

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: P386936

Luminaire Tested: **GPC-SA2C-827-U-T4W-HSS**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P386936
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-19)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GPC-SA2C-827-U-T4W-HSS
Description: GALLEON PEDESTRIAN LUMINAIRE
(2) 80 CRI, 2700K, 1050mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS WITH HOUSE SIDE SHIELD
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 7866 lumens
Efficiency: N/A
Efficacy: 70.9 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B1 - U0 - G2

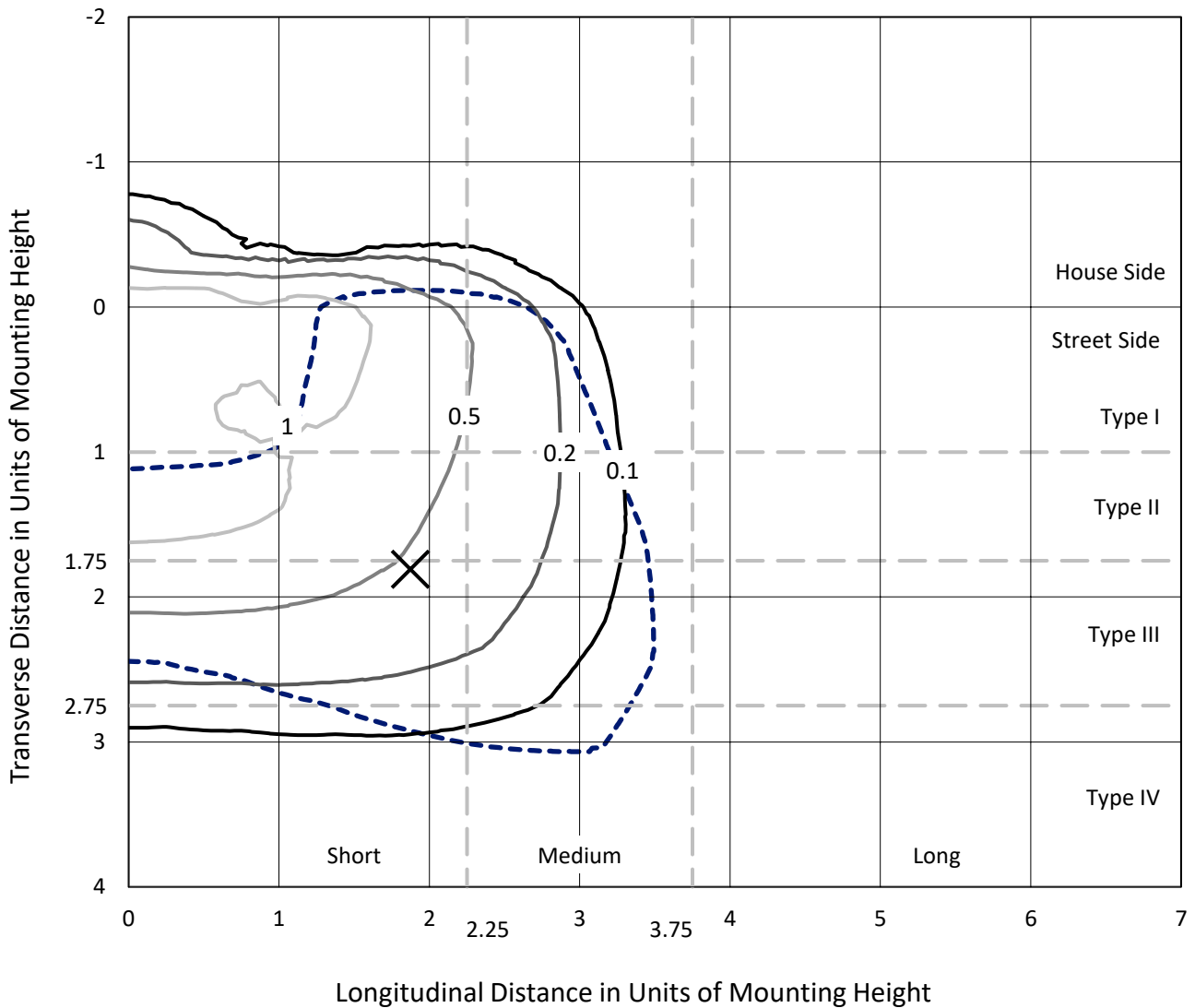
Input Watts (W): 111
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

