

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: P636843

Luminaire Tested: GWS-SA4B-750-U-T2R-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P636843
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-13)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA4B-750-U-T2R-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (4) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (64) 5000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13030.8 lumens
Efficiency: N/A
Efficacy: 138.0 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - U0 - G2

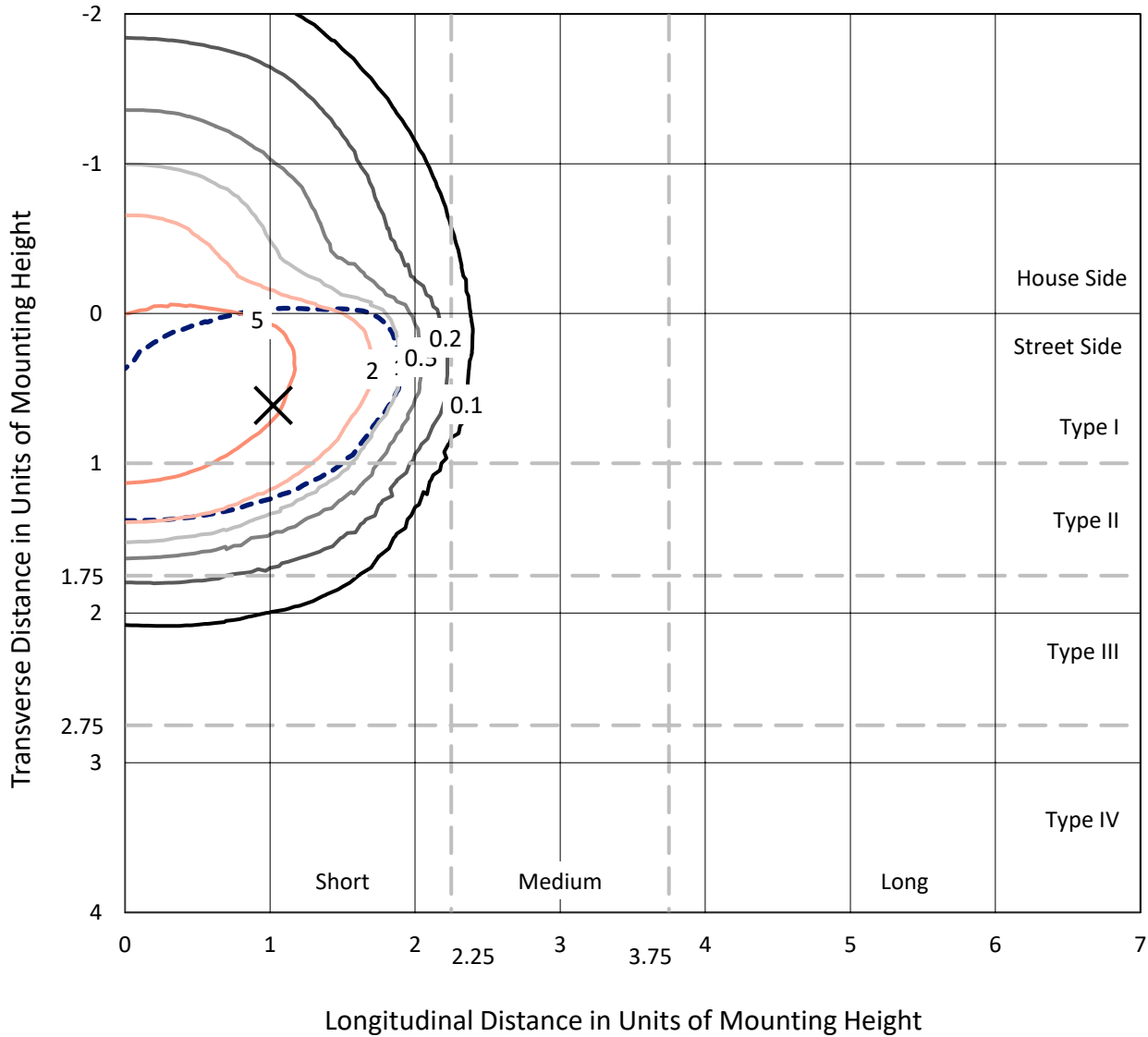
Input Watts (W): 94.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P636843
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Iso-Footcandle Lines of Horizontal Illumination

