

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: P631437

Luminaire Tested: GWS-SA1F-760-U-SL4-W-HSS

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P631437
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-36)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1F-760-U-SL4-W-HSS
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV SPILL LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: (16) 5700K CCT, 70 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 6697.2 lumens
Efficiency: N/A
Efficacy: 99.7 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G2

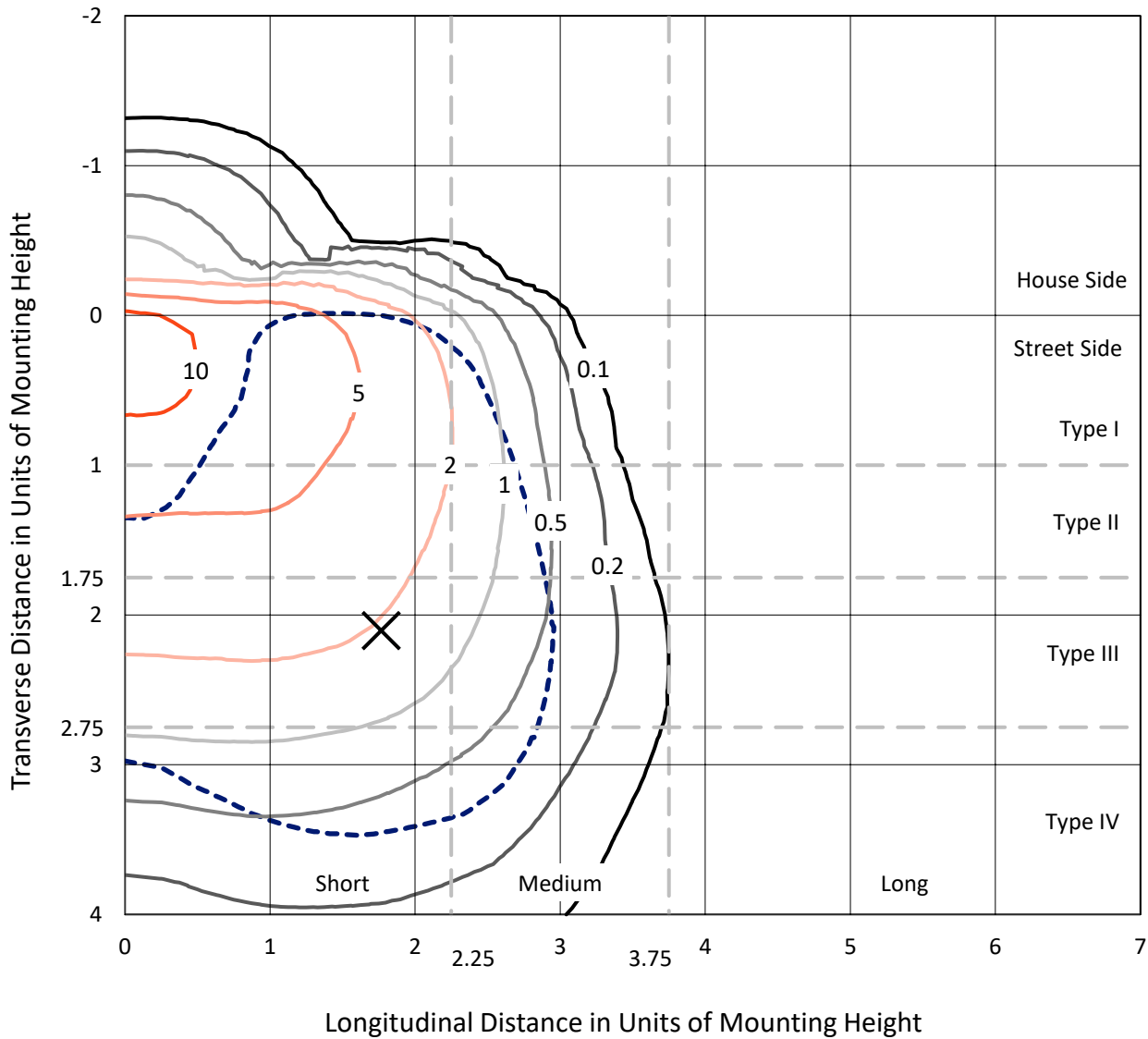
Input Watts (W): 67.2
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P631437
 CATALOG NUMBER: GWS-SA1F-760-U-SL4-W-HSS