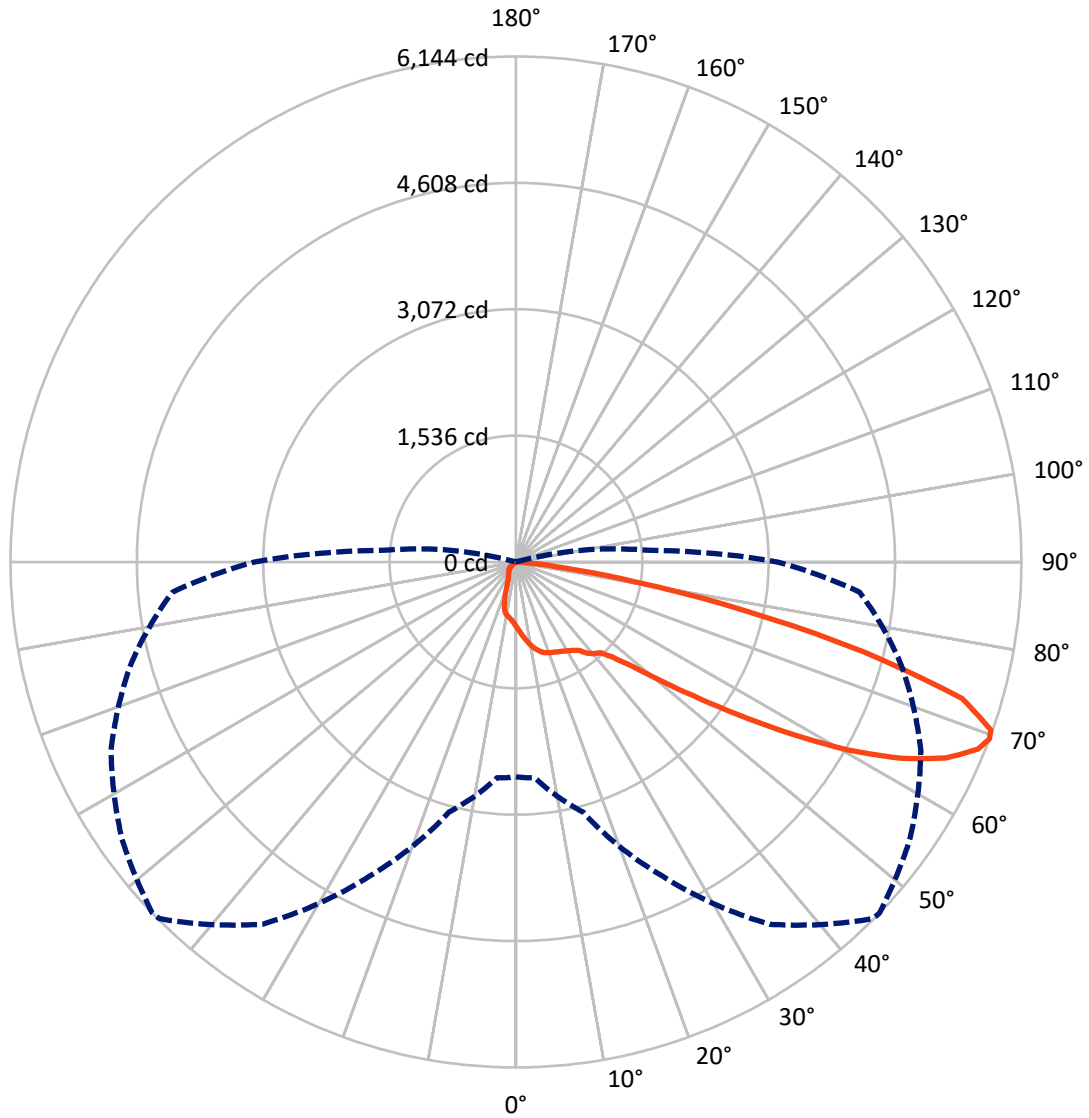
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 1.8 fc
 Type IV - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 46-Deg Lateral - - - Horizontal Cone Through 69-Deg Vertical

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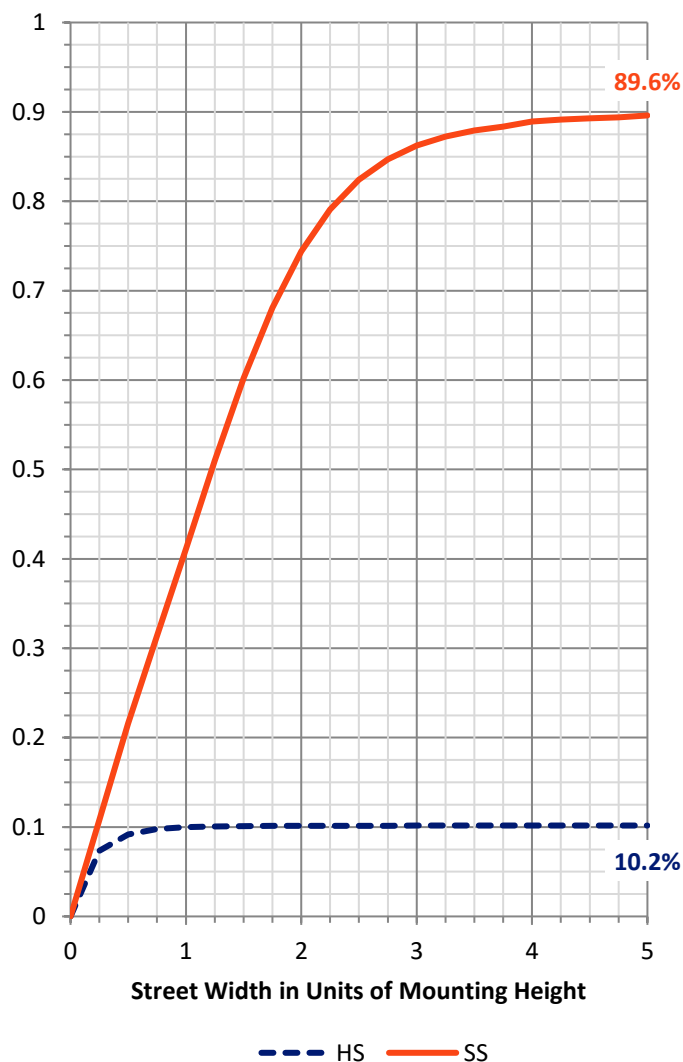
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 807.3 | 0.0 | 807.3 |
| | % Fixture | 10.3 | 0.0 | 10.3 |
| Street Side | Lumens | 7058.7 | 0.0 | 7058.7 |
| | % Fixture | 89.7 | 0.0 | 89.7 |
| Total | Lumens | 7866.0 | 0.0 | 7866.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 78.4 | 1.0 |
| 10°-20° | 238.0 | 3.0 |
| 20°-30° | 374.3 | 4.8 |
| 30°-40° | 536.7 | 6.8 |
| 40°-50° | 927.7 | 11.8 |
| 50°-60° | 1832.7 | 23.3 |
| 60°-70° | 2561.3 | 32.6 |
| 70°-80° | 1237.4 | 15.7 |
| 80°-90° | 79.5 | 1.0 |
| 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° | 7866.0 | 100.0 |
| 0°-180° | 7866.0 | 100.0 |

