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: P632276

Luminaire Tested: GWS-SA2C-735-U-T2-W

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: | P632276 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-19) |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Issue Date: | 1/10/2023 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GWS-SA2C-735-U-T2-W |
| Description: | GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS |
| Light Source: | (32) 3500K CCT, 70 CRI LEDS |
| Ballast/Driver: | - |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 9056.8 lumens |
| Efficiency: | N/A |
| Efficacy: | 143.3 lumens/watt |
| Luminous Opening: | Rectangular (W 1' x L: 0.5' x H: 0') |
| IES Classification: | Type II - Medium |
| BUG Rating: | B1 - U0 - G2 |

| | |
|---|---|
| Input Watts (W): | 63.2 |
| 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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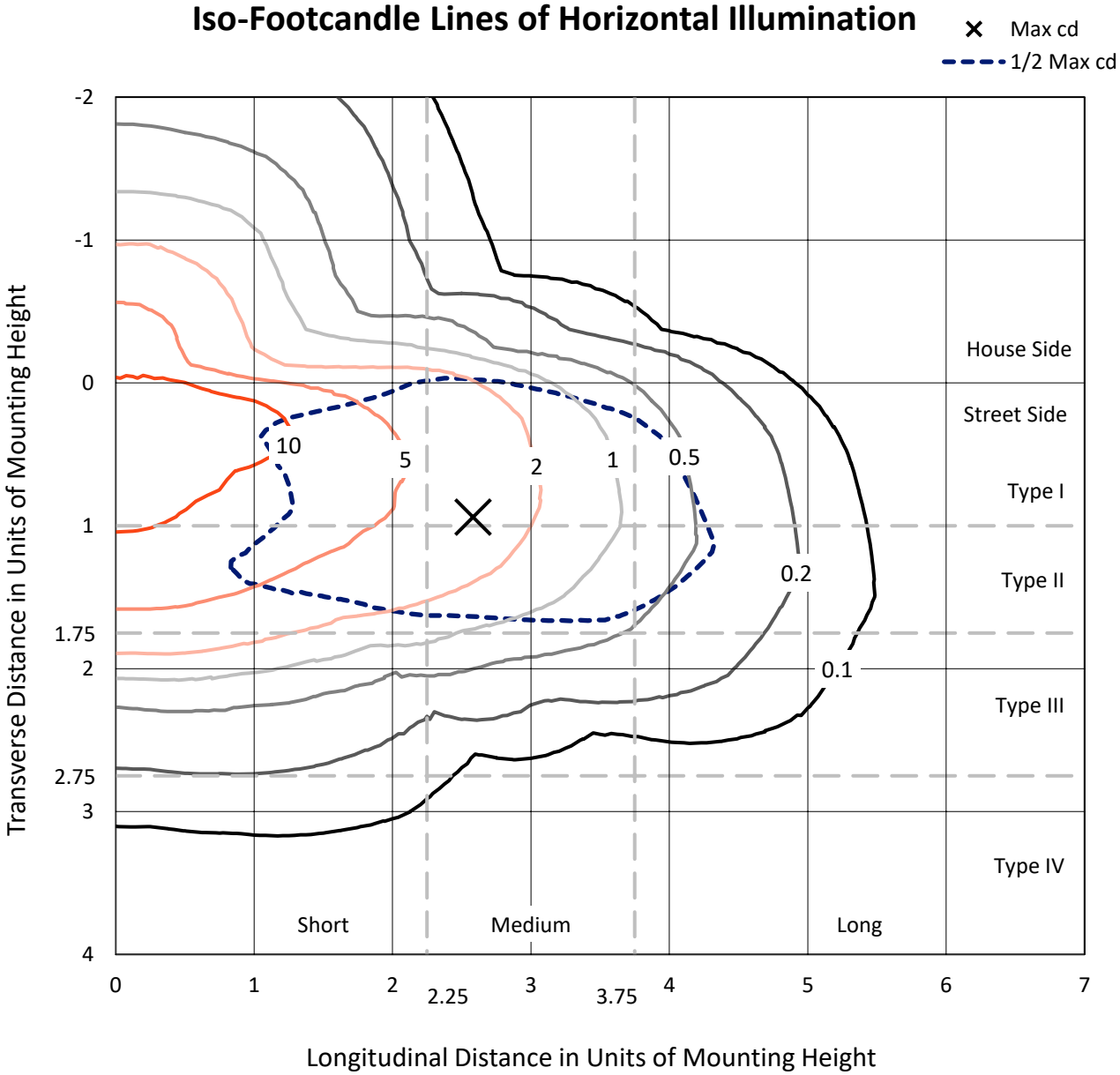
Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P632276
CATALOG NUMBER: GWS-SA2C-735-U-T2-W

## Iso-Footcandle Lines of Horizontal Illumination




Based on 10 foot mounting height. Maximum calculated value = 15.3 fc
Type II - Medium - N/A

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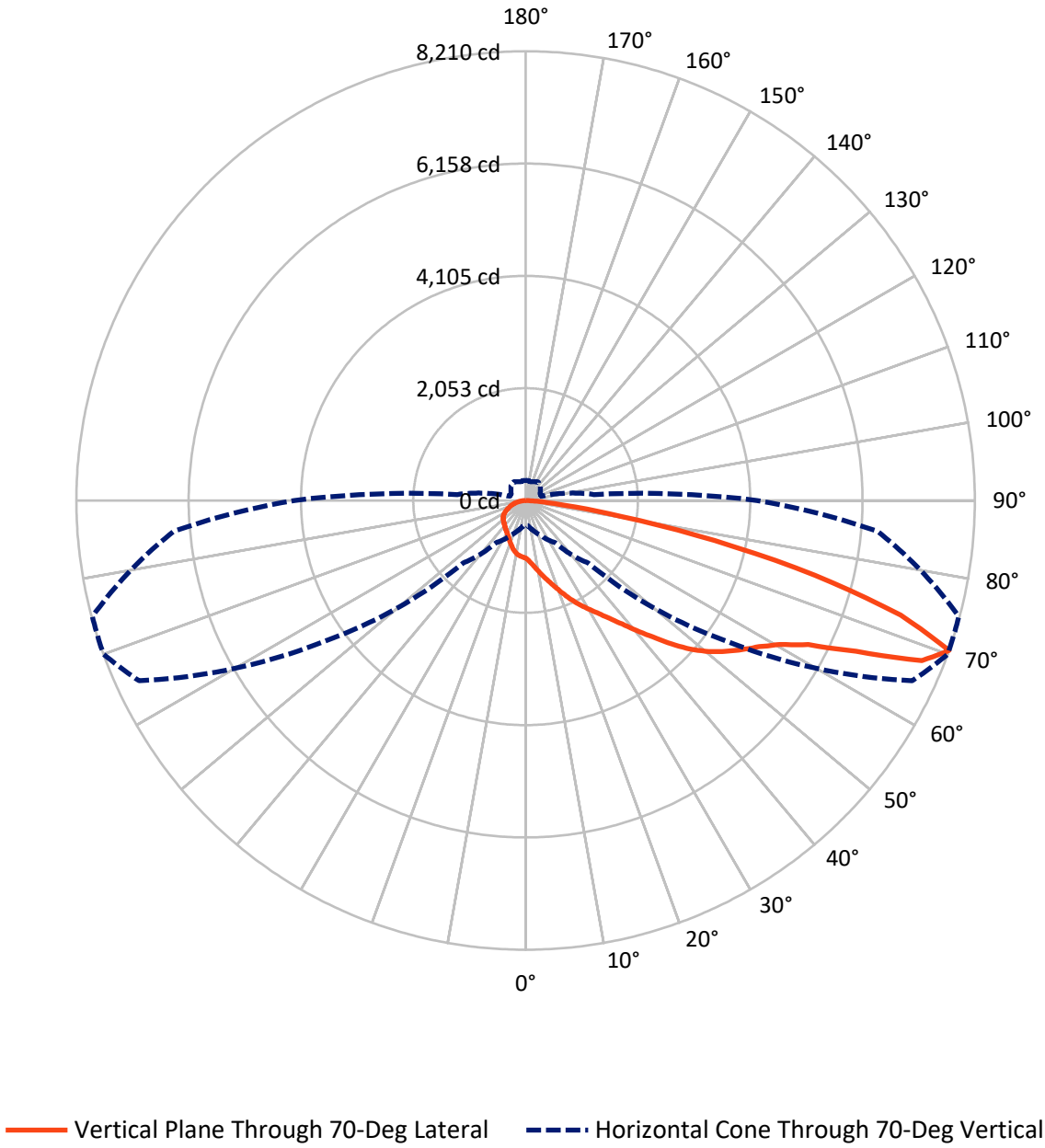
## Luminous Intensity Polar Plot



