

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: P323445

Luminaire Tested: **GLEON-SA1C-727-U-SL3-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P323445
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-23)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA1C-727-U-SL3-HSS
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(1) 70 CRI, 2700K, 1050mA LIGHTSQUARE WITH 16 LEDS AND TYPE III SPILL
LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5290 lumens
Efficiency: N/A
Efficacy: 89.7 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G2

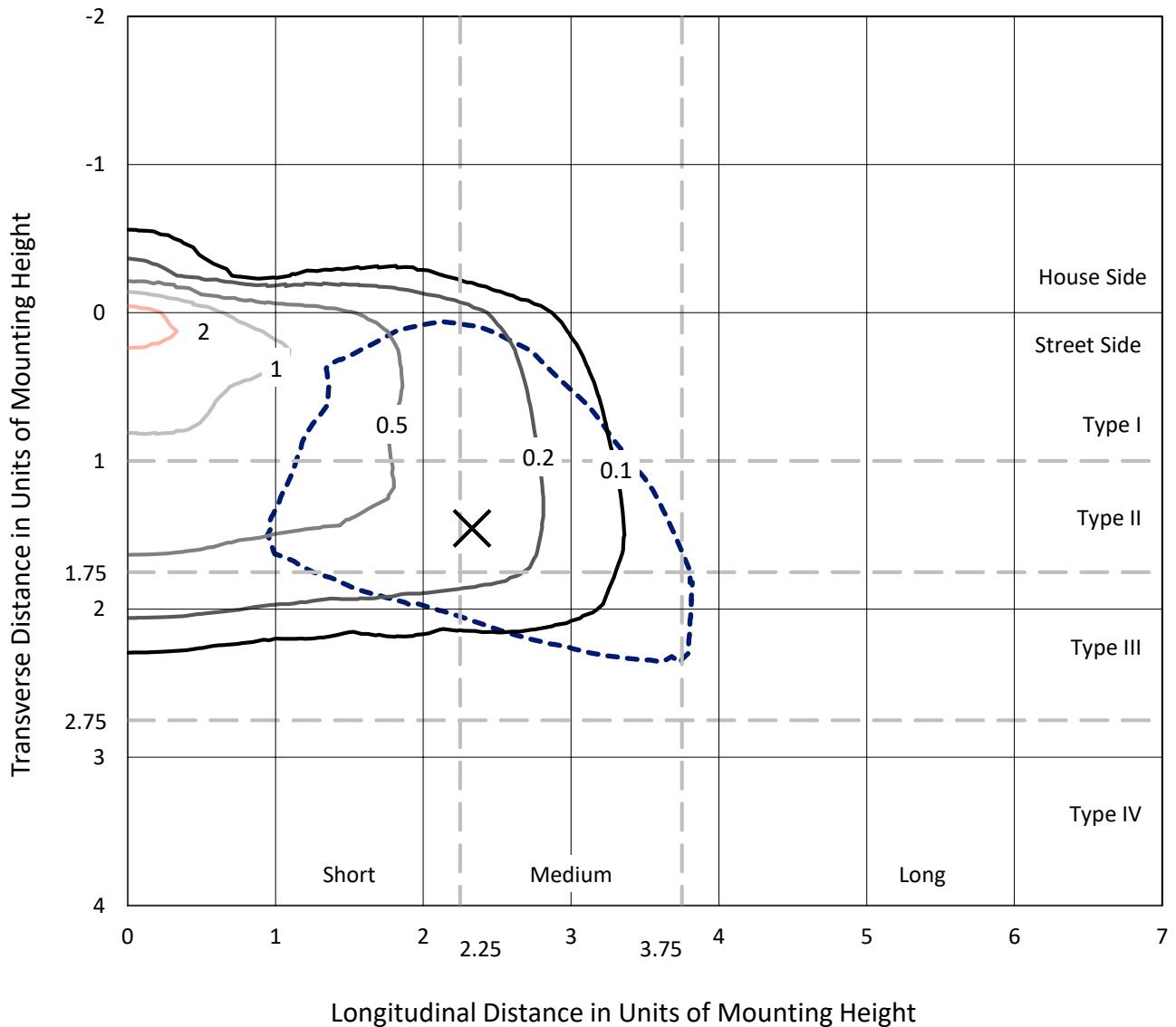
Input Watts (W): 59
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Iso-Footcandle Lines of Horizontal Illumination