Coefficient of Utilization

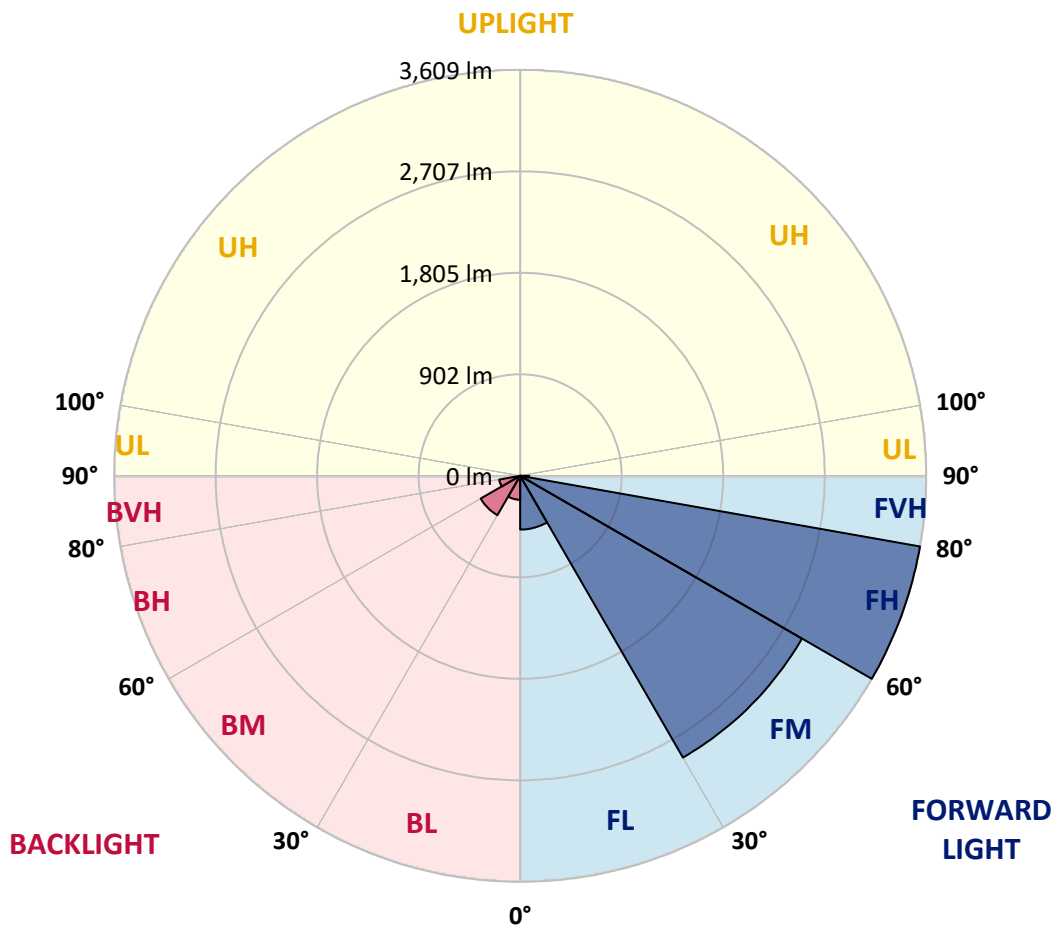


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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 478.0 | 6.1 | | | |
| FM (30°-60°) | 2892.5 | 36.8 | | | |
| FH (60°-80°) | 3609.4 | 45.9 | | | G2/5000 |
| FVH (80°-90°) | 78.9 | 1.0 | | | G1/100 |
| BL (0°-30°) | 212.8 | 2.7 | B1/500 | | |
| BM (30°-60°) | 404.5 | 5.1 | B1/1000 | | |
| BH (60°-80°) | 189.3 | 2.4 | B1/500 | | G1/500 |
| BVH (80°-90°) | 0.7 | 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 IV Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 46° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 |
| 2.5° | 875.6 | 874.4 | 869.3 | 867.1 | 854.5 | 847.2 | 844.2 | 835.0 | 821.7 | 808.4 | 793.7 |
| 5° | 975.1 | 974.8 | 965.2 | 956.0 | 932.3 | 910.2 | 906.2 | 884.8 | 854.9 | 826.9 | 798.8 |
| 7.5° | 1076.9 | 1072.1 | 1062.5 | 1044.8 | 1010.5 | 975.1 | 971.8 | 941.6 | 899.2 | 858.6 | 818.4 |
| 10° | 1163.2 | 1160.3 | 1147.7 | 1120.8 | 1080.6 | 1040.4 | 1036.4 | 999.1 | 951.2 | 901.4 | 850.1 |
| 12.5° | 1230.3 | 1228.1 | 1211.5 | 1178.0 | 1135.2 | 1093.5 | 1088.0 | 1054.8 | 1003.5 | 947.8 | 887.4 |
| 15° | 1271.3 | 1270.2 | 1249.9 | 1214.1 | 1172.1 | 1135.9 | 1131.1 | 1102.0 | 1054.4 | 996.2 | 927.9 |
| 17.5° | 1280.9 | 1281.2 | 1260.2 | 1224.1 | 1189.4 | 1163.6 | 1159.9 | 1137.8 | 1097.9 | 1040.0 | 968.5 |
| 20° | 1259.5 | 1263.9 | 1245.1 | 1213.7 | 1192.4 | 1178.7 | 1175.8 | 1162.5 | 1128.9 | 1074.3 | 1000.9 |
| 22.5° | 1229.2 | 1231.5 | 1218.5 | 1197.5 | 1188.7 | 1191.3 | 1189.8 | 1182.4 | 1154.0 | 1103.8 | 1033.0 |
| 25° | 1210.8 | 1210.8 | 1203.1 | 1185.4 | 1191.3 | 1207.1 | 1207.5 | 1206.0 | 1183.5 | 1140.0 | 1072.1 |
| 27.5° | 1210.1 | 1207.8 | 1199.0 | 1185.7 | 1201.9 | 1226.3 | 1227.8 | 1237.7 | 1223.7 | 1183.9 | 1120.8 |
| 30° | 1239.6 | 1237.0 | 1218.2 | 1200.8 | 1221.5 | 1247.7 | 1251.4 | 1273.1 | 1266.1 | 1231.5 | 1175.0 |
| 32.5° | 1308.5 | 1299.3 | 1257.6 | 1229.2 | 1244.7 | 1276.1 | 1280.9 | 1315.5 | 1326.6 | 1290.1 | 1227.4 |
| 35° | 1402.9 | 1373.8 | 1313.7 | 1283.1 | 1284.6 | 1317.4 | 1321.8 | 1372.7 | 1405.5 | 1343.9 | 1268.0 |
| 37.5° | 1533.1 | 1518.8 | 1421.0 | 1339.1 | 1345.8 | 1395.6 | 1408.5 | 1463.8 | 1454.6 | 1373.4 | 1314.1 |
| 40° | 1818.6 | 1796.1 | 1692.1 | 1496.3 | 1404.4 | 1459.0 | 1463.1 | 1492.6 | 1493.3 | 1440.2 | 1410.0 |
| 42.5° | 2207.3 | 2198.1 | 2088.6 | 1781.3 | 1519.9 | 1501.4 | 1508.8 | 1558.6 | 1614.3 | 1581.1 | 1579.6 |
| 45° | 2637.7 | 2632.9 | 2516.7 | 2159.7 | 1753.3 | 1640.5 | 1649.7 | 1716.4 | 1823.0 | 1830.4 | 1877.2 |
