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

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

Scaled data based on original data using

LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: STREETWORKS

Report Number: P1457375

Luminaire Tested: GLAN-SB1A-930-U-T4LG

Issue Date: 05/20/2026

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2024 |
| Report Number: | P1457375 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 5/22/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | STREETWORKS |
| Catalog Number: | GLAN-SB1A-930-U-T4LG |
| Description: | GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 350mA 1xLight Square PACKAGE 90CRI 3000K FIXTURE w/ TYPE IV LOW GLARE |
| Light Source: | (26) 3000K CCT, 90 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 3057.1 lumens |
| Efficiency: | N/A |
| Efficacy: | 98.9 lumens/watt |
| Luminous Opening: | Rectangular (W 0.5' x L: 0.5' x H: 0') |
| IES Classification: | Type IV - Short |
| BUG Rating: | B1 - U0 - G1 |

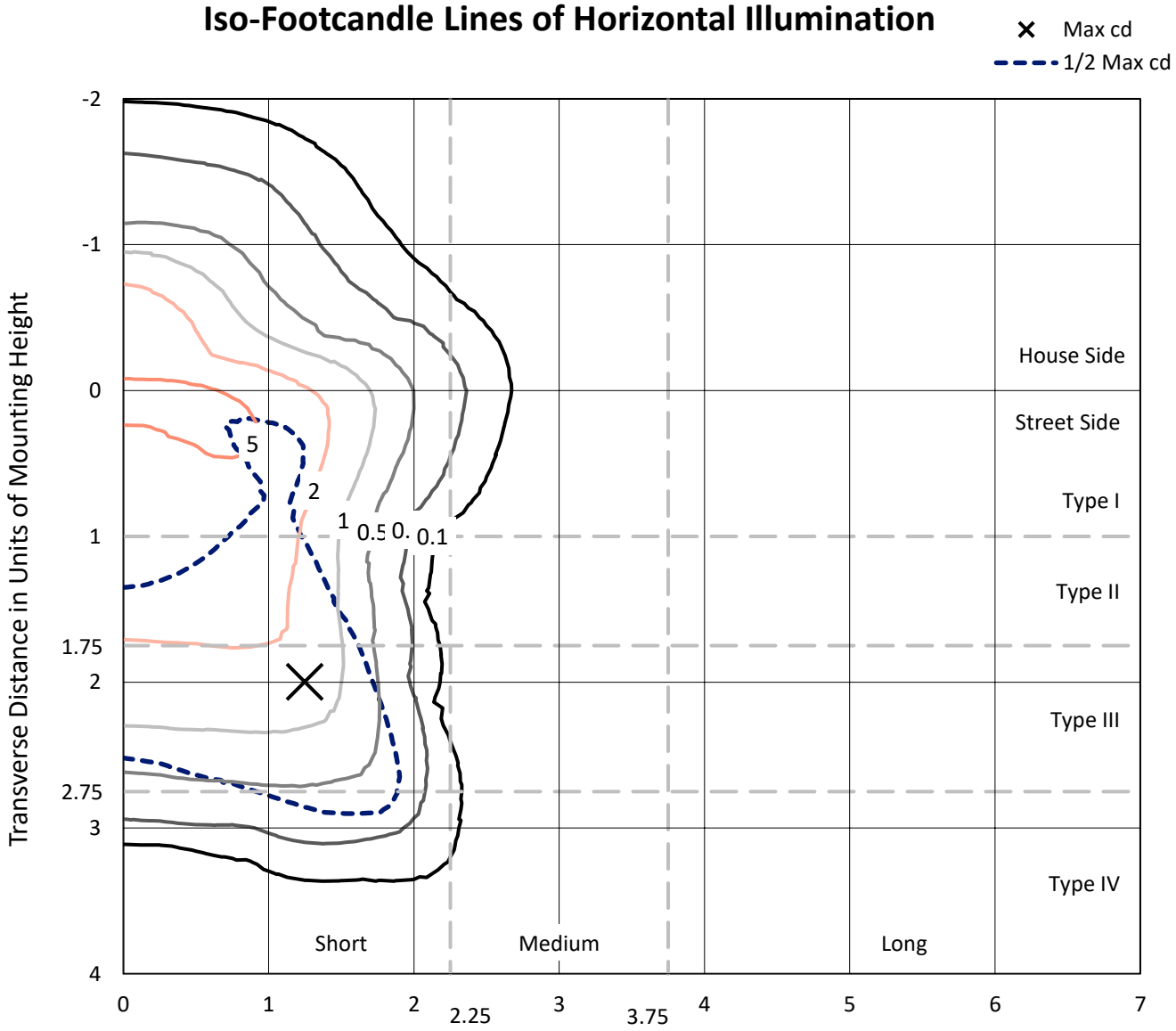
| | |
|---|---|
| Input Watts (W): | 30.9 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.97 |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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

Scaled Data Report

REPORT NUMBER: P1457375
CATALOG NUMBER: GLAN-SB1A-930-U-T4LG

## Iso-Footcandle Lines of Horizontal Illumination



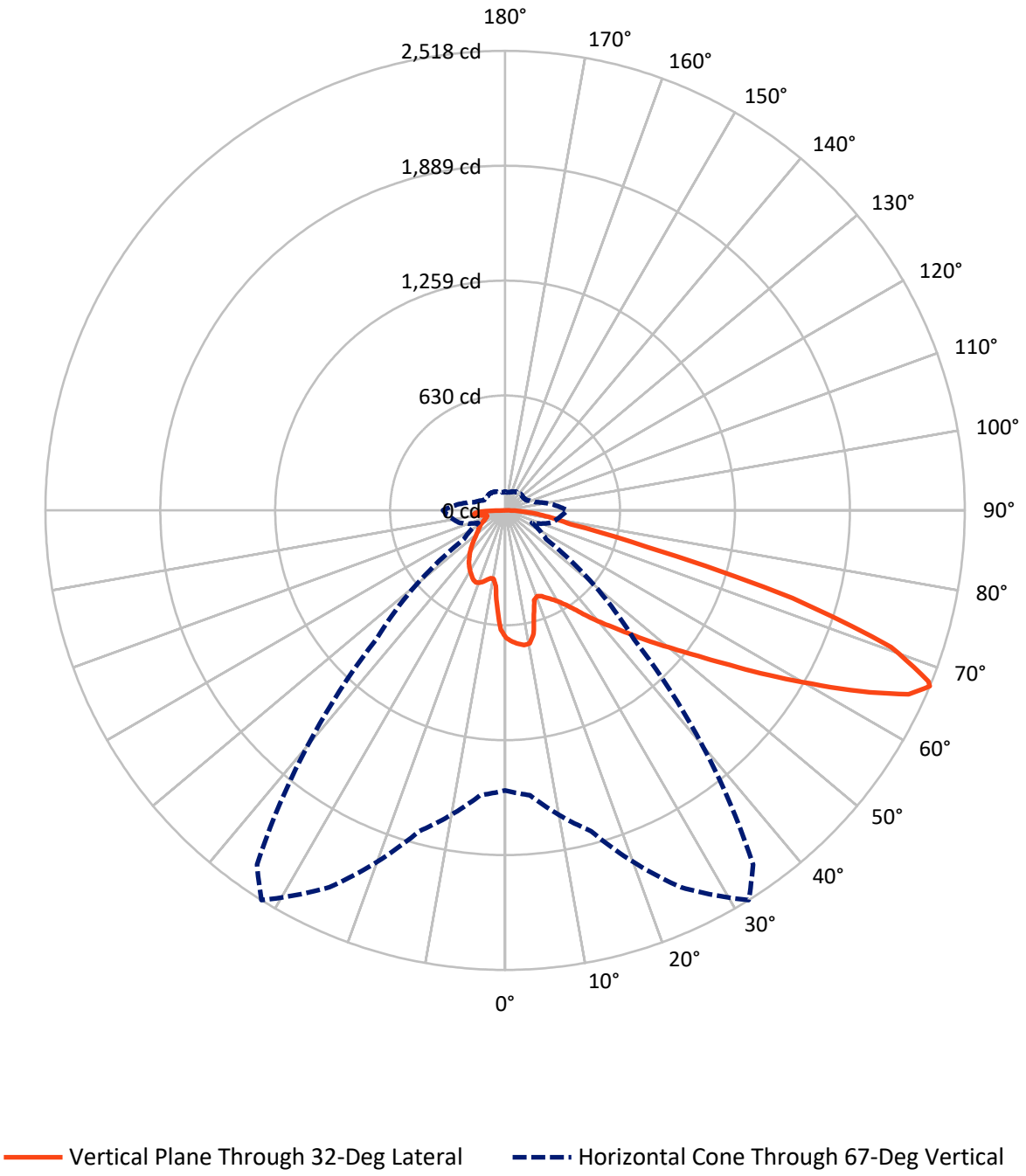

Based on 10 foot mounting height. Maximum calculated value = 7.5 fc
Type IV - Short - N/A

