

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: P321314

Luminaire Tested: **GLEON-SA0A-750-U-T2R-HSS**

Issue Date: 3/3/2020

**Test Information**

Test Method: LM-79-08  
Report Number: P321314  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-9)  
Test Lab: INNOVATION CENTER  
Issue Date: 3/3/2020  
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)  
Product Line: McGRAW-EDISON  
Catalog Number: GLEON-SA0A-750-U-T2R-HSS  
Description: GALLEON AREA AND ROADWAY LUMINAIRE  
(10) 70 CRI, 5000K, 615mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II  
ROADWAY OPTICS WITH HOUSE SIDE SHIELD  
Light Source: -  
Ballast/Driver: ELECTRONIC DRIVER

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 37232 lumens  
Efficiency: N/A  
Efficacy: 115.3 lumens/watt  
Luminous Opening: Rectangular (W 2.5' x L: 1' x H: 0')  
IES Classification: Type II - Medium  
BUG Rating: B2 - U0 - G4

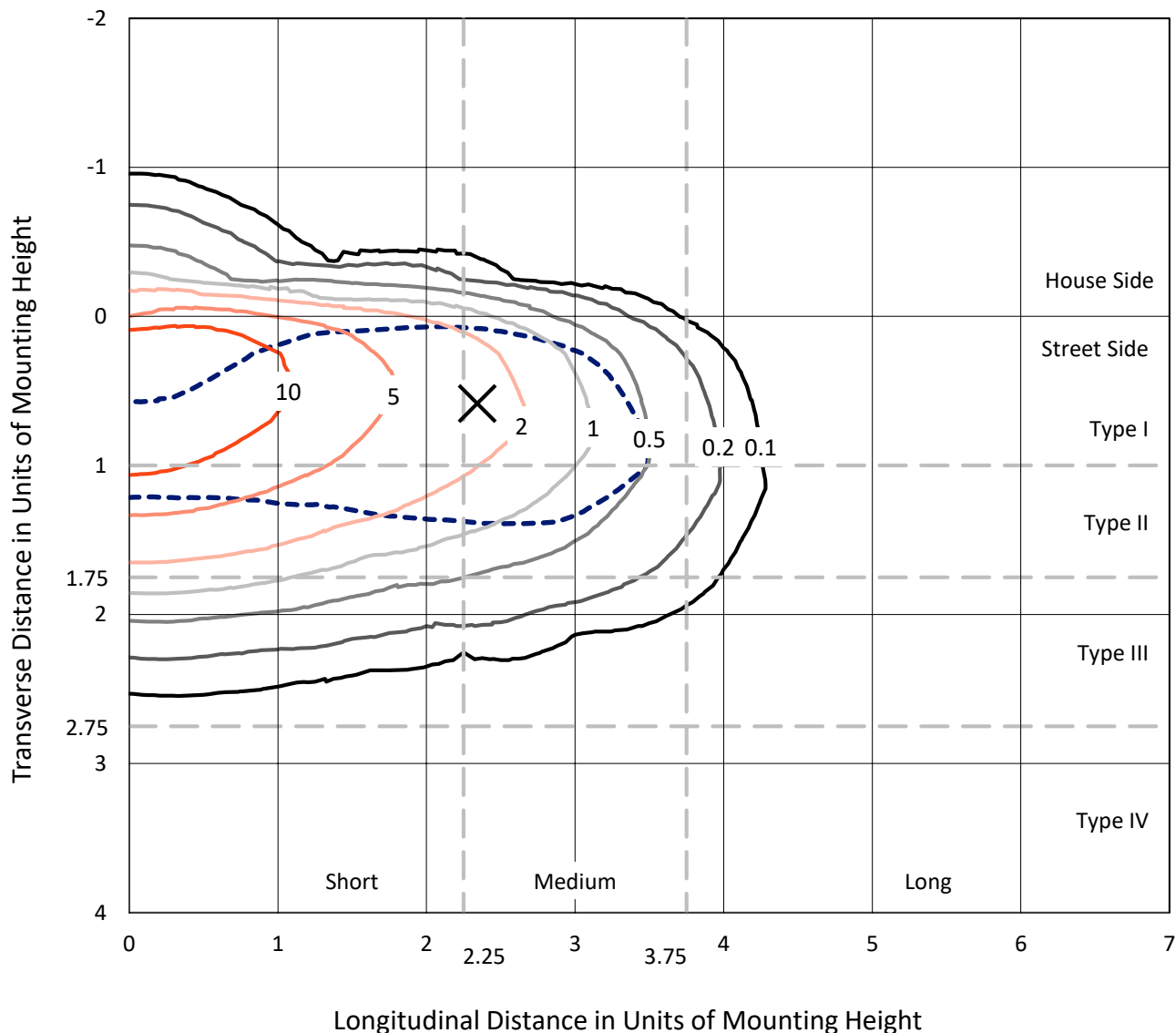
Input Watts (W): 323  
Input Voltage (V): NR  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



