

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: P630910

Luminaire Tested: GWS-SA1E-750-U-T3R-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P630910
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-16)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1E-750-U-T3R-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III ROADWAY OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (16) 5000K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 4861.5 lumens
Efficiency: N/A
Efficacy: 83.2 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G0

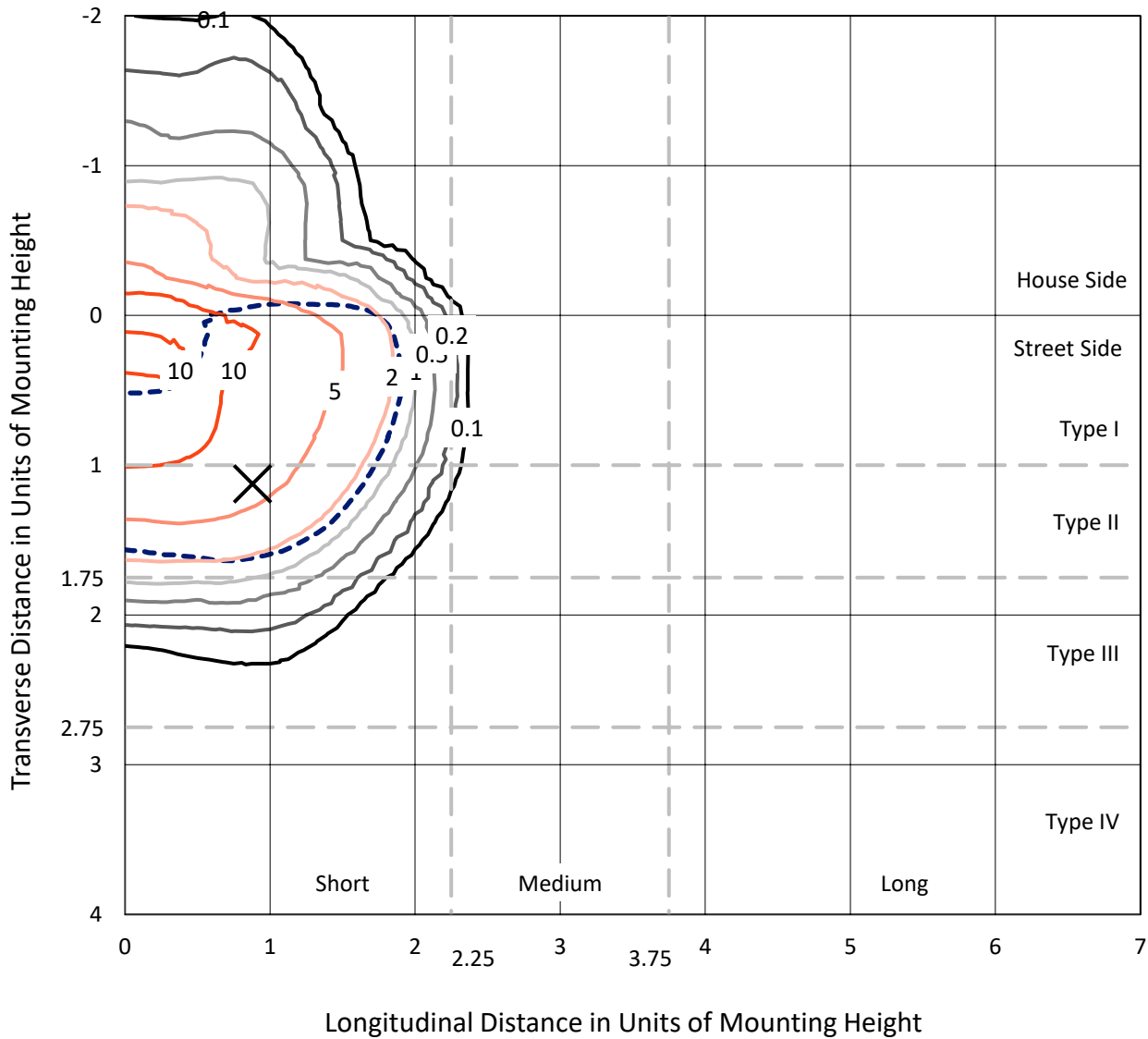
Input Watts (W): 58.4
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P630910
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Iso-Footcandle Lines of Horizontal Illumination

