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

Scaled data based on original data using

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

Test Report Prepared for

Cooper Lighting Solutions

(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P437894

Luminaire Tested: **ISS-SA1F-760-U-SL2-HSS**

Issue Date: 12/9/2020

Report Generated By 670245982

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

Scaled Data Report

**Test Information**

| | |
|---|---|
| Test Method: | LM-79-08 |
| Report Number: | P437894 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2011-074-15) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 12/9/2020 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS (FORMERLY EATON) |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | ISS-SA1F-760-U-SL2-HSS |
| Description: | IMPACT ELITE LED QUARTER SPHERE LUMINAIRE |
| | (1) 70 CRI, 5700K, 1200mA LIGHTSQUARE WITH 16 LEDS AND TYPE II SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 6421 lumens |
| Efficiency: | N/A |
| Efficacy: | 97.3 lumens/watt |
| Luminous Opening: | Rectangular (W 0.5' x L: 0.5' x H: 0') |
| IES Classification: | Type II - Short |
| BUG Rating: | B1 - U0 - G2 |

| | |
|---|---|
| Input Watts (W): | 66 |
| Input Voltage (V): | NR |
| Input Current (Ain): | NR |
| Voltage Rise (V): | NR |
| Power Factor: | NR |
| 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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REPORT NUMBER: P437894
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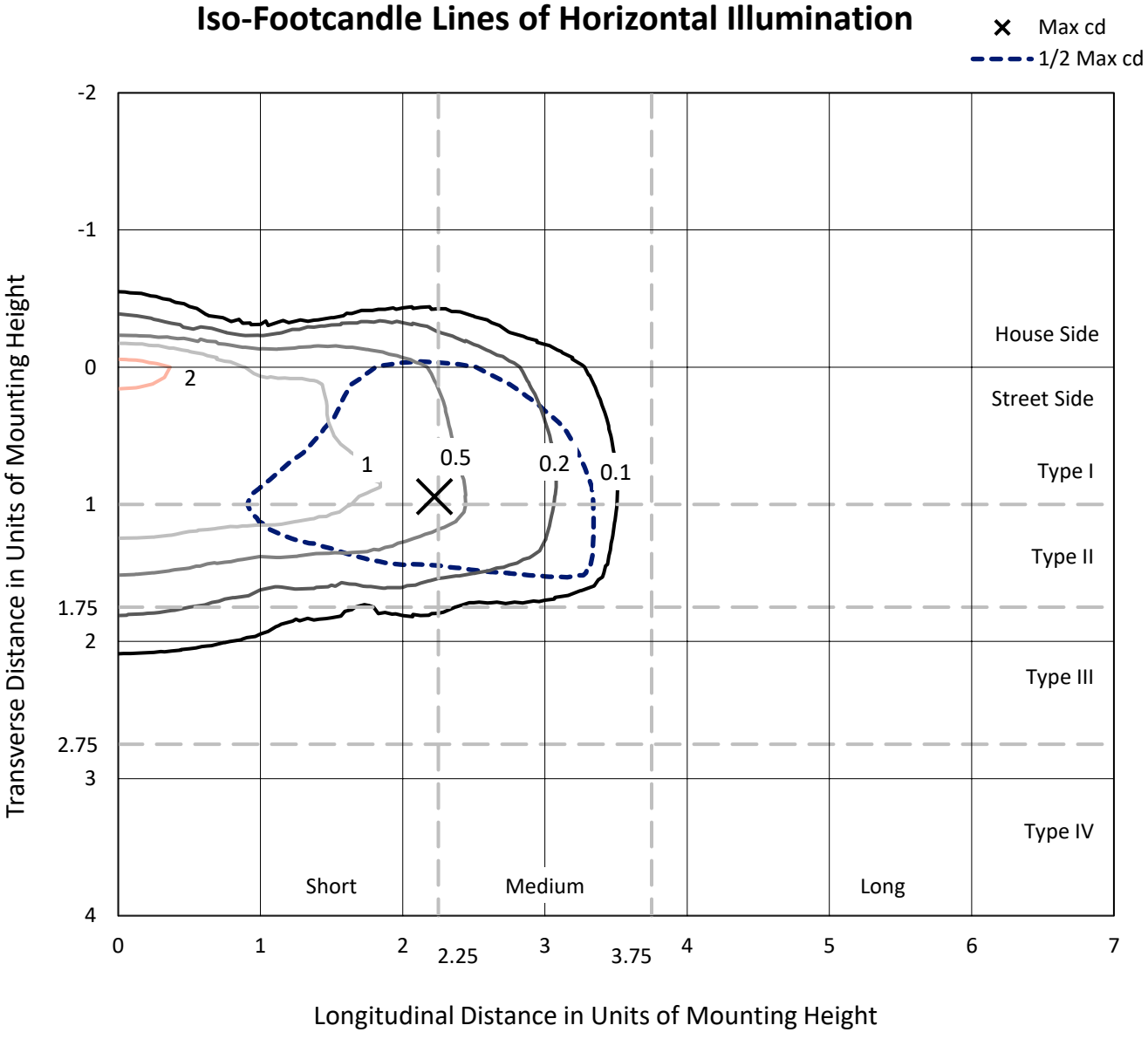
## Iso-Footcandle Lines of Horizontal Illumination




Based on 25 foot mounting height. Maximum calculated value = 2.5 fc
Type II - Short - N/A

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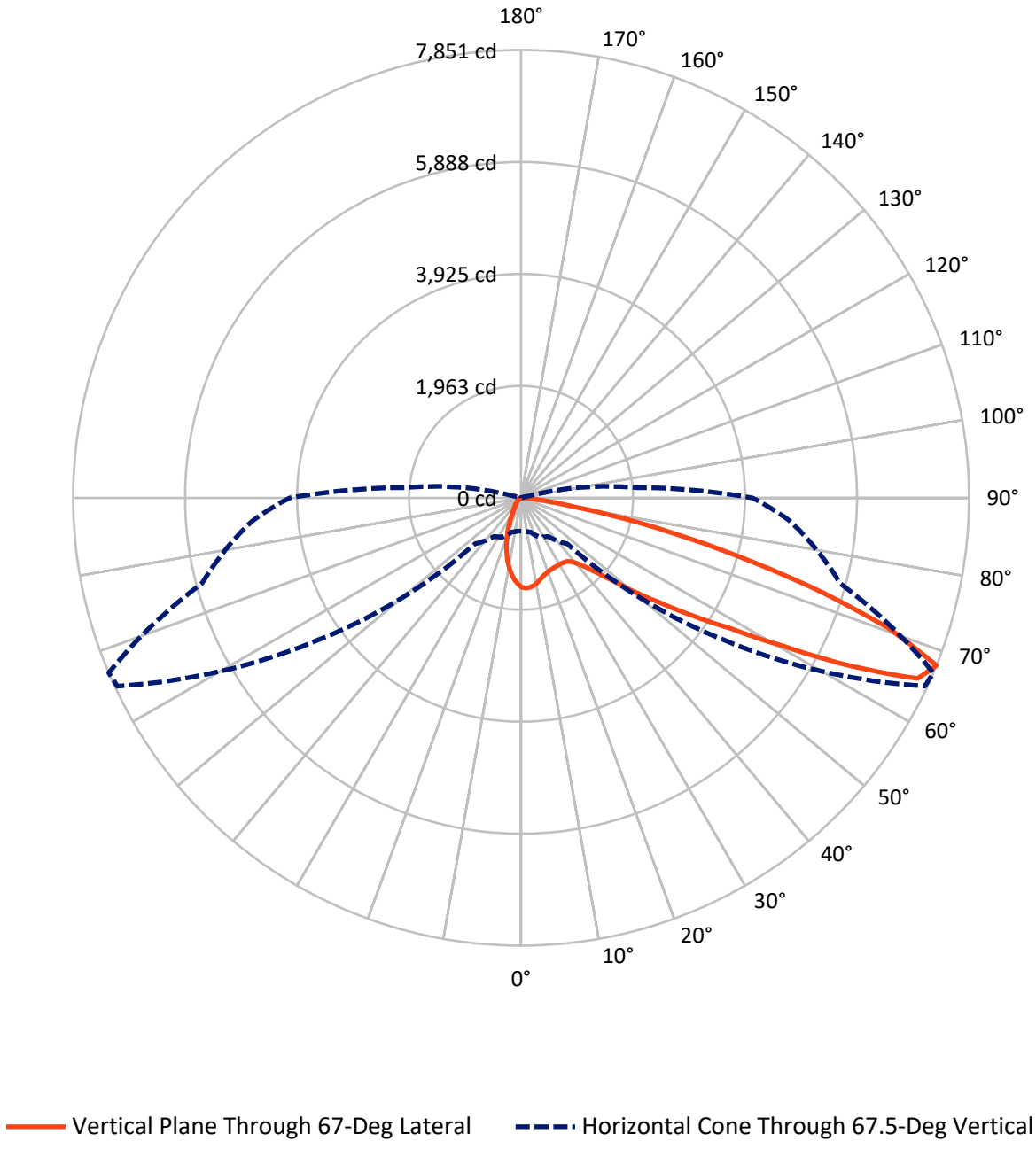
## Luminous Intensity Polar Plot



