

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



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P320215

Luminaire Tested: **GLEON-SA1D-722-U-SL4**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P320215
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-24)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA1D-722-U-SL4
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(1) 70 CRI, 2200K, 1200mA LIGHTSQUARE WITH 16 LEDS AND TYPE IV SPILL
LIGHT ELIMINATOR OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5674 lumens
Efficiency: N/A
Efficacy: 84.7 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G2

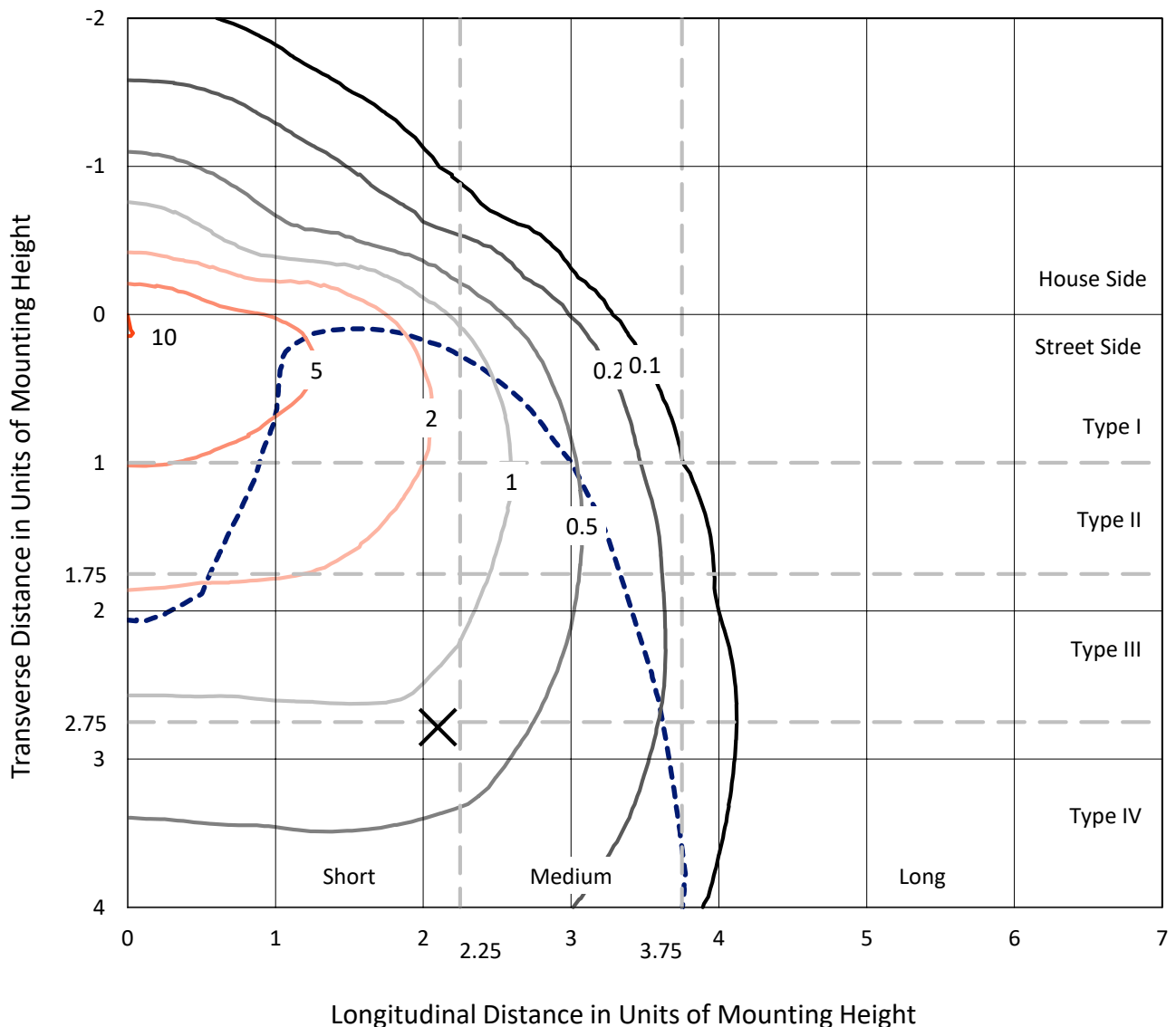
Input Watts (W): 67
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P320215
 CATALOG NUMBER: GLEON-SA1D-722-U-SL4