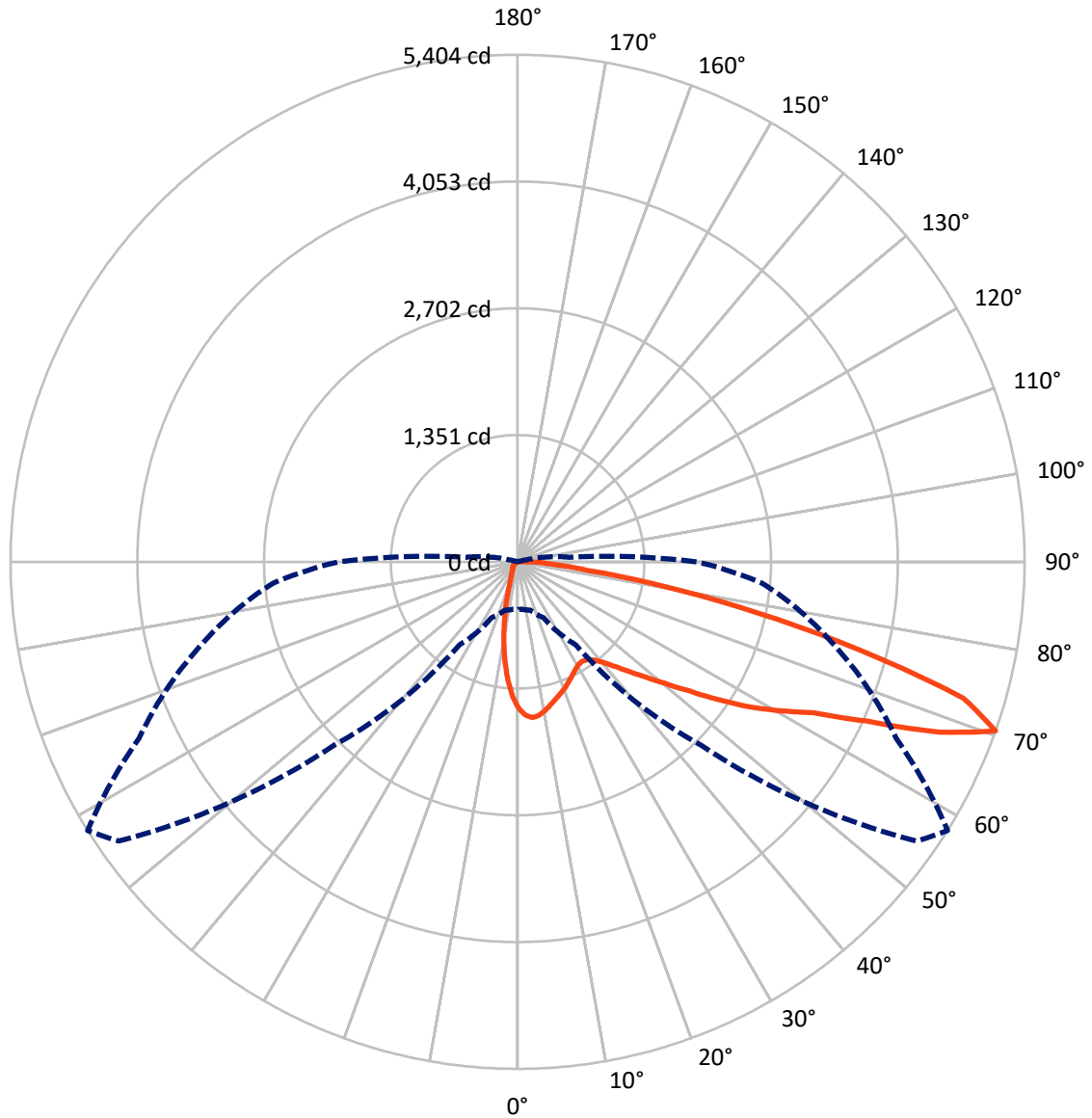
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 2.5 fc
 Type III - Medium - N/A

REPORT NUMBER: P323445
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Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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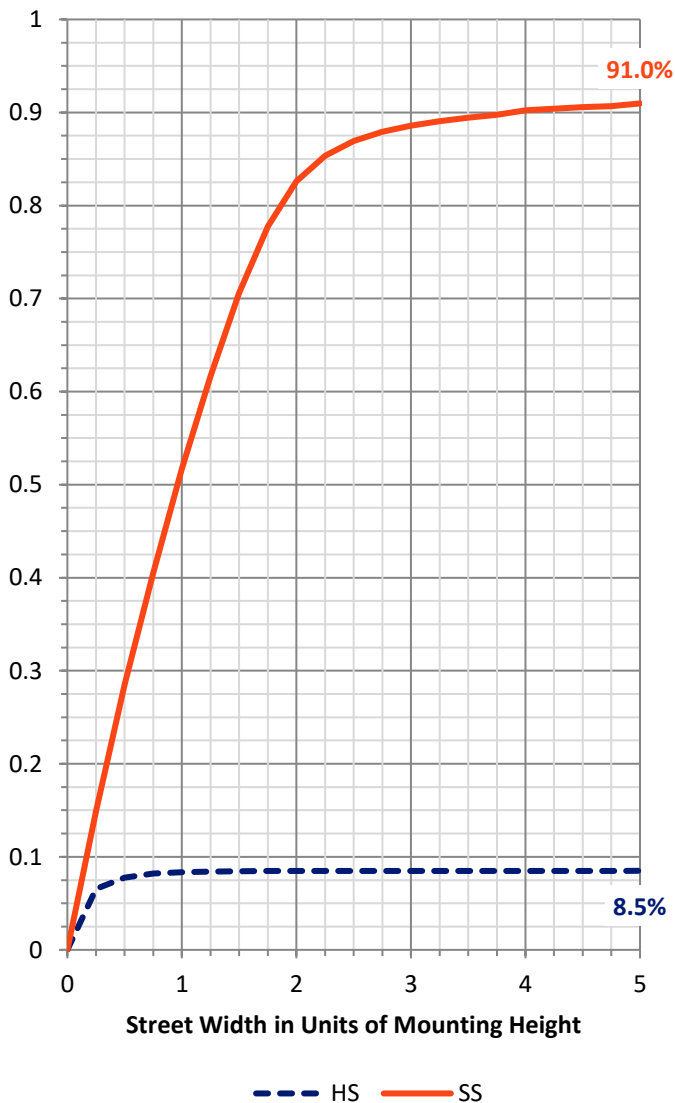
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 452.7 | 0.0 | 452.7 |
| | % Fixture | 8.6 | 0.0 | 8.6 |
| Street Side | Lumens | 4837.3 | 0.0 | 4837.3 |
| | % Fixture | 91.4 | 0.0 | 91.4 |
| Total | Lumens | 5290.0 | 0.0 | 5290.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 127.8 | 2.4 |
| 10°-20° | 268.2 | 5.1 |
| 20°-30° | 352.6 | 6.7 |
| 30°-40° | 466.9 | 8.8 |
| 40°-50° | 697.9 | 13.2 |
| 50°-60° | 1118.1 | 21.1 |
| 60°-70° | 1409.3 | 26.6 |
| 70°-80° | 760.2 | 14.4 |
| 80°-90° | 89.0 | 1.7 |
| 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° | 5290.0 | 100.0 |
| 0°-180° | 5290.0 | 100.0 |