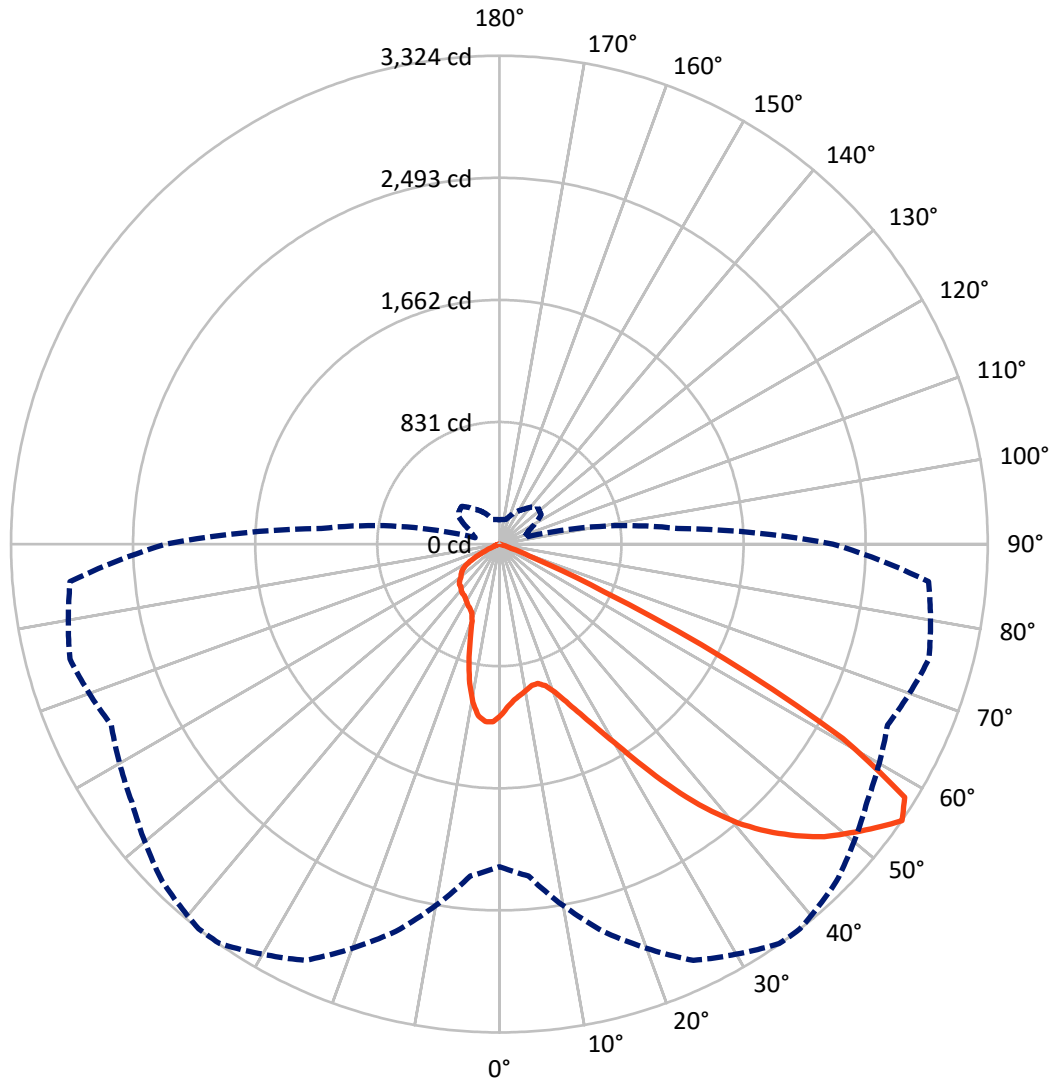
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 12.2 fc
 Type II - Short - N/A

