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

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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: McGRAW-EDISON

Report Number: P1500641

Luminaire Tested: GSS-SB4A-730-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: | P1500641 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 7/20/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GSS-SB4A-730-U-T4LG |
| Description: | GALLEON II SLIM SITE HIGH DENSITY LED ARRAYS 4SQUARE 114W 70CRI 3000K FIXTURE w/ TYPE IV LOW GLARE DISTRIBUTION FIXTURE |
| Light Source: | (104) 3000K CCT, 70 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 17456.4 lumens |
| Efficiency: | N/A |
| Efficacy: | 153.1 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 1' x H: 0') |
| IES Classification: | Type III - Short |
| BUG Rating: | B3 - U0 - G2 |

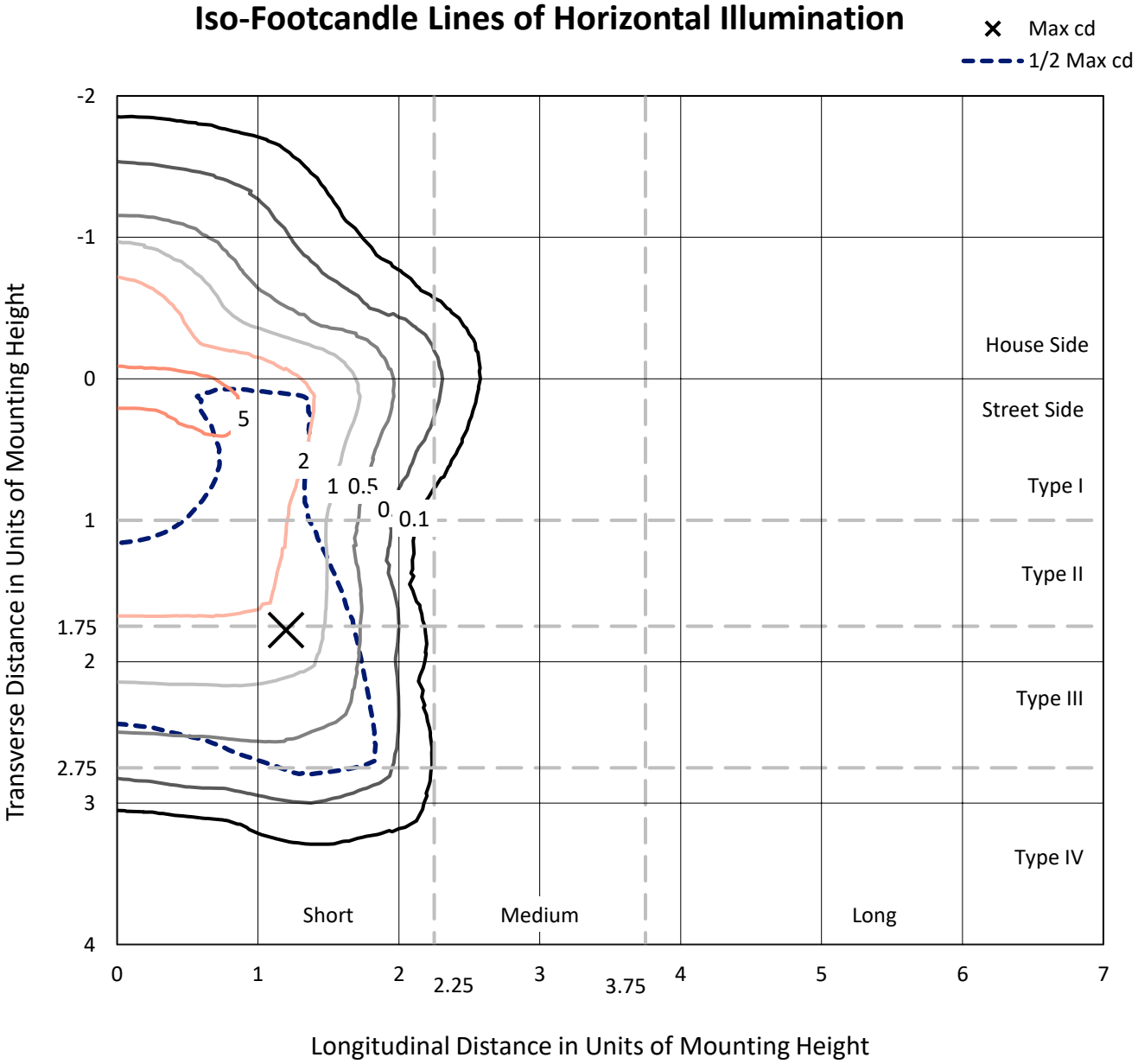
| | |
|---|---|
| Input Watts (W): | 114 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | 0.98 |
| Total Harmonic Distortion (THDi): | 8.2% |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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Scaled Data Report

REPORT NUMBER: P1500641
CATALOG NUMBER: GSS-SB4A-730-U-T4LG

## Iso-Footcandle Lines of Horizontal Illumination



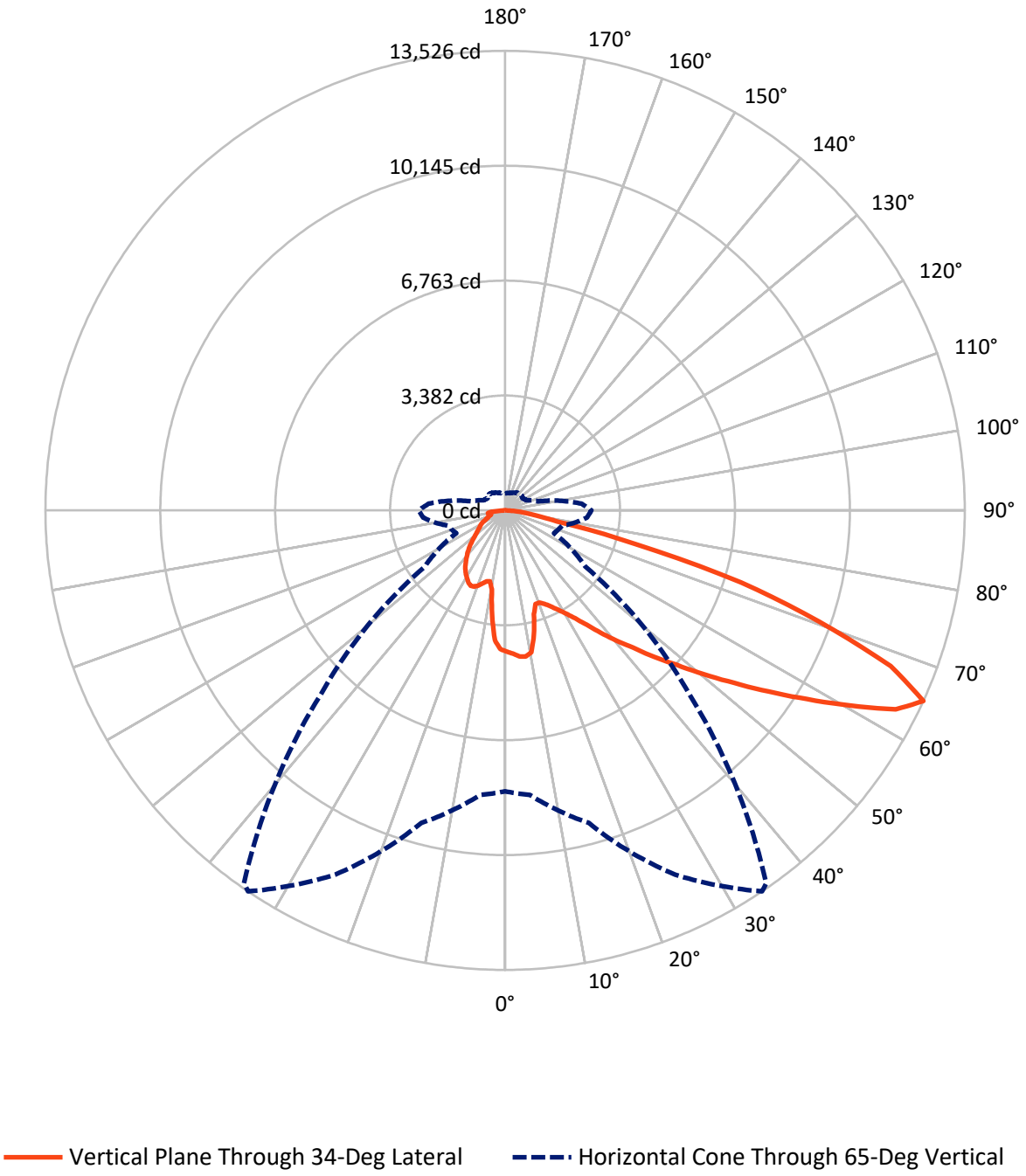

Based on 25 foot mounting height. Maximum calculated value = 7.1 fc
Type III - Short - N/A