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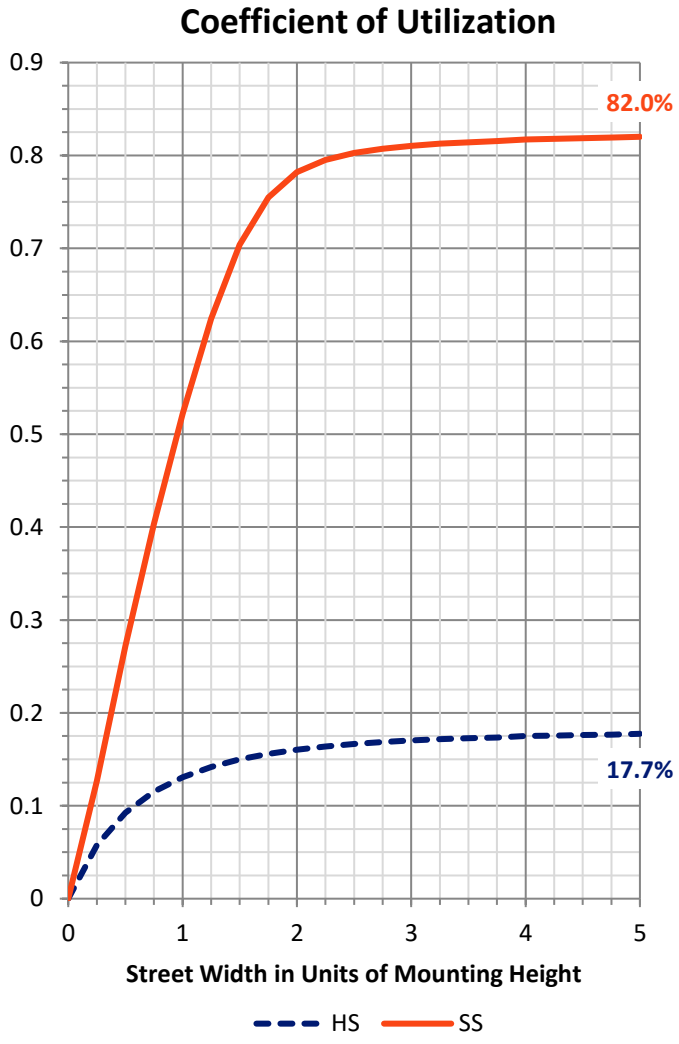
REPORT NUMBER: P632276
CATALOG NUMBER: GWS-SA2C-735-U-T2-W

**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1623.0 | 0.0 | 1623.0 |
| | % Fixture | 17.9 | 0.0 | 17.9 |
| **Street Side** | Lumens | 7433.8 | 0.0 | 7433.8 |
| | % Fixture | 82.1 | 0.0 | 82.1 |
| **Total** | Lumens | 9056.8 | 0.0 | 9056.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 107.4 | 1.2 |
| 10°-20° | 349.2 | 3.9 |
| 20°-30° | 618.6 | 6.8 |
| 30°-40° | 931.1 | 10.3 |
| 40°-50° | 1408.6 | 15.6 |
| 50°-60° | 2017.9 | 22.3 |
| 60°-70° | 2230.6 | 24.6 |
| 70°-80° | 1258.8 | 13.9 |
| 80°-90° | 134.6 | 1.5 |
| 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° | 9056.8 | 100.0 |
| 0°-180° | 9056.8 | 100.0 |



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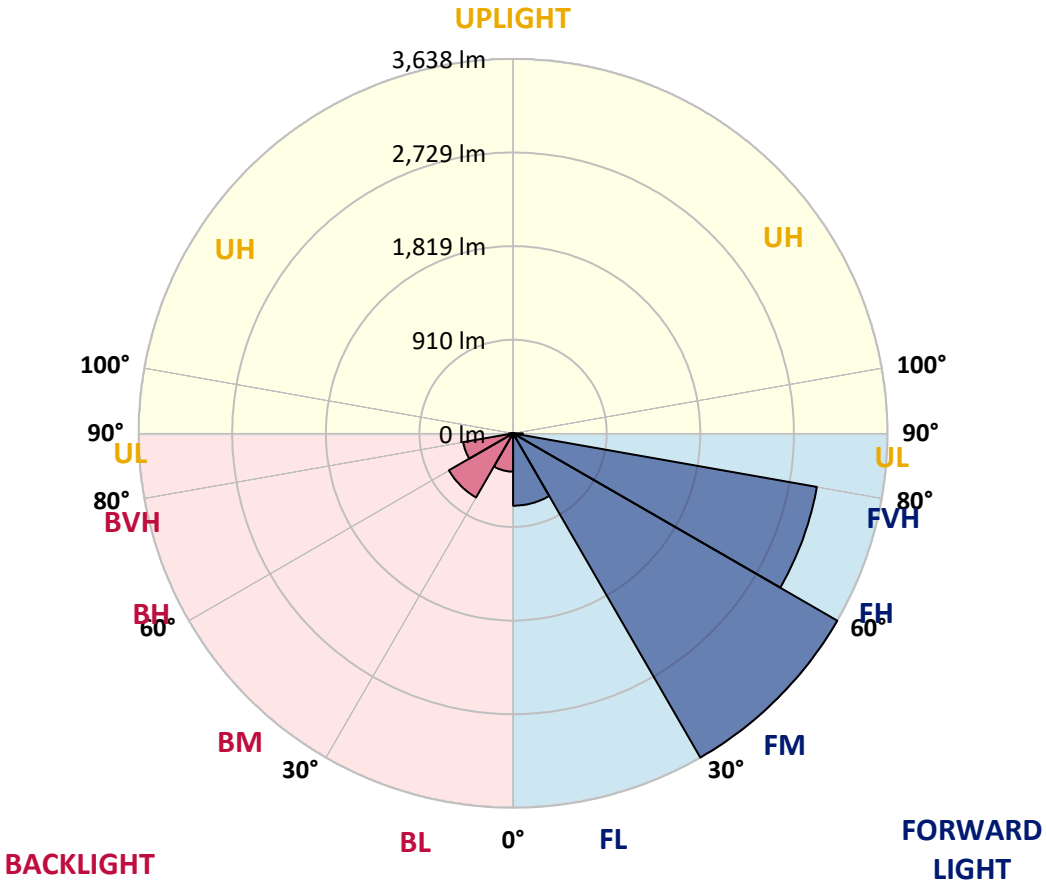
Scaled Data Report

REPORT NUMBER: P632276
CATALOG NUMBER: GWS-SA2C-735-U-T2-W

## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 703.1 | 7.8 | | | |
| FM | (30°-60°) | 3638.1 | 40.2 | | | |
| FH | (60°-80°) | 2997.4 | 33.1 | | | G2/5000 |
| FVH | (80°-90°) | 95.2 | 1.1 | | | G1/100 |
| BL | (0°-30°) | 372.1 | 4.1 | B1/500 | | |
| BM | (30°-60°) | 719.5 | 7.9 | B1/1000 | | |
| BH | (60°-80°) | 491.9 | 5.4 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 39.5 | 0.4 | | | G1/100 |
| UL | (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH | (100°-180°) | 0.0 | 0.0 | | U0/0 | |