REPORT NUMBER: P630910
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Luminous Intensity Polar Plot



— Vertical Plane Through 38-Deg Lateral - - - Horizontal Cone Through 55-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 947.2 | 0.0 | 947.2 |
| | % Fixture | 19.5 | 0.0 | 19.5 |
| Street Side | Lumens | 3914.3 | 0.0 | 3914.3 |
| | % Fixture | 80.5 | 0.0 | 80.5 |
| Total | Lumens | 4861.5 | 0.0 | 4861.5 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 107.8 | 2.2 |
| 10°-20° | 290.2 | 6.0 |
| 20°-30° | 498.0 | 10.2 |
| 30°-40° | 826.0 | 17.0 |
| 40°-50° | 1214.2 | 25.0 |
| 50°-60° | 1418.8 | 29.2 |
| 60°-70° | 480.9 | 9.9 |
| 70°-80° | 24.6 | 0.5 |
| 80°-90° | 1.0 | 0.0 |
| 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° | 4861.5 | 100.0 |
| 0°-180° | 4861.5 | 100.0 |

Coefficient of Utilization



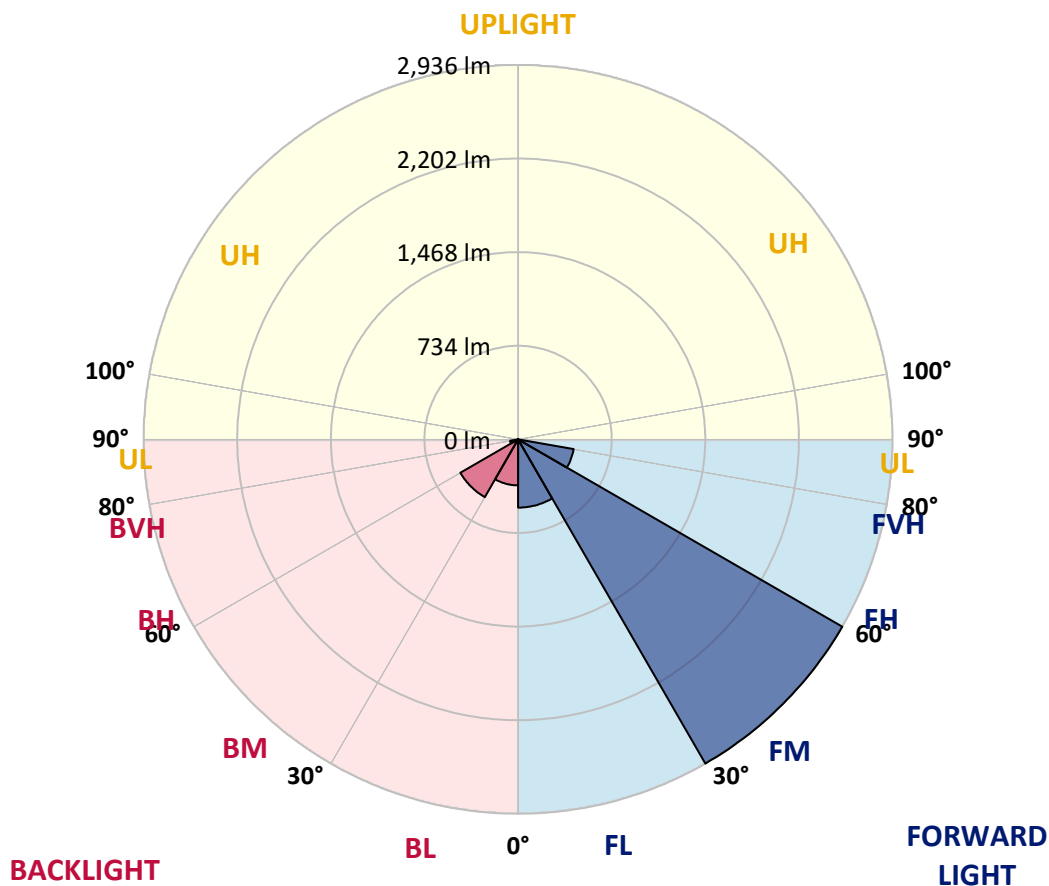
REPORT NUMBER: P630910

CATALOG NUMBER: GWS-SA1E-750-U-T3R-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 535.1 | 11.0 | | | |
| FM (30°-60°) | 2936.2 | 60.4 | | | |
| FH (60°-80°) | 442.5 | 9.1 | | | G0/660 |
| FVH (80°-90°) | 0.5 | 0.0 | | | G0/10 |
| BL (0°-30°) | 360.9 | 7.4 | B1/500 | | |
| BM (30°-60°) | 522.8 | 10.8 | B1/1000 | | |
| BH (60°-80°) | 63.1 | 1.3 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.5 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G0
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 38° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 |
| 2.5° | 1085.8 | 1083.6 | 1088.0 | 1096.9 | 1105.3 | 1108.0 | 1116.4 | 1128.0 | 1135.3 | 1152.5 | 1166.4 |
| 5° | 1036.9 | 1035.8 | 1040.2 | 1048.0 | 1059.1 | 1063.0 | 1075.8 | 1095.3 | 1114.7 | 1144.7 | 1174.2 |
| 7.5° | 992.5 | 991.9 | 998.6 | 1015.8 | 1031.9 | 1036.9 | 1052.5 | 1076.4 | 1102.5 | 1148.6 | 1191.9 |
| 10° | 934.1 | 934.7 | 947.4 | 971.9 | 1001.3 | 1011.3 | 1036.4 | 1070.8 | 1104.7 | 1164.2 | 1224.2 |
| 12.5° | 915.2 | 916.3 | 923.0 | 941.9 | 974.1 | 986.9 | 1021.9 | 1074.1 | 1117.5 | 1186.4 | 1265.8 |
| 15° | 961.3 | 961.3 | 955.8 | 958.0 | 972.4 | 984.1 | 1020.8 | 1085.3 | 1139.2 | 1213.1 | 1307.0 |