Coefficient of Utilization

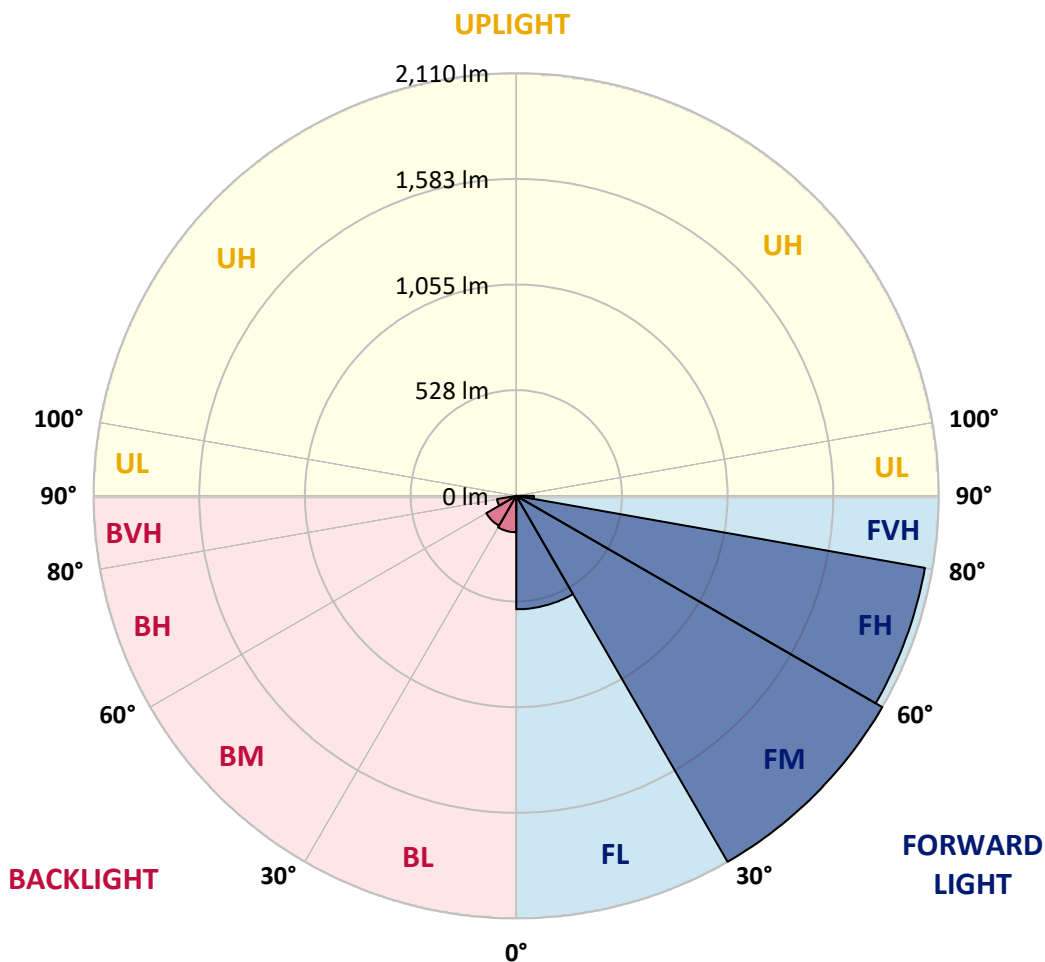


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 566.7 | 10.7 | | | |
| FM (30°-60°) | 2110.3 | 39.9 | | | |
| FH (60°-80°) | 2072.1 | 39.2 | | | G2/5000 |
| FVH (80°-90°) | 88.2 | 1.7 | | | G1/100 |
| BL (0°-30°) | 181.9 | 3.4 | B1/500 | | |
| BM (30°-60°) | 172.7 | 3.3 | B0/220 | | |
| BH (60°-80°) | 97.4 | 1.8 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.8 | 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-G2
 Type III Medium





