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: McGRAW-EDISON

Report Number: P1203322

Luminaire Tested: GWC-SB2C-722-U-T4W-HSS

Issue Date: 10/30/2025

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: | P1203322 |
| | TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2411-289-2) |
| Test Lab: | INNOVATION CENTER |
| Issue Date: | 3/14/2026 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| Catalog Number: | GWC-SB2C-722-U-T4W-HSS |
| Description: | GALLEON WALL LUMINAIRE |
| | (2) 70 CRI, 2200K, 615mA LIGHTSQUARES WITH 26 LEDS EACH AND TYPE IV WIDE OPTICS WITH HOUSE SIDE SHIELD |
| Light Source: | - |
| Ballast/Driver: | ELECTRONIC DRIVER |

**Summary**

| | |
|---|---|
| Lumens per Lamp: | N/A |
| Luminaire Lumens: | 9528 lumens |
| Efficiency: | N/A |
| Efficacy: | 94.4 lumens/watt |
| Luminous Opening: | Rectangular (W 1' x L: 0.5' x H: 0') |
| IES Classification: | Type IV - Short |
| BUG Rating: | B1 - U0 - G2 |

| | |
|---|---|
| Input Watts (W): | 100.9 |
| Input Voltage (V): | 120.0 |
| Input Current (Ain): | 0.857 |
| Voltage Rise (V): | NR |
| Power Factor: | 0.994 |
| Total Harmonic Distortion (THDi): | 9.472 |
| Frequency (hertz): | 60 |
| Stabilization Time: | NR |
| Operation Time: | NR |
| Ambient Temperature (°C): | NR |
| Test Distance: | 28.75 FT |

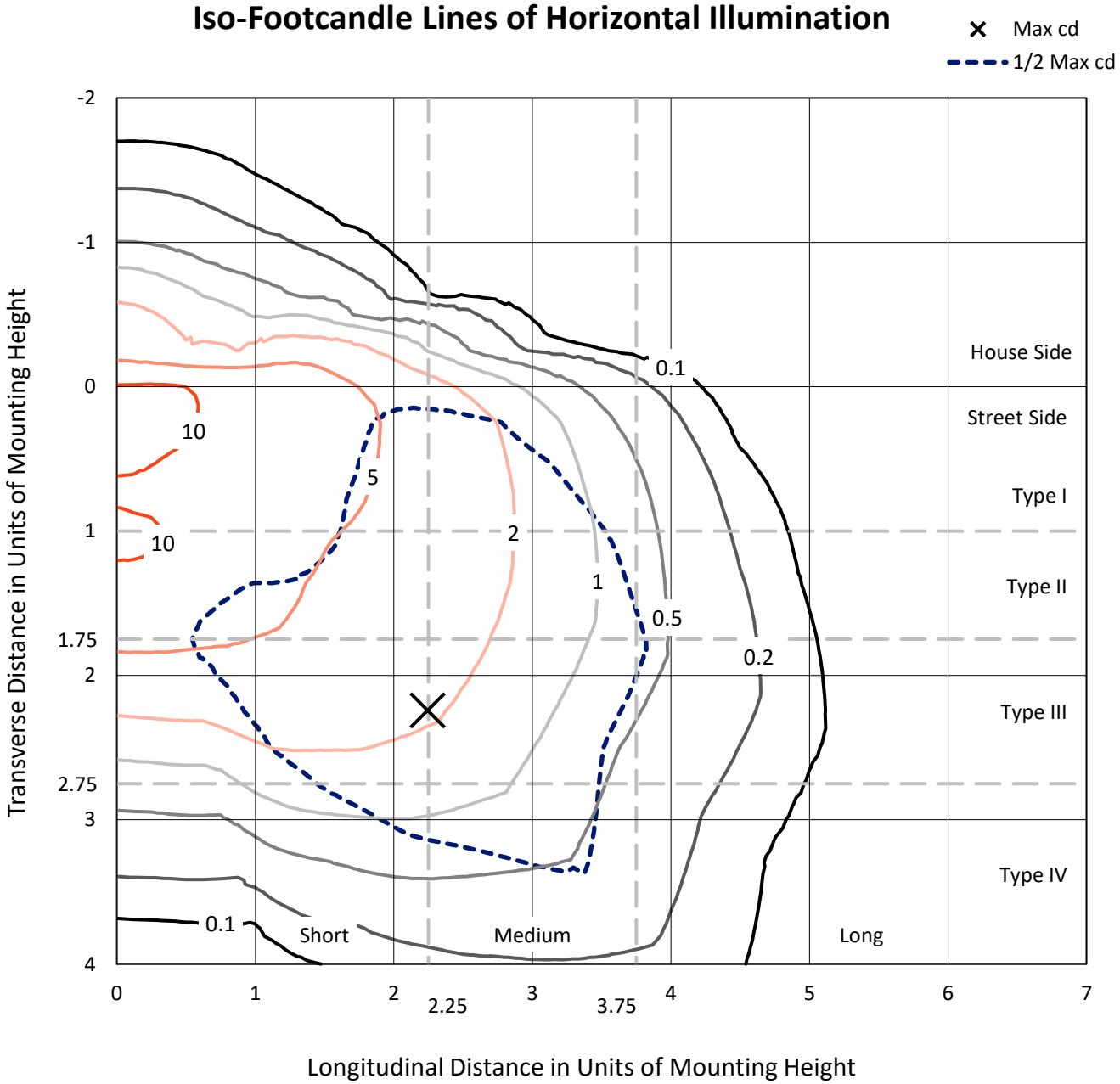


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REPORT NUMBER: P1203322
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## Iso-Footcandle Lines of Horizontal Illumination



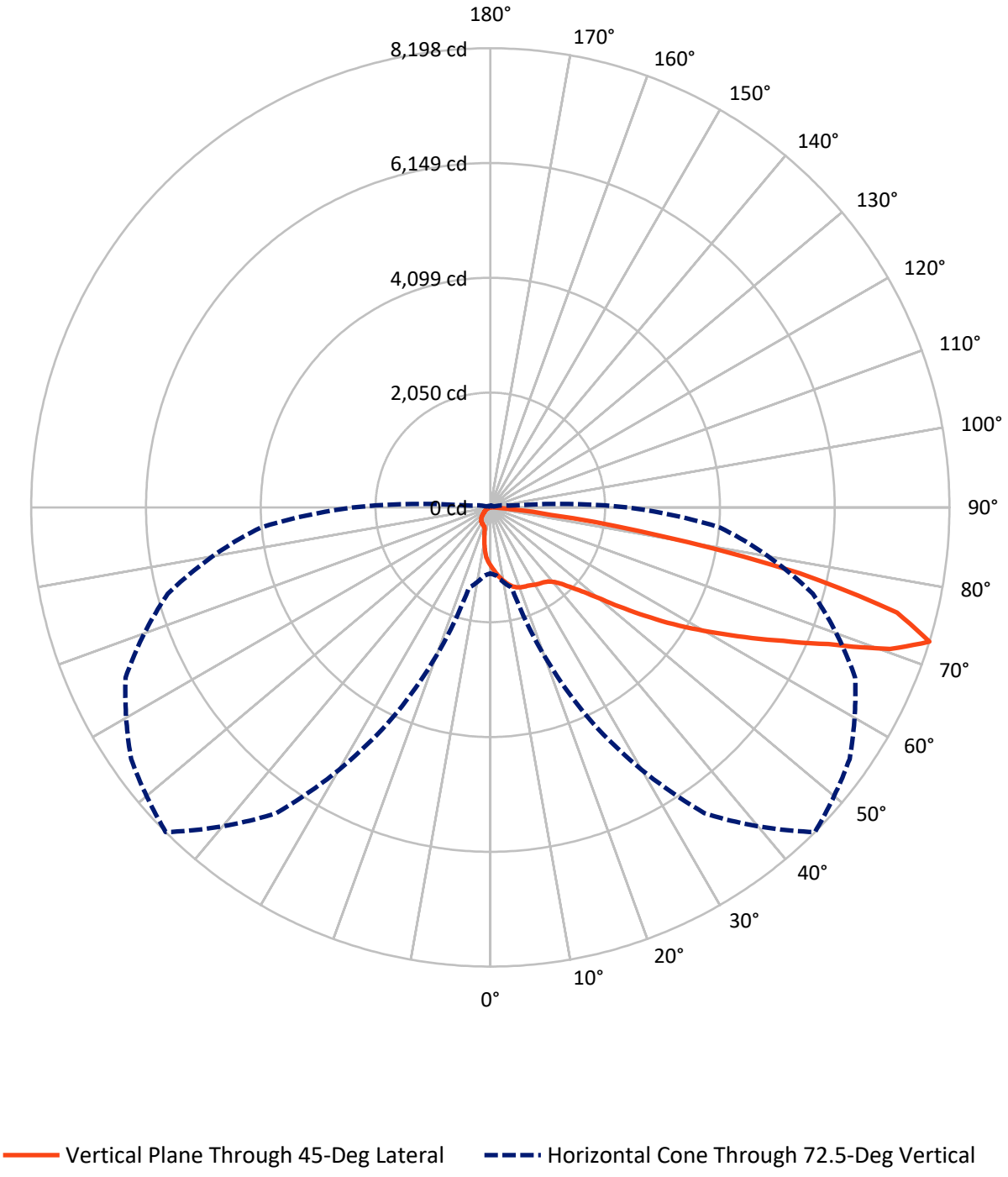

Based on 10 foot mounting height. Maximum calculated value = 18 fc
Type IV - Short - N/A