REPORT NUMBER: P321314  
 CATALOG NUMBER: GLEON-SA0A-750-U-T2R-HSS

### Iso-Footcandle Lines of Horizontal Illumination

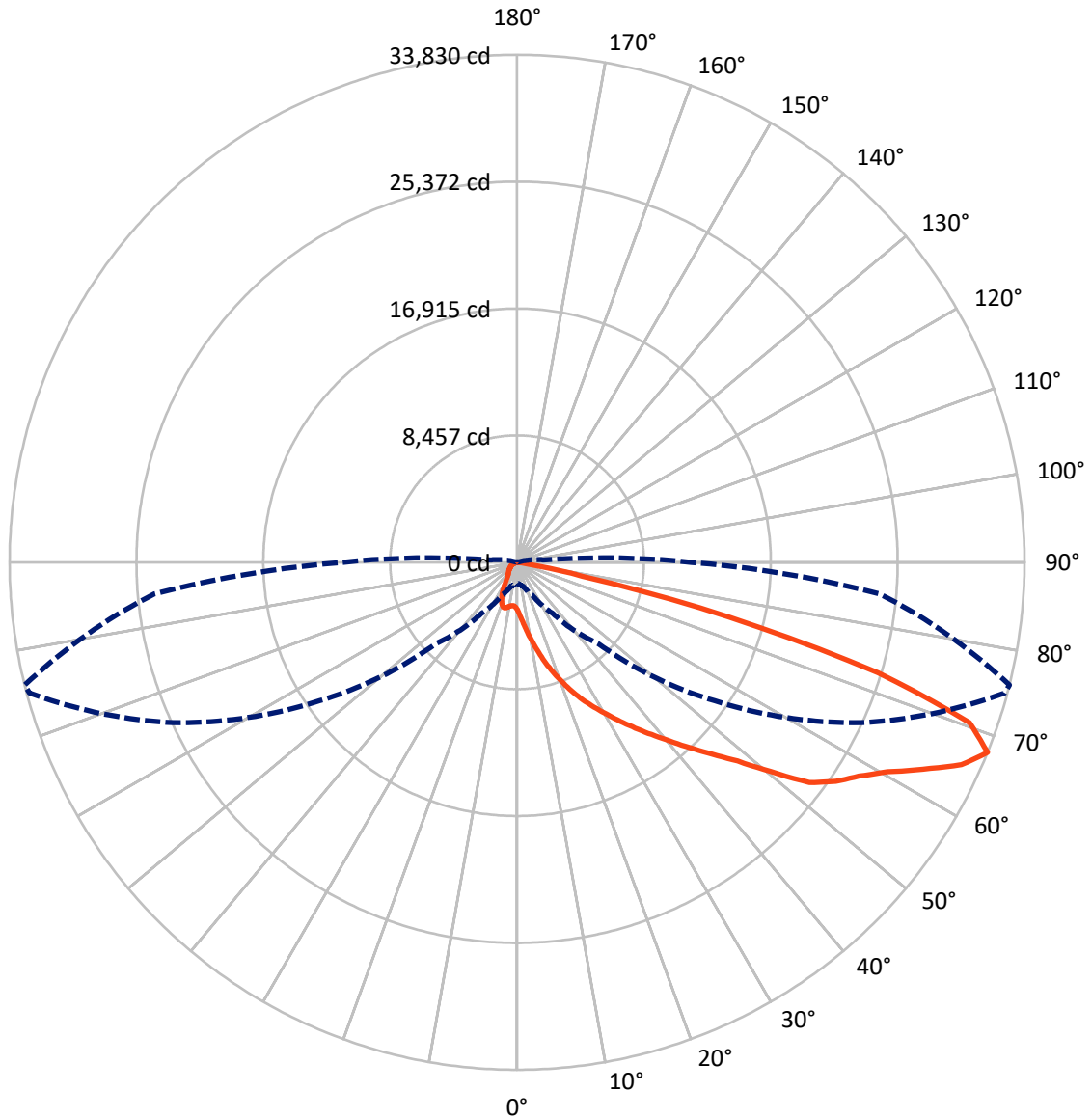
× Max cd  
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 17.8 fc  
 Type II - Medium - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 76-Deg Lateral      - - - Horizontal Cone Through 67.5-Deg Vertical

