

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: P383250

Luminaire Tested: **GLEON-SA5D-735-U-SL3-HSS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P383250  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-23)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA5D-735-U-SL3-HSS  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(5) 70 CRI, 3500K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III  
SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 30862.2 lumens  
Efficiency: N/A  
Efficacy: 96.4 lumens/watt  
Luminous Opening: Rectangular (W 1.5' x L: 1' x H: 0')  
IES Classification: Type III - Medium  
BUG Rating: B3 - U0 - G5

Input Watts (W): 320  
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

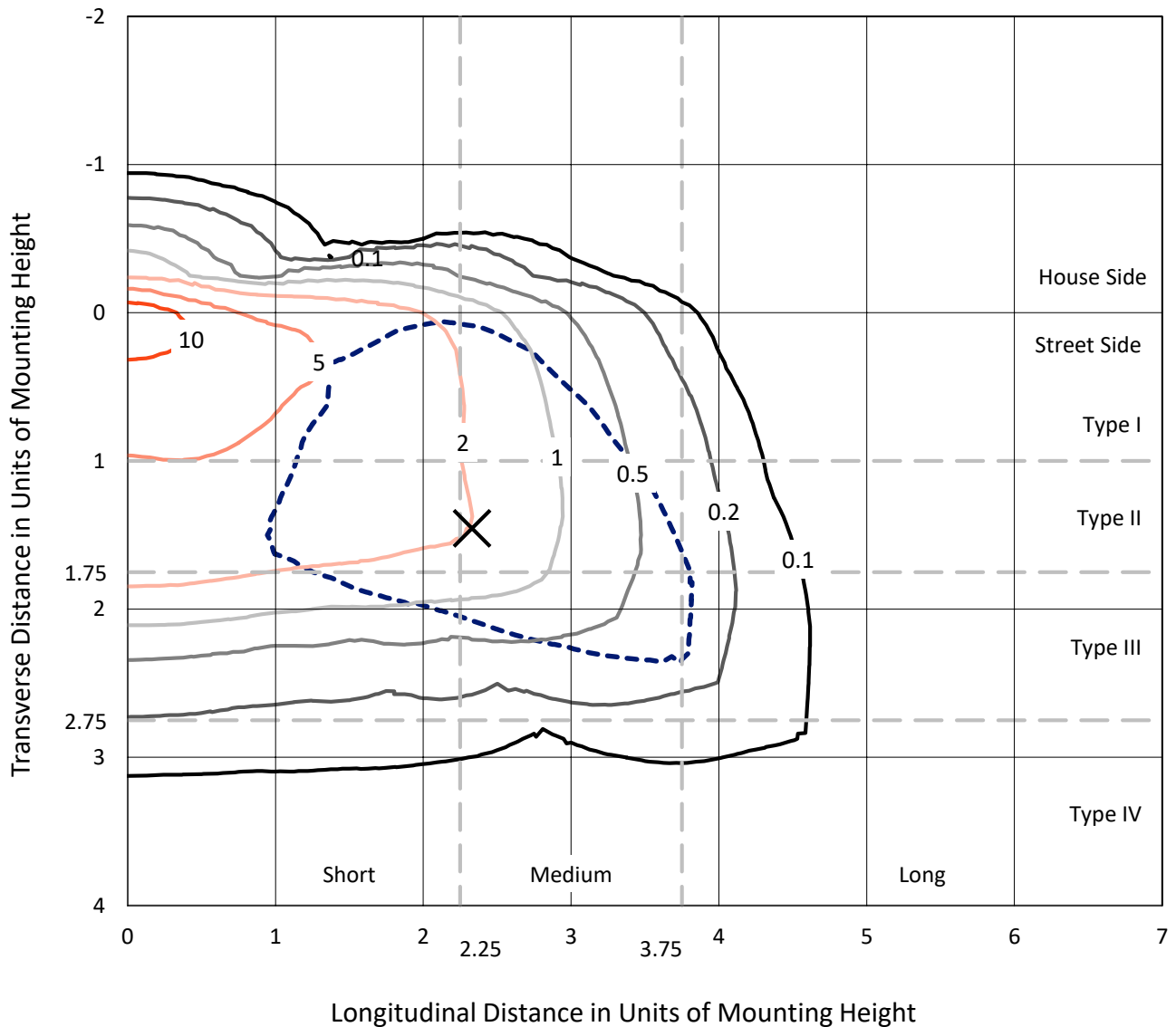




REPORT NUMBER: P383250  
 CATALOG NUMBER: GLEON-SA5D-735-U-SL3-HSS

### Iso-Footcandle Lines of Horizontal Illumination

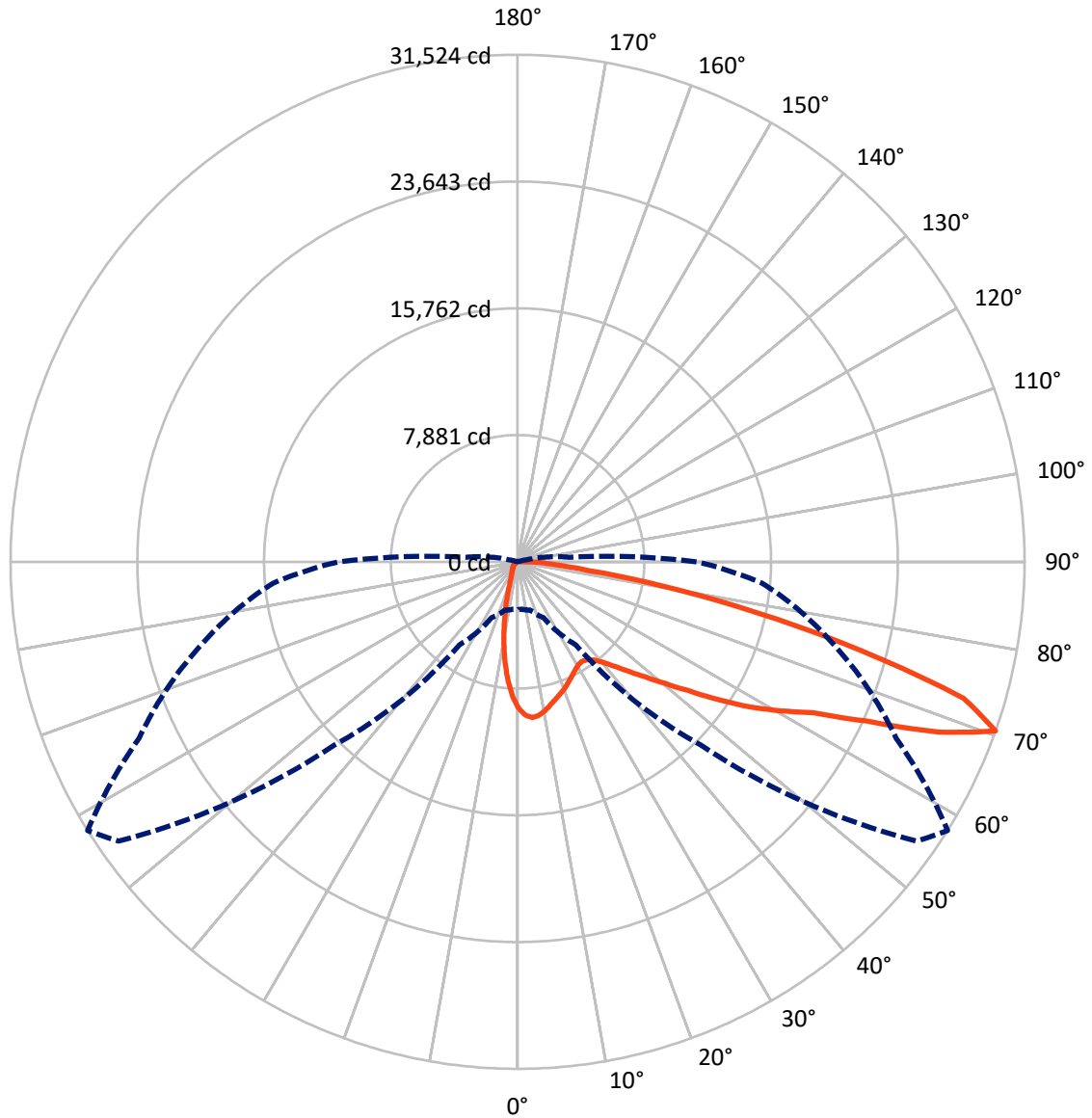
✕ Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 14.8 fc  
 Type III - Medium - N/A

REPORT NUMBER: P383250  
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### Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral      - - - Horizontal Cone Through 70-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 2641.1   | 0.0    | 2641.1  |
|                    | % Fixture | 8.6      | 0.0    | 8.6     |
| <b>Street Side</b> | Lumens    | 28221.0  | 0.0    | 28221.0 |
|                    | % Fixture | 91.4     | 0.0    | 91.4    |
| <b>Total</b>       | Lumens    | 30862.2  | 0.0    | 30862.2 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 745.5   | 2.4       |
| 10°-20°   | 1564.6  | 5.1       |
| 20°-30°   | 2056.9  | 6.7       |
| 30°-40°   | 2724.2  | 8.8       |
| 40°-50°   | 4071.8  | 13.2      |
| 50°-60°   | 6522.9  | 21.1      |
| 60°-70°   | 8222.1  | 26.6      |
| 70°-80°   | 4435.0  | 14.4      |
| 80°-90°   | 519.1   | 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°    | 30862.2 | 100.0     |
| 0°-180°   | 30862.2 | 100.0     |

