

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: P630052

Luminaire Tested: GWS-SA1C-830-U-RW-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P630052
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-51)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1C-830-U-RW-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND RECTANGULAR WIDE OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (16) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3366 lumens
Efficiency: N/A
Efficacy: 98.7 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type V - Short
BUG Rating: B2 - U0 - G0

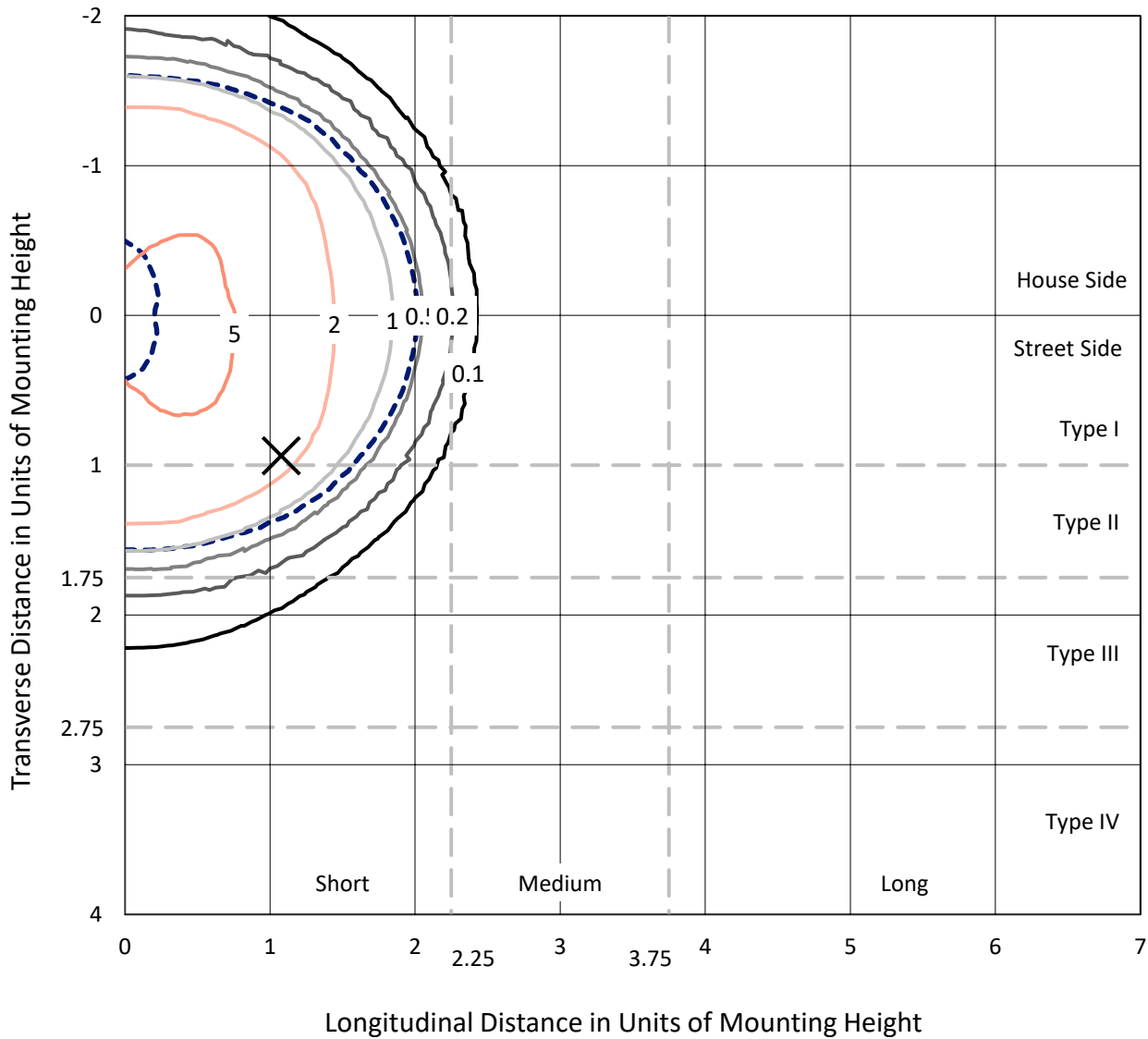
Input Watts (W): 34.1
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P630052
 CATALOG NUMBER: GWS-SA1C-830-U-RW-W-GRSWH