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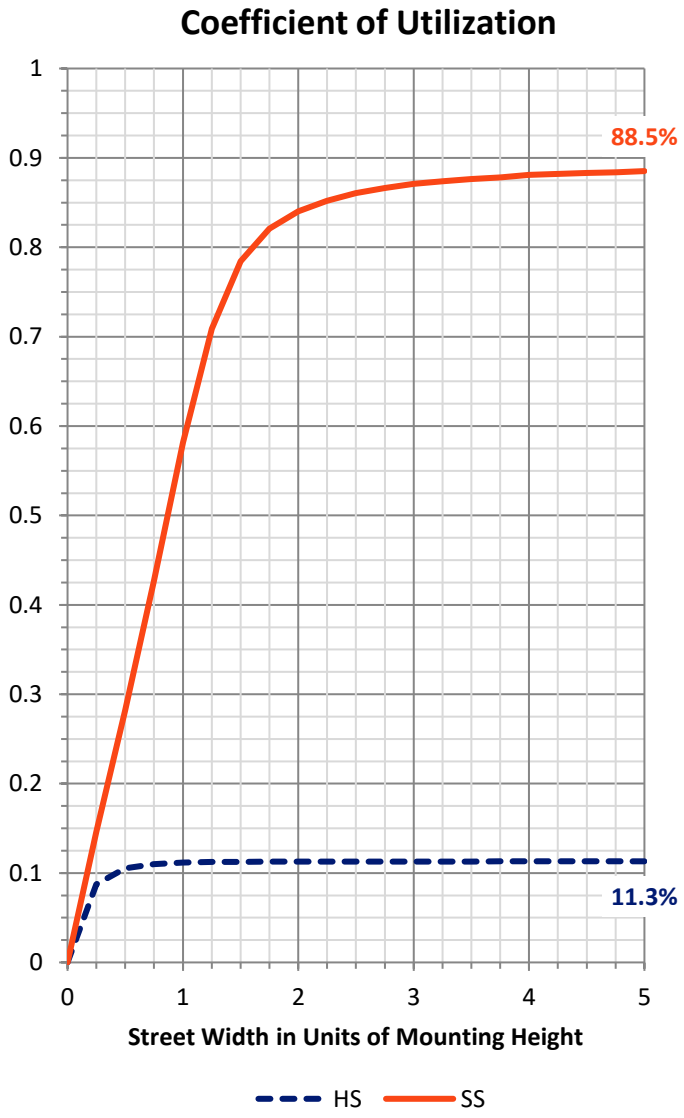
**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 732.7 | 0.0 | 732.7 |
| | % Fixture | 11.4 | 0.0 | 11.4 |
| **Street Side** | Lumens | 5688.2 | 0.0 | 5688.2 |
| | % Fixture | 88.6 | 0.0 | 88.6 |
| **Total** | Lumens | 6421.0 | 0.0 | 6421.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 127.7 | 2.0 |
| 10°-20° | 276.8 | 4.3 |
| 20°-30° | 396.5 | 6.2 |
| 30°-40° | 583.6 | 9.1 |
| 40°-50° | 963.9 | 15.0 |
| 50°-60° | 1550.6 | 24.1 |
| 60°-70° | 1690.6 | 26.3 |
| 70°-80° | 769.4 | 12.0 |
| 80°-90° | 61.9 | 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° | 6421.0 | 100.0 |
| 0°-180° | 6421.0 | 100.0 |



