

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: P385974

Luminaire Tested: **GPC-SA1C-750-U-T2-HSS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P385974  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-13)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GPC-SA1C-750-U-T2-HSS  
Description: GALLEON PEDESTRIAN LUMINAIRE  
(1) 70 CRI, 5000K, 1050mA LIGHTSQUARE WITH 16 LEDS AND TYPE II OPTICS  
WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 5373 lumens  
Efficiency: N/A  
Efficacy: 91.1 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type II - Medium  
BUG Rating: B0 - U0 - G2

Input Watts (W): 59  
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

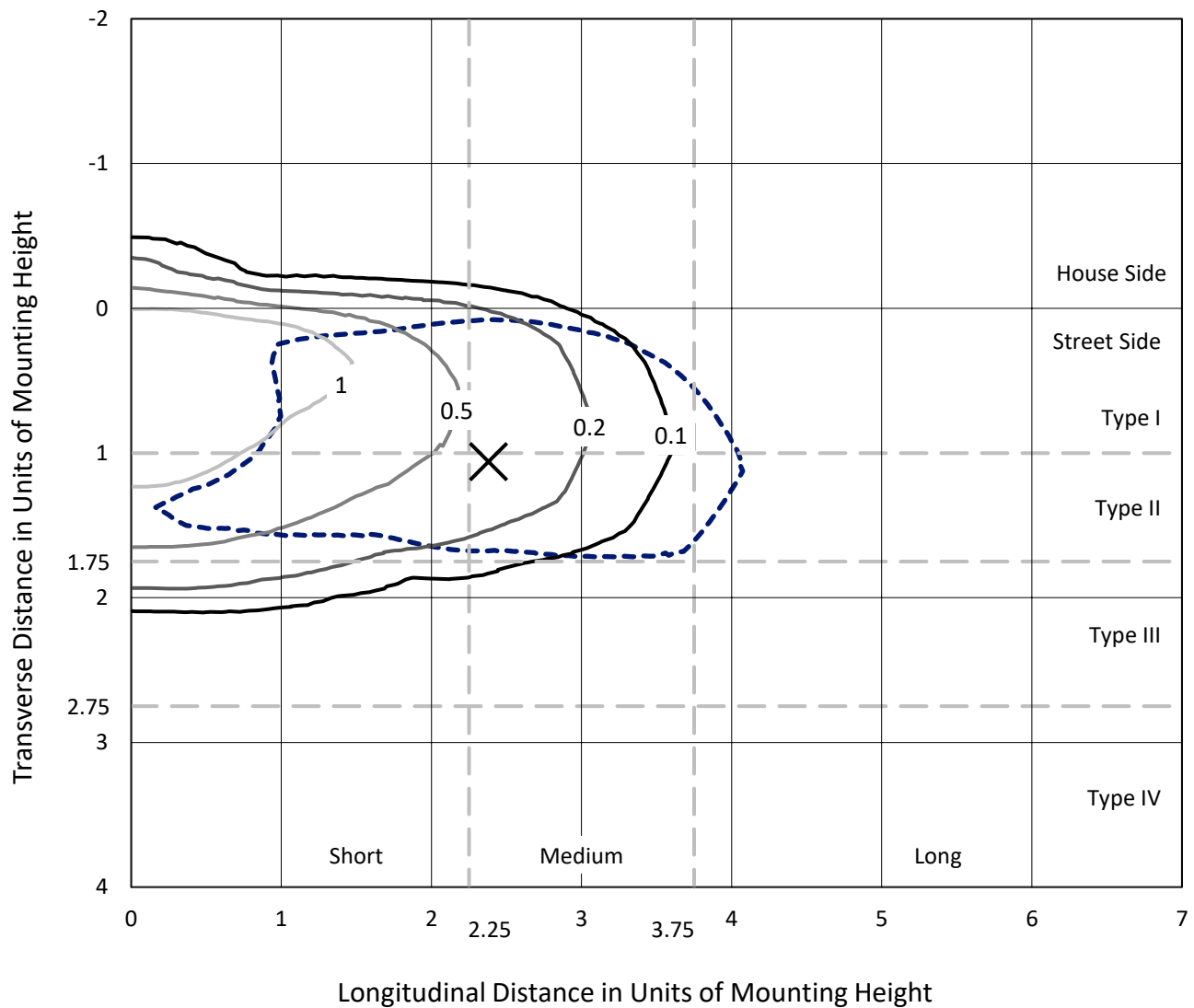


REPORT NUMBER: P385974

CATALOG NUMBER: GPC-SA1C-750-U-T2-HSS

## Iso-Footcandle Lines of Horizontal Illumination

✕ Max cd  
 - - - 1/2 Max cd

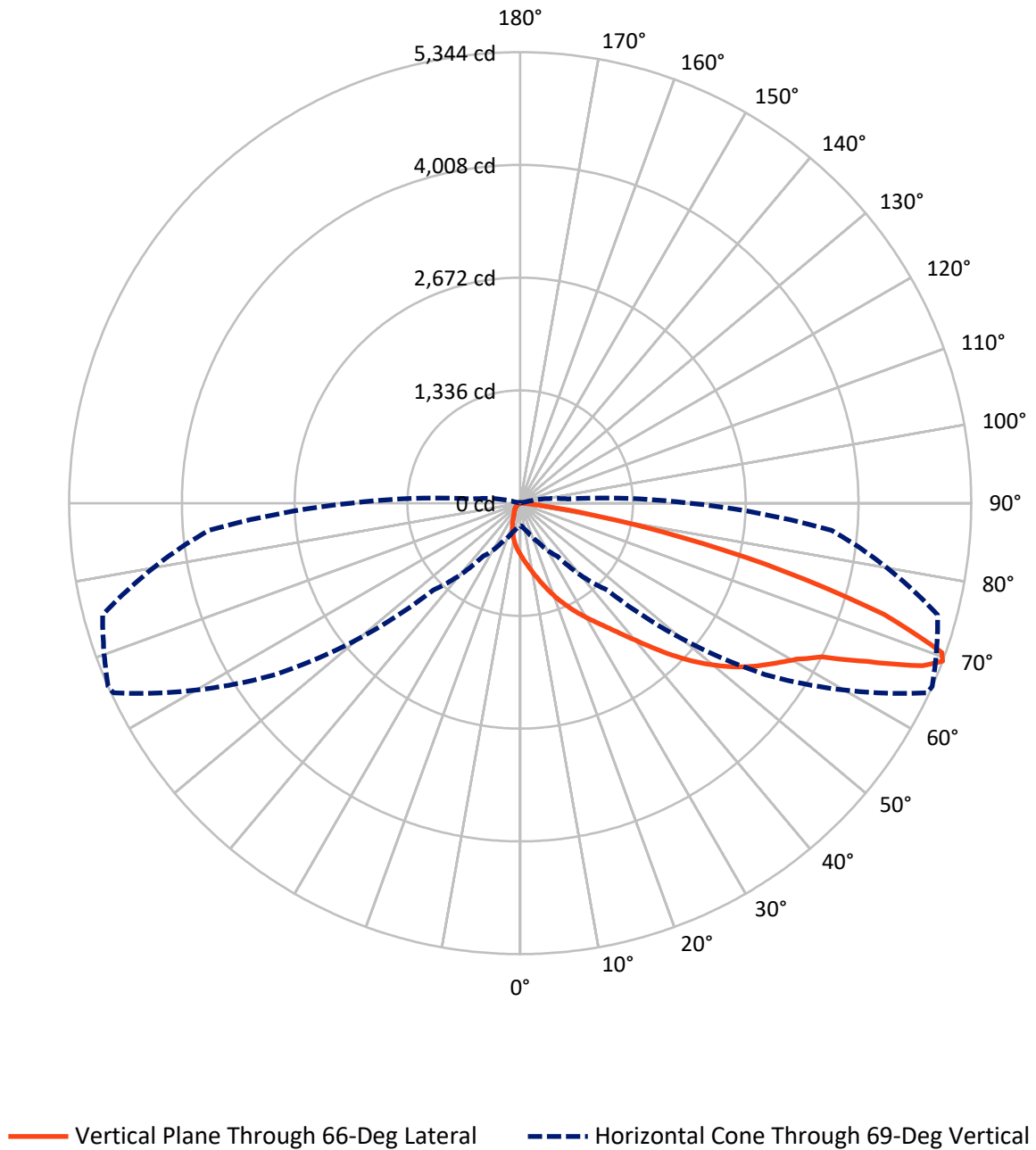


Based on 25 foot mounting height. Maximum calculated value = 1.6 fc  
 Type II - Medium - N/A

