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: P1432459

Luminaire Tested: EHBR1-48-UNV-TASM-L830-UPL12

Issue Date: 3/20/2026

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | P1432459 |
| | REPORT IS A COMBINATION OF REPORTS P1431836 AND P1431635 |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 3/20/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | METALUX |
| Catalog Number: | EHBR1-48-UNV-TASM-L830-UPL12 |
| Description: | Elevate Round Highbay at, 48000 lumens, 3000K 80CRI LEDs with TASM lens |
| Light Source: | - |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 45600.9 lumens |
| Efficiency: | N/A |
| Efficacy: | 171.4 lumens/watt |
| Spacing Criteria (0/90/45): | 0.99 / 0.84 / 0.9 |
| Luminous Opening: | Vertical Cylinder (Dia: 1.71' x H: 0.1') |
| CIE Type: | Direct |

| | |
|---|---|
| Input Watts (W): | 266 |
| 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 |

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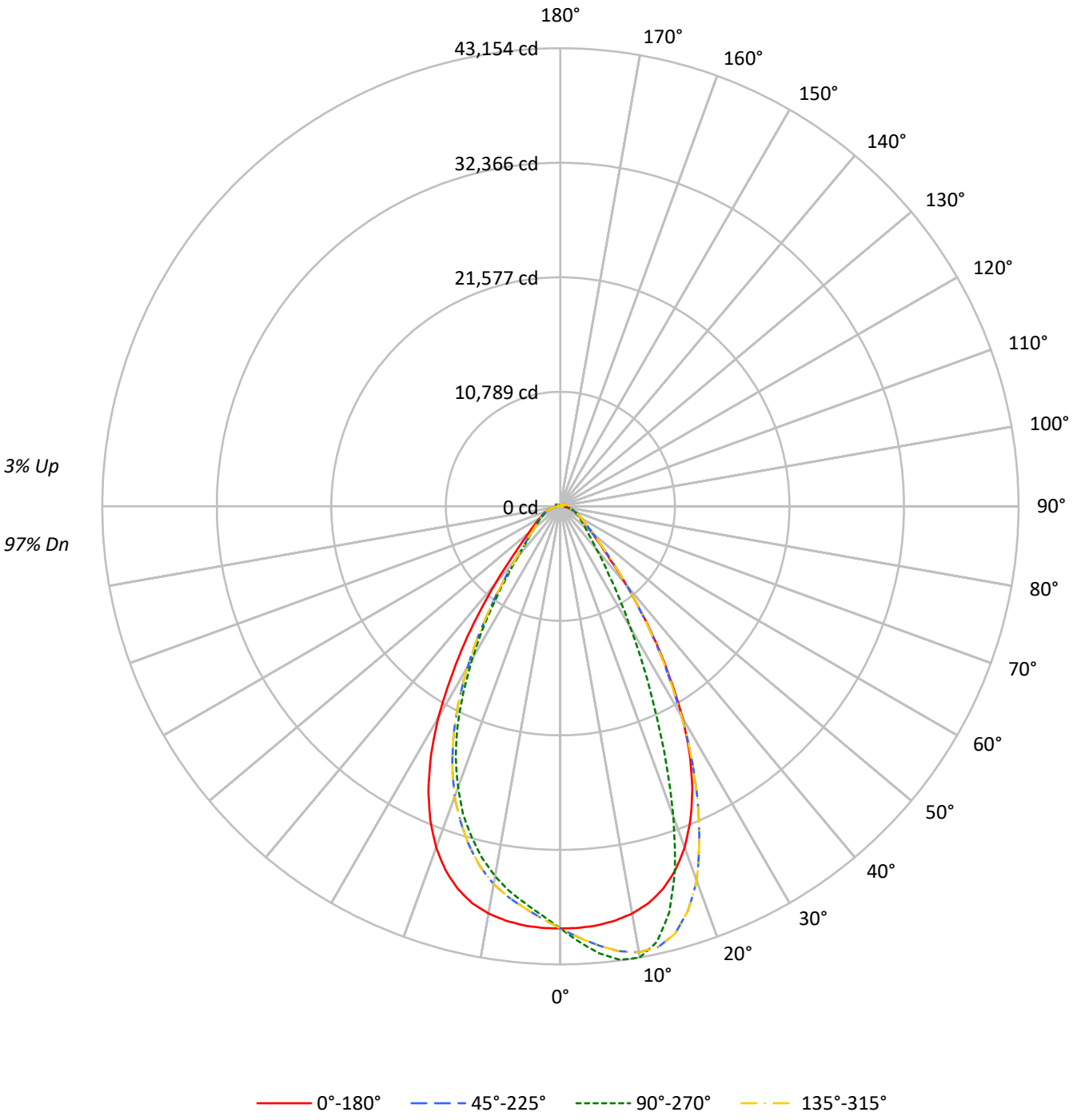
## Luminous Intensity Polar Plot



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TEST NUMBER: P1432459
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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 | 0 |
| RCR | | | | | | | | | | | | | | | | | | |
| 0 | 118 | 118 | 118 | 118 | 115 | 115 | 115 | 115 | 110 | 110 | 110 | 104 | 104 | 104 | 100 | 100 | 100 | 97 |
| 1 | 111 | 108 | 105 | 102 | 108 | 105 | 103 | 100 | 101 | 99 | 97 | 97 | 95 | 93 | 93 | 91 | 90 | 88 |
| 2 | 104 | 98 | 93 | 89 | 102 | 96 | 92 | 88 | 93 | 89 | 86 | 89 | 86 | 83 | 86 | 84 | 81 | 79 |
| 3 | 98 | 90 | 84 | 79 | 96 | 89 | 83 | 79 | 85 | 81 | 77 | 83 | 79 | 75 | 80 | 77 | 74 | 72 |
| 4 | 92 | 83 | 77 | 72 | 90 | 82 | 76 | 71 | 79 | 74 | 70 | 77 | 72 | 69 | 75 | 71 | 68 | 66 |
| 5 | 87 | 77 | 70 | 65 | 85 | 76 | 69 | 65 | 74 | 68 | 64 | 72 | 67 | 63 | 70 | 66 | 62 | 60 |
| 6 | 82 | 71 | 65 | 60 | 80 | 70 | 64 | 59 | 69 | 63 | 59 | 67 | 62 | 58 | 65 | 61 | 57 | 56 |
| 7 | 77 | 67 | 60 | 55 | 76 | 66 | 59 | 55 | 64 | 58 | 54 | 63 | 58 | 54 | 61 | 57 | 53 | 52 |
| 8 | 73 | 62 | 56 | 51 | 72 | 62 | 55 | 51 | 60 | 54 | 50 | 59 | 54 | 50 | 58 | 53 | 50 | 48 |
| 9 | 69 | 58 | 52 | 47 | 68 | 58 | 52 | 47 | 57 | 51 | 47 | 56 | 50 | 47 | 54 | 50 | 46 | 45 |
| 10 | 66 | 55 | 49 | 44 | 65 | 54 | 48 | 44 | 53 | 48 | 44 | 52 | 47 | 44 | 52 | 47 | 43 | 42 |

## AVERAGE LUMINANCE (cd/sqm):

| | 0° | 90° | 180° | 270° |
|---|---|---|---|---|
| 0° | 186761 | 186761 | 186761 | 186761 |
| 5° | 185625 | 198027 | 185625 | 175992 |
| 10° | 183343 | 203111 | 183343 | 166562 |
| 15° | 177930 | 188754 | 177930 | 153858 |
| 20° | 166409 | 151354 | 166409 | 137044 |
| 25° | 147285 | 104867 | 147285 | 114849 |
| 30° | 119590 | 68223 | 119590 | 85930 |
| 35° | 85773 | 44183 | 85773 | 57206 |
| 40° | 55456 | 30454 | 55456 | 36077 |
| 45° | 35186 | 23590 | 35186 | 25705 |
| 50° | 26130 | 20045 | 26130 | 21411 |
| 55° | 21333 | 18260 | 21333 | 18900 |
| 60° | 18473 | 17394 | 18473 | 17500 |
| 65° | 16840 | 16776 | 16840 | 16704 |
| 70° | 15961 | 16437 | 15961 | 16224 |
| 75° | 14927 | 15901 | 14927 | 15425 |
| 80° | 13112 | 15011 | 13112 | 14034 |
| 85° | 8484 | 10719 | 8484 | 10221 |

## MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 22.5°
Vertical Angle: 45°
Luminance: 49470 cd/sqm

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**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 3781.5 | 8.3 |
| 10°-20° | 10287.7 | 22.6 |
| 20°-30° | 12065.4 | 26.5 |
| 30°-40° | 8390.7 | 18.4 |
| 40°-50° | 4169.8 | 9.1 |
| 50°-60° | 2494.0 | 5.5 |
| 60°-70° | 1755.4 | 3.8 |
| 70°-80° | 1130.8 | 2.5 |
| 80°-90° | 361.2 | 0.8 |
| 90°-100° | 31.9 | 0.1 |
| 100°-110° | 199.9 | 0.4 |
| 110°-120° | 367.8 | 0.8 |
| 120°-130° | 219.9 | 0.5 |
| 130°-140° | 134.8 | 0.3 |
| 140°-150° | 94.9 | 0.2 |
| 150°-160° | 63.8 | 0.1 |
| 160°-170° | 38.4 | 0.1 |
| 170°-180° | 13.2 | 0.0 |
| 0°-30° | 26134.6 | 57.3 |
| 0°-40° | 34525.4 | 75.7 |
| 0°-60° | 41189.1 | 90.3 |
| 0°-90° | 44436.4 | 97.4 |
| 90°-120° | 599.6 | 1.3 |
| 90°-150° | 1049.1 | 2.3 |
| 90°-180° | 1164.0 | 2.6 |
| 0°-180° | 45600.9 | 100.0 |