| 47.5° | 2984.0 | 2981.8 | 2915.1 | 2582.0 | 2110.7 | 1876.1 | 1879.1 | 1949.9 | 2137.2 | 2229.8 | 2304.7 |
| 50° | 3299.7 | 3310.4 | 3257.7 | 3039.0 | 2597.5 | 2245.3 | 2238.3 | 2285.5 | 2586.5 | 2738.0 | 2831.0 |
| 52.5° | 3738.6 | 3753.7 | 3605.8 | 3465.3 | 3108.3 | 2703.4 | 2697.8 | 2747.3 | 3126.4 | 3240.0 | 3256.6 |
| 55° | 4126.2 | 4100.4 | 3983.5 | 3942.9 | 3731.2 | 3269.1 | 3267.6 | 3311.2 | 3648.6 | 3696.9 | 3727.5 |
| 57.5° | 4297.4 | 4287.4 | 4343.8 | 4436.8 | 4383.7 | 3937.8 | 3934.4 | 3901.3 | 4115.9 | 4121.1 | 4215.1 |
| 60° | 4405.4 | 4417.6 | 4590.6 | 4877.1 | 5009.5 | 4657.3 | 4635.9 | 4433.4 | 4562.2 | 4550.7 | 4651.4 |
| 62.5° | 4324.3 | 4348.3 | 4659.5 | 5137.1 | 5477.9 | 5285.4 | 5255.2 | 4921.0 | 4943.5 | 4904.0 | 4997.7 |
| 65° | 3893.5 | 3930.8 | 4440.8 | 5088.1 | 5710.3 | 5776.3 | 5745.7 | 5351.4 | 5246.3 | 5181.4 | 5129.4 |
| 67.5° | 3161.4 | 3183.6 | 3716.1 | 4661.4 | 5605.5 | 6069.1 | 6062.8 | 5728.7 | 5475.0 | 5134.6 | 4731.1 |
| 69° | 2612.6 | 2634.4 | 3147.0 | 4212.2 | 5375.0 | 6131.8 | 6144.0 | 5849.7 | 5431.4 | 4849.8 | 4191.9 |
| 70° | 2212.9 | 2236.1 | 2713.7 | 3827.1 | 5107.6 | 6102.7 | 6124.4 | 5838.2 | 5306.8 | 4520.1 | 3718.7 |
| 72.5° | 1160.6 | 1180.6 | 1670.7 | 2636.6 | 4163.8 | 5603.7 | 5669.7 | 5344.8 | 4498.4 | 3282.8 | 2198.8 |
| 75° | 364.8 | 376.2 | 652.4 | 1378.2 | 2850.9 | 4357.1 | 4372.2 | 4192.6 | 3194.3 | 1805.7 | 915.8 |
| 77.5° | 139.0 | 135.7 | 217.2 | 507.8 | 1441.3 | 2743.6 | 2836.1 | 2620.0 | 1676.2 | 638.4 | 211.3 |
| 80° | 74.9 | 75.2 | 112.9 | 210.2 | 616.6 | 1410.0 | 1488.1 | 1269.8 | 595.6 | 199.2 | 48.7 |
| 82.5° | 32.5 | 33.9 | 63.4 | 111.4 | 283.2 | 520.0 | 559.1 | 465.4 | 227.6 | 133.9 | 18.1 |
| 85° | 7.0 | 7.7 | 30.6 | 60.5 | 115.4 | 146.0 | 153.1 | 150.8 | 144.9 | 104.0 | 7.0 |
| 87.5° | 0.0 | 0.0 | 13.6 | 21.8 | 29.1 | 33.2 | 29.1 | 38.0 | 80.0 | 70.1 | 3.7 |
| 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: GPC-SA2C-827-U-T4W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 | 788.1 |
| 2.5° | 788.9 | 782.2 | 770.8 | 758.3 | 749.4 | 740.2 | 732.8 | 729.5 | 725.8 | 723.2 | 726.6 |
| 5° | 787.4 | 774.5 | 752.4 | 731.0 | 715.5 | 702.9 | 692.6 | 688.6 | 684.5 | 681.6 | 681.2 |
| 7.5° | 800.3 | 782.2 | 748.3 | 717.0 | 693.0 | 676.0 | 662.0 | 656.1 | 651.3 | 649.1 | 647.3 |
| 10° | 825.0 | 801.8 | 756.4 | 715.5 | 684.5 | 655.7 | 625.5 | 602.3 | 587.1 | 580.1 | 577.6 |
| 12.5° | 857.1 | 828.0 | 771.9 | 723.2 | 678.2 | 622.9 | 558.7 | 503.4 | 467.6 | 455.8 | 448.8 |
| 15° | 894.7 | 858.6 | 792.2 | 733.2 | 655.4 | 554.3 | 445.5 | 373.2 | 340.0 | 333.4 | 326.0 |
| 17.5° | 930.9 | 891.0 | 816.5 | 735.0 | 605.2 | 442.9 | 326.4 | 277.3 | 264.4 | 268.9 | 270.0 |