Iso-Footcandle Lines of Horizontal Illumination

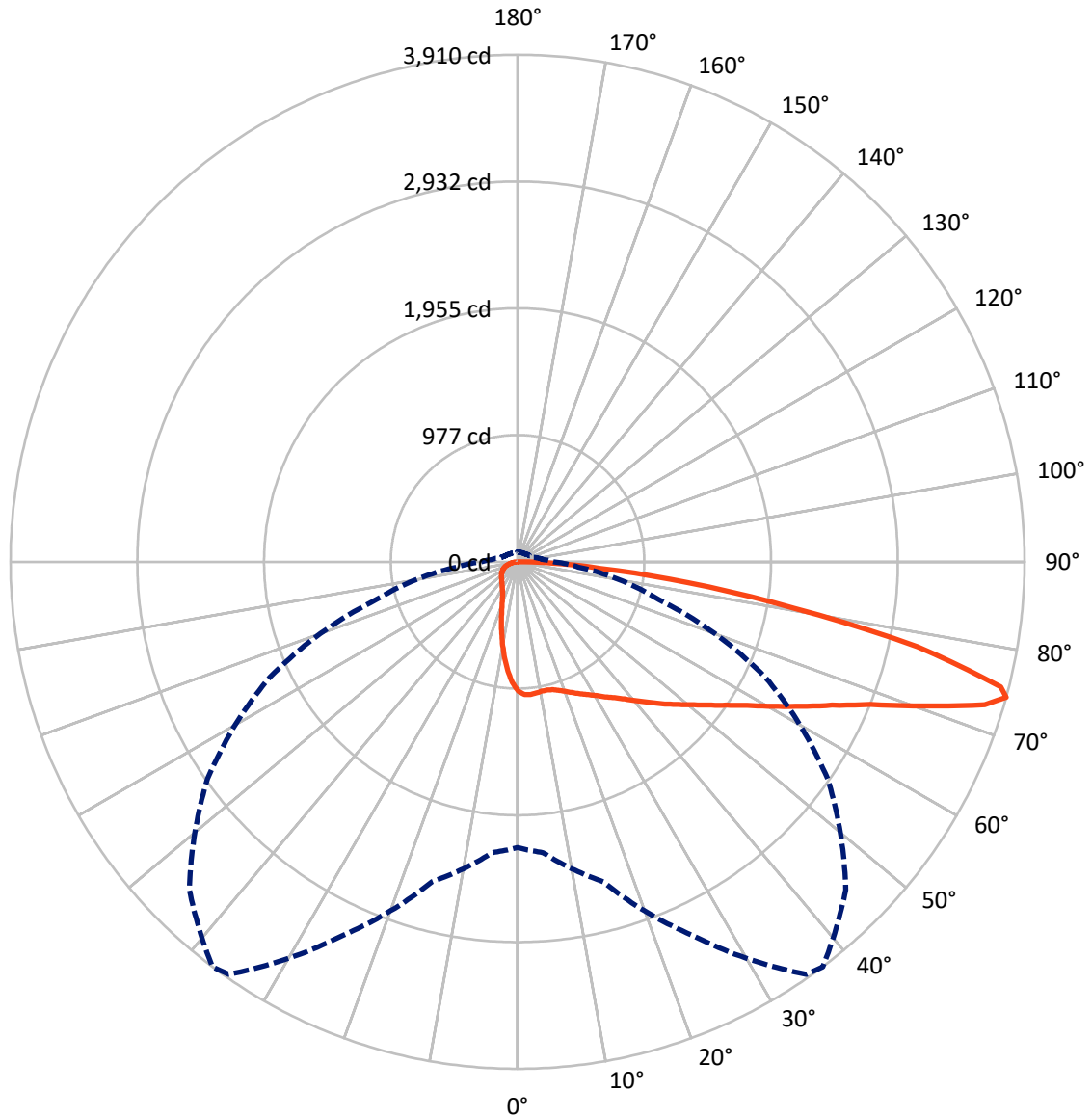
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 10.2 fc
 Type IV - Short - N/A

