

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



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P632526

Luminaire Tested: GWS-SA2C-830-U-RW-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P632526
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-50)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA2C-830-U-RW-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND RECTANGULAR WIDE OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (32) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4765.2 lumens
Efficiency: N/A
Efficacy: 75.4 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type V - Short
BUG Rating: B2 - U0 - G0

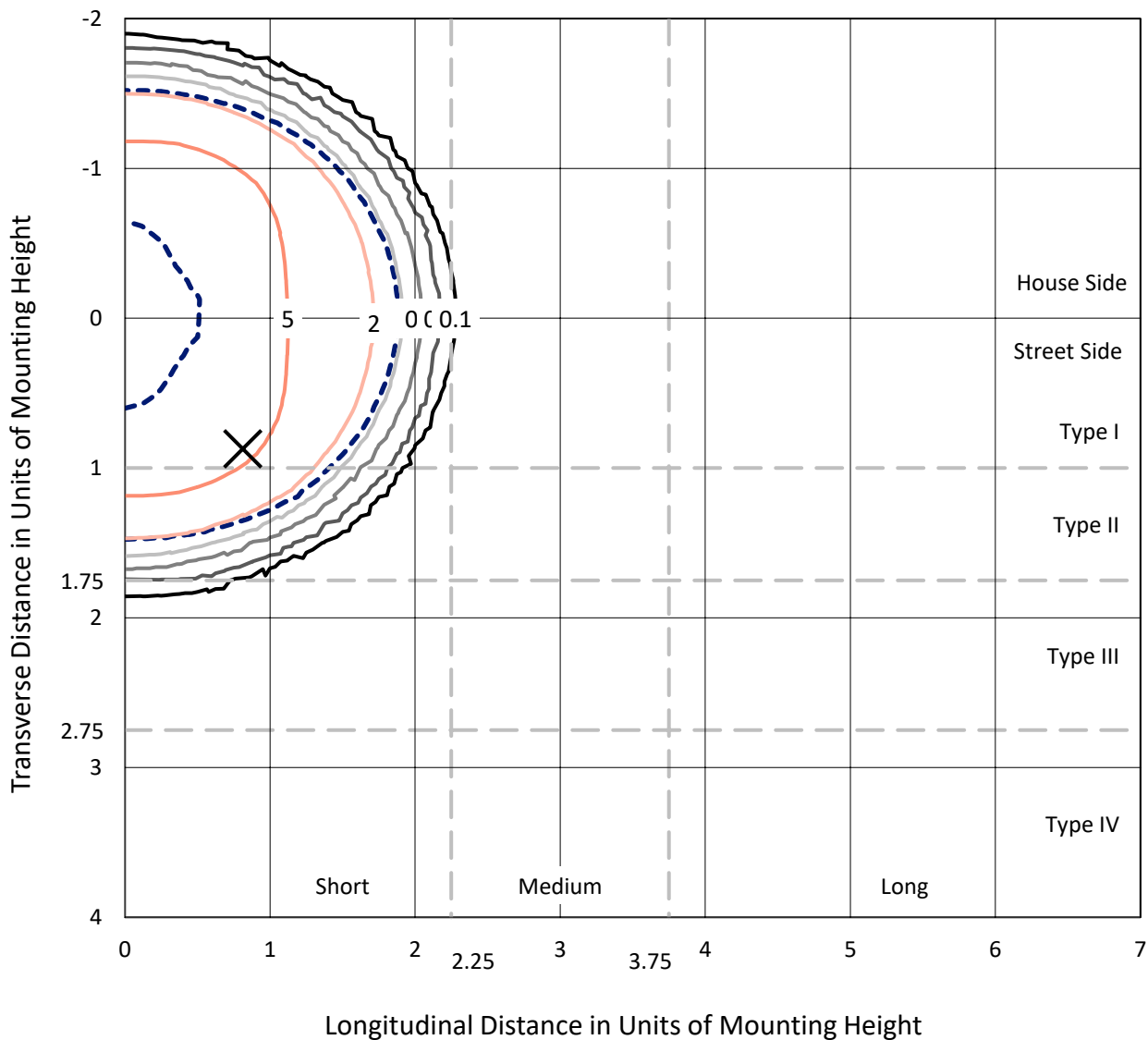
Input Watts (W): 63.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P632526
 CATALOG NUMBER: GWS-SA2C-830-U-RW-W-GRSBK

