

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: P630546

Luminaire Tested: GWS-SA1D-830-U-RW-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P630546
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-50)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1D-830-U-RW-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND RECTANGULAR WIDE OPTICS W/ FACTORY INSTALLED GLARE SHIELD, BK
Light Source: (16) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 3122 lumens
Efficiency: N/A
Efficacy: 70.5 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

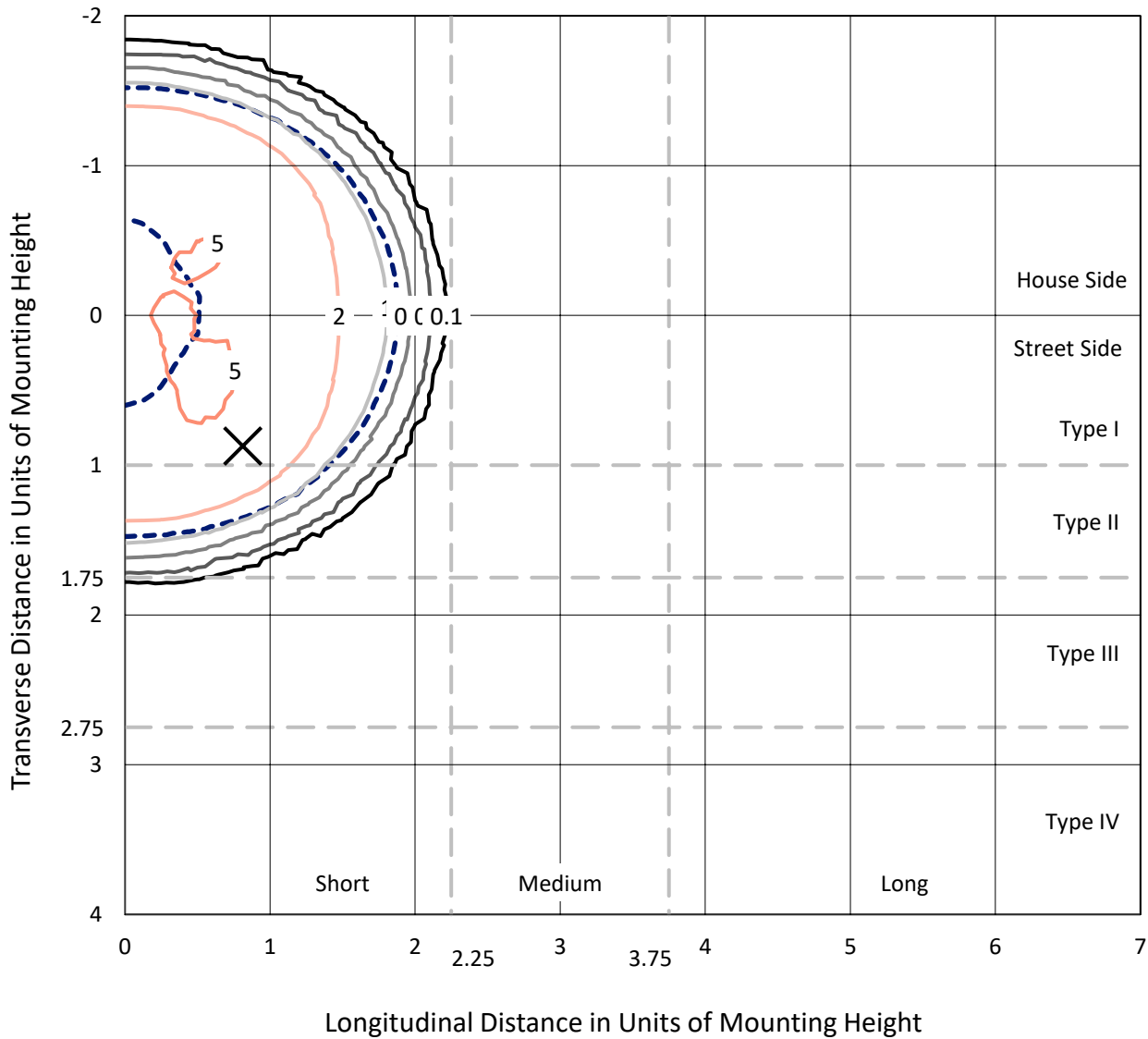
Input Watts (W): 44.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