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REPORT NUMBER: P1500641
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## Luminous Intensity Polar Plot



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Scaled Data Report

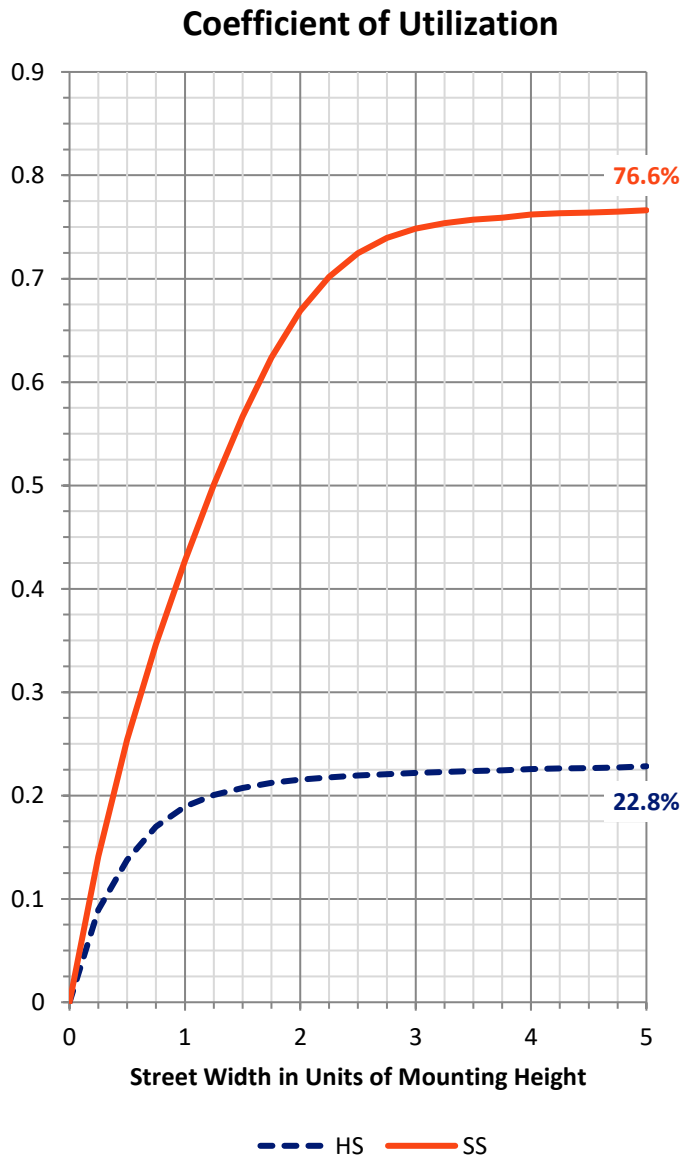
REPORT NUMBER: P1500641
CATALOG NUMBER: GSS-SB4A-730-U-T4LG

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 4061.3 | 0.0 | 4061.3 |
| | % Fixture | 23.3 | 0.0 | 23.3 |
| **Street Side** | Lumens | 13395.0 | 0.0 | 13395.0 |
| | % Fixture | 76.7 | 0.0 | 76.7 |
| **Total** | Lumens | 17456.4 | 0.0 | 17456.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 374.1 | 2.1 |
| 10°-20° | 941.7 | 5.4 |
| 20°-30° | 1561.0 | 8.9 |
| 30°-40° | 2347.6 | 13.4 |
| 40°-50° | 3289.0 | 18.8 |
| 50°-60° | 4146.8 | 23.8 |
| 60°-70° | 3566.6 | 20.4 |
| 70°-80° | 1060.4 | 6.1 |
| 80°-90° | 169.2 | 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° | 17456.4 | 100.0 |
| 0°-180° | 17456.4 | 100.0 |



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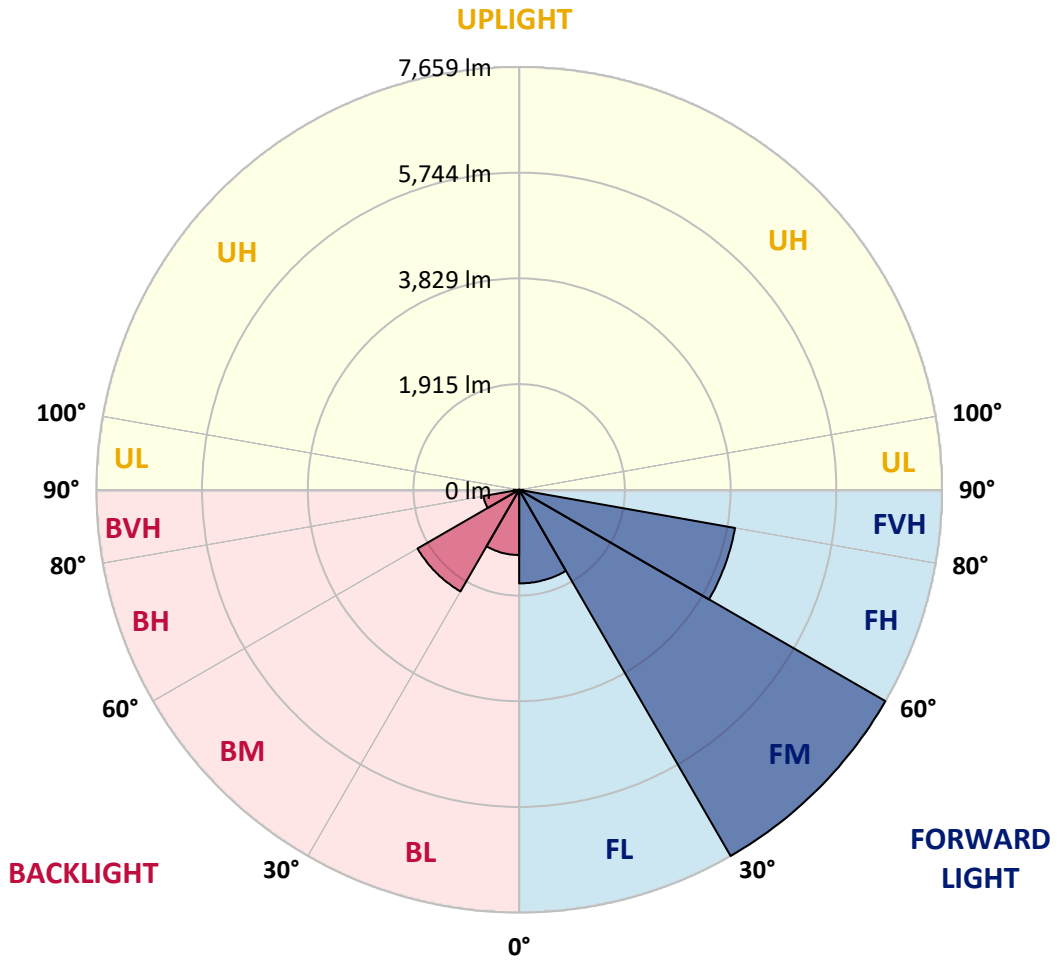
Scaled Data Report