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

Scaled Data Report

REPORT NUMBER: P1457375
CATALOG NUMBER: GLAN-SB1A-930-U-T4LG

## Luminous Intensity Polar Plot



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

Scaled Data Report

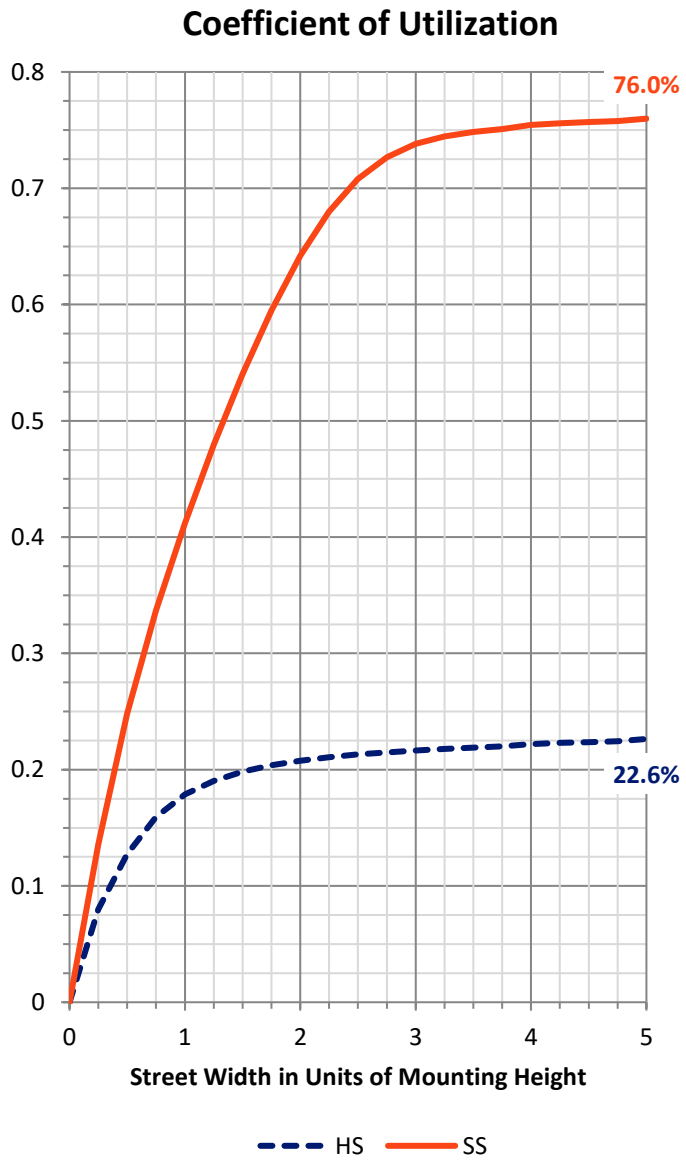
REPORT NUMBER: P1457375
CATALOG NUMBER: GLAN-SB1A-930-U-T4LG

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 723.8 | 0.0 | 723.8 |
| | % Fixture | 23.7 | 0.0 | 23.7 |
| **Street Side** | Lumens | 2333.3 | 0.0 | 2333.3 |
| | % Fixture | 76.3 | 0.0 | 76.3 |
| **Total** | Lumens | 3057.1 | 0.0 | 3057.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 61.0 | 2.0 |
| 10°-20° | 162.0 | 5.3 |
| 20°-30° | 264.6 | 8.7 |
| 30°-40° | 390.0 | 12.8 |
| 40°-50° | 537.9 | 17.6 |
| 50°-60° | 679.5 | 22.2 |
| 60°-70° | 657.6 | 21.5 |
| 70°-80° | 234.7 | 7.7 |
| 80°-90° | 69.7 | 2.3 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 3057.1 | 100.0 |
| 0°-180° | 3057.1 | 100.0 |



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

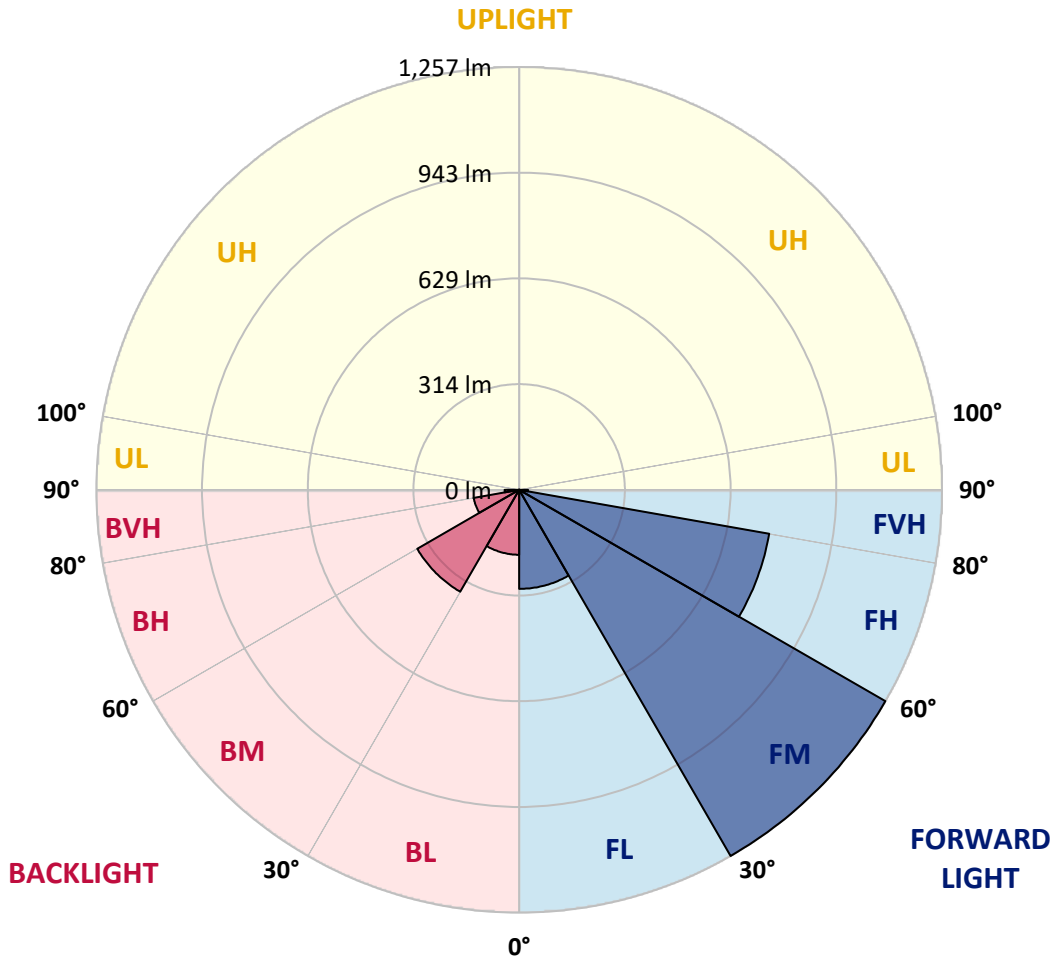
Scaled Data Report

REPORT NUMBER: P1457375
CATALOG NUMBER: GLAN-SB1A-930-U-T4LG

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 294.6 | 9.6 | | | |
| FM | (30°-60°) | 1257.5 | 41.1 | | | |
| FH | (60°-80°) | 755.0 | 24.7 | | | G1/1800 |
| FVH | (80°-90°) | 26.3 | 0.9 | | | G1/100 |
| BL | (0°-30°) | 193.1 | 6.3 | B1/500 | | |
| BM | (30°-60°) | 349.9 | 11.4 | B1/1000 | | |
| BH | (60°-80°) | 137.3 | 4.5 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 43.4 | 1.4 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B1-U0-G1**
Type IV Short



