

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: P323272

Luminaire Tested: **GLEON-SA8A-760-U-SL2-HSS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P323272  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-21)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA8A-760-U-SL2-HSS  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(8) 70 CRI, 5700K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II SPILL  
LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 30935 lumens  
Efficiency: N/A  
Efficacy: 120.4 lumens/watt  
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B3 - U0 - G4

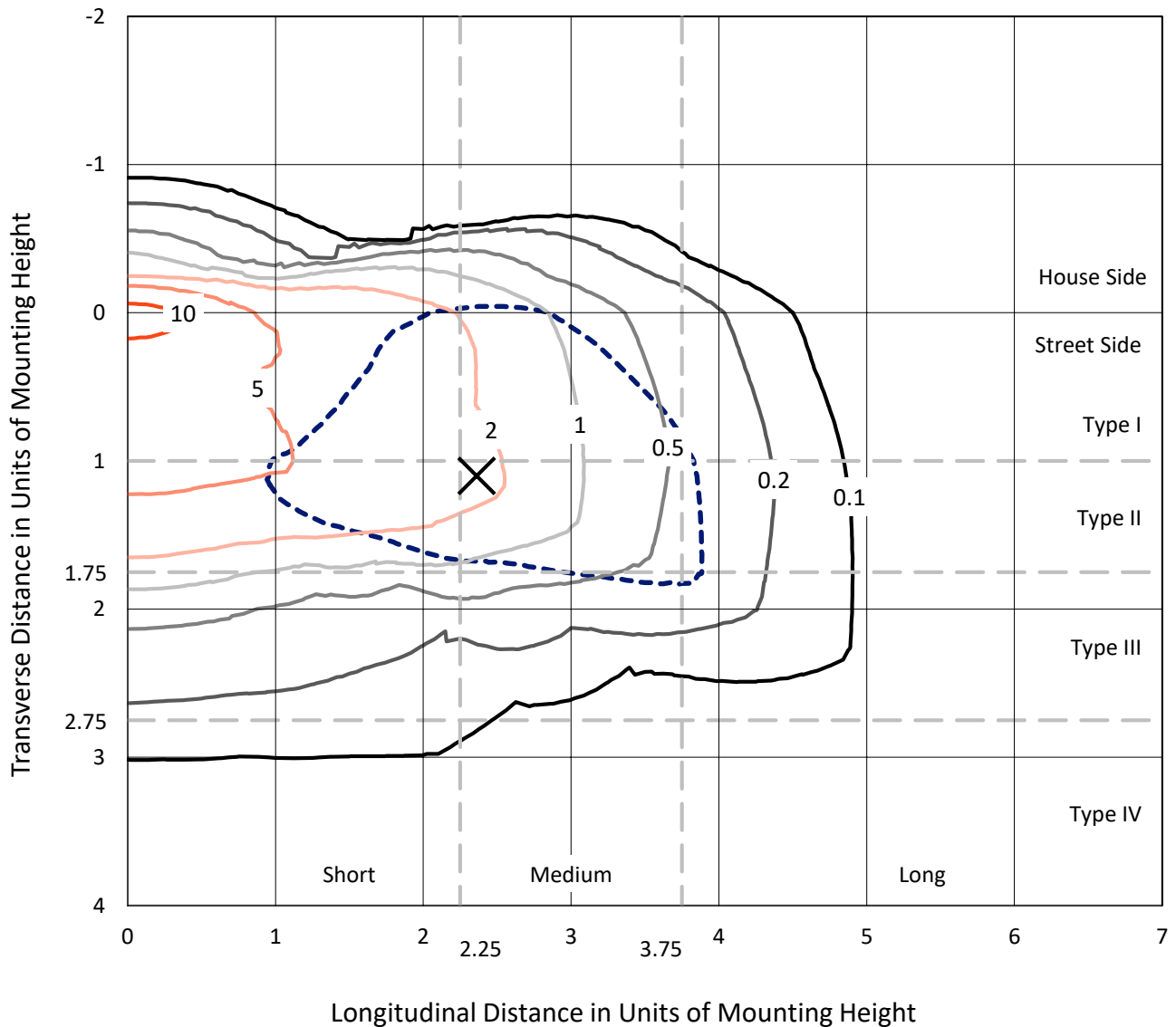
Input Watts (W): 257  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