| 20° | 962.6 | 923.1 | 840.5 | 718.8 | 514.1 | 332.3 | 252.6 | 240.5 | 245.3 | 253.7 | 255.2 |
| 22.5° | 994.7 | 954.1 | 862.6 | 676.0 | 397.6 | 252.3 | 227.6 | 230.5 | 235.3 | 243.8 | 245.3 |
| 25° | 1033.8 | 991.7 | 883.3 | 597.5 | 298.4 | 214.6 | 216.1 | 220.5 | 225.3 | 233.1 | 233.8 |
| 27.5° | 1078.8 | 1039.3 | 896.9 | 495.3 | 221.3 | 197.3 | 202.1 | 208.7 | 213.5 | 220.9 | 222.4 |
| 30° | 1138.5 | 1102.0 | 901.4 | 389.5 | 185.5 | 181.8 | 184.0 | 192.1 | 199.2 | 205.8 | 206.9 |
| 32.5° | 1194.6 | 1164.0 | 886.6 | 293.9 | 171.9 | 167.4 | 167.4 | 172.2 | 180.3 | 186.6 | 188.1 |
| 35° | 1246.2 | 1226.3 | 839.4 | 215.0 | 161.5 | 154.2 | 150.5 | 150.5 | 155.6 | 160.8 | 162.3 |
| 37.5° | 1314.4 | 1313.7 | 763.1 | 171.5 | 151.6 | 143.1 | 135.4 | 129.5 | 127.6 | 128.7 | 129.5 |
| 40° | 1431.3 | 1432.5 | 663.5 | 153.8 | 143.1 | 131.7 | 119.9 | 109.2 | 99.2 | 95.9 | 95.5 |
| 42.5° | 1613.9 | 1597.3 | 559.1 | 145.3 | 135.7 | 119.9 | 102.2 | 87.8 | 72.3 | 67.5 | 67.1 |
| 45° | 1903.8 | 1805.3 | 448.5 | 137.6 | 128.0 | 106.6 | 84.5 | 64.9 | 52.4 | 48.7 | 48.7 |
| 47.5° | 2326.1 | 2078.6 | 347.4 | 129.1 | 117.6 | 91.5 | 63.8 | 46.8 | 38.4 | 36.5 | 36.9 |
| 50° | 2762.7 | 2346.4 | 266.3 | 118.4 | 105.1 | 75.6 | 47.2 | 33.9 | 29.1 | 29.1 | 29.5 |
| 52.5° | 3150.0 | 2542.6 | 207.6 | 107.0 | 89.6 | 59.4 | 35.8 | 26.6 | 24.3 | 24.0 | 24.3 |
| 55° | 3512.5 | 2669.1 | 159.0 | 93.7 | 71.2 | 44.3 | 27.3 | 21.8 | 20.3 | 19.5 | 19.2 |
| 57.5° | 3862.2 | 2731.8 | 119.1 | 75.6 | 51.6 | 32.1 | 21.8 | 18.4 | 17.0 | 15.9 | 15.5 |
| 60° | 4094.9 | 2680.9 | 81.9 | 55.7 | 35.8 | 23.2 | 18.1 | 15.9 | 14.0 | 12.9 | 12.5 |
| 62.5° | 4226.2 | 2541.8 | 52.7 | 40.2 | 25.4 | 17.3 | 14.4 | 13.3 | 10.7 | 9.6 | 9.6 |
| 65° | 4173.1 | 2312.4 | 36.9 | 28.8 | 18.4 | 12.9 | 10.7 | 10.7 | 7.7 | 6.3 | 5.9 |
| 67.5° | 3698.0 | 1953.6 | 28.0 | 21.4 | 13.3 | 9.6 | 8.1 | 9.2 | 4.8 | 3.0 | 3.0 |
| 69° | 3181.7 | 1619.1 | 24.0 | 17.7 | 11.1 | 7.7 | 7.0 | 8.5 | 3.3 | 2.2 | 1.8 |
| 70° | 2765.3 | 1396.7 | 21.8 | 15.5 | 9.2 | 6.6 | 6.3 | 8.1 | 3.3 | 1.8 | 1.5 |
| 72.5° | 1654.5 | 778.9 | 16.6 | 11.1 | 5.9 | 5.2 | 5.2 | 9.2 | 3.3 | 1.8 | 1.5 |
| 75° | 668.6 | 274.4 | 12.2 | 7.7 | 4.4 | 4.4 | 6.3 | 11.8 | 3.0 | 1.5 | 1.1 |
| 77.5° | 151.6 | 60.1 | 7.0 | 4.8 | 3.0 | 4.4 | 7.4 | 9.2 | 1.8 | 0.7 | 0.0 |
| 80° | 36.9 | 14.8 | 4.4 | 3.0 | 1.8 | 3.3 | 5.5 | 5.2 | 0.4 | 0.0 | 0.0 |
| 82.5° | 12.2 | 5.2 | 1.8 | 1.5 | 0.4 | 1.1 | 2.6 | 1.5 | 0.0 | 0.0 | 0.0 |
| 85° | 5.2 | 3.0 | 0.7 | 0.4 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 3.3 | 1.1 | 0.0 | 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 |

