

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: FAIL-SAFE

Report Number: P1357301

Luminaire Tested: 6ASL4-10HE-2-G52-UNV

Issue Date: 2/17/2026

Test Information

Test Method: LM-79-2019
Report Number: P1357301
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2511-597-7)
Test Lab: INNOVATION CENTER
Issue Date: 2/17/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: FAIL-SAFE
Catalog Number: 6ASL4-10HE-2-G52-UNV
Description: 6FT 1000 LUMEN PER FOOT 4ASL LED LUMINAIRE WITH OPL LENS AND G52 LEDS 2 ROW
Light Source: -
Ballast/Driver: -

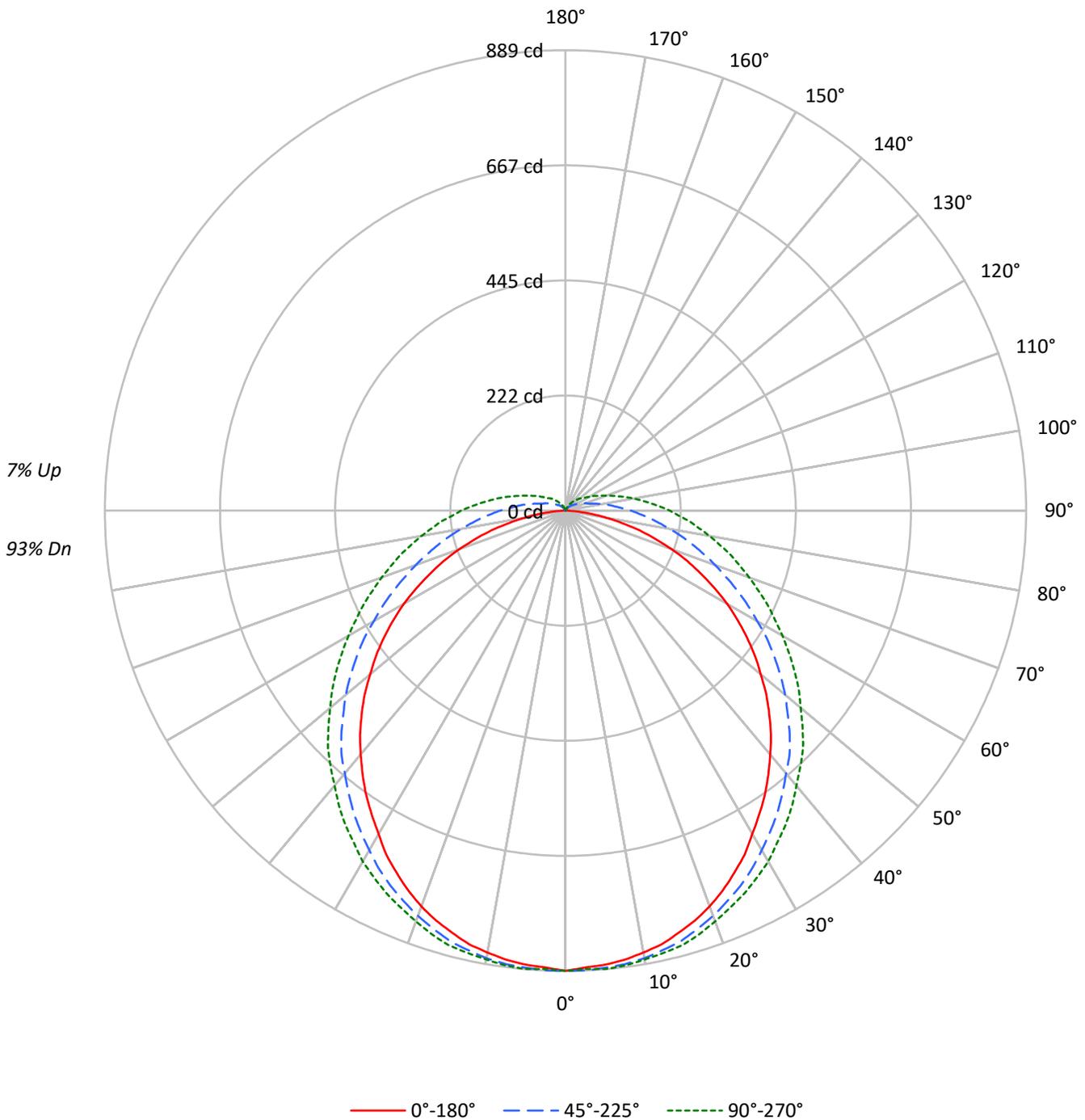
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3051.0 lumens
Efficiency: N/A
Efficacy: 53.2 lumens/watt
Spacing Criteria (0/90/45): 1.21 / 1.3 / 1.4
Luminous Opening: Rectangular w/ Sides (W: 0.33' x L: 5.98' x H: 0.1')
CIE Type: Direct

Input Watts (W): 57.3
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: P1357301
CATALOG NUMBER: 6ASL4-10HE-2-G52-UNV

