

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: P320090

Luminaire Tested: **GLEON-SA6C-760-U-SL4**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P320090  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-24)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA6C-760-U-SL4  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(6) 70 CRI, 5700K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV  
SPILL LIGHT ELIMINATOR OPTICS  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 40197 lumens  
Efficiency: N/A  
Efficacy: 120.7 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type IV - Short  
BUG Rating: B3 - U0 - G5

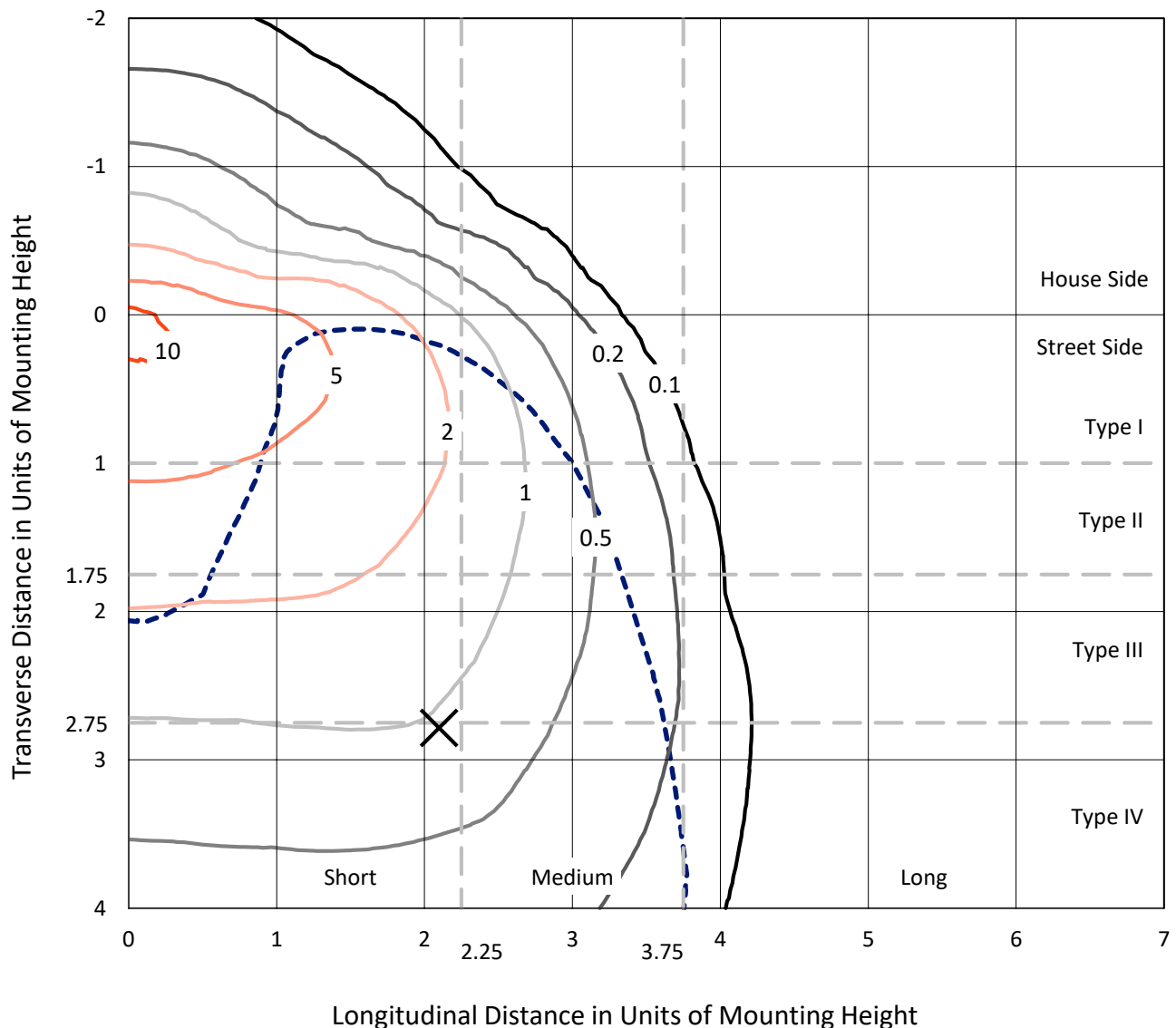
Input Watts (W): 333  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