Iso-Footcandle Lines of Horizontal Illumination

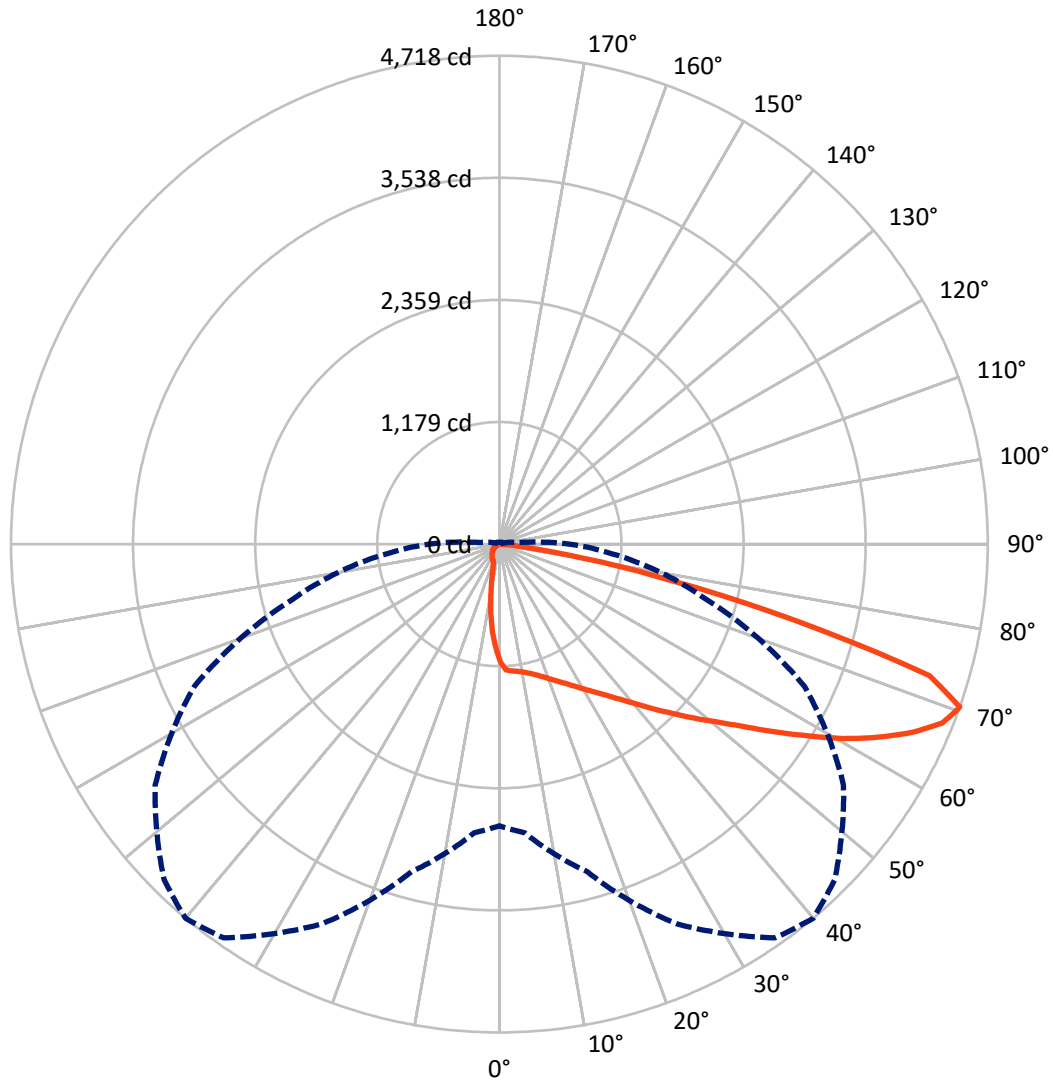
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 12.4 fc
 Type IV - Short - N/A

REPORT NUMBER: P631437
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Luminous Intensity Polar Plot



— Vertical Plane Through 40-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical



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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 547.7 | 0.0 | 547.7 |
| | % Fixture | 8.2 | 0.0 | 8.2 |
| Street Side | Lumens | 6149.5 | 0.0 | 6149.5 |
| | % Fixture | 91.8 | 0.0 | 91.8 |
| Total | Lumens | 6697.2 | 0.0 | 6697.2 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 96.1 | 1.4 |
| 10°-20° | 243.6 | 3.6 |
| 20°-30° | 407.7 | 6.1 |
| 30°-40° | 640.4 | 9.6 |
| 40°-50° | 1012.9 | 15.1 |
| 50°-60° | 1477.6 | 22.1 |
| 60°-70° | 1831.7 | 27.4 |
| 70°-80° | 926.7 | 13.8 |
| 80°-90° | 60.5 | 0.9 |
| 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° | 6697.2 | 100.0 |
| 0°-180° | 6697.2 | 100.0 |

Coefficient of Utilization

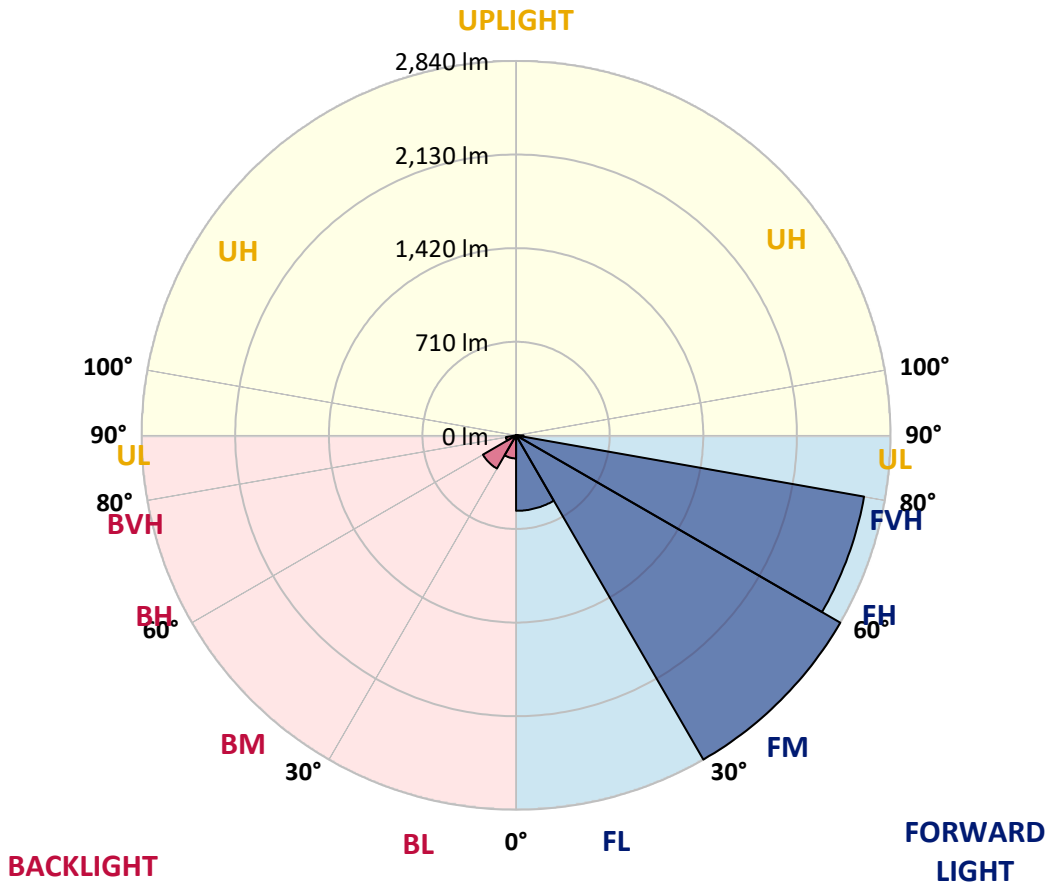


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 572.5 | 8.5 | | | |
| FM (30°-60°) | 2840.2 | 42.4 | | | |
| FH (60°-80°) | 2680.3 | 40.0 | | | G2/5000 |
| FVH (80°-90°) | 56.5 | 0.8 | | | G1/100 |
| BL (0°-30°) | 174.9 | 2.6 | B1/500 | | |
| BM (30°-60°) | 290.7 | 4.3 | B1/1000 | | |
| BH (60°-80°) | 78.1 | 1.2 | B0/110 | | G0/110 |
| BVH (80°-90°) | 4.0 | 0.1 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2
 Type IV Short





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CATALOG NUMBER: GWS-SA1F-760-U-SL4-W-HSS