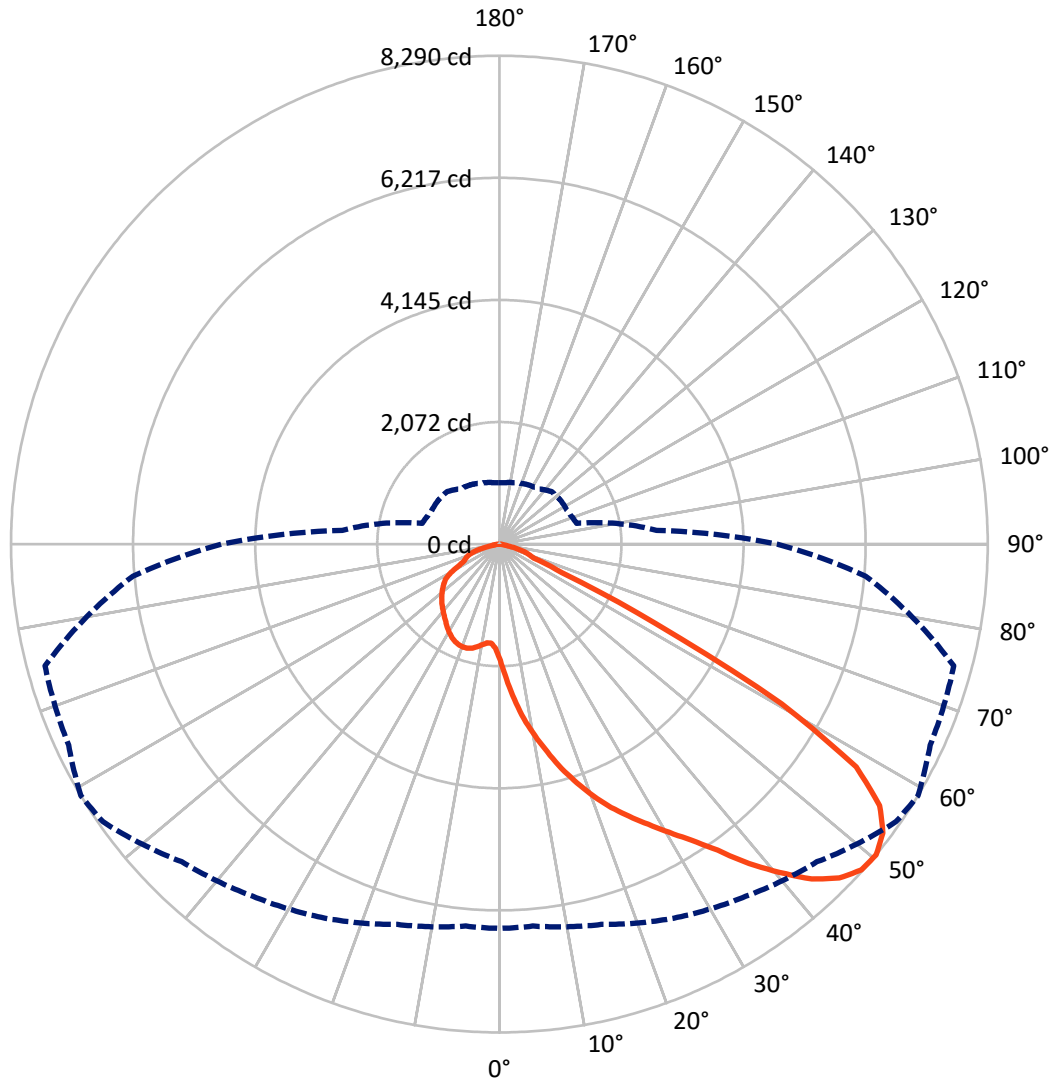
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 9.8 fc
 Type II - Short - N/A

REPORT NUMBER: P636843
CATALOG NUMBER: GWS-SA4B-750-U-T2R-W-GRSWH

Luminous Intensity Polar Plot



— Vertical Plane Through 59-Deg Lateral - - - Horizontal Cone Through 50-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2997.3 | 0.0 | 2997.3 |
| | % Fixture | 23.0 | 0.0 | 23.0 |
| Street Side | Lumens | 10033.5 | 0.0 | 10033.5 |
| | % Fixture | 77.0 | 0.0 | 77.0 |
| Total | Lumens | 13030.8 | 0.0 | 13030.8 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 221.5 | 1.7 |
| 10°-20° | 804.0 | 6.2 |
| 20°-30° | 1522.4 | 11.7 |
| 30°-40° | 2524.7 | 19.4 |
| 40°-50° | 3448.9 | 26.5 |
| 50°-60° | 3130.7 | 24.0 |
| 60°-70° | 1042.6 | 8.0 |
| 70°-80° | 304.1 | 2.3 |
| 80°-90° | 31.9 | 0.2 |
| 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° | 13030.8 | 100.0 |
| 0°-180° | 13030.8 | 100.0 |