Iso-Footcandle Lines of Horizontal Illumination

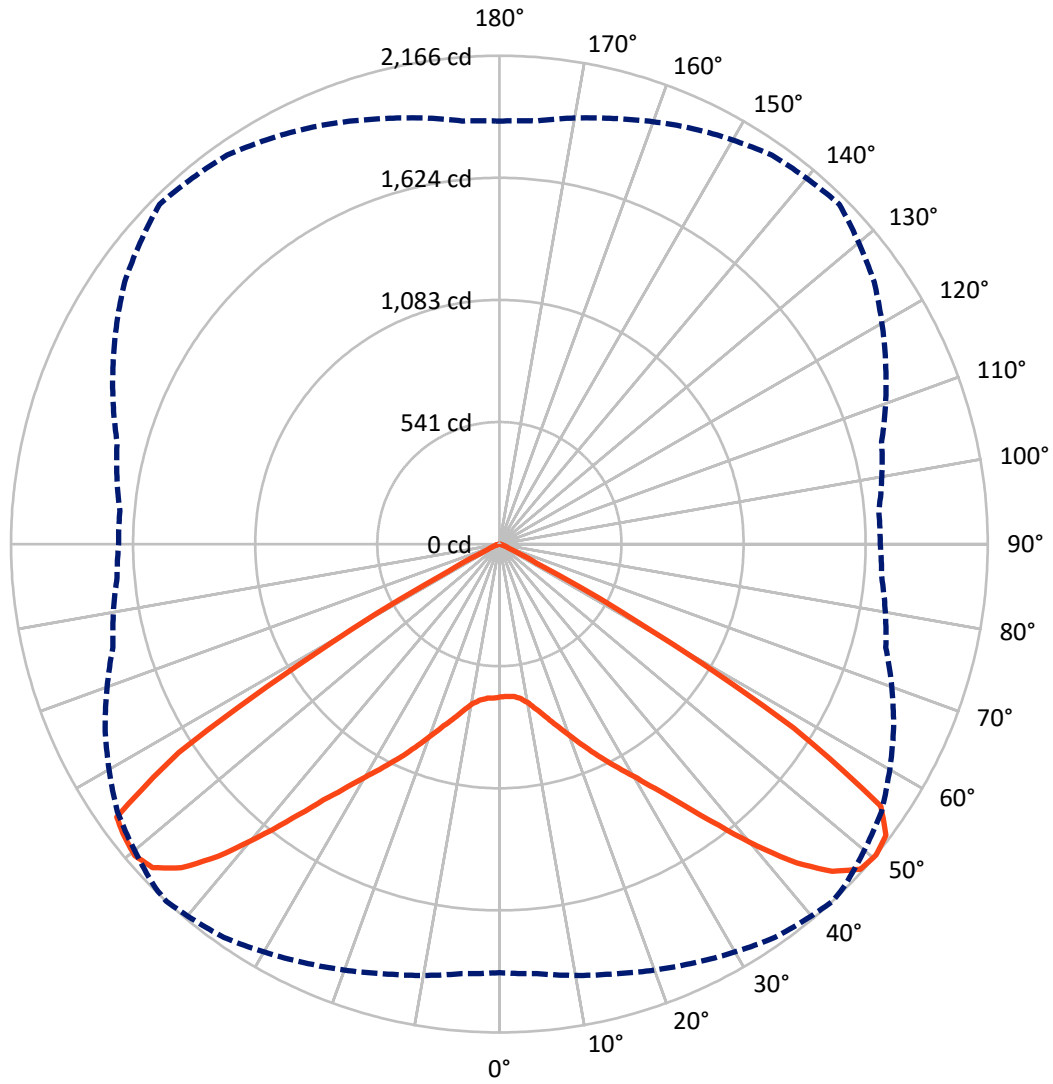
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 8.1 fc
 Type V - Short - N/A

REPORT NUMBER: P632526
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Luminous Intensity Polar Plot



— Vertical Plane Through 43-Deg Lateral - - - Horizontal Cone Through 50-Deg Vertical