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## Luminous Intensity Polar Plot



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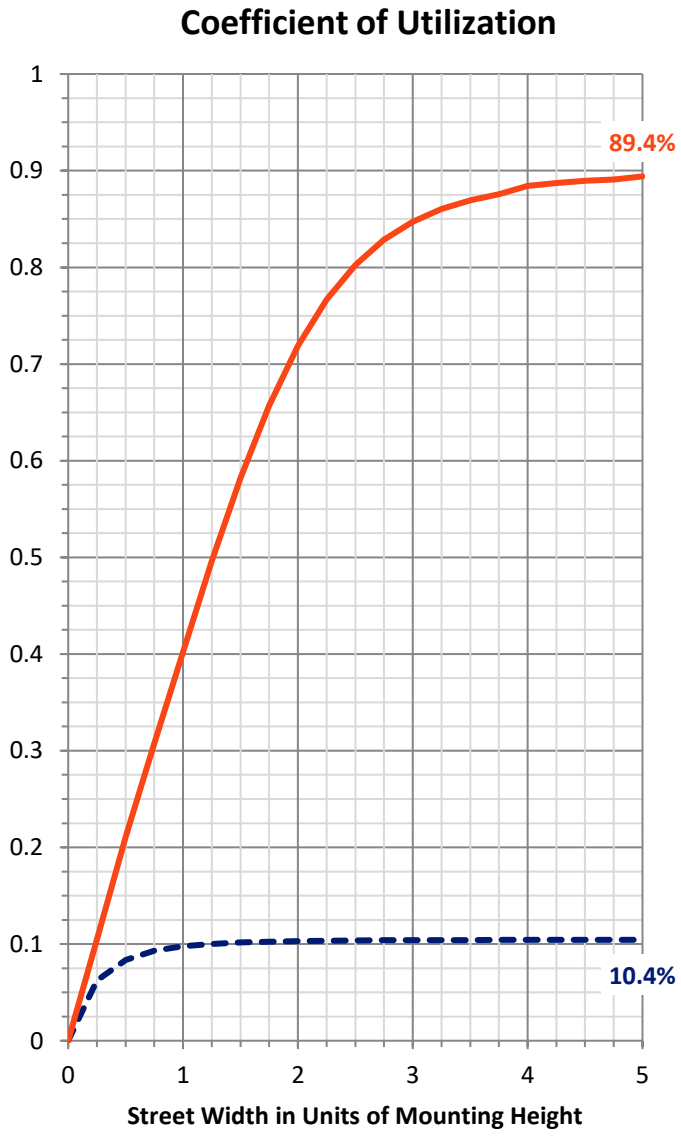
REPORT NUMBER: P1203322
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**FLUX DISTRIBUTION:**

| | | Downward | Upward | Total |
|---|---|---|---|---|
| **House Side** | Lumens | 1001.1 | 0.0 | 1001.1 |
| | % Fixture | 10.5 | 0.0 | 10.5 |
| **Street Side** | Lumens | 8526.9 | 0.0 | 8526.9 |
| | % Fixture | 89.5 | 0.0 | 89.5 |
| **Total** | Lumens | 9528.0 | 0.0 | 9528.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

**ZONAL LUMENS:**

| Zone | Lumens | % Fixture |
|---|---|---|
| 0°-10° | 98.3 | 1.0 |
| 10°-20° | 287.4 | 3.0 |
| 20°-30° | 472.0 | 5.0 |
| 30°-40° | 669.4 | 7.0 |
| 40°-50° | 1106.5 | 11.6 |
| 50°-60° | 1987.7 | 20.9 |
| 60°-70° | 2760.0 | 29.0 |
| 70°-80° | 2002.0 | 21.0 |
| 80°-90° | 144.7 | 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° | 9528.0 | 100.0 |
| 0°-180° | 9528.0 | 100.0 |



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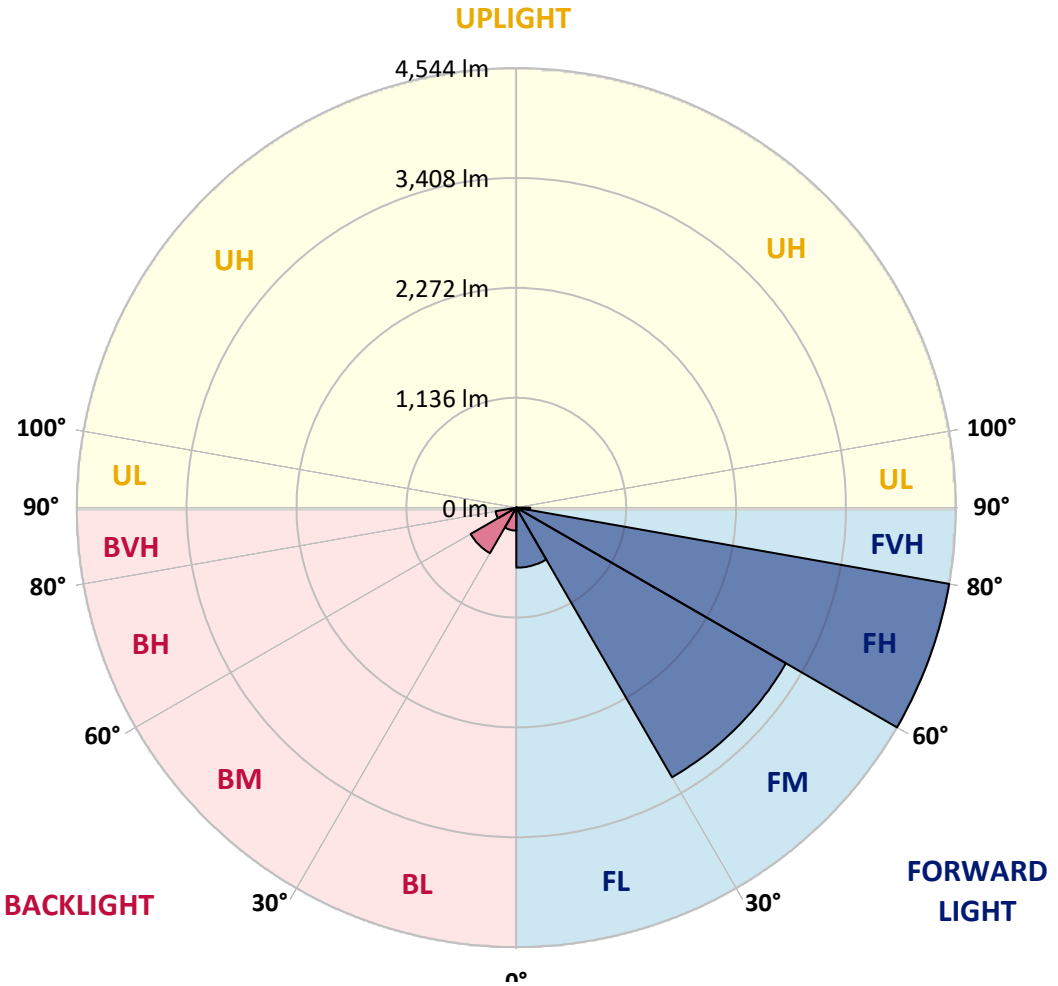
Scaled Data Report

REPORT NUMBER: P1203322
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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°) | 620.7 | 6.5 | | | |
| FM | (30°-60°) | 3219.1 | 33.8 | | | |
| FH | (60°-80°) | 4543.6 | 47.7 | | | G2/5000 |
| FVH | (80°-90°) | 143.5 | 1.5 | | | G2/225 |
| BL | (0°-30°) | 237.1 | 2.5 | B1/500 | | |
| BM | (30°-60°) | 544.5 | 5.7 | B1/1000 | | |
| BH | (60°-80°) | 218.3 | 2.3 | B1/500 | | G1/500 |
| BVH | (80°-90°) | 1.2 | 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 IV Short