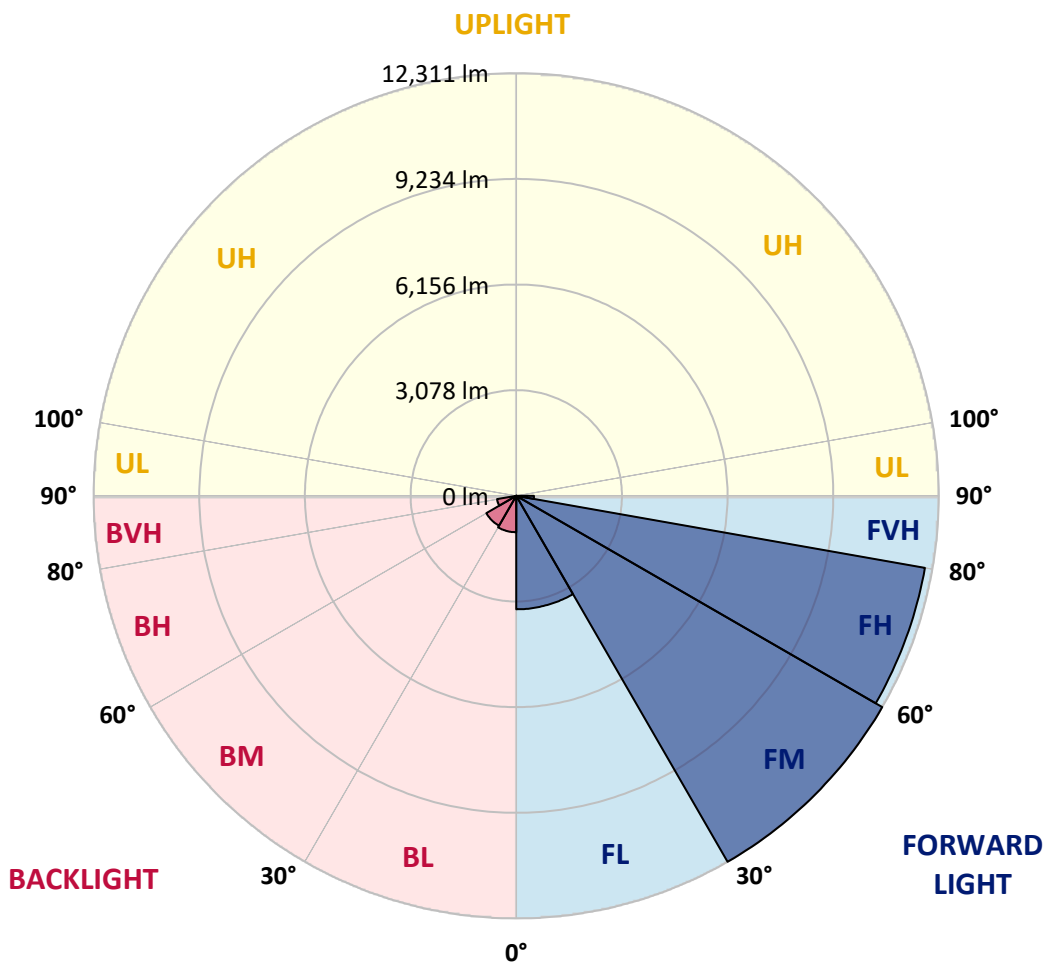


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |         |
|----------------|---------|-----------|-------------------------|------|---------|
|                |         |           | B                       | U    | G       |
| FL (0°-30°)    | 3306.0  | 10.7      |                         |      |         |
| FM (30°-60°)   | 12311.4 | 39.9      |                         |      |         |
| FH (60°-80°)   | 12089.0 | 39.2      |                         |      | G5      |
| FVH (80°-90°)  | 514.6   | 1.7       |                         |      | G4/750  |
| BL (0°-30°)    | 1061.1  | 3.4       | B3/2500                 |      |         |
| BM (30°-60°)   | 1007.5  | 3.3       | B2/2500                 |      |         |
| BH (60°-80°)   | 568.0   | 1.8       | B2/1000                 |      | G2/1000 |
| BVH (80°-90°)  | 4.5     | 0.0       |                         |      | G0/10   |
| UL (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |         |
| UH (100°-180°) | 0.0     | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G5**  
 Type III Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 58°     | 65°     | 75°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 9116.5  | 9116.5  | 9116.5  | 9116.5  | 9116.5  | 9116.5  | 9116.5  | 9116.5  | 9116.5  | 9116.5  | 9116.5  |
| 2.5°  | 9872.4  | 9848.0  | 9839.0  | 9823.6  | 9764.6  | 9706.8  | 9592.6  | 9560.6  | 9488.7  | 9318.0  | 9137.1  |
| 5°    | 9880.1  | 9878.8  | 9905.8  | 9899.4  | 9878.8  | 9851.9  | 9769.7  | 9727.4  | 9605.5  | 9361.7  | 9030.5  |
| 7.5°  | 9404.0  | 9428.4  | 9488.7  | 9537.5  | 9593.9  | 9667.0  | 9677.4  | 9636.3  | 9536.2  | 9273.1  | 8834.2  |
| 10°   | 8764.9  | 8803.4  | 8888.1  | 8984.4  | 9132.0  | 9278.2  | 9409.1  | 9404.0  | 9369.3  | 9110.2  | 8598.1  |
| 12.5° | 8124.6  | 8169.5  | 8267.0  | 8409.5  | 8618.6  | 8857.3  | 9090.9  | 9122.9  | 9180.7  | 8963.8  | 8379.9  |
| 15°   | 7563.8  | 7602.3  | 7698.5  | 7873.1  | 8132.2  | 8453.0  | 8795.7  | 8854.7  | 9003.6  | 8849.6  | 8197.7  |
| 17.5° | 7087.7  | 7112.0  | 7182.6  | 7376.4  | 7676.7  | 8065.5  | 8510.8  | 8626.3  | 8848.3  | 8759.8  | 8039.8  |
| 20°   | 6755.3  | 6759.1  | 6805.3  | 6941.3  | 7241.7  | 7676.7  | 8215.7  | 8381.2  | 8684.1  | 8682.8  | 7876.9  |
| 22.5° | 6591.0  | 6578.2  | 6587.2  | 6665.4  | 6886.2  | 7305.8  | 7920.5  | 8116.9  | 8536.5  | 8617.4  | 7711.4  |
| 25°   | 6560.2  | 6550.0  | 6524.3  | 6534.5  | 6668.0  | 6981.1  | 7622.8  | 7850.0  | 8406.8  | 8577.6  | 7567.6  |
| 27.5° | 6656.5  | 6666.7  | 6623.1  | 6576.9  | 6587.2  | 6770.7  | 7358.4  | 7621.5  | 8301.7  | 8577.6  | 7466.3  |
| 30°   | 6850.2  | 6855.4  | 6823.3  | 6762.9  | 6682.1  | 6711.6  | 7174.9  | 7437.9  | 8249.0  | 8636.6  | 7402.1  |