**BUG Rating: B1-U0-G2**
Type II Medium



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Scaled Data Report

REPORT NUMBER: P632276
CATALOG NUMBER: GWS-SA2C-735-U-T2-W

**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 70° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1056.2 | 1056.2 | 1056.2 | 1056.2 | 1056.2 | 1056.2 | 1056.2 | 1056.2 | *1056.2* | 1056.2 | 1056.2 |
| 2.5° | 1170.1 | 1168.1 | 1169.4 | 1168.1 | 1160.9 | 1143.2 | 1128.8 | 1110.5 | *1098.1* | 1090.9 | 1073.9 |
| 5° | 1307.5 | 1305.5 | 1301.0 | 1294.4 | 1281.3 | 1257.1 | 1221.1 | 1181.2 | *1157.0* | 1138.7 | 1102.7 |
| 7.5° | 1406.3 | 1406.3 | 1405.7 | 1397.8 | 1388.6 | 1363.1 | 1320.6 | 1268.2 | *1232.9* | 1201.5 | 1142.6 |
| 10° | 1456.7 | 1460.0 | 1464.6 | 1475.7 | 1473.7 | 1460.0 | 1420.1 | 1363.8 | *1319.3* | 1282.6 | 1194.9 |
| 12.5° | 1484.2 | 1486.2 | 1494.0 | 1516.9 | 1540.5 | 1543.7 | 1520.2 | 1461.3 | *1412.9* | 1363.8 | 1253.2 |
| 15° | 1519.5 | 1520.2 | 1530.7 | 1558.1 | 1592.8 | 1627.5 | 1621.6 | 1562.7 | *1513.0* | 1458.7 | 1318.0 |
| 17.5° | 1547.0 | 1551.6 | 1570.6 | 1602.6 | 1645.8 | 1693.6 | 1722.4 | 1685.7 | *1624.2* | 1562.1 | 1388.6 |
| 20° | 1556.8 | 1560.1 | 1585.0 | 1634.1 | 1692.9 | 1760.4 | 1824.5 | 1814.7 | *1752.5* | 1679.2 | 1468.5 |
| 22.5° | 1592.2 | 1592.2 | 1610.5 | 1651.7 | 1721.1 | 1819.2 | 1923.3 | 1948.8 | *1893.8* | 1808.1 | 1554.2 |
| 25° | 1670.0 | 1667.4 | 1675.9 | 1692.9 | 1745.3 | 1866.4 | 2020.8 | 2097.4 | *2035.9* | 1939.7 | 1639.9 |
| 27.5° | 1776.7 | 1775.4 | 1774.7 | 1777.4 | 1795.0 | 1907.6 | 2103.3 | 2236.1 | *2174.6* | 2066.0 | 1716.5 |
| 30° | 1892.5 | 1888.6 | 1897.1 | 1889.3 | 1885.3 | 1956.7 | 2173.3 | 2360.4 | *2312.7* | 2190.9 | 1780.0 |
| 32.5° | 2050.3 | 2043.1 | 2041.1 | 2015.6 | 1999.9 | 2033.2 | 2229.6 | 2501.8 | *2463.8* | 2325.8 | 1851.3 |
| 35° | 2258.4 | 2251.8 | 2218.4 | 2177.9 | 2131.4 | 2147.1 | 2299.6 | 2639.9 | *2642.5* | 2494.6 | 1944.9 |
| 37.5° | 2468.4 | 2469.7 | 2443.6 | 2348.0 | 2300.2 | 2291.1 | 2406.2 | 2808.1 | *2864.3* | 2696.2 | 2066.0 |
| 40° | 2643.1 | 2651.0 | 2651.0 | 2550.2 | 2478.9 | 2470.4 | 2556.1 | 3007.6 | *3119.6* | 2943.5 | 2219.1 |
| 42.5° | 2776.0 | 2783.2 | 2806.1 | 2733.5 | 2658.2 | 2687.6 | 2738.0 | 3207.9 | *3408.8* | 3249.1 | 2412.8 |
| 45° | 2921.9 | 2927.8 | 2940.2 | 2898.4 | 2854.5 | 2933.0 | 2944.2 | 3447.4 | *3739.9* | 3592.0 | 2637.9 |
| 47.5° | 3115.6 | 3110.4 | 3111.7 | 3080.9 | 3046.9 | 3173.9 | 3171.2 | 3649.0 | *4059.9* | 3967.7 | 2882.0 |
| 50° | 3356.4 | 3366.3 | 3357.1 | 3296.2 | 3256.3 | 3372.2 | 3387.2 | 3872.1 | *4341.3* | 4339.4 | 3128.1 |
| 52.5° | 3588.1 | 3592.0 | 3640.5 | 3643.1 | 3561.3 | 3537.1 | 3576.3 | 4097.2 | *4578.9* | 4679.7 | 3364.3 |
| 55° | 3599.9 | 3614.9 | 3760.2 | 3864.9 | 3997.1 | 3802.8 | 3767.4 | 4311.9 | *4808.6* | 5012.7 | 3609.7 |
| 57.5° | 3349.2 | 3373.5 | 3620.2 | 3845.9 | 4213.7 | 4258.9 | 4094.6 | 4589.3 | *5038.3* | 5340.6 | 3893.7 |
| 60° | 2813.9 | 2864.3 | 3199.4 | 3544.9 | 4116.2 | 4586.7 | 4764.1 | 4966.3 | *5339.9* | 5675.7 | 4238.6 |
| 62.5° | 1797.0 | 1816.6 | 2286.5 | 2865.0 | 3677.1 | 4554.7 | 5493.1 | 5630.5 | *5799.3* | 6112.1 | 4770.0 |
| 65° | 899.8 | 962.6 | 1238.1 | 1710.0 | 2651.7 | 4013.5 | 5861.5 | 6847.0 | *6640.3* | 6859.5 | 5631.2 |
| 67.5° | 610.6 | 630.8 | 770.2 | 1027.4 | 1554.9 | 2843.4 | 5633.1 | 7871.8 | *7811.0* | 7847.0 | 6549.3 |
| 70° | *450.2* | *463.3* | *573.3* | *727.7* | *940.4* | *1614.4* | *4484.6* | *7794.6* | *8210.2* | *8197.1* | *6453.1* |
| 72.5° | 328.5 | 335.1 | 418.2 | 555.6 | 696.9 | 835.0 | 2738.7 | 6296.7 | *7167.0* | 7544.6 | 5643.6 |
| 75° | 238.9 | 246.7 | 290.6 | 415.5 | 541.8 | 520.9 | 1352.0 | 4548.1 | *5465.6* | 6192.0 | 4597.9 |
| 77.5° | 178.0 | 187.8 | 208.1 | 260.5 | 379.6 | 373.0 | 584.4 | 2953.3 | *3535.1* | 4044.2 | 2793.0 |
| 80° | 128.3 | 130.2 | 142.0 | 166.9 | 240.8 | 218.6 | 278.1 | 1539.8 | *1765.6* | 1934.4 | 1094.8 |
| 82.5° | 77.9 | 79.8 | 94.9 | 102.7 | 149.2 | 137.4 | 144.6 | 498.7 | *714.6* | 758.5 | 409.0 |
| 85° | 22.9 | 24.2 | 43.2 | 47.1 | 62.2 | 58.9 | 58.2 | 202.9 | *242.1* | 309.5 | 161.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.7 | 3.9 | 7.2 | 36.0 | *54.3* | 75.3 | 39.3 |
| 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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Peachtree City, GA 30269

Scaled Data Report

REPORT NUMBER: P632276
CATALOG NUMBER: GWS-SA2C-735-U-T2-W

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1056.2 | 1056.2 | 1056.2 | 1056.2 | 1056.2 | 1056.2 | 1056.2 | 1056.2 | 1056.2 | 1056.2 | 1056.2 |
| 2.5° | 1067.3 | 1052.3 | 1044.4 | 1030.7 | 1020.9 | 1011.1 | 1001.2 | 992.1 | 988.2 | 982.3 | 983.6 |
| 5° | 1086.3 | 1062.8 | 1039.2 | 1012.4 | 989.5 | 970.5 | 953.5 | 938.4 | 931.9 | 926.0 | 928.6 |
| 7.5° | 1115.1 | 1079.8 | 1034.6 | 985.5 | 949.5 | 923.4 | 905.7 | 895.2 | 892.0 | 887.4 | 887.4 |
| 10° | 1151.8 | 1098.7 | 1019.6 | 949.5 | 906.4 | 885.4 | 877.6 | 876.9 | 880.2 | 880.8 | 879.5 |
| 12.5° | 1192.3 | 1117.1 | 997.3 | 907.0 | 870.4 | 863.8 | 869.7 | 880.8 | 892.0 | 897.8 | 896.5 |
| 15° | 1234.2 | 1128.8 | 959.4 | 866.4 | 844.2 | 852.7 | 871.7 | 893.9 | 915.5 | 926.6 | 926.0 |
| 17.5° | 1273.5 | 1131.5 | 910.3 | 827.2 | 821.3 | 842.9 | 875.6 | 910.3 | 939.7 | 955.4 | 956.1 |
| 20° | 1317.3 | 1126.9 | 859.9 | 791.8 | 798.4 | 833.7 | 876.9 | 918.8 | 953.5 | 969.2 | 973.1 |
| 22.5° | 1357.2 | 1111.2 | 810.8 | 758.5 | 778.7 | 822.6 | 866.4 | 905.7 | 936.5 | 951.5 | 956.7 |
| 25° | 1393.2 | 1081.1 | 757.1 | 730.3 | 763.7 | 806.9 | 840.3 | 867.7 | 889.3 | 898.5 | 905.7 |
| 27.5° | 1412.9 | 1035.9 | 716.6 | 708.1 | 749.3 | 784.6 | 803.0 | 811.5 | 818.7 | 816.0 | 821.3 |
| 30° | 1416.8 | 979.6 | 681.2 | 690.4 | 727.7 | 753.9 | 757.8 | 749.3 | 736.9 | 716.6 | 721.2 |
| 32.5° | 1412.9 | 914.9 | 651.8 | 671.4 | 703.5 | 719.2 | 714.0 | 691.7 | 661.6 | 630.2 | 632.2 |
| 35° | 1414.2 | 849.4 | 627.6 | 650.5 | 675.3 | 683.9 | 670.8 | 640.0 | 607.9 | 579.1 | 577.8 |
| 37.5° | 1428.6 | 794.4 | 607.3 | 630.2 | 647.9 | 649.2 | 634.8 | 602.7 | 586.3 | 564.8 | 562.1 |
| 40° | 1468.5 | 753.9 | 589.0 | 609.9 | 621.0 | 620.4 | 604.0 | 581.1 | 592.2 | 585.0 | 583.1 |
| 42.5° | 1533.9 | 729.0 | 573.9 | 588.3 | 596.2 | 597.5 | 584.4 | 570.0 | 594.2 | 585.0 | 581.8 |
| 45° | 1639.3 | 727.7 | 563.4 | 566.7 | 579.1 | 588.3 | 579.1 | 562.8 | 572.0 | 527.5 | 518.9 |
| 47.5° | 1764.3 | 749.9 | 555.6 | 547.7 | 569.3 | 585.7 | 571.3 | 545.1 | 526.1 | 485.6 | 479.7 |
| 50° | 1914.8 | 795.1 | 548.4 | 527.5 | 554.9 | 575.9 | 561.5 | 525.5 | 496.7 | 475.1 | 471.8 |
| 52.5° | 2093.4 | 854.7 | 539.2 | 504.5 | 533.3 | 570.6 | 561.5 | 523.5 | 485.6 | 465.9 | 462.7 |
| 55° | 2280.6 | 923.4 | 528.8 | 477.1 | 509.1 | 572.0 | 566.1 | 509.8 | 477.1 | 466.6 | 464.0 |
| 57.5° | 2512.9 | 1005.8 | 509.8 | 445.0 | 487.5 | 560.2 | 547.7 | 501.9 | 471.2 | 462.7 | 460.0 |
| 60° | 2814.6 | 1128.2 | 473.8 | 412.3 | 462.7 | 539.2 | 531.4 | 488.8 | 455.5 | 448.3 | 446.3 |
| 62.5° | 3292.3 | 1335.6 | 429.9 | 380.9 | 433.2 | 495.4 | 507.2 | 464.0 | 435.8 | 435.2 | 434.5 |
| 65° | 4071.1 | 1585.0 | 378.2 | 352.7 | 402.5 | 459.4 | 475.1 | 438.5 | 415.5 | 422.7 | 422.1 |
| 67.5° | 4616.8 | 1606.6 | 335.7 | 323.3 | 366.5 | 420.1 | 443.0 | 412.3 | 387.4 | 401.2 | 400.5 |
| 70° | *4228.8* | *1253.2* | *299.1* | *292.5* | *327.9* | *377.6* | *408.3* | *379.6* | *354.7* | *367.8* | *365.2* |
| 72.5° | 3566.5 | 960.7 | 264.4 | 260.5 | 288.6 | 333.1 | 363.8 | 346.8 | 320.7 | 320.7 | 314.8 |
| 75° | 2866.3 | 792.5 | 227.7 | 225.8 | 244.7 | 287.9 | 322.6 | 293.8 | 269.6 | 268.3 | 264.4 |
| 77.5° | 1643.9 | 519.6 | 191.1 | 189.8 | 195.7 | 240.8 | 250.6 | 244.7 | 226.4 | 217.9 | 215.3 |
| 80° | 655.1 | 270.3 | 150.5 | 142.0 | 147.9 | 176.7 | 197.6 | 187.8 | 172.1 | 161.6 | 155.7 |
| 82.5° | 253.9 | 135.5 | 106.0 | 92.9 | 101.4 | 127.6 | 143.3 | 140.0 | 129.6 | 106.0 | 99.5 |
| 85° | 103.4 | 66.1 | 63.5 | 53.7 | 58.9 | 68.7 | 82.5 | 71.3 | 58.9 | 41.9 | 39.9 |
| 87.5° | 27.5 | 24.2 | 23.6 | 14.4 | 11.1 | 3.3 | 0.7 | 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 |