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**CANDELA DISTRIBUTION (FULL):**

| | 0° | 5° | 15° | 25° | 35° | 45° | 46° | 55° | 65° | 75° | 85° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1043.8 | 1043.8 | 1043.8 | 1043.8 | 1043.8 | *1043.8* | 1043.8 | 1043.8 | 1043.8 | 1043.8 | 1043.8 |
| 2.5° | 1140.1 | 1142.0 | 1140.7 | 1132.9 | 1119.9 | *1112.7* | 1108.8 | 1095.8 | 1087.4 | 1072.4 | 1056.8 |
| 5° | 1244.8 | 1252.6 | 1248.0 | 1232.4 | 1207.7 | *1190.1* | 1184.9 | 1158.3 | 1134.2 | 1106.2 | 1073.7 |
| 7.5° | 1356.0 | 1359.9 | 1351.4 | 1331.3 | 1298.1 | *1268.2* | 1263.6 | 1226.6 | 1188.2 | 1145.3 | 1101.0 |
| 10° | 1452.2 | 1456.8 | 1443.8 | 1414.5 | 1376.8 | *1339.7* | 1333.2 | 1292.2 | 1246.7 | 1194.0 | 1137.5 |
| 12.5° | 1532.9 | 1537.4 | 1520.5 | 1485.4 | 1443.8 | *1405.4* | 1398.9 | 1356.0 | 1305.9 | 1247.4 | 1177.1 |
| 15° | 1594.0 | 1602.5 | 1579.7 | 1542.0 | 1497.1 | *1458.7* | 1455.5 | 1413.2 | 1364.4 | 1299.4 | 1224.6 |
| 17.5° | 1629.8 | 1638.2 | 1616.8 | 1571.2 | 1532.9 | *1500.4* | 1496.5 | 1461.3 | 1415.8 | 1353.4 | 1270.8 |
| 20° | 1635.6 | 1643.4 | 1620.7 | 1581.0 | 1549.1 | *1523.1* | 1521.2 | 1495.8 | 1462.6 | 1402.8 | 1320.9 |
| 22.5° | 1618.1 | 1627.8 | 1607.0 | 1575.1 | 1553.0 | *1539.4* | 1536.8 | 1522.5 | 1503.6 | 1452.9 | 1367.7 |
| 25° | 1599.9 | 1607.7 | 1592.1 | 1564.1 | 1552.4 | *1551.1* | 1553.0 | 1550.4 | 1546.5 | 1503.6 | 1422.3 |
| 27.5° | 1598.6 | 1607.0 | 1589.5 | 1562.8 | 1556.3 | *1569.9* | 1571.9 | 1584.3 | 1587.5 | 1549.8 | 1475.0 |
| 30° | 1609.6 | 1615.5 | 1598.6 | 1570.6 | 1567.3 | *1598.6* | 1599.2 | 1621.3 | 1626.5 | 1588.8 | 1527.0 |
| 32.5° | 1633.7 | 1640.2 | 1623.3 | 1582.3 | 1577.8 | *1621.3* | 1623.3 | 1652.5 | 1661.0 | 1630.4 | 1581.7 |
| 35° | 1690.3 | 1698.1 | 1678.6 | 1614.8 | 1598.6 | *1642.8* | 1648.6 | 1683.1 | 1700.0 | 1674.7 | 1638.2 |
| 37.5° | 1831.4 | 1808.6 | 1782.0 | 1680.5 | 1646.0 | *1676.6* | 1686.4 | 1726.7 | 1756.6 | 1727.3 | 1705.9 |
| 40° | 2181.9 | 2110.4 | 2027.1 | 1792.4 | 1729.3 | *1748.8* | 1756.6 | 1796.9 | 1837.9 | 1809.3 | 1798.9 |
| 42.5° | 2708.1 | 2623.5 | 2489.5 | 2049.9 | 1854.8 | *1864.6* | 1870.4 | 1905.5 | 1963.4 | 1940.6 | 1943.2 |
| 45° | 3177.0 | 3146.4 | 3009.8 | 2489.5 | 2089.6 | *2041.5* | 2048.6 | 2066.8 | 2152.0 | 2143.6 | 2160.5 |
| 47.5° | 3537.3 | 3519.7 | 3414.3 | 2994.2 | 2486.3 | *2258.0* | 2278.2 | 2286.6 | 2409.5 | 2439.5 | 2485.0 |
| 50° | 3814.3 | 3807.8 | 3713.5 | 3443.0 | 3004.6 | *2577.3* | 2584.5 | 2566.3 | 2750.3 | 2824.5 | 2911.0 |
| 52.5° | 4075.7 | 4097.9 | 4028.3 | 3859.8 | 3558.1 | *2995.5* | 2994.2 | 2908.4 | 3156.8 | 3268.7 | 3416.3 |
| 55° | 4311.8 | 4319.6 | 4326.8 | 4285.2 | 4114.8 | *3471.6* | 3459.2 | 3318.7 | 3628.3 | 3744.1 | 3904.1 |
| 57.5° | 4533.6 | 4536.8 | 4600.6 | 4685.8 | 4694.2 | *3982.7* | 3960.0 | 3791.5 | 4143.4 | 4226.0 | 4324.2 |
| 60° | 4682.5 | 4697.5 | 4832.1 | 5068.8 | 5172.2 | *4510.2* | 4497.8 | 4326.1 | 4667.6 | 4705.9 | 4687.7 |
| 62.5° | 4467.9 | 4559.0 | 4898.4 | 5368.0 | 5623.6 | *5094.8* | 5089.0 | 4927.7 | 5219.1 | 5187.8 | 5031.8 |
| 65° | 3616.6 | 3770.7 | 4367.8 | 5570.3 | 6066.5 | *5747.8* | 5756.3 | 5584.6 | 5785.5 | 5684.1 | 5311.4 |
| 67.5° | 2529.9 | 2692.5 | 3398.7 | 5586.5 | 6561.4 | *6514.6* | 6563.3 | 6294.1 | 6387.1 | 6159.5 | 5377.7 |
| 70° | 1749.4 | 1833.3 | 2293.1 | 5236.6 | 6947.0 | *7570.7* | 7569.4 | 7165.6 | 6985.4 | 6376.0 | 5039.6 |
| 72.5° | *1176.5* | *1220.1* | *1489.3* | *4154.4* | *6663.5* | *8198.3* | *8160.6* | *7831.5* | *7187.0* | *5963.1* | *4117.4* |
| 75° | 496.2 | 528.1 | 689.4 | 2334.8 | 5271.7 | *7500.5* | 7398.4 | 6921.0 | 6385.8 | 4695.5 | 2568.9 |
| 77.5° | 157.4 | 171.0 | 271.8 | 835.7 | 2903.8 | *5637.9* | 5529.9 | 4322.2 | 4280.0 | 2355.6 | 939.1 |
| 80° | 74.8 | 87.1 | 152.8 | 335.6 | 1142.7 | *3066.4* | 3051.4 | 1960.8 | 1841.1 | 636.0 | 188.6 |
| 82.5° | 32.5 | 38.4 | 84.5 | 179.5 | 511.2 | *1093.9* | 1116.0 | 667.3 | 552.1 | 241.3 | 57.9 |
| 85° | 10.4 | 13.7 | 39.0 | 82.6 | 215.9 | *271.8* | 268.6 | 158.7 | 222.4 | 131.4 | 20.2 |
| 87.5° | 0.0 | 0.0 | 13.0 | 18.9 | 22.1 | *15.6* | 17.6 | 13.7 | 61.8 | 36.4 | 7.2 |
| 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: P1203322
CATALOG NUMBER: GWC-SB2C-722-U-T4W-HSS