**CANDELA DISTRIBUTION:**

| | 0° | 90° | 180° | 270° | 360° | Flux |
|---|---|---|---|---|---|---|
| 0° | 39770 | 39770 | 39770 | 39770 | 39770 | |
| 5° | 39634 | 42282 | 39634 | 37577 | 39634 | 3761 |
| 15° | 37329 | 39600 | 37329 | 32279 | 37329 | 10432 |
| 25° | 29413 | 20942 | 29413 | 22935 | 29413 | 13316 |
| 35° | 15742 | 8109 | 15742 | 10499 | 15742 | 9828 |
| 45° | 5693 | 3817 | 5693 | 4159 | 5693 | 4659 |
| 55° | 2883 | 2468 | 2883 | 2554 | 2883 | 2636 |
| 65° | 1758 | 1751 | 1758 | 1744 | 1758 | 1765 |
| 75° | 1052 | 1120 | 1052 | 1087 | 1052 | 1104 |
| 85° | 292 | 368 | 292 | 351 | 292 | 324 |
| 90° | 9 | 14 | 9 | 9 | 9 | 18 |
| 95° | 17 | 20 | 17 | 15 | 17 | 18 |
| 105° | 92 | 51 | 92 | 70 | 92 | 124 |
| 115° | 391 | 338 | 391 | 317 | 391 | 356 |
| 125° | 252 | 267 | 252 | 230 | 252 | 232 |
| 135° | 162 | 188 | 162 | 169 | 162 | 128 |
| 145° | 149 | 156 | 149 | 145 | 149 | 93 |
| 155° | 136 | 142 | 136 | 134 | 136 | 63 |
| 165° | 135 | 142 | 135 | 133 | 135 | 38 |
| 175° | 139 | 145 | 139 | 136 | 139 | 13 |
| 180° | 140 | 140 | 140 | 140 | 140 | |

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TEST NUMBER: P1432459
CATALOG NUMBER: EHBR1-48-UNV-TASM-L830-UPL12

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 39769.5 | 39769.5 | 39769.5 | 39769.5 | *39769.5* | 39769.5 | 39769.5 | 39769.5 | 39769.5 | 39769.5 | 39769.5 |
| 2.5° | 39746.4 | 40260.2 | 40676.3 | 40950.8 | *41086.5* | 40950.8 | 40676.3 | 40260.2 | 39746.4 | 39235.6 | 38884.3 |
| 5° | 39633.8 | 40662.9 | 41534.7 | 42105.2 | *42281.9* | 42105.2 | 41534.7 | 40662.9 | 39633.8 | 38661.4 | 38016.3 |
| 7.5° | 39364.5 | 40967.9 | 42263.3 | 42929.2 | *43091.8* | 42929.2 | 42263.3 | 40967.9 | 39364.5 | 37988.0 | 37172.8 |
| 10° | *38953.7* | *41160.3* | *42657.0* | *43134.3* | *43153.7* | *43134.3* | *42657.0* | *41160.3* | *38953.7* | *37099.0* | *36137.8* |
| 12.5° | 38298.2 | 41091.7 | 42525.0 | 42368.4 | *42012.7* | 42368.4 | 42525.0 | 41091.7 | 38298.2 | 36013.3 | 34800.7 |
| 15° | 37328.7 | 40685.3 | 41689.1 | 40414.6 | *39599.5* | 40414.6 | 41689.1 | 40685.3 | 37328.7 | 34547.1 | 33140.7 |
| 17.5° | 35962.5 | 39924.6 | 39944.0 | 37422.6 | *35884.9* | 37422.6 | 39944.0 | 39924.6 | 35962.5 | 32754.4 | 31205.4 |
| 20° | 34201.9 | 38704.6 | 37541.2 | 32929.6 | *31107.7* | 32929.6 | 37541.2 | 38704.6 | 34201.9 | 30635.0 | 29115.2 |
| 22.5° | 31994.4 | 37059.5 | 34195.1 | 28409.6 | *25924.2* | 28409.6 | 34195.1 | 37059.5 | 31994.4 | 28170.3 | 26588.6 |
| 25° | 29412.7 | 35043.8 | 30595.4 | 23484.8 | *20941.8* | 23484.8 | 30595.4 | 35043.8 | 29412.7 | 25233.5 | 23803.3 |
| 27.5° | 26376.0 | 32488.9 | 26762.3 | 19190.8 | *16844.7* | 19190.8 | 26762.3 | 32488.9 | 26376.0 | 22201.4 | 20740.5 |
| 30° | 23003.0 | 29213.6 | 22773.4 | 15283.2 | *13122.7* | 15283.2 | 22773.4 | 29213.6 | 23003.0 | 18794.9 | 17486.9 |
| 32.5° | 19226.6 | 26003.1 | 18942.5 | 12245.8 | *10415.7* | 12245.8 | 18942.5 | 26003.1 | 19226.6 | 15544.2 | 14177.3 |
| 35° | 15742.5 | 21986.6 | 15488.3 | 9622.2 | *8109.2* | 9622.2 | 15488.3 | 21986.6 | 15742.5 | 12475.5 | 11133.2 |
| 37.5° | 12354.6 | 18191.5 | 12346.5 | 7748.3 | *6577.4* | 7748.3 | 12346.5 | 18191.5 | 12354.6 | 9699.1 | 8609.6 |
| 40° | 9611.9 | 14224.2 | 9673.8 | 6185.2 | *5278.4* | 6185.2 | 9673.8 | 14224.2 | 9611.9 | 7379.9 | 6682.6 |
| 42.5° | 7282.9 | 10876.6 | 7603.5 | 5076.2 | *4483.4* | 5076.2 | 7603.5 | 10876.6 | 7282.9 | 5814.5 | 5292.5 |
| 45° | 5692.9 | 8004.0 | 5937.6 | 4282.8 | *3816.7* | 4282.8 | 5937.6 | 8004.0 | 5692.9 | 4682.5 | 4332.0 |
| 47.5° | 4636.2 | 6185.9 | 4812.2 | 3673.5 | *3346.9* | 3673.5 | 4812.2 | 6185.9 | 4636.2 | 3960.6 | 3698.1 |
| 50° | 3894.3 | 4746.6 | 3995.6 | 3206.6 | *2987.4* | 3206.6 | 3995.6 | 4746.6 | 3894.3 | 3391.6 | 3216.4 |
| 52.5° | 3345.4 | 3871.1 | 3402.8 | 2857.7 | *2710.0* | 2857.7 | 3402.8 | 3871.1 | 3345.4 | 2967.3 | 2858.5 |
| 55° | 2883.0 | 3254.4 | 2959.1 | 2569.9 | *2467.7* | 2569.9 | 2959.1 | 3254.4 | 2883.0 | 2640.7 | 2560.1 |
| 57.5° | 2531.8 | 2760.8 | 2569.9 | 2324.4 | *2256.6* | 2324.4 | 2569.9 | 2760.8 | 2531.8 | 2349.8 | 2306.6 |
| 60° | 2220.8 | 2390.9 | 2267.8 | 2110.4 | *2091.0* | 2110.4 | 2267.8 | 2390.9 | 2220.8 | 2114.2 | 2085.9 |
| 62.5° | 1981.4 | 2088.9 | 2005.3 | 1918.0 | *1900.9* | 1918.0 | 2005.3 | 2088.9 | 1981.4 | 1899.4 | 1904.6 |
| 65° | 1757.7 | 1857.7 | 1792.0 | 1745.0 | *1751.0* | 1745.0 | 1792.0 | 1857.7 | 1757.7 | 1719.7 | 1727.9 |
| 67.5° | 1584.7 | 1636.9 | 1608.5 | 1581.7 | *1588.5* | 1581.7 | 1608.5 | 1636.9 | 1584.7 | 1547.4 | 1560.1 |
| 70° | 1400.5 | 1456.4 | 1427.4 | 1431.1 | *1442.3* | 1431.1 | 1427.4 | 1456.4 | 1400.5 | 1389.3 | 1399.0 |
| 72.5° | 1224.5 | 1267.7 | 1258.1 | 1267.0 | *1279.0* | 1267.0 | 1258.1 | 1267.7 | 1224.5 | 1223.0 | 1223.7 |
| 75° | 1051.5 | 1084.3 | 1088.7 | 1101.5 | *1120.1* | 1101.5 | 1088.7 | 1084.3 | 1051.5 | 1040.3 | 1053.7 |
| 77.5° | 862.8 | 900.1 | 914.3 | 931.5 | *959.0* | 931.5 | 914.3 | 900.1 | 862.8 | 870.3 | 876.9 |
| 80° | 689.8 | 706.9 | 738.3 | 751.0 | *789.7* | 751.0 | 738.3 | 706.9 | 689.8 | 677.1 | 686.8 |
| 82.5° | 504.9 | 520.5 | 547.4 | 571.2 | *593.6* | 571.2 | 547.4 | 520.5 | 504.9 | 498.9 | 499.6 |
| 85° | 291.6 | 315.5 | 333.4 | 361.7 | *368.4* | 361.7 | 333.4 | 315.5 | 291.6 | 298.3 | 291.6 |
| 87.5° | 102.2 | 109.6 | 125.2 | 136.5 | *137.2* | 136.5 | 125.2 | 109.6 | 102.2 | 104.4 | 94.7 |
| 90° | 8.9 | 15.4 | 26.1 | 17.0 | *14.1* | 17.0 | 26.1 | 15.4 | 8.9 | 15.2 | 23.4 |
| 92.5° | 11.4 | 20.3 | 36.3 | 21.5 | *17.3* | 21.5 | 36.3 | 20.3 | 11.4 | 19.6 | 37.3 |
| 95° | 17.2 | 24.7 | 45.6 | 23.3 | *19.9* | 23.3 | 45.6 | 24.7 | 17.2 | 25.9 | 51.7 |
| 97.5° | 26.0 | 30.4 | 51.3 | 24.6 | *22.9* | 24.6 | 51.3 | 30.4 | 26.0 | 31.6 | 59.3 |
| 100° | 34.2 | 34.2 | 92.2 | 27.7 | *25.5* | 27.7 | 92.2 | 34.2 | 34.2 | 39.2 | 92.0 |
| 102.5° | 51.2 | 66.4 | 211.9 | 52.5 | *29.9* | 52.5 | 211.9 | 66.4 | 51.2 | 72.6 | 194.6 |
| 105° | 92.1 | 149.5 | 371.0 | 128.5 | *51.4* | 128.5 | 371.0 | 149.5 | 92.1 | 150.6 | 346.1 |
| 107.5° | 173.3 | 277.2 | 477.3 | 249.4 | *112.4* | 249.4 | 477.3 | 277.2 | 173.3 | 265.7 | 456.9 |
| 110° | 276.4 | 386.7 | 520.7 | 339.9 | *221.9* | 339.9 | 520.7 | 386.7 | 276.4 | 364.5 | 479.0 |