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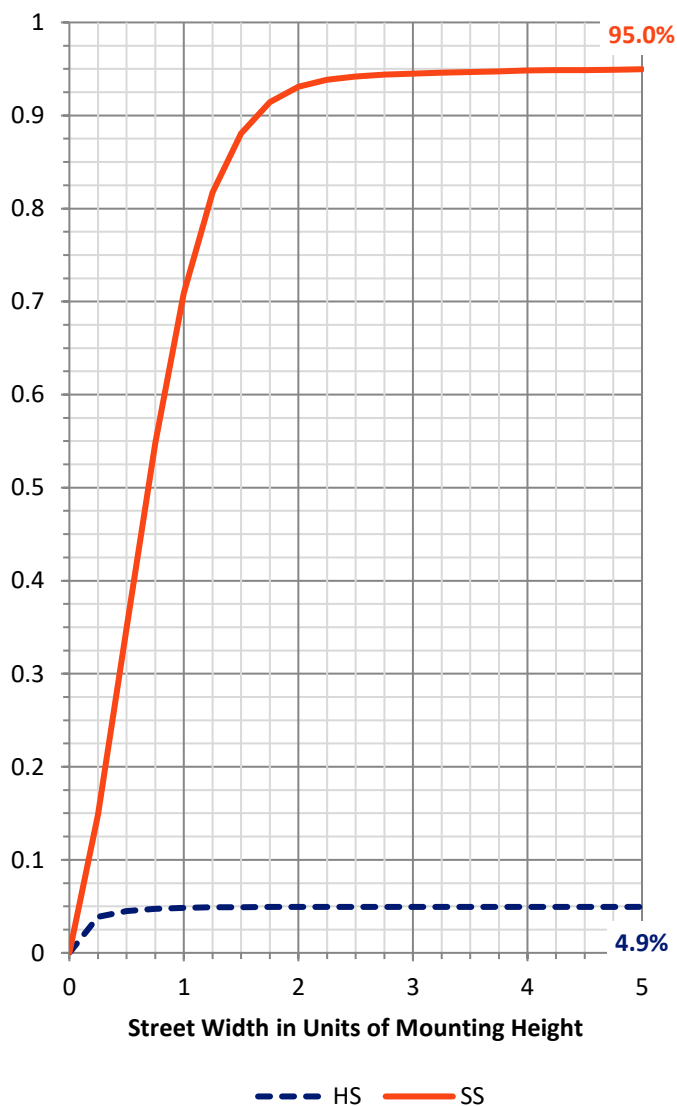
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 1848.8   | 0.0    | 1848.8  |
|                    | % Fixture | 5.0      | 0.0    | 5.0     |
| <b>Street Side</b> | Lumens    | 35383.2  | 0.0    | 35383.2 |
|                    | % Fixture | 95.0     | 0.0    | 95.0    |
| <b>Total</b>       | Lumens    | 37232.0  | 0.0    | 37232.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 392.7   | 1.1       |
| 10°-20°   | 1556.9  | 4.2       |
| 20°-30°   | 3167.7  | 8.5       |
| 30°-40°   | 5498.1  | 14.8      |
| 40°-50°   | 7768.1  | 20.9      |
| 50°-60°   | 8809.4  | 23.7      |
| 60°-70°   | 7306.6  | 19.6      |
| 70°-80°   | 2646.7  | 7.1       |
| 80°-90°   | 85.8    | 0.2       |
| 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°    | 37232.0 | 100.0     |
| 0°-180°   | 37232.0 | 100.0     |