**CANDELA DISTRIBUTION (continued):**

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0° | 1043.8 | 1043.8 | 1043.8 | 1043.8 | 1043.8 | 1043.8 | 1043.8 | 1043.8 | 1043.8 | 1043.8 | 1043.8 |
| 2.5° | 1049.0 | 1038.6 | 1020.4 | 1003.5 | 988.5 | 973.6 | 964.5 | 951.5 | 950.2 | 950.2 | 953.4 |
| 5° | 1056.2 | 1039.3 | 1006.7 | 972.3 | 932.6 | 894.9 | 857.2 | 820.7 | 809.0 | 800.6 | 804.5 |
| 7.5° | 1077.0 | 1050.3 | 998.9 | 933.3 | 857.8 | 775.2 | 717.3 | 654.9 | 630.8 | 617.8 | 619.8 |
| 10° | 1106.9 | 1070.5 | 992.4 | 877.3 | 755.1 | 642.5 | 560.0 | 492.3 | 466.3 | 455.2 | 455.2 |
| 12.5° | 1140.1 | 1095.2 | 980.7 | 807.7 | 642.5 | 507.9 | 427.3 | 396.1 | 392.2 | 392.2 | 392.2 |
| 15° | 1179.7 | 1125.1 | 960.6 | 725.8 | 524.8 | 401.9 | 373.3 | 374.6 | 378.5 | 381.1 | 381.1 |
| 17.5° | 1220.7 | 1157.0 | 928.7 | 634.1 | 420.8 | 361.6 | 362.2 | 364.2 | 367.4 | 370.0 | 370.0 |
| 20° | 1264.9 | 1188.8 | 886.4 | 536.5 | 360.9 | 349.9 | 351.8 | 353.8 | 356.4 | 357.7 | 358.3 |
| 22.5° | 1312.4 | 1218.8 | 836.4 | 440.9 | 340.8 | 340.1 | 340.8 | 342.7 | 346.0 | 346.0 | 347.3 |
| 25° | 1363.1 | 1251.9 | 779.1 | 371.4 | 330.4 | 330.4 | 331.7 | 333.0 | 335.6 | 335.6 | 336.2 |
| 27.5° | 1415.2 | 1282.5 | 718.6 | 334.9 | 321.3 | 320.6 | 320.6 | 322.6 | 323.9 | 324.5 | 325.2 |
| 30° | 1472.4 | 1318.3 | 658.2 | 327.1 | 314.1 | 310.9 | 308.9 | 310.2 | 311.5 | 312.2 | 313.5 |
| 32.5° | 1530.9 | 1352.7 | 604.2 | 330.4 | 307.0 | 301.1 | 294.6 | 293.3 | 293.3 | 295.9 | 297.9 |
| 35° | 1596.0 | 1390.4 | 562.6 | 341.4 | 303.1 | 286.8 | 276.4 | 270.5 | 271.2 | 275.1 | 277.0 |
| 37.5° | 1674.0 | 1436.0 | 532.0 | 351.2 | 300.5 | 270.5 | 253.6 | 246.5 | 241.9 | 246.5 | 245.2 |
| 40° | 1776.1 | 1503.0 | 509.9 | 359.0 | 297.2 | 251.7 | 228.9 | 217.2 | 208.8 | 211.4 | 210.1 |
| 42.5° | 1926.3 | 1608.3 | 501.4 | 359.6 | 290.1 | 229.6 | 203.6 | 188.0 | 175.6 | 176.2 | 173.6 |
| 45° | 2137.1 | 1774.8 | 545.0 | 351.2 | 274.4 | 205.5 | 176.9 | 156.1 | 148.3 | 146.3 | 143.7 |
| 47.5° | 2425.8 | 2017.4 | 645.8 | 333.6 | 251.7 | 182.1 | 150.9 | 133.3 | 127.5 | 124.2 | 122.3 |
| 50° | 2812.8 | 2328.9 | 757.7 | 314.1 | 228.9 | 160.0 | 129.4 | 118.4 | 114.5 | 111.2 | 110.6 |
| 52.5° | 3261.5 | 2645.0 | 849.4 | 294.6 | 206.2 | 140.5 | 115.8 | 109.3 | 106.0 | 103.4 | 102.8 |
| 55° | 3673.2 | 2862.8 | 844.2 | 273.8 | 184.0 | 124.9 | 106.0 | 102.1 | 98.2 | 95.6 | 94.3 |
| 57.5° | 3929.4 | 2893.4 | 695.9 | 251.0 | 158.7 | 112.5 | 96.9 | 94.3 | 89.7 | 86.5 | 85.8 |
| 60° | 4047.1 | 2719.1 | 487.8 | 221.1 | 133.3 | 100.8 | 87.1 | 85.8 | 80.0 | 75.4 | 74.1 |
| 62.5° | 4068.6 | 2395.2 | 325.2 | 184.0 | 111.2 | 89.7 | 77.4 | 75.4 | 67.6 | 59.8 | 55.9 |
| 65° | 3981.4 | 1932.2 | 225.0 | 143.7 | 95.0 | 78.0 | 66.3 | 62.4 | 54.0 | 46.2 | 43.6 |
| 67.5° | 3705.7 | 1356.6 | 156.7 | 103.4 | 80.6 | 61.8 | 52.7 | 51.4 | 44.9 | 38.4 | 36.4 |
| 70° | 3200.4 | 773.3 | 104.7 | 77.4 | 63.7 | 42.3 | 41.6 | 42.9 | 36.4 | 31.2 | 28.6 |
| 72.5° | *2453.8* | *353.8* | *65.0* | *56.6* | *43.6* | *28.6* | *33.2* | *33.8* | *28.0* | *23.4* | *20.8* |
| 75° | 1444.4 | 151.5 | 41.0 | 36.4 | 22.1 | 18.9 | 24.1 | 24.7 | 18.9 | 15.0 | 13.0 |
| 77.5° | 491.7 | 57.2 | 26.0 | 21.5 | 11.1 | 10.4 | 15.6 | 15.6 | 10.4 | 5.9 | 4.6 |
| 80° | 111.9 | 21.5 | 13.0 | 8.5 | 5.2 | 4.6 | 5.2 | 4.6 | 2.6 | 0.7 | 0.0 |
| 82.5° | 31.9 | 8.5 | 5.2 | 3.3 | 2.0 | 2.0 | 0.7 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 9.1 | 3.9 | 1.3 | 1.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 3.9 | 0.7 | 0.0 | 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 |


HS
SS

0

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Report Generated By FNC07603 / LDUCLS01DT446
Version: v6.13

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## Test Information

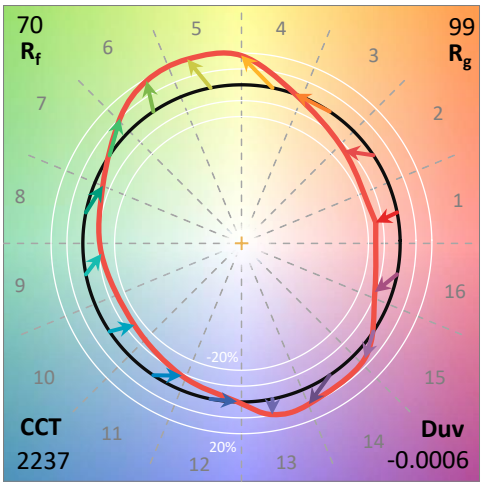
| | |
|---|---|
| Test Method: | LM-79-2008 Report |
| Number: | SP1-1908-441-10-R4 |
| Test Lab: | COOPER LIGHTING SOLUTIONS |
| Photometer: | SP1 - 76IN SPHERE |
| Measurement Geometry: | 4π |
| Issue Date: | 10/28/2024 |
| Manufacturer: | COOPER LIGHTING SOLUTIONS |
| Product Line: | McGRAW-EDISON |
| 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 |

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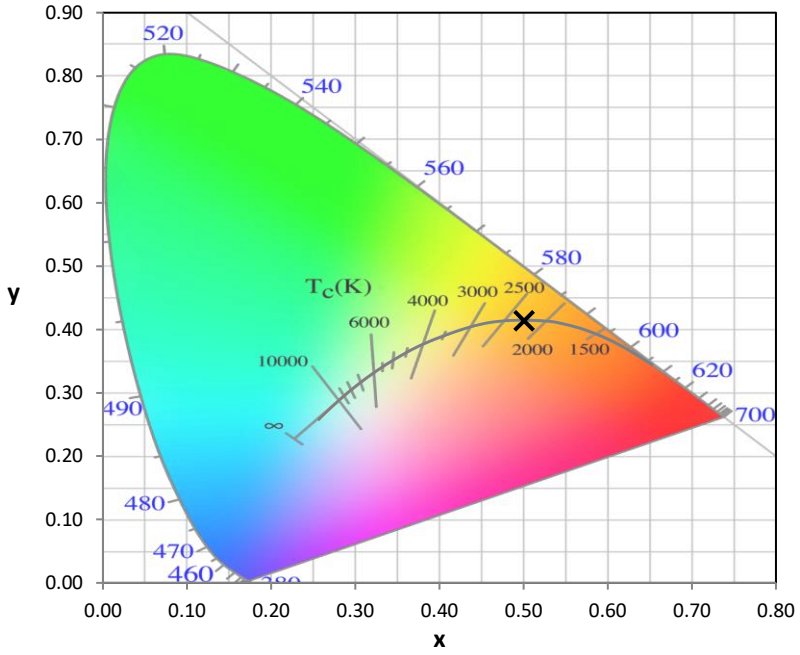
REPORT NUMBER: SP1-1908-441-10-R4

| 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 |

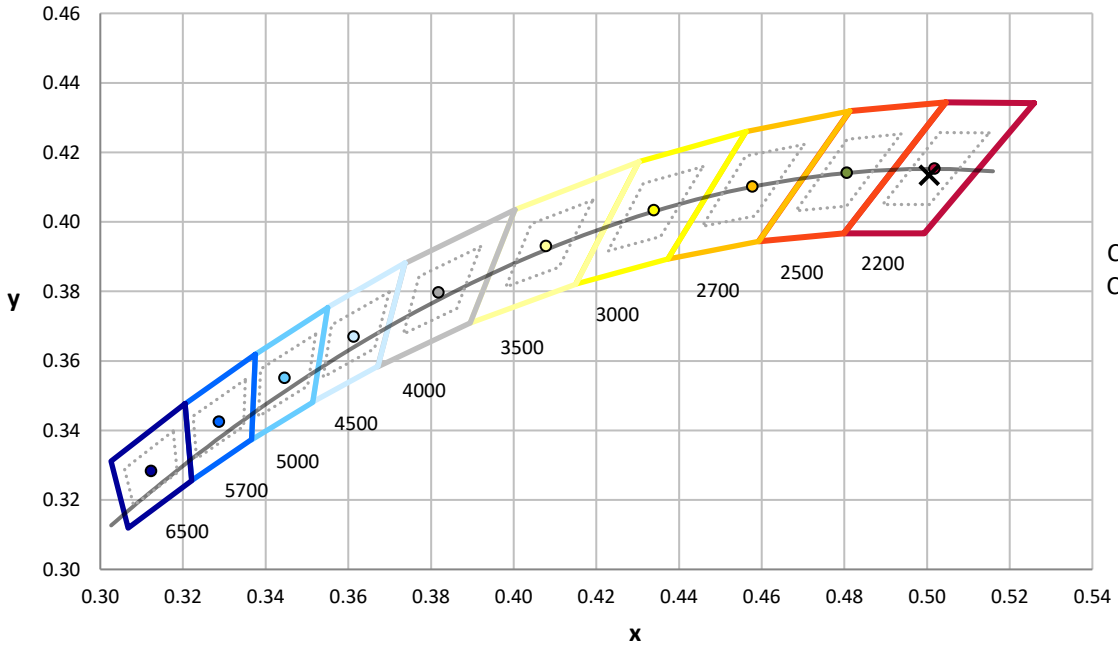
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

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## CIE 1931 Chromaticity Diagram