Luminous Intensity Polar Plot





TEST NUMBER: P1357301
 CATALOG NUMBER: 6ASL4-10HE-2-G52-UNV

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 | 114 | 114 | 114 | 114 | 107 | 107 | 107 | 101 | 101 | 101 | 95 | 95 | 95 | 95 | 95 | 95 | 93 |
| 1 | 105 | 100 | 95 | 90 | 102 | 97 | 92 | 88 | 91 | 87 | 84 | 86 | 83 | 80 | 81 | 79 | 77 | 77 | 77 | 77 | 74 |
| 2 | 95 | 86 | 79 | 72 | 92 | 84 | 77 | 71 | 79 | 73 | 68 | 74 | 70 | 65 | 70 | 66 | 63 | 63 | 63 | 63 | 60 |
| 3 | 86 | 75 | 66 | 59 | 83 | 73 | 65 | 58 | 69 | 62 | 56 | 65 | 59 | 55 | 62 | 57 | 53 | 53 | 53 | 53 | 50 |
| 4 | 79 | 66 | 57 | 50 | 76 | 64 | 56 | 49 | 61 | 54 | 48 | 58 | 51 | 46 | 55 | 49 | 45 | 45 | 45 | 45 | 42 |
| 5 | 72 | 59 | 50 | 43 | 70 | 57 | 49 | 42 | 54 | 47 | 41 | 52 | 45 | 40 | 49 | 43 | 39 | 39 | 39 | 39 | 36 |
| 6 | 67 | 53 | 44 | 37 | 64 | 52 | 43 | 37 | 49 | 41 | 36 | 47 | 40 | 35 | 44 | 39 | 34 | 34 | 34 | 34 | 32 |
| 7 | 62 | 48 | 39 | 33 | 60 | 47 | 38 | 32 | 45 | 37 | 32 | 43 | 36 | 31 | 41 | 35 | 30 | 30 | 30 | 30 | 28 |
| 8 | 58 | 44 | 35 | 29 | 56 | 43 | 34 | 29 | 41 | 33 | 28 | 39 | 32 | 28 | 37 | 31 | 27 | 27 | 27 | 27 | 25 |
| 9 | 54 | 40 | 32 | 26 | 52 | 39 | 31 | 26 | 37 | 30 | 25 | 36 | 29 | 25 | 34 | 29 | 24 | 24 | 24 | 24 | 22 |
| 10 | 50 | 37 | 29 | 24 | 49 | 36 | 28 | 23 | 35 | 28 | 23 | 33 | 27 | 22 | 32 | 26 | 22 | 22 | 22 | 22 | 20 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|------|------|------|
| 0° | 4800 | 4800 | 4800 |
| 5° | 4765 | 4707 | 4690 |
| 10° | 4737 | 4622 | 4576 |
| 15° | 4697 | 4530 | 4484 |
| 20° | 4645 | 4412 | 4355 |
| 25° | 4559 | 4296 | 4245 |
| 30° | 4452 | 4163 | 4134 |
| 35° | 4369 | 4039 | 4006 |
| 40° | 4272 | 3906 | 3871 |
| 45° | 4175 | 3790 | 3773 |
| 50° | 4049 | 3638 | 3627 |
| 55° | 3929 | 3474 | 3512 |
| 60° | 3780 | 3290 | 3388 |
| 65° | 3547 | 3118 | 3293 |
| 70° | 3285 | 2958 | 3206 |
| 75° | 2902 | 2837 | 3177 |
| 80° | 2293 | 2731 | 3167 |
| 85° | 1442 | 2740 | 3257 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 4175 cd/sqm



TEST NUMBER: P1357301
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ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 84.3 | 2.8 |
| 10°-20° | 242.3 | 7.9 |
| 20°-30° | 367.1 | 12.0 |
| 30°-40° | 444.0 | 14.6 |
| 40°-50° | 468.1 | 15.3 |
| 50°-60° | 436.9 | 14.3 |
| 60°-70° | 360.7 | 11.8 |
| 70°-80° | 261.7 | 8.6 |
| 80°-90° | 165.3 | 5.4 |
| 90°-100° | 98.7 | 3.2 |
| 100°-110° | 56.6 | 1.9 |
| 110°-120° | 32.1 | 1.1 |
| 120°-130° | 18.3 | 0.6 |
| 130°-140° | 9.9 | 0.3 |
| 140°-150° | 4.4 | 0.1 |
| 150°-160° | 0.8 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-30° | 693.6 | 22.7 |
| 0°-40° | 1137.6 | 37.3 |
| 0°-60° | 2042.6 | 66.9 |
| 0°-90° | 2830.3 | 92.8 |
| 90°-120° | 187.4 | 6.1 |
| 90°-150° | 220.0 | 7.2 |
| 90°-180° | 221.0 | 7.2 |
| 0°-180° | 3051.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|------|-----|-------|-----|-------|-----|------|
| 0° | 889 | 889 | 889 | 889 | 889 | |
| 5° | 880 | 889 | 886 | 886 | 889 | 84 |
| 15° | 844 | 855 | 861 | 864 | 869 | 238 |
| 25° | 771 | 782 | 799 | 810 | 816 | 355 |
| 35° | 671 | 688 | 713 | 732 | 741 | 419 |
| 45° | 556 | 578 | 612 | 637 | 648 | 429 |
| 55° | 428 | 453 | 492 | 525 | 539 | 382 |
| 65° | 288 | 319 | 366 | 411 | 430 | 286 |
| 75° | 148 | 187 | 254 | 307 | 330 | 156 |
| 85° | 28 | 87 | 162 | 218 | 240 | 34 |
| 90° | 0 | 53 | 126 | 179 | 201 | 1 |
| 95° | 0 | 34 | 95 | 145 | 165 | 0 |
| 105° | 0 | 11 | 53 | 92 | 106 | 0 |
| 115° | 0 | 6 | 31 | 56 | 67 | 0 |
| 125° | 0 | 3 | 20 | 36 | 42 | 0 |
| 135° | 0 | 0 | 11 | 22 | 28 | 0 |
| 145° | 0 | 0 | 6 | 14 | 17 | 0 |
| 155° | 0 | 0 | 0 | 3 | 6 | 0 |
| 165° | 0 | 0 | 0 | 0 | 0 | 0 |
| 175° | 0 | 0 | 0 | 0 | 0 | 0 |
| 180° | 0 | 0 | 0 | 0 | 0 | 0 |