Cooper Lighting Solutions Photometric Lab
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Peachtree City, GA 30269

# LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

All Brands

Data applicable to all product families using SA light engines

Report Number: SP1-2101-121-7

Luminaire Tested: IFLD-S-SA2A-735-U-T2

Test Date: 03/04/2021

Report Generated By controller / USPTCWHP6086842

## Test Information

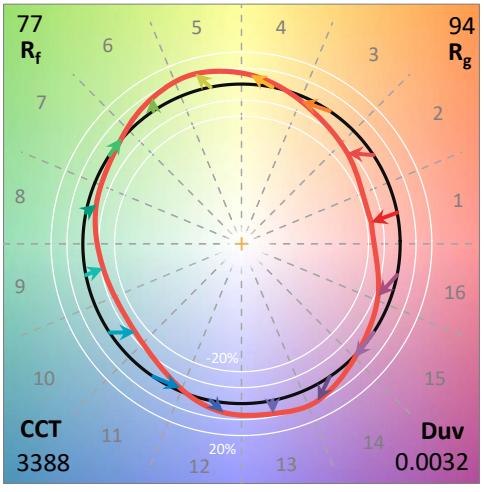
| | |
|---|---|
| Test Method: | LM-79-08 |
| Report Number: | SP1-2101-121-7 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 |
| Measurement Geometry: | 4π |
| Issue Date: | 03/04/2021 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | STREETWORKS |
| Catalog Number: | **IFLD-S-SA2A-735-U-T2** |
| Description: | STREETWORKS INF FLOOD |

PROGRAMMED @ 615mA.

## Spectral Parameters

| | | | | | |
|---|---|---|---|---|---|
| CCT (K): | 3388 | CRI (Ra): | 73.1 | | |
| CIE u': | 0.2371 | R1: | 68.9 | R9: | -34.6 |
| CIE v': | 0.5177 | R2: | 81.1 | R10: | 57.8 |
| Duv: | 0.0032 | R3: | 93.1 | R11: | 68.6 |
| CIE x: | 0.4153 | R4: | 71.6 | R12: | 53.9 |
| CIE y: | 0.4030 | R5: | 69.4 | R13: | 70.9 |
| CIE z: | 0.1817 | R6: | 75.0 | R14: | 96.2 |
| Peak Wavelength (nm): | 590 | R7: | 79.5 | | |
| Dominant Wavelength (nm): | 580 | R8: | 46.4 | | |
| Purity: | 45.7 | | | | |

| | |
|---|---|
| Rf: | 76.9 |
| Rg: | 94.4 |




## Test Conditions

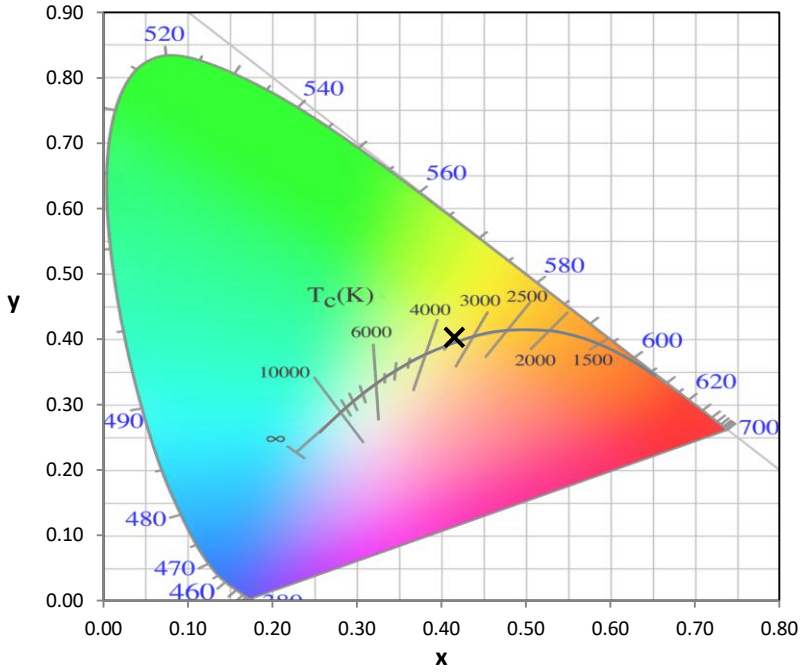
| | |
|---|---|
| Stabilization Time: | 81M |
| Operation Time: | 12H |
| Room Temperature (°C) / RH%: | 25.0/30% |
| Sphere Temperature (°C): | 24.1 |

REPORT NUMBER: SP1-2101-121-7

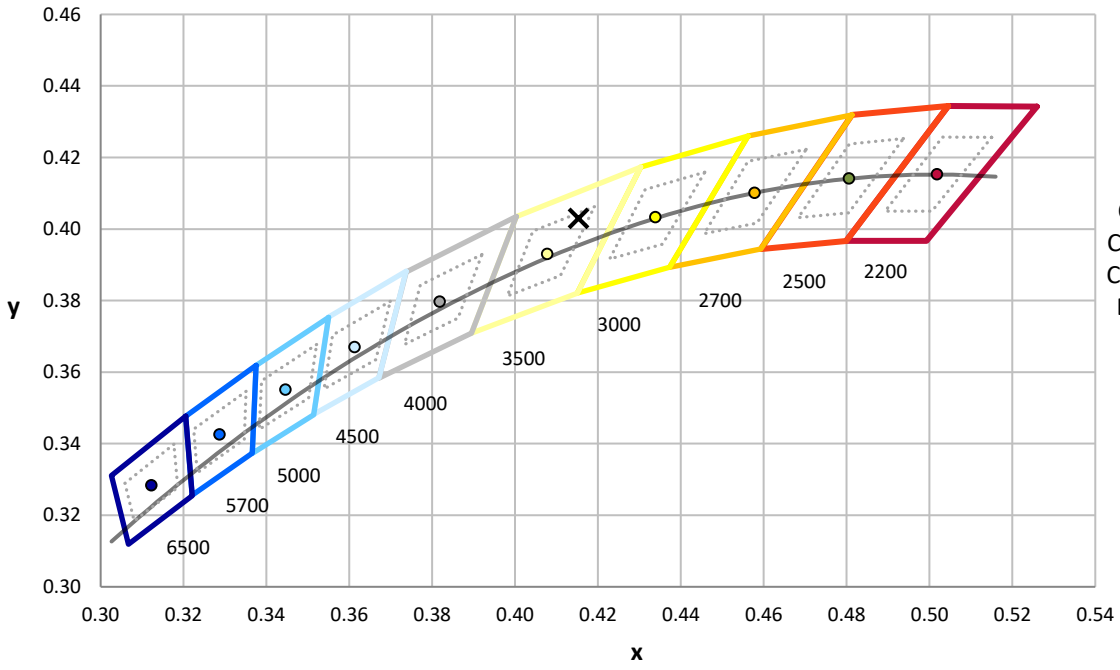
| Measurement and Test Equipment | | | |
|---|---|---|---|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 1/31/2021 | 7/31/2021 |
| Power Meter | IN0071 | 12/1/2020 | 12/1/2021 |
| AC Power Source | IN0063 | 12/1/2020 | 12/1/2021 |
| DC Power Source | IN0208 | 12/1/2020 | 12/1/2021 |
| Sphere Thermometer | IN0085 | 12/1/2020 | 12/1/2021 |
| Room Thermometer | IN0046 | 12/1/2020 | 12/1/2021 |