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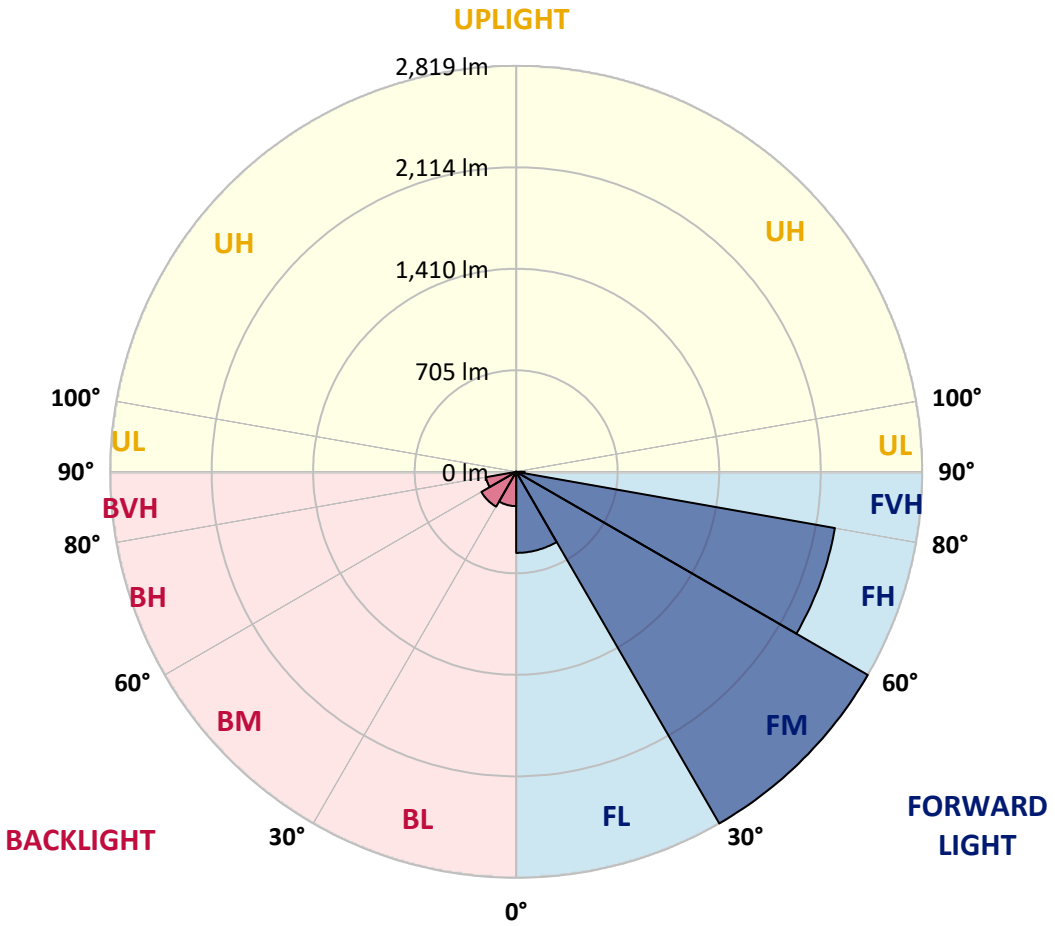
## LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | | Lumens | % Fixture | Zone Rating/Lumen Limit B | U | G |
|---|---|---|---|---|---|---|
| FL | (0°-30°) | 562.9 | 8.8 | | | |
| FM | (30°-60°) | 2819.1 | 43.9 | | | |
| FH | (60°-80°) | 2247.4 | 35.0 | | | G2/5000 |
| FVH | (80°-90°) | 58.8 | 0.9 | | | G1/100 |
| BL | (0°-30°) | 238.0 | 3.7 | B1/500 | | |
| BM | (30°-60°) | 279.0 | 4.3 | B1/1000 | | |
| BH | (60°-80°) | 212.6 | 3.3 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 3.1 | 0.0 | | | G0/10 |
| 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 Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 67° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1566.8 | 1566.8 | 1566.8 | 1566.8 | 1566.8 | 1566.8 | 1566.8 | 1566.8 | *1566.8* | 1566.8 | 1566.8 |
| 2.5° | 1547.0 | 1561.1 | 1564.0 | 1569.6 | 1569.6 | 1578.0 | 1580.9 | 1586.5 | *1583.7* | 1586.5 | 1580.9 |
| 5° | 1440.0 | 1451.2 | 1445.6 | 1473.8 | 1490.7 | 1521.7 | 1552.7 | 1578.0 | *1578.0* | 1586.5 | 1583.7 |
| 7.5° | 1332.9 | 1344.2 | 1344.2 | 1366.7 | 1394.9 | 1440.0 | 1490.7 | 1549.9 | *1555.5* | 1583.7 | 1575.2 |
| 10° | 1248.3 | 1254.0 | 1259.6 | 1285.0 | 1318.8 | 1363.9 | 1431.5 | 1507.6 | *1518.9* | 1566.8 | 1569.6 |
| 12.5° | 1180.7 | 1189.2 | 1197.6 | 1223.0 | 1254.0 | 1299.1 | 1363.9 | 1451.2 | *1471.0* | 1538.6 | 1564.0 |
| 15° | 1146.9 | 1146.9 | 1155.4 | 1177.9 | 1206.1 | 1254.0 | 1313.2 | 1414.6 | *1431.5* | 1521.7 | 1561.1 |
| 17.5° | 1130.0 | 1132.8 | 1138.4 | 1149.7 | 1172.3 | 1211.7 | 1276.5 | 1375.2 | *1397.7* | 1507.6 | 1561.1 |
| 20° | 1152.5 | 1152.5 | 1144.1 | 1149.7 | 1161.0 | 1192.0 | 1251.2 | 1347.0 | *1375.2* | 1499.1 | 1575.2 |
| 22.5° | 1200.4 | 1200.4 | 1186.4 | 1177.9 | 1169.4 | 1180.7 | 1234.3 | 1335.7 | *1361.1* | 1499.1 | 1583.7 |
| 25° | 1273.7 | 1273.7 | 1265.3 | 1239.9 | 1203.3 | 1194.8 | 1237.1 | 1332.9 | *1352.6* | 1502.0 | 1595.0 |
| 27.5° | 1361.1 | 1363.9 | 1355.4 | 1327.2 | 1270.9 | 1223.0 | 1245.5 | 1327.2 | *1349.8* | 1499.1 | 1600.6 |
| 30° | 1476.6 | 1487.9 | 1476.6 | 1437.1 | 1369.5 | 1279.3 | 1265.3 | 1324.4 | *1347.0* | 1493.5 | 1603.4 |
| 32.5° | 1592.1 | 1600.6 | 1611.9 | 1586.5 | 1490.7 | 1366.7 | 1307.5 | 1335.7 | *1355.4* | 1496.3 | 1597.8 |
| 35° | 1704.9 | 1727.4 | 1747.1 | 1755.6 | 1656.9 | 1490.7 | 1378.0 | 1361.1 | *1369.5* | 1504.8 | 1597.8 |
| 37.5° | 1826.0 | 1848.6 | 1890.8 | 1933.1 | 1851.4 | 1628.8 | 1482.2 | 1417.4 | *1417.4* | 1533.0 | 1614.7 |
| 40° | 1981.0 | 1992.3 | 2074.0 | 2124.7 | 2085.3 | 1851.4 | 1631.6 | 1513.2 | *1510.4* | 1611.9 | 1662.6 |
| 42.5° | 2130.4 | 2161.4 | 2268.4 | 2344.5 | 2319.2 | 2113.5 | 1811.9 | 1682.3 | *1654.1* | 1738.7 | 1749.9 |
| 45° | 2347.3 | 2395.2 | 2479.8 | 2592.5 | 2617.9 | 2406.5 | 2090.9 | 1899.3 | *1871.1* | 1927.5 | 1896.5 |
| 47.5° | 2550.2 | 2584.0 | 2665.8 | 2809.5 | 2956.0 | 2784.1 | 2406.5 | 2203.6 | *2178.3* | 2200.8 | 2150.1 |
| 50° | 2615.0 | 2632.0 | 2724.9 | 2902.5 | 3249.1 | 3325.2 | 2840.5 | 2598.1 | *2595.3* | 2578.4 | 2493.9 |
| 52.5° | 2502.3 | 2505.1 | 2612.2 | 2829.2 | 3370.3 | 3916.9 | 3454.8 | 3108.2 | *3060.3* | 3023.6 | 2910.9 |
| 55° | 2158.5 | 2183.9 | 2274.1 | 2544.6 | 3251.9 | 4257.9 | 4438.3 | 3725.3 | *3646.4* | 3514.0 | 3373.1 |
| 57.5° | 1687.9 | 1676.7 | 1749.9 | 1997.9 | 2888.4 | 4393.2 | 5407.6 | 4508.7 | *4311.4* | 3914.1 | 3725.3 |
| 60° | 1228.6 | 1200.4 | 1248.3 | 1389.2 | 2099.4 | 4128.3 | 5968.4 | 5613.3 | *5275.2* | 4345.3 | 4159.3 |
| 62.5° | 913.0 | 913.0 | 963.7 | 1028.5 | 1287.8 | 3220.9 | 6055.7 | 6878.6 | *6498.2* | 4891.9 | 4618.6 |
| 65° | 729.8 | 727.0 | 769.3 | 867.9 | 918.6 | 1997.9 | 5616.1 | 7780.3 | *7636.6* | 5461.2 | 4920.1 |
| 67.5° | *583.3* | *583.3* | *619.9* | *755.2* | *825.7* | *1135.6* | *4345.3* | *7808.5* | *7850.8* | *5788.0* | *4737.0* |
| 70° | 411.4 | 425.5 | 470.6 | 631.2 | 797.5 | 867.9 | 2634.8 | 6706.7 | *6816.6* | 5689.4 | 4249.4 |
| 72.5° | 231.1 | 242.3 | 324.1 | 467.8 | 766.5 | 834.1 | 1473.8 | 5066.7 | *5252.6* | 4768.0 | 3466.1 |
| 75° | 109.9 | 121.2 | 188.8 | 321.2 | 639.7 | 794.7 | 896.1 | 3592.9 | *3567.5* | 3096.9 | 2152.9 |
| 77.5° | 47.9 | 53.5 | 84.5 | 186.0 | 453.7 | 741.1 | 656.6 | 2245.9 | *2144.5* | 1454.1 | 904.6 |
| 80° | 16.9 | 19.7 | 36.6 | 107.1 | 256.4 | 605.9 | 546.7 | 1037.0 | *938.4* | 403.0 | 236.7 |
| 82.5° | 2.8 | 2.8 | 14.1 | 50.7 | 115.5 | 338.2 | 450.9 | 496.0 | *428.3* | 101.4 | 101.4 |
| 85° | 0.0 | 0.0 | 2.8 | 16.9 | 28.2 | 31.0 | 202.9 | 200.1 | *166.3* | 33.8 | 50.7 |
| 87.5° | 0.0 | 0.0 | 0.0 | 2.8 | 2.8 | 5.6 | 5.6 | 5.6 | *5.6* | 5.6 | 8.5 |
| 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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CATALOG NUMBER: ISS-SA1F-760-U-SL2-HSS