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**CANDELA DISTRIBUTION (continued):**

| | 0° | 22.5° | 45° | 67.5° | 90° | 112.5° | 135° | 157.5° | 180° | 202.5° | 225° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 112.5° | 359.4 | 430.7 | 508.8 | 376.5 | *304.9* | 376.5 | 508.8 | 430.7 | 359.4 | 402.2 | 458.9 |
| 115° | 391.1 | 424.4 | 454.7 | 375.2 | *337.7* | 375.2 | 454.7 | 424.4 | 391.1 | 392.8 | 409.8 |
| 117.5° | 377.9 | 388.5 | 393.0 | 352.5 | *339.6* | 352.5 | 393.0 | 388.5 | 377.9 | 353.9 | 348.2 |
| 120° | 341.3 | 336.9 | 332.2 | 319.1 | *320.6* | 319.1 | 332.2 | 336.9 | 341.3 | 309.2 | 290.8 |
| 122.5° | 296.2 | 286.7 | 281.2 | 286.0 | *294.9* | 286.0 | 281.2 | 286.7 | 296.2 | 264.1 | 250.1 |
| 125° | 251.5 | 242.0 | 246.1 | 257.0 | *266.7* | 257.0 | 246.1 | 242.0 | 251.5 | 225.2 | 221.3 |
| 127.5° | 214.5 | 210.1 | 220.3 | 232.5 | *240.9* | 232.5 | 220.3 | 210.1 | 214.5 | 197.6 | 200.5 |
| 130° | 188.2 | 188.7 | 202.0 | 213.1 | *218.3* | 213.1 | 202.0 | 188.7 | 188.2 | 180.0 | 188.1 |
| 132.5° | 172.0 | 176.3 | 188.9 | 198.8 | *202.0* | 198.8 | 188.9 | 176.3 | 172.0 | 170.2 | 180.1 |
| 135° | 162.1 | 168.0 | 180.2 | 186.0 | *188.2* | 186.0 | 180.2 | 168.0 | 162.1 | 163.4 | 172.0 |
| 137.5° | 156.4 | 162.5 | 171.4 | 176.8 | *176.2* | 176.8 | 171.4 | 162.5 | 156.4 | 159.1 | 165.9 |
| 140° | 153.4 | 159.5 | 163.3 | 169.2 | *169.5* | 169.2 | 163.3 | 159.5 | 153.4 | 154.7 | 160.4 |
| 142.5° | 150.4 | 155.9 | 157.7 | 162.3 | *161.9* | 162.3 | 157.7 | 155.9 | 150.4 | 151.7 | 155.5 |
| 145° | 149.3 | 153.5 | 151.6 | 156.7 | *156.2* | 156.7 | 151.6 | 153.5 | 149.3 | 149.1 | 151.8 |
| 147.5° | 146.1 | 149.1 | 147.3 | 151.8 | *151.3* | 151.8 | 147.3 | 149.1 | 146.1 | 146.1 | 147.4 |
| 150° | 143.0 | 145.6 | 142.4 | 147.4 | *148.3* | 147.4 | 142.4 | 145.6 | 143.0 | 142.4 | 143.8 |
| 152.5° | 138.7 | 141.3 | 138.7 | 144.5 | *144.6* | 144.5 | 138.7 | 141.3 | 138.7 | 138.1 | 139.5 |
| 155° | 135.8 | 137.1 | 135.8 | 141.6 | *142.4* | 141.6 | 135.8 | 137.1 | 135.8 | 135.1 | 136.6 |
| 157.5° | 134.2 | 135.5 | 135.0 | 140.1 | *140.9* | 140.1 | 135.0 | 135.5 | 134.2 | 134.2 | 135.0 |
| 160° | 134.0 | 135.3 | 135.4 | 139.9 | *140.7* | 139.9 | 135.4 | 135.3 | 134.0 | 133.9 | 134.7 |
| 162.5° | 134.2 | 134.2 | 135.2 | 139.7 | *141.2* | 139.7 | 135.2 | 134.2 | 134.2 | 134.2 | 134.9 |
| 165° | 134.6 | 135.3 | 135.5 | 139.5 | *141.6* | 139.5 | 135.5 | 135.3 | 134.6 | 134.5 | 134.5 |
| 167.5° | 135.5 | 134.9 | 136.4 | 140.5 | *142.7* | 140.5 | 136.4 | 134.9 | 135.5 | 135.4 | 135.4 |
| 170° | 135.0 | 135.7 | 136.6 | 140.8 | *142.8* | 140.8 | 136.6 | 135.7 | 135.0 | 135.6 | 135.5 |
| 172.5° | 137.2 | 137.2 | 138.3 | 141.6 | *144.4* | 141.6 | 138.3 | 137.2 | 137.2 | 137.1 | 137.8 |
| 175° | 138.7 | 138.8 | 139.8 | 142.5 | *145.3* | 142.5 | 139.8 | 138.8 | 138.7 | 138.0 | 138.0 |
| 177.5° | 138.1 | 139.6 | 141.0 | 143.9 | *147.3* | 143.9 | 141.0 | 139.6 | 138.1 | 138.0 | 138.0 |
| 180° | 139.6 | 139.6 | 139.6 | 139.6 | *139.6* | 139.6 | 139.6 | 139.6 | 139.6 | 139.6 | 139.6 |

