

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



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

Test Report Prepared for

Cooper Lighting Solutions

Brand: McGRAW-EDISON

Report Number: P633188

Luminaire Tested: GWS-SA2E-730-U-RW-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P633188
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-49)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA2E-730-U-RW-W
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND RECTANGULAR WIDE OPTICS
Light Source: (32) 3000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13677.8 lumens
Efficiency: N/A
Efficacy: 126.4 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type III - Short
BUG Rating: B3 - U0 - G3

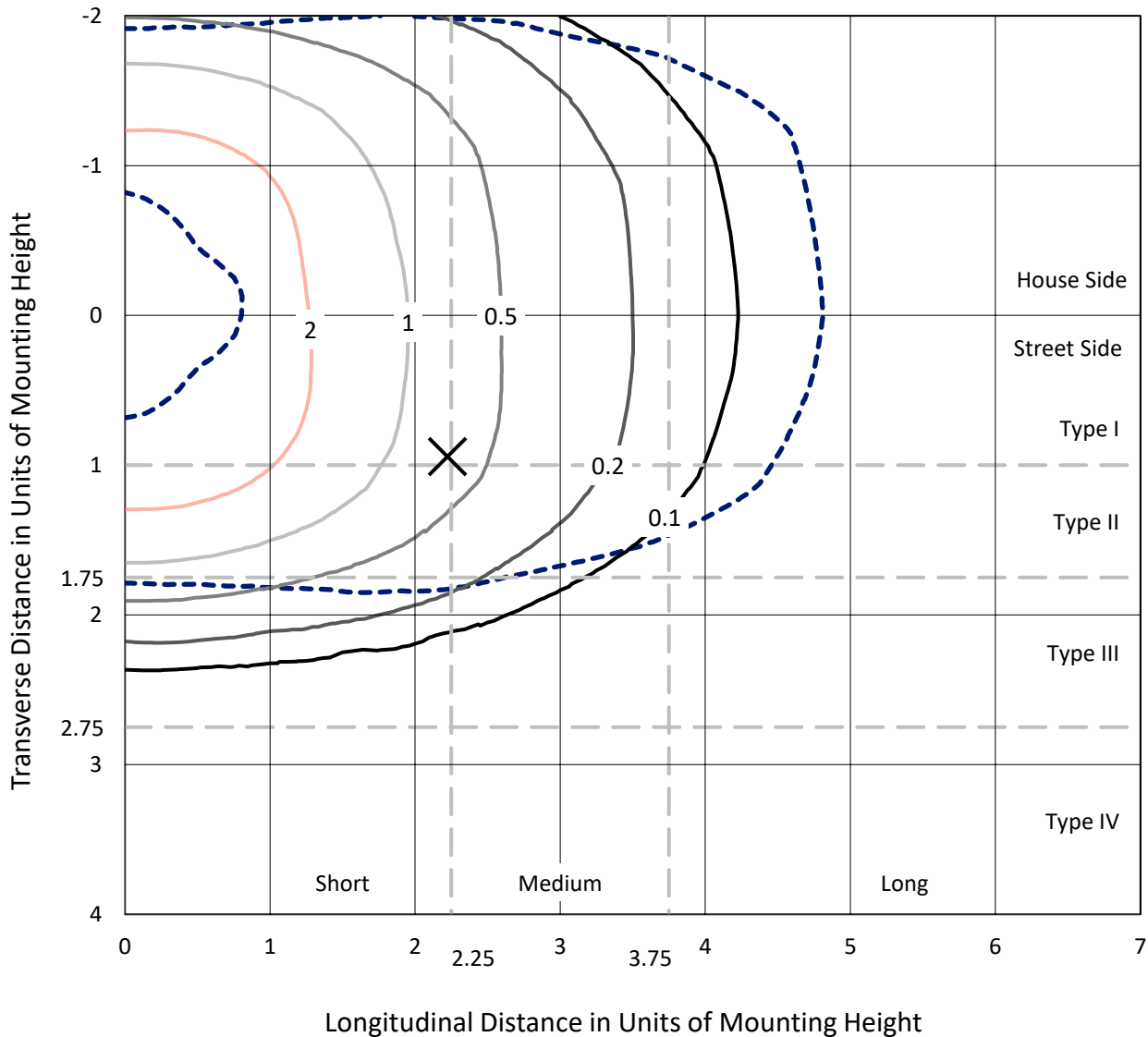
Input Watts (W): 108.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P633188
 CATALOG NUMBER: GWS-SA2E-730-U-RW-W