**Coefficient of Utilization**

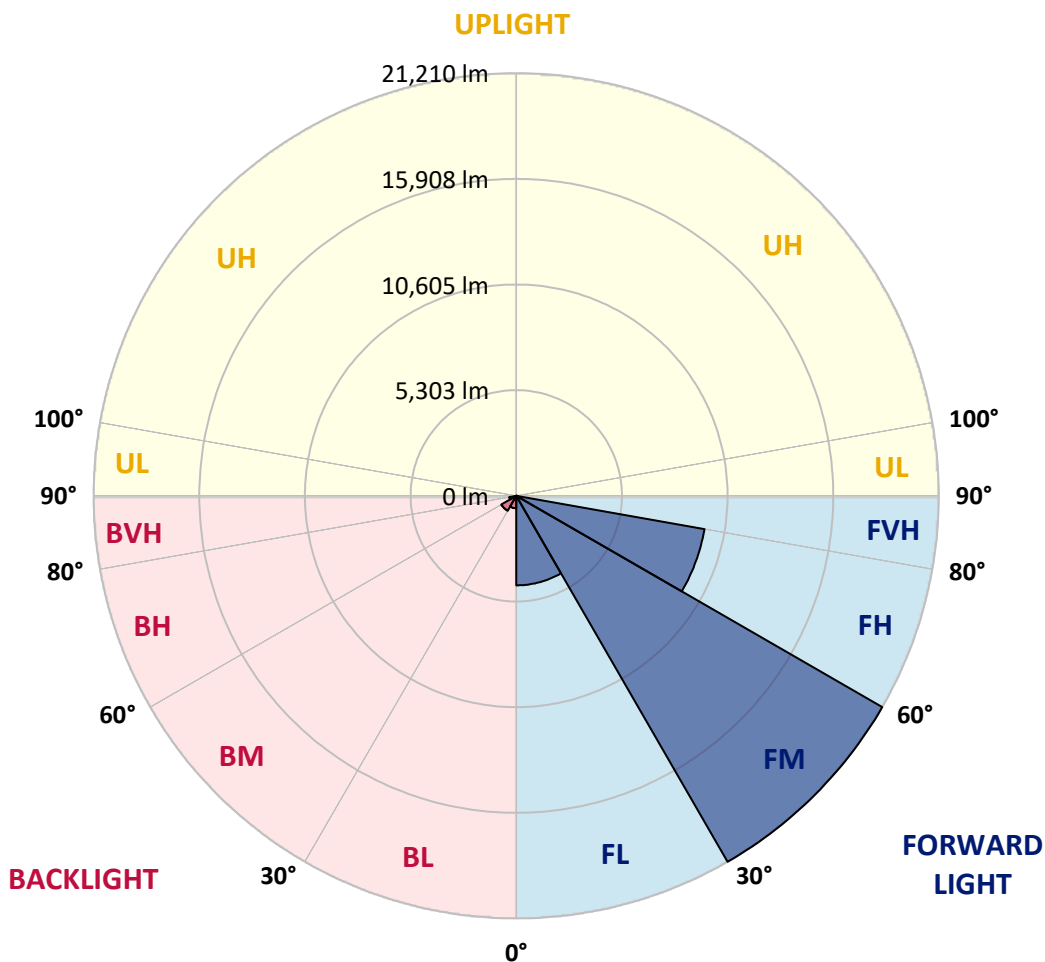


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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone           | Lumens  | % Fixture | Zone Rating/Lumen Limit |      |          |
|----------------|---------|-----------|-------------------------|------|----------|
|                |         |           | B                       | U    | G        |
| FL (0°-30°)    | 4493.8  | 12.1      |                         |      |          |
| FM (30°-60°)   | 21210.3 | 57.0      |                         |      |          |
| FH (60°-80°)   | 9595.9  | 25.8      |                         |      | G4/12000 |
| FVH (80°-90°)  | 83.1    | 0.2       |                         |      | G1/100   |
| BL (0°-30°)    | 623.5   | 1.7       | B2/1000                 |      |          |
| BM (30°-60°)   | 865.3   | 2.3       | B1/1000                 |      |          |
| BH (60°-80°)   | 357.3   | 1.0       | B1/500                  |      | G1/500   |
| BVH (80°-90°)  | 2.7     | 0.0       |                         |      | G0/10    |
| UL (90°-100°)  | 0.0     | 0.0       |                         | U0/0 |          |
| UH (100°-180°) | 0.0     | 0.0       |                         | U0/0 |          |