REPORT NUMBER: P320215
CATALOG NUMBER: GLEON-SA1D-722-U-SL4

Luminous Intensity Polar Plot



— Vertical Plane Through 37-Deg Lateral - - - Horizontal Cone Through 74-Deg Vertical

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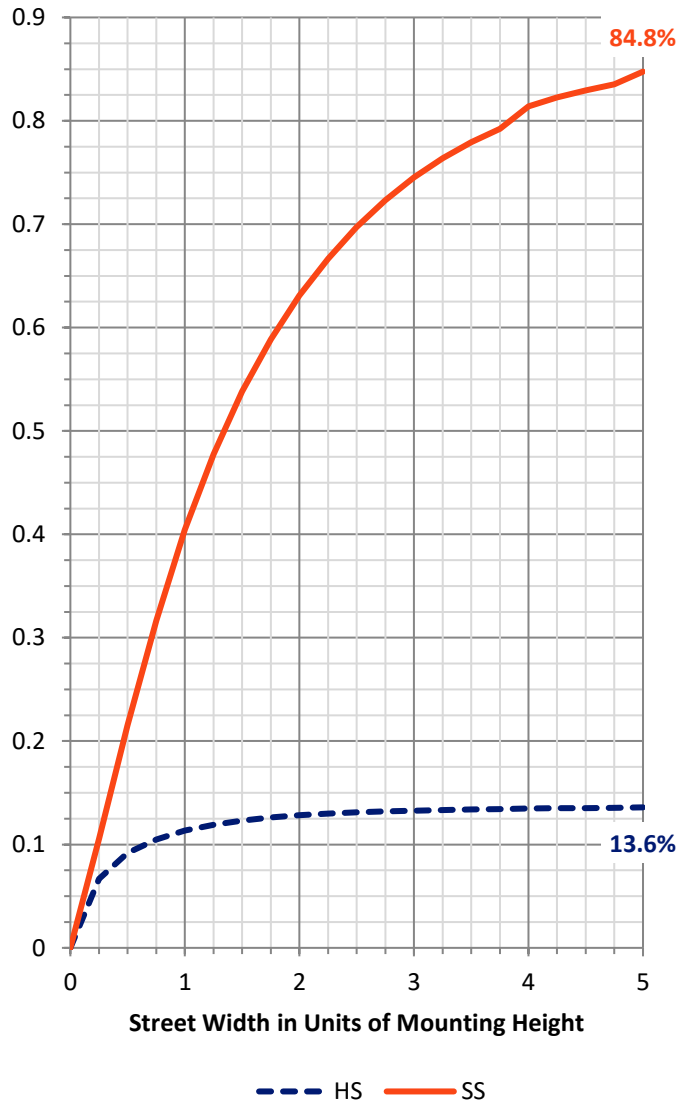
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 780.7 | 0.0 | 780.7 |
| | % Fixture | 13.8 | 0.0 | 13.8 |
| Street Side | Lumens | 4893.3 | 0.0 | 4893.3 |
| | % Fixture | 86.2 | 0.0 | 86.2 |
| Total | Lumens | 5674.0 | 0.0 | 5674.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 88.0 | 1.6 |
| 10°-20° | 225.7 | 4.0 |
| 20°-30° | 347.7 | 6.1 |
| 30°-40° | 505.6 | 8.9 |
| 40°-50° | 744.2 | 13.1 |
| 50°-60° | 1045.1 | 18.4 |
| 60°-70° | 1322.7 | 23.3 |
| 70°-80° | 1164.7 | 20.5 |
| 80°-90° | 230.3 | 4.1 |
| 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° | 5674.0 | 100.0 |
| 0°-180° | 5674.0 | 100.0 |