Iso-Footcandle Lines of Horizontal Illumination

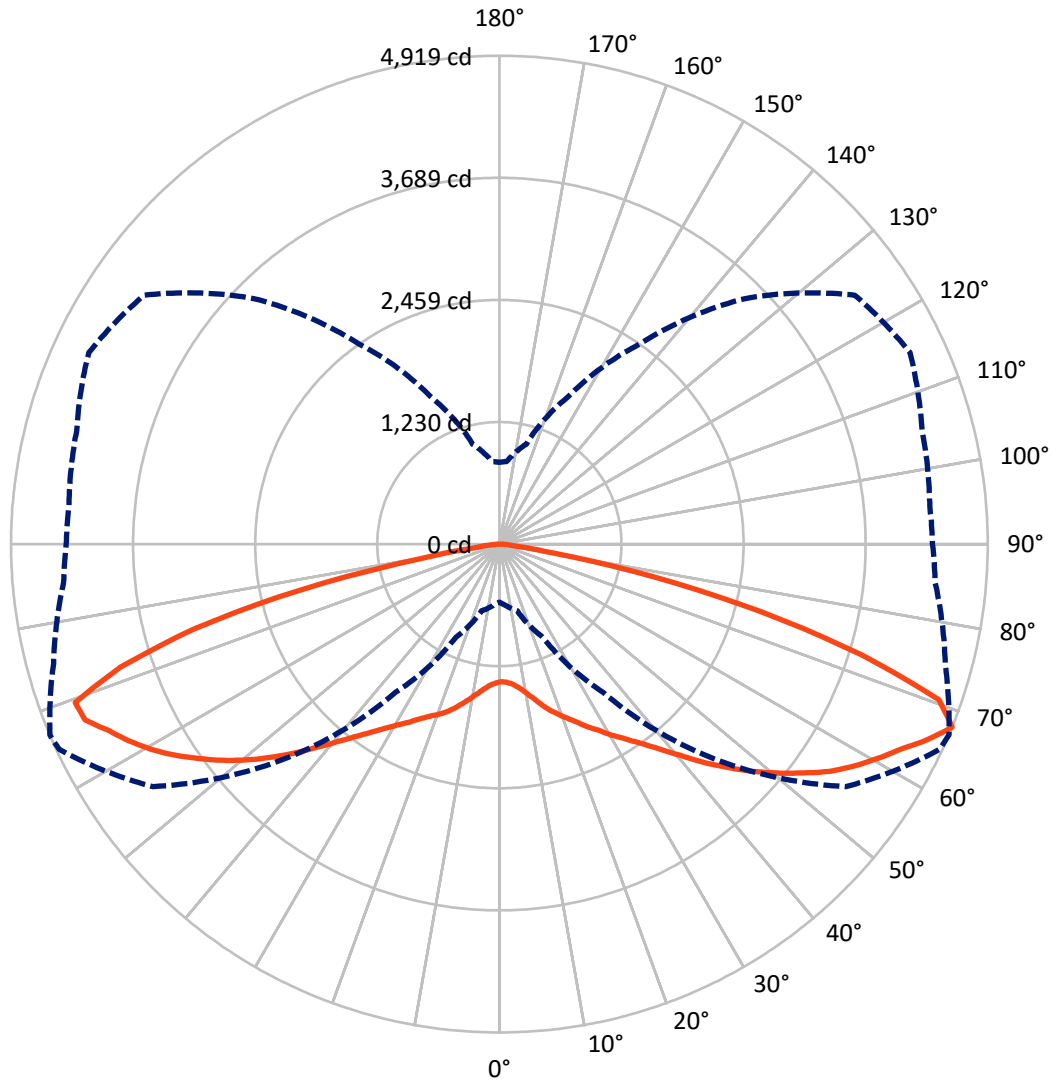
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 4 fc
 Type III - Short - N/A

REPORT NUMBER: P633188
CATALOG NUMBER: GWS-SA2E-730-U-RW-W

Luminous Intensity Polar Plot



— Vertical Plane Through 67-Deg Lateral - - - Horizontal Cone Through 67.5-Deg Vertical