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 40° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 |
| 2.5° | 1221.7 | 1226.0 | 1225.4 | 1227.2 | 1223.0 | 1216.3 | 1215.0 | 1205.9 | 1189.4 | 1168.7 | 1145.6 |
| 5° | 1246.7 | 1251.6 | 1247.9 | 1246.1 | 1238.2 | 1230.9 | 1229.1 | 1219.3 | 1200.4 | 1172.4 | 1132.2 |
| 7.5° | 1268.1 | 1269.3 | 1266.8 | 1262.6 | 1251.0 | 1241.2 | 1234.5 | 1221.1 | 1198.6 | 1170.6 | 1124.2 |
| 10° | 1271.7 | 1271.1 | 1272.3 | 1272.9 | 1265.6 | 1257.1 | 1251.6 | 1233.3 | 1204.7 | 1174.8 | 1124.9 |
| 12.5° | 1267.4 | 1267.4 | 1275.4 | 1284.5 | 1284.5 | 1280.2 | 1274.8 | 1258.3 | 1224.8 | 1189.4 | 1137.0 |
| 15° | 1272.9 | 1274.8 | 1290.0 | 1307.1 | 1312.5 | 1308.3 | 1305.8 | 1288.8 | 1254.0 | 1215.0 | 1159.0 |
| 17.5° | 1292.4 | 1294.3 | 1318.6 | 1344.2 | 1350.9 | 1346.1 | 1341.2 | 1324.1 | 1286.9 | 1244.3 | 1184.0 |
| 20° | 1321.1 | 1325.9 | 1357.0 | 1389.9 | 1396.0 | 1389.9 | 1380.2 | 1356.4 | 1319.2 | 1276.0 | 1207.7 |
| 22.5° | 1373.5 | 1376.5 | 1410.0 | 1444.8 | 1447.8 | 1438.1 | 1423.4 | 1390.5 | 1351.5 | 1309.5 | 1234.5 |
| 25° | 1442.9 | 1447.2 | 1480.7 | 1514.2 | 1506.3 | 1491.7 | 1471.6 | 1434.4 | 1389.9 | 1349.1 | 1268.7 |
| 27.5° | 1525.8 | 1530.7 | 1563.6 | 1592.8 | 1572.1 | 1555.1 | 1532.5 | 1486.2 | 1441.1 | 1403.9 | 1312.5 |
| 30° | 1615.4 | 1619.6 | 1648.9 | 1675.1 | 1647.7 | 1627.6 | 1600.8 | 1553.2 | 1507.5 | 1479.5 | 1374.7 |
| 32.5° | 1701.9 | 1701.3 | 1729.3 | 1750.7 | 1722.6 | 1706.8 | 1682.4 | 1634.3 | 1597.7 | 1585.5 | 1467.3 |
| 35° | 1782.3 | 1782.3 | 1805.5 | 1826.8 | 1806.7 | 1798.2 | 1775.6 | 1737.3 | 1716.5 | 1731.2 | 1591.0 |
| 37.5° | 1863.4 | 1859.1 | 1881.1 | 1904.8 | 1903.0 | 1903.6 | 1890.8 | 1872.5 | 1873.7 | 1925.5 | 1761.0 |
| 40° | 1930.4 | 1928.6 | 1954.2 | 1985.3 | 2009.6 | 2029.1 | 2021.2 | 2027.9 | 2066.3 | 2163.2 | 1978.6 |
| 42.5° | 1984.0 | 1988.3 | 2021.2 | 2070.6 | 2132.1 | 2171.7 | 2177.2 | 2204.6 | 2303.3 | 2453.2 | 2224.1 |
| 45° | 2045.6 | 2046.2 | 2091.9 | 2167.5 | 2265.6 | 2328.3 | 2350.3 | 2420.9 | 2561.1 | 2754.3 | 2493.5 |
| 47.5° | 2121.1 | 2113.8 | 2165.0 | 2271.0 | 2413.0 | 2505.6 | 2544.6 | 2633.0 | 2849.9 | 3048.0 | 2712.8 |
| 50° | 2204.6 | 2191.2 | 2249.1 | 2393.5 | 2578.2 | 2693.9 | 2773.1 | 2902.3 | 3136.3 | 3289.3 | 2876.1 |
| 52.5° | 2301.5 | 2288.7 | 2354.5 | 2534.3 | 2776.2 | 2917.0 | 3018.7 | 3149.1 | 3381.9 | 3473.3 | 2973.6 |