**BUG Rating: B2-U0-G4**  
 Type II Medium





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 5°      | 15°     | 25°     | 35°     | 45°     | 55°     | 65°     | 75°     | 76°     | 85°     |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 3158.4  | 3158.4  | 3158.4  | 3158.4  | 3158.4  | 3158.4  | 3158.4  | 3158.4  | 3158.4  | 3158.4  | 3158.4  |
| 2.5°  | 4714.7  | 4608.6  | 4633.1  | 4564.6  | 4440.6  | 4186.1  | 3969.1  | 3763.6  | 3523.8  | 3515.6  | 3318.2  |
| 5°    | 6357.5  | 6267.8  | 6256.3  | 6117.7  | 5892.5  | 5460.2  | 5039.3  | 4559.7  | 4024.6  | 3985.5  | 3566.2  |
| 7.5°  | 7848.6  | 7776.8  | 7750.7  | 7585.9  | 7166.7  | 6745.8  | 6197.6  | 5492.9  | 4656.0  | 4584.2  | 3900.6  |
| 10°   | 8993.8  | 8959.5  | 8966.1  | 8848.6  | 8489.7  | 8098.2  | 7378.7  | 6479.8  | 5372.1  | 5261.2  | 4301.9  |
| 12.5° | 9861.7  | 9869.8  | 9928.6  | 9856.8  | 9656.1  | 9365.8  | 8597.4  | 7532.1  | 6165.0  | 6013.3  | 4760.4  |
| 15°   | 10499.6 | 10540.3 | 10648.0 | 10737.7 | 10723.1 | 10471.8 | 9767.1  | 8600.6  | 7006.8  | 6838.7  | 5271.0  |
| 17.5° | 10912.3 | 10958.0 | 11114.6 | 11313.6 | 11496.3 | 11437.6 | 10896.0 | 9631.7  | 7858.4  | 7664.2  | 5817.5  |
| 20°   | 11274.5 | 11328.3 | 11496.3 | 11759.0 | 12099.9 | 12173.4 | 11817.7 | 10631.7 | 8708.3  | 8471.8  | 6382.0  |
| 22.5° | 12059.2 | 12057.5 | 12160.3 | 12313.7 | 12638.3 | 12827.5 | 12602.4 | 11560.0 | 9548.5  | 9302.1  | 6957.8  |
| 25°   | 13478.5 | 13424.6 | 13388.7 | 13268.0 | 13339.8 | 13457.3 | 13331.6 | 12427.9 | 10393.5 | 10143.9 | 7541.9  |
| 27.5° | 15165.3 | 15197.9 | 14907.6 | 14582.9 | 14331.7 | 14211.0 | 14005.4 | 13232.1 | 11206.0 | 10931.9 | 8112.9  |
| 30°   | 16945.1 | 16954.9 | 16612.3 | 16198.0 | 15644.9 | 15186.5 | 14830.9 | 14000.5 | 12041.2 | 11742.7 | 8667.5  |
| 32.5° | 18550.4 | 18486.8 | 18147.5 | 17583.0 | 16884.8 | 16369.3 | 15630.3 | 14858.6 | 12925.4 | 12636.7 | 9284.2  |
| 35°   | 19822.9 | 19747.9 | 19335.1 | 18821.2 | 18096.9 | 17578.1 | 16689.0 | 15715.1 | 13855.3 | 13573.1 | 9902.5  |
| 37.5° | 20752.8 | 20664.7 | 20240.5 | 19712.0 | 19087.1 | 18785.3 | 17917.4 | 16646.6 | 14870.0 | 14566.6 | 10553.4 |
| 40°   | 21075.8 | 20999.1 | 20733.2 | 20346.6 | 19844.1 | 19775.6 | 19220.9 | 17718.4 | 15974.5 | 15651.5 | 11290.8 |