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1566.8 | 1566.8 | 1566.8 | 1566.8 | 1566.8 | 1566.8 | 1566.8 | 1566.8 | 1566.8 | 1566.8 | 1566.8 |
| 2.5° | 1566.8 | 1564.0 | 1535.8 | 1510.4 | 1476.6 | 1448.4 | 1423.1 | 1397.7 | 1386.4 | 1389.2 | 1394.9 |
| 5° | 1569.6 | 1552.7 | 1493.5 | 1428.7 | 1361.1 | 1293.4 | 1228.6 | 1189.2 | 1158.2 | 1146.9 | 1158.2 |
| 7.5° | 1555.5 | 1527.3 | 1437.1 | 1332.9 | 1225.8 | 1107.4 | 1008.8 | 935.6 | 882.0 | 848.2 | 862.3 |
| 10° | 1544.2 | 1502.0 | 1369.5 | 1211.7 | 1059.5 | 904.6 | 763.7 | 659.4 | 586.1 | 543.9 | 535.4 |
| 12.5° | 1524.5 | 1473.8 | 1290.6 | 1090.5 | 879.2 | 667.9 | 498.8 | 388.9 | 329.7 | 298.7 | 307.2 |
| 15° | 1518.9 | 1440.0 | 1211.7 | 949.6 | 687.6 | 450.9 | 301.5 | 239.5 | 214.2 | 208.5 | 208.5 |
| 17.5° | 1513.2 | 1417.4 | 1127.2 | 811.6 | 493.1 | 281.8 | 208.5 | 191.6 | 186.0 | 183.2 | 186.0 |
| 20° | 1507.6 | 1386.4 | 1042.6 | 662.2 | 332.5 | 202.9 | 180.3 | 171.9 | 166.3 | 166.3 | 163.4 |
| 22.5° | 1513.2 | 1366.7 | 963.7 | 521.3 | 228.3 | 171.9 | 157.8 | 152.2 | 146.5 | 143.7 | 143.7 |
| 25° | 1507.6 | 1341.3 | 867.9 | 383.2 | 177.5 | 152.2 | 140.9 | 129.6 | 124.0 | 121.2 | 118.4 |
| 27.5° | 1499.1 | 1310.3 | 777.8 | 276.2 | 155.0 | 135.3 | 121.2 | 109.9 | 101.4 | 98.6 | 98.6 |
| 30° | 1490.7 | 1270.9 | 673.5 | 202.9 | 140.9 | 121.2 | 104.3 | 93.0 | 84.5 | 78.9 | 78.9 |
| 32.5° | 1468.1 | 1234.3 | 572.0 | 163.4 | 126.8 | 107.1 | 90.2 | 76.1 | 70.4 | 67.6 | 67.6 |
| 35° | 1454.1 | 1192.0 | 465.0 | 140.9 | 115.5 | 93.0 | 76.1 | 64.8 | 59.2 | 56.4 | 56.4 |
| 37.5° | 1451.2 | 1146.9 | 369.1 | 126.8 | 104.3 | 81.7 | 64.8 | 56.4 | 50.7 | 47.9 | 47.9 |
| 40° | 1462.5 | 1124.4 | 284.6 | 115.5 | 90.2 | 70.4 | 56.4 | 47.9 | 42.3 | 39.5 | 39.5 |
| 42.5° | 1507.6 | 1121.5 | 217.0 | 104.3 | 81.7 | 62.0 | 50.7 | 39.5 | 33.8 | 31.0 | 31.0 |
| 45° | 1609.0 | 1138.4 | 171.9 | 95.8 | 70.4 | 53.5 | 42.3 | 33.8 | 28.2 | 25.4 | 25.4 |
| 47.5° | 1775.3 | 1208.9 | 143.7 | 87.4 | 59.2 | 45.1 | 33.8 | 28.2 | 19.7 | 19.7 | 19.7 |
| 50° | 2045.8 | 1358.2 | 126.8 | 76.1 | 50.7 | 36.6 | 28.2 | 19.7 | 14.1 | 14.1 | 14.1 |
| 52.5° | 2446.0 | 1586.5 | 115.5 | 67.6 | 42.3 | 31.0 | 22.5 | 14.1 | 11.3 | 11.3 | 11.3 |
| 55° | 2860.2 | 1871.1 | 107.1 | 56.4 | 36.6 | 25.4 | 16.9 | 11.3 | 8.5 | 8.5 | 5.6 |
| 57.5° | 3237.8 | 2105.0 | 95.8 | 47.9 | 28.2 | 19.7 | 11.3 | 8.5 | 5.6 | 5.6 | 5.6 |
| 60° | 3685.9 | 2338.9 | 81.7 | 36.6 | 22.5 | 14.1 | 8.5 | 5.6 | 2.8 | 2.8 | 2.8 |
| 62.5° | 4119.8 | 2471.3 | 67.6 | 28.2 | 16.9 | 11.3 | 5.6 | 2.8 | 2.8 | 2.8 | 2.8 |
| 65° | 4308.6 | 2409.3 | 53.5 | 22.5 | 14.1 | 8.5 | 2.8 | 2.8 | 2.8 | 0.0 | 0.0 |
| 67.5° | *4055.0* | *2037.4* | *42.3* | *16.9* | *11.3* | *5.6* | *2.8* | *2.8* | *0.0* | *0.0* | *0.0* |
| 70° | 3491.4 | 1648.5 | 33.8 | 14.1 | 8.5 | 2.8 | 2.8 | 2.8 | 0.0 | 0.0 | 0.0 |
| 72.5° | 2741.9 | 1214.5 | 28.2 | 11.3 | 5.6 | 2.8 | 2.8 | 2.8 | 0.0 | 0.0 | 0.0 |
| 75° | 1668.2 | 611.5 | 25.4 | 8.5 | 5.6 | 5.6 | 2.8 | 2.8 | 2.8 | 0.0 | 0.0 |
| 77.5° | 566.4 | 191.6 | 16.9 | 8.5 | 5.6 | 5.6 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 80° | 166.3 | 62.0 | 14.1 | 5.6 | 5.6 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 82.5° | 87.4 | 28.2 | 8.5 | 5.6 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 | 2.8 |
| 85° | 47.9 | 14.1 | 5.6 | 2.8 | 2.8 | 2.8 | 0.0 | 0.0 | 2.8 | 2.8 | 2.8 |
| 87.5° | 8.5 | 5.6 | 5.6 | 2.8 | 2.8 | 2.8 | 0.0 | 0.0 | 0.0 | 2.8 | 2.8 |
| 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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Report Generated By FNC07603 / LDUCLS01DT446
Version: v6.13