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



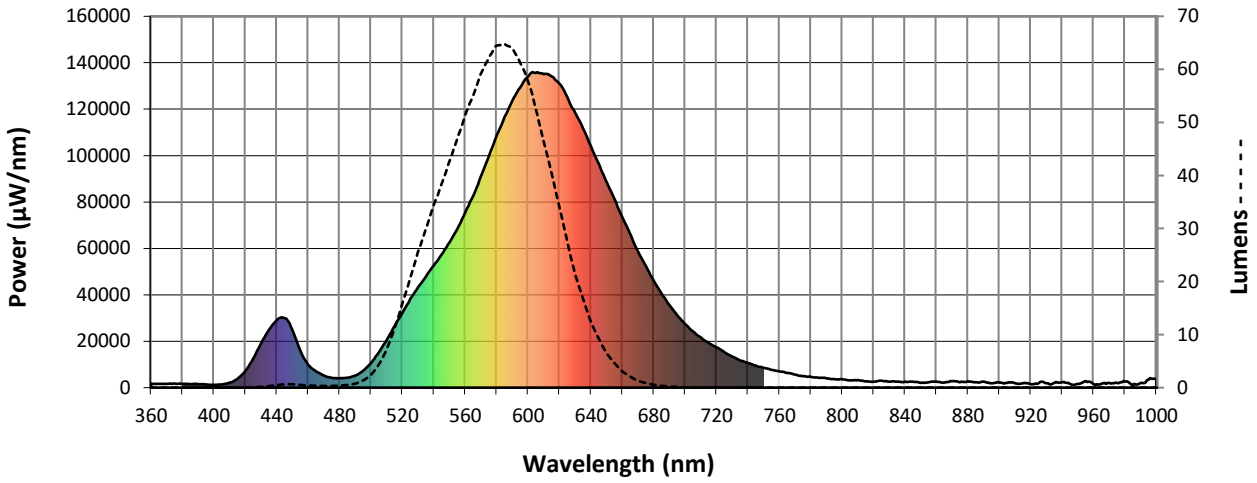

CCT = 2237K
CIE x = 0.5005
CIE y = 0.4134
Duv = -0.0006

Point lies inside the ANSI 2200K 4-step quadrangle

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## Photopic Flux vs. Wavelength



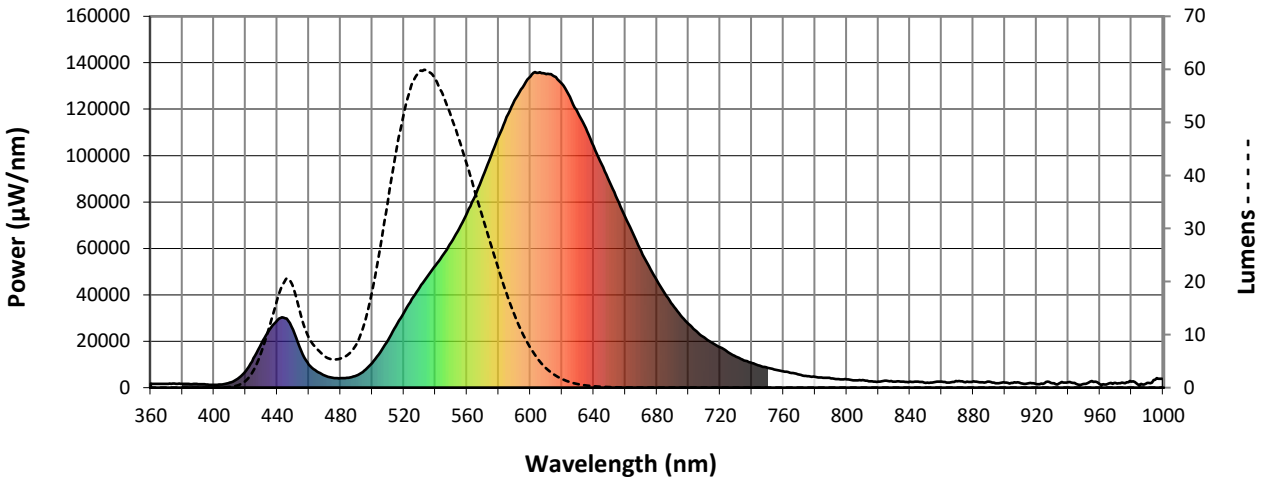

**Photopic Lumens: 5530.5**

| 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 | 1768 | 0.0 | 490 | 5206 | 0.7 | 620 | 130919 | 34.1 | 750 | 8553 | 0.0 | 880 | 2713 | 0.0 |
| 365 | 1569 | 0.0 | 495 | 7286 | 1.3 | 625 | 125335 | 27.7 | 755 | 7696 | 0.0 | 885 | 2316 | 0.0 |
| 370 | 1594 | 0.0 | 500 | 10654 | 2.4 | 630 | 118388 | 21.4 | 760 | 6978 | 0.0 | 890 | 2539 | 0.0 |
| 375 | 1744 | 0.0 | 505 | 15189 | 4.2 | 635 | 111855 | 16.8 | 765 | 6377 | 0.0 | 895 | 1933 | 0.0 |
| 380 | 1659 | 0.0 | 510 | 20541 | 7.1 | 640 | 104062 | 12.4 | 770 | 5600 | 0.0 | 900 | 2216 | 0.0 |
| 385 | 1504 | 0.0 | 515 | 26492 | 11.0 | 645 | 96365 | 9.3 | 775 | 5000 | 0.0 | 905 | 2067 | 0.0 |
| 390 | 1541 | 0.0 | 520 | 32294 | 15.7 | 650 | 88651 | 6.5 | 780 | 4709 | 0.0 | 910 | 1959 | 0.0 |
| 395 | 1355 | 0.0 | 525 | 38123 | 20.5 | 655 | 81152 | 4.7 | 785 | 4305 | 0.0 | 915 | 1874 | 0.0 |
| 400 | 1243 | 0.0 | 530 | 43232 | 25.5 | 660 | 73523 | 3.1 | 790 | 4040 | 0.0 | 920 | 1484 | 0.0 |
| 405 | 1417 | 0.0 | 535 | 48012 | 29.8 | 665 | 66123 | 2.1 | 795 | 3642 | 0.0 | 925 | 1914 | 0.0 |
| 410 | 2147 | 0.0 | 540 | 52623 | 34.3 | 670 | 58677 | 1.3 | 800 | 3594 | 0.0 | 930 | 1948 | 0.0 |
| 415 | 3837 | 0.0 | 545 | 57516 | 38.3 | 675 | 52349 | 0.9 | 805 | 3190 | 0.0 | 935 | 2079 | 0.0 |
| 420 | 7159 | 0.0 | 550 | 62613 | 42.5 | 680 | 46159 | 0.5 | 810 | 3241 | 0.0 | 940 | 2263 | 0.0 |
| 425 | 12599 | 0.1 | 555 | 68554 | 46.8 | 685 | 40525 | 0.3 | 815 | 2732 | 0.0 | 945 | 1688 | 0.0 |
| 430 | 19019 | 0.2 | 560 | 75325 | 51.2 | 690 | 35615 | 0.2 | 820 | 2612 | 0.0 | 950 | 1560 | 0.0 |
| 435 | 24875 | 0.3 | 565 | 82533 | 54.9 | 695 | 31158 | 0.1 | 825 | 2966 | 0.0 | 955 | 2826 | 0.0 |
| 440 | 29103 | 0.5 | 570 | 90909 | 59.1 | 700 | 27409 | 0.1 | 830 | 2574 | 0.0 | 960 | 1477 | 0.0 |
| 445 | 29901 | 0.6 | 575 | 99621 | 62.0 | 705 | 24204 | 0.1 | 835 | 2633 | 0.0 | 965 | 1568 | 0.0 |
| 450 | 24862 | 0.6 | 580 | 108484 | 64.5 | 710 | 21558 | 0.0 | 840 | 2526 | 0.0 | 970 | 2030 | 0.0 |
| 455 | 15942 | 0.5 | 585 | 116679 | 64.8 | 715 | 19222 | 0.0 | 845 | 2631 | 0.0 | 975 | 1986 | 0.0 |
| 460 | 9916 | 0.4 | 590 | 123752 | 64.0 | 720 | 17310 | 0.0 | 850 | 2079 | 0.0 | 980 | 2540 | 0.0 |
| 465 | 7051 | 0.4 | 595 | 129324 | 61.3 | 725 | 15280 | 0.0 | 855 | 2309 | 0.0 | 985 | 1139 | 0.0 |
| 470 | 5227 | 0.3 | 600 | 134082 | 57.8 | 730 | 13282 | 0.0 | 860 | 2528 | 0.0 | 990 | 2018 | 0.0 |
| 475 | 4257 | 0.3 | 605 | 135698 | 52.6 | 735 | 11753 | 0.0 | 865 | 2121 | 0.0 | 995 | 3445 | 0.0 |
| 480 | 4052 | 0.4 | 610 | 135144 | 46.4 | 740 | 10654 | 0.0 | 870 | 2751 | 0.0 | 1000 | 3704 | 0.0 |
| 485 | 4298 | 0.5 | 615 | 134180 | 40.5 | 745 | 9451 | 0.0 | 875 | 2317 | 0.0 | | | |

