

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



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P386078

Luminaire Tested: **GPC-SA1D-722-U-SL3-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P386078
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-23)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GPC-SA1D-722-U-SL3-HSS
Description: GALLEON PEDESTRIAN LUMINAIRE
(1) 70 CRI, 2200K, 1200mA LIGHTSQUARE WITH 16 LEDS AND TYPE III SPILL
LIGHT ELIMINATOR OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 5205 lumens
Efficiency: N/A
Efficacy: 78.9 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G2

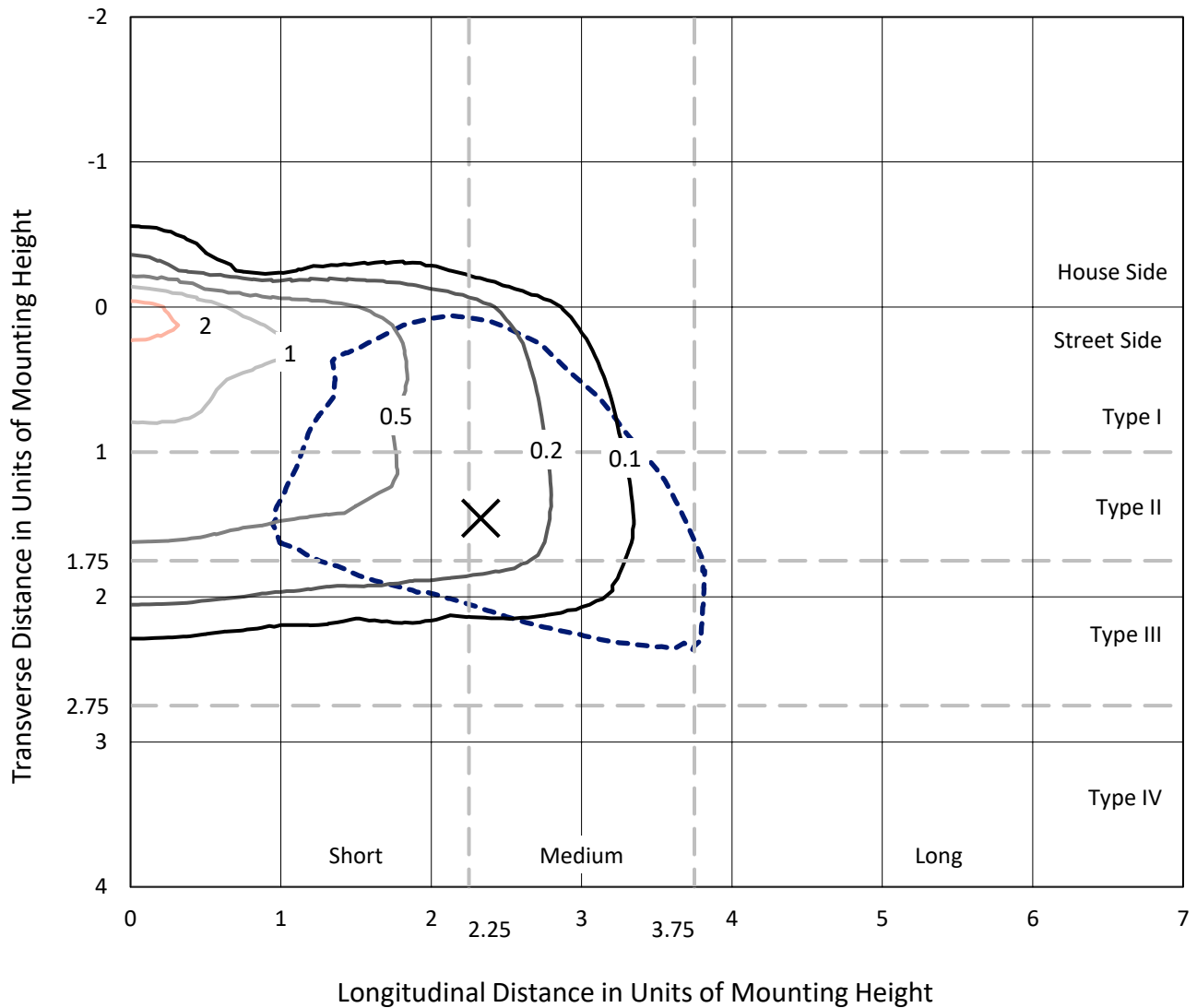
Input Watts (W): 66
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

