 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 101 | NR | 570 | 258 | NR | 700 | 36 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 172 | NR | 575 | 268 | NR | 705 | 30 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 223 | NR | 580 | 278 | NR | 710 | 26 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 167 | NR | 585 | 287 | NR | 715 | 22 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 126 | NR | 590 | 295 | NR | 720 | 19 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 111 | NR | 595 | 298 | NR | 725 | 16 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 86 | NR | 600 | 303 | NR | 730 | 14 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 74 | NR | 605 | 307 | NR | 735 | 12 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 77 | NR | 610 | 341 | NR | 740 | 10 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 86 | NR | 615 | 368 | NR | 745 | 8 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 91.3$
 $R_g = 102$
 $CIE R_a = 94.4$
 $R_9 = 61.4$



Color Vector Graphics

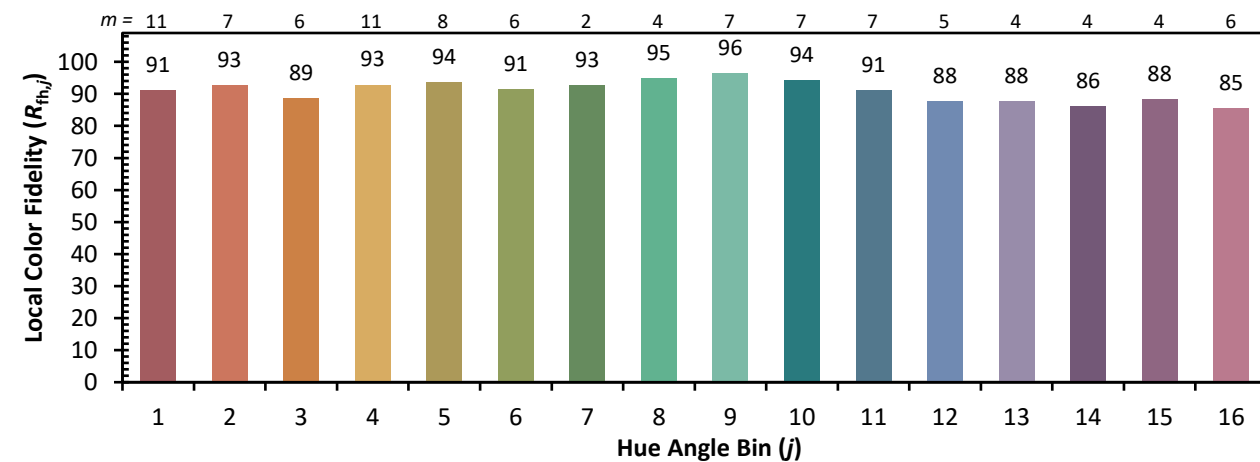


Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 91 | CES51 = 96 | CES76 = 89 |
| CES02 = 63 | CES27 = 96 | CES52 = 95 | CES77 = 85 |
| CES03 = 32 | CES28 = 96 | CES53 = 93 | CES78 = 86 |
| CES04 = 70 | CES29 = 90 | CES54 = 98 | CES79 = 89 |
| CES05 = 51 | CES30 = 96 | CES55 = 98 | CES80 = 91 |
| CES06 = 51 | CES31 = 90 | CES56 = 95 | CES81 = 72 |
| CES07 = 44 | CES32 = 84 | CES57 = 95 | CES82 = 95 |
| CES08 = 42 | CES33 = 91 | CES58 = 95 | CES83 = 93 |
| CES09 = 29 | CES34 = 92 | CES59 = 99 | CES84 = 96 |
| CES10 = 76 | CES35 = 96 | CES60 = 96 | CES85 = 80 |
| CES11 = 59 | CES36 = 90 | CES61 = 96 | CES86 = 77 |
| CES12 = 65 | CES37 = 94 | CES62 = 95 | CES87 = 91 |
| CES13 = 44 | CES38 = 99 | CES63 = 94 | CES88 = 96 |
| CES14 = 74 | CES39 = 97 | CES64 = 96 | CES89 = 82 |
| CES15 = 72 | CES40 = 94 | CES65 = 92 | CES90 = 97 |
| CES16 = 48 | CES41 = 94 | CES66 = 95 | CES91 = 82 |
| CES17 = 50 | CES42 = 91 | CES67 = 94 | CES92 = 78 |
| CES18 = 57 | CES43 = 88 | CES68 = 93 | CES93 = 87 |
| CES19 = 72 | CES44 = 99 | CES69 = 94 | CES94 = 73 |
| CES20 = 67 | CES45 = 93 | CES70 = 90 | CES95 = 85 |
| CES21 = 86 | CES46 = 93 | CES71 = 90 | CES96 = 92 |
| CES22 = 79 | CES47 = 86 | CES72 = 96 | CES97 = 93 |
| CES23 = 92 | CES48 = 95 | CES73 = 85 | CES98 = 94 |
| CES24 = 91 | CES49 = 91 | CES74 = 90 | CES99 = 93 |
| CES25 = 72 | CES50 = 96 | CES75 = 90 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)