Coefficient of Utilization



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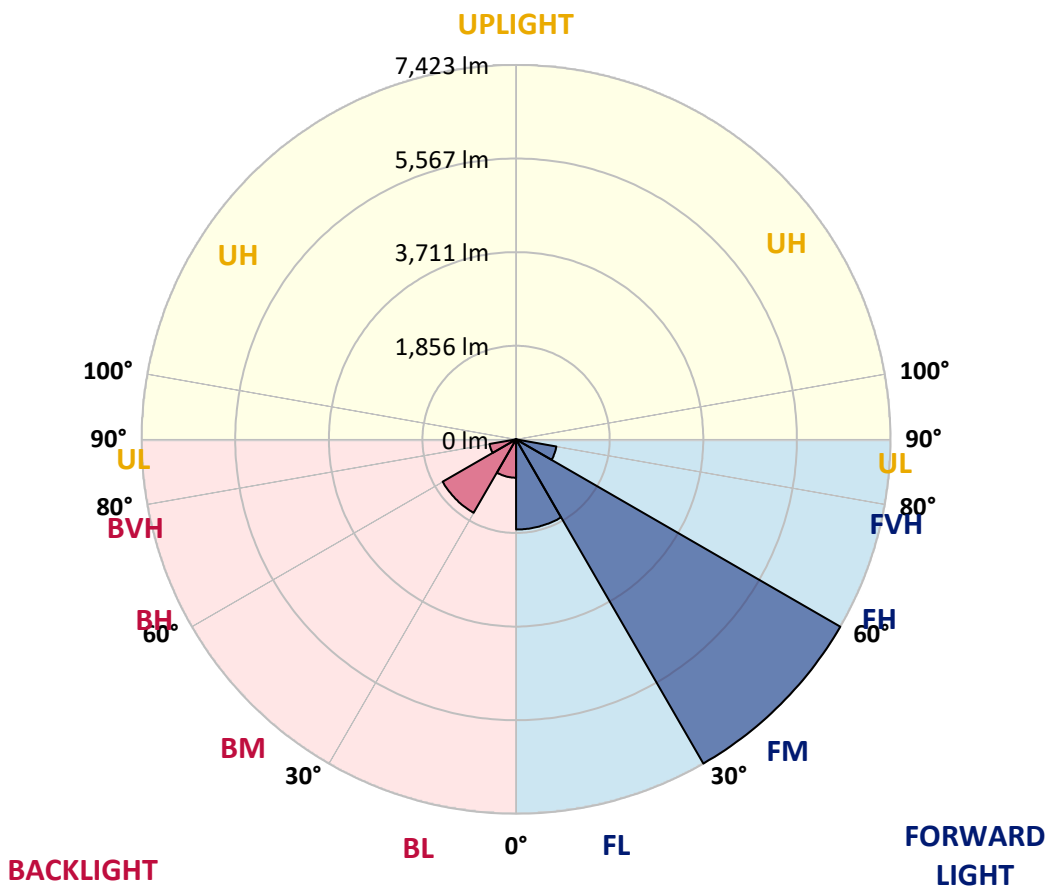
CATALOG NUMBER: GWS-SA4B-750-U-T2R-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1786.8 | 13.7 | | | |
| FM (30°-60°) | 7422.5 | 57.0 | | | |
| FH (60°-80°) | 811.6 | 6.2 | | | G1/1800 |
| FVH (80°-90°) | 12.5 | 0.1 | | | G1/100 |
| BL (0°-30°) | 761.1 | 5.8 | B2/1000 | | |
| BM (30°-60°) | 1681.8 | 12.9 | B2/2500 | | |
| BH (60°-80°) | 535.0 | 4.1 | B2/1000 | | G2/1000 |
| BVH (80°-90°) | 19.5 | 0.1 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G2

Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 59° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 |
| 2.5° | 2558.0 | 2577.2 | 2547.4 | 2549.6 | 2475.3 | 2441.3 | 2345.8 | 2289.5 | 2252.4 | 2148.3 | 2053.9 |
| 5° | 3073.9 | 3051.6 | 3028.3 | 3014.5 | 2949.7 | 2858.4 | 2739.5 | 2645.1 | 2558.0 | 2354.3 | 2157.9 |
| 7.5° | 3390.2 | 3378.5 | 3362.6 | 3354.1 | 3290.4 | 3194.9 | 3076.0 | 2995.4 | 2869.0 | 2593.1 | 2284.2 |
| 10° | 3658.7 | 3644.9 | 3635.4 | 3641.8 | 3589.8 | 3528.2 | 3398.7 | 3306.4 | 3164.1 | 2845.7 | 2437.0 |
| 12.5° | 3866.8 | 3874.2 | 3877.4 | 3911.4 | 3889.1 | 3851.9 | 3718.2 | 3620.5 | 3462.4 | 3112.1 | 2616.4 |
| 15° | 4031.3 | 4029.2 | 4066.3 | 4131.1 | 4167.2 | 4143.8 | 4036.6 | 3954.9 | 3761.7 | 3374.3 | 2809.6 |
| 17.5° | 4069.5 | 4071.6 | 4130.0 | 4243.6 | 4361.4 | 4418.7 | 4358.2 | 4260.6 | 4069.5 | 3633.3 | 3010.2 |
| 20° | 4100.3 | 4104.5 | 4165.0 | 4294.5 | 4466.5 | 4626.8 | 4636.3 | 4566.3 | 4401.7 | 3913.5 | 3214.0 |
| 22.5° | 4294.5 | 4304.1 | 4320.0 | 4401.7 | 4556.7 | 4759.4 | 4870.9 | 4856.0 | 4718.1 | 4207.5 | 3433.7 |
| 25° | 4805.1 | 4776.4 | 4698.9 | 4675.6 | 4735.0 | 4899.6 | 5089.6 | 5118.2 | 5050.3 | 4531.2 | 3670.4 |
| 27.5° | 5435.6 | 5404.8 | 5290.2 | 5169.2 | 5040.7 | 5098.0 | 5300.8 | 5386.8 | 5387.8 | 4887.9 | 3908.2 |
| 30° | 6007.7 | 5983.3 | 5889.9 | 5716.9 | 5495.0 | 5412.2 | 5561.9 | 5677.6 | 5746.6 | 5299.7 | 4178.8 |
| 32.5° | 6497.0 | 6474.7 | 6348.4 | 6207.2 | 5990.7 | 5824.1 | 5878.2 | 5989.6 | 6151.0 | 5832.6 | 4515.3 |
| 35° | 6908.8 | 6886.6 | 6765.5 | 6623.3 | 6422.7 | 6322.9 | 6303.8 | 6380.3 | 6589.4 | 6388.7 | 4901.7 |
| 37.5° | 7243.2 | 7220.9 | 7094.6 | 6960.9 | 6808.0 | 6814.4 | 6843.0 | 6880.2 | 7000.1 | 6984.2 | 5314.6 |
| 40° | 7459.7 | 7436.4 | 7346.2 | 7250.6 | 7154.0 | 7230.5 | 7372.7 | 7328.1 | 7391.8 | 7465.0 | 5694.6 |
| 42.5° | 7556.3 | 7526.6 | 7474.6 | 7453.4 | 7423.6 | 7542.5 | 7816.4 | 7771.8 | 7695.4 | 7785.6 | 5976.9 |
| 45° | 7459.7 | 7434.3 | 7433.2 | 7497.9 | 7566.9 | 7719.8 | 8123.1 | 8087.0 | 7893.8 | 7940.6 | 6145.7 |
| 47.5° | 7163.6 | 7141.3 | 7201.8 | 7371.6 | 7541.5 | 7764.4 | 8260.0 | 8266.4 | 8035.0 | 8005.3 | 6255.0 |
| 50° | 6523.5 | 6508.7 | 6683.8 | 7005.4 | 7298.4 | 7625.3 | 8216.5 | 8289.8 | 8069.0 | 7985.1 | 6241.2 |
| 52.5° | 5222.2 | 5291.2 | 5672.3 | 6209.4 | 6778.3 | 7381.2 | 8055.2 | 8150.7 | 7905.5 | 7852.5 | 6166.9 |
| 55° | 3574.9 | 3606.7 | 3987.8 | 4772.2 | 5674.4 | 6852.6 | 7684.7 | 7832.3 | 7712.3 | 7830.2 | 6244.4 |
| 57.5° | 1851.1 | 1876.6 | 2177.0 | 2873.3 | 3848.7 | 5415.4 | 6656.2 | 7140.2 | 7322.8 | 7942.7 | 6485.3 |
| 60° | 760.0 | 781.2 | 905.4 | 1241.9 | 1941.4 | 3153.5 | 4790.2 | 5507.8 | 5936.6 | 7253.8 | 5759.3 |
| 62.5° | 551.9 | 562.6 | 622.0 | 740.9 | 1016.8 | 1545.4 | 2710.9 | 2975.2 | 3276.6 | 4546.1 | 3656.6 |
| 65° | 464.9 | 476.6 | 524.3 | 596.5 | 741.9 | 947.9 | 1158.0 | 1164.4 | 1283.3 | 1852.2 | 1355.4 |
| 67.5° | 389.5 | 400.2 | 442.6 | 504.2 | 599.7 | 672.9 | 622.0 | 623.1 | 620.9 | 671.9 | 649.6 |
| 70° | 303.6 | 312.1 | 354.5 | 420.3 | 470.2 | 432.0 | 486.1 | 538.1 | 515.9 | 536.0 | 566.8 |
| 72.5° | 221.8 | 231.4 | 268.5 | 318.4 | 305.7 | 307.8 | 393.8 | 446.9 | 434.1 | 456.4 | 485.1 |
| 75° | 160.3 | 166.6 | 185.8 | 159.2 | 167.7 | 202.7 | 277.0 | 305.7 | 318.4 | 337.5 | 363.0 |
| 77.5° | 52.0 | 52.0 | 58.4 | 73.2 | 91.3 | 112.5 | 141.2 | 152.8 | 172.0 | 193.2 | 211.2 |
| 80° | 26.5 | 27.6 | 32.9 | 40.3 | 50.9 | 64.7 | 82.8 | 88.1 | 97.7 | 109.3 | 116.8 |
| 82.5° | 12.7 | 13.8 | 15.9 | 20.2 | 26.5 | 34.0 | 45.6 | 50.9 | 57.3 | 64.7 | 70.1 |
| 85° | 3.2 | 3.2 | 4.2 | 6.4 | 8.5 | 12.7 | 17.0 | 20.2 | 25.5 | 30.8 | 34.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.1 | 3.2 | 4.2 | 5.3 | 6.4 | 8.5 |
| 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: P636843