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Test Information

Test Method: LM-79-2019
 Report Number: SP1-2407-157-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 10/03/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Invue
 Catalog Number: **EMM2-HTN-SA1A-827-U-5WQ**
 Description: Epic Modern Light Square 40W 5WQ Optic

Spectral Parameters

CCT (K): 2764
 CIE u': 0.2591
 CIE v': 0.5290
 Duv: 0.0020
 CIE x: 0.4581
 CIE y: 0.4156
 CIE z: 0.1263
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 583
 Purity: 62.2537
 Rf: 84.7
 Rg: 94.6

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 80.9 | | |
| R1: | 78.8 | R9: | -1.5 |
| R2: | 89.9 | R10: | 77.9 |
| R3: | 96.2 | R11: | 78.9 |
| R4: | 79.1 | R12: | 71.6 |
| R5: | 79.1 | R13: | 81.2 |
| R6: | 88.8 | R14: | 98.5 |
| R7: | 81.3 | R15: | 69.9 |
| R8: | 54.3 | | |



Test Conditions

Stabilization Time: 81M
 Operation Time: 2H 21M
 Sphere Temperature (°C): 25.2

REPORT NUMBER: SP1-2407-157-9

| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | IN0058 | 6/18/2024 | 12/18/2024 |
| Power Meter | INXT2011004 | 2/8/2024 | 2/8/2025 |
| AC Power Source | IN0063 | 10/24/2023 | 10/24/2024 |
| DC Power Source | IN0208 | 10/24/2023 | 10/24/2024 |
| Sphere Thermometer | IN0085 | 10/24/2023 | 10/24/2024 |
| Room Thermometer | IN0046 | 10/24/2023 | 10/24/2024 |

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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 2700K 4-step quadrangle

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Photopic Flux vs. Wavelength