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

Scaled Data Report

REPORT NUMBER: P1457375
CATALOG NUMBER: GLAN-SB1A-930-U-T4LG

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 32° | 35° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 |
| 2.5° | 725.0 | 722.9 | 720.9 | 722.2 | 719.5 | 718.9 | 715.5 | 714.1 | 710.0 | 709.4 | 701.9 |
| 5° | 739.9 | 735.8 | 735.1 | 736.5 | 733.8 | 733.8 | 731.1 | 729.0 | 722.9 | 719.5 | 708.7 |
| 7.5° | 739.9 | 739.2 | 740.6 | 745.3 | 746.0 | 746.0 | 746.0 | 746.7 | 740.6 | 735.8 | 718.9 |
| 10° | 697.8 | 691.0 | 706.0 | 729.7 | 741.3 | 748.0 | 760.3 | 767.7 | 763.0 | 759.6 | 736.5 |
| 12.5° | 572.2 | 572.9 | 596.7 | 647.6 | 693.7 | 713.4 | 764.3 | 791.5 | 793.5 | 788.1 | 758.9 |
| 15° | 485.3 | 488.7 | 501.0 | 537.6 | 590.6 | 619.7 | 740.6 | 812.5 | 828.8 | 823.4 | 786.1 |
| 17.5° | 458.9 | 460.9 | 466.3 | 487.4 | 517.2 | 541.0 | 676.1 | 826.1 | 871.6 | 864.8 | 816.6 |
| 20° | 454.8 | 456.2 | 462.9 | 480.6 | 501.0 | 514.5 | 610.2 | 815.2 | 911.6 | 908.9 | 844.4 |
| 22.5° | 455.5 | 456.8 | 465.7 | 490.1 | 511.1 | 522.7 | 589.2 | 790.1 | 953.7 | 956.4 | 872.9 |
| 25° | 456.8 | 457.5 | 471.1 | 503.7 | 530.1 | 544.4 | 602.8 | 767.7 | 989.0 | 1012.1 | 904.2 |
| 27.5° | 464.3 | 466.3 | 484.7 | 521.3 | 552.5 | 568.8 | 634.7 | 775.2 | 1027.7 | 1075.2 | 941.5 |
| 30° | 484.7 | 486.0 | 508.4 | 546.4 | 580.4 | 597.3 | 672.7 | 805.1 | 1075.2 | 1140.4 | 978.2 |
| 32.5° | 516.6 | 517.9 | 543.7 | 583.1 | 619.7 | 640.1 | 722.2 | 862.1 | 1128.2 | 1209.0 | 1014.8 |
| 35° | 560.7 | 561.4 | 590.6 | 632.6 | 671.3 | 694.4 | 779.9 | 926.6 | 1183.2 | 1267.3 | 1042.0 |
| 37.5° | 613.0 | 617.7 | 647.6 | 691.7 | 737.2 | 758.2 | 847.8 | 1001.9 | 1232.0 | 1316.9 | 1057.6 |
| 40° | 684.9 | 686.3 | 715.5 | 758.2 | 806.4 | 826.8 | 915.7 | 1073.2 | 1285.7 | 1346.1 | 1071.8 |
| 42.5° | 758.9 | 770.4 | 794.9 | 842.4 | 878.4 | 894.7 | 993.1 | 1138.4 | 1328.4 | 1347.4 | 1065.7 |
| 45° | 858.0 | 866.8 | 891.3 | 933.4 | 969.3 | 988.3 | 1076.6 | 1198.1 | 1350.1 | 1335.9 | 1052.1 |
| 47.5° | 971.4 | 976.8 | 996.5 | 1034.5 | 1074.5 | 1088.1 | 1163.5 | 1232.0 | 1358.3 | 1327.7 | 1046.0 |
| 50° | 1105.1 | 1105.1 | 1119.4 | 1151.9 | 1188.6 | 1207.6 | 1243.6 | 1252.4 | 1382.0 | 1313.5 | 1061.7 |
| 52.5° | 1217.8 | 1223.2 | 1242.2 | 1288.4 | 1325.0 | 1346.8 | 1306.0 | 1283.6 | 1333.9 | 1234.1 | 1066.4 |
| 55° | 1325.7 | 1331.8 | 1374.6 | 1432.3 | 1494.7 | 1518.5 | 1384.1 | 1268.0 | 1171.6 | 1118.0 | 1033.8 |
| 57.5° | 1428.9 | 1441.8 | 1495.4 | 1608.1 | 1702.4 | 1700.4 | 1483.2 | 1128.2 | 956.4 | 989.7 | 962.5 |
| 60° | 1572.8 | 1586.4 | 1671.9 | 1813.8 | 1929.2 | 1881.0 | 1484.5 | 938.8 | 745.3 | 790.1 | 828.8 |
| 62.5° | 1692.9 | 1716.0 | 1841.6 | 2077.8 | 2183.7 | 2108.4 | 1361.7 | 718.9 | 494.8 | 551.2 | 640.8 |
| 65° | 1682.1 | 1712.6 | 1907.4 | 2272.0 | 2430.1 | 2360.2 | 1181.8 | 454.8 | 255.2 | 376.7 | 448.7 |
| 67° | 1534.1 | 1567.4 | 1819.9 | 2278.8 | 2518.4 | 2369.0 | 997.8 | 274.9 | 162.2 | 261.3 | 311.6 |
| 67.5° | 1449.3 | 1498.1 | 1776.4 | 2265.9 | 2502.1 | 2331.7 | 915.0 | 230.1 | 152.7 | 243.0 | 283.7 |
| 70° | 891.3 | 970.0 | 1333.2 | 2003.2 | 2242.8 | 1951.6 | 508.4 | 130.3 | 124.2 | 162.9 | 196.2 |
| 72.5° | 268.1 | 291.9 | 514.5 | 1285.0 | 1646.1 | 1446.5 | 228.8 | 100.5 | 111.3 | 131.0 | 151.4 |
| 75° | 130.3 | 139.2 | 212.5 | 525.4 | 801.7 | 797.6 | 127.6 | 86.2 | 103.2 | 110.0 | 119.5 |
| 77.5° | 83.5 | 88.9 | 132.4 | 293.9 | 367.2 | 327.2 | 92.3 | 75.3 | 91.6 | 90.3 | 88.9 |
| 80° | 52.3 | 55.0 | 84.9 | 170.4 | 270.8 | 226.0 | 67.9 | 61.8 | 78.7 | 69.9 | 63.1 |
| 82.5° | 33.9 | 37.3 | 54.3 | 103.9 | 193.5 | 168.3 | 44.8 | 44.1 | 65.2 | 55.7 | 48.9 |
| 85° | 22.4 | 25.1 | 34.6 | 61.1 | 114.7 | 120.1 | 29.2 | 30.5 | 50.2 | 42.1 | 37.3 |
| 87.5° | 8.1 | 10.2 | 17.6 | 27.2 | 53.6 | 66.5 | 12.2 | 11.5 | 24.4 | 19.7 | 15.6 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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

