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

Scaled data based on original data using

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

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P641987

Luminaire Tested: GWS-SA6C-722-U-RW-W-GRSWH

Issue Date: 1/10/2023

Report Generated By 670246102 / DESKTOP-G35701P

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-2019 |
| Report Number: | P641987 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-51) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 1/10/2023 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GWS-SA6C-722-U-RW-W-GRSWH |
| Description: | GALLEON WALL SLIM LUMINAIRE. (6) LIGHTSQUARES WITH 16 LEDS EACH AND RECTANGULAR WIDE OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH |
| Light Source: | (96) 2200K CCT, 70 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 18437.7 lumens |
| Efficiency: | N/A |
| Efficacy: | 97.5 lumens/watt |
| Luminous Opening: | Rectangular (W 2' x L: 1' x H: 0') |
| IES Classification: | Type V - Short |
| BUG Rating: | B4 - U0 - G1 |

| | |
|---|---|
| Input Watts (W): | 189.2 |
| Input Voltage (V): | 120 |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | NR |
| Total Harmonic Distortion (THDi): | NR |
| Frequency (hertz): | 0 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

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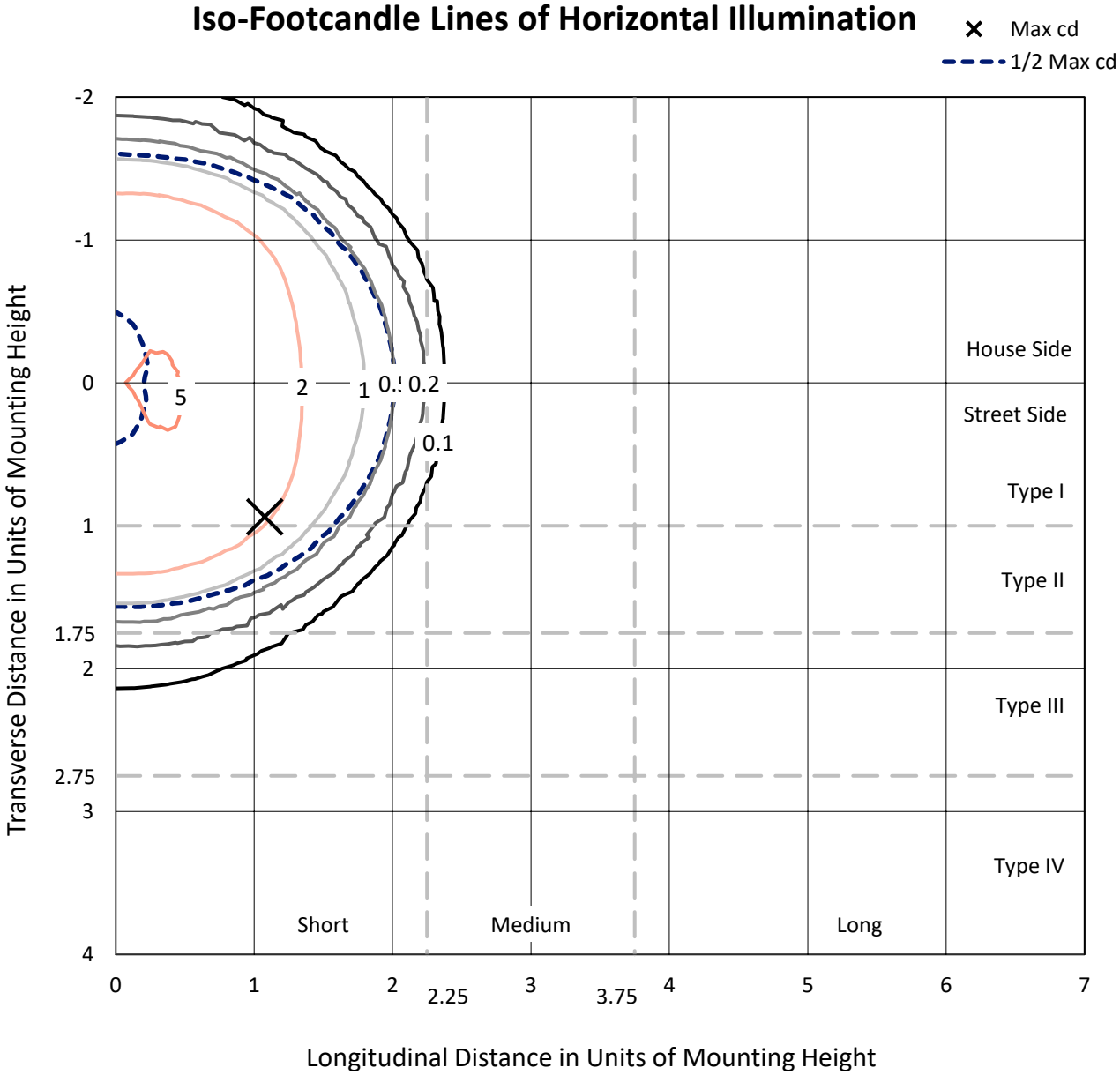
Scaled Data Report

REPORT NUMBER: P641987
CATALOG NUMBER: GWS-SA6C-722-U-RW-W-GRSWH

## Iso-Footcandle Lines of Horizontal Illumination




Based on 25 foot mounting height. Maximum calculated value = 5.4 fc
Type V - Short - N/A

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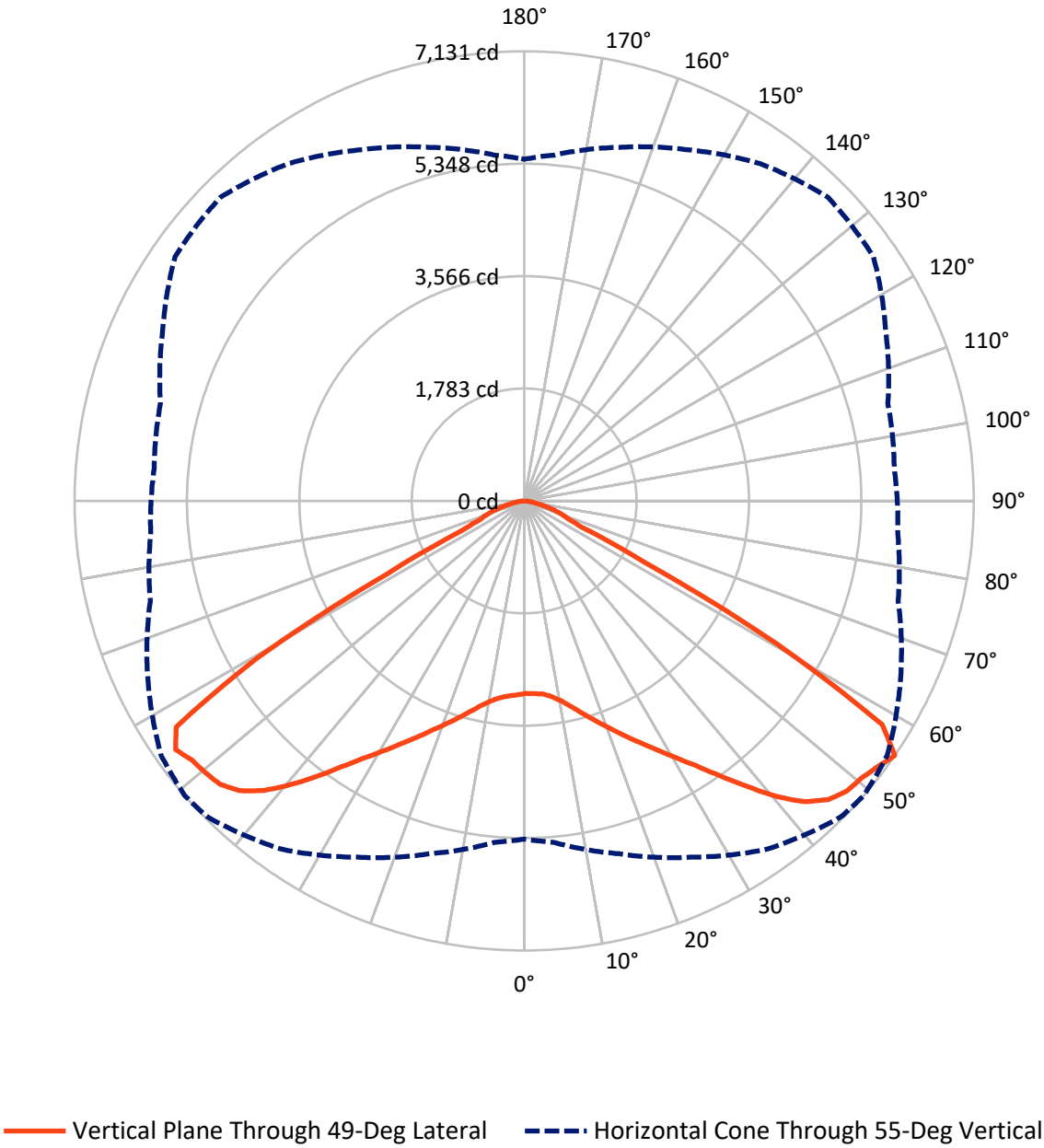
## Luminous Intensity Polar Plot