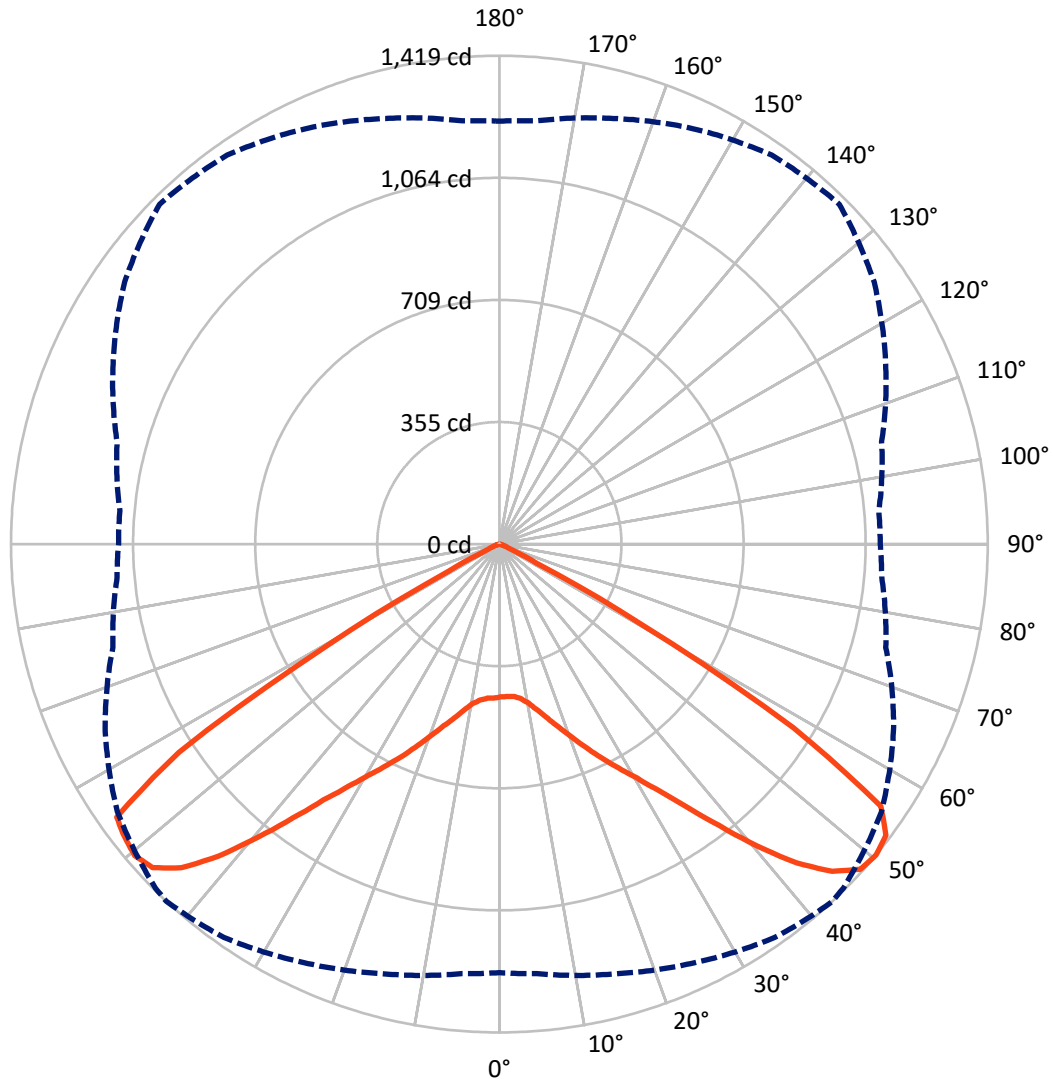
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 5.3 fc
 Type V - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 43-Deg Lateral - - - Horizontal Cone Through 50-Deg Vertical

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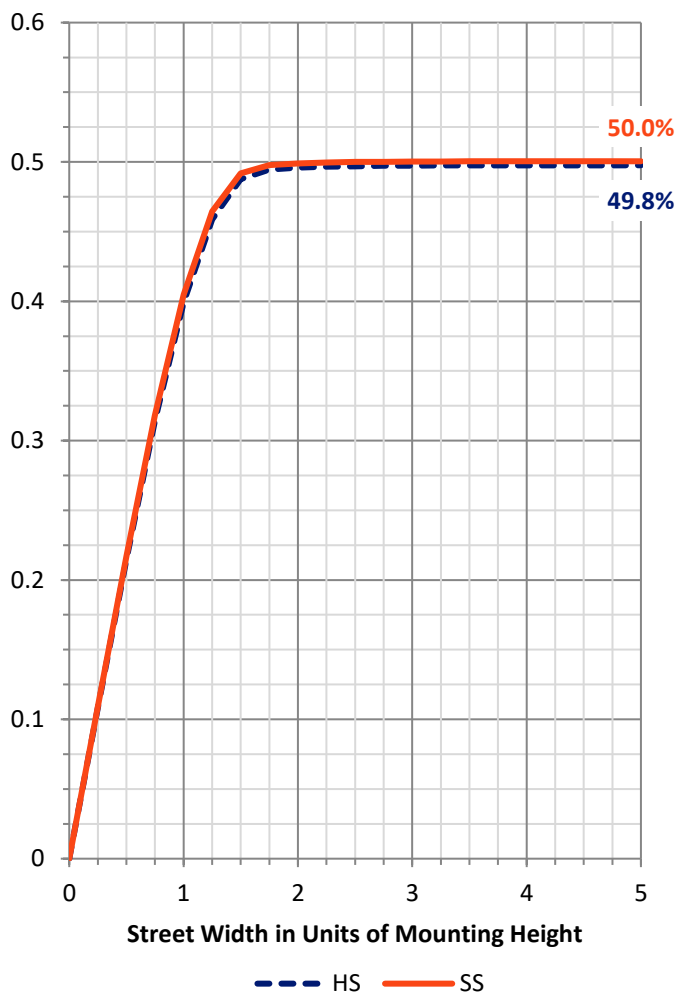
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 1561.0 | 0.0 | 1561.0 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| Street Side | Lumens | 1561.0 | 0.0 | 1561.0 |
| | % Fixture | 50.0 | 0.0 | 50.0 |
| Total | Lumens | 3122.0 | 0.0 | 3122.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 43.7 | 1.4 |
| 10°-20° | 150.5 | 4.8 |
| 20°-30° | 304.5 | 9.8 |
| 30°-40° | 564.9 | 18.1 |
| 40°-50° | 937.7 | 30.0 |
| 50°-60° | 956.9 | 30.7 |
| 60°-70° | 156.9 | 5.0 |
| 70°-80° | 6.9 | 0.2 |
| 80°-90° | 0.1 | 0.0 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| 0°-90° | 3122.0 | 100.0 |
| 0°-180° | 3122.0 | 100.0 |

