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: P1500588

Luminaire Tested: GSS-SB2D-722-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: | P1500588 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 7/20/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GSS-SB2D-722-U-T4LG |
| Description: | GALLEON II SLIM SITE HIGH DENSITY LED ARRAYS 2SQUARE 147W 70CRI 2200K FIXTURE w/ TYPE IV LOW GLARE DISTRIBUTION FIXTURE |
| Light Source: | (52) 2200K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 15731.4 lumens |
| Efficiency: | N/A |
| Efficacy: | 107.0 lumens/watt |
| Luminous Opening: | Rectangular (W 1' x L: 0.5' x H: 0') |
| IES Classification: | Type III - Short |
| BUG Rating: | B3 - U0 - G2 |

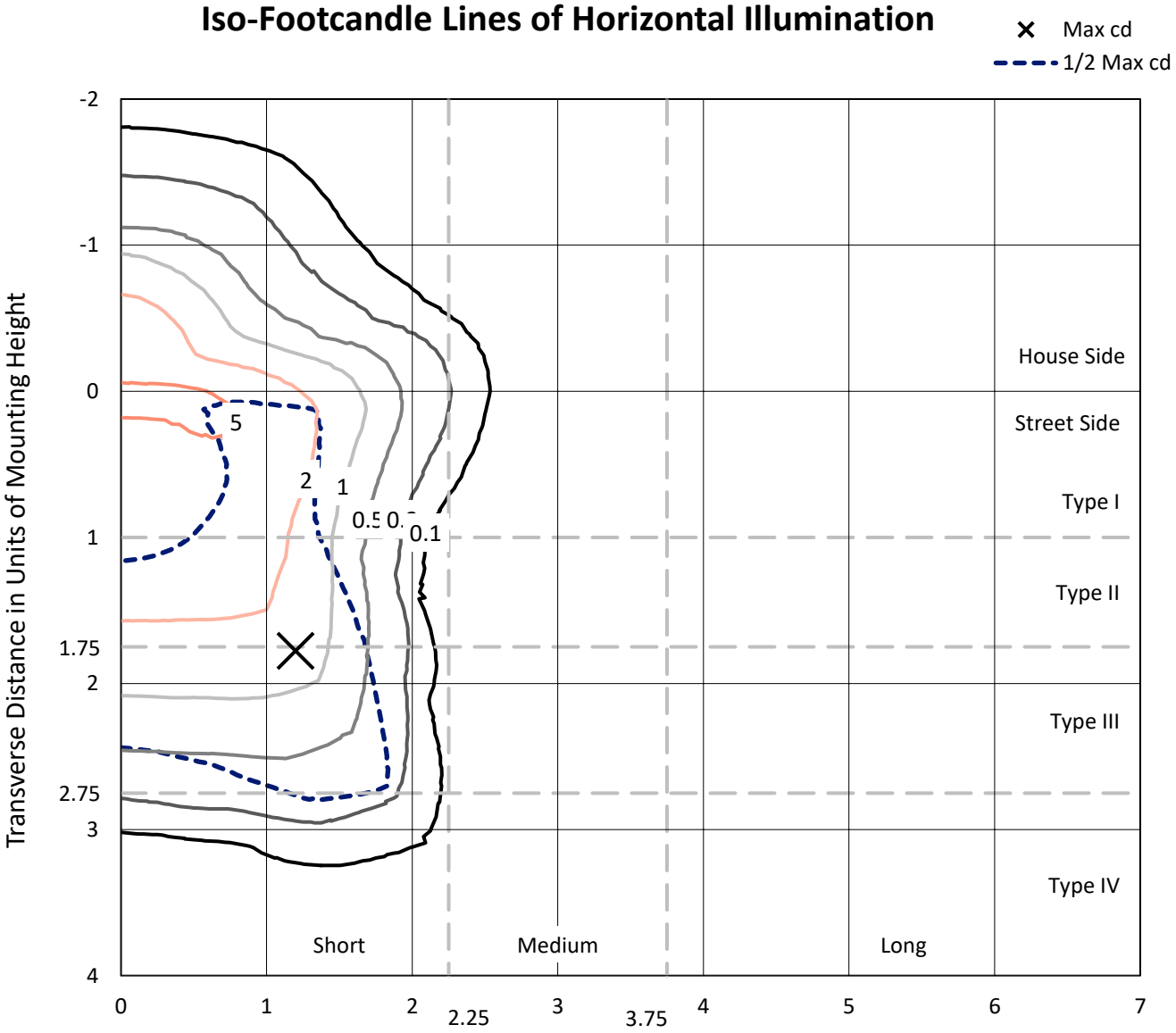
| | |
|---|---|
| Input Watts (W): | 147 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.98 |
| Total Harmonic Distortion (THDi): | 3.1% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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Scaled Data Report

REPORT NUMBER: P1500588
CATALOG NUMBER: GSS-SB2D-722-U-T4LG

## Iso-Footcandle Lines of Horizontal Illumination



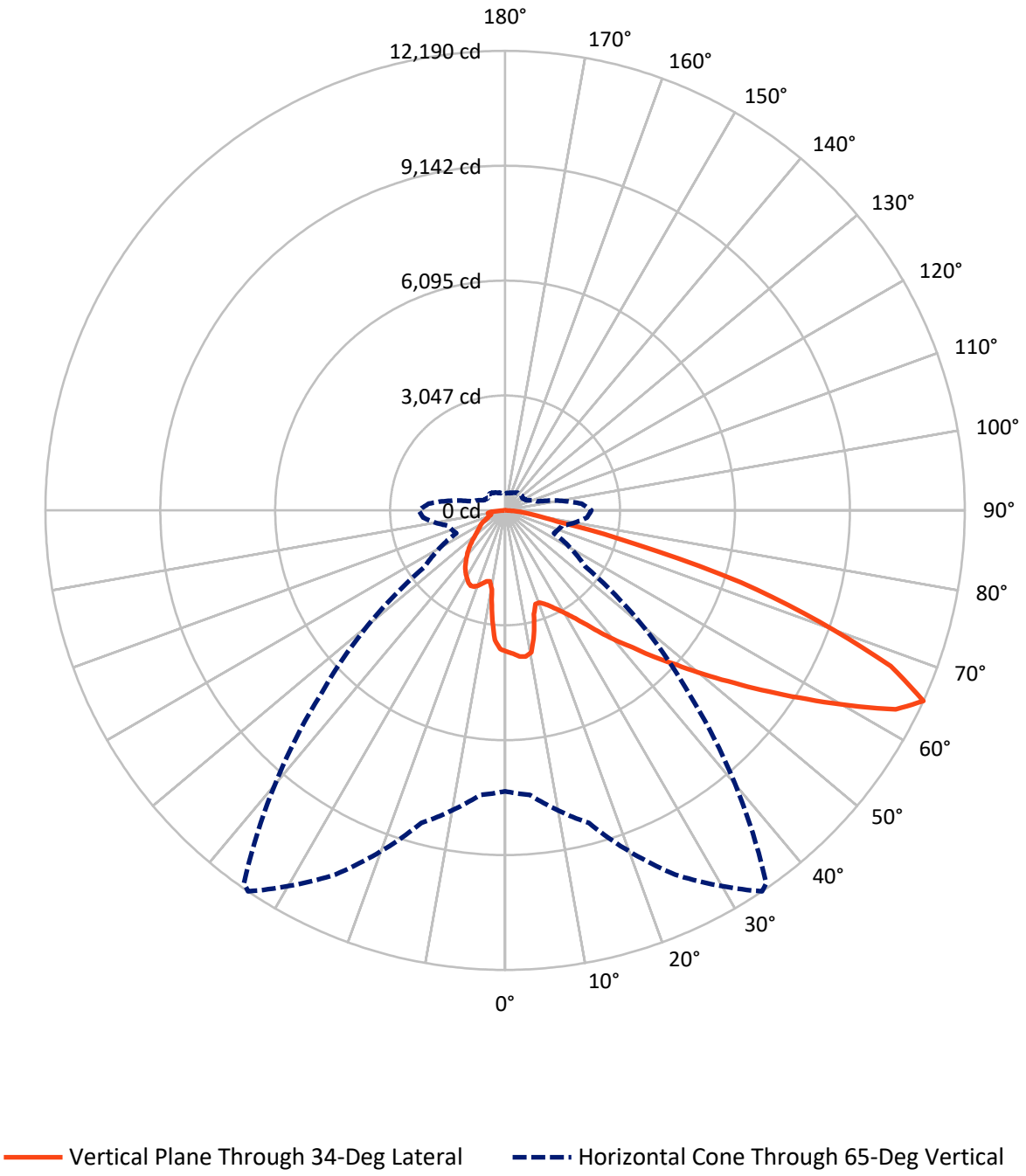

Based on 25 foot mounting height. Maximum calculated value = 6.4 fc
Type III - Short - N/A