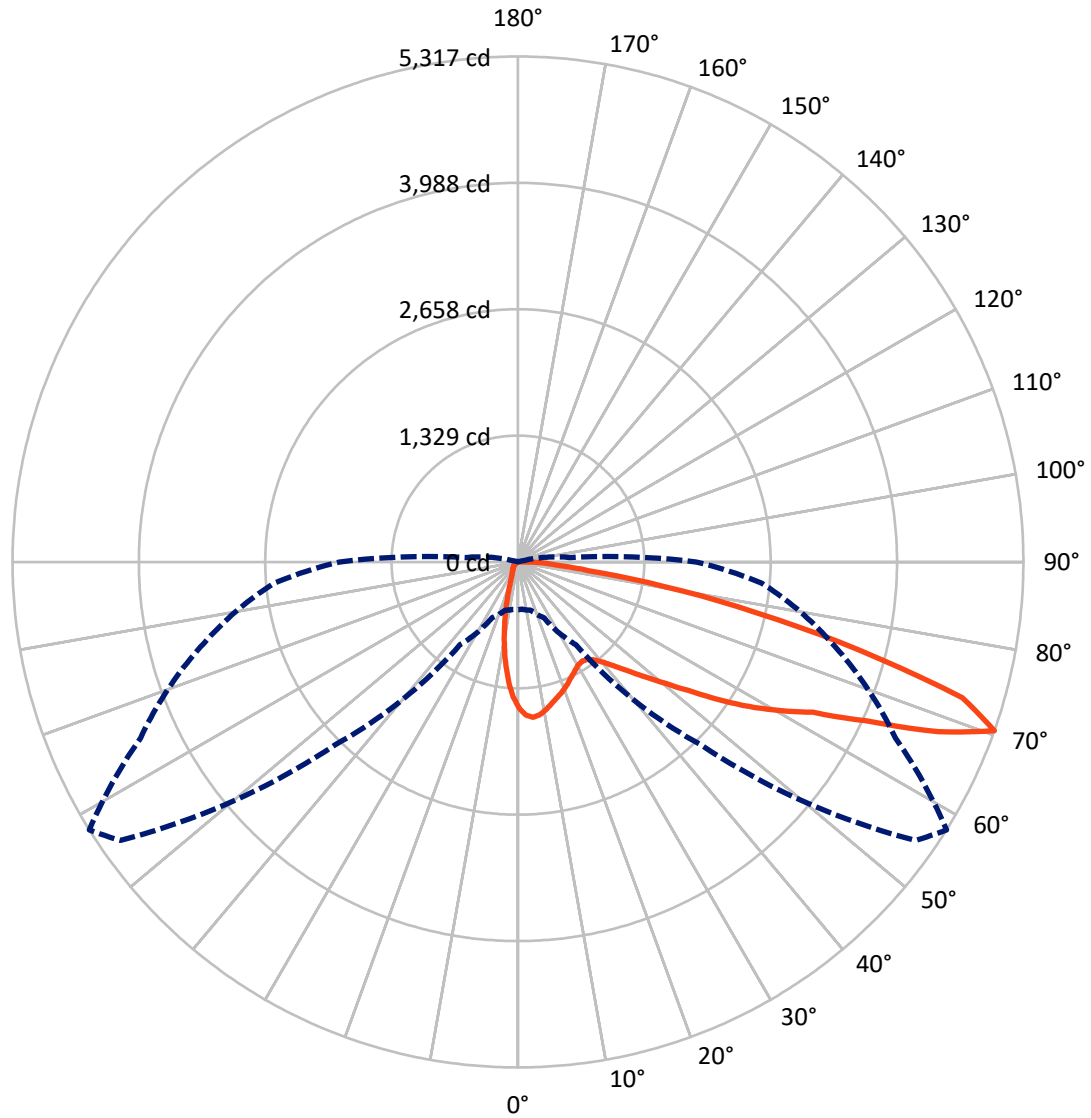
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 2.5 fc
 Type III - Medium - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 58-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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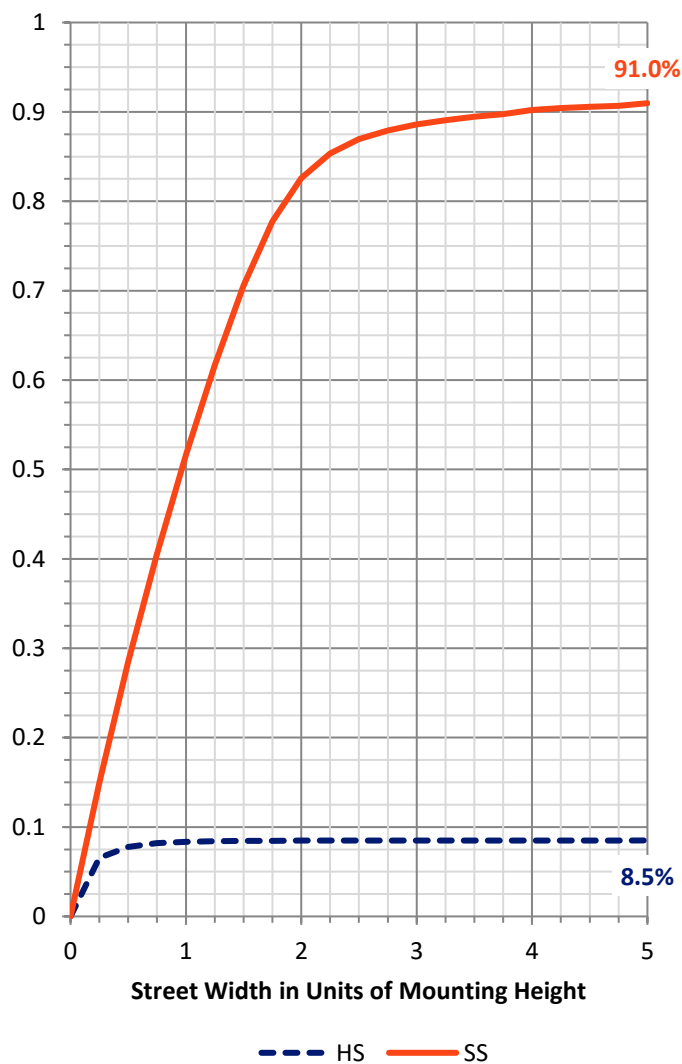
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 445.4 | 0.0 | 445.4 |
| | % Fixture | 8.6 | 0.0 | 8.6 |
| Street Side | Lumens | 4759.6 | 0.0 | 4759.6 |
| | % Fixture | 91.4 | 0.0 | 91.4 |
| Total | Lumens | 5205.0 | 0.0 | 5205.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 125.7 | 2.4 |
| 10°-20° | 263.9 | 5.1 |
| 20°-30° | 346.9 | 6.7 |
| 30°-40° | 459.4 | 8.8 |
| 40°-50° | 686.7 | 13.2 |
| 50°-60° | 1100.1 | 21.1 |
| 60°-70° | 1386.7 | 26.6 |
| 70°-80° | 748.0 | 14.4 |
| 80°-90° | 87.5 | 1.7 |
| 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° | 5205.0 | 100.0 |
| 0°-180° | 5205.0 | 100.0 |