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CATALOG NUMBER: GLEON-SA1C-727-U-SL3-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 |
| 2.5° | 1692.2 | 1688.0 | 1686.5 | 1683.8 | 1673.7 | 1663.8 | 1644.2 | 1638.7 | 1626.4 | 1597.2 | 1566.2 |
| 5° | 1693.5 | 1693.3 | 1697.9 | 1696.8 | 1693.3 | 1688.7 | 1674.6 | 1667.3 | 1646.4 | 1604.7 | 1547.9 |
| 7.5° | 1611.9 | 1616.1 | 1626.4 | 1634.8 | 1644.5 | 1657.0 | 1658.8 | 1651.7 | 1634.6 | 1589.5 | 1514.2 |
| 10° | 1502.4 | 1509.0 | 1523.5 | 1540.0 | 1565.3 | 1590.4 | 1612.8 | 1611.9 | 1606.0 | 1561.5 | 1473.8 |
| 12.5° | 1392.6 | 1400.3 | 1417.0 | 1441.4 | 1477.3 | 1518.2 | 1558.2 | 1563.7 | 1573.6 | 1536.5 | 1436.4 |
| 15° | 1296.5 | 1303.1 | 1319.6 | 1349.5 | 1393.9 | 1448.9 | 1507.6 | 1517.8 | 1543.3 | 1516.9 | 1405.1 |
| 17.5° | 1214.9 | 1219.1 | 1231.2 | 1264.4 | 1315.8 | 1382.5 | 1458.8 | 1478.6 | 1516.7 | 1501.5 | 1378.1 |
| 20° | 1157.9 | 1158.6 | 1166.5 | 1189.8 | 1241.3 | 1315.8 | 1408.2 | 1436.6 | 1488.5 | 1488.3 | 1350.2 |
| 22.5° | 1129.7 | 1127.5 | 1129.1 | 1142.5 | 1180.3 | 1252.3 | 1357.6 | 1391.3 | 1463.2 | 1477.1 | 1321.8 |
| 25° | 1124.5 | 1122.7 | 1118.3 | 1120.1 | 1142.9 | 1196.6 | 1306.6 | 1345.5 | 1441.0 | 1470.3 | 1297.1 |
| 27.5° | 1141.0 | 1142.7 | 1135.2 | 1127.3 | 1129.1 | 1160.5 | 1261.3 | 1306.4 | 1423.0 | 1470.3 | 1279.8 |
| 30° | 1174.2 | 1175.1 | 1169.6 | 1159.2 | 1145.4 | 1150.4 | 1229.8 | 1274.9 | 1413.9 | 1480.4 | 1268.8 |
| 32.5° | 1210.9 | 1215.8 | 1215.1 | 1206.7 | 1186.9 | 1166.5 | 1222.4 | 1263.5 | 1413.3 | 1502.8 | 1267.7 |
| 35° | 1256.4 | 1261.9 | 1271.2 | 1269.4 | 1248.7 | 1215.1 | 1247.9 | 1280.2 | 1426.3 | 1539.8 | 1279.5 |
| 37.5° | 1304.8 | 1313.2 | 1333.0 | 1342.5 | 1329.0 | 1291.0 | 1305.1 | 1328.2 | 1461.0 | 1599.6 | 1309.7 |
| 40° | 1351.7 | 1361.2 | 1397.2 | 1434.4 | 1424.3 | 1385.1 | 1391.7 | 1410.2 | 1522.8 | 1685.6 | 1366.9 |
| 42.5° | 1397.7 | 1411.7 | 1464.8 | 1525.9 | 1538.0 | 1506.8 | 1510.3 | 1525.0 | 1614.6 | 1803.9 | 1460.4 |
| 45° | 1452.7 | 1468.5 | 1547.0 | 1622.5 | 1654.8 | 1641.2 | 1656.1 | 1665.8 | 1734.4 | 1960.3 | 1586.4 |
| 47.5° | 1533.4 | 1551.6 | 1648.0 | 1734.0 | 1790.7 | 1799.5 | 1829.7 | 1836.1 | 1886.0 | 2142.5 | 1750.7 |
| 50° | 1690.9 | 1695.9 | 1783.0 | 1861.1 | 1943.0 | 1995.8 | 2030.1 | 2034.9 | 2069.4 | 2341.5 | 1955.9 |
| 52.5° | 1889.1 | 1892.4 | 1941.6 | 1994.0 | 2087.0 | 2194.8 | 2275.1 | 2281.9 | 2289.2 | 2535.6 | 2158.5 |
| 55° | 2085.9 | 2085.5 | 2118.1 | 2148.9 | 2255.3 | 2411.9 | 2586.1 | 2590.3 | 2538.2 | 2719.7 | 2313.4 |
| 57.5° | 2208.9 | 2220.8 | 2270.3 | 2309.9 | 2458.6 | 2659.4 | 2901.1 | 2916.5 | 2799.7 | 2856.0 | 2466.5 |
| 60° | 2169.7 | 2175.5 | 2285.2 | 2431.7 | 2711.7 | 3011.1 | 3219.9 | 3223.8 | 2996.4 | 2992.2 | 2660.1 |
| 62.5° | 1848.6 | 1851.7 | 2024.1 | 2326.1 | 2840.0 | 3467.3 | 3604.4 | 3539.9 | 3222.5 | 3181.2 | 2891.7 |
| 65° | 1267.0 | 1287.0 | 1431.1 | 1804.4 | 2604.4 | 3753.5 | 4199.6 | 4092.9 | 3567.2 | 3453.5 | 3101.1 |
| 67.5° | 746.1 | 741.9 | 813.2 | 1088.2 | 1912.8 | 3563.5 | 4952.5 | 4846.5 | 4037.3 | 3635.8 | 3039.7 |
| 70° | 509.7 | 506.8 | 534.1 | 658.8 | 1079.8 | 2764.3 | 5189.4 | 5403.5 | 4452.3 | 3513.1 | 2616.1 |
| 72.5° | 363.8 | 365.4 | 405.6 | 511.9 | 677.9 | 1610.6 | 4462.7 | 4969.3 | 4322.3 | 3062.6 | 1988.5 |
| 75° | 247.0 | 251.2 | 308.8 | 419.9 | 594.3 | 819.4 | 3166.9 | 3777.5 | 3519.7 | 2225.8 | 1142.9 |
| 77.5° | 132.9 | 137.5 | 205.4 | 338.3 | 537.4 | 569.3 | 2037.1 | 2599.8 | 2210.9 | 1000.6 | 331.3 |
| 80° | 55.4 | 58.1 | 96.1 | 245.9 | 464.3 | 500.0 | 1198.6 | 1576.5 | 942.1 | 197.3 | 73.9 |
| 82.5° | 24.0 | 25.3 | 40.0 | 146.7 | 347.1 | 422.1 | 634.6 | 758.4 | 285.5 | 43.3 | 37.2 |
| 85° | 4.6 | 4.8 | 16.5 | 77.6 | 221.5 | 238.2 | 411.3 | 403.2 | 128.2 | 18.7 | 27.1 |
| 87.5° | 0.0 | 0.0 | 4.0 | 24.4 | 65.1 | 129.8 | 251.0 | 247.9 | 43.6 | 9.0 | 10.1 |
| 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: P323445

