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

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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: McGRAW-EDISON

Report Number: P1500568

Luminaire Tested: GSS-SB3D-740-U-T4LG

Issue Date: 07/20/2026

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: | P1500568 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 7/20/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GSS-SB3D-740-U-T4LG |
| Description: | GALLEON II SLIM SITE HIGH DENSITY LED ARRAYS 3SQUARE 219W 70CRI 4000K FIXTURE w/ TYPE IV LOW GLARE DISTRIBUTION FIXTURE |
| Light Source: | (78) 4000K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 30342.4 lumens |
| Efficiency: | N/A |
| Efficacy: | 138.5 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 0.5' x H: 0') |
| IES Classification: | Type III - Short |
| BUG Rating: | B3 - U0 - G3 |

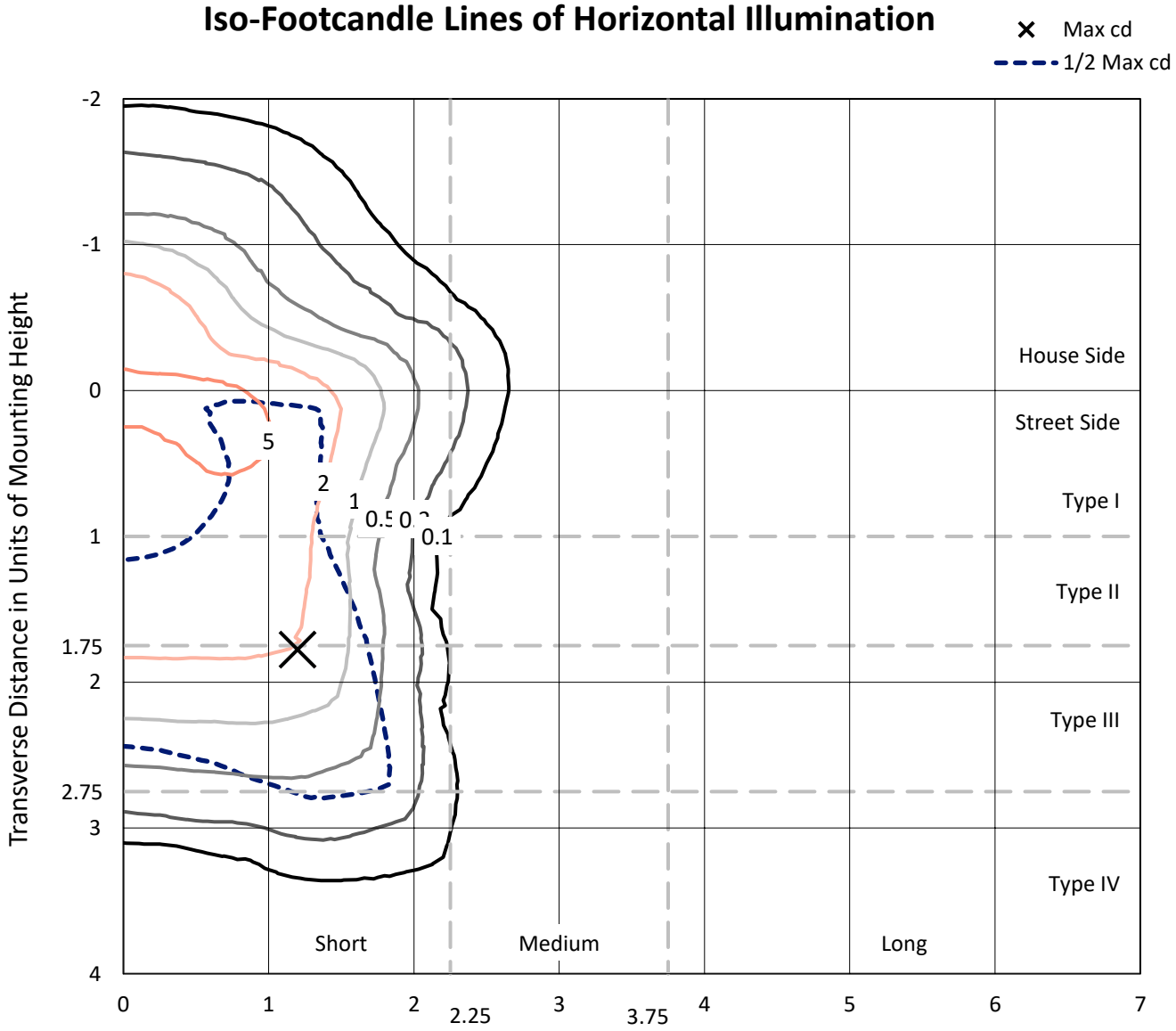
| | |
|---|---|
| Input Watts (W): | 219 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.98 |
| Total Harmonic Distortion (THDi): | 2.5% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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Scaled Data Report

REPORT NUMBER: P1500568
CATALOG NUMBER: GSS-SB3D-740-U-T4LG

## Iso-Footcandle Lines of Horizontal Illumination



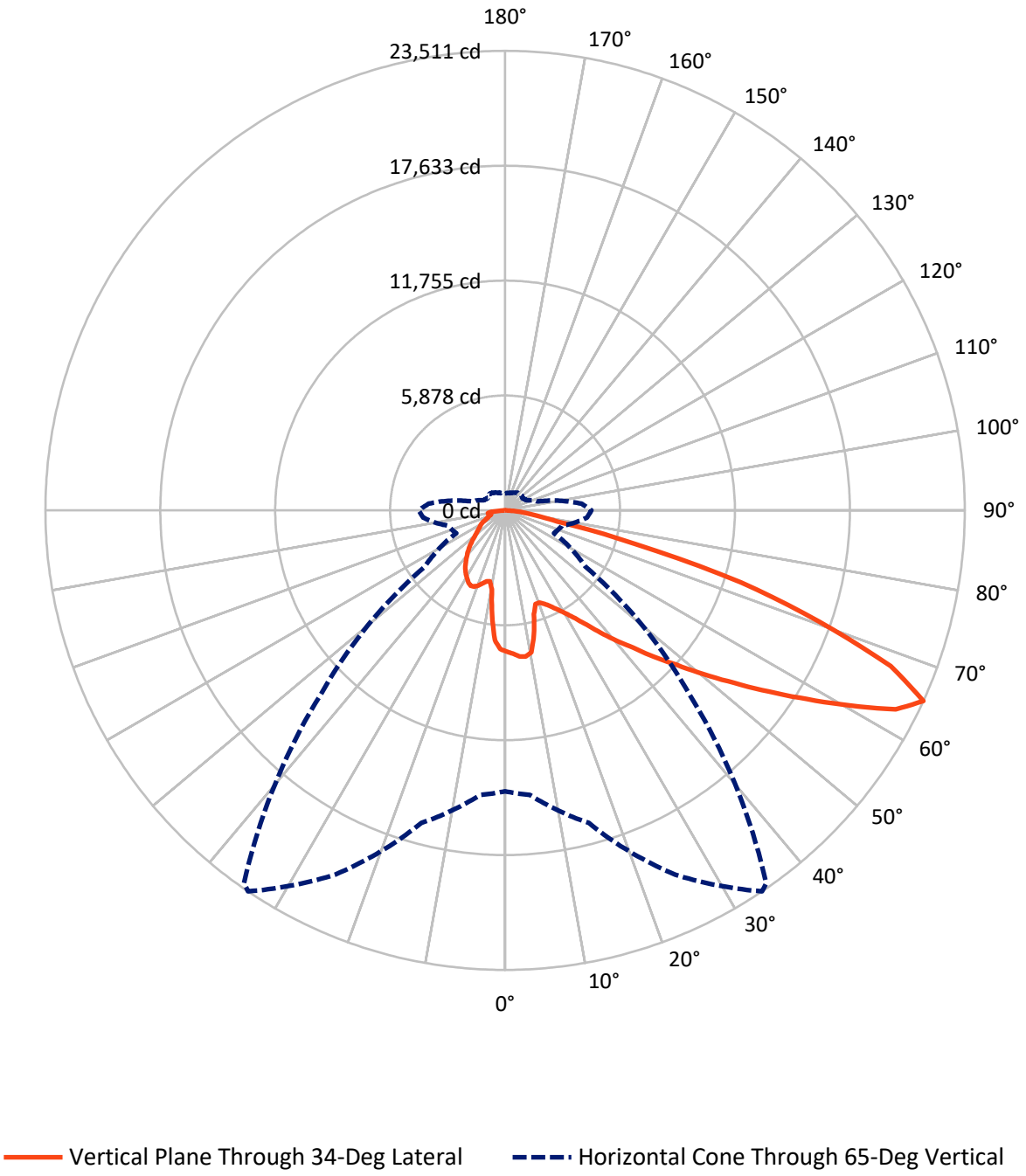

Based on 30 foot mounting height. Maximum calculated value = 8.5 fc
Type III - Short - N/A

