

Signify Classified - Internal  
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: P387039

Luminaire Tested: **GPC-SA2D-730-U-T2**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P387039  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-12)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GPC-SA2D-730-U-T2  
Description: GALLEON PEDESTRIAN LUMINAIRE  
(2) 70 CRI, 3000K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 14472 lumens  
Efficiency: N/A  
Efficacy: 112.2 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B2 - U0 - G3

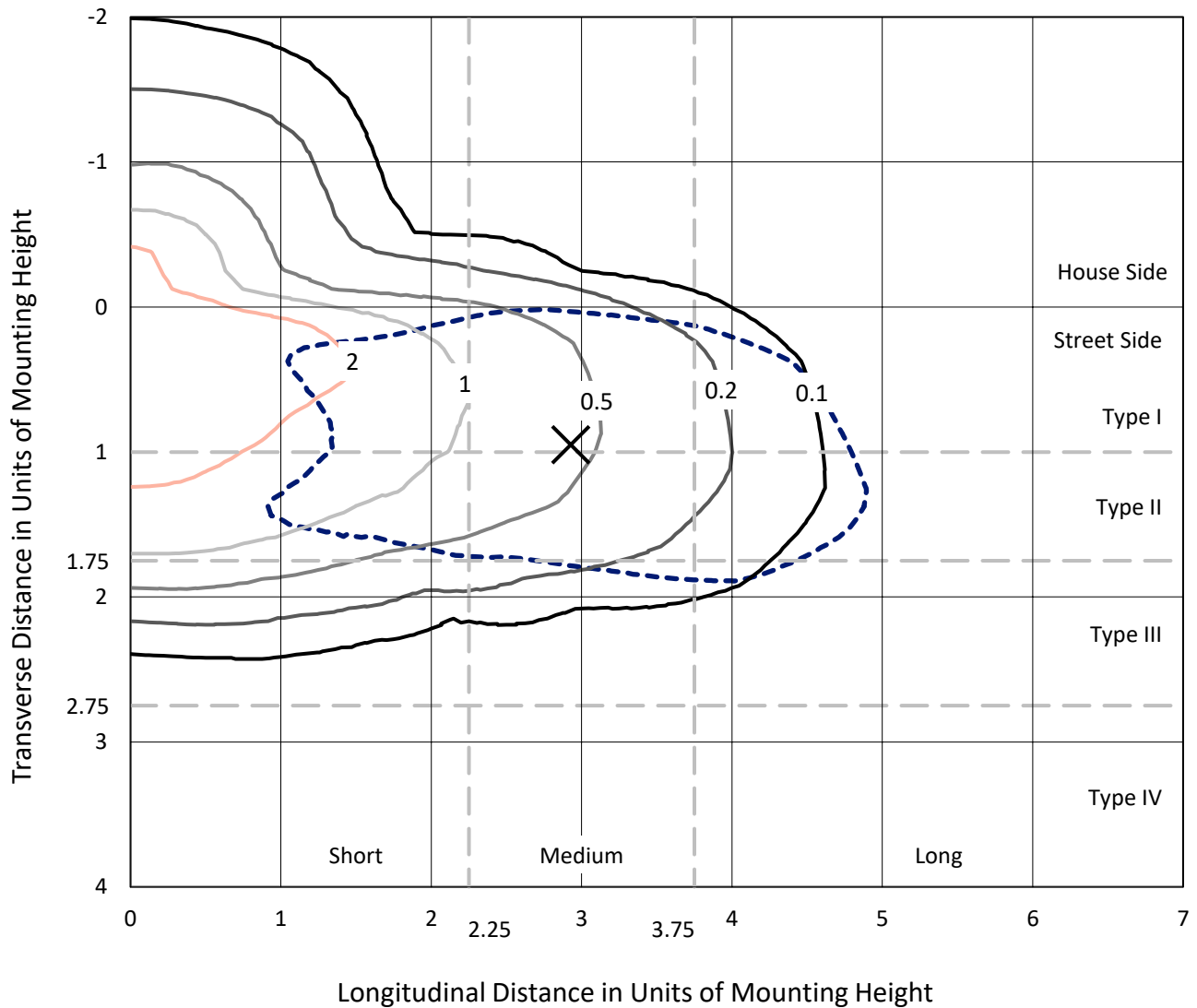
Input Watts (W): 129  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT



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### Iso-Footcandle Lines of Horizontal Illumination