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Scaled Data Report

TEST NUMBER: P1432459
CATALOG NUMBER: EHBR1-48-UNV-TASM-L830-UPL12

**CANDELA DISTRIBUTION (continued):**

| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|---|---|---|---|---|---|---|
| 0° | 39769.5 | 39769.5 | 39769.5 | 39769.5 | 39769.5 | 39769.5 |
| 2.5° | 38614.3 | 38589.0 | 38614.3 | 38884.3 | 39235.6 | 39746.4 |
| 5° | 37717.2 | 37577.0 | 37717.2 | 38016.3 | 38661.4 | 39633.8 |
| 7.5° | 36672.4 | 36591.2 | 36672.4 | 37172.8 | 37988.0 | 39364.5 |
| 10° | *35572.5* | *35388.3* | *35572.5* | *36137.8* | *37099.0* | *38953.7* |
| 12.5° | 34216.8 | 33972.9 | 34216.8 | 34800.7 | 36013.3 | 38298.2 |
| 15° | 32492.6 | 32278.6 | 32492.6 | 33140.7 | 34547.1 | 37328.7 |
| 17.5° | 30642.5 | 30448.6 | 30642.5 | 31205.4 | 32754.4 | 35962.5 |
| 20° | 28318.7 | 28166.6 | 28318.7 | 29115.2 | 30635.0 | 34201.9 |
| 22.5° | 25880.9 | 25738.4 | 25880.9 | 26588.6 | 28170.3 | 31994.4 |
| 25° | 23012.8 | 22935.2 | 23012.8 | 23803.3 | 25233.5 | 29412.7 |
| 27.5° | 19913.5 | 19781.5 | 19913.5 | 20740.5 | 22201.4 | 26376.0 |
| 30° | 16747.0 | 16528.6 | 16747.0 | 17486.9 | 18794.9 | 23003.0 |
| 32.5° | 13650.0 | 13492.6 | 13650.0 | 14177.3 | 15544.2 | 19226.6 |
| 35° | 10656.7 | 10499.3 | 10656.7 | 11133.2 | 12475.5 | 15742.5 |
| 37.5° | 8303.8 | 8025.6 | 8303.8 | 8609.6 | 9699.1 | 12354.6 |
| 40° | 6297.8 | 6253.0 | 6297.8 | 6682.6 | 7379.9 | 9611.9 |
| 42.5° | 5127.0 | 5005.4 | 5127.0 | 5292.5 | 5814.5 | 7282.9 |
| 45° | 4206.8 | 4159.0 | 4206.8 | 4332.0 | 4682.5 | 5692.9 |
| 47.5° | 3617.6 | 3638.5 | 3617.6 | 3698.1 | 3960.6 | 4636.2 |
| 50° | 3178.3 | 3191.0 | 3178.3 | 3216.4 | 3391.6 | 3894.3 |
| 52.5° | 2854.7 | 2843.5 | 2854.7 | 2858.5 | 2967.3 | 3345.4 |
| 55° | 2568.4 | 2554.1 | 2568.4 | 2560.1 | 2640.7 | 2883.0 |
| 57.5° | 2317.8 | 2328.2 | 2317.8 | 2306.6 | 2349.8 | 2531.8 |
| 60° | 2094.0 | 2103.8 | 2094.0 | 2085.9 | 2114.2 | 2220.8 |
| 62.5° | 1905.4 | 1911.4 | 1905.4 | 1904.6 | 1899.4 | 1981.4 |
| 65° | 1736.8 | 1743.5 | 1736.8 | 1727.9 | 1719.7 | 1757.7 |
| 67.5° | 1575.7 | 1575.7 | 1575.7 | 1560.1 | 1547.4 | 1584.7 |
| 70° | 1424.4 | 1423.6 | 1424.4 | 1399.0 | 1389.3 | 1400.5 |
| 72.5° | 1242.4 | 1260.3 | 1242.4 | 1223.7 | 1223.0 | 1224.5 |
| 75° | 1065.7 | 1086.6 | 1065.7 | 1053.7 | 1040.3 | 1051.5 |
| 77.5° | 886.7 | 918.7 | 886.7 | 876.9 | 870.3 | 862.8 |
| 80° | 703.2 | 738.3 | 703.2 | 686.8 | 677.1 | 689.8 |
| 82.5° | 519.8 | 545.9 | 519.8 | 499.6 | 498.9 | 504.9 |
| 85° | 309.5 | 351.3 | 309.5 | 291.6 | 298.3 | 291.6 |
| 87.5° | 99.2 | 126.7 | 99.2 | 94.7 | 104.4 | 102.2 |
| 90° | 14.0 | 8.9 | 14.0 | 23.4 | 15.2 | 8.9 |
| 92.5° | 20.9 | 12.7 | 20.9 | 37.3 | 19.6 | 11.4 |
| 95° | 24.0 | 14.6 | 24.0 | 51.7 | 25.9 | 17.2 |
| 97.5° | 26.5 | 19.1 | 26.5 | 59.3 | 31.6 | 26.0 |
| 100° | 30.9 | 24.7 | 30.9 | 92.0 | 39.2 | 34.2 |
| 102.5° | 64.9 | 41.1 | 64.9 | 194.6 | 72.6 | 51.2 |
| 105° | 136.0 | 70.1 | 136.0 | 346.1 | 150.6 | 92.1 |
| 107.5° | 243.0 | 120.4 | 243.0 | 456.9 | 265.7 | 173.3 |
| 110° | 322.2 | 223.6 | 322.2 | 479.0 | 364.5 | 276.4 |

TEST NUMBER: P1432459
CATALOG NUMBER: EHBR1-48-UNV-TASM-L830-UPL12

**CANDELA DISTRIBUTION (continued):**

| | 247.5° | 270° | 292.5° | 315° | 337.5° | 360° |
|---|---|---|---|---|---|---|
| 112.5° | 346.1 | 301.6 | 346.1 | 458.9 | 402.2 | 359.4 |
| 115° | 332.9 | 317.4 | 332.9 | 409.8 | 392.8 | 391.1 |
| 117.5° | 304.0 | 306.6 | 304.0 | 348.2 | 353.9 | 377.9 |
| 120° | 270.6 | 284.0 | 270.6 | 290.8 | 309.2 | 341.3 |
| 122.5° | 240.5 | 255.6 | 240.5 | 250.1 | 264.1 | 296.2 |
| 125° | 214.1 | 230.0 | 214.1 | 221.3 | 225.2 | 251.5 |
| 127.5° | 195.9 | 206.7 | 195.9 | 200.5 | 197.6 | 214.5 |
| 130° | 182.2 | 191.0 | 182.2 | 188.1 | 180.0 | 188.2 |
| 132.5° | 172.8 | 178.5 | 172.8 | 180.1 | 170.2 | 172.0 |
| 135° | 164.8 | 169.1 | 164.8 | 172.0 | 163.4 | 162.1 |
| 137.5° | 158.0 | 161.7 | 158.0 | 165.9 | 159.1 | 156.4 |
| 140° | 152.6 | 155.6 | 152.6 | 160.4 | 154.7 | 153.4 |
| 142.5° | 146.4 | 148.9 | 146.4 | 155.5 | 151.7 | 150.4 |
| 145° | 142.8 | 144.7 | 142.8 | 151.8 | 149.1 | 149.3 |
| 147.5° | 139.9 | 141.2 | 139.9 | 147.4 | 146.1 | 146.1 |
| 150° | 136.9 | 138.3 | 136.9 | 143.8 | 142.4 | 143.0 |
| 152.5° | 133.3 | 135.4 | 133.3 | 139.5 | 138.1 | 138.7 |
| 155° | 131.7 | 133.7 | 131.7 | 136.6 | 135.1 | 135.8 |
| 157.5° | 131.2 | 133.4 | 131.2 | 135.0 | 134.2 | 134.2 |
| 160° | 131.6 | 133.0 | 131.6 | 134.7 | 133.9 | 134.0 |
| 162.5° | 131.2 | 132.6 | 131.2 | 134.9 | 134.2 | 134.2 |
| 165° | 132.1 | 132.8 | 132.1 | 134.5 | 134.5 | 134.6 |
| 167.5° | 132.3 | 132.8 | 132.3 | 135.4 | 135.4 | 135.5 |
| 170° | 133.0 | 133.8 | 133.0 | 135.5 | 135.6 | 135.0 |
| 172.5° | 134.5 | 135.3 | 134.5 | 137.8 | 137.1 | 137.2 |
| 175° | 135.4 | 136.1 | 135.4 | 138.0 | 138.0 | 138.7 |
| 177.5° | 136.8 | 137.5 | 136.8 | 138.0 | 138.0 | 138.1 |
| 180° | 139.6 | 139.6 | 139.6 | 139.6 | 139.6 | 139.6 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P1432459
CATALOG NUMBER: EHBR1-48-UNV-TASM-L830-UPL12

**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 | 19.14 | 20.31 | 19.55 | 20.67 | 21.06 | 18.46 | 19.62 | 18.87 | 19.99 | 20.37 |
| | 3H | 20.69 | 21.73 | 21.12 | 22.11 | 22.54 | 20.31 | 21.34 | 20.73 | 21.73 | 22.16 |
| | 4H | 21.33 | 22.29 | 21.78 | 22.70 | 23.15 | 21.09 | 22.06 | 21.54 | 22.46 | 22.91 |
| | 6H | 21.81 | 22.70 | 22.27 | 23.12 | 23.58 | 21.74 | 22.62 | 22.20 | 23.05 | 23.51 |
| | 8H | 21.96 | 22.80 | 22.44 | 23.25 | 23.72 | 21.96 | 22.80 | 22.44 | 23.24 | 23.71 |
| | 12H | 22.04 | 22.84 | 22.51 | 23.27 | 23.77 | 22.09 | 22.89 | 22.57 | 23.33 | 23.82 |
| 4H | 2H | 19.56 | 20.53 | 20.01 | 20.93 | 21.38 | 19.04 | 20.00 | 19.49 | 20.41 | 20.86 |
| | 3H | 21.36 | 22.16 | 21.82 | 22.61 | 23.08 | 21.10 | 21.89 | 21.56 | 22.35 | 22.82 |
| | 4H | 22.13 | 22.85 | 22.61 | 23.32 | 23.83 | 22.01 | 22.72 | 22.49 | 23.19 | 23.70 |
| | 6H | 22.75 | 23.37 | 23.26 | 23.86 | 24.39 | 22.78 | 23.40 | 23.29 | 23.89 | 24.42 |
| | 8H | 22.95 | 23.52 | 23.46 | 24.02 | 24.55 | 23.05 | 23.63 | 23.56 | 24.12 | 24.65 |
| | 12H | 23.05 | 23.56 | 23.59 | 24.09 | 24.63 | 23.22 | 23.73 | 23.75 | 24.26 | 24.79 |
| 8H | 4H | 22.38 | 22.96 | 22.90 | 23.46 | 23.99 | 22.29 | 22.86 | 22.80 | 23.36 | 23.89 |
| | 6H | 23.13 | 23.59 | 23.67 | 24.14 | 24.68 | 23.19 | 23.66 | 23.74 | 24.20 | 24.75 |
| | 8H | 23.40 | 23.81 | 23.96 | 24.38 | 24.93 | 23.54 | 23.96 | 24.11 | 24.52 | 25.08 |
| | 12H | 23.57 | 23.94 | 24.13 | 24.48 | 25.11 | 23.79 | 24.16 | 24.36 | 24.70 | 25.33 |
| 12H | 4H | 22.40 | 22.90 | 22.93 | 23.43 | 23.97 | 22.30 | 22.81 | 22.83 | 23.34 | 23.87 |
| | 6H | 23.17 | 23.59 | 23.74 | 24.15 | 24.70 | 23.24 | 23.65 | 23.80 | 24.22 | 24.77 |
| | 8H | 23.49 | 23.85 | 24.05 | 24.40 | 25.03 | 23.64 | 24.01 | 24.20 | 24.55 | 25.18 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