Iso-Footcandle Lines of Horizontal Illumination

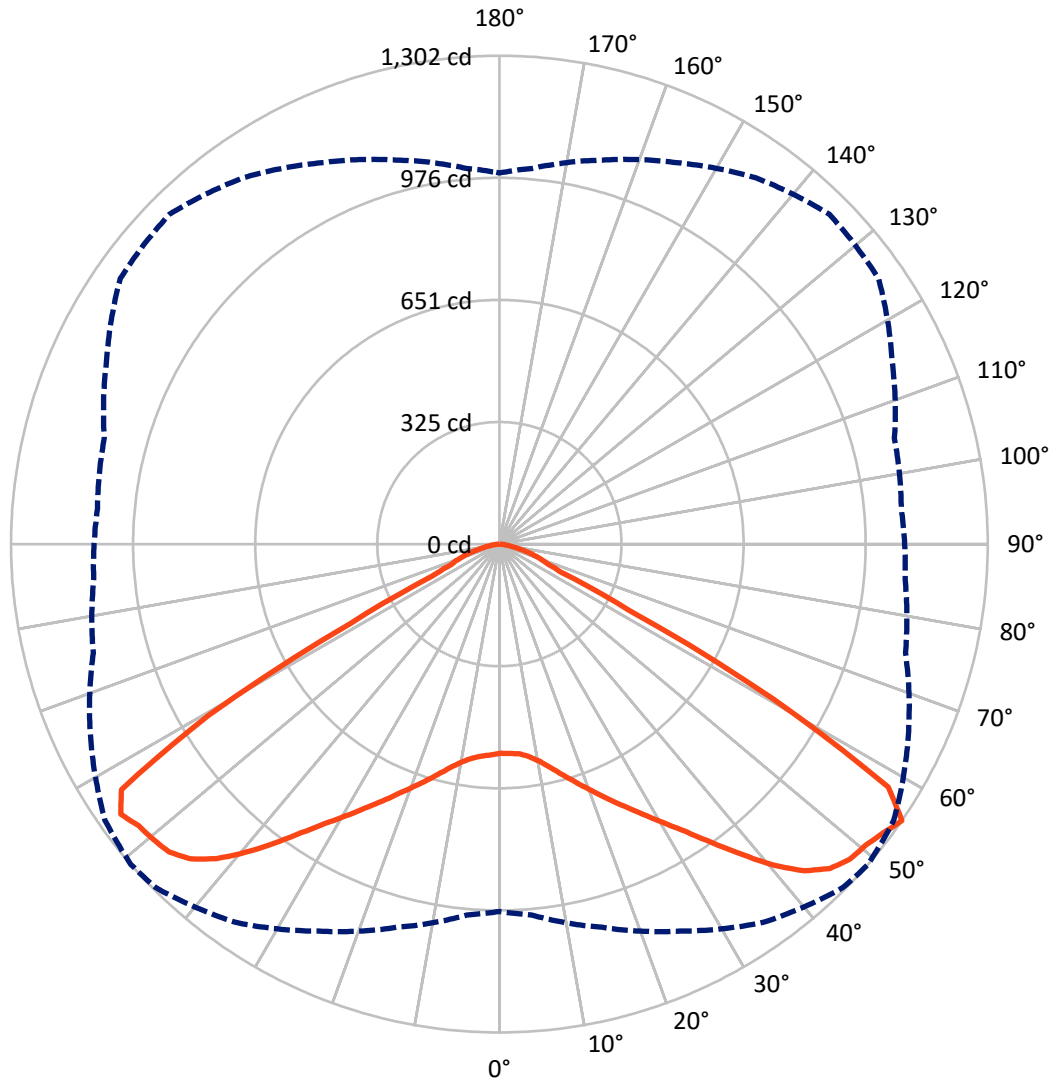
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 6.2 fc
 Type V - Short - N/A

REPORT NUMBER: P630052
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Luminous Intensity Polar Plot



— Vertical Plane Through 49-Deg Lateral - - - Horizontal Cone Through 55-Deg Vertical

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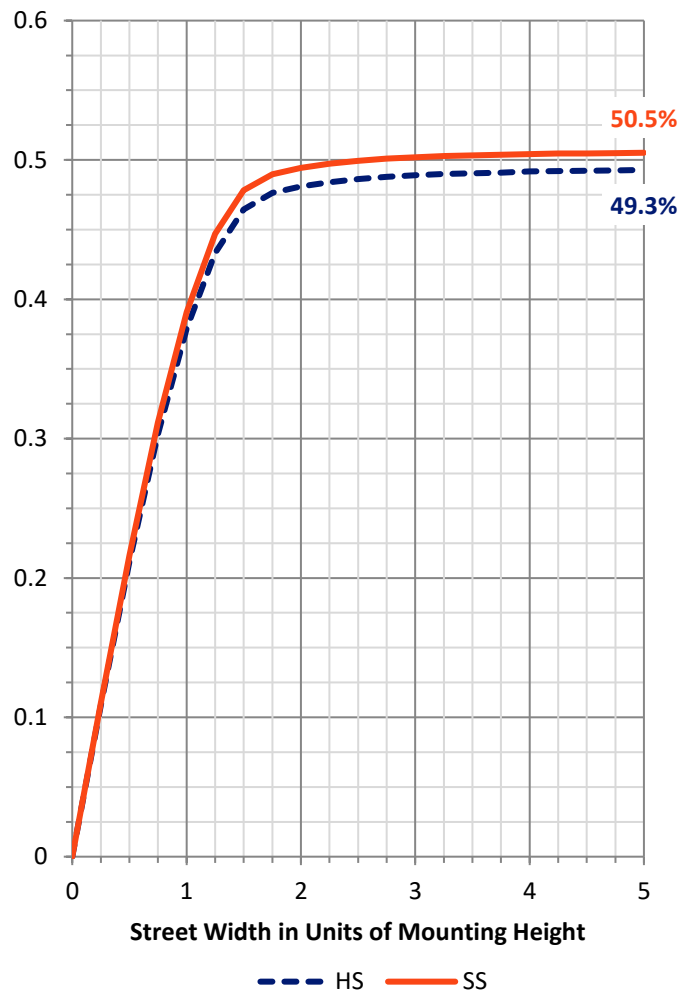
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1666.5 | 0.0 | 1666.5 |
| | % Fixture | 49.5 | 0.0 | 49.5 |
| Street Side | Lumens | 1699.5 | 0.0 | 1699.5 |
| | % Fixture | 50.5 | 0.0 | 50.5 |
| Total | Lumens | 3366.0 | 0.0 | 3366.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 54.4 | 1.6 |
| 10°-20° | 179.4 | 5.3 |
| 20°-30° | 341.7 | 10.2 |
| 30°-40° | 579.3 | 17.2 |
| 40°-50° | 871.8 | 25.9 |
| 50°-60° | 954.3 | 28.4 |
| 60°-70° | 301.8 | 9.0 |
| 70°-80° | 72.4 | 2.2 |
| 80°-90° | 10.9 | 0.3 |
| 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° | 3366.0 | 100.0 |
| 0°-180° | 3366.0 | 100.0 |