| 17.5° | 1050.8 | 1047.5 | 1033.6 | 1014.7 | 1009.7 | 1013.6 | 1043.0 | 1109.1 | 1169.7 | 1244.2 | 1353.6 |
| 20° | 1171.9 | 1173.0 | 1145.8 | 1106.4 | 1074.7 | 1074.1 | 1091.9 | 1151.4 | 1213.6 | 1281.4 | 1404.2 |
| 22.5° | 1318.6 | 1314.2 | 1278.1 | 1224.2 | 1169.2 | 1164.7 | 1171.9 | 1215.8 | 1277.0 | 1340.3 | 1466.4 |
| 25° | 1488.7 | 1486.5 | 1435.3 | 1363.1 | 1290.3 | 1279.7 | 1279.7 | 1323.1 | 1367.5 | 1424.2 | 1540.9 |
| 27.5° | 1666.5 | 1666.5 | 1617.0 | 1533.7 | 1437.0 | 1418.1 | 1415.3 | 1466.4 | 1495.9 | 1507.0 | 1603.7 |
| 30° | 1849.3 | 1847.1 | 1798.2 | 1712.6 | 1609.3 | 1589.8 | 1582.0 | 1619.8 | 1640.9 | 1607.6 | 1682.1 |
| 32.5° | 2034.9 | 2038.8 | 1989.3 | 1909.9 | 1817.6 | 1804.9 | 1781.0 | 1781.0 | 1798.2 | 1751.5 | 1805.4 |
| 35° | 2234.4 | 2233.3 | 2194.4 | 2140.5 | 2061.6 | 2047.1 | 2007.7 | 1946.0 | 1972.1 | 1951.6 | 1976.0 |
| 37.5° | 2410.6 | 2418.9 | 2400.0 | 2360.0 | 2296.1 | 2281.6 | 2216.6 | 2104.9 | 2124.9 | 2157.2 | 2178.8 |
| 40° | 2589.5 | 2596.2 | 2615.0 | 2602.3 | 2521.7 | 2495.0 | 2379.4 | 2196.1 | 2218.3 | 2328.9 | 2391.1 |
| 42.5° | 2765.1 | 2768.4 | 2806.8 | 2827.9 | 2720.1 | 2673.4 | 2502.8 | 2251.6 | 2275.0 | 2463.3 | 2572.3 |
| 45° | 2876.8 | 2884.0 | 2947.3 | 3011.8 | 2895.1 | 2831.2 | 2610.0 | 2322.8 | 2332.8 | 2556.7 | 2706.2 |
| 47.5° | 2872.3 | 2889.0 | 3007.9 | 3125.2 | 3045.7 | 2976.8 | 2739.0 | 2436.7 | 2420.0 | 2644.5 | 2794.5 |
| 50° | 2782.9 | 2802.9 | 2973.5 | 3159.6 | 3154.1 | 3090.2 | 2882.3 | 2601.7 | 2549.5 | 2722.3 | 2805.6 |
| 52.5° | 2597.3 | 2655.1 | 2912.9 | 3164.1 | 3241.3 | 3209.1 | 3059.6 | 2824.0 | 2724.5 | 2834.0 | 2823.4 |
| 55° | 2196.1 | 2267.2 | 2729.0 | 3126.3 | 3320.2 | 3324.1 | 3245.7 | 3055.7 | 2914.6 | 3026.3 | 2932.9 |
| 57.5° | 1667.1 | 1723.7 | 2100.5 | 2782.9 | 3189.6 | 3253.5 | 3318.0 | 3178.0 | 3031.8 | 3157.4 | 2958.5 |
| 60° | 1004.7 | 1070.2 | 1315.3 | 2042.1 | 2576.2 | 2685.1 | 2937.9 | 2910.7 | 2734.5 | 2788.4 | 2426.1 |
| 62.5° | 407.3 | 441.8 | 607.4 | 1125.3 | 1621.5 | 1723.2 | 1965.5 | 2006.6 | 1963.2 | 1908.2 | 1471.5 |
| 65° | 148.9 | 162.8 | 243.4 | 465.1 | 745.7 | 783.0 | 910.8 | 983.6 | 1043.6 | 888.5 | 547.3 |
| 67.5° | 92.2 | 101.1 | 158.4 | 238.9 | 271.2 | 252.3 | 256.7 | 306.2 | 292.3 | 180.6 | 97.8 |
