

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

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Scaled data based on original data using  
LM-79-2024 Approved Method: Electrical and Photometric Measurements of Solid-  
State Lighting Products

Test Report Prepared for  
Cooper Lighting Solutions

Brand: STREETWORKS

Report Number: P1458384

Luminaire Tested: GLAN-SB1B-835-U-T3LG-HSS

Issue Date: 05/20/2026

**Test Information**

Test Method: LM-79-2024  
Report Number: P1458384  
Test Lab: INNOVATION CENTER(G1)  
Issue Date: 5/22/2026  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: STREETWORKS  
Catalog Number: GLAN-SB1B-835-U-T3LG-HSS  
Description: GALLEON II AREA AND ROADWAY HIGH DENSITY LUMINAIRE 450mA 1xLight Square  
PACKAGE 80CRI 3500K FIXTURE w/ TYPE III LOW GLARE WITH HOUSE SIDE SHIELD  
Light Source: (26) 3500K CCT, 80 CRI LEDS  
Ballast/Driver: ELECTRONIC DRIVER

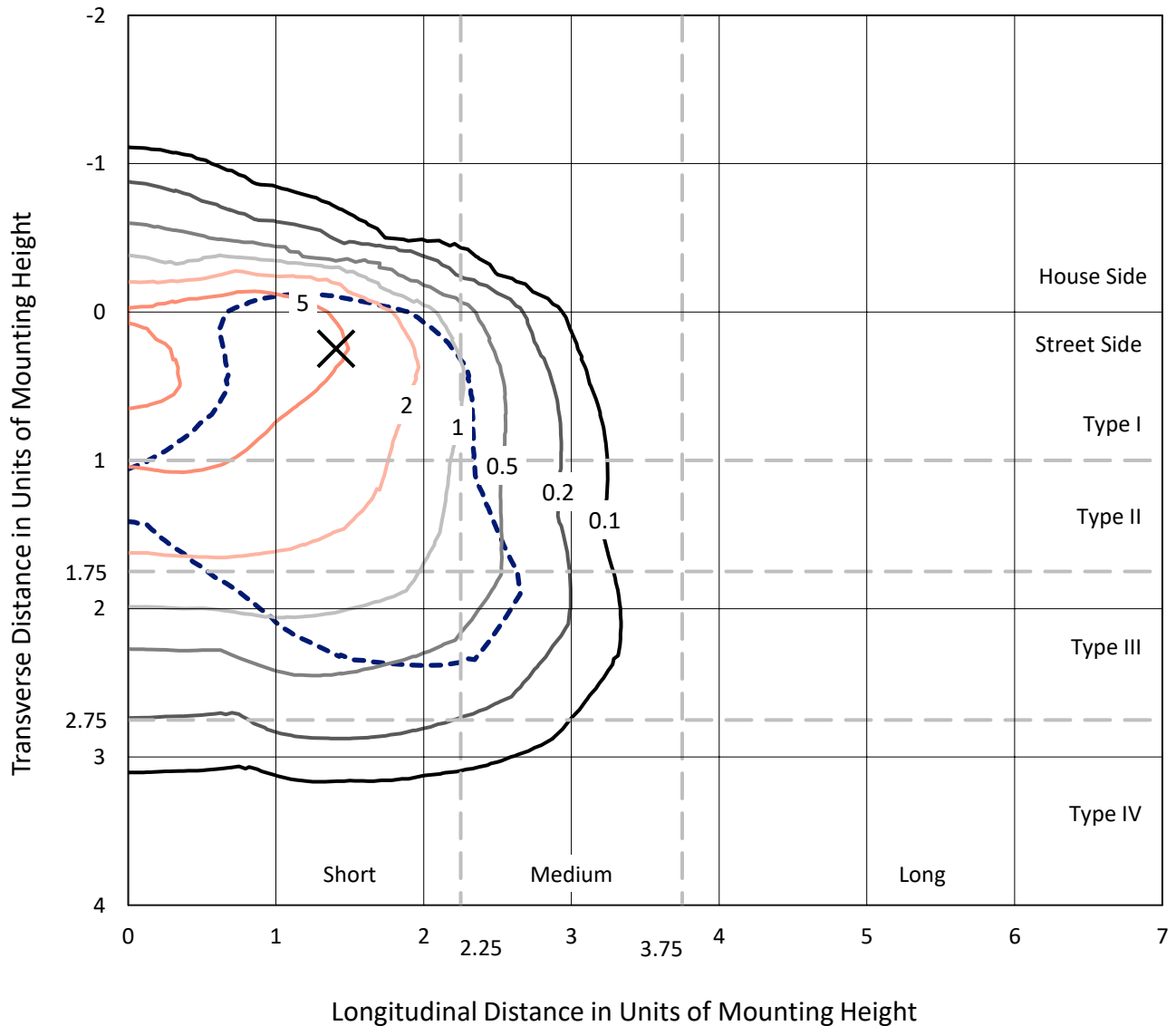
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 3994.6 lumens  
Efficiency: N/A  
Efficacy: 100.4 lumens/watt  
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B1 - U0 - G1  
  
Input Watts (W): 39.8  
Input Voltage (V): 120  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.97  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 28.75 FT

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### Iso-Footcandle Lines of Horizontal Illumination