| 32.5° | 7064.6  | 7092.8  | 7088.9  | 7040.2  | 6924.7  | 6805.3  | 7131.3  | 7371.2  | 8245.2  | 8767.4  | 7395.6  |
| 35°   | 7330.2  | 7362.3  | 7416.1  | 7405.9  | 7285.3  | 7088.9  | 7280.1  | 7468.8  | 8320.9  | 8983.1  | 7465.0  |
| 37.5° | 7612.5  | 7661.3  | 7776.7  | 7832.0  | 7753.6  | 7531.7  | 7613.8  | 7748.5  | 8523.7  | 9332.2  | 7640.7  |
| 40°   | 7885.8  | 7941.1  | 8151.5  | 8368.4  | 8309.3  | 8080.9  | 8119.5  | 8227.2  | 8884.3  | 9833.9  | 7974.4  |
| 42.5° | 8154.0  | 8236.2  | 8545.5  | 8902.2  | 8972.9  | 8790.5  | 8811.1  | 8897.1  | 9419.4  | 10524.3 | 8519.8  |
| 45°   | 8474.8  | 8567.3  | 9025.4  | 9465.6  | 9654.3  | 9574.6  | 9661.9  | 9718.4  | 10118.7 | 11436.7 | 9255.1  |
| 47.5° | 8945.8  | 9052.4  | 9614.5  | 10116.2 | 10447.3 | 10498.6 | 10674.4 | 10711.7 | 11003.0 | 12499.3 | 10213.8 |
| 50°   | 9864.7  | 9894.2  | 10402.4 | 10857.9 | 11335.4 | 11643.3 | 11843.5 | 11871.7 | 12073.2 | 13660.7 | 11411.1 |
| 52.5° | 11021.0 | 11040.2 | 11327.6 | 11633.1 | 12175.9 | 12804.8 | 13273.2 | 13312.9 | 13355.2 | 14792.6 | 12593.0 |
| 55°   | 12169.5 | 12166.9 | 12356.9 | 12536.5 | 13157.6 | 14071.3 | 15087.7 | 15112.1 | 14808.0 | 15866.7 | 13496.4 |
| 57.5° | 12886.8 | 12956.2 | 13244.9 | 13475.9 | 14343.4 | 15515.0 | 16925.4 | 17015.3 | 16333.8 | 16662.3 | 14389.6 |
| 60°   | 12658.4 | 12691.8 | 13332.1 | 14186.8 | 15820.5 | 17567.0 | 18784.9 | 18808.0 | 17481.0 | 17456.6 | 15518.9 |
| 62.5° | 10784.8 | 10802.8 | 11808.9 | 13570.9 | 16568.6 | 20228.6 | 21028.1 | 20652.1 | 18800.3 | 18559.0 | 16870.2 |
| 65°   | 7391.8  | 7508.6  | 8349.1  | 10526.9 | 15194.2 | 21898.2 | 24500.7 | 23878.3 | 20811.2 | 20147.8 | 18092.0 |
| 67.5° | 4352.9  | 4328.5  | 4744.4  | 6348.5  | 11159.6 | 20789.4 | 28893.4 | 28274.9 | 23553.6 | 21211.6 | 17733.9 |
| 70°   | 2973.4  | 2956.7  | 3115.8  | 3843.5  | 6299.7  | 16127.2 | 30275.6 | 31524.2 | 25975.2 | 20495.5 | 15262.3 |
| 72.5° | 2122.5  | 2131.6  | 2366.4  | 2986.3  | 3955.2  | 9396.3  | 26035.5 | 28991.0 | 25216.8 | 17867.4 | 11601.0 |
| 75°   | 1441.1  | 1465.5  | 1801.7  | 2449.8  | 3467.5  | 4780.2  | 18475.7 | 22038.1 | 20534.0 | 12985.7 | 6668.0  |
| 77.5° | 775.1   | 802.1   | 1198.6  | 1973.7  | 3135.1  | 3321.2  | 11884.6 | 15167.3 | 12898.4 | 5837.7  | 1932.7  |
| 80°   | 323.4   | 338.8   | 560.8   | 1434.8  | 2709.0  | 2917.0  | 6992.7  | 9197.4  | 5496.3  | 1151.1  | 431.2   |
| 82.5° | 139.9   | 147.6   | 233.5   | 856.0   | 2025.0  | 2462.6  | 3702.3  | 4424.9  | 1665.7  | 252.8   | 216.9   |
| 85°   | 26.9    | 28.2    | 96.2    | 453.0   | 1292.2  | 1389.8  | 2399.8  | 2352.3  | 748.1   | 109.1   | 157.8   |
| 87.5° | 0.0     | 0.0     | 23.1    | 142.4   | 379.9   | 757.2   | 1464.2  | 1446.3  | 254.1   | 52.6    | 59.1    |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     | 0.0     |



