

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: P638042

Luminaire Tested: GWS-SA4E-722-U-SLL-W

Issue Date: 1/10/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P638042  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-37)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 1/10/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: McGRAW-EDISON  
Catalog Number: GWS-SA4E-722-U-SLL-W  
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND  
SPILL LIGHT ELIMINATOR LEFT OPTICS  
Light Source: (64) 2200K CCT, 70 CRI LEDS  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 21127 lumens  
Efficiency: N/A  
Efficacy: 104.3 lumens/watt  
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')  
IES Classification: Type III - Short  
BUG Rating: B3 - U0 - G3

Input Watts (W): 202.6  
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



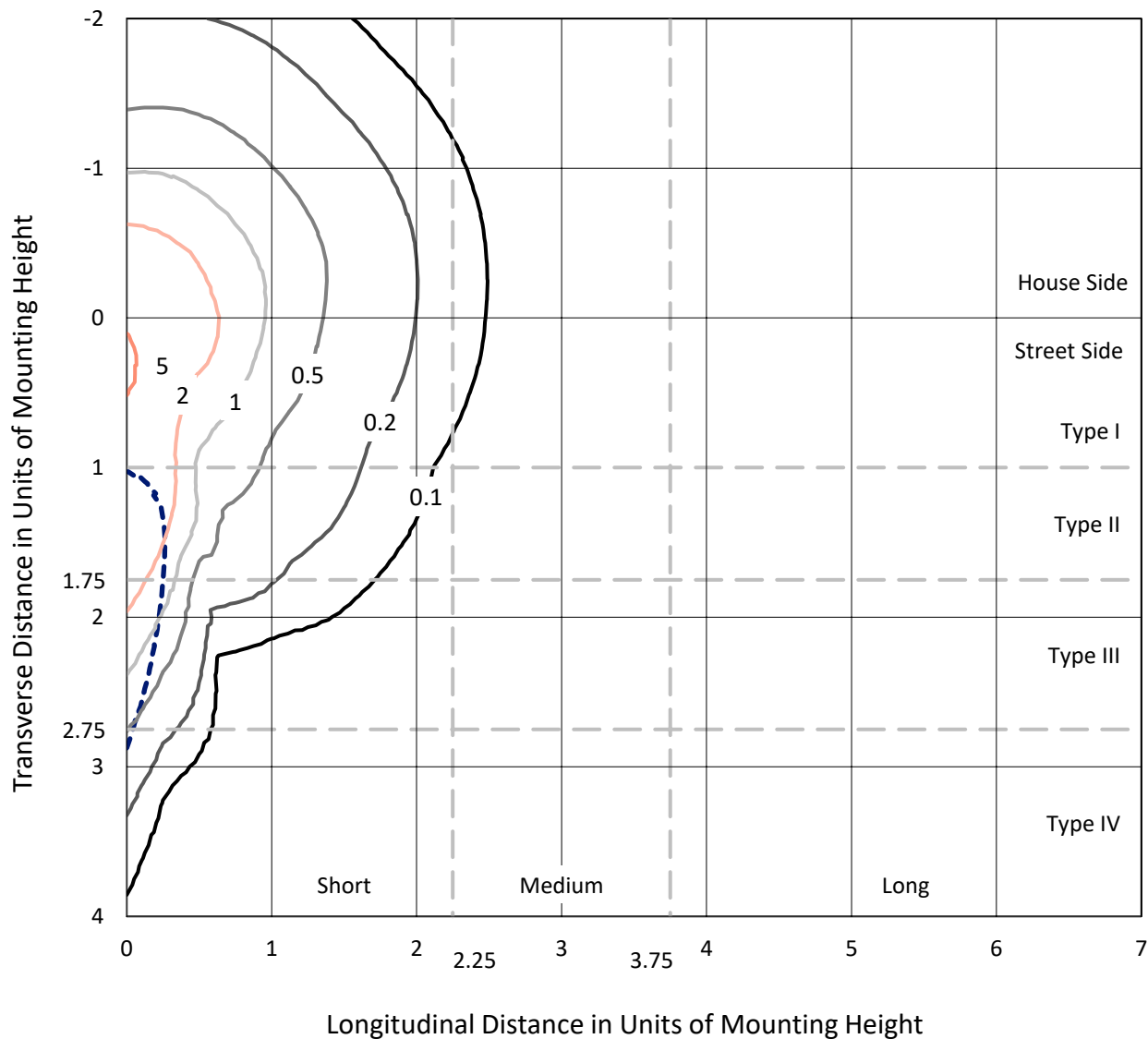
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## Iso-Footcandle Lines of Horizontal Illumination