REPORT NUMBER: P385974

CATALOG NUMBER: GPC-SA1C-750-U-T2-HSS

## Luminous Intensity Polar Plot



REPORT NUMBER: P385974

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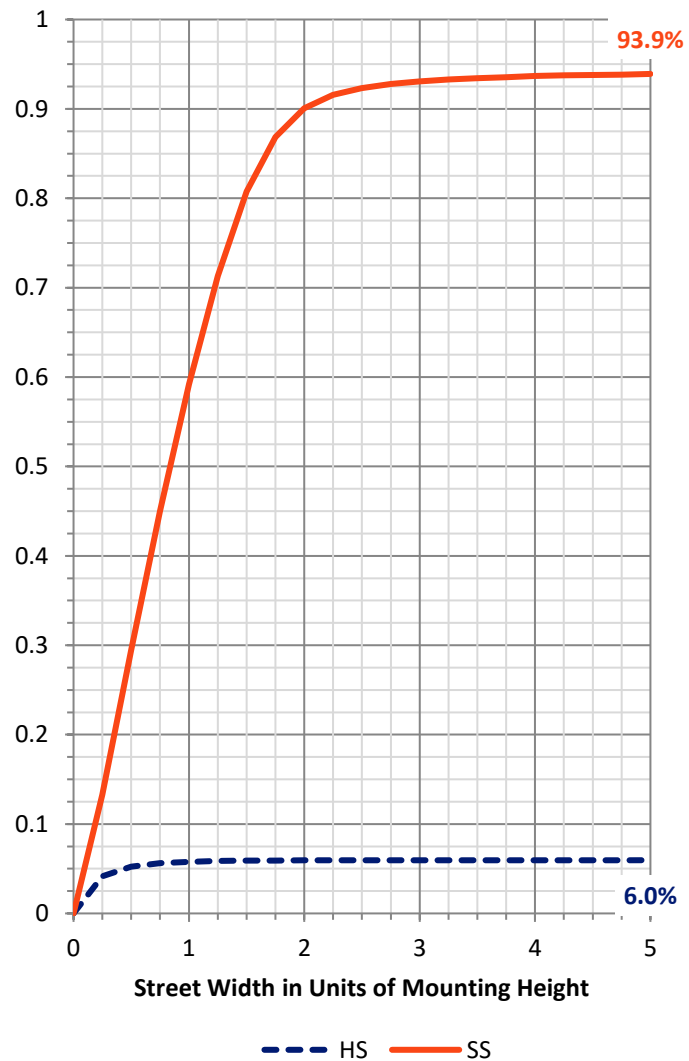
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 322.3    | 0.0    | 322.3  |
|                    | % Fixture | 6.0      | 0.0    | 6.0    |
| <b>Street Side</b> | Lumens    | 5050.7   | 0.0    | 5050.7 |
|                    | % Fixture | 94.0     | 0.0    | 94.0   |
| <b>Total</b>       | Lumens    | 5373.0   | 0.0    | 5373.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 59.1   | 1.1       |
| 10°-20°   | 175.9  | 3.3       |
| 20°-30°   | 306.3  | 5.7       |
| 30°-40°   | 537.4  | 10.0      |
| 40°-50°   | 899.6  | 16.7      |
| 50°-60°   | 1322.3 | 24.6      |
| 60°-70°   | 1357.7 | 25.3      |
| 70°-80°   | 670.3  | 12.5      |
| 80°-90°   | 44.3   | 0.8       |
| 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°    | 5373.0 | 100.0     |
| 0°-180°   | 5373.0 | 100.0     |