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## Luminous Intensity Polar Plot



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Scaled Data Report

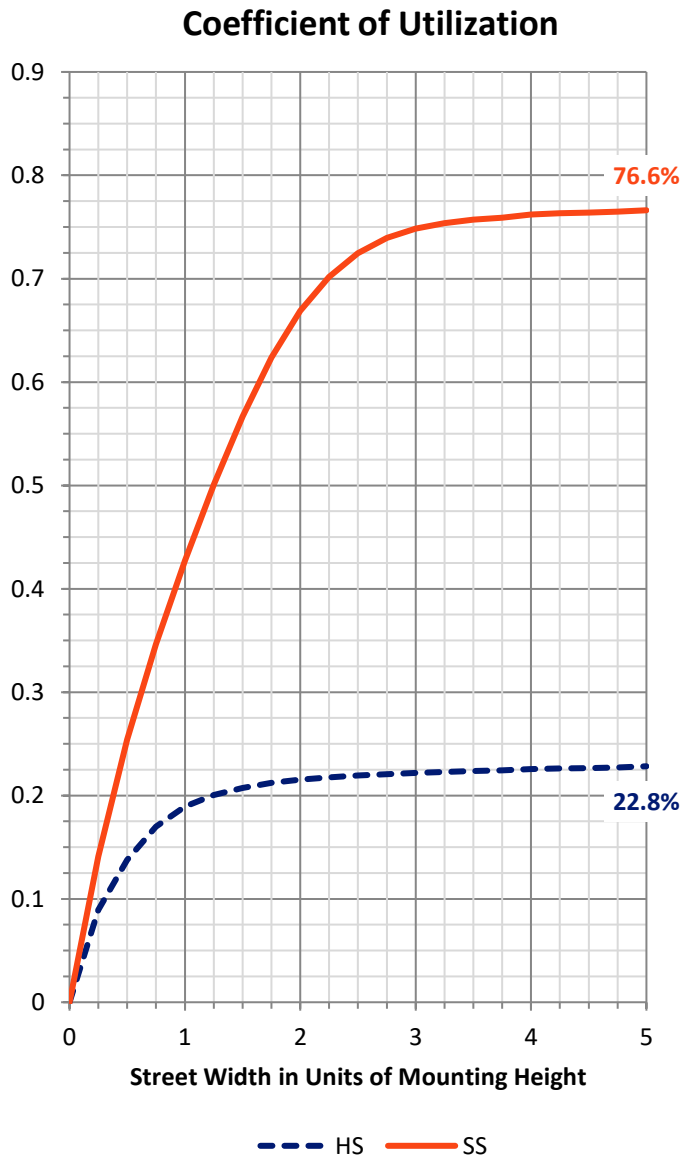
REPORT NUMBER: P1500568
CATALOG NUMBER: GSS-SB3D-740-U-T4LG

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 7059.3 | 0.0 | 7059.3 |
| | % Fixture | 23.3 | 0.0 | 23.3 |
| **Street Side** | Lumens | 23283.0 | 0.0 | 23283.0 |
| | % Fixture | 76.7 | 0.0 | 76.7 |
| **Total** | Lumens | 30342.4 | 0.0 | 30342.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 650.3 | 2.1 |
| 10°-20° | 1636.9 | 5.4 |
| 20°-30° | 2713.3 | 8.9 |
| 30°-40° | 4080.6 | 13.4 |
| 40°-50° | 5716.8 | 18.8 |
| 50°-60° | 7207.9 | 23.8 |
| 60°-70° | 6199.4 | 20.4 |
| 70°-80° | 1843.1 | 6.1 |
| 80°-90° | 294.1 | 1.0 |
| 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° | 30342.4 | 100.0 |
| 0°-180° | 30342.4 | 100.0 |



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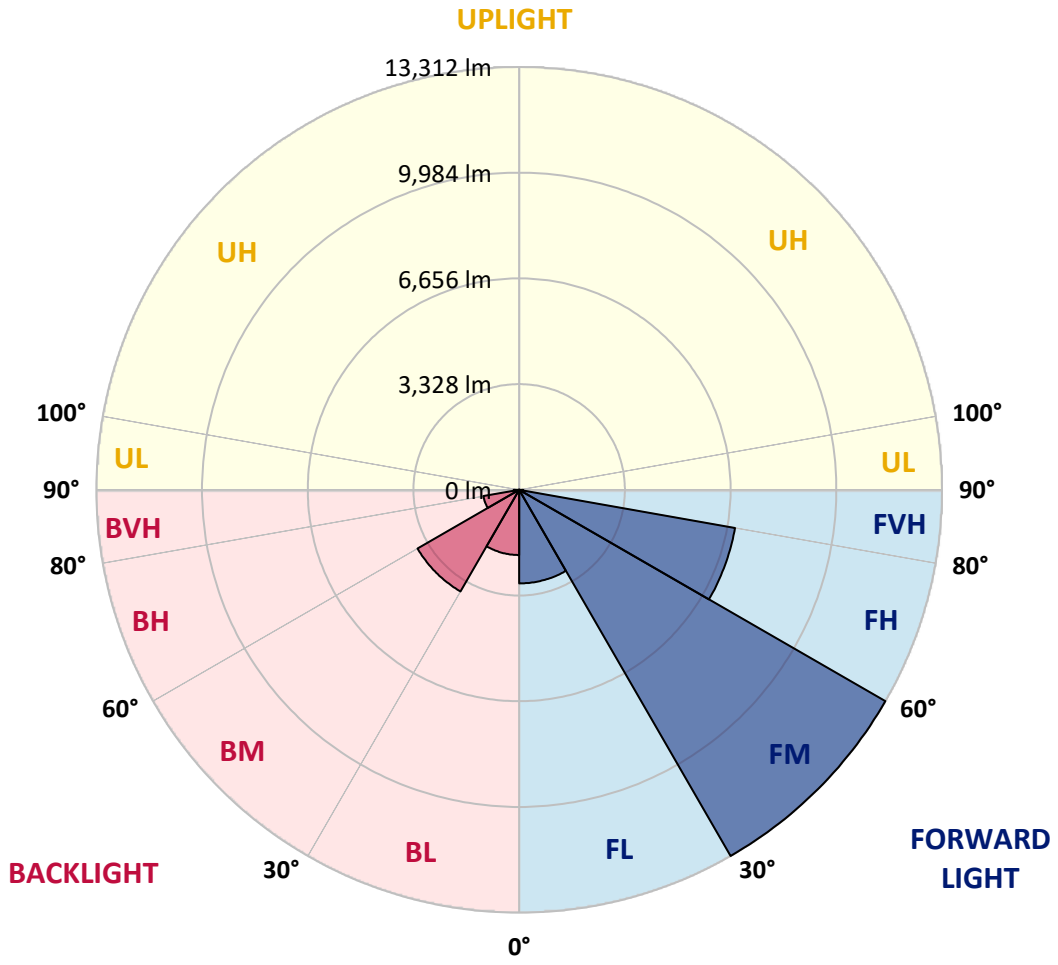
Scaled Data Report