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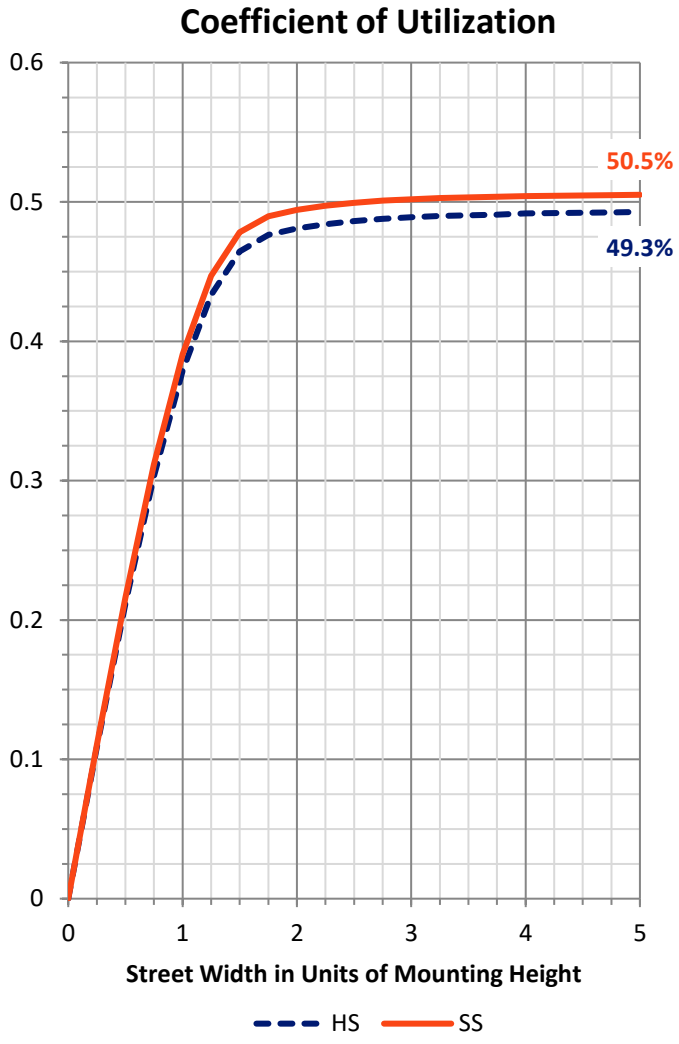
REPORT NUMBER: P641987
CATALOG NUMBER: GWS-SA6C-722-U-RW-W-GRSWH

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 9128.4 | 0.0 | 9128.4 |
| | % Fixture | 49.5 | 0.0 | 49.5 |
| **Street Side** | Lumens | 9309.3 | 0.0 | 9309.3 |
| | % Fixture | 50.5 | 0.0 | 50.5 |
| **Total** | Lumens | 18437.7 | 0.0 | 18437.7 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 297.9 | 1.6 |
| 10°-20° | 982.8 | 5.3 |
| 20°-30° | 1871.9 | 10.2 |
| 30°-40° | 3173.2 | 17.2 |
| 40°-50° | 4775.5 | 25.9 |
| 50°-60° | 5227.3 | 28.4 |
| 60°-70° | 1652.9 | 9.0 |
| 70°-80° | 396.7 | 2.2 |
| 80°-90° | 59.5 | 0.3 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 18437.7 | 100.0 |
| 0°-180° | 18437.7 | 100.0 |



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REPORT NUMBER: P641987
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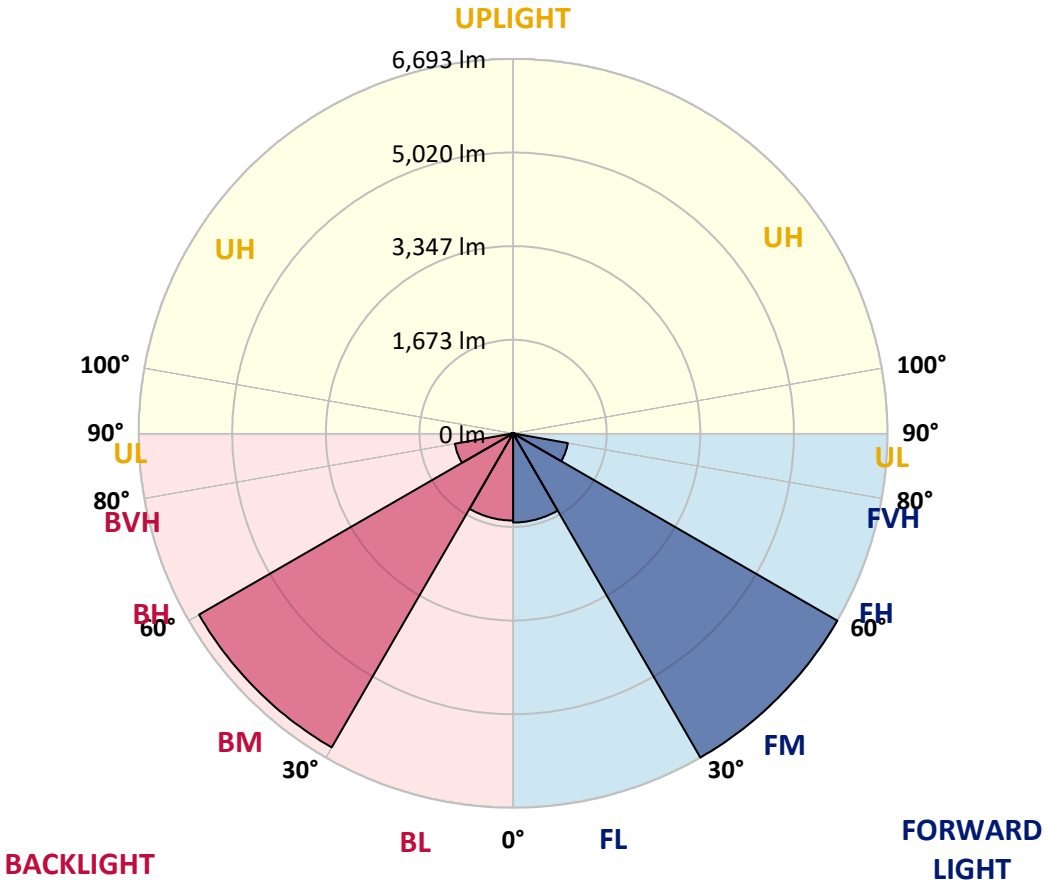
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 1594.1 | 8.6 | | | |
| FM | (30°-60°) | 6693.4 | 36.3 | | | |
| FH | (60°-80°) | 994.2 | 5.4 | | | G1/1800 |
| FVH | (80°-90°) | 27.6 | 0.1 | | | G1/100 |
| BL | (0°-30°) | 1558.5 | 8.5 | B3/2500 | | |
| BM | (30°-60°) | 6482.6 | 35.2 | B4/8500 | | |
| BH | (60°-80°) | 1055.3 | 5.7 | B3/2500 | | G1/1800 |
| BVH | (80°-90°) | 32.0 | 0.2 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B4-U0-G1**
Type V Short