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CATALOG NUMBER: GLEON-SA5D-735-U-SL3-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 9116.5  | 9116.5 | 9116.5 | 9116.5 | 9116.5 | 9116.5 | 9116.5 | 9116.5 | 9116.5 | 9116.5 | 9116.5 |
| 2.5°  | 9044.7  | 8956.1 | 8770.1 | 8540.3 | 8364.6 | 8170.8 | 8016.7 | 7821.7 | 7737.0 | 7740.9 | 7694.7 |
| 5°    | 8841.9  | 8659.7 | 8247.7 | 7728.0 | 7327.6 | 6914.4 | 6558.9 | 6204.8 | 5995.5 | 5927.5 | 5863.3 |
| 7.5°  | 8551.9  | 8263.1 | 7606.1 | 6805.3 | 6127.7 | 5465.6 | 4889.3 | 4382.5 | 4061.6 | 3905.0 | 3847.3 |
| 10°   | 8224.6  | 7819.1 | 6868.2 | 5813.3 | 4845.7 | 3949.9 | 3203.1 | 2553.7 | 2294.5 | 2118.7 | 2073.8 |
| 12.5° | 7937.2  | 7387.9 | 6147.0 | 4795.7 | 3647.1 | 2566.6 | 1854.3 | 1450.1 | 1274.4 | 1205.0 | 1193.5 |
| 15°   | 7666.5  | 6985.0 | 5452.7 | 3874.3 | 2525.5 | 1579.7 | 1179.3 | 1042.0 | 1000.9 | 989.4  | 989.4  |
| 17.5° | 7411.0  | 6601.3 | 4773.9 | 2967.0 | 1670.8 | 1107.5 | 976.6  | 945.8  | 932.9  | 931.6  | 932.9  |
| 20°   | 7144.1  | 6217.6 | 4106.5 | 2173.9 | 1166.5 | 938.1  | 902.2  | 885.4  | 881.6  | 881.6  | 881.6  |
| 22.5° | 6888.7  | 5833.9 | 3457.2 | 1552.8 | 935.6  | 856.0  | 838.0  | 826.5  | 822.6  | 821.3  | 818.7  |
| 25°   | 6643.6  | 5469.4 | 2823.2 | 1097.2 | 821.3  | 784.1  | 768.7  | 753.2  | 741.8  | 735.4  | 731.5  |
| 27.5° | 6442.1  | 5144.8 | 2232.9 | 880.3  | 741.8  | 709.7  | 690.4  | 667.4  | 639.0  | 626.3  | 621.2  |
| 30°   | 6281.7  | 4848.3 | 1720.9 | 743.0  | 667.4  | 635.2  | 605.7  | 565.9  | 524.8  | 503.0  | 501.7  |
| 32.5° | 6155.9  | 4556.9 | 1306.4 | 657.0  | 600.6  | 560.8  | 518.4  | 468.4  | 421.0  | 396.6  | 395.3  |
| 35°   | 6094.4  | 4300.3 | 998.4  | 594.1  | 541.5  | 491.5  | 438.9  | 383.7  | 337.5  | 314.4  | 311.9  |
| 37.5° | 6135.5  | 4083.4 | 779.0  | 541.5  | 491.5  | 433.7  | 372.2  | 314.4  | 273.3  | 252.8  | 251.5  |
| 40°   | 6285.6  | 3944.8 | 632.7  | 496.6  | 449.2  | 378.6  | 311.9  | 257.9  | 223.3  | 206.6  | 205.3  |
| 42.5° | 6605.1  | 3893.5 | 540.3  | 459.4  | 408.1  | 327.3  | 259.2  | 213.0  | 180.9  | 169.4  | 166.8  |
| 45°   | 7139.0  | 3969.2 | 477.4  | 423.5  | 365.7  | 278.4  | 214.3  | 174.6  | 146.3  | 137.3  | 136.0  |
| 47.5° | 7850.0  | 4168.1 | 432.5  | 388.8  | 327.3  | 234.8  | 178.4  | 141.1  | 119.3  | 110.4  | 109.1  |
| 50°   | 8766.2  | 4483.8 | 395.3  | 354.2  | 291.3  | 198.9  | 147.6  | 111.7  | 92.4   | 86.0   | 86.0   |
| 52.5° | 9763.4  | 4859.9 | 361.9  | 322.1  | 255.3  | 165.5  | 119.3  | 86.0   | 73.1   | 65.5   | 65.5   |
| 55°   | 10587.2 | 5188.3 | 325.9  | 297.7  | 211.7  | 137.3  | 91.1   | 65.5   | 53.9   | 50.0   | 50.0   |
| 57.5° | 11409.8 | 5538.7 | 284.9  | 255.3  | 169.4  | 111.7  | 69.3   | 48.7   | 39.8   | 37.3   | 37.3   |
| 60°   | 12476.2 | 5967.3 | 245.1  | 207.9  | 133.5  | 84.7   | 51.3   | 34.7   | 29.5   | 28.2   | 28.2   |
| 62.5° | 13649.1 | 6218.8 | 209.1  | 166.8  | 104.0  | 62.9   | 37.3   | 23.1   | 21.8   | 21.8   | 20.5   |
| 65°   | 14366.5 | 5863.3 | 175.8  | 133.5  | 80.9   | 47.5   | 24.4   | 16.7   | 19.3   | 18.0   | 15.4   |
| 67.5° | 13451.5 | 4590.4 | 143.7  | 104.0  | 62.9   | 36.0   | 15.4   | 11.6   | 20.5   | 16.7   | 12.9   |
| 70°   | 11137.8 | 3213.4 | 111.7  | 73.1   | 50.0   | 30.8   | 10.2   | 7.7    | 21.8   | 16.7   | 10.2   |
| 72.5° | 8335.0  | 2150.9 | 88.6   | 48.7   | 37.3   | 26.9   | 8.9    | 3.8    | 19.3   | 14.2   | 8.9    |
| 75°   | 4554.4  | 866.2  | 70.6   | 30.8   | 23.1   | 19.3   | 6.4    | 2.6    | 12.9   | 10.2   | 6.4    |
| 77.5° | 1198.6  | 228.4  | 51.3   | 20.5   | 12.9   | 7.7    | 3.8    | 1.3    | 6.4    | 5.1    | 2.6    |
| 80°   | 305.5   | 88.6   | 33.3   | 14.2   | 8.9    | 3.8    | 0.0    | 0.0    | 1.3    | 0.0    | 0.0    |
| 82.5° | 163.0   | 37.3   | 20.5   | 10.2   | 5.1    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 123.2   | 24.4   | 11.6   | 6.4    | 1.3    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 47.5    | 7.7    | 3.8    | 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    |