Coefficient of Utilization



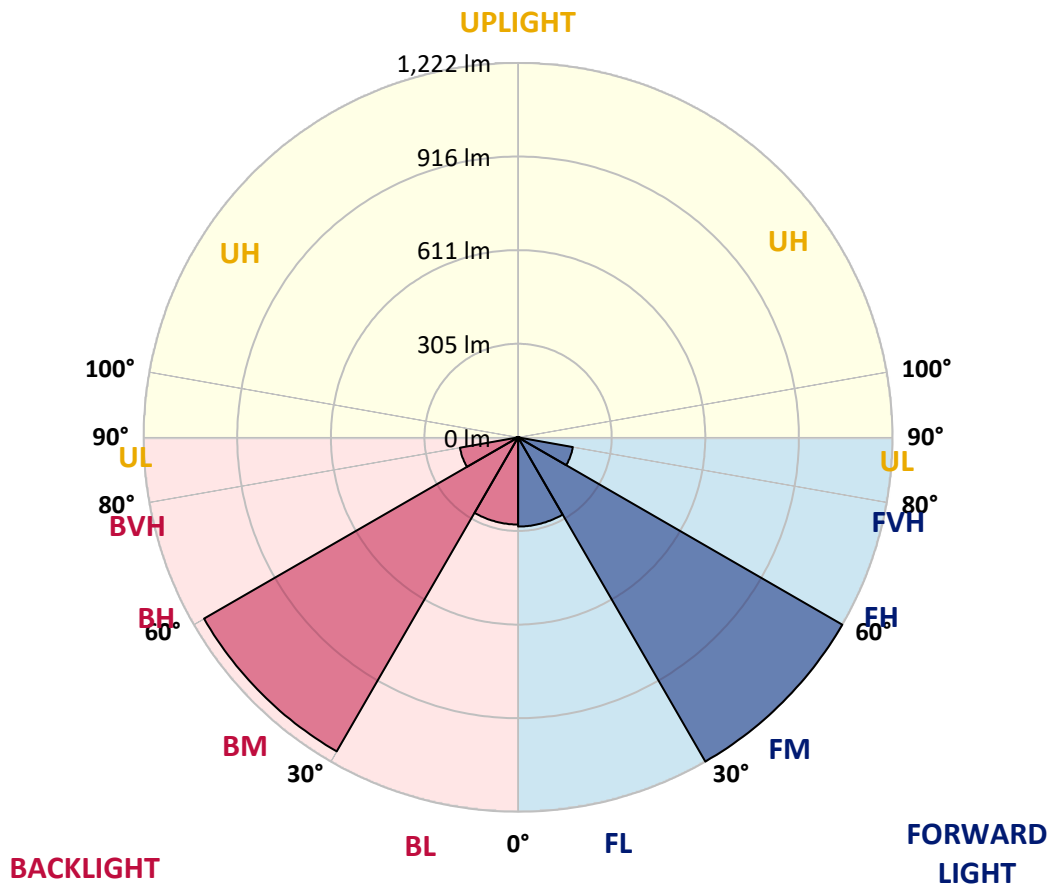
REPORT NUMBER: P630052

CATALOG NUMBER: GWS-SA1C-830-U-RW-W-GRSWH

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 291.0 | 8.6 | | | |
| FM (30°-60°) | 1222.0 | 36.3 | | | |
| FH (60°-80°) | 181.5 | 5.4 | | | G0/660 |
| FVH (80°-90°) | 5.0 | 0.1 | | | G0/10 |
| BL (0°-30°) | 284.5 | 8.5 | B1/500 | | |
| BM (30°-60°) | 1183.5 | 35.2 | B2/2500 | | |
| BH (60°-80°) | 192.7 | 5.7 | B1/500 | | G0/660 |
| BVH (80°-90°) | 5.8 | 0.2 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G0
 Type V Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 49° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 |
| 2.5° | 549.4 | 549.9 | 551.0 | 552.9 | 554.9 | 557.6 | 558.7 | 560.1 | 559.8 | 561.4 | 561.4 |
| 5° | 546.6 | 547.5 | 549.1 | 551.8 | 555.1 | 560.3 | 561.7 | 565.0 | 568.3 | 572.4 | 573.7 |
| 7.5° | 549.9 | 551.0 | 552.9 | 557.3 | 562.3 | 569.1 | 571.8 | 577.3 | 583.6 | 591.0 | 594.0 |
| 10° | 556.2 | 557.6 | 560.9 | 568.0 | 575.9 | 586.3 | 588.8 | 595.6 | 605.8 | 615.9 | 621.9 |
| 12.5° | 563.3 | 565.5 | 571.6 | 582.8 | 594.6 | 608.2 | 612.1 | 620.6 | 631.5 | 644.6 | 652.9 |
| 15° | 571.6 | 573.5 | 582.8 | 598.7 | 617.0 | 635.1 | 639.4 | 647.7 | 660.0 | 672.8 | 684.3 |
| 17.5° | 588.8 | 592.1 | 603.0 | 621.4 | 642.7 | 664.1 | 669.0 | 678.3 | 688.2 | 698.3 | 709.2 |
| 20° | 612.3 | 615.1 | 629.0 | 651.8 | 676.9 | 696.4 | 701.3 | 709.5 | 714.2 | 719.4 | 728.7 |
| 22.5° | 635.9 | 639.7 | 655.6 | 682.4 | 712.0 | 733.1 | 736.9 | 744.6 | 741.3 | 739.6 | 745.7 |
| 25° | 665.2 | 670.4 | 686.0 | 715.3 | 745.4 | 771.4 | 774.4 | 781.0 | 775.5 | 767.0 | 766.7 |
| 27.5° | 701.6 | 706.2 | 722.4 | 752.5 | 782.3 | 809.4 | 815.2 | 823.9 | 811.9 | 801.5 | 794.1 |
| 30° | 744.8 | 747.8 | 765.6 | 797.7 | 828.3 | 854.1 | 861.4 | 870.2 | 861.2 | 843.9 | 836.5 |
| 32.5° | 795.2 | 799.3 | 819.8 | 853.5 | 880.9 | 906.6 | 914.0 | 925.0 | 915.1 | 895.7 | 886.4 |
| 35° | 855.7 | 859.8 | 881.4 | 918.1 | 946.0 | 972.6 | 977.8 | 986.8 | 974.5 | 952.1 | 944.7 |