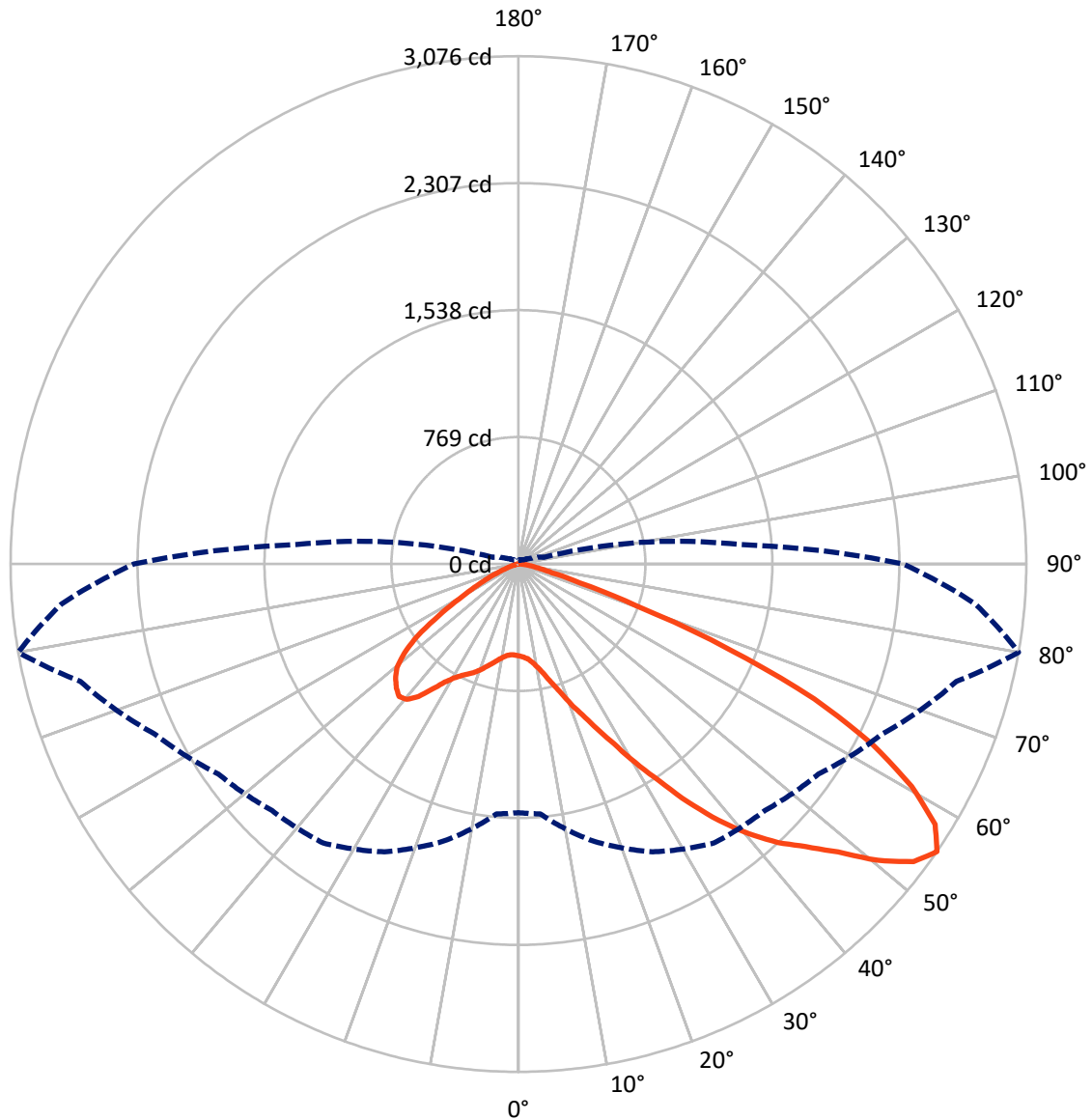
✕ Max cd  
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 9.9 fc  
 Type III - Short - N/A

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### Luminous Intensity Polar Plot



— Vertical Plane Through 80-Deg Lateral    - - - Horizontal Cone Through 55-Deg Vertical

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**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total  |
|--------------------|-----------|----------|--------|--------|
| <b>House Side</b>  | Lumens    | 485.6    | 0.0    | 485.6  |
|                    | % Fixture | 12.2     | 0.0    | 12.2   |
| <b>Street Side</b> | Lumens    | 3509.0   | 0.0    | 3509.0 |
|                    | % Fixture | 87.8     | 0.0    | 87.8   |
| <b>Total</b>       | Lumens    | 3994.6   | 0.0    | 3994.6 |
|                    | % Fixture | 100.0    | 0.0    | 100.0  |

**Coefficient of Utilization**

**ZONAL LUMENS:**

| Zone      | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10°    | 46.7   | 1.2       |
| 10°-20°   | 123.1  | 3.1       |
| 20°-30°   | 241.0  | 6.0       |
| 30°-40°   | 490.3  | 12.3      |
| 40°-50°   | 826.6  | 20.7      |
| 50°-60°   | 1056.2 | 26.4      |
| 60°-70°   | 901.7  | 22.6      |
| 70°-80°   | 288.1  | 7.2       |
| 80°-90°   | 20.8   | 0.5       |
| 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°    | 3994.6 | 100.0     |
| 0°-180°   | 3994.6 | 100.0     |