Coefficient of Utilization



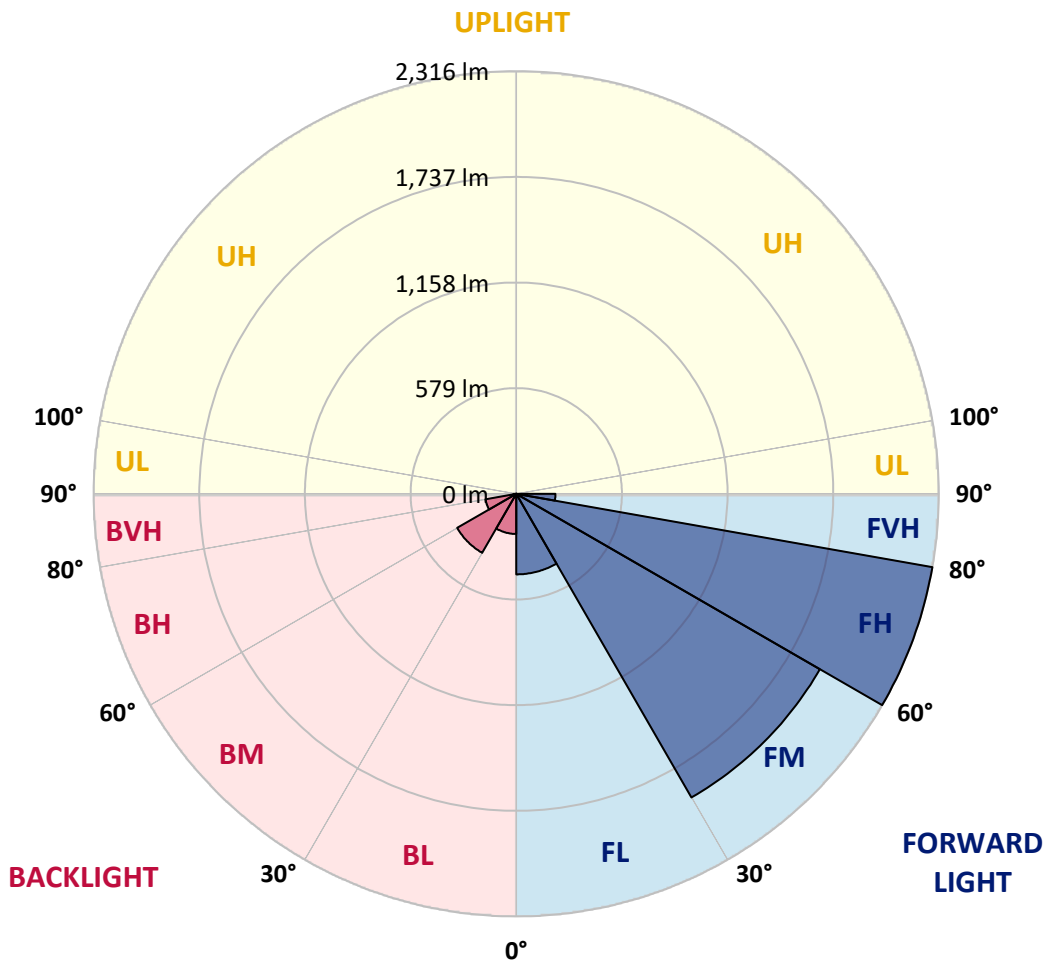
REPORT NUMBER: P320215
 CATALOG NUMBER: GLEON-SA1D-722-U-SL4

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 441.5 | 7.8 | | | |
| FM (30°-60°) | 1921.3 | 33.9 | | | |
| FH (60°-80°) | 2315.8 | 40.8 | | | G2/5000 |
| FVH (80°-90°) | 214.7 | 3.8 | | | G2/225 |
| BL (0°-30°) | 219.9 | 3.9 | B1/500 | | |
| BM (30°-60°) | 373.6 | 6.6 | B1/1000 | | |
| BH (60°-80°) | 171.6 | 3.0 | B1/500 | | G1/500 |
| BVH (80°-90°) | 15.6 | 0.3 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type IV Short