Coefficient of Utilization



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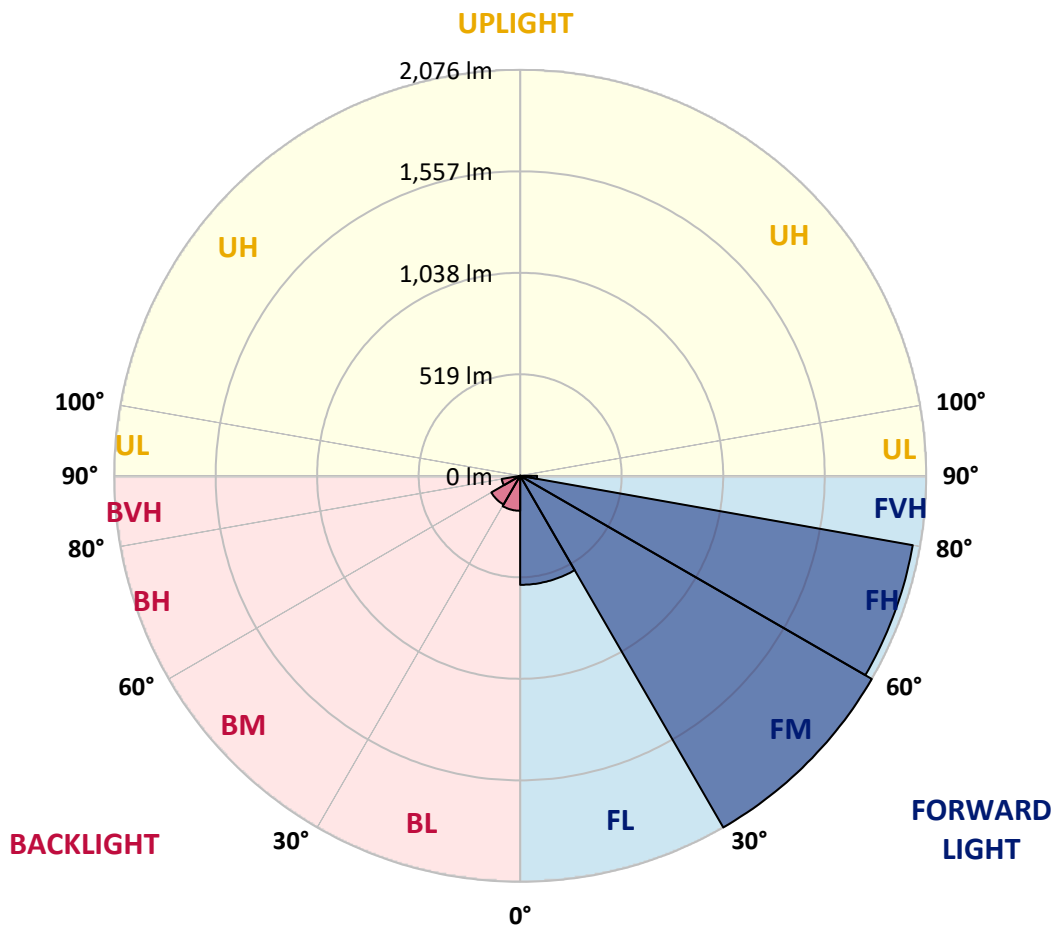
CATALOG NUMBER: GPC-SA1D-722-U-SL3-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 557.6 | 10.7 | | | |
| FM (30°-60°) | 2076.4 | 39.9 | | | |
| FH (60°-80°) | 2038.9 | 39.2 | | | G2/5000 |
| FVH (80°-90°) | 86.8 | 1.7 | | | G1/100 |
| BL (0°-30°) | 179.0 | 3.4 | B1/500 | | |
| BM (30°-60°) | 169.9 | 3.3 | B0/220 | | |
| BH (60°-80°) | 95.8 | 1.8 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.8 | 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-G2