| 70° | 68.3 | 75.6 | 123.9 | 165.6 | 109.5 | 84.5 | 57.2 | 61.1 | 55.0 | 48.3 | 47.8 |
| 72.5° | 47.2 | 53.9 | 92.8 | 97.8 | 42.2 | 30.0 | 21.1 | 29.5 | 33.3 | 32.8 | 33.9 |
| 75° | 31.1 | 36.1 | 58.3 | 38.3 | 10.6 | 8.3 | 7.2 | 15.6 | 20.0 | 20.0 | 20.6 |
| 77.5° | 18.3 | 21.1 | 20.6 | 7.8 | 2.2 | 2.2 | 1.7 | 2.8 | 4.4 | 5.0 | 6.1 |
| 80° | 2.2 | 1.7 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.7 | 1.7 | 1.7 |
| 82.5° | 0.6 | 0.6 | 0.6 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.7 | 1.7 |
| 85° | 0.0 | 0.0 | 0.6 | 0.6 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.7 | 1.7 |
| 87.5° | 0.0 | 0.0 | 0.6 | 0.6 | 1.1 | 1.1 | 1.1 | 1.1 | 1.1 | 1.7 | 1.7 |
| 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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 CATALOG NUMBER: GWS-SA1E-750-U-T3R-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 | 1165.8 |
| 2.5° | 1176.9 | 1173.0 | 1189.2 | 1200.8 | 1210.3 | 1214.7 | 1208.6 | 1208.1 | 1208.1 | 1195.8 | 1192.5 |
| 5° | 1190.8 | 1192.5 | 1215.3 | 1225.3 | 1227.0 | 1221.4 | 1207.5 | 1198.1 | 1192.5 | 1179.7 | 1172.5 |
| 7.5° | 1217.5 | 1223.1 | 1244.7 | 1243.1 | 1228.1 | 1202.5 | 1165.8 | 1137.5 | 1119.1 | 1099.1 | 1086.9 |
| 10° | 1255.8 | 1266.4 | 1279.7 | 1256.4 | 1208.6 | 1143.6 | 1068.0 | 1014.1 | 981.9 | 959.1 | 945.2 |
| 12.5° | 1302.5 | 1313.1 | 1308.6 | 1253.6 | 1154.2 | 1038.0 | 940.8 | 863.0 | 825.7 | 805.2 | 790.7 |
| 15° | 1349.8 | 1356.4 | 1327.5 | 1220.3 | 1058.0 | 901.9 | 793.5 | 716.3 | 670.7 | 654.0 | 641.8 |
| 17.5° | 1398.1 | 1396.4 | 1330.9 | 1154.7 | 929.7 | 748.5 | 641.8 | 589.0 | 576.2 | 573.5 | 572.4 |
| 20° | 1448.7 | 1433.7 | 1317.5 | 1060.8 | 775.2 | 596.8 | 536.2 | 539.6 | 562.9 | 574.0 | 576.2 |
| 22.5° | 1506.5 | 1468.7 | 1284.2 | 933.5 | 617.4 | 497.3 | 503.4 | 536.2 | 567.9 | 582.9 | 585.1 |
| 25° | 1568.1 | 1500.9 | 1228.6 | 770.2 | 486.8 | 457.3 | 493.4 | 531.2 | 565.1 | 583.5 | 585.7 |
| 27.5° | 1608.7 | 1508.7 | 1137.5 | 605.7 | 417.9 | 441.8 | 480.1 | 516.2 | 551.2 | 571.2 | 574.0 |
| 30° | 1652.6 | 1505.3 | 1013.6 | 466.8 | 394.5 | 428.4 | 461.8 | 494.6 | 526.8 | 549.0 | 551.2 |