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REPORT NUMBER: P1500588
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## Luminous Intensity Polar Plot



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Scaled Data Report

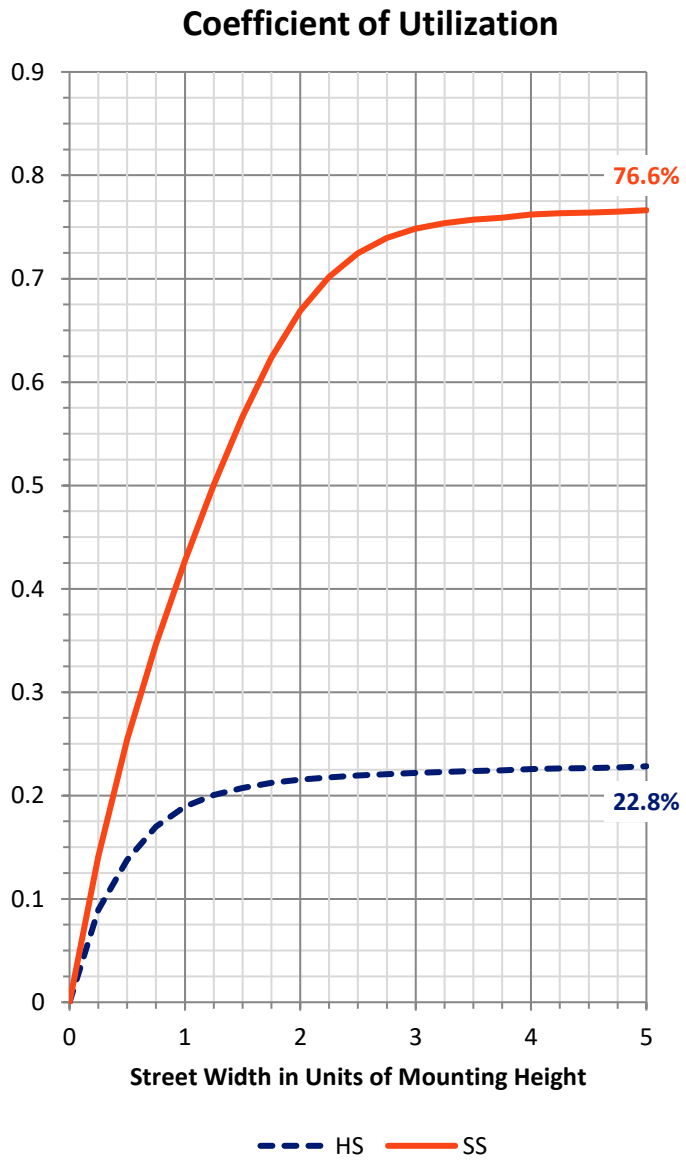
REPORT NUMBER: P1500588
CATALOG NUMBER: GSS-SB2D-722-U-T4LG

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 3660.0 | 0.0 | 3660.0 |
| | % Fixture | 23.3 | 0.0 | 23.3 |
| **Street Side** | Lumens | 12071.4 | 0.0 | 12071.4 |
| | % Fixture | 76.7 | 0.0 | 76.7 |
| **Total** | Lumens | 15731.4 | 0.0 | 15731.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 337.2 | 2.1 |
| 10°-20° | 848.6 | 5.4 |
| 20°-30° | 1406.7 | 8.9 |
| 30°-40° | 2115.6 | 13.4 |
| 40°-50° | 2964.0 | 18.8 |
| 50°-60° | 3737.0 | 23.8 |
| 60°-70° | 3214.2 | 20.4 |
| 70°-80° | 955.6 | 6.1 |
| 80°-90° | 152.5 | 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° | 15731.4 | 100.0 |
| 0°-180° | 15731.4 | 100.0 |



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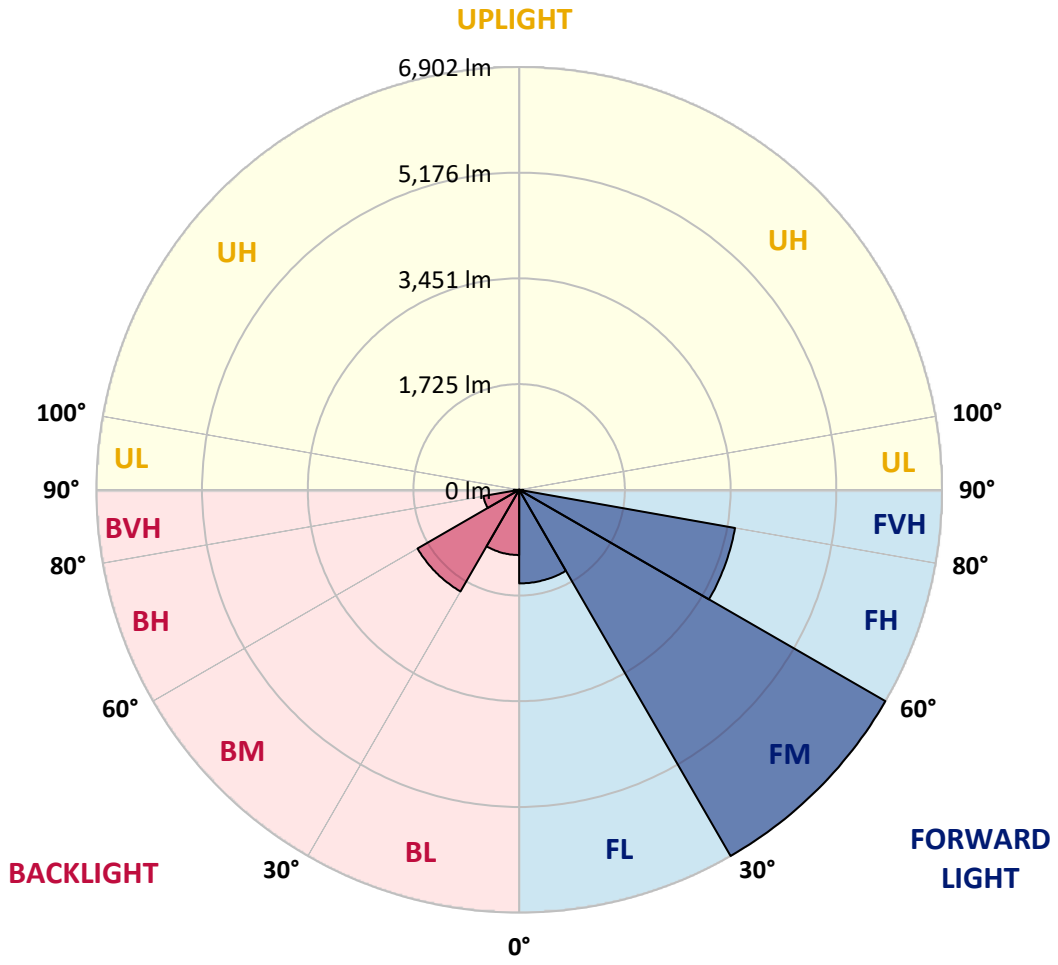
Scaled Data Report