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Peachtree City, GA 30269

## Test Information

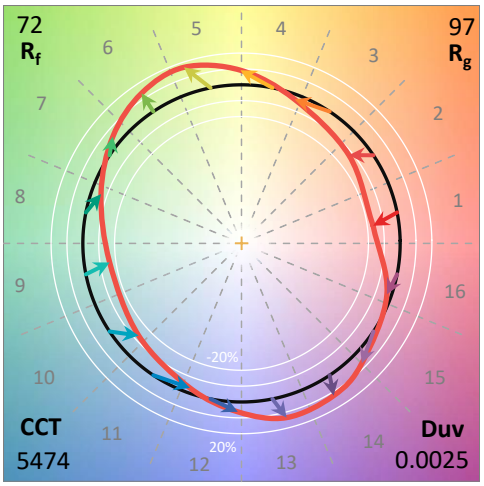
| | |
|---|---|
| Test Method: | LM-79-2008 |
| Report Number: | SP1-1908-441-9-R4 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/28/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | **SA1C-760-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): | 5474 | CRI (Ra): | 71.7 | | |
| CIE u': | 0.2052 | R1: | 70.6 | R9: | -27.1 |
| CIE v': | 0.4804 | R2: | 74.6 | R10: | 40.8 |
| Duv: | 0.0025 | R3: | 78.3 | R11: | 74.6 |
| CIE x: | 0.3330 | R4: | 73.8 | R12: | 50.4 |
| CIE y: | 0.3466 | R5: | 72.4 | R13: | 70.0 |
| CIE z: | 0.3204 | R6: | 67.5 | R14: | 87.8 |
| Peak Wavelength (nm): | 442 | R7: | 77.5 | | |
| Dominant Wavelength (nm): | 554 | R8: | 58.9 | | |
| Purity: | 4.1 | | | | |

| | |
|---|---|
| Rf: | 72.1 |
| Rg: | 97.2 |




## Test Conditions

| | |
|---|---|
| Stabilization Time: | 240M |
| Operation Time: | 12H |
| Room Temperature (°C) / RH%: | 24.6/31% |
| Sphere Temperature (°C): | 25.9 |

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REPORT NUMBER: SP1-1908-441-9-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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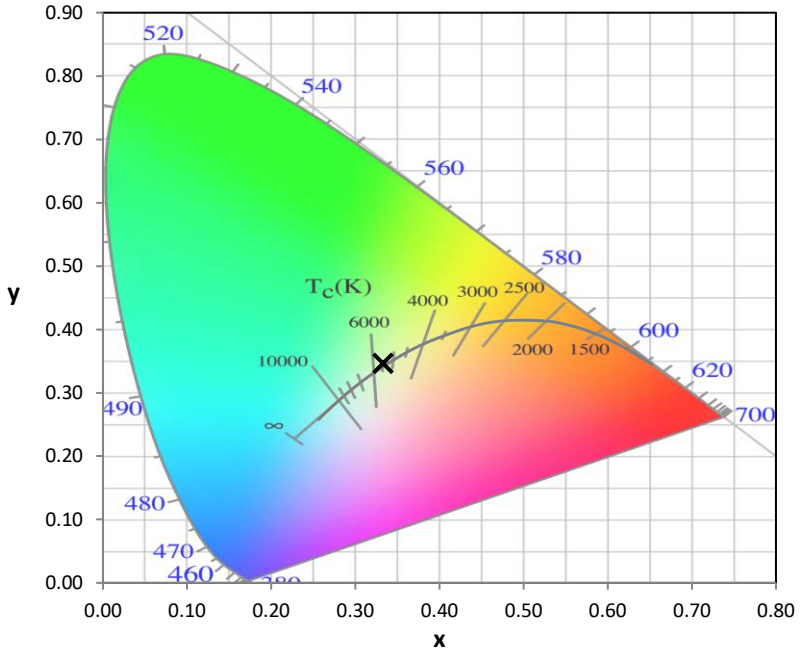
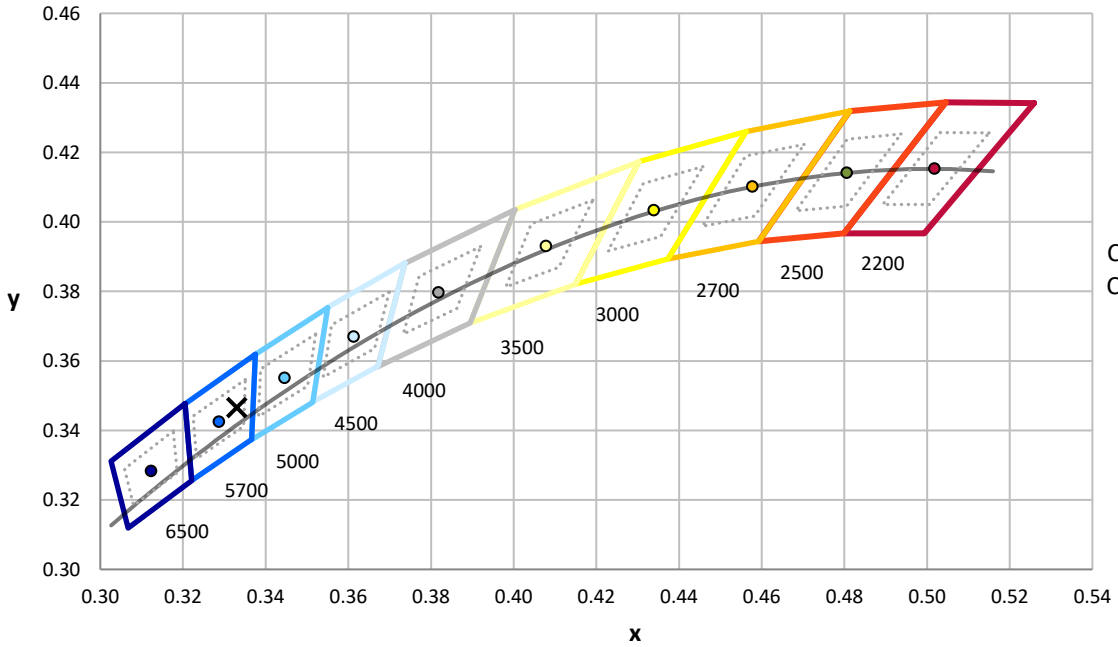
REPORT NUMBER: SP1-1908-441-9-R4

## CIE 1931 Chromaticity Diagram




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




CCT = 5474K
CIE x = 0.3330
CIE y = 0.3466
Duv = 0.0025

Point lies inside the ANSI 5700K 4-step quadrangle

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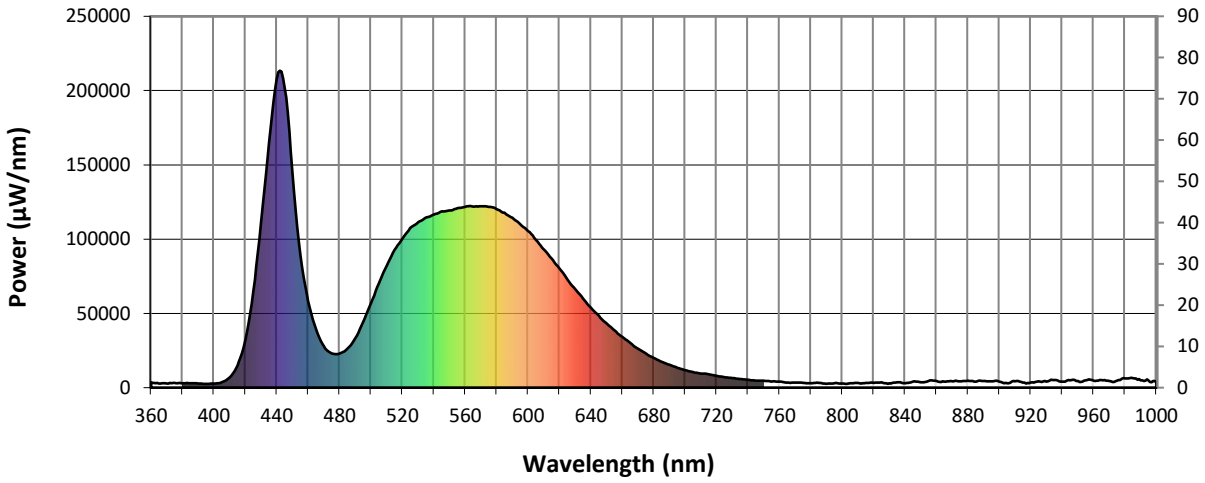
## Photopic Flux vs. Wavelength