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

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP1-2506-472-2

Test Date: 07/31/2025

Luminaire Tested: EHBR-60-L830-N

Data in this report applies to families of products including EHBR-60-L830-N

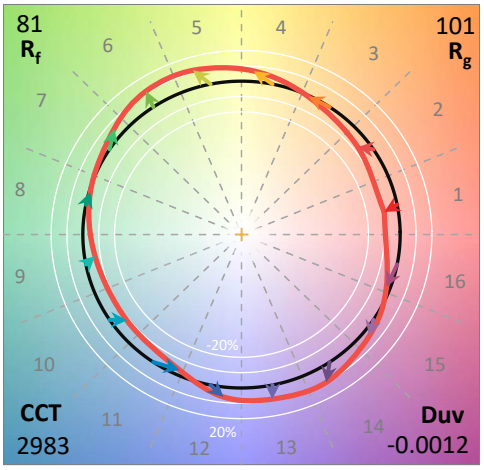
Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2506-472-2 |
| 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-L830-N** |
| Description: | Elevate Round Highbay at, 60000 lumens, 3000K 80CRI LEDs with N lens |

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 2983 | CRI (Ra): | 83.4 | | |
| CIE u': | 0.2516 | R1: | 84.0 | R9: | 29.4 |
| CIE v': | 0.5201 | R2: | 87.5 | R10: | 68.6 |
| Duv: | -0.0012 | R3: | 88.9 | R11: | 82.2 |
| CIE x: | 0.4364 | R4: | 83.8 | R12: | 61.6 |
| CIE y: | 0.4010 | R5: | 81.9 | R13: | 83.9 |
| CIE z: | 0.1626 | R6: | 83.1 | R14: | 92.5 |
| Peak Wavelength (nm): | 630 | R7: | 87.1 | R15: | 79.8 |
| Dominant Wavelength (nm): | 583 | R8: | 70.9 | | |
| Purity: | 51.34918 | | | | |
| Rf: | 81.2 | | | | |
| Rg: | 101.5 | | | | |




## Test Conditions

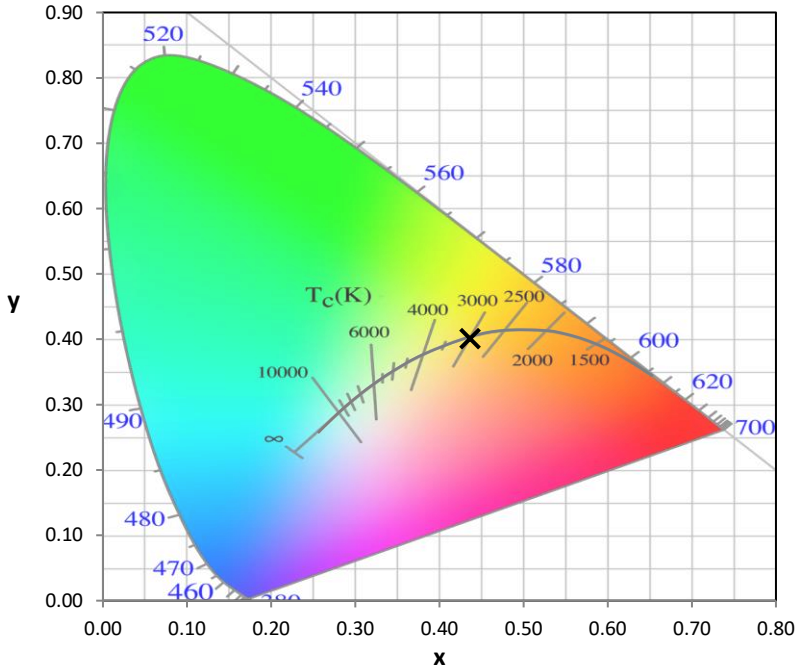
| | |
|---|---|
| Stabilization Time: | 38M |
| Operation Time: | 1H 38M |
| Sphere Temperature (°C): | 25.0 |

REPORT NUMBER: SP1-2506-472-2

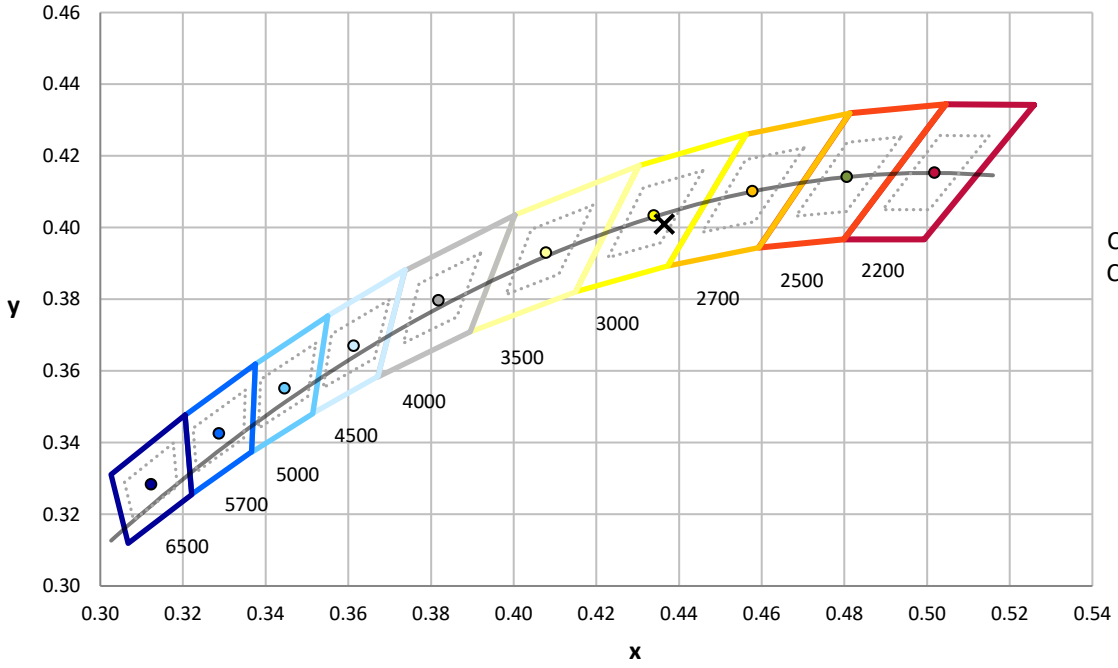
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 6/16/2025 | 12/16/2025 |
| Power Meter | XITRON INXT2011004 | 1/21/2025 | 1/21/2026 |
| AC Power Source | CHROMA 61603 IN0063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