× Max cd

--- 1/2 Max cd

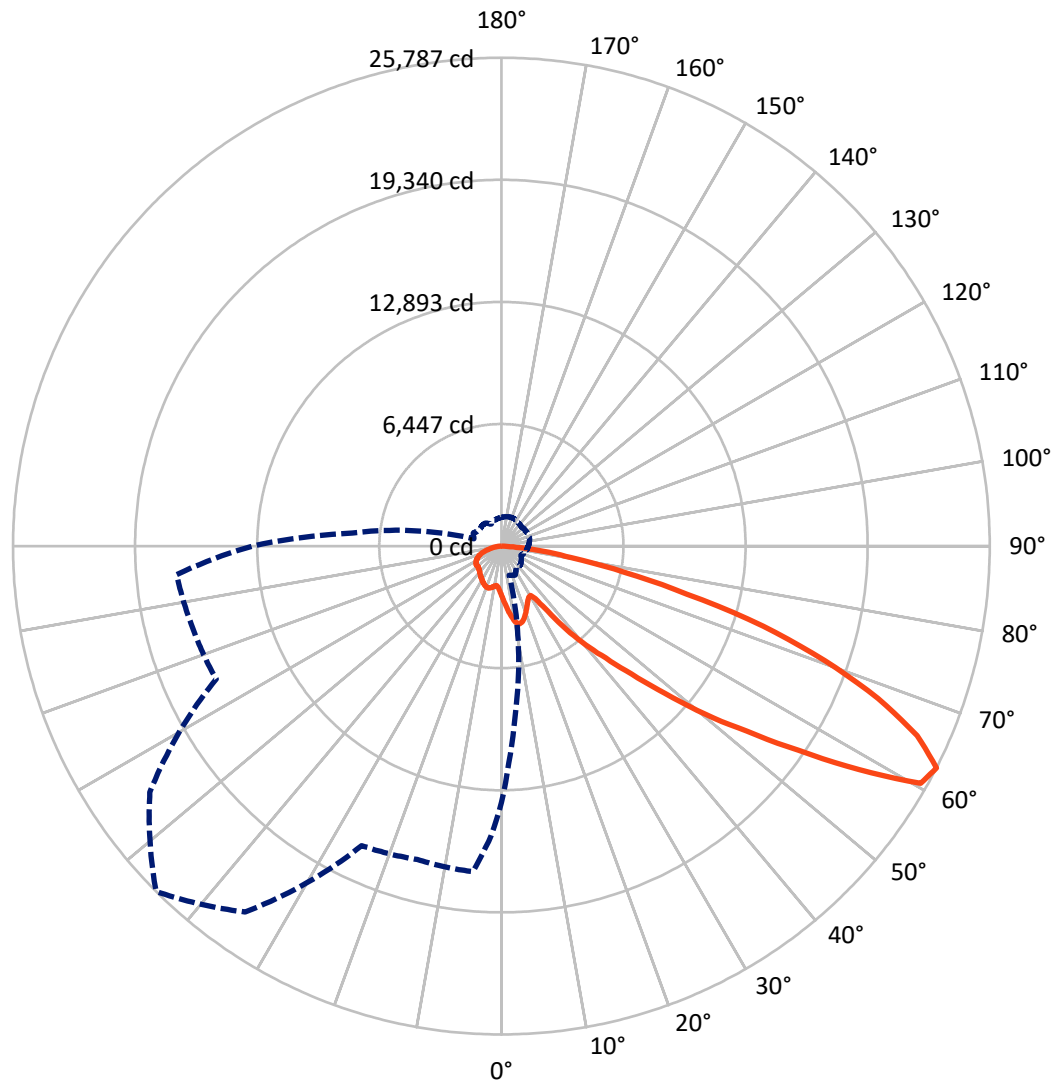


Based on 25 foot mounting height. Maximum calculated value = 5.6 fc  
 Type III - Short - N/A

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## Luminous Intensity Polar Plot



— Vertical Plane Through 315-Deg Lateral    - - - Horizontal Cone Through 62.5-Deg Vertical

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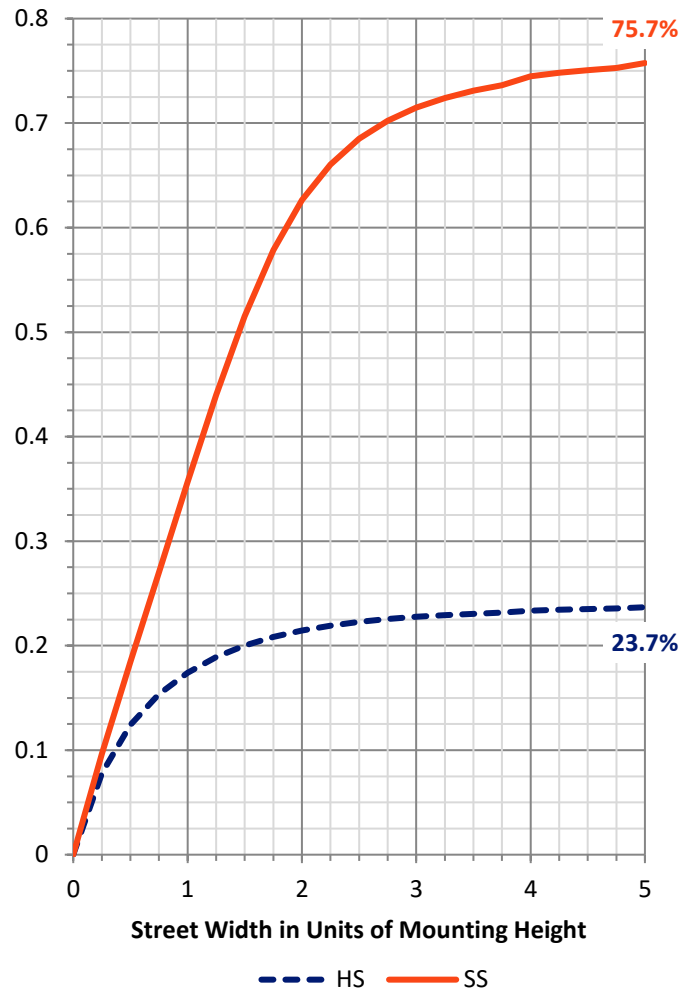
**FLUX DISTRIBUTION:**

|                    |           | Downward | Upward | Total   |
|--------------------|-----------|----------|--------|---------|
| <b>House Side</b>  | Lumens    | 5051.5   | 0.0    | 5051.5  |
|                    | % Fixture | 23.9     | 0.0    | 23.9    |
| <b>Street Side</b> | Lumens    | 16075.5  | 0.0    | 16075.5 |
|                    | % Fixture | 76.1     | 0.0    | 76.1    |
