

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: P637501

Luminaire Tested: GWS-SA4C-830-U-T2-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P637501
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-19)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA4C-830-U-T2-W
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II OPTICS
Light Source: (64) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15299.3 lumens
Efficiency: N/A
Efficacy: 119.1 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Medium
BUG Rating: B2 - U0 - G3

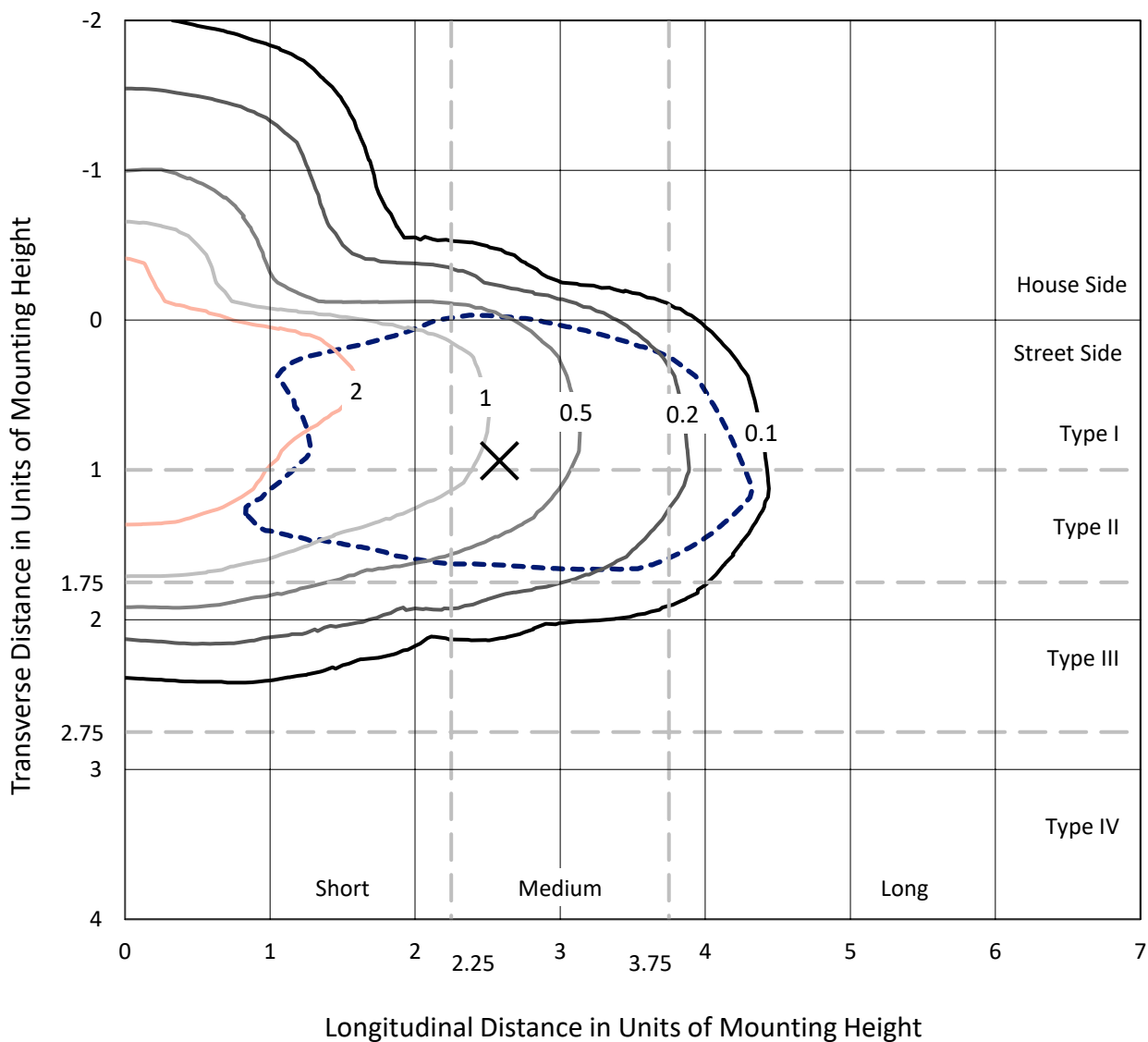
Input Watts (W): 128.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P637501
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Iso-Footcandle Lines of Horizontal Illumination

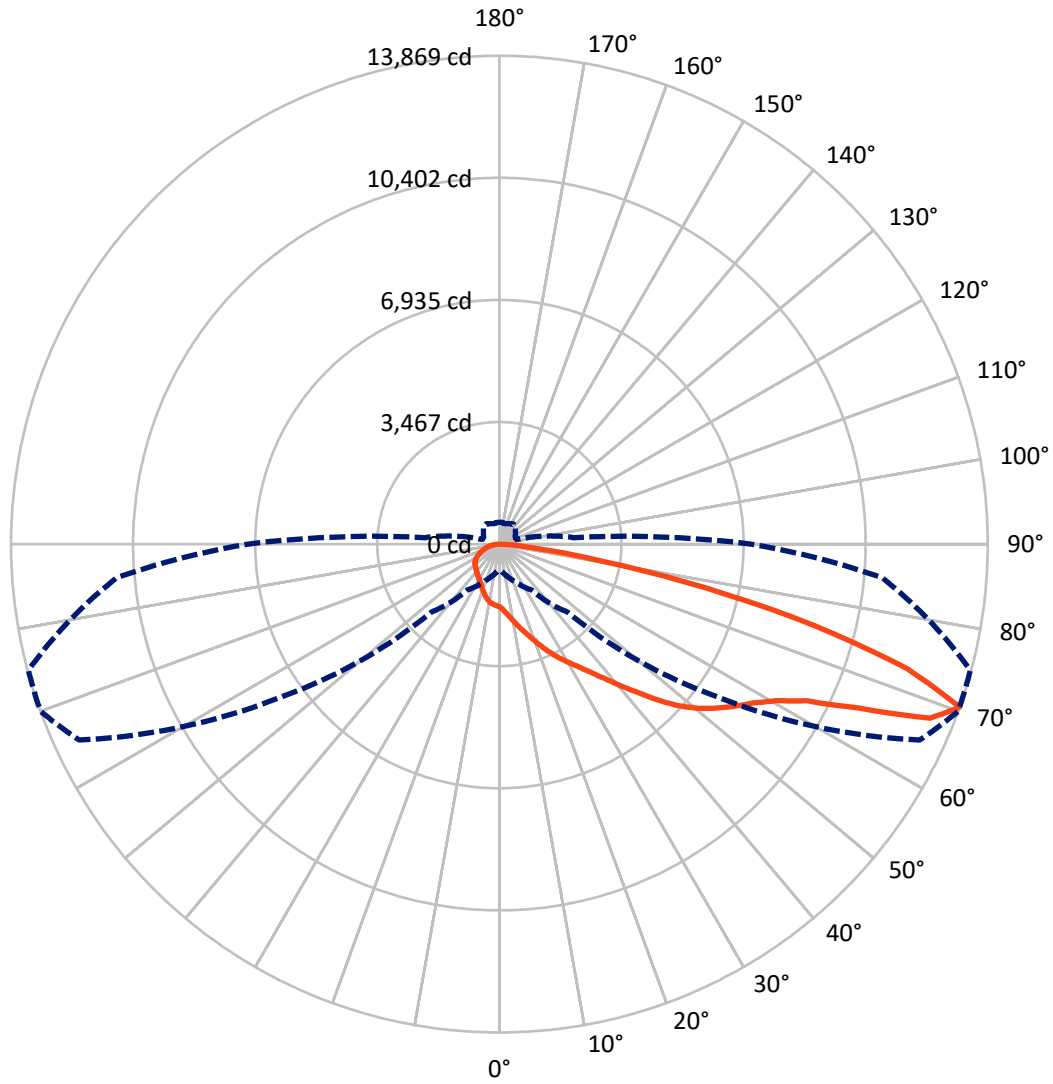
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 4.1 fc
 Type II - Medium - N/A

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CATALOG NUMBER: GWS-SA4C-830-U-T2-W

Luminous Intensity Polar Plot



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

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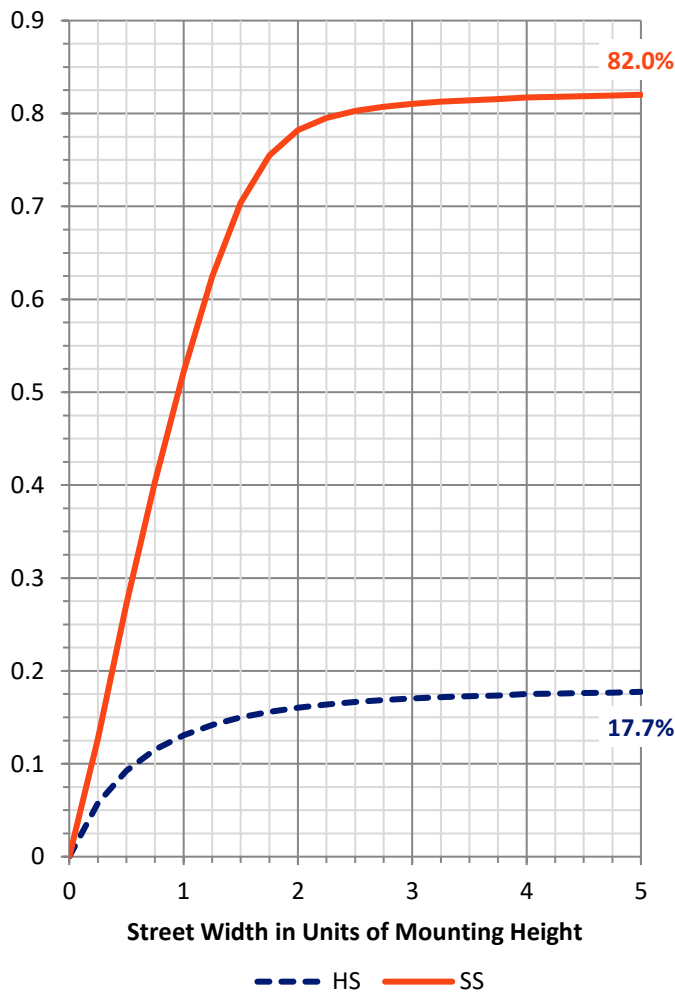
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2741.7 | 0.0 | 2741.7 |
| | % Fixture | 17.9 | 0.0 | 17.9 |
| Street Side | Lumens | 12557.6 | 0.0 | 12557.6 |
| | % Fixture | 82.1 | 0.0 | 82.1 |
| Total | Lumens | 15299.3 | 0.0 | 15299.3 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 181.3 | 1.2 |