Type III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 58° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 |
| 2.5° | 1665.0 | 1660.9 | 1659.4 | 1656.8 | 1646.8 | 1637.1 | 1617.8 | 1612.4 | 1600.3 | 1571.5 | 1541.0 |
| 5° | 1666.3 | 1666.1 | 1670.6 | 1669.6 | 1666.1 | 1661.5 | 1647.7 | 1640.6 | 1620.0 | 1578.9 | 1523.0 |
| 7.5° | 1586.0 | 1590.1 | 1600.3 | 1608.5 | 1618.0 | 1630.4 | 1632.1 | 1625.2 | 1608.3 | 1563.9 | 1489.9 |
| 10° | 1478.2 | 1484.7 | 1499.0 | 1515.2 | 1540.1 | 1564.8 | 1586.9 | 1586.0 | 1580.2 | 1536.5 | 1450.1 |
| 12.5° | 1370.2 | 1377.8 | 1394.3 | 1418.3 | 1453.6 | 1493.8 | 1533.2 | 1538.6 | 1548.4 | 1511.8 | 1413.3 |
| 15° | 1275.6 | 1282.1 | 1298.4 | 1327.8 | 1371.5 | 1425.6 | 1483.4 | 1493.4 | 1518.5 | 1492.5 | 1382.6 |
| 17.5° | 1195.4 | 1199.5 | 1211.4 | 1244.1 | 1294.7 | 1360.3 | 1435.4 | 1454.9 | 1492.3 | 1477.4 | 1355.9 |
| 20° | 1139.3 | 1139.9 | 1147.7 | 1170.7 | 1221.3 | 1294.7 | 1385.6 | 1413.5 | 1464.6 | 1464.4 | 1328.5 |
| 22.5° | 1111.6 | 1109.4 | 1110.9 | 1124.1 | 1161.4 | 1232.1 | 1335.8 | 1368.9 | 1439.7 | 1453.3 | 1300.5 |
| 25° | 1106.4 | 1104.7 | 1100.3 | 1102.1 | 1124.6 | 1177.4 | 1285.6 | 1323.9 | 1417.8 | 1446.6 | 1276.3 |
| 27.5° | 1122.6 | 1124.4 | 1117.0 | 1109.2 | 1110.9 | 1141.9 | 1241.0 | 1285.4 | 1400.1 | 1446.6 | 1259.2 |
| 30° | 1155.3 | 1156.2 | 1150.8 | 1140.6 | 1127.0 | 1131.9 | 1210.1 | 1254.4 | 1391.2 | 1456.6 | 1248.4 |
| 32.5° | 1191.5 | 1196.2 | 1195.6 | 1187.3 | 1167.9 | 1147.7 | 1202.7 | 1243.2 | 1390.6 | 1478.7 | 1247.3 |
| 35° | 1236.3 | 1241.7 | 1250.8 | 1249.0 | 1228.7 | 1195.6 | 1227.8 | 1259.6 | 1403.3 | 1515.0 | 1259.0 |
| 37.5° | 1283.9 | 1292.1 | 1311.6 | 1320.9 | 1307.7 | 1270.2 | 1284.1 | 1306.8 | 1437.5 | 1573.9 | 1288.6 |
| 40° | 1330.0 | 1339.3 | 1374.8 | 1411.4 | 1401.4 | 1362.9 | 1369.4 | 1387.5 | 1498.4 | 1658.5 | 1344.9 |
| 42.5° | 1375.2 | 1389.1 | 1441.2 | 1501.4 | 1513.3 | 1482.6 | 1486.0 | 1500.5 | 1588.6 | 1775.0 | 1436.9 |
| 45° | 1429.3 | 1444.9 | 1522.2 | 1596.4 | 1628.2 | 1614.8 | 1629.5 | 1639.0 | 1706.6 | 1928.8 | 1560.9 |
| 47.5° | 1508.7 | 1526.7 | 1621.5 | 1706.1 | 1762.0 | 1770.6 | 1800.3 | 1806.6 | 1855.7 | 2108.0 | 1722.6 |
| 50° | 1663.7 | 1668.7 | 1754.4 | 1831.2 | 1911.7 | 1963.7 | 1997.5 | 2002.2 | 2036.2 | 2303.9 | 1924.5 |
| 52.5° | 1858.7 | 1862.0 | 1910.4 | 1962.0 | 2053.5 | 2159.6 | 2238.6 | 2245.3 | 2252.4 | 2494.8 | 2123.8 |
| 55° | 2052.4 | 2052.0 | 2084.0 | 2114.3 | 2219.1 | 2373.2 | 2544.6 | 2548.7 | 2497.4 | 2676.0 | 2276.2 |
| 57.5° | 2173.4 | 2185.1 | 2233.8 | 2272.8 | 2419.1 | 2616.7 | 2854.5 | 2869.7 | 2754.7 | 2810.2 | 2426.9 |
| 60° | 2134.9 | 2140.5 | 2248.5 | 2392.7 | 2668.2 | 2962.7 | 3168.1 | 3172.0 | 2948.2 | 2944.1 | 2617.3 |
| 62.5° | 1818.9 | 1821.9 | 1991.6 | 2288.8 | 2794.4 | 3411.6 | 3546.5 | 3483.0 | 3170.7 | 3130.0 | 2845.2 |
| 65° | 1246.6 | 1266.3 | 1408.1 | 1775.4 | 2562.6 | 3693.2 | 4132.1 | 4027.1 | 3509.9 | 3398.0 | 3051.3 |
| 67.5° | 734.1 | 730.0 | 800.1 | 1070.7 | 1882.1 | 3506.2 | 4873.0 | 4768.6 | 3972.4 | 3577.4 | 2990.9 |
| 70° | 501.5 | 498.7 | 525.5 | 648.2 | 1062.5 | 2719.9 | 5106.1 | 5316.7 | 4380.8 | 3456.6 | 2574.0 |
| 72.5° | 358.0 | 359.5 | 399.1 | 503.6 | 667.0 | 1584.7 | 4391.0 | 4889.4 | 4252.9 | 3013.4 | 1956.5 |
| 75° | 243.1 | 247.2 | 303.9 | 413.2 | 584.8 | 806.2 | 3116.0 | 3716.8 | 3463.1 | 2190.1 | 1124.6 |
| 77.5° | 130.7 | 135.3 | 202.1 | 332.9 | 528.7 | 560.1 | 2004.4 | 2558.0 | 2175.4 | 984.5 | 325.9 |
| 80° | 54.5 | 57.1 | 94.6 | 242.0 | 456.9 | 491.9 | 1179.3 | 1551.2 | 927.0 | 194.1 | 72.7 |