| <b>Total</b>       | Lumens    | 21127.0  | 0.0    | 21127.0 |
|                    | % Fixture | 100.0    | 0.0    | 100.0   |

**ZONAL LUMENS:**

| Zone      | Lumens  | % Fixture |
|-----------|---------|-----------|
| 0°-10°    | 259.5   | 1.2       |
| 10°-20°   | 843.4   | 4.0       |
| 20°-30°   | 1327.6  | 6.3       |
| 30°-40°   | 1819.8  | 8.6       |
| 40°-50°   | 2839.5  | 13.4      |
| 50°-60°   | 4895.8  | 23.2      |
| 60°-70°   | 5673.6  | 26.9      |
| 70°-80°   | 2994.8  | 14.2      |
| 80°-90°   | 473.1   | 2.2       |
| 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°    | 21127.0 | 100.0     |
| 0°-180°   | 21127.0 | 100.0     |

**Coefficient of Utilization**



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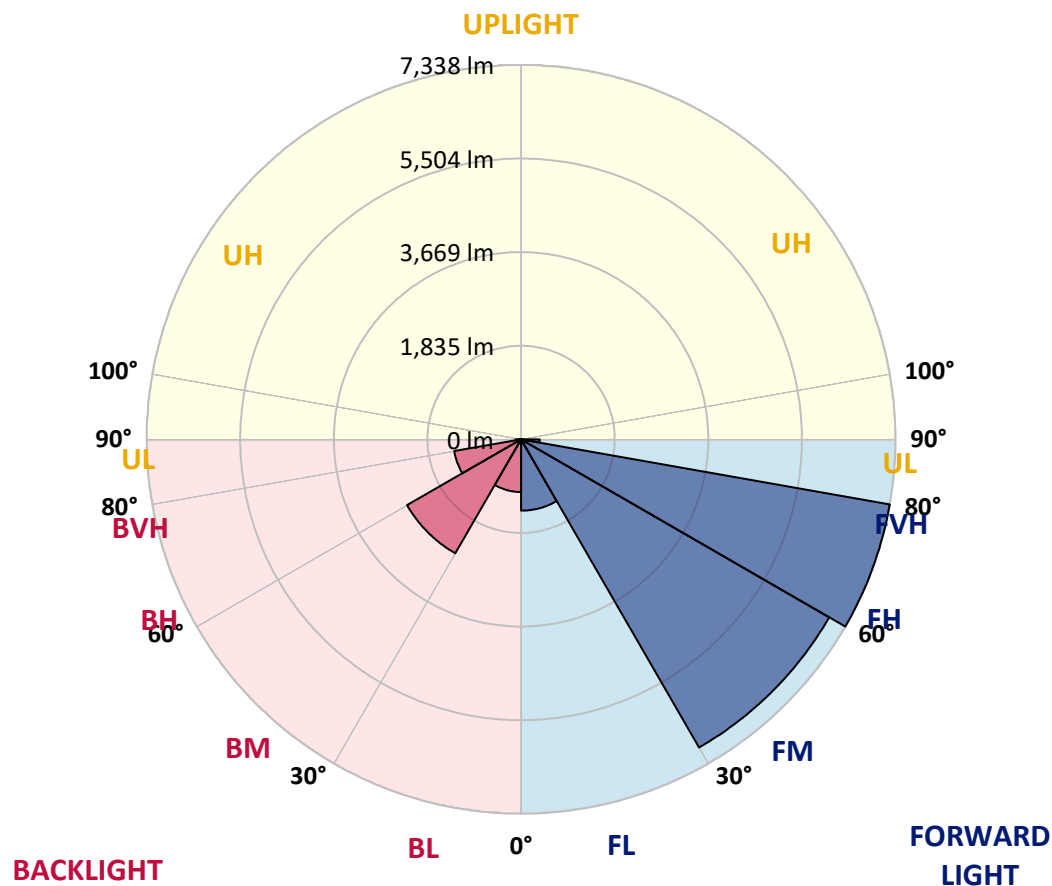
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**LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:**