REPORT NUMBER: P320090  
 CATALOG NUMBER: GLEON-SA6C-760-U-SL4

## Iso-Footcandle Lines of Horizontal Illumination

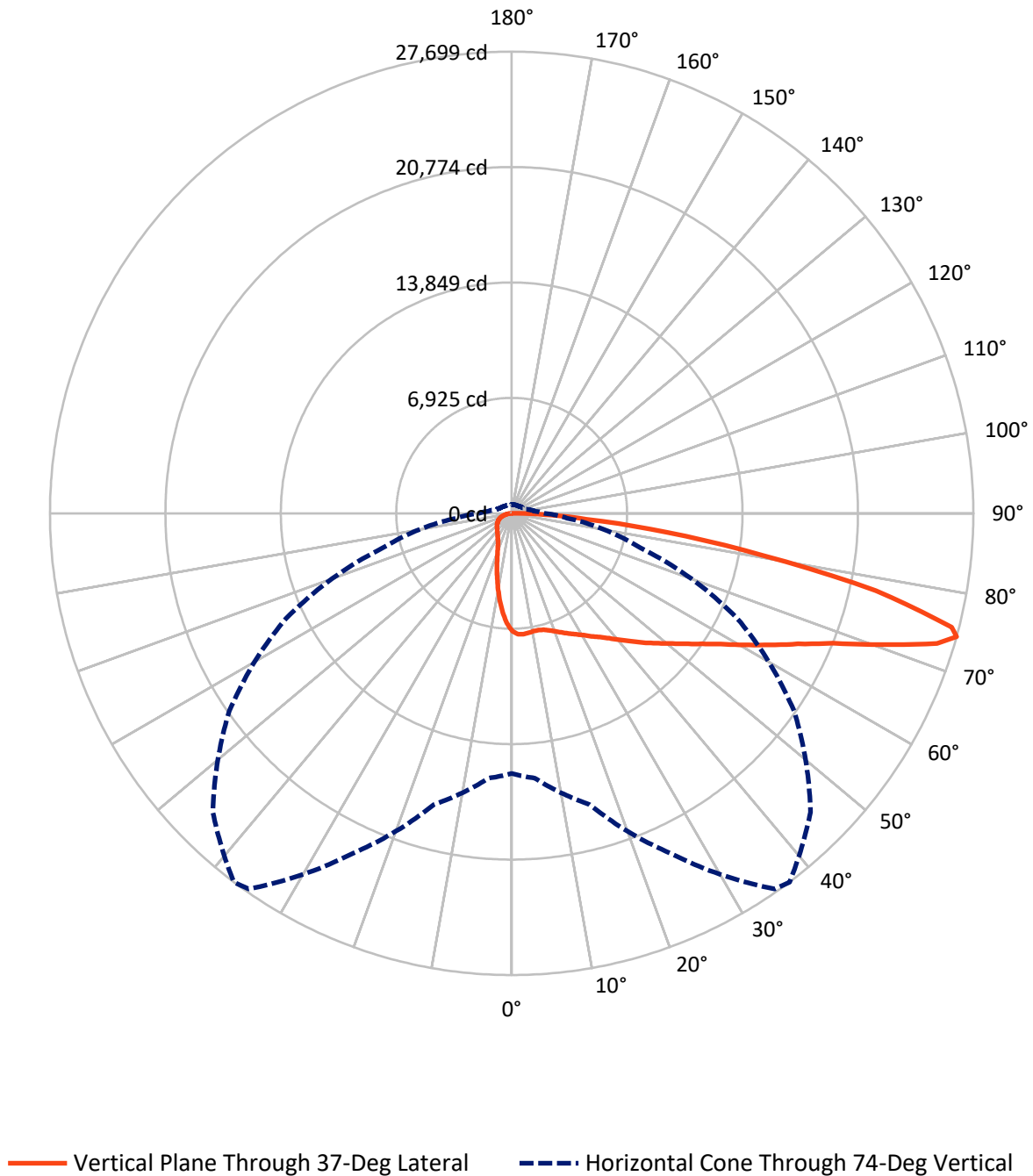
× Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 11.5 fc  
 Type IV - Short - N/A

REPORT NUMBER: P320090  
CATALOG NUMBER: GLEON-SA6C-760-U-SL4

## Luminous Intensity Polar Plot



REPORT NUMBER: P320090

CATALOG NUMBER: GLEON-SA6C-760-U-SL4

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 5530.8   | 0.0    | 5530.8  |
|                    | % Fixture | 13.8     | 0.0    | 13.8    |
| <b>Street Side</b> | Lumens    | 34666.2  | 0.0    | 34666.2 |
|                    | % Fixture | 86.2     | 0.0    | 86.2    |
| <b>Total</b>       | Lumens    | 40197.0  | 0.0    | 40197.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 623.7   | 1.6       |
| 10°-20°   | 1598.7  | 4.0       |
| 20°-30°   | 2463.3  | 6.1       |
| 30°-40°   | 3582.0  | 8.9       |
| 40°-50°   | 5272.1  | 13.1      |
| 50°-60°   | 7403.7  | 18.4      |
| 60°-70°   | 9370.8  | 23.3      |
| 70°-80°   | 8251.3  | 20.5      |
| 80°-90°   | 1631.5  | 4.1       |
| 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°    | 40197.0 | 100.0     |
| 0°-180°   | 40197.0 | 100.0     |