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## Scotopic Flux vs. Wavelength



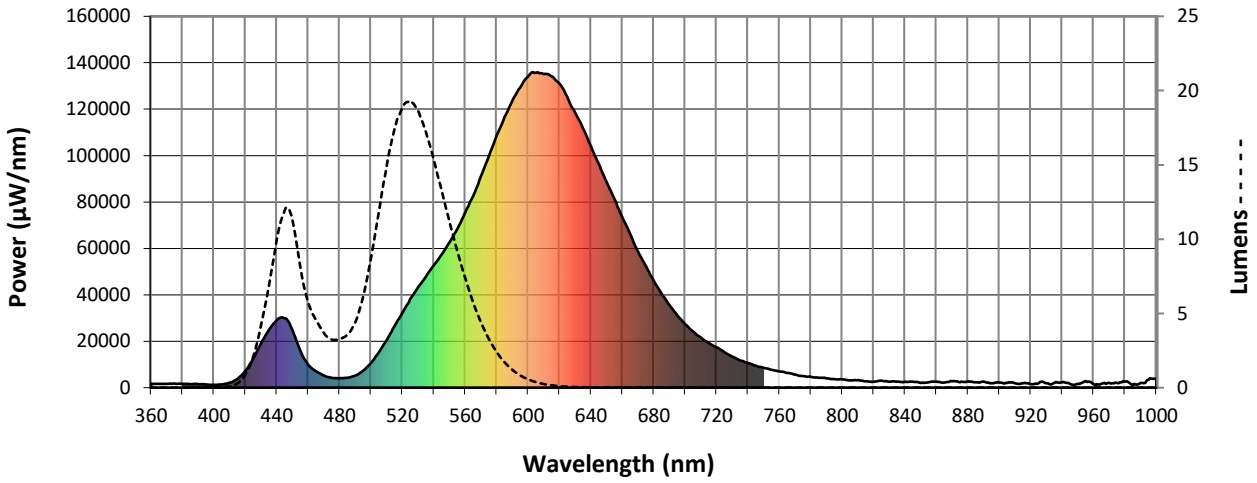

**Scotopic Lumens: 4696.9** **S/P: 0.85**

| 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 | 0.0 | 490 | 5206 | 4.3 | 620 | 130919 | 0.1 | 750 | 8553 | 0.0 | 880 | 2713 | 0.0 |
| 365 | 1569 | 0.0 | 495 | 7286 | 6.0 | 625 | 125335 | 0.1 | 755 | 7696 | 0.0 | 885 | 2316 | 0.0 |
| 370 | 1594 | 0.0 | 500 | 10654 | 8.6 | 630 | 118388 | 0.0 | 760 | 6978 | 0.0 | 890 | 2539 | 0.0 |
| 375 | 1744 | 0.0 | 505 | 15189 | 11.7 | 635 | 111855 | 0.0 | 765 | 6377 | 0.0 | 895 | 1933 | 0.0 |
| 380 | 1659 | 0.0 | 510 | 20541 | 14.7 | 640 | 104062 | 0.0 | 770 | 5600 | 0.0 | 900 | 2216 | 0.0 |
| 385 | 1504 | 0.0 | 515 | 26492 | 17.3 | 645 | 96365 | 0.0 | 775 | 5000 | 0.0 | 905 | 2067 | 0.0 |
| 390 | 1541 | 0.0 | 520 | 32294 | 18.8 | 650 | 88651 | 0.0 | 780 | 4709 | 0.0 | 910 | 1959 | 0.0 |
| 395 | 1355 | 0.0 | 525 | 38123 | 19.3 | 655 | 81152 | 0.0 | 785 | 4305 | 0.0 | 915 | 1874 | 0.0 |
| 400 | 1243 | 0.0 | 530 | 43232 | 18.7 | 660 | 73523 | 0.0 | 790 | 4040 | 0.0 | 920 | 1484 | 0.0 |
| 405 | 1417 | 0.0 | 535 | 48012 | 17.3 | 665 | 66123 | 0.0 | 795 | 3642 | 0.0 | 925 | 1914 | 0.0 |
| 410 | 2147 | 0.1 | 540 | 52623 | 15.4 | 670 | 58677 | 0.0 | 800 | 3594 | 0.0 | 930 | 1948 | 0.0 |
| 415 | 3837 | 0.3 | 545 | 57516 | 13.4 | 675 | 52349 | 0.0 | 805 | 3190 | 0.0 | 935 | 2079 | 0.0 |
| 420 | 7159 | 0.8 | 550 | 62613 | 11.2 | 680 | 46159 | 0.0 | 810 | 3241 | 0.0 | 940 | 2263 | 0.0 |
| 425 | 12599 | 2.0 | 555 | 68554 | 9.2 | 685 | 40525 | 0.0 | 815 | 2732 | 0.0 | 945 | 1688 | 0.0 |
| 430 | 19019 | 4.0 | 560 | 75325 | 7.4 | 690 | 35615 | 0.0 | 820 | 2612 | 0.0 | 950 | 1560 | 0.0 |
| 435 | 24875 | 6.6 | 565 | 82533 | 5.8 | 695 | 31158 | 0.0 | 825 | 2966 | 0.0 | 955 | 2826 | 0.0 |
| 440 | 29103 | 9.7 | 570 | 90909 | 4.4 | 700 | 27409 | 0.0 | 830 | 2574 | 0.0 | 960 | 1477 | 0.0 |
| 445 | 29901 | 11.8 | 575 | 99621 | 3.3 | 705 | 24204 | 0.0 | 835 | 2633 | 0.0 | 965 | 1568 | 0.0 |
| 450 | 24862 | 11.5 | 580 | 108484 | 2.4 | 710 | 21558 | 0.0 | 840 | 2526 | 0.0 | 970 | 2030 | 0.0 |
| 455 | 15942 | 8.4 | 585 | 116679 | 1.7 | 715 | 19222 | 0.0 | 845 | 2631 | 0.0 | 975 | 1986 | 0.0 |
| 460 | 9916 | 5.8 | 590 | 123752 | 1.2 | 720 | 17310 | 0.0 | 850 | 2079 | 0.0 | 980 | 2540 | 0.0 |
| 465 | 7051 | 4.6 | 595 | 129324 | 0.8 | 725 | 15280 | 0.0 | 855 | 2309 | 0.0 | 985 | 1139 | 0.0 |
| 470 | 5227 | 3.7 | 600 | 134082 | 0.6 | 730 | 13282 | 0.0 | 860 | 2528 | 0.0 | 990 | 2018 | 0.0 |
| 475 | 4257 | 3.3 | 605 | 135698 | 0.4 | 735 | 11753 | 0.0 | 865 | 2121 | 0.0 | 995 | 3445 | 0.0 |
| 480 | 4052 | 3.3 | 610 | 135144 | 0.2 | 740 | 10654 | 0.0 | 870 | 2751 | 0.0 | 1000 | 3704 | 0.0 |
| 485 | 4298 | 3.5 | 615 | 134180 | 0.2 | 745 | 9451 | 0.0 | 875 | 2317 | 0.0 | | | |

