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: STREETWORKS

Report Number: P1458560

Luminaire Tested: GLAN-SB9B-930-U-T3LG-HSS

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: | P1458560 |
| Test Lab: | INNOVATION CENTER(G1) |
| Issue Date: | 5/22/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | STREETWORKS |
| Catalog Number: | GLAN-SB9B-930-U-T3LG-HSS |
| Description: | GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 450mA 9xLight Square PACKAGE 90CRI 3000K FIXTURE w/ TYPE III LOW GLARE WITH HOUSE SIDE SHIELD |
| Light Source: | (234) 3000K CCT, 90 CRI LEDS |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 27289.7 lumens |
| Efficiency: | N/A |
| Efficacy: | 82.8 lumens/watt |
| Luminous Opening: | Rectangular (W 1.5' x L: 1.5' x H: 0') |
| IES Classification: | Type III - Short |
| BUG Rating: | B2 - U0 - G4 |

| | |
|---|---|
| Input Watts (W): | 329.5 |
| 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 |

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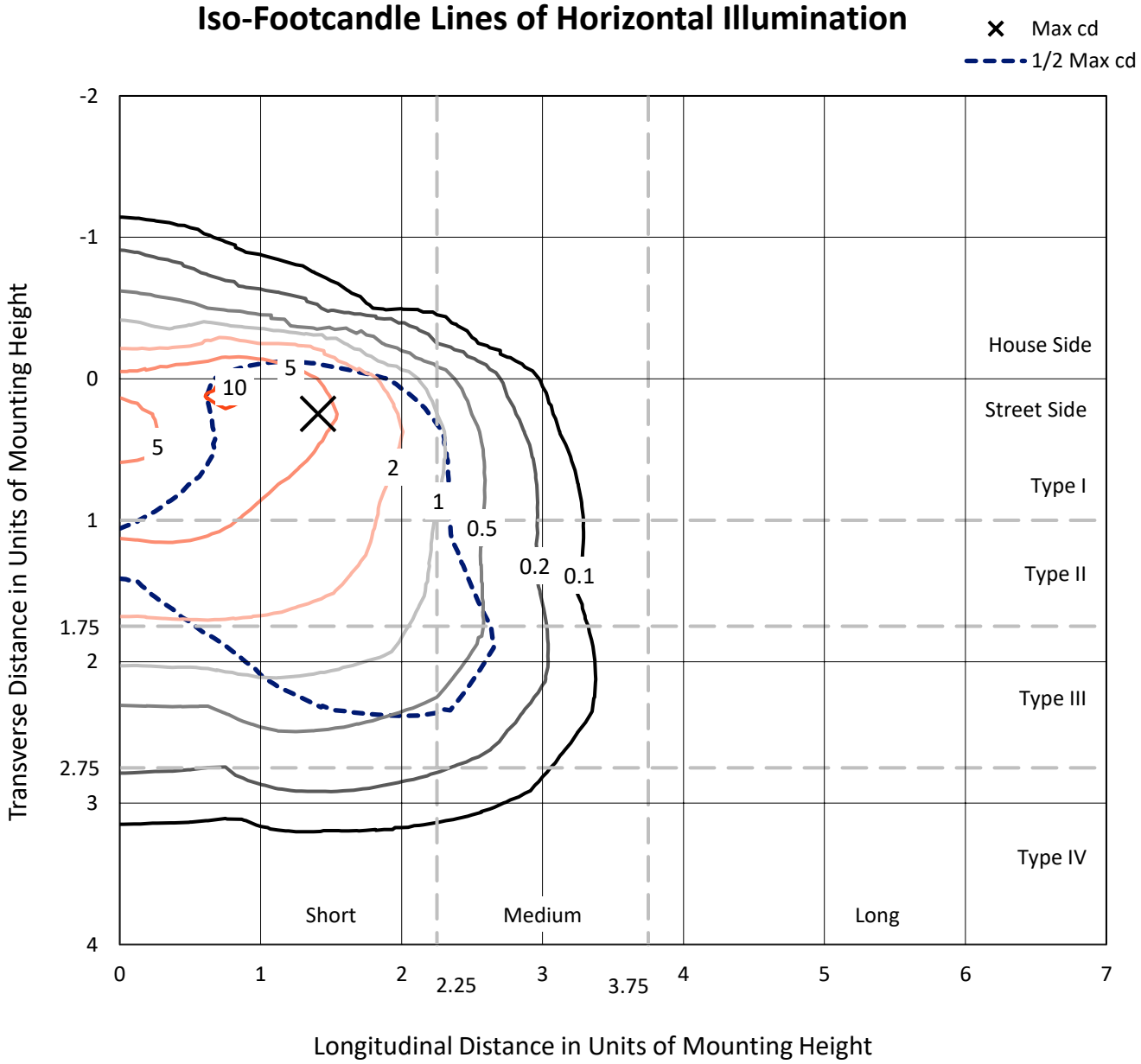
Scaled Data Report

REPORT NUMBER: P1458560
CATALOG NUMBER: GLAN-SB9B-930-U-T3LG-HSS

## Iso-Footcandle Lines of Horizontal Illumination




Based on 25 foot mounting height. Maximum calculated value = 10.8 fc
Type III - Short - N/A

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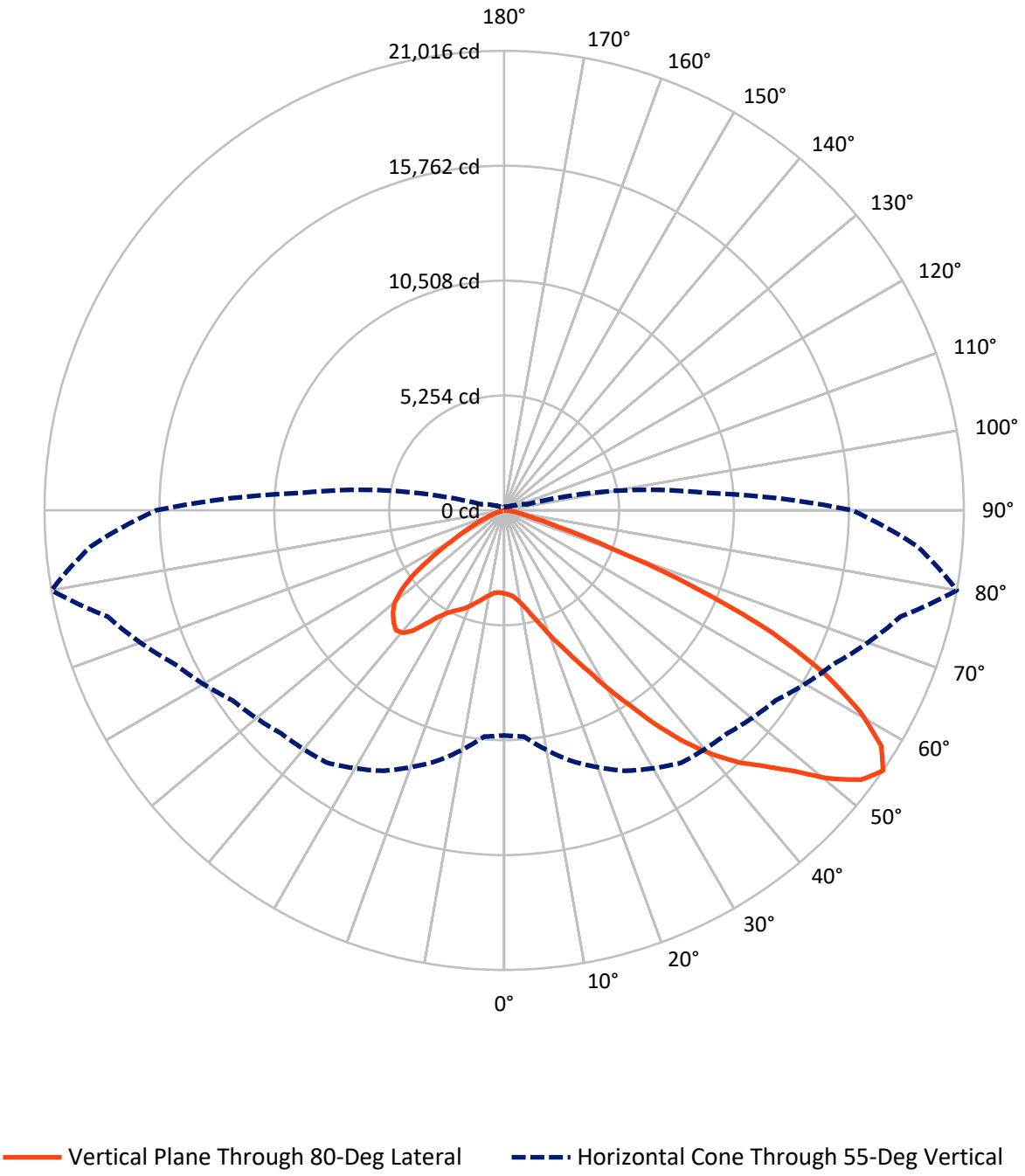
## Luminous Intensity Polar Plot