REPORT NUMBER: SP1-2101-121-7

## CIE 1931 Chromaticity Diagram




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




CCT = 3388K
CIE x = 0.4153
CIE y = 0.4030
Duv = 0.0032

Point lies inside the ANSI 3500K 4-step quadrangle

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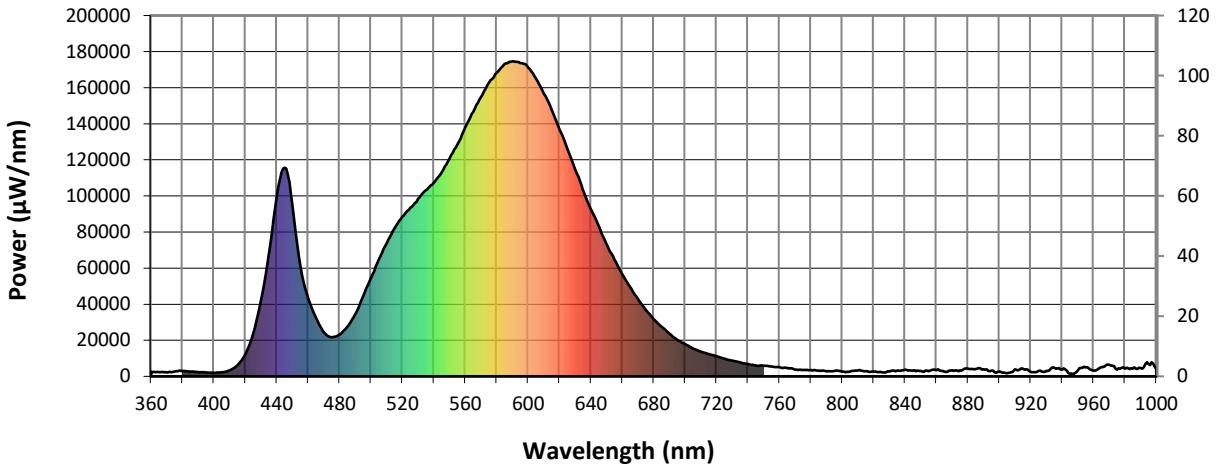
## Photopic Flux vs. Wavelength




######

| 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 | 2672 | 0.0 | 490 | 34553 | 4.9 | 620 | 136720 | 35.6 | 750 | 5870 | 0.0 | 880 | 4216 | 0.0 |
| 365 | 2252 | 0.0 | 495 | 44336 | 8.0 | 625 | 126308 | 27.9 | 755 | 5421 | 0.0 | 885 | 4132 | 0.0 |
| 370 | 2217 | 0.0 | 500 | 54643 | 12.1 | 630 | 114625 | 20.7 | 760 | 5097 | 0.0 | 890 | 3992 | 0.0 |
| 375 | 2697 | 0.0 | 505 | 64676 | 18.1 | 635 | 103216 | 15.5 | 765 | 4626 | 0.0 | 895 | 3214 | 0.0 |
| 380 | 3039 | 0.0 | 510 | 73825 | 25.4 | 640 | 92605 | 11.1 | 770 | 3782 | 0.0 | 900 | 2580 | 0.0 |
| 385 | 2655 | 0.0 | 515 | 81872 | 33.9 | 645 | 83234 | 8.0 | 775 | 3506 | 0.0 | 905 | 1776 | 0.0 |
| 390 | 2357 | 0.0 | 520 | 88574 | 43.0 | 650 | 73263 | 5.4 | 780 | 3507 | 0.0 | 910 | 3995 | 0.0 |
| 395 | 2186 | 0.0 | 525 | 93289 | 50.1 | 655 | 64627 | 3.7 | 785 | 3267 | 0.0 | 915 | 4288 | 0.0 |
| 400 | 2015 | 0.0 | 530 | 98393 | 57.9 | 660 | 56614 | 2.4 | 790 | 2849 | 0.0 | 920 | 2446 | 0.0 |
| 405 | 2234 | 0.0 | 535 | 103269 | 64.0 | 665 | 49537 | 1.6 | 795 | 3037 | 0.0 | 925 | 3009 | 0.0 |
| 410 | 3412 | 0.0 | 540 | 107316 | 69.9 | 670 | 42866 | 0.9 | 800 | 2716 | 0.0 | 930 | 3026 | 0.0 |
| 415 | 6135 | 0.0 | 545 | 113101 | 75.3 | 675 | 36708 | 0.6 | 805 | 2648 | 0.0 | 935 | 4734 | 0.0 |
| 420 | 12146 | 0.0 | 550 | 120690 | 82.0 | 680 | 31814 | 0.4 | 810 | 3187 | 0.0 | 940 | 3719 | 0.0 |
| 425 | 23983 | 0.1 | 555 | 128583 | 87.8 | 685 | 27485 | 0.2 | 815 | 2931 | 0.0 | 945 | 1480 | 0.0 |
| 430 | 42142 | 0.3 | 560 | 137796 | 93.6 | 690 | 23698 | 0.1 | 820 | 2717 | 0.0 | 950 | 3450 | 0.0 |
| 435 | 68228 | 0.8 | 565 | 146577 | 97.5 | 695 | 20309 | 0.1 | 825 | 2236 | 0.0 | 955 | 5051 | 0.0 |
| 440 | 99323 | 1.6 | 570 | 154581 | 100.5 | 700 | 17890 | 0.1 | 830 | 2628 | 0.0 | 960 | 3176 | 0.0 |
| 445 | 115584 | 2.4 | 575 | 162633 | 101.2 | 705 | 15500 | 0.0 | 835 | 3140 | 0.0 | 965 | 5178 | 0.0 |
| 450 | 94997 | 2.5 | 580 | 168101 | 99.9 | 710 | 13699 | 0.0 | 840 | 3675 | 0.0 | 970 | 6385 | 0.0 |
| 455 | 61433 | 2.1 | 585 | 173145 | 96.2 | 715 | 12398 | 0.0 | 845 | 3283 | 0.0 | 975 | 3810 | 0.0 |
| 460 | 43373 | 1.8 | 590 | 174675 | 90.3 | 720 | 11147 | 0.0 | 850 | 3055 | 0.0 | 980 | 4322 | 0.0 |
| 465 | 32472 | 1.7 | 595 | 173724 | 82.3 | 725 | 9761 | 0.0 | 855 | 2932 | 0.0 | 985 | 4200 | 0.0 |
| 470 | 24257 | 1.5 | 600 | 171241 | 73.8 | 730 | 8651 | 0.0 | 860 | 3382 | 0.0 | 990 | 4661 | 0.0 |
| 475 | 21690 | 1.7 | 605 | 165134 | 64.0 | 735 | 7730 | 0.0 | 865 | 2605 | 0.0 | 995 | 6746 | 0.0 |
| 480 | 23173 | 2.2 | 610 | 156652 | 53.8 | 740 | 6847 | 0.0 | 870 | 3325 | 0.0 | 1000 | 4150 | 0.0 |
| 485 | 27564 | 3.3 | 615 | 147879 | 44.6 | 745 | 6124 | 0.0 | 875 | 3325 | 0.0 | | | |

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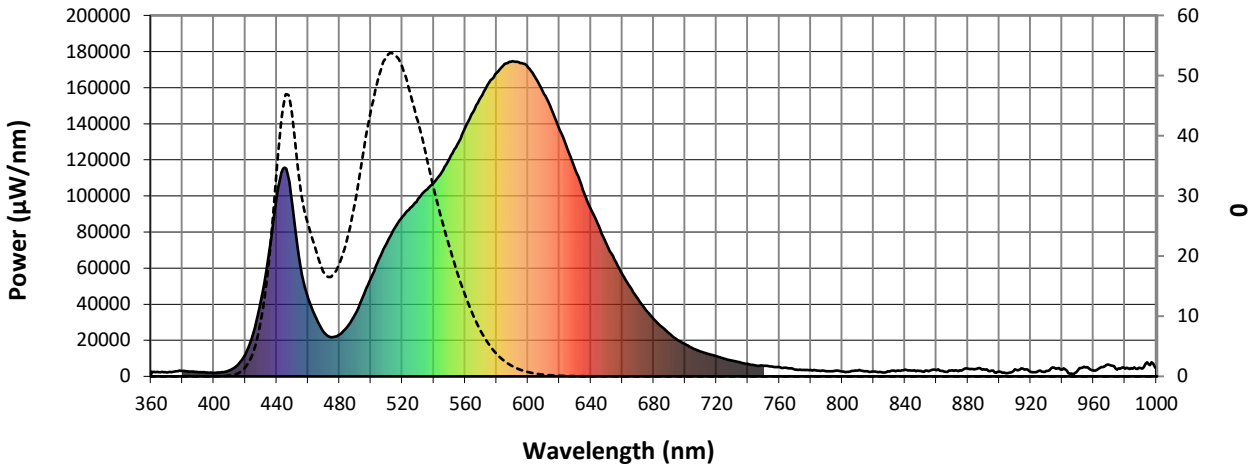
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: 12126** **S/P: 1.36**