CATALOG NUMBER: GLEON-SA1C-727-U-SL3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 | 1562.6 |
| 2.5° | 1550.3 | 1535.1 | 1503.3 | 1463.9 | 1433.7 | 1400.5 | 1374.1 | 1340.7 | 1326.2 | 1326.8 | 1318.9 |
| 5° | 1515.6 | 1484.3 | 1413.7 | 1324.6 | 1256.0 | 1185.2 | 1124.2 | 1063.5 | 1027.7 | 1016.0 | 1005.0 |
| 7.5° | 1465.9 | 1416.4 | 1303.7 | 1166.5 | 1050.3 | 936.8 | 838.1 | 751.2 | 696.2 | 669.4 | 659.5 |
| 10° | 1409.8 | 1340.3 | 1177.3 | 996.4 | 830.6 | 677.1 | 549.0 | 437.7 | 393.3 | 363.2 | 355.5 |
| 12.5° | 1360.5 | 1266.3 | 1053.6 | 822.0 | 625.1 | 439.9 | 317.9 | 248.6 | 218.4 | 206.5 | 204.6 |
| 15° | 1314.1 | 1197.3 | 934.6 | 664.1 | 432.9 | 270.8 | 202.1 | 178.6 | 171.6 | 169.6 | 169.6 |
| 17.5° | 1270.3 | 1131.5 | 818.3 | 508.6 | 286.4 | 189.8 | 167.4 | 162.1 | 159.9 | 159.7 | 159.9 |
| 20° | 1224.6 | 1065.7 | 703.9 | 372.6 | 199.9 | 160.8 | 154.6 | 151.8 | 151.1 | 151.1 | 151.1 |
| 22.5° | 1180.8 | 1000.0 | 592.6 | 266.2 | 160.4 | 146.7 | 143.6 | 141.7 | 141.0 | 140.8 | 140.3 |
| 25° | 1138.8 | 937.5 | 483.9 | 188.1 | 140.8 | 134.4 | 131.8 | 129.1 | 127.1 | 126.0 | 125.4 |
| 27.5° | 1104.2 | 881.8 | 382.7 | 150.9 | 127.1 | 121.6 | 118.3 | 114.4 | 109.5 | 107.3 | 106.5 |
| 30° | 1076.7 | 831.0 | 295.0 | 127.4 | 114.4 | 108.9 | 103.8 | 97.0 | 90.0 | 86.2 | 86.0 |
| 32.5° | 1055.2 | 781.1 | 223.9 | 112.6 | 102.9 | 96.1 | 88.9 | 80.3 | 72.1 | 68.0 | 67.7 |
| 35° | 1044.6 | 737.1 | 171.1 | 101.8 | 92.8 | 84.2 | 75.2 | 65.8 | 57.9 | 53.9 | 53.5 |
| 37.5° | 1051.7 | 699.9 | 133.5 | 92.8 | 84.2 | 74.3 | 63.8 | 53.9 | 46.9 | 43.3 | 43.1 |
| 40° | 1077.4 | 676.2 | 108.4 | 85.1 | 77.0 | 64.9 | 53.5 | 44.2 | 38.3 | 35.4 | 35.2 |
| 42.5° | 1132.2 | 667.4 | 92.6 | 78.7 | 69.9 | 56.1 | 44.4 | 36.5 | 31.0 | 29.0 | 28.6 |
| 45° | 1223.7 | 680.4 | 81.8 | 72.6 | 62.7 | 47.7 | 36.7 | 29.9 | 25.1 | 23.5 | 23.3 |
| 47.5° | 1345.5 | 714.5 | 74.1 | 66.6 | 56.1 | 40.3 | 30.6 | 24.2 | 20.5 | 18.9 | 18.7 |
| 50° | 1502.6 | 768.6 | 67.7 | 60.7 | 49.9 | 34.1 | 25.3 | 19.1 | 15.8 | 14.7 | 14.7 |
| 52.5° | 1673.5 | 833.0 | 62.0 | 55.2 | 43.8 | 28.4 | 20.5 | 14.7 | 12.5 | 11.2 | 11.2 |
| 55° | 1814.7 | 889.3 | 55.9 | 51.0 | 36.3 | 23.5 | 15.6 | 11.2 | 9.2 | 8.6 | 8.6 |
| 57.5° | 1955.7 | 949.4 | 48.8 | 43.8 | 29.0 | 19.1 | 11.9 | 8.4 | 6.8 | 6.4 | 6.4 |
| 60° | 2138.5 | 1022.8 | 42.0 | 35.6 | 22.9 | 14.5 | 8.8 | 5.9 | 5.1 | 4.8 | 4.8 |
| 62.5° | 2339.6 | 1066.0 | 35.9 | 28.6 | 17.8 | 10.8 | 6.4 | 4.0 | 3.7 | 3.7 | 3.5 |
| 65° | 2462.5 | 1005.0 | 30.1 | 22.9 | 13.9 | 8.1 | 4.2 | 2.9 | 3.3 | 3.1 | 2.6 |
| 67.5° | 2305.7 | 786.8 | 24.6 | 17.8 | 10.8 | 6.2 | 2.6 | 2.0 | 3.5 | 2.9 | 2.2 |
| 70° | 1909.1 | 550.8 | 19.1 | 12.5 | 8.6 | 5.3 | 1.8 | 1.3 | 3.7 | 2.9 | 1.8 |
| 72.5° | 1428.7 | 368.7 | 15.2 | 8.4 | 6.4 | 4.6 | 1.5 | 0.7 | 3.3 | 2.4 | 1.5 |
| 75° | 780.7 | 148.5 | 12.1 | 5.3 | 4.0 | 3.3 | 1.1 | 0.4 | 2.2 | 1.8 | 1.1 |
| 77.5° | 205.4 | 39.2 | 8.8 | 3.5 | 2.2 | 1.3 | 0.7 | 0.2 | 1.1 | 0.9 | 0.4 |
| 80° | 52.4 | 15.2 | 5.7 | 2.4 | 1.5 | 0.7 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 |
| 82.5° | 27.9 | 6.4 | 3.5 | 1.8 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 21.1 | 4.2 | 2.0 | 1.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 8.1 | 1.3 | 0.7 | 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 |