**Coefficient of Utilization**



REPORT NUMBER: P385974

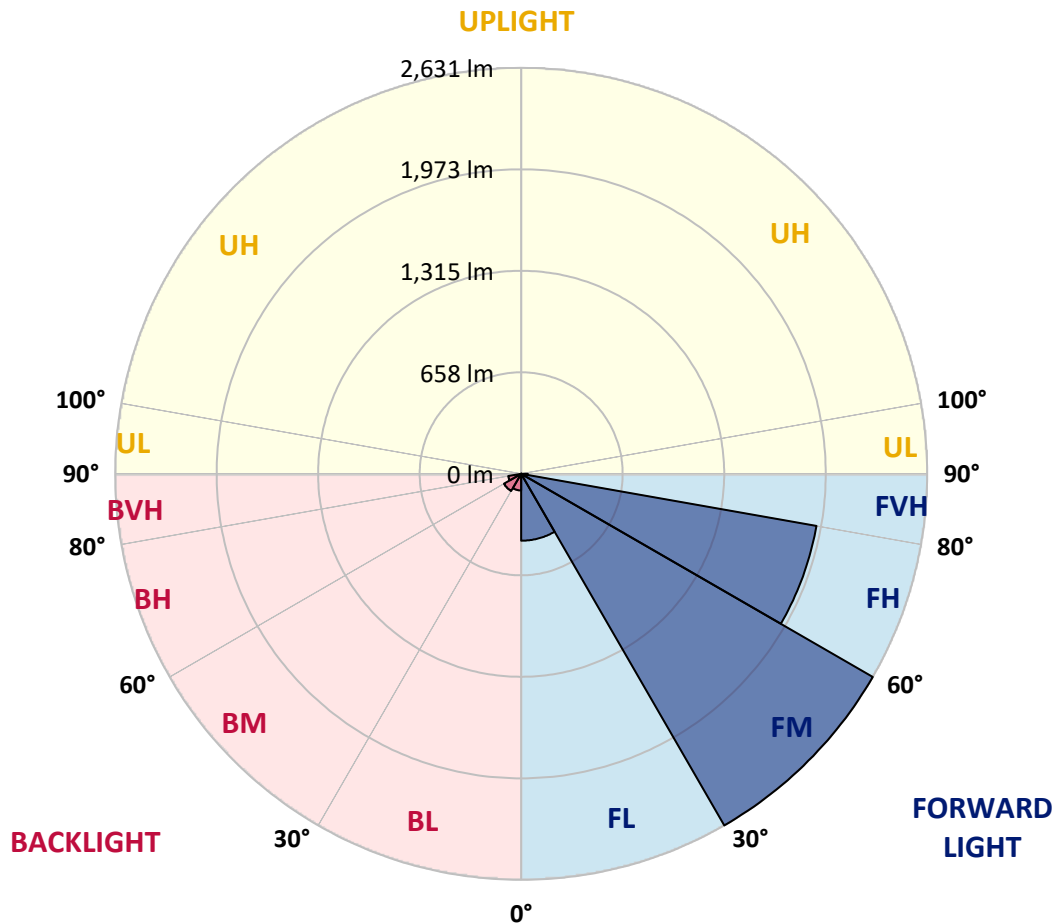
CATALOG NUMBER: GPC-SA1C-750-U-T2-HSS

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 433.5  | 8.1       |                         |      |         |
| FM   | (30°-60°)   | 2630.9 | 49.0      |                         |      |         |
| FH   | (60°-80°)   | 1943.0 | 36.2      |                         |      | G2/5000 |
| FVH  | (80°-90°)   | 43.2   | 0.8       |                         |      | G1/100  |
| BL   | (0°-30°)    | 107.8  | 2.0       | B0/110                  |      |         |
| BM   | (30°-60°)   | 128.5  | 2.4       | B0/220                  |      |         |
| BH   | (60°-80°)   | 84.9   | 1.6       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 1.1    | 0.0       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B0-U0-G2**