| 10°-20° | 589.9 | 3.9 |
| 20°-30° | 1045.1 | 6.8 |
| 30°-40° | 1572.8 | 10.3 |
| 40°-50° | 2379.5 | 15.6 |
| 50°-60° | 3408.8 | 22.3 |
| 60°-70° | 3768.0 | 24.6 |
| 70°-80° | 2126.4 | 13.9 |
| 80°-90° | 227.4 | 1.5 |
| 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° | 15299.3 | 100.0 |
| 0°-180° | 15299.3 | 100.0 |

Coefficient of Utilization



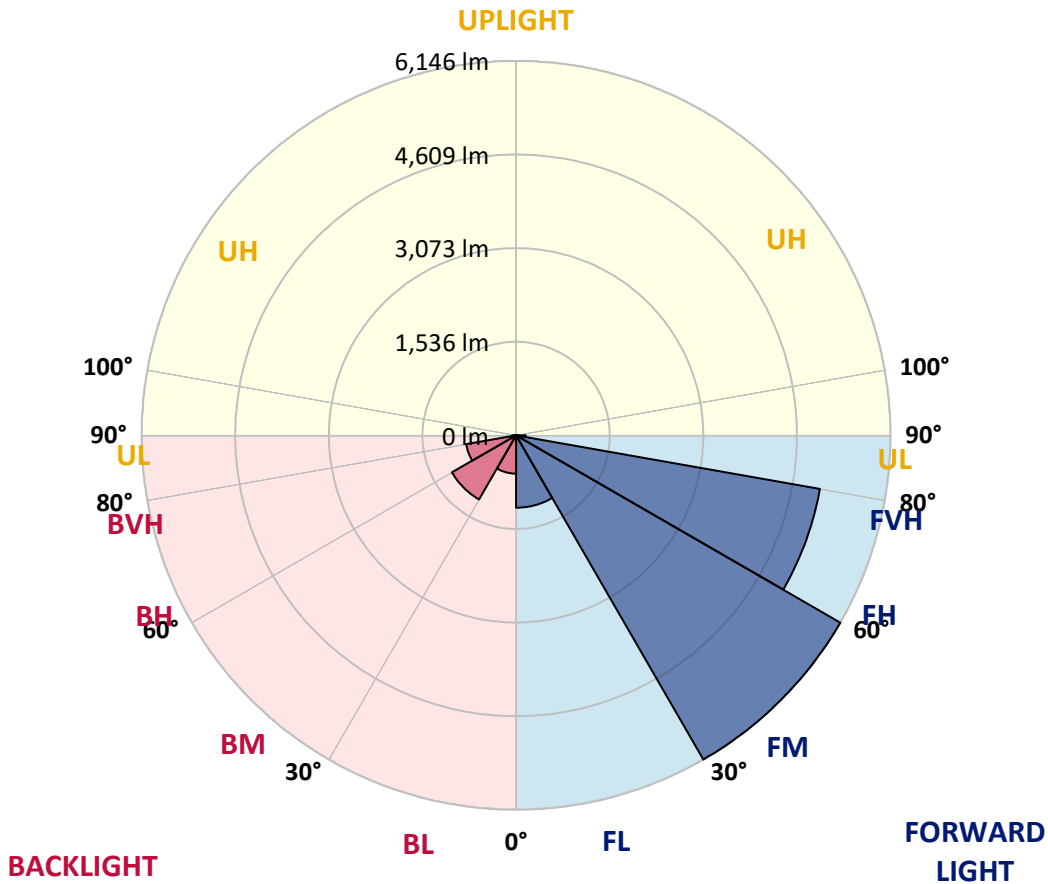
REPORT NUMBER: P637501

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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°) | 1187.7 | 7.8 | | | |
| FM (30°-60°) | 6145.7 | 40.2 | | | |
| FH (60°-80°) | 5063.4 | 33.1 | | | G3/7500 |
| FVH (80°-90°) | 160.8 | 1.1 | | | G2/225 |
| BL (0°-30°) | 628.6 | 4.1 | B2/1000 | | |
| BM (30°-60°) | 1215.4 | 7.9 | B2/2500 | | |
| BH (60°-80°) | 831.0 | 5.4 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 66.7 | 0.4 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G3
 Type II Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 70° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|
| 0° | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 |
| 2.5° | 1976.6 | 1973.2 | 1975.5 | 1973.2 | 1961.1 | 1931.2 | 1906.9 | 1876.0 | 1855.0 | 1842.8 | 1814.1 |
| 5° | 2208.7 | 2205.4 | 2197.7 | 2186.6 | 2164.5 | 2123.6 | 2062.8 | 1995.4 | 1954.5 | 1923.5 | 1862.7 |
| 7.5° | 2375.6 | 2375.6 | 2374.5 | 2361.3 | 2345.8 | 2302.7 | 2230.8 | 2142.4 | 2082.7 | 2029.6 | 1930.1 |