| 42.5° | 20883.3 | 20808.3 | 20713.6 | 20583.1 | 20374.3 | 20439.6 | 20451.0 | 18940.3 | 17201.3 | 16883.2 | 12104.8 |
| 45°   | 20119.8 | 20052.9 | 20150.8 | 20341.7 | 20601.1 | 20924.1 | 21573.4 | 20253.6 | 18571.6 | 18232.3 | 13046.1 |
| 47.5° | 18995.8 | 18946.8 | 19217.7 | 19694.0 | 20452.6 | 21343.3 | 22599.5 | 21633.7 | 20110.0 | 19795.2 | 14220.7 |
| 50°   | 17397.0 | 17388.9 | 17930.5 | 18800.0 | 19966.5 | 21545.6 | 23659.9 | 23203.1 | 22247.1 | 21916.0 | 15853.8 |
| 52.5° | 14907.6 | 14923.9 | 15989.2 | 17380.7 | 19113.2 | 21408.6 | 24341.8 | 25219.5 | 24733.4 | 24389.1 | 17268.2 |
| 55°   | 12537.2 | 12635.0 | 13390.4 | 15397.0 | 17804.9 | 20899.6 | 24576.7 | 26160.8 | 26105.3 | 25779.1 | 18054.5 |
| 57.5° | 10215.7 | 10393.5 | 11121.1 | 12995.6 | 15894.5 | 19726.6 | 24447.9 | 26568.7 | 27126.6 | 26877.0 | 19092.0 |
| 60°   | 7700.1  | 7781.7  | 8620.2  | 10372.3 | 13442.6 | 17586.3 | 23513.1 | 26790.5 | 28523.1 | 28350.1 | 20597.8 |
| 62.5° | 4899.0  | 5103.0  | 5846.9  | 7537.0  | 10466.9 | 14613.9 | 21937.2 | 26787.3 | 30270.3 | 30364.9 | 22540.8 |
| 65°   | 2580.8  | 2819.0  | 3213.8  | 4670.6  | 7192.8  | 11294.0 | 19566.8 | 26536.0 | 32413.9 | 32546.0 | 24059.6 |
| 67.5° | 1391.6  | 1460.1  | 1668.9  | 2424.2  | 4171.4  | 7651.2  | 16083.8 | 25296.2 | 33655.4 | 33829.9 | 24271.7 |
| 70°   | 1018.0  | 1055.5  | 1133.8  | 1341.0  | 2099.6  | 4443.9  | 11736.1 | 22485.3 | 32055.0 | 31989.7 | 21565.2 |
| 72.5° | 781.4   | 840.2   | 898.9   | 982.1   | 1207.2  | 2372.0  | 7307.0  | 17607.5 | 25576.8 | 25146.1 | 16119.7 |
| 75°   | 616.7   | 626.4   | 709.7   | 784.7   | 905.4   | 1350.8  | 3244.8  | 10254.9 | 15610.7 | 14591.1 | 8359.2  |
| 77.5° | 492.7   | 499.2   | 548.1   | 613.4   | 727.6   | 887.5   | 1004.9  | 4034.4  | 4983.9  | 4447.1  | 1814.1  |
| 80°   | 292.0   | 308.3   | 407.8   | 473.1   | 603.6   | 559.6   | 367.1   | 876.1   | 778.2   | 704.8   | 305.1   |
| 82.5° | 163.1   | 176.2   | 230.0   | 373.6   | 420.9   | 267.5   | 182.7   | 236.6   | 182.7   | 177.8   | 86.5    |
| 85°   | 0.0     | 8.2     | 148.5   | 231.7   | 171.3   | 58.7    | 76.7    | 78.3    | 53.8    | 50.6    | 34.3    |
| 87.5° | 0.0     | 0.0     | 45.7    | 44.0    | 6.5     | 9.8     | 17.9    | 26.1    | 21.2    | 21.2    | 17.9    |
| 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: P321314