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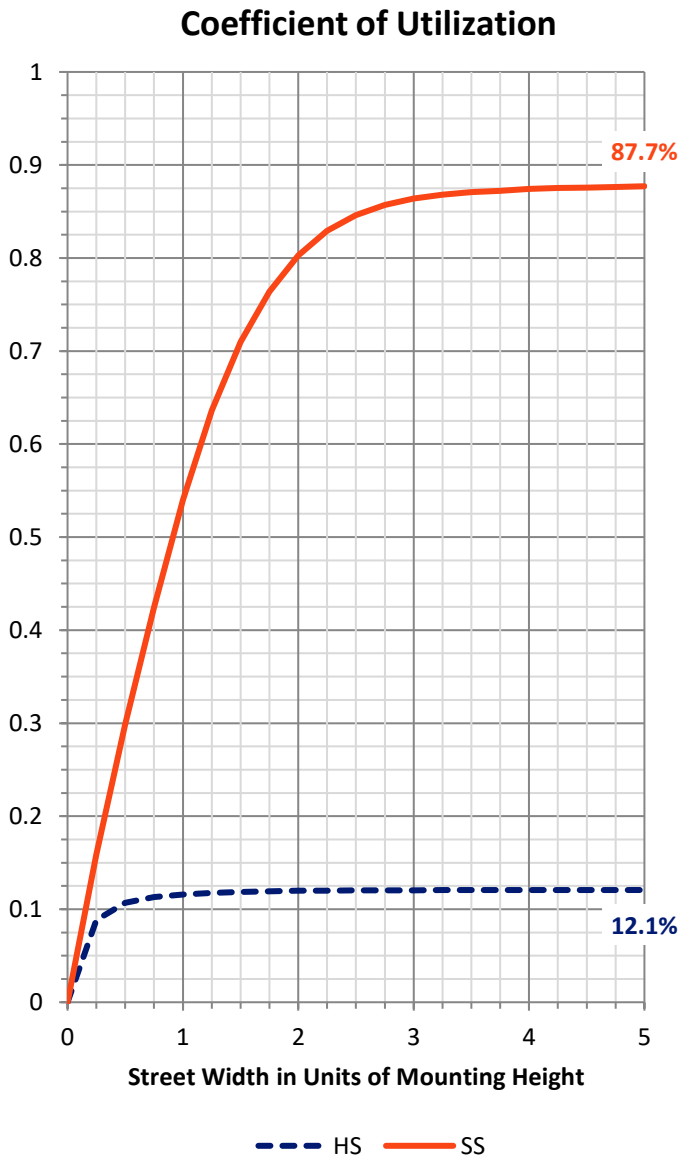
**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 3317.4 | 0.0 | 3317.4 |
| | % Fixture | 12.2 | 0.0 | 12.2 |
| **Street Side** | Lumens | 23972.3 | 0.0 | 23972.3 |
| | % Fixture | 87.8 | 0.0 | 87.8 |
| **Total** | Lumens | 27289.7 | 0.0 | 27289.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 319.0 | 1.2 |
| 10°-20° | 841.1 | 3.1 |
| 20°-30° | 1646.5 | 6.0 |
| 30°-40° | 3349.7 | 12.3 |
| 40°-50° | 5647.1 | 20.7 |
| 50°-60° | 7215.3 | 26.4 |
| 60°-70° | 6160.2 | 22.6 |
| 70°-80° | 1968.5 | 7.2 |
| 80°-90° | 142.1 | 0.5 |
| 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° | 27289.7 | 100.0 |
| 0°-180° | 27289.7 | 100.0 |