REPORT NUMBER: P1500568
CATALOG NUMBER: GSS-SB3D-740-U-T4LG

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 2946.5 | 9.7 | | | |
| FM | (30°-60°) | 13312.1 | 43.9 | | | |
| FH | (60°-80°) | 6900.0 | 22.7 | | | G3/7500 |
| FVH | (80°-90°) | 124.4 | 0.4 | | | G2/225 |
| BL | (0°-30°) | 2054.0 | 6.8 | B3/2500 | | |
| BM | (30°-60°) | 3693.2 | 12.2 | B3/5000 | | |
| BH | (60°-80°) | 1142.5 | 3.8 | B3/2500 | | G3/2500 |
| BVH | (80°-90°) | 169.6 | 0.6 | | | G2/225 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B3-U0-G3**
Type III Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 34° | 35° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 7214.0 | 7214.0 | 7214.0 | 7214.0 | *7214.0* | 7214.0 | 7214.0 | 7214.0 | 7214.0 | 7214.0 | 7214.0 |
| 2.5° | 7351.4 | 7392.7 | 7344.6 | 7323.9 | *7330.8* | 7337.7 | 7303.3 | 7310.2 | 7269.0 | 7269.0 | 7234.6 |
| 5° | 7509.5 | 7516.3 | 7488.8 | 7509.5 | *7502.6* | 7495.7 | 7495.7 | 7488.8 | 7399.5 | 7378.9 | 7344.6 |
| 7.5° | 7420.1 | 7447.6 | 7461.4 | 7536.9 | *7557.5* | 7598.8 | 7626.3 | 7640.0 | 7571.3 | 7516.3 | 7427.0 |
| 10° | 6602.5 | 6623.2 | 6781.2 | 7124.7 | *7385.8* | 7433.9 | 7688.1 | 7832.4 | 7784.3 | 7756.8 | 7605.6 |
| 12.5° | 5276.5 | 5310.9 | 5489.5 | 5936.1 | *6547.6* | 6678.1 | 7488.8 | 7976.6 | 8086.6 | 8093.4 | 7873.6 |
| 15° | 4706.3 | 4706.3 | 4761.3 | 5015.5 | *5510.1* | 5613.2 | 6808.7 | 8017.9 | 8409.5 | 8457.6 | 8189.6 |
| 17.5° | 4589.5 | 4582.6 | 4617.0 | 4768.1 | *5029.2* | 5091.0 | 6025.4 | 7804.9 | 8794.2 | 8876.7 | 8533.2 |
| 20° | 4582.6 | 4562.0 | 4630.7 | 4802.5 | *5029.2* | 5084.2 | 5661.3 | 7433.9 | 9096.5 | 9357.6 | 8876.7 |
| 22.5° | 4589.5 | 4589.5 | 4685.7 | 4933.0 | *5194.1* | 5242.2 | 5730.0 | 7124.7 | 9343.9 | 9859.2 | 9240.8 |
| 25° | 4665.1 | 4651.3 | 4788.7 | 5091.0 | *5448.3* | 5482.7 | 6011.7 | 7111.0 | 9556.9 | 10422.5 | 9680.5 |
| 27.5° | 4788.7 | 4795.6 | 4981.1 | 5345.2 | *5750.6* | 5819.3 | 6403.3 | 7406.4 | 9817.9 | 11040.9 | 10106.5 |
| 30° | 5049.8 | 5056.7 | 5276.5 | 5647.5 | *6114.7* | 6204.1 | 6856.8 | 7846.1 | 10188.9 | 11707.3 | 10566.8 |
| 32.5° | 5345.2 | 5379.6 | 5647.5 | 6080.4 | *6581.9* | 6630.0 | 7413.3 | 8505.7 | 10745.5 | 12373.8 | 11061.5 |
| 35° | 5839.9 | 5874.3 | 6176.6 | 6630.0 | *7186.5* | 7255.2 | 8093.4 | 9268.3 | 11425.6 | 13047.1 | 11446.2 |
| 37.5° | 6478.9 | 6506.4 | 6801.8 | 7351.4 | *7942.3* | 8011.0 | 8849.2 | 10079.0 | 12112.7 | 13583.0 | 11789.8 |
| 40° | 7241.5 | 7303.3 | 7619.4 | 8155.3 | *8753.0* | 8794.2 | 9673.7 | 10862.3 | 12854.7 | 13954.0 | 11927.2 |
| 42.5° | 8072.8 | 8134.7 | 8457.6 | 9048.4 | *9598.1* | 9721.8 | 10566.8 | 11693.6 | 13459.3 | 14118.9 | 11817.3 |
| 45° | 9137.8 | 9124.0 | 9426.3 | 10044.7 | *10690.5* | 10738.6 | 11521.8 | 12380.6 | 13823.4 | 13981.5 | 11707.3 |
| 47.5° | 10429.4 | 10443.2 | 10635.5 | 11137.1 | *11803.5* | 11913.4 | 12518.0 | 12971.5 | 14036.4 | 13871.5 | 11583.7 |
| 50° | 11886.0 | 11920.3 | 12085.2 | 12449.3 | *13163.9* | 13239.4 | 13418.1 | 13383.7 | 14167.0 | 13637.9 | 11631.7 |
| 52.5° | 13342.5 | 13363.1 | 13583.0 | 13967.7 | *14661.6* | 14716.6 | 14325.0 | 13699.8 | 13679.2 | 12696.7 | 11528.7 |
| 55° | 14538.0 | 14531.1 | 14922.7 | 15513.6 | *16358.7* | 16324.3 | 15218.1 | 13459.3 | 12153.9 | 11233.3 | 11068.4 |
| 57.5° | 15575.4 | 15616.6 | 16125.1 | 17148.8 | *18213.7* | 18186.2 | 16173.1 | 12188.3 | 9927.9 | 9501.9 | 10319.5 |
| 60° | 16509.8 | 16606.0 | 17561.0 | 19093.1 | *20268.0* | 20103.1 | 16344.9 | 10271.4 | 7722.4 | 7440.7 | 8835.5 |
| 62.5° | 16104.4 | 16283.1 | 17815.2 | 20803.9 | *22418.4* | 22054.3 | 15286.9 | 7956.0 | 5228.4 | 4974.2 | 6245.3 |
| 65° | *14373.1* | *14613.5* | *16557.9* | *20556.5* | *23510.8* | *23284.1* | *13363.1* | *5001.7* | *2755.1* | *3023.0* | *4204.7* |
| 67.5° | 12071.5 | 12360.0 | 14462.4 | 18467.9 | *21271.1* | 20783.3 | 10381.3 | 2631.4 | 1284.8 | 1992.4 | 2610.8 |
| 70° | 6616.3 | 7330.8 | 10456.9 | 15706.0 | *17038.8* | 16358.7 | 6004.8 | 1243.6 | 934.4 | 1243.6 | 1559.6 |
| 72.5° | 2487.1 | 2658.9 | 4534.5 | 10560.0 | *12621.1* | 11782.9 | 2281.0 | 803.8 | 783.2 | 920.6 | 1126.8 |
| 75° | 1195.5 | 1277.9 | 1971.8 | 4802.5 | *6891.1* | 6423.9 | 1119.9 | 597.7 | 673.3 | 721.4 | 817.6 |
| 77.5° | 714.5 | 769.5 | 1229.8 | 2789.4 | *2713.8* | 2494.0 | 687.0 | 460.3 | 542.8 | 515.3 | 480.9 |
| 80° | 426.0 | 474.1 | 748.9 | 1587.1 | *1635.2* | 1449.7 | 419.1 | 322.9 | 377.9 | 329.8 | 295.4 |
| 82.5° | 247.3 | 267.9 | 391.6 | 714.5 | *1037.4* | 955.0 | 240.5 | 192.4 | 274.8 | 219.9 | 164.9 |
| 85° | 123.7 | 130.5 | 178.6 | 309.2 | *515.3* | 391.6 | 103.1 | 89.3 | 130.5 | 96.2 | 55.0 |
| 87.5° | 27.5 | 27.5 | 27.5 | 34.4 | *48.1* | 48.1 | 13.7 | 6.9 | 6.9 | 6.9 | 6.9 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | *0.0* | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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Scaled Data Report