REPORT NUMBER: P633188

CATALOG NUMBER: GWS-SA2E-730-U-RW-W

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 6763.4 | 0.0 | 6763.4 |
| | % Fixture | 49.4 | 0.0 | 49.4 |
| Street Side | Lumens | 6914.4 | 0.0 | 6914.4 |
| | % Fixture | 50.6 | 0.0 | 50.6 |
| Total | Lumens | 13677.8 | 0.0 | 13677.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 135.9 | 1.0 |
| 10°-20° | 459.1 | 3.4 |
| 20°-30° | 900.7 | 6.6 |
| 30°-40° | 1534.4 | 11.2 |
| 40°-50° | 2464.0 | 18.0 |
| 50°-60° | 3348.1 | 24.5 |
| 60°-70° | 3202.7 | 23.4 |
| 70°-80° | 1522.7 | 11.1 |
| 80°-90° | 110.3 | 0.8 |
| 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° | 13677.8 | 100.0 |
| 0°-180° | 13677.8 | 100.0 |

Coefficient of Utilization



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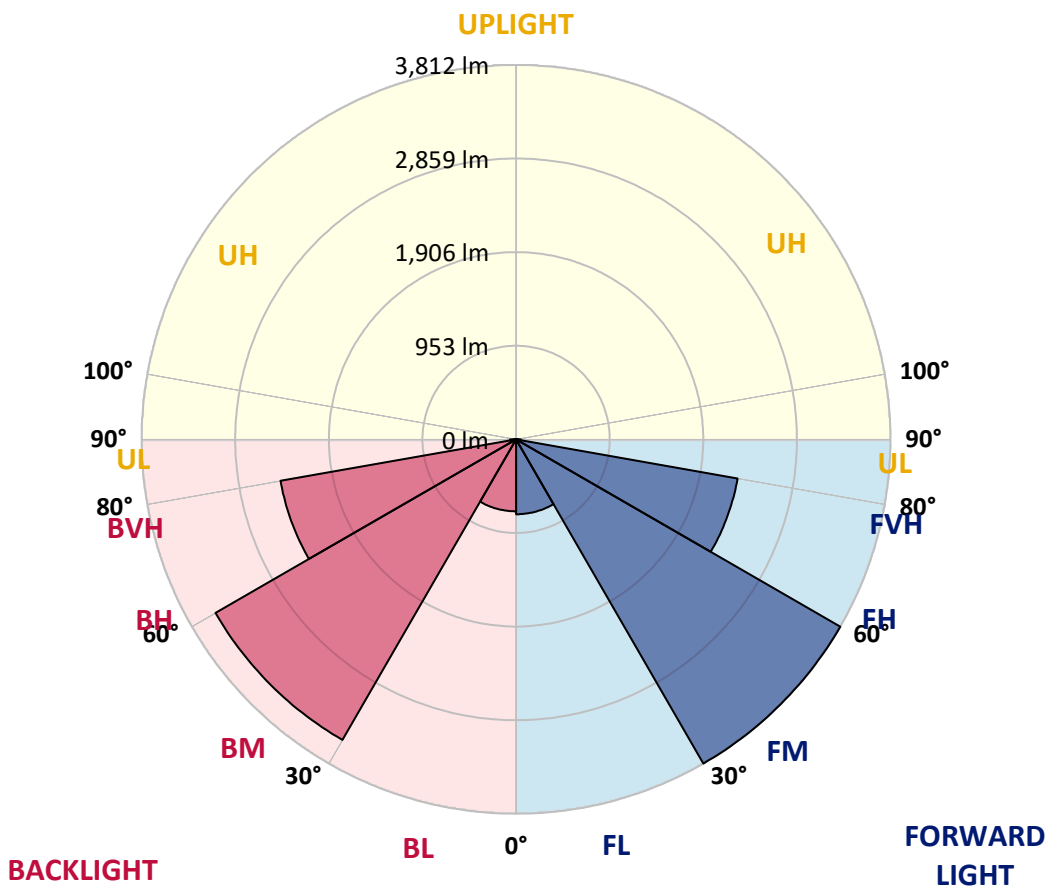
CATALOG NUMBER: GWS-SA2E-730-U-RW-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|---------------------------------------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 762.6 | 5.6 | | | |
| FM (30°-60°) | 3812.1 | 27.9 | | | |
| FH (60°-80°) | 2290.0 | 16.7 | | | G2/5000 |
| FVH (80°-90°) | 49.6 | 0.4 | | | G1/100 |
| BL (0°-30°) | 733.0 | 5.4 | B2/1000 | | |
| BM (30°-60°) | 3534.4 | 25.8 | B3/5000 | | |
| BH (60°-80°) | 2435.3 | 17.8 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 60.7 | 0.4 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 <td></td> <td>U0/0</td> <td></td> | | U0/0 | |