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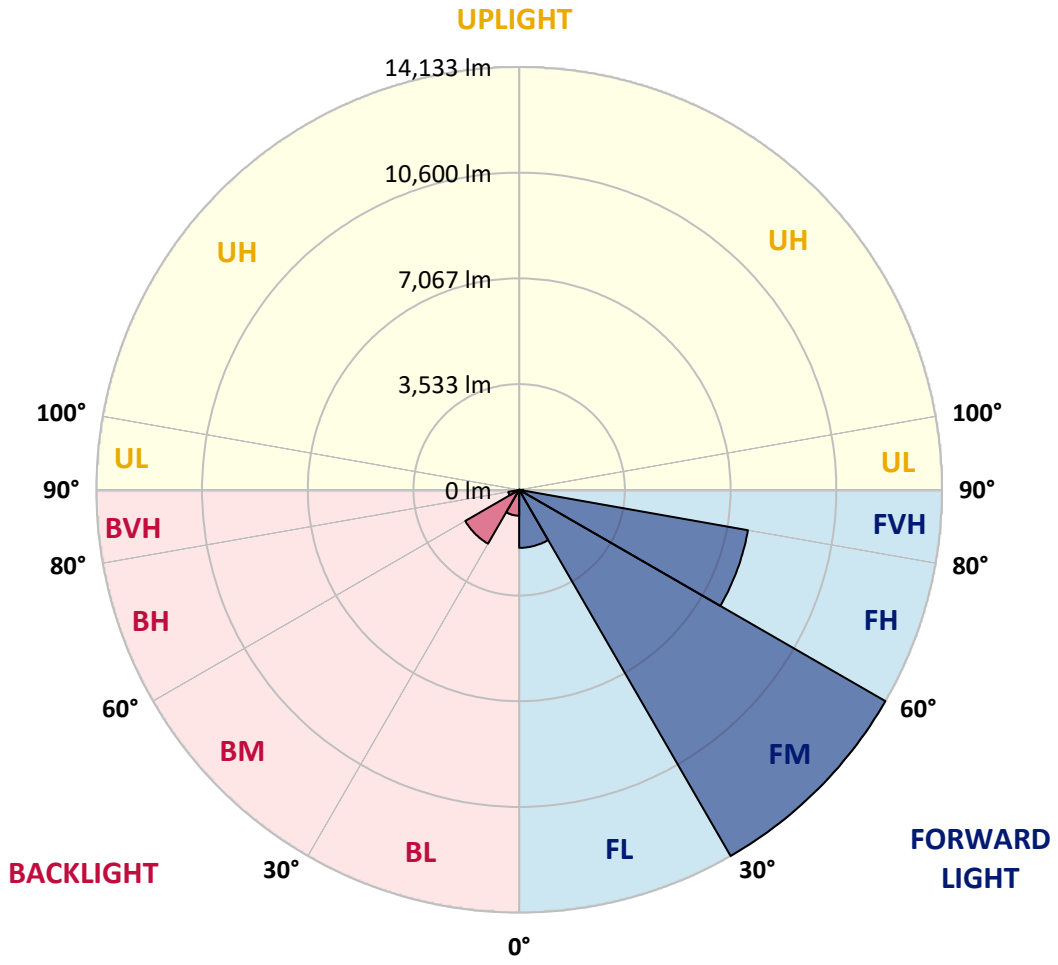
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1940.3 | 7.1 | | | |
| FM | (30°-60°) | 14133.1 | 51.8 | | | |
| FH | (60°-80°) | 7764.1 | 28.5 | | | G4/12000 |
| FVH | (80°-90°) | 134.7 | 0.5 | | | G2/225 |
| BL | (0°-30°) | 866.3 | 3.2 | B2/1000 | | |
| BM | (30°-60°) | 2079.1 | 7.6 | B2/2500 | | |
| BH | (60°-80°) | 364.6 | 1.3 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 7.4 | 0.0 | | | G0/10 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B2-U0-G4**
Type III Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 80° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3801.4 | 3801.4 | 3801.4 | 3801.4 | 3801.4 | 3801.4 | 3801.4 | 3801.4 | 3801.4 | *3801.4* | 3801.4 |
| 2.5° | 3824.7 | 3832.4 | 3824.7 | 3832.4 | 3848.0 | 3840.2 | 3871.2 | 3863.5 | 3863.5 | *3855.7* | 3824.7 |
| 5° | 3607.5 | 3615.2 | 3630.7 | 3669.5 | 3723.8 | 3778.1 | 3848.0 | 3894.5 | 3941.1 | *3933.3* | 3902.3 |
| 7.5° | 3180.8 | 3196.3 | 3258.4 | 3335.9 | 3514.4 | 3677.3 | 3855.7 | 3972.1 | 4072.9 | *4104.0* | 4080.7 |
| 10° | 2940.3 | 2955.8 | 2994.6 | 3072.2 | 3235.1 | 3506.6 | 3855.7 | 4096.2 | 4274.7 | *4336.7* | 4344.5 |
| 12.5° | 2917.0 | 2924.8 | 2955.8 | 3041.1 | 3180.8 | 3413.5 | 3848.0 | 4259.1 | 4561.7 | *4654.8* | 4685.8 |
| 15° | 2932.5 | 2948.0 | 2979.1 | 3048.9 | 3211.8 | 3475.6 | 3910.0 | 4515.1 | 4941.8 | *5073.7* | 5081.5 |
| 17.5° | 2994.6 | 3010.1 | 3048.9 | 3126.5 | 3304.9 | 3638.5 | 4104.0 | 4778.9 | 5399.6 | *5547.0* | 5632.3 |
| 20° | 3118.7 | 3126.5 | 3173.0 | 3273.9 | 3475.6 | 3840.2 | 4391.0 | 5135.8 | 5950.4 | *6167.6* | 6229.7 |
| 22.5° | 3281.6 | 3304.9 | 3367.0 | 3491.1 | 3747.1 | 4119.5 | 4786.7 | 5570.2 | 6555.5 | *6780.5* | 6889.1 |
| 25° | 3460.1 | 3491.1 | 3584.2 | 3785.9 | 4111.7 | 4546.2 | 5275.4 | 6144.3 | 7269.2 | *7540.8* | 7688.2 |
| 27.5° | 3824.7 | 3832.4 | 3894.5 | 4150.5 | 4569.5 | 5104.8 | 5896.1 | 6881.3 | 8107.1 | *8425.2* | 8588.1 |
| 30° | 4623.8 | 4631.5 | 4577.2 | 4647.0 | 5073.7 | 5764.2 | 6625.3 | 7742.5 | 9084.6 | *9526.8* | 9658.7 |
| 32.5° | 5601.3 | 5640.1 | 5632.3 | 5585.7 | 5779.7 | 6423.6 | 7494.2 | 8774.3 | 10232.8 | *10698.3* | 10822.4 |
| 35° | 6710.7 | 6803.8 | 6780.5 | 6765.0 | 6788.2 | 7269.2 | 8487.2 | 9914.7 | 11536.1 | *12102.5* | 12203.3 |
| 37.5° | 7796.8 | 7820.0 | 7928.7 | 8060.5 | 8076.1 | 8409.7 | 9635.4 | 11125.0 | 12746.4 | *13467.9* | 13623.0 |
| 40° | 8634.6 | 8712.2 | 8983.7 | 9247.5 | 9519.0 | 9782.8 | 10581.9 | 12102.5 | 13708.4 | *14678.1* | 14747.9 |
| 42.5° | 9286.3 | 9472.5 | 9868.2 | 10279.3 | 10830.1 | 11125.0 | 11481.8 | 12792.9 | 14491.9 | *15756.5* | 15725.4 |
| 45° | 10077.6 | 10155.2 | 10713.8 | 11256.8 | 11815.4 | 12265.4 | 12257.6 | 13374.8 | 15104.8 | *16679.7* | 16485.7 |
| 47.5° | 10612.9 | 10706.0 | 11466.3 | 12102.5 | 12676.5 | 12901.5 | 12948.1 | 14003.2 | 15950.4 | *17796.8* | 17339.1 |
| 50° | 10900.0 | 11062.9 | 11893.0 | 12699.8 | 13320.5 | 13390.3 | 13599.7 | 14825.5 | 17059.8 | *19278.6* | 18417.5 |
| 52.5° | 10931.0 | 11086.2 | 12040.4 | 13080.0 | 13754.9 | 13894.6 | 14251.4 | 15756.5 | 18138.2 | *20465.6* | 19038.1 |
| 55° | *10287.1* | *10380.2* | *11862.0* | *13142.0* | *14096.3* | *14422.1* | *15151.3* | *16617.6* | *18766.6* | *21016.4* | *18983.8* |
| 57.5° | 9682.0 | 9775.1 | 11062.9 | 13033.4 | 14445.4 | 15112.6 | 16113.3 | 17207.2 | 18277.8 | *20333.7* | 17773.5 |
| 60° | 9162.2 | 9208.7 | 10380.2 | 12529.1 | 14577.3 | 15787.5 | 16943.4 | 16625.4 | 17013.3 | *18696.7* | 15702.2 |
| 62.5° | 8184.7 | 8215.7 | 9604.4 | 11621.5 | 14313.5 | 16307.3 | 17230.5 | 15391.8 | 15624.6 | *16439.2* | 13266.2 |
| 65° | 6183.1 | 6299.5 | 7571.8 | 10938.8 | 13879.0 | 16547.8 | 16563.3 | 13886.8 | 13646.3 | *13452.3* | 10434.5 |
| 67.5° | 4197.1 | 4329.0 | 5097.0 | 9837.1 | 13173.1 | 16648.6 | 15267.7 | 11939.5 | 10395.7 | *9394.9* | 6834.8 |
| 70° | 3351.4 | 3351.4 | 3615.2 | 7905.4 | 11497.3 | 15360.8 | 13661.8 | 9014.8 | 6602.0 | *5190.1* | 3661.8 |
| 72.5° | 2203.3 | 2211.0 | 2459.3 | 5019.4 | 8153.6 | 11714.6 | 11140.5 | 5213.4 | 3429.0 | *2645.5* | 1807.6 |
| 75° | 799.1 | 799.1 | 1078.4 | 2009.3 | 4313.4 | 6974.4 | 6788.2 | 2490.3 | 1861.9 | *1443.0* | 1093.9 |
| 77.5° | 426.7 | 442.2 | 519.8 | 830.1 | 1652.5 | 2839.4 | 2653.2 | 1272.3 | 1055.1 | *899.9* | 682.7 |
| 80° | 287.0 | 294.8 | 349.1 | 512.0 | 799.1 | 1093.9 | 853.4 | 713.7 | 713.7 | *605.1* | 457.7 |
| 82.5° | 155.2 | 162.9 | 232.7 | 333.6 | 426.7 | 512.0 | 411.2 | 418.9 | 504.3 | *411.2* | 263.8 |
| 85° | 108.6 | 108.6 | 178.4 | 240.5 | 240.5 | 248.3 | 178.4 | 263.8 | 294.8 | *256.0* | 178.4 |
| 87.5° | 62.1 | 62.1 | 100.9 | 116.4 | 116.4 | 108.6 | 54.3 | 93.1 | 116.4 | *131.9* | 77.6 |
| 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: P1458560
CATALOG NUMBER: GLAN-SB9B-930-U-T3LG-HSS