REPORT NUMBER: P323272  
 CATALOG NUMBER: GLEON-SA8A-760-U-SL2-HSS

### Iso-Footcandle Lines of Horizontal Illumination

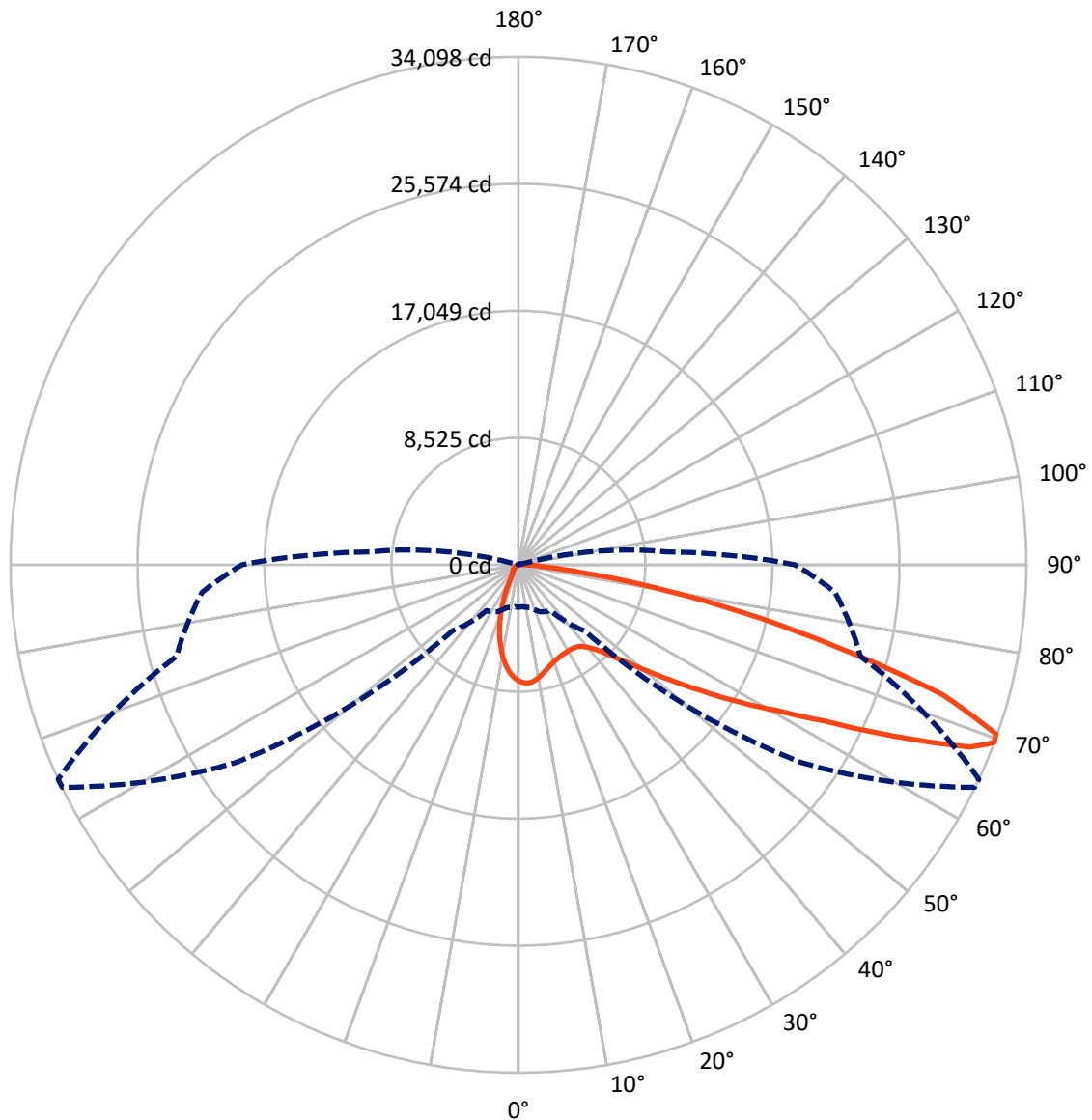
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 12.5 fc  
 Type III - Medium - N/A

REPORT NUMBER: P323272  
CATALOG NUMBER: GLEON-SA8A-760-U-SL2-HSS

### Luminous Intensity Polar Plot



— Vertical Plane Through 65-Deg Lateral      - - - Horizontal Cone Through 69-Deg Vertical

REPORT NUMBER: P323272  
 CATALOG NUMBER: GLEON-SA8A-760-U-SL2-HSS

**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 3646.5   | 0.0    | 3646.5  |
|                    | % Fixture | 11.8     | 0.0    | 11.8    |
| <b>Street Side</b> | Lumens    | 27288.5  | 0.0    | 27288.5 |
|                    | % Fixture | 88.2     | 0.0    | 88.2    |
| <b>Total</b>       | Lumens    | 30935.0  | 0.0    | 30935.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 653.7   | 2.1       |
| 10°-20°   | 1431.0  | 4.6       |
| 20°-30°   | 1981.9  | 6.4       |
| 30°-40°   | 2763.4  | 8.9       |
| 40°-50°   | 4295.3  | 13.9      |
| 50°-60°   | 6895.6  | 22.3      |
| 60°-70°   | 7800.1  | 25.2      |
| 70°-80°   | 4581.1  | 14.8      |
| 80°-90°   | 532.9   | 1.7       |
| 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°    | 30935.0 | 100.0     |
| 0°-180°   | 30935.0 | 100.0     |