REPORT NUMBER: P1500641
CATALOG NUMBER: GSS-SB4A-730-U-T4LG

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1695.2 | 9.7 | | | |
| FM | (30°-60°) | 7658.6 | 43.9 | | | |
| FH | (60°-80°) | 3969.7 | 22.7 | | | G2/5000 |
| FVH | (80°-90°) | 71.6 | 0.4 | | | G1/100 |
| BL | (0°-30°) | 1181.7 | 6.8 | B3/2500 | | |
| BM | (30°-60°) | 2124.8 | 12.2 | B2/2500 | | |
| BH | (60°-80°) | 657.3 | 3.8 | B2/1000 | | G2/1000 |
| BVH | (80°-90°) | 97.6 | 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° | 4150.3 | 4150.3 | 4150.3 | 4150.3 | *4150.3* | 4150.3 | 4150.3 | 4150.3 | 4150.3 | 4150.3 | 4150.3 |
| 2.5° | 4229.4 | 4253.1 | 4225.4 | 4213.6 | *4217.5* | 4221.5 | 4201.7 | 4205.7 | 4181.9 | 4181.9 | 4162.2 |
| 5° | 4320.3 | 4324.2 | 4308.4 | 4320.3 | *4316.3* | 4312.4 | 4312.4 | 4308.4 | 4257.0 | 4245.2 | 4225.4 |
| 7.5° | 4268.9 | 4284.7 | 4292.6 | 4336.1 | *4348.0* | 4371.7 | 4387.5 | 4395.4 | 4355.9 | 4324.2 | 4272.9 |
| 10° | 3798.5 | 3810.4 | 3901.3 | 4098.9 | *4249.1* | 4276.8 | 4423.1 | 4506.1 | 4478.4 | 4462.6 | 4375.6 |
| 12.5° | 3035.7 | 3055.4 | 3158.2 | 3415.1 | *3766.9* | 3842.0 | 4308.4 | 4589.1 | 4652.3 | 4656.3 | 4529.8 |
| 15° | 2707.6 | 2707.6 | 2739.2 | 2885.5 | *3170.1* | 3229.3 | 3917.1 | 4612.8 | 4838.1 | 4865.8 | 4711.6 |
| 17.5° | 2640.4 | 2636.4 | 2656.2 | 2743.2 | *2893.4* | 2928.9 | 3466.5 | 4490.3 | 5059.4 | 5106.9 | 4909.2 |
| 20° | 2636.4 | 2624.6 | 2664.1 | 2762.9 | *2893.4* | 2925.0 | 3257.0 | 4276.8 | 5233.4 | 5383.6 | 5106.9 |
| 22.5° | 2640.4 | 2640.4 | 2695.7 | 2838.0 | *2988.2* | 3015.9 | 3296.5 | 4098.9 | 5375.7 | 5672.1 | 5316.4 |
| 25° | 2683.9 | 2676.0 | 2755.0 | 2928.9 | *3134.5* | 3154.2 | 3458.6 | 4091.0 | 5498.2 | 5996.2 | 5569.3 |
| 27.5° | 2755.0 | 2759.0 | 2865.7 | 3075.2 | *3308.4* | 3347.9 | 3683.9 | 4261.0 | 5648.4 | 6352.0 | 5814.4 |
| 30° | 2905.2 | 2909.2 | 3035.7 | 3249.1 | *3517.9* | 3569.3 | 3944.8 | 4514.0 | 5861.8 | 6735.4 | 6079.2 |
| 32.5° | 3075.2 | 3095.0 | 3249.1 | 3498.1 | *3786.7* | 3814.3 | 4264.9 | 4893.4 | 6182.0 | 7118.8 | 6363.8 |
| 35° | 3359.8 | 3379.5 | 3553.5 | 3814.3 | *4134.5* | 4174.0 | 4656.3 | 5332.2 | 6573.3 | 7506.2 | 6585.2 |
| 37.5° | 3727.4 | 3743.2 | 3913.2 | 4229.4 | *4569.3* | 4608.8 | 5091.1 | 5798.6 | 6968.6 | 7814.5 | 6782.8 |
| 40° | 4166.1 | 4201.7 | 4383.5 | 4691.8 | *5035.7* | 5059.4 | 5565.4 | 6249.2 | 7395.5 | 8027.9 | 6861.9 |
| 42.5° | 4644.4 | 4680.0 | 4865.8 | 5205.7 | *5521.9* | 5593.1 | 6079.2 | 6727.5 | 7743.3 | 8122.8 | 6798.6 |
| 45° | 5257.1 | 5249.2 | 5423.1 | 5778.8 | *6150.4* | 6178.1 | 6628.7 | 7122.7 | 7952.8 | 8043.7 | 6735.4 |
| 47.5° | 6000.2 | 6008.1 | 6118.8 | 6407.3 | *6790.7* | 6854.0 | 7201.8 | 7462.7 | 8075.3 | 7980.5 | 6664.2 |
| 50° | 6838.1 | 6857.9 | 6952.8 | 7162.3 | *7573.3* | 7616.8 | 7719.6 | 7699.8 | 8150.4 | 7846.1 | 6691.9 |
| 52.5° | 7676.1 | 7688.0 | 7814.5 | 8035.8 | *8435.0* | 8466.7 | 8241.4 | 7881.7 | 7869.8 | 7304.6 | 6632.6 |
| 55° | 8363.9 | 8359.9 | 8585.2 | 8925.2 | *9411.3* | 9391.6 | 8755.2 | 7743.3 | 6992.3 | 6462.6 | 6367.8 |
| 57.5° | 8960.7 | 8984.5 | 9277.0 | 9865.9 | *10478.6* | 10462.8 | 9304.6 | 7012.1 | 5711.6 | 5466.6 | 5936.9 |
| 60° | 9498.3 | 9553.6 | 10103.1 | 10984.5 | *11660.4* | 11565.6 | 9403.4 | 5909.3 | 4442.8 | 4280.8 | 5083.2 |
| 62.5° | 9265.1 | 9367.9 | 10249.3 | 11968.7 | *12897.6* | 12688.1 | 8794.7 | 4577.2 | 3008.0 | 2861.7 | 3593.0 |
| 65° | *8269.0* | *8407.4* | *9526.0* | *11826.4* | *13526.1* | *13395.7* | *7688.0* | *2877.6* | *1585.0* | *1739.2* | *2419.0* |
| 67.5° | 6944.9 | 7110.9 | 8320.4 | 10624.8 | *12237.5* | 11956.9 | 5972.5 | 1513.9 | 739.2 | 1146.3 | 1502.0 |
| 70° | 3806.4 | 4217.5 | 6016.0 | 9035.8 | *9802.7* | 9411.3 | 3454.6 | 715.4 | 537.6 | 715.4 | 897.3 |
| 72.5° | 1430.9 | 1529.7 | 2608.8 | 6075.3 | *7261.1* | 6778.9 | 1312.3 | 462.5 | 450.6 | 529.7 | 648.2 |
| 75° | 687.8 | 735.2 | 1134.4 | 2762.9 | *3964.5* | 3695.8 | 644.3 | 343.9 | 387.4 | 415.0 | 470.4 |
| 77.5° | 411.1 | 442.7 | 707.5 | 1604.8 | *1561.3* | 1434.8 | 395.3 | 264.8 | 312.3 | 296.5 | 276.7 |
| 80° | 245.1 | 272.7 | 430.8 | 913.1 | *940.7* | 834.0 | 241.1 | 185.8 | 217.4 | 189.7 | 170.0 |
| 82.5° | 142.3 | 154.2 | 225.3 | 411.1 | *596.9* | 549.4 | 138.3 | 110.7 | 158.1 | 126.5 | 94.9 |
| 85° | 71.1 | 75.1 | 102.8 | 177.9 | *296.5* | 225.3 | 59.3 | 51.4 | 75.1 | 55.3 | 31.6 |
| 87.5° | 15.8 | 15.8 | 15.8 | 19.8 | *27.7* | 27.7 | 7.9 | 4.0 | 4.0 | 4.0 | 4.0 |
| 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: P1500641
CATALOG NUMBER: GSS-SB4A-730-U-T4LG