**Coefficient of Utilization**



REPORT NUMBER: P320090

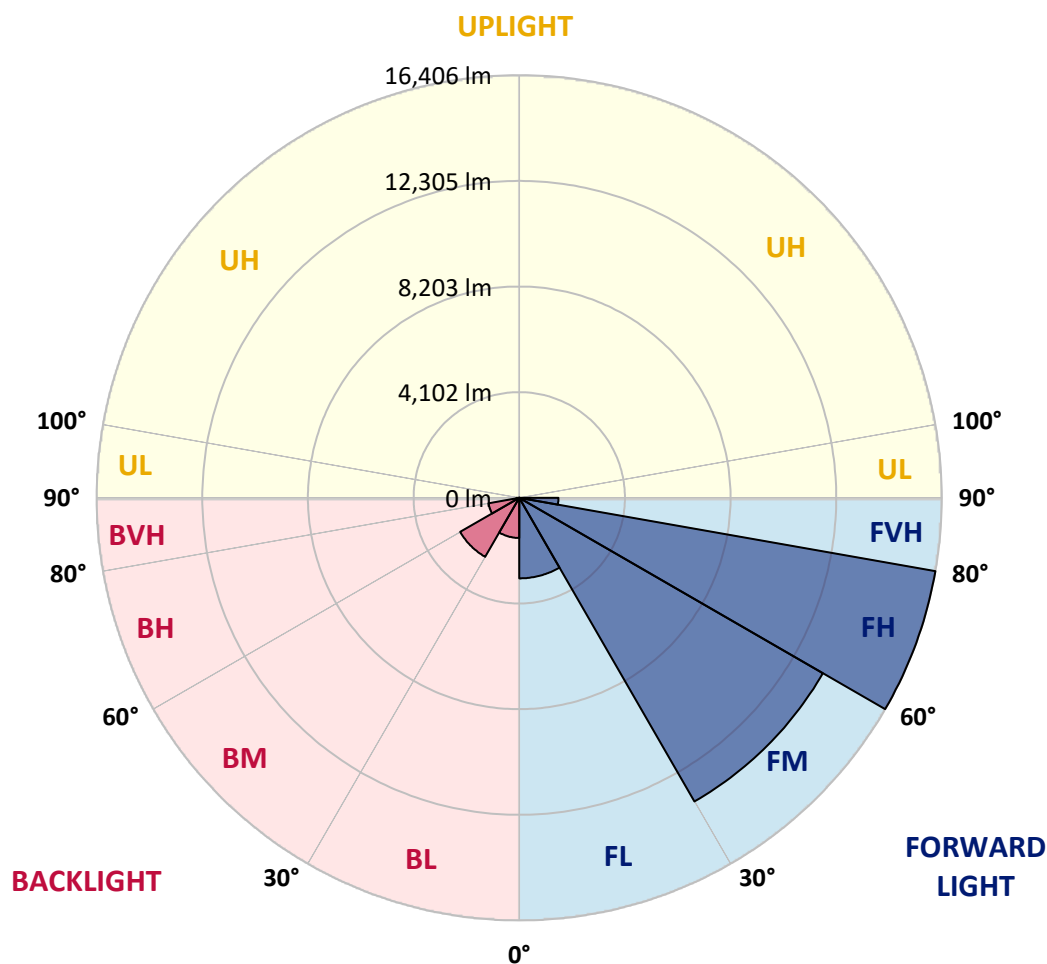
CATALOG NUMBER: GLEON-SA6C-760-U-SL4

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

| Zone |             | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|---------|-----------|-------------------------|------|---------|
|      |             |         |           | B                       | U    | G       |
| FL   | (0°-30°)    | 3127.8  | 7.8       |                         |      |         |
| FM   | (30°-60°)   | 13611.0 | 33.9      |                         |      |         |
| FH   | (60°-80°)   | 16406.4 | 40.8      |                         |      | G5      |
| FVH  | (80°-90°)   | 1521.0  | 3.8       |                         |      | G5      |
| BL   | (0°-30°)    | 1557.9  | 3.9       | B3/2500                 |      |         |
| BM   | (30°-60°)   | 2646.7  | 6.6       | B3/5000                 |      |         |
| BH   | (60°-80°)   | 1215.7  | 3.0       | B3/2500                 |      | G3/2500 |
| BVH  | (80°-90°)   | 110.5   | 0.3       |                         |      | G2/225  |
| UL   | (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0     | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G5**