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3801.4 | 3801.4 | 3801.4 | 3801.4 | 3801.4 | 3801.4 | 3801.4 | 3801.4 | 3801.4 | 3801.4 | 3801.4 |
| 2.5° | 3816.9 | 3793.7 | 3747.1 | 3654.0 | 3607.5 | 3545.4 | 3491.1 | 3421.3 | 3405.8 | 3398.0 | 3367.0 |
| 5° | 3879.0 | 3832.4 | 3692.8 | 3491.1 | 3320.4 | 3157.5 | 2994.6 | 2901.5 | 2823.9 | 2785.1 | 2777.4 |
| 7.5° | 4034.2 | 3941.1 | 3685.0 | 3328.2 | 3010.1 | 2730.8 | 2490.3 | 2280.8 | 2172.2 | 2079.1 | 2086.9 |
| 10° | 4266.9 | 4119.5 | 3700.6 | 3173.0 | 2699.8 | 2249.8 | 1900.7 | 1598.1 | 1380.9 | 1280.1 | 1272.3 |
| 12.5° | 4577.2 | 4367.7 | 3754.9 | 3017.9 | 2319.6 | 1691.2 | 1249.0 | 1070.6 | 1024.1 | 1016.3 | 1008.5 |
| 15° | 4957.4 | 4662.5 | 3809.2 | 2816.1 | 1807.6 | 1171.5 | 1016.3 | 977.5 | 969.7 | 962.0 | 962.0 |
| 17.5° | 5415.1 | 5003.9 | 3840.2 | 2474.8 | 1318.9 | 1008.5 | 954.2 | 931.0 | 923.2 | 915.4 | 915.4 |
| 20° | 5989.2 | 5384.0 | 3879.0 | 2040.4 | 1117.1 | 969.7 | 907.7 | 876.7 | 868.9 | 868.9 | 861.1 |
| 22.5° | 6555.5 | 5810.7 | 3848.0 | 1660.2 | 1078.4 | 923.2 | 853.4 | 822.3 | 806.8 | 806.8 | 799.1 |
| 25° | 7207.2 | 6245.2 | 3754.9 | 1497.3 | 1070.6 | 884.4 | 799.1 | 752.5 | 729.3 | 721.5 | 721.5 |
| 27.5° | 7951.9 | 6741.7 | 3607.5 | 1505.0 | 1070.6 | 853.4 | 729.3 | 667.2 | 651.7 | 636.2 | 636.2 |
| 30° | 8805.3 | 7346.8 | 3498.9 | 1605.9 | 1086.1 | 822.3 | 667.2 | 589.6 | 566.3 | 550.8 | 558.6 |
| 32.5° | 9782.8 | 8021.8 | 3491.1 | 1768.8 | 1109.4 | 775.8 | 597.4 | 512.0 | 488.8 | 481.0 | 488.8 |
| 35° | 10892.2 | 8859.6 | 3669.5 | 1892.9 | 1047.3 | 674.9 | 512.0 | 442.2 | 418.9 | 418.9 | 426.7 |
| 37.5° | 12125.7 | 9821.6 | 3910.0 | 1861.9 | 845.6 | 535.3 | 442.2 | 387.9 | 364.6 | 372.4 | 380.1 |
| 40° | 13250.6 | 10574.1 | 3948.8 | 1590.4 | 636.2 | 457.7 | 380.1 | 341.4 | 325.8 | 333.6 | 341.4 |
| 42.5° | 14104.0 | 11179.3 | 3576.4 | 1233.5 | 535.3 | 387.9 | 325.8 | 294.8 | 287.0 | 302.6 | 302.6 |
| 45° | 14794.5 | 11419.8 | 2986.8 | 915.4 | 473.2 | 333.6 | 287.0 | 271.5 | 256.0 | 263.8 | 263.8 |
| 47.5° | 15516.0 | 11458.5 | 2436.0 | 737.0 | 418.9 | 302.6 | 263.8 | 248.3 | 232.7 | 232.7 | 232.7 |
| 50° | 16214.2 | 11365.4 | 1861.9 | 651.7 | 387.9 | 271.5 | 240.5 | 225.0 | 209.5 | 201.7 | 201.7 |
| 52.5° | 16384.9 | 10620.7 | 1365.4 | 605.1 | 356.9 | 256.0 | 225.0 | 209.5 | 193.9 | 186.2 | 186.2 |
| 55° | *15911.6* | *9208.7* | *1070.6* | *543.1* | *325.8* | *232.7* | *209.5* | *193.9* | *170.7* | *162.9* | *162.9* |
| 57.5° | 14352.3 | 7021.0 | 853.4 | 465.5 | 294.8 | 225.0 | 193.9 | 178.4 | 155.2 | 147.4 | 147.4 |
| 60° | 12327.4 | 4980.6 | 690.5 | 380.1 | 271.5 | 201.7 | 178.4 | 155.2 | 139.6 | 124.1 | 124.1 |
| 62.5° | 10085.4 | 3576.4 | 558.6 | 318.1 | 256.0 | 178.4 | 162.9 | 139.6 | 108.6 | 85.3 | 85.3 |
| 65° | 7734.7 | 2567.9 | 434.4 | 256.0 | 232.7 | 155.2 | 139.6 | 116.4 | 85.3 | 62.1 | 62.1 |
| 67.5° | 5003.9 | 1660.2 | 325.8 | 225.0 | 178.4 | 131.9 | 108.6 | 93.1 | 77.6 | 54.3 | 46.5 |
| 70° | 2637.7 | 969.7 | 240.5 | 193.9 | 131.9 | 100.9 | 93.1 | 77.6 | 62.1 | 38.8 | 38.8 |
| 72.5° | 1365.4 | 636.2 | 178.4 | 170.7 | 100.9 | 69.8 | 77.6 | 62.1 | 46.5 | 23.3 | 23.3 |
| 75° | 876.7 | 426.7 | 131.9 | 139.6 | 62.1 | 54.3 | 54.3 | 38.8 | 23.3 | 15.5 | 7.8 |
| 77.5° | 566.3 | 287.0 | 93.1 | 116.4 | 38.8 | 31.0 | 31.0 | 15.5 | 7.8 | 0.0 | 0.0 |
| 80° | 333.6 | 178.4 | 62.1 | 77.6 | 15.5 | 15.5 | 7.8 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 170.7 | 93.1 | 31.0 | 31.0 | 7.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 108.6 | 46.5 | 7.8 | 7.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 54.3 | 15.5 | 7.8 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 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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# 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