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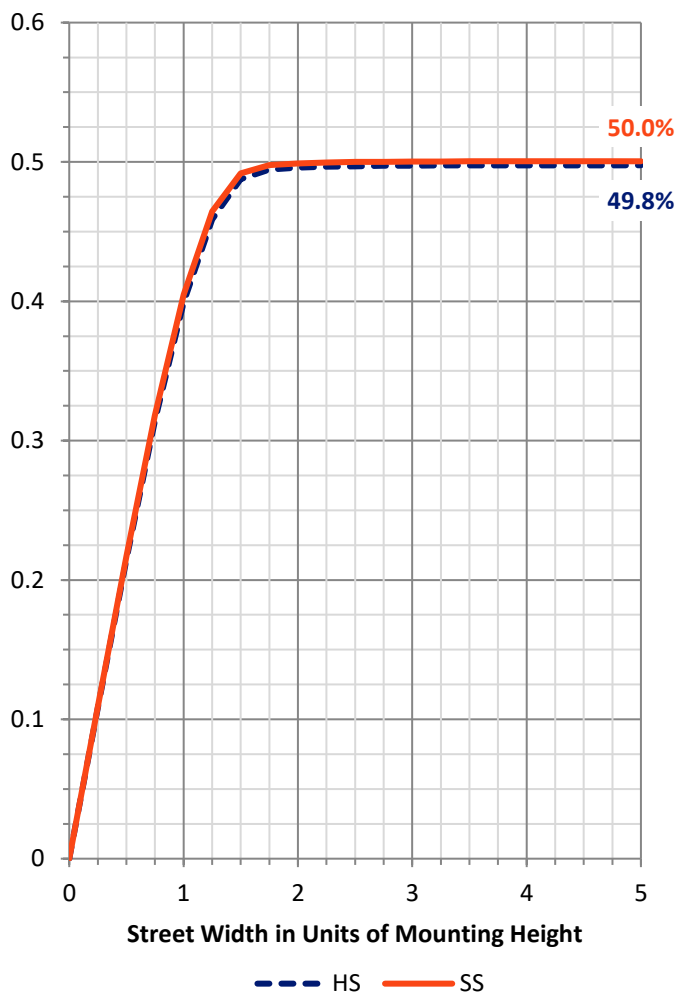
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 2382.5 | 0.0 | 2382.5 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| Street Side | Lumens | 2382.7 | 0.0 | 2382.7 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| Total | Lumens | 4765.2 | 0.0 | 4765.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 66.7 | 1.4 |
| 10°-20° | 229.7 | 4.8 |
| 20°-30° | 464.7 | 9.8 |
| 30°-40° | 862.2 | 18.1 |
| 40°-50° | 1431.2 | 30.0 |
| 50°-60° | 1460.6 | 30.7 |
| 60°-70° | 239.5 | 5.0 |
| 70°-80° | 10.5 | 0.2 |
| 80°-90° | 0.1 | 0.0 |