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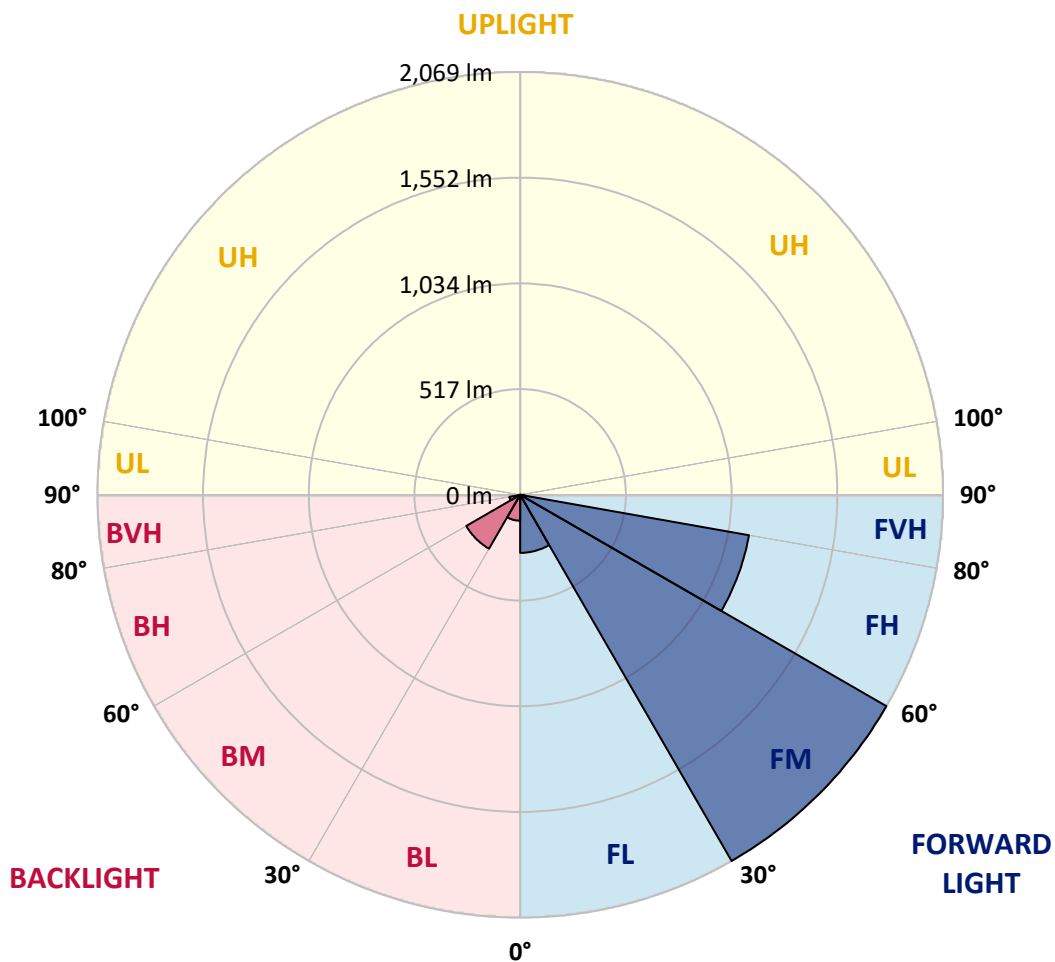
CATALOG NUMBER: GLAN-SB1B-835-U-T3LG-HSS

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

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 284.0  | 7.1       |                         |      |         |
| FM   | (30°-60°)   | 2068.8 | 51.8      |                         |      |         |
| FH   | (60°-80°)   | 1136.5 | 28.5      |                         |      | G1/1800 |
| FVH  | (80°-90°)   | 19.7   | 0.5       |                         |      | G1/100  |
| BL   | (0°-30°)    | 126.8  | 3.2       | B1/500                  |      |         |
| BM   | (30°-60°)   | 304.3  | 7.6       | B1/1000                 |      |         |
| BH   | (60°-80°)   | 53.4   | 1.3       | B0/110                  |      | G0/110  |
| BVH  | (80°-90°)   | 1.1    | 0.0       |                         |      | G0/10   |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B1-U0-G1**

Type III Short





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**CANDELA DISTRIBUTION (FULL):**