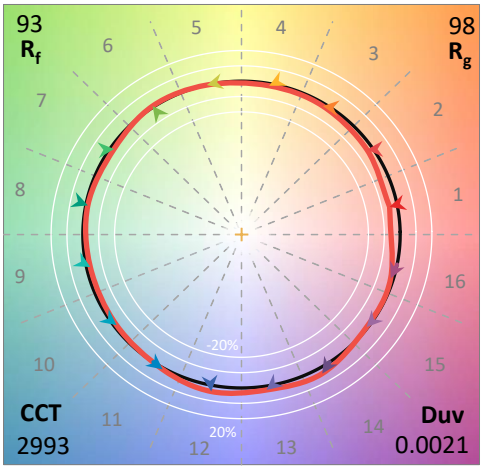
## Test Information

| | |
|---|---|
| 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 |

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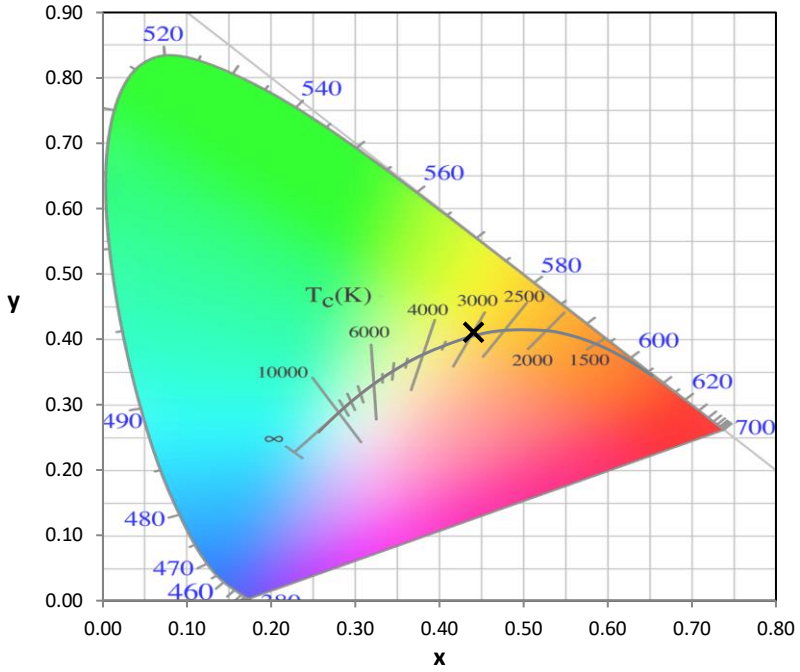
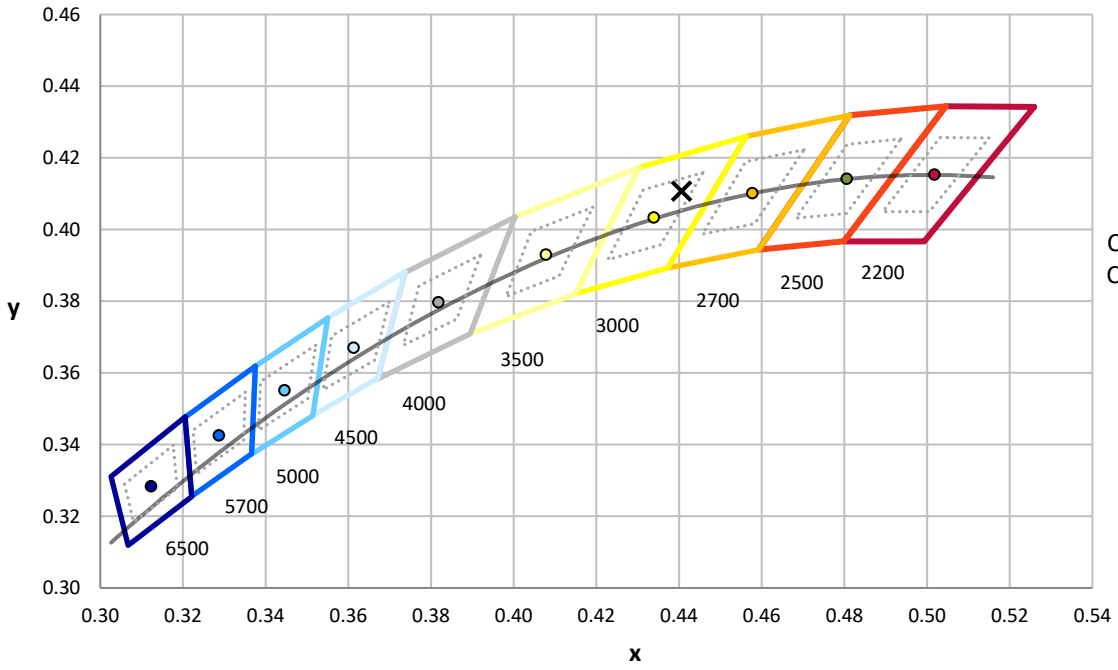
## CIE 1931 Chromaticity Diagram