| 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° | 4765.2 | 100.0 |
| 0°-180° | 4765.2 | 100.0 |

Coefficient of Utilization



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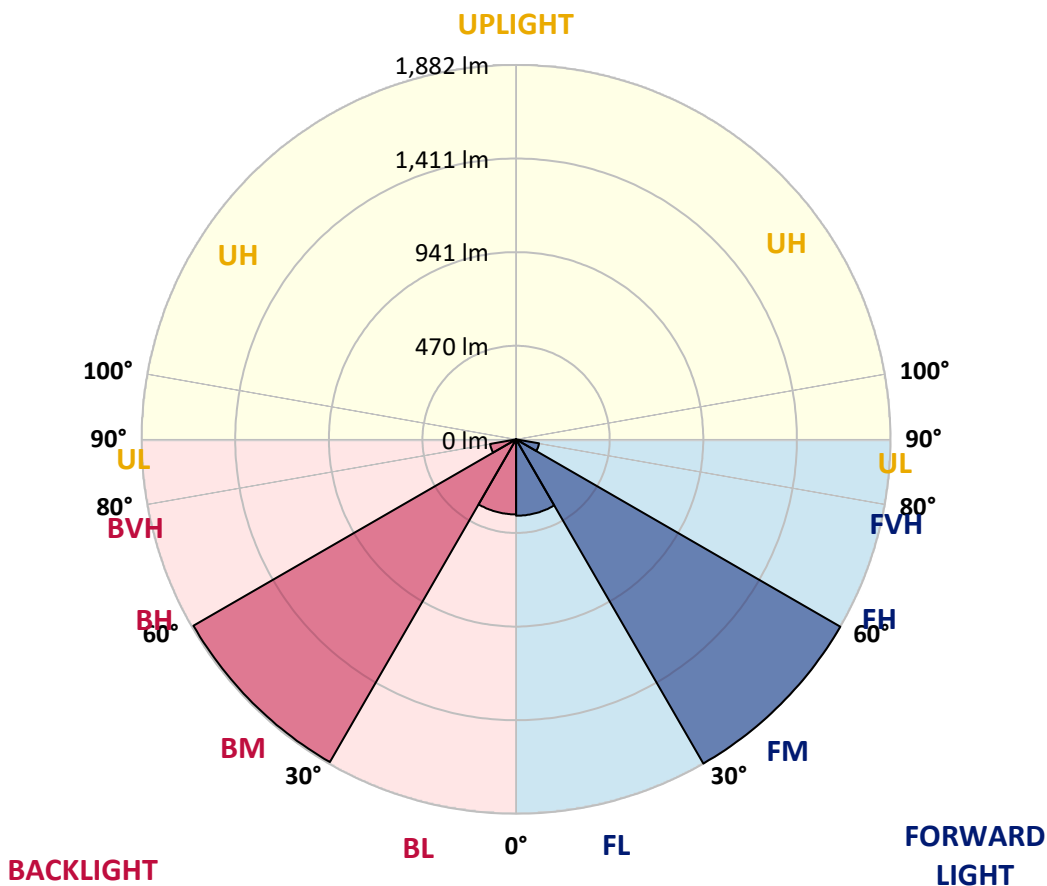
CATALOG NUMBER: GWS-SA2C-830-U-RW-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 383.9 | 8.1 | | | |
| FM (30°-60°) | 1881.5 | 39.5 | | | |
| FH (60°-80°) | 117.2 | 2.5 | | | G0/660 |
| FVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| BL (0°-30°) | 377.2 | 7.9 | B1/500 | | |
| BM (30°-60°) | 1872.4 | 39.3 | B2/2500 | | |
| BH (60°-80°) | 132.8 | 2.8 | B1/500 | | G0/660 |
| BVH (80°-90°) | 0.1 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G0