Scaled Data Report

REPORT NUMBER: P1457375
CATALOG NUMBER: GLAN-SB1A-930-U-T4LG

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 | 698.5 |
| 2.5° | 700.5 | 698.5 | 689.0 | 680.8 | 674.7 | 666.6 | 657.8 | 647.6 | 640.8 | 642.2 | 640.1 |
| 5° | 703.9 | 698.5 | 680.2 | 652.3 | 625.2 | 591.2 | 547.8 | 522.0 | 502.3 | 492.1 | 494.8 |
| 7.5° | 711.4 | 701.9 | 663.2 | 606.9 | 536.3 | 467.0 | 424.3 | 399.8 | 388.3 | 383.5 | 382.8 |
| 10° | 724.3 | 708.0 | 641.5 | 536.3 | 443.9 | 397.1 | 381.5 | 374.7 | 373.3 | 373.3 | 372.7 |
| 12.5° | 739.9 | 714.1 | 604.8 | 467.7 | 399.8 | 382.8 | 380.1 | 380.8 | 382.8 | 384.9 | 381.5 |
| 15° | 758.9 | 716.8 | 559.3 | 426.3 | 391.0 | 386.9 | 391.0 | 395.7 | 399.1 | 401.9 | 398.5 |
| 17.5° | 777.9 | 714.1 | 516.6 | 406.6 | 392.3 | 397.8 | 405.9 | 413.4 | 415.4 | 419.5 | 416.8 |
| 20° | 791.5 | 704.6 | 479.9 | 399.1 | 395.7 | 408.0 | 418.1 | 426.3 | 430.4 | 433.1 | 430.4 |
| 22.5° | 801.7 | 692.4 | 453.4 | 391.7 | 395.7 | 410.7 | 422.9 | 432.4 | 437.2 | 439.9 | 436.5 |
| 25° | 810.5 | 675.4 | 433.1 | 380.8 | 387.6 | 401.9 | 415.4 | 424.9 | 431.7 | 435.8 | 433.8 |
| 27.5° | 821.4 | 661.8 | 414.1 | 364.5 | 370.6 | 384.2 | 398.5 | 410.0 | 422.9 | 429.7 | 428.3 |
| 30° | 833.6 | 655.0 | 395.7 | 346.9 | 350.9 | 364.5 | 381.5 | 397.1 | 414.8 | 423.6 | 423.6 |
| 32.5° | 847.8 | 650.3 | 378.8 | 329.9 | 333.3 | 348.2 | 364.5 | 378.8 | 397.8 | 412.0 | 411.4 |
| 35° | 853.9 | 644.9 | 365.2 | 314.3 | 321.1 | 333.3 | 346.2 | 355.7 | 375.4 | 392.3 | 393.7 |
| 37.5° | 860.0 | 642.8 | 358.4 | 302.1 | 307.5 | 317.0 | 323.8 | 328.5 | 346.9 | 364.5 | 365.2 |
| 40° | 867.5 | 652.3 | 363.2 | 293.9 | 289.2 | 298.7 | 302.1 | 304.8 | 314.3 | 325.8 | 325.8 |
| 42.5° | 862.8 | 659.1 | 374.0 | 286.5 | 266.8 | 277.6 | 279.0 | 278.3 | 279.0 | 279.7 | 279.0 |
| 45° | 850.5 | 652.3 | 374.0 | 274.9 | 243.0 | 254.6 | 253.9 | 250.5 | 245.0 | 230.8 | 228.8 |
| 47.5° | 847.8 | 648.3 | 359.8 | 255.9 | 219.3 | 228.8 | 230.1 | 223.3 | 207.7 | 192.8 | 188.0 |
| 50° | 859.4 | 655.7 | 337.4 | 232.8 | 198.9 | 207.0 | 210.4 | 198.9 | 181.2 | 165.6 | 162.9 |
| 52.5° | 876.3 | 665.2 | 304.8 | 207.7 | 181.9 | 190.1 | 194.1 | 181.2 | 162.9 | 150.7 | 149.3 |
| 55° | 874.3 | 665.2 | 268.1 | 184.6 | 169.0 | 175.1 | 181.9 | 168.3 | 154.1 | 147.3 | 146.6 |
| 57.5° | 830.2 | 640.1 | 241.0 | 168.3 | 156.8 | 162.2 | 171.1 | 158.2 | 144.6 | 145.9 | 148.0 |
| 60° | 744.0 | 574.9 | 220.6 | 157.5 | 145.9 | 151.4 | 160.9 | 145.9 | 128.3 | 123.5 | 123.5 |
| 62.5° | 613.0 | 473.8 | 204.3 | 146.6 | 135.8 | 142.5 | 147.3 | 127.6 | 116.1 | 110.6 | 110.6 |
| 65° | 459.6 | 366.6 | 187.4 | 137.8 | 126.9 | 134.4 | 129.0 | 119.5 | 107.9 | 103.9 | 104.5 |
| 67° | *340.8* | *284.4* | *173.1* | *130.3* | *121.5* | *124.9* | *120.8* | *114.0* | *102.5* | *99.1* | *102.5* |
| 67.5° | 306.1 | 270.2 | 169.7 | 128.3 | 120.1 | 122.9 | 118.8 | 113.4 | 101.1 | 97.7 | 101.1 |
| 70° | 210.4 | 207.7 | 151.4 | 118.8 | 112.7 | 110.0 | 112.0 | 105.2 | 95.0 | 93.7 | 97.1 |
| 72.5° | 160.2 | 165.6 | 135.8 | 110.6 | 104.5 | 101.1 | 105.9 | 99.1 | 88.9 | 91.0 | 94.4 |
| 75° | 125.6 | 133.7 | 121.5 | 99.1 | 95.0 | 95.7 | 105.2 | 102.5 | 94.4 | 96.4 | 97.1 |
| 77.5° | 93.0 | 107.9 | 103.9 | 86.2 | 82.8 | 92.3 | 118.8 | 126.9 | 112.7 | 109.3 | 104.5 |
| 80° | 67.9 | 77.4 | 87.6 | 71.3 | 69.2 | 88.9 | 146.6 | 162.2 | 139.2 | 125.6 | 122.2 |
| 82.5° | 50.2 | 54.3 | 72.0 | 57.0 | 50.2 | 79.4 | 162.9 | 190.7 | 165.6 | 139.8 | 135.8 |
| 85° | 36.0 | 42.1 | 57.0 | 42.1 | 33.3 | 65.2 | 159.5 | 186.7 | 164.3 | 132.4 | 129.0 |
| 87.5° | 12.9 | 18.3 | 24.4 | 19.0 | 17.0 | 44.8 | 131.7 | 134.4 | 102.5 | 46.8 | 47.5 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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

McGraw-Edison

Report Number: SP1-2407-184-14

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-930-U-5WQ

Data in this report applies to families of products including GSS-SB1A-930-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

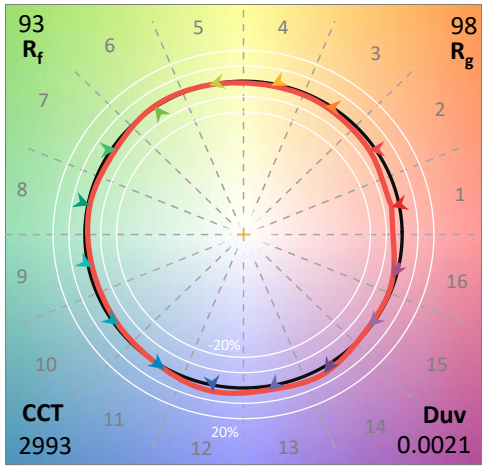
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-184-14 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/15/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGraw-Edison |
| Catalog Number: | **GSS-SB1A-930-U-5WQ** |
| Description: | GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 90 CRI 3000K CCT 26 LEDS |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 2993 |
| CIE u': | 0.2501 |
| CIE v': | 0.5245 |
| Duv: | 0.0021 |
| CIE x: | 0.4406 |
| CIE y: | 0.4107 |
| CIE z: | 0.1487 |
| Peak Wavelength (nm): | 621 |
| Dominant Wavelength (nm): | 582 |
| Purity: | 55.53327 |
| Rf: | 92.6 |
| Rg: | 98.5 |

| | |
|---|---|
| CRI (Ra): | 92.4 |
| R1: | 92.2 |
| R2: | 95.2 |
| R3: | 97.0 |
| R4: | 93.1 |
| R5: | 91.7 |
| R6: | 94.2 |
| R7: | 93.3 |
| R8: | 82.3 |
| R9: | 58.2 |
| R10: | 87.7 |
| R11: | 93.5 |
| R12: | 81.7 |
| R13: | 92.9 |
| R14: | 97.6 |
| R15: | 88.1 |




## Test Conditions

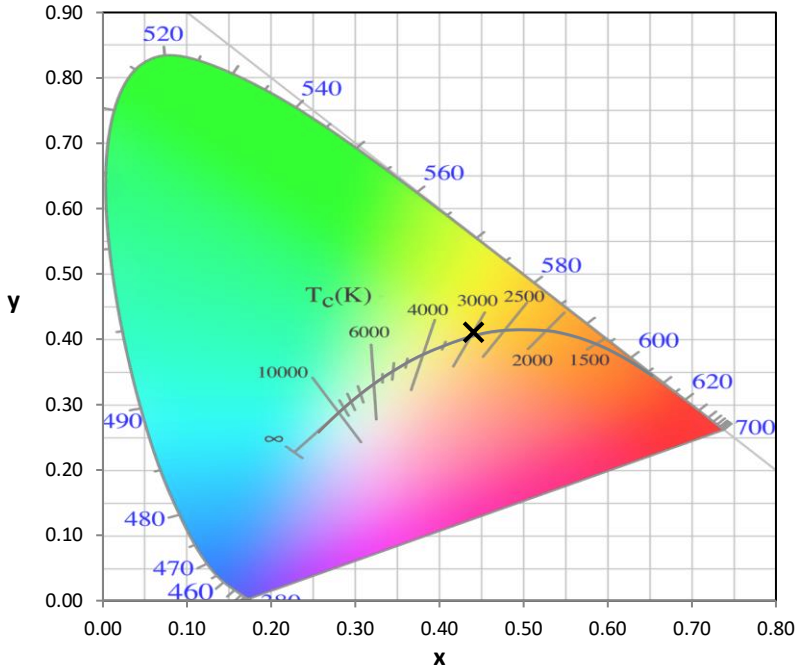
| | |
|---|---|
| Stabilization Time: | 20M |
| Operation Time: | 1H 20M |
| Sphere Temperature (°C): | 25.2 |