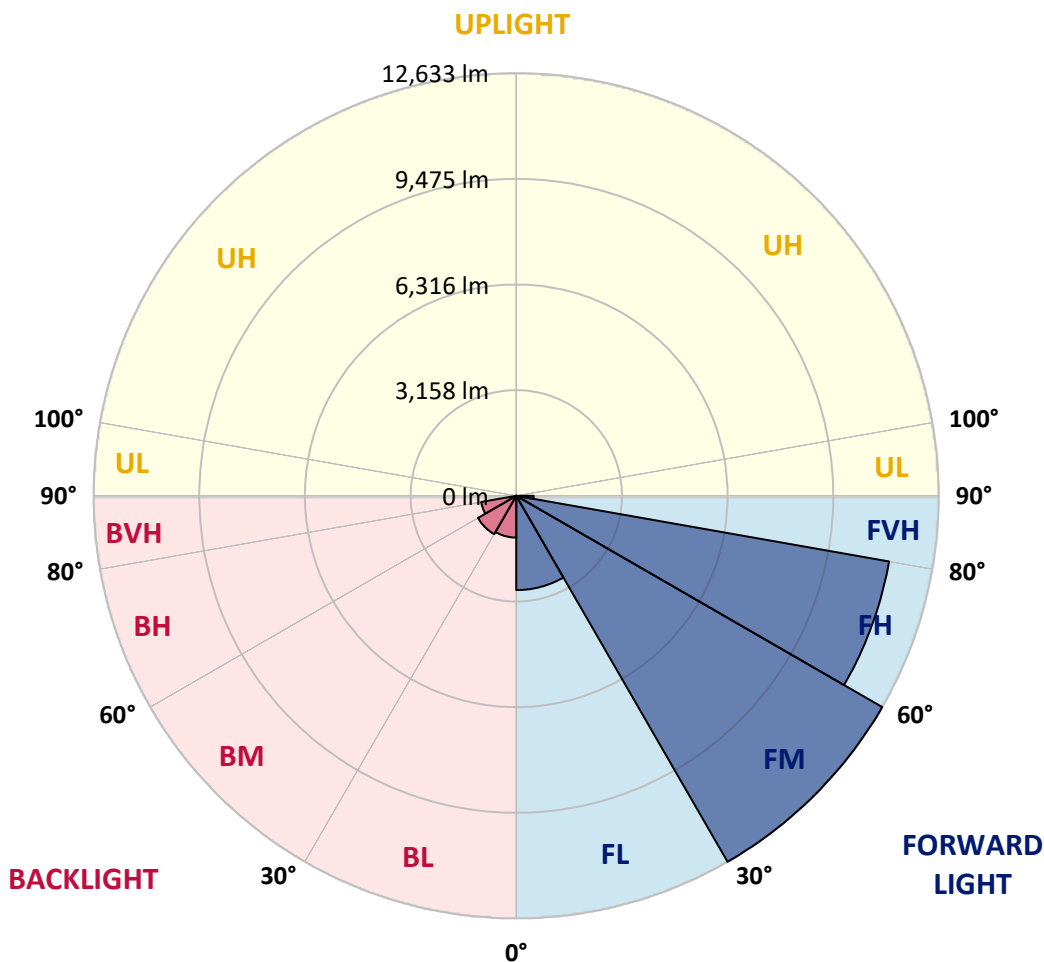


REPORT NUMBER: P323272  
 CATALOG NUMBER: GLEON-SA8A-760-U-SL2-HSS

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

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|----------------|---------|-----------|-------------------------|------|----------|
|                |         |           | B                       | U    | G        |
| FL (0°-30°)    | 2818.9  | 9.1       |                         |      |          |
| FM (30°-60°)   | 12633.0 | 40.8      |                         |      |          |
| FH (60°-80°)   | 11315.7 | 36.6      |                         |      | G4/12000 |
| FVH (80°-90°)  | 520.9   | 1.7       |                         |      | G4/750   |
| BL (0°-30°)    | 1247.7  | 4.0       | B3/2500                 |      |          |
| BM (30°-60°)   | 1321.4  | 4.3       | B2/2500                 |      |          |
| BH (60°-80°)   | 1065.4  | 3.4       | B3/2500                 |      | G3/2500  |
| BVH (80°-90°)  | 12.0    | 0.0       |                         |      | G1/100   |
| UL (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