| 82.5° | 23.6 | 24.9 | 39.4 | 144.4 | 341.5 | 415.3 | 624.4 | 746.3 | 280.9 | 42.6 | 36.6 |
| 85° | 4.5 | 4.8 | 16.2 | 76.4 | 217.9 | 234.4 | 404.7 | 396.7 | 126.2 | 18.4 | 26.6 |
| 87.5° | 0.0 | 0.0 | 3.9 | 24.0 | 64.1 | 127.7 | 246.9 | 243.9 | 42.9 | 8.9 | 10.0 |
| 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: GPC-SA1D-722-U-SL3-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 | 1537.5 |
| 2.5° | 1525.4 | 1510.5 | 1479.1 | 1440.4 | 1410.7 | 1378.0 | 1352.1 | 1319.2 | 1304.9 | 1305.5 | 1297.7 |
| 5° | 1491.2 | 1460.5 | 1391.0 | 1303.4 | 1235.8 | 1166.1 | 1106.2 | 1046.4 | 1011.2 | 999.7 | 988.9 |
| 7.5° | 1442.3 | 1393.6 | 1282.8 | 1147.7 | 1033.5 | 921.8 | 824.6 | 739.1 | 685.0 | 658.6 | 648.9 |
| 10° | 1387.1 | 1318.7 | 1158.3 | 980.4 | 817.2 | 666.2 | 540.2 | 430.7 | 387.0 | 357.3 | 349.8 |
| 12.5° | 1338.6 | 1246.0 | 1036.7 | 808.8 | 615.1 | 432.9 | 312.7 | 244.6 | 214.9 | 203.2 | 201.3 |
| 15° | 1293.0 | 1178.0 | 919.6 | 653.4 | 425.9 | 266.4 | 198.9 | 175.7 | 168.8 | 166.9 | 166.9 |
| 17.5° | 1249.9 | 1113.3 | 805.1 | 500.4 | 281.8 | 186.8 | 164.7 | 159.5 | 157.3 | 157.1 | 157.3 |
| 20° | 1204.9 | 1048.6 | 692.6 | 366.6 | 196.7 | 158.2 | 152.2 | 149.3 | 148.7 | 148.7 | 148.7 |
| 22.5° | 1161.8 | 983.9 | 583.1 | 261.9 | 157.8 | 144.4 | 141.3 | 139.4 | 138.7 | 138.5 | 138.1 |
| 25° | 1120.5 | 922.4 | 476.2 | 185.0 | 138.5 | 132.2 | 129.6 | 127.0 | 125.1 | 124.0 | 123.4 |
| 27.5° | 1086.5 | 867.7 | 376.6 | 148.5 | 125.1 | 119.7 | 116.4 | 112.5 | 107.8 | 105.6 | 104.8 |
| 30° | 1059.4 | 817.7 | 290.2 | 125.3 | 112.5 | 107.1 | 102.2 | 95.4 | 88.5 | 84.8 | 84.6 |
| 32.5° | 1038.2 | 768.5 | 220.3 | 110.8 | 101.3 | 94.6 | 87.4 | 79.0 | 71.0 | 66.9 | 66.7 |
| 35° | 1027.8 | 725.3 | 168.4 | 100.2 | 91.3 | 82.9 | 74.0 | 64.7 | 56.9 | 53.0 | 52.6 |
| 37.5° | 1034.8 | 688.7 | 131.4 | 91.3 | 82.9 | 73.2 | 62.8 | 53.0 | 46.1 | 42.6 | 42.4 |
| 40° | 1060.1 | 665.3 | 106.7 | 83.8 | 75.8 | 63.8 | 52.6 | 43.5 | 37.7 | 34.8 | 34.6 |
| 42.5° | 1114.0 | 656.7 | 91.1 | 77.5 | 68.8 | 55.2 | 43.7 | 35.9 | 30.5 | 28.6 | 28.1 |
| 45° | 1204.0 | 669.4 | 80.5 | 71.4 | 61.7 | 47.0 | 36.1 | 29.4 | 24.7 | 23.2 | 22.9 |
| 47.5° | 1323.9 | 703.0 | 72.9 | 65.6 | 55.2 | 39.6 | 30.1 | 23.8 | 20.1 | 18.6 | 18.4 |
| 50° | 1478.4 | 756.2 | 66.7 | 59.7 | 49.1 | 33.5 | 24.9 | 18.8 | 15.6 | 14.5 | 14.5 |
| 52.5° | 1646.6 | 819.6 | 61.0 | 54.3 | 43.1 | 27.9 | 20.1 | 14.5 | 12.3 | 11.0 | 11.0 |
| 55° | 1785.6 | 875.0 | 55.0 | 50.2 | 35.7 | 23.2 | 15.4 | 11.0 | 9.1 | 8.4 | 8.4 |
| 57.5° | 1924.3 | 934.1 | 48.0 | 43.1 | 28.6 | 18.8 | 11.7 | 8.2 | 6.7 | 6.3 | 6.3 |
| 60° | 2104.2 | 1006.4 | 41.3 | 35.1 | 22.5 | 14.3 | 8.7 | 5.8 | 5.0 | 4.8 | 4.8 |
| 62.5° | 2302.0 | 1048.8 | 35.3 | 28.1 | 17.5 | 10.6 | 6.3 | 3.9 | 3.7 | 3.7 | 3.5 |
| 65° | 2423.0 | 988.9 | 29.7 | 22.5 | 13.6 | 8.0 | 4.1 | 2.8 | 3.2 | 3.0 | 2.6 |
| 67.5° | 2268.6 | 774.2 | 24.2 | 17.5 | 10.6 | 6.1 | 2.6 | 1.9 | 3.5 | 2.8 | 2.2 |
| 70° | 1878.4 | 541.9 | 18.8 | 12.3 | 8.4 | 5.2 | 1.7 | 1.3 | 3.7 | 2.8 | 1.7 |
| 72.5° | 1405.7 | 362.7 | 14.9 | 8.2 | 6.3 | 4.5 | 1.5 | 0.6 | 3.2 | 2.4 | 1.5 |
| 75° | 768.1 | 146.1 | 11.9 | 5.2 | 3.9 | 3.2 | 1.1 | 0.4 | 2.2 | 1.7 | 1.1 |
| 77.5° | 202.1 | 38.5 | 8.7 | 3.5 | 2.2 | 1.3 | 0.6 | 0.2 | 1.1 | 0.9 | 0.4 |
| 80° | 51.5 | 14.9 | 5.6 | 2.4 | 1.5 | 0.6 | 0.0 | 0.0 | 0.2 | 0.0 | 0.0 |
| 82.5° | 27.5 | 6.3 | 3.5 | 1.7 | 0.9 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 20.8 | 4.1 | 1.9 | 1.1 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 8.0 | 1.3 | 0.6 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 90° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |

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



Test Information

Test Method: LM-79-2008 Report
 Number: SP1-1908-441-10-R4
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/28/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW-EDISON
 Catalog Number: **SA1C-722-U-5WQ**
 Description: MCGRAW EDISON ROADWAY AND AREA LUMINAIRE

THIS IS A REVISION OF SP1-1908-441-4-R3. TO UPDATE THE CATALOG INFORMATION.TESTED IN SITU. ROADWAY AND AREA LUMINAIRE. (1) 70 CRI, 5000K, 1050MA LIGHTSQUARE WITH 16 LEDS AND TYPE V WIDE OPTICS.

Spectral Parameters

CCT (K): 2237
 CIE u': 0.2876
 CIE v': 0.5346
 Duv: -0.0006
 CIE x: 0.5005
 CIE y: 0.4134
 CIE z: 0.0860
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 587
 Purity: 74.5

| | | | |
|-----------|------|------|-------|
| CRI (Ra): | 72.0 | | |
| R1: | 68.9 | R9: | -17.4 |
| R2: | 83.0 | R10: | 61.3 |
| R3: | 95.2 | R11: | 59.8 |
| R4: | 66.2 | R12: | 50.5 |
| R5: | 65.9 | R13: | 71.1 |
| R6: | 76.3 | R14: | 96.9 |
| R7: | 76.7 | | |
| R8: | 43.8 | | |

Rf: 69.8
 Rg: 99.2



Test Conditions

Stabilization Time: 71M
 Operation Time: 12H
 Room Temperature (°C) / RH%: 24.7/41%
 Sphere Temperature (°C): 25.6

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

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/28/2019 | 12/28/2019 |
| Power Meter | IN0071 | 12/5/2018 | 12/5/2019 |
| AC Power Source | IN0063 | 12/5/2018 | 12/5/2019 |
| DC Power Source | IN0208 | 12/5/2018 | 12/5/2019 |
| Sphere Thermometer | IN0085 | 12/5/2018 | 12/5/2019 |
| Room Thermometer | IN0046 | 12/5/2018 | 12/5/2019 |

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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 2200K 4-step quadrangle

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

Photopic Flux vs. Wavelength

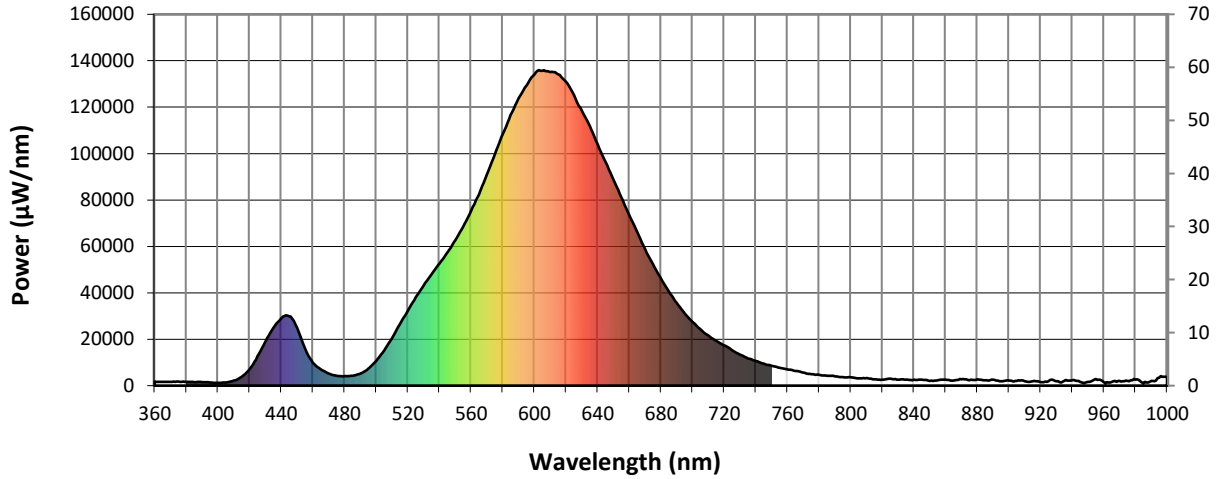


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| λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) | λ (nm) | Power (µW/nm) | Lumens (φ/nm) |
|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|--------|---------------|---------------|
| 360 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

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Scotopic Flux vs. Wavelength



Scotopic Lumens: 4696.9

S/P: 0.85

| 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 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