REPORT NUMBER: P1500568
CATALOG NUMBER: GSS-SB3D-740-U-T4LG

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 7214.0 | 7214.0 | 7214.0 | 7214.0 | 7214.0 | 7214.0 | 7214.0 | 7214.0 | 7214.0 | 7214.0 | 7214.0 |
| 2.5° | 7227.8 | 7241.5 | 7193.4 | 7138.4 | 7124.7 | 7083.5 | 7097.2 | 7069.7 | 7028.5 | 7035.4 | 7042.3 |
| 5° | 7296.5 | 7269.0 | 7172.8 | 7049.1 | 6939.2 | 6815.5 | 6671.3 | 6506.4 | 6389.6 | 6341.5 | 6382.7 |
| 7.5° | 7358.3 | 7330.8 | 7165.9 | 6891.1 | 6520.1 | 6004.8 | 5468.9 | 4981.1 | 4644.5 | 4520.8 | 4548.3 |
| 10° | 7530.1 | 7420.1 | 7117.8 | 6520.1 | 5633.8 | 4658.2 | 4115.4 | 3813.1 | 3710.1 | 3655.1 | 3662.0 |
| 12.5° | 7756.8 | 7605.6 | 7028.5 | 5874.3 | 4534.5 | 3916.2 | 3723.8 | 3655.1 | 3620.8 | 3607.0 | 3620.8 |
| 15° | 8031.6 | 7798.0 | 6815.5 | 5063.6 | 4026.1 | 3785.6 | 3744.4 | 3751.3 | 3751.3 | 3758.2 | 3758.2 |
| 17.5° | 8272.1 | 7907.9 | 6430.8 | 4479.6 | 3923.1 | 3854.3 | 3895.6 | 3929.9 | 3929.9 | 3936.8 | 3929.9 |
| 20° | 8491.9 | 7962.9 | 5936.1 | 4232.2 | 3943.7 | 3978.0 | 4074.2 | 4108.6 | 4115.4 | 4108.6 | 4108.6 |
| 22.5° | 8725.5 | 7997.3 | 5441.4 | 4094.8 | 3991.8 | 4094.8 | 4197.9 | 4246.0 | 4259.7 | 4266.6 | 4273.4 |
| 25° | 8952.3 | 7928.6 | 5036.1 | 3984.9 | 3971.1 | 4115.4 | 4232.2 | 4294.1 | 4307.8 | 4307.8 | 4314.7 |
| 27.5° | 9179.0 | 7907.9 | 4761.3 | 3840.6 | 3875.0 | 3991.8 | 4129.2 | 4211.6 | 4266.6 | 4273.4 | 4280.3 |
| 30° | 9440.1 | 7846.1 | 4500.2 | 3648.2 | 3662.0 | 3806.3 | 3950.5 | 4094.8 | 4204.7 | 4252.8 | 4252.8 |
| 32.5° | 9618.7 | 7784.3 | 4266.6 | 3442.1 | 3442.1 | 3593.3 | 3771.9 | 3950.5 | 4108.6 | 4204.7 | 4225.4 |
| 35° | 9790.5 | 7729.3 | 4060.5 | 3236.0 | 3242.9 | 3387.2 | 3572.7 | 3765.0 | 3964.3 | 4081.1 | 4136.0 |
| 37.5° | 9879.8 | 7674.3 | 3916.2 | 3078.0 | 3050.5 | 3201.7 | 3325.3 | 3483.3 | 3696.3 | 3888.7 | 3936.8 |
| 40° | 9900.4 | 7674.3 | 3902.4 | 2968.1 | 2851.3 | 3023.0 | 3078.0 | 3187.9 | 3380.3 | 3586.4 | 3662.0 |
| 42.5° | 9763.0 | 7598.8 | 3971.1 | 2899.3 | 2645.1 | 2768.8 | 2830.6 | 2885.6 | 3009.3 | 3181.0 | 3242.9 |
| 45° | 9598.1 | 7495.7 | 4033.0 | 2803.2 | 2390.9 | 2487.1 | 2583.3 | 2590.2 | 2645.1 | 2686.4 | 2727.6 |
| 47.5° | 9460.7 | 7385.8 | 3923.1 | 2624.5 | 2129.9 | 2198.6 | 2301.6 | 2301.6 | 2274.1 | 2191.7 | 2164.2 |
| 50° | 9570.6 | 7420.1 | 3737.5 | 2370.3 | 1889.4 | 1937.5 | 2047.4 | 1985.6 | 1923.7 | 1752.0 | 1731.4 |
| 52.5° | 9666.8 | 7550.7 | 3517.7 | 2123.0 | 1683.3 | 1731.4 | 1841.3 | 1745.1 | 1621.4 | 1484.0 | 1463.4 |
| 55° | 9508.8 | 7557.5 | 3112.3 | 1848.2 | 1539.0 | 1580.2 | 1683.3 | 1566.5 | 1449.7 | 1367.2 | 1353.5 |
| 57.5° | 9034.7 | 7351.4 | 2686.4 | 1635.2 | 1415.3 | 1456.5 | 1552.7 | 1435.9 | 1326.0 | 1319.1 | 1353.5 |
| 60° | 7990.4 | 6630.0 | 2294.7 | 1497.8 | 1298.5 | 1346.6 | 1442.8 | 1319.1 | 1174.9 | 1113.0 | 1133.6 |
| 62.5° | 6032.3 | 5097.9 | 1965.0 | 1339.7 | 1188.6 | 1250.4 | 1319.1 | 1119.9 | 996.2 | 968.7 | 941.3 |
| 65° | *4410.9* | *3916.2* | *1765.7* | *1216.1* | *1085.5* | *1161.1* | *1106.1* | *996.2* | *913.8* | *886.3* | *872.6* |
| 67.5° | 2851.3 | 2658.9 | 1518.4 | 1099.3 | 989.4 | 1051.2 | 975.6 | 920.6 | 831.3 | 817.6 | 838.2 |
| 70° | 1745.1 | 1806.9 | 1271.0 | 968.7 | 893.2 | 879.4 | 893.2 | 838.2 | 742.0 | 762.6 | 790.1 |
| 72.5° | 1236.7 | 1332.9 | 1092.4 | 845.1 | 762.6 | 735.1 | 797.0 | 762.6 | 693.9 | 714.5 | 742.0 |
| 75° | 886.3 | 989.4 | 900.0 | 693.9 | 645.8 | 632.1 | 742.0 | 762.6 | 714.5 | 728.3 | 748.9 |
| 77.5° | 522.2 | 632.1 | 639.0 | 535.9 | 487.8 | 563.4 | 790.1 | 879.4 | 845.1 | 803.8 | 783.2 |
| 80° | 336.7 | 377.9 | 453.5 | 343.5 | 343.5 | 487.8 | 865.7 | 1071.8 | 920.6 | 817.6 | 803.8 |
| 82.5° | 171.8 | 199.2 | 295.4 | 219.9 | 206.1 | 364.1 | 851.9 | 1023.7 | 1016.8 | 906.9 | 886.3 |
| 85° | 48.1 | 61.8 | 137.4 | 96.2 | 82.4 | 192.4 | 639.0 | 769.5 | 687.0 | 501.5 | 508.4 |
| 87.5° | 6.9 | 6.9 | 0.0 | 0.0 | 6.9 | 27.5 | 75.6 | 13.7 | 13.7 | 13.7 | 13.7 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-1

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-740-U-5WQ

Data in this report applies to families of products including GSS-SB1A-740-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

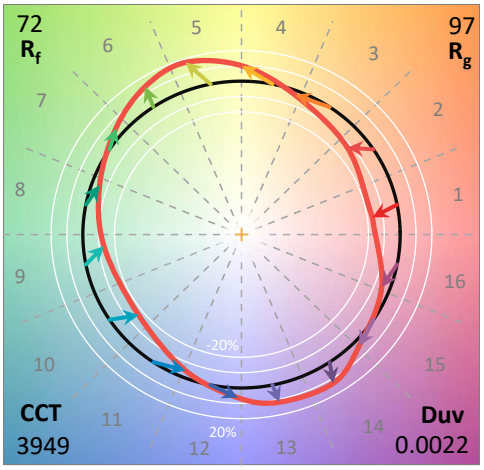
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-184-1 |
| 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-740-U-5WQ** |
| Description: | GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 4000K CCT 26 LEDS |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 3949 |
| CIE u': | 0.2248 |
| CIE v': | 0.5053 |
| Duv: | 0.0022 |
| CIE x: | 0.3844 |
| CIE y: | 0.3840 |
| CIE z: | 0.2316 |
| Peak Wavelength (nm): | 440 |
| Dominant Wavelength (nm): | 578 |
| Purity: | 30.60026 |
| Rf: | 71.8 |
| Rg: | 96.5 |

| | |
|---|---|
| CRI (Ra): | 70.7 |
| R1: | 68.0 |
| R2: | 76.0 |
| R3: | 84.3 |
| R4: | 72.0 |
| R5: | 68.6 |
| R6: | 68.3 |
| R7: | 77.9 |
| R8: | 50.3 |
| R9: | -36.7 |
| R10: | 45.1 |
| R11: | 70.7 |
| R12: | 47.1 |
| R13: | 68.5 |
| R14: | 91.1 |
| R15: | 58.7 |