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REPORT NUMBER: P641987
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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 49° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 |
| 2.5° | 3009.3 | 3012.3 | 3018.3 | 3028.8 | 3039.3 | 3054.3 | 3060.3 | 3067.8 | 3066.3 | 3075.3 | 3075.3 |
| 5° | 2994.3 | 2998.8 | 3007.8 | 3022.8 | 3040.8 | 3069.3 | 3076.8 | 3094.8 | 3112.8 | 3135.3 | 3142.8 |
| 7.5° | 3012.3 | 3018.3 | 3028.8 | 3052.8 | 3079.8 | 3117.3 | 3132.3 | 3162.3 | 3196.8 | 3237.2 | 3253.7 |
| 10° | 3046.8 | 3054.3 | 3072.3 | 3111.3 | 3154.8 | 3211.8 | 3225.3 | 3262.7 | 3318.2 | 3373.7 | 3406.7 |
| 12.5° | 3085.8 | 3097.8 | 3130.8 | 3192.3 | 3256.7 | 3331.7 | 3352.7 | 3399.2 | 3459.2 | 3531.1 | 3576.1 |
| 15° | 3130.8 | 3141.3 | 3192.3 | 3279.2 | 3379.7 | 3478.7 | 3502.6 | 3547.6 | 3615.1 | 3685.6 | 3748.5 |
| 17.5° | 3225.3 | 3243.2 | 3303.2 | 3403.7 | 3520.6 | 3637.6 | 3664.6 | 3715.6 | 3769.5 | 3825.0 | 3885.0 |
| 20° | 3354.2 | 3369.2 | 3445.7 | 3570.1 | 3708.1 | 3814.5 | 3841.5 | 3886.5 | 3912.0 | 3940.5 | 3991.5 |
| 22.5° | 3483.2 | 3504.1 | 3591.1 | 3738.1 | 3900.0 | 4015.4 | 4036.4 | 4078.4 | 4060.4 | 4051.4 | 4084.4 |
| 25° | 3643.6 | 3672.1 | 3757.5 | 3918.0 | 4082.9 | 4225.4 | 4241.9 | 4277.8 | 4247.9 | 4201.4 | 4199.9 |
| 27.5° | 3843.0 | 3868.5 | 3957.0 | 4121.9 | 4285.3 | 4433.8 | 4465.3 | 4513.3 | 4447.3 | 4390.3 | 4349.8 |
| 30° | 4079.9 | 4096.4 | 4193.9 | 4369.3 | 4537.2 | 4678.2 | 4718.7 | 4766.7 | 4717.2 | 4622.7 | 4582.2 |
| 32.5° | 4355.8 | 4378.3 | 4490.8 | 4675.2 | 4825.1 | 4966.1 | 5006.6 | 5066.5 | 5012.6 | 4906.1 | 4855.1 |
| 35° | 4687.2 | 4709.7 | 4828.1 | 5029.1 | 5182.0 | 5327.4 | 5355.9 | 5405.4 | 5337.9 | 5215.0 | 5174.5 |
| 37.5° | 5047.0 | 5075.5 | 5225.5 | 5415.9 | 5576.3 | 5745.8 | 5747.3 | 5762.3 | 5666.3 | 5513.4 | 5468.4 |
| 40° | 5451.9 | 5489.4 | 5639.3 | 5837.2 | 6030.7 | 6168.6 | 6167.1 | 6125.1 | 5963.2 | 5726.3 | 5657.3 |
| 42.5° | 5852.2 | 5882.2 | 6033.7 | 6237.6 | 6431.0 | 6561.5 | 6522.5 | 6420.5 | 6186.6 | 5864.2 | 5772.8 |
| 45° | 6141.6 | 6164.1 | 6323.1 | 6552.5 | 6748.9 | 6829.9 | 6759.4 | 6636.4 | 6320.1 | 5951.2 | 5816.2 |
| 47.5° | 6278.1 | 6308.1 | 6468.5 | 6696.4 | 6918.3 | 6964.8 | 6880.8 | 6765.4 | 6398.0 | 6032.2 | 5850.7 |
| 50° | 6204.6 | 6243.6 | 6425.0 | 6636.4 | 6886.8 | 6982.8 | 6922.8 | 6807.4 | 6480.5 | 6111.6 | 5912.2 |
| 52.5° | 6014.2 | 6051.7 | 6281.1 | 6537.5 | 6820.9 | 7011.3 | 7009.8 | 6915.3 | 6575.0 | 6134.1 | 5915.2 |
| 55° | 5363.4 | 5436.9 | 5793.8 | 6236.1 | 6739.9 | 7095.3 | 7131.2 | 7030.8 | 6589.9 | 6140.1 | 5946.7 |
| 57.5° | 3490.6 | 3619.6 | 3958.5 | 4534.2 | 5544.9 | 6453.5 | 6696.4 | 6720.4 | 6482.0 | 6114.6 | 5952.7 |
| 60° | 1457.4 | 1560.9 | 1829.3 | 2211.6 | 3046.8 | 4127.9 | 4598.7 | 5071.0 | 5640.8 | 5847.7 | 5897.2 |
| 62.5° | 905.6 | 914.6 | 941.6 | 1028.6 | 1307.5 | 1835.3 | 2138.2 | 2580.5 | 3427.7 | 4148.9 | 4481.8 |
| 65° | 817.2 | 821.7 | 827.7 | 821.7 | 835.2 | 899.7 | 980.6 | 1135.1 | 1479.9 | 1838.3 | 2264.1 |
| 67.5° | 719.7 | 725.7 | 730.2 | 725.7 | 730.2 | 733.2 | 742.2 | 755.7 | 818.7 | 869.7 | 908.6 |
| 70° | 581.8 | 590.8 | 598.3 | 595.3 | 613.3 | 613.3 | 622.3 | 632.8 | 664.2 | 701.7 | 728.7 |
| 72.5° | 443.8 | 436.3 | 445.3 | 448.3 | 464.8 | 473.8 | 487.3 | 499.3 | 535.3 | 557.8 | 592.3 |
| 75° | 287.9 | 280.4 | 293.9 | 301.4 | 323.9 | 335.9 | 347.9 | 359.9 | 385.4 | 400.3 | 433.3 |
| 77.5° | 155.9 | 154.4 | 167.9 | 178.4 | 202.4 | 217.4 | 226.4 | 235.4 | 256.4 | 260.9 | 281.9 |
| 80° | 90.0 | 90.0 | 99.0 | 106.5 | 121.5 | 137.9 | 146.9 | 154.4 | 169.4 | 173.9 | 182.9 |
| 82.5° | 49.5 | 49.5 | 54.0 | 58.5 | 70.5 | 79.5 | 87.0 | 93.0 | 106.5 | 111.0 | 115.5 |
| 85° | 24.0 | 22.5 | 25.5 | 28.5 | 33.0 | 37.5 | 42.0 | 45.0 | 55.5 | 58.5 | 64.5 |
| 87.5° | 3.0 | 3.0 | 3.0 | 4.5 | 6.0 | 9.0 | 10.5 | 10.5 | 16.5 | 19.5 | 22.5 |
| 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: P641987
CATALOG NUMBER: GWS-SA6C-722-U-RW-W-GRSWH