REPORT NUMBER: P1500588
CATALOG NUMBER: GSS-SB2D-722-U-T4LG

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1527.6 | 9.7 | | | |
| FM | (30°-60°) | 6901.8 | 43.9 | | | |
| FH | (60°-80°) | 3577.4 | 22.7 | | | G2/5000 |
| FVH | (80°-90°) | 64.5 | 0.4 | | | G1/100 |
| BL | (0°-30°) | 1064.9 | 6.8 | B3/2500 | | |
| BM | (30°-60°) | 1914.8 | 12.2 | B2/2500 | | |
| BH | (60°-80°) | 592.3 | 3.8 | B2/1000 | | G2/1000 |
| BVH | (80°-90°) | 88.0 | 0.6 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B3-U0-G2**
Type III Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 34° | 35° | 45° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3740.2 | 3740.2 | 3740.2 | 3740.2 | *3740.2* | 3740.2 | 3740.2 | 3740.2 | 3740.2 | 3740.2 | 3740.2 |
| 2.5° | 3811.4 | 3832.8 | 3807.9 | 3797.2 | *3800.8* | 3804.3 | 3786.5 | 3790.1 | 3768.7 | 3768.7 | 3750.9 |
| 5° | 3893.4 | 3896.9 | 3882.7 | 3893.4 | *3889.8* | 3886.3 | 3886.3 | 3882.7 | 3836.4 | 3825.7 | 3807.9 |
| 7.5° | 3847.1 | 3861.3 | 3868.4 | 3907.6 | *3918.3* | 3939.7 | 3953.9 | 3961.1 | 3925.4 | 3896.9 | 3850.6 |
| 10° | 3423.2 | 3433.9 | 3515.8 | 3693.9 | *3829.3* | 3854.2 | 3986.0 | 4060.8 | 4035.9 | 4021.6 | 3943.2 |
| 12.5° | 2735.7 | 2753.5 | 2846.1 | 3077.7 | *3394.7* | 3462.4 | 3882.7 | 4135.6 | 4192.6 | 4196.2 | 4082.2 |
| 15° | 2440.0 | 2440.0 | 2468.5 | 2600.3 | *2856.8* | 2910.2 | 3530.0 | 4157.0 | 4360.0 | 4384.9 | 4246.0 |
| 17.5° | 2379.5 | 2375.9 | 2393.7 | 2472.1 | *2607.5* | 2639.5 | 3124.0 | 4046.5 | 4559.5 | 4602.2 | 4424.1 |
| 20° | 2375.9 | 2365.2 | 2400.9 | 2489.9 | *2607.5* | 2636.0 | 2935.2 | 3854.2 | 4716.2 | 4851.6 | 4602.2 |
| 22.5° | 2379.5 | 2379.5 | 2429.4 | 2557.6 | *2692.9* | 2717.9 | 2970.8 | 3693.9 | 4844.5 | 5111.6 | 4791.0 |
| 25° | 2418.7 | 2411.5 | 2482.8 | 2639.5 | *2824.7* | 2842.6 | 3116.8 | 3686.8 | 4954.9 | 5403.7 | 5019.0 |
| 27.5° | 2482.8 | 2486.3 | 2582.5 | 2771.3 | *2981.5* | 3017.1 | 3319.9 | 3839.9 | 5090.2 | 5724.3 | 5239.8 |
| 30° | 2618.1 | 2621.7 | 2735.7 | 2928.0 | *3170.3* | 3216.6 | 3555.0 | 4067.9 | 5282.6 | 6069.8 | 5478.5 |
| 32.5° | 2771.3 | 2789.1 | 2928.0 | 3152.5 | *3412.5* | 3437.4 | 3843.5 | 4409.9 | 5571.1 | 6415.3 | 5735.0 |
| 35° | 3027.8 | 3045.6 | 3202.3 | 3437.4 | *3726.0* | 3761.6 | 4196.2 | 4805.3 | 5923.8 | 6764.4 | 5934.5 |
| 37.5° | 3359.1 | 3373.3 | 3526.5 | 3811.4 | *4117.8* | 4153.4 | 4588.0 | 5225.6 | 6280.0 | 7042.3 | 6112.6 |
| 40° | 3754.5 | 3786.5 | 3950.4 | 4228.2 | *4538.1* | 4559.5 | 5015.4 | 5631.7 | 6664.7 | 7234.6 | 6183.8 |
| 42.5° | 4185.5 | 4217.5 | 4384.9 | 4691.3 | *4976.3* | 5040.4 | 5478.5 | 6062.7 | 6978.2 | 7320.1 | 6126.8 |
| 45° | 4737.6 | 4730.5 | 4887.2 | 5207.8 | *5542.6* | 5567.6 | 5973.6 | 6418.9 | 7166.9 | 7248.9 | 6069.8 |
| 47.5° | 5407.3 | 5414.4 | 5514.1 | 5774.2 | *6119.7* | 6176.7 | 6490.1 | 6725.2 | 7277.4 | 7191.9 | 6005.7 |
| 50° | 6162.4 | 6180.2 | 6265.7 | 6454.5 | *6825.0* | 6864.2 | 6956.8 | 6939.0 | 7345.0 | 7070.8 | 6030.6 |
| 52.5° | 6917.6 | 6928.3 | 7042.3 | 7241.7 | *7601.5* | 7630.0 | 7427.0 | 7102.8 | 7092.1 | 6582.8 | 5977.2 |
| 55° | 7537.4 | 7533.8 | 7736.9 | 8043.2 | *8481.4* | 8463.5 | 7890.1 | 6978.2 | 6301.4 | 5824.0 | 5738.5 |
| 57.5° | 8075.3 | 8096.7 | 8360.2 | 8891.0 | *9443.1* | 9428.9 | 8385.2 | 6319.2 | 5147.2 | 4926.4 | 5350.3 |
| 60° | 8559.7 | 8609.6 | 9104.7 | 9899.1 | *10508.2* | 10422.7 | 8474.2 | 5325.3 | 4003.8 | 3857.8 | 4580.9 |
| 62.5° | 8349.6 | 8442.2 | 9236.5 | 10786.0 | *11623.1* | 11434.3 | 7925.7 | 4124.9 | 2710.8 | 2579.0 | 3237.9 |
| 65° | *7451.9* | *7576.6* | *8584.7* | *10657.8* | *12189.5* | *12072.0* | *6928.3* | *2593.2* | *1428.4* | *1567.3* | *2180.0* |
| 67.5° | 6258.6 | 6408.2 | 7498.2 | 9574.9 | *11028.3* | 10775.4 | 5382.3 | 1364.3 | 666.1 | 1033.0 | 1353.6 |
| 70° | 3430.3 | 3800.8 | 5421.5 | 8143.0 | *8834.0* | 8481.4 | 3113.3 | 644.7 | 484.4 | 644.7 | 808.6 |
| 72.5° | 1289.5 | 1378.5 | 2351.0 | 5474.9 | *6543.6* | 6109.0 | 1182.6 | 416.8 | 406.1 | 477.3 | 584.2 |
| 75° | 619.8 | 662.6 | 1022.3 | 2489.9 | *3572.8* | 3330.6 | 580.6 | 309.9 | 349.1 | 374.0 | 423.9 |
| 77.5° | 370.5 | 399.0 | 637.6 | 1446.2 | *1407.0* | 1293.0 | 356.2 | 238.7 | 281.4 | 267.2 | 249.3 |
| 80° | 220.9 | 245.8 | 388.3 | 822.8 | *847.8* | 751.6 | 217.3 | 167.4 | 195.9 | 171.0 | 153.2 |
| 82.5° | 128.2 | 138.9 | 203.0 | 370.5 | *537.9* | 495.1 | 124.7 | 99.7 | 142.5 | 114.0 | 85.5 |
| 85° | 64.1 | 67.7 | 92.6 | 160.3 | *267.2* | 203.0 | 53.4 | 46.3 | 67.7 | 49.9 | 28.5 |
| 87.5° | 14.2 | 14.2 | 14.2 | 17.8 | *24.9* | 24.9 | 7.1 | 3.6 | 3.6 | 3.6 | 3.6 |
| 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: P1500588
CATALOG NUMBER: GSS-SB2D-722-U-T4LG