## Test Conditions

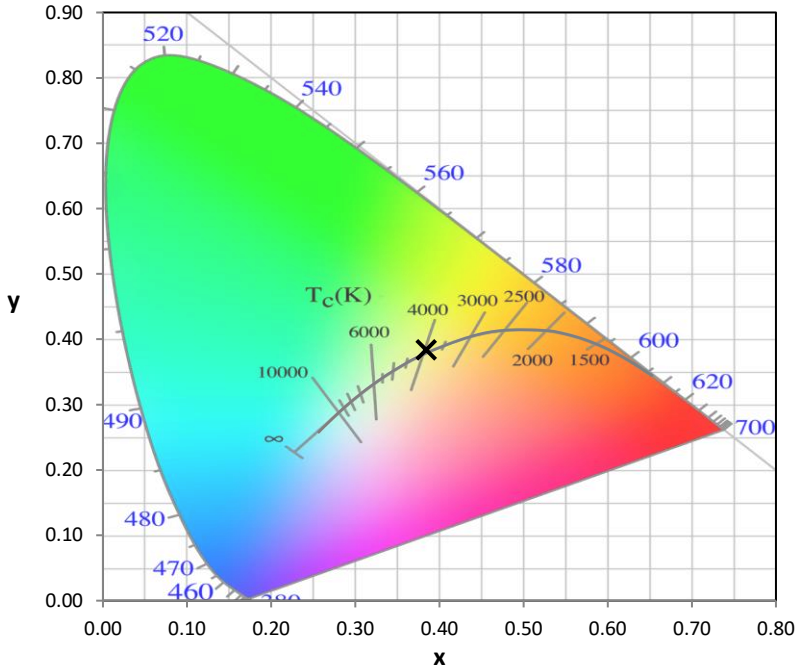
| | |
|---|---|
| Stabilization Time: | 34M |
| Operation Time: | 1H 34M |
| Sphere Temperature (°C): | 25.2 |

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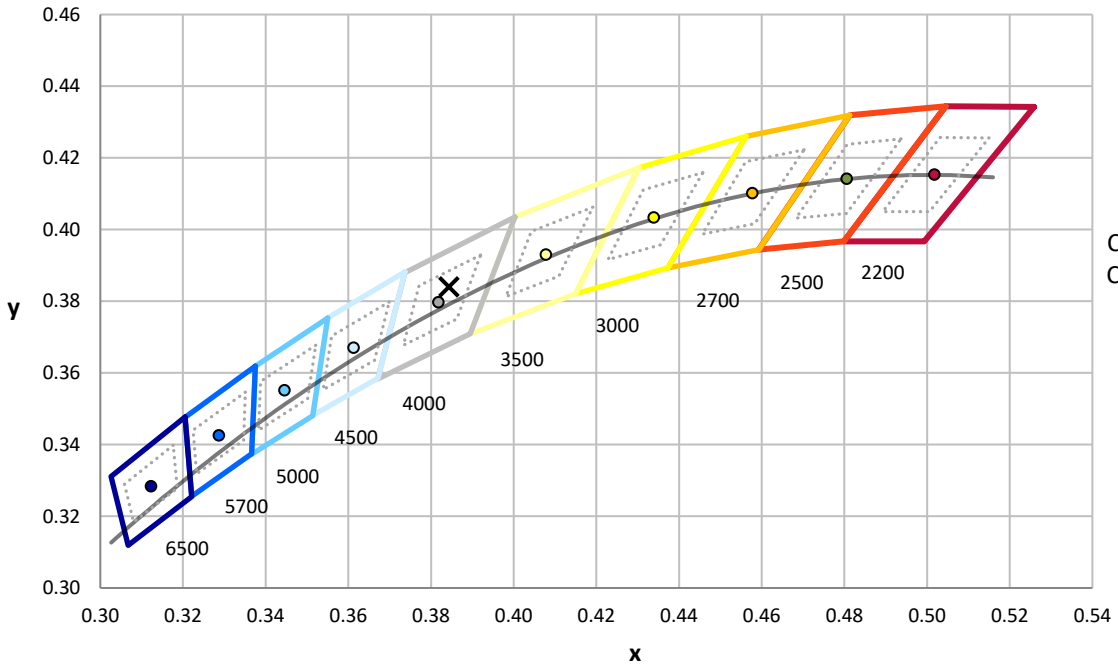
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

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## CIE 1931 Chromaticity Diagram




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

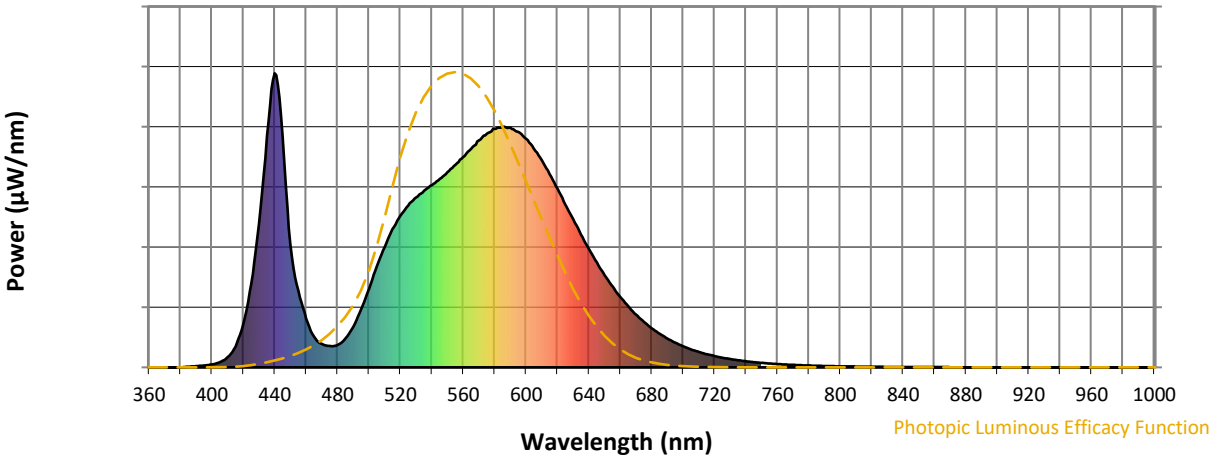



CCT = 3949K
CIE x = 0.3844
CIE y = 0.3840
Duv = 0.0022

Point lies inside the ANSI 4000K 4-step quadrangle

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## Photopic Flux vs. Wavelength

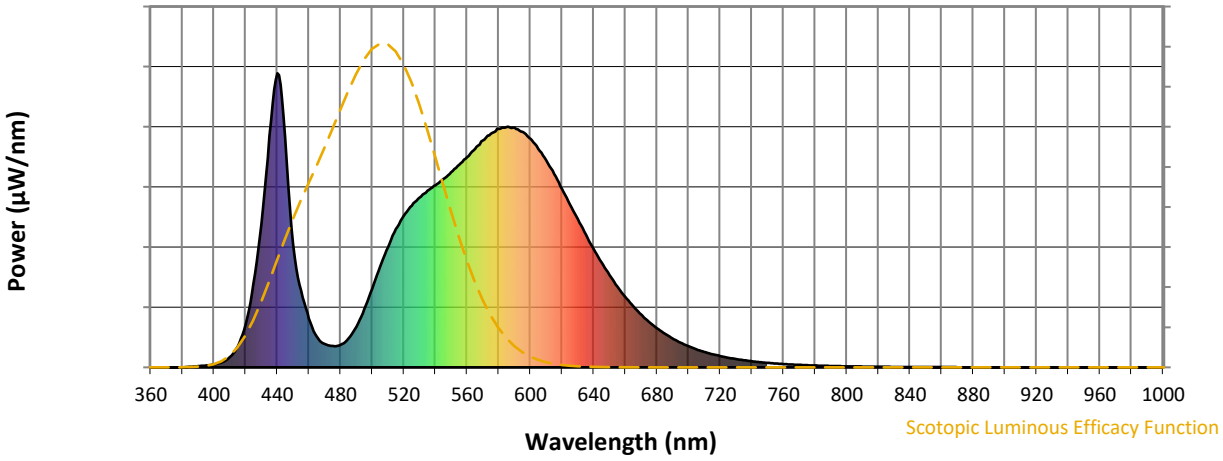



## Photopic Lumens: NR

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 139 | NR | 620 | 607 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 198 | NR | 625 | 554 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 267 | NR | 630 | 504 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 343 | NR | 635 | 452 | NR | 765 | 10 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 410 | NR | 640 | 403 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 470 | NR | 645 | 357 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 4 | NR | 520 | 516 | NR | 650 | 314 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 7 | NR | 525 | 550 | NR | 655 | 275 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 10 | NR | 530 | 578 | NR | 660 | 240 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 17 | NR | 535 | 601 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 35 | NR | 540 | 620 | NR | 670 | 179 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 70 | NR | 545 | 641 | NR | 675 | 155 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 147 | NR | 550 | 664 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 285 | NR | 555 | 689 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 487 | NR | 560 | 715 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 787 | NR | 565 | 743 | NR | 695 | 84 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 1000 | NR | 570 | 771 | NR | 700 | 72 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 783 | NR | 575 | 794 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 417 | NR | 580 | 811 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 261 | NR | 585 | 817 | NR | 715 | 45 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 167 | NR | 590 | 815 | NR | 720 | 39 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 104 | NR | 595 | 801 | NR | 725 | 33 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 79 | NR | 600 | 777 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 73 | NR | 605 | 744 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 76 | NR | 610 | 704 | NR | 740 | 21 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 657 | NR | 745 | 18 | NR | 875 | 1 | NR | | | |