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



LM-79-08: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

All Brands

Data applicable to all product families using SA light engines

Report Number: SP1-2101-121-7

Luminaire Tested: IFLD-S-SA2A-735-U-T2

Test Date: 03/04/2021

**Test Information**

Test Method: LM-79-08  
 Report Number: SP1-2101-121-7  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1  
 Measurement Geometry: 4π  
 Issue Date: 03/04/2021  
 Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
 Product Line: STREETWORKS  
 Catalog Number: **IFLD-S-SA2A-735-U-T2**  
 Description: STREETWORKS INF FLOOD

PROGRAMMED @ 615mA.

**Spectral Parameters**

CCT (K): 3388  
 CIE u': 0.2371  
 CIE v': 0.5177  
 Duv: 0.0032  
 CIE x: 0.4153  
 CIE y: 0.4030  
 CIE z: 0.1817  
 Peak Wavelength (nm): 590  
 Dominant Wavelength (nm): 580  
 Purity: 45.7  
  
 Rf: 76.9  
 Rg: 94.4

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 73.1 |      |       |
| R1:       | 68.9 | R9:  | -34.6 |
| R2:       | 81.1 | R10: | 57.8  |
| R3:       | 93.1 | R11: | 68.6  |
| R4:       | 71.6 | R12: | 53.9  |
| R5:       | 69.4 | R13: | 70.9  |
| R6:       | 75.0 | R14: | 96.2  |
| R7:       | 79.5 |      |       |
| R8:       | 46.4 |      |       |

**Test Conditions**

Stabilization Time: 81M  
 Operation Time: 12H  
 Room Temperature (°C) / RH%: 25.0/30%  
 Sphere Temperature (°C): 24.1