BUG Rating: B3-U0-G3

Type III Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 67° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 |
| 2.5° | 1356.4 | 1358.3 | 1361.1 | 1366.9 | 1372.6 | 1381.1 | 1389.7 | 1388.8 | 1392.6 | 1395.4 | 1398.3 |
| 5° | 1348.8 | 1350.7 | 1355.4 | 1363.0 | 1371.6 | 1385.9 | 1404.0 | 1411.6 | 1417.3 | 1427.8 | 1437.3 |
| 7.5° | 1365.0 | 1368.8 | 1375.4 | 1385.9 | 1399.2 | 1417.3 | 1442.1 | 1455.4 | 1464.0 | 1483.1 | 1499.3 |
| 10° | 1386.9 | 1391.6 | 1405.0 | 1425.0 | 1445.0 | 1472.6 | 1504.0 | 1524.0 | 1529.7 | 1554.5 | 1585.0 |
| 12.5° | 1407.8 | 1413.5 | 1435.4 | 1471.6 | 1507.8 | 1545.0 | 1582.1 | 1606.9 | 1608.8 | 1642.1 | 1676.4 |
| 15° | 1441.2 | 1445.9 | 1475.4 | 1522.1 | 1577.4 | 1628.8 | 1674.5 | 1691.7 | 1699.3 | 1723.1 | 1766.0 |
| 17.5° | 1514.5 | 1520.2 | 1558.3 | 1608.8 | 1666.9 | 1721.2 | 1766.9 | 1781.2 | 1781.2 | 1801.2 | 1836.4 |
| 20° | 1593.6 | 1599.3 | 1649.8 | 1714.5 | 1785.0 | 1840.3 | 1875.5 | 1862.2 | 1857.4 | 1863.1 | 1887.9 |
| 22.5° | 1682.1 | 1692.6 | 1741.2 | 1816.4 | 1903.1 | 1970.7 | 1988.8 | 1948.8 | 1935.5 | 1922.2 | 1927.9 |
| 25° | 1795.5 | 1807.9 | 1855.5 | 1935.5 | 2020.3 | 2091.7 | 2102.2 | 2040.3 | 2032.7 | 1986.0 | 1968.8 |
| 27.5° | 1926.0 | 1935.5 | 1994.6 | 2073.6 | 2152.7 | 2212.7 | 2224.1 | 2147.9 | 2122.2 | 2057.4 | 2017.4 |
| 30° | 2094.6 | 2103.1 | 2154.6 | 2232.7 | 2301.3 | 2343.2 | 2357.5 | 2252.7 | 2232.7 | 2133.6 | 2071.7 |
| 32.5° | 2278.4 | 2282.2 | 2334.6 | 2409.9 | 2470.8 | 2510.8 | 2490.8 | 2368.9 | 2339.4 | 2227.9 | 2143.2 |
| 35° | 2488.9 | 2488.9 | 2556.5 | 2617.5 | 2666.1 | 2677.5 | 2639.4 | 2500.3 | 2466.1 | 2345.1 | 2239.4 |
| 37.5° | 2695.6 | 2701.3 | 2764.2 | 2836.6 | 2879.4 | 2877.5 | 2808.0 | 2655.6 | 2616.6 | 2485.1 | 2367.9 |
| 40° | 2919.5 | 2931.8 | 2994.7 | 3075.7 | 3116.6 | 3110.9 | 3004.2 | 2834.7 | 2794.7 | 2639.4 | 2525.1 |
| 42.5° | 3125.2 | 3145.2 | 3218.5 | 3301.4 | 3346.2 | 3342.4 | 3230.9 | 3040.4 | 3001.4 | 2826.1 | 2711.8 |
| 45° | 3289.0 | 3310.0 | 3401.4 | 3516.7 | 3588.1 | 3581.4 | 3469.1 | 3253.8 | 3206.2 | 3022.3 | 2896.6 |
| 47.5° | 3432.9 | 3454.8 | 3556.7 | 3678.6 | 3792.0 | 3803.4 | 3700.5 | 3469.1 | 3418.6 | 3232.8 | 3090.9 |
| 50° | 3543.3 | 3553.8 | 3668.1 | 3801.5 | 3932.9 | 3996.7 | 3907.2 | 3685.3 | 3624.3 | 3440.5 | 3280.5 |
| 52.5° | 3534.8 | 3549.1 | 3690.0 | 3871.0 | 4047.2 | 4152.0 | 4090.1 | 3889.1 | 3830.1 | 3630.0 | 3473.8 |
| 55° | 3360.5 | 3374.8 | 3542.4 | 3806.2 | 4111.0 | 4265.4 | 4258.7 | 4083.4 | 4040.6 | 3823.4 | 3674.8 |
| 57.5° | 3106.1 | 3137.6 | 3304.3 | 3589.1 | 4027.2 | 4355.8 | 4382.5 | 4260.6 | 4215.8 | 4012.9 | 3873.9 |