| 37.5° | 921.4 | 926.6 | 954.0 | 988.7 | 1018.0 | 1049.0 | 1049.2 | 1052.0 | 1034.4 | 1006.5 | 998.3 |
| 40° | 995.3 | 1002.1 | 1029.5 | 1065.7 | 1101.0 | 1126.1 | 1125.9 | 1118.2 | 1088.6 | 1045.4 | 1032.8 |
| 42.5° | 1068.4 | 1073.9 | 1101.5 | 1138.7 | 1174.0 | 1197.9 | 1190.7 | 1172.1 | 1129.4 | 1070.6 | 1053.9 |
| 45° | 1121.2 | 1125.3 | 1154.3 | 1196.2 | 1232.1 | 1246.9 | 1234.0 | 1211.6 | 1153.8 | 1086.5 | 1061.8 |
| 47.5° | 1146.1 | 1151.6 | 1180.9 | 1222.5 | 1263.0 | 1271.5 | 1256.2 | 1235.1 | 1168.0 | 1101.2 | 1068.1 |
| 50° | 1132.7 | 1139.8 | 1173.0 | 1211.6 | 1257.3 | 1274.8 | 1263.8 | 1242.8 | 1183.1 | 1115.7 | 1079.3 |
| 52.5° | 1098.0 | 1104.8 | 1146.7 | 1193.5 | 1245.2 | 1280.0 | 1279.7 | 1262.5 | 1200.3 | 1119.9 | 1079.9 |
| 55° | 979.2 | 992.6 | 1057.7 | 1138.5 | 1230.4 | 1295.3 | 1301.9 | 1283.5 | 1203.1 | 1120.9 | 1085.6 |
| 57.5° | 637.3 | 660.8 | 722.7 | 827.8 | 1012.3 | 1178.2 | 1222.5 | 1226.9 | 1183.4 | 1116.3 | 1086.7 |
| 60° | 266.1 | 285.0 | 334.0 | 403.8 | 556.2 | 753.6 | 839.5 | 925.8 | 1029.8 | 1067.6 | 1076.6 |
| 62.5° | 165.3 | 167.0 | 171.9 | 187.8 | 238.7 | 335.1 | 390.3 | 471.1 | 625.8 | 757.4 | 818.2 |
| 65° | 149.2 | 150.0 | 151.1 | 150.0 | 152.5 | 164.2 | 179.0 | 207.2 | 270.2 | 335.6 | 413.3 |
| 67.5° | 131.4 | 132.5 | 133.3 | 132.5 | 133.3 | 133.9 | 135.5 | 138.0 | 149.5 | 158.8 | 165.9 |
| 70° | 106.2 | 107.9 | 109.2 | 108.7 | 112.0 | 112.0 | 113.6 | 115.5 | 121.3 | 128.1 | 133.0 |
| 72.5° | 81.0 | 79.7 | 81.3 | 81.8 | 84.9 | 86.5 | 89.0 | 91.2 | 97.7 | 101.8 | 108.1 |
| 75° | 52.6 | 51.2 | 53.7 | 55.0 | 59.1 | 61.3 | 63.5 | 65.7 | 70.3 | 73.1 | 79.1 |
| 77.5° | 28.5 | 28.2 | 30.7 | 32.6 | 37.0 | 39.7 | 41.3 | 43.0 | 46.8 | 47.6 | 51.5 |
| 80° | 16.4 | 16.4 | 18.1 | 19.4 | 22.2 | 25.2 | 26.8 | 28.2 | 30.9 | 31.8 | 33.4 |
| 82.5° | 9.0 | 9.0 | 9.9 | 10.7 | 12.9 | 14.5 | 15.9 | 17.0 | 19.4 | 20.3 | 21.1 |
| 85° | 4.4 | 4.1 | 4.7 | 5.2 | 6.0 | 6.8 | 7.7 | 8.2 | 10.1 | 10.7 | 11.8 |
| 87.5° | 0.5 | 0.5 | 0.5 | 0.8 | 1.1 | 1.6 | 1.9 | 1.9 | 3.0 | 3.6 | 4.1 |
| 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: P630052