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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 | 0.0 | 490 | 5206 | 8.0 | 620 | 130919 | 1.6 | 750 | 8553 | 0.0 | 880 | 2713 | 0.0 |
| 365 | 1569 | 0.0 | 495 | 7286 | 11.8 | 625 | 125335 | 1.1 | 755 | 7696 | 0.0 | 885 | 2316 | 0.0 |
| 370 | 1594 | 0.0 | 500 | 10654 | 17.8 | 630 | 118388 | 0.7 | 760 | 6978 | 0.0 | 890 | 2539 | 0.0 |
| 375 | 1744 | 0.0 | 505 | 15189 | 25.8 | 635 | 111855 | 0.4 | 765 | 6377 | 0.0 | 895 | 1933 | 0.0 |
| 380 | 1659 | 0.0 | 510 | 20541 | 34.8 | 640 | 104062 | 0.3 | 770 | 5600 | 0.0 | 900 | 2216 | 0.0 |
| 385 | 1504 | 0.0 | 515 | 26492 | 43.9 | 645 | 96365 | 0.2 | 775 | 5000 | 0.0 | 905 | 2067 | 0.0 |
| 390 | 1541 | 0.0 | 520 | 32294 | 51.3 | 650 | 88651 | 0.1 | 780 | 4709 | 0.0 | 910 | 1959 | 0.0 |
| 395 | 1355 | 0.0 | 525 | 38123 | 57.0 | 655 | 81152 | 0.1 | 785 | 4305 | 0.0 | 915 | 1874 | 0.0 |
| 400 | 1243 | 0.0 | 530 | 43232 | 59.6 | 660 | 73523 | 0.0 | 790 | 4040 | 0.0 | 920 | 1484 | 0.0 |
| 405 | 1417 | 0.0 | 535 | 48012 | 59.8 | 665 | 66123 | 0.0 | 795 | 3642 | 0.0 | 925 | 1914 | 0.0 |
| 410 | 2147 | 0.1 | 540 | 52623 | 58.1 | 670 | 58677 | 0.0 | 800 | 3594 | 0.0 | 930 | 1948 | 0.0 |
| 415 | 3837 | 0.4 | 545 | 57516 | 55.1 | 675 | 52349 | 0.0 | 805 | 3190 | 0.0 | 935 | 2079 | 0.0 |
| 420 | 7159 | 1.2 | 550 | 62613 | 51.2 | 680 | 46159 | 0.0 | 810 | 3241 | 0.0 | 940 | 2263 | 0.0 |
| 425 | 12599 | 3.1 | 555 | 68554 | 46.9 | 685 | 40525 | 0.0 | 815 | 2732 | 0.0 | 945 | 1688 | 0.0 |
| 430 | 19019 | 6.5 | 560 | 75325 | 42.1 | 690 | 35615 | 0.0 | 820 | 2612 | 0.0 | 950 | 1560 | 0.0 |
| 435 | 24875 | 11.1 | 565 | 82533 | 37.0 | 695 | 31158 | 0.0 | 825 | 2966 | 0.0 | 955 | 2826 | 0.0 |
| 440 | 29103 | 16.3 | 570 | 90909 | 32.1 | 700 | 27409 | 0.0 | 830 | 2574 | 0.0 | 960 | 1477 | 0.0 |
| 445 | 29901 | 20.0 | 575 | 99621 | 27.1 | 705 | 24204 | 0.0 | 835 | 2633 | 0.0 | 965 | 1568 | 0.0 |
| 450 | 24862 | 19.3 | 580 | 108484 | 22.4 | 710 | 21558 | 0.0 | 840 | 2526 | 0.0 | 970 | 2030 | 0.0 |
| 455 | 15942 | 13.9 | 585 | 116679 | 17.8 | 715 | 19222 | 0.0 | 845 | 2631 | 0.0 | 975 | 1986 | 0.0 |
| 460 | 9916 | 9.6 | 590 | 123752 | 13.8 | 720 | 17310 | 0.0 | 850 | 2079 | 0.0 | 980 | 2540 | 0.0 |
| 465 | 7051 | 7.4 | 595 | 129324 | 10.3 | 725 | 15280 | 0.0 | 855 | 2309 | 0.0 | 985 | 1139 | 0.0 |
| 470 | 5227 | 6.0 | 600 | 134082 | 7.6 | 730 | 13282 | 0.0 | 860 | 2528 | 0.0 | 990 | 2018 | 0.0 |
| 475 | 4257 | 5.3 | 605 | 135698 | 5.3 | 735 | 11753 | 0.0 | 865 | 2121 | 0.0 | 995 | 3445 | 0.0 |
| 480 | 4052 | 5.5 | 610 | 135144 | 3.7 | 740 | 10654 | 0.0 | 870 | 2751 | 0.0 | 1000 | 3704 | 0.0 |
| 485 | 4298 | 6.2 | 615 | 134180 | 2.5 | 745 | 9451 | 0.0 | 875 | 2317 | 0.0 | | | |

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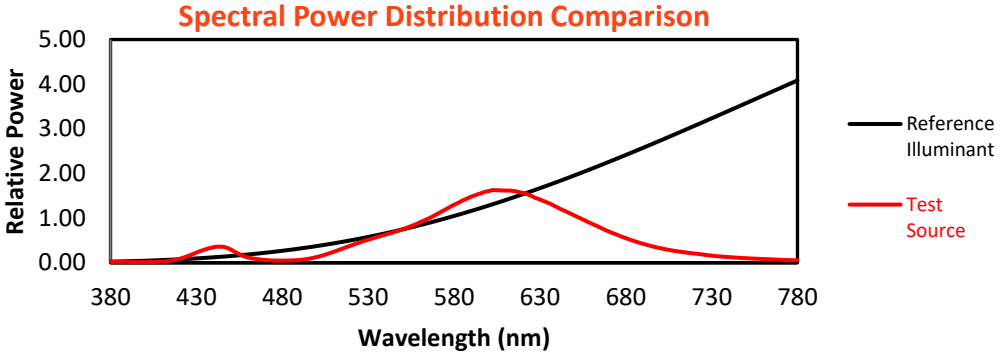
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# TM-30-18

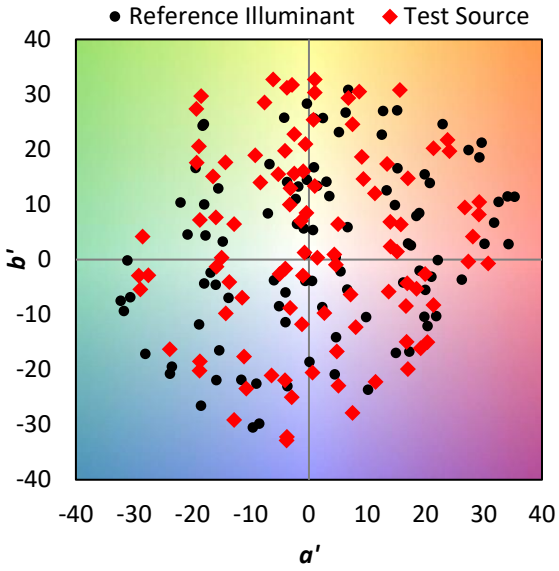
## Summary

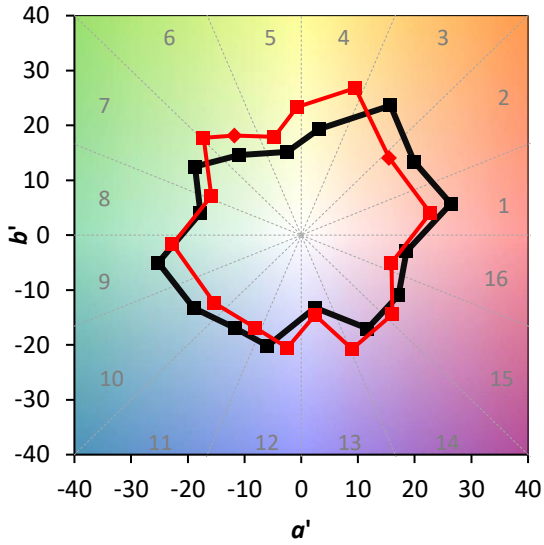
$R_f$ = 69.8
$R_g$ = 99.2
CIE $R_a$ = 72.0
$R_9$ = -17.4

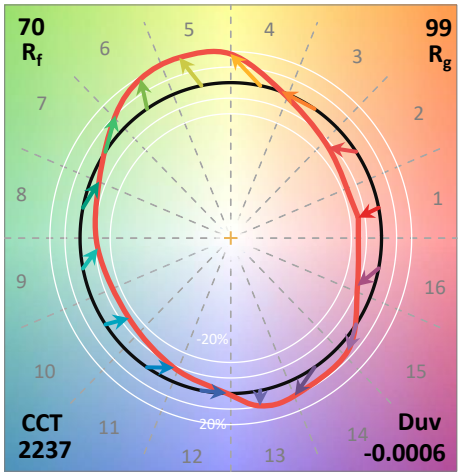
## Spectral Power Distribution Comparison

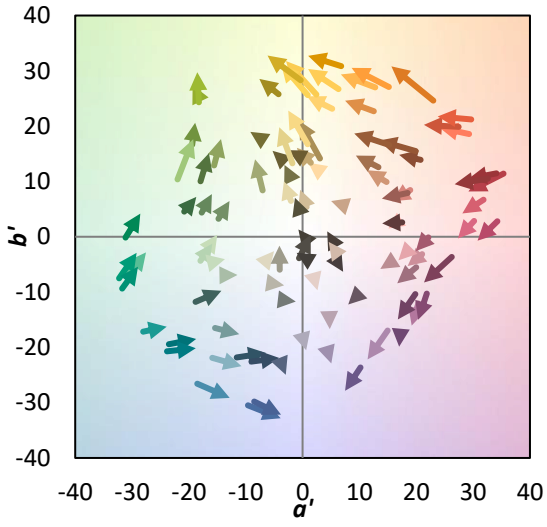



## Color Vector Graphics



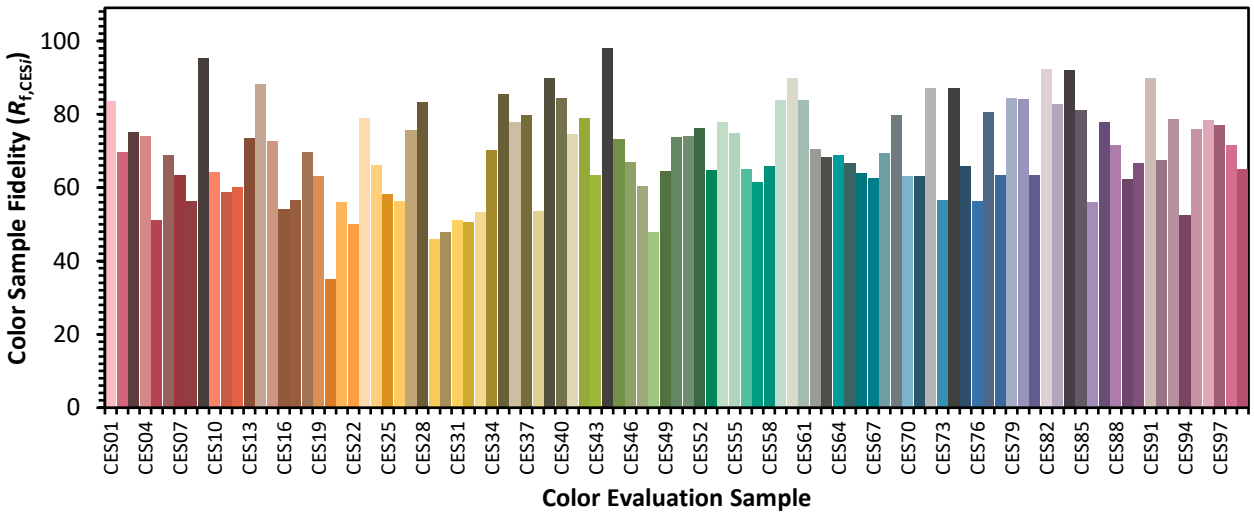
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Peachtree City, GA 30269