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: SP1-1908-441-1-R4

Test Date: 08/20/2019

Luminaire Tested: SA1C-727-U-5WQ

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-1-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-727-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-1-R3. TO UPDATE THE CATALOG NUMBER.TESTED IN SITU. (1) 70 CRI, 2700K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 2741
 CIE u': 0.2605
 CIE v': 0.5272
 Duv: 0.0005
 CIE x: 0.4573
 CIE y: 0.4113
 CIE z: 0.1313
 Peak Wavelength (nm): 602
 Dominant Wavelength (nm): 583
 Purity: 61.2

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 71.5 | | |
| R1: | 69.2 | R9: | -16.1 |
| R2: | 79.4 | R10: | 51.4 |
| R3: | 87.8 | R11: | 63.1 |
| R4: | 69.4 | R12: | 42.0 |
| R5: | 66.4 | R13: | 70.2 |
| R6: | 69.8 | R14: | 92.4 |
| R7: | 79.8 | | |
| R8: | 50.1 | | |

Rf: 69.9
 Rg: 98.3



Test Conditions

Stabilization Time: 56M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.3./42%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-1-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 2700K 4-step quadrangle

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Photopic Flux vs. Wavelength



Photopic Lumens: 6211.7

| 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 | 2044 | 0.0 | 490 | 7179 | 1.0 | 620 | 118034 | 30.7 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 1.9 | 625 | 111884 | 24.7 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 3.4 | 630 | 106119 | 19.2 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 6.3 | 635 | 99706 | 15.0 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 10.4 | 640 | 92142 | 11.0 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 16.3 | 645 | 84987 | 8.2 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 22.9 | 650 | 78016 | 5.7 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 29.7 | 655 | 71541 | 4.1 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 36.7 | 660 | 64863 | 2.7 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.0 | 535 | 68520 | 42.5 | 665 | 58485 | 1.9 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.0 | 540 | 73435 | 47.8 | 670 | 51641 | 1.1 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.0 | 545 | 78677 | 52.4 | 675 | 46030 | 0.8 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 0.0 | 550 | 83331 | 56.6 | 680 | 40590 | 0.5 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 0.1 | 555 | 89120 | 60.9 | 685 | 35691 | 0.3 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 0.3 | 560 | 94613 | 64.3 | 690 | 31631 | 0.2 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 0.6 | 565 | 99818 | 66.4 | 695 | 27437 | 0.1 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 0.9 | 570 | 106526 | 69.3 | 700 | 24589 | 0.1 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 1.1 | 575 | 111610 | 69.4 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 1.0 | 580 | 117163 | 69.6 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 0.8 | 585 | 122201 | 67.9 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 0.6 | 590 | 125662 | 65.0 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 0.5 | 595 | 127415 | 60.4 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 0.4 | 600 | 129155 | 55.7 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 0.4 | 605 | 128057 | 49.6 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 0.5 | 610 | 126031 | 43.3 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 0.7 | 615 | 123059 | 37.1 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 6474.3

S/P: 1.04

| 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 | 2044 | 0.0 | 490 | 7179 | 6.0 | 620 | 118034 | 0.1 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 8.6 | 625 | 111884 | 0.1 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 12.5 | 630 | 106119 | 0.0 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 17.3 | 635 | 99706 | 0.0 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 21.8 | 640 | 92142 | 0.0 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 25.7 | 645 | 84987 | 0.0 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 27.5 | 650 | 78016 | 0.0 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 28.1 | 655 | 71541 | 0.0 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 27.0 | 660 | 64863 | 0.0 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.0 | 535 | 68520 | 24.7 | 665 | 58485 | 0.0 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.1 | 540 | 73435 | 21.5 | 670 | 51641 | 0.0 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.5 | 545 | 78677 | 18.3 | 675 | 46030 | 0.0 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 1.6 | 550 | 83331 | 15.0 | 680 | 40590 | 0.0 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 3.9 | 555 | 89120 | 12.0 | 685 | 35691 | 0.0 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 8.1 | 560 | 94613 | 9.3 | 690 | 31631 | 0.0 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 13.3 | 565 | 99818 | 7.0 | 695 | 27437 | 0.0 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 19.1 | 570 | 106526 | 5.2 | 700 | 24589 | 0.0 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 21.6 | 575 | 111610 | 3.7 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 18.1 | 580 | 117163 | 2.6 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 11.8 | 585 | 122201 | 1.8 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 8.1 | 590 | 125662 | 1.2 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 6.2 | 595 | 127415 | 0.8 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 4.8 | 600 | 129155 | 0.5 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 4.1 | 605 | 128057 | 0.4 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 4.1 | 610 | 126031 | 0.2 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 4.6 | 615 | 123059 | 0.1 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 2145.7 M/P: 0.35