|       | 0°     | 5°     | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 80°    | 85°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 556.4  | 556.4  | 556.4  | 556.4  | 556.4  | 556.4  | 556.4  | 556.4  | 556.4  | 556.4  | 556.4  |
| 2.5°  | 559.9  | 561.0  | 559.9  | 561.0  | 563.3  | 562.1  | 566.7  | 565.5  | 565.5  | 564.4  | 559.9  |
| 5°    | 528.1  | 529.2  | 531.5  | 537.1  | 545.1  | 553.0  | 563.3  | 570.1  | 576.9  | 575.8  | 571.2  |
| 7.5°  | 465.6  | 467.9  | 477.0  | 488.3  | 514.4  | 538.3  | 564.4  | 581.4  | 596.2  | 600.7  | 597.3  |
| 10°   | 430.4  | 432.7  | 438.3  | 449.7  | 473.5  | 513.3  | 564.4  | 599.6  | 625.7  | 634.8  | 635.9  |
| 12.5° | 427.0  | 428.1  | 432.7  | 445.2  | 465.6  | 499.7  | 563.3  | 623.4  | 667.7  | 681.4  | 685.9  |
| 15°   | 429.3  | 431.5  | 436.1  | 446.3  | 470.1  | 508.8  | 572.3  | 660.9  | 723.4  | 742.7  | 743.8  |
| 17.5° | 438.3  | 440.6  | 446.3  | 457.6  | 483.8  | 532.6  | 600.7  | 699.5  | 790.4  | 812.0  | 824.4  |
| 20°   | 456.5  | 457.6  | 464.5  | 479.2  | 508.8  | 562.1  | 642.8  | 751.8  | 871.0  | 902.8  | 911.9  |
| 22.5° | 480.4  | 483.8  | 492.9  | 511.0  | 548.5  | 603.0  | 700.7  | 815.4  | 959.6  | 992.5  | 1008.4 |
| 25°   | 506.5  | 511.0  | 524.6  | 554.2  | 601.9  | 665.5  | 772.2  | 899.4  | 1064.1 | 1103.8 | 1125.4 |
| 27.5° | 559.9  | 561.0  | 570.1  | 607.5  | 668.9  | 747.2  | 863.1  | 1007.3 | 1186.7 | 1233.3 | 1257.1 |
| 30°   | 676.8  | 678.0  | 670.0  | 680.2  | 742.7  | 843.8  | 969.8  | 1133.3 | 1329.8 | 1394.5 | 1413.8 |
| 32.5° | 819.9  | 825.6  | 824.4  | 817.6  | 846.0  | 940.3  | 1097.0 | 1284.4 | 1497.9 | 1566.0 | 1584.2 |
| 35°   | 982.3  | 995.9  | 992.5  | 990.2  | 993.7  | 1064.1 | 1242.3 | 1451.3 | 1688.6 | 1771.5 | 1786.3 |
| 37.5° | 1141.3 | 1144.7 | 1160.6 | 1179.9 | 1182.2 | 1231.0 | 1410.4 | 1628.5 | 1865.8 | 1971.4 | 1994.1 |
| 40°   | 1263.9 | 1275.3 | 1315.0 | 1353.6 | 1393.4 | 1432.0 | 1549.0 | 1771.5 | 2006.6 | 2148.6 | 2158.8 |
| 42.5° | 1359.3 | 1386.6 | 1444.5 | 1504.7 | 1585.3 | 1628.5 | 1680.7 | 1872.6 | 2121.3 | 2306.4 | 2301.9 |
| 45°   | 1475.1 | 1486.5 | 1568.3 | 1647.8 | 1729.5 | 1795.4 | 1794.3 | 1957.8 | 2211.0 | 2441.5 | 2413.2 |
| 47.5° | 1553.5 | 1567.1 | 1678.4 | 1771.5 | 1855.6 | 1888.5 | 1895.3 | 2049.8 | 2334.8 | 2605.1 | 2538.1 |
| 50°   | 1595.5 | 1619.4 | 1740.9 | 1859.0 | 1949.8 | 1960.1 | 1990.7 | 2170.1 | 2497.2 | 2822.0 | 2695.9 |
| 52.5° | 1600.1 | 1622.8 | 1762.5 | 1914.6 | 2013.4 | 2033.9 | 2086.1 | 2306.4 | 2655.0 | 2995.7 | 2786.8 |
| 55°   | 1505.8 | 1519.4 | 1736.3 | 1923.7 | 2063.4 | 2111.1 | 2217.8 | 2432.5 | 2747.0 | 3076.3 | 2778.8 |
| 57.5° | 1417.2 | 1430.9 | 1619.4 | 1907.8 | 2114.5 | 2212.2 | 2358.6 | 2518.8 | 2675.5 | 2976.4 | 2601.7 |
| 60°   | 1341.1 | 1348.0 | 1519.4 | 1834.0 | 2133.8 | 2311.0 | 2480.2 | 2433.6 | 2490.4 | 2736.8 | 2298.5 |
| 62.5° | 1198.1 | 1202.6 | 1405.9 | 1701.1 | 2095.2 | 2387.0 | 2522.2 | 2253.0 | 2287.1 | 2406.3 | 1941.9 |
| 65°   | 905.1  | 922.1  | 1108.3 | 1601.2 | 2031.6 | 2422.2 | 2424.5 | 2032.7 | 1997.5 | 1969.1 | 1527.4 |
| 67.5° | 614.4  | 633.7  | 746.1  | 1439.9 | 1928.3 | 2437.0 | 2234.9 | 1747.7 | 1521.7 | 1375.2 | 1000.5 |
| 70°   | 490.6  | 490.6  | 529.2  | 1157.2 | 1683.0 | 2248.5 | 1999.8 | 1319.6 | 966.4  | 759.7  | 536.0  |
| 72.5° | 322.5  | 323.6  | 360.0  | 734.7  | 1193.5 | 1714.8 | 1630.7 | 763.1  | 501.9  | 387.2  | 264.6  |
| 75°   | 117.0  | 117.0  | 157.8  | 294.1  | 631.4  | 1020.9 | 993.7  | 364.5  | 272.5  | 211.2  | 160.1  |
| 77.5° | 62.5   | 64.7   | 76.1   | 121.5  | 241.9  | 415.6  | 388.4  | 186.2  | 154.4  | 131.7  | 99.9   |
| 80°   | 42.0   | 43.2   | 51.1   | 74.9   | 117.0  | 160.1  | 124.9  | 104.5  | 104.5  | 88.6   | 67.0   |
| 82.5° | 22.7   | 23.8   | 34.1   | 48.8   | 62.5   | 74.9   | 60.2   | 61.3   | 73.8   | 60.2   | 38.6   |
| 85°   | 15.9   | 15.9   | 26.1   | 35.2   | 35.2   | 36.3   | 26.1   | 38.6   | 43.2   | 37.5   | 26.1   |