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 4150.3 | 4150.3 | 4150.3 | 4150.3 | 4150.3 | 4150.3 | 4150.3 | 4150.3 | 4150.3 | 4150.3 | 4150.3 |
| 2.5° | 4158.2 | 4166.1 | 4138.5 | 4106.8 | 4098.9 | 4075.2 | 4083.1 | 4067.3 | 4043.6 | 4047.6 | 4051.5 |
| 5° | 4197.8 | 4181.9 | 4126.6 | 4055.5 | 3992.2 | 3921.1 | 3838.1 | 3743.2 | 3676.0 | 3648.3 | 3672.0 |
| 7.5° | 4233.3 | 4217.5 | 4122.7 | 3964.5 | 3751.1 | 3454.6 | 3146.3 | 2865.7 | 2672.0 | 2600.9 | 2616.7 |
| 10° | 4332.1 | 4268.9 | 4095.0 | 3751.1 | 3241.2 | 2679.9 | 2367.7 | 2193.7 | 2134.5 | 2102.8 | 2106.8 |
| 12.5° | 4462.6 | 4375.6 | 4043.6 | 3379.5 | 2608.8 | 2253.0 | 2142.4 | 2102.8 | 2083.1 | 2075.2 | 2083.1 |
| 15° | 4620.7 | 4486.3 | 3921.1 | 2913.1 | 2316.3 | 2177.9 | 2154.2 | 2158.2 | 2158.2 | 2162.1 | 2162.1 |
| 17.5° | 4759.0 | 4549.5 | 3699.7 | 2577.2 | 2257.0 | 2217.5 | 2241.2 | 2260.9 | 2260.9 | 2264.9 | 2260.9 |
| 20° | 4885.5 | 4581.2 | 3415.1 | 2434.9 | 2268.8 | 2288.6 | 2343.9 | 2363.7 | 2367.7 | 2363.7 | 2363.7 |
| 22.5° | 5019.9 | 4600.9 | 3130.5 | 2355.8 | 2296.5 | 2355.8 | 2415.1 | 2442.8 | 2450.7 | 2454.6 | 2458.6 |
| 25° | 5150.4 | 4561.4 | 2897.3 | 2292.6 | 2284.7 | 2367.7 | 2434.9 | 2470.4 | 2478.3 | 2478.3 | 2482.3 |
| 27.5° | 5280.8 | 4549.5 | 2739.2 | 2209.6 | 2229.3 | 2296.5 | 2375.6 | 2423.0 | 2454.6 | 2458.6 | 2462.5 |
| 30° | 5431.0 | 4514.0 | 2589.0 | 2098.9 | 2106.8 | 2189.8 | 2272.8 | 2355.8 | 2419.0 | 2446.7 | 2446.7 |
| 32.5° | 5533.8 | 4478.4 | 2454.6 | 1980.3 | 1980.3 | 2067.3 | 2170.0 | 2272.8 | 2363.7 | 2419.0 | 2430.9 |
| 35° | 5632.6 | 4446.8 | 2336.0 | 1861.7 | 1865.7 | 1948.7 | 2055.4 | 2166.1 | 2280.7 | 2347.9 | 2379.5 |
| 37.5° | 5684.0 | 4415.2 | 2253.0 | 1770.8 | 1755.0 | 1842.0 | 1913.1 | 2004.0 | 2126.5 | 2237.2 | 2264.9 |
| 40° | 5695.8 | 4415.2 | 2245.1 | 1707.6 | 1640.4 | 1739.2 | 1770.8 | 1834.0 | 1944.7 | 2063.3 | 2106.8 |
| 42.5° | 5616.8 | 4371.7 | 2284.7 | 1668.0 | 1521.8 | 1592.9 | 1628.5 | 1660.1 | 1731.3 | 1830.1 | 1865.7 |
| 45° | 5521.9 | 4312.4 | 2320.2 | 1612.7 | 1375.5 | 1430.9 | 1486.2 | 1490.2 | 1521.8 | 1545.5 | 1569.2 |
| 47.5° | 5442.9 | 4249.1 | 2257.0 | 1509.9 | 1225.3 | 1264.9 | 1324.2 | 1324.2 | 1308.3 | 1260.9 | 1245.1 |
| 50° | 5506.1 | 4268.9 | 2150.3 | 1363.7 | 1087.0 | 1114.7 | 1177.9 | 1142.3 | 1106.8 | 1007.9 | 996.1 |
| 52.5° | 5561.4 | 4344.0 | 2023.8 | 1221.4 | 968.4 | 996.1 | 1059.3 | 1004.0 | 932.8 | 853.8 | 841.9 |
| 55° | 5470.5 | 4348.0 | 1790.6 | 1063.3 | 885.4 | 909.1 | 968.4 | 901.2 | 834.0 | 786.6 | 778.7 |
| 57.5° | 5197.8 | 4229.4 | 1545.5 | 940.7 | 814.3 | 838.0 | 893.3 | 826.1 | 762.9 | 758.9 | 778.7 |
| 60° | 4597.0 | 3814.3 | 1320.2 | 861.7 | 747.1 | 774.7 | 830.1 | 758.9 | 675.9 | 640.3 | 652.2 |
| 62.5° | 3470.5 | 2932.9 | 1130.5 | 770.8 | 683.8 | 719.4 | 758.9 | 644.3 | 573.1 | 557.3 | 541.5 |
| 65° | *2537.6* | *2253.0* | *1015.8* | *699.6* | *624.5* | *668.0* | *636.4* | *573.1* | *525.7* | *509.9* | *502.0* |
| 67.5° | 1640.4 | 1529.7 | 873.5 | 632.4 | 569.2 | 604.8 | 561.3 | 529.7 | 478.3 | 470.4 | 482.2 |
| 70° | 1004.0 | 1039.6 | 731.2 | 557.3 | 513.8 | 505.9 | 513.8 | 482.2 | 426.9 | 438.7 | 454.6 |
| 72.5° | 711.5 | 766.8 | 628.5 | 486.2 | 438.7 | 422.9 | 458.5 | 438.7 | 399.2 | 411.1 | 426.9 |
| 75° | 509.9 | 569.2 | 517.8 | 399.2 | 371.6 | 363.6 | 426.9 | 438.7 | 411.1 | 419.0 | 430.8 |
| 77.5° | 300.4 | 363.6 | 367.6 | 308.3 | 280.6 | 324.1 | 454.6 | 505.9 | 486.2 | 462.5 | 450.6 |
| 80° | 193.7 | 217.4 | 260.9 | 197.6 | 197.6 | 280.6 | 498.0 | 616.6 | 529.7 | 470.4 | 462.5 |
| 82.5° | 98.8 | 114.6 | 170.0 | 126.5 | 118.6 | 209.5 | 490.1 | 589.0 | 585.0 | 521.8 | 509.9 |
| 85° | 27.7 | 35.6 | 79.1 | 55.3 | 47.4 | 110.7 | 367.6 | 442.7 | 395.3 | 288.5 | 292.5 |
| 87.5° | 4.0 | 4.0 | 0.0 | 0.0 | 4.0 | 15.8 | 43.5 | 7.9 | 7.9 | 7.9 | 7.9 |
| 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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# LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-4

Test Date: 10/10/2024

Luminaire Tested: GSS-SB1A-730-U-5WQ

Data in this report applies to families of products including GSS-SB1A-730-U-5WQ

Report Generated By FNC07603 / LDUCLS01DT446
Version: v7.04

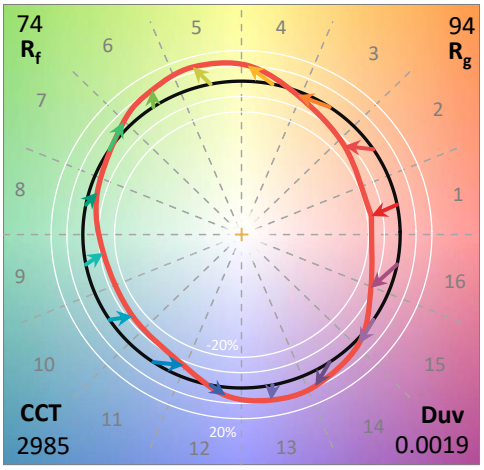
## Test Information

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | SP1-2407-184-4 |
| 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-730-U-5WQ** |
| Description: | GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 70 CRI 3000K CCT 26 LEDS |

## Spectral Parameters

| | |
|---|---|
| CCT (K): | 2985 |
| CIE u': | 0.2504 |
| CIE v': | 0.5243 |
| Duv: | 0.0019 |
| CIE x: | 0.4408 |
| CIE y: | 0.4101 |
| CIE z: | 0.1491 |
| Peak Wavelength (nm): | 595 |
| Dominant Wavelength (nm): | 582 |
| Purity: | 55.41818 |
| Rf: | 73.8 |
| Rg: | 94.4 |

| | |
|---|---|
| CRI (Ra): | 70.8 |
| R1: | 66.3 |
| R2: | 80.6 |
| R3: | 94.5 |
| R4: | 68.2 |
| R5: | 66.5 |
| R6: | 74.7 |
| R7: | 76.2 |
| R8: | 39.6 |
| R9: | -43.2 |
| R10: | 57.6 |
| R11: | 64.8 |
| R12: | 53.5 |
| R13: | 68.7 |
| R14: | 97.0 |
| R15: | 56.4 |