| 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 | 2672 | 0.0 | 490 | 34553 | 53.2 | 620 | 136720 | 1.7 | 750 | 5870 | 0.0 | 880 | 4216 | 0.0 |
| 365 | 2252 | 0.0 | 495 | 44336 | 71.7 | 625 | 126308 | 1.1 | 755 | 5421 | 0.0 | 885 | 4132 | 0.0 |
| 370 | 2217 | 0.0 | 500 | 54643 | 91.4 | 630 | 114625 | 0.6 | 760 | 5097 | 0.0 | 890 | 3992 | 0.0 |
| 375 | 2697 | 0.0 | 505 | 64676 | 110.0 | 635 | 103216 | 0.4 | 765 | 4626 | 0.0 | 895 | 3214 | 0.0 |
| 380 | 3039 | 0.0 | 510 | 73825 | 125.1 | 640 | 92605 | 0.2 | 770 | 3782 | 0.0 | 900 | 2580 | 0.0 |
| 385 | 2655 | 0.0 | 515 | 81872 | 135.7 | 645 | 83234 | 0.1 | 775 | 3506 | 0.0 | 905 | 1776 | 0.0 |
| 390 | 2357 | 0.0 | 520 | 88574 | 140.8 | 650 | 73263 | 0.1 | 780 | 3507 | 0.0 | 910 | 3995 | 0.0 |
| 395 | 2186 | 0.0 | 525 | 93289 | 139.6 | 655 | 64627 | 0.1 | 785 | 3267 | 0.0 | 915 | 4288 | 0.0 |
| 400 | 2015 | 0.0 | 530 | 98393 | 135.7 | 660 | 56614 | 0.0 | 790 | 2849 | 0.0 | 920 | 2446 | 0.0 |
| 405 | 2234 | 0.1 | 535 | 103269 | 128.7 | 665 | 49537 | 0.0 | 795 | 3037 | 0.0 | 925 | 3009 | 0.0 |
| 410 | 3412 | 0.2 | 540 | 107316 | 118.6 | 670 | 42866 | 0.0 | 800 | 2716 | 0.0 | 930 | 3026 | 0.0 |
| 415 | 6135 | 0.6 | 545 | 113101 | 108.4 | 675 | 36708 | 0.0 | 805 | 2648 | 0.0 | 935 | 4734 | 0.0 |
| 420 | 12146 | 2.0 | 550 | 120690 | 98.7 | 680 | 31814 | 0.0 | 810 | 3187 | 0.0 | 940 | 3719 | 0.0 |
| 425 | 23983 | 5.9 | 555 | 128583 | 87.9 | 685 | 27485 | 0.0 | 815 | 2931 | 0.0 | 945 | 1480 | 0.0 |
| 430 | 42142 | 14.3 | 560 | 137796 | 77.0 | 690 | 23698 | 0.0 | 820 | 2717 | 0.0 | 950 | 3450 | 0.0 |
| 435 | 68228 | 30.5 | 565 | 146577 | 65.8 | 695 | 20309 | 0.0 | 825 | 2236 | 0.0 | 955 | 5051 | 0.0 |
| 440 | 99323 | 55.5 | 570 | 154581 | 54.6 | 700 | 17890 | 0.0 | 830 | 2628 | 0.0 | 960 | 3176 | 0.0 |
| 445 | 115584 | 77.4 | 575 | 162633 | 44.3 | 705 | 15500 | 0.0 | 835 | 3140 | 0.0 | 965 | 5178 | 0.0 |
| 450 | 94997 | 73.6 | 580 | 168101 | 34.6 | 710 | 13699 | 0.0 | 840 | 3675 | 0.0 | 970 | 6385 | 0.0 |
| 455 | 61433 | 53.7 | 585 | 173145 | 26.5 | 715 | 12398 | 0.0 | 845 | 3283 | 0.0 | 975 | 3810 | 0.0 |
| 460 | 43373 | 41.9 | 590 | 174675 | 19.5 | 720 | 11147 | 0.0 | 850 | 3055 | 0.0 | 980 | 4322 | 0.0 |
| 465 | 32472 | 34.3 | 595 | 173724 | 13.9 | 725 | 9761 | 0.0 | 855 | 2932 | 0.0 | 985 | 4200 | 0.0 |
| 470 | 24257 | 27.9 | 600 | 171241 | 9.7 | 730 | 8651 | 0.0 | 860 | 3382 | 0.0 | 990 | 4661 | 0.0 |
| 475 | 21690 | 27.1 | 605 | 165134 | 6.5 | 735 | 7730 | 0.0 | 865 | 2605 | 0.0 | 995 | 6746 | 0.0 |
| 480 | 23173 | 31.3 | 610 | 156652 | 4.2 | 740 | 6847 | 0.0 | 870 | 3325 | 0.0 | 1000 | 4150 | 0.0 |
| 485 | 27564 | 40.0 | 615 | 147879 | 2.7 | 745 | 6124 | 0.0 | 875 | 3325 | 0.0 | | | |

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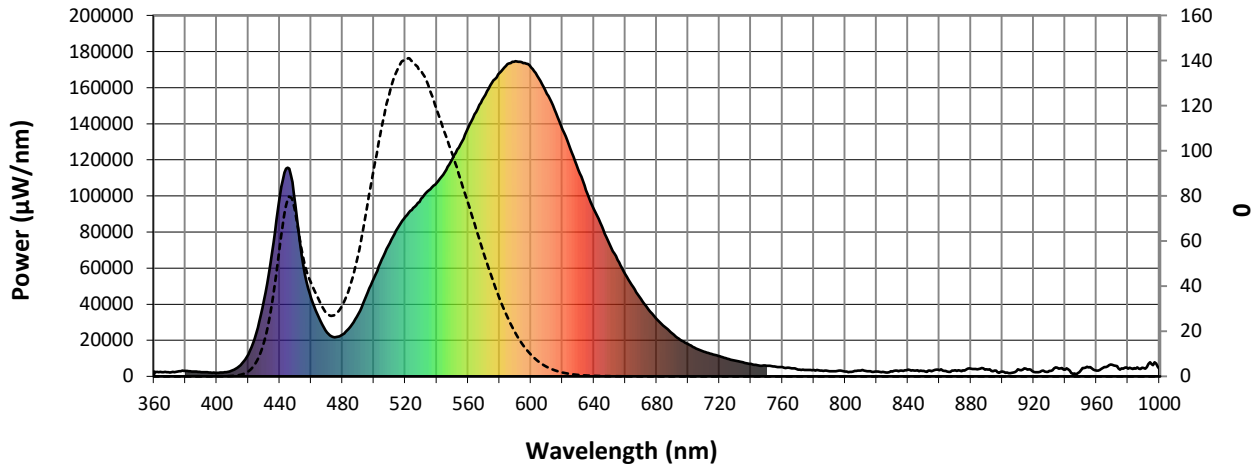
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: 4490.7** **M/P: 0.5**

| 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 | 2672 | 0.0 | 490 | 34553 | 28.8 | 620 | 136720 | 0.1 | 750 | 5870 | 0.0 | 880 | 4216 | 0.0 |
| 365 | 2252 | 0.0 | 495 | 44336 | 36.6 | 625 | 126308 | 0.1 | 755 | 5421 | 0.0 | 885 | 4132 | 0.0 |
| 370 | 2217 | 0.0 | 500 | 54643 | 43.9 | 630 | 114625 | 0.0 | 760 | 5097 | 0.0 | 890 | 3992 | 0.0 |
| 375 | 2697 | 0.0 | 505 | 64676 | 49.6 | 635 | 103216 | 0.0 | 765 | 4626 | 0.0 | 895 | 3214 | 0.0 |
| 380 | 3039 | 0.0 | 510 | 73825 | 53.0 | 640 | 92605 | 0.0 | 770 | 3782 | 0.0 | 900 | 2580 | 0.0 |
| 385 | 2655 | 0.0 | 515 | 81872 | 53.5 | 645 | 83234 | 0.0 | 775 | 3506 | 0.0 | 905 | 1776 | 0.0 |
| 390 | 2357 | 0.0 | 520 | 88574 | 51.6 | 650 | 73263 | 0.0 | 780 | 3507 | 0.0 | 910 | 3995 | 0.0 |
| 395 | 2186 | 0.0 | 525 | 93289 | 47.3 | 655 | 64627 | 0.0 | 785 | 3267 | 0.0 | 915 | 4288 | 0.0 |
| 400 | 2015 | 0.0 | 530 | 98393 | 42.5 | 660 | 56614 | 0.0 | 790 | 2849 | 0.0 | 920 | 2446 | 0.0 |
| 405 | 2234 | 0.0 | 535 | 103269 | 37.2 | 665 | 49537 | 0.0 | 795 | 3037 | 0.0 | 925 | 3009 | 0.0 |
| 410 | 3412 | 0.1 | 540 | 107316 | 31.4 | 670 | 42866 | 0.0 | 800 | 2716 | 0.0 | 930 | 3026 | 0.0 |
| 415 | 6135 | 0.4 | 545 | 113101 | 26.3 | 675 | 36708 | 0.0 | 805 | 2648 | 0.0 | 935 | 4734 | 0.0 |
| 420 | 12146 | 1.4 | 550 | 120690 | 21.7 | 680 | 31814 | 0.0 | 810 | 3187 | 0.0 | 940 | 3719 | 0.0 |
| 425 | 23983 | 3.7 | 555 | 128583 | 17.3 | 685 | 27485 | 0.0 | 815 | 2931 | 0.0 | 945 | 1480 | 0.0 |
| 430 | 42142 | 8.9 | 560 | 137796 | 13.6 | 690 | 23698 | 0.0 | 820 | 2717 | 0.0 | 950 | 3450 | 0.0 |
| 435 | 68228 | 18.2 | 565 | 146577 | 10.3 | 695 | 20309 | 0.0 | 825 | 2236 | 0.0 | 955 | 5051 | 0.0 |
| 440 | 99323 | 33.2 | 570 | 154581 | 7.6 | 700 | 17890 | 0.0 | 830 | 2628 | 0.0 | 960 | 3176 | 0.0 |
| 445 | 115584 | 45.6 | 575 | 162633 | 5.4 | 705 | 15500 | 0.0 | 835 | 3140 | 0.0 | 965 | 5178 | 0.0 |
| 450 | 94997 | 43.8 | 580 | 168101 | 3.8 | 710 | 13699 | 0.0 | 840 | 3675 | 0.0 | 970 | 6385 | 0.0 |
| 455 | 61433 | 32.2 | 585 | 173145 | 2.6 | 715 | 12398 | 0.0 | 845 | 3283 | 0.0 | 975 | 3810 | 0.0 |
| 460 | 43373 | 25.6 | 590 | 174675 | 1.7 | 720 | 11147 | 0.0 | 850 | 3055 | 0.0 | 980 | 4322 | 0.0 |
| 465 | 32472 | 21.2 | 595 | 173724 | 1.1 | 725 | 9761 | 0.0 | 855 | 2932 | 0.0 | 985 | 4200 | 0.0 |
| 470 | 24257 | 17.4 | 600 | 171241 | 0.7 | 730 | 8651 | 0.0 | 860 | 3382 | 0.0 | 990 | 4661 | 0.0 |
| 475 | 21690 | 16.6 | 605 | 165134 | 0.5 | 735 | 7730 | 0.0 | 865 | 2605 | 0.0 | 995 | 6746 | 0.0 |
| 480 | 23173 | 18.6 | 610 | 156652 | 0.3 | 740 | 6847 | 0.0 | 870 | 3325 | 0.0 | 1000 | 4150 | 0.0 |
| 485 | 27564 | 22.7 | 615 | 147879 | 0.2 | 745 | 6124 | 0.0 | 875 | 3325 | 0.0 | | | |