REPORT NUMBER: P320215
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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 37° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 |
| 2.5° | 1033.9 | 1034.1 | 1033.9 | 1032.3 | 1028.5 | 1025.3 | 1022.7 | 1018.9 | 1010.5 | 1004.1 | 994.5 |
| 5° | 1043.7 | 1042.5 | 1041.7 | 1038.7 | 1032.7 | 1029.1 | 1024.1 | 1016.9 | 1003.1 | 990.3 | 974.8 |
| 7.5° | 1039.1 | 1037.7 | 1035.9 | 1032.3 | 1025.5 | 1022.5 | 1015.5 | 1006.1 | 989.5 | 972.8 | 950.4 |
| 10° | 1024.9 | 1024.5 | 1023.7 | 1022.9 | 1017.1 | 1014.7 | 1008.3 | 998.3 | 981.9 | 961.6 | 935.4 |
| 12.5° | 1009.1 | 1010.1 | 1013.3 | 1017.5 | 1014.9 | 1013.7 | 1009.7 | 1002.9 | 986.1 | 964.2 | 932.6 |
| 15° | 999.1 | 1001.9 | 1010.5 | 1021.5 | 1023.7 | 1023.3 | 1022.3 | 1017.9 | 1000.1 | 975.8 | 939.0 |
| 17.5° | 995.7 | 1000.3 | 1016.7 | 1034.9 | 1041.3 | 1042.7 | 1043.1 | 1035.5 | 1015.7 | 989.9 | 945.6 |
| 20° | 1001.9 | 1007.7 | 1031.7 | 1056.7 | 1066.9 | 1067.7 | 1065.9 | 1052.7 | 1030.5 | 1002.1 | 949.2 |
| 22.5° | 1020.7 | 1025.9 | 1055.9 | 1084.1 | 1095.7 | 1096.9 | 1091.5 | 1071.5 | 1046.1 | 1016.5 | 954.2 |
| 25° | 1056.9 | 1063.3 | 1093.3 | 1121.5 | 1127.5 | 1127.7 | 1119.9 | 1095.1 | 1066.5 | 1036.7 | 965.0 |
| 27.5° | 1104.1 | 1110.5 | 1137.4 | 1165.0 | 1161.8 | 1160.0 | 1149.4 | 1124.7 | 1093.1 | 1064.5 | 984.1 |
| 30° | 1156.6 | 1163.6 | 1189.2 | 1208.8 | 1201.2 | 1197.6 | 1189.0 | 1157.0 | 1130.1 | 1102.5 | 1013.5 |
| 32.5° | 1211.0 | 1217.4 | 1239.8 | 1253.2 | 1243.6 | 1242.0 | 1229.0 | 1199.8 | 1178.2 | 1160.4 | 1061.1 |
| 35° | 1266.8 | 1271.4 | 1293.3 | 1300.9 | 1288.1 | 1287.7 | 1284.1 | 1257.4 | 1243.8 | 1252.2 | 1130.3 |
| 37.5° | 1323.7 | 1324.9 | 1343.7 | 1344.1 | 1340.3 | 1341.9 | 1345.7 | 1328.9 | 1332.7 | 1358.9 | 1220.2 |
| 40° | 1374.5 | 1377.7 | 1391.3 | 1395.5 | 1402.1 | 1407.7 | 1426.7 | 1415.7 | 1445.0 | 1491.4 | 1332.1 |
| 42.5° | 1412.1 | 1418.3 | 1440.0 | 1450.8 | 1472.2 | 1481.0 | 1507.8 | 1518.0 | 1577.2 | 1646.7 | 1465.2 |