Type IV Short





REPORT NUMBER: P320090

CATALOG NUMBER: GLEON-SA6C-760-U-SL4

**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 37°     | 45°     | 55°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 7082.6  | 7082.6  | 7082.6  | 7082.6  | 7082.6  | 7082.6  | 7082.6  | 7082.6  | 7082.6  | 7082.6  | 7082.6  |
| 2.5°  | 7324.7  | 7326.1  | 7324.7  | 7313.4  | 7286.5  | 7263.8  | 7245.4  | 7218.5  | 7159.0  | 7113.7  | 7045.7  |
| 5°    | 7394.1  | 7385.6  | 7379.9  | 7358.7  | 7316.2  | 7290.7  | 7255.3  | 7204.3  | 7106.6  | 7016.0  | 6905.6  |
| 7.5°  | 7361.5  | 7351.6  | 7338.8  | 7313.4  | 7265.2  | 7244.0  | 7194.4  | 7127.9  | 7010.3  | 6891.4  | 6732.8  |
| 10°   | 7261.0  | 7258.1  | 7252.5  | 7246.8  | 7205.7  | 7188.8  | 7143.4  | 7072.6  | 6956.5  | 6812.1  | 6626.6  |
| 12.5° | 7149.1  | 7156.2  | 7178.8  | 7208.6  | 7190.2  | 7181.7  | 7153.4  | 7105.2  | 6986.3  | 6830.5  | 6606.8  |
| 15°   | 7078.3  | 7098.1  | 7159.0  | 7236.9  | 7252.5  | 7249.6  | 7242.6  | 7211.4  | 7085.4  | 6912.6  | 6652.1  |
| 17.5° | 7054.2  | 7086.8  | 7202.9  | 7331.8  | 7377.1  | 7387.0  | 7389.8  | 7336.0  | 7195.8  | 7013.2  | 6698.8  |
| 20°   | 7098.1  | 7139.2  | 7309.1  | 7486.1  | 7558.3  | 7564.0  | 7551.2  | 7457.8  | 7300.6  | 7099.5  | 6724.3  |
| 22.5° | 7231.2  | 7268.0  | 7480.4  | 7680.1  | 7762.2  | 7770.7  | 7732.5  | 7590.9  | 7411.1  | 7201.5  | 6759.7  |
| 25°   | 7487.5  | 7532.8  | 7745.2  | 7944.9  | 7987.3  | 7988.8  | 7933.5  | 7758.0  | 7555.5  | 7344.5  | 6836.2  |
| 27.5° | 7821.7  | 7867.0  | 8058.1  | 8253.5  | 8230.9  | 8218.1  | 8143.1  | 7967.5  | 7743.8  | 7541.3  | 6972.1  |
| 30°   | 8194.1  | 8243.6  | 8424.9  | 8563.6  | 8509.8  | 8484.3  | 8423.5  | 8196.9  | 8005.8  | 7810.4  | 7180.3  |
| 32.5° | 8579.2  | 8624.5  | 8783.1  | 8878.0  | 8810.0  | 8798.7  | 8706.6  | 8499.9  | 8347.0  | 8221.0  | 7517.3  |
| 35°   | 8974.3  | 9006.8  | 9162.6  | 9216.4  | 9125.8  | 9122.9  | 9097.4  | 8907.7  | 8811.4  | 8870.9  | 8007.2  |
| 37.5° | 9377.8  | 9386.3  | 9519.4  | 9522.2  | 9495.3  | 9506.7  | 9533.6  | 9414.6  | 9441.5  | 9627.0  | 8644.3  |
| 40°   | 9737.5  | 9760.1  | 9856.4  | 9886.1  | 9932.9  | 9972.5  | 10107.0 | 10029.1 | 10237.3 | 10565.8 | 9437.3  |
| 42.5° | 10003.6 | 10047.5 | 10201.9 | 10278.3 | 10429.8 | 10492.2 | 10681.9 | 10754.1 | 11173.2 | 11666.0 | 10380.3 |