| Zone |             | Lumens | % Fixture | Zone Rating/Lumen Limit |      |         |
|------|-------------|--------|-----------|-------------------------|------|---------|
|      |             |        |           | B                       | U    | G       |
| FL   | (0°-30°)    | 1397.3 | 6.6       |                         |      |         |
| FM   | (30°-60°)   | 6974.8 | 33.0      |                         |      |         |
| FH   | (60°-80°)   | 7338.3 | 34.7      |                         |      | G3/7500 |
| FVH  | (80°-90°)   | 365.1  | 1.7       |                         |      | G3/500  |
| BL   | (0°-30°)    | 1033.2 | 4.9       | B3/2500                 |      |         |
| BM   | (30°-60°)   | 2580.3 | 12.2      | B3/5000                 |      |         |
| BH   | (60°-80°)   | 1330.1 | 6.3       | B3/2500                 |      | G3/2500 |
| BVH  | (80°-90°)   | 107.9  | 0.5       |                         |      | G2/225  |
| UL   | (90°-100°)  | 0.0    | 0.0       |                         | U0/0 |         |
| UH   | (100°-180°) | 0.0    | 0.0       |                         | U0/0 |         |

**BUG Rating: B3-U0-G3**

Type III Short



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**CANDELA DISTRIBUTION (FULL):**

|       | 0°      | 2°      | 5°      | 15°    | 25°    | 35°    | 45°    | 55°    | 65°    | 75°    | 85°    |
|-------|---------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 2634.1  | 2634.1  | 2634.1  | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 |
| 2.5°  | 2862.0  | 2850.6  | 2834.5  | 2779.5 | 2745.6 | 2706.8 | 2666.4 | 2619.6 | 2566.2 | 2529.1 | 2491.9 |
| 5°    | 3104.4  | 3086.6  | 3047.8  | 2916.9 | 2826.4 | 2727.8 | 2645.4 | 2551.7 | 2459.6 | 2396.5 | 2333.5 |
| 7.5°  | 3337.1  | 3314.4  | 3254.6  | 3054.3 | 2907.2 | 2765.0 | 2640.6 | 2504.8 | 2367.5 | 2273.7 | 2199.4 |
| 10°   | 3569.8  | 3522.9  | 3447.0  | 3185.2 | 2991.2 | 2826.4 | 2684.2 | 2517.7 | 2335.1 | 2207.5 | 2128.3 |
| 12.5° | 3747.5  | 3703.9  | 3621.5  | 3304.7 | 3075.3 | 2868.4 | 2708.4 | 2554.9 | 2399.8 | 2264.0 | 2183.2 |
| 15°   | 3914.0  | 3857.4  | 3763.7  | 3416.2 | 3144.8 | 2866.8 | 2660.0 | 2525.8 | 2503.2 | 2469.3 | 2364.2 |
| 17.5° | 4033.6  | 3981.9  | 3884.9  | 3506.7 | 3183.5 | 2816.7 | 2525.8 | 2446.6 | 2548.5 | 2651.9 | 2551.7 |
| 20°   | 4138.6  | 4078.8  | 3980.2  | 3569.8 | 3191.6 | 2705.2 | 2362.6 | 2364.2 | 2524.2 | 2666.4 | 2642.2 |
| 22.5° | 4227.5  | 4161.2  | 4074.0  | 3640.9 | 3188.4 | 2550.1 | 2220.4 | 2317.4 | 2477.3 | 2588.9 | 2592.1 |
| 25°   | 4337.4  | 4282.4  | 4209.7  | 3745.9 | 3188.4 | 2391.7 | 2117.0 | 2260.8 | 2398.2 | 2491.9 | 2488.7 |
| 27.5° | 4471.5  | 4434.3  | 4374.5  | 3905.9 | 3217.5 | 2259.2 | 2058.8 | 2188.1 | 2296.4 | 2377.2 | 2375.5 |
| 30°   | 4621.8  | 4587.9  | 4542.6  | 4075.6 | 3267.6 | 2160.6 | 2026.5 | 2097.6 | 2176.8 | 2241.4 | 2241.4 |
| 32.5° | 4775.3  | 4762.4  | 4713.9  | 4211.3 | 3228.8 | 2129.9 | 1999.0 | 2007.1 | 2049.1 | 2102.4 | 2097.6 |
| 35°   | 4988.6  | 4975.7  | 4914.3  | 4316.4 | 3060.7 | 2086.3 | 1955.4 | 1915.0 | 1919.8 | 1953.8 | 1965.1 |
| 37.5° | 5300.5  | 5281.1  | 5190.6  | 4439.2 | 2807.0 | 1976.4 | 1884.3 | 1818.0 | 1803.5 | 1818.0 | 1839.0 |
| 40°   | 5677.0  | 5648.0  | 5525.1  | 4605.6 | 2514.5 | 1827.7 | 1772.8 | 1717.8 | 1693.6 | 1698.4 | 1722.7 |
| 42.5° | 6148.9  | 6087.5  | 5911.4  | 4781.8 | 2225.2 | 1696.8 | 1648.3 | 1614.4 | 1586.9 | 1583.7 | 1630.6 |
| 45°   | 6914.9  | 6746.8  | 6467.3  | 4938.5 | 1981.2 | 1627.3 | 1536.8 | 1512.6 | 1490.0 | 1502.9 | 1557.8 |
| 47.5° | 8253.0  | 7942.7  | 7398.1  | 5072.7 | 1832.6 | 1628.9 | 1447.9 | 1422.1 | 1420.5 | 1446.3 | 1507.7 |
| 50°   | 10092.0 | 9644.4  | 8804.0  | 5163.2 | 1755.0 | 1648.3 | 1394.6 | 1352.6 | 1383.3 | 1409.2 | 1467.3 |
| 52.5° | 11853.4 | 11169.9 | 10169.6 | 5161.5 | 1721.1 | 1651.6 | 1409.2 | 1288.0 | 1383.3 | 1389.8 | 1444.7 |
| 55°   | 13358.0 | 12120.1 | 10538.0 | 4631.5 | 1672.6 | 1638.6 | 1465.7 | 1237.9 | 1365.5 | 1389.8 | 1433.4 |
| 57.5° | 14553.8 | 12724.5 | 10510.5 | 3741.1 | 1819.6 | 1567.5 | 1499.7 | 1226.6 | 1313.8 | 1393.0 | 1443.1 |
| 60°   | 14421.3 | 12448.1 | 9833.4  | 2296.4 | 1805.1 | 1441.5 | 1494.8 | 1247.6 | 1226.6 | 1349.4 | 1431.8 |
| 62.5° | 13540.6 | 11457.5 | 8668.3  | 1593.4 | 1695.2 | 1368.8 | 1415.6 | 1284.7 | 1145.8 | 1286.3 | 1376.8 |
| 65°   | 12307.5 | 10179.3 | 7223.6  | 1221.7 | 1404.3 | 1372.0 | 1281.5 | 1258.9 | 1074.6 | 1186.2 | 1283.1 |
| 67.5° | 10677.0 | 8594.0  | 5702.9  | 968.0  | 979.3  | 1187.8 | 1163.5 | 1118.3 | 1008.4 | 1097.3 | 1184.5 |
| 70°   | 8026.7  | 6271.7  | 3923.7  | 778.9  | 741.7  | 992.2  | 1045.6 | 1005.2 | 943.8  | 969.6  | 1061.7 |
| 72.5° | 5656.0  | 4095.0  | 2149.3  | 617.3  | 572.1  | 762.8  | 908.2  | 901.7  | 833.9  | 853.3  | 943.8  |
| 75°   | 4203.2  | 2897.5  | 1342.9  | 488.0  | 465.4  | 546.2  | 761.1  | 780.5  | 724.0  | 746.6  | 816.1  |
| 77.5° | 2797.3  | 1876.2  | 746.6   | 362.0  | 362.0  | 399.2  | 567.2  | 657.7  | 615.7  | 633.5  | 682.0  |
| 80°   | 1543.3  | 955.1   | 373.3   | 237.6  | 244.0  | 274.7  | 413.7  | 473.5  | 475.1  | 518.7  | 531.7  |
| 82.5° | 488.0   | 303.8   | 166.4   | 139.0  | 130.9  | 156.8  | 266.6  | 339.4  | 316.7  | 404.0  | 371.7  |
| 85°   | 111.5   | 71.1    | 30.7    | 30.7   | 33.9   | 51.7   | 101.8  | 181.0  | 231.1  | 278.0  | 202.0  |
| 87.5° | 0.0     | 0.0     | 0.0     | 0.0    | 0.0    | 0.0    | 0.0    | 1.6    | 71.1   | 105.0  | 93.7   |
| 90°   | 0.0     | 0.0     | 0.0     | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |

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**CANDELA DISTRIBUTION (continued):**

|       | 90°    | 95°    | 105°   | 115°   | 125°   | 135°   | 145°   | 155°   | 165°   | 175°   | 180°   |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0°    | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 |
| 2.5°  | 2469.3 | 2436.9 | 2427.2 | 2399.8 | 2396.5 | 2370.7 | 2361.0 | 2361.0 | 2372.3 | 2372.3 | 2383.6 |
| 5°    | 2307.7 | 2267.3 | 2244.6 | 2212.3 | 2204.2 | 2184.8 | 2171.9 | 2173.5 | 2188.1 | 2197.8 | 2217.2 |
| 7.5°  | 2165.5 | 2138.0 | 2121.8 | 2107.3 | 2104.0 | 2100.8 | 2086.3 | 2084.7 | 2089.5 | 2104.0 | 2118.6 |
| 10°   | 2105.7 | 2086.3 | 2091.1 | 2102.4 | 2120.2 | 2129.9 | 2117.0 | 2110.5 | 2105.7 | 2115.4 | 2128.3 |
| 12.5° | 2163.8 | 2144.4 | 2154.1 | 2173.5 | 2197.8 | 2207.5 | 2202.6 | 2201.0 | 2205.9 | 2243.0 | 2270.5 |
| 15°   | 2291.5 | 2254.3 | 2241.4 | 2249.5 | 2268.9 | 2278.6 | 2273.7 | 2280.2 | 2310.9 | 2407.9 | 2477.3 |
| 17.5° | 2449.9 | 2359.4 | 2307.7 | 2293.1 | 2301.2 | 2309.3 | 2309.3 | 2325.4 | 2378.8 | 2521.0 | 2608.2 |
| 20°   | 2535.5 | 2417.6 | 2330.3 | 2294.7 | 2298.0 | 2306.0 | 2306.0 | 2328.7 | 2388.5 | 2540.4 | 2596.9 |
| 22.5° | 2512.9 | 2404.6 | 2298.0 | 2259.2 | 2260.8 | 2267.3 | 2267.3 | 2286.7 | 2340.0 | 2474.1 | 2500.0 |
| 25°   | 2424.0 | 2328.7 | 2223.6 | 2189.7 | 2192.9 | 2204.2 | 2201.0 | 2212.3 | 2252.7 | 2362.6 | 2377.2 |
| 27.5° | 2317.4 | 2233.3 | 2129.9 | 2104.0 | 2118.6 | 2141.2 | 2121.8 | 2123.4 | 2160.6 | 2252.7 | 2254.3 |
| 30°   | 2202.6 | 2133.1 | 2041.0 | 2021.6 | 2049.1 | 2060.4 | 2042.6 | 2042.6 | 2079.8 | 2142.8 | 2141.2 |
| 32.5° | 2078.2 | 2034.6 | 1968.3 | 1947.3 | 1978.0 | 1995.8 | 1973.2 | 1976.4 | 2005.5 | 2047.5 | 2031.3 |
| 35°   | 1961.8 | 1939.2 | 1908.5 | 1894.0 | 1913.4 | 1929.5 | 1915.0 | 1921.4 | 1948.9 | 1960.2 | 1937.6 |
| 37.5° | 1850.3 | 1847.1 | 1850.3 | 1850.3 | 1855.2 | 1860.0 | 1850.3 | 1866.5 | 1890.7 | 1876.2 | 1850.3 |
| 40°   | 1753.4 | 1766.3 | 1797.0 | 1788.9 | 1784.1 | 1788.9 | 1782.5 | 1809.9 | 1834.2 | 1808.3 | 1777.6 |
| 42.5° | 1672.6 | 1696.8 | 1743.7 | 1743.7 | 1734.0 | 1737.2 | 1734.0 | 1767.9 | 1785.7 | 1750.1 | 1716.2 |
| 45°   | 1603.1 | 1638.6 | 1698.4 | 1706.5 | 1690.3 | 1690.3 | 1696.8 | 1738.8 | 1745.3 | 1696.8 | 1661.3 |
| 47.5° | 1554.6 | 1598.2 | 1666.1 | 1680.7 | 1656.4 | 1654.8 | 1672.6 | 1717.8 | 1717.8 | 1661.3 | 1620.9 |
| 50°   | 1520.7 | 1569.1 | 1649.9 | 1669.3 | 1645.1 | 1638.6 | 1667.7 | 1711.4 | 1701.7 | 1633.8 | 1593.4 |
| 52.5° | 1498.0 | 1548.1 | 1648.3 | 1675.8 | 1659.6 | 1653.2 | 1682.3 | 1713.0 | 1688.7 | 1616.0 | 1574.0 |
| 55°   | 1483.5 | 1538.4 | 1653.2 | 1675.8 | 1658.0 | 1646.7 | 1675.8 | 1703.3 | 1690.3 | 1606.3 | 1565.9 |
| 57.5° | 1491.6 | 1546.5 | 1646.7 | 1658.0 | 1637.0 | 1617.6 | 1651.6 | 1690.3 | 1685.5 | 1609.5 | 1569.1 |
| 60°   | 1478.7 | 1528.7 | 1611.2 | 1614.4 | 1578.8 | 1548.1 | 1598.2 | 1656.4 | 1656.4 | 1598.2 | 1562.7 |
| 62.5° | 1418.9 | 1469.0 | 1541.7 | 1544.9 | 1504.5 | 1470.6 | 1528.7 | 1598.2 | 1596.6 | 1549.8 | 1512.6 |
| 65°   | 1320.3 | 1367.1 | 1449.6 | 1457.6 | 1417.2 | 1381.7 | 1441.5 | 1506.1 | 1511.0 | 1469.0 | 1436.6 |
| 67.5° | 1212.0 | 1254.0 | 1315.4 | 1347.8 | 1313.8 | 1276.6 | 1331.6 | 1393.0 | 1391.4 | 1341.3 | 1307.4 |
| 70°   | 1082.7 | 1121.5 | 1178.1 | 1205.5 | 1184.5 | 1149.0 | 1199.1 | 1231.4 | 1216.9 | 1192.6 | 1170.0 |
| 72.5° | 955.1  | 992.2  | 1045.6 | 1045.6 | 1022.9 | 989.0  | 1003.5 | 1061.7 | 1079.5 | 1061.7 | 1047.2 |
| 75°   | 820.9  | 853.3  | 890.4  | 898.5  | 848.4  | 787.0  | 854.9  | 905.0  | 926.0  | 917.9  | 900.1  |
| 77.5° | 683.6  | 707.8  | 762.8  | 748.2  | 654.5  | 622.2  | 677.1  | 751.4  | 766.0  | 761.1  | 736.9  |
| 80°   | 526.8  | 541.4  | 599.5  | 570.5  | 497.7  | 476.7  | 501.0  | 559.1  | 562.4  | 546.2  | 515.5  |
| 82.5° | 353.9  | 373.3  | 412.1  | 355.5  | 353.9  | 334.5  | 315.1  | 321.6  | 350.7  | 347.4  | 326.4  |
| 85°   | 181.0  | 190.7  | 227.9  | 213.3  | 182.6  | 158.4  | 150.3  | 160.0  | 143.8  | 130.9  | 113.1  |
| 87.5° | 76.0   | 82.4   | 113.1  | 63.0   | 19.4   | 0.0    | 0.0    | 9.7    | 14.5   | 21.0   | 22.6   |
| 90°   | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    | 0.0    |