| 55° | 2424.6 | 2411.8 | 2481.3 | 2703.1 | 3010.2 | 3193.0 | 3299.6 | 3409.3 | 3610.4 | 3609.2 | 3044.3 |
| 57.5° | 2561.1 | 2543.4 | 2639.7 | 2916.3 | 3302.1 | 3492.2 | 3600.6 | 3654.3 | 3784.1 | 3714.6 | 3091.8 |
| 60° | 2717.7 | 2701.9 | 2835.3 | 3170.4 | 3639.0 | 3815.1 | 3883.4 | 3861.4 | 3926.6 | 3776.7 | 3075.4 |
| 62.5° | 2859.1 | 2851.7 | 3017.5 | 3439.8 | 3960.2 | 4108.8 | 4127.7 | 4032.1 | 4031.4 | 3778.0 | 2964.5 |
| 65° | 3005.9 | 3019.9 | 3266.1 | 3749.9 | 4283.1 | 4383.0 | 4350.7 | 4201.5 | 4073.5 | 3628.7 | 2636.7 |
| 67.5° | 3060.8 | 3101.6 | 3430.0 | 4030.2 | 4537.8 | 4615.8 | 4559.1 | 4286.2 | 3898.6 | 3126.6 | 2007.8 |
| 70° | 2722.0 | 2798.7 | 3275.2 | 4046.1 | 4643.2 | 4717.6 | 4581.7 | 4058.3 | 3250.3 | 2071.2 | 1099.9 |
| 72.5° | 2070.0 | 2159.5 | 2729.3 | 3313.0 | 4175.9 | 4345.3 | 4113.1 | 3306.3 | 2094.9 | 907.3 | 369.3 |
| 75° | 1158.4 | 1255.3 | 2032.8 | 2494.7 | 2803.6 | 2958.4 | 2873.1 | 2121.1 | 928.0 | 237.0 | 110.3 |
| 77.5° | 391.8 | 424.1 | 945.7 | 1543.5 | 1850.6 | 1711.7 | 1449.0 | 1053.6 | 341.2 | 90.2 | 58.5 |
| 80° | 232.2 | 244.3 | 352.2 | 768.4 | 973.7 | 807.4 | 637.4 | 389.4 | 173.7 | 48.1 | 40.8 |
| 82.5° | 69.5 | 82.3 | 194.4 | 285.2 | 381.5 | 237.6 | 201.1 | 222.4 | 90.2 | 26.2 | 34.1 |
| 85° | 0.0 | 0.0 | 41.4 | 88.4 | 99.9 | 39.0 | 39.0 | 126.1 | 16.5 | 11.0 | 25.0 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.6 | 3.0 | 1.8 | 2.4 | 5.5 |
| 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: P631437
 CATALOG NUMBER: GWS-SA1F-760-U-SL4-W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 | 1136.4 |
| 2.5° | 1129.1 | 1107.8 | 1082.8 | 1059.0 | 1036.5 | 1007.3 | 993.2 | 976.2 | 961.6 | 953.6 | 957.9 |
| 5° | 1106.6 | 1073.1 | 1021.9 | 970.1 | 917.7 | 868.3 | 823.8 | 794.0 | 767.2 | 753.2 | 756.2 |
| 7.5° | 1087.1 | 1042.0 | 962.2 | 877.5 | 793.4 | 708.7 | 639.8 | 586.2 | 544.8 | 527.7 | 524.6 |
| 10° | 1078.5 | 1021.9 | 909.1 | 787.3 | 658.1 | 544.1 | 446.7 | 387.5 | 345.5 | 324.8 | 328.4 |
| 12.5° | 1082.8 | 1011.5 | 864.1 | 698.9 | 531.4 | 398.5 | 305.3 | 249.8 | 220.0 | 207.8 | 204.7 |
| 15° | 1095.0 | 1009.1 | 823.8 | 608.7 | 410.1 | 278.5 | 210.8 | 188.3 | 182.2 | 181.0 | 181.0 |
| 17.5° | 1109.0 | 1009.7 | 782.4 | 517.3 | 311.4 | 206.6 | 180.4 | 176.1 | 174.3 | 173.1 | 173.7 |
| 20° | 1123.0 | 1009.7 | 734.9 | 424.7 | 234.0 | 178.5 | 171.8 | 168.8 | 167.0 | 166.4 | 166.4 |
| 22.5° | 1140.1 | 1009.7 | 681.9 | 338.8 | 187.7 | 169.4 | 163.9 | 162.1 | 160.3 | 159.6 | 159.0 |