CATALOG NUMBER: GWS-SA4B-750-U-T2R-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 | 1974.3 |
| 2.5° | 2011.4 | 1952.0 | 1875.5 | 1810.8 | 1751.4 | 1705.7 | 1666.4 | 1647.3 | 1629.3 | 1616.6 | 1620.8 |
| 5° | 2066.6 | 1964.7 | 1822.5 | 1723.8 | 1663.3 | 1632.5 | 1611.2 | 1600.6 | 1598.5 | 1590.0 | 1586.8 |
| 7.5° | 2147.3 | 2001.9 | 1811.9 | 1712.1 | 1671.8 | 1655.8 | 1644.2 | 1637.8 | 1641.0 | 1632.5 | 1629.3 |
| 10° | 2247.0 | 2063.4 | 1838.4 | 1750.3 | 1715.3 | 1703.6 | 1690.9 | 1682.4 | 1678.1 | 1665.4 | 1663.3 |
| 12.5° | 2371.2 | 2139.8 | 1886.2 | 1799.1 | 1764.1 | 1743.9 | 1726.9 | 1712.1 | 1702.5 | 1686.6 | 1682.4 |
| 15° | 2505.0 | 2224.8 | 1942.4 | 1846.9 | 1805.5 | 1775.8 | 1748.2 | 1725.9 | 1708.9 | 1687.7 | 1684.5 |
| 17.5° | 2650.4 | 2313.9 | 1989.1 | 1879.8 | 1826.7 | 1787.4 | 1747.1 | 1714.2 | 1690.9 | 1663.3 | 1660.1 |
| 20° | 2802.2 | 2404.1 | 2024.1 | 1895.7 | 1827.8 | 1774.7 | 1720.6 | 1677.1 | 1647.3 | 1619.7 | 1617.6 |
| 22.5° | 2959.3 | 2486.9 | 2045.4 | 1891.5 | 1810.8 | 1745.0 | 1680.2 | 1631.4 | 1596.4 | 1563.5 | 1561.4 |
| 25° | 3117.4 | 2566.5 | 2050.7 | 1874.5 | 1776.8 | 1700.4 | 1635.7 | 1578.3 | 1539.1 | 1501.9 | 1497.7 |
| 27.5° | 3277.7 | 2633.4 | 2037.9 | 1840.5 | 1731.2 | 1648.4 | 1583.7 | 1527.4 | 1487.1 | 1449.9 | 1443.5 |
| 30° | 3448.6 | 2690.7 | 2010.3 | 1795.9 | 1678.1 | 1593.2 | 1529.5 | 1487.1 | 1448.9 | 1411.7 | 1405.3 |
| 32.5° | 3631.1 | 2740.6 | 1971.1 | 1741.8 | 1616.6 | 1538.0 | 1491.3 | 1453.1 | 1414.9 | 1382.0 | 1375.6 |
| 35° | 3848.7 | 2773.5 | 1912.7 | 1671.8 | 1559.2 | 1497.7 | 1465.8 | 1421.3 | 1374.6 | 1338.5 | 1335.3 |
| 37.5° | 4073.8 | 2799.0 | 1842.6 | 1604.9 | 1509.4 | 1474.3 | 1447.8 | 1387.3 | 1328.9 | 1285.4 | 1280.1 |
| 40° | 4291.4 | 2820.2 | 1755.6 | 1542.3 | 1463.7 | 1457.3 | 1421.3 | 1345.9 | 1245.1 | 1196.2 | 1192.0 |