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CATALOG NUMBER: GWS-SA4E-722-U-SLL-W

**CANDELA DISTRIBUTION (continued):**

|       | 185°   | 195°   | 205°   | 215°   | 225°   | 235°   | 245°   | 255°   | 265°    | 270°    | 275°    |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|
| 0°    | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1 | 2634.1  | 2634.1  | 2634.1  |
| 2.5°  | 2409.5 | 2427.2 | 2470.9 | 2525.8 | 2579.2 | 2634.1 | 2693.9 | 2731.1 | 2776.3  | 2834.5  | 2836.1  |
| 5°    | 2241.4 | 2281.8 | 2344.8 | 2428.9 | 2516.1 | 2616.3 | 2732.7 | 2829.6 | 2946.0  | 3038.1  | 3075.3  |
| 7.5°  | 2138.0 | 2196.2 | 2275.3 | 2382.0 | 2496.7 | 2621.2 | 2773.1 | 2936.3 | 3127.0  | 3249.8  | 3322.5  |
| 10°   | 2147.7 | 2236.6 | 2315.7 | 2406.2 | 2509.7 | 2643.8 | 2839.3 | 3055.9 | 3290.2  | 3451.8  | 3542.3  |
| 12.5° | 2320.6 | 2414.3 | 2399.8 | 2394.9 | 2464.4 | 2627.6 | 2892.7 | 3177.1 | 3463.1  | 3624.7  | 3733.0  |
| 15°   | 2538.8 | 2574.3 | 2436.9 | 2333.5 | 2375.5 | 2569.5 | 2921.7 | 3285.4 | 3606.9  | 3804.1  | 3910.7  |
| 17.5° | 2650.3 | 2579.2 | 2412.7 | 2257.6 | 2246.3 | 2480.6 | 2936.3 | 3395.2 | 3768.5  | 3965.7  | 4078.8  |
| 20°   | 2598.5 | 2495.1 | 2354.5 | 2207.5 | 2126.7 | 2359.4 | 2928.2 | 3482.5 | 3915.6  | 4135.4  | 4227.5  |
| 22.5° | 2487.0 | 2396.5 | 2286.7 | 2146.1 | 2029.7 | 2226.9 | 2907.2 | 3569.8 | 4046.5  | 4267.9  | 4348.7  |
| 25°   | 2365.8 | 2298.0 | 2207.5 | 2084.7 | 1974.8 | 2110.5 | 2892.7 | 3686.1 | 4196.8  | 4408.5  | 4460.2  |
| 27.5° | 2244.6 | 2194.5 | 2120.2 | 2024.9 | 1961.8 | 2029.7 | 2897.5 | 3838.0 | 4390.7  | 4591.1  | 4570.1  |
| 30°   | 2125.1 | 2081.4 | 2029.7 | 1987.7 | 1960.2 | 2010.3 | 2884.6 | 3999.6 | 4604.0  | 4789.9  | 4665.4  |
| 32.5° | 2011.9 | 1971.5 | 1939.2 | 1945.7 | 1961.8 | 2018.4 | 2818.3 | 4146.7 | 4799.6  | 4957.9  | 4768.9  |
| 35°   | 1915.0 | 1873.0 | 1873.0 | 1895.6 | 1955.4 | 1990.9 | 2647.0 | 4261.4 | 5016.1  | 5174.5  | 4915.9  |
| 37.5° | 1824.5 | 1787.3 | 1811.5 | 1848.7 | 1905.3 | 1916.6 | 2427.2 | 4372.9 | 5331.2  | 5479.9  | 5143.8  |
| 40°   | 1745.3 | 1708.1 | 1751.8 | 1798.6 | 1827.7 | 1822.9 | 2204.2 | 4528.1 | 5702.9  | 5856.4  | 5446.0  |
| 42.5° | 1682.3 | 1648.3 | 1687.1 | 1746.9 | 1751.8 | 1756.6 | 2041.0 | 4676.7 | 6134.4  | 6329.9  | 5966.3  |
| 45°   | 1630.6 | 1606.3 | 1625.7 | 1685.5 | 1685.5 | 1759.8 | 1939.2 | 4801.2 | 6784.0  | 7129.8  | 6921.4  |
| 47.5° | 1590.2 | 1575.6 | 1585.3 | 1604.7 | 1637.0 | 1818.0 | 1874.6 | 4896.5 | 7966.9  | 8645.7  | 8435.6  |
| 50°   | 1567.5 | 1553.0 | 1565.9 | 1525.5 | 1622.5 | 1847.1 | 1853.6 | 4969.2 | 9526.4  | 10589.7 | 10329.5 |
| 52.5° | 1548.1 | 1543.3 | 1551.4 | 1457.6 | 1654.8 | 1827.7 | 1837.4 | 4872.3 | 10572.0 | 12503.1 | 12760.0 |
| 55°   | 1541.7 | 1544.9 | 1506.1 | 1407.5 | 1693.6 | 1763.1 | 1788.9 | 4179.0 | 10856.4 | 14153.0 | 15748.0 |
| 57.5° | 1544.9 | 1535.2 | 1436.6 | 1412.4 | 1695.2 | 1633.8 | 1858.4 | 2981.5 | 10442.7 | 14870.5 | 18671.4 |
| 60°   | 1533.6 | 1485.1 | 1352.6 | 1456.0 | 1620.9 | 1481.9 | 1808.3 | 1944.1 | 9351.9  | 14319.5 | 18841.1 |
| 62.5° | 1483.5 | 1412.4 | 1279.9 | 1480.3 | 1488.3 | 1391.4 | 1641.9 | 1498.0 | 7897.5  | 13139.8 | 17205.7 |
| 65°   | 1410.8 | 1315.4 | 1218.5 | 1430.2 | 1354.2 | 1349.4 | 1234.6 | 1200.7 | 6350.9  | 11735.5 | 15654.3 |
| 67.5° | 1291.2 | 1195.8 | 1173.2 | 1315.4 | 1218.5 | 1195.8 | 992.2  | 995.5  | 5067.8  | 10239.1 | 14094.9 |
| 70°   | 1155.4 | 1060.1 | 1077.9 | 1189.4 | 1084.3 | 993.8  | 803.2  | 829.0  | 3844.5  | 8530.9  | 11992.4 |
| 72.5° | 1066.6 | 938.9  | 940.5  | 1047.2 | 953.4  | 804.8  | 660.9  | 683.6  | 2440.2  | 6430.1  | 9534.5  |
| 75°   | 900.1  | 827.4  | 791.8  | 848.4  | 809.6  | 627.0  | 555.9  | 551.1  | 1446.3  | 4608.9  | 7139.5  |
| 77.5° | 751.4  | 694.9  | 677.1  | 699.7  | 604.4  | 463.8  | 447.6  | 439.6  | 819.3   | 2952.5  | 4678.4  |
| 80°   | 544.6  | 530.1  | 528.4  | 539.7  | 465.4  | 341.0  | 341.0  | 342.6  | 441.2   | 1603.1  | 2637.3  |
| 82.5° | 345.8  | 378.1  | 334.5  | 371.7  | 316.7  | 242.4  | 226.2  | 256.9  | 253.7   | 683.6   | 1111.8  |
| 85°   | 143.8  | 197.2  | 184.2  | 195.5  | 150.3  | 132.5  | 142.2  | 153.5  | 147.1   | 263.4   | 433.1   |
| 87.5° | 27.5   | 32.3   | 35.6   | 33.9   | 33.9   | 42.0   | 46.9   | 56.6   | 56.6    | 76.0    | 130.9   |
| 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: P638042