| 60° | 2650.8 | 2692.8 | 2885.2 | 3254.7 | 3758.6 | 4325.4 | 4514.9 | 4410.1 | 4382.5 | 4189.2 | 4053.9 |
| 62.5° | 1926.0 | 1956.5 | 2212.7 | 2697.5 | 3360.5 | 4108.2 | 4626.4 | 4564.4 | 4543.5 | 4347.3 | 4216.8 |
| 65° | 1153.5 | 1223.0 | 1428.8 | 1907.9 | 2710.9 | 3698.6 | 4565.4 | 4766.4 | 4744.5 | 4510.1 | 4355.8 |
| 67.5° | 583.9 | 615.3 | 696.3 | 1034.4 | 1823.1 | 3060.4 | 4259.6 | 4892.1 | 4918.8 | 4649.2 | 4405.4 |
| 70° | 362.0 | 370.5 | 393.4 | 510.5 | 910.6 | 2010.8 | 3483.3 | 4564.4 | 4694.9 | 4627.3 | 4276.8 |
| 72.5° | 290.5 | 292.4 | 296.2 | 318.1 | 437.2 | 940.1 | 2202.2 | 3574.8 | 3810.1 | 4321.6 | 4092.9 |
| 75° | 241.0 | 241.9 | 242.9 | 249.6 | 272.4 | 383.9 | 1071.6 | 2456.5 | 2731.8 | 3672.9 | 3794.8 |
| 77.5° | 193.4 | 188.6 | 192.4 | 195.3 | 201.0 | 214.3 | 369.6 | 1310.7 | 1589.7 | 2410.8 | 2934.7 |
| 80° | 125.7 | 123.8 | 131.4 | 134.3 | 140.0 | 148.6 | 197.2 | 444.8 | 540.1 | 877.3 | 933.5 |
| 82.5° | 67.6 | 63.8 | 80.0 | 77.2 | 80.0 | 86.7 | 116.2 | 162.9 | 182.9 | 264.8 | 223.8 |
| 85° | 21.0 | 21.0 | 21.9 | 25.7 | 31.4 | 30.5 | 50.5 | 80.0 | 88.6 | 113.3 | 83.8 |
| 87.5° | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 | 4.8 | 10.5 | 16.2 | 21.9 | 39.1 | 29.5 |
| 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: P633188
 CATALOG NUMBER: GWS-SA2E-730-U-RW-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 | 1385.0 |
| 2.5° | 1404.0 | 1395.4 | 1400.2 | 1403.1 | 1402.1 | 1400.2 | 1390.7 | 1388.8 | 1384.0 | 1376.4 | 1374.5 |
| 5° | 1445.9 | 1436.4 | 1437.3 | 1434.5 | 1425.0 | 1412.6 | 1391.6 | 1381.1 | 1372.6 | 1363.0 | 1362.1 |
| 7.5° | 1511.6 | 1501.2 | 1498.3 | 1485.0 | 1458.3 | 1429.7 | 1396.4 | 1377.3 | 1363.0 | 1350.7 | 1348.8 |
| 10° | 1595.5 | 1585.0 | 1575.5 | 1544.0 | 1500.2 | 1462.1 | 1418.3 | 1390.7 | 1369.7 | 1354.5 | 1351.6 |
| 12.5° | 1688.8 | 1680.2 | 1656.4 | 1610.7 | 1558.3 | 1513.5 | 1468.8 | 1434.5 | 1404.0 | 1381.1 | 1378.3 |
| 15° | 1792.6 | 1773.6 | 1737.4 | 1678.3 | 1628.8 | 1592.6 | 1538.3 | 1491.6 | 1443.1 | 1412.6 | 1405.9 |
| 17.5° | 1865.0 | 1848.8 | 1806.0 | 1748.8 | 1709.8 | 1678.3 | 1614.5 | 1547.8 | 1482.1 | 1437.3 | 1427.8 |
| 20° | 1916.5 | 1899.3 | 1850.7 | 1808.8 | 1796.4 | 1769.8 | 1695.5 | 1618.3 | 1542.1 | 1486.9 | 1474.5 |
| 22.5° | 1953.6 | 1935.5 | 1886.0 | 1865.0 | 1882.2 | 1877.4 | 1805.0 | 1717.4 | 1626.9 | 1561.2 | 1545.9 |
| 25° | 1988.8 | 1971.7 | 1927.9 | 1935.5 | 1981.2 | 1995.5 | 1917.4 | 1815.5 | 1712.6 | 1635.5 | 1617.4 |
| 27.5° | 2022.2 | 2000.3 | 1980.3 | 2022.2 | 2087.0 | 2113.6 | 2030.8 | 1915.5 | 1804.1 | 1725.0 | 1710.7 |