| 10° | 2460.8 | 2466.3 | 2474.0 | 2492.8 | 2489.5 | 2466.3 | 2398.9 | 2303.8 | 2228.6 | 2166.7 | 2018.6 |
| 12.5° | 2507.2 | 2510.5 | 2523.8 | 2562.5 | 2602.3 | 2607.8 | 2568.0 | 2468.5 | 2386.7 | 2303.8 | 2117.0 |
| 15° | 2566.9 | 2568.0 | 2585.7 | 2632.1 | 2690.7 | 2749.3 | 2739.3 | 2639.8 | 2555.8 | 2464.1 | 2226.4 |
| 17.5° | 2613.3 | 2621.0 | 2653.1 | 2707.3 | 2780.2 | 2860.9 | 2909.6 | 2847.7 | 2743.8 | 2638.7 | 2345.8 |
| 20° | 2629.9 | 2635.4 | 2677.4 | 2760.3 | 2859.8 | 2973.7 | 3082.0 | 3065.4 | 2960.4 | 2836.6 | 2480.7 |
| 22.5° | 2689.6 | 2689.6 | 2720.5 | 2790.2 | 2907.4 | 3073.2 | 3249.0 | 3292.1 | 3199.2 | 3054.4 | 2625.5 |
| 25° | 2821.1 | 2816.7 | 2831.1 | 2859.8 | 2948.3 | 3152.8 | 3413.7 | 3543.0 | 3439.1 | 3276.6 | 2770.3 |
| 27.5° | 3001.3 | 2999.1 | 2998.0 | 3002.4 | 3032.3 | 3222.4 | 3553.0 | 3777.4 | 3673.4 | 3489.9 | 2899.6 |
| 30° | 3197.0 | 3190.4 | 3204.7 | 3191.5 | 3184.8 | 3305.3 | 3671.2 | 3987.4 | 3906.7 | 3701.1 | 3006.9 |
| 32.5° | 3463.4 | 3451.3 | 3447.9 | 3404.8 | 3378.3 | 3434.7 | 3766.3 | 4226.2 | 4162.1 | 3928.8 | 3127.4 |
| 35° | 3814.9 | 3803.9 | 3747.5 | 3679.0 | 3600.5 | 3627.0 | 3884.6 | 4459.4 | 4463.9 | 4214.0 | 3285.4 |
| 37.5° | 4169.8 | 4172.0 | 4127.8 | 3966.4 | 3885.7 | 3870.2 | 4064.8 | 4743.5 | 4838.6 | 4554.5 | 3489.9 |
| 40° | 4465.0 | 4478.2 | 4478.2 | 4308.0 | 4187.5 | 4173.1 | 4317.9 | 5080.7 | 5269.7 | 4972.4 | 3748.6 |