| 45°   | 10228.8 | 10296.8 | 10544.5 | 10701.7 | 10958.0 | 11067.0 | 11338.9 | 11581.0 | 12230.9 | 12859.6 | 11372.9 |
| 47.5° | 10472.3 | 10558.7 | 10868.8 | 11169.0 | 11517.3 | 11640.5 | 12134.6 | 12497.1 | 13359.4 | 14060.3 | 12308.8 |
| 50°   | 10830.6 | 10897.1 | 11200.1 | 11671.6 | 12106.3 | 12264.9 | 12948.8 | 13468.5 | 14506.4 | 15204.4 | 13120.1 |
| 52.5° | 11330.4 | 11304.9 | 11561.2 | 12222.4 | 12805.8 | 13001.2 | 13818.2 | 14502.1 | 15668.8 | 16239.5 | 13805.5 |
| 55°   | 11833.1 | 11790.6 | 11970.4 | 12798.7 | 13621.4 | 13826.7 | 14775.4 | 15540.0 | 16774.7 | 17171.2 | 14330.8 |
| 57.5° | 12392.3 | 12311.6 | 12463.1 | 13448.6 | 14550.2 | 14795.2 | 15847.3 | 16643.0 | 17862.1 | 17924.4 | 14664.9 |
| 60°   | 12968.6 | 12859.6 | 13029.5 | 14254.3 | 15729.7 | 16018.6 | 17101.8 | 17719.1 | 18887.3 | 18527.6 | 14772.6 |
| 62.5° | 13472.7 | 13396.3 | 13658.2 | 15153.4 | 17059.3 | 17376.5 | 18333.7 | 18863.2 | 19898.3 | 18778.3 | 14384.6 |
| 65°   | 13913.1 | 13925.8 | 14378.9 | 16164.4 | 18541.8 | 18880.2 | 19746.8 | 20273.5 | 20694.0 | 18629.6 | 13477.0 |
| 67.5° | 14438.4 | 14510.6 | 15283.7 | 17495.4 | 20408.0 | 20779.0 | 21802.7 | 21811.2 | 21138.6 | 17757.4 | 11690.0 |
| 70°   | 15204.4 | 15353.1 | 16528.3 | 19341.8 | 23061.5 | 23571.2 | 24361.3 | 22714.6 | 20514.2 | 15392.7 | 9198.0  |
| 72.5° | 15884.1 | 16161.6 | 17852.2 | 21454.4 | 26295.5 | 26682.1 | 25858.0 | 22193.5 | 17904.6 | 11535.7 | 5730.3  |
| 74°   | 15608.0 | 15952.0 | 18092.9 | 22495.1 | 27513.2 | 27698.7 | 25352.5 | 20672.8 | 14928.3 | 7988.8  | 3330.3  |
| 75°   | 15013.3 | 15387.1 | 17741.8 | 22485.2 | 27358.9 | 27255.5 | 24131.9 | 18935.4 | 12294.6 | 5448.6  | 2216.0  |
| 77.5° | 12116.2 | 12511.3 | 14949.5 | 19271.0 | 22432.8 | 22335.1 | 18537.5 | 12702.4 | 5384.8  | 1786.9  | 1125.7  |
| 80°   | 7044.3  | 7345.9  | 9280.1  | 12238.0 | 15126.5 | 15303.5 | 12191.3 | 6285.4  | 2118.3  | 1003.9  | 763.2   |
| 82.5° | 3129.2  | 3337.4  | 4482.9  | 6247.1  | 9128.6  | 9356.6  | 6384.5  | 3293.5  | 1308.3  | 610.3   | 458.8   |
| 85°   | 2053.1  | 2207.5  | 2721.4  | 2974.9  | 4347.0  | 4502.7  | 3125.0  | 2564.3  | 863.7   | 335.6   | 337.0   |
| 87.5° | 1476.8  | 1625.5  | 2022.0  | 1765.7  | 1995.1  | 1888.9  | 1700.5  | 2373.1  | 346.9   | 191.2   | 113.3   |
| 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: P320090