TEST NUMBER: P1357301

CATALOG NUMBER: 6ASL4-10HE-2-G52-UNV

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-------|-------|-------|-------|-------|
| 0° | 888.7 | 888.7 | 888.7 | 888.7 | 888.7 |
| 2.5° | 883.1 | 891.5 | 888.7 | 885.9 | 885.9 |
| 5° | 880.3 | 888.7 | 885.9 | 885.9 | 888.7 |
| 7.5° | 874.8 | 883.1 | 883.1 | 883.1 | 885.9 |
| 10° | 866.4 | 877.5 | 877.5 | 877.5 | 880.3 |
| 12.5° | 858.0 | 866.4 | 869.2 | 872.0 | 874.8 |
| 15° | 844.0 | 855.2 | 860.8 | 863.6 | 869.2 |
| 17.5° | 830.0 | 838.4 | 846.8 | 855.2 | 858.0 |
| 20° | 813.3 | 824.4 | 832.8 | 841.2 | 844.0 |
| 22.5° | 793.7 | 804.9 | 816.1 | 824.4 | 830.0 |
| 25° | 771.3 | 782.5 | 799.3 | 810.5 | 816.1 |
| 27.5° | 749.0 | 760.2 | 779.7 | 793.7 | 799.3 |
| 30° | 721.0 | 737.8 | 757.4 | 774.1 | 782.5 |
| 32.5° | 695.9 | 712.7 | 735.0 | 754.6 | 760.2 |
| 35° | 670.7 | 687.5 | 712.7 | 732.2 | 740.6 |
| 37.5° | 642.8 | 662.4 | 687.5 | 709.9 | 718.2 |
| 40° | 614.8 | 634.4 | 662.4 | 687.5 | 693.1 |
| 42.5° | 586.9 | 606.5 | 640.0 | 662.4 | 670.7 |
| 45° | 556.2 | 578.5 | 612.0 | 637.2 | 648.4 |
| 47.5° | 525.4 | 547.8 | 581.3 | 609.3 | 620.4 |
| 50° | 491.9 | 517.0 | 553.4 | 581.3 | 592.5 |
| 52.5° | 461.1 | 486.3 | 522.6 | 553.4 | 567.3 |
| 55° | 427.6 | 452.7 | 491.9 | 525.4 | 539.4 |
| 57.5° | 394.1 | 419.2 | 461.1 | 497.5 | 511.4 |
| 60° | 360.5 | 385.7 | 427.6 | 469.5 | 483.5 |
| 62.5° | 324.2 | 352.1 | 396.9 | 438.8 | 455.5 |
| 65° | 287.9 | 318.6 | 366.1 | 410.8 | 430.4 |
| 67.5° | 254.3 | 285.1 | 335.4 | 385.7 | 402.4 |
| 70° | 218.0 | 251.5 | 307.4 | 357.7 | 377.3 |
| 72.5° | 181.7 | 218.0 | 279.5 | 332.6 | 352.1 |
| 75° | 148.1 | 187.2 | 254.3 | 307.4 | 329.8 |
| 77.5° | 111.8 | 159.3 | 229.2 | 285.1 | 304.6 |
| 80° | 81.0 | 131.4 | 204.0 | 262.7 | 282.3 |
| 82.5° | 53.1 | 106.2 | 181.7 | 240.3 | 259.9 |
| 85° | 27.9 | 86.6 | 162.1 | 218.0 | 240.3 |
| 87.5° | 8.4 | 67.1 | 142.5 | 198.4 | 218.0 |
| 90° | 0.0 | 53.1 | 125.8 | 178.9 | 201.2 |
| 92.5° | 0.0 | 41.9 | 109.0 | 162.1 | 181.7 |
| 95° | 0.0 | 33.5 | 95.0 | 145.3 | 164.9 |
| 97.5° | 0.0 | 27.9 | 83.8 | 131.4 | 148.1 |
| 100° | 0.0 | 22.4 | 72.7 | 117.4 | 134.1 |
| 102.5° | 0.0 | 16.8 | 61.5 | 103.4 | 120.2 |
| 105° | 0.0 | 11.2 | 53.1 | 92.2 | 106.2 |
| 107.5° | 0.0 | 8.4 | 44.7 | 81.0 | 95.0 |
| 110° | 0.0 | 8.4 | 41.9 | 69.9 | 83.8 |



TEST NUMBER: P1357301
 CATALOG NUMBER: 6ASL4-10HE-2-G52-UNV

CANDELA DISTRIBUTION (continued):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|--------|-----|-------|------|-------|------|
| 112.5° | 0.0 | 5.6 | 36.3 | 64.3 | 75.5 |
| 115° | 0.0 | 5.6 | 30.7 | 55.9 | 67.1 |
| 117.5° | 0.0 | 5.6 | 27.9 | 50.3 | 61.5 |
| 120° | 0.0 | 5.6 | 25.2 | 44.7 | 53.1 |
| 122.5° | 0.0 | 2.8 | 22.4 | 39.1 | 47.5 |
| 125° | 0.0 | 2.8 | 19.6 | 36.3 | 41.9 |
| 127.5° | 0.0 | 2.8 | 16.8 | 33.5 | 39.1 |
| 130° | 0.0 | 2.8 | 16.8 | 30.7 | 36.3 |
| 132.5° | 0.0 | 0.0 | 14.0 | 27.9 | 33.5 |
| 135° | 0.0 | 0.0 | 11.2 | 22.4 | 27.9 |
| 137.5° | 0.0 | 0.0 | 11.2 | 19.6 | 25.2 |
| 140° | 0.0 | 0.0 | 8.4 | 19.6 | 22.4 |
| 142.5° | 0.0 | 0.0 | 5.6 | 16.8 | 19.6 |
| 145° | 0.0 | 0.0 | 5.6 | 14.0 | 16.8 |
| 147.5° | 0.0 | 0.0 | 2.8 | 11.2 | 14.0 |
| 150° | 0.0 | 0.0 | 2.8 | 8.4 | 11.2 |
| 152.5° | 0.0 | 0.0 | 0.0 | 5.6 | 8.4 |
| 155° | 0.0 | 0.0 | 0.0 | 2.8 | 5.6 |
| 157.5° | 0.0 | 0.0 | 0.0 | 0.0 | 2.8 |
| 160° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 162.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 165° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 167.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 170° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 172.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 175° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 177.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 180° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |