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3740.2 | 3740.2 | 3740.2 | 3740.2 | 3740.2 | 3740.2 | 3740.2 | 3740.2 | 3740.2 | 3740.2 | 3740.2 |
| 2.5° | 3747.3 | 3754.5 | 3729.5 | 3701.0 | 3693.9 | 3672.5 | 3679.6 | 3665.4 | 3644.0 | 3647.6 | 3651.2 |
| 5° | 3782.9 | 3768.7 | 3718.8 | 3654.7 | 3597.7 | 3533.6 | 3458.8 | 3373.3 | 3312.8 | 3287.8 | 3309.2 |
| 7.5° | 3815.0 | 3800.8 | 3715.3 | 3572.8 | 3380.4 | 3113.3 | 2835.4 | 2582.5 | 2408.0 | 2343.9 | 2358.1 |
| 10° | 3904.1 | 3847.1 | 3690.3 | 3380.4 | 2920.9 | 2415.1 | 2133.7 | 1977.0 | 1923.5 | 1895.0 | 1898.6 |
| 12.5° | 4021.6 | 3943.2 | 3644.0 | 3045.6 | 2351.0 | 2030.4 | 1930.7 | 1895.0 | 1877.2 | 1870.1 | 1877.2 |
| 15° | 4164.1 | 4043.0 | 3533.6 | 2625.3 | 2087.4 | 1962.7 | 1941.3 | 1944.9 | 1944.9 | 1948.5 | 1948.5 |
| 17.5° | 4288.8 | 4100.0 | 3334.1 | 2322.5 | 2034.0 | 1998.3 | 2019.7 | 2037.5 | 2037.5 | 2041.1 | 2037.5 |
| 20° | 4402.8 | 4128.5 | 3077.7 | 2194.3 | 2044.6 | 2062.5 | 2112.3 | 2130.1 | 2133.7 | 2130.1 | 2130.1 |
| 22.5° | 4523.9 | 4146.3 | 2821.2 | 2123.0 | 2069.6 | 2123.0 | 2176.4 | 2201.4 | 2208.5 | 2212.1 | 2215.6 |
| 25° | 4641.4 | 4110.7 | 2611.0 | 2066.0 | 2058.9 | 2133.7 | 2194.3 | 2226.3 | 2233.4 | 2233.4 | 2237.0 |
| 27.5° | 4759.0 | 4100.0 | 2468.5 | 1991.2 | 2009.0 | 2069.6 | 2140.8 | 2183.6 | 2212.1 | 2215.6 | 2219.2 |
| 30° | 4894.3 | 4067.9 | 2333.2 | 1891.5 | 1898.6 | 1973.4 | 2048.2 | 2123.0 | 2180.0 | 2204.9 | 2204.9 |
| 32.5° | 4986.9 | 4035.9 | 2212.1 | 1784.6 | 1784.6 | 1863.0 | 1955.6 | 2048.2 | 2130.1 | 2180.0 | 2190.7 |
| 35° | 5076.0 | 4007.4 | 2105.2 | 1677.7 | 1681.3 | 1756.1 | 1852.3 | 1952.0 | 2055.3 | 2115.9 | 2144.4 |
| 37.5° | 5122.3 | 3978.9 | 2030.4 | 1595.8 | 1581.6 | 1659.9 | 1724.1 | 1806.0 | 1916.4 | 2016.1 | 2041.1 |
| 40° | 5133.0 | 3978.9 | 2023.3 | 1538.8 | 1478.3 | 1567.3 | 1595.8 | 1652.8 | 1752.6 | 1859.4 | 1898.6 |
| 42.5° | 5061.7 | 3939.7 | 2058.9 | 1503.2 | 1371.4 | 1435.5 | 1467.6 | 1496.1 | 1560.2 | 1649.3 | 1681.3 |
| 45° | 4976.3 | 3886.3 | 2091.0 | 1453.3 | 1239.6 | 1289.5 | 1339.3 | 1342.9 | 1371.4 | 1392.8 | 1414.2 |
| 47.5° | 4905.0 | 3829.3 | 2034.0 | 1360.7 | 1104.3 | 1139.9 | 1193.3 | 1193.3 | 1179.1 | 1136.3 | 1122.1 |
| 50° | 4962.0 | 3847.1 | 1937.8 | 1228.9 | 979.6 | 1004.5 | 1061.5 | 1029.4 | 997.4 | 908.3 | 897.6 |
| 52.5° | 5011.9 | 3914.7 | 1823.8 | 1100.7 | 872.7 | 897.6 | 954.6 | 904.8 | 840.7 | 769.4 | 758.7 |
| 55° | 4929.9 | 3918.3 | 1613.6 | 958.2 | 797.9 | 819.3 | 872.7 | 812.2 | 751.6 | 708.9 | 701.7 |
| 57.5° | 4684.2 | 3811.4 | 1392.8 | 847.8 | 733.8 | 755.2 | 805.0 | 744.5 | 687.5 | 683.9 | 701.7 |
| 60° | 4142.7 | 3437.4 | 1189.7 | 776.5 | 673.2 | 698.2 | 748.0 | 683.9 | 609.1 | 577.1 | 587.7 |
| 62.5° | 3127.5 | 2643.1 | 1018.8 | 694.6 | 616.2 | 648.3 | 683.9 | 580.6 | 516.5 | 502.3 | 488.0 |
| 65° | *2286.9* | *2030.4* | *915.5* | *630.5* | *562.8* | *602.0* | *573.5* | *516.5* | *473.8* | *459.5* | *452.4* |
| 67.5° | 1478.3 | 1378.5 | 787.2 | 569.9 | 512.9 | 545.0 | 505.8 | 477.3 | 431.0 | 423.9 | 434.6 |
| 70° | 904.8 | 936.8 | 659.0 | 502.3 | 463.1 | 455.9 | 463.1 | 434.6 | 384.7 | 395.4 | 409.6 |
| 72.5° | 641.2 | 691.0 | 566.4 | 438.1 | 395.4 | 381.1 | 413.2 | 395.4 | 359.8 | 370.5 | 384.7 |
| 75° | 459.5 | 512.9 | 466.6 | 359.8 | 334.8 | 327.7 | 384.7 | 395.4 | 370.5 | 377.6 | 388.3 |
| 77.5° | 270.7 | 327.7 | 331.3 | 277.8 | 252.9 | 292.1 | 409.6 | 455.9 | 438.1 | 416.8 | 406.1 |
| 80° | 174.5 | 195.9 | 235.1 | 178.1 | 178.1 | 252.9 | 448.8 | 555.7 | 477.3 | 423.9 | 416.8 |
| 82.5° | 89.1 | 103.3 | 153.2 | 114.0 | 106.9 | 188.8 | 441.7 | 530.8 | 527.2 | 470.2 | 459.5 |
| 85° | 24.9 | 32.1 | 71.2 | 49.9 | 42.7 | 99.7 | 331.3 | 399.0 | 356.2 | 260.0 | 263.6 |
| 87.5° | 3.6 | 3.6 | 0.0 | 0.0 | 3.6 | 14.2 | 39.2 | 7.1 | 7.1 | 7.1 | 7.1 |
| 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: SP1-2407-184-2

Test Date: 10/09/2024

Luminaire Tested: GSS-SB1A-722-U-5WQ

Data in this report applies to families of products including GSS-SB1A-722-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

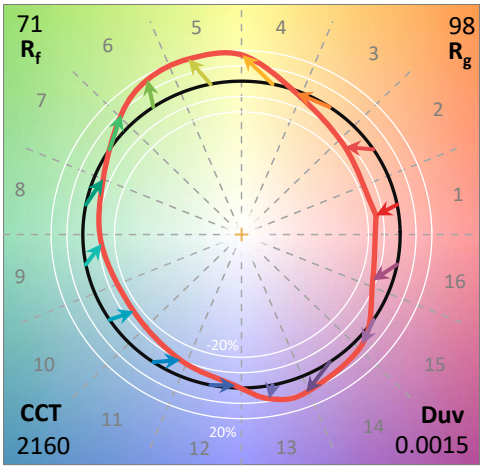
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-184-2 |
| 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-722-U-5WQ** |
| Description: | GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 2200K CCT 26 LEDS |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 2160 |
| CIE u': | 0.2927 |
| CIE v': | 0.5388 |
| Duv: | 0.0015 |
| CIE x: | 0.5130 |
| CIE y: | 0.4197 |
| CIE z: | 0.0674 |
| Peak Wavelength (nm): | 609 |
| Dominant Wavelength (nm): | 587 |
| Purity: | 79.96089 |
| Rf: | 70.6 |
| Rg: | 97.6 |

| | |
|---|---|
| CRI (Ra): | 71.9 |
| R1: | 68.7 |
| R2: | 82.6 |
| R3: | 95.5 |
| R4: | 66.4 |
| R5: | 65.4 |
| R6: | 75.9 |
| R7: | 77.2 |
| R8: | 43.5 |
| R9: | -17.8 |
| R10: | 60.5 |
| R11: | 60.2 |
| R12: | 48.2 |
| R13: | 70.7 |
| R14: | 96.8 |
| R15: | 61.8 |




## Test Conditions

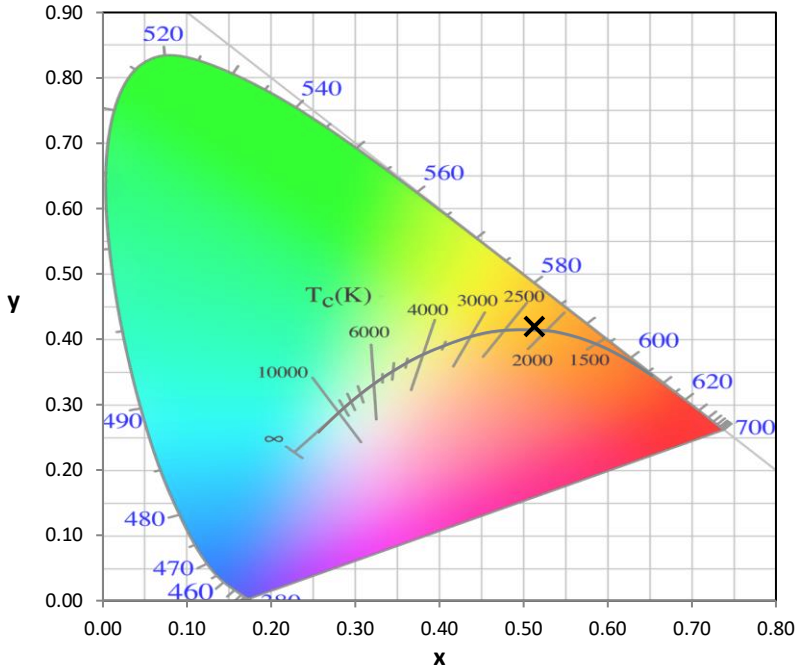
| | |
|---|---|
| Stabilization Time: | 21M |
| Operation Time: | 1H 21M |
| Sphere Temperature (°C): | 25.2 |