CATALOG NUMBER: GLEON-SA0A-750-U-T2R-HSS

**CANDELA DISTRIBUTION (continued):**

|       | 90°     | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 3158.4  | 3158.4 | 3158.4 | 3158.4 | 3158.4 | 3158.4 | 3158.4 | 3158.4 | 3158.4 | 3158.4 | 3158.4 |
| 2.5°  | 3220.3  | 3132.2 | 2965.8 | 2802.7 | 2665.7 | 2553.1 | 2452.0 | 2411.2 | 2378.6 | 2373.7 | 2347.6 |
| 5°    | 3363.9  | 3186.1 | 2868.0 | 2606.9 | 2432.4 | 2308.4 | 2202.4 | 2137.1 | 2086.5 | 2067.0 | 2049.0 |
| 7.5°  | 3580.9  | 3311.7 | 2854.9 | 2554.7 | 2345.9 | 2137.1 | 1941.3 | 1729.3 | 1597.1 | 1546.5 | 1517.2 |
| 10°   | 3845.2  | 3478.1 | 2903.9 | 2540.1 | 2174.6 | 1734.2 | 1409.5 | 1140.3 | 1031.0 | 995.1  | 985.4  |
| 12.5° | 4153.5  | 3685.3 | 2988.7 | 2448.7 | 1809.2 | 1231.7 | 972.3  | 880.9  | 856.5  | 845.1  | 845.1  |
| 15°   | 4507.5  | 3912.0 | 3049.0 | 2184.4 | 1337.7 | 931.5  | 841.8  | 799.4  | 773.3  | 758.6  | 760.2  |
| 17.5° | 4869.7  | 4133.9 | 3019.7 | 1801.0 | 987.0  | 828.7  | 761.9  | 716.2  | 680.3  | 665.6  | 662.3  |
| 20°   | 5235.1  | 4339.5 | 2856.5 | 1341.0 | 835.3  | 752.1  | 677.0  | 626.4  | 590.6  | 575.9  | 572.6  |
| 22.5° | 5613.6  | 4514.0 | 2569.4 | 983.7  | 750.4  | 667.2  | 593.8  | 543.2  | 509.0  | 495.9  | 489.4  |
| 25°   | 5982.3  | 4656.0 | 2168.1 | 796.1  | 670.5  | 587.3  | 517.1  | 469.8  | 438.8  | 425.8  | 424.2  |
| 27.5° | 6326.5  | 4745.7 | 1703.2 | 703.1  | 600.3  | 515.5  | 451.9  | 409.5  | 383.4  | 373.6  | 372.0  |
| 30°   | 6636.5  | 4753.8 | 1259.4 | 634.6  | 538.4  | 453.5  | 394.8  | 357.3  | 334.4  | 324.6  | 321.4  |
| 32.5° | 6949.7  | 4685.3 | 916.8  | 572.6  | 481.3  | 399.7  | 342.6  | 313.2  | 296.9  | 288.8  | 288.8  |
| 35°   | 7245.0  | 4527.1 | 714.5  | 518.8  | 425.8  | 347.5  | 301.8  | 280.6  | 270.8  | 262.7  | 262.7  |
| 37.5° | 7533.7  | 4300.3 | 606.9  | 471.5  | 373.6  | 303.4  | 265.9  | 252.9  | 244.7  | 236.6  | 236.6  |
| 40°   | 7827.4  | 4014.8 | 551.4  | 427.4  | 331.2  | 269.2  | 236.6  | 225.1  | 217.0  | 210.4  | 208.8  |
| 42.5° | 8187.9  | 3685.3 | 515.5  | 386.6  | 293.6  | 238.2  | 208.8  | 195.8  | 189.2  | 182.7  | 179.5  |
| 45°   | 8605.5  | 3401.4 | 486.2  | 345.9  | 262.7  | 212.1  | 181.1  | 168.0  | 158.2  | 150.1  | 148.5  |
| 47.5° | 9207.5  | 3195.9 | 447.0  | 301.8  | 233.3  | 184.3  | 156.6  | 141.9  | 127.2  | 119.1  | 117.5  |
| 50°   | 9975.9  | 3026.2 | 396.4  | 262.7  | 203.9  | 156.6  | 130.5  | 112.6  | 99.5   | 91.4   | 91.4   |
| 52.5° | 10357.6 | 2804.3 | 350.7  | 228.4  | 171.3  | 132.1  | 106.0  | 84.8   | 78.3   | 70.1   | 70.1   |
| 55°   | 10511.0 | 2634.7 | 305.1  | 194.1  | 141.9  | 109.3  | 83.2   | 65.3   | 60.4   | 55.5   | 53.8   |
| 57.5° | 10941.7 | 2585.7 | 265.9  | 164.8  | 117.5  | 86.5   | 63.6   | 48.9   | 45.7   | 39.2   | 39.2   |
| 60°   | 11635.0 | 2610.2 | 230.0  | 140.3  | 94.6   | 66.9   | 47.3   | 37.5   | 34.3   | 27.7   | 27.7   |
| 62.5° | 12383.8 | 2579.2 | 194.1  | 120.7  | 73.4   | 48.9   | 32.6   | 27.7   | 27.7   | 16.3   | 14.7   |
| 65°   | 12527.4 | 2297.0 | 166.4  | 99.5   | 57.1   | 35.9   | 21.2   | 17.9   | 24.5   | 3.3    | 0.0    |
| 67.5° | 11626.8 | 1781.5 | 143.6  | 76.7   | 42.4   | 27.7   | 16.3   | 8.2    | 21.2   | 0.0    | 0.0    |
| 70°   | 9297.2  | 1132.2 | 115.8  | 55.5   | 32.6   | 22.8   | 13.1   | 3.3    | 16.3   | 0.0    | 0.0    |
| 72.5° | 6574.5  | 657.4  | 91.4   | 39.2   | 27.7   | 17.9   | 9.8    | 0.0    | 9.8    | 0.0    | 0.0    |
| 75°   | 3324.8  | 350.7  | 57.1   | 29.4   | 21.2   | 13.1   | 6.5    | 0.0    | 1.6    | 0.0    | 0.0    |
| 77.5° | 719.4   | 163.1  | 35.9   | 21.2   | 14.7   | 8.2    | 3.3    | 0.0    | 0.0    | 0.0    | 0.0    |
| 80°   | 156.6   | 71.8   | 22.8   | 13.1   | 8.2    | 4.9    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 82.5° | 57.1    | 37.5   | 11.4   | 6.5    | 3.3    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 85°   | 31.0    | 19.6   | 6.5    | 3.3    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |
| 87.5° | 16.3    | 6.5    | 1.6    | 1.6    | 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    |