REPORT NUMBER: SP1-2101-121-7

| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 1/31/2021        | 7/31/2021            |
| Power Meter                    | IN0071                | 12/1/2020        | 12/1/2021            |
| AC Power Source                | IN0063                | 12/1/2020        | 12/1/2021            |
| DC Power Source                | IN0208                | 12/1/2020        | 12/1/2021            |
| Sphere Thermometer             | IN0085                | 12/1/2020        | 12/1/2021            |
| Room Thermometer               | IN0046                | 12/1/2020        | 12/1/2021            |

REPORT NUMBER: SP1-2101-121-7

CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 3500K 4-step quadrangle

REPORT NUMBER: SP1-2101-121-7

**Photopic Flux vs. Wavelength**



#####

| λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) | λ (nm) | Power (µW/nm) | Lumens (Φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2672          | 0.0           | 490    | 34553         | 4.9           | 620    | 136720        | 35.6          | 750    | 5870          | 0.0           | 880    | 4216          | 0.0           |
| 365    | 2252          | 0.0           | 495    | 44336         | 8.0           | 625    | 126308        | 27.9          | 755    | 5421          | 0.0           | 885    | 4132          | 0.0           |
| 370    | 2217          | 0.0           | 500    | 54643         | 12.1          | 630    | 114625        | 20.7          | 760    | 5097          | 0.0           | 890    | 3992          | 0.0           |
| 375    | 2697          | 0.0           | 505    | 64676         | 18.1          | 635    | 103216        | 15.5          | 765    | 4626          | 0.0           | 895    | 3214          | 0.0           |
| 380    | 3039          | 0.0           | 510    | 73825         | 25.4          | 640    | 92605         | 11.1          | 770    | 3782          | 0.0           | 900    | 2580          | 0.0           |
| 385    | 2655          | 0.0           | 515    | 81872         | 33.9          | 645    | 83234         | 8.0           | 775    | 3506          | 0.0           | 905    | 1776          | 0.0           |
| 390    | 2357          | 0.0           | 520    | 88574         | 43.0          | 650    | 73263         | 5.4           | 780    | 3507          | 0.0           | 910    | 3995          | 0.0           |
| 395    | 2186          | 0.0           | 525    | 93289         | 50.1          | 655    | 64627         | 3.7           | 785    | 3267          | 0.0           | 915    | 4288          | 0.0           |
| 400    | 2015          | 0.0           | 530    | 98393         | 57.9          | 660    | 56614         | 2.4           | 790    | 2849          | 0.0           | 920    | 2446          | 0.0           |
| 405    | 2234          | 0.0           | 535    | 103269        | 64.0          | 665    | 49537         | 1.6           | 795    | 3037          | 0.0           | 925    | 3009          | 0.0           |
| 410    | 3412          | 0.0           | 540    | 107316        | 69.9          | 670    | 42866         | 0.9           | 800    | 2716          | 0.0           | 930    | 3026          | 0.0           |
| 415    | 6135          | 0.0           | 545    | 113101        | 75.3          | 675    | 36708         | 0.6           | 805    | 2648          | 0.0           | 935    | 4734          | 0.0           |
| 420    | 12146         | 0.0           | 550    | 120690        | 82.0          | 680    | 31814         | 0.4           | 810    | 3187          | 0.0           | 940    | 3719          | 0.0           |
| 425    | 23983         | 0.1           | 555    | 128583        | 87.8          | 685    | 27485         | 0.2           | 815    | 2931          | 0.0           | 945    | 1480          | 0.0           |
| 430    | 42142         | 0.3           | 560    | 137796        | 93.6          | 690    | 23698         | 0.1           | 820    | 2717          | 0.0           | 950    | 3450          | 0.0           |
| 435    | 68228         | 0.8           | 565    | 146577        | 97.5          | 695    | 20309         | 0.1           | 825    | 2236          | 0.0           | 955    | 5051          | 0.0           |
| 440    | 99323         | 1.6           | 570    | 154581        | 100.5         | 700    | 17890         | 0.1           | 830    | 2628          | 0.0           | 960    | 3176          | 0.0           |
| 445    | 115584        | 2.4           | 575    | 162633        | 101.2         | 705    | 15500         | 0.0           | 835    | 3140          | 0.0           | 965    | 5178          | 0.0           |
| 450    | 94997         | 2.5           | 580    | 168101        | 99.9          | 710    | 13699         | 0.0           | 840    | 3675          | 0.0           | 970    | 6385          | 0.0           |
| 455    | 61433         | 2.1           | 585    | 173145        | 96.2          | 715    | 12398         | 0.0           | 845    | 3283          | 0.0           | 975    | 3810          | 0.0           |
| 460    | 43373         | 1.8           | 590    | 174675        | 90.3          | 720    | 11147         | 0.0           | 850    | 3055          | 0.0           | 980    | 4322          | 0.0           |
| 465    | 32472         | 1.7           | 595    | 173724        | 82.3          | 725    | 9761          | 0.0           | 855    | 2932          | 0.0           | 985    | 4200          | 0.0           |
| 470    | 24257         | 1.5           | 600    | 171241        | 73.8          | 730    | 8651          | 0.0           | 860    | 3382          | 0.0           | 990    | 4661          | 0.0           |
| 475    | 21690         | 1.7           | 605    | 165134        | 64.0          | 735    | 7730          | 0.0           | 865    | 2605          | 0.0           | 995    | 6746          | 0.0           |
| 480    | 23173         | 2.2           | 610    | 156652        | 53.8          | 740    | 6847          | 0.0           | 870    | 3325          | 0.0           | 1000   | 4150          | 0.0           |
| 485    | 27564         | 3.3           | 615    | 147879        | 44.6          | 745    | 6124          | 0.0           | 875    | 3325          | 0.0           |        |               |               |