Type II Medium



REPORT NUMBER: P385974

CATALOG NUMBER: GPC-SA1C-750-U-T2-HSS

**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 66°    | 75°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 611.5  | 611.5  | 611.5  | 611.5  | 611.5  | 611.5  | 611.5  | 611.5  | 611.5  | 611.5  | 611.5  |
| 2.5°  | 719.7  | 716.6  | 715.3  | 709.7  | 700.0  | 692.6  | 678.3  | 661.7  | 658.7  | 642.6  | 622.9  |
| 5°    | 813.1  | 810.5  | 808.7  | 800.8  | 790.9  | 772.2  | 746.2  | 715.3  | 709.5  | 678.8  | 639.5  |
| 7.5°  | 878.2  | 882.7  | 882.7  | 877.6  | 865.1  | 851.1  | 819.2  | 777.1  | 769.7  | 722.7  | 661.7  |
| 10°   | 916.2  | 921.8  | 926.1  | 930.5  | 928.7  | 923.1  | 893.0  | 845.5  | 836.6  | 774.3  | 687.5  |
| 12.5° | 919.7  | 925.4  | 937.6  | 955.7  | 973.3  | 986.1  | 967.2  | 921.3  | 911.1  | 834.0  | 718.1  |
| 15°   | 899.8  | 905.7  | 924.6  | 959.8  | 1002.4 | 1039.7 | 1045.8 | 1005.2 | 994.8  | 905.2  | 756.4  |
| 17.5° | 865.1  | 869.0  | 896.0  | 944.8  | 1011.6 | 1080.0 | 1117.0 | 1095.3 | 1085.6 | 986.6  | 799.0  |
| 20°   | 839.4  | 842.2  | 865.9  | 918.2  | 1006.0 | 1105.3 | 1184.4 | 1191.0 | 1180.8 | 1073.9 | 845.2  |
| 22.5° | 883.5  | 888.6  | 889.4  | 914.1  | 990.7  | 1117.8 | 1243.6 | 1285.2 | 1277.5 | 1166.5 | 890.7  |
| 25°   | 1004.2 | 1010.1 | 990.7  | 975.4  | 1003.7 | 1123.4 | 1294.4 | 1381.7 | 1375.5 | 1266.3 | 936.3  |
| 27.5° | 1163.7 | 1169.8 | 1144.8 | 1099.2 | 1071.8 | 1144.6 | 1339.6 | 1479.7 | 1479.4 | 1372.0 | 985.6  |
| 30°   | 1320.4 | 1326.5 | 1301.0 | 1255.3 | 1192.6 | 1204.6 | 1378.6 | 1582.3 | 1583.8 | 1480.9 | 1037.9 |
| 32.5° | 1484.8 | 1492.4 | 1466.1 | 1407.4 | 1341.9 | 1308.2 | 1433.5 | 1685.4 | 1694.0 | 1607.3 | 1096.9 |
| 35°   | 1671.6 | 1672.6 | 1635.6 | 1574.1 | 1498.5 | 1446.7 | 1521.5 | 1801.0 | 1821.6 | 1763.7 | 1171.6 |
| 37.5° | 1854.8 | 1862.2 | 1831.8 | 1734.9 | 1665.5 | 1606.8 | 1652.4 | 1945.4 | 1974.8 | 1954.8 | 1269.4 |
| 40°   | 1990.6 | 2006.1 | 2001.8 | 1897.2 | 1831.3 | 1789.5 | 1815.0 | 2117.2 | 2154.4 | 2177.4 | 1392.6 |
| 42.5° | 2075.8 | 2087.6 | 2107.5 | 2044.4 | 1984.7 | 1991.6 | 2006.9 | 2317.2 | 2363.2 | 2431.1 | 1534.3 |
| 45°   | 2173.6 | 2179.2 | 2195.8 | 2167.9 | 2127.6 | 2197.0 | 2210.6 | 2542.6 | 2590.8 | 2703.9 | 1691.5 |
| 47.5° | 2293.0 | 2306.3 | 2310.9 | 2285.3 | 2267.0 | 2378.7 | 2406.8 | 2747.5 | 2815.1 | 2996.1 | 1857.9 |
| 50°   | 2445.1 | 2448.7 | 2456.6 | 2440.0 | 2421.6 | 2534.9 | 2582.9 | 2962.6 | 3024.1 | 3289.3 | 2022.0 |
| 52.5° | 2593.9 | 2606.6 | 2634.2 | 2623.7 | 2616.3 | 2667.9 | 2739.9 | 3156.6 | 3225.2 | 3533.8 | 2185.8 |
| 55°   | 2636.7 | 2647.7 | 2742.9 | 2808.0 | 2868.2 | 2831.7 | 2889.9 | 3330.4 | 3404.7 | 3752.2 | 2343.5 |
| 57.5° | 2465.5 | 2487.7 | 2652.6 | 2822.0 | 3071.9 | 3086.4 | 3096.1 | 3508.8 | 3575.4 | 3919.7 | 2507.6 |
| 60°   | 2032.7 | 2037.0 | 2307.5 | 2598.2 | 3038.2 | 3308.7 | 3397.3 | 3700.4 | 3756.3 | 4075.6 | 2704.1 |
| 62.5° | 1292.9 | 1337.0 | 1633.8 | 2044.2 | 2681.9 | 3276.5 | 3761.4 | 3990.3 | 4010.8 | 4262.6 | 2985.9 |
| 65°   | 615.8  | 644.4  | 858.2  | 1263.0 | 1942.6 | 2864.9 | 4012.8 | 4514.8 | 4524.0 | 4633.5 | 3362.3 |
| 67.5° | 341.0  | 354.7  | 456.6  | 679.9  | 1135.7 | 2026.1 | 3911.2 | 5135.9 | 5144.6 | 5012.2 | 3692.5 |
| 69°   | 266.7  | 278.4  | 358.6  | 512.4  | 769.9  | 1456.2 | 3539.4 | 5317.9 | 5343.7 | 5120.6 | 3704.3 |
| 70°   | 226.4  | 237.8  | 308.8  | 432.8  | 619.1  | 1125.2 | 3150.5 | 5272.7 | 5300.0 | 5110.4 | 3616.7 |
| 72.5° | 138.6  | 145.2  | 205.7  | 304.7  | 415.0  | 566.0  | 1942.9 | 4459.1 | 4505.3 | 4687.8 | 3108.4 |
| 75°   | 93.4   | 97.0   | 128.6  | 210.3  | 296.8  | 291.4  | 1009.3 | 3143.1 | 3243.1 | 3646.6 | 2295.8 |
| 77.5° | 66.9   | 70.2   | 86.3   | 136.0  | 208.0  | 192.4  | 457.1  | 1953.3 | 1974.8 | 2187.1 | 1252.0 |
| 80°   | 38.0   | 41.1   | 61.0   | 80.9   | 141.1  | 128.4  | 181.7  | 933.0  | 943.7  | 937.9  | 418.0  |
| 82.5° | 19.9   | 22.5   | 33.4   | 53.3   | 90.6   | 84.0   | 75.5   | 312.4  | 313.9  | 261.1  | 91.6   |
| 85°   | 3.8    | 4.6    | 16.6   | 36.5   | 46.7   | 36.5   | 30.9   | 73.2   | 74.8   | 66.1   | 22.7   |
| 87.5° | 0.0    | 0.3    | 6.6    | 8.2    | 9.2    | 9.4    | 10.0   | 14.3   | 15.3   | 20.7   | 6.1    |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