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 | 3054.3 |
| 2.5° | 3084.3 | 3064.8 | 3076.8 | 3081.3 | 3081.3 | 3076.8 | 3057.3 | 3051.3 | 3042.3 | 3028.8 | 3028.8 |
| 5° | 3153.3 | 3138.3 | 3141.3 | 3133.8 | 3115.8 | 3093.3 | 3057.3 | 3039.3 | 3024.3 | 3007.8 | 3006.3 |
| 7.5° | 3271.7 | 3252.2 | 3249.2 | 3220.8 | 3172.8 | 3124.8 | 3070.8 | 3037.8 | 3015.3 | 2994.3 | 2992.8 |
| 10° | 3426.2 | 3408.2 | 3385.7 | 3328.7 | 3258.2 | 3187.8 | 3114.3 | 3069.3 | 3036.3 | 3006.3 | 3004.8 |
| 12.5° | 3598.6 | 3577.6 | 3535.6 | 3451.7 | 3363.2 | 3294.2 | 3210.3 | 3141.3 | 3091.8 | 3051.3 | 3043.8 |
| 15° | 3786.0 | 3756.0 | 3684.1 | 3585.1 | 3498.1 | 3424.7 | 3334.7 | 3235.7 | 3160.8 | 3096.3 | 3088.8 |
| 17.5° | 3930.0 | 3891.0 | 3813.0 | 3720.1 | 3648.1 | 3574.6 | 3457.7 | 3333.2 | 3225.3 | 3144.3 | 3132.3 |
| 20° | 4028.9 | 3997.5 | 3909.0 | 3840.0 | 3798.0 | 3733.6 | 3597.1 | 3456.2 | 3334.7 | 3232.7 | 3226.8 |
| 22.5° | 4120.4 | 4082.9 | 3996.0 | 3955.5 | 3955.5 | 3912.0 | 3781.5 | 3615.1 | 3472.7 | 3354.2 | 3339.2 |
| 25° | 4223.9 | 4183.4 | 4117.4 | 4112.9 | 4133.9 | 4114.4 | 3957.0 | 3778.5 | 3612.1 | 3478.7 | 3454.7 |
| 27.5° | 4367.8 | 4322.8 | 4283.8 | 4310.8 | 4340.8 | 4319.8 | 4144.4 | 3937.5 | 3762.0 | 3627.1 | 3606.1 |
| 30° | 4597.2 | 4541.7 | 4505.8 | 4538.7 | 4597.2 | 4535.7 | 4345.3 | 4126.4 | 3949.5 | 3801.0 | 3790.5 |
| 32.5° | 4864.1 | 4801.1 | 4763.7 | 4816.1 | 4868.6 | 4772.7 | 4583.7 | 4373.8 | 4187.9 | 4031.9 | 4013.9 |
| 35° | 5185.0 | 5105.5 | 5050.0 | 5120.5 | 5174.5 | 5080.0 | 4892.6 | 4693.2 | 4486.3 | 4324.3 | 4300.3 |
| 37.5° | 5469.9 | 5373.9 | 5336.4 | 5435.4 | 5507.4 | 5445.9 | 5242.0 | 5054.5 | 4828.1 | 4651.2 | 4640.7 |
| 40° | 5676.8 | 5582.3 | 5555.3 | 5718.8 | 5844.7 | 5829.7 | 5646.8 | 5432.4 | 5219.5 | 5015.6 | 4996.1 |
| 42.5° | 5766.8 | 5700.8 | 5706.8 | 5927.2 | 6122.1 | 6218.1 | 6054.7 | 5825.2 | 5619.8 | 5408.4 | 5394.9 |
| 45° | 5786.3 | 5745.8 | 5793.8 | 6069.6 | 6326.0 | 6522.5 | 6383.0 | 6191.1 | 5958.7 | 5754.8 | 5748.8 |
| 47.5° | 5807.3 | 5784.8 | 5858.2 | 6150.6 | 6455.0 | 6682.9 | 6604.9 | 6407.0 | 6171.6 | 5972.2 | 5957.2 |
| 50° | 5856.7 | 5847.7 | 5930.2 | 6207.6 | 6516.5 | 6726.4 | 6637.9 | 6441.5 | 6200.1 | 6003.7 | 5967.7 |
| 52.5° | 5871.7 | 5856.7 | 5975.2 | 6296.1 | 6618.4 | 6724.9 | 6534.5 | 6278.1 | 6035.2 | 5816.2 | 5778.8 |
| 55° | *5918.2* | *5891.2* | *5972.2* | *6329.0* | *6759.4* | *6811.9* | *6528.5* | *6144.6* | *5805.8* | *5507.4* | *5418.9* |
| 57.5° | 5930.2 | 5900.2 | 5952.7 | 6275.1 | 6606.4 | 6560.0 | 5738.3 | 4958.6 | 4319.8 | 3988.5 | 4025.9 |
| 60° | 5865.7 | 5874.7 | 5784.8 | 5748.8 | 5298.9 | 4678.2 | 3513.1 | 2808.4 | 2205.6 | 1950.7 | 2006.2 |
| 62.5° | 4465.3 | 4502.8 | 4195.4 | 3648.1 | 2805.4 | 2223.6 | 1470.9 | 1142.6 | 967.1 | 922.1 | 929.6 |
| 65° | 2253.6 | 2304.6 | 1985.2 | 1641.9 | 1220.5 | 986.6 | 853.2 | 826.2 | 817.2 | 806.7 | 806.7 |
| 67.5° | 892.2 | 907.1 | 895.2 | 838.2 | 779.7 | 758.7 | 752.7 | 749.7 | 739.2 | 733.2 | 734.7 |
| 70° | 716.7 | 728.7 | 710.7 | 674.7 | 650.7 | 649.2 | 646.2 | 640.3 | 632.8 | 632.8 | 637.3 |
| 72.5° | 584.8 | 596.8 | 571.3 | 548.8 | 530.8 | 517.3 | 509.8 | 505.3 | 494.8 | 494.8 | 499.3 |
| 75° | 430.3 | 437.8 | 416.8 | 413.8 | 394.3 | 380.9 | 368.9 | 362.9 | 349.4 | 343.4 | 347.9 |
| 77.5° | 286.4 | 284.9 | 274.4 | 274.4 | 266.9 | 250.4 | 236.9 | 223.4 | 205.4 | 193.4 | 196.4 |
| 80° | 185.9 | 185.9 | 181.4 | 181.4 | 173.9 | 160.4 | 143.9 | 130.4 | 120.0 | 111.0 | 111.0 |
| 82.5° | 118.5 | 117.0 | 115.5 | 114.0 | 111.0 | 97.5 | 85.5 | 76.5 | 69.0 | 63.0 | 64.5 |
| 85° | 66.0 | 66.0 | 63.0 | 63.0 | 57.0 | 49.5 | 43.5 | 37.5 | 33.0 | 31.5 | 31.5 |
| 87.5° | 22.5 | 22.5 | 21.0 | 21.0 | 18.0 | 13.5 | 10.5 | 9.0 | 7.5 | 6.0 | 7.5 |
| 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-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-10-R4

Test Date: 10/25/2019

Luminaire Tested: SA1C-722-U-5WQ

Data in this report applies to families of products SA1C-722-U-5WQ.