Type V Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 43° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 |
| 2.5° | 665.1 | 666.7 | 668.8 | 670.9 | 673.6 | 676.2 | 677.8 | 682.5 | 681.5 | 685.7 | 685.7 |
| 5° | 657.7 | 659.3 | 662.0 | 666.7 | 672.5 | 678.3 | 682.5 | 692.0 | 697.3 | 705.7 | 708.9 |
| 7.5° | 661.4 | 663.5 | 666.7 | 674.1 | 683.0 | 692.0 | 696.7 | 712.0 | 722.6 | 738.4 | 747.3 |
| 10° | 673.6 | 675.7 | 680.9 | 693.6 | 705.2 | 717.8 | 723.6 | 743.1 | 760.0 | 781.6 | 794.3 |
| 12.5° | 687.3 | 689.9 | 700.4 | 719.4 | 739.4 | 756.3 | 764.2 | 785.8 | 803.2 | 827.5 | 847.5 |
| 15° | 701.5 | 705.7 | 722.0 | 750.0 | 778.4 | 801.1 | 809.5 | 832.7 | 850.1 | 875.9 | 898.6 |
| 17.5° | 734.7 | 739.4 | 757.9 | 787.9 | 826.9 | 853.3 | 860.7 | 884.9 | 898.1 | 915.5 | 939.2 |
| 20° | 776.3 | 785.3 | 808.0 | 844.3 | 887.0 | 912.3 | 917.6 | 941.3 | 940.2 | 947.6 | 968.2 |
| 22.5° | 828.0 | 834.3 | 859.1 | 902.3 | 950.3 | 978.2 | 990.3 | 1000.3 | 987.1 | 980.8 | 994.0 |
| 25° | 881.7 | 889.1 | 916.0 | 963.4 | 1017.2 | 1049.3 | 1059.4 | 1067.3 | 1046.2 | 1022.5 | 1024.0 |
| 27.5° | 951.3 | 956.6 | 982.9 | 1033.5 | 1087.3 | 1123.7 | 1132.6 | 1146.3 | 1118.4 | 1080.4 | 1069.9 |
| 30° | 1034.1 | 1039.3 | 1067.3 | 1120.5 | 1173.7 | 1204.8 | 1218.5 | 1235.4 | 1204.8 | 1157.4 | 1145.3 |
| 32.5° | 1131.0 | 1136.3 | 1172.1 | 1227.0 | 1270.7 | 1304.4 | 1317.6 | 1335.5 | 1311.3 | 1258.0 | 1244.3 |
| 35° | 1247.0 | 1250.1 | 1292.3 | 1351.9 | 1398.2 | 1430.9 | 1439.9 | 1461.0 | 1434.1 | 1380.8 | 1373.5 |
| 37.5° | 1381.4 | 1385.1 | 1430.9 | 1500.0 | 1547.4 | 1583.8 | 1598.0 | 1603.8 | 1571.1 | 1511.6 | 1505.8 |
| 40° | 1528.9 | 1541.1 | 1585.9 | 1660.2 | 1713.4 | 1759.3 | 1771.9 | 1752.4 | 1706.6 | 1625.4 | 1614.9 |
| 42.5° | 1682.8 | 1693.4 | 1743.5 | 1824.1 | 1885.8 | 1932.7 | 1933.2 | 1891.0 | 1813.0 | 1700.8 | 1684.9 |
| 45° | 1810.9 | 1815.1 | 1880.0 | 1961.1 | 2037.0 | 2070.2 | 2073.4 | 1997.0 | 1879.4 | 1744.5 | 1710.8 |
| 47.5° | 1898.9 | 1905.8 | 1962.2 | 2040.2 | 2124.0 | 2154.0 | 2147.7 | 2052.3 | 1911.0 | 1773.0 | 1717.1 |
| 50° | 1900.0 | 1911.6 | 1972.7 | 2048.1 | 2129.2 | 2165.6 | 2156.7 | 2068.1 | 1929.0 | 1774.0 | 1701.8 |
| 52.5° | 1731.9 | 1750.8 | 1850.4 | 1959.5 | 2083.9 | 2146.1 | 2148.2 | 2088.7 | 1922.1 | 1757.2 | 1688.1 |
| 55° | 1306.5 | 1327.1 | 1452.5 | 1638.6 | 1878.9 | 2052.3 | 2082.3 | 2064.4 | 1914.2 | 1764.5 | 1712.4 |
| 57.5° | 691.5 | 675.7 | 745.2 | 929.7 | 1231.7 | 1538.4 | 1626.4 | 1769.8 | 1826.2 | 1773.5 | 1757.2 |
| 60° | 150.7 | 160.7 | 214.0 | 288.3 | 480.7 | 723.6 | 809.5 | 1055.1 | 1347.1 | 1476.8 | 1570.6 |
| 62.5° | 64.8 | 63.8 | 66.4 | 75.4 | 110.2 | 183.4 | 224.0 | 365.8 | 577.1 | 792.7 | 938.7 |
| 65° | 53.2 | 53.8 | 55.9 | 55.9 | 52.2 | 52.7 | 55.3 | 83.8 | 134.9 | 189.2 | 254.0 |
| 67.5° | 40.1 | 40.6 | 44.3 | 45.3 | 42.7 | 37.9 | 37.4 | 31.6 | 33.2 | 41.6 | 43.2 |
| 70° | 25.3 | 25.3 | 27.4 | 28.5 | 28.5 | 26.4 | 25.8 | 22.7 | 22.1 | 25.3 | 28.5 |
| 72.5° | 13.7 | 13.7 | 14.8 | 15.3 | 14.8 | 14.2 | 14.2 | 13.7 | 13.2 | 15.3 | 19.5 |
| 75° | 5.8 | 5.8 | 6.3 | 6.3 | 5.8 | 5.8 | 5.8 | 5.8 | 5.8 | 6.9 | 10.5 |
| 77.5° | 1.1 | 1.6 | 2.1 | 1.6 | 1.1 | 1.1 | 1.1 | 1.6 | 1.6 | 2.1 | 3.2 |
| 80° | 0.5 | 0.5 | 1.1 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.5 | 0.5 |
| 82.5° | 0.5 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 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 |