CATALOG NUMBER: GWS-SA4E-722-U-SLL-W

**CANDELA DISTRIBUTION (continued):**

|       | 285°    | 295°    | 305°    | 315°    | 325°    | 335°    | 345°    | 355°    | 358°    | 360°    |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0°    | 2634.1  | 2634.1  | 2634.1  | 2634.1  | 2634.1  | 2634.1  | 2634.1  | 2634.1  | 2634.1  | 2634.1  |
| 2.5°  | 2897.5  | 2944.4  | 2934.7  | 2955.7  | 2928.2  | 2937.9  | 2883.0  | 2868.4  | 2858.7  | 2862.0  |
| 5°    | 3194.9  | 3290.2  | 3308.0  | 3343.5  | 3319.3  | 3319.3  | 3222.3  | 3149.6  | 3123.8  | 3104.4  |
| 7.5°  | 3497.0  | 3634.4  | 3724.9  | 3734.6  | 3721.7  | 3695.8  | 3555.2  | 3424.3  | 3377.5  | 3337.1  |
| 10°   | 3765.3  | 3930.1  | 4031.9  | 4080.4  | 4056.2  | 4015.8  | 3841.3  | 3661.9  | 3605.3  | 3569.8  |
| 12.5° | 3970.5  | 4116.0  | 4183.9  | 4216.2  | 4212.9  | 4198.4  | 4056.2  | 3862.3  | 3802.5  | 3747.5  |
| 15°   | 4103.1  | 4175.8  | 4149.9  | 4148.3  | 4170.9  | 4229.1  | 4185.5  | 4033.6  | 3964.1  | 3914.0  |
| 17.5° | 4188.7  | 4119.2  | 4004.5  | 3951.1  | 3999.6  | 4137.0  | 4237.2  | 4151.5  | 4088.5  | 4033.6  |
| 20°   | 4219.4  | 3972.2  | 3805.7  | 3707.1  | 3763.7  | 3962.5  | 4209.7  | 4237.2  | 4183.9  | 4138.6  |
| 22.5° | 4183.9  | 3792.8  | 3566.5  | 3450.2  | 3505.1  | 3742.7  | 4128.9  | 4306.7  | 4271.1  | 4227.5  |
| 25°   | 4096.6  | 3605.3  | 3333.8  | 3228.8  | 3288.6  | 3531.0  | 3985.1  | 4371.3  | 4372.9  | 4337.4  |
| 27.5° | 3988.3  | 3432.4  | 3170.6  | 3072.0  | 3130.2  | 3356.5  | 3844.5  | 4427.9  | 4484.4  | 4471.5  |
| 30°   | 3878.4  | 3329.0  | 3093.0  | 3023.6  | 3067.2  | 3267.6  | 3700.7  | 4486.0  | 4599.2  | 4621.8  |
| 32.5° | 3828.3  | 3379.1  | 3275.7  | 3306.4  | 3249.8  | 3319.3  | 3649.0  | 4568.5  | 4738.1  | 4775.3  |
| 35°   | 3894.6  | 3823.5  | 4085.3  | 4206.5  | 4006.1  | 3742.7  | 3715.2  | 4692.9  | 4933.7  | 4988.6  |
| 37.5° | 4216.2  | 4775.3  | 5166.4  | 5593.0  | 5245.6  | 4665.4  | 4043.3  | 4904.6  | 5213.3  | 5300.5  |
| 40°   | 4915.9  | 5605.9  | 6312.1  | 6863.2  | 6338.0  | 5557.5  | 4667.0  | 5219.7  | 5597.9  | 5677.0  |
| 42.5° | 5575.2  | 6384.9  | 7357.7  | 8070.4  | 7388.4  | 6286.3  | 5339.3  | 5749.8  | 6105.3  | 6148.9  |
| 45°   | 6221.6  | 7149.2  | 8623.0  | 9613.7  | 8687.7  | 6979.6  | 6026.1  | 6645.0  | 6913.3  | 6914.9  |
| 47.5° | 6979.6  | 8010.6  | 10210.0 | 11620.7 | 10412.0 | 7747.2  | 6670.9  | 8062.3  | 8435.6  | 8253.0  |
| 50°   | 7886.1  | 8867.1  | 11843.8 | 13955.9 | 12514.4 | 8690.9  | 7490.2  | 9789.8  | 10298.8 | 10092.0 |
| 52.5° | 9099.8  | 9810.8  | 13644.0 | 16232.8 | 14805.9 | 9765.6  | 8678.0  | 12071.6 | 12239.7 | 11853.4 |
| 55°   | 10807.9 | 11173.1 | 15954.9 | 19044.7 | 17364.0 | 11089.1 | 10415.2 | 14935.2 | 14464.9 | 13358.0 |
| 57.5° | 14697.6 | 13328.9 | 18921.9 | 22252.5 | 20258.3 | 13493.7 | 14222.5 | 18092.9 | 16420.3 | 14553.8 |
| 60°   | 17952.3 | 15946.8 | 21667.5 | 25436.0 | 22738.9 | 16144.0 | 17797.1 | 18642.3 | 16347.6 | 14421.3 |
| 62.5° | 16855.0 | 16614.2 | 22658.1 | 25786.7 | 23585.7 | 17448.1 | 17133.0 | 17257.4 | 15281.0 | 13540.6 |
| 65°   | 14788.1 | 15326.3 | 21774.1 | 24123.8 | 22646.8 | 16279.7 | 15497.6 | 15977.5 | 14060.9 | 12307.5 |
| 67.5° | 13568.0 | 13964.0 | 20201.8 | 21462.3 | 20940.3 | 15016.0 | 14225.8 | 13878.3 | 12167.0 | 10677.0 |
| 70°   | 12320.5 | 12648.5 | 17994.3 | 18122.0 | 18278.7 | 12915.2 | 11632.1 | 10597.8 | 9069.1  | 8026.7  |
| 72.5° | 10646.3 | 10664.1 | 15203.4 | 14463.3 | 14760.7 | 10106.5 | 9363.2  | 7923.3  | 6601.4  | 5656.0  |
| 75°   | 8931.7  | 8443.7  | 12034.4 | 10109.8 | 10706.1 | 7861.9  | 7774.6  | 5971.2  | 4978.9  | 4203.2  |
| 77.5° | 6809.9  | 6239.4  | 8791.1  | 6648.3  | 7519.3  | 5235.9  | 5845.1  | 4049.7  | 3503.5  | 2797.3  |
| 80°   | 4571.7  | 4216.2  | 4857.7  | 3752.4  | 4919.1  | 3608.6  | 3812.2  | 2294.7  | 1989.3  | 1543.3  |
| 82.5° | 2411.1  | 2058.8  | 3002.6  | 2225.2  | 2967.0  | 1982.8  | 1430.2  | 709.4   | 604.4   | 488.0   |
| 85°   | 934.1   | 1081.1  | 1472.2  | 791.8   | 1150.6  | 707.8   | 413.7   | 176.1   | 147.1   | 111.5   |
| 87.5° | 181.0   | 279.6   | 153.5   | 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     |

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:  $4\pi$   
 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    | CRI (Ra): | 72.0 |      |       |
| CIE u':                   | 0.2876  | R1:       | 68.9 | R9:  | -17.4 |
| CIE v':                   | 0.5346  | R2:       | 83.0 | R10: | 61.3  |
| Duv:                      | -0.0006 | R3:       | 95.2 | R11: | 59.8  |
| CIE x:                    | 0.5005  | R4:       | 66.2 | R12: | 50.5  |
| CIE y:                    | 0.4134  | R5:       | 65.9 | R13: | 71.1  |
| CIE z:                    | 0.0860  | R6:       | 76.3 | R14: | 96.9  |
| Peak Wavelength (nm):     | 603     | R7:       | 76.7 |      |       |
| Dominant Wavelength (nm): | 587     | R8:       | 43.8 |      |       |
| Purity:                   | 74.5    |           |      |      |       |
| Rf:                       | 69.8    |           |      |      |       |
| Rg:                       | 99.2    |           |      |      |       |



### 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            |

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

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

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

**Photopic Flux vs. Wavelength**



#####

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(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<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(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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**Melanopic Flux vs. Wavelength**



**Melanopic Lumens: 1470.8 M/P: 0.27**

| λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(φ/nm) | λ<br>(nm) | Power<br>(μW/nm) | Lumens<br>(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  $R_a = 72.0$   
 $R_g = -17.4$