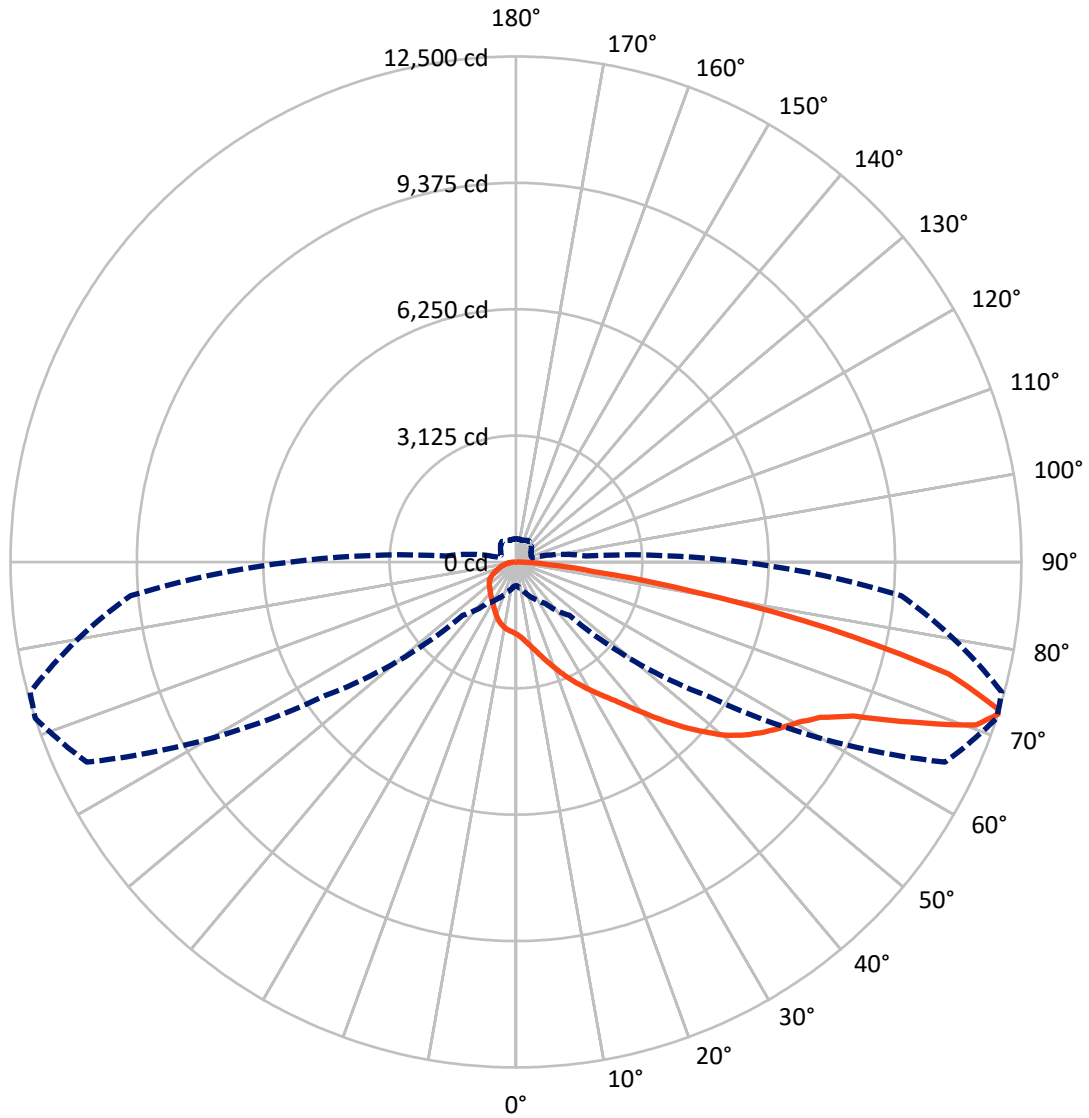
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 3.9 fc  
 Type III - Medium - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 72-Deg Lateral      - - - Horizontal Cone Through 72-Deg Vertical

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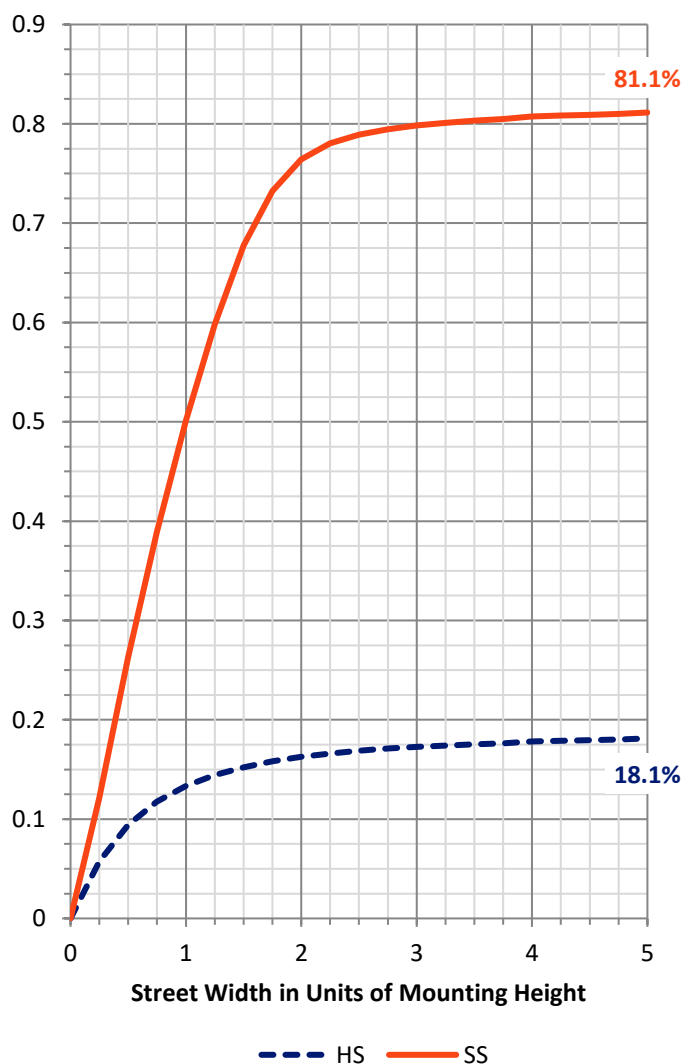
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 2684.7   | 0.0    | 2684.7  |
|                    | % Fixture | 18.6     | 0.0    | 18.6    |
| <b>Street Side</b> | Lumens    | 11787.3  | 0.0    | 11787.3 |
|                    | % Fixture | 81.4     | 0.0    | 81.4    |
| <b>Total</b>       | Lumens    | 14472.0  | 0.0    | 14472.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 178.4   | 1.2       |
| 10°-20°   | 576.5   | 4.0       |
| 20°-30°   | 1010.2  | 7.0       |
| 30°-40°   | 1497.9  | 10.4      |
| 40°-50°   | 2190.8  | 15.1      |
| 50°-60°   | 3014.5  | 20.8      |
| 60°-70°   | 3356.0  | 23.2      |
| 70°-80°   | 2274.0  | 15.7      |
| 80°-90°   | 373.8   | 2.6       |
| 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°    | 14472.0 | 100.0     |
| 0°-180°   | 14472.0 | 100.0     |