CATALOG NUMBER: GWS-SA1C-830-U-RW-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 | 557.6 |
| 2.5° | 563.1 | 559.5 | 561.7 | 562.5 | 562.5 | 561.7 | 558.1 | 557.1 | 555.4 | 552.9 | 552.9 |
| 5° | 575.7 | 572.9 | 573.5 | 572.1 | 568.8 | 564.7 | 558.1 | 554.9 | 552.1 | 549.1 | 548.8 |
| 7.5° | 597.3 | 593.7 | 593.2 | 588.0 | 579.2 | 570.5 | 560.6 | 554.6 | 550.5 | 546.6 | 546.4 |
| 10° | 625.5 | 622.2 | 618.1 | 607.7 | 594.8 | 582.0 | 568.5 | 560.3 | 554.3 | 548.8 | 548.6 |
| 12.5° | 657.0 | 653.1 | 645.5 | 630.1 | 614.0 | 601.4 | 586.1 | 573.5 | 564.4 | 557.1 | 555.7 |
| 15° | 691.2 | 685.7 | 672.6 | 654.5 | 638.6 | 625.2 | 608.8 | 590.7 | 577.0 | 565.3 | 563.9 |
| 17.5° | 717.5 | 710.3 | 696.1 | 679.1 | 666.0 | 652.6 | 631.2 | 608.5 | 588.8 | 574.0 | 571.8 |
| 20° | 735.5 | 729.8 | 713.6 | 701.0 | 693.4 | 681.6 | 656.7 | 631.0 | 608.8 | 590.2 | 589.1 |
| 22.5° | 752.2 | 745.4 | 729.5 | 722.1 | 722.1 | 714.2 | 690.4 | 660.0 | 634.0 | 612.3 | 609.6 |
| 25° | 771.1 | 763.7 | 751.7 | 750.9 | 754.7 | 751.1 | 722.4 | 689.8 | 659.4 | 635.1 | 630.7 |
| 27.5° | 797.4 | 789.2 | 782.1 | 787.0 | 792.5 | 788.6 | 756.6 | 718.8 | 686.8 | 662.2 | 658.3 |
| 30° | 839.3 | 829.1 | 822.6 | 828.6 | 839.3 | 828.0 | 793.3 | 753.3 | 721.0 | 693.9 | 692.0 |
| 32.5° | 888.0 | 876.5 | 869.7 | 879.2 | 888.8 | 871.3 | 836.8 | 798.5 | 764.5 | 736.1 | 732.8 |
| 35° | 946.6 | 932.1 | 921.9 | 934.8 | 944.7 | 927.4 | 893.2 | 856.8 | 819.0 | 789.5 | 785.1 |
| 37.5° | 998.6 | 981.1 | 974.2 | 992.3 | 1005.4 | 994.2 | 957.0 | 922.8 | 881.4 | 849.1 | 847.2 |
| 40° | 1036.4 | 1019.1 | 1014.2 | 1044.0 | 1067.0 | 1064.3 | 1030.9 | 991.7 | 952.9 | 915.6 | 912.1 |
| 42.5° | 1052.8 | 1040.7 | 1041.8 | 1082.1 | 1117.7 | 1135.2 | 1105.3 | 1063.5 | 1026.0 | 987.4 | 984.9 |
| 45° | 1056.3 | 1049.0 | 1057.7 | 1108.1 | 1154.9 | 1190.7 | 1165.3 | 1130.3 | 1087.8 | 1050.6 | 1049.5 |
| 47.5° | 1060.2 | 1056.1 | 1069.5 | 1122.9 | 1178.4 | 1220.0 | 1205.8 | 1169.7 | 1126.7 | 1090.3 | 1087.5 |
| 50° | 1069.2 | 1067.6 | 1082.6 | 1133.3 | 1189.7 | 1228.0 | 1211.8 | 1176.0 | 1131.9 | 1096.0 | 1089.5 |
| 52.5° | 1071.9 | 1069.2 | 1090.8 | 1149.4 | 1208.3 | 1227.7 | 1192.9 | 1146.1 | 1101.8 | 1061.8 | 1055.0 |
| 55° | 1080.4 | 1075.5 | 1090.3 | 1155.4 | 1234.0 | 1243.6 | 1191.8 | 1121.8 | 1059.9 | 1005.4 | 989.3 |
| 57.5° | 1082.6 | 1077.1 | 1086.7 | 1145.6 | 1206.1 | 1197.6 | 1047.6 | 905.2 | 788.6 | 728.1 | 735.0 |
| 60° | 1070.9 | 1072.5 | 1056.1 | 1049.5 | 967.4 | 854.1 | 641.4 | 512.7 | 402.7 | 356.1 | 366.3 |
| 62.5° | 815.2 | 822.0 | 765.9 | 666.0 | 512.2 | 405.9 | 268.5 | 208.6 | 176.6 | 168.3 | 169.7 |
| 65° | 411.4 | 420.7 | 362.4 | 299.7 | 222.8 | 180.1 | 155.8 | 150.8 | 149.2 | 147.3 | 147.3 |
| 67.5° | 162.9 | 165.6 | 163.4 | 153.0 | 142.3 | 138.5 | 137.4 | 136.9 | 135.0 | 133.9 | 134.1 |
| 70° | 130.8 | 133.0 | 129.8 | 123.2 | 118.8 | 118.5 | 118.0 | 116.9 | 115.5 | 115.5 | 116.3 |
| 72.5° | 106.8 | 108.9 | 104.3 | 100.2 | 96.9 | 94.4 | 93.1 | 92.2 | 90.3 | 90.3 | 91.2 |
| 75° | 78.6 | 79.9 | 76.1 | 75.6 | 72.0 | 69.5 | 67.3 | 66.2 | 63.8 | 62.7 | 63.5 |
| 77.5° | 52.3 | 52.0 | 50.1 | 50.1 | 48.7 | 45.7 | 43.3 | 40.8 | 37.5 | 35.3 | 35.9 |
| 80° | 33.9 | 33.9 | 33.1 | 33.1 | 31.8 | 29.3 | 26.3 | 23.8 | 21.9 | 20.3 | 20.3 |
| 82.5° | 21.6 | 21.4 | 21.1 | 20.8 | 20.3 | 17.8 | 15.6 | 14.0 | 12.6 | 11.5 | 11.8 |
| 85° | 12.0 | 12.0 | 11.5 | 11.5 | 10.4 | 9.0 | 7.9 | 6.8 | 6.0 | 5.7 | 5.7 |
| 87.5° | 4.1 | 4.1 | 3.8 | 3.8 | 3.3 | 2.5 | 1.9 | 1.6 | 1.4 | 1.1 | 1.4 |
| 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



LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-State Lighting Products

Report Prepared for

Cooper Lighting Solutions

MCGRAW EDISON

Report Number: SP1-2408-195-9

Test Date: 08/07/2024

Luminaire Tested: GALN-SB1A-830-U-5WQ

Data in this report applies to families of products including GALN-SB1A-830-U-5WQ.

Test Information

Test Method: LM-79-2019
 Report Number: SP1-2408-195-9
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/07/2024
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: MCGRAW EDISON
 Catalog Number: **GALN-SB1A-830-U-5WQ**
 Description: GALLEON AREA AND ROADWAY LUMINAIRE. (1) 80 CRI, 3000K, 350MA HIGH DENSITY LIGHTSQUARE WITH 26 LEDS AND TYPE V WIDE OPTICS

Spectral Parameters

CCT (K): 3050
 CIE u': 0.2476
 CIE v': 0.5251
 Duv: 0.0034
 CIE x: 0.4383
 CIE y: 0.4131
 CIE z: 0.1487
 Peak Wavelength (nm): 603
 Dominant Wavelength (nm): 581
 Purity: 55.55201
 Rf: 81.5
 Rg: 99.2

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 81.0 | | |
| R1: | 79.6 | R9: | 7.1 |
| R2: | 85.6 | R10: | 67.0 |
| R3: | 92.0 | R11: | 82.7 |
| R4: | 82.6 | R12: | 63.2 |
| R5: | 78.9 | R13: | 80.3 |
| R6: | 81.7 | R14: | 95.0 |
| R7: | 85.2 | R15: | 71.7 |
| R8: | 62.0 | | |



Test Conditions

Stabilization Time: 20M
 Operation Time: 1H 20M
 Sphere Temperature (°C): 24.2

REPORT NUMBER: SP1-2408-195-9

| 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 3000K 4-step quadrangle

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Photopic Flux vs. Wavelength