**BUG Rating: B3-U0-G4**  
 Type III Medium





REPORT NUMBER: P323272

CATALOG NUMBER: GLEON-SA8A-760-U-SL2-HSS

**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 64°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 7817.3  | 7817.3  | 7817.3  | 7817.3  | 7817.3  | 7817.3  | 7817.3  | 7817.3  | 7817.3  | 7817.3  | 7817.3  |
| 2.5°  | 7886.7  | 7867.1  | 7882.8  | 7916.8  | 7933.8  | 7933.8  | 7946.9  | 7931.2  | 7936.4  | 7898.5  | 7843.5  |
| 5°    | 7393.2  | 7363.1  | 7406.3  | 7501.9  | 7619.7  | 7720.5  | 7869.7  | 7948.2  | 7956.1  | 7957.4  | 7893.3  |
| 7.5°  | 6861.8  | 6834.3  | 6898.4  | 7011.0  | 7162.8  | 7350.0  | 7610.5  | 7838.3  | 7851.4  | 7974.4  | 7927.3  |
| 10°   | 6429.8  | 6410.2  | 6484.8  | 6605.2  | 6783.2  | 6992.7  | 7312.1  | 7628.8  | 7666.8  | 7939.1  | 7922.0  |
| 12.5° | 6086.8  | 6071.1  | 6141.8  | 6280.6  | 6462.5  | 6694.2  | 7028.0  | 7395.8  | 7446.9  | 7859.2  | 7895.9  |
| 15°   | 5836.8  | 5834.2  | 5893.1  | 6026.6  | 6228.2  | 6444.2  | 6785.8  | 7179.8  | 7238.8  | 7772.8  | 7891.9  |
| 17.5° | 5705.9  | 5709.8  | 5753.0  | 5866.9  | 6039.7  | 6254.4  | 6581.6  | 6997.9  | 7062.0  | 7695.6  | 7911.6  |
| 20°   | 5692.8  | 5696.8  | 5720.3  | 5784.5  | 5924.5  | 6114.3  | 6415.4  | 6844.7  | 6911.5  | 7638.0  | 7943.0  |
| 22.5° | 5808.0  | 5805.4  | 5811.9  | 5805.4  | 5883.9  | 6027.9  | 6305.4  | 6726.9  | 6804.2  | 7600.0  | 7967.9  |
| 25°   | 6029.2  | 6025.3  | 6022.7  | 5974.3  | 5921.9  | 5999.1  | 6259.6  | 6660.2  | 6733.5  | 7572.5  | 7982.3  |
| 27.5° | 6336.9  | 6334.2  | 6330.3  | 6250.5  | 6093.4  | 6044.9  | 6264.9  | 6635.3  | 6696.8  | 7550.3  | 7979.6  |
| 30°   | 6741.3  | 6759.7  | 6754.4  | 6643.2  | 6398.4  | 6185.0  | 6319.8  | 6622.2  | 6675.9  | 7507.1  | 7952.2  |
| 32.5° | 7216.5  | 7253.2  | 7281.9  | 7162.8  | 6856.5  | 6462.5  | 6446.8  | 6636.6  | 6675.9  | 7474.4  | 7902.4  |
| 35°   | 7710.0  | 7757.1  | 7863.1  | 7821.3  | 7418.1  | 6880.1  | 6665.4  | 6723.0  | 6755.7  | 7492.7  | 7878.9  |
| 37.5° | 8195.6  | 8251.9  | 8482.3  | 8604.0  | 8153.7  | 7432.5  | 7005.8  | 6936.4  | 6953.4  | 7604.0  | 7905.0  |
| 40°   | 8759.8  | 8844.9  | 9194.4  | 9390.7  | 9032.1  | 8172.1  | 7515.0  | 7302.9  | 7309.4  | 7848.7  | 8026.8  |
| 42.5° | 9500.7  | 9588.4  | 9966.7  | 10274.3 | 10021.7 | 9106.7  | 8206.1  | 7863.1  | 7856.6  | 8306.9  | 8313.4  |