**Coefficient of Utilization**

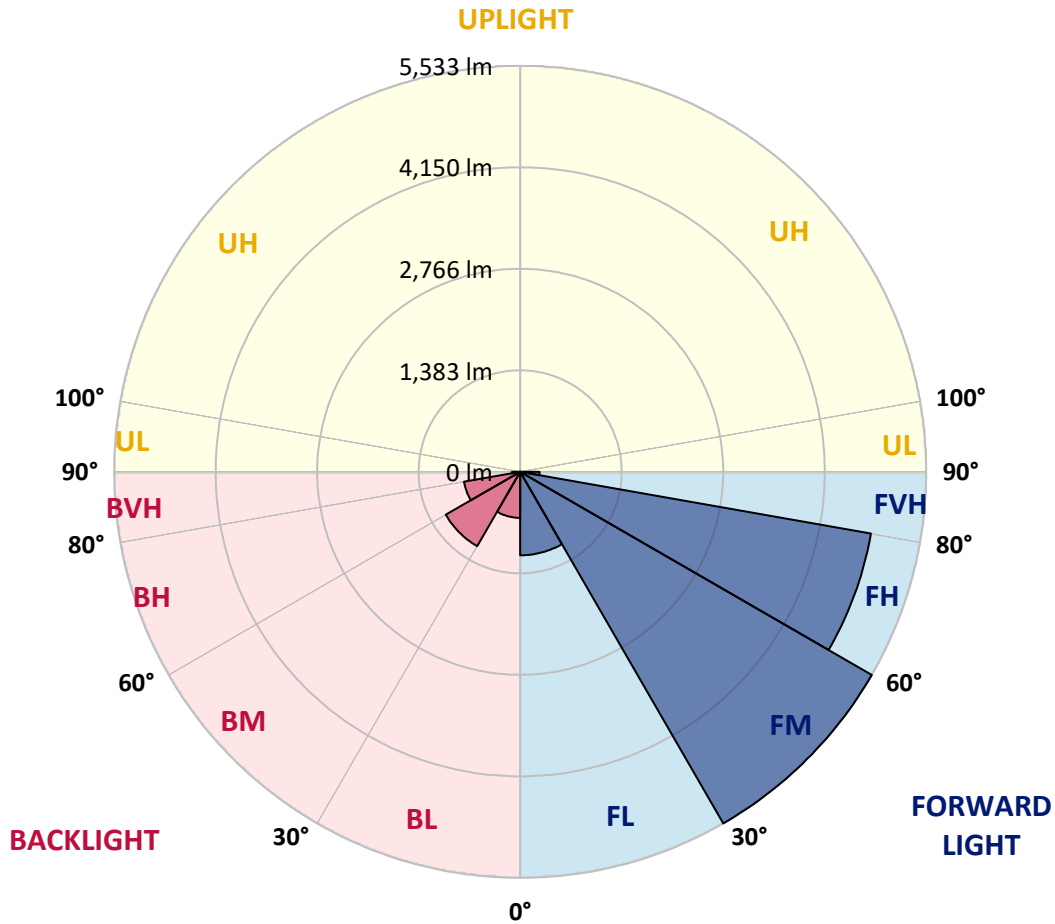


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|--------|-----------|-------------------------|------|---------|
|                |        |           | B                       | U    | G       |
| FL (0°-30°)    | 1137.6 | 7.9       |                         |      |         |
| FM (30°-60°)   | 5532.8 | 38.2      |                         |      |         |
| FH (60°-80°)   | 4853.3 | 33.5      |                         |      | G2/5000 |
| FVH (80°-90°)  | 263.6  | 1.8       |                         |      | G3/500  |
| BL (0°-30°)    | 627.6  | 4.3       | B2/1000                 |      |         |
| BM (30°-60°)   | 1170.3 | 8.1       | B2/2500                 |      |         |
| BH (60°-80°)   | 776.7  | 5.4       | B2/1000                 |      | G2/1000 |
| BVH (80°-90°)  | 110.1  | 0.8       |                         |      | G2/225  |
| UL (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B2-U0-G3**  
 Type III Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°     | 72°     | 75°     | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|--------|
| 0°    | 1780.4 | 1780.4 | 1780.4 | 1780.4 | 1780.4 | 1780.4 | 1780.4 | 1780.4  | 1780.4  | 1780.4  | 1780.4 |
| 2.5°  | 1966.8 | 1963.8 | 1953.3 | 1953.3 | 1933.4 | 1916.5 | 1884.6 | 1863.2  | 1837.7  | 1828.8  | 1798.9 |
| 5°    | 2157.1 | 2158.1 | 2145.2 | 2136.2 | 2106.8 | 2070.9 | 2016.6 | 1967.3  | 1918.0  | 1898.0  | 1836.7 |
| 7.5°  | 2317.1 | 2315.1 | 2311.6 | 2304.1 | 2276.7 | 2239.9 | 2166.6 | 2093.4  | 2020.6  | 1990.7  | 1885.1 |
| 10°   | 2419.8 | 2424.2 | 2427.2 | 2430.7 | 2419.3 | 2392.8 | 2323.6 | 2234.4  | 2139.2  | 2098.4  | 1942.9 |
| 12.5° | 2471.6 | 2479.6 | 2493.5 | 2517.4 | 2536.4 | 2533.4 | 2483.0 | 2388.4  | 2275.2  | 2223.9  | 2015.1 |
| 15°   | 2502.0 | 2512.4 | 2534.4 | 2577.2 | 2630.5 | 2660.9 | 2647.5 | 2561.8  | 2435.7  | 2372.4  | 2103.3 |
| 17.5° | 2520.9 | 2529.4 | 2563.3 | 2620.6 | 2699.8 | 2780.5 | 2815.9 | 2744.1  | 2617.1  | 2544.8  | 2204.5 |
| 20°   | 2533.9 | 2540.3 | 2582.7 | 2650.0 | 2752.6 | 2881.2 | 2979.8 | 2961.9  | 2816.9  | 2723.2  | 2310.1 |
| 22.5° | 2562.8 | 2568.2 | 2608.6 | 2676.4 | 2790.0 | 2955.9 | 3137.8 | 3164.7  | 3027.7  | 2921.5  | 2423.2 |
| 25°   | 2643.5 | 2643.5 | 2677.4 | 2724.7 | 2831.4 | 3020.7 | 3271.4 | 3390.4  | 3243.0  | 3119.4  | 2527.9 |
| 27.5° | 2797.5 | 2796.0 | 2808.4 | 2824.9 | 2905.6 | 3086.5 | 3390.4 | 3589.8  | 3466.2  | 3331.1  | 2629.5 |
| 30°   | 2979.8 | 2989.8 | 2991.3 | 2983.3 | 3021.2 | 3168.7 | 3500.6 | 3800.1  | 3690.9  | 3545.4  | 2733.7 |
| 32.5° | 3214.5 | 3221.0 | 3213.6 | 3187.1 | 3181.7 | 3285.3 | 3608.7 | 4020.3  | 3934.1  | 3769.2  | 2828.9 |