TEST NUMBER: P1357301
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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 | 14.77 | 16.31 | 15.24 | 16.77 | 17.26 | 16.86 | 18.40 | 17.33 | 18.86 | 19.35 |
| | 3H | 16.27 | 17.67 | 16.76 | 18.14 | 18.68 | 19.32 | 20.72 | 19.81 | 21.19 | 21.72 |
| | 4H | 16.75 | 18.08 | 17.26 | 18.57 | 19.11 | 20.54 | 21.87 | 21.05 | 22.36 | 22.90 |
| | 6H | 17.03 | 18.26 | 17.55 | 18.77 | 19.33 | 21.83 | 23.07 | 22.35 | 23.57 | 24.13 |
| | 8H | 17.08 | 18.27 | 17.61 | 18.79 | 19.36 | 22.51 | 23.69 | 23.04 | 24.22 | 24.78 |
| | 12H | 17.10 | 18.23 | 17.63 | 18.75 | 19.35 | 23.26 | 24.40 | 23.80 | 24.92 | 25.51 |
| 4H | 2H | 15.66 | 16.98 | 16.16 | 17.47 | 18.02 | 17.29 | 18.62 | 17.80 | 19.10 | 19.65 |
| | 3H | 17.40 | 18.53 | 17.92 | 19.06 | 19.63 | 19.98 | 21.11 | 20.50 | 21.65 | 22.21 |
| | 4H | 18.01 | 19.04 | 18.55 | 19.58 | 20.18 | 21.38 | 22.41 | 21.92 | 22.95 | 23.55 |
| | 6H | 18.41 | 19.32 | 18.97 | 19.89 | 20.50 | 22.86 | 23.78 | 23.42 | 24.35 | 24.96 |
| | 8H | 18.51 | 19.37 | 19.07 | 19.93 | 20.56 | 23.65 | 24.51 | 24.21 | 25.07 | 25.70 |
| | 12H | 18.55 | 19.34 | 19.14 | 19.93 | 20.56 | 24.52 | 25.31 | 25.11 | 25.90 | 26.53 |
| 8H | 4H | 18.71 | 19.57 | 19.27 | 20.14 | 20.76 | 21.60 | 22.46 | 22.16 | 23.03 | 23.65 |
| | 6H | 19.30 | 20.03 | 19.89 | 20.64 | 21.27 | 23.26 | 23.99 | 23.85 | 24.60 | 25.23 |
| | 8H | 19.48 | 20.14 | 20.09 | 20.76 | 21.41 | 24.18 | 24.84 | 24.79 | 25.46 | 26.11 |
| | 12H | 19.60 | 20.19 | 20.21 | 20.80 | 21.51 | 25.25 | 25.84 | 25.86 | 26.45 | 27.16 |
| 12H | 4H | 18.91 | 19.70 | 19.50 | 20.29 | 20.92 | 21.61 | 22.39 | 22.19 | 22.98 | 23.61 |
| | 6H | 19.60 | 20.27 | 20.21 | 20.88 | 21.53 | 23.30 | 23.96 | 23.90 | 24.58 | 25.22 |
| | 8H | 19.89 | 20.48 | 20.50 | 21.09 | 21.80 | 24.29 | 24.88 | 24.90 | 25.49 | 26.20 |

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

Report Prepared for

Cooper Lighting Solutions

Fail-Safe

Report Number: SP1-2511-597-8

Test Date: 01/22/2026

Luminaire Tested: 4ASL-2-G520-UNV-OPL-1_600mA

Data in this report applies to families of products including 4ASL

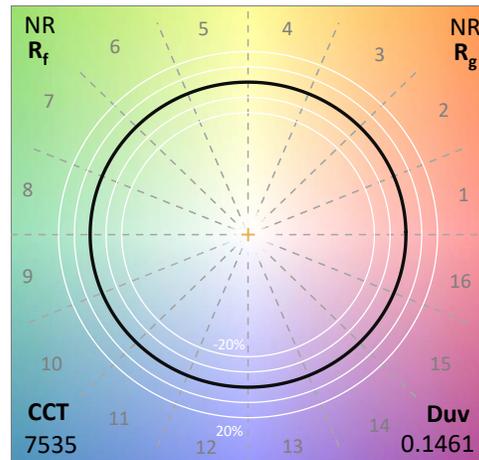
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2511-597-8
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 01/29/2026
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Fail-Safe
 Catalog Number: **4ASL-2-G520-UNV-OPL-1_600mA**
 Description: 2foot 4ASL LED LUMINAIRE WITH OPL LENS AND GREEN 520NM LEDS with 1 rows at 600mA

Spectral Parameters

CCT (K): 7535
 CIE u': 0.0718
 CIE v': 0.5710
 Duv: 0.1461
 CIE x: 0.1962
 CIE y: 0.6931
 CIE z: 0.1107
 Peak Wavelength (nm): 524
 Dominant Wavelength (nm): 529
 Purity: 75.95236
 Rf: NR
 Rg: NR

| | | | |
|-----------|-------|------|--------|
| CRI (Ra): | -11.7 | | |
| R1: | -30.6 | R9: | -351.9 |
| R2: | 5.1 | R10: | -75.5 |
| R3: | 5.6 | R11: | -78.0 |
| R4: | -51.7 | R12: | -14.7 |
| R5: | -6.4 | R13: | -32.5 |
| R6: | -0.6 | R14: | 52.7 |
| R7: | 10.9 | R15: | -37.0 |
| R8: | -25.8 | | |