REPORT NUMBER: P632526

CATALOG NUMBER: GWS-SA2C-830-U-RW-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 | 677.8 |
| 2.5° | 689.4 | 683.6 | 685.7 | 686.7 | 685.2 | 684.1 | 678.3 | 676.7 | 674.1 | 669.9 | 668.8 |
| 5° | 712.6 | 707.8 | 707.3 | 704.1 | 696.7 | 687.8 | 676.7 | 672.0 | 666.7 | 661.4 | 660.4 |
| 7.5° | 751.6 | 745.8 | 742.1 | 731.5 | 714.7 | 700.4 | 682.0 | 672.0 | 665.1 | 658.3 | 656.7 |
| 10° | 801.6 | 794.8 | 784.2 | 764.7 | 742.1 | 721.5 | 699.9 | 686.7 | 676.2 | 666.7 | 666.2 |
| 12.5° | 854.9 | 847.5 | 828.5 | 803.7 | 776.3 | 757.4 | 730.0 | 711.5 | 695.7 | 681.5 | 679.9 |
| 15° | 910.7 | 901.8 | 875.9 | 846.4 | 821.1 | 801.6 | 771.6 | 742.1 | 717.8 | 697.3 | 695.2 |
| 17.5° | 953.4 | 942.3 | 911.8 | 889.6 | 869.1 | 849.1 | 815.3 | 776.3 | 744.2 | 719.4 | 713.6 |
| 20° | 980.3 | 969.8 | 940.8 | 928.6 | 919.2 | 904.9 | 864.9 | 824.3 | 788.5 | 757.9 | 752.6 |
| 22.5° | 1006.1 | 993.5 | 968.2 | 968.2 | 975.6 | 969.8 | 926.5 | 880.2 | 838.0 | 802.7 | 794.8 |
| 25° | 1035.1 | 1025.1 | 1007.2 | 1021.9 | 1040.4 | 1039.9 | 995.6 | 937.6 | 889.1 | 849.6 | 841.7 |
| 27.5° | 1077.3 | 1067.3 | 1060.9 | 1088.9 | 1112.1 | 1110.5 | 1062.0 | 999.3 | 948.1 | 909.1 | 901.8 |
| 30° | 1151.6 | 1142.1 | 1135.2 | 1169.0 | 1198.5 | 1187.4 | 1134.2 | 1073.6 | 1021.9 | 977.7 | 972.4 |
| 32.5° | 1250.7 | 1240.7 | 1231.7 | 1265.4 | 1291.8 | 1277.5 | 1227.0 | 1170.0 | 1110.5 | 1067.3 | 1056.7 |
| 35° | 1380.8 | 1359.8 | 1350.8 | 1390.9 | 1401.9 | 1386.1 | 1337.6 | 1287.6 | 1224.3 | 1174.8 | 1167.9 |
| 37.5° | 1515.2 | 1490.5 | 1484.1 | 1518.9 | 1536.9 | 1531.1 | 1474.1 | 1422.0 | 1353.4 | 1298.6 | 1290.7 |
| 40° | 1630.1 | 1607.5 | 1596.4 | 1650.7 | 1691.3 | 1695.0 | 1643.8 | 1580.1 | 1499.4 | 1442.5 | 1428.3 |
| 42.5° | 1697.6 | 1678.1 | 1675.5 | 1759.8 | 1826.2 | 1873.6 | 1812.5 | 1746.6 | 1661.8 | 1597.5 | 1585.9 |
| 45° | 1712.9 | 1700.2 | 1722.4 | 1833.0 | 1936.3 | 2022.8 | 1970.6 | 1901.0 | 1809.3 | 1741.3 | 1730.3 |
| 47.5° | 1711.3 | 1707.1 | 1746.6 | 1871.0 | 2001.7 | 2108.2 | 2082.3 | 2003.8 | 1915.3 | 1844.1 | 1833.6 |
| 50° | 1688.6 | 1689.2 | 1755.0 | 1890.0 | 2028.1 | 2131.4 | 2105.5 | 2032.8 | 1953.7 | 1883.6 | 1875.2 |
| 52.5° | 1679.7 | 1676.5 | 1739.2 | 1884.2 | 2054.9 | 2120.8 | 2062.8 | 1981.1 | 1893.1 | 1806.7 | 1794.0 |
| 55° | 1711.3 | 1703.4 | 1741.3 | 1879.4 | 2058.1 | 2115.0 | 1962.2 | 1785.1 | 1604.8 | 1502.6 | 1494.2 |
| 57.5° | 1758.7 | 1750.3 | 1768.2 | 1844.6 | 1893.1 | 1758.7 | 1444.1 | 1158.4 | 972.9 | 894.4 | 860.1 |
| 60° | 1570.6 | 1564.8 | 1551.1 | 1458.8 | 1251.2 | 943.9 | 643.0 | 410.0 | 294.6 | 238.2 | 238.2 |
| 62.5° | 974.5 | 966.6 | 892.3 | 663.0 | 481.7 | 278.8 | 153.4 | 95.9 | 72.7 | 68.0 | 67.5 |
| 65° | 273.5 | 272.0 | 225.0 | 159.2 | 101.2 | 62.7 | 55.3 | 56.4 | 55.3 | 53.8 | 53.2 |
| 67.5° | 41.1 | 45.3 | 45.3 | 36.9 | 35.3 | 39.5 | 46.4 | 49.5 | 46.9 | 44.3 | 43.2 |
| 70° | 26.4 | 28.5 | 27.4 | 23.7 | 25.3 | 29.5 | 33.2 | 33.7 | 32.1 | 29.5 | 29.0 |
| 72.5° | 18.4 | 20.6 | 16.9 | 15.3 | 15.8 | 17.4 | 19.0 | 19.0 | 18.4 | 17.4 | 16.3 |
| 75° | 11.1 | 11.1 | 7.9 | 7.4 | 7.4 | 7.9 | 7.9 | 9.0 | 9.0 | 8.4 | 7.9 |
| 77.5° | 3.7 | 4.2 | 2.6 | 2.1 | 2.1 | 2.1 | 2.6 | 3.2 | 3.2 | 2.6 | 2.1 |
| 80° | 0.5 | 1.1 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 1.1 | 1.1 | 0.5 |
| 82.5° | 0.5 | 0.5 | 0.5 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.5 | 0.5 | 0.5 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.5 | 0.5 |
| 87.5° | 0.0 | 0.0 | 0.0 | 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: SP1-2408-195-9