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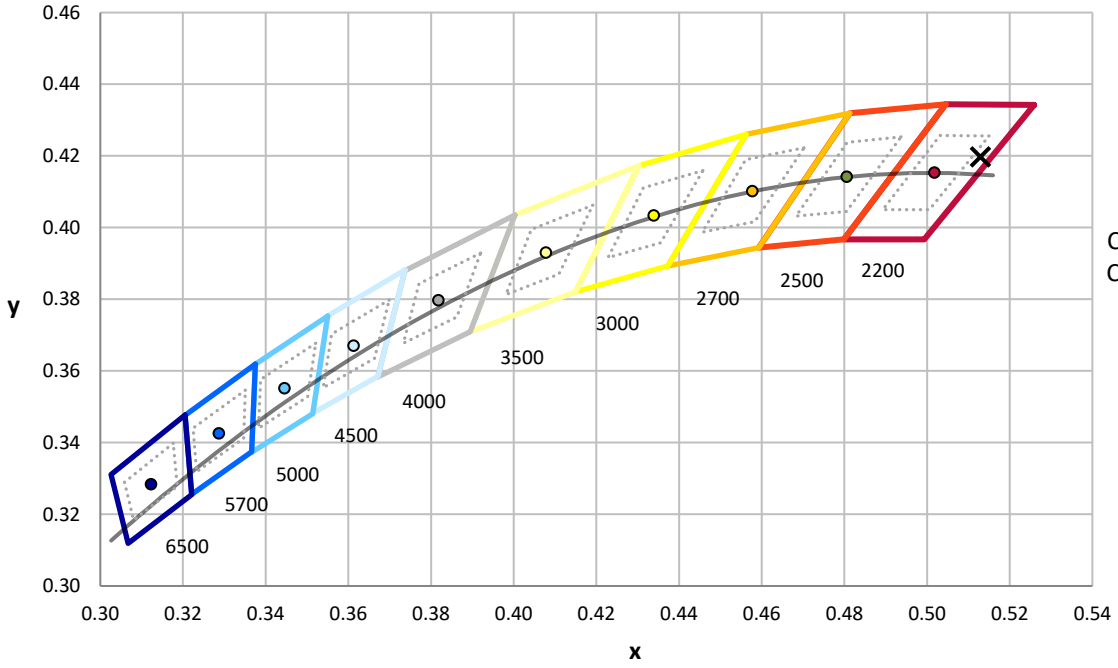
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

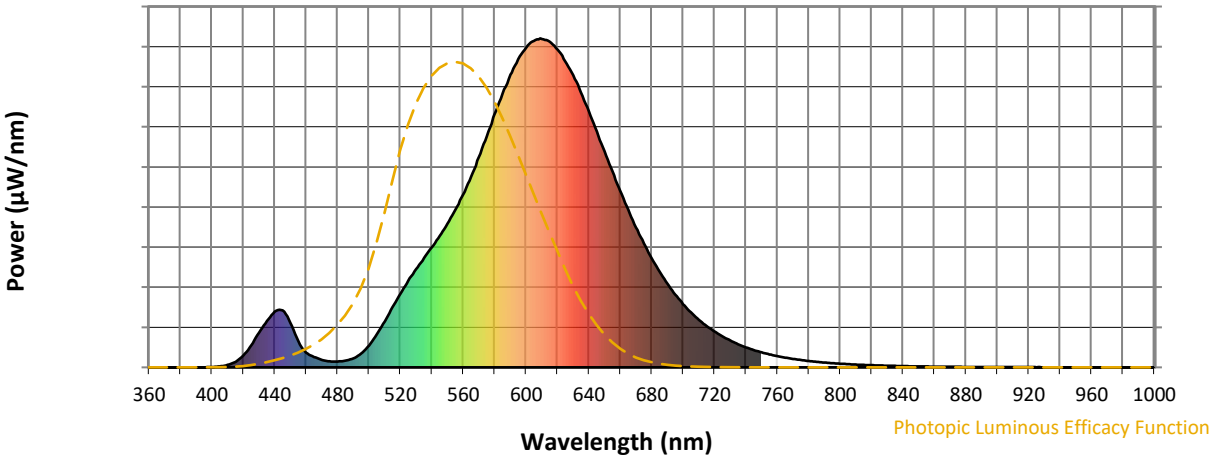



CCT = 2160K
CIE x = 0.5130
CIE y = 0.4197
Duv = 0.0015

Point lies inside the ANSI 2200K 7-step quadrangle

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## Photopic Flux vs. Wavelength

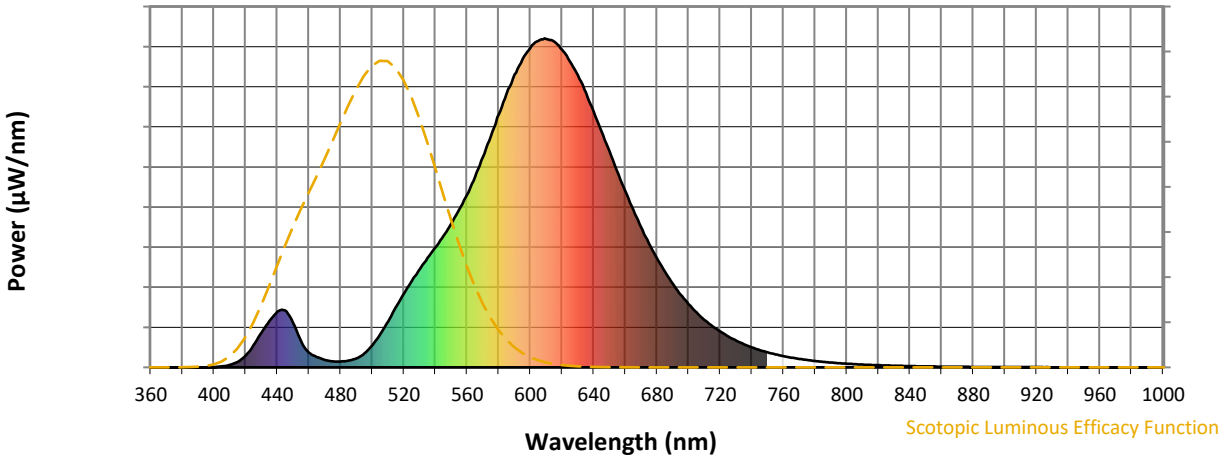



## Photopic Lumens: NR

| λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) | λ (nm) | Power W^/nm | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 0 | NR | 490 | 27 | NR | 620 | 966 | NR | 750 | 46 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 42 | NR | 625 | 930 | NR | 755 | 39 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 67 | NR | 630 | 888 | NR | 760 | 34 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 101 | NR | 635 | 835 | NR | 765 | 30 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 139 | NR | 640 | 778 | NR | 770 | 26 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 183 | NR | 645 | 717 | NR | 775 | 22 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 224 | NR | 650 | 656 | NR | 780 | 19 | NR | 910 | 1 | NR |
| 395 | 0 | NR | 525 | 262 | NR | 655 | 595 | NR | 785 | 17 | NR | 915 | 1 | NR |
| 400 | 1 | NR | 530 | 299 | NR | 660 | 536 | NR | 790 | 15 | NR | 920 | 1 | NR |
| 405 | 3 | NR | 535 | 332 | NR | 665 | 480 | NR | 795 | 13 | NR | 925 | 1 | NR |
| 410 | 7 | NR | 540 | 365 | NR | 670 | 425 | NR | 800 | 11 | NR | 930 | 1 | NR |
| 415 | 17 | NR | 545 | 400 | NR | 675 | 376 | NR | 805 | 10 | NR | 935 | 0 | NR |
| 420 | 36 | NR | 550 | 437 | NR | 680 | 332 | NR | 810 | 8 | NR | 940 | 0 | NR |
| 425 | 67 | NR | 555 | 479 | NR | 685 | 291 | NR | 815 | 8 | NR | 945 | 0 | NR |
| 430 | 105 | NR | 560 | 525 | NR | 690 | 255 | NR | 820 | 7 | NR | 950 | 0 | NR |
| 435 | 141 | NR | 565 | 579 | NR | 695 | 221 | NR | 825 | 6 | NR | 955 | 0 | NR |
| 440 | 169 | NR | 570 | 639 | NR | 700 | 192 | NR | 830 | 5 | NR | 960 | 0 | NR |
| 445 | 173 | NR | 575 | 703 | NR | 705 | 167 | NR | 835 | 4 | NR | 965 | 0 | NR |
| 450 | 136 | NR | 580 | 769 | NR | 710 | 144 | NR | 840 | 4 | NR | 970 | 0 | NR |
| 455 | 80 | NR | 585 | 832 | NR | 715 | 125 | NR | 845 | 3 | NR | 975 | 0 | NR |
| 460 | 45 | NR | 590 | 890 | NR | 720 | 109 | NR | 850 | 3 | NR | 980 | 0 | NR |
| 465 | 32 | NR | 595 | 937 | NR | 725 | 94 | NR | 855 | 3 | NR | 985 | 0 | NR |
| 470 | 23 | NR | 600 | 972 | NR | 730 | 81 | NR | 860 | 2 | NR | 990 | 0 | NR |
| 475 | 18 | NR | 605 | 992 | NR | 735 | 70 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 18 | NR | 610 | 998 | NR | 740 | 61 | NR | 870 | 2 | NR | 1000 | 0 | NR |
| 485 | 20 | NR | 615 | 990 | NR | 745 | 53 | NR | 875 | 2 | NR | | | |