| 42.5° | 4494.1 | 2826.6 | 1664.3 | 1475.4 | 1422.3 | 1419.1 | 1378.8 | 1262.0 | 1184.6 | 1153.8 | 1149.5 |
| 45° | 4633.1 | 2821.3 | 1569.9 | 1412.8 | 1380.9 | 1363.9 | 1321.5 | 1201.5 | 1153.8 | 1126.2 | 1120.9 |
| 47.5° | 4736.1 | 2793.7 | 1463.7 | 1347.0 | 1334.2 | 1310.9 | 1219.6 | 1163.3 | 1118.7 | 1091.1 | 1085.8 |
| 50° | 4718.1 | 2679.0 | 1356.5 | 1283.3 | 1278.0 | 1257.8 | 1145.3 | 1115.6 | 1076.3 | 1046.6 | 1042.3 |
| 52.5° | 4624.6 | 2461.5 | 1247.2 | 1213.2 | 1223.8 | 1184.6 | 1092.2 | 1058.2 | 1024.3 | 990.3 | 982.9 |
| 55° | 4648.0 | 2304.4 | 1164.4 | 1145.3 | 1164.4 | 1075.2 | 1032.8 | 996.7 | 964.8 | 931.9 | 925.6 |
| 57.5° | 4749.9 | 2149.4 | 1076.3 | 1072.0 | 1092.2 | 991.4 | 956.3 | 910.7 | 865.1 | 838.5 | 838.5 |
| 60° | 3988.9 | 1566.7 | 921.3 | 931.9 | 977.6 | 923.4 | 892.7 | 846.0 | 796.1 | 772.7 | 772.7 |
| 62.5° | 2358.5 | 982.9 | 764.2 | 752.6 | 781.2 | 815.2 | 832.2 | 793.9 | 734.5 | 703.7 | 704.8 |
| 65° | 1039.1 | 715.4 | 674.0 | 664.5 | 656.0 | 679.3 | 726.0 | 729.2 | 666.6 | 630.5 | 631.6 |
| 67.5° | 640.0 | 647.5 | 630.5 | 623.1 | 615.6 | 611.4 | 607.1 | 609.3 | 592.3 | 559.4 | 558.3 |
| 70° | 577.4 | 597.6 | 585.9 | 579.5 | 570.0 | 562.6 | 537.1 | 495.7 | 467.0 | 458.5 | 468.1 |
| 72.5° | 496.7 | 524.3 | 518.0 | 514.8 | 503.1 | 485.1 | 451.1 | 410.8 | 376.8 | 355.6 | 359.8 |
| 75° | 374.7 | 397.0 | 400.2 | 401.2 | 388.5 | 371.5 | 336.5 | 302.5 | 272.8 | 250.5 | 255.8 |
| 77.5° | 215.5 | 228.2 | 231.4 | 234.6 | 225.0 | 218.7 | 195.3 | 170.9 | 155.0 | 131.6 | 138.0 |
| 80° | 119.9 | 125.2 | 125.2 | 126.3 | 121.0 | 113.6 | 97.7 | 83.9 | 76.4 | 65.8 | 66.9 |
| 82.5° | 72.2 | 74.3 | 75.4 | 76.4 | 73.2 | 65.8 | 54.1 | 44.6 | 40.3 | 35.0 | 34.0 |
| 85° | 35.0 | 37.2 | 37.2 | 38.2 | 32.9 | 28.7 | 22.3 | 17.0 | 14.9 | 10.6 | 11.7 |
| 87.5° | 8.5 | 9.6 | 9.6 | 8.5 | 7.4 | 5.3 | 3.2 | 1.1 | 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: SP1-1908-441-4-R4