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

Melanopic Flux vs. Wavelength



Melanopic Lumens: 1470.8 M/P: 0.27

| 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 | 1768 | NR | 490 | 5206 | NR | 620 | 130919 | NR | 750 | 8553 | NR | 880 | 2713 | NR |
| 365 | 1569 | NR | 495 | 7286 | NR | 625 | 125335 | NR | 755 | 7696 | NR | 885 | 2316 | NR |
| 370 | 1594 | NR | 500 | 10654 | NR | 630 | 118388 | NR | 760 | 6978 | NR | 890 | 2539 | NR |
| 375 | 1744 | NR | 505 | 15189 | NR | 635 | 111855 | NR | 765 | 6377 | NR | 895 | 1933 | NR |
| 380 | 1659 | NR | 510 | 20541 | NR | 640 | 104062 | NR | 770 | 5600 | NR | 900 | 2216 | NR |
| 385 | 1504 | NR | 515 | 26492 | NR | 645 | 96365 | NR | 775 | 5000 | NR | 905 | 2067 | NR |
| 390 | 1541 | NR | 520 | 32294 | NR | 650 | 88651 | NR | 780 | 4709 | NR | 910 | 1959 | NR |
| 395 | 1355 | NR | 525 | 38123 | NR | 655 | 81152 | NR | 785 | 4305 | NR | 915 | 1874 | NR |
| 400 | 1243 | NR | 530 | 43232 | NR | 660 | 73523 | NR | 790 | 4040 | NR | 920 | 1484 | NR |
| 405 | 1417 | NR | 535 | 48012 | NR | 665 | 66123 | NR | 795 | 3642 | NR | 925 | 1914 | NR |
| 410 | 2147 | NR | 540 | 52623 | NR | 670 | 58677 | NR | 800 | 3594 | NR | 930 | 1948 | NR |
| 415 | 3837 | NR | 545 | 57516 | NR | 675 | 52349 | NR | 805 | 3190 | NR | 935 | 2079 | NR |
| 420 | 7159 | NR | 550 | 62613 | NR | 680 | 46159 | NR | 810 | 3241 | NR | 940 | 2263 | NR |
| 425 | 12599 | NR | 555 | 68554 | NR | 685 | 40525 | NR | 815 | 2732 | NR | 945 | 1688 | NR |
| 430 | 19019 | NR | 560 | 75325 | NR | 690 | 35615 | NR | 820 | 2612 | NR | 950 | 1560 | NR |
| 435 | 24875 | NR | 565 | 82533 | NR | 695 | 31158 | NR | 825 | 2966 | NR | 955 | 2826 | NR |
| 440 | 29103 | NR | 570 | 90909 | NR | 700 | 27409 | NR | 830 | 2574 | NR | 960 | 1477 | NR |
| 445 | 29901 | NR | 575 | 99621 | NR | 705 | 24204 | NR | 835 | 2633 | NR | 965 | 1568 | NR |
| 450 | 24862 | NR | 580 | 108484 | NR | 710 | 21558 | NR | 840 | 2526 | NR | 970 | 2030 | NR |
| 455 | 15942 | NR | 585 | 116679 | NR | 715 | 19222 | NR | 845 | 2631 | NR | 975 | 1986 | NR |
| 460 | 9916 | NR | 590 | 123752 | NR | 720 | 17310 | NR | 850 | 2079 | NR | 980 | 2540 | NR |
| 465 | 7051 | NR | 595 | 129324 | NR | 725 | 15280 | NR | 855 | 2309 | NR | 985 | 1139 | NR |
| 470 | 5227 | NR | 600 | 134082 | NR | 730 | 13282 | NR | 860 | 2528 | NR | 990 | 2018 | NR |
| 475 | 4257 | NR | 605 | 135698 | NR | 735 | 11753 | NR | 865 | 2121 | NR | 995 | 3445 | NR |
| 480 | 4052 | NR | 610 | 135144 | NR | 740 | 10654 | NR | 870 | 2751 | NR | 1000 | 3704 | NR |
| 485 | 4298 | NR | 615 | 134180 | NR | 745 | 9451 | NR | 875 | 2317 | NR | | | |

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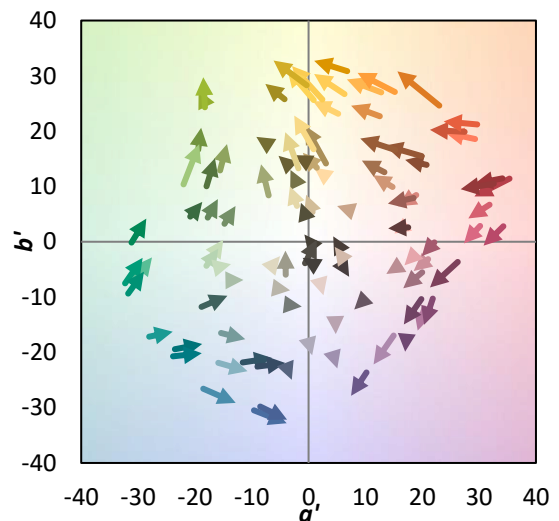
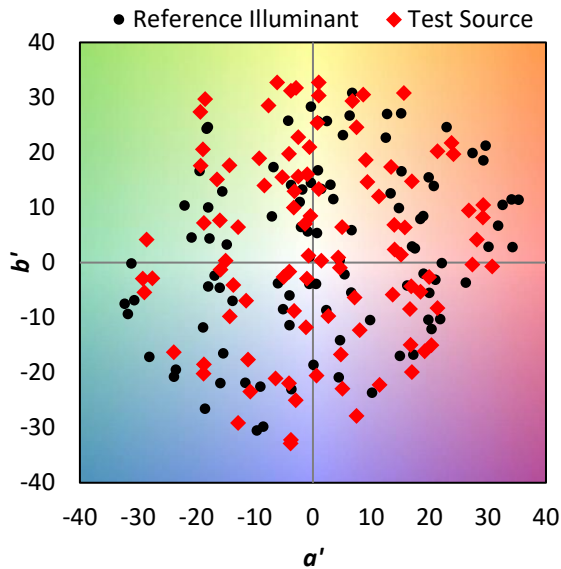
TM-30-18