| 45° | 1443.8 | 1453.4 | 1488.4 | 1510.6 | 1546.8 | 1562.2 | 1600.5 | 1634.7 | 1726.5 | 1815.2 | 1605.3 |
| 47.5° | 1478.2 | 1490.4 | 1534.2 | 1576.6 | 1625.7 | 1643.1 | 1712.9 | 1764.0 | 1885.7 | 1984.7 | 1737.4 |
| 50° | 1528.8 | 1538.2 | 1581.0 | 1647.5 | 1708.9 | 1731.3 | 1827.8 | 1901.1 | 2047.6 | 2146.2 | 1852.0 |
| 52.5° | 1599.3 | 1595.7 | 1631.9 | 1725.3 | 1807.6 | 1835.2 | 1950.5 | 2047.0 | 2211.7 | 2292.3 | 1948.7 |
| 55° | 1670.3 | 1664.3 | 1689.7 | 1806.6 | 1922.7 | 1951.7 | 2085.6 | 2193.5 | 2367.8 | 2423.8 | 2022.9 |
| 57.5° | 1749.2 | 1737.8 | 1759.2 | 1898.3 | 2053.8 | 2088.4 | 2236.9 | 2349.2 | 2521.3 | 2530.1 | 2070.0 |
| 60° | 1830.6 | 1815.2 | 1839.2 | 2012.1 | 2220.3 | 2261.1 | 2414.0 | 2501.1 | 2666.0 | 2615.3 | 2085.2 |
| 62.5° | 1901.7 | 1890.9 | 1927.9 | 2139.0 | 2408.0 | 2452.8 | 2587.9 | 2662.6 | 2808.7 | 2650.6 | 2030.5 |
| 65° | 1963.9 | 1965.7 | 2029.7 | 2281.7 | 2617.3 | 2665.0 | 2787.4 | 2861.7 | 2921.1 | 2629.7 | 1902.3 |
| 67.5° | 2038.0 | 2048.2 | 2157.4 | 2469.6 | 2880.7 | 2933.1 | 3077.6 | 3078.8 | 2983.8 | 2506.5 | 1650.1 |
| 70° | 2146.2 | 2167.2 | 2333.1 | 2730.2 | 3255.2 | 3327.2 | 3438.7 | 3206.3 | 2895.7 | 2172.8 | 1298.3 |
| 72.5° | 2242.1 | 2281.3 | 2519.9 | 3028.4 | 3711.7 | 3766.3 | 3650.0 | 3132.7 | 2527.3 | 1628.3 | 808.9 |
| 74° | 2203.1 | 2251.7 | 2553.9 | 3175.3 | 3883.6 | 3909.8 | 3578.6 | 2918.1 | 2107.2 | 1127.7 | 470.1 |
| 75° | 2119.2 | 2172.0 | 2504.3 | 3173.9 | 3861.8 | 3847.2 | 3406.3 | 2672.8 | 1735.4 | 769.1 | 312.8 |
| 77.5° | 1710.3 | 1766.0 | 2110.2 | 2720.2 | 3166.5 | 3152.7 | 2616.7 | 1793.0 | 760.1 | 252.2 | 158.9 |
| 80° | 994.3 | 1036.9 | 1309.9 | 1727.5 | 2135.2 | 2160.2 | 1720.9 | 887.2 | 299.0 | 141.7 | 107.7 |
| 82.5° | 441.7 | 471.1 | 632.8 | 881.8 | 1288.5 | 1320.7 | 901.2 | 464.9 | 184.7 | 86.1 | 64.8 |
| 85° | 289.8 | 311.6 | 384.1 | 419.9 | 613.6 | 635.6 | 441.1 | 362.0 | 121.9 | 47.4 | 47.6 |
| 87.5° | 208.5 | 229.4 | 285.4 | 249.2 | 281.6 | 266.6 | 240.0 | 335.0 | 49.0 | 27.0 | 16.0 |
| 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: P320215
 CATALOG NUMBER: GLEON-SA1D-722-U-SL4