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## Scotopic Flux vs. Wavelength

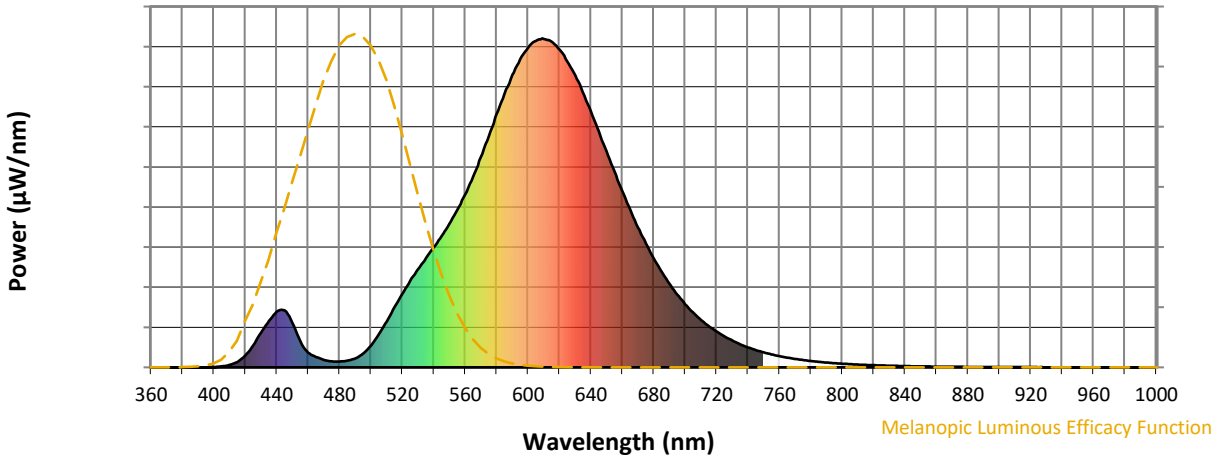



**Scotopic Lumens: NR** **S/P: 0.8**

| 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 | 27 | NR | 620 | 966 | NR | 750 | 46 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 42 | NR | 625 | 930 | NR | 755 | 39 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 67 | NR | 630 | 888 | NR | 760 | 34 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 101 | NR | 635 | 835 | NR | 765 | 30 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 139 | NR | 640 | 778 | NR | 770 | 26 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 183 | NR | 645 | 717 | NR | 775 | 22 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 224 | NR | 650 | 656 | NR | 780 | 19 | NR | 910 | 1 | NR |
| 395 | 0 | NR | 525 | 262 | NR | 655 | 595 | NR | 785 | 17 | NR | 915 | 1 | NR |
| 400 | 1 | NR | 530 | 299 | NR | 660 | 536 | NR | 790 | 15 | NR | 920 | 1 | NR |
| 405 | 3 | NR | 535 | 332 | NR | 665 | 480 | NR | 795 | 13 | NR | 925 | 1 | NR |
| 410 | 7 | NR | 540 | 365 | NR | 670 | 425 | NR | 800 | 11 | NR | 930 | 1 | NR |
| 415 | 17 | NR | 545 | 400 | NR | 675 | 376 | NR | 805 | 10 | NR | 935 | 0 | NR |
| 420 | 36 | NR | 550 | 437 | NR | 680 | 332 | NR | 810 | 8 | NR | 940 | 0 | NR |
| 425 | 67 | NR | 555 | 479 | NR | 685 | 291 | NR | 815 | 8 | NR | 945 | 0 | NR |
| 430 | 105 | NR | 560 | 525 | NR | 690 | 255 | NR | 820 | 7 | NR | 950 | 0 | NR |
| 435 | 141 | NR | 565 | 579 | NR | 695 | 221 | NR | 825 | 6 | NR | 955 | 0 | NR |
| 440 | 169 | NR | 570 | 639 | NR | 700 | 192 | NR | 830 | 5 | NR | 960 | 0 | NR |
| 445 | 173 | NR | 575 | 703 | NR | 705 | 167 | NR | 835 | 4 | NR | 965 | 0 | NR |
| 450 | 136 | NR | 580 | 769 | NR | 710 | 144 | NR | 840 | 4 | NR | 970 | 0 | NR |
| 455 | 80 | NR | 585 | 832 | NR | 715 | 125 | NR | 845 | 3 | NR | 975 | 0 | NR |
| 460 | 45 | NR | 590 | 890 | NR | 720 | 109 | NR | 850 | 3 | NR | 980 | 0 | NR |
| 465 | 32 | NR | 595 | 937 | NR | 725 | 94 | NR | 855 | 3 | NR | 985 | 0 | NR |
| 470 | 23 | NR | 600 | 972 | NR | 730 | 81 | NR | 860 | 2 | NR | 990 | 0 | NR |
| 475 | 18 | NR | 605 | 992 | NR | 735 | 70 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 18 | NR | 610 | 998 | NR | 740 | 61 | NR | 870 | 2 | NR | 1000 | 0 | NR |
| 485 | 20 | NR | 615 | 990 | NR | 745 | 53 | NR | 875 | 2 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 1.21**

| 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 | 27 | NR | 620 | 966 | NR | 750 | 46 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 42 | NR | 625 | 930 | NR | 755 | 39 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 67 | NR | 630 | 888 | NR | 760 | 34 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 101 | NR | 635 | 835 | NR | 765 | 30 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 139 | NR | 640 | 778 | NR | 770 | 26 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 183 | NR | 645 | 717 | NR | 775 | 22 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 224 | NR | 650 | 656 | NR | 780 | 19 | NR | 910 | 1 | NR |
| 395 | 0 | NR | 525 | 262 | NR | 655 | 595 | NR | 785 | 17 | NR | 915 | 1 | NR |
| 400 | 1 | NR | 530 | 299 | NR | 660 | 536 | NR | 790 | 15 | NR | 920 | 1 | NR |
| 405 | 3 | NR | 535 | 332 | NR | 665 | 480 | NR | 795 | 13 | NR | 925 | 1 | NR |
| 410 | 7 | NR | 540 | 365 | NR | 670 | 425 | NR | 800 | 11 | NR | 930 | 1 | NR |
| 415 | 17 | NR | 545 | 400 | NR | 675 | 376 | NR | 805 | 10 | NR | 935 | 0 | NR |
| 420 | 36 | NR | 550 | 437 | NR | 680 | 332 | NR | 810 | 8 | NR | 940 | 0 | NR |
| 425 | 67 | NR | 555 | 479 | NR | 685 | 291 | NR | 815 | 8 | NR | 945 | 0 | NR |
| 430 | 105 | NR | 560 | 525 | NR | 690 | 255 | NR | 820 | 7 | NR | 950 | 0 | NR |
| 435 | 141 | NR | 565 | 579 | NR | 695 | 221 | NR | 825 | 6 | NR | 955 | 0 | NR |
| 440 | 169 | NR | 570 | 639 | NR | 700 | 192 | NR | 830 | 5 | NR | 960 | 0 | NR |
| 445 | 173 | NR | 575 | 703 | NR | 705 | 167 | NR | 835 | 4 | NR | 965 | 0 | NR |
| 450 | 136 | NR | 580 | 769 | NR | 710 | 144 | NR | 840 | 4 | NR | 970 | 0 | NR |
| 455 | 80 | NR | 585 | 832 | NR | 715 | 125 | NR | 845 | 3 | NR | 975 | 0 | NR |
| 460 | 45 | NR | 590 | 890 | NR | 720 | 109 | NR | 850 | 3 | NR | 980 | 0 | NR |
| 465 | 32 | NR | 595 | 937 | NR | 725 | 94 | NR | 855 | 3 | NR | 985 | 0 | NR |
| 470 | 23 | NR | 600 | 972 | NR | 730 | 81 | NR | 860 | 2 | NR | 990 | 0 | NR |
| 475 | 18 | NR | 605 | 992 | NR | 735 | 70 | NR | 865 | 2 | NR | 995 | 0 | NR |
| 480 | 18 | NR | 610 | 998 | NR | 740 | 61 | NR | 870 | 2 | NR | 1000 | 0 | NR |
| 485 | 20 | NR | 615 | 990 | NR | 745 | 53 | NR | 875 | 2 | NR | | | |