Photopic Lumens: 4337.9

| 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 | 0 | 0.0 | 490 | 18018 | 2.6 | 620 | 87426 | 22.8 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 3.9 | 625 | 83013 | 18.2 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 5.8 | 630 | 78077 | 14.1 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 8.5 | 635 | 72080 | 10.7 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 11.5 | 640 | 66249 | 7.9 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 15.2 | 645 | 59973 | 5.7 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 18.7 | 650 | 53972 | 3.9 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 21.9 | 655 | 48369 | 2.7 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 24.9 | 660 | 42641 | 1.8 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 27.6 | 665 | 37602 | 1.1 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.0 | 540 | 46032 | 30.0 | 670 | 32798 | 0.7 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.0 | 545 | 48553 | 32.5 | 675 | 28558 | 0.5 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 0.0 | 550 | 51408 | 34.9 | 680 | 24782 | 0.3 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 0.0 | 555 | 54711 | 37.4 | 685 | 21386 | 0.2 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 0.0 | 560 | 58847 | 40.0 | 690 | 18413 | 0.1 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 0.1 | 565 | 63386 | 42.4 | 695 | 15721 | 0.1 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 0.2 | 570 | 68196 | 44.3 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 0.6 | 575 | 73613 | 46.0 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 0.9 | 580 | 79207 | 47.1 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 0.9 | 585 | 84248 | 47.0 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 0.9 | 590 | 88397 | 45.7 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 1.0 | 595 | 91428 | 43.4 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 0.9 | 600 | 93452 | 40.3 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 1.0 | 605 | 93959 | 36.4 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 1.3 | 610 | 93079 | 32.0 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 1.8 | 615 | 90707 | 27.3 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

REPORT NUMBER: SP1-2407-157-9

Scotopic Flux vs. Wavelength



Scotopic Lumens: 5286.7

S/P: 1.22

| 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 | 0 | 0.0 | 490 | 18018 | 75.9 | 620 | 87426 | 0.4 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 93.2 | 625 | 83013 | 0.2 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 107.8 | 630 | 78077 | 0.1 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 118.7 | 635 | 72080 | 0.1 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 122.2 | 640 | 66249 | 0.1 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 120.8 | 645 | 59973 | 0.0 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 113.9 | 650 | 53972 | 0.0 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 104.1 | 655 | 48369 | 0.0 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 92.4 | 660 | 42641 | 0.0 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 80.5 | 665 | 37602 | 0.0 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.1 | 540 | 46032 | 68.2 | 670 | 32798 | 0.0 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.3 | 545 | 48553 | 57.1 | 675 | 28558 | 0.0 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 1.1 | 550 | 51408 | 46.7 | 680 | 24782 | 0.0 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 2.5 | 555 | 54711 | 37.4 | 685 | 21386 | 0.0 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 5.9 | 560 | 58847 | 29.4 | 690 | 18413 | 0.0 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 12.5 | 565 | 63386 | 22.5 | 695 | 15721 | 0.0 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 26.3 | 570 | 68196 | 16.9 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 55.2 | 575 | 73613 | 12.4 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 85.4 | 580 | 79207 | 9.0 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 75.1 | 585 | 84248 | 6.3 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 63.2 | 590 | 88397 | 4.4 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 63.2 | 595 | 91428 | 3.0 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 54.2 | 600 | 93452 | 2.0 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 48.8 | 605 | 93959 | 1.3 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 54.2 | 610 | 93079 | 0.9 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 63.3 | 615 | 90707 | 0.5 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

REPORT NUMBER: SP1-2407-157-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: 9797 M/P: 2.26