### Color Vector Graphics



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

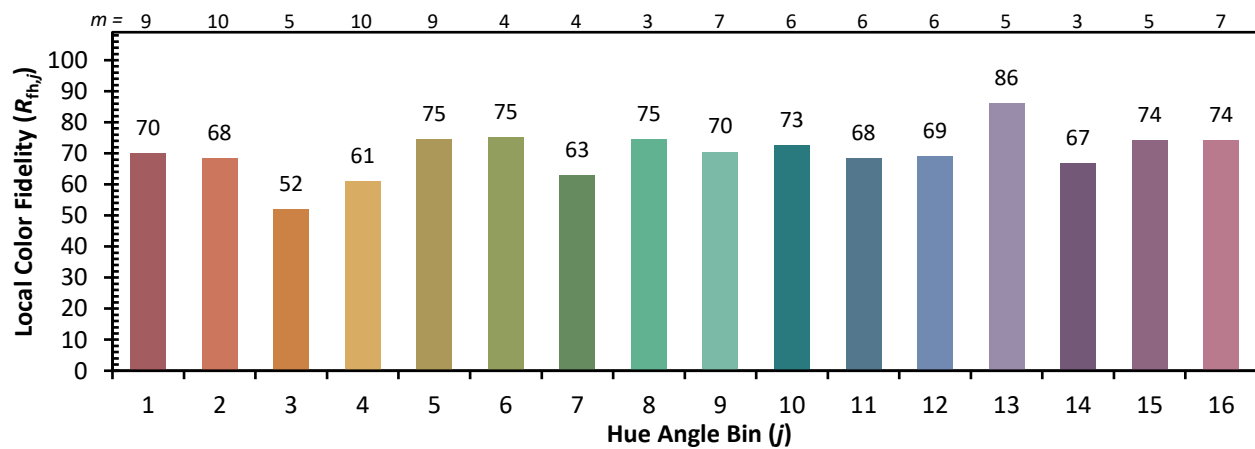
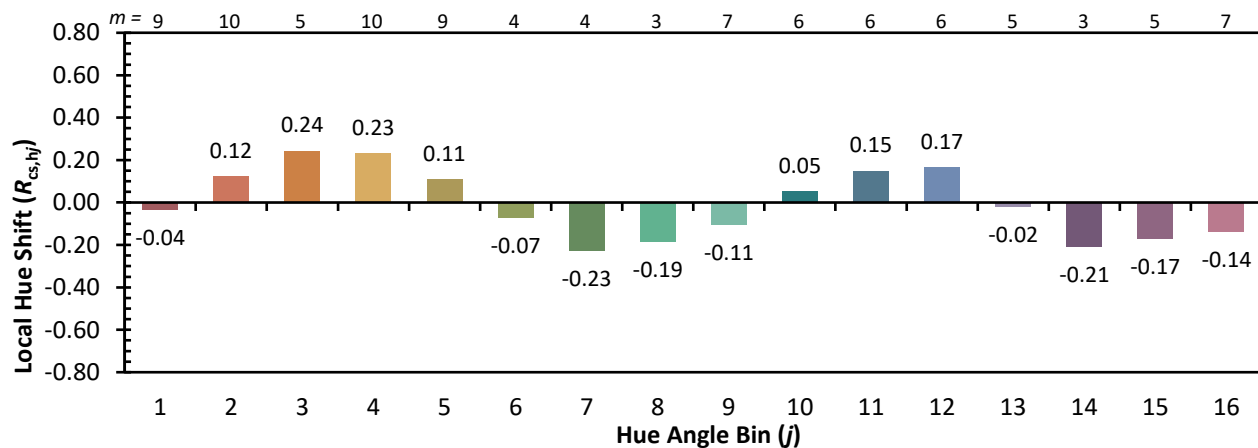
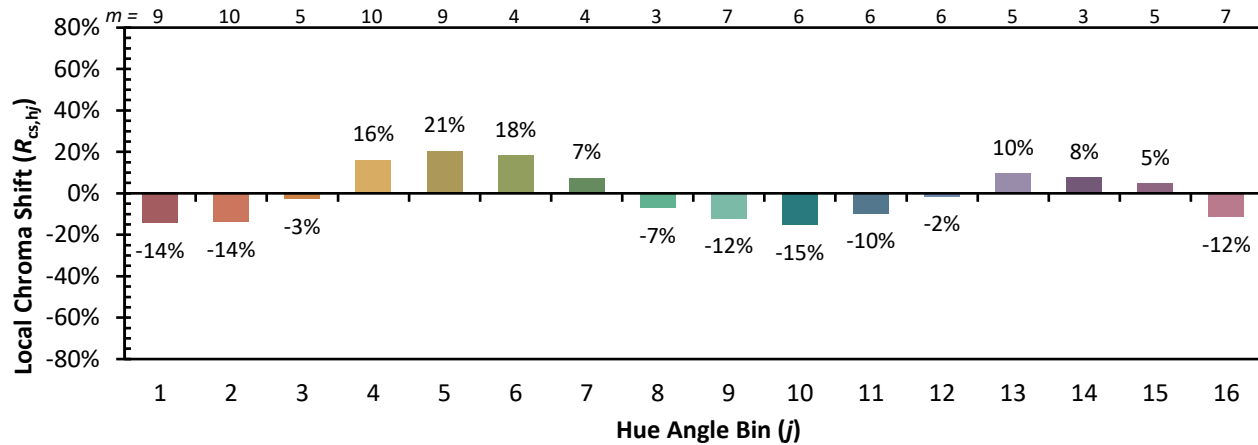
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|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 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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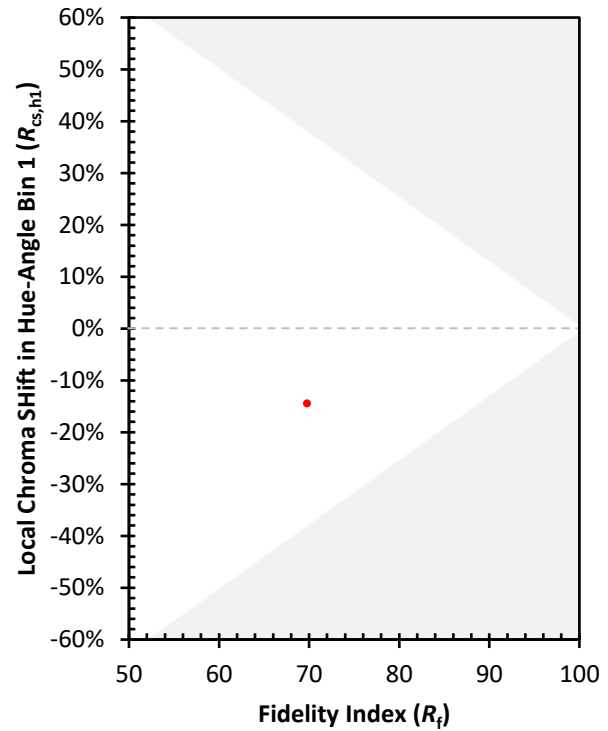
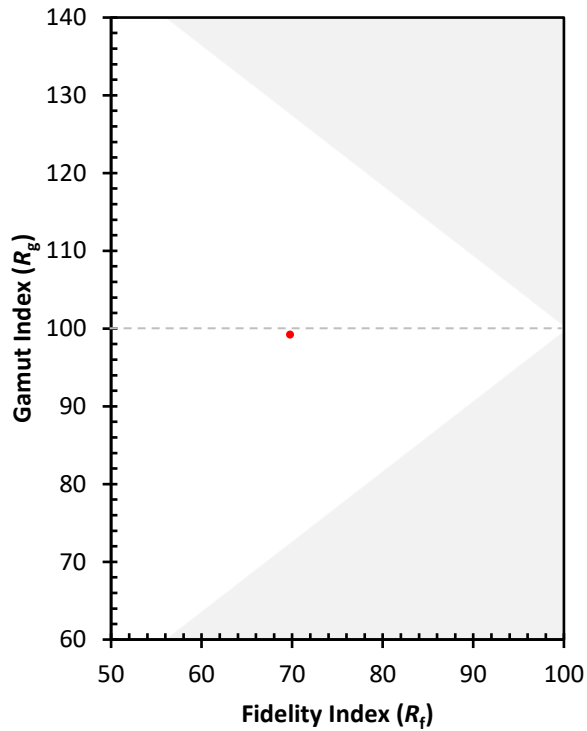
Color Rendition by Hue-Angle Bin



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**Measure Comparisons**



(END OF REPORT)