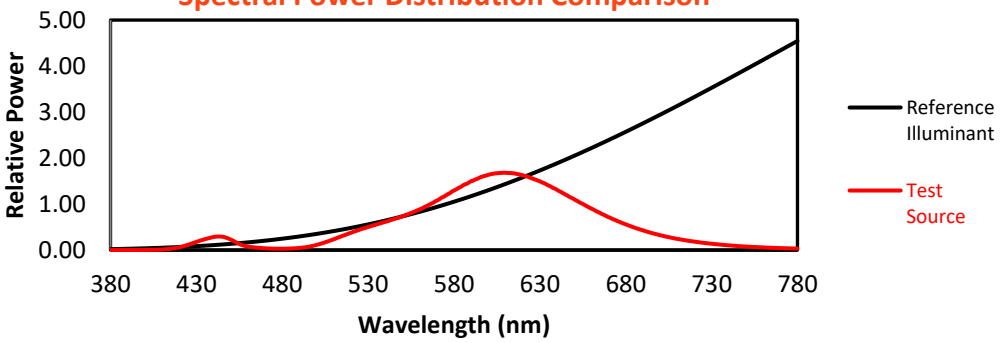
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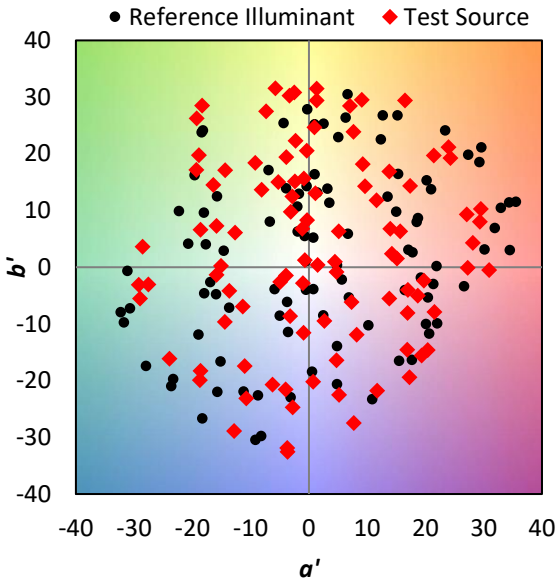
## Summary

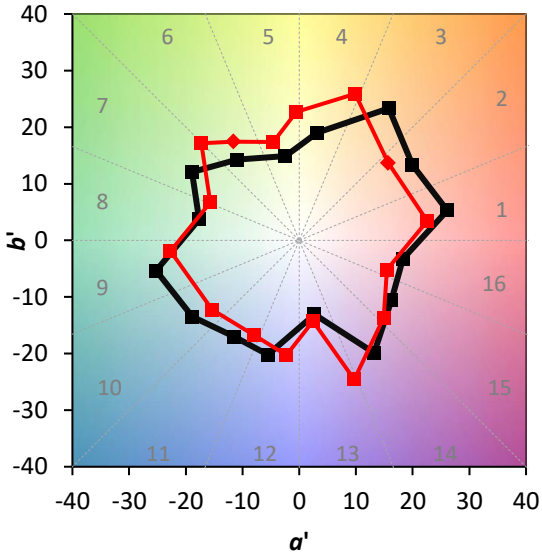
$R_f$ = 70.6
$R_g$ = 97.6
CIE $R_a$ = 71.9
$R_9$ = -17.8

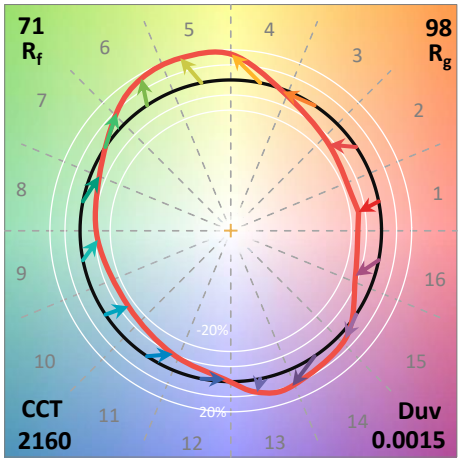
## Spectral Power Distribution Comparison

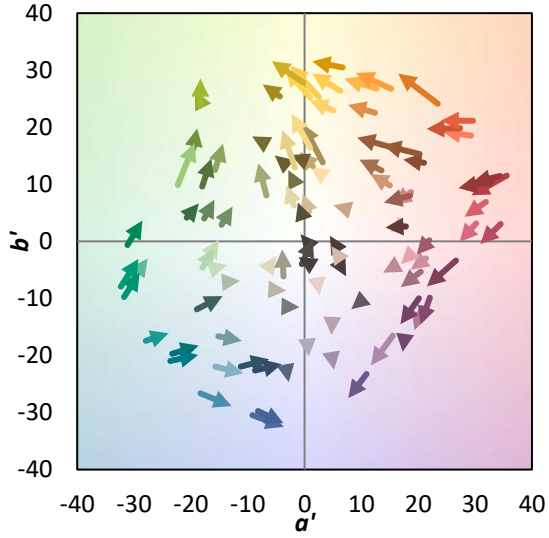



## Color Vector Graphics



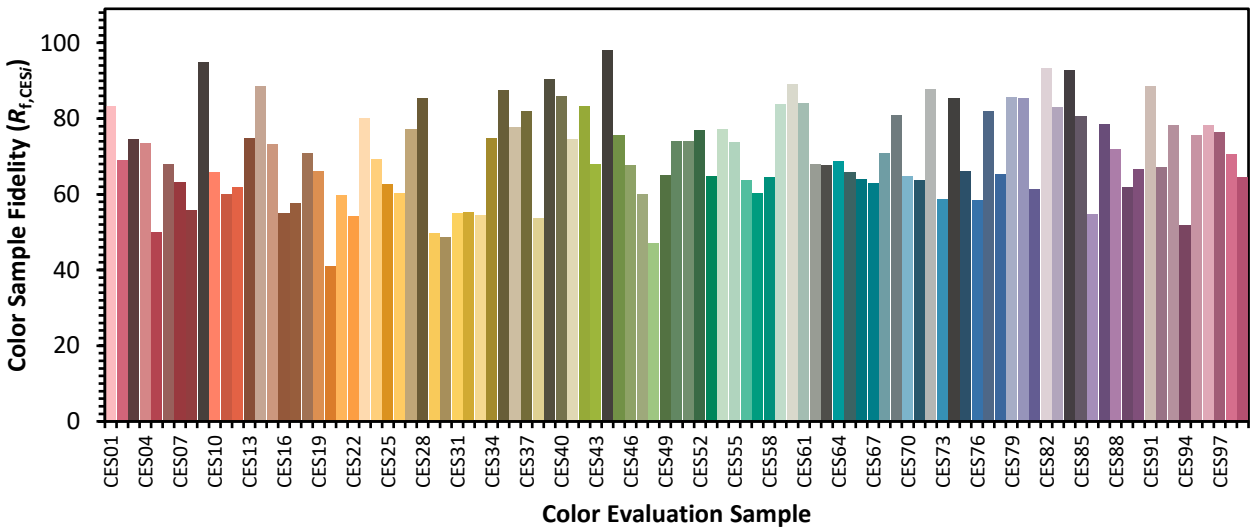



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**Individual Sample Fidelity Index ($R_{f,i}$)**