Signify Classified - Internal  
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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: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

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

**Test Information**

Test Method: LM-79-2008  
 Report Number: SP1-1908-441-4-R4  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 10/28/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGRAW-EDISON  
 Catalog Number: **SA1C-750-U-5WQ**  
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

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

**Spectral Parameters**

CCT (K): 4884  
 CIE u': 0.2101  
 CIE v': 0.4904  
 Duv: 0.0037  
 CIE x: 0.3493  
 CIE y: 0.3624  
 CIE z: 0.2884  
 Peak Wavelength (nm): 444  
 Dominant Wavelength (nm): 571  
 Purity: 13.7  
 Rf: 74.9  
 Rg: 96.3

|           |      |      |       |
|-----------|------|------|-------|
| CRI (Ra): | 73.5 |      |       |
| R1:       | 70.5 | R9:  | -28.4 |
| R2:       | 77.7 | R10: | 48.6  |
| R3:       | 84.6 | R11: | 73.2  |
| R4:       | 74.7 | R12: | 50.7  |
| R5:       | 71.9 | R13: | 71.2  |
| R6:       | 70.7 | R14: | 91.4  |
| R7:       | 81.2 |      |       |
| R8:       | 56.9 |      |       |



**Test Conditions**

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

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

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

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CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 5000K 4-step quadrangle

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**Photopic Flux vs. Wavelength**



#####

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

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5 S/P: 1.77

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

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Melanopic Flux vs. Wavelength



Melanopic Lumens: 5378.9 M/P: 0.71

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

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**Summary**

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



**Color Vector Graphics**





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

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



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)