Test Date: 08/07/2024

Luminaire Tested: GALN-SB1A-830-U-5WQ

Data in this report applies to families of products including GALN-SB1A-830-U-5WQ.

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2408-195-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/07/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **GALN-SB1A-830-U-5WQ**
 Description: GALLEON AREA AND ROADWAY LUMINAIRE. (1) 80 CRI, 3000K, 350MA HIGH DENSITY LIGHTSQUARE WITH 26 LEDS AND TYPE V WIDE OPTICS

Spectral Parameters

CCT (K): 3050
 CIE u': 0.2476
 CIE v': 0.5251
 Duv: 0.0034
 CIE x: 0.4383
 CIE y: 0.4131
 CIE z: 0.1487
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 581
 Purity: 55.55201
 Rf: 81.5
 Rg: 99.2

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 81.0 | | |
| R1: | 79.6 | R9: | 7.1 |
| R2: | 85.6 | R10: | 67.0 |
| R3: | 92.0 | R11: | 82.7 |
| R4: | 82.6 | R12: | 63.2 |
| R5: | 78.9 | R13: | 80.3 |
| R6: | 81.7 | R14: | 95.0 |
| R7: | 85.2 | R15: | 71.7 |
| R8: | 62.0 | | |



Test Conditions

Stabilization Time: 20M
 Operation Time: 1H 20M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2408-195-9

| 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 3000K 4-step quadrangle

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Photopic Flux vs. Wavelength



Photopic Lumens: NR

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

Scotopic Flux vs. Wavelength



Scotopic Lumens: NR

S/P: 1.27

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.32

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 81.5$
 $R_g = 99.2$
 $CIE R_a = 81.0$
 $R_9 = 7.1$



Color Vector Graphics

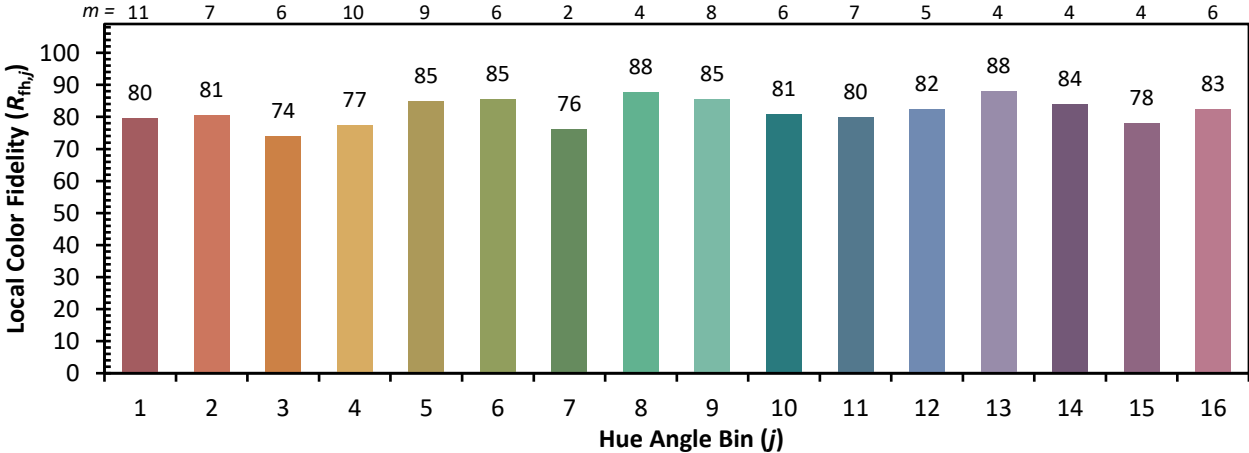


Individual Sample Fidelity Index ($R_{f,i}$)