| 42.5° | 4689.4 | 4701.5 | 4740.2 | 4617.5 | 4490.4 | 4540.1 | 4625.3 | 5419.0 | 5758.4 | 5488.6 | 4075.8 |
| 45° | 4935.9 | 4945.8 | 4966.8 | 4896.1 | 4822.0 | 4954.7 | 4973.5 | 5823.6 | 6317.7 | 6067.9 | 4456.1 |
| 47.5° | 5263.1 | 5254.3 | 5256.5 | 5204.5 | 5147.0 | 5361.5 | 5357.1 | 6164.1 | 6858.3 | 6702.4 | 4868.5 |
| 50° | 5669.9 | 5686.5 | 5671.0 | 5568.2 | 5500.8 | 5696.4 | 5721.9 | 6541.0 | 7333.6 | 7330.3 | 5284.1 |
| 52.5° | 6061.2 | 6067.9 | 6149.7 | 6154.1 | 6015.9 | 5975.0 | 6041.3 | 6921.3 | 7734.9 | 7905.2 | 5683.2 |
| 55° | 6081.1 | 6106.6 | 6352.0 | 6528.9 | 6752.2 | 6423.8 | 6364.1 | 7283.9 | 8122.9 | 8467.8 | 6097.7 |
| 57.5° | 5657.8 | 5698.7 | 6115.4 | 6496.8 | 7118.1 | 7194.3 | 6916.9 | 7752.6 | 8510.9 | 9021.7 | 6577.5 |
| 60° | 4753.5 | 4838.6 | 5404.6 | 5988.3 | 6953.4 | 7748.2 | 8047.8 | 8389.3 | 9020.6 | 9587.7 | 7160.1 |
| 62.5° | 3035.6 | 3068.8 | 3862.5 | 4839.7 | 6211.6 | 7694.0 | 9279.2 | 9511.4 | 9796.6 | 10325.0 | 8057.7 |
| 65° | 1520.0 | 1626.1 | 2091.5 | 2888.6 | 4479.3 | 6779.8 | 9901.6 | 11566.4 | 11217.1 | 11587.4 | 9512.5 |
| 67.5° | 1031.4 | 1065.7 | 1301.1 | 1735.6 | 2626.6 | 4803.2 | 9515.8 | 13297.6 | 13194.8 | 13255.6 | 11063.5 |
| 70° | 760.6 | 782.7 | 968.4 | 1229.3 | 1588.5 | 2727.2 | 7575.7 | 13167.2 | 13869.1 | 13847.0 | 10901.0 |
| 72.5° | 554.9 | 566.0 | 706.4 | 938.5 | 1177.3 | 1410.6 | 4626.4 | 10636.8 | 12107.0 | 12744.9 | 9533.5 |