Summary

$R_f = 69.8$
 $R_g = 99.2$
 $CIE R_a = 72.0$
 $R_9 = -17.4$



Color Vector Graphics

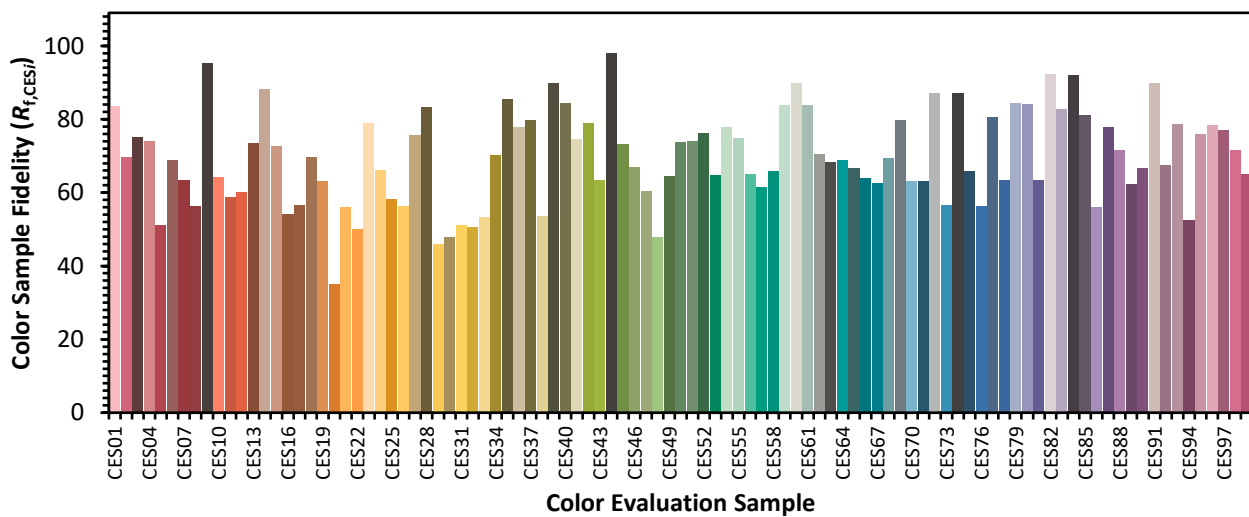


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Individual Sample Fidelity Index ($R_{f,i}$)

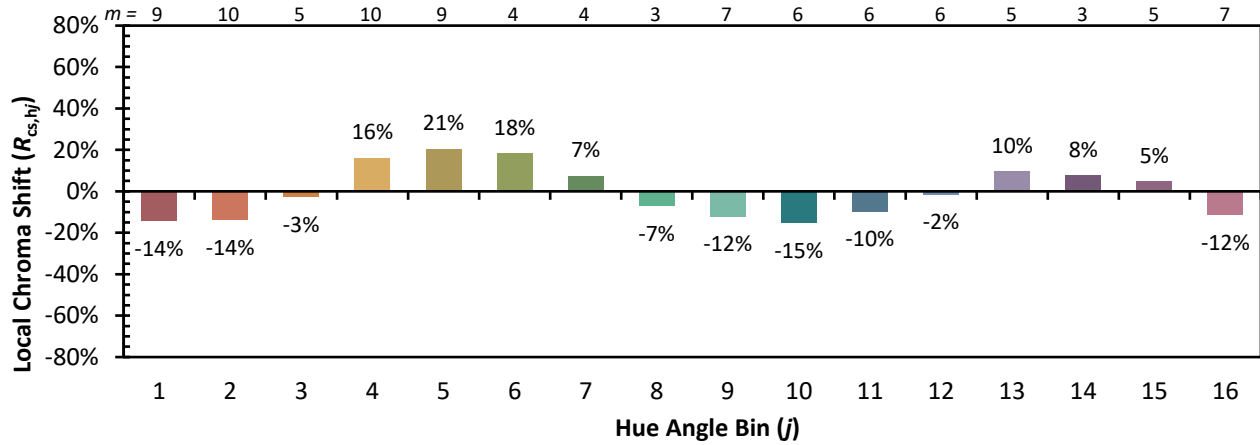
| | | | |
|------------|------------|------------|------------|
| CES01 = 87 | CES26 = 56 | CES51 = 74 | CES76 = 56 |
| CES02 = 65 | CES27 = 76 | CES52 = 76 | CES77 = 81 |
| CES03 = 32 | CES28 = 83 | CES53 = 65 | CES78 = 63 |
| CES04 = 72 | CES29 = 46 | CES54 = 78 | CES79 = 84 |
| CES05 = 52 | CES30 = 48 | CES55 = 75 | CES80 = 84 |
| CES06 = 52 | CES31 = 51 | CES56 = 65 | CES81 = 63 |
| CES07 = 44 | CES32 = 51 | CES57 = 62 | CES82 = 92 |
| CES08 = 42 | CES33 = 53 | CES58 = 66 | CES83 = 83 |
| CES09 = 29 | CES34 = 70 | CES59 = 84 | CES84 = 92 |
| CES10 = 78 | CES35 = 85 | CES60 = 90 | CES85 = 81 |
| CES11 = 61 | CES36 = 78 | CES61 = 84 | CES86 = 56 |
| CES12 = 68 | CES37 = 80 | CES62 = 70 | CES87 = 78 |
| CES13 = 45 | CES38 = 53 | CES63 = 68 | CES88 = 72 |
| CES14 = 75 | CES39 = 90 | CES64 = 69 | CES89 = 62 |
| CES15 = 72 | CES40 = 84 | CES65 = 67 | CES90 = 67 |
| CES16 = 49 | CES41 = 75 | CES66 = 64 | CES91 = 90 |
| CES17 = 51 | CES42 = 79 | CES67 = 63 | CES92 = 67 |
| CES18 = 57 | CES43 = 64 | CES68 = 69 | CES93 = 79 |
| CES19 = 74 | CES44 = 98 | CES69 = 80 | CES94 = 52 |
| CES20 = 68 | CES45 = 73 | CES70 = 63 | CES95 = 76 |
| CES21 = 89 | CES46 = 67 | CES71 = 63 | CES96 = 78 |
| CES22 = 81 | CES47 = 60 | CES72 = 87 | CES97 = 77 |
| CES23 = 92 | CES48 = 48 | CES73 = 56 | CES98 = 71 |
| CES24 = 92 | CES49 = 64 | CES74 = 87 | CES99 = 65 |
| CES25 = 74 | CES50 = 74 | CES75 = 66 | |



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Color Rendition by Hue-Angle Bin



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Measure Comparisons



(END OF REPORT)