Test Conditions

Stabilization Time: 48M
 Operation Time: 1H 48M
 Sphere Temperature (°C): 25.1

REPORT NUMBER: SP1-2511-597-8

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

REPORT NUMBER: SP1-2511-597-8

CIE 1931 Chromaticity Diagram



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

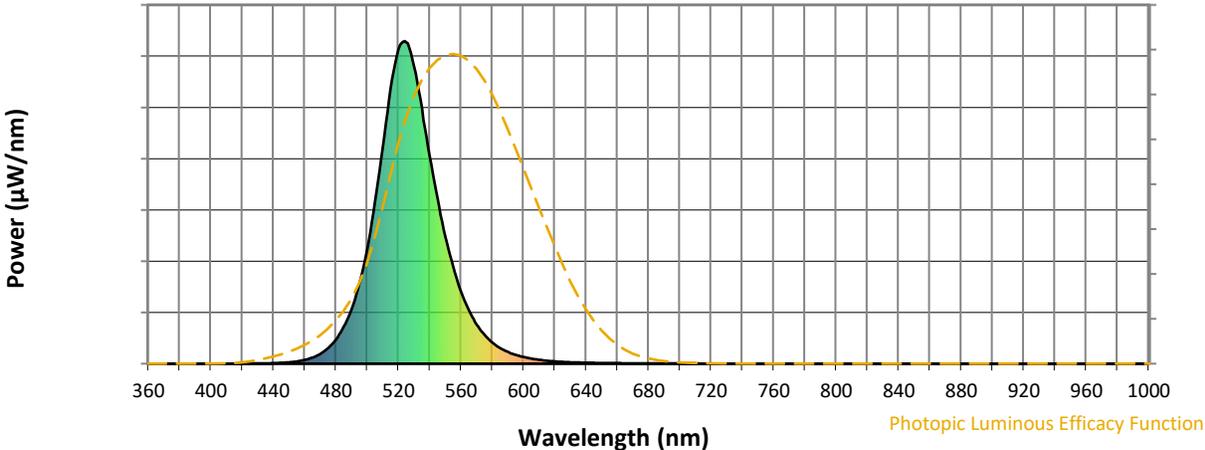


CCT = 7535K
 CIE x = 0.1962
 CIE y = 0.6931
 Duv = 0.1461

Point lies outside the range

REPORT NUMBER: SP1-2511-597-8

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 | 169 | NR | 620 | 7 | NR | 750 | 0 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 249 | NR | 625 | 6 | NR | 755 | 0 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 356 | NR | 630 | 4 | NR | 760 | 0 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 502 | NR | 635 | 4 | NR | 765 | 0 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 674 | NR | 640 | 3 | NR | 770 | 0 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 853 | NR | 645 | 3 | NR | 775 | 0 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 976 | NR | 650 | 2 | NR | 780 | 0 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 996 | NR | 655 | 2 | NR | 785 | 0 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 920 | NR | 660 | 2 | NR | 790 | 0 | NR | 920 | 0 | NR |
| 405 | 0 | NR | 535 | 792 | NR | 665 | 1 | NR | 795 | 0 | NR | 925 | 0 | NR |
| 410 | 0 | NR | 540 | 642 | NR | 670 | 1 | NR | 800 | 0 | NR | 930 | 0 | NR |
| 415 | 0 | NR | 545 | 511 | NR | 675 | 1 | NR | 805 | 0 | NR | 935 | 0 | NR |
| 420 | 0 | NR | 550 | 394 | NR | 680 | 1 | NR | 810 | 0 | NR | 940 | 0 | NR |
| 425 | 1 | NR | 555 | 300 | NR | 685 | 1 | NR | 815 | 0 | NR | 945 | 0 | NR |
| 430 | 1 | NR | 560 | 224 | NR | 690 | 1 | NR | 820 | 0 | NR | 950 | 0 | NR |
| 435 | 1 | NR | 565 | 166 | NR | 695 | 1 | NR | 825 | 0 | NR | 955 | 0 | NR |
| 440 | 2 | NR | 570 | 122 | NR | 700 | 1 | NR | 830 | 0 | NR | 960 | 0 | NR |
| 445 | 3 | NR | 575 | 90 | NR | 705 | 1 | NR | 835 | 0 | NR | 965 | 0 | NR |
| 450 | 4 | NR | 580 | 66 | NR | 710 | 1 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 7 | NR | 585 | 48 | NR | 715 | 0 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 12 | NR | 590 | 36 | NR | 720 | 0 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 19 | NR | 595 | 27 | NR | 725 | 0 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 31 | NR | 600 | 21 | NR | 730 | 0 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 49 | NR | 605 | 16 | NR | 735 | 0 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 75 | NR | 610 | 12 | NR | 740 | 0 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 115 | NR | 615 | 9 | NR | 745 | 0 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2511-597-8