## Test Conditions

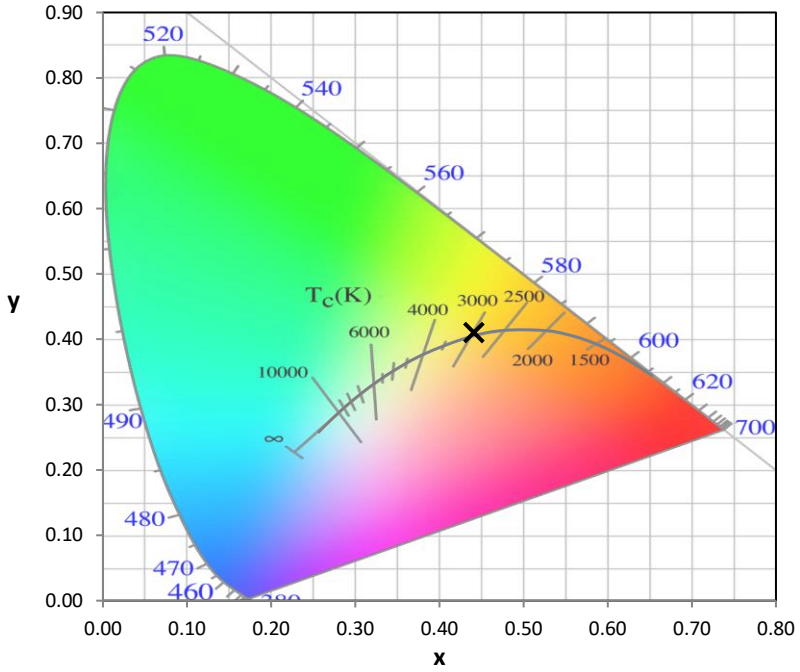
| | |
|---|---|
| Stabilization Time: | 36M |
| Operation Time: | 1H 36M |
| Sphere Temperature (°C): | 25.2 |

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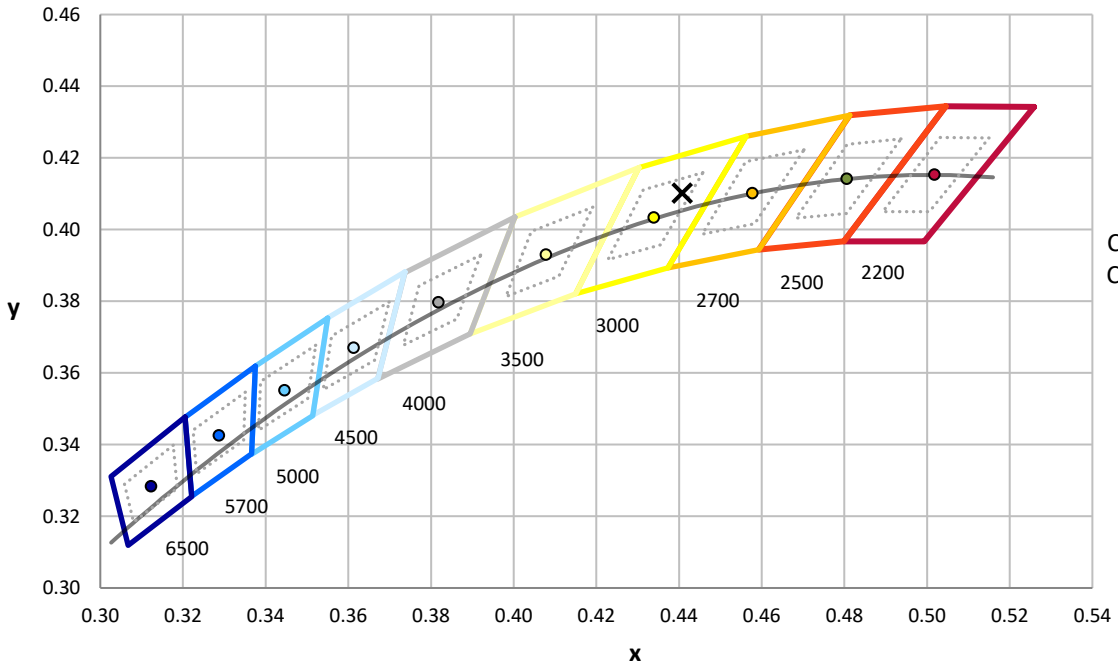
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC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

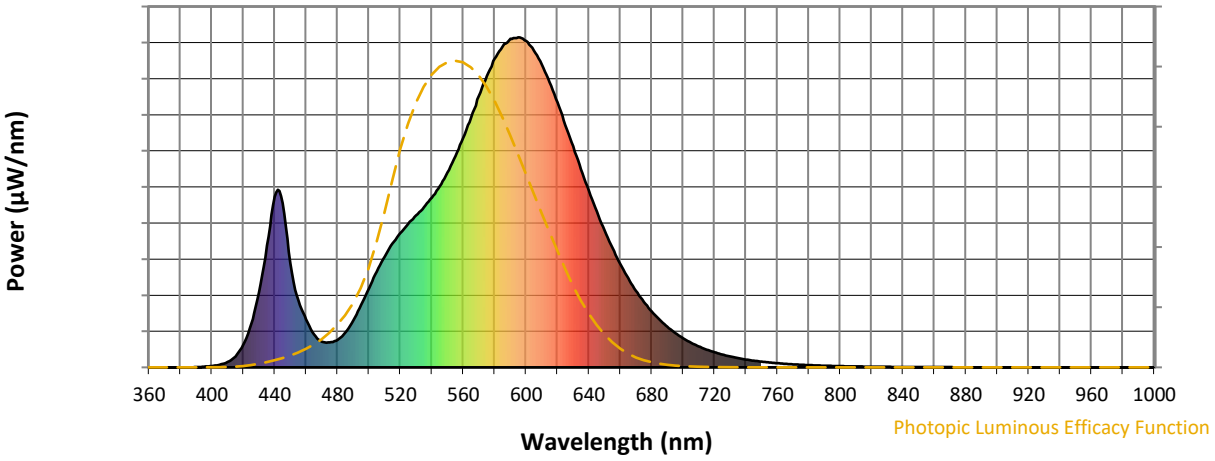



CCT = 2985K
CIE x = 0.4408
CIE y = 0.4101
Duv = 0.0019

Point lies inside the ANSI 3000K 4-step quadrangle

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## Photopic Flux vs. Wavelength

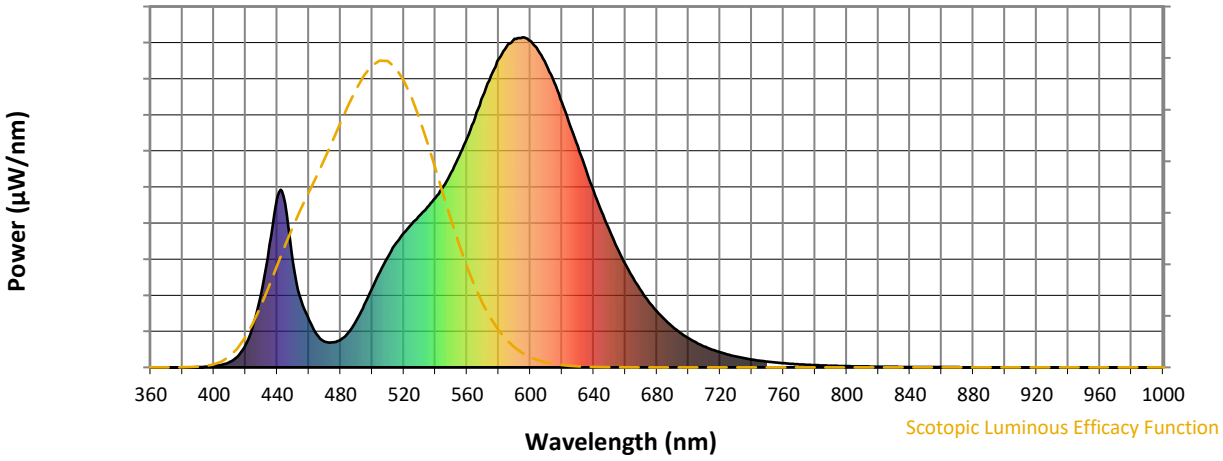



## Photopic Lumens: NR

| 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 | 142 | NR | 620 | 803 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 189 | NR | 625 | 734 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 240 | NR | 630 | 670 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 290 | NR | 635 | 600 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 335 | NR | 640 | 535 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 375 | NR | 645 | 473 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 408 | NR | 650 | 415 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 434 | NR | 655 | 362 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 461 | NR | 660 | 313 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 486 | NR | 665 | 271 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 16 | NR | 540 | 514 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 33 | NR | 545 | 549 | NR | 675 | 198 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 69 | NR | 550 | 591 | NR | 680 | 169 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 131 | NR | 555 | 640 | NR | 685 | 144 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 227 | NR | 560 | 695 | NR | 690 | 123 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 369 | NR | 565 | 757 | NR | 695 | 104 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 517 | NR | 570 | 822 | NR | 700 | 88 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 498 | NR | 575 | 882 | NR | 705 | 75 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 315 | NR | 580 | 935 | NR | 710 | 63 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 204 | NR | 585 | 972 | NR | 715 | 54 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 145 | NR | 590 | 996 | NR | 720 | 46 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 100 | NR | 595 | 1000 | NR | 725 | 39 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 78 | NR | 600 | 989 | NR | 730 | 33 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 76 | NR | 605 | 960 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 83 | NR | 610 | 918 | NR | 740 | 24 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 864 | NR | 745 | 20 | NR | 875 | 1 | NR | | | |