Report Generated By FNC07603 / LDUCLS01DT446
Version: v6.13

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

## Test Information

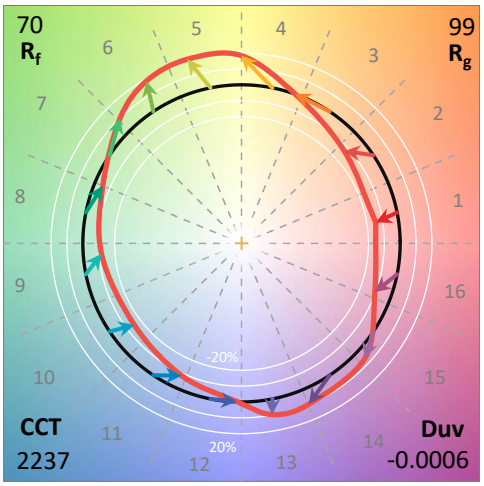
| | |
|---|---|
| Test Method: | LM-79-2008 Report |
| Number: | SP1-1908-441-10-R4 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/28/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | **SA1C-722-U-5WQ** |
| Description: | McGRAW EDISON ROADWAY AND AREA LUMINAIRE |

***THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.***TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 2237 | CRI (Ra): | 72.0 | | |
| CIE u': | 0.2876 | R1: | 68.9 | R9: | -17.4 |
| CIE v': | 0.5346 | R2: | 83.0 | R10: | 61.3 |
| Duv: | -0.0006 | R3: | 95.2 | R11: | 59.8 |
| CIE x: | 0.5005 | R4: | 66.2 | R12: | 50.5 |
| CIE y: | 0.4134 | R5: | 65.9 | R13: | 71.1 |
| CIE z: | 0.0860 | R6: | 76.3 | R14: | 96.9 |
| Peak Wavelength (nm): | 603 | R7: | 76.7 | | |
| Dominant Wavelength (nm): | 587 | R8: | 43.8 | | |
| Purity: | 74.5 | | | | |

| | |
|---|---|
| Rf: | 69.8 |
| Rg: | 99.2 |




## Test Conditions

| | |
|---|---|
| Stabilization Time: | 71M |
| Operation Time: | 12H |
| Room Temperature (°C) / RH%: | 24.7/41% |
| Sphere Temperature (°C): | 25.6 |

Cooper Lighting Solutions Photometric Lab
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REPORT NUMBER: SP1-1908-441-10-R4

| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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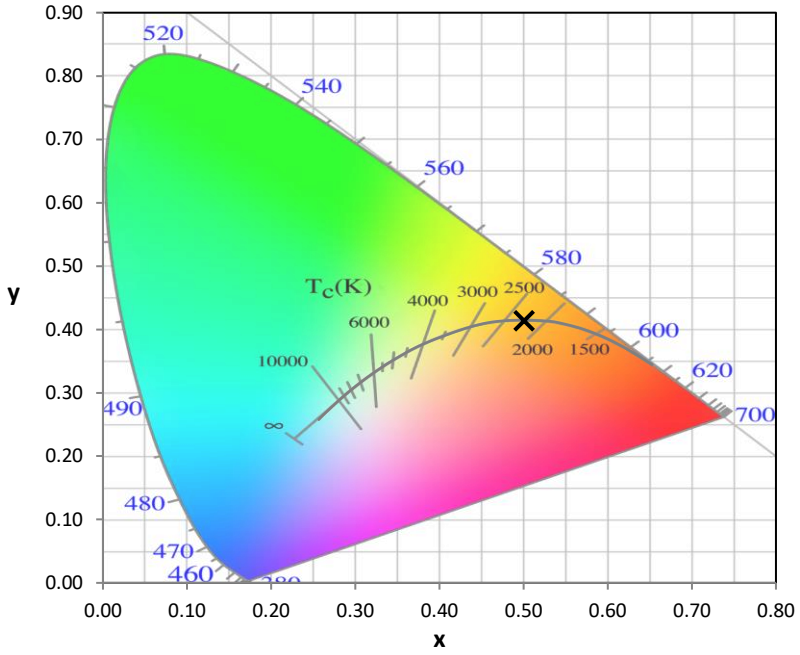
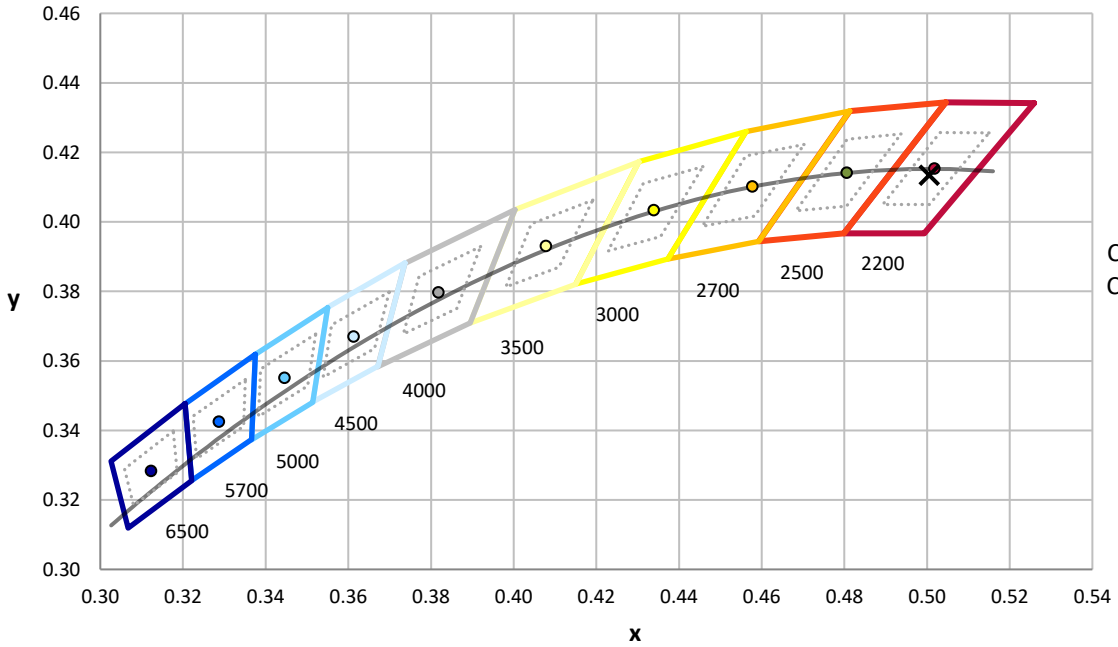
## CIE 1931 Chromaticity Diagram