| 32.5° | 1717.1 | 1503.1 | 862.4 | 379.0 | 385.1 | 417.9 | 442.3 | 469.6 | 491.8 | 504.6 | 502.9 |
| 35° | 1801.5 | 1500.3 | 686.3 | 341.7 | 379.5 | 409.5 | 429.0 | 441.8 | 417.3 | 409.5 | 411.2 |
| 37.5° | 1909.9 | 1507.0 | 537.9 | 326.2 | 377.9 | 407.3 | 424.0 | 387.3 | 349.5 | 335.1 | 332.9 |
| 40° | 2029.9 | 1524.2 | 410.1 | 320.1 | 383.4 | 412.9 | 405.1 | 344.5 | 297.8 | 269.5 | 263.4 |
| 42.5° | 2150.5 | 1543.1 | 324.5 | 317.9 | 392.9 | 428.4 | 374.0 | 313.4 | 243.4 | 227.3 | 225.1 |
| 45° | 2240.0 | 1539.8 | 280.6 | 314.0 | 401.2 | 437.3 | 365.6 | 269.0 | 217.3 | 210.0 | 210.6 |
| 47.5° | 2285.0 | 1503.1 | 256.7 | 305.1 | 404.5 | 428.4 | 345.1 | 250.6 | 199.5 | 207.3 | 213.9 |
| 50° | 2261.1 | 1408.1 | 234.5 | 287.8 | 397.3 | 416.8 | 312.3 | 236.7 | 190.6 | 222.8 | 237.8 |
| 52.5° | 2232.2 | 1291.4 | 210.0 | 261.2 | 380.1 | 400.6 | 299.5 | 232.8 | 185.0 | 215.0 | 226.2 |
| 55° | 2270.5 | 1217.5 | 170.0 | 220.1 | 346.2 | 362.9 | 289.5 | 232.3 | 172.3 | 167.3 | 165.6 |
| 57.5° | 2216.6 | 1070.2 | 121.7 | 158.4 | 265.6 | 287.3 | 282.3 | 228.4 | 152.8 | 152.3 | 154.5 |
| 60° | 1713.2 | 652.9 | 83.4 | 100.6 | 162.8 | 183.4 | 256.2 | 218.4 | 131.7 | 121.1 | 121.7 |
| 62.5° | 973.6 | 277.8 | 57.2 | 62.2 | 83.4 | 98.9 | 195.6 | 198.4 | 121.7 | 115.6 | 121.7 |
| 65° | 339.0 | 99.5 | 44.5 | 41.7 | 46.1 | 52.8 | 112.2 | 153.4 | 110.6 | 100.0 | 101.1 |
| 67.5° | 70.0 | 49.5 | 39.5 | 34.5 | 34.5 | 34.5 | 57.2 | 95.6 | 91.1 | 79.5 | 80.6 |
| 70° | 44.5 | 42.2 | 34.5 | 29.5 | 28.3 | 26.1 | 32.8 | 52.8 | 62.8 | 57.8 | 58.3 |
| 72.5° | 32.8 | 32.2 | 27.2 | 23.9 | 21.1 | 18.9 | 20.6 | 26.1 | 32.2 | 33.3 | 33.9 |
| 75° | 20.0 | 20.6 | 17.8 | 15.0 | 13.3 | 11.7 | 12.2 | 12.2 | 12.2 | 11.1 | 12.2 |
| 77.5° | 6.1 | 6.7 | 5.6 | 4.4 | 3.9 | 3.9 | 3.9 | 3.3 | 2.8 | 1.7 | 1.7 |
| 80° | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 | 1.1 | 1.1 | 0.6 | 0.6 | 0.0 | 0.0 |
| 82.5° | 1.7 | 1.7 | 1.7 | 1.7 | 1.1 | 1.1 | 0.6 | 0.6 | 0.0 | 0.0 | 0.0 |
| 85° | 1.7 | 1.7 | 1.7 | 1.7 | 1.1 | 1.1 | 0.6 | 0.6 | 0.0 | 0.0 | 0.0 |
| 87.5° | 1.7 | 1.7 | 1.7 | 1.7 | 1.1 | 1.1 | 0.6 | 0.6 | 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