| 35°   | 3512.5 | 3500.1 | 3476.7 | 3422.8 | 3371.5 | 3441.3 | 3732.3 | 4240.6  | 4207.2  | 4039.7  | 2959.9 |
| 37.5° | 3831.9 | 3832.4 | 3803.5 | 3681.5 | 3610.7 | 3640.6 | 3902.7 | 4490.2  | 4537.5  | 4361.6  | 3127.8 |
| 40°   | 4088.1 | 4101.5 | 4119.5 | 3959.0 | 3867.3 | 3908.7 | 4119.5 | 4779.7  | 4928.2  | 4743.3  | 3346.6 |
| 42.5° | 4267.0 | 4282.4 | 4333.2 | 4232.6 | 4137.4 | 4214.1 | 4374.6 | 5088.7  | 5366.7  | 5183.8  | 3602.7 |
| 45°   | 4456.3 | 4464.8 | 4500.7 | 4457.3 | 4396.5 | 4569.4 | 4662.1 | 5408.6  | 5830.6  | 5653.2  | 3889.2 |
| 47.5° | 4655.6 | 4664.6 | 4701.5 | 4672.6 | 4640.7 | 4901.3 | 4962.1 | 5710.0  | 6275.1  | 6169.0  | 4195.2 |
| 50°   | 4901.8 | 4907.8 | 4942.7 | 4890.3 | 4900.3 | 5151.4 | 5230.2 | 5986.6  | 6741.0  | 6632.4  | 4502.2 |
| 52.5° | 5237.7 | 5239.1 | 5287.5 | 5240.1 | 5193.3 | 5334.8 | 5460.9 | 6247.2  | 7106.3  | 7055.0  | 4809.1 |
| 55°   | 5500.8 | 5516.7 | 5675.2 | 5665.2 | 5638.3 | 5501.3 | 5653.7 | 6495.4  | 7432.2  | 7456.6  | 5135.0 |
| 57.5° | 5332.8 | 5395.1 | 5716.0 | 5942.3 | 6162.5 | 5915.3 | 5914.3 | 6774.9  | 7735.1  | 7850.8  | 5493.3 |
| 60°   | 4670.6 | 4755.3 | 5228.2 | 5730.0 | 6419.1 | 6635.9 | 6455.5 | 7116.3  | 8041.1  | 8241.4  | 5942.3 |
| 62.5° | 3335.6 | 3475.2 | 4116.0 | 4917.2 | 6067.3 | 7113.3 | 7556.8 | 7657.9  | 8457.2  | 8693.9  | 6525.8 |
| 65°   | 1686.3 | 1791.9 | 2329.1 | 3294.3 | 4847.5 | 6801.3 | 8753.7 | 8843.9  | 9180.2  | 9390.5  | 7424.2 |
| 67.5° | 1024.5 | 1064.4 | 1326.5 | 1832.3 | 2971.9 | 5297.9 | 9144.3 | 10820.6 | 10579.5 | 10691.1 | 8705.3 |
| 70°   | 754.9  | 784.3  | 947.8  | 1216.9 | 1709.2 | 3108.9 | 7945.4 | 12231.3 | 12072.9 | 12060.4 | 9652.1 |
| 72°   | 588.0  | 609.4  | 753.9  | 983.2  | 1249.7 | 1865.1 | 5758.9 | 11710.6 | 12500.4 | 12437.6 | 9565.4 |
| 72.5° | 557.6  | 576.5  | 708.1  | 925.3  | 1181.0 | 1690.7 | 5177.9 | 11359.3 | 12469.5 | 12441.1 | 9453.3 |
| 75°   | 439.0  | 452.5  | 524.2  | 715.6  | 924.4  | 959.2  | 2837.3 | 8803.0  | 11061.8 | 11521.7 | 8502.5 |
| 77.5° | 363.3  | 365.3  | 403.1  | 520.7  | 720.5  | 678.2  | 1393.8 | 6107.7  | 7921.0  | 8426.8  | 6023.0 |
| 80°   | 296.0  | 298.5  | 316.4  | 365.3  | 545.1  | 501.8  | 661.7  | 3512.0  | 4434.9  | 4440.4  | 2864.2 |
| 82.5° | 235.7  | 236.2  | 256.1  | 267.1  | 391.7  | 358.8  | 379.2  | 1648.9  | 1937.9  | 1864.1  | 1029.5 |
| 85°   | 165.9  | 162.4  | 250.1  | 219.3  | 256.1  | 230.2  | 209.3  | 652.8   | 801.3   | 766.4   | 322.4  |
| 87.5° | 55.3   | 57.3   | 111.1  | 142.0  | 149.5  | 130.6  | 93.2   | 250.1   | 302.5   | 300.0   | 102.2  |
| 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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CATALOG NUMBER: GPC-SA2D-730-U-T2