| 30° | 2073.6 | 2047.9 | 2045.0 | 2106.0 | 2208.9 | 2231.7 | 2140.3 | 2025.0 | 1914.6 | 1834.5 | 1816.4 |
| 32.5° | 2138.4 | 2114.6 | 2116.5 | 2207.9 | 2327.0 | 2346.0 | 2267.9 | 2160.3 | 2049.8 | 1969.8 | 1945.0 |
| 35° | 2226.0 | 2196.5 | 2212.7 | 2325.1 | 2445.1 | 2480.3 | 2417.5 | 2327.9 | 2220.3 | 2138.4 | 2110.8 |
| 37.5° | 2347.0 | 2304.1 | 2337.5 | 2455.6 | 2576.5 | 2628.9 | 2580.4 | 2513.7 | 2407.0 | 2324.1 | 2298.4 |
| 40° | 2501.3 | 2466.1 | 2479.4 | 2609.9 | 2734.7 | 2797.5 | 2767.0 | 2701.3 | 2595.6 | 2508.9 | 2479.4 |
| 42.5° | 2684.2 | 2648.9 | 2644.2 | 2783.2 | 2908.0 | 3003.3 | 2973.7 | 2913.7 | 2804.2 | 2705.1 | 2676.6 |
| 45° | 2863.3 | 2830.9 | 2837.5 | 2979.5 | 3119.5 | 3223.3 | 3193.8 | 3123.3 | 3004.2 | 2889.9 | 2867.1 |
| 47.5° | 3049.9 | 3023.3 | 3029.0 | 3179.5 | 3333.8 | 3437.6 | 3400.5 | 3314.7 | 3175.7 | 3053.8 | 3026.1 |
| 50° | 3241.4 | 3210.9 | 3219.5 | 3377.6 | 3544.3 | 3642.4 | 3585.3 | 3458.6 | 3305.2 | 3186.2 | 3162.3 |
| 52.5° | 3431.9 | 3395.7 | 3417.6 | 3567.2 | 3739.6 | 3817.7 | 3711.9 | 3558.6 | 3410.0 | 3291.9 | 3265.2 |
| 55° | 3651.0 | 3612.9 | 3589.1 | 3749.1 | 3919.6 | 3952.0 | 3807.2 | 3628.1 | 3451.9 | 3317.6 | 3301.4 |
| 57.5° | 3851.0 | 3818.6 | 3773.9 | 3933.9 | 4059.6 | 4035.8 | 3880.5 | 3609.1 | 3350.0 | 3177.6 | 3154.7 |
| 60° | 4030.1 | 4002.5 | 3963.4 | 4099.6 | 4156.8 | 4103.4 | 3821.5 | 3383.3 | 3098.5 | 2918.5 | 2908.0 |
| 62.5° | 4194.9 | 4165.3 | 4129.1 | 4245.3 | 4237.7 | 4113.9 | 3552.9 | 3036.6 | 2655.6 | 2462.2 | 2445.1 |
| 65° | 4325.4 | 4298.7 | 4288.2 | 4379.7 | 4367.3 | 3909.1 | 3134.7 | 2468.9 | 1940.3 | 1722.1 | 1715.5 |
| 67.5° | 4362.5 | 4352.0 | 4408.2 | 4563.5 | 4370.1 | 3497.6 | 2458.4 | 1637.4 | 1042.0 | 835.4 | 823.0 |
| 70° | 4223.4 | 4222.5 | 4383.5 | 4605.4 | 3973.9 | 2671.8 | 1450.7 | 738.2 | 523.9 | 464.8 | 457.2 |
| 72.5° | 4042.5 | 4039.6 | 4167.2 | 3972.9 | 2947.1 | 1462.1 | 610.6 | 395.3 | 327.7 | 311.5 | 311.5 |
| 75° | 3745.3 | 3737.7 | 3833.9 | 3022.3 | 1657.4 | 550.6 | 323.9 | 271.5 | 257.2 | 254.3 | 254.3 |
| 77.5° | 3052.8 | 2989.0 | 2837.5 | 1867.9 | 578.2 | 270.5 | 214.3 | 213.4 | 204.8 | 203.8 | 203.8 |
| 80° | 1003.9 | 1003.9 | 1166.8 | 712.5 | 255.3 | 166.7 | 151.4 | 159.1 | 150.5 | 144.8 | 143.8 |
| 82.5° | 163.8 | 225.7 | 321.0 | 203.8 | 138.1 | 103.8 | 93.3 | 99.1 | 103.8 | 82.9 | 82.9 |
| 85° | 64.8 | 84.8 | 123.8 | 95.3 | 63.8 | 41.9 | 44.8 | 49.5 | 43.8 | 38.1 | 37.1 |
| 87.5° | 24.8 | 30.5 | 43.8 | 22.9 | 13.3 | 7.6 | 4.8 | 4.8 | 3.8 | 3.8 | 3.8 |
| 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: SP1-1908-441-2-R4