Scotopic Flux vs. Wavelength



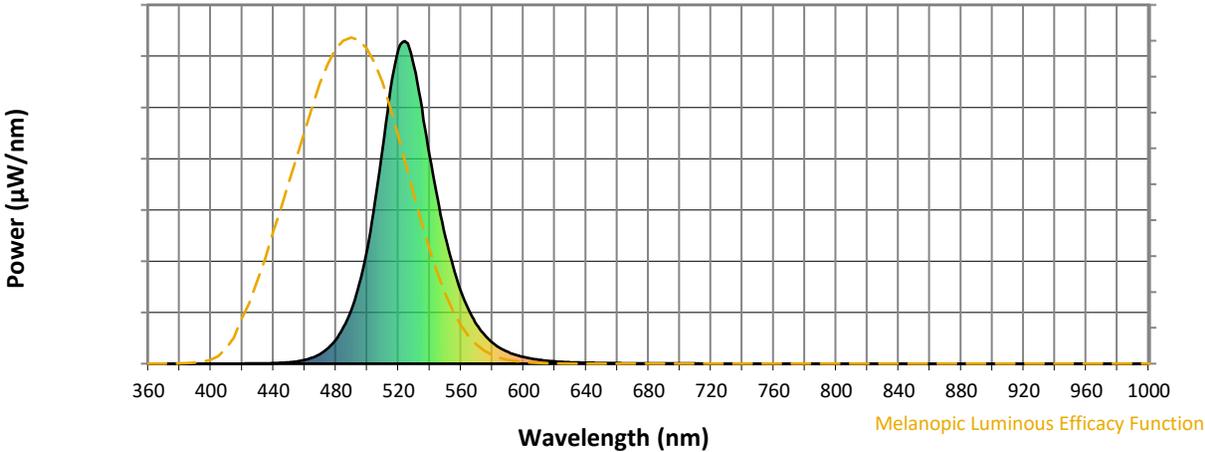
Scotopic Lumens: NR

S/P: 2.63

| 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 | 169 | NR | 620 | 7 | NR | 750 | 0 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 249 | NR | 625 | 6 | NR | 755 | 0 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 356 | NR | 630 | 4 | NR | 760 | 0 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 502 | NR | 635 | 4 | NR | 765 | 0 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 674 | NR | 640 | 3 | NR | 770 | 0 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 853 | NR | 645 | 3 | NR | 775 | 0 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 976 | NR | 650 | 2 | NR | 780 | 0 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 996 | NR | 655 | 2 | NR | 785 | 0 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 920 | NR | 660 | 2 | NR | 790 | 0 | NR | 920 | 0 | NR |
| 405 | 0 | NR | 535 | 792 | NR | 665 | 1 | NR | 795 | 0 | NR | 925 | 0 | NR |
| 410 | 0 | NR | 540 | 642 | NR | 670 | 1 | NR | 800 | 0 | NR | 930 | 0 | NR |
| 415 | 0 | NR | 545 | 511 | NR | 675 | 1 | NR | 805 | 0 | NR | 935 | 0 | NR |
| 420 | 0 | NR | 550 | 394 | NR | 680 | 1 | NR | 810 | 0 | NR | 940 | 0 | NR |
| 425 | 1 | NR | 555 | 300 | NR | 685 | 1 | NR | 815 | 0 | NR | 945 | 0 | NR |
| 430 | 1 | NR | 560 | 224 | NR | 690 | 1 | NR | 820 | 0 | NR | 950 | 0 | NR |
| 435 | 1 | NR | 565 | 166 | NR | 695 | 1 | NR | 825 | 0 | NR | 955 | 0 | NR |
| 440 | 2 | NR | 570 | 122 | NR | 700 | 1 | NR | 830 | 0 | NR | 960 | 0 | NR |
| 445 | 3 | NR | 575 | 90 | NR | 705 | 1 | NR | 835 | 0 | NR | 965 | 0 | NR |
| 450 | 4 | NR | 580 | 66 | NR | 710 | 1 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 7 | NR | 585 | 48 | NR | 715 | 0 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 12 | NR | 590 | 36 | NR | 720 | 0 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 19 | NR | 595 | 27 | NR | 725 | 0 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 31 | NR | 600 | 21 | NR | 730 | 0 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 49 | NR | 605 | 16 | NR | 735 | 0 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 75 | NR | 610 | 12 | NR | 740 | 0 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 115 | NR | 615 | 9 | NR | 745 | 0 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2511-597-8

Melanopic Flux vs. Wavelength



Melanopic Luminous Efficacy Function

Melanopic Lumens: NR

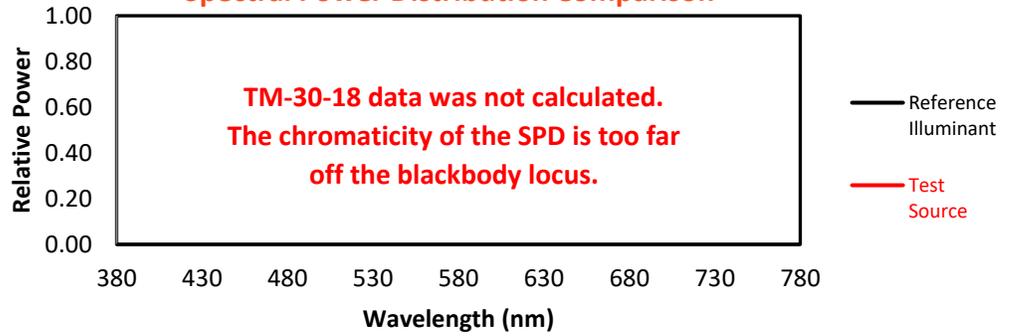
M/P: 4.87

| 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 | 169 | NR | 620 | 7 | NR | 750 | 0 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 249 | NR | 625 | 6 | NR | 755 | 0 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 356 | NR | 630 | 4 | NR | 760 | 0 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 502 | NR | 635 | 4 | NR | 765 | 0 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 674 | NR | 640 | 3 | NR | 770 | 0 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 853 | NR | 645 | 3 | NR | 775 | 0 | NR | 905 | 0 | NR |
| 390 | 0 | NR | 520 | 976 | NR | 650 | 2 | NR | 780 | 0 | NR | 910 | 0 | NR |
| 395 | 0 | NR | 525 | 996 | NR | 655 | 2 | NR | 785 | 0 | NR | 915 | 0 | NR |
| 400 | 0 | NR | 530 | 920 | NR | 660 | 2 | NR | 790 | 0 | NR | 920 | 0 | NR |
| 405 | 0 | NR | 535 | 792 | NR | 665 | 1 | NR | 795 | 0 | NR | 925 | 0 | NR |
| 410 | 0 | NR | 540 | 642 | NR | 670 | 1 | NR | 800 | 0 | NR | 930 | 0 | NR |
| 415 | 0 | NR | 545 | 511 | NR | 675 | 1 | NR | 805 | 0 | NR | 935 | 0 | NR |
| 420 | 0 | NR | 550 | 394 | NR | 680 | 1 | NR | 810 | 0 | NR | 940 | 0 | NR |
| 425 | 1 | NR | 555 | 300 | NR | 685 | 1 | NR | 815 | 0 | NR | 945 | 0 | NR |
| 430 | 1 | NR | 560 | 224 | NR | 690 | 1 | NR | 820 | 0 | NR | 950 | 0 | NR |
| 435 | 1 | NR | 565 | 166 | NR | 695 | 1 | NR | 825 | 0 | NR | 955 | 0 | NR |
| 440 | 2 | NR | 570 | 122 | NR | 700 | 1 | NR | 830 | 0 | NR | 960 | 0 | NR |
| 445 | 3 | NR | 575 | 90 | NR | 705 | 1 | NR | 835 | 0 | NR | 965 | 0 | NR |
| 450 | 4 | NR | 580 | 66 | NR | 710 | 1 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 7 | NR | 585 | 48 | NR | 715 | 0 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 12 | NR | 590 | 36 | NR | 720 | 0 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 19 | NR | 595 | 27 | NR | 725 | 0 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 31 | NR | 600 | 21 | NR | 730 | 0 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 49 | NR | 605 | 16 | NR | 735 | 0 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 75 | NR | 610 | 12 | NR | 740 | 0 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 115 | NR | 615 | 9 | NR | 745 | 0 | NR | 875 | 0 | NR | | | |