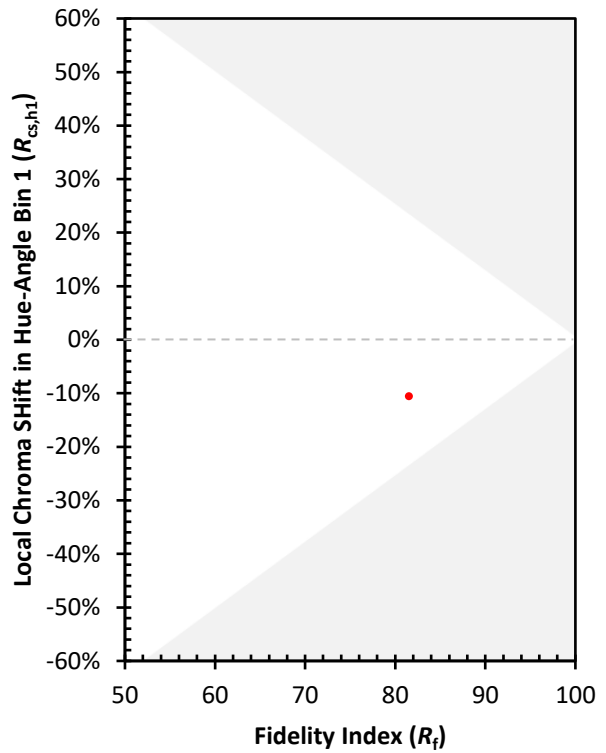
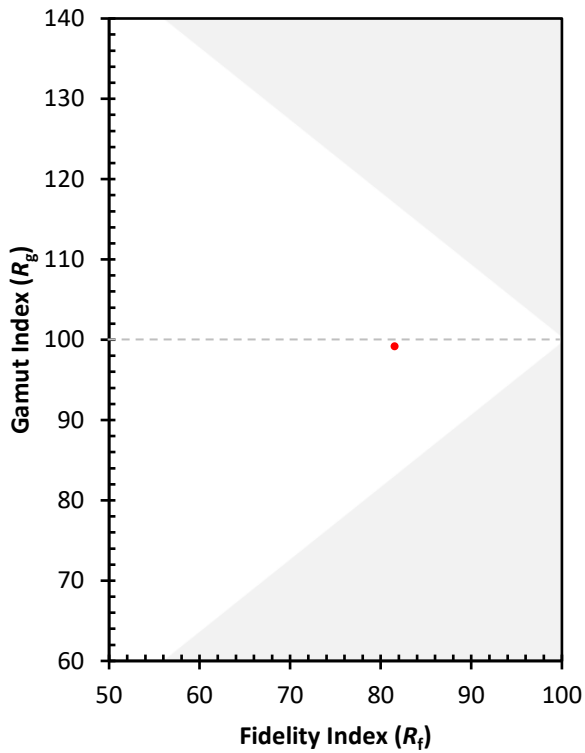
| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 51 | CES31 = 71 | CES56 = 78 | CES81 = 78 |
| CES07 = 42 | CES32 = 70 | CES57 = 76 | CES82 = 95 |
| CES08 = 41 | CES33 = 71 | CES58 = 78 | CES83 = 90 |
| CES09 = 29 | CES34 = 82 | CES59 = 92 | CES84 = 94 |
| CES10 = 76 | CES35 = 90 | CES60 = 95 | CES85 = 86 |
| CES11 = 59 | CES36 = 93 | CES61 = 93 | CES86 = 72 |
| CES12 = 65 | CES37 = 87 | CES62 = 83 | CES87 = 85 |
| CES13 = 43 | CES38 = 75 | CES63 = 77 | CES88 = 83 |
| CES14 = 74 | CES39 = 94 | CES64 = 83 | CES89 = 75 |
| CES15 = 71 | CES40 = 89 | CES65 = 77 | CES90 = 81 |
| CES16 = 47 | CES41 = 85 | CES66 = 80 | CES91 = 96 |
| CES17 = 50 | CES42 = 86 | CES67 = 79 | CES92 = 73 |
| CES18 = 56 | CES43 = 81 | CES68 = 84 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 91 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 78 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 76 | CES96 = 84 |
| CES22 = 79 | CES47 = 77 | CES72 = 92 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 71 | CES98 = 81 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 74 |
| CES25 = 72 | CES50 = 89 | CES75 = 74 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)