| 25° | 1160.8 | 1010.3 | 623.4 | 265.1 | 170.6 | 161.5 | 157.2 | 155.4 | 153.6 | 152.3 | 152.3 |
| 27.5° | 1190.7 | 1015.2 | 558.8 | 206.6 | 160.9 | 154.2 | 150.5 | 148.7 | 146.9 | 145.0 | 145.0 |
| 30° | 1233.9 | 1027.4 | 486.3 | 170.6 | 151.7 | 146.2 | 142.6 | 141.4 | 139.5 | 137.7 | 137.1 |
| 32.5° | 1298.5 | 1048.7 | 411.3 | 152.9 | 143.2 | 137.7 | 133.4 | 132.2 | 130.4 | 128.6 | 128.0 |
| 35° | 1388.7 | 1087.7 | 338.2 | 142.0 | 132.2 | 126.7 | 124.3 | 123.7 | 121.3 | 119.4 | 119.4 |
| 37.5° | 1520.9 | 1151.1 | 268.1 | 131.0 | 123.1 | 118.8 | 115.8 | 114.6 | 112.1 | 110.3 | 109.7 |
| 40° | 1682.4 | 1233.3 | 208.4 | 122.5 | 114.6 | 110.3 | 107.2 | 105.4 | 102.4 | 99.9 | 98.7 |
| 42.5° | 1888.4 | 1333.9 | 164.5 | 113.3 | 106.6 | 102.4 | 99.9 | 96.3 | 92.0 | 88.4 | 87.7 |
| 45° | 2102.9 | 1437.5 | 135.9 | 104.8 | 99.3 | 95.7 | 92.6 | 87.7 | 81.7 | 77.4 | 76.2 |
| 47.5° | 2267.4 | 1502.0 | 118.8 | 95.7 | 91.4 | 88.4 | 84.7 | 78.6 | 71.3 | 66.4 | 65.2 |
| 50° | 2385.0 | 1511.8 | 106.0 | 87.1 | 84.7 | 81.7 | 76.2 | 68.9 | 60.9 | 56.1 | 54.8 |
| 52.5° | 2442.9 | 1467.9 | 95.7 | 79.2 | 77.4 | 74.3 | 67.6 | 59.7 | 51.2 | 46.3 | 45.1 |
| 55° | 2469.1 | 1385.0 | 85.9 | 72.5 | 70.1 | 66.4 | 59.1 | 50.6 | 42.0 | 37.8 | 36.6 |
| 57.5° | 2458.7 | 1262.6 | 77.4 | 65.8 | 62.8 | 58.5 | 50.6 | 41.4 | 34.7 | 30.5 | 29.9 |
| 60° | 2381.9 | 1090.7 | 68.9 | 59.1 | 55.5 | 50.6 | 42.7 | 34.1 | 28.0 | 25.0 | 24.4 |
| 62.5° | 2216.2 | 877.5 | 60.3 | 51.2 | 48.7 | 43.9 | 36.6 | 28.0 | 23.2 | 21.3 | 20.7 |
| 65° | 1876.8 | 620.3 | 51.8 | 43.3 | 42.0 | 37.2 | 30.5 | 23.2 | 20.1 | 18.9 | 18.3 |
| 67.5° | 1349.1 | 377.2 | 43.9 | 37.2 | 36.0 | 31.7 | 25.6 | 20.1 | 18.3 | 17.7 | 17.7 |
| 70° | 678.2 | 178.5 | 34.7 | 30.5 | 30.5 | 26.2 | 21.9 | 18.3 | 17.7 | 17.1 | 17.1 |
| 72.5° | 230.3 | 76.2 | 26.2 | 23.8 | 25.0 | 22.5 | 18.9 | 17.1 | 17.1 | 17.1 | 17.1 |
| 75° | 78.6 | 40.2 | 18.3 | 17.1 | 18.3 | 18.3 | 16.5 | 16.5 | 17.1 | 17.1 | 17.1 |
| 77.5° | 51.2 | 26.8 | 12.8 | 11.6 | 14.0 | 14.0 | 14.0 | 15.2 | 16.5 | 16.5 | 16.5 |
| 80° | 42.0 | 14.6 | 8.5 | 7.9 | 10.4 | 10.4 | 11.6 | 14.0 | 15.2 | 15.2 | 15.2 |
| 82.5° | 36.0 | 9.1 | 4.9 | 5.5 | 7.3 | 7.9 | 9.7 | 11.6 | 13.4 | 14.0 | 14.0 |
| 85° | 24.4 | 4.9 | 3.7 | 4.3 | 4.9 | 6.1 | 7.9 | 9.7 | 11.0 | 12.2 | 12.2 |
| 87.5° | 6.7 | 1.8 | 2.4 | 3.0 | 3.0 | 4.3 | 6.1 | 7.3 | 8.5 | 9.1 | 9.1 |
| 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: SP1-1908-441-9-R4