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




CCT = 2237K
CIE x = 0.5005
CIE y = 0.4134
Duv = -0.0006

Point lies inside the ANSI 2200K 4-step quadrangle

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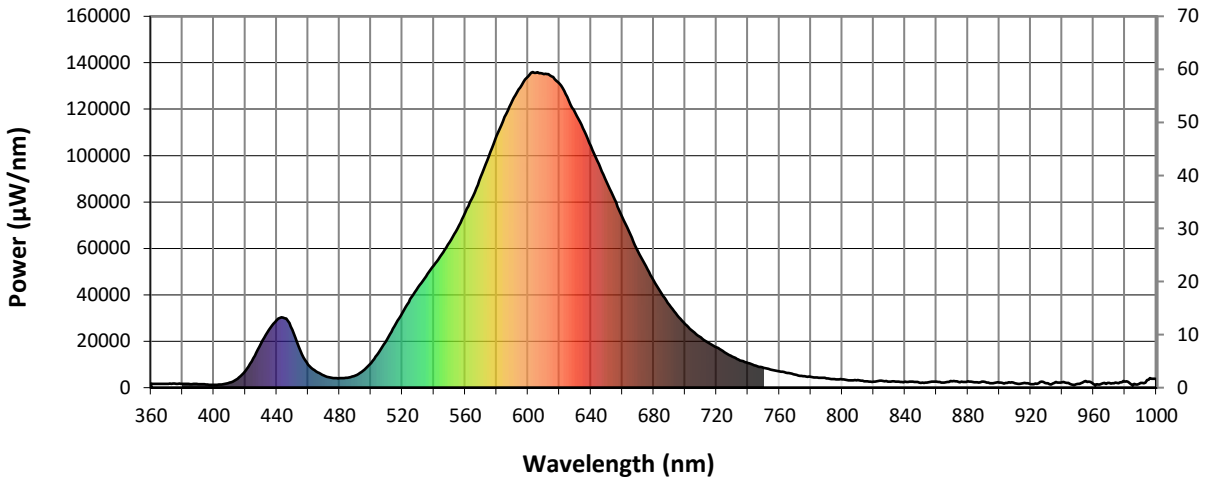
## Photopic Flux vs. Wavelength




######

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

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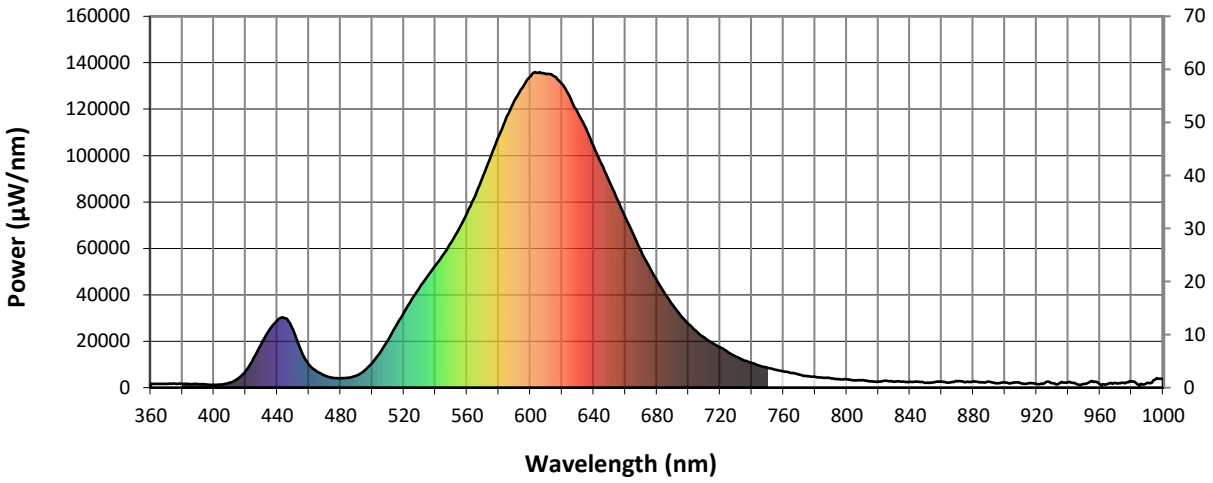
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: 4696.9** **S/P: 0.85**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

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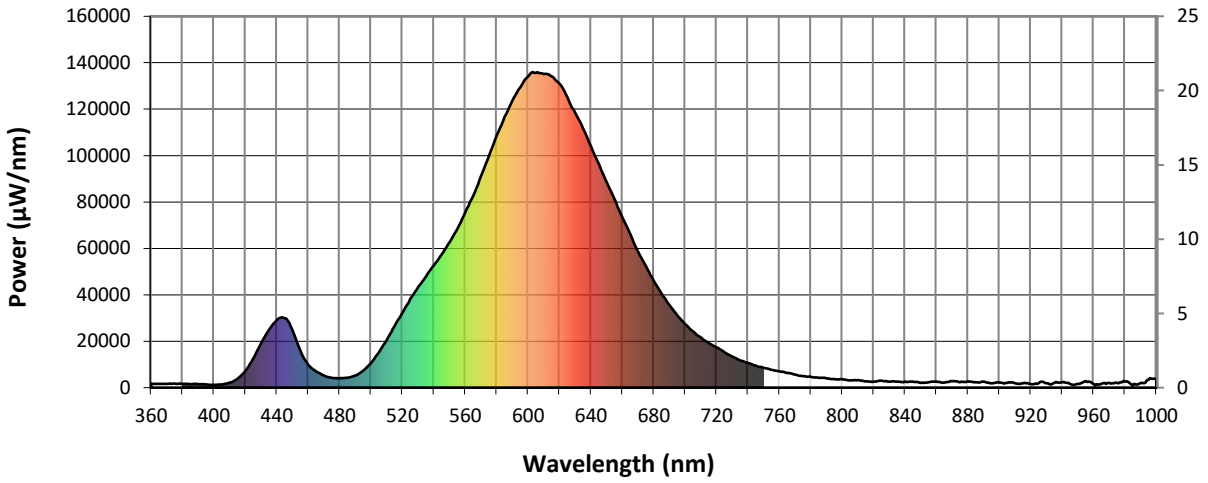
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: 1470.8** **M/P: 0.27**

| λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) | λ (nm) | Power (µW/nm) | Lumens (ϕ/nm) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 360 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

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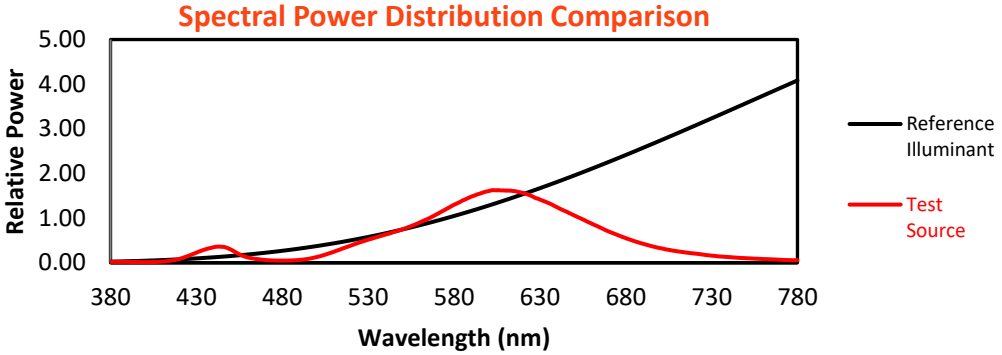
# TM-30-18