| 45°   | 10403.9 | 10495.5 | 10886.9 | 11228.6 | 11114.7 | 10214.1 | 9091.0  | 8681.3  | 8673.4  | 9029.5  | 8856.7  |
| 47.5° | 11427.5 | 11517.9 | 11867.4 | 12219.5 | 12342.5 | 11507.4 | 10218.0 | 9797.8  | 9779.5  | 10033.5 | 9695.7  |
| 50°   | 12305.9 | 12364.8 | 12686.8 | 13160.7 | 13715.7 | 13096.5 | 11620.0 | 11215.5 | 11195.8 | 11367.3 | 10927.5 |
| 52.5° | 12625.3 | 12659.3 | 12986.6 | 13650.2 | 15035.1 | 15248.5 | 13461.7 | 12940.7 | 12926.3 | 13001.0 | 12567.7 |
| 55°   | 11978.6 | 12040.2 | 12442.0 | 13426.4 | 15749.8 | 17680.6 | 15786.5 | 15077.0 | 14968.4 | 14807.4 | 14282.5 |
| 57.5° | 10216.7 | 10314.9 | 10746.9 | 12055.9 | 15416.1 | 19610.1 | 19203.0 | 17493.4 | 17333.7 | 16349.4 | 15676.5 |
| 60°   | 7655.0  | 7775.4  | 8134.1  | 9546.5  | 13634.5 | 20297.3 | 22936.2 | 20186.0 | 19826.1 | 17577.2 | 16958.1 |
| 62.5° | 5253.0  | 5313.2  | 5556.7  | 6476.9  | 10041.3 | 19171.6 | 26059.5 | 23792.3 | 23135.2 | 18912.4 | 18344.3 |
| 65°   | 4012.1  | 4033.0  | 4132.5  | 4449.3  | 5979.5  | 15573.1 | 27301.7 | 28550.5 | 27756.0 | 20509.4 | 19782.9 |
| 67.5° | 3233.2  | 3216.2  | 3353.6  | 3806.6  | 4004.2  | 9500.7  | 25852.7 | 33052.2 | 32680.4 | 22644.3 | 21230.6 |
| 69°   | 2851.0  | 2827.4  | 2967.5  | 3493.7  | 3760.7  | 6280.6  | 23111.6 | 34074.5 | 34098.1 | 23771.4 | 21330.1 |
| 70°   | 2565.6  | 2581.3  | 2720.1  | 3307.8  | 3678.3  | 4929.7  | 20493.7 | 33814.0 | 33999.9 | 24192.9 | 20733.2 |
| 72.5° | 1713.5  | 1755.4  | 2034.2  | 2746.3  | 3536.9  | 3730.6  | 12373.9 | 29016.5 | 29731.2 | 23243.9 | 17788.0 |
| 75°   | 966.0   | 997.5   | 1328.6  | 2070.8  | 3332.7  | 3552.6  | 6535.8  | 21377.2 | 22068.4 | 19437.3 | 13717.0 |
| 77.5° | 473.9   | 490.9   | 751.4   | 1336.5  | 2786.9  | 3385.1  | 3707.1  | 14520.7 | 15310.0 | 12686.8 | 7758.4  |
| 80°   | 200.3   | 209.4   | 375.7   | 824.7   | 1992.3  | 3230.6  | 2752.8  | 8936.5  | 9034.7  | 4970.3  | 2066.9  |
| 82.5° | 77.2    | 79.8    | 158.4   | 514.4   | 1265.8  | 2518.5  | 2302.5  | 4237.2  | 4135.1  | 935.9   | 471.2   |
| 85°   | 9.2     | 10.5    | 57.6    | 308.9   | 704.2   | 1295.9  | 1870.6  | 1826.1  | 1689.9  | 185.9   | 242.2   |
| 87.5° | 0.0     | 0.0     | 3.9     | 94.2    | 209.4   | 607.4   | 972.6   | 757.9   | 683.3   | 60.2    | 125.7   |
| 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: P323272