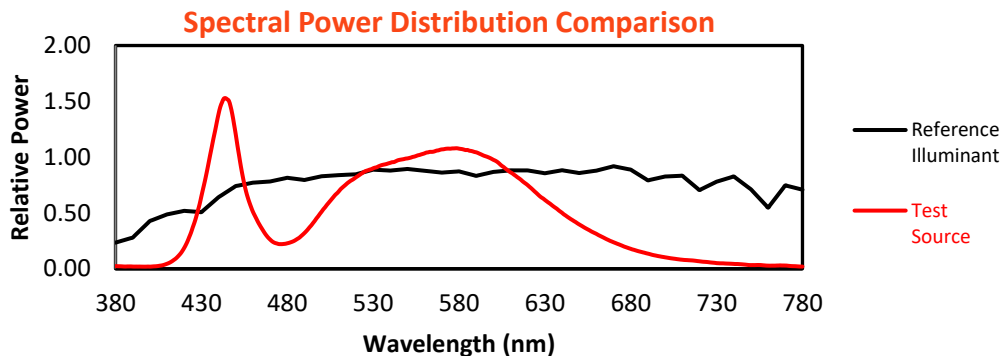
| λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) | λ (nm) | Power ($\mu\text{W}/\text{nm}$) | Lumens (ϕ/nm) |
|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|----------------|-----------------------------------|-----------------------------|
| 360 | 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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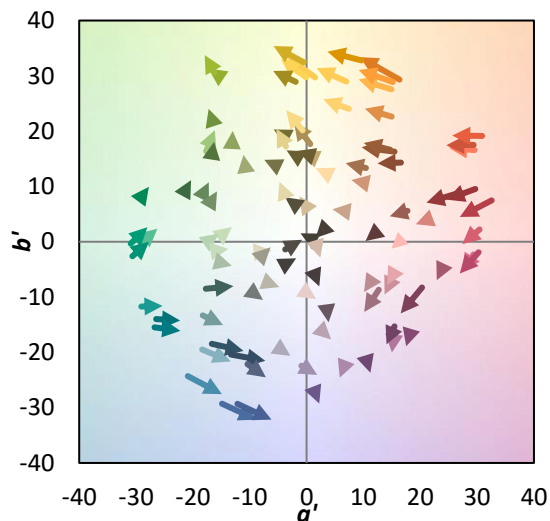
TM-30-18