REPORT NUMBER: SP1-2101-121-7

**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: 12126**

**S/P: 1.36**

| 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    | 2672          | 0.0           | 490    | 34553         | 53.2          | 620    | 136720        | 1.7           | 750    | 5870          | 0.0           | 880    | 4216          | 0.0           |
| 365    | 2252          | 0.0           | 495    | 44336         | 71.7          | 625    | 126308        | 1.1           | 755    | 5421          | 0.0           | 885    | 4132          | 0.0           |
| 370    | 2217          | 0.0           | 500    | 54643         | 91.4          | 630    | 114625        | 0.6           | 760    | 5097          | 0.0           | 890    | 3992          | 0.0           |
| 375    | 2697          | 0.0           | 505    | 64676         | 110.0         | 635    | 103216        | 0.4           | 765    | 4626          | 0.0           | 895    | 3214          | 0.0           |
| 380    | 3039          | 0.0           | 510    | 73825         | 125.1         | 640    | 92605         | 0.2           | 770    | 3782          | 0.0           | 900    | 2580          | 0.0           |
| 385    | 2655          | 0.0           | 515    | 81872         | 135.7         | 645    | 83234         | 0.1           | 775    | 3506          | 0.0           | 905    | 1776          | 0.0           |
| 390    | 2357          | 0.0           | 520    | 88574         | 140.8         | 650    | 73263         | 0.1           | 780    | 3507          | 0.0           | 910    | 3995          | 0.0           |
| 395    | 2186          | 0.0           | 525    | 93289         | 139.6         | 655    | 64627         | 0.1           | 785    | 3267          | 0.0           | 915    | 4288          | 0.0           |
| 400    | 2015          | 0.0           | 530    | 98393         | 135.7         | 660    | 56614         | 0.0           | 790    | 2849          | 0.0           | 920    | 2446          | 0.0           |
| 405    | 2234          | 0.1           | 535    | 103269        | 128.7         | 665    | 49537         | 0.0           | 795    | 3037          | 0.0           | 925    | 3009          | 0.0           |
| 410    | 3412          | 0.2           | 540    | 107316        | 118.6         | 670    | 42866         | 0.0           | 800    | 2716          | 0.0           | 930    | 3026          | 0.0           |
| 415    | 6135          | 0.6           | 545    | 113101        | 108.4         | 675    | 36708         | 0.0           | 805    | 2648          | 0.0           | 935    | 4734          | 0.0           |
| 420    | 12146         | 2.0           | 550    | 120690        | 98.7          | 680    | 31814         | 0.0           | 810    | 3187          | 0.0           | 940    | 3719          | 0.0           |
| 425    | 23983         | 5.9           | 555    | 128583        | 87.9          | 685    | 27485         | 0.0           | 815    | 2931          | 0.0           | 945    | 1480          | 0.0           |
| 430    | 42142         | 14.3          | 560    | 137796        | 77.0          | 690    | 23698         | 0.0           | 820    | 2717          | 0.0           | 950    | 3450          | 0.0           |
| 435    | 68228         | 30.5          | 565    | 146577        | 65.8          | 695    | 20309         | 0.0           | 825    | 2236          | 0.0           | 955    | 5051          | 0.0           |
| 440    | 99323         | 55.5          | 570    | 154581        | 54.6          | 700    | 17890         | 0.0           | 830    | 2628          | 0.0           | 960    | 3176          | 0.0           |
| 445    | 115584        | 77.4          | 575    | 162633        | 44.3          | 705    | 15500         | 0.0           | 835    | 3140          | 0.0           | 965    | 5178          | 0.0           |
| 450    | 94997         | 73.6          | 580    | 168101        | 34.6          | 710    | 13699         | 0.0           | 840    | 3675          | 0.0           | 970    | 6385          | 0.0           |
| 455    | 61433         | 53.7          | 585    | 173145        | 26.5          | 715    | 12398         | 0.0           | 845    | 3283          | 0.0           | 975    | 3810          | 0.0           |
| 460    | 43373         | 41.9          | 590    | 174675        | 19.5          | 720    | 11147         | 0.0           | 850    | 3055          | 0.0           | 980    | 4322          | 0.0           |
| 465    | 32472         | 34.3          | 595    | 173724        | 13.9          | 725    | 9761          | 0.0           | 855    | 2932          | 0.0           | 985    | 4200          | 0.0           |
| 470    | 24257         | 27.9          | 600    | 171241        | 9.7           | 730    | 8651          | 0.0           | 860    | 3382          | 0.0           | 990    | 4661          | 0.0           |
| 475    | 21690         | 27.1          | 605    | 165134        | 6.5           | 735    | 7730          | 0.0           | 865    | 2605          | 0.0           | 995    | 6746          | 0.0           |
| 480    | 23173         | 31.3          | 610    | 156652        | 4.2           | 740    | 6847          | 0.0           | 870    | 3325          | 0.0           | 1000   | 4150          | 0.0           |
| 485    | 27564         | 40.0          | 615    | 147879        | 2.7           | 745    | 6124          | 0.0           | 875    | 3325          | 0.0           |        |               |               |