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 1780.4 | 1780.4 | 1780.4 | 1780.4 | 1780.4 | 1780.4 | 1780.4 | 1780.4 | 1780.4 | 1780.4 | 1780.4 |
| 2.5°  | 1789.4 | 1773.5 | 1750.0 | 1724.1 | 1703.7 | 1682.8 | 1667.3 | 1659.3 | 1650.4 | 1642.9 | 1651.9 |
| 5°    | 1808.3 | 1778.4 | 1728.6 | 1679.8 | 1643.9 | 1612.0 | 1589.1 | 1577.1 | 1566.2 | 1558.7 | 1559.7 |
| 7.5°  | 1839.2 | 1790.9 | 1707.2 | 1635.9 | 1586.1 | 1551.7 | 1528.3 | 1520.3 | 1513.3 | 1511.4 | 1513.8 |
| 10°   | 1872.1 | 1800.9 | 1678.8 | 1584.1 | 1527.3 | 1498.9 | 1488.4 | 1493.9 | 1498.9 | 1503.4 | 1508.4 |
| 12.5° | 1909.5 | 1809.8 | 1637.4 | 1523.3 | 1475.0 | 1464.0 | 1474.5 | 1498.4 | 1515.8 | 1526.3 | 1532.8 |
| 15°   | 1958.3 | 1817.8 | 1589.6 | 1462.5 | 1430.1 | 1442.6 | 1478.0 | 1519.3 | 1549.7 | 1569.2 | 1572.1 |
| 17.5° | 2003.2 | 1817.3 | 1528.3 | 1401.2 | 1393.8 | 1430.1 | 1483.4 | 1541.7 | 1582.6 | 1610.0 | 1615.5 |
| 20°   | 2049.5 | 1803.9 | 1457.0 | 1341.4 | 1356.9 | 1416.7 | 1485.9 | 1556.2 | 1605.5 | 1637.4 | 1644.9 |
| 22.5° | 2092.9 | 1780.4 | 1378.8 | 1287.1 | 1326.0 | 1398.7 | 1476.5 | 1547.7 | 1597.1 | 1623.0 | 1630.9 |
| 25°   | 2122.3 | 1739.6 | 1299.6 | 1241.3 | 1298.6 | 1376.8 | 1445.6 | 1502.9 | 1539.8 | 1552.7 | 1554.7 |
| 27.5° | 2137.2 | 1686.3 | 1224.8 | 1201.4 | 1270.2 | 1340.9 | 1388.3 | 1416.7 | 1427.1 | 1426.1 | 1424.1 |
| 30°   | 2139.2 | 1616.0 | 1160.5 | 1169.0 | 1237.3 | 1288.1 | 1310.5 | 1305.1 | 1291.6 | 1268.7 | 1270.7 |
| 32.5° | 2132.7 | 1536.8 | 1106.7 | 1138.1 | 1195.4 | 1223.8 | 1224.8 | 1198.4 | 1162.5 | 1126.2 | 1116.2 |
| 35°   | 2134.7 | 1459.0 | 1059.4 | 1103.2 | 1144.6 | 1157.1 | 1145.6 | 1106.7 | 1057.9 | 1011.1 | 1001.1 |
| 37.5° | 2156.7 | 1391.3 | 1018.5 | 1062.9 | 1088.3 | 1091.3 | 1074.8 | 1034.0 | 998.1  | 952.3  | 948.3  |
| 40°   | 2209.0 | 1342.9 | 979.7  | 1017.5 | 1032.0 | 1033.5 | 1010.1 | 981.2  | 984.1  | 959.7  | 959.2  |
| 42.5° | 2303.2 | 1322.0 | 945.3  | 970.2  | 979.2  | 982.2  | 964.2  | 945.8  | 971.7  | 955.7  | 950.3  |
| 45°   | 2424.7 | 1327.0 | 916.4  | 923.9  | 940.3  | 954.2  | 943.3  | 920.9  | 930.8  | 861.6  | 838.6  |
| 47.5° | 2565.3 | 1358.9 | 893.5  | 884.0  | 912.4  | 938.8  | 921.9  | 888.0  | 852.6  | 783.8  | 770.9  |
| 50°   | 2729.7 | 1408.2 | 872.5  | 844.6  | 882.0  | 917.9  | 900.9  | 852.6  | 799.3  | 765.9  | 761.4  |
| 52.5° | 2901.1 | 1468.5 | 851.6  | 801.3  | 843.6  | 901.9  | 893.5  | 844.6  | 778.8  | 746.0  | 740.0  |
| 55°   | 3095.5 | 1529.3 | 825.2  | 750.9  | 802.3  | 894.5  | 890.0  | 815.7  | 763.4  | 745.0  | 740.5  |
| 57.5° | 3337.1 | 1598.6 | 790.3  | 698.6  | 763.4  | 867.5  | 853.6  | 798.3  | 747.5  | 733.5  | 732.0  |
| 60°   | 3652.1 | 1700.7 | 740.0  | 642.8  | 716.1  | 826.2  | 823.2  | 772.9  | 722.0  | 712.1  | 710.1  |
| 62.5° | 4124.4 | 1869.6 | 670.7  | 587.0  | 663.2  | 755.9  | 783.3  | 738.5  | 695.1  | 694.6  | 695.6  |
| 65°   | 4857.0 | 2123.8 | 595.5  | 538.2  | 609.9  | 696.6  | 737.0  | 703.1  | 667.7  | 677.7  | 679.2  |
| 67.5° | 5706.1 | 2334.5 | 521.7  | 490.3  | 555.6  | 640.3  | 695.1  | 667.7  | 631.3  | 657.3  | 657.8  |
| 70°   | 5988.6 | 2146.2 | 456.9  | 443.0  | 499.3  | 586.0  | 649.8  | 628.9  | 592.0  | 617.9  | 615.4  |
| 72°   | 5573.0 | 1732.6 | 415.1  | 407.1  | 456.9  | 541.2  | 609.4  | 592.5  | 556.1  | 573.5  | 567.1  |
| 72.5° | 5442.0 | 1651.9 | 404.6  | 398.1  | 445.5  | 529.7  | 599.0  | 583.5  | 547.1  | 562.1  | 556.1  |
| 75°   | 4854.5 | 1434.6 | 347.8  | 349.3  | 388.7  | 473.9  | 540.2  | 535.2  | 497.8  | 499.3  | 497.3  |
| 77.5° | 3521.0 | 1051.9 | 293.0  | 303.0  | 330.9  | 416.6  | 480.9  | 477.9  | 437.0  | 429.5  | 428.0  |
| 80°   | 1633.9 | 536.7  | 238.7  | 243.2  | 272.1  | 348.3  | 410.1  | 406.1  | 373.2  | 363.8  | 358.3  |
| 82.5° | 559.6  | 255.1  | 179.4  | 182.4  | 210.8  | 280.5  | 355.8  | 353.3  | 325.9  | 307.5  | 296.0  |
| 85°   | 199.8  | 127.1  | 125.6  | 122.6  | 150.5  | 220.7  | 309.9  | 296.5  | 256.1  | 218.3  | 217.3  |
| 87.5° | 64.8   | 54.3   | 64.8   | 64.3   | 87.7   | 149.5  | 225.2  | 191.8  | 185.9  | 154.5  | 151.5  |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