REPORT NUMBER: SP1-2407-184-14

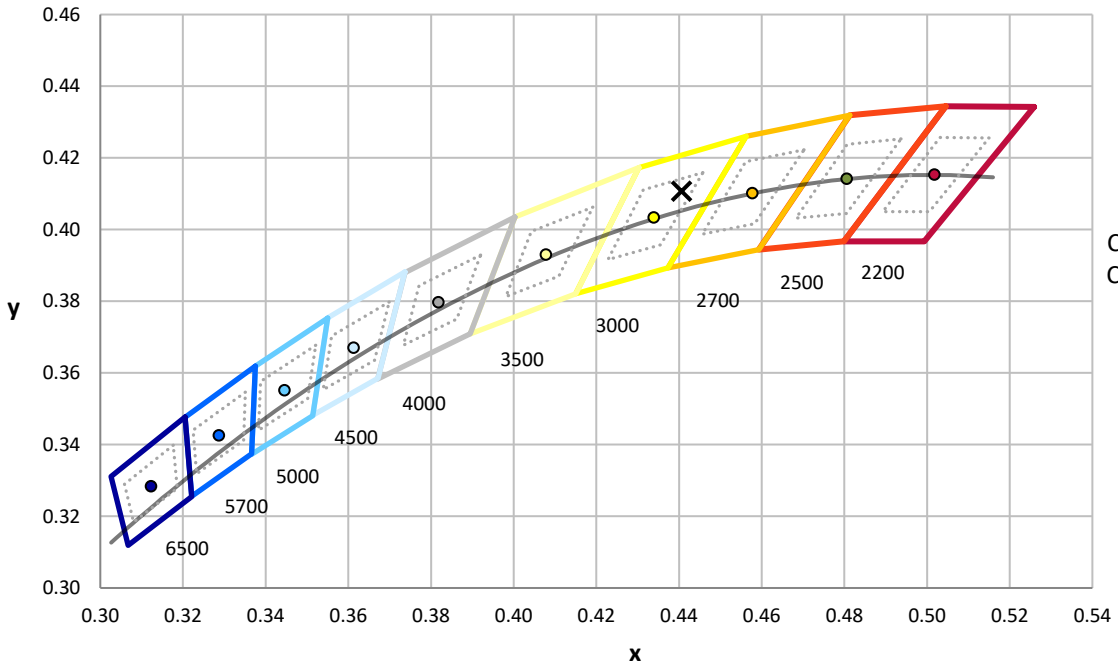
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

REPORT NUMBER: SP1-2407-184-14

## CIE 1931 Chromaticity Diagram




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

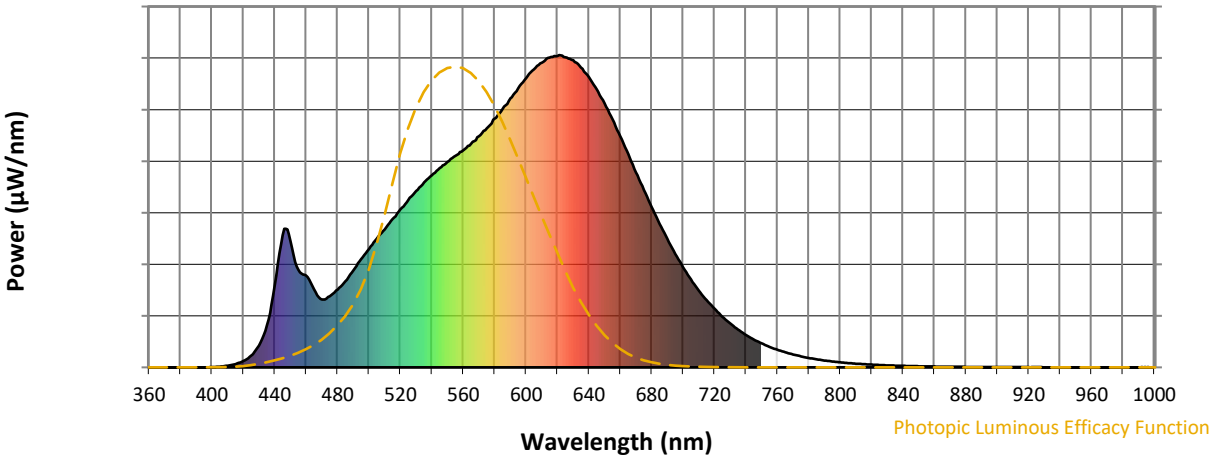



CCT = 2993K
CIE x = 0.4406
CIE y = 0.4107
Duv = 0.0021

Point lies inside the ANSI 3000K 4-step quadrangle

REPORT NUMBER: SP1-2407-184-14

## Photopic Flux vs. Wavelength

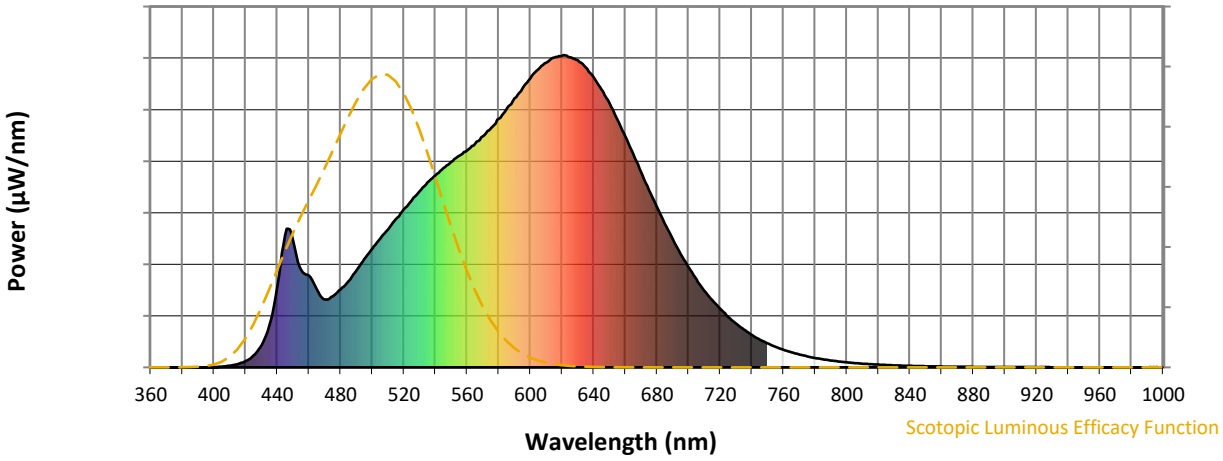



## Photopic Lumens: NR

| 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 | 310 | NR | 620 | 998 | NR | 750 | 77 | NR | 880 | 2 | NR |
| 365 | 0 | NR | 495 | 347 | NR | 625 | 993 | NR | 755 | 66 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 379 | NR | 630 | 983 | NR | 760 | 56 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 412 | NR | 635 | 960 | NR | 765 | 48 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 442 | NR | 640 | 930 | NR | 770 | 41 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 475 | NR | 645 | 889 | NR | 775 | 35 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 506 | NR | 650 | 846 | NR | 780 | 30 | NR | 910 | 1 | NR |
| 395 | 0 | NR | 525 | 535 | NR | 655 | 794 | NR | 785 | 26 | NR | 915 | 1 | NR |
| 400 | 1 | NR | 530 | 565 | NR | 660 | 740 | NR | 790 | 22 | NR | 920 | 1 | NR |
| 405 | 2 | NR | 535 | 592 | NR | 665 | 684 | NR | 795 | 19 | NR | 925 | 1 | NR |
| 410 | 6 | NR | 540 | 615 | NR | 670 | 624 | NR | 800 | 16 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 638 | NR | 675 | 567 | NR | 805 | 14 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 658 | NR | 680 | 513 | NR | 810 | 12 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 678 | NR | 685 | 459 | NR | 815 | 10 | NR | 945 | 0 | NR |
| 430 | 70 | NR | 560 | 695 | NR | 690 | 412 | NR | 820 | 9 | NR | 950 | 0 | NR |
| 435 | 136 | NR | 565 | 716 | NR | 695 | 363 | NR | 825 | 8 | NR | 955 | 0 | NR |
| 440 | 262 | NR | 570 | 740 | NR | 700 | 320 | NR | 830 | 7 | NR | 960 | 0 | NR |
| 445 | 424 | NR | 575 | 765 | NR | 705 | 281 | NR | 835 | 6 | NR | 965 | 0 | NR |
| 450 | 406 | NR | 580 | 796 | NR | 710 | 245 | NR | 840 | 5 | NR | 970 | 0 | NR |
| 455 | 313 | NR | 585 | 827 | NR | 715 | 215 | NR | 845 | 4 | NR | 975 | 0 | NR |
| 460 | 294 | NR | 590 | 861 | NR | 720 | 188 | NR | 850 | 4 | NR | 980 | 0 | NR |
| 465 | 250 | NR | 595 | 894 | NR | 725 | 162 | NR | 855 | 3 | NR | 985 | 0 | NR |
| 470 | 217 | NR | 600 | 927 | NR | 730 | 140 | NR | 860 | 3 | NR | 990 | 0 | NR |
| 475 | 228 | NR | 605 | 954 | NR | 735 | 121 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 249 | NR | 610 | 976 | NR | 740 | 104 | NR | 870 | 2 | NR | 1000 | 0 | NR |
| 485 | 276 | NR | 615 | 992 | NR | 745 | 89 | NR | 875 | 2 | NR | | | |