######

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

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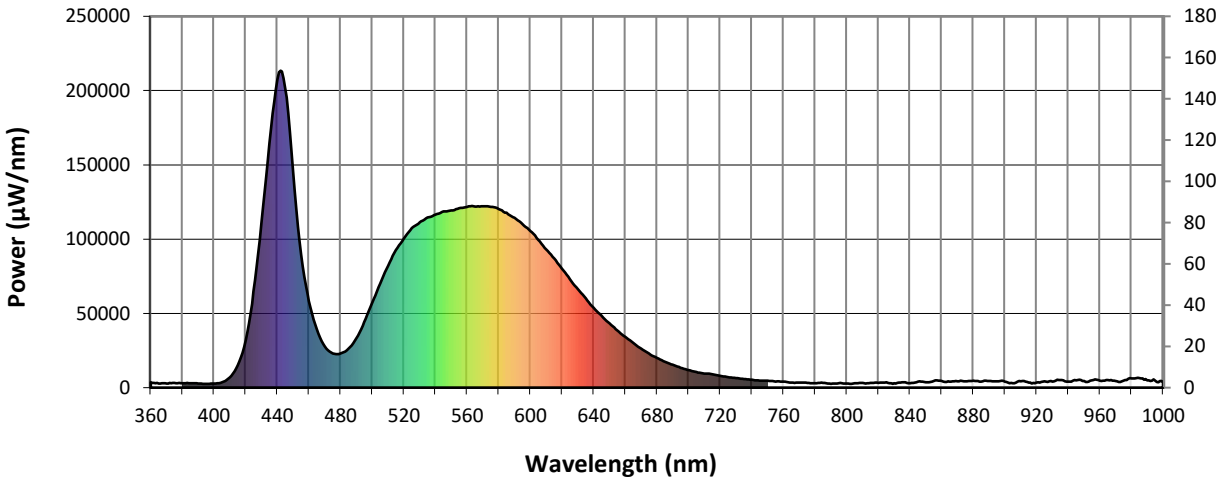
## Scotopic Flux vs. Wavelength




**Scotopic Lumens: 13759.3** **S/P: 1.85**

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

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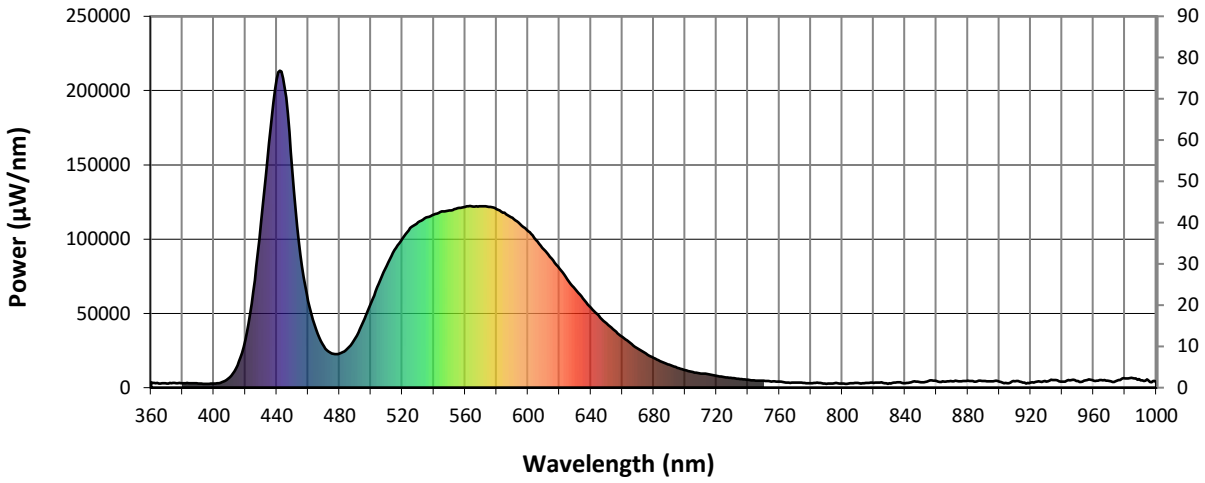
## Melanopic Flux vs. Wavelength




**Melanopic Lumens: 5527.6** **M/P: 0.74**

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

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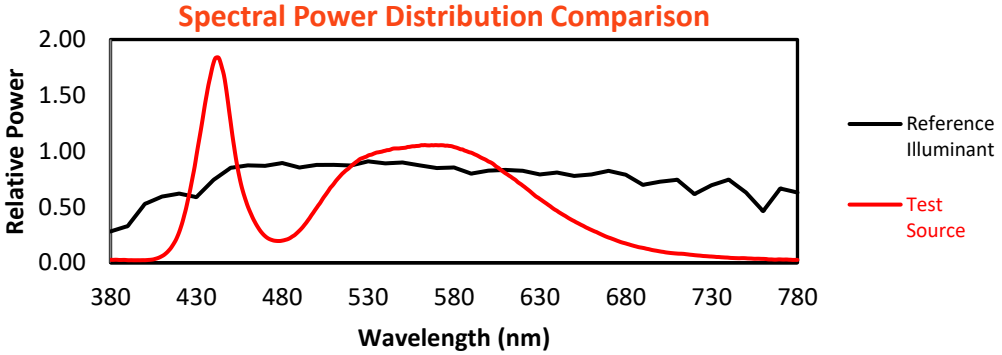
# TM-30-18

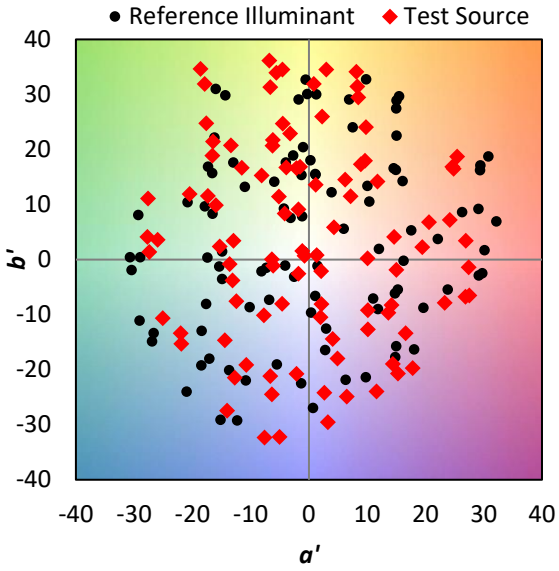
## Summary

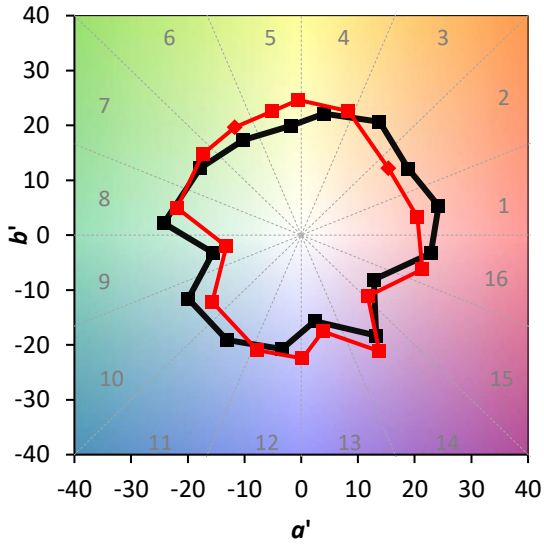
$R_f$ = 72.1
$R_g$ = 97.2
CIE $R_a$ = 71.7
$R_9$ = -27.1