Test Date: 10/02/2019

Luminaire Tested: SA1C-750-U-5WQ

Data in this report applies to families of products SA1C-760-U-5WQ .

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-4-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-750-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): | 4884 | CRI (Ra): | 73.5 | R9: | -28.4 |
| CIE u': | 0.2101 | R1: | 70.5 | R10: | 48.6 |
| CIE v': | 0.4904 | R2: | 77.7 | R11: | 73.2 |
| Duv: | 0.0037 | R3: | 84.6 | R12: | 50.7 |
| CIE x: | 0.3493 | R4: | 74.7 | R13: | 71.2 |
| CIE y: | 0.3624 | R5: | 71.9 | R14: | 91.4 |
| CIE z: | 0.2884 | R6: | 70.7 | | |
| Peak Wavelength (nm): | 444 | R7: | 81.2 | | |
| Dominant Wavelength (nm): | 571 | R8: | 56.9 | | |
| Purity: | 13.7 | | | | |
| Rf: | 74.9 | | | | |
| Rg: | 96.3 | | | | |



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 25.0./44%
 Sphere Temperature (°C): 25.7

REPORT NUMBER: SP1-1908-441-4-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 5000K 4-step quadrangle

REPORT NUMBER: SP1-1908-441-4-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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13493.5 S/P: 1.77

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

REPORT NUMBER: SP1-1908-441-4-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5378.9 M/P: 0.71

| 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 | 2945 | NR | 490 | 37941 | NR | 620 | 88803 | NR | 750 | 3908 | NR | 880 | 2997 | NR |
| 365 | 2596 | NR | 495 | 48525 | NR | 625 | 80578 | NR | 755 | 3988 | NR | 885 | 2927 | NR |
| 370 | 2732 | NR | 500 | 60609 | NR | 630 | 73127 | NR | 760 | 3335 | NR | 890 | 2649 | NR |
| 375 | 2894 | NR | 505 | 72036 | NR | 635 | 66244 | NR | 765 | 3438 | NR | 895 | 2828 | NR |
| 380 | 2822 | NR | 510 | 82168 | NR | 640 | 59440 | NR | 770 | 3427 | NR | 900 | 1407 | NR |
| 385 | 2394 | NR | 515 | 90898 | NR | 645 | 52864 | NR | 775 | 2759 | NR | 905 | 2224 | NR |
| 390 | 2370 | NR | 520 | 97142 | NR | 650 | 47085 | NR | 780 | 2340 | NR | 910 | 2905 | NR |
| 395 | 2267 | NR | 525 | 103255 | NR | 655 | 41789 | NR | 785 | 2412 | NR | 915 | 3350 | NR |
| 400 | 2262 | NR | 530 | 106697 | NR | 660 | 37064 | NR | 790 | 1999 | NR | 920 | 3114 | NR |
| 405 | 3000 | NR | 535 | 110081 | NR | 665 | 32299 | NR | 795 | 2054 | NR | 925 | 2834 | NR |
| 410 | 5324 | NR | 540 | 112494 | NR | 670 | 28142 | NR | 800 | 2331 | NR | 930 | 2271 | NR |
| 415 | 10725 | NR | 545 | 115513 | NR | 675 | 24505 | NR | 805 | 2648 | NR | 935 | 2228 | NR |
| 420 | 22128 | NR | 550 | 117203 | NR | 680 | 21162 | NR | 810 | 2485 | NR | 940 | 2833 | NR |
| 425 | 44095 | NR | 555 | 119753 | NR | 685 | 18400 | NR | 815 | 2409 | NR | 945 | 2941 | NR |
| 430 | 77002 | NR | 560 | 122602 | NR | 690 | 16065 | NR | 820 | 2221 | NR | 950 | 2323 | NR |
| 435 | 119881 | NR | 565 | 124314 | NR | 695 | 13860 | NR | 825 | 1562 | NR | 955 | 1667 | NR |
| 440 | 164454 | NR | 570 | 126775 | NR | 700 | 12177 | NR | 830 | 2249 | NR | 960 | 749 | NR |
| 445 | 179997 | NR | 575 | 127511 | NR | 705 | 10757 | NR | 835 | 2573 | NR | 965 | 2669 | NR |
| 450 | 142822 | NR | 580 | 127577 | NR | 710 | 9601 | NR | 840 | 2764 | NR | 970 | 3968 | NR |
| 455 | 90008 | NR | 585 | 126153 | NR | 715 | 8944 | NR | 845 | 3109 | NR | 975 | 3886 | NR |
| 460 | 60557 | NR | 590 | 123678 | NR | 720 | 7947 | NR | 850 | 2963 | NR | 980 | 2788 | NR |
| 465 | 43305 | NR | 595 | 119774 | NR | 725 | 7062 | NR | 855 | 2336 | NR | 985 | 3496 | NR |
| 470 | 31089 | NR | 600 | 115733 | NR | 730 | 6004 | NR | 860 | 2118 | NR | 990 | 2913 | NR |
| 475 | 26278 | NR | 605 | 109231 | NR | 735 | 5594 | NR | 865 | 3144 | NR | 995 | 4659 | NR |
| 480 | 27060 | NR | 610 | 102408 | NR | 740 | 5165 | NR | 870 | 3069 | NR | 1000 | 1308 | NR |
| 485 | 30698 | NR | 615 | 96015 | NR | 745 | 4687 | NR | 875 | 3311 | NR | | | |