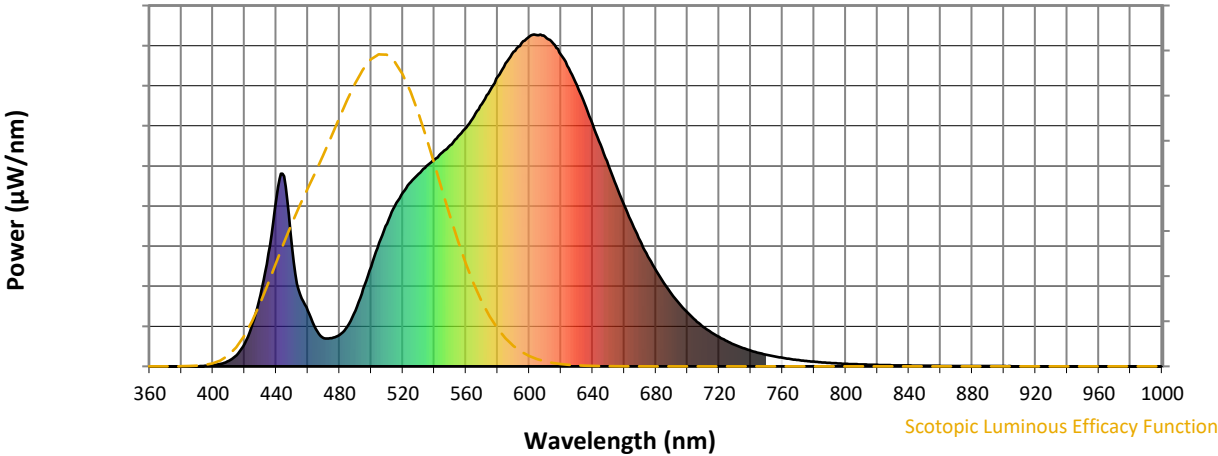


Photopic Lumens: NR

| λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) | λ (nm) | Power W [^] /nm | Lumens (ϕ /nm) |
|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|-------------------|-----------------------------|-------------------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