CATALOG NUMBER: GLEON-SA6C-760-U-SL4

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 7082.6  | 7082.6 | 7082.6 | 7082.6 | 7082.6 | 7082.6 | 7082.6 | 7082.6 | 7082.6 | 7082.6 | 7082.6 |
| 2.5°  | 7016.0  | 6993.4 | 6942.4 | 6846.1 | 6792.3 | 6747.0 | 6671.9 | 6628.0 | 6608.2 | 6606.8 | 6615.3 |
| 5°    | 6841.8  | 6789.5 | 6657.8 | 6496.4 | 6367.5 | 6250.0 | 6104.1 | 6016.3 | 5954.0 | 5917.2 | 5927.1 |
| 7.5°  | 6639.4  | 6557.2 | 6350.5 | 6092.8 | 5886.1 | 5658.1 | 5433.0 | 5298.5 | 5193.7 | 5115.8 | 5130.0 |
| 10°   | 6500.6  | 6387.3 | 6085.7 | 5714.8 | 5370.7 | 5039.3 | 4729.3 | 4543.8 | 4396.5 | 4283.2 | 4291.7 |
| 12.5° | 6453.9  | 6301.0 | 5883.3 | 5387.7 | 4904.8 | 4451.7 | 4046.8 | 3762.2 | 3610.7 | 3481.8 | 3491.7 |
| 15°   | 6461.0  | 6255.6 | 5713.3 | 5093.2 | 4485.7 | 3915.1 | 3423.8 | 3091.0 | 2885.7 | 2796.5 | 2797.9 |
| 17.5° | 6466.6  | 6203.3 | 5534.9 | 4777.4 | 4070.8 | 3413.8 | 2880.0 | 2543.0 | 2349.1 | 2266.9 | 2268.3 |
| 20°   | 6448.2  | 6118.3 | 5314.0 | 4414.9 | 3637.6 | 2953.7 | 2436.8 | 2150.8 | 2003.6 | 1939.8 | 1939.8 |
| 22.5° | 6424.1  | 6017.8 | 5064.8 | 4051.0 | 3209.9 | 2554.4 | 2119.7 | 1901.6 | 1816.7 | 1774.2 | 1772.8 |
| 25°   | 6435.5  | 5942.7 | 4810.0 | 3677.2 | 2816.3 | 2235.8 | 1908.7 | 1764.3 | 1707.6 | 1680.7 | 1679.3 |
| 27.5° | 6496.4  | 5907.3 | 4574.9 | 3304.8 | 2472.2 | 1996.5 | 1767.1 | 1665.2 | 1628.3 | 1611.3 | 1611.3 |
| 30°   | 6606.8  | 5907.3 | 4330.0 | 2987.6 | 2186.2 | 1819.5 | 1658.1 | 1588.7 | 1563.2 | 1551.9 | 1551.9 |
| 32.5° | 6799.4  | 5939.9 | 4093.5 | 2673.3 | 1958.3 | 1680.7 | 1567.5 | 1520.7 | 1500.9 | 1495.2 | 1495.2 |
| 35°   | 7130.7  | 6050.3 | 3862.7 | 2376.0 | 1774.2 | 1567.5 | 1481.1 | 1454.2 | 1440.0 | 1438.6 | 1442.8 |
| 37.5° | 7596.5  | 6275.5 | 3646.1 | 2156.5 | 1643.9 | 1475.4 | 1408.9 | 1387.6 | 1379.1 | 1386.2 | 1391.9 |
| 40°   | 8182.7  | 6581.3 | 3449.2 | 1958.3 | 1544.8 | 1401.8 | 1342.3 | 1328.2 | 1323.9 | 1333.8 | 1342.3 |
| 42.5° | 8890.7  | 6994.8 | 3287.8 | 1815.2 | 1468.3 | 1339.5 | 1285.7 | 1268.7 | 1264.4 | 1275.8 | 1287.1 |
| 45°   | 9656.7  | 7439.4 | 3174.5 | 1709.0 | 1408.9 | 1292.8 | 1236.1 | 1217.7 | 1209.2 | 1214.9 | 1227.6 |
| 47.5° | 10353.4 | 7859.9 | 3129.2 | 1634.0 | 1352.2 | 1253.1 | 1192.2 | 1169.6 | 1155.4 | 1152.6 | 1162.5 |
| 50°   | 10941.0 | 8172.8 | 3150.5 | 1588.7 | 1306.9 | 1209.2 | 1149.7 | 1124.3 | 1103.0 | 1090.3 | 1097.4 |
| 52.5° | 11368.6 | 8369.6 | 3170.3 | 1568.9 | 1271.5 | 1161.1 | 1103.0 | 1078.9 | 1050.6 | 1029.4 | 1029.4 |
| 55°   | 11678.7 | 8415.0 | 3126.4 | 1553.3 | 1244.6 | 1108.7 | 1050.6 | 1028.0 | 999.7  | 975.6  | 972.8  |
| 57.5° | 11800.5 | 8287.5 | 2963.6 | 1530.6 | 1226.2 | 1059.1 | 995.4  | 978.4  | 954.3  | 926.0  | 924.6  |
| 60°   | 11636.2 | 7893.9 | 2649.2 | 1482.5 | 1202.1 | 1018.1 | 940.2  | 928.9  | 917.5  | 890.6  | 889.2  |
| 62.5° | 10976.4 | 7030.2 | 2242.9 | 1384.8 | 1154.0 | 974.2  | 889.2  | 894.9  | 896.3  | 877.9  | 875.1  |
| 65°   | 9779.9  | 5843.6 | 1846.4 | 1257.4 | 1081.8 | 921.8  | 836.8  | 863.7  | 879.3  | 876.5  | 872.2  |
| 67.5° | 8041.2  | 4548.0 | 1564.6 | 1122.8 | 986.9  | 849.6  | 780.2  | 811.3  | 824.1  | 834.0  | 831.2  |
| 70°   | 5968.2  | 3207.1 | 1294.2 | 981.2  | 872.2  | 764.6  | 706.6  | 722.1  | 713.6  | 725.0  | 729.2  |
| 72.5° | 3327.5  | 1924.3 | 1054.9 | 839.7  | 753.3  | 665.5  | 624.4  | 621.6  | 603.2  | 603.2  | 603.2  |
| 74°   | 1996.5  | 1411.7 | 927.4  | 751.9  | 681.1  | 600.4  | 565.0  | 552.2  | 535.2  | 536.6  | 535.2  |
| 75°   | 1605.7  | 1213.5 | 851.0  | 693.8  | 630.1  | 562.1  | 526.7  | 509.7  | 497.0  | 497.0  | 495.6  |
| 77.5° | 1013.8  | 921.8  | 685.3  | 552.2  | 504.1  | 463.0  | 438.9  | 416.3  | 416.3  | 414.9  | 413.5  |
| 80°   | 766.0   | 733.5  | 533.8  | 417.7  | 386.6  | 355.4  | 339.8  | 329.9  | 329.9  | 334.2  | 332.7  |
| 82.5° | 525.3   | 552.2  | 375.2  | 291.7  | 276.1  | 253.5  | 250.6  | 252.0  | 247.8  | 242.1  | 240.7  |
| 85°   | 383.7   | 414.9  | 253.5  | 184.1  | 168.5  | 154.3  | 165.7  | 171.3  | 164.2  | 151.5  | 145.8  |
| 87.5° | 147.3   | 271.9  | 135.9  | 76.5   | 70.8   | 60.9   | 70.8   | 73.6   | 79.3   | 62.3   | 63.7   |
| 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: SP1-1908-441-9-R4