REPORT NUMBER: SP1-2506-472-2

## CIE 1931 Chromaticity Diagram




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

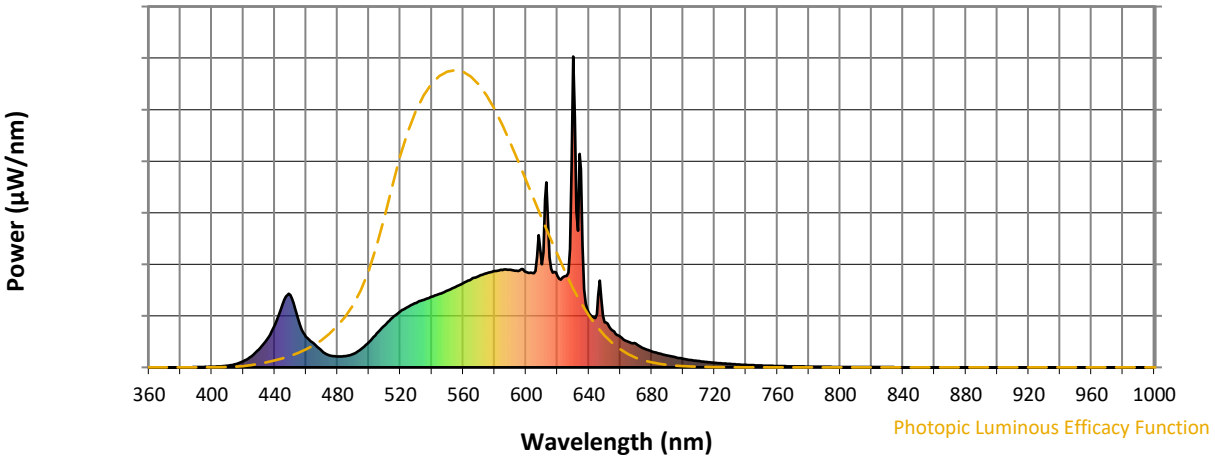



CCT = 2983K
CIE x = 0.4364
CIE y = 0.4010
Duv = -0.0012

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2506-472-2

## Photopic Flux vs. Wavelength

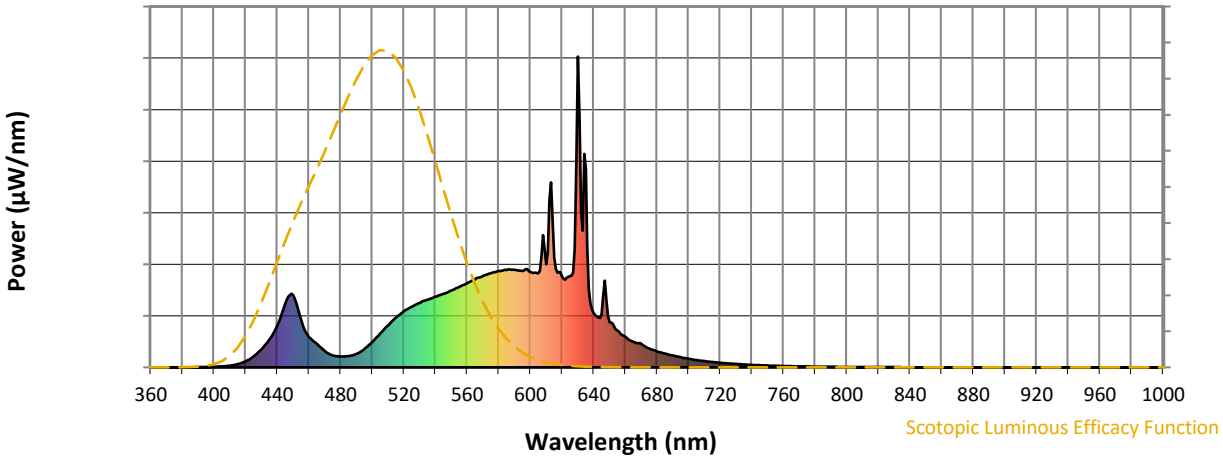



## Photopic Lumens: NR

| 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 | 43 | NR | 620 | 294 | NR | 750 | 6 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 59 | NR | 625 | 294 | NR | 755 | 5 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 81 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 109 | NR | 635 | 637 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 135 | NR | 640 | 175 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 160 | NR | 645 | 171 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 180 | NR | 650 | 146 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 195 | NR | 655 | 119 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 2 | NR | 530 | 207 | NR | 660 | 99 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 218 | NR | 665 | 82 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 5 | NR | 540 | 227 | NR | 670 | 76 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 237 | NR | 675 | 61 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 247 | NR | 680 | 52 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 35 | NR | 555 | 259 | NR | 685 | 44 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 58 | NR | 560 | 271 | NR | 690 | 38 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 90 | NR | 565 | 283 | NR | 695 | 33 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 135 | NR | 570 | 293 | NR | 700 | 27 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 204 | NR | 575 | 303 | NR | 705 | 24 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 233 | NR | 580 | 310 | NR | 710 | 20 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 153 | NR | 585 | 313 | NR | 715 | 17 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 98 | NR | 590 | 314 | NR | 720 | 15 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 76 | NR | 595 | 310 | NR | 725 | 13 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 53 | NR | 600 | 307 | NR | 730 | 11 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 39 | NR | 605 | 303 | NR | 735 | 9 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 35 | NR | 610 | 331 | NR | 740 | 8 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 36 | NR | 615 | 353 | NR | 745 | 7 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-2

## Scotopic Flux vs. Wavelength

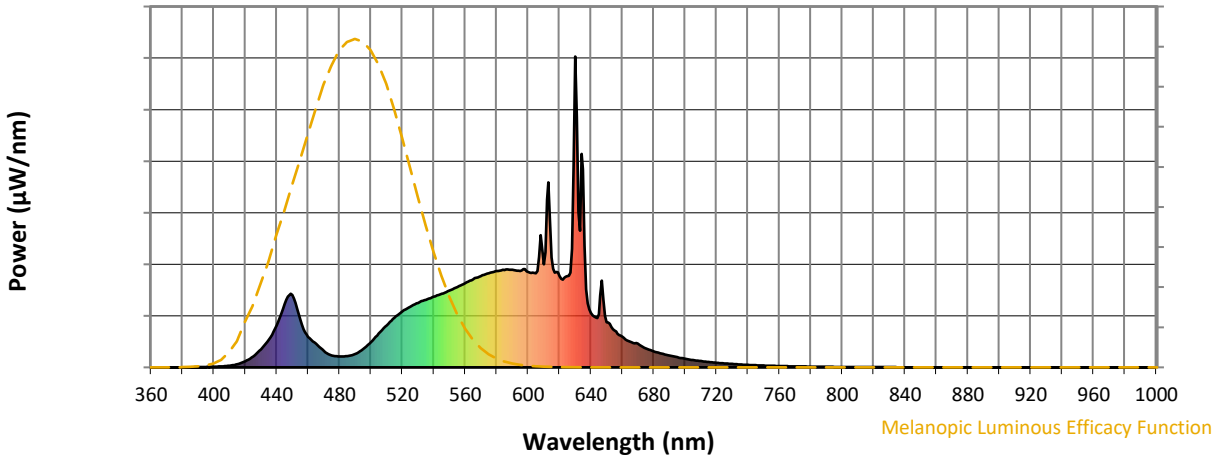



**Scotopic Lumens: NR** **S/P: 1.27**

| 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 | 43 | NR | 620 | 294 | NR | 750 | 6 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 59 | NR | 625 | 294 | NR | 755 | 5 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 81 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 109 | NR | 635 | 637 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 135 | NR | 640 | 175 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 160 | NR | 645 | 171 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 180 | NR | 650 | 146 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 195 | NR | 655 | 119 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 2 | NR | 530 | 207 | NR | 660 | 99 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 218 | NR | 665 | 82 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 5 | NR | 540 | 227 | NR | 670 | 76 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 237 | NR | 675 | 61 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 247 | NR | 680 | 52 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 35 | NR | 555 | 259 | NR | 685 | 44 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 58 | NR | 560 | 271 | NR | 690 | 38 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 90 | NR | 565 | 283 | NR | 695 | 33 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 135 | NR | 570 | 293 | NR | 700 | 27 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 204 | NR | 575 | 303 | NR | 705 | 24 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 233 | NR | 580 | 310 | NR | 710 | 20 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 153 | NR | 585 | 313 | NR | 715 | 17 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 98 | NR | 590 | 314 | NR | 720 | 15 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 76 | NR | 595 | 310 | NR | 725 | 13 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 53 | NR | 600 | 307 | NR | 730 | 11 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 39 | NR | 605 | 303 | NR | 735 | 9 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 35 | NR | 610 | 331 | NR | 740 | 8 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 36 | NR | 615 | 353 | NR | 745 | 7 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-2

## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.34**

| 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 | 43 | NR | 620 | 294 | NR | 750 | 6 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 59 | NR | 625 | 294 | NR | 755 | 5 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 81 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 109 | NR | 635 | 637 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 135 | NR | 640 | 175 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 160 | NR | 645 | 171 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 180 | NR | 650 | 146 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 1 | NR | 525 | 195 | NR | 655 | 119 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 2 | NR | 530 | 207 | NR | 660 | 99 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 3 | NR | 535 | 218 | NR | 665 | 82 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 5 | NR | 540 | 227 | NR | 670 | 76 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 237 | NR | 675 | 61 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 247 | NR | 680 | 52 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 35 | NR | 555 | 259 | NR | 685 | 44 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 58 | NR | 560 | 271 | NR | 690 | 38 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 90 | NR | 565 | 283 | NR | 695 | 33 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 135 | NR | 570 | 293 | NR | 700 | 27 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 204 | NR | 575 | 303 | NR | 705 | 24 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 233 | NR | 580 | 310 | NR | 710 | 20 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 153 | NR | 585 | 313 | NR | 715 | 17 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 98 | NR | 590 | 314 | NR | 720 | 15 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 76 | NR | 595 | 310 | NR | 725 | 13 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 53 | NR | 600 | 307 | NR | 730 | 11 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 39 | NR | 605 | 303 | NR | 735 | 9 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 35 | NR | 610 | 331 | NR | 740 | 8 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 36 | NR | 615 | 353 | NR | 745 | 7 | NR | 875 | 0 | NR | | | |