REPORT NUMBER: SP1-2101-121-7

**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 4490.7 M/P: 0.5**

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360    | 2672          | 0.0           | 490    | 34553         | 28.8          | 620    | 136720        | 0.1           | 750    | 5870          | 0.0           | 880    | 4216          | 0.0           |
| 365    | 2252          | 0.0           | 495    | 44336         | 36.6          | 625    | 126308        | 0.1           | 755    | 5421          | 0.0           | 885    | 4132          | 0.0           |
| 370    | 2217          | 0.0           | 500    | 54643         | 43.9          | 630    | 114625        | 0.0           | 760    | 5097          | 0.0           | 890    | 3992          | 0.0           |
| 375    | 2697          | 0.0           | 505    | 64676         | 49.6          | 635    | 103216        | 0.0           | 765    | 4626          | 0.0           | 895    | 3214          | 0.0           |
| 380    | 3039          | 0.0           | 510    | 73825         | 53.0          | 640    | 92605         | 0.0           | 770    | 3782          | 0.0           | 900    | 2580          | 0.0           |
| 385    | 2655          | 0.0           | 515    | 81872         | 53.5          | 645    | 83234         | 0.0           | 775    | 3506          | 0.0           | 905    | 1776          | 0.0           |
| 390    | 2357          | 0.0           | 520    | 88574         | 51.6          | 650    | 73263         | 0.0           | 780    | 3507          | 0.0           | 910    | 3995          | 0.0           |
| 395    | 2186          | 0.0           | 525    | 93289         | 47.3          | 655    | 64627         | 0.0           | 785    | 3267          | 0.0           | 915    | 4288          | 0.0           |
| 400    | 2015          | 0.0           | 530    | 98393         | 42.5          | 660    | 56614         | 0.0           | 790    | 2849          | 0.0           | 920    | 2446          | 0.0           |
| 405    | 2234          | 0.0           | 535    | 103269        | 37.2          | 665    | 49537         | 0.0           | 795    | 3037          | 0.0           | 925    | 3009          | 0.0           |
| 410    | 3412          | 0.1           | 540    | 107316        | 31.4          | 670    | 42866         | 0.0           | 800    | 2716          | 0.0           | 930    | 3026          | 0.0           |
| 415    | 6135          | 0.4           | 545    | 113101        | 26.3          | 675    | 36708         | 0.0           | 805    | 2648          | 0.0           | 935    | 4734          | 0.0           |
| 420    | 12146         | 1.4           | 550    | 120690        | 21.7          | 680    | 31814         | 0.0           | 810    | 3187          | 0.0           | 940    | 3719          | 0.0           |
| 425    | 23983         | 3.7           | 555    | 128583        | 17.3          | 685    | 27485         | 0.0           | 815    | 2931          | 0.0           | 945    | 1480          | 0.0           |
| 430    | 42142         | 8.9           | 560    | 137796        | 13.6          | 690    | 23698         | 0.0           | 820    | 2717          | 0.0           | 950    | 3450          | 0.0           |
| 435    | 68228         | 18.2          | 565    | 146577        | 10.3          | 695    | 20309         | 0.0           | 825    | 2236          | 0.0           | 955    | 5051          | 0.0           |
| 440    | 99323         | 33.2          | 570    | 154581        | 7.6           | 700    | 17890         | 0.0           | 830    | 2628          | 0.0           | 960    | 3176          | 0.0           |
| 445    | 115584        | 45.6          | 575    | 162633        | 5.4           | 705    | 15500         | 0.0           | 835    | 3140          | 0.0           | 965    | 5178          | 0.0           |
| 450    | 94997         | 43.8          | 580    | 168101        | 3.8           | 710    | 13699         | 0.0           | 840    | 3675          | 0.0           | 970    | 6385          | 0.0           |
| 455    | 61433         | 32.2          | 585    | 173145        | 2.6           | 715    | 12398         | 0.0           | 845    | 3283          | 0.0           | 975    | 3810          | 0.0           |
| 460    | 43373         | 25.6          | 590    | 174675        | 1.7           | 720    | 11147         | 0.0           | 850    | 3055          | 0.0           | 980    | 4322          | 0.0           |
| 465    | 32472         | 21.2          | 595    | 173724        | 1.1           | 725    | 9761          | 0.0           | 855    | 2932          | 0.0           | 985    | 4200          | 0.0           |
| 470    | 24257         | 17.4          | 600    | 171241        | 0.7           | 730    | 8651          | 0.0           | 860    | 3382          | 0.0           | 990    | 4661          | 0.0           |
| 475    | 21690         | 16.6          | 605    | 165134        | 0.5           | 735    | 7730          | 0.0           | 865    | 2605          | 0.0           | 995    | 6746          | 0.0           |
| 480    | 23173         | 18.6          | 610    | 156652        | 0.3           | 740    | 6847          | 0.0           | 870    | 3325          | 0.0           | 1000   | 4150          | 0.0           |
| 485    | 27564         | 22.7          | 615    | 147879        | 0.2           | 745    | 6124          | 0.0           | 875    | 3325          | 0.0           |        |               |               |

**Summary**

$R_f = 76.9$   
 $R_g = 94.4$   
 CIE  $R_a = 73.1$   
 $R_g = -34.6$



**Color Vector Graphics**





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

|            |            |            |            |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 68 | CES51 = 90 | CES76 = 63 |
| CES02 = 62 | CES27 = 88 | CES52 = 89 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 80 | CES78 = 65 |
| CES04 = 70 | CES29 = 67 | CES54 = 84 | CES79 = 87 |
| CES05 = 48 | CES30 = 74 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 71 | CES56 = 75 | CES81 = 75 |
| CES07 = 40 | CES32 = 67 | CES57 = 74 | CES82 = 94 |
| CES08 = 39 | CES33 = 74 | CES58 = 76 | CES83 = 91 |
| CES09 = 29 | CES34 = 78 | CES59 = 87 | CES84 = 89 |
| CES10 = 75 | CES35 = 89 | CES60 = 93 | CES85 = 80 |
| CES11 = 58 | CES36 = 98 | CES61 = 86 | CES86 = 66 |
| CES12 = 64 | CES37 = 86 | CES62 = 89 | CES87 = 79 |
| CES13 = 43 | CES38 = 82 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 95 | CES64 = 74 | CES89 = 70 |
| CES15 = 71 | CES40 = 91 | CES65 = 68 | CES90 = 77 |
| CES16 = 47 | CES41 = 89 | CES66 = 71 | CES91 = 88 |
| CES17 = 50 | CES42 = 88 | CES67 = 69 | CES92 = 60 |
| CES18 = 56 | CES43 = 82 | CES68 = 74 | CES93 = 77 |
| CES19 = 72 | CES44 = 99 | CES69 = 82 | CES94 = 52 |
| CES20 = 65 | CES45 = 87 | CES70 = 67 | CES95 = 69 |
| CES21 = 86 | CES46 = 82 | CES71 = 66 | CES96 = 78 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 85 |
| CES23 = 92 | CES48 = 72 | CES73 = 59 | CES98 = 76 |
| CES24 = 91 | CES49 = 82 | CES74 = 97 | CES99 = 63 |
| CES25 = 72 | CES50 = 88 | CES75 = 66 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)