| 87.5° | 9.1    | 9.1    | 14.8   | 17.0   | 17.0   | 15.9   | 7.9    | 13.6   | 17.0   | 19.3   | 11.4   |
| 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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**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°  | 115°  | 125°  | 135°  | 145°  | 155°  | 165°  | 175°  | 180°  |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0°    | 556.4  | 556.4  | 556.4 | 556.4 | 556.4 | 556.4 | 556.4 | 556.4 | 556.4 | 556.4 | 556.4 |
| 2.5°  | 558.7  | 555.3  | 548.5 | 534.9 | 528.1 | 519.0 | 511.0 | 500.8 | 498.5 | 497.4 | 492.9 |
| 5°    | 567.8  | 561.0  | 540.5 | 511.0 | 486.0 | 462.2 | 438.3 | 424.7 | 413.4 | 407.7 | 406.5 |
| 7.5°  | 590.5  | 576.9  | 539.4 | 487.2 | 440.6 | 399.7 | 364.5 | 333.9 | 318.0 | 304.3 | 305.5 |
| 10°   | 624.6  | 603.0  | 541.7 | 464.5 | 395.2 | 329.3 | 278.2 | 233.9 | 202.1 | 187.4 | 186.2 |
| 12.5° | 670.0  | 639.3  | 549.6 | 441.7 | 339.5 | 247.6 | 182.8 | 156.7 | 149.9 | 148.8 | 147.6 |
| 15°   | 725.7  | 682.5  | 557.6 | 412.2 | 264.6 | 171.5 | 148.8 | 143.1 | 142.0 | 140.8 | 140.8 |
| 17.5° | 792.7  | 732.5  | 562.1 | 362.3 | 193.1 | 147.6 | 139.7 | 136.3 | 135.1 | 134.0 | 134.0 |
| 20°   | 876.7  | 788.1  | 567.8 | 298.7 | 163.5 | 142.0 | 132.9 | 128.3 | 127.2 | 127.2 | 126.1 |
| 22.5° | 959.6  | 850.6  | 563.3 | 243.0 | 157.8 | 135.1 | 124.9 | 120.4 | 118.1 | 118.1 | 117.0 |
| 25°   | 1055.0 | 914.2  | 549.6 | 219.2 | 156.7 | 129.5 | 117.0 | 110.2 | 106.7 | 105.6 | 105.6 |
| 27.5° | 1164.0 | 986.8  | 528.1 | 220.3 | 156.7 | 124.9 | 106.7 | 97.7  | 95.4  | 93.1  | 93.1  |
| 30°   | 1288.9 | 1075.4 | 512.2 | 235.1 | 159.0 | 120.4 | 97.7  | 86.3  | 82.9  | 80.6  | 81.8  |
| 32.5° | 1432.0 | 1174.2 | 511.0 | 258.9 | 162.4 | 113.6 | 87.4  | 74.9  | 71.5  | 70.4  | 71.5  |
| 35°   | 1594.4 | 1296.9 | 537.1 | 277.1 | 153.3 | 98.8  | 74.9  | 64.7  | 61.3  | 61.3  | 62.5  |
| 37.5° | 1774.9 | 1437.7 | 572.3 | 272.5 | 123.8 | 78.4  | 64.7  | 56.8  | 53.4  | 54.5  | 55.6  |
| 40°   | 1939.6 | 1547.8 | 578.0 | 232.8 | 93.1  | 67.0  | 55.6  | 50.0  | 47.7  | 48.8  | 50.0  |
| 42.5° | 2064.5 | 1636.4 | 523.5 | 180.6 | 78.4  | 56.8  | 47.7  | 43.2  | 42.0  | 44.3  | 44.3  |
| 45°   | 2165.6 | 1671.6 | 437.2 | 134.0 | 69.3  | 48.8  | 42.0  | 39.7  | 37.5  | 38.6  | 38.6  |
| 47.5° | 2271.2 | 1677.3 | 356.6 | 107.9 | 61.3  | 44.3  | 38.6  | 36.3  | 34.1  | 34.1  | 34.1  |
| 50°   | 2373.4 | 1663.7 | 272.5 | 95.4  | 56.8  | 39.7  | 35.2  | 32.9  | 30.7  | 29.5  | 29.5  |
| 52.5° | 2398.4 | 1554.6 | 199.9 | 88.6  | 52.2  | 37.5  | 32.9  | 30.7  | 28.4  | 27.3  | 27.3  |
| 55°   | 2329.1 | 1348.0 | 156.7 | 79.5  | 47.7  | 34.1  | 30.7  | 28.4  | 25.0  | 23.8  | 23.8  |
| 57.5° | 2100.9 | 1027.7 | 124.9 | 68.1  | 43.2  | 32.9  | 28.4  | 26.1  | 22.7  | 21.6  | 21.6  |
| 60°   | 1804.5 | 729.1  | 101.1 | 55.6  | 39.7  | 29.5  | 26.1  | 22.7  | 20.4  | 18.2  | 18.2  |
| 62.5° | 1476.3 | 523.5  | 81.8  | 46.6  | 37.5  | 26.1  | 23.8  | 20.4  | 15.9  | 12.5  | 12.5  |
| 65°   | 1132.2 | 375.9  | 63.6  | 37.5  | 34.1  | 22.7  | 20.4  | 17.0  | 12.5  | 9.1   | 9.1   |
| 67.5° | 732.5  | 243.0  | 47.7  | 32.9  | 26.1  | 19.3  | 15.9  | 13.6  | 11.4  | 7.9   | 6.8   |
| 70°   | 386.1  | 142.0  | 35.2  | 28.4  | 19.3  | 14.8  | 13.6  | 11.4  | 9.1   | 5.7   | 5.7   |
| 72.5° | 199.9  | 93.1   | 26.1  | 25.0  | 14.8  | 10.2  | 11.4  | 9.1   | 6.8   | 3.4   | 3.4   |
| 75°   | 128.3  | 62.5   | 19.3  | 20.4  | 9.1   | 7.9   | 7.9   | 5.7   | 3.4   | 2.3   | 1.1   |
| 77.5° | 82.9   | 42.0   | 13.6  | 17.0  | 5.7   | 4.5   | 4.5   | 2.3   | 1.1   | 0.0   | 0.0   |
| 80°   | 48.8   | 26.1   | 9.1   | 11.4  | 2.3   | 2.3   | 1.1   | 0.0   | 0.0   | 0.0   | 0.0   |
| 82.5° | 25.0   | 13.6   | 4.5   | 4.5   | 1.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 85°   | 15.9   | 6.8    | 1.1   | 1.1   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   | 0.0   |
| 87.5° | 7.9    | 2.3    | 1.1   | 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-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGraw-Edison