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## Scotopic Flux vs. Wavelength

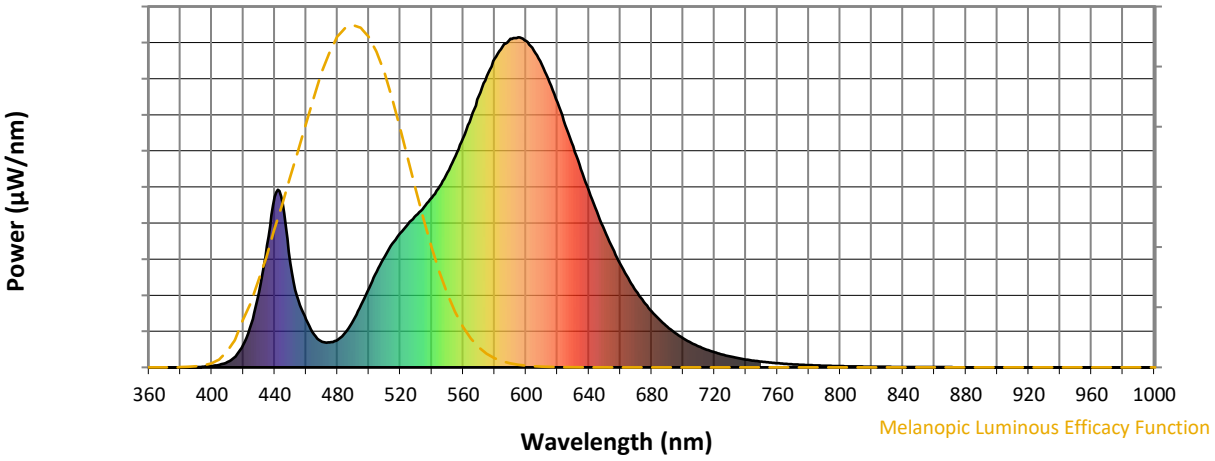



**Scotopic Lumens: NR** **S/P: 1.19**

| 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 | 142 | NR | 620 | 803 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 189 | NR | 625 | 734 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 240 | NR | 630 | 670 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 290 | NR | 635 | 600 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 335 | NR | 640 | 535 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 375 | NR | 645 | 473 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 408 | NR | 650 | 415 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 434 | NR | 655 | 362 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 461 | NR | 660 | 313 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 486 | NR | 665 | 271 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 16 | NR | 540 | 514 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 33 | NR | 545 | 549 | NR | 675 | 198 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 69 | NR | 550 | 591 | NR | 680 | 169 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 131 | NR | 555 | 640 | NR | 685 | 144 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 227 | NR | 560 | 695 | NR | 690 | 123 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 369 | NR | 565 | 757 | NR | 695 | 104 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 517 | NR | 570 | 822 | NR | 700 | 88 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 498 | NR | 575 | 882 | NR | 705 | 75 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 315 | NR | 580 | 935 | NR | 710 | 63 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 204 | NR | 585 | 972 | NR | 715 | 54 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 145 | NR | 590 | 996 | NR | 720 | 46 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 100 | NR | 595 | 1000 | NR | 725 | 39 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 78 | NR | 600 | 989 | NR | 730 | 33 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 76 | NR | 605 | 960 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 83 | NR | 610 | 918 | NR | 740 | 24 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 864 | NR | 745 | 20 | NR | 875 | 1 | NR | | | |

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## Melanopic Flux vs. Wavelength




**Melanopic Lumens: NR** **M/P: 2.13**

| 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 | 142 | NR | 620 | 803 | NR | 750 | 17 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 189 | NR | 625 | 734 | NR | 755 | 15 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 240 | NR | 630 | 670 | NR | 760 | 13 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 290 | NR | 635 | 600 | NR | 765 | 11 | NR | 895 | 0 | NR |
| 380 | 0 | NR | 510 | 335 | NR | 640 | 535 | NR | 770 | 9 | NR | 900 | 0 | NR |
| 385 | 0 | NR | 515 | 375 | NR | 645 | 473 | NR | 775 | 8 | NR | 905 | 0 | NR |
| 390 | 1 | NR | 520 | 408 | NR | 650 | 415 | NR | 780 | 7 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 434 | NR | 655 | 362 | NR | 785 | 6 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 461 | NR | 660 | 313 | NR | 790 | 5 | NR | 920 | 0 | NR |
| 405 | 8 | NR | 535 | 486 | NR | 665 | 271 | NR | 795 | 4 | NR | 925 | 0 | NR |
| 410 | 16 | NR | 540 | 514 | NR | 670 | 231 | NR | 800 | 4 | NR | 930 | 0 | NR |
| 415 | 33 | NR | 545 | 549 | NR | 675 | 198 | NR | 805 | 3 | NR | 935 | 0 | NR |
| 420 | 69 | NR | 550 | 591 | NR | 680 | 169 | NR | 810 | 3 | NR | 940 | 0 | NR |
| 425 | 131 | NR | 555 | 640 | NR | 685 | 144 | NR | 815 | 2 | NR | 945 | 0 | NR |
| 430 | 227 | NR | 560 | 695 | NR | 690 | 123 | NR | 820 | 2 | NR | 950 | 0 | NR |
| 435 | 369 | NR | 565 | 757 | NR | 695 | 104 | NR | 825 | 2 | NR | 955 | 0 | NR |
| 440 | 517 | NR | 570 | 822 | NR | 700 | 88 | NR | 830 | 2 | NR | 960 | 0 | NR |
| 445 | 498 | NR | 575 | 882 | NR | 705 | 75 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 315 | NR | 580 | 935 | NR | 710 | 63 | NR | 840 | 1 | NR | 970 | 0 | NR |
| 455 | 204 | NR | 585 | 972 | NR | 715 | 54 | NR | 845 | 1 | NR | 975 | 0 | NR |
| 460 | 145 | NR | 590 | 996 | NR | 720 | 46 | NR | 850 | 1 | NR | 980 | 0 | NR |
| 465 | 100 | NR | 595 | 1000 | NR | 725 | 39 | NR | 855 | 1 | NR | 985 | 0 | NR |
| 470 | 78 | NR | 600 | 989 | NR | 730 | 33 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 76 | NR | 605 | 960 | NR | 735 | 28 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 83 | NR | 610 | 918 | NR | 740 | 24 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 105 | NR | 615 | 864 | NR | 745 | 20 | NR | 875 | 1 | NR | | | |

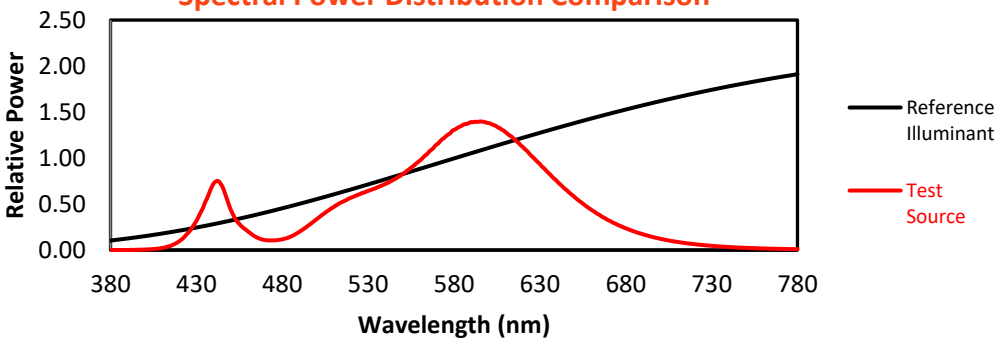
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# TM-30-18