Summary

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



Color Vector Graphics

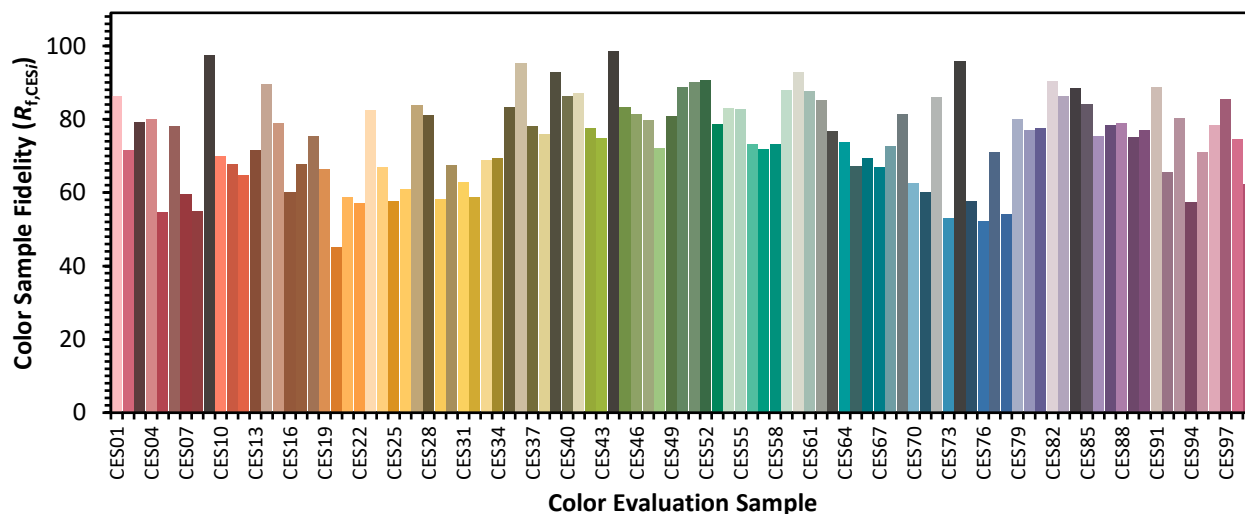


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Individual Sample Fidelity Index ($R_{f,i}$)

| | | | |
|------------|------------|------------|------------|
| 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)