REPORT NUMBER: P385974

CATALOG NUMBER: GPC-SA1C-750-U-T2-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°   | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 611.5  | 611.5 | 611.5 | 611.5 | 611.5 | 611.5 | 611.5 | 611.5 | 611.5 | 611.5 | 611.5 |
| 2.5°  | 614.3  | 605.1 | 587.5 | 567.1 | 551.2 | 535.7 | 523.4 | 510.7 | 506.1 | 503.8 | 503.5 |
| 5°    | 620.4  | 601.0 | 563.7 | 525.5 | 494.1 | 464.5 | 443.3 | 423.1 | 413.7 | 409.3 | 407.6 |
| 7.5°  | 630.6  | 599.5 | 539.5 | 481.1 | 435.9 | 398.9 | 369.5 | 347.6 | 336.6 | 332.0 | 330.2 |
| 10°   | 642.6  | 597.4 | 511.2 | 434.1 | 376.4 | 338.1 | 309.0 | 287.4 | 275.4 | 270.3 | 267.7 |
| 12.5° | 656.6  | 593.9 | 478.5 | 386.6 | 325.6 | 287.4 | 252.1 | 225.3 | 211.6 | 205.7 | 202.9 |
| 15°   | 674.0  | 590.3 | 444.3 | 342.0 | 281.0 | 234.3 | 195.7 | 177.6 | 174.8 | 173.8 | 174.0 |
| 17.5° | 691.1  | 584.7 | 407.0 | 297.8 | 234.0 | 183.0 | 163.3 | 162.3 | 162.8 | 162.8 | 162.8 |
| 20°   | 706.4  | 571.9 | 366.5 | 260.1 | 189.4 | 154.4 | 150.3 | 148.5 | 147.3 | 146.2 | 145.0 |
| 22.5° | 718.4  | 554.8 | 327.4 | 222.5 | 154.7 | 141.4 | 135.0 | 129.4 | 124.8 | 121.7 | 120.2 |
| 25°   | 726.6  | 532.1 | 291.7 | 186.6 | 139.1 | 128.6 | 117.1 | 107.7 | 100.5 | 96.2  | 94.4  |
| 27.5° | 732.7  | 507.6 | 259.8 | 156.2 | 128.4 | 113.8 | 98.8  | 87.5  | 80.1  | 76.3  | 74.8  |
| 30°   | 737.0  | 479.8 | 231.7 | 137.3 | 116.4 | 98.3  | 82.2  | 71.2  | 65.8  | 63.8  | 62.8  |
| 32.5° | 741.1  | 448.9 | 205.2 | 128.4 | 105.1 | 84.0  | 68.9  | 60.5  | 57.2  | 54.6  | 53.8  |
| 35°   | 751.3  | 420.3 | 179.9 | 118.9 | 93.7  | 71.7  | 59.2  | 53.1  | 49.8  | 48.2  | 47.7  |
| 37.5° | 775.6  | 399.1 | 155.7 | 109.2 | 82.2  | 62.0  | 51.8  | 47.5  | 44.4  | 42.9  | 42.4  |
| 40°   | 814.6  | 388.4 | 135.3 | 98.8  | 70.9  | 54.6  | 47.0  | 42.9  | 39.6  | 37.3  | 36.7  |
| 42.5° | 872.0  | 389.9 | 121.0 | 88.3  | 62.0  | 48.7  | 42.4  | 37.5  | 33.9  | 31.9  | 31.4  |
| 45°   | 941.7  | 401.2 | 111.0 | 78.1  | 54.6  | 44.1  | 37.3  | 32.2  | 28.8  | 27.1  | 26.5  |
| 47.5° | 1017.2 | 419.3 | 102.8 | 68.9  | 48.7  | 39.8  | 32.2  | 26.8  | 24.0  | 22.5  | 22.2  |
| 50°   | 1096.9 | 436.9 | 94.4  | 60.0  | 43.6  | 35.5  | 27.1  | 22.2  | 19.9  | 18.6  | 18.1  |
| 52.5° | 1177.5 | 457.3 | 86.8  | 51.8  | 39.3  | 30.4  | 22.5  | 18.1  | 16.3  | 15.3  | 14.8  |
| 55°   | 1264.3 | 472.6 | 79.4  | 45.4  | 35.0  | 25.8  | 18.6  | 15.1  | 13.5  | 12.2  | 12.0  |
| 57.5° | 1366.4 | 496.4 | 71.7  | 39.3  | 29.9  | 21.4  | 15.3  | 12.0  | 10.7  | 9.4   | 9.2   |
| 60°   | 1504.2 | 524.2 | 63.5  | 34.7  | 24.5  | 17.6  | 12.5  | 9.7   | 8.2   | 7.1   | 6.9   |
| 62.5° | 1685.9 | 555.1 | 53.3  | 30.4  | 19.9  | 14.3  | 10.0  | 7.7   | 5.9   | 4.6   | 4.6   |
| 65°   | 1916.3 | 605.3 | 43.6  | 25.5  | 16.3  | 11.7  | 7.7   | 5.6   | 3.3   | 2.0   | 2.0   |
| 67.5° | 2050.8 | 614.0 | 35.2  | 20.9  | 13.3  | 10.0  | 6.4   | 3.8   | 1.0   | 0.3   | 0.0   |
| 69°   | 2007.7 | 563.7 | 29.9  | 17.9  | 11.5  | 9.4   | 5.9   | 2.8   | 0.5   | 0.0   | 0.0   |
| 70°   | 1926.5 | 515.5 | 26.3  | 15.8  | 10.5  | 8.9   | 5.6   | 2.0   | 0.5   | 0.0   | 0.0   |
| 72.5° | 1592.0 | 367.0 | 19.9  | 11.7  | 7.7   | 7.9   | 5.1   | 1.3   | 0.5   | 0.0   | 0.0   |
| 75°   | 1159.6 | 223.0 | 14.3  | 8.2   | 4.8   | 5.9   | 3.6   | 0.5   | 0.3   | 0.0   | 0.0   |
| 77.5° | 645.2  | 105.1 | 8.9   | 4.6   | 3.1   | 3.6   | 1.8   | 0.0   | 0.0   | 0.0   | 0.0   |
| 80°   | 209.5  | 28.6  | 4.1   | 2.6   | 1.8   | 2.0   | 0.8   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 38.8   | 8.2   | 2.3   | 1.3   | 0.5   | 0.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 8.4    | 3.3   | 1.3   | 0.5   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 2.8    | 1.0   | 0.3   | 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   |

LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

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### Test Information

Test Method: LM-79-2008  
 Report Number: SP1-1908-441-4-R4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/28/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: MCGRAW-EDISON  
 Catalog Number: **SA1C-750-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):                  | 4884   | CRI (Ra): | 73.5 |      |       |
| CIE u':                   | 0.2101 | R1:       | 70.5 | R9:  | -28.4 |
| CIE v':                   | 0.4904 | R2:       | 77.7 | R10: | 48.6  |
| Duv:                      | 0.0037 | R3:       | 84.6 | R11: | 73.2  |
| CIE x:                    | 0.3493 | R4:       | 74.7 | R12: | 50.7  |
| CIE y:                    | 0.3624 | R5:       | 71.9 | R13: | 71.2  |
| CIE z:                    | 0.2884 | R6:       | 70.7 | R14: | 91.4  |
| Peak Wavelength (nm):     | 444    | R7:       | 81.2 |      |       |
| Dominant Wavelength (nm): | 571    | R8:       | 56.9 |      |       |
| Purity:                   | 13.7   |           |      |      |       |
| Rf:                       | 74.9   |           |      |      |       |
| Rg:                       | 96.3   |           |      |      |       |



### Test Conditions

Stabilization Time: 240M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0./44%  
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-4-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            |

REPORT NUMBER: SP1-1908-441-4-R4

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 5000K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-4-R4

**Photopic Flux vs. Wavelength**



#####

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2945             | NR               | 490       | 37941            | NR               | 620       | 88803            | NR               | 750       | 3908             | NR               | 880       | 2997             | NR               |
| 365       | 2596             | NR               | 495       | 48525            | NR               | 625       | 80578            | NR               | 755       | 3988             | NR               | 885       | 2927             | NR               |
| 370       | 2732             | NR               | 500       | 60609            | NR               | 630       | 73127            | NR               | 760       | 3335             | NR               | 890       | 2649             | NR               |
| 375       | 2894             | NR               | 505       | 72036            | NR               | 635       | 66244            | NR               | 765       | 3438             | NR               | 895       | 2828             | NR               |
| 380       | 2822             | NR               | 510       | 82168            | NR               | 640       | 59440            | NR               | 770       | 3427             | NR               | 900       | 1407             | NR               |
| 385       | 2394             | NR               | 515       | 90898            | NR               | 645       | 52864            | NR               | 775       | 2759             | NR               | 905       | 2224             | NR               |
| 390       | 2370             | NR               | 520       | 97142            | NR               | 650       | 47085            | NR               | 780       | 2340             | NR               | 910       | 2905             | NR               |
| 395       | 2267             | NR               | 525       | 103255           | NR               | 655       | 41789            | NR               | 785       | 2412             | NR               | 915       | 3350             | NR               |
| 400       | 2262             | NR               | 530       | 106697           | NR               | 660       | 37064            | NR               | 790       | 1999             | NR               | 920       | 3114             | NR               |
| 405       | 3000             | NR               | 535       | 110081           | NR               | 665       | 32299            | NR               | 795       | 2054             | NR               | 925       | 2834             | NR               |
| 410       | 5324             | NR               | 540       | 112494           | NR               | 670       | 28142            | NR               | 800       | 2331             | NR               | 930       | 2271             | NR               |
| 415       | 10725            | NR               | 545       | 115513           | NR               | 675       | 24505            | NR               | 805       | 2648             | NR               | 935       | 2228             | NR               |
| 420       | 22128            | NR               | 550       | 117203           | NR               | 680       | 21162            | NR               | 810       | 2485             | NR               | 940       | 2833             | NR               |
| 425       | 44095            | NR               | 555       | 119753           | NR               | 685       | 18400            | NR               | 815       | 2409             | NR               | 945       | 2941             | NR               |
| 430       | 77002            | NR               | 560       | 122602           | NR               | 690       | 16065            | NR               | 820       | 2221             | NR               | 950       | 2323             | NR               |
| 435       | 119881           | NR               | 565       | 124314           | NR               | 695       | 13860            | NR               | 825       | 1562             | NR               | 955       | 1667             | NR               |
| 440       | 164454           | NR               | 570       | 126775           | NR               | 700       | 12177            | NR               | 830       | 2249             | NR               | 960       | 749              | NR               |
| 445       | 179997           | NR               | 575       | 127511           | NR               | 705       | 10757            | NR               | 835       | 2573             | NR               | 965       | 2669             | NR               |
| 450       | 142822           | NR               | 580       | 127577           | NR               | 710       | 9601             | NR               | 840       | 2764             | NR               | 970       | 3968             | NR               |
| 455       | 90008            | NR               | 585       | 126153           | NR               | 715       | 8944             | NR               | 845       | 3109             | NR               | 975       | 3886             | NR               |
| 460       | 60557            | NR               | 590       | 123678           | NR               | 720       | 7947             | NR               | 850       | 2963             | NR               | 980       | 2788             | NR               |
| 465       | 43305            | NR               | 595       | 119774           | NR               | 725       | 7062             | NR               | 855       | 2336             | NR               | 985       | 3496             | NR               |
| 470       | 31089            | NR               | 600       | 115733           | NR               | 730       | 6004             | NR               | 860       | 2118             | NR               | 990       | 2913             | NR               |
| 475       | 26278            | NR               | 605       | 109231           | NR               | 735       | 5594             | NR               | 865       | 3144             | NR               | 995       | 4659             | NR               |
| 480       | 27060            | NR               | 610       | 102408           | NR               | 740       | 5165             | NR               | 870       | 3069             | NR               | 1000      | 1308             | NR               |
| 485       | 30698            | NR               | 615       | 96015            | NR               | 745       | 4687             | NR               | 875       | 3311             | NR               |           |                  |                  |