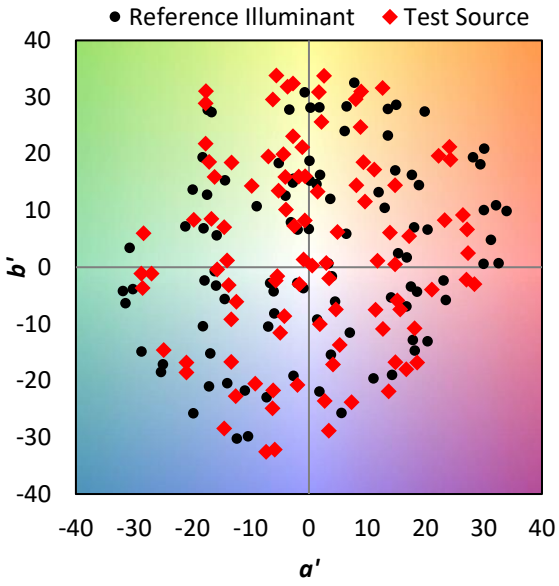
## Summary

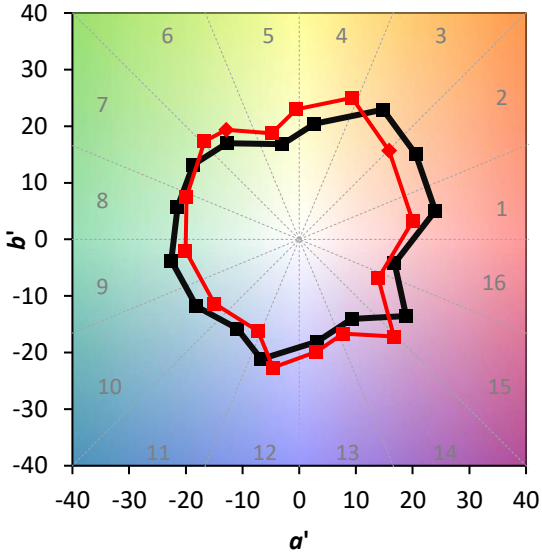
$R_f$ = 73.8
$R_g$ = 94.4
CIE $R_a$ = 70.8
$R_9$ = -43.2

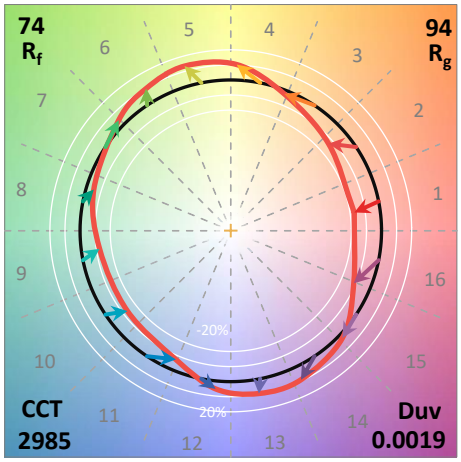
## Spectral Power Distribution Comparison

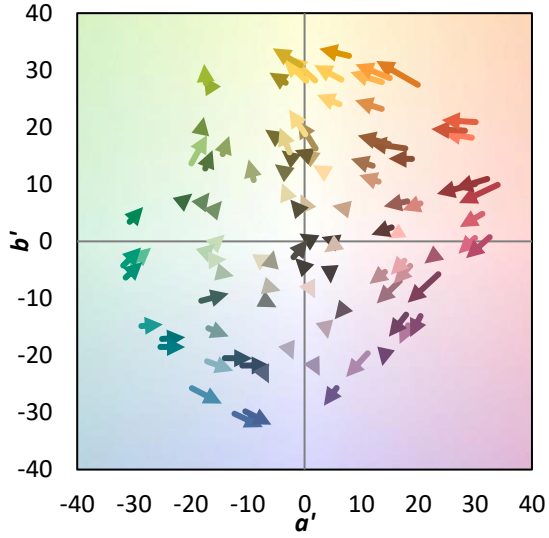



## Color Vector Graphics



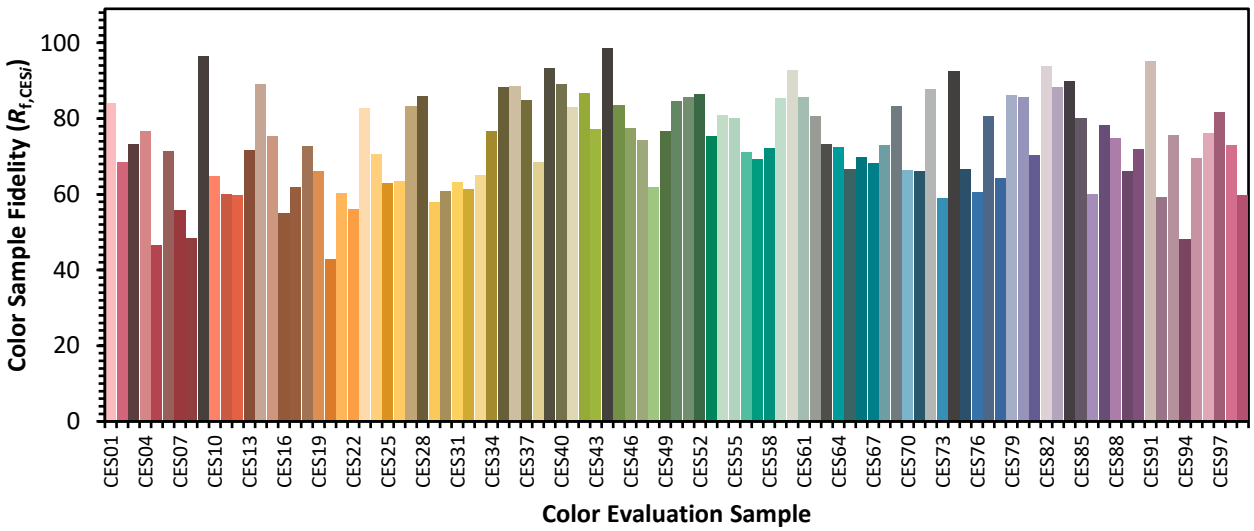



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**Individual Sample Fidelity Index ($R_{f,i}$)**

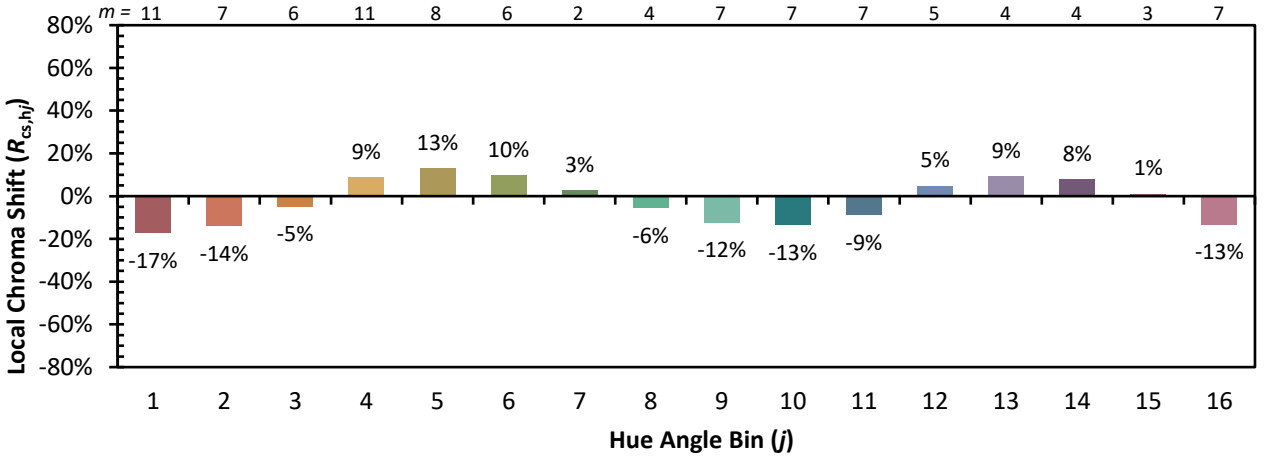
| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 63 | CES51 = 86 | CES76 = 61 |
| CES02 = 62 | CES27 = 83 | CES52 = 86 | CES77 = 81 |
| CES03 = 31 | CES28 = 86 | CES53 = 75 | CES78 = 64 |
| CES04 = 71 | CES29 = 58 | CES54 = 81 | CES79 = 86 |
| CES05 = 49 | CES30 = 61 | CES55 = 80 | CES80 = 86 |
| CES06 = 51 | CES31 = 63 | CES56 = 71 | CES81 = 70 |
| CES07 = 41 | CES32 = 61 | CES57 = 69 | CES82 = 94 |
| CES08 = 40 | CES33 = 65 | CES58 = 72 | CES83 = 88 |
| CES09 = 29 | CES34 = 77 | CES59 = 85 | CES84 = 90 |
| CES10 = 76 | CES35 = 88 | CES60 = 93 | CES85 = 80 |
| CES11 = 59 | CES36 = 89 | CES61 = 86 | CES86 = 60 |
| CES12 = 65 | CES37 = 85 | CES62 = 81 | CES87 = 78 |
| CES13 = 43 | CES38 = 69 | CES63 = 73 | CES88 = 75 |
| CES14 = 74 | CES39 = 93 | CES64 = 72 | CES89 = 66 |
| CES15 = 71 | CES40 = 89 | CES65 = 67 | CES90 = 72 |
| CES16 = 47 | CES41 = 83 | CES66 = 70 | CES91 = 95 |
| CES17 = 50 | CES42 = 87 | CES67 = 68 | CES92 = 59 |
| CES18 = 56 | CES43 = 77 | CES68 = 73 | CES93 = 76 |
| CES19 = 73 | CES44 = 99 | CES69 = 83 | CES94 = 48 |
| CES20 = 66 | CES45 = 83 | CES70 = 66 | CES95 = 70 |
| CES21 = 87 | CES46 = 77 | CES71 = 66 | CES96 = 76 |
| CES22 = 79 | CES47 = 74 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 62 | CES73 = 59 | CES98 = 73 |
| CES24 = 91 | CES49 = 77 | CES74 = 93 | CES99 = 60 |
| CES25 = 73 | CES50 = 85 | CES75 = 67 | |