## 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

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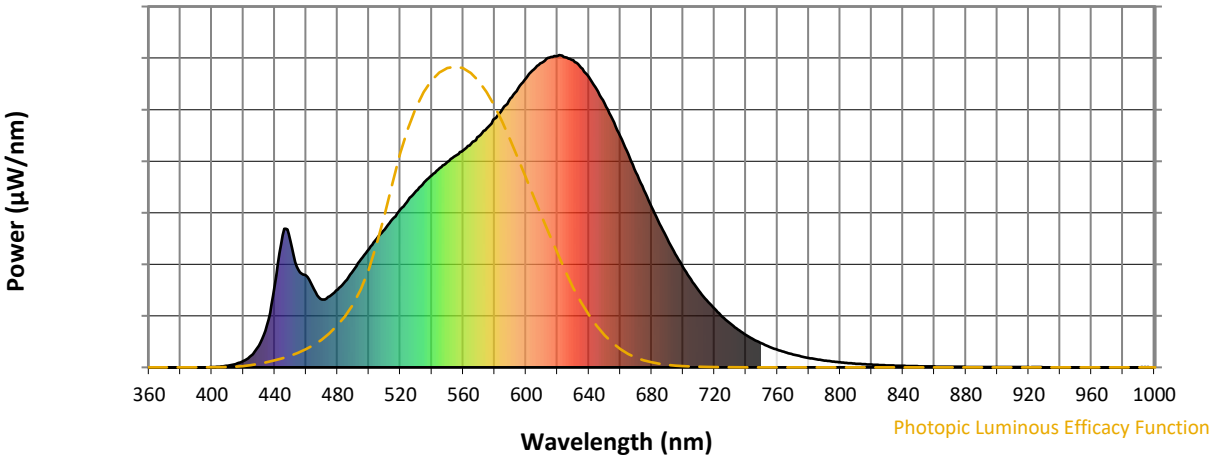
## Photopic Flux vs. Wavelength




## 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 | 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 | | | |

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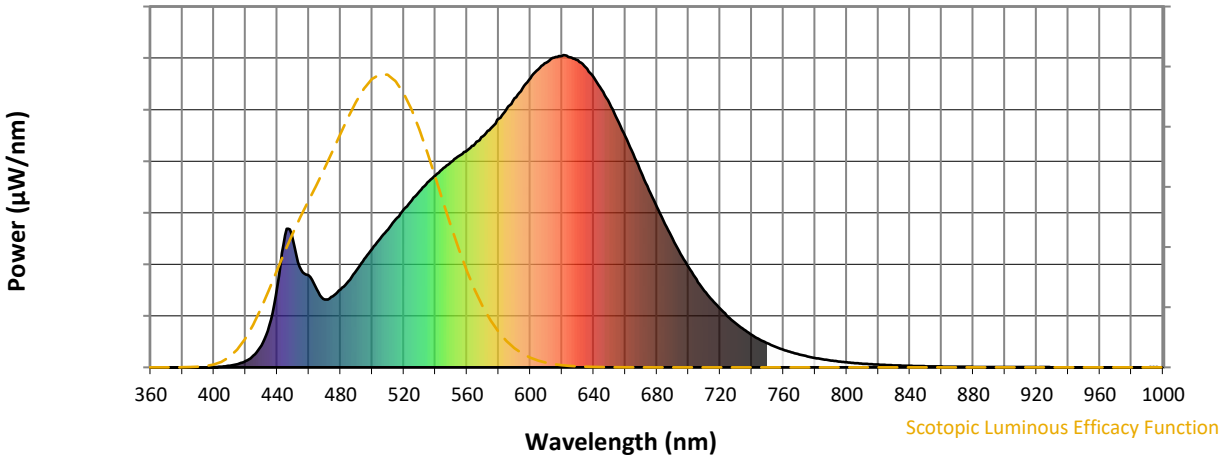
## Scotopic Flux vs. Wavelength




**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 | | | |

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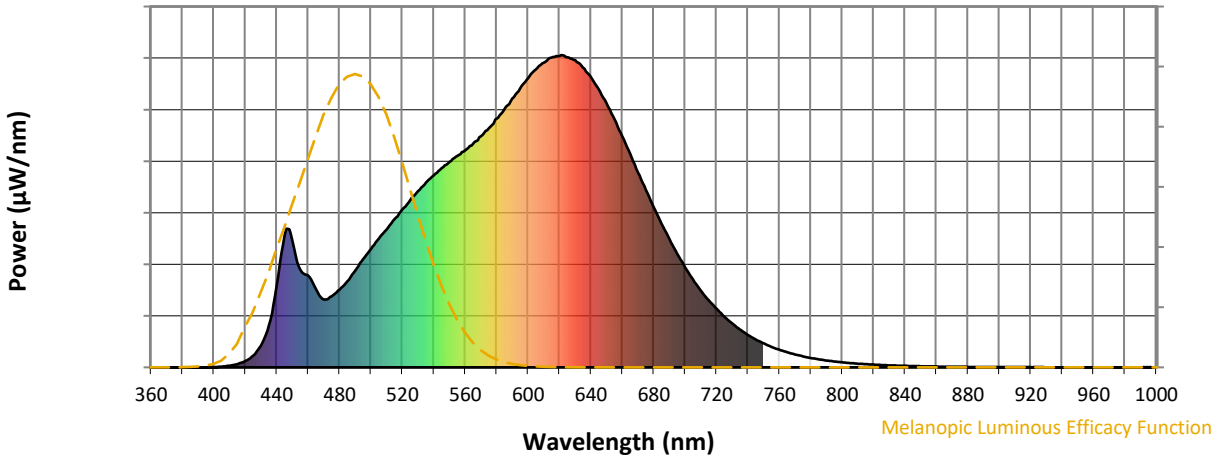
## Melanopic Flux vs. Wavelength




**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 | | | |

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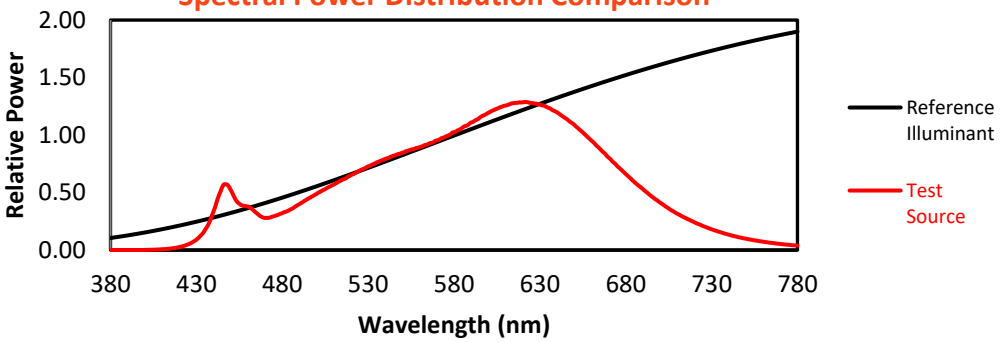
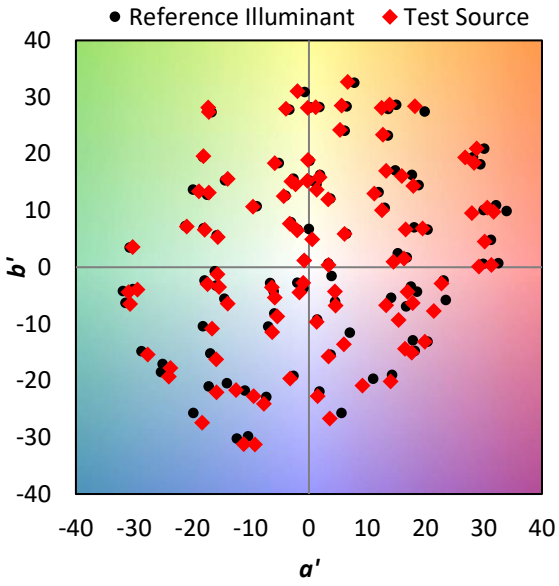
## Summary