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 | 999.7 |
| 2.5° | 990.3 | 987.1 | 979.9 | 966.4 | 958.8 | 952.4 | 941.8 | 935.6 | 932.8 | 932.6 | 933.8 |
| 5° | 965.8 | 958.4 | 939.8 | 917.0 | 898.8 | 882.2 | 861.6 | 849.2 | 840.4 | 835.2 | 836.6 |
| 7.5° | 937.2 | 925.6 | 896.4 | 860.0 | 830.8 | 798.7 | 766.9 | 747.9 | 733.1 | 722.1 | 724.1 |
| 10° | 917.6 | 901.6 | 859.0 | 806.7 | 758.1 | 711.3 | 667.6 | 641.4 | 620.6 | 604.6 | 605.8 |
| 12.5° | 911.0 | 889.4 | 830.4 | 760.5 | 692.3 | 628.4 | 571.2 | 531.0 | 509.7 | 491.5 | 492.9 |
| 15° | 912.0 | 883.0 | 806.5 | 718.9 | 633.2 | 552.6 | 483.3 | 436.3 | 407.3 | 394.7 | 394.9 |
| 17.5° | 912.8 | 875.6 | 781.3 | 674.4 | 574.6 | 481.9 | 406.5 | 359.0 | 331.6 | 320.0 | 320.2 |
| 20° | 910.2 | 863.6 | 750.1 | 623.2 | 513.5 | 416.9 | 344.0 | 303.6 | 282.8 | 273.8 | 273.8 |
| 22.5° | 906.8 | 849.4 | 714.9 | 571.8 | 453.1 | 360.6 | 299.2 | 268.4 | 256.4 | 250.4 | 250.2 |
| 25° | 908.4 | 838.8 | 678.9 | 519.1 | 397.5 | 315.6 | 269.4 | 249.0 | 241.0 | 237.2 | 237.0 |
| 27.5° | 917.0 | 833.8 | 645.8 | 466.5 | 349.0 | 281.8 | 249.4 | 235.0 | 229.8 | 227.4 | 227.4 |
| 30° | 932.6 | 833.8 | 611.2 | 421.7 | 308.6 | 256.8 | 234.0 | 224.3 | 220.7 | 219.1 | 219.1 |
| 32.5° | 959.8 | 838.4 | 577.8 | 377.3 | 276.4 | 237.2 | 221.3 | 214.7 | 211.9 | 211.1 | 211.1 |
| 35° | 1006.5 | 854.0 | 545.2 | 335.4 | 250.4 | 221.3 | 209.1 | 205.3 | 203.3 | 203.1 | 203.7 |
| 37.5° | 1072.3 | 885.8 | 514.7 | 304.4 | 232.0 | 208.3 | 198.9 | 195.9 | 194.7 | 195.7 | 196.5 |
| 40° | 1155.0 | 929.0 | 486.9 | 276.4 | 218.1 | 197.9 | 189.5 | 187.5 | 186.9 | 188.3 | 189.5 |
| 42.5° | 1255.0 | 987.3 | 464.1 | 256.2 | 207.3 | 189.1 | 181.5 | 179.1 | 178.5 | 180.1 | 181.7 |
| 45° | 1363.1 | 1050.1 | 448.1 | 241.2 | 198.9 | 182.5 | 174.5 | 171.9 | 170.7 | 171.5 | 173.3 |
| 47.5° | 1461.4 | 1109.5 | 441.7 | 230.6 | 190.9 | 176.9 | 168.3 | 165.1 | 163.1 | 162.7 | 164.1 |
| 50° | 1544.4 | 1153.6 | 444.7 | 224.3 | 184.5 | 170.7 | 162.3 | 158.7 | 155.7 | 153.9 | 154.9 |
| 52.5° | 1604.7 | 1181.4 | 447.5 | 221.5 | 179.5 | 163.9 | 155.7 | 152.3 | 148.3 | 145.3 | 145.3 |
| 55° | 1648.5 | 1187.8 | 441.3 | 219.3 | 175.7 | 156.5 | 148.3 | 145.1 | 141.1 | 137.7 | 137.3 |
| 57.5° | 1665.7 | 1169.8 | 418.3 | 216.1 | 173.1 | 149.5 | 140.5 | 138.1 | 134.7 | 130.7 | 130.5 |
| 60° | 1642.5 | 1114.3 | 374.0 | 209.3 | 169.7 | 143.7 | 132.7 | 131.1 | 129.5 | 125.7 | 125.5 |
| 62.5° | 1549.4 | 992.3 | 316.6 | 195.5 | 162.9 | 137.5 | 125.5 | 126.3 | 126.5 | 123.9 | 123.5 |
| 65° | 1380.5 | 824.9 | 260.6 | 177.5 | 152.7 | 130.1 | 118.1 | 121.9 | 124.1 | 123.7 | 123.1 |
| 67.5° | 1135.0 | 642.0 | 220.9 | 158.5 | 139.3 | 119.9 | 110.1 | 114.5 | 116.3 | 117.7 | 117.3 |
| 70° | 842.4 | 452.7 | 182.7 | 138.5 | 123.1 | 107.9 | 99.7 | 101.9 | 100.7 | 102.3 | 102.9 |
| 72.5° | 469.7 | 271.6 | 148.9 | 118.5 | 106.3 | 93.9 | 88.1 | 87.7 | 85.1 | 85.1 | 85.1 |
| 74° | 281.8 | 199.3 | 130.9 | 106.1 | 96.1 | 84.7 | 79.7 | 77.9 | 75.5 | 75.7 | 75.5 |
| 75° | 226.6 | 171.3 | 120.1 | 97.9 | 88.9 | 79.3 | 74.4 | 72.0 | 70.2 | 70.2 | 70.0 |
| 77.5° | 143.1 | 130.1 | 96.7 | 77.9 | 71.2 | 65.4 | 62.0 | 58.8 | 58.8 | 58.6 | 58.4 |
| 80° | 108.1 | 103.5 | 75.4 | 59.0 | 54.6 | 50.2 | 48.0 | 46.6 | 46.6 | 47.2 | 47.0 |
| 82.5° | 74.2 | 77.9 | 53.0 | 41.2 | 39.0 | 35.8 | 35.4 | 35.6 | 35.0 | 34.2 | 34.0 |
| 85° | 54.2 | 58.6 | 35.8 | 26.0 | 23.8 | 21.8 | 23.4 | 24.2 | 23.2 | 21.4 | 20.6 |
| 87.5° | 20.8 | 38.4 | 19.2 | 10.8 | 10.0 | 8.6 | 10.0 | 10.4 | 11.2 | 8.8 | 9.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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