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## Scotopic Flux vs. Wavelength

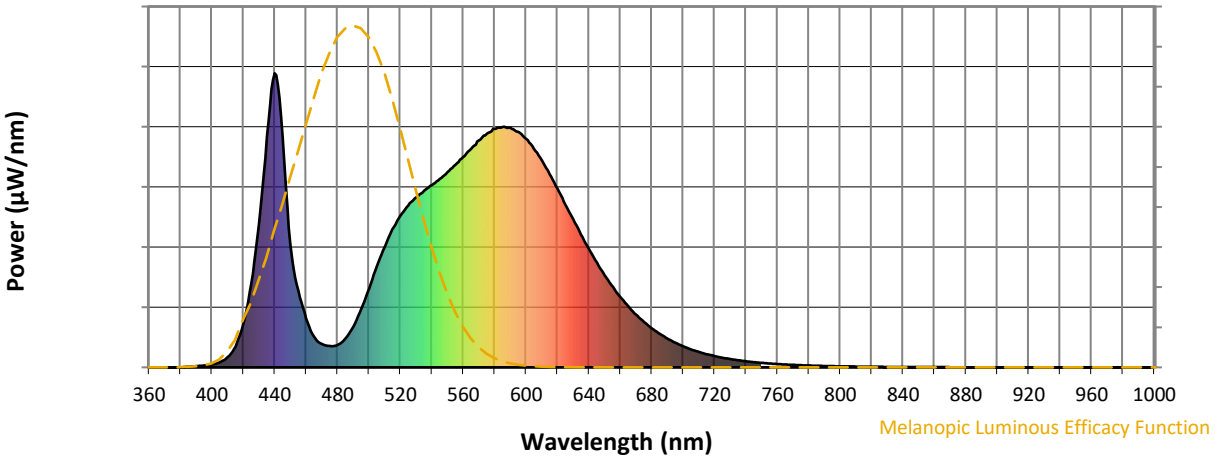



**Scotopic Lumens: NR** **S/P: 1.47**

| 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 | 139 | NR | 620 | 607 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 198 | NR | 625 | 554 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 267 | NR | 630 | 504 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 343 | NR | 635 | 452 | NR | 765 | 10 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 410 | NR | 640 | 403 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 470 | NR | 645 | 357 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 4 | NR | 520 | 516 | NR | 650 | 314 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 7 | NR | 525 | 550 | NR | 655 | 275 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 10 | NR | 530 | 578 | NR | 660 | 240 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 17 | NR | 535 | 601 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 35 | NR | 540 | 620 | NR | 670 | 179 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 70 | NR | 545 | 641 | NR | 675 | 155 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 147 | NR | 550 | 664 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 285 | NR | 555 | 689 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 487 | NR | 560 | 715 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 787 | NR | 565 | 743 | NR | 695 | 84 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 1000 | NR | 570 | 771 | NR | 700 | 72 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 783 | NR | 575 | 794 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 417 | NR | 580 | 811 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 261 | NR | 585 | 817 | NR | 715 | 45 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 167 | NR | 590 | 815 | NR | 720 | 39 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 104 | NR | 595 | 801 | NR | 725 | 33 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 79 | NR | 600 | 777 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 73 | NR | 605 | 744 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 76 | NR | 610 | 704 | NR | 740 | 21 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 657 | NR | 745 | 18 | NR | 875 | 1 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.78**

| 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 | 139 | NR | 620 | 607 | NR | 750 | 15 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 198 | NR | 625 | 554 | NR | 755 | 13 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 267 | NR | 630 | 504 | NR | 760 | 11 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 343 | NR | 635 | 452 | NR | 765 | 10 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 410 | NR | 640 | 403 | NR | 770 | 8 | NR | 900 | 0 | NR |
| 385 | 2 | NR | 515 | 470 | NR | 645 | 357 | NR | 775 | 7 | NR | 905 | 0 | NR |
| 390 | 4 | NR | 520 | 516 | NR | 650 | 314 | NR | 780 | 6 | NR | 910 | 0 | NR |
| 395 | 7 | NR | 525 | 550 | NR | 655 | 275 | NR | 785 | 5 | NR | 915 | 0 | NR |
| 400 | 10 | NR | 530 | 578 | NR | 660 | 240 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 17 | NR | 535 | 601 | NR | 665 | 208 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 35 | NR | 540 | 620 | NR | 670 | 179 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 70 | NR | 545 | 641 | NR | 675 | 155 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 147 | NR | 550 | 664 | NR | 680 | 133 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 285 | NR | 555 | 689 | NR | 685 | 114 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 487 | NR | 560 | 715 | NR | 690 | 98 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 787 | NR | 565 | 743 | NR | 695 | 84 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 1000 | NR | 570 | 771 | NR | 700 | 72 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 783 | NR | 575 | 794 | NR | 705 | 61 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 417 | NR | 580 | 811 | NR | 710 | 52 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 261 | NR | 585 | 817 | NR | 715 | 45 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 167 | NR | 590 | 815 | NR | 720 | 39 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 104 | NR | 595 | 801 | NR | 725 | 33 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 79 | NR | 600 | 777 | NR | 730 | 28 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 73 | NR | 605 | 744 | NR | 735 | 24 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 76 | NR | 610 | 704 | NR | 740 | 21 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 98 | NR | 615 | 657 | NR | 745 | 18 | NR | 875 | 1 | NR | | | |

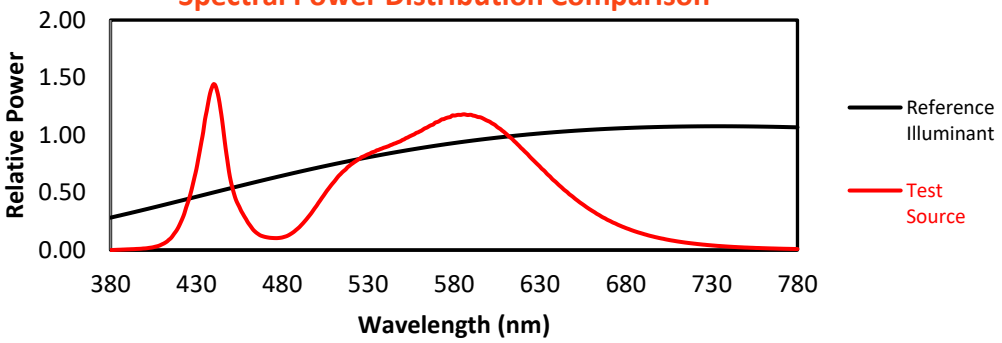
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# TM-30-18