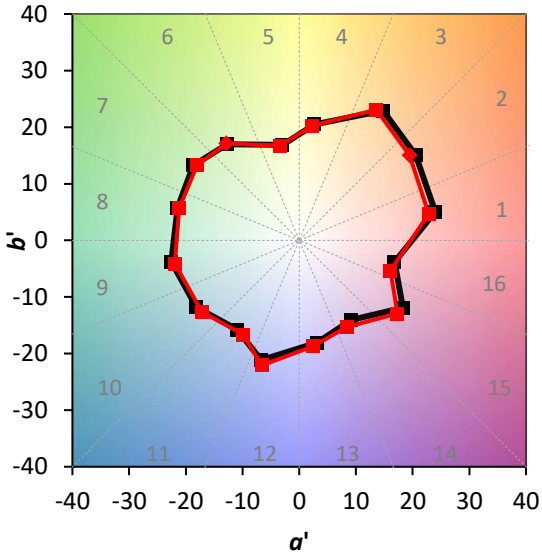
$R_f$ = 92.6
$R_g$ = 98.5
CIE $R_a$ = 92.4
$R_9$ = 58.2

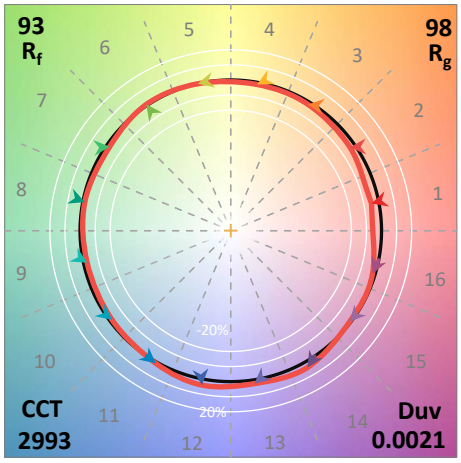
## Spectral Power Distribution Comparison

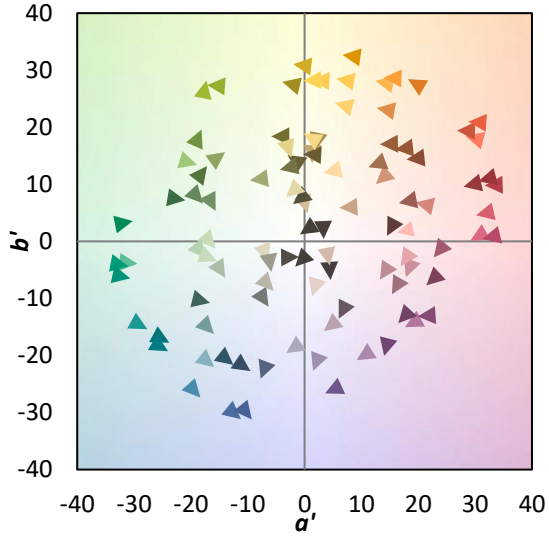



## Color Vector Graphics



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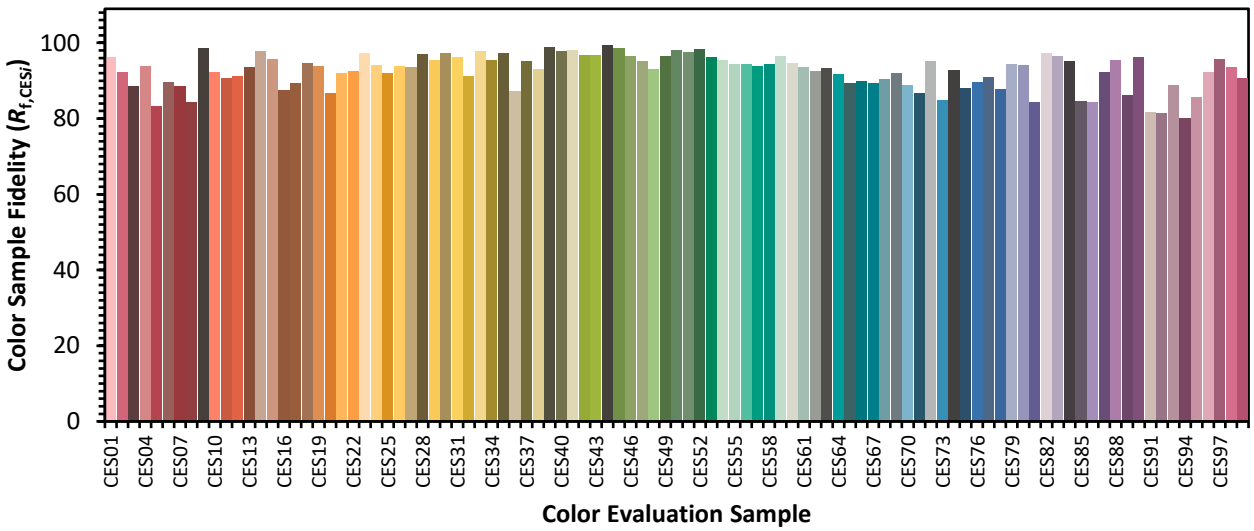
**Individual Sample Fidelity Index ($R_{f,i}$)**

| | | | |
|---|---|---|---|
| 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 | |