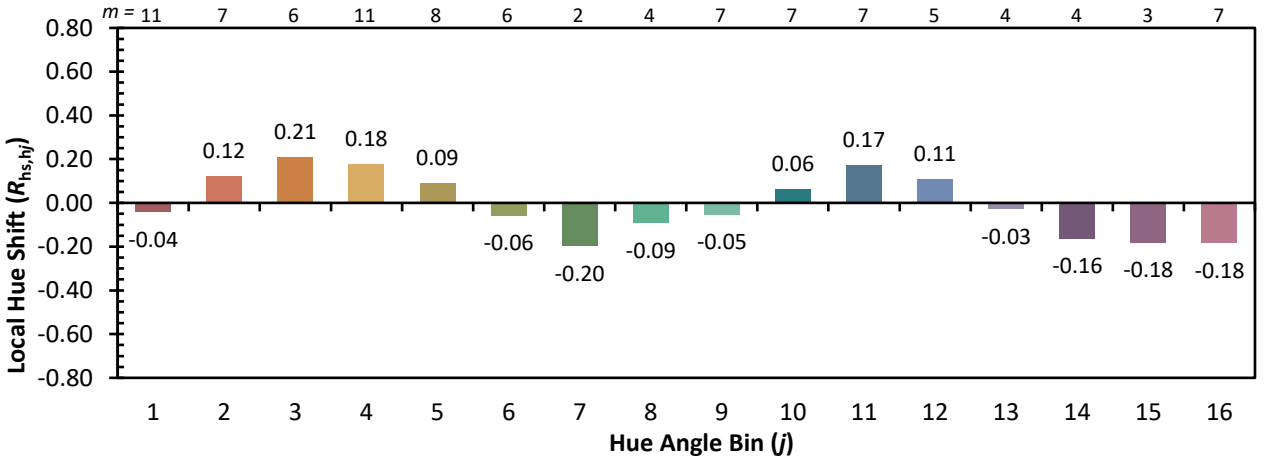


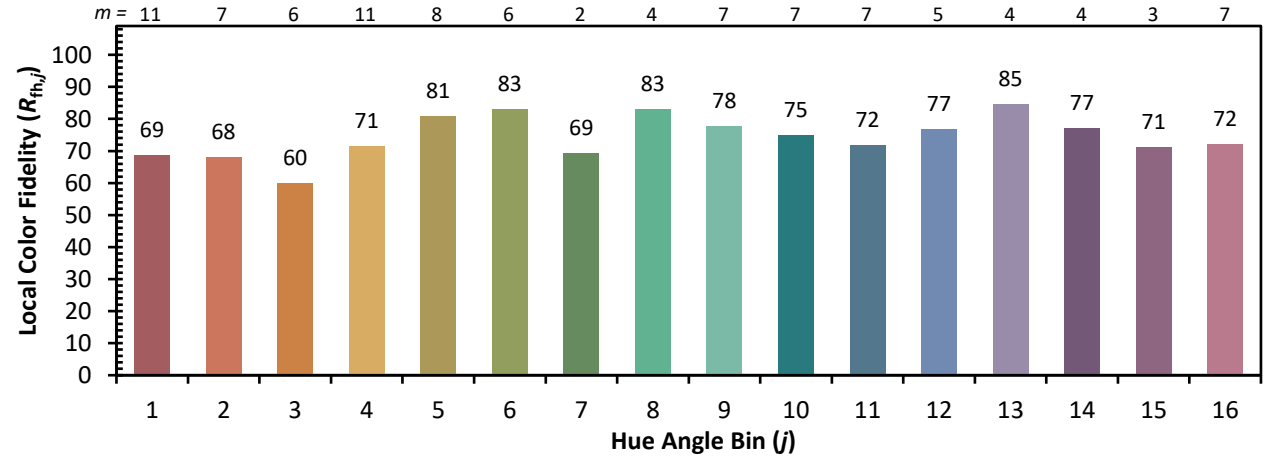
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## Color Rendition by Hue-Angle Bin



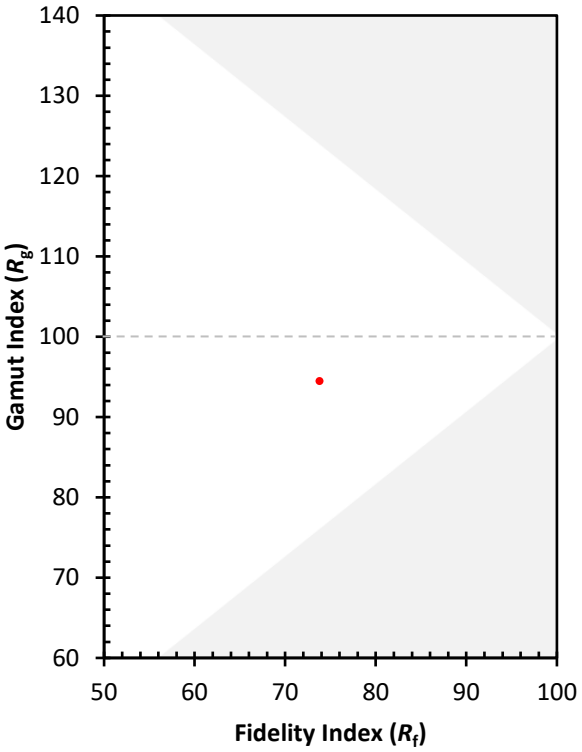



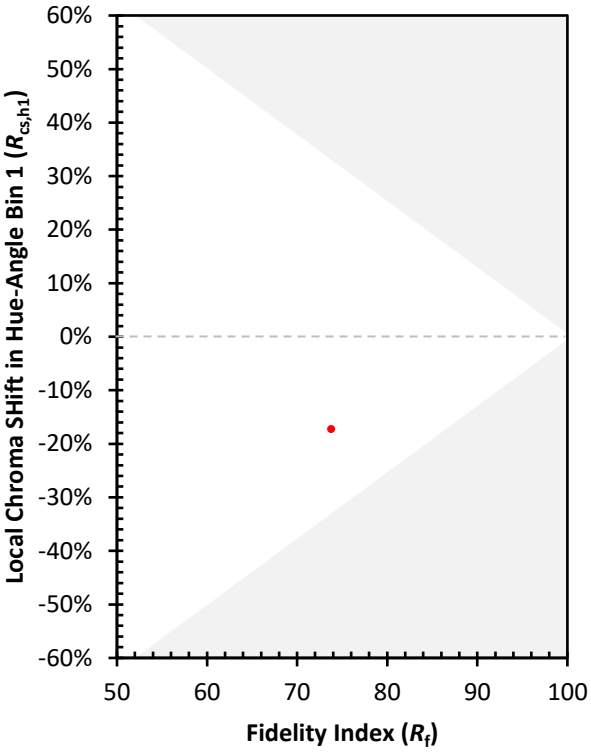



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## Measure Comparisons




(END OF REPORT)