Test Date: 10/03/2019

Luminaire Tested: SA1C-730-U-5WQ

Data in this report applies to families of products SA1C-730-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-2-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-730-U-5WQ**
 Description: McGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-2-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. (1) 70 CRI, 3000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

| | | | | | |
|---------------------------|--------|-----------|------|------|-------|
| CCT (K): | 2993 | CRI (Ra): | 71.8 | R9: | -38.3 |
| CIE u': | 0.2508 | R1: | 67.5 | R10: | 62.5 |
| CIE v': | 0.5215 | R2: | 82.9 | R11: | 63.7 |
| Duv: | 0.0000 | R3: | 94.7 | R12: | 57.8 |
| CIE x: | 0.4374 | R4: | 67.7 | R13: | 70.4 |
| CIE y: | 0.4043 | R5: | 67.9 | R14: | 97.3 |
| CIE z: | 0.1583 | R6: | 77.6 | | |
| Peak Wavelength (nm): | 593 | R7: | 76.0 | | |
| Dominant Wavelength (nm): | 582 | R8: | 40.5 | | |
| Purity: | 53 | | | | |
| Rf: | 75.7 | | | | |
| Rg: | 93.9 | | | | |



Test Conditions

Stabilization Time: 53M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

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| 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 3000K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-2-R4

Photopic Flux vs. Wavelength



#####

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 8494.8

S/P: 1.23

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

REPORT NUMBER: SP1-1908-441-2-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 3101.5 M/P: 0.45