| 75° | 403.5 | 416.8 | 490.8 | 702.0 | 915.3 | 879.9 | 2283.9 | 7683.0 | 9232.8 | 10459.9 | 7767.0 |
| 77.5° | 300.7 | 317.3 | 351.5 | 440.0 | 641.2 | 630.1 | 987.2 | 4988.9 | 5971.7 | 6831.8 | 4718.1 |
| 80° | 216.7 | 220.0 | 239.9 | 281.9 | 406.8 | 369.2 | 469.8 | 2601.2 | 2982.5 | 3267.7 | 1849.4 |
| 82.5° | 131.5 | 134.9 | 160.3 | 173.6 | 252.0 | 232.1 | 244.3 | 842.4 | 1207.2 | 1281.2 | 690.9 |
| 85° | 38.7 | 40.9 | 73.0 | 79.6 | 105.0 | 99.5 | 98.4 | 342.7 | 409.0 | 522.9 | 271.9 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 6.6 | 12.2 | 60.8 | 91.8 | 127.1 | 66.3 |
| 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: P637501

CATALOG NUMBER: GWS-SA4C-830-U-T2-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 | 1784.2 |
| 2.5° | 1803.0 | 1777.6 | 1764.3 | 1741.1 | 1724.5 | 1707.9 | 1691.4 | 1675.9 | 1669.2 | 1659.3 | 1661.5 |
| 5° | 1835.1 | 1795.3 | 1755.5 | 1710.1 | 1671.5 | 1639.4 | 1610.7 | 1585.2 | 1574.2 | 1564.2 | 1568.7 |
| 7.5° | 1883.7 | 1824.0 | 1747.7 | 1664.8 | 1604.0 | 1559.8 | 1530.0 | 1512.3 | 1506.7 | 1499.0 | 1499.0 |
| 10° | 1945.6 | 1856.1 | 1722.3 | 1604.0 | 1531.1 | 1495.7 | 1482.4 | 1481.3 | 1486.8 | 1488.0 | 1485.7 |
| 12.5° | 2014.2 | 1887.0 | 1684.7 | 1532.2 | 1470.3 | 1459.2 | 1469.2 | 1488.0 | 1506.7 | 1516.7 | 1514.5 |
| 15° | 2084.9 | 1906.9 | 1620.6 | 1463.6 | 1426.0 | 1440.4 | 1472.5 | 1510.1 | 1546.5 | 1565.3 | 1564.2 |
| 17.5° | 2151.2 | 1911.3 | 1537.7 | 1397.3 | 1387.4 | 1423.8 | 1479.1 | 1537.7 | 1587.4 | 1614.0 | 1615.1 |