| 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 | 0 | 0.0 | 490 | 18018 | 27.7 | 620 | 87426 | 1.1 | 750 | 2680 | 0.0 | 880 | 58 | 0.0 |
| 365 | 0 | 0.0 | 495 | 22295 | 36.0 | 625 | 83013 | 0.7 | 755 | 2287 | 0.0 | 885 | 46 | 0.0 |
| 370 | 0 | 0.0 | 500 | 26478 | 44.2 | 630 | 78077 | 0.4 | 760 | 1944 | 0.0 | 890 | 45 | 0.0 |
| 375 | 0 | 0.0 | 505 | 30524 | 51.8 | 635 | 72080 | 0.3 | 765 | 1653 | 0.0 | 895 | 41 | 0.0 |
| 380 | 0 | 0.0 | 510 | 33611 | 57.0 | 640 | 66249 | 0.2 | 770 | 1413 | 0.0 | 900 | 38 | 0.0 |
| 385 | 0 | 0.0 | 515 | 36490 | 60.5 | 645 | 59973 | 0.1 | 775 | 1198 | 0.0 | 905 | 33 | 0.0 |
| 390 | 0 | 0.0 | 520 | 38610 | 61.4 | 650 | 53972 | 0.1 | 780 | 1025 | 0.0 | 910 | 30 | 0.0 |
| 395 | 0 | 0.0 | 525 | 40511 | 60.6 | 655 | 48369 | 0.0 | 785 | 874 | 0.0 | 915 | 23 | 0.0 |
| 400 | 48 | 0.0 | 530 | 42223 | 58.2 | 660 | 42641 | 0.0 | 790 | 747 | 0.0 | 920 | 24 | 0.0 |
| 405 | 201 | 0.0 | 535 | 44137 | 55.0 | 665 | 37602 | 0.0 | 795 | 639 | 0.0 | 925 | 22 | 0.0 |
| 410 | 457 | 0.0 | 540 | 46032 | 50.9 | 670 | 32798 | 0.0 | 800 | 547 | 0.0 | 930 | 22 | 0.0 |
| 415 | 925 | 0.1 | 545 | 48553 | 46.6 | 675 | 28558 | 0.0 | 805 | 473 | 0.0 | 935 | 17 | 0.0 |
| 420 | 1816 | 0.3 | 550 | 51408 | 42.0 | 680 | 24782 | 0.0 | 810 | 401 | 0.0 | 940 | 13 | 0.0 |
| 425 | 3217 | 0.8 | 555 | 54711 | 37.4 | 685 | 21386 | 0.0 | 815 | 351 | 0.0 | 945 | 6 | 0.0 |
| 430 | 5520 | 1.9 | 560 | 58847 | 32.9 | 690 | 18413 | 0.0 | 820 | 307 | 0.0 | 950 | 10 | 0.0 |
| 435 | 9225 | 4.1 | 565 | 63386 | 28.4 | 695 | 15721 | 0.0 | 825 | 261 | 0.0 | 955 | 11 | 0.0 |
| 440 | 15522 | 8.7 | 570 | 68196 | 24.1 | 700 | 13432 | 0.0 | 830 | 228 | 0.0 | 960 | 8 | 0.0 |
| 445 | 27642 | 18.5 | 575 | 73613 | 20.0 | 705 | 11513 | 0.0 | 835 | 193 | 0.0 | 965 | 12 | 0.0 |
| 450 | 36602 | 28.3 | 580 | 79207 | 16.3 | 710 | 9780 | 0.0 | 840 | 174 | 0.0 | 970 | 3 | 0.0 |
| 455 | 28292 | 24.7 | 585 | 84248 | 12.9 | 715 | 8356 | 0.0 | 845 | 151 | 0.0 | 975 | 8 | 0.0 |
| 460 | 21166 | 20.4 | 590 | 88397 | 9.8 | 720 | 7161 | 0.0 | 850 | 123 | 0.0 | 980 | 2 | 0.0 |
| 465 | 19092 | 20.1 | 595 | 91428 | 7.3 | 725 | 6067 | 0.0 | 855 | 106 | 0.0 | 985 | 13 | 0.0 |
| 470 | 14951 | 17.2 | 600 | 93452 | 5.3 | 730 | 5164 | 0.0 | 860 | 95 | 0.0 | 990 | 16 | 0.0 |
| 475 | 12606 | 15.7 | 605 | 93959 | 3.7 | 735 | 4393 | 0.0 | 865 | 82 | 0.0 | 995 | 20 | 0.0 |
| 480 | 13323 | 18.0 | 610 | 93079 | 2.5 | 740 | 3694 | 0.0 | 870 | 77 | 0.0 | 1000 | 0 | 0.0 |
| 485 | 15164 | 21.9 | 615 | 90707 | 1.7 | 745 | 3157 | 0.0 | 875 | 65 | 0.0 | | | |

Summary

$R_f = 84.7$
 $R_g = 94.6$
 CIE $R_a = 80.9$
 $R_9 = -1.5$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 84 | CES51 = 95 | CES76 = 81 |
| CES02 = 63 | CES27 = 95 | CES52 = 94 | CES77 = 84 |
| CES03 = 31 | CES28 = 94 | CES53 = 89 | CES78 = 81 |
| CES04 = 71 | CES29 = 87 | CES54 = 91 | CES79 = 89 |
| CES05 = 50 | CES30 = 94 | CES55 = 90 | CES80 = 89 |
| CES06 = 52 | CES31 = 89 | CES56 = 86 | CES81 = 69 |
| CES07 = 43 | CES32 = 82 | CES57 = 85 | CES82 = 96 |
| CES08 = 41 | CES33 = 91 | CES58 = 86 | CES83 = 93 |
| CES09 = 29 | CES34 = 92 | CES59 = 91 | CES84 = 92 |
| CES10 = 77 | CES35 = 96 | CES60 = 94 | CES85 = 76 |
| CES11 = 60 | CES36 = 90 | CES61 = 89 | CES86 = 65 |
| CES12 = 66 | CES37 = 96 | CES62 = 94 | CES87 = 84 |
| CES13 = 44 | CES38 = 98 | CES63 = 87 | CES88 = 86 |
| CES14 = 74 | CES39 = 98 | CES64 = 82 | CES89 = 73 |
| CES15 = 72 | CES40 = 95 | CES65 = 78 | CES90 = 88 |
| CES16 = 48 | CES41 = 96 | CES66 = 81 | CES91 = 82 |
| CES17 = 50 | CES42 = 97 | CES67 = 80 | CES92 = 64 |
| CES18 = 57 | CES43 = 91 | CES68 = 83 | CES93 = 78 |
| CES19 = 73 | CES44 = 99 | CES69 = 88 | CES94 = 59 |
| CES20 = 67 | CES45 = 93 | CES70 = 80 | CES95 = 74 |
| CES21 = 87 | CES46 = 89 | CES71 = 79 | CES96 = 83 |
| CES22 = 79 | CES47 = 92 | CES72 = 92 | CES97 = 88 |
| CES23 = 92 | CES48 = 83 | CES73 = 75 | CES98 = 83 |
| CES24 = 91 | CES49 = 90 | CES74 = 91 | CES99 = 74 |
| CES25 = 72 | CES50 = 94 | CES75 = 81 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)