| 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 | 2397 | NR | 490 | 24908 | NR | 620 | 118784 | NR | 750 | 5037 | NR | 880 | 2677 | NR |
| 365 | 2084 | NR | 495 | 30998 | NR | 625 | 108951 | NR | 755 | 4413 | NR | 885 | 2940 | NR |
| 370 | 2143 | NR | 500 | 37103 | NR | 630 | 99573 | NR | 760 | 4189 | NR | 890 | 3116 | NR |
| 375 | 2413 | NR | 505 | 42987 | NR | 635 | 90444 | NR | 765 | 3677 | NR | 895 | 3345 | NR |
| 380 | 2172 | NR | 510 | 48702 | NR | 640 | 80749 | NR | 770 | 3366 | NR | 900 | 2312 | NR |
| 385 | 1997 | NR | 515 | 53741 | NR | 645 | 71664 | NR | 775 | 3211 | NR | 905 | 2829 | NR |
| 390 | 1830 | NR | 520 | 57283 | NR | 650 | 63936 | NR | 780 | 2682 | NR | 910 | 2783 | NR |
| 395 | 1861 | NR | 525 | 61876 | NR | 655 | 56611 | NR | 785 | 2804 | NR | 915 | 2662 | NR |
| 400 | 1717 | NR | 530 | 65398 | NR | 660 | 49763 | NR | 790 | 2581 | NR | 920 | 3047 | NR |
| 405 | 1761 | NR | 535 | 69597 | NR | 665 | 42891 | NR | 795 | 2711 | NR | 925 | 2256 | NR |
| 410 | 2680 | NR | 540 | 74214 | NR | 670 | 36939 | NR | 800 | 2609 | NR | 930 | 2976 | NR |
| 415 | 4374 | NR | 545 | 79911 | NR | 675 | 31946 | NR | 805 | 2581 | NR | 935 | 3503 | NR |
| 420 | 8071 | NR | 550 | 86153 | NR | 680 | 27385 | NR | 810 | 2404 | NR | 940 | 4226 | NR |
| 425 | 15169 | NR | 555 | 93952 | NR | 685 | 23504 | NR | 815 | 2556 | NR | 945 | 2930 | NR |
| 430 | 26038 | NR | 560 | 102904 | NR | 690 | 20210 | NR | 820 | 2742 | NR | 950 | 2115 | NR |
| 435 | 41316 | NR | 565 | 112009 | NR | 695 | 17459 | NR | 825 | 2014 | NR | 955 | 2634 | NR |
| 440 | 59674 | NR | 570 | 121662 | NR | 700 | 15207 | NR | 830 | 2488 | NR | 960 | 4200 | NR |
| 445 | 72751 | NR | 575 | 130476 | NR | 705 | 13322 | NR | 835 | 2625 | NR | 965 | 1982 | NR |
| 450 | 65091 | NR | 580 | 137926 | NR | 710 | 11676 | NR | 840 | 2754 | NR | 970 | 3613 | NR |
| 455 | 44894 | NR | 585 | 143406 | NR | 715 | 10626 | NR | 845 | 2708 | NR | 975 | 4034 | NR |
| 460 | 32712 | NR | 590 | 147039 | NR | 720 | 9416 | NR | 850 | 2608 | NR | 980 | 3922 | NR |
| 465 | 25296 | NR | 595 | 147365 | NR | 725 | 8333 | NR | 855 | 2605 | NR | 985 | 1909 | NR |
| 470 | 19318 | NR | 600 | 145800 | NR | 730 | 7134 | NR | 860 | 1765 | NR | 990 | 3617 | NR |
| 475 | 17265 | NR | 605 | 141363 | NR | 735 | 6437 | NR | 865 | 2581 | NR | 995 | 4767 | NR |
| 480 | 18260 | NR | 610 | 134199 | NR | 740 | 5834 | NR | 870 | 3016 | NR | 1000 | 2528 | NR |
| 485 | 20845 | NR | 615 | 127683 | NR | 745 | 5500 | NR | 875 | 3952 | NR | | | |

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Summary

$R_f = 75.7$
 $R_g = 93.9$
 CIE $R_a = 71.8$
 $R_9 = -38.3$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 67 | CES51 = 87 | CES76 = 63 |
| CES02 = 63 | CES27 = 88 | CES52 = 86 | CES77 = 80 |
| CES03 = 31 | CES28 = 87 | CES53 = 78 | CES78 = 67 |
| CES04 = 71 | CES29 = 66 | CES54 = 84 | CES79 = 87 |
| CES05 = 49 | CES30 = 73 | CES55 = 84 | CES80 = 86 |
| CES06 = 51 | CES31 = 70 | CES56 = 75 | CES81 = 71 |
| CES07 = 41 | CES32 = 65 | CES57 = 74 | CES82 = 94 |
| CES08 = 40 | CES33 = 73 | CES58 = 76 | CES83 = 90 |
| CES09 = 29 | CES34 = 79 | CES59 = 85 | CES84 = 89 |
| CES10 = 76 | CES35 = 89 | CES60 = 93 | CES85 = 77 |
| CES11 = 59 | CES36 = 97 | CES61 = 84 | CES86 = 61 |
| CES12 = 65 | CES37 = 87 | CES62 = 91 | CES87 = 78 |
| CES13 = 43 | CES38 = 81 | CES63 = 77 | CES88 = 77 |
| CES14 = 74 | CES39 = 95 | CES64 = 72 | CES89 = 67 |
| CES15 = 71 | CES40 = 92 | CES65 = 68 | CES90 = 76 |
| CES16 = 47 | CES41 = 88 | CES66 = 69 | CES91 = 89 |
| CES17 = 50 | CES42 = 89 | CES67 = 67 | CES92 = 58 |
| CES18 = 56 | CES43 = 79 | CES68 = 72 | CES93 = 74 |
| CES19 = 73 | CES44 = 99 | CES69 = 81 | CES94 = 49 |
| CES20 = 66 | CES45 = 85 | CES70 = 66 | CES95 = 68 |
| CES21 = 87 | CES46 = 80 | CES71 = 67 | CES96 = 76 |
| CES22 = 79 | CES47 = 82 | CES72 = 88 | CES97 = 82 |
| CES23 = 92 | CES48 = 69 | CES73 = 59 | CES98 = 75 |
| CES24 = 91 | CES49 = 80 | CES74 = 95 | CES99 = 62 |
| CES25 = 73 | CES50 = 87 | CES75 = 69 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)