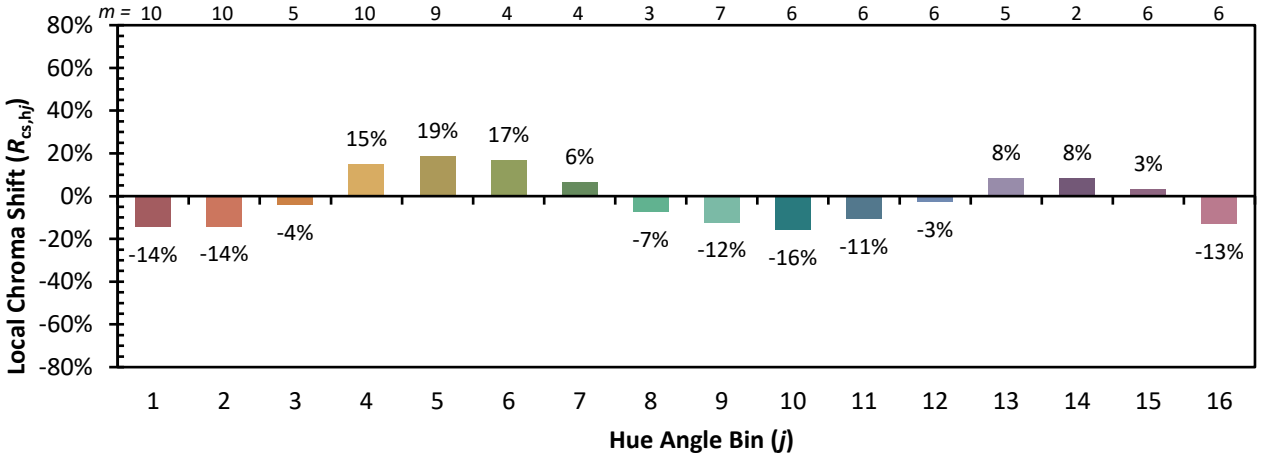
| | | | |
|---|---|---|---|
| CES01 = 87 | CES26 = 60 | CES51 = 74 | CES76 = 58 |
| CES02 = 65 | CES27 = 77 | CES52 = 77 | CES77 = 82 |
| CES03 = 32 | CES28 = 85 | CES53 = 65 | CES78 = 65 |
| CES04 = 72 | CES29 = 50 | CES54 = 77 | CES79 = 86 |
| CES05 = 52 | CES30 = 49 | CES55 = 74 | CES80 = 85 |
| CES06 = 53 | CES31 = 55 | CES56 = 64 | CES81 = 61 |
| CES07 = 44 | CES32 = 55 | CES57 = 60 | CES82 = 93 |
| CES08 = 43 | CES33 = 55 | CES58 = 64 | CES83 = 83 |
| CES09 = 29 | CES34 = 75 | CES59 = 84 | CES84 = 93 |
| CES10 = 79 | CES35 = 88 | CES60 = 89 | CES85 = 81 |
| CES11 = 62 | CES36 = 78 | CES61 = 84 | CES86 = 55 |
| CES12 = 68 | CES37 = 82 | CES62 = 68 | CES87 = 79 |
| CES13 = 45 | CES38 = 54 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 86 | CES65 = 66 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 89 |
| CES17 = 51 | CES42 = 83 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 68 | CES68 = 71 | CES93 = 78 |
| CES19 = 74 | CES44 = 98 | CES69 = 81 | CES94 = 52 |
| CES20 = 68 | CES45 = 76 | CES70 = 65 | CES95 = 76 |
| CES21 = 89 | CES46 = 68 | CES71 = 64 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 88 | CES97 = 76 |
| CES23 = 92 | CES48 = 47 | CES73 = 59 | CES98 = 71 |
| CES24 = 92 | CES49 = 65 | CES74 = 85 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 | |

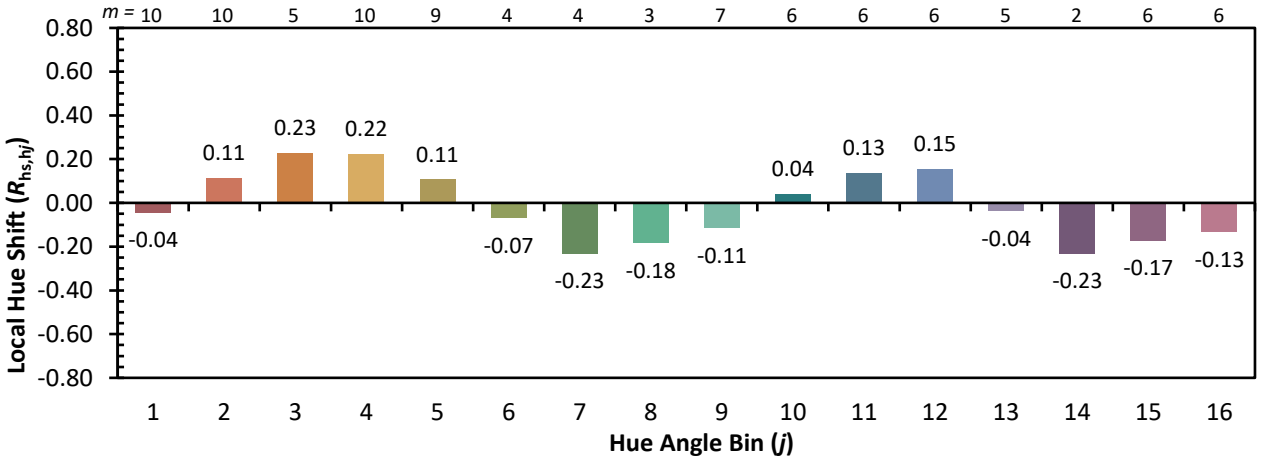


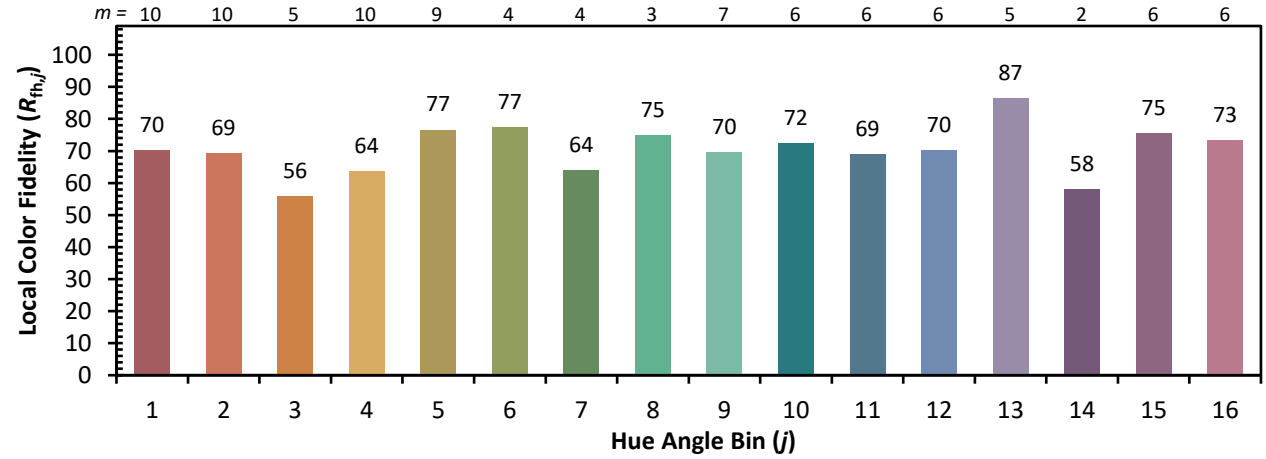
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## Color Rendition by Hue-Angle Bin



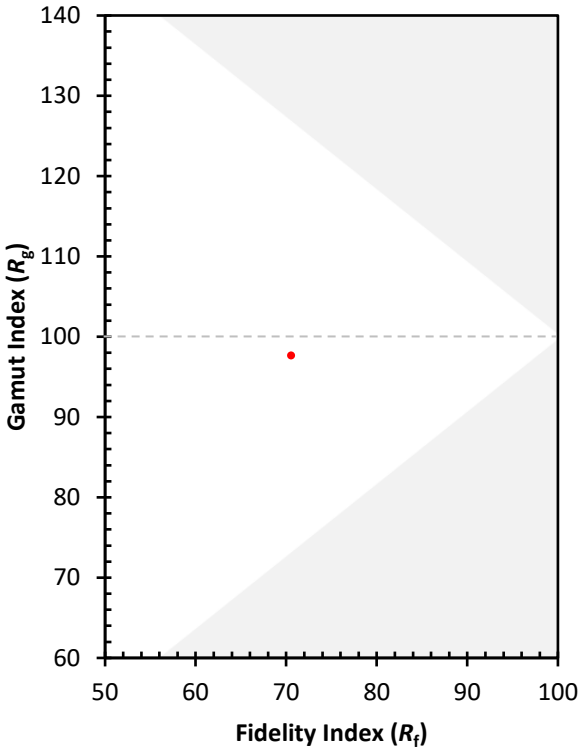



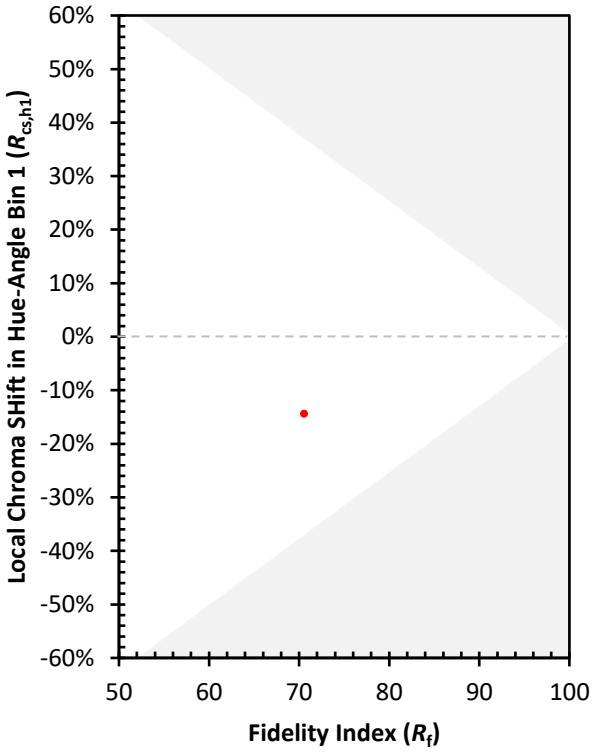



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## Measure Comparisons




(END OF REPORT)