Signify Classified - Internal  
Cooper Lighting Solutions Photometric Lab  
1121 Highway 74 South  
Peachtree City, GA 30269



**Test Information**

Test Method: LM-79-2008  
 Report Number: SP1-1908-441-2-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-730-U-5WQ**  
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

\*\*\*THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.\*\*\*TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

**Spectral Parameters**

CCT (K): 2993  
 CIE u': 0.2508  
 CIE v': 0.5215  
 Duv: 0.0000  
 CIE x: 0.4374  
 CIE y: 0.4043  
 CIE z: 0.1583  
 Peak Wavelength (nm): 593  
 Dominant Wavelength (nm): 582  
 Purity: 53

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 71.8 |      |       |
| R1:       | 67.5 | R9:  | -38.3 |
| R2:       | 82.9 | R10: | 62.5  |
| R3:       | 94.7 | R11: | 63.7  |
| R4:       | 67.7 | R12: | 57.8  |
| R5:       | 67.9 | R13: | 70.4  |
| R6:       | 77.6 | R14: | 97.3  |
| R7:       | 76.0 |      |       |
| R8:       | 40.5 |      |       |

Rf: 75.7  
 Rg: 93.9



**Test Conditions**

Stabilization Time: 53M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0./44%  
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-2-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



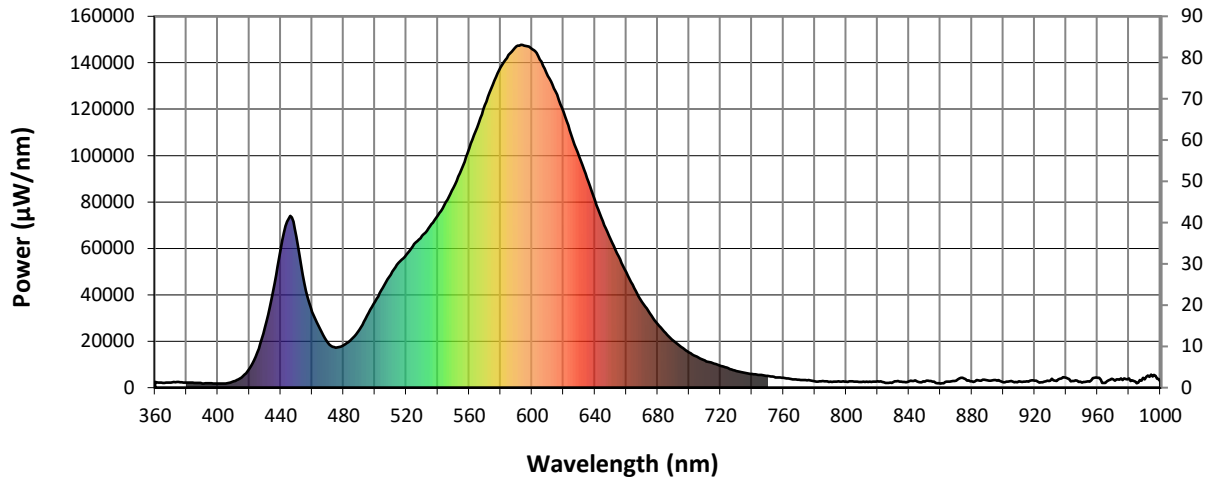
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 3000K 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    | 2397          | NR            | 490    | 24908         | NR            | 620    | 118784        | NR            | 750    | 5037          | NR            | 880    | 2677          | NR            |
| 365    | 2084          | NR            | 495    | 30998         | NR            | 625    | 108951        | NR            | 755    | 4413          | NR            | 885    | 2940          | NR            |
| 370    | 2143          | NR            | 500    | 37103         | NR            | 630    | 99573         | NR            | 760    | 4189          | NR            | 890    | 3116          | NR            |
| 375    | 2413          | NR            | 505    | 42987         | NR            | 635    | 90444         | NR            | 765    | 3677          | NR            | 895    | 3345          | NR            |
| 380    | 2172          | NR            | 510    | 48702         | NR            | 640    | 80749         | NR            | 770    | 3366          | NR            | 900    | 2312          | NR            |
| 385    | 1997          | NR            | 515    | 53741         | NR            | 645    | 71664         | NR            | 775    | 3211          | NR            | 905    | 2829          | NR            |
| 390    | 1830          | NR            | 520    | 57283         | NR            | 650    | 63936         | NR            | 780    | 2682          | NR            | 910    | 2783          | NR            |
| 395    | 1861          | NR            | 525    | 61876         | NR            | 655    | 56611         | NR            | 785    | 2804          | NR            | 915    | 2662          | NR            |
| 400    | 1717          | NR            | 530    | 65398         | NR            | 660    | 49763         | NR            | 790    | 2581          | NR            | 920    | 3047          | NR            |
| 405    | 1761          | NR            | 535    | 69597         | NR            | 665    | 42891         | NR            | 795    | 2711          | NR            | 925    | 2256          | NR            |
| 410    | 2680          | NR            | 540    | 74214         | NR            | 670    | 36939         | NR            | 800    | 2609          | NR            | 930    | 2976          | NR            |
| 415    | 4374          | NR            | 545    | 79911         | NR            | 675    | 31946         | NR            | 805    | 2581          | NR            | 935    | 3503          | NR            |
| 420    | 8071          | NR            | 550    | 86153         | NR            | 680    | 27385         | NR            | 810    | 2404          | NR            | 940    | 4226          | NR            |
| 425    | 15169         | NR            | 555    | 93952         | NR            | 685    | 23504         | NR            | 815    | 2556          | NR            | 945    | 2930          | NR            |
| 430    | 26038         | NR            | 560    | 102904        | NR            | 690    | 20210         | NR            | 820    | 2742          | NR            | 950    | 2115          | NR            |
| 435    | 41316         | NR            | 565    | 112009        | NR            | 695    | 17459         | NR            | 825    | 2014          | NR            | 955    | 2634          | NR            |
| 440    | 59674         | NR            | 570    | 121662        | NR            | 700    | 15207         | NR            | 830    | 2488          | NR            | 960    | 4200          | NR            |
| 445    | 72751         | NR            | 575    | 130476        | NR            | 705    | 13322         | NR            | 835    | 2625          | NR            | 965    | 1982          | NR            |
| 450    | 65091         | NR            | 580    | 137926        | NR            | 710    | 11676         | NR            | 840    | 2754          | NR            | 970    | 3613          | NR            |
| 455    | 44894         | NR            | 585    | 143406        | NR            | 715    | 10626         | NR            | 845    | 2708          | NR            | 975    | 4034          | NR            |
| 460    | 32712         | NR            | 590    | 147039        | NR            | 720    | 9416          | NR            | 850    | 2608          | NR            | 980    | 3922          | NR            |
| 465    | 25296         | NR            | 595    | 147365        | NR            | 725    | 8333          | NR            | 855    | 2605          | NR            | 985    | 1909          | NR            |
| 470    | 19318         | NR            | 600    | 145800        | NR            | 730    | 7134          | NR            | 860    | 1765          | NR            | 990    | 3617          | NR            |
| 475    | 17265         | NR            | 605    | 141363        | NR            | 735    | 6437          | NR            | 865    | 2581          | NR            | 995    | 4767          | NR            |
| 480    | 18260         | NR            | 610    | 134199        | NR            | 740    | 5834          | NR            | 870    | 3016          | NR            | 1000   | 2528          | NR            |
| 485    | 20845         | NR            | 615    | 127683        | NR            | 745    | 5500          | NR            | 875    | 3952          | NR            |        |               |               |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 8494.8