| 20° | 2225.3 | 1903.6 | 1452.6 | 1337.6 | 1348.7 | 1408.4 | 1481.3 | 1552.1 | 1610.7 | 1637.2 | 1643.8 |
| 22.5° | 2292.7 | 1877.1 | 1369.7 | 1281.2 | 1315.5 | 1389.6 | 1463.6 | 1530.0 | 1581.9 | 1607.3 | 1616.2 |
| 25° | 2353.5 | 1826.2 | 1279.0 | 1233.7 | 1290.1 | 1363.0 | 1419.4 | 1465.8 | 1502.3 | 1517.8 | 1530.0 |
| 27.5° | 2386.7 | 1749.9 | 1210.5 | 1196.1 | 1265.8 | 1325.4 | 1356.4 | 1370.8 | 1382.9 | 1378.5 | 1387.4 |
| 30° | 2393.3 | 1654.9 | 1150.8 | 1166.3 | 1229.3 | 1273.5 | 1280.1 | 1265.8 | 1244.7 | 1210.5 | 1218.2 |
| 32.5° | 2386.7 | 1545.4 | 1101.0 | 1134.2 | 1188.4 | 1214.9 | 1206.1 | 1168.5 | 1117.6 | 1064.6 | 1067.9 |
| 35° | 2388.9 | 1434.9 | 1060.1 | 1098.8 | 1140.8 | 1155.2 | 1133.1 | 1081.1 | 1027.0 | 978.3 | 976.1 |
| 37.5° | 2413.2 | 1342.0 | 1025.9 | 1064.6 | 1094.4 | 1096.6 | 1072.3 | 1018.1 | 990.5 | 954.0 | 949.6 |
| 40° | 2480.7 | 1273.5 | 994.9 | 1030.3 | 1049.1 | 1048.0 | 1020.3 | 981.6 | 1000.4 | 988.3 | 985.0 |
| 42.5° | 2591.2 | 1231.5 | 969.5 | 993.8 | 1007.1 | 1009.3 | 987.2 | 962.9 | 1003.8 | 988.3 | 982.8 |
| 45° | 2769.2 | 1229.3 | 951.8 | 957.3 | 978.3 | 993.8 | 978.3 | 950.7 | 966.2 | 891.0 | 876.6 |
| 47.5° | 2980.3 | 1266.9 | 938.5 | 925.3 | 961.8 | 989.4 | 965.1 | 920.8 | 888.8 | 820.3 | 810.3 |
| 50° | 3234.6 | 1343.1 | 926.4 | 891.0 | 937.4 | 972.8 | 948.5 | 887.7 | 839.0 | 802.6 | 797.0 |