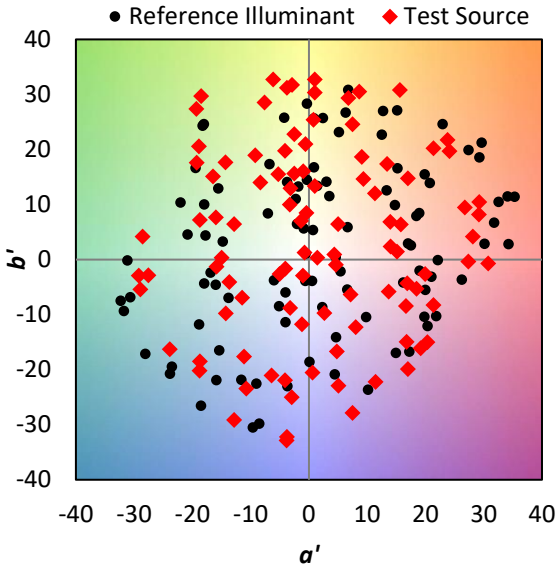
## Summary

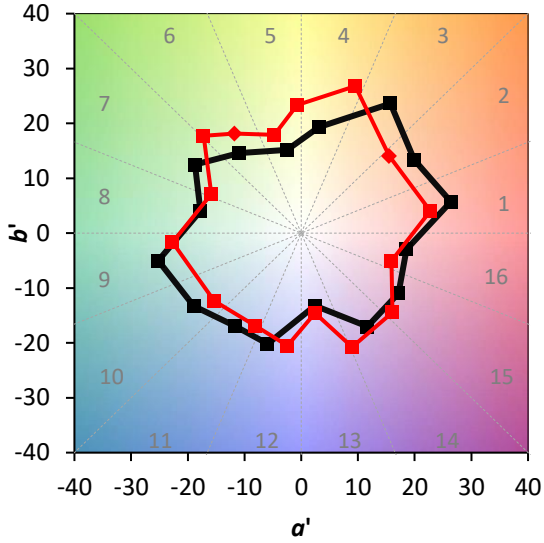
$R_f$ = 69.8
$R_g$ = 99.2
CIE $R_a$ = 72.0
$R_9$ = -17.4

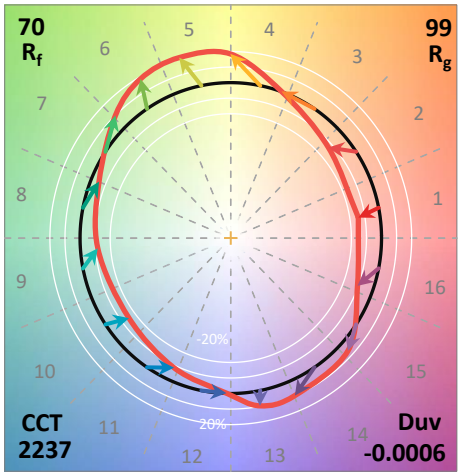
## Spectral Power Distribution Comparison

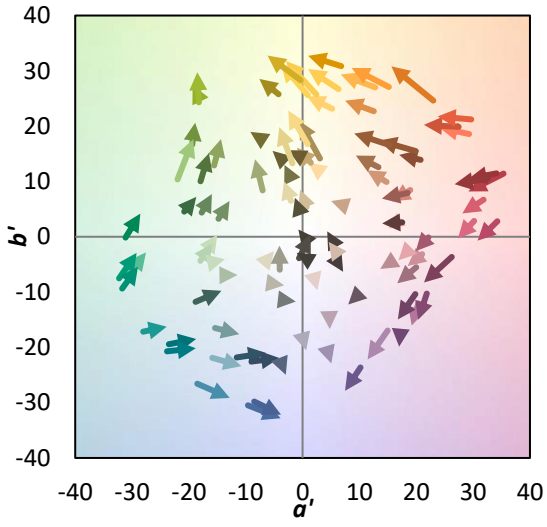



## Color Vector Graphics



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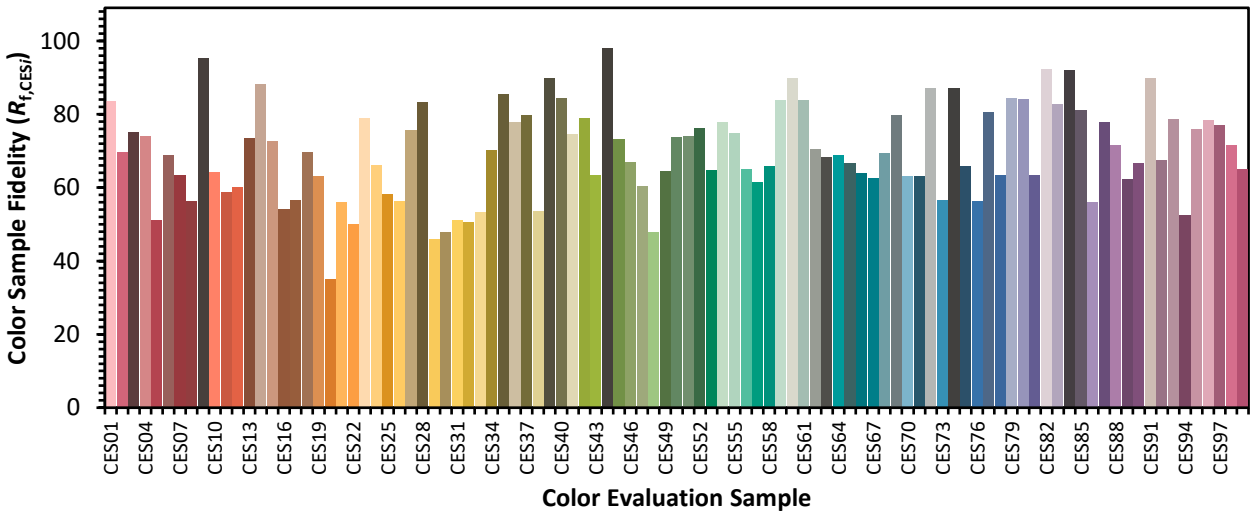
## Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|---|---|---|---|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 78 | CES79 = 84 |
| CES05 = 52 | CES30 = 48 | CES55 = 75 | CES80 = 84 |
| CES06 = 52 | CES31 = 51 | CES56 = 65 | CES81 = 63 |
| CES07 = 44 | CES32 = 51 | CES57 = 62 | CES82 = 92 |
| CES08 = 42 | CES33 = 53 | CES58 = 66 | CES83 = 83 |
| CES09 = 29 | CES34 = 70 | CES59 = 84 | CES84 = 92 |
| CES10 = 78 | CES35 = 85 | CES60 = 90 | CES85 = 81 |
| CES11 = 61 | CES36 = 78 | CES61 = 84 | CES86 = 56 |
| CES12 = 68 | CES37 = 80 | CES62 = 70 | CES87 = 78 |
| CES13 = 45 | CES38 = 53 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 84 | CES65 = 67 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 90 |
| CES17 = 51 | CES42 = 79 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 64 | CES68 = 69 | CES93 = 79 |
| CES19 = 74 | CES44 = 98 | CES69 = 80 | CES94 = 52 |
| CES20 = 68 | CES45 = 73 | CES70 = 63 | CES95 = 76 |
| CES21 = 89 | CES46 = 67 | CES71 = 63 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 87 | CES97 = 77 |
| CES23 = 92 | CES48 = 48 | CES73 = 56 | CES98 = 71 |
| CES24 = 92 | CES49 = 64 | CES74 = 87 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 | |