Report Number: SP1-2407-184-10

Test Date: 10/11/2024

Luminaire Tested: GSS-SB1A-835-U-5WQ

Data in this report applies to families of products including GSS-SB1A-835-U-5WQ

**Test Information**

Test Method: LM-79-2019  
 Report Number: SP1-2407-184-10  
 Test Lab: COOPER LIGHTING SOLUTIONS  
 Photometer: SP1 - 76IN SPHERE  
 Measurement Geometry: 4π  
 Issue Date: 10/15/2024  
 Manufacturer: COOPER LIGHTING SOLUTIONS  
 Product Line: McGraw-Edison  
 Catalog Number: **GSS-SB1A-835-U-5WQ**  
 Description: GALLEON II SITE SLIM 1SQ 350MA 5WQ HIGH DENSITY LIGHTSQUARE WITH 80 CRI 3500K CCT 26 LEDS

**Spectral Parameters**

CCT (K): 3411  
 CIE u': 0.2360  
 CIE v': 0.5189  
 Duv: 0.0044  
 CIE x: 0.4154  
 CIE y: 0.4059  
 CIE z: 0.1787  
 Peak Wavelength (nm): 601  
 Dominant Wavelength (nm): 579  
 Purity: 46.51914  
 Rf: 86.6  
 Rg: 95.9

|           |      |      |      |
|-----------|------|------|------|
| CRI (Ra): | 83.5 |      |      |
| R1:       | 81.1 | R9:  | 6.3  |
| R2:       | 88.9 | R10: | 75.4 |
| R3:       | 97.2 | R11: | 84.1 |
| R4:       | 83.8 | R12: | 69.7 |
| R5:       | 81.7 | R13: | 82.8 |
| R6:       | 86.9 | R14: | 98.5 |
| R7:       | 86.1 | R15: | 72.6 |
| R8:       | 62.2 |      |      |



**Test Conditions**

Stabilization Time: 35M  
 Operation Time: 1H 35M  
 Sphere Temperature (°C): 25.2

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| Measurement and Test Equipment |                       |                  |                      |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument                     | Identification Number | Calibration Date | Calibration Due Date |
| Photometer                     | IN0058                | 6/18/2024        | 12/18/2024           |
| Power Meter                    | INXT2011004           | 2/8/2024         | 2/8/2025             |
| AC Power Source                | IN0063                | 10/24/2023       | 10/24/2024           |
| DC Power Source                | IN0208                | 10/24/2023       | 10/24/2024           |
| Sphere Thermometer             | IN0085                | 10/24/2023       | 10/24/2024           |
| Room Thermometer               | IN0046                | 10/24/2023       | 10/24/2024           |

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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 3500K 7-step quadrangle

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**Photopic Flux vs. Wavelength**



**Photopic Lumens: NR**

| λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>^</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 311                      | NR            | 620    | 903                      | NR            | 750    | 26                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 376                      | NR            | 625    | 851                      | NR            | 755    | 22                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 438                      | NR            | 630    | 797                      | NR            | 760    | 19                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 491                      | NR            | 635    | 735                      | NR            | 765    | 16                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 533                      | NR            | 640    | 672                      | NR            | 770    | 14                       | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 566                      | NR            | 645    | 607                      | NR            | 775    | 12                       | NR            | 905    | 0                        | NR            |
| 390    | 0                        | NR            | 520    | 592                      | NR            | 650    | 546                      | NR            | 780    | 10                       | NR            | 910    | 0                        | NR            |
| 395    | 1                        | NR            | 525    | 608                      | NR            | 655    | 487                      | NR            | 785    | 9                        | NR            | 915    | 0                        | NR            |
| 400    | 3                        | NR            | 530    | 625                      | NR            | 660    | 429                      | NR            | 790    | 7                        | NR            | 920    | 0                        | NR            |
| 405    | 6                        | NR            | 535    | 642                      | NR            | 665    | 378                      | NR            | 795    | 6                        | NR            | 925    | 0                        | NR            |
| 410    | 12                       | NR            | 540    | 657                      | NR            | 670    | 329                      | NR            | 800    | 5                        | NR            | 930    | 0                        | NR            |
| 415    | 22                       | NR            | 545    | 677                      | NR            | 675    | 286                      | NR            | 805    | 5                        | NR            | 935    | 0                        | NR            |
| 420    | 43                       | NR            | 550    | 701                      | NR            | 680    | 248                      | NR            | 810    | 4                        | NR            | 940    | 0                        | NR            |
| 425    | 80                       | NR            | 555    | 728                      | NR            | 685    | 213                      | NR            | 815    | 3                        | NR            | 945    | 0                        | NR            |
| 430    | 140                      | NR            | 560    | 757                      | NR            | 690    | 184                      | NR            | 820    | 3                        | NR            | 950    | 0                        | NR            |
| 435    | 243                      | NR            | 565    | 793                      | NR            | 695    | 156                      | NR            | 825    | 3                        | NR            | 955    | 0                        | NR            |
| 440    | 412                      | NR            | 570    | 831                      | NR            | 700    | 134                      | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 610                      | NR            | 575    | 872                      | NR            | 705    | 114                      | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 597                      | NR            | 580    | 911                      | NR            | 710    | 97                       | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 412                      | NR            | 585    | 944                      | NR            | 715    | 83                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 330                      | NR            | 590    | 974                      | NR            | 720    | 70                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 274                      | NR            | 595    | 992                      | NR            | 725    | 60                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 211                      | NR            | 600    | 999                      | NR            | 730    | 51                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 200                      | NR            | 605    | 992                      | NR            | 735    | 43                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 220                      | NR            | 610    | 975                      | NR            | 740    | 36                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 255                      | NR            | 615    | 944                      | NR            | 745    | 31                       | NR            | 875    | 1                        | NR            |        |                          |               |

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**Scotopic Flux vs. Wavelength**