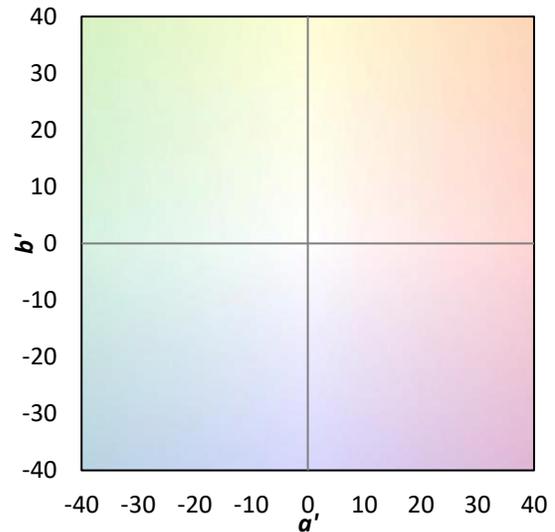
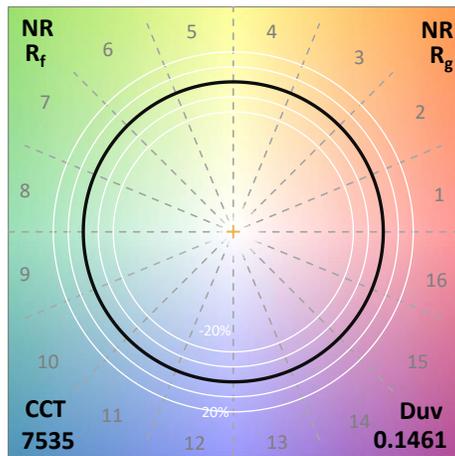
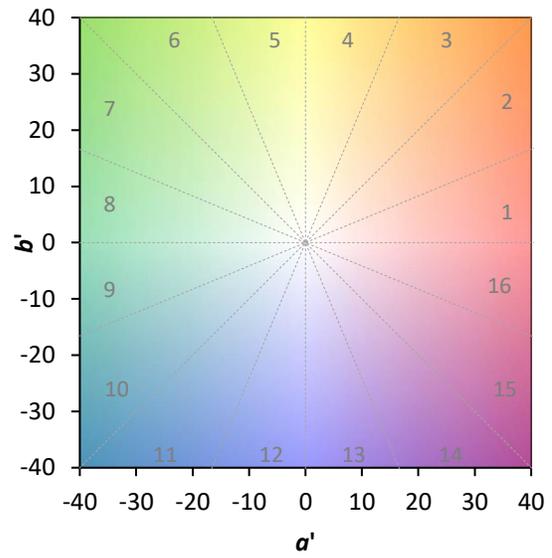
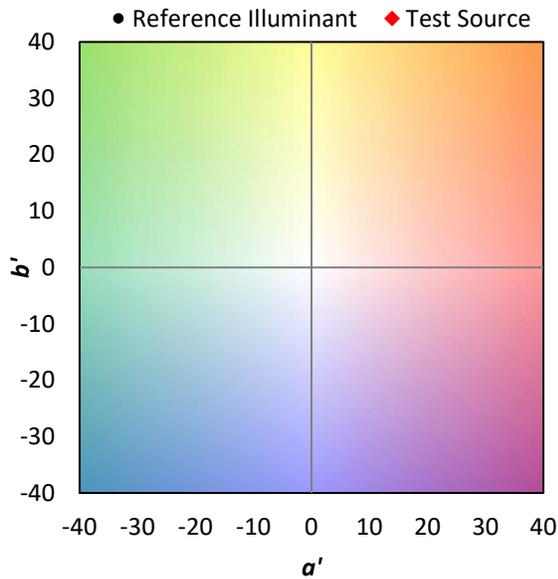
Summary

$R_f = 0$
 $R_g = 0$
 $CIE R_a = -11.7$
 $R_g = -351.9$

Spectral Power Distribution Comparison



Color Vector Graphics

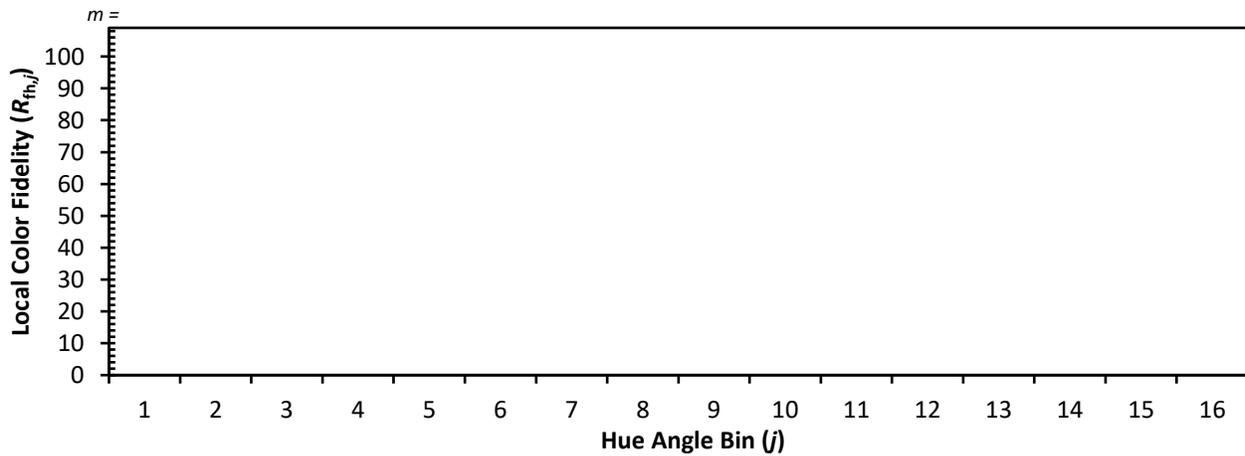


Individual Sample Fidelity Index ($R_{f,i}$)