REPORT NUMBER: SP1-2407-184-14

## Scotopic Flux vs. Wavelength

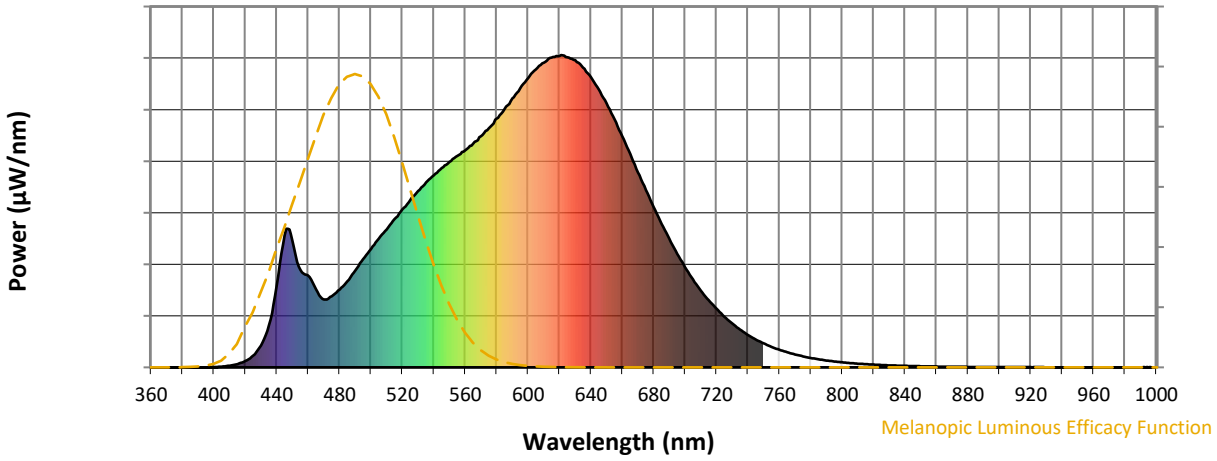



**Scotopic Lumens: NR** **S/P: 1.39**

| 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 | 310 | NR | 620 | 998 | NR | 750 | 77 | NR | 880 | 2 | NR |
| 365 | 0 | NR | 495 | 347 | NR | 625 | 993 | NR | 755 | 66 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 379 | NR | 630 | 983 | NR | 760 | 56 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 412 | NR | 635 | 960 | NR | 765 | 48 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 442 | NR | 640 | 930 | NR | 770 | 41 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 475 | NR | 645 | 889 | NR | 775 | 35 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 506 | NR | 650 | 846 | NR | 780 | 30 | NR | 910 | 1 | NR |
| 395 | 0 | NR | 525 | 535 | NR | 655 | 794 | NR | 785 | 26 | NR | 915 | 1 | NR |
| 400 | 1 | NR | 530 | 565 | NR | 660 | 740 | NR | 790 | 22 | NR | 920 | 1 | NR |
| 405 | 2 | NR | 535 | 592 | NR | 665 | 684 | NR | 795 | 19 | NR | 925 | 1 | NR |
| 410 | 6 | NR | 540 | 615 | NR | 670 | 624 | NR | 800 | 16 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 638 | NR | 675 | 567 | NR | 805 | 14 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 658 | NR | 680 | 513 | NR | 810 | 12 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 678 | NR | 685 | 459 | NR | 815 | 10 | NR | 945 | 0 | NR |
| 430 | 70 | NR | 560 | 695 | NR | 690 | 412 | NR | 820 | 9 | NR | 950 | 0 | NR |
| 435 | 136 | NR | 565 | 716 | NR | 695 | 363 | NR | 825 | 8 | NR | 955 | 0 | NR |
| 440 | 262 | NR | 570 | 740 | NR | 700 | 320 | NR | 830 | 7 | NR | 960 | 0 | NR |
| 445 | 424 | NR | 575 | 765 | NR | 705 | 281 | NR | 835 | 6 | NR | 965 | 0 | NR |
| 450 | 406 | NR | 580 | 796 | NR | 710 | 245 | NR | 840 | 5 | NR | 970 | 0 | NR |
| 455 | 313 | NR | 585 | 827 | NR | 715 | 215 | NR | 845 | 4 | NR | 975 | 0 | NR |
| 460 | 294 | NR | 590 | 861 | NR | 720 | 188 | NR | 850 | 4 | NR | 980 | 0 | NR |
| 465 | 250 | NR | 595 | 894 | NR | 725 | 162 | NR | 855 | 3 | NR | 985 | 0 | NR |
| 470 | 217 | NR | 600 | 927 | NR | 730 | 140 | NR | 860 | 3 | NR | 990 | 0 | NR |
| 475 | 228 | NR | 605 | 954 | NR | 735 | 121 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 249 | NR | 610 | 976 | NR | 740 | 104 | NR | 870 | 2 | NR | 1000 | 0 | NR |
| 485 | 276 | NR | 615 | 992 | NR | 745 | 89 | NR | 875 | 2 | NR | | | |

REPORT NUMBER: SP1-2407-184-14

## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.69**

| 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 | 310 | NR | 620 | 998 | NR | 750 | 77 | NR | 880 | 2 | NR |
| 365 | 0 | NR | 495 | 347 | NR | 625 | 993 | NR | 755 | 66 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 379 | NR | 630 | 983 | NR | 760 | 56 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 412 | NR | 635 | 960 | NR | 765 | 48 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 442 | NR | 640 | 930 | NR | 770 | 41 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 475 | NR | 645 | 889 | NR | 775 | 35 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 506 | NR | 650 | 846 | NR | 780 | 30 | NR | 910 | 1 | NR |
| 395 | 0 | NR | 525 | 535 | NR | 655 | 794 | NR | 785 | 26 | NR | 915 | 1 | NR |
| 400 | 1 | NR | 530 | 565 | NR | 660 | 740 | NR | 790 | 22 | NR | 920 | 1 | NR |
| 405 | 2 | NR | 535 | 592 | NR | 665 | 684 | NR | 795 | 19 | NR | 925 | 1 | NR |
| 410 | 6 | NR | 540 | 615 | NR | 670 | 624 | NR | 800 | 16 | NR | 930 | 0 | NR |
| 415 | 10 | NR | 545 | 638 | NR | 675 | 567 | NR | 805 | 14 | NR | 935 | 0 | NR |
| 420 | 20 | NR | 550 | 658 | NR | 680 | 513 | NR | 810 | 12 | NR | 940 | 0 | NR |
| 425 | 38 | NR | 555 | 678 | NR | 685 | 459 | NR | 815 | 10 | NR | 945 | 0 | NR |
| 430 | 70 | NR | 560 | 695 | NR | 690 | 412 | NR | 820 | 9 | NR | 950 | 0 | NR |
| 435 | 136 | NR | 565 | 716 | NR | 695 | 363 | NR | 825 | 8 | NR | 955 | 0 | NR |
| 440 | 262 | NR | 570 | 740 | NR | 700 | 320 | NR | 830 | 7 | NR | 960 | 0 | NR |
| 445 | 424 | NR | 575 | 765 | NR | 705 | 281 | NR | 835 | 6 | NR | 965 | 0 | NR |
| 450 | 406 | NR | 580 | 796 | NR | 710 | 245 | NR | 840 | 5 | NR | 970 | 0 | NR |
| 455 | 313 | NR | 585 | 827 | NR | 715 | 215 | NR | 845 | 4 | NR | 975 | 0 | NR |
| 460 | 294 | NR | 590 | 861 | NR | 720 | 188 | NR | 850 | 4 | NR | 980 | 0 | NR |
| 465 | 250 | NR | 595 | 894 | NR | 725 | 162 | NR | 855 | 3 | NR | 985 | 0 | NR |
| 470 | 217 | NR | 600 | 927 | NR | 730 | 140 | NR | 860 | 3 | NR | 990 | 0 | NR |
| 475 | 228 | NR | 605 | 954 | NR | 735 | 121 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 249 | NR | 610 | 976 | NR | 740 | 104 | NR | 870 | 2 | NR | 1000 | 0 | NR |
| 485 | 276 | NR | 615 | 992 | NR | 745 | 89 | NR | 875 | 2 | NR | | | |