**Scotopic Lumens: NR**

**S/P: 1.48**

| $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) | $\lambda$<br>(nm) | Power<br>W <sup>^</sup> /nm | Lumens<br>( $\phi$ /nm) |
|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|
| 360               | 0                           | NR                      | 490               | 311                         | NR                      | 620               | 903                         | NR                      | 750               | 26                          | NR                      | 880               | 1                           | NR                      |
| 365               | 0                           | NR                      | 495               | 376                         | NR                      | 625               | 851                         | NR                      | 755               | 22                          | NR                      | 885               | 1                           | NR                      |
| 370               | 0                           | NR                      | 500               | 438                         | NR                      | 630               | 797                         | NR                      | 760               | 19                          | NR                      | 890               | 0                           | NR                      |
| 375               | 0                           | NR                      | 505               | 491                         | NR                      | 635               | 735                         | NR                      | 765               | 16                          | NR                      | 895               | 0                           | NR                      |
| 380               | 0                           | NR                      | 510               | 533                         | NR                      | 640               | 672                         | NR                      | 770               | 14                          | NR                      | 900               | 0                           | NR                      |
| 385               | 0                           | NR                      | 515               | 566                         | NR                      | 645               | 607                         | NR                      | 775               | 12                          | NR                      | 905               | 0                           | NR                      |
| 390               | 0                           | NR                      | 520               | 592                         | NR                      | 650               | 546                         | NR                      | 780               | 10                          | NR                      | 910               | 0                           | NR                      |
| 395               | 1                           | NR                      | 525               | 608                         | NR                      | 655               | 487                         | NR                      | 785               | 9                           | NR                      | 915               | 0                           | NR                      |
| 400               | 3                           | NR                      | 530               | 625                         | NR                      | 660               | 429                         | NR                      | 790               | 7                           | NR                      | 920               | 0                           | NR                      |
| 405               | 6                           | NR                      | 535               | 642                         | NR                      | 665               | 378                         | NR                      | 795               | 6                           | NR                      | 925               | 0                           | NR                      |
| 410               | 12                          | NR                      | 540               | 657                         | NR                      | 670               | 329                         | NR                      | 800               | 5                           | NR                      | 930               | 0                           | NR                      |
| 415               | 22                          | NR                      | 545               | 677                         | NR                      | 675               | 286                         | NR                      | 805               | 5                           | NR                      | 935               | 0                           | NR                      |
| 420               | 43                          | NR                      | 550               | 701                         | NR                      | 680               | 248                         | NR                      | 810               | 4                           | NR                      | 940               | 0                           | NR                      |
| 425               | 80                          | NR                      | 555               | 728                         | NR                      | 685               | 213                         | NR                      | 815               | 3                           | NR                      | 945               | 0                           | NR                      |
| 430               | 140                         | NR                      | 560               | 757                         | NR                      | 690               | 184                         | NR                      | 820               | 3                           | NR                      | 950               | 0                           | NR                      |
| 435               | 243                         | NR                      | 565               | 793                         | NR                      | 695               | 156                         | NR                      | 825               | 3                           | NR                      | 955               | 0                           | NR                      |
| 440               | 412                         | NR                      | 570               | 831                         | NR                      | 700               | 134                         | NR                      | 830               | 2                           | NR                      | 960               | 0                           | NR                      |
| 445               | 610                         | NR                      | 575               | 872                         | NR                      | 705               | 114                         | NR                      | 835               | 2                           | NR                      | 965               | 0                           | NR                      |
| 450               | 597                         | NR                      | 580               | 911                         | NR                      | 710               | 97                          | NR                      | 840               | 2                           | NR                      | 970               | 0                           | NR                      |
| 455               | 412                         | NR                      | 585               | 944                         | NR                      | 715               | 83                          | NR                      | 845               | 1                           | NR                      | 975               | 0                           | NR                      |
| 460               | 330                         | NR                      | 590               | 974                         | NR                      | 720               | 70                          | NR                      | 850               | 1                           | NR                      | 980               | 0                           | NR                      |
| 465               | 274                         | NR                      | 595               | 992                         | NR                      | 725               | 60                          | NR                      | 855               | 1                           | NR                      | 985               | 0                           | NR                      |
| 470               | 211                         | NR                      | 600               | 999                         | NR                      | 730               | 51                          | NR                      | 860               | 1                           | NR                      | 990               | 0                           | NR                      |
| 475               | 200                         | NR                      | 605               | 992                         | NR                      | 735               | 43                          | NR                      | 865               | 1                           | NR                      | 995               | 0                           | NR                      |
| 480               | 220                         | NR                      | 610               | 975                         | NR                      | 740               | 36                          | NR                      | 870               | 1                           | NR                      | 1000              | 0                           | NR                      |
| 485               | 255                         | NR                      | 615               | 944                         | NR                      | 745               | 31                          | NR                      | 875               | 1                           | NR                      |                   |                             |                         |

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Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.88