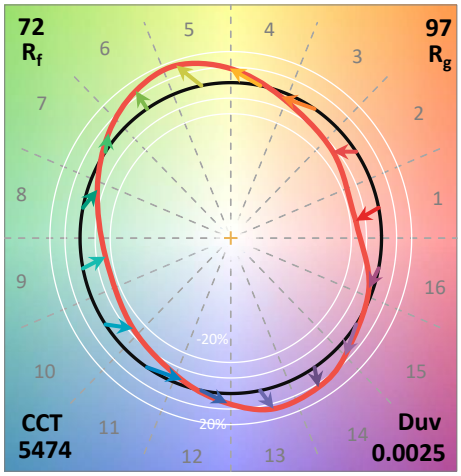
## Spectral Power Distribution Comparison

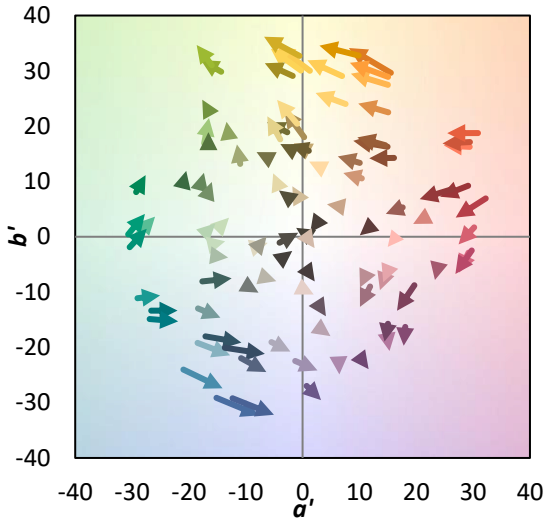



## Color Vector Graphics



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Peachtree City, GA 30269

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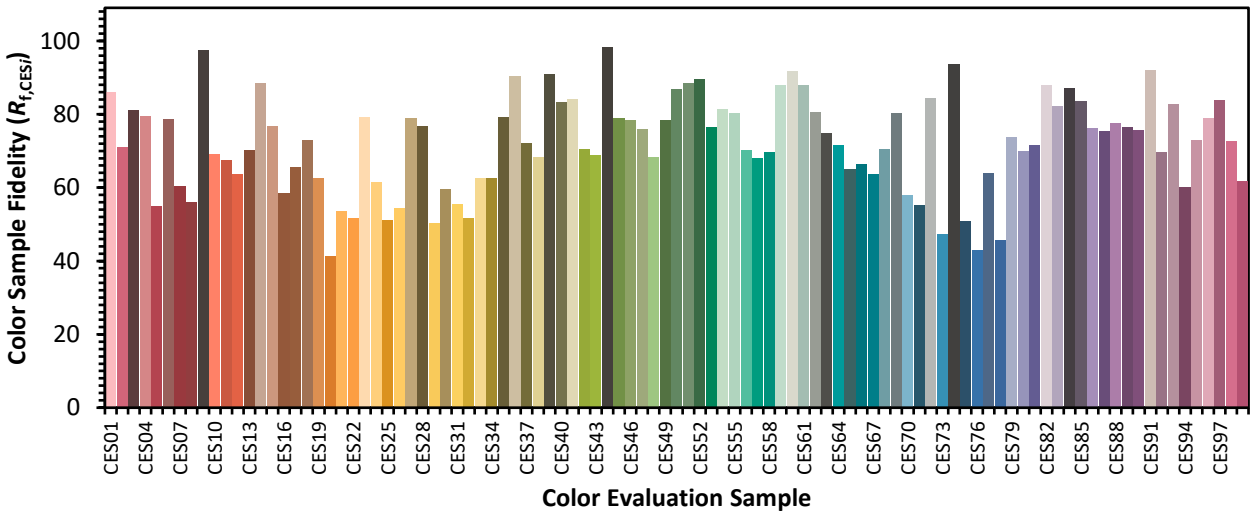
## Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|---|---|---|---|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 59 | CES55 = 80 | CES80 = 70 |
| CES06 = 50 | CES31 = 55 | CES56 = 70 | CES81 = 71 |
| CES07 = 38 | CES32 = 52 | CES57 = 68 | CES82 = 88 |
| CES08 = 38 | CES33 = 63 | CES58 = 70 | CES83 = 82 |
| CES09 = 29 | CES34 = 63 | CES59 = 88 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 92 | CES85 = 84 |
| CES11 = 55 | CES36 = 90 | CES61 = 88 | CES86 = 76 |
| CES12 = 61 | CES37 = 72 | CES62 = 81 | CES87 = 75 |
| CES13 = 41 | CES38 = 68 | CES63 = 75 | CES88 = 77 |
| CES14 = 74 | CES39 = 91 | CES64 = 72 | CES89 = 76 |
| CES15 = 70 | CES40 = 83 | CES65 = 65 | CES90 = 76 |
| CES16 = 46 | CES41 = 84 | CES66 = 66 | CES91 = 92 |
| CES17 = 48 | CES42 = 70 | CES67 = 64 | CES92 = 70 |
| CES18 = 55 | CES43 = 69 | CES68 = 71 | CES93 = 83 |
| CES19 = 70 | CES44 = 98 | CES69 = 80 | CES94 = 60 |
| CES20 = 64 | CES45 = 79 | CES70 = 58 | CES95 = 73 |
| CES21 = 85 | CES46 = 78 | CES71 = 55 | CES96 = 79 |
| CES22 = 77 | CES47 = 76 | CES72 = 84 | CES97 = 84 |
| CES23 = 91 | CES48 = 68 | CES73 = 47 | CES98 = 73 |
| CES24 = 90 | CES49 = 78 | CES74 = 94 | CES99 = 62 |
| CES25 = 71 | CES50 = 87 | CES75 = 51 | |