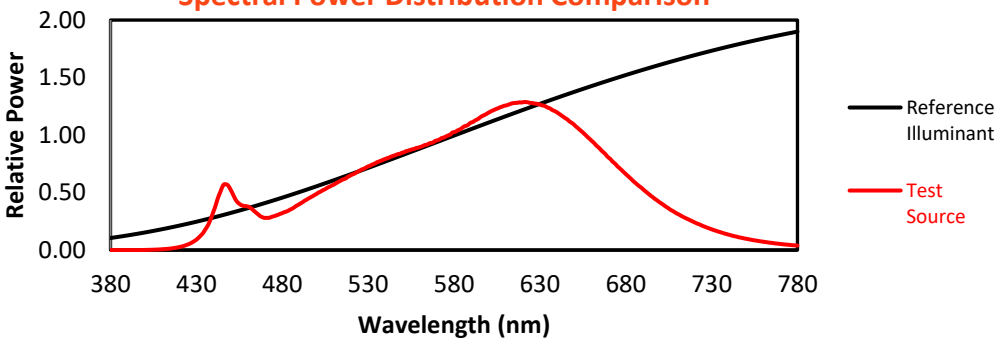
REPORT NUMBER: SP1-2407-184-14

# TM-30-18

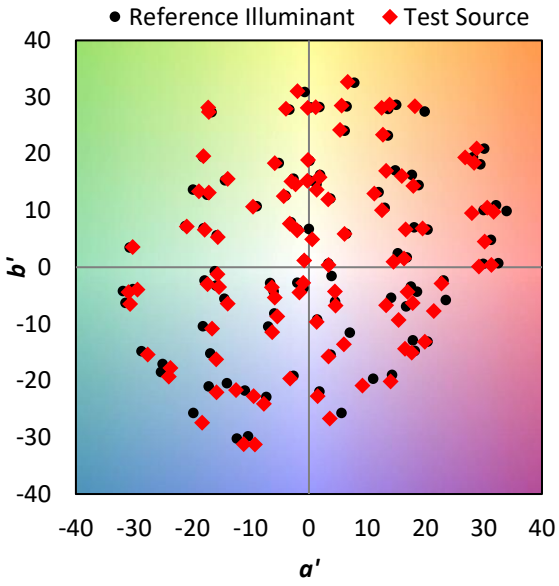
## Summary

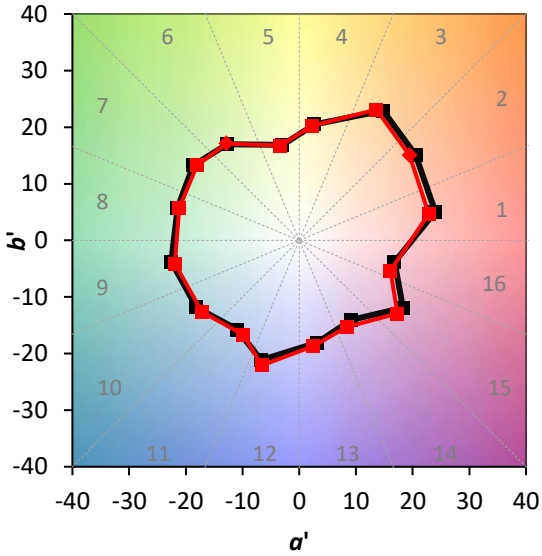
$R_f$ = 92.6
$R_g$ = 98.5
CIE $R_a$ = 92.4
$R_9$ = 58.2

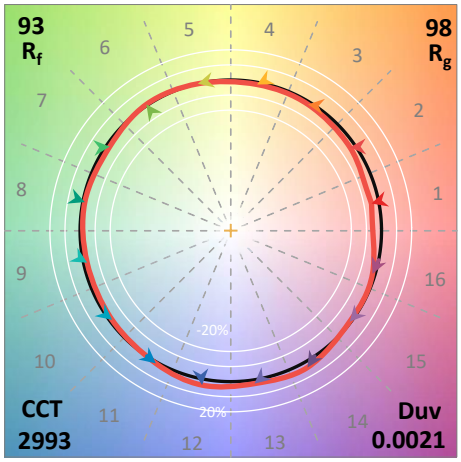
## Spectral Power Distribution Comparison

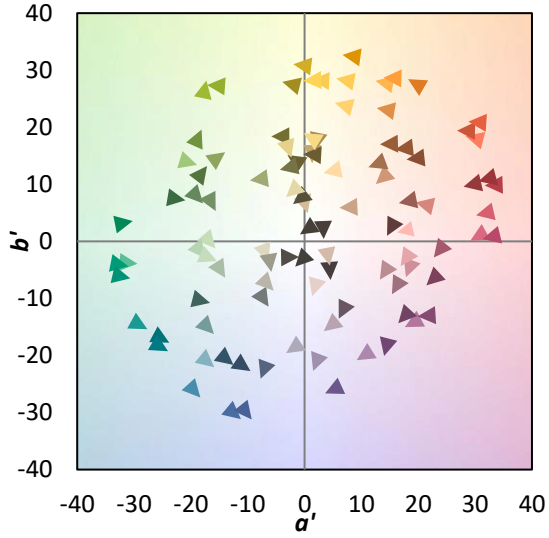



## Color Vector Graphics



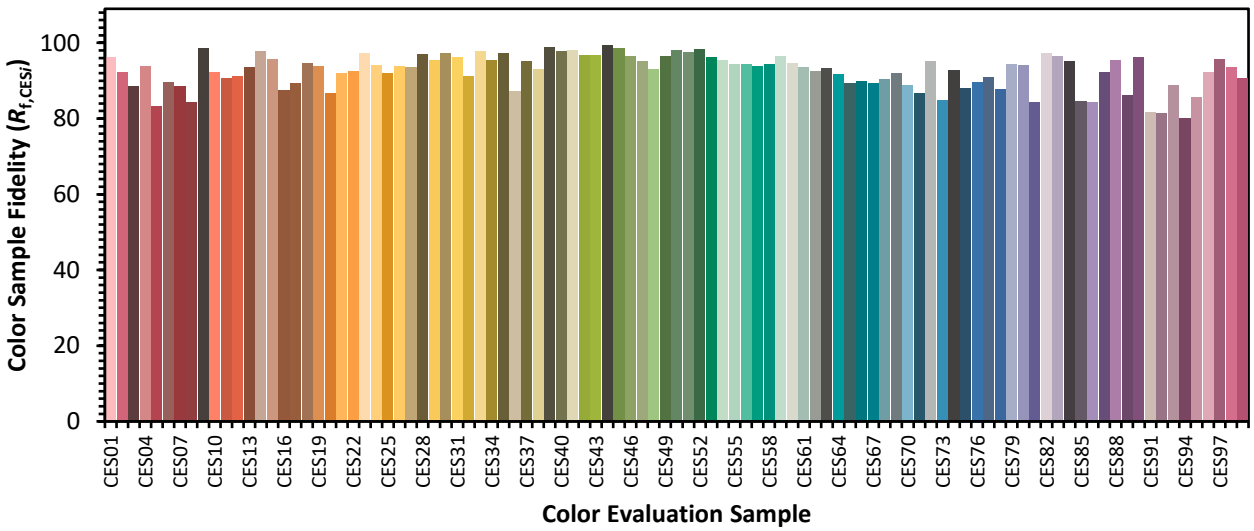



REPORT NUMBER: SP1-2407-184-14

# TM-30-18

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

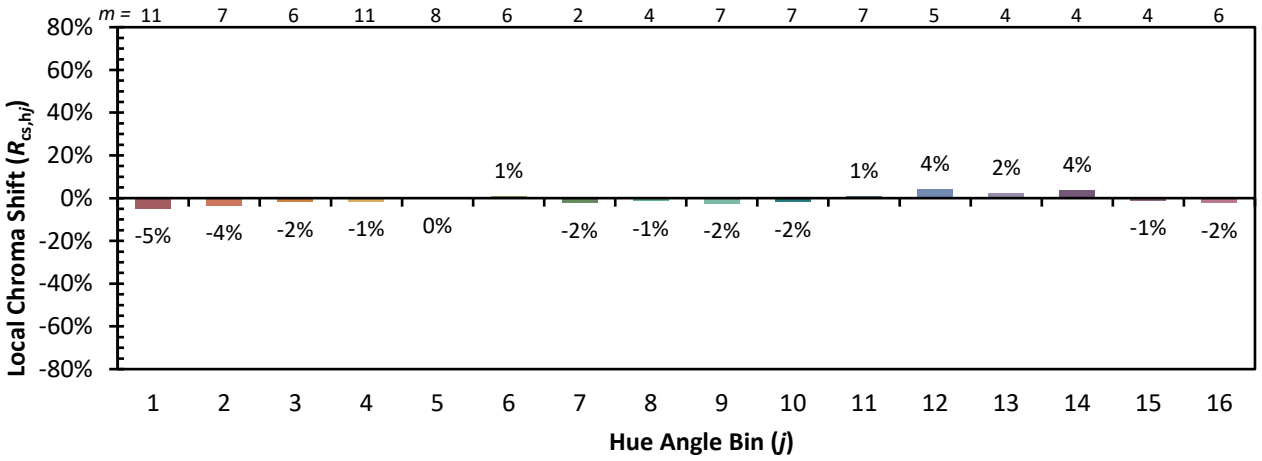
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 94 | CES51 = 98 | CES76 = 90 |
| CES02 = 63 | CES27 = 94 | CES52 = 98 | CES77 = 91 |
| CES03 = 32 | CES28 = 97 | CES53 = 96 | CES78 = 88 |
| CES04 = 70 | CES29 = 95 | CES54 = 95 | CES79 = 94 |
| CES05 = 51 | CES30 = 97 | CES55 = 94 | CES80 = 94 |
| CES06 = 51 | CES31 = 96 | CES56 = 94 | CES81 = 84 |
| CES07 = 43 | CES32 = 91 | CES57 = 94 | CES82 = 97 |
| CES08 = 42 | CES33 = 98 | CES58 = 94 | CES83 = 97 |
| CES09 = 29 | CES34 = 96 | CES59 = 97 | CES84 = 95 |
| CES10 = 76 | CES35 = 97 | CES60 = 95 | CES85 = 85 |
| CES11 = 59 | CES36 = 87 | CES61 = 94 | CES86 = 84 |
| CES12 = 65 | CES37 = 95 | CES62 = 92 | CES87 = 92 |
| CES13 = 44 | CES38 = 93 | CES63 = 93 | CES88 = 95 |
| CES14 = 74 | CES39 = 99 | CES64 = 92 | CES89 = 86 |
| CES15 = 72 | CES40 = 98 | CES65 = 89 | CES90 = 96 |
| CES16 = 48 | CES41 = 98 | CES66 = 90 | CES91 = 82 |
| CES17 = 50 | CES42 = 97 | CES67 = 89 | CES92 = 81 |
| CES18 = 57 | CES43 = 97 | CES68 = 90 | CES93 = 89 |
| CES19 = 72 | CES44 = 99 | CES69 = 92 | CES94 = 80 |
| CES20 = 67 | CES45 = 99 | CES70 = 89 | CES95 = 86 |
| CES21 = 86 | CES46 = 96 | CES71 = 87 | CES96 = 92 |
| CES22 = 79 | CES47 = 95 | CES72 = 95 | CES97 = 96 |
| CES23 = 92 | CES48 = 93 | CES73 = 85 | CES98 = 94 |
| CES24 = 91 | CES49 = 97 | CES74 = 93 | CES99 = 91 |
| CES25 = 72 | CES50 = 98 | CES75 = 88 | |