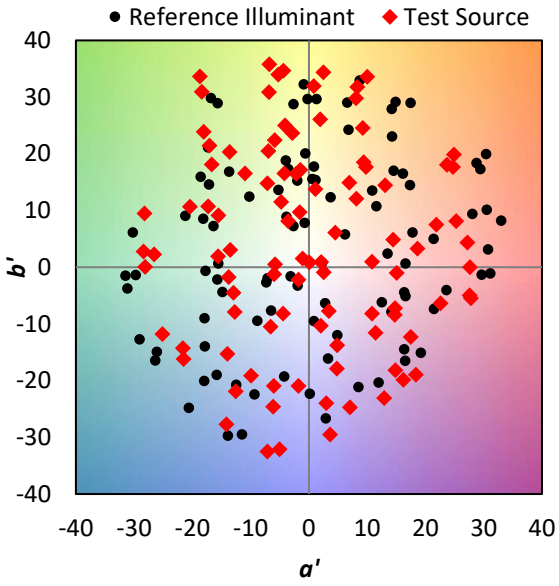
## Summary

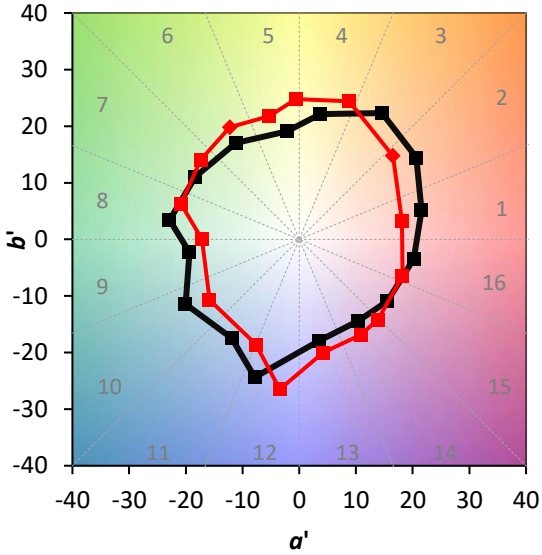
$R_f$ = 71.8
$R_g$ = 96.5
CIE $R_a$ = 70.7
$R_9$ = -36.7

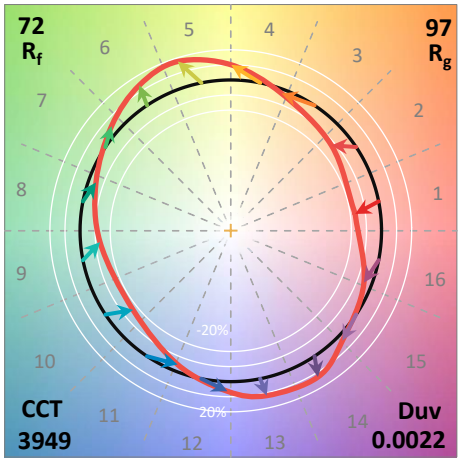
## Spectral Power Distribution Comparison

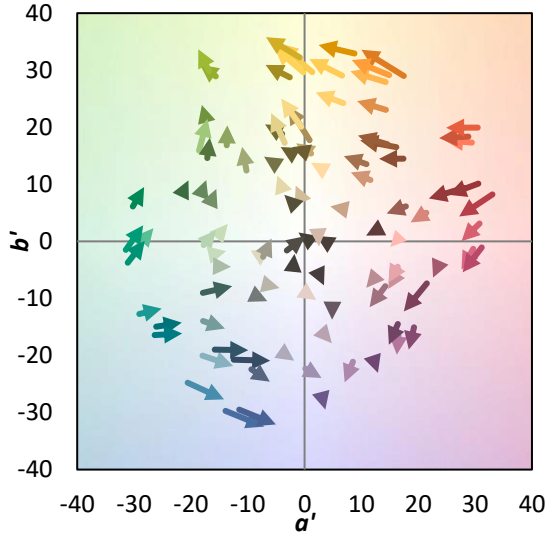



## Color Vector Graphics



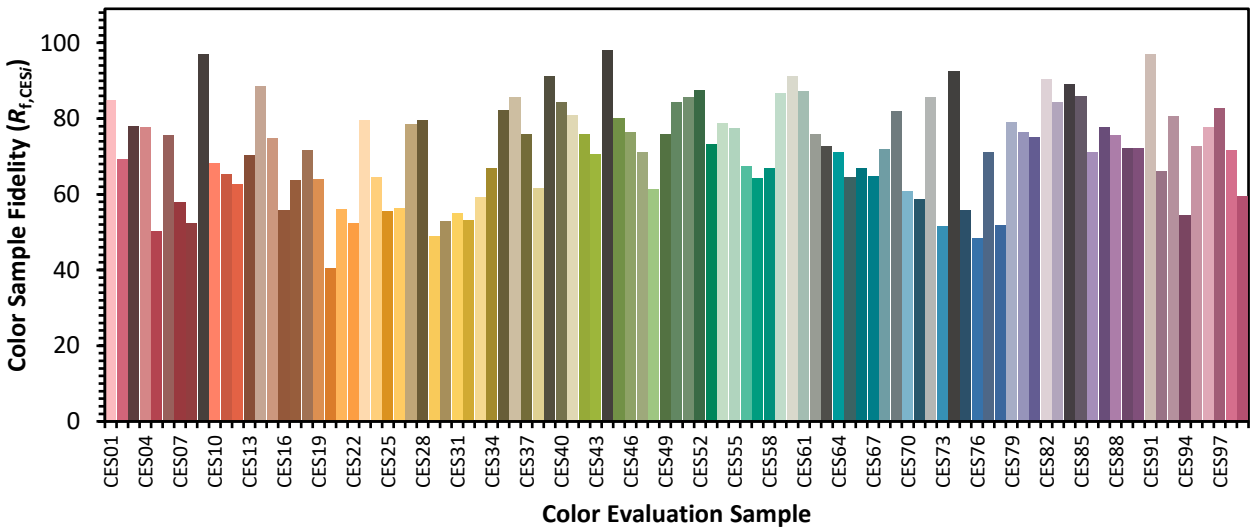



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**Individual Sample Fidelity Index ($R_{f,i}$)**

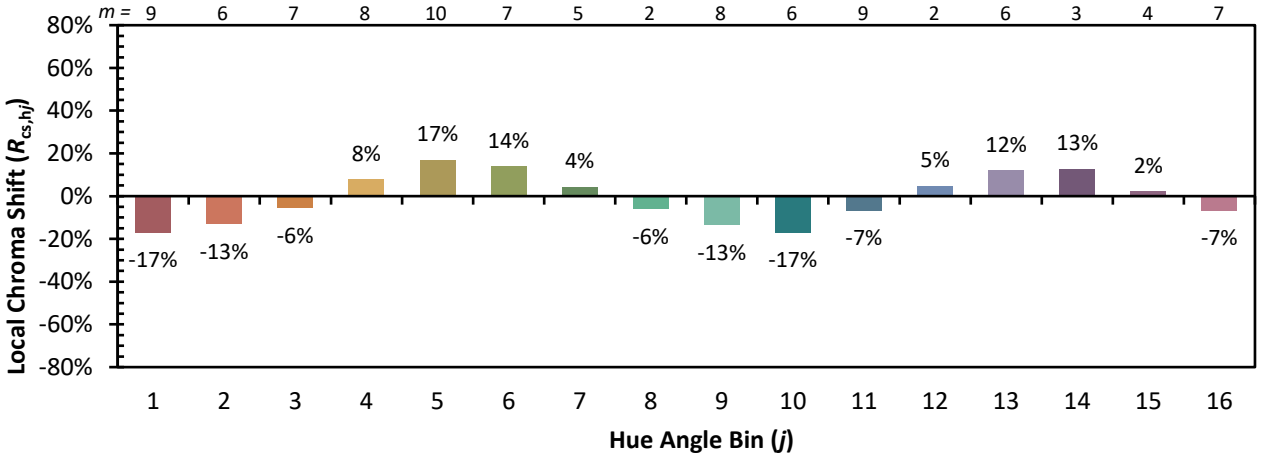
| | | | |
|---|---|---|---|
| CES01 = 85 | CES26 = 56 | CES51 = 86 | CES76 = 48 |
| CES02 = 61 | CES27 = 79 | CES52 = 88 | CES77 = 71 |
| CES03 = 30 | CES28 = 80 | CES53 = 73 | CES78 = 52 |
| CES04 = 70 | CES29 = 49 | CES54 = 79 | CES79 = 79 |
| CES05 = 47 | CES30 = 53 | CES55 = 77 | CES80 = 77 |
| CES06 = 50 | CES31 = 55 | CES56 = 67 | CES81 = 75 |
| CES07 = 40 | CES32 = 53 | CES57 = 64 | CES82 = 90 |
| CES08 = 39 | CES33 = 59 | CES58 = 67 | CES83 = 84 |
| CES09 = 29 | CES34 = 67 | CES59 = 87 | CES84 = 89 |
| CES10 = 74 | CES35 = 82 | CES60 = 91 | CES85 = 86 |
| CES11 = 57 | CES36 = 86 | CES61 = 87 | CES86 = 71 |
| CES12 = 63 | CES37 = 76 | CES62 = 76 | CES87 = 78 |
| CES13 = 42 | CES38 = 62 | CES63 = 73 | CES88 = 76 |
| CES14 = 74 | CES39 = 91 | CES64 = 71 | CES89 = 72 |
| CES15 = 71 | CES40 = 84 | CES65 = 64 | CES90 = 72 |
| CES16 = 46 | CES41 = 81 | CES66 = 67 | CES91 = 97 |
| CES17 = 49 | CES42 = 76 | CES67 = 65 | CES92 = 66 |
| CES18 = 56 | CES43 = 71 | CES68 = 72 | CES93 = 81 |
| CES19 = 72 | CES44 = 98 | CES69 = 82 | CES94 = 55 |
| CES20 = 65 | CES45 = 80 | CES70 = 61 | CES95 = 73 |
| CES21 = 86 | CES46 = 76 | CES71 = 59 | CES96 = 78 |
| CES22 = 78 | CES47 = 71 | CES72 = 86 | CES97 = 83 |
| CES23 = 92 | CES48 = 61 | CES73 = 52 | CES98 = 72 |
| CES24 = 91 | CES49 = 76 | CES74 = 93 | CES99 = 60 |
| CES25 = 72 | CES50 = 84 | CES75 = 56 | |