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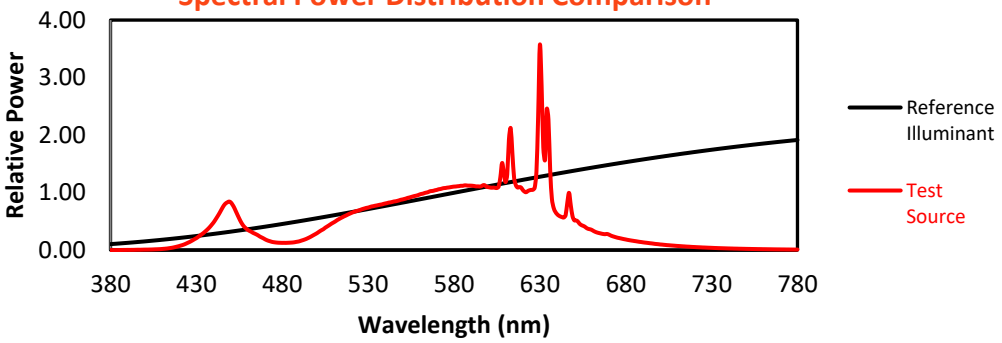
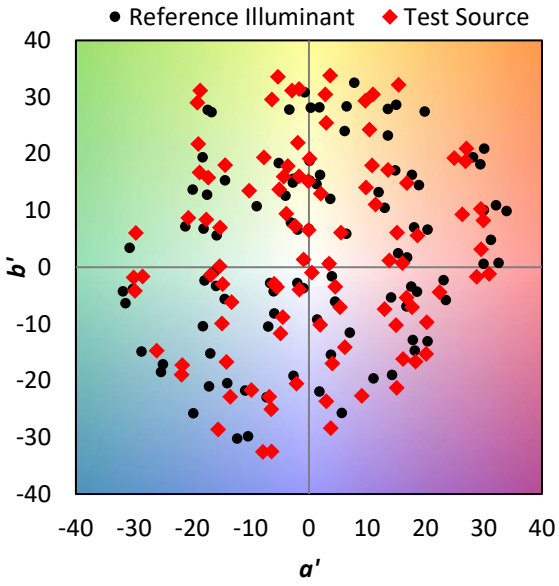
## Summary

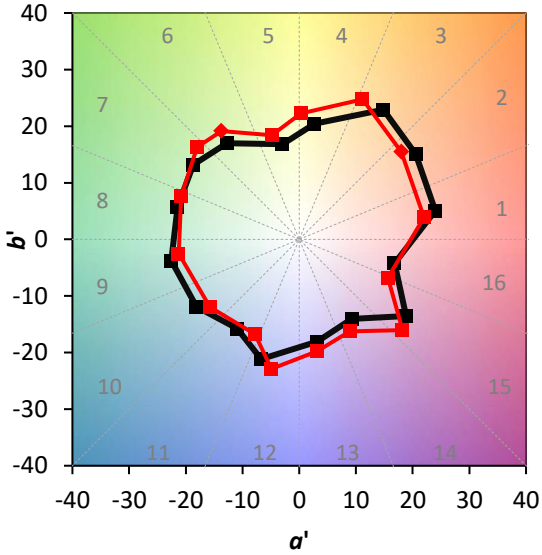
$R_f$ = 81.2
$R_g$ = 101.5
CIE $R_a$ = 83.4
$R_9$ = 29.4

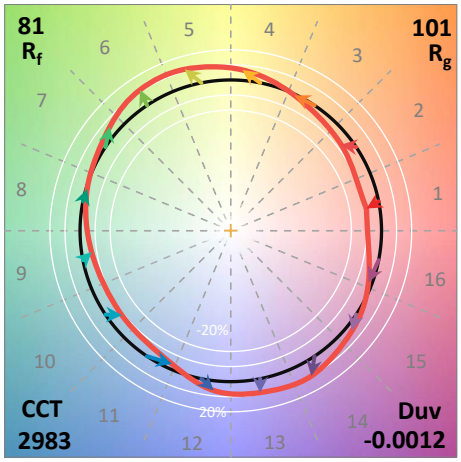
## Spectral Power Distribution Comparison

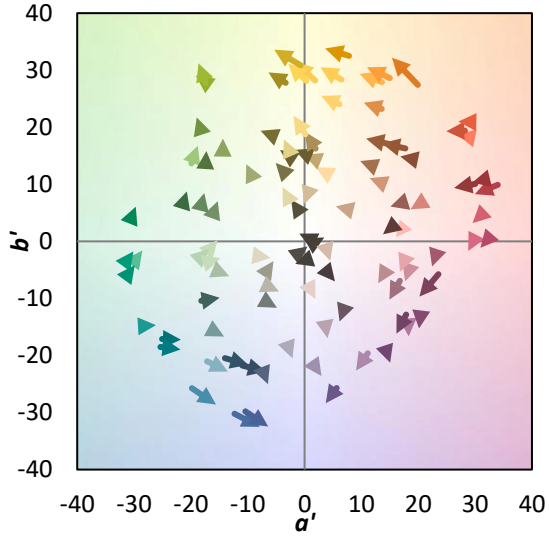



## Color Vector Graphics



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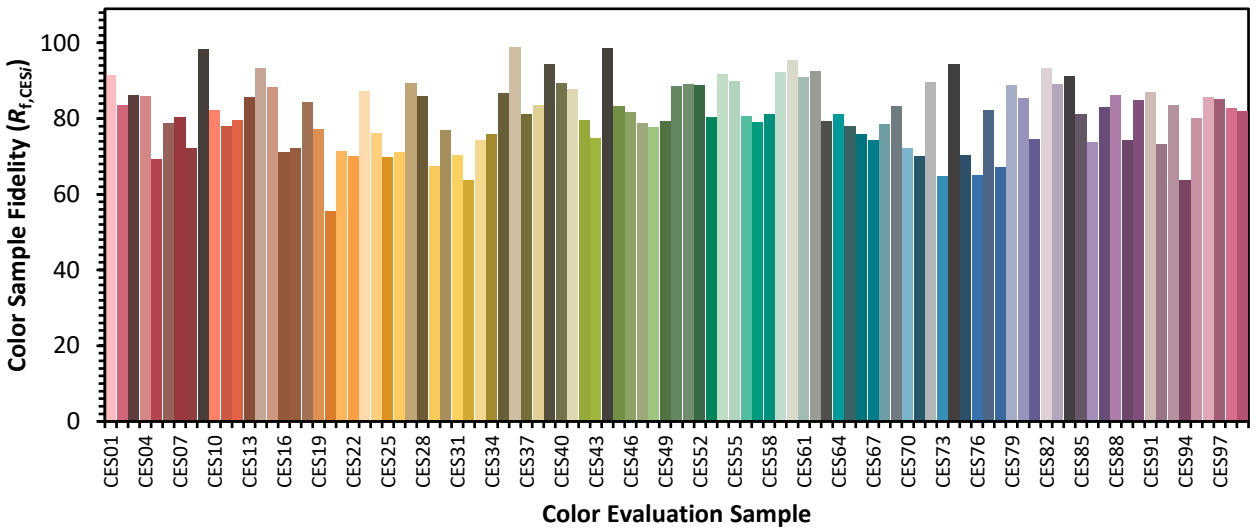
**Individual Sample Fidelity Index ($R_{f,i}$)**

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 71 | CES51 = 89 | CES76 = 65 |
| CES02 = 63 | CES27 = 89 | CES52 = 89 | CES77 = 82 |
| CES03 = 31 | CES28 = 86 | CES53 = 80 | CES78 = 67 |
| CES04 = 70 | CES29 = 68 | CES54 = 92 | CES79 = 89 |
| CES05 = 50 | CES30 = 77 | CES55 = 90 | CES80 = 85 |
| CES06 = 51 | CES31 = 70 | CES56 = 81 | CES81 = 75 |
| CES07 = 43 | CES32 = 64 | CES57 = 79 | CES82 = 93 |
| CES08 = 41 | CES33 = 74 | CES58 = 81 | CES83 = 89 |
| CES09 = 29 | CES34 = 76 | CES59 = 92 | CES84 = 91 |
| CES10 = 76 | CES35 = 87 | CES60 = 96 | CES85 = 81 |
| CES11 = 59 | CES36 = 99 | CES61 = 91 | CES86 = 74 |
| CES12 = 65 | CES37 = 81 | CES62 = 93 | CES87 = 83 |
| CES13 = 44 | CES38 = 83 | CES63 = 79 | CES88 = 86 |
| CES14 = 74 | CES39 = 94 | CES64 = 81 | CES89 = 74 |
| CES15 = 72 | CES40 = 89 | CES65 = 78 | CES90 = 85 |
| CES16 = 48 | CES41 = 88 | CES66 = 76 | CES91 = 87 |
| CES17 = 50 | CES42 = 80 | CES67 = 74 | CES92 = 73 |
| CES18 = 57 | CES43 = 75 | CES68 = 79 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 83 | CES94 = 64 |
| CES20 = 67 | CES45 = 83 | CES70 = 72 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 70 | CES96 = 86 |
| CES22 = 79 | CES47 = 79 | CES72 = 90 | CES97 = 85 |
| CES23 = 92 | CES48 = 78 | CES73 = 65 | CES98 = 83 |
| CES24 = 91 | CES49 = 79 | CES74 = 94 | CES99 = 82 |
| CES25 = 72 | CES50 = 88 | CES75 = 70 | |