| λ (nm) | Power W <sup>2</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>2</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>2</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>2</sup> /nm | Lumens (φ/nm) | λ (nm) | Power W <sup>2</sup> /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360    | 0                        | NR            | 490    | 311                      | NR            | 620    | 903                      | NR            | 750    | 26                       | NR            | 880    | 1                        | NR            |
| 365    | 0                        | NR            | 495    | 376                      | NR            | 625    | 851                      | NR            | 755    | 22                       | NR            | 885    | 1                        | NR            |
| 370    | 0                        | NR            | 500    | 438                      | NR            | 630    | 797                      | NR            | 760    | 19                       | NR            | 890    | 0                        | NR            |
| 375    | 0                        | NR            | 505    | 491                      | NR            | 635    | 735                      | NR            | 765    | 16                       | NR            | 895    | 0                        | NR            |
| 380    | 0                        | NR            | 510    | 533                      | NR            | 640    | 672                      | NR            | 770    | 14                       | NR            | 900    | 0                        | NR            |
| 385    | 0                        | NR            | 515    | 566                      | NR            | 645    | 607                      | NR            | 775    | 12                       | NR            | 905    | 0                        | NR            |
| 390    | 0                        | NR            | 520    | 592                      | NR            | 650    | 546                      | NR            | 780    | 10                       | NR            | 910    | 0                        | NR            |
| 395    | 1                        | NR            | 525    | 608                      | NR            | 655    | 487                      | NR            | 785    | 9                        | NR            | 915    | 0                        | NR            |
| 400    | 3                        | NR            | 530    | 625                      | NR            | 660    | 429                      | NR            | 790    | 7                        | NR            | 920    | 0                        | NR            |
| 405    | 6                        | NR            | 535    | 642                      | NR            | 665    | 378                      | NR            | 795    | 6                        | NR            | 925    | 0                        | NR            |
| 410    | 12                       | NR            | 540    | 657                      | NR            | 670    | 329                      | NR            | 800    | 5                        | NR            | 930    | 0                        | NR            |
| 415    | 22                       | NR            | 545    | 677                      | NR            | 675    | 286                      | NR            | 805    | 5                        | NR            | 935    | 0                        | NR            |
| 420    | 43                       | NR            | 550    | 701                      | NR            | 680    | 248                      | NR            | 810    | 4                        | NR            | 940    | 0                        | NR            |
| 425    | 80                       | NR            | 555    | 728                      | NR            | 685    | 213                      | NR            | 815    | 3                        | NR            | 945    | 0                        | NR            |
| 430    | 140                      | NR            | 560    | 757                      | NR            | 690    | 184                      | NR            | 820    | 3                        | NR            | 950    | 0                        | NR            |
| 435    | 243                      | NR            | 565    | 793                      | NR            | 695    | 156                      | NR            | 825    | 3                        | NR            | 955    | 0                        | NR            |
| 440    | 412                      | NR            | 570    | 831                      | NR            | 700    | 134                      | NR            | 830    | 2                        | NR            | 960    | 0                        | NR            |
| 445    | 610                      | NR            | 575    | 872                      | NR            | 705    | 114                      | NR            | 835    | 2                        | NR            | 965    | 0                        | NR            |
| 450    | 597                      | NR            | 580    | 911                      | NR            | 710    | 97                       | NR            | 840    | 2                        | NR            | 970    | 0                        | NR            |
| 455    | 412                      | NR            | 585    | 944                      | NR            | 715    | 83                       | NR            | 845    | 1                        | NR            | 975    | 0                        | NR            |
| 460    | 330                      | NR            | 590    | 974                      | NR            | 720    | 70                       | NR            | 850    | 1                        | NR            | 980    | 0                        | NR            |
| 465    | 274                      | NR            | 595    | 992                      | NR            | 725    | 60                       | NR            | 855    | 1                        | NR            | 985    | 0                        | NR            |
| 470    | 211                      | NR            | 600    | 999                      | NR            | 730    | 51                       | NR            | 860    | 1                        | NR            | 990    | 0                        | NR            |
| 475    | 200                      | NR            | 605    | 992                      | NR            | 735    | 43                       | NR            | 865    | 1                        | NR            | 995    | 0                        | NR            |
| 480    | 220                      | NR            | 610    | 975                      | NR            | 740    | 36                       | NR            | 870    | 1                        | NR            | 1000   | 0                        | NR            |
| 485    | 255                      | NR            | 615    | 944                      | NR            | 745    | 31                       | NR            | 875    | 1                        | NR            |        |                          |               |

**Summary**

$R_f = 86.6$   
 $R_g = 95.9$   
 $CIE R_a = 83.5$   
 $R_9 = 6.3$



**Color Vector Graphics**



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

|            |             |            |            |
|------------|-------------|------------|------------|
| CES01 = 86 | CES26 = 85  | CES51 = 97 | CES76 = 81 |
| CES02 = 62 | CES27 = 95  | CES52 = 96 | CES77 = 87 |
| CES03 = 31 | CES28 = 94  | CES53 = 91 | CES78 = 80 |
| CES04 = 70 | CES29 = 87  | CES54 = 92 | CES79 = 93 |
| CES05 = 49 | CES30 = 93  | CES55 = 92 | CES80 = 91 |
| CES06 = 51 | CES31 = 89  | CES56 = 88 | CES81 = 77 |
| CES07 = 41 | CES32 = 84  | CES57 = 87 | CES82 = 96 |
| CES08 = 40 | CES33 = 91  | CES58 = 88 | CES83 = 95 |
| CES09 = 29 | CES34 = 91  | CES59 = 93 | CES84 = 92 |
| CES10 = 75 | CES35 = 95  | CES60 = 94 | CES85 = 80 |
| CES11 = 58 | CES36 = 90  | CES61 = 91 | CES86 = 72 |
| CES12 = 64 | CES37 = 95  | CES62 = 95 | CES87 = 86 |
| CES13 = 43 | CES38 = 100 | CES63 = 88 | CES88 = 88 |
| CES14 = 74 | CES39 = 97  | CES64 = 85 | CES89 = 77 |
| CES15 = 71 | CES40 = 94  | CES65 = 80 | CES90 = 88 |
| CES16 = 47 | CES41 = 97  | CES66 = 84 | CES91 = 81 |
| CES17 = 49 | CES42 = 96  | CES67 = 82 | CES92 = 67 |
| CES18 = 56 | CES43 = 93  | CES68 = 85 | CES93 = 81 |
| CES19 = 72 | CES44 = 99  | CES69 = 89 | CES94 = 63 |
| CES20 = 66 | CES45 = 95  | CES70 = 81 | CES95 = 76 |
| CES21 = 86 | CES46 = 91  | CES71 = 79 | CES96 = 84 |
| CES22 = 78 | CES47 = 93  | CES72 = 93 | CES97 = 92 |
| CES23 = 91 | CES48 = 85  | CES73 = 76 | CES98 = 86 |
| CES24 = 90 | CES49 = 92  | CES74 = 95 | CES99 = 77 |
| CES25 = 72 | CES50 = 96  | CES75 = 80 |            |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)