REPORT NUMBER: SP1-1908-441-4-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5

S/P: 1.77

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(Φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2945             | NR               | 490       | 37941            | NR               | 620       | 88803            | NR               | 750       | 3908             | NR               | 880       | 2997             | NR               |
| 365       | 2596             | NR               | 495       | 48525            | NR               | 625       | 80578            | NR               | 755       | 3988             | NR               | 885       | 2927             | NR               |
| 370       | 2732             | NR               | 500       | 60609            | NR               | 630       | 73127            | NR               | 760       | 3335             | NR               | 890       | 2649             | NR               |
| 375       | 2894             | NR               | 505       | 72036            | NR               | 635       | 66244            | NR               | 765       | 3438             | NR               | 895       | 2828             | NR               |
| 380       | 2822             | NR               | 510       | 82168            | NR               | 640       | 59440            | NR               | 770       | 3427             | NR               | 900       | 1407             | NR               |
| 385       | 2394             | NR               | 515       | 90898            | NR               | 645       | 52864            | NR               | 775       | 2759             | NR               | 905       | 2224             | NR               |
| 390       | 2370             | NR               | 520       | 97142            | NR               | 650       | 47085            | NR               | 780       | 2340             | NR               | 910       | 2905             | NR               |
| 395       | 2267             | NR               | 525       | 103255           | NR               | 655       | 41789            | NR               | 785       | 2412             | NR               | 915       | 3350             | NR               |
| 400       | 2262             | NR               | 530       | 106697           | NR               | 660       | 37064            | NR               | 790       | 1999             | NR               | 920       | 3114             | NR               |
| 405       | 3000             | NR               | 535       | 110081           | NR               | 665       | 32299            | NR               | 795       | 2054             | NR               | 925       | 2834             | NR               |
| 410       | 5324             | NR               | 540       | 112494           | NR               | 670       | 28142            | NR               | 800       | 2331             | NR               | 930       | 2271             | NR               |
| 415       | 10725            | NR               | 545       | 115513           | NR               | 675       | 24505            | NR               | 805       | 2648             | NR               | 935       | 2228             | NR               |
| 420       | 22128            | NR               | 550       | 117203           | NR               | 680       | 21162            | NR               | 810       | 2485             | NR               | 940       | 2833             | NR               |
| 425       | 44095            | NR               | 555       | 119753           | NR               | 685       | 18400            | NR               | 815       | 2409             | NR               | 945       | 2941             | NR               |
| 430       | 77002            | NR               | 560       | 122602           | NR               | 690       | 16065            | NR               | 820       | 2221             | NR               | 950       | 2323             | NR               |
| 435       | 119881           | NR               | 565       | 124314           | NR               | 695       | 13860            | NR               | 825       | 1562             | NR               | 955       | 1667             | NR               |
| 440       | 164454           | NR               | 570       | 126775           | NR               | 700       | 12177            | NR               | 830       | 2249             | NR               | 960       | 749              | NR               |
| 445       | 179997           | NR               | 575       | 127511           | NR               | 705       | 10757            | NR               | 835       | 2573             | NR               | 965       | 2669             | NR               |
| 450       | 142822           | NR               | 580       | 127577           | NR               | 710       | 9601             | NR               | 840       | 2764             | NR               | 970       | 3968             | NR               |
| 455       | 90008            | NR               | 585       | 126153           | NR               | 715       | 8944             | NR               | 845       | 3109             | NR               | 975       | 3886             | NR               |
| 460       | 60557            | NR               | 590       | 123678           | NR               | 720       | 7947             | NR               | 850       | 2963             | NR               | 980       | 2788             | NR               |
| 465       | 43305            | NR               | 595       | 119774           | NR               | 725       | 7062             | NR               | 855       | 2336             | NR               | 985       | 3496             | NR               |
| 470       | 31089            | NR               | 600       | 115733           | NR               | 730       | 6004             | NR               | 860       | 2118             | NR               | 990       | 2913             | NR               |
| 475       | 26278            | NR               | 605       | 109231           | NR               | 735       | 5594             | NR               | 865       | 3144             | NR               | 995       | 4659             | NR               |
| 480       | 27060            | NR               | 610       | 102408           | NR               | 740       | 5165             | NR               | 870       | 3069             | NR               | 1000      | 1308             | NR               |
| 485       | 30698            | NR               | 615       | 96015            | NR               | 745       | 4687             | NR               | 875       | 3311             | NR               |           |                  |                  |