S/P: 1.23

| 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    | 2397          | NR            | 490    | 24908         | NR            | 620    | 118784        | NR            | 750    | 5037          | NR            | 880    | 2677          | NR            |
| 365    | 2084          | NR            | 495    | 30998         | NR            | 625    | 108951        | NR            | 755    | 4413          | NR            | 885    | 2940          | NR            |
| 370    | 2143          | NR            | 500    | 37103         | NR            | 630    | 99573         | NR            | 760    | 4189          | NR            | 890    | 3116          | NR            |
| 375    | 2413          | NR            | 505    | 42987         | NR            | 635    | 90444         | NR            | 765    | 3677          | NR            | 895    | 3345          | NR            |
| 380    | 2172          | NR            | 510    | 48702         | NR            | 640    | 80749         | NR            | 770    | 3366          | NR            | 900    | 2312          | NR            |
| 385    | 1997          | NR            | 515    | 53741         | NR            | 645    | 71664         | NR            | 775    | 3211          | NR            | 905    | 2829          | NR            |
| 390    | 1830          | NR            | 520    | 57283         | NR            | 650    | 63936         | NR            | 780    | 2682          | NR            | 910    | 2783          | NR            |
| 395    | 1861          | NR            | 525    | 61876         | NR            | 655    | 56611         | NR            | 785    | 2804          | NR            | 915    | 2662          | NR            |
| 400    | 1717          | NR            | 530    | 65398         | NR            | 660    | 49763         | NR            | 790    | 2581          | NR            | 920    | 3047          | NR            |
| 405    | 1761          | NR            | 535    | 69597         | NR            | 665    | 42891         | NR            | 795    | 2711          | NR            | 925    | 2256          | NR            |
| 410    | 2680          | NR            | 540    | 74214         | NR            | 670    | 36939         | NR            | 800    | 2609          | NR            | 930    | 2976          | NR            |
| 415    | 4374          | NR            | 545    | 79911         | NR            | 675    | 31946         | NR            | 805    | 2581          | NR            | 935    | 3503          | NR            |
| 420    | 8071          | NR            | 550    | 86153         | NR            | 680    | 27385         | NR            | 810    | 2404          | NR            | 940    | 4226          | NR            |
| 425    | 15169         | NR            | 555    | 93952         | NR            | 685    | 23504         | NR            | 815    | 2556          | NR            | 945    | 2930          | NR            |
| 430    | 26038         | NR            | 560    | 102904        | NR            | 690    | 20210         | NR            | 820    | 2742          | NR            | 950    | 2115          | NR            |
| 435    | 41316         | NR            | 565    | 112009        | NR            | 695    | 17459         | NR            | 825    | 2014          | NR            | 955    | 2634          | NR            |
| 440    | 59674         | NR            | 570    | 121662        | NR            | 700    | 15207         | NR            | 830    | 2488          | NR            | 960    | 4200          | NR            |
| 445    | 72751         | NR            | 575    | 130476        | NR            | 705    | 13322         | NR            | 835    | 2625          | NR            | 965    | 1982          | NR            |
| 450    | 65091         | NR            | 580    | 137926        | NR            | 710    | 11676         | NR            | 840    | 2754          | NR            | 970    | 3613          | NR            |
| 455    | 44894         | NR            | 585    | 143406        | NR            | 715    | 10626         | NR            | 845    | 2708          | NR            | 975    | 4034          | NR            |
| 460    | 32712         | NR            | 590    | 147039        | NR            | 720    | 9416          | NR            | 850    | 2608          | NR            | 980    | 3922          | NR            |
| 465    | 25296         | NR            | 595    | 147365        | NR            | 725    | 8333          | NR            | 855    | 2605          | NR            | 985    | 1909          | NR            |
| 470    | 19318         | NR            | 600    | 145800        | NR            | 730    | 7134          | NR            | 860    | 1765          | NR            | 990    | 3617          | NR            |
| 475    | 17265         | NR            | 605    | 141363        | NR            | 735    | 6437          | NR            | 865    | 2581          | NR            | 995    | 4767          | NR            |
| 480    | 18260         | NR            | 610    | 134199        | NR            | 740    | 5834          | NR            | 870    | 3016          | NR            | 1000   | 2528          | NR            |
| 485    | 20845         | NR            | 615    | 127683        | NR            | 745    | 5500          | NR            | 875    | 3952          | NR            |        |               |               |