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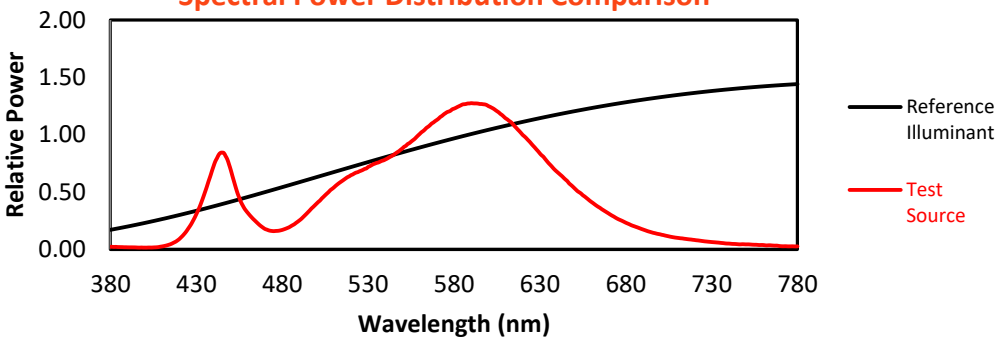
# TM-30-18

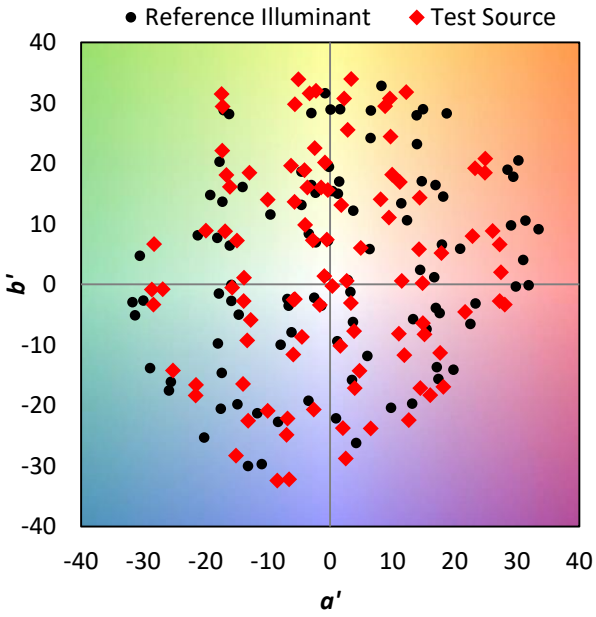
## Summary

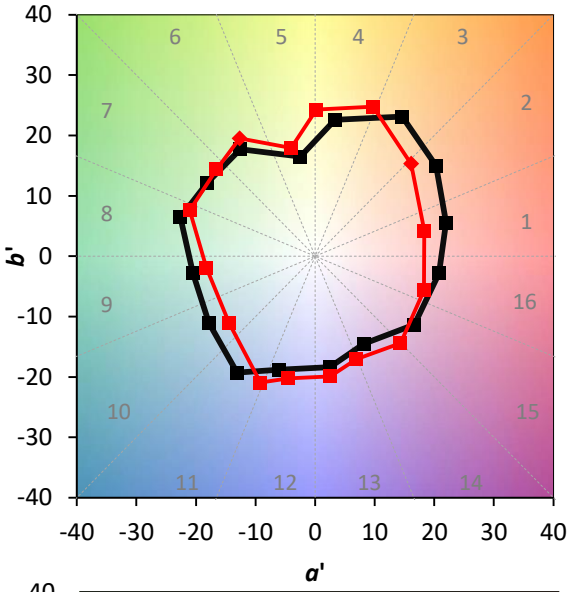
$R_f$ = 76.9
$R_g$ = 94.4
CIE $R_a$ = 73.1
$R_9$ = -34.6

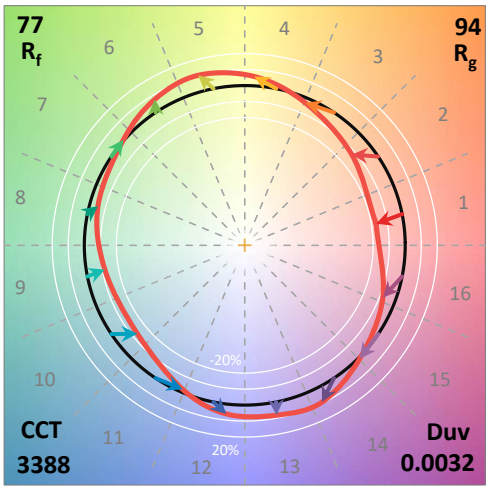
## Spectral Power Distribution Comparison

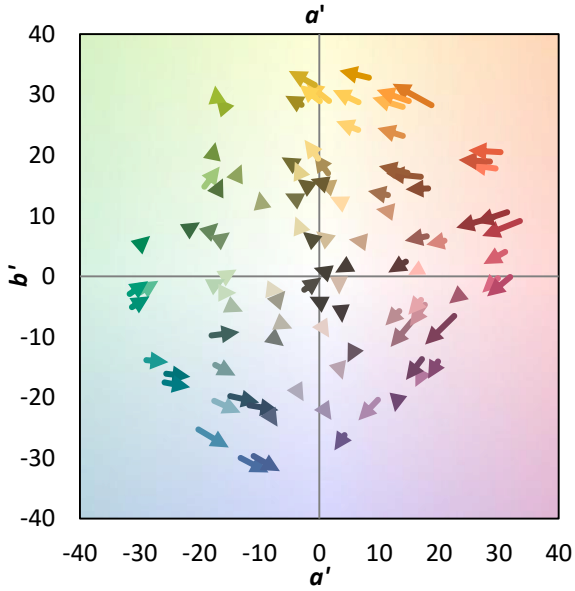



## Color Vector Graphics



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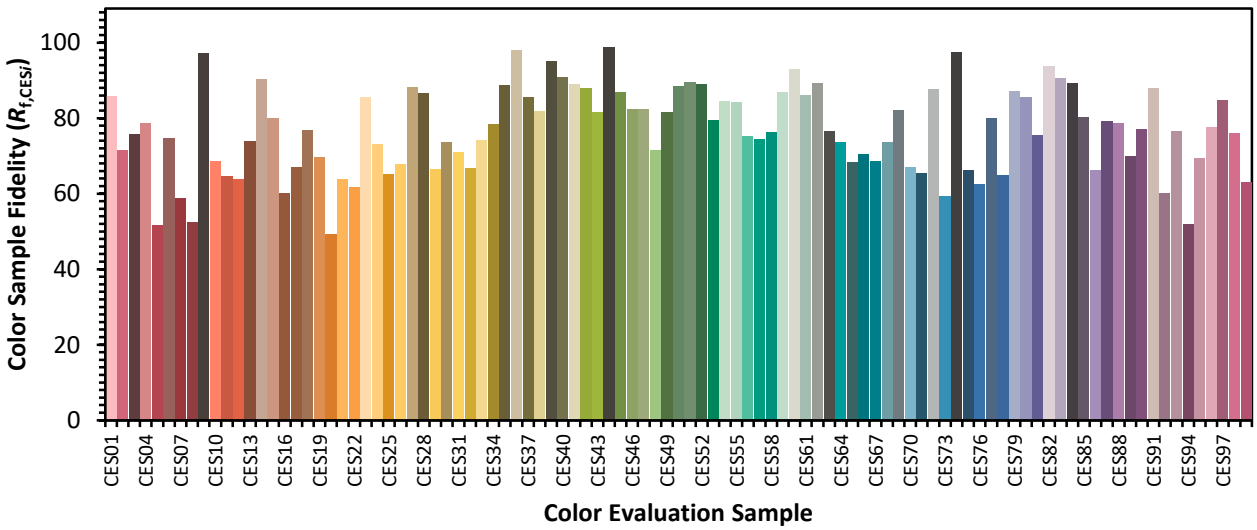
# TM-30-18

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

| | | | |
|---|---|---|---|
| CES01 = 86 | CES26 = 68 | CES51 = 90 | CES76 = 63 |
| CES02 = 62 | CES27 = 88 | CES52 = 89 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 80 | CES78 = 65 |
| CES04 = 70 | CES29 = 67 | CES54 = 84 | CES79 = 87 |
| CES05 = 48 | CES30 = 74 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 71 | CES56 = 75 | CES81 = 75 |
| CES07 = 40 | CES32 = 67 | CES57 = 74 | CES82 = 94 |
| CES08 = 39 | CES33 = 74 | CES58 = 76 | CES83 = 91 |
| CES09 = 29 | CES34 = 78 | CES59 = 87 | CES84 = 89 |
| CES10 = 75 | CES35 = 89 | CES60 = 93 | CES85 = 80 |
| CES11 = 58 | CES36 = 98 | CES61 = 86 | CES86 = 66 |
| CES12 = 64 | CES37 = 86 | CES62 = 89 | CES87 = 79 |
| CES13 = 43 | CES38 = 82 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 95 | CES64 = 74 | CES89 = 70 |
| CES15 = 71 | CES40 = 91 | CES65 = 68 | CES90 = 77 |
| CES16 = 47 | CES41 = 89 | CES66 = 71 | CES91 = 88 |
| CES17 = 50 | CES42 = 88 | CES67 = 69 | CES92 = 60 |
| CES18 = 56 | CES43 = 82 | CES68 = 74 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 82 | CES94 = 52 |
| CES20 = 65 | CES45 = 87 | CES70 = 67 | CES95 = 69 |
| CES21 = 86 | CES46 = 82 | CES71 = 66 | CES96 = 78 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 85 |
| CES23 = 92 | CES48 = 72 | CES73 = 59 | CES98 = 76 |
| CES24 = 91 | CES49 = 82 | CES74 = 97 | CES99 = 63 |
| CES25 = 72 | CES50 = 88 | CES75 = 66 | |