CATALOG NUMBER: GLEON-SA8A-760-U-SL2-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°     | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 7817.3  | 7817.3  | 7817.3 | 7817.3 | 7817.3 | 7817.3 | 7817.3 | 7817.3 | 7817.3 | 7817.3 | 7817.3 |
| 2.5°  | 7797.7  | 7784.6  | 7713.9 | 7611.8 | 7515.0 | 7394.5 | 7279.3 | 7210.0 | 7155.0 | 7118.3 | 7161.5 |
| 5°    | 7818.6  | 7761.0  | 7546.4 | 7271.5 | 7001.8 | 6698.1 | 6415.4 | 6175.8 | 6081.6 | 5976.9 | 6024.0 |
| 7.5°  | 7812.1  | 7703.4  | 7317.3 | 6827.7 | 6332.9 | 5821.1 | 5336.8 | 4963.7 | 4770.0 | 4580.2 | 4628.6 |
| 10°   | 7779.4  | 7596.1  | 7011.0 | 6285.8 | 5544.9 | 4809.3 | 4122.0 | 3599.7 | 3307.8 | 3043.4 | 3081.4 |
| 12.5° | 7707.4  | 7452.1  | 6649.7 | 5665.3 | 4674.4 | 3704.5 | 2899.4 | 2230.5 | 1871.9 | 1713.5 | 1733.1 |
| 15°   | 7664.2  | 7312.1  | 6267.5 | 5037.0 | 3745.0 | 2580.0 | 1772.4 | 1318.2 | 1154.5 | 1102.2 | 1108.7 |
| 17.5° | 7643.2  | 7177.2  | 5872.2 | 4318.4 | 2794.7 | 1642.8 | 1145.4 | 1010.5 | 975.2  | 966.0  | 968.7  |
| 20°   | 7622.3  | 7041.1  | 5465.1 | 3607.6 | 1925.5 | 1104.8 | 941.2  | 901.9  | 888.8  | 877.0  | 879.6  |
| 22.5° | 7586.9  | 6910.2  | 5027.9 | 2887.6 | 1298.5 | 896.7  | 848.2  | 810.3  | 782.8  | 768.4  | 771.0  |
| 25°   | 7543.7  | 6772.7  | 4581.5 | 2150.7 | 947.7  | 799.8  | 754.0  | 700.3  | 667.6  | 641.4  | 642.7  |
| 27.5° | 7474.4  | 6603.9  | 4120.7 | 1565.6 | 795.9  | 716.0  | 654.5  | 595.6  | 540.6  | 510.5  | 510.5  |
| 30°   | 7377.5  | 6412.8  | 3608.9 | 1120.5 | 713.4  | 633.6  | 558.9  | 485.6  | 426.7  | 399.2  | 396.6  |
| 32.5° | 7270.2  | 6213.8  | 3091.9 | 849.5  | 648.0  | 556.3  | 471.2  | 394.0  | 341.6  | 319.4  | 318.1  |
| 35°   | 7178.5  | 5999.1  | 2576.1 | 712.1  | 582.5  | 481.7  | 388.8  | 323.3  | 281.4  | 263.1  | 261.8  |
| 37.5° | 7119.6  | 5784.5  | 2073.5 | 636.2  | 523.6  | 412.3  | 325.9  | 267.0  | 236.9  | 222.5  | 221.2  |
| 40°   | 7110.5  | 5624.8  | 1614.0 | 578.6  | 468.6  | 350.8  | 272.3  | 226.5  | 199.0  | 183.3  | 182.0  |
| 42.5° | 7229.6  | 5533.1  | 1238.3 | 530.1  | 412.3  | 297.1  | 231.7  | 193.7  | 164.9  | 149.2  | 147.9  |
| 45°   | 7542.4  | 5561.9  | 952.9  | 486.9  | 356.0  | 251.3  | 196.3  | 161.0  | 134.8  | 123.0  | 120.4  |
| 47.5° | 8113.2  | 5760.9  | 757.9  | 443.7  | 302.4  | 213.4  | 167.6  | 133.5  | 111.3  | 99.5   | 98.2   |
| 50°   | 9128.9  | 6228.2  | 633.6  | 396.6  | 252.6  | 182.0  | 138.8  | 108.6  | 90.3   | 79.8   | 78.5   |
| 52.5° | 10477.2 | 7060.7  | 565.5  | 350.8  | 209.4  | 154.5  | 113.9  | 86.4   | 70.7   | 62.8   | 61.5   |
| 55°   | 11964.2 | 8068.7  | 521.0  | 301.1  | 171.5  | 128.3  | 90.3   | 68.1   | 55.0   | 48.4   | 45.8   |
| 57.5° | 13415.9 | 8941.8  | 479.1  | 252.6  | 142.7  | 104.7  | 72.0   | 53.7   | 43.2   | 36.7   | 35.3   |
| 60°   | 14749.8 | 9744.2  | 430.7  | 202.9  | 116.5  | 82.5   | 56.3   | 41.9   | 34.0   | 27.5   | 27.5   |
| 62.5° | 16177.9 | 10364.6 | 363.9  | 158.4  | 95.6   | 62.8   | 45.8   | 38.0   | 27.5   | 23.6   | 22.3   |
| 65°   | 17691.1 | 10825.4 | 285.4  | 123.0  | 74.6   | 47.1   | 38.0   | 39.3   | 22.3   | 17.0   | 15.7   |
| 67.5° | 18809.0 | 10733.8 | 210.7  | 96.9   | 57.6   | 36.7   | 36.7   | 41.9   | 19.6   | 13.1   | 11.8   |
| 69°   | 18562.9 | 9989.0  | 176.7  | 83.8   | 49.7   | 31.4   | 34.0   | 41.9   | 18.3   | 11.8   | 10.5   |
| 70°   | 17849.5 | 9164.3  | 155.8  | 74.6   | 44.5   | 28.8   | 32.7   | 40.6   | 17.0   | 11.8   | 10.5   |
| 72.5° | 14865.0 | 6902.3  | 121.7  | 56.3   | 35.3   | 23.6   | 27.5   | 35.3   | 17.0   | 11.8   | 9.2    |
| 75°   | 11181.5 | 4417.9  | 92.9   | 40.6   | 26.2   | 18.3   | 20.9   | 26.2   | 17.0   | 10.5   | 9.2    |
| 77.5° | 6084.2  | 1593.0  | 66.8   | 27.5   | 18.3   | 14.4   | 14.4   | 19.6   | 15.7   | 7.9    | 5.2    |
| 80°   | 1564.3  | 400.6   | 41.9   | 18.3   | 14.4   | 10.5   | 9.2    | 13.1   | 9.2    | 1.3    | 0.0    |
| 82.5° | 386.2   | 90.3    | 22.3   | 13.1   | 10.5   | 3.9    | 3.9    | 6.5    | 3.9    | 0.0    | 0.0    |
| 85°   | 212.1   | 44.5    | 14.4   | 9.2    | 5.2    | 0.0    | 0.0    | 1.3    | 0.0    | 0.0    | 0.0    |
| 87.5° | 108.6   | 13.1    | 3.9    | 2.6    | 1.3    | 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    |