Test Date: 10/23/2019

Luminaire Tested: SA1C-760-U-5WQ

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

Test Information

Test Method: LM-79-2008
 Report Number: SP1-1908-441-9-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-760-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): | 5474 | CRI (Ra): | 71.7 | R9: | -27.1 |
| CIE u': | 0.2052 | R1: | 70.6 | R10: | 40.8 |
| CIE v': | 0.4804 | R2: | 74.6 | R11: | 74.6 |
| Duv: | 0.0025 | R3: | 78.3 | R12: | 50.4 |
| CIE x: | 0.3330 | R4: | 73.8 | R13: | 70.0 |
| CIE y: | 0.3466 | R5: | 72.4 | R14: | 87.8 |
| CIE z: | 0.3204 | R6: | 67.5 | | |
| Peak Wavelength (nm): | 442 | R7: | 77.5 | | |
| Dominant Wavelength (nm): | 554 | R8: | 58.9 | | |
| Purity: | 4.1 | | | | |
| Rf: | 72.1 | | | | |
| Rg: | 97.2 | | | | |



Test Conditions

Stabilization Time: 240M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.6/31%
 Sphere Temperature (°C): 25.9

REPORT NUMBER: SP1-1908-441-9-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 5700K 4-step quadrangle

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Photopic Flux vs. Wavelength



#####

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Scotopic Flux vs. Wavelength



Scotopic Lumens: 13759.3 S/P: 1.85

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

REPORT NUMBER: SP1-1908-441-9-R4

Melanopic Flux vs. Wavelength



Melanopic Lumens: 5527.6 M/P: 0.74

| 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 | 3540 | NR | 490 | 33363 | NR | 620 | 80193 | NR | 750 | 4663 | NR | 880 | 4678 | NR |
| 365 | 2862 | NR | 495 | 44177 | NR | 625 | 73091 | NR | 755 | 4147 | NR | 885 | 4128 | NR |
| 370 | 2865 | NR | 500 | 57019 | NR | 630 | 66269 | NR | 760 | 4040 | NR | 890 | 4504 | NR |
| 375 | 3254 | NR | 505 | 70030 | NR | 635 | 60012 | NR | 765 | 3474 | NR | 895 | 4371 | NR |
| 380 | 3076 | NR | 510 | 81972 | NR | 640 | 53914 | NR | 770 | 3469 | NR | 900 | 4082 | NR |
| 385 | 2904 | NR | 515 | 92590 | NR | 645 | 48385 | NR | 775 | 3181 | NR | 905 | 2982 | NR |
| 390 | 2689 | NR | 520 | 100305 | NR | 650 | 43219 | NR | 780 | 2969 | NR | 910 | 4351 | NR |
| 395 | 2619 | NR | 525 | 107452 | NR | 655 | 38562 | NR | 785 | 3132 | NR | 915 | 3365 | NR |
| 400 | 2679 | NR | 530 | 111373 | NR | 660 | 34110 | NR | 790 | 2507 | NR | 920 | 3430 | NR |
| 405 | 3515 | NR | 535 | 114505 | NR | 665 | 30085 | NR | 795 | 2968 | NR | 925 | 4264 | NR |
| 410 | 6934 | NR | 540 | 116408 | NR | 670 | 26205 | NR | 800 | 2758 | NR | 930 | 4095 | NR |
| 415 | 14943 | NR | 545 | 118700 | NR | 675 | 22906 | NR | 805 | 2872 | NR | 935 | 5048 | NR |
| 420 | 31939 | NR | 550 | 119209 | NR | 680 | 20058 | NR | 810 | 3094 | NR | 940 | 4074 | NR |
| 425 | 64701 | NR | 555 | 120742 | NR | 685 | 17413 | NR | 815 | 3222 | NR | 945 | 4949 | NR |
| 430 | 110939 | NR | 560 | 121594 | NR | 690 | 15447 | NR | 820 | 3238 | NR | 950 | 4387 | NR |
| 435 | 164597 | NR | 565 | 121913 | NR | 695 | 13398 | NR | 825 | 3524 | NR | 955 | 4978 | NR |
| 440 | 207696 | NR | 570 | 122147 | NR | 700 | 11777 | NR | 830 | 2921 | NR | 960 | 4706 | NR |
| 445 | 201830 | NR | 575 | 121605 | NR | 705 | 10412 | NR | 835 | 3595 | NR | 965 | 5083 | NR |
| 450 | 145410 | NR | 580 | 120248 | NR | 710 | 9544 | NR | 840 | 3016 | NR | 970 | 4522 | NR |
| 455 | 89594 | NR | 585 | 117717 | NR | 715 | 8940 | NR | 845 | 4032 | NR | 975 | 4740 | NR |
| 460 | 58321 | NR | 590 | 114359 | NR | 720 | 7897 | NR | 850 | 3579 | NR | 980 | 6122 | NR |
| 465 | 39318 | NR | 595 | 109974 | NR | 725 | 7045 | NR | 855 | 4571 | NR | 985 | 6450 | NR |
| 470 | 27693 | NR | 600 | 105269 | NR | 730 | 6483 | NR | 860 | 4485 | NR | 990 | 4875 | NR |
| 475 | 23081 | NR | 605 | 99453 | NR | 735 | 5838 | NR | 865 | 3978 | NR | 995 | 4764 | NR |
| 480 | 23002 | NR | 610 | 92921 | NR | 740 | 5261 | NR | 870 | 4298 | NR | 1000 | 3640 | NR |
| 485 | 26201 | NR | 615 | 86989 | NR | 745 | 4760 | NR | 875 | 4356 | NR | | | |