LM-79-2008: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

McGRAW-EDISON

Report Number: SP1-1908-441-10-R4

Test Date: 10/25/2019

Luminaire Tested: SA1C-722-U-5WQ

Data in this report applies to families of products SA1C-722-U-5WQ.

Test Information

Test Method: LM-79-2008 Report
 Number: SP1-1908-441-10-R4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/28/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: McGRAW-EDISON
 Catalog Number: **SA1C-722-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

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

Spectral Parameters

CCT (K): 2237
 CIE u': 0.2876
 CIE v': 0.5346
 Duv: -0.0006
 CIE x: 0.5005
 CIE y: 0.4134
 CIE z: 0.0860
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 587
 Purity: 74.5
 Rf: 69.8
 Rg: 99.2

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 72.0 | | |
| R1: | 68.9 | R9: | -17.4 |
| R2: | 83.0 | R10: | 61.3 |
| R3: | 95.2 | R11: | 59.8 |
| R4: | 66.2 | R12: | 50.5 |
| R5: | 65.9 | R13: | 71.1 |
| R6: | 76.3 | R14: | 96.9 |
| R7: | 76.7 | | |
| R8: | 43.8 | | |



Test Conditions

Stabilization Time: 71M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.7/41%
 Sphere Temperature (°C): 25.6

REPORT NUMBER: SP1-1908-441-10-R4

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

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CIE 1931 Chromaticity Diagram



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



Point lies inside the ANSI 2200K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|-------------------|--------------------------------------|--------------------------------|
| 360 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

REPORT NUMBER: SP1-1908-441-10-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 4696.9

S/P: 0.85

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

REPORT NUMBER: SP1-1908-441-10-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 1470.8 M/P: 0.27

| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

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Summary

$R_f = 69.8$
 $R_g = 99.2$
 $CIE R_a = 72.0$
 $R_9 = -17.4$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 78 | CES79 = 84 |
| CES05 = 52 | CES30 = 48 | CES55 = 75 | CES80 = 84 |
| CES06 = 52 | CES31 = 51 | CES56 = 65 | CES81 = 63 |
| CES07 = 44 | CES32 = 51 | CES57 = 62 | CES82 = 92 |
| CES08 = 42 | CES33 = 53 | CES58 = 66 | CES83 = 83 |
| CES09 = 29 | CES34 = 70 | CES59 = 84 | CES84 = 92 |
| CES10 = 78 | CES35 = 85 | CES60 = 90 | CES85 = 81 |
| CES11 = 61 | CES36 = 78 | CES61 = 84 | CES86 = 56 |
| CES12 = 68 | CES37 = 80 | CES62 = 70 | CES87 = 78 |
| CES13 = 45 | CES38 = 53 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 84 | CES65 = 67 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 90 |
| CES17 = 51 | CES42 = 79 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 64 | CES68 = 69 | CES93 = 79 |
| CES19 = 74 | CES44 = 98 | CES69 = 80 | CES94 = 52 |
| CES20 = 68 | CES45 = 73 | CES70 = 63 | CES95 = 76 |
| CES21 = 89 | CES46 = 67 | CES71 = 63 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 87 | CES97 = 77 |
| CES23 = 92 | CES48 = 48 | CES73 = 56 | CES98 = 71 |
| CES24 = 92 | CES49 = 64 | CES74 = 87 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)