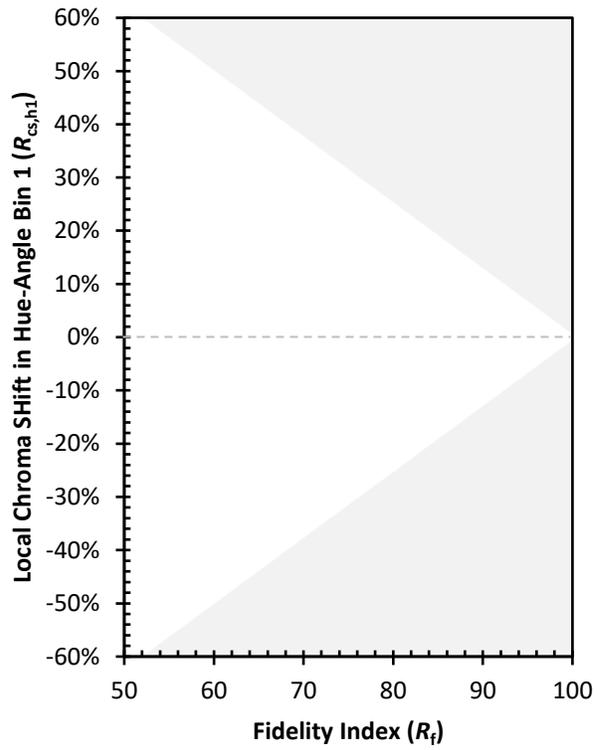
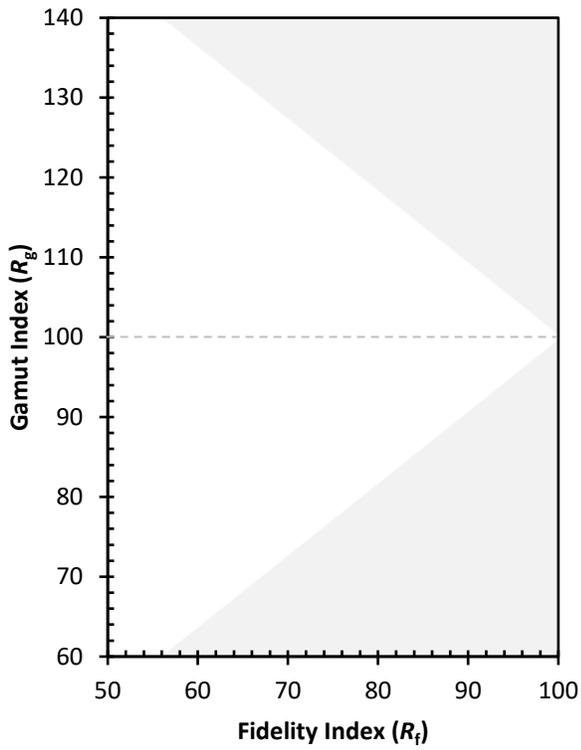
| | | | |
|-----------|-----------|-----------|-----------|
| CES01 = 0 | CES26 = 0 | CES51 = 0 | CES76 = 0 |
| CES02 = 0 | CES27 = 0 | CES52 = 0 | CES77 = 0 |
| CES03 = 0 | CES28 = 0 | CES53 = 0 | CES78 = 0 |
| CES04 = 0 | CES29 = 0 | CES54 = 0 | CES79 = 0 |
| CES05 = 0 | CES30 = 0 | CES55 = 0 | CES80 = 0 |
| CES06 = 0 | CES31 = 0 | CES56 = 0 | CES81 = 0 |
| CES07 = 0 | CES32 = 0 | CES57 = 0 | CES82 = 0 |
| CES08 = 0 | CES33 = 0 | CES58 = 0 | CES83 = 0 |
| CES09 = 0 | CES34 = 0 | CES59 = 0 | CES84 = 0 |
| CES10 = 0 | CES35 = 0 | CES60 = 0 | CES85 = 0 |
| CES11 = 0 | CES36 = 0 | CES61 = 0 | CES86 = 0 |
| CES12 = 0 | CES37 = 0 | CES62 = 0 | CES87 = 0 |
| CES13 = 0 | CES38 = 0 | CES63 = 0 | CES88 = 0 |
| CES14 = 0 | CES39 = 0 | CES64 = 0 | CES89 = 0 |
| CES15 = 0 | CES40 = 0 | CES65 = 0 | CES90 = 0 |
| CES16 = 0 | CES41 = 0 | CES66 = 0 | CES91 = 0 |
| CES17 = 0 | CES42 = 0 | CES67 = 0 | CES92 = 0 |
| CES18 = 0 | CES43 = 0 | CES68 = 0 | CES93 = 0 |
| CES19 = 0 | CES44 = 0 | CES69 = 0 | CES94 = 0 |
| CES20 = 0 | CES45 = 0 | CES70 = 0 | CES95 = 0 |
| CES21 = 0 | CES46 = 0 | CES71 = 0 | CES96 = 0 |
| CES22 = 0 | CES47 = 0 | CES72 = 0 | CES97 = 0 |
| CES23 = 0 | CES48 = 0 | CES73 = 0 | CES98 = 0 |
| CES24 = 0 | CES49 = 0 | CES74 = 0 | CES99 = 0 |
| CES25 = 0 | CES50 = 0 | CES75 = 0 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)