Test Date: 10/23/2019

Luminaire Tested: SA1C-760-U-5WQ

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

### Test Information

Test Method: LM-79-2008  
 Report Number: SP1-1908-441-9-R4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry:  $4\pi$   
 Issue Date: 10/28/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: MCGRAW-EDISON  
 Catalog Number: **SA1C-760-U-5WQ**  
 Description: MCGRAW EDISON ROADWAY AND AREA LUMINAIRE

\*\*\*THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.\*\*\*TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

### Spectral Parameters

|                           |        |           |      |      |       |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K):                  | 5474   | CRI (Ra): | 71.7 |      |       |
| CIE u':                   | 0.2052 | R1:       | 70.6 | R9:  | -27.1 |
| CIE v':                   | 0.4804 | R2:       | 74.6 | R10: | 40.8  |
| Duv:                      | 0.0025 | R3:       | 78.3 | R11: | 74.6  |
| CIE x:                    | 0.3330 | R4:       | 73.8 | R12: | 50.4  |
| CIE y:                    | 0.3466 | R5:       | 72.4 | R13: | 70.0  |
| CIE z:                    | 0.3204 | R6:       | 67.5 | R14: | 87.8  |
| Peak Wavelength (nm):     | 442    | R7:       | 77.5 |      |       |
| Dominant Wavelength (nm): | 554    | R8:       | 58.9 |      |       |
| Purity:                   | 4.1    |           |      |      |       |
| Rf:                       | 72.1   |           |      |      |       |
| Rg:                       | 97.2   |           |      |      |       |



### Test Conditions

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

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

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/28/2019        | 12/28/2019           |
| Power Meter                    | IN0071                | 12/5/2018        | 12/5/2019            |
| AC Power Source                | IN0063                | 12/5/2018        | 12/5/2019            |
| DC Power Source                | IN0208                | 12/5/2018        | 12/5/2019            |
| Sphere Thermometer             | IN0085                | 12/5/2018        | 12/5/2019            |
| Room Thermometer               | IN0046                | 12/5/2018        | 12/5/2019            |