Scotopic Flux vs. Wavelength



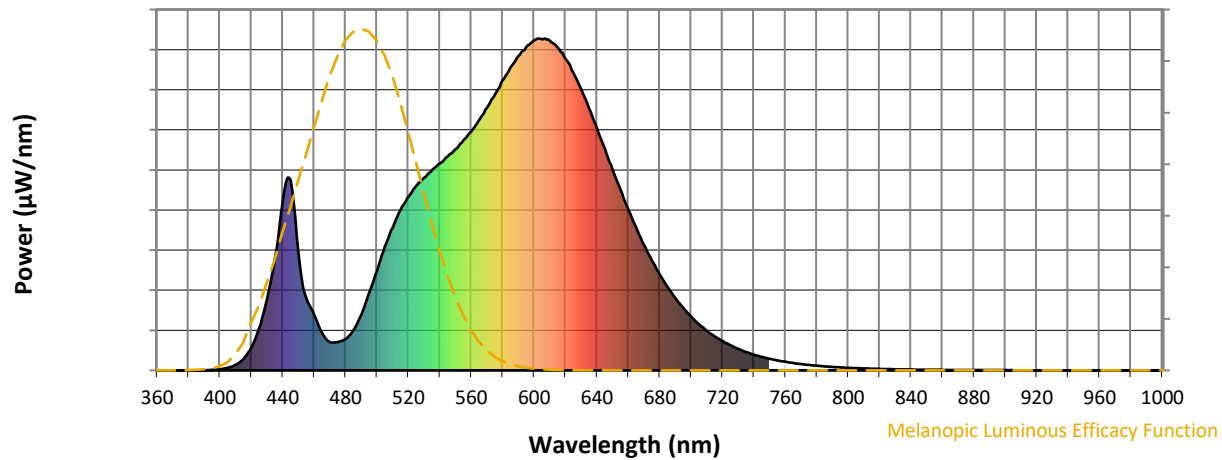
Scotopic Lumens: NR

S/P: 1.27

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

REPORT NUMBER: SP1-2408-195-9

Melanopic Flux vs. Wavelength



Melanopic Lumens: NR

M/P: 2.32

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 168 | NR | 620 | 940 | NR | 750 | 35 | NR | 880 | 1 | NR |
| 365 | 0 | NR | 495 | 233 | NR | 625 | 897 | NR | 755 | 30 | NR | 885 | 1 | NR |
| 370 | 0 | NR | 500 | 300 | NR | 630 | 847 | NR | 760 | 26 | NR | 890 | 1 | NR |
| 375 | 0 | NR | 505 | 372 | NR | 635 | 790 | NR | 765 | 22 | NR | 895 | 1 | NR |
| 380 | 0 | NR | 510 | 430 | NR | 640 | 730 | NR | 770 | 19 | NR | 900 | 1 | NR |
| 385 | 0 | NR | 515 | 483 | NR | 645 | 668 | NR | 775 | 16 | NR | 905 | 1 | NR |
| 390 | 0 | NR | 520 | 524 | NR | 650 | 605 | NR | 780 | 14 | NR | 910 | 0 | NR |
| 395 | 2 | NR | 525 | 555 | NR | 655 | 545 | NR | 785 | 12 | NR | 915 | 0 | NR |
| 400 | 4 | NR | 530 | 581 | NR | 660 | 485 | NR | 790 | 10 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 604 | NR | 665 | 430 | NR | 795 | 9 | NR | 925 | 0 | NR |
| 410 | 17 | NR | 540 | 623 | NR | 670 | 378 | NR | 800 | 8 | NR | 930 | 0 | NR |
| 415 | 34 | NR | 545 | 645 | NR | 675 | 331 | NR | 805 | 7 | NR | 935 | 0 | NR |
| 420 | 68 | NR | 550 | 667 | NR | 680 | 290 | NR | 810 | 6 | NR | 940 | 0 | NR |
| 425 | 128 | NR | 555 | 693 | NR | 685 | 251 | NR | 815 | 5 | NR | 945 | 0 | NR |
| 430 | 214 | NR | 560 | 719 | NR | 690 | 218 | NR | 820 | 4 | NR | 950 | 0 | NR |
| 435 | 339 | NR | 565 | 754 | NR | 695 | 188 | NR | 825 | 4 | NR | 955 | 0 | NR |
| 440 | 507 | NR | 570 | 791 | NR | 700 | 162 | NR | 830 | 3 | NR | 960 | 0 | NR |
| 445 | 573 | NR | 575 | 830 | NR | 705 | 139 | NR | 835 | 3 | NR | 965 | 0 | NR |
| 450 | 356 | NR | 580 | 873 | NR | 710 | 119 | NR | 840 | 3 | NR | 970 | 0 | NR |
| 455 | 217 | NR | 585 | 913 | NR | 715 | 102 | NR | 845 | 2 | NR | 975 | 0 | NR |
| 460 | 168 | NR | 590 | 948 | NR | 720 | 88 | NR | 850 | 2 | NR | 980 | 0 | NR |
| 465 | 113 | NR | 595 | 974 | NR | 725 | 76 | NR | 855 | 2 | NR | 985 | 0 | NR |
| 470 | 85 | NR | 600 | 994 | NR | 730 | 65 | NR | 860 | 1 | NR | 990 | 0 | NR |
| 475 | 85 | NR | 605 | 998 | NR | 735 | 55 | NR | 865 | 1 | NR | 995 | 0 | NR |
| 480 | 94 | NR | 610 | 994 | NR | 740 | 47 | NR | 870 | 1 | NR | 1000 | 0 | NR |
| 485 | 120 | NR | 615 | 973 | NR | 745 | 41 | NR | 875 | 1 | NR | | | |

Summary

$R_f = 81.5$
 $R_g = 99.2$
 $CIE R_a = 81.0$
 $R_9 = 7.1$



Color Vector Graphics



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

| | | | |
|------------|------------|------------|------------|
| CES01 = 86 | CES26 = 74 | CES51 = 89 | CES76 = 70 |
| CES02 = 63 | CES27 = 88 | CES52 = 92 | CES77 = 86 |
| CES03 = 31 | CES28 = 89 | CES53 = 81 | CES78 = 72 |
| CES04 = 70 | CES29 = 67 | CES54 = 87 | CES79 = 90 |
| CES05 = 50 | CES30 = 68 | CES55 = 85 | CES80 = 88 |
| CES06 = 51 | CES31 = 71 | CES56 = 78 | CES81 = 78 |
| CES07 = 42 | CES32 = 70 | CES57 = 76 | CES82 = 95 |
| CES08 = 41 | CES33 = 71 | CES58 = 78 | CES83 = 90 |
| CES09 = 29 | CES34 = 82 | CES59 = 92 | CES84 = 94 |
| CES10 = 76 | CES35 = 90 | CES60 = 95 | CES85 = 86 |
| CES11 = 59 | CES36 = 93 | CES61 = 93 | CES86 = 72 |
| CES12 = 65 | CES37 = 87 | CES62 = 83 | CES87 = 85 |
| CES13 = 43 | CES38 = 75 | CES63 = 77 | CES88 = 83 |
| CES14 = 74 | CES39 = 94 | CES64 = 83 | CES89 = 75 |
| CES15 = 71 | CES40 = 89 | CES65 = 77 | CES90 = 81 |
| CES16 = 47 | CES41 = 85 | CES66 = 80 | CES91 = 96 |
| CES17 = 50 | CES42 = 86 | CES67 = 79 | CES92 = 73 |
| CES18 = 56 | CES43 = 81 | CES68 = 84 | CES93 = 84 |
| CES19 = 72 | CES44 = 99 | CES69 = 91 | CES94 = 64 |
| CES20 = 66 | CES45 = 87 | CES70 = 78 | CES95 = 80 |
| CES21 = 87 | CES46 = 82 | CES71 = 76 | CES96 = 84 |
| CES22 = 79 | CES47 = 77 | CES72 = 92 | CES97 = 87 |
| CES23 = 92 | CES48 = 71 | CES73 = 71 | CES98 = 81 |
| CES24 = 91 | CES49 = 81 | CES74 = 93 | CES99 = 74 |
| CES25 = 72 | CES50 = 89 | CES75 = 74 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)