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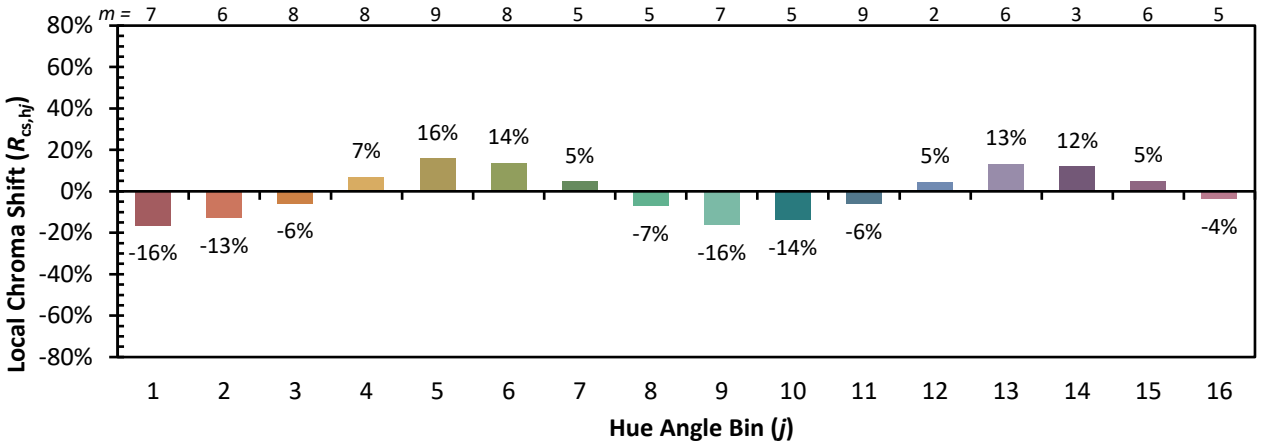
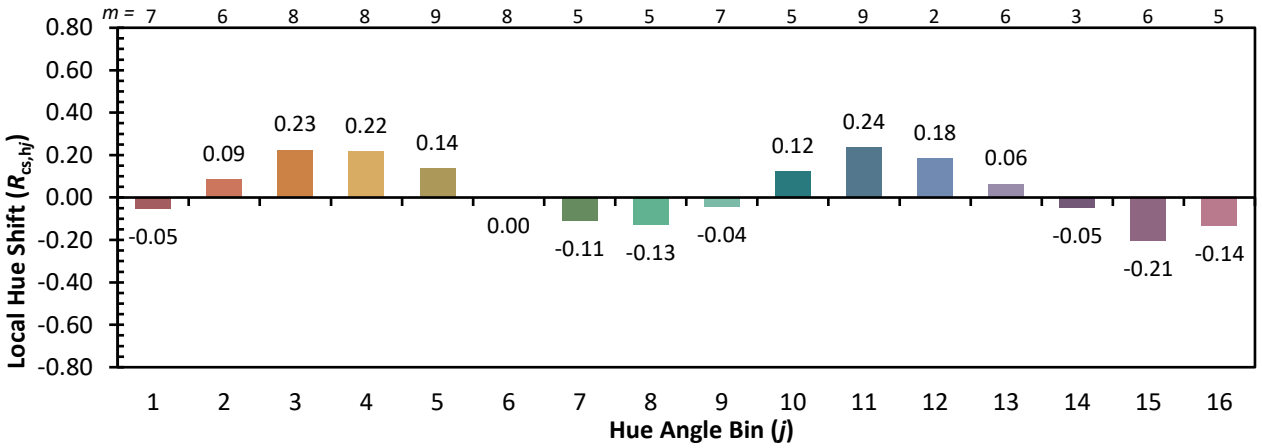
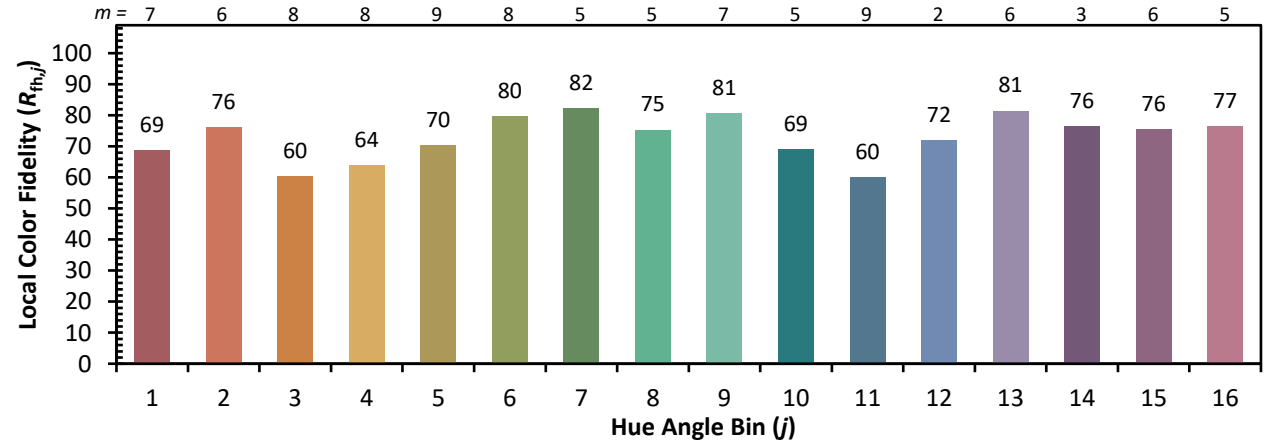
**TM-30-18**

## Color Rendition by Hue-Angle Bin



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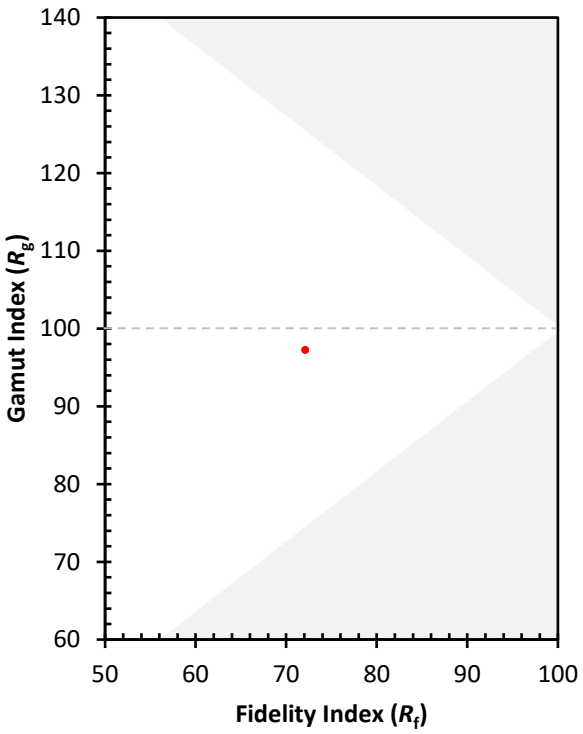
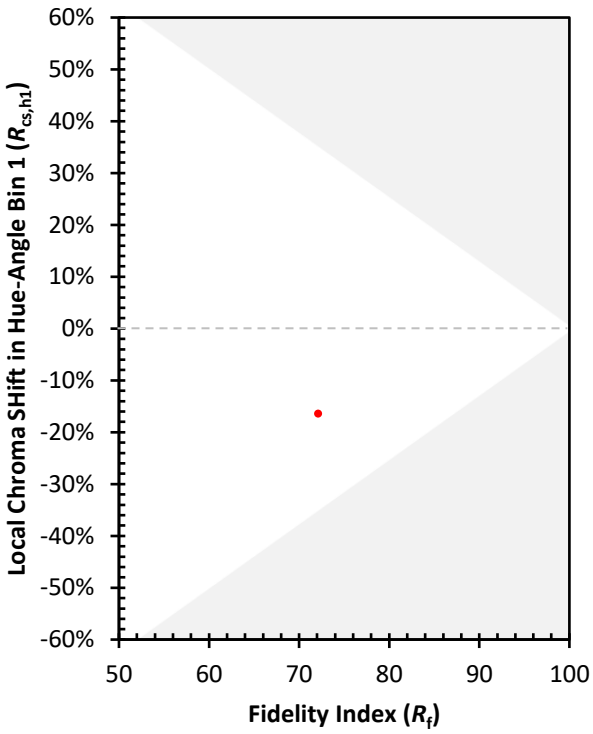
**TM-30-18**

## Measure Comparisons




(END OF REPORT)