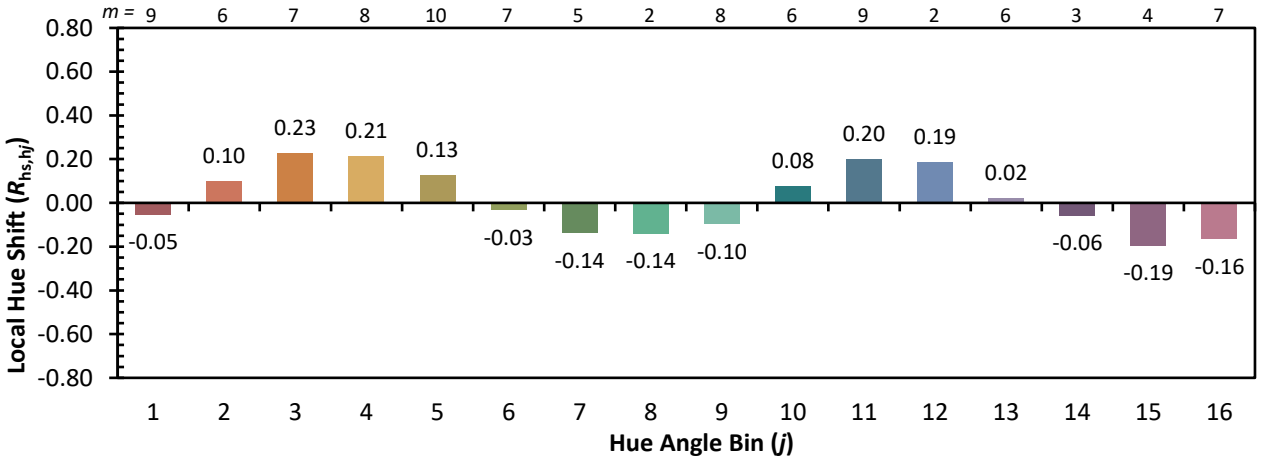


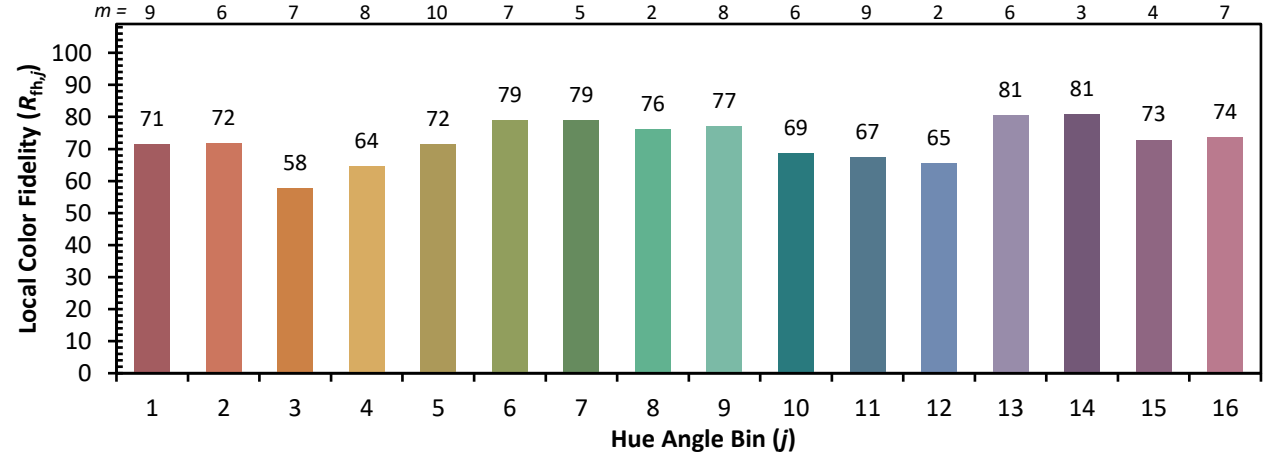
REPORT NUMBER: SP1-2407-184-1

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## Color Rendition by Hue-Angle Bin



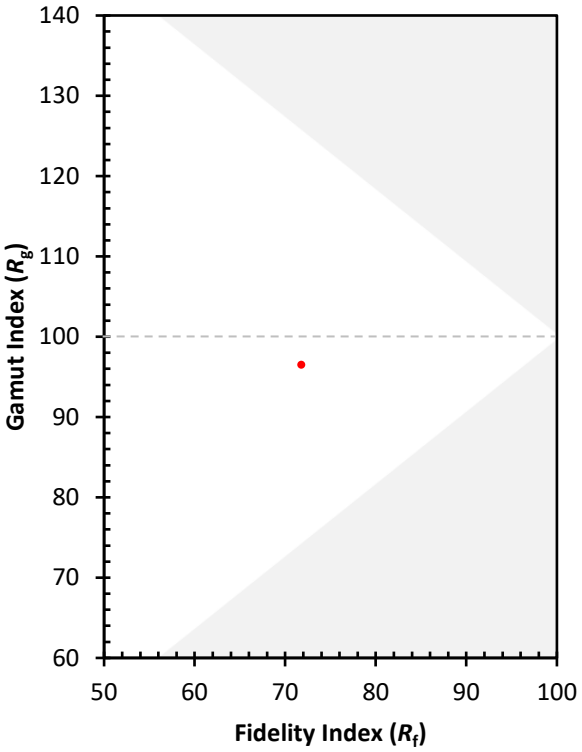



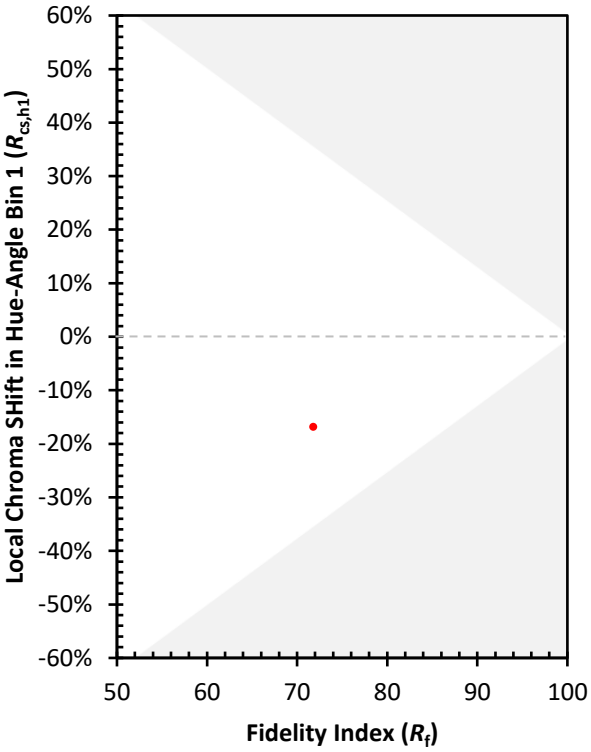



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## Measure Comparisons




(END OF REPORT)