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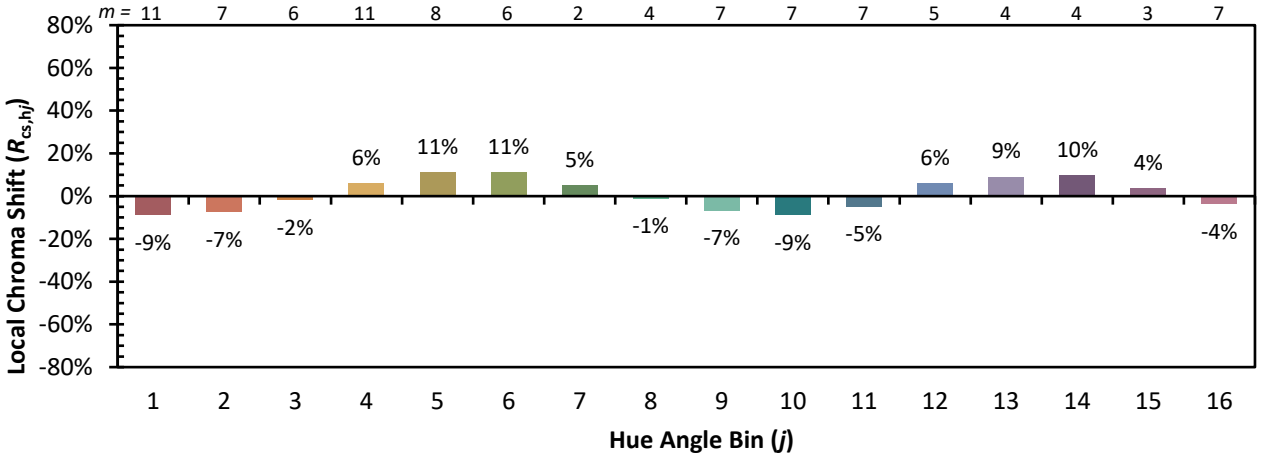
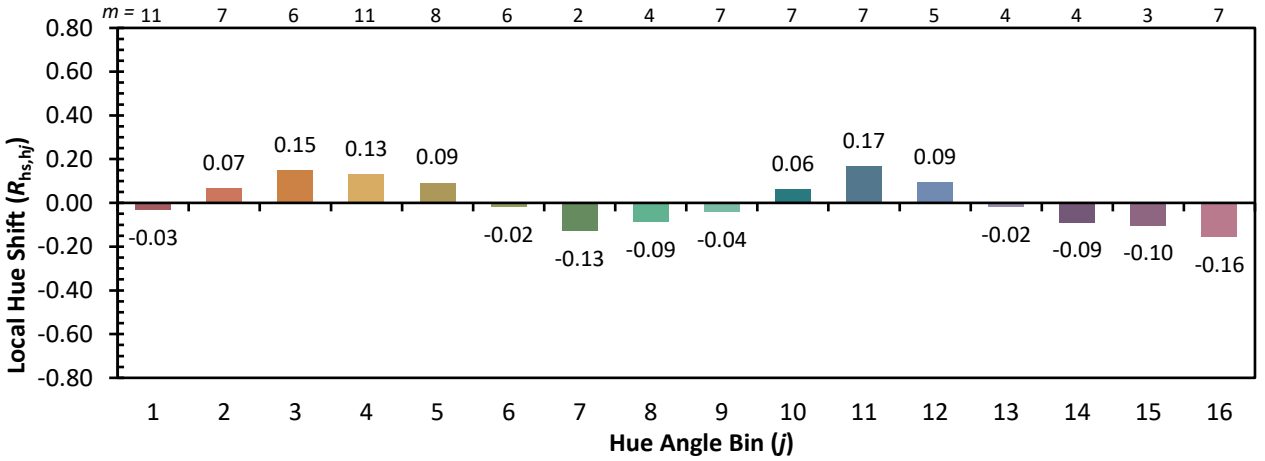
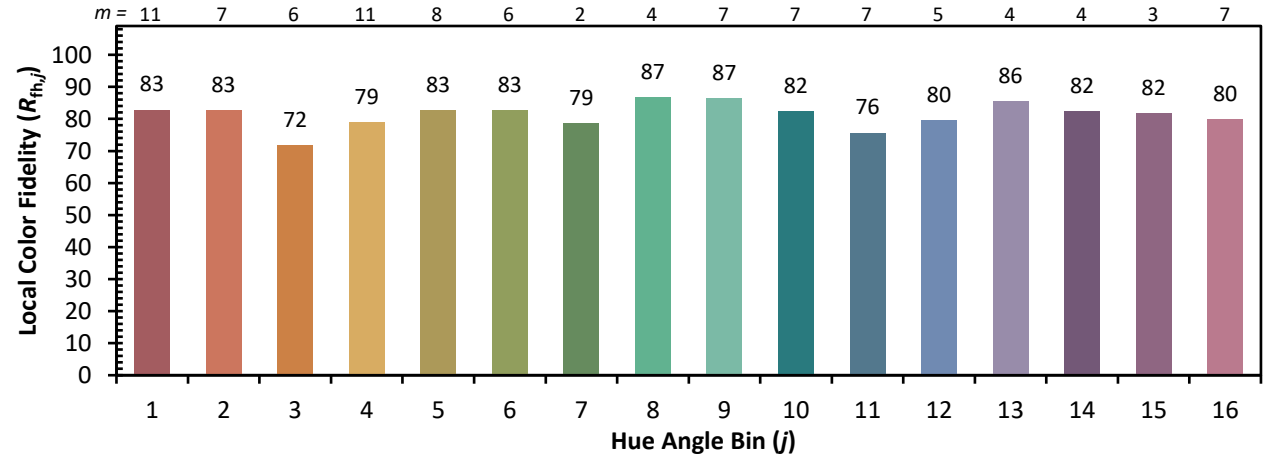
## Color Rendition by Hue-Angle Bin



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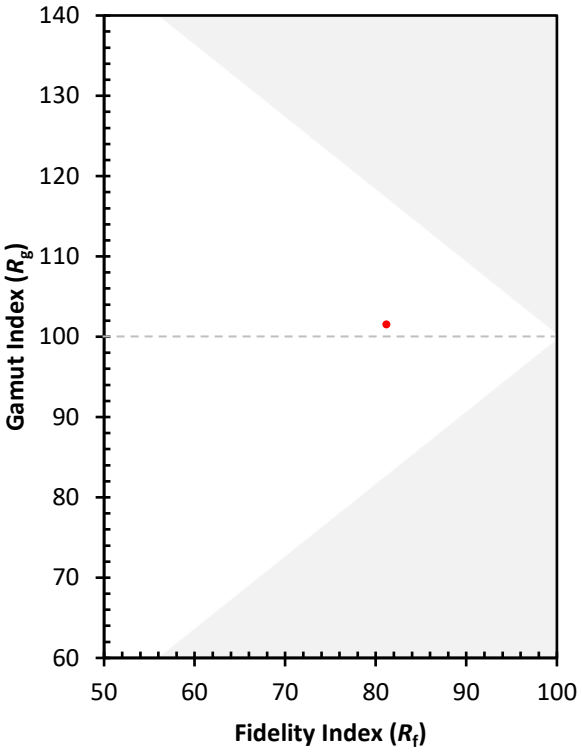
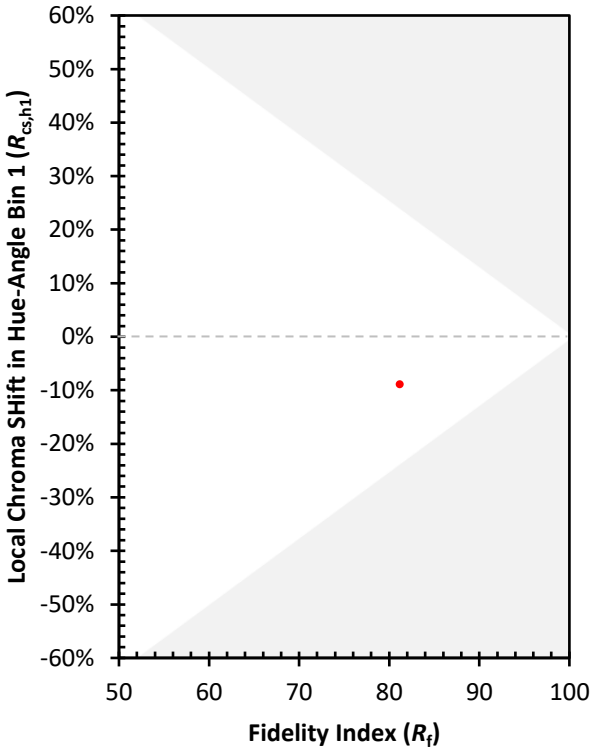
## Measure Comparisons




(END OF REPORT)