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TM-30-18

Summary

$R_f = 74.9$
 $R_g = 96.3$
 CIE $R_a = 73.5$
 $R_g = -28.4$



Color Vector Graphics



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

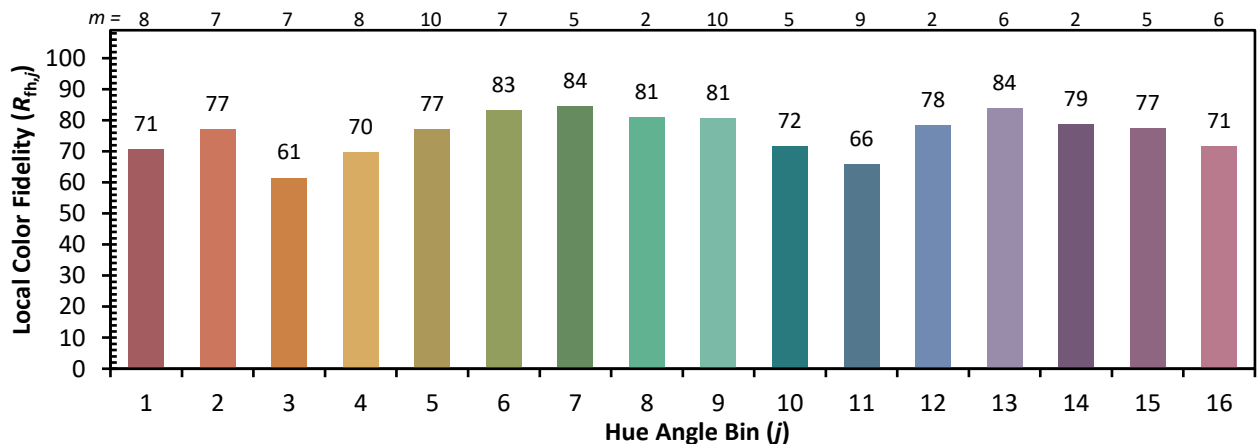
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 61 | CES51 = 90 | CES76 = 52 |
| CES02 = 60 | CES27 = 84 | CES52 = 91 | CES77 = 71 |
| CES03 = 30 | CES28 = 81 | CES53 = 79 | CES78 = 54 |
| CES04 = 69 | CES29 = 58 | CES54 = 83 | CES79 = 80 |
| CES05 = 46 | CES30 = 67 | CES55 = 83 | CES80 = 77 |
| CES06 = 50 | CES31 = 63 | CES56 = 73 | CES81 = 77 |
| CES07 = 39 | CES32 = 59 | CES57 = 72 | CES82 = 90 |
| CES08 = 38 | CES33 = 69 | CES58 = 73 | CES83 = 86 |
| CES09 = 29 | CES34 = 69 | CES59 = 88 | CES84 = 88 |
| CES10 = 73 | CES35 = 83 | CES60 = 93 | CES85 = 84 |
| CES11 = 56 | CES36 = 95 | CES61 = 88 | CES86 = 75 |
| CES12 = 61 | CES37 = 78 | CES62 = 85 | CES87 = 78 |
| CES13 = 41 | CES38 = 76 | CES63 = 77 | CES88 = 79 |
| CES14 = 74 | CES39 = 93 | CES64 = 74 | CES89 = 75 |
| CES15 = 70 | CES40 = 86 | CES65 = 67 | CES90 = 77 |
| CES16 = 46 | CES41 = 87 | CES66 = 69 | CES91 = 89 |
| CES17 = 49 | CES42 = 78 | CES67 = 67 | CES92 = 66 |
| CES18 = 55 | CES43 = 75 | CES68 = 73 | CES93 = 80 |
| CES19 = 71 | CES44 = 99 | CES69 = 81 | CES94 = 57 |
| CES20 = 64 | CES45 = 83 | CES70 = 63 | CES95 = 71 |
| CES21 = 85 | CES46 = 81 | CES71 = 60 | CES96 = 78 |
| CES22 = 77 | CES47 = 80 | CES72 = 86 | CES97 = 85 |
| CES23 = 91 | CES48 = 72 | CES73 = 53 | CES98 = 75 |
| CES24 = 90 | CES49 = 81 | CES74 = 96 | CES99 = 62 |
| CES25 = 71 | CES50 = 89 | CES75 = 58 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)