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

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 5700K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-9-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       | 3540             | NR               | 490       | 33363            | NR               | 620       | 80193            | NR               | 750       | 4663             | NR               | 880       | 4678             | NR               |
| 365       | 2862             | NR               | 495       | 44177            | NR               | 625       | 73091            | NR               | 755       | 4147             | NR               | 885       | 4128             | NR               |
| 370       | 2865             | NR               | 500       | 57019            | NR               | 630       | 66269            | NR               | 760       | 4040             | NR               | 890       | 4504             | NR               |
| 375       | 3254             | NR               | 505       | 70030            | NR               | 635       | 60012            | NR               | 765       | 3474             | NR               | 895       | 4371             | NR               |
| 380       | 3076             | NR               | 510       | 81972            | NR               | 640       | 53914            | NR               | 770       | 3469             | NR               | 900       | 4082             | NR               |
| 385       | 2904             | NR               | 515       | 92590            | NR               | 645       | 48385            | NR               | 775       | 3181             | NR               | 905       | 2982             | NR               |
| 390       | 2689             | NR               | 520       | 100305           | NR               | 650       | 43219            | NR               | 780       | 2969             | NR               | 910       | 4351             | NR               |
| 395       | 2619             | NR               | 525       | 107452           | NR               | 655       | 38562            | NR               | 785       | 3132             | NR               | 915       | 3365             | NR               |
| 400       | 2679             | NR               | 530       | 111373           | NR               | 660       | 34110            | NR               | 790       | 2507             | NR               | 920       | 3430             | NR               |
| 405       | 3515             | NR               | 535       | 114505           | NR               | 665       | 30085            | NR               | 795       | 2968             | NR               | 925       | 4264             | NR               |
| 410       | 6934             | NR               | 540       | 116408           | NR               | 670       | 26205            | NR               | 800       | 2758             | NR               | 930       | 4095             | NR               |
| 415       | 14943            | NR               | 545       | 118700           | NR               | 675       | 22906            | NR               | 805       | 2872             | NR               | 935       | 5048             | NR               |
| 420       | 31939            | NR               | 550       | 119209           | NR               | 680       | 20058            | NR               | 810       | 3094             | NR               | 940       | 4074             | NR               |
| 425       | 64701            | NR               | 555       | 120742           | NR               | 685       | 17413            | NR               | 815       | 3222             | NR               | 945       | 4949             | NR               |
| 430       | 110939           | NR               | 560       | 121594           | NR               | 690       | 15447            | NR               | 820       | 3238             | NR               | 950       | 4387             | NR               |
| 435       | 164597           | NR               | 565       | 121913           | NR               | 695       | 13398            | NR               | 825       | 3524             | NR               | 955       | 4978             | NR               |
| 440       | 207696           | NR               | 570       | 122147           | NR               | 700       | 11777            | NR               | 830       | 2921             | NR               | 960       | 4706             | NR               |
| 445       | 201830           | NR               | 575       | 121605           | NR               | 705       | 10412            | NR               | 835       | 3595             | NR               | 965       | 5083             | NR               |
| 450       | 145410           | NR               | 580       | 120248           | NR               | 710       | 9544             | NR               | 840       | 3016             | NR               | 970       | 4522             | NR               |
| 455       | 89594            | NR               | 585       | 117717           | NR               | 715       | 8940             | NR               | 845       | 4032             | NR               | 975       | 4740             | NR               |
| 460       | 58321            | NR               | 590       | 114359           | NR               | 720       | 7897             | NR               | 850       | 3579             | NR               | 980       | 6122             | NR               |
| 465       | 39318            | NR               | 595       | 109974           | NR               | 725       | 7045             | NR               | 855       | 4571             | NR               | 985       | 6450             | NR               |
| 470       | 27693            | NR               | 600       | 105269           | NR               | 730       | 6483             | NR               | 860       | 4485             | NR               | 990       | 4875             | NR               |
| 475       | 23081            | NR               | 605       | 99453            | NR               | 735       | 5838             | NR               | 865       | 3978             | NR               | 995       | 4764             | NR               |
| 480       | 23002            | NR               | 610       | 92921            | NR               | 740       | 5261             | NR               | 870       | 4298             | NR               | 1000      | 3640             | NR               |
| 485       | 26201            | NR               | 615       | 86989            | NR               | 745       | 4760             | NR               | 875       | 4356             | NR               |           |                  |                  |

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

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3

S/P: 1.85

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

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

**Melanopic Flux vs. Wavelength**



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

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

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

**TM-30-18**

**Summary**

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



**Color Vector Graphics**



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

**TM-30-18**

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

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



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

**TM-30-18**

Color Rendition by Hue-Angle Bin



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

**TM-30-18**

**Measure Comparisons**



(END OF REPORT)