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## TM-30-18

### 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 | |

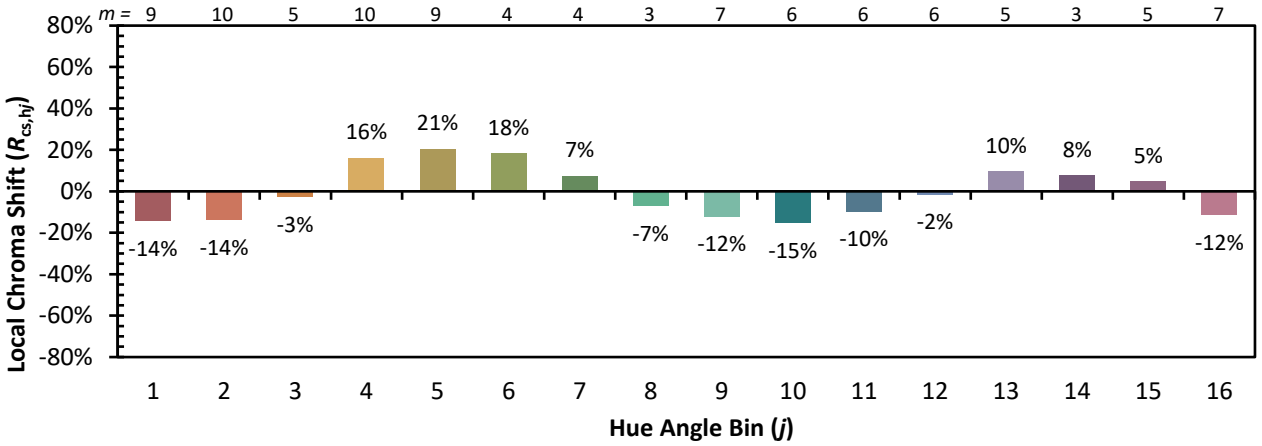


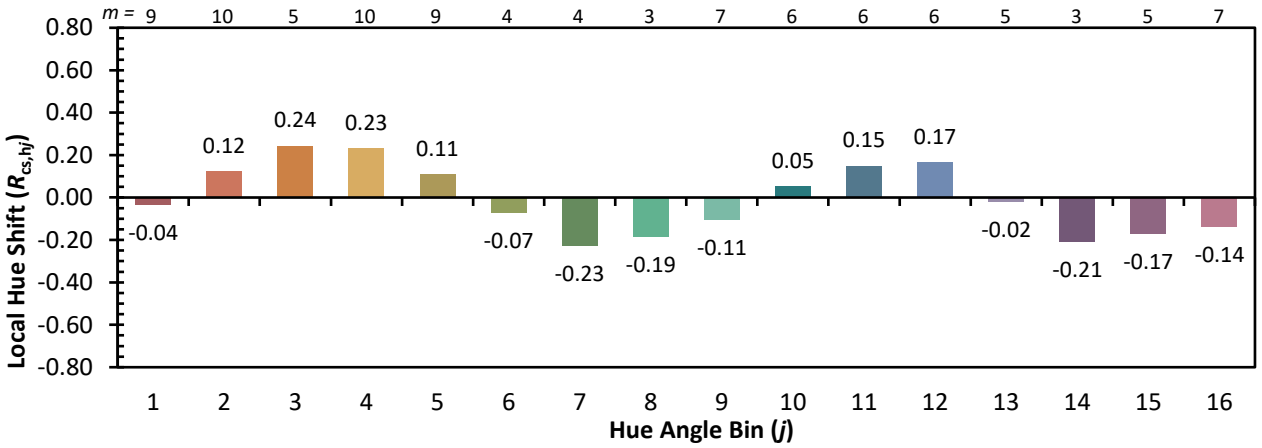
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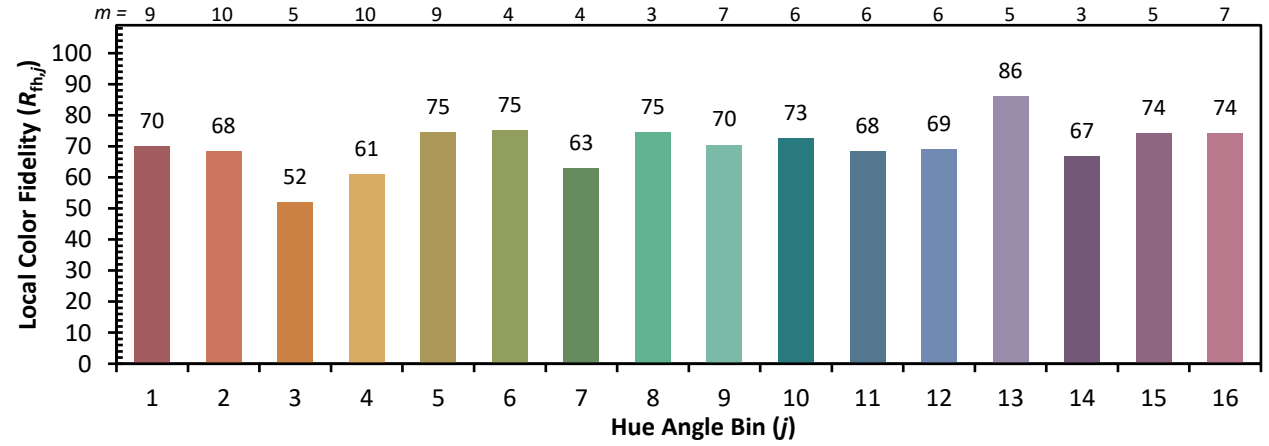
REPORT NUMBER: SP1-1908-441-10-R4

## TM-30-18

### Color Rendition by Hue-Angle Bin



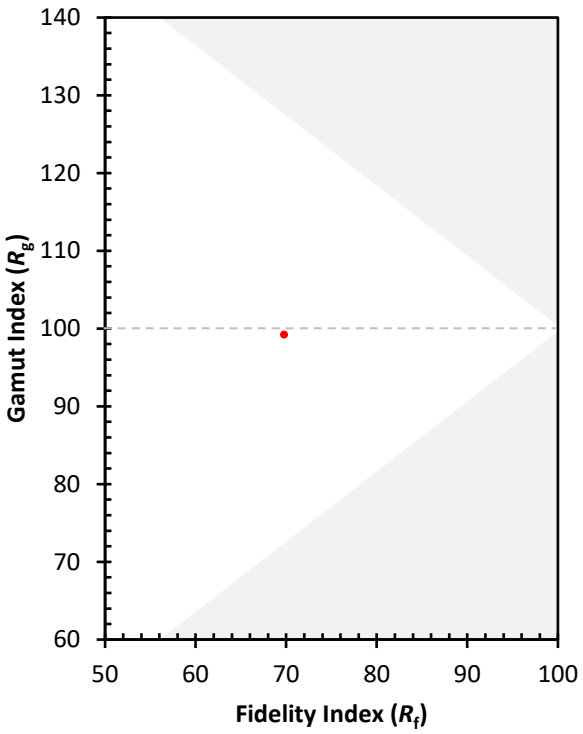



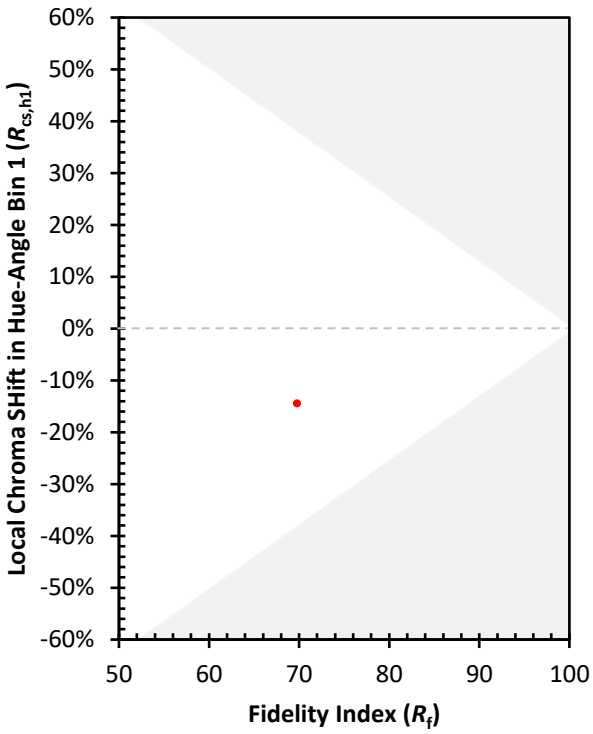
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### Measure Comparisons




(END OF REPORT)