| 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 | 2044 | 0.0 | 490 | 7179 | 11.1 | 620 | 118034 | 1.5 | 750 | 8362 | 0.0 | 880 | 3128 | 0.0 |
| 365 | 2016 | 0.0 | 495 | 10476 | 16.9 | 625 | 111884 | 0.9 | 755 | 7635 | 0.0 | 885 | 3110 | 0.0 |
| 370 | 2020 | 0.0 | 500 | 15549 | 26.0 | 630 | 106119 | 0.6 | 760 | 6582 | 0.0 | 890 | 2632 | 0.0 |
| 375 | 2137 | 0.0 | 505 | 22477 | 38.2 | 635 | 99706 | 0.4 | 765 | 5777 | 0.0 | 895 | 2709 | 0.0 |
| 380 | 2046 | 0.0 | 510 | 30417 | 51.6 | 640 | 92142 | 0.2 | 770 | 5474 | 0.0 | 900 | 2016 | 0.0 |
| 385 | 1925 | 0.0 | 515 | 39274 | 65.1 | 645 | 84987 | 0.1 | 775 | 4977 | 0.0 | 905 | 1748 | 0.0 |
| 390 | 1893 | 0.0 | 520 | 47282 | 75.2 | 650 | 78016 | 0.1 | 780 | 4723 | 0.0 | 910 | 2046 | 0.0 |
| 395 | 1695 | 0.0 | 525 | 55413 | 82.9 | 655 | 71541 | 0.1 | 785 | 4219 | 0.0 | 915 | 1844 | 0.0 |
| 400 | 1633 | 0.0 | 530 | 62377 | 86.0 | 660 | 64863 | 0.0 | 790 | 3969 | 0.0 | 920 | 2734 | 0.0 |
| 405 | 2065 | 0.1 | 535 | 68520 | 85.4 | 665 | 58485 | 0.0 | 795 | 4122 | 0.0 | 925 | 2307 | 0.0 |
| 410 | 3449 | 0.2 | 540 | 73435 | 81.1 | 670 | 51641 | 0.0 | 800 | 2864 | 0.0 | 930 | 2039 | 0.0 |
| 415 | 7117 | 0.7 | 545 | 78677 | 75.4 | 675 | 46030 | 0.0 | 805 | 3151 | 0.0 | 935 | 1784 | 0.0 |
| 420 | 13992 | 2.3 | 550 | 83331 | 68.1 | 680 | 40590 | 0.0 | 810 | 3022 | 0.0 | 940 | 2464 | 0.0 |
| 425 | 25176 | 6.2 | 555 | 89120 | 60.9 | 685 | 35691 | 0.0 | 815 | 3471 | 0.0 | 945 | 2794 | 0.0 |
| 430 | 38151 | 13.0 | 560 | 94613 | 52.9 | 690 | 31631 | 0.0 | 820 | 2749 | 0.0 | 950 | 3090 | 0.0 |
| 435 | 49673 | 22.2 | 565 | 99818 | 44.8 | 695 | 27437 | 0.0 | 825 | 2729 | 0.0 | 955 | 1866 | 0.0 |
| 440 | 57273 | 32.0 | 570 | 106526 | 37.6 | 700 | 24589 | 0.0 | 830 | 2282 | 0.0 | 960 | 3110 | 0.0 |
| 445 | 54802 | 36.7 | 575 | 111610 | 30.4 | 705 | 21832 | 0.0 | 835 | 3140 | 0.0 | 965 | 3880 | 0.0 |
| 450 | 39184 | 30.4 | 580 | 117163 | 24.1 | 710 | 19500 | 0.0 | 840 | 2365 | 0.0 | 970 | 3243 | 0.0 |
| 455 | 22506 | 19.7 | 585 | 122201 | 18.7 | 715 | 17870 | 0.0 | 845 | 3024 | 0.0 | 975 | 2014 | 0.0 |
| 460 | 13692 | 13.2 | 590 | 125662 | 14.0 | 720 | 15924 | 0.0 | 850 | 2510 | 0.0 | 980 | 1688 | 0.0 |