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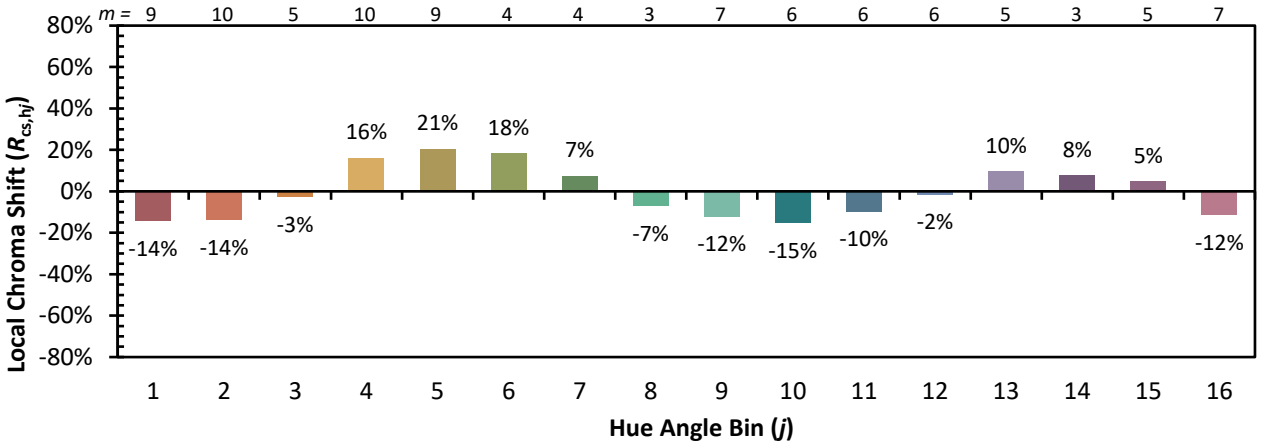
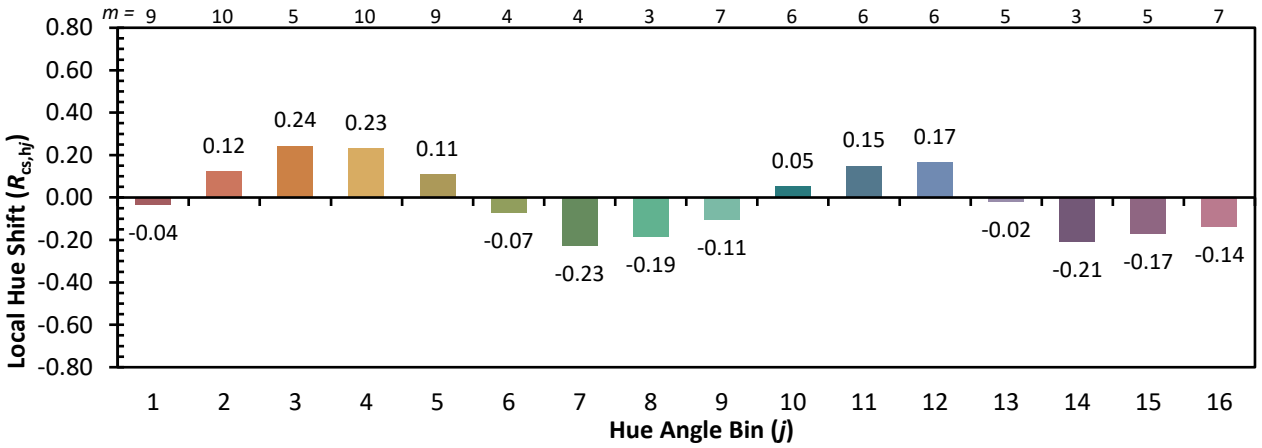
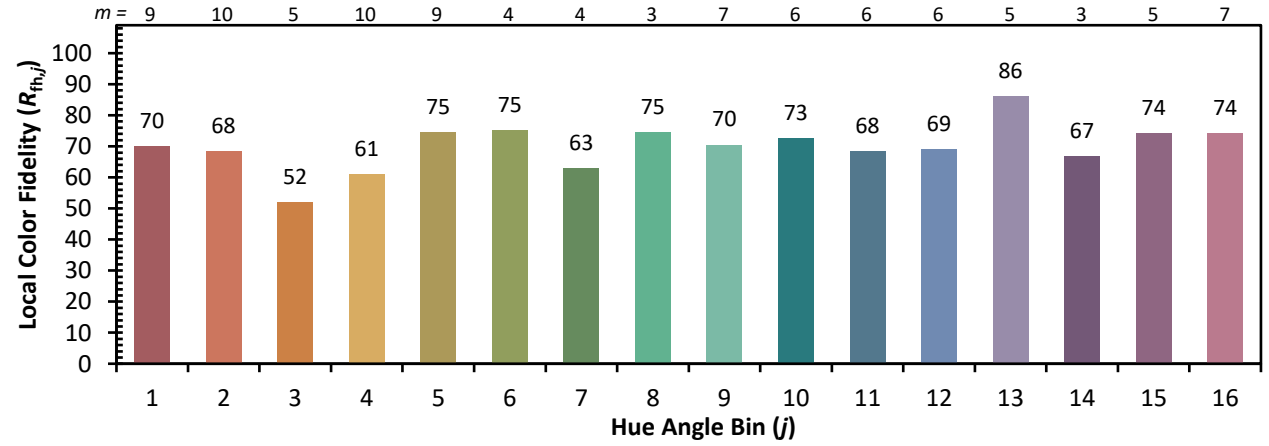
### Color Rendition by Hue-Angle Bin



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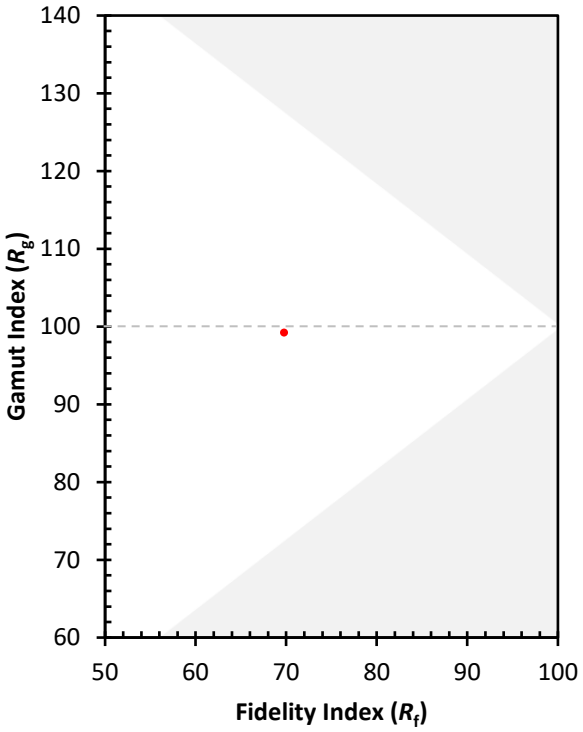
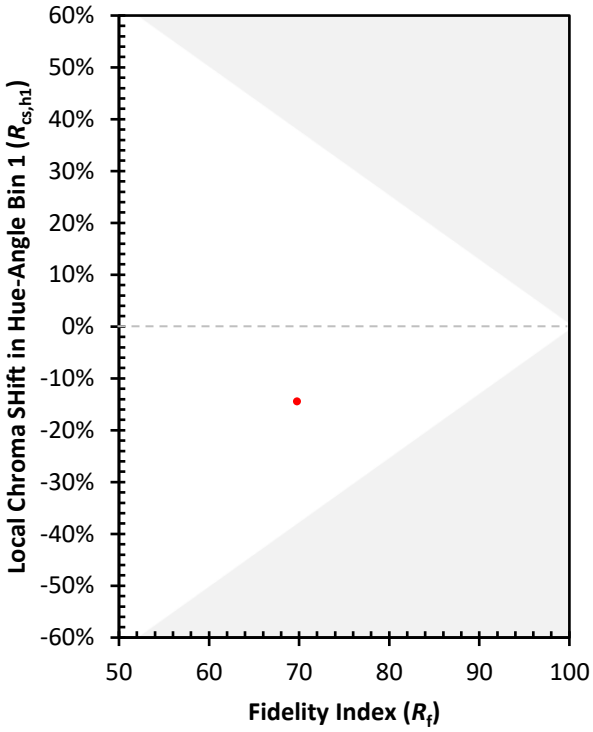
## TM-30-18

### Measure Comparisons




(END OF REPORT)