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Melanopic Flux vs. Wavelength



Melanopic Lumens: 3101.5 M/P: 0.45

| 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    | 2397          | NR            | 490    | 24908         | NR            | 620    | 118784        | NR            | 750    | 5037          | NR            | 880    | 2677          | NR            |
| 365    | 2084          | NR            | 495    | 30998         | NR            | 625    | 108951        | NR            | 755    | 4413          | NR            | 885    | 2940          | NR            |
| 370    | 2143          | NR            | 500    | 37103         | NR            | 630    | 99573         | NR            | 760    | 4189          | NR            | 890    | 3116          | NR            |
| 375    | 2413          | NR            | 505    | 42987         | NR            | 635    | 90444         | NR            | 765    | 3677          | NR            | 895    | 3345          | NR            |
| 380    | 2172          | NR            | 510    | 48702         | NR            | 640    | 80749         | NR            | 770    | 3366          | NR            | 900    | 2312          | NR            |
| 385    | 1997          | NR            | 515    | 53741         | NR            | 645    | 71664         | NR            | 775    | 3211          | NR            | 905    | 2829          | NR            |
| 390    | 1830          | NR            | 520    | 57283         | NR            | 650    | 63936         | NR            | 780    | 2682          | NR            | 910    | 2783          | NR            |
| 395    | 1861          | NR            | 525    | 61876         | NR            | 655    | 56611         | NR            | 785    | 2804          | NR            | 915    | 2662          | NR            |
| 400    | 1717          | NR            | 530    | 65398         | NR            | 660    | 49763         | NR            | 790    | 2581          | NR            | 920    | 3047          | NR            |
| 405    | 1761          | NR            | 535    | 69597         | NR            | 665    | 42891         | NR            | 795    | 2711          | NR            | 925    | 2256          | NR            |
| 410    | 2680          | NR            | 540    | 74214         | NR            | 670    | 36939         | NR            | 800    | 2609          | NR            | 930    | 2976          | NR            |
| 415    | 4374          | NR            | 545    | 79911         | NR            | 675    | 31946         | NR            | 805    | 2581          | NR            | 935    | 3503          | NR            |
| 420    | 8071          | NR            | 550    | 86153         | NR            | 680    | 27385         | NR            | 810    | 2404          | NR            | 940    | 4226          | NR            |
| 425    | 15169         | NR            | 555    | 93952         | NR            | 685    | 23504         | NR            | 815    | 2556          | NR            | 945    | 2930          | NR            |
| 430    | 26038         | NR            | 560    | 102904        | NR            | 690    | 20210         | NR            | 820    | 2742          | NR            | 950    | 2115          | NR            |
| 435    | 41316         | NR            | 565    | 112009        | NR            | 695    | 17459         | NR            | 825    | 2014          | NR            | 955    | 2634          | NR            |
| 440    | 59674         | NR            | 570    | 121662        | NR            | 700    | 15207         | NR            | 830    | 2488          | NR            | 960    | 4200          | NR            |
| 445    | 72751         | NR            | 575    | 130476        | NR            | 705    | 13322         | NR            | 835    | 2625          | NR            | 965    | 1982          | NR            |
| 450    | 65091         | NR            | 580    | 137926        | NR            | 710    | 11676         | NR            | 840    | 2754          | NR            | 970    | 3613          | NR            |
| 455    | 44894         | NR            | 585    | 143406        | NR            | 715    | 10626         | NR            | 845    | 2708          | NR            | 975    | 4034          | NR            |
| 460    | 32712         | NR            | 590    | 147039        | NR            | 720    | 9416          | NR            | 850    | 2608          | NR            | 980    | 3922          | NR            |
| 465    | 25296         | NR            | 595    | 147365        | NR            | 725    | 8333          | NR            | 855    | 2605          | NR            | 985    | 1909          | NR            |
| 470    | 19318         | NR            | 600    | 145800        | NR            | 730    | 7134          | NR            | 860    | 1765          | NR            | 990    | 3617          | NR            |
| 475    | 17265         | NR            | 605    | 141363        | NR            | 735    | 6437          | NR            | 865    | 2581          | NR            | 995    | 4767          | NR            |
| 480    | 18260         | NR            | 610    | 134199        | NR            | 740    | 5834          | NR            | 870    | 3016          | NR            | 1000   | 2528          | NR            |
| 485    | 20845         | NR            | 615    | 127683        | NR            | 745    | 5500          | NR            | 875    | 3952          | NR            |        |               |               |

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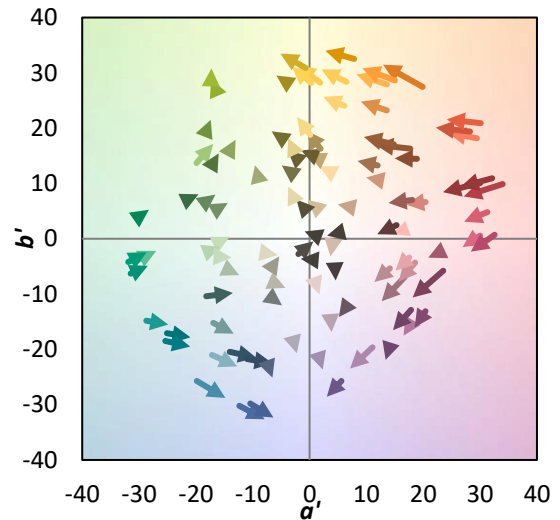
TM-30-18

**Summary**

$R_f = 75.7$   
 $R_g = 93.9$   
 $CIE R_a = 71.8$   
 $R_9 = -38.3$



**Color Vector Graphics**





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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 |            |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)