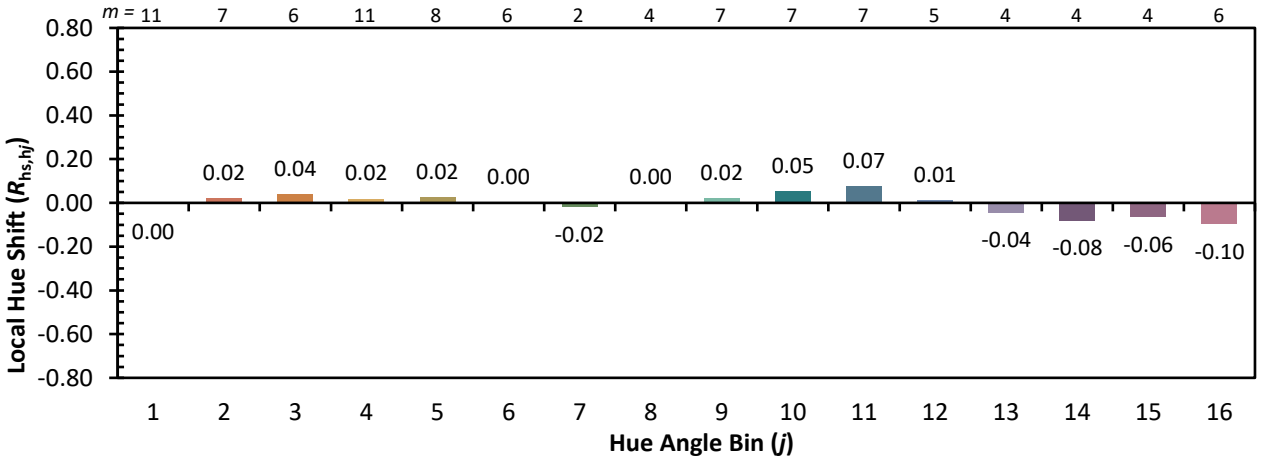


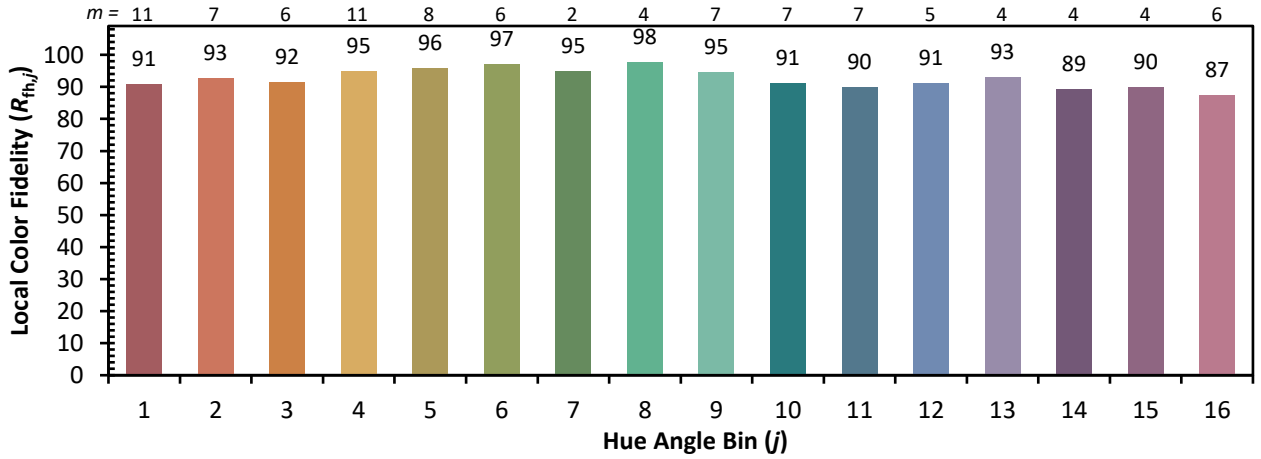
REPORT NUMBER: SP1-2407-184-14

# TM-30-18

## Color Rendition by Hue-Angle Bin



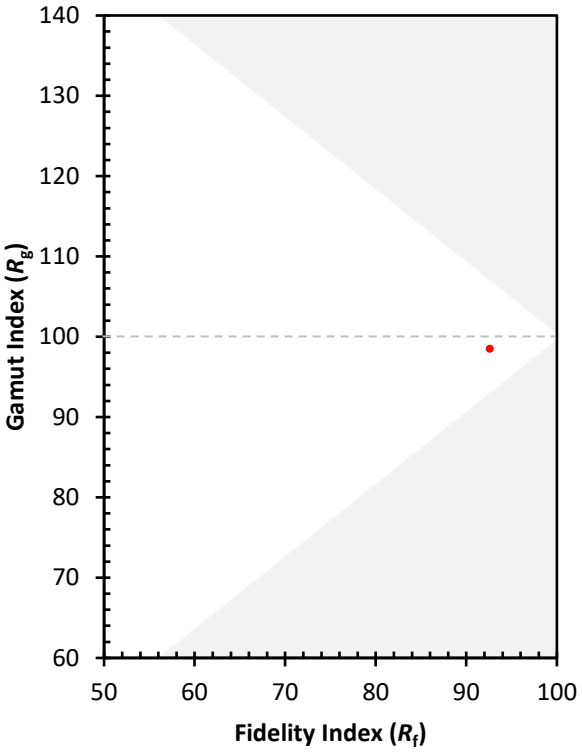



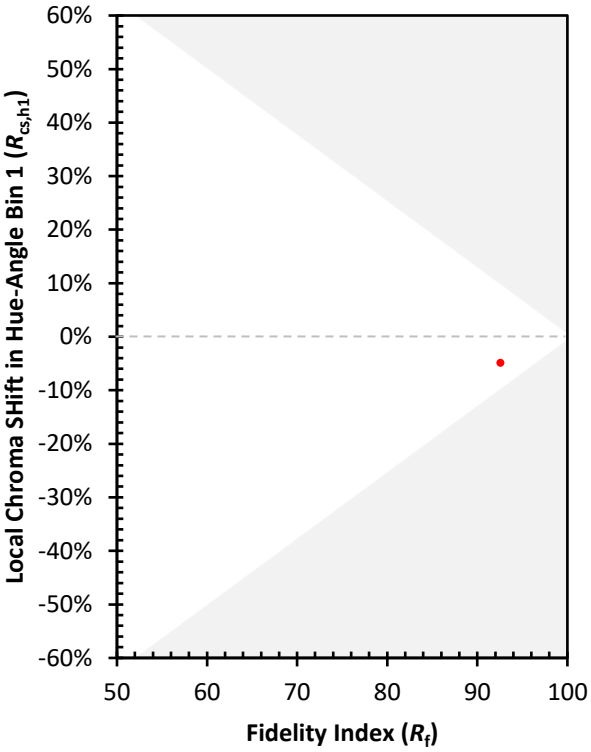



REPORT NUMBER: SP1-2407-184-14

# TM-30-18

## Measure Comparisons




(END OF REPORT)