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Summary

$R_f = 72.1$
 $R_g = 97.2$
 CIE $R_a = 71.7$
 $R_g = -27.1$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 54 | CES51 = 88 | CES76 = 43 |
| CES02 = 59 | CES27 = 79 | CES52 = 90 | CES77 = 64 |
| CES03 = 30 | CES28 = 77 | CES53 = 77 | CES78 = 46 |
| CES04 = 69 | CES29 = 50 | CES54 = 81 | CES79 = 74 |
| CES05 = 46 | CES30 = 59 | CES55 = 80 | CES80 = 70 |
| CES06 = 50 | CES31 = 55 | CES56 = 70 | CES81 = 71 |
| CES07 = 38 | CES32 = 52 | CES57 = 68 | CES82 = 88 |
| CES08 = 38 | CES33 = 63 | CES58 = 70 | CES83 = 82 |
| CES09 = 29 | CES34 = 63 | CES59 = 88 | CES84 = 87 |
| CES10 = 72 | CES35 = 79 | CES60 = 92 | CES85 = 84 |
| CES11 = 55 | CES36 = 90 | CES61 = 88 | CES86 = 76 |
| CES12 = 61 | CES37 = 72 | CES62 = 81 | CES87 = 75 |
| CES13 = 41 | CES38 = 68 | CES63 = 75 | CES88 = 77 |
| CES14 = 74 | CES39 = 91 | CES64 = 72 | CES89 = 76 |
| CES15 = 70 | CES40 = 83 | CES65 = 65 | CES90 = 76 |
| CES16 = 46 | CES41 = 84 | CES66 = 66 | CES91 = 92 |
| CES17 = 48 | CES42 = 70 | CES67 = 64 | CES92 = 70 |
| CES18 = 55 | CES43 = 69 | CES68 = 71 | CES93 = 83 |
| CES19 = 70 | CES44 = 98 | CES69 = 80 | CES94 = 60 |
| CES20 = 64 | CES45 = 79 | CES70 = 58 | CES95 = 73 |
| CES21 = 85 | CES46 = 78 | CES71 = 55 | CES96 = 79 |
| CES22 = 77 | CES47 = 76 | CES72 = 84 | CES97 = 84 |
| CES23 = 91 | CES48 = 68 | CES73 = 47 | CES98 = 73 |
| CES24 = 90 | CES49 = 78 | CES74 = 94 | CES99 = 62 |
| CES25 = 71 | CES50 = 87 | CES75 = 51 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)