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



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: 4π  
 Issue Date: 10/28/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: MCGRAW-EDISON  
 Catalog Number: **SA1C-760-U-5WQ**  
 Description: MCGRAW EDISON ROADWAY AND AREA LUMINAIRE

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

**Spectral Parameters**

|                           |        |           |      |      |       |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K):                  | 5474   | CRI (Ra): | 71.7 | R9:  | -27.1 |
| CIE u':                   | 0.2052 | R1:       | 70.6 | R10: | 40.8  |
| CIE v':                   | 0.4804 | R2:       | 74.6 | R11: | 74.6  |
| Duv:                      | 0.0025 | R3:       | 78.3 | R12: | 50.4  |
| CIE x:                    | 0.3330 | R4:       | 73.8 | R13: | 70.0  |
| CIE y:                    | 0.3466 | R5:       | 72.4 | R14: | 87.8  |
| CIE z:                    | 0.3204 | R6:       | 67.5 |      |       |
| 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**



#####

| $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) | $\lambda$<br>(nm) | Power<br>( $\mu\text{W}/\text{nm}$ ) | Lumens<br>( $\phi/\text{nm}$ ) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 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 (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 3540          | NR            | 490    | 33363         | NR            | 620    | 80193         | NR            | 750    | 4663          | NR            | 880    | 4678          | NR            |
| 365    | 2862          | NR            | 495    | 44177         | NR            | 625    | 73091         | NR            | 755    | 4147          | NR            | 885    | 4128          | NR            |
| 370    | 2865          | NR            | 500    | 57019         | NR            | 630    | 66269         | NR            | 760    | 4040          | NR            | 890    | 4504          | NR            |
| 375    | 3254          | NR            | 505    | 70030         | NR            | 635    | 60012         | NR            | 765    | 3474          | NR            | 895    | 4371          | NR            |
| 380    | 3076          | NR            | 510    | 81972         | NR            | 640    | 53914         | NR            | 770    | 3469          | NR            | 900    | 4082          | NR            |
| 385    | 2904          | NR            | 515    | 92590         | NR            | 645    | 48385         | NR            | 775    | 3181          | NR            | 905    | 2982          | NR            |
| 390    | 2689          | NR            | 520    | 100305        | NR            | 650    | 43219         | NR            | 780    | 2969          | NR            | 910    | 4351          | NR            |
| 395    | 2619          | NR            | 525    | 107452        | NR            | 655    | 38562         | NR            | 785    | 3132          | NR            | 915    | 3365          | NR            |
| 400    | 2679          | NR            | 530    | 111373        | NR            | 660    | 34110         | NR            | 790    | 2507          | NR            | 920    | 3430          | NR            |
| 405    | 3515          | NR            | 535    | 114505        | NR            | 665    | 30085         | NR            | 795    | 2968          | NR            | 925    | 4264          | NR            |
| 410    | 6934          | NR            | 540    | 116408        | NR            | 670    | 26205         | NR            | 800    | 2758          | NR            | 930    | 4095          | NR            |
| 415    | 14943         | NR            | 545    | 118700        | NR            | 675    | 22906         | NR            | 805    | 2872          | NR            | 935    | 5048          | NR            |
| 420    | 31939         | NR            | 550    | 119209        | NR            | 680    | 20058         | NR            | 810    | 3094          | NR            | 940    | 4074          | NR            |
| 425    | 64701         | NR            | 555    | 120742        | NR            | 685    | 17413         | NR            | 815    | 3222          | NR            | 945    | 4949          | NR            |
| 430    | 110939        | NR            | 560    | 121594        | NR            | 690    | 15447         | NR            | 820    | 3238          | NR            | 950    | 4387          | NR            |
| 435    | 164597        | NR            | 565    | 121913        | NR            | 695    | 13398         | NR            | 825    | 3524          | NR            | 955    | 4978          | NR            |
| 440    | 207696        | NR            | 570    | 122147        | NR            | 700    | 11777         | NR            | 830    | 2921          | NR            | 960    | 4706          | NR            |
| 445    | 201830        | NR            | 575    | 121605        | NR            | 705    | 10412         | NR            | 835    | 3595          | NR            | 965    | 5083          | NR            |
| 450    | 145410        | NR            | 580    | 120248        | NR            | 710    | 9544          | NR            | 840    | 3016          | NR            | 970    | 4522          | NR            |
| 455    | 89594         | NR            | 585    | 117717        | NR            | 715    | 8940          | NR            | 845    | 4032          | NR            | 975    | 4740          | NR            |
| 460    | 58321         | NR            | 590    | 114359        | NR            | 720    | 7897          | NR            | 850    | 3579          | NR            | 980    | 6122          | NR            |
| 465    | 39318         | NR            | 595    | 109974        | NR            | 725    | 7045          | NR            | 855    | 4571          | NR            | 985    | 6450          | NR            |
| 470    | 27693         | NR            | 600    | 105269        | NR            | 730    | 6483          | NR            | 860    | 4485          | NR            | 990    | 4875          | NR            |
| 475    | 23081         | NR            | 605    | 99453         | NR            | 735    | 5838          | NR            | 865    | 3978          | NR            | 995    | 4764          | NR            |
| 480    | 23002         | NR            | 610    | 92921         | NR            | 740    | 5261          | NR            | 870    | 4298          | NR            | 1000   | 3640          | NR            |
| 485    | 26201         | NR            | 615    | 86989         | NR            | 745    | 4760          | NR            | 875    | 4356          | NR            |        |               |               |