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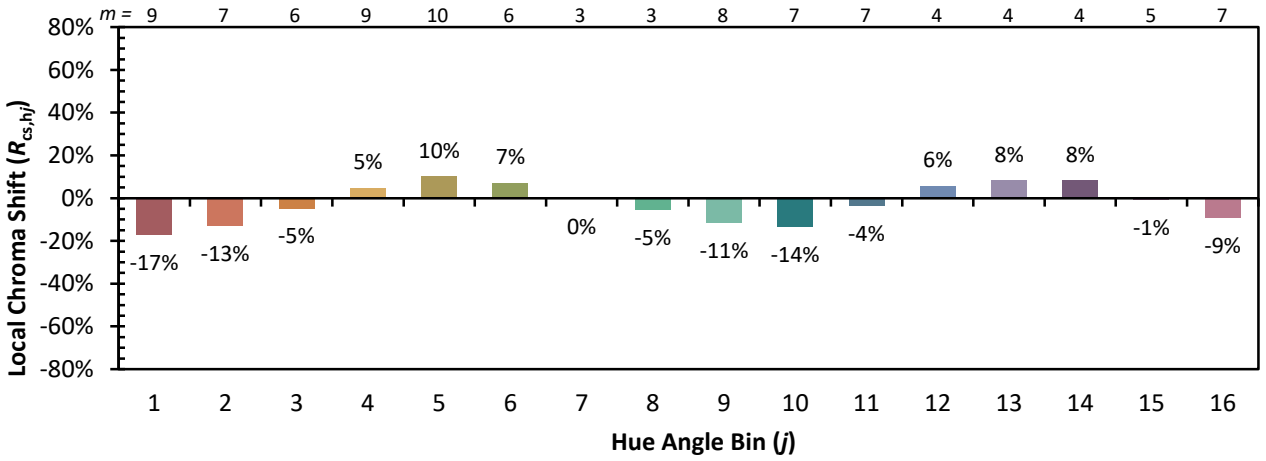
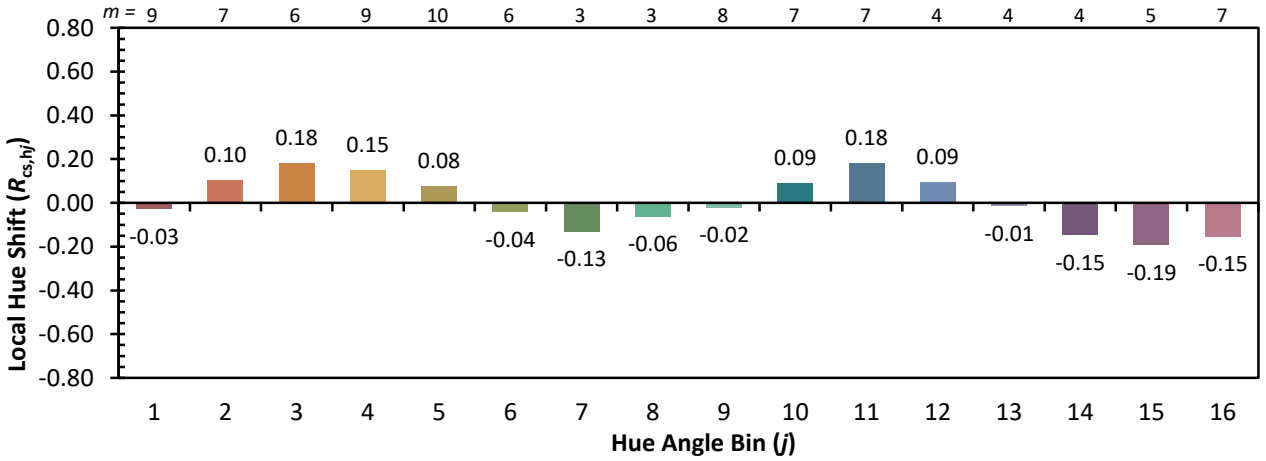
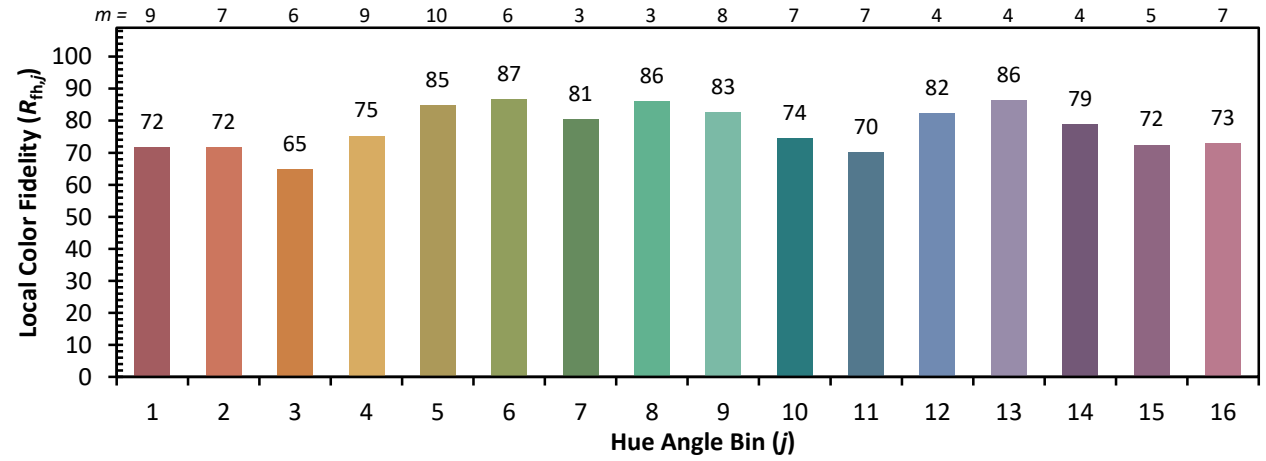
**TM-30-18**

## Color Rendition by Hue-Angle Bin



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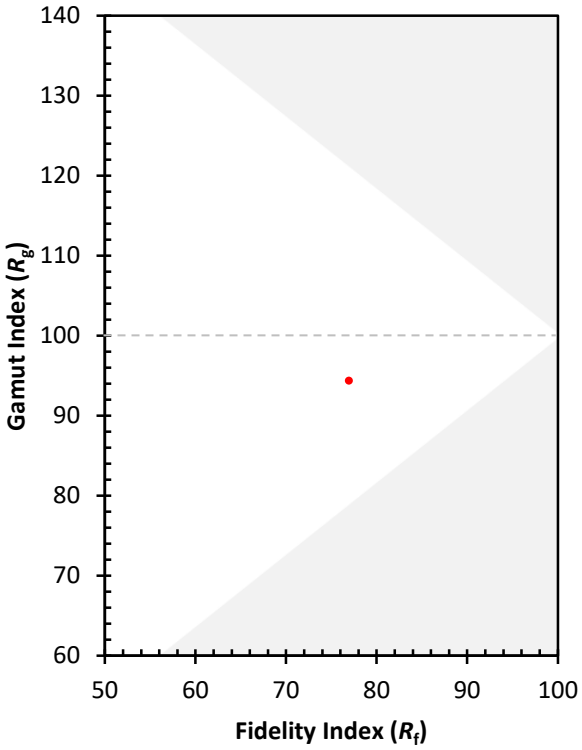
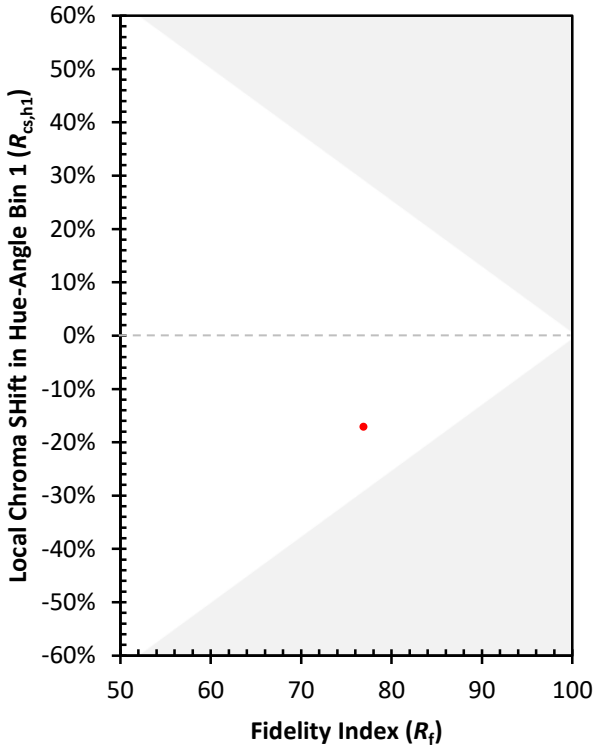
# TM-30-18

## Measure Comparisons




(END OF REPORT)