REPORT NUMBER: SP1-1908-441-4-R4

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 5378.9**

**M/P: 0.71**

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) |
|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|-----------|------------------|------------------|
| 360       | 2945             | NR               | 490       | 37941            | NR               | 620       | 88803            | NR               | 750       | 3908             | NR               | 880       | 2997             | NR               |
| 365       | 2596             | NR               | 495       | 48525            | NR               | 625       | 80578            | NR               | 755       | 3988             | NR               | 885       | 2927             | NR               |
| 370       | 2732             | NR               | 500       | 60609            | NR               | 630       | 73127            | NR               | 760       | 3335             | NR               | 890       | 2649             | NR               |
| 375       | 2894             | NR               | 505       | 72036            | NR               | 635       | 66244            | NR               | 765       | 3438             | NR               | 895       | 2828             | NR               |
| 380       | 2822             | NR               | 510       | 82168            | NR               | 640       | 59440            | NR               | 770       | 3427             | NR               | 900       | 1407             | NR               |
| 385       | 2394             | NR               | 515       | 90898            | NR               | 645       | 52864            | NR               | 775       | 2759             | NR               | 905       | 2224             | NR               |
| 390       | 2370             | NR               | 520       | 97142            | NR               | 650       | 47085            | NR               | 780       | 2340             | NR               | 910       | 2905             | NR               |
| 395       | 2267             | NR               | 525       | 103255           | NR               | 655       | 41789            | NR               | 785       | 2412             | NR               | 915       | 3350             | NR               |
| 400       | 2262             | NR               | 530       | 106697           | NR               | 660       | 37064            | NR               | 790       | 1999             | NR               | 920       | 3114             | NR               |
| 405       | 3000             | NR               | 535       | 110081           | NR               | 665       | 32299            | NR               | 795       | 2054             | NR               | 925       | 2834             | NR               |
| 410       | 5324             | NR               | 540       | 112494           | NR               | 670       | 28142            | NR               | 800       | 2331             | NR               | 930       | 2271             | NR               |
| 415       | 10725            | NR               | 545       | 115513           | NR               | 675       | 24505            | NR               | 805       | 2648             | NR               | 935       | 2228             | NR               |
| 420       | 22128            | NR               | 550       | 117203           | NR               | 680       | 21162            | NR               | 810       | 2485             | NR               | 940       | 2833             | NR               |
| 425       | 44095            | NR               | 555       | 119753           | NR               | 685       | 18400            | NR               | 815       | 2409             | NR               | 945       | 2941             | NR               |
| 430       | 77002            | NR               | 560       | 122602           | NR               | 690       | 16065            | NR               | 820       | 2221             | NR               | 950       | 2323             | NR               |
| 435       | 119881           | NR               | 565       | 124314           | NR               | 695       | 13860            | NR               | 825       | 1562             | NR               | 955       | 1667             | NR               |
| 440       | 164454           | NR               | 570       | 126775           | NR               | 700       | 12177            | NR               | 830       | 2249             | NR               | 960       | 749              | NR               |
| 445       | 179997           | NR               | 575       | 127511           | NR               | 705       | 10757            | NR               | 835       | 2573             | NR               | 965       | 2669             | NR               |
| 450       | 142822           | NR               | 580       | 127577           | NR               | 710       | 9601             | NR               | 840       | 2764             | NR               | 970       | 3968             | NR               |
| 455       | 90008            | NR               | 585       | 126153           | NR               | 715       | 8944             | NR               | 845       | 3109             | NR               | 975       | 3886             | NR               |
| 460       | 60557            | NR               | 590       | 123678           | NR               | 720       | 7947             | NR               | 850       | 2963             | NR               | 980       | 2788             | NR               |
| 465       | 43305            | NR               | 595       | 119774           | NR               | 725       | 7062             | NR               | 855       | 2336             | NR               | 985       | 3496             | NR               |
| 470       | 31089            | NR               | 600       | 115733           | NR               | 730       | 6004             | NR               | 860       | 2118             | NR               | 990       | 2913             | NR               |
| 475       | 26278            | NR               | 605       | 109231           | NR               | 735       | 5594             | NR               | 865       | 3144             | NR               | 995       | 4659             | NR               |
| 480       | 27060            | NR               | 610       | 102408           | NR               | 740       | 5165             | NR               | 870       | 3069             | NR               | 1000      | 1308             | NR               |
| 485       | 30698            | NR               | 615       | 96015            | NR               | 745       | 4687             | NR               | 875       | 3311             | NR               |           |                  |                  |

REPORT NUMBER: SP1-1908-441-4-R4

**TM-30-18**

**Summary**

$R_f = 74.9$   
 $R_g = 96.3$   
 CIE  $R_a = 73.5$   
 $R_g = -28.4$

**Spectral Power Distribution Comparison**



**Color Vector Graphics**



REPORT NUMBER: SP1-1908-441-4-R4

**TM-30-18**

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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 |            |



REPORT NUMBER: SP1-1908-441-4-R4

**TM-30-18**

**Color Rendition by Hue-Angle Bin**



REPORT NUMBER: SP1-1908-441-4-R4

**TM-30-18**

**Measure Comparisons**



(END OF REPORT)