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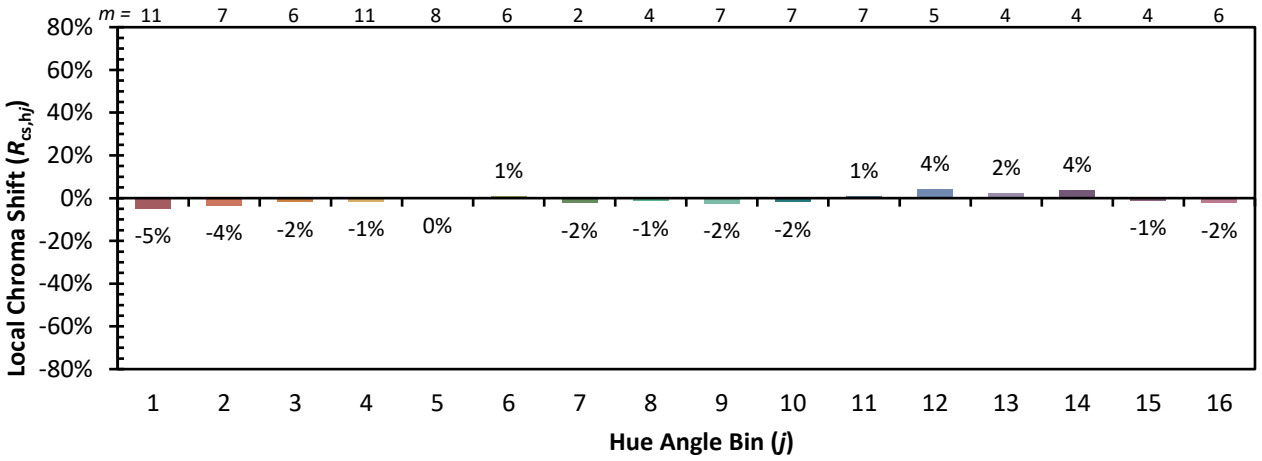
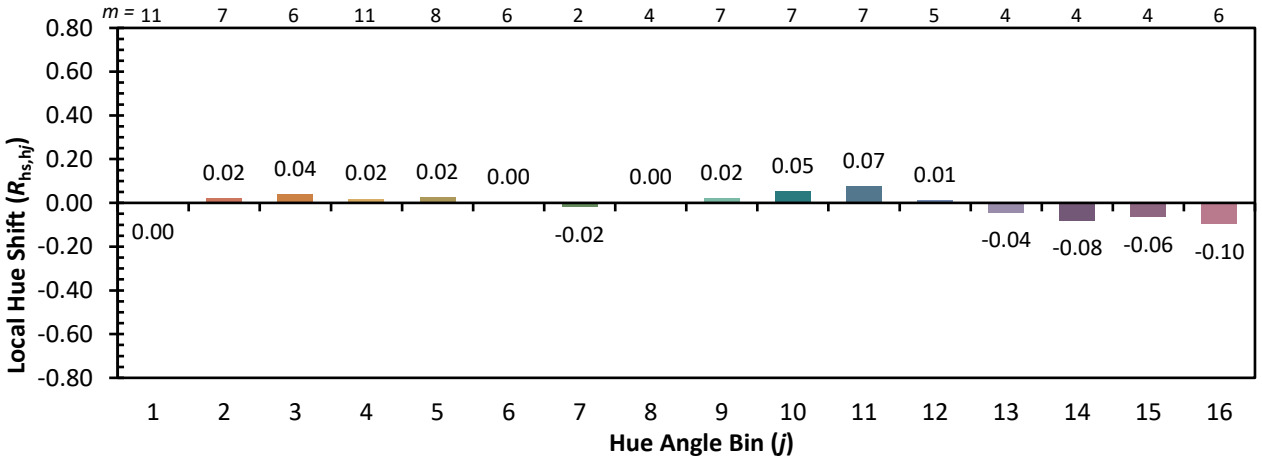
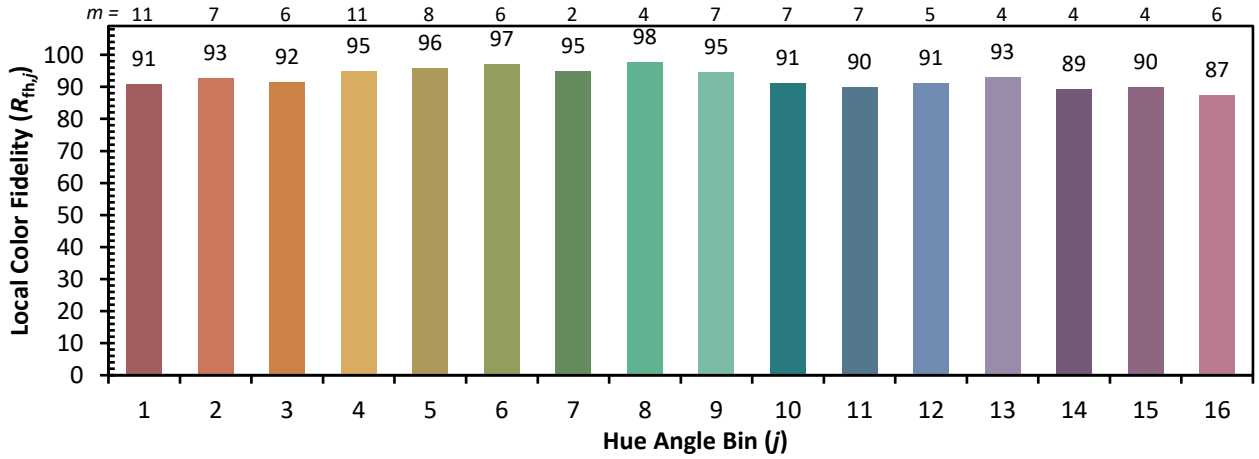
## Color Rendition by Hue-Angle Bin



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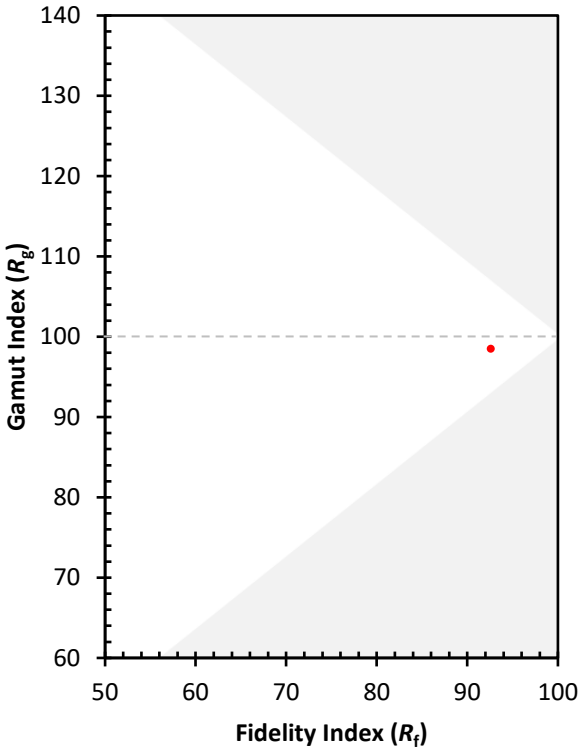
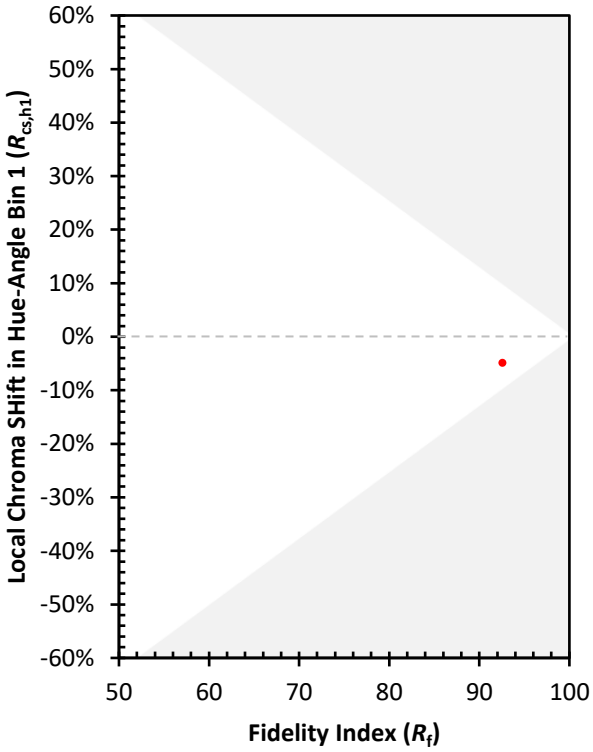
## Measure Comparisons




(END OF REPORT)