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

**Melanopic Flux vs. Wavelength**



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

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 3540          | NR            | 490    | 33363         | NR            | 620    | 80193         | NR            | 750    | 4663          | NR            | 880    | 4678          | NR            |
| 365    | 2862          | NR            | 495    | 44177         | NR            | 625    | 73091         | NR            | 755    | 4147          | NR            | 885    | 4128          | NR            |
| 370    | 2865          | NR            | 500    | 57019         | NR            | 630    | 66269         | NR            | 760    | 4040          | NR            | 890    | 4504          | NR            |
| 375    | 3254          | NR            | 505    | 70030         | NR            | 635    | 60012         | NR            | 765    | 3474          | NR            | 895    | 4371          | NR            |
| 380    | 3076          | NR            | 510    | 81972         | NR            | 640    | 53914         | NR            | 770    | 3469          | NR            | 900    | 4082          | NR            |
| 385    | 2904          | NR            | 515    | 92590         | NR            | 645    | 48385         | NR            | 775    | 3181          | NR            | 905    | 2982          | NR            |
| 390    | 2689          | NR            | 520    | 100305        | NR            | 650    | 43219         | NR            | 780    | 2969          | NR            | 910    | 4351          | NR            |
| 395    | 2619          | NR            | 525    | 107452        | NR            | 655    | 38562         | NR            | 785    | 3132          | NR            | 915    | 3365          | NR            |
| 400    | 2679          | NR            | 530    | 111373        | NR            | 660    | 34110         | NR            | 790    | 2507          | NR            | 920    | 3430          | NR            |
| 405    | 3515          | NR            | 535    | 114505        | NR            | 665    | 30085         | NR            | 795    | 2968          | NR            | 925    | 4264          | NR            |
| 410    | 6934          | NR            | 540    | 116408        | NR            | 670    | 26205         | NR            | 800    | 2758          | NR            | 930    | 4095          | NR            |
| 415    | 14943         | NR            | 545    | 118700        | NR            | 675    | 22906         | NR            | 805    | 2872          | NR            | 935    | 5048          | NR            |
| 420    | 31939         | NR            | 550    | 119209        | NR            | 680    | 20058         | NR            | 810    | 3094          | NR            | 940    | 4074          | NR            |
| 425    | 64701         | NR            | 555    | 120742        | NR            | 685    | 17413         | NR            | 815    | 3222          | NR            | 945    | 4949          | NR            |
| 430    | 110939        | NR            | 560    | 121594        | NR            | 690    | 15447         | NR            | 820    | 3238          | NR            | 950    | 4387          | NR            |
| 435    | 164597        | NR            | 565    | 121913        | NR            | 695    | 13398         | NR            | 825    | 3524          | NR            | 955    | 4978          | NR            |
| 440    | 207696        | NR            | 570    | 122147        | NR            | 700    | 11777         | NR            | 830    | 2921          | NR            | 960    | 4706          | NR            |
| 445    | 201830        | NR            | 575    | 121605        | NR            | 705    | 10412         | NR            | 835    | 3595          | NR            | 965    | 5083          | NR            |
| 450    | 145410        | NR            | 580    | 120248        | NR            | 710    | 9544          | NR            | 840    | 3016          | NR            | 970    | 4522          | NR            |
| 455    | 89594         | NR            | 585    | 117717        | NR            | 715    | 8940          | NR            | 845    | 4032          | NR            | 975    | 4740          | NR            |
| 460    | 58321         | NR            | 590    | 114359        | NR            | 720    | 7897          | NR            | 850    | 3579          | NR            | 980    | 6122          | NR            |
| 465    | 39318         | NR            | 595    | 109974        | NR            | 725    | 7045          | NR            | 855    | 4571          | NR            | 985    | 6450          | NR            |
| 470    | 27693         | NR            | 600    | 105269        | NR            | 730    | 6483          | NR            | 860    | 4485          | NR            | 990    | 4875          | NR            |
| 475    | 23081         | NR            | 605    | 99453         | NR            | 735    | 5838          | NR            | 865    | 3978          | NR            | 995    | 4764          | NR            |
| 480    | 23002         | NR            | 610    | 92921         | NR            | 740    | 5261          | NR            | 870    | 4298          | NR            | 1000   | 3640          | NR            |
| 485    | 26201         | NR            | 615    | 86989         | NR            | 745    | 4760          | NR            | 875    | 4356          | NR            |        |               |               |

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)