| 52.5° | 3536.4 | 1443.7 | 910.9 | 852.3 | 901.0 | 964.0 | 948.5 | 884.4 | 820.3 | 787.1 | 781.6 |
| 55° | 3852.5 | 1559.8 | 893.2 | 805.9 | 860.0 | 966.2 | 956.2 | 861.2 | 805.9 | 788.2 | 783.8 |
| 57.5° | 4245.0 | 1699.1 | 861.2 | 751.7 | 823.6 | 946.3 | 925.3 | 847.9 | 795.9 | 781.6 | 777.1 |
| 60° | 4754.6 | 1905.8 | 800.4 | 696.4 | 781.6 | 910.9 | 897.6 | 825.8 | 769.4 | 757.2 | 753.9 |
| 62.5° | 5561.6 | 2256.2 | 726.3 | 643.4 | 731.8 | 836.8 | 856.7 | 783.8 | 736.2 | 735.1 | 734.0 |
| 65° | 6877.1 | 2677.4 | 639.0 | 595.8 | 679.9 | 776.0 | 802.6 | 740.7 | 702.0 | 714.1 | 713.0 |
| 67.5° | 7799.0 | 2713.9 | 567.1 | 546.1 | 619.1 | 709.7 | 748.4 | 696.4 | 654.4 | 677.6 | 676.5 |
| 70° | 7143.5 | 2117.0 | 505.2 | 494.1 | 553.8 | 637.9 | 689.8 | 641.2 | 599.2 | 621.3 | 616.8 |
| 72.5° | 6024.8 | 1622.8 | 446.6 | 440.0 | 487.5 | 562.7 | 614.6 | 585.9 | 541.7 | 541.7 | 531.7 |
| 75° | 4841.9 | 1338.7 | 384.7 | 381.4 | 413.4 | 486.4 | 545.0 | 496.4 | 455.5 | 453.2 | 446.6 |
| 77.5° | 2776.9 | 877.7 | 322.8 | 320.6 | 330.5 | 406.8 | 423.4 | 413.4 | 382.5 | 368.1 | 363.7 |
| 80° | 1106.6 | 456.6 | 254.3 | 239.9 | 249.8 | 298.5 | 333.8 | 317.3 | 290.7 | 273.0 | 263.1 |
| 82.5° | 428.9 | 228.8 | 179.1 | 157.0 | 171.3 | 215.6 | 242.1 | 236.6 | 218.9 | 179.1 | 168.0 |
| 85° | 174.7 | 111.7 | 107.2 | 90.6 | 99.5 | 116.1 | 139.3 | 120.5 | 99.5 | 70.7 | 67.4 |
| 87.5° | 46.4 | 40.9 | 39.8 | 24.3 | 18.8 | 5.5 | 1.1 | 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)