| 465 | 9446 | 10.0 | 595 | 127415 | 10.2 | 725 | 14268 | 0.0 | 855 | 2739 | 0.0 | 985 | 2827 | 0.0 |
| 470 | 6698 | 7.7 | 600 | 129155 | 7.3 | 730 | 12438 | 0.0 | 860 | 3515 | 0.0 | 990 | 4172 | 0.0 |
| 475 | 5328 | 6.7 | 605 | 128057 | 5.0 | 735 | 11255 | 0.0 | 865 | 3600 | 0.0 | 995 | 3177 | 0.0 |
| 480 | 5081 | 6.9 | 610 | 126031 | 3.4 | 740 | 9951 | 0.0 | 870 | 3609 | 0.0 | 1000 | 3241 | 0.0 |
| 485 | 5579 | 8.1 | 615 | 123059 | 2.3 | 745 | 8870 | 0.0 | 875 | 3208 | 0.0 | | | |

REPORT NUMBER: SP1-1908-441-1-R4

TM-30-18

Summary

$R_f = 69.9$
 $R_g = 98.3$
 CIE $R_a = 71.5$
 $R_g = -16.1$



Color Vector Graphics



REPORT NUMBER: SP1-1908-441-1-R4

TM-30-18

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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 54 | CES51 = 77 | CES76 = 48 |
| CES02 = 63 | CES27 = 74 | CES52 = 80 | CES77 = 75 |
| CES03 = 31 | CES28 = 80 | CES53 = 66 | CES78 = 56 |
| CES04 = 71 | CES29 = 44 | CES54 = 77 | CES79 = 81 |
| CES05 = 50 | CES30 = 46 | CES55 = 74 | CES80 = 80 |
| CES06 = 52 | CES31 = 50 | CES56 = 63 | CES81 = 73 |
| CES07 = 42 | CES32 = 49 | CES57 = 60 | CES82 = 91 |
| CES08 = 41 | CES33 = 53 | CES58 = 63 | CES83 = 84 |
| CES09 = 29 | CES34 = 66 | CES59 = 85 | CES84 = 90 |
| CES10 = 77 | CES35 = 82 | CES60 = 89 | CES85 = 87 |
| CES11 = 60 | CES36 = 78 | CES61 = 85 | CES86 = 65 |
| CES12 = 66 | CES37 = 75 | CES62 = 69 | CES87 = 78 |
| CES13 = 43 | CES38 = 53 | CES63 = 68 | CES88 = 73 |
| CES14 = 74 | CES39 = 91 | CES64 = 68 | CES89 = 68 |
| CES15 = 71 | CES40 = 85 | CES65 = 65 | CES90 = 68 |
| CES16 = 48 | CES41 = 76 | CES66 = 62 | CES91 = 91 |
| CES17 = 50 | CES42 = 76 | CES67 = 60 | CES92 = 71 |
| CES18 = 57 | CES43 = 65 | CES68 = 68 | CES93 = 82 |
| CES19 = 73 | CES44 = 98 | CES69 = 77 | CES94 = 57 |
| CES20 = 67 | CES45 = 75 | CES70 = 60 | CES95 = 78 |
| CES21 = 88 | CES46 = 70 | CES71 = 57 | CES96 = 80 |
| CES22 = 80 | CES47 = 63 | CES72 = 86 | CES97 = 79 |
| CES23 = 92 | CES48 = 51 | CES73 = 52 | CES98 = 71 |
| CES24 = 91 | CES49 = 68 | CES74 = 90 | CES99 = 64 |
| CES25 = 73 | CES50 = 77 | CES75 = 58 | |



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TM-30-18

Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)