Coefficient of Utilization



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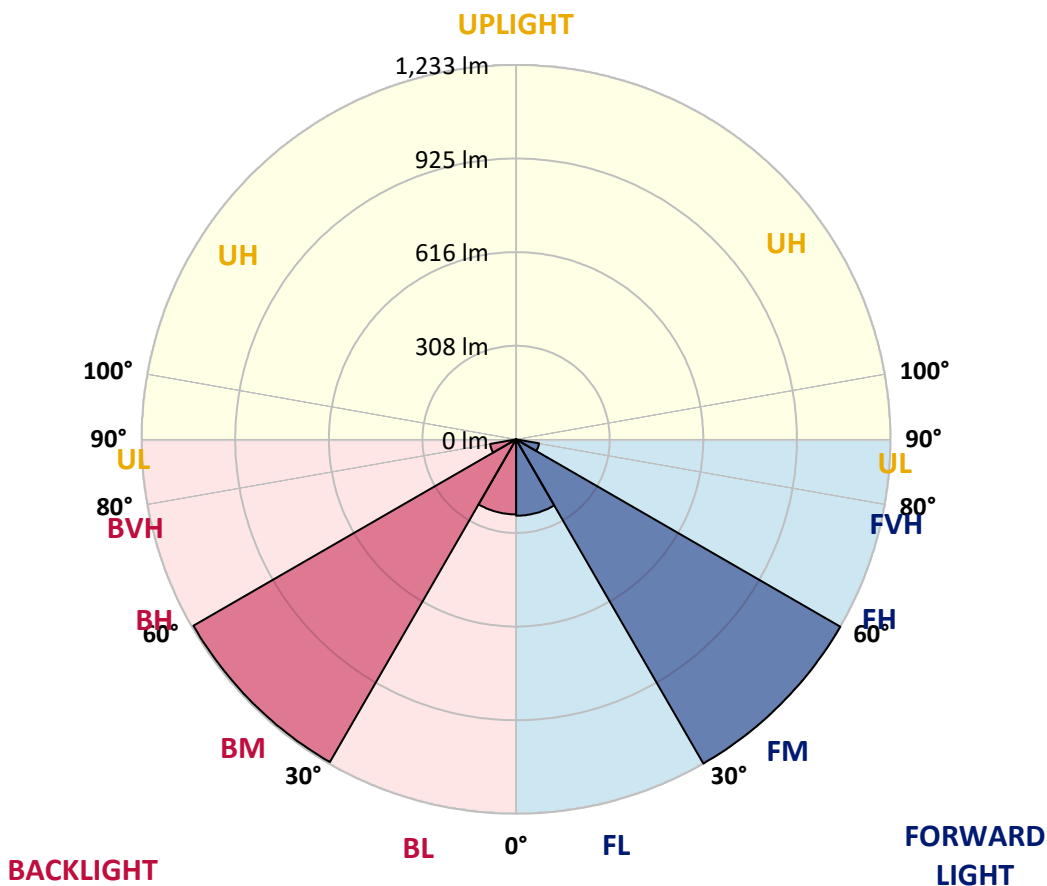
CATALOG NUMBER: GWS-SA1D-830-U-RW-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 251.5 | 8.1 | | | |
| FM (30°-60°) | 1232.7 | 39.5 | | | |
| FH (60°-80°) | 76.8 | 2.5 | | | G0/660 |
| FVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| BL (0°-30°) | 247.2 | 7.9 | B1/500 | | |
| BM (30°-60°) | 1226.7 | 39.3 | B2/2500 | | |
| BH (60°-80°) | 87.0 | 2.8 | B0/110 | | G0/660 |
| BVH (80°-90°) | 0.1 | 0.0 | | | 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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CATALOG NUMBER: GWS-SA1D-830-U-RW-W-GRSBK

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 43° | 45° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 |
| 2.5° | 435.8 | 436.8 | 438.2 | 439.6 | 441.3 | 443.0 | 444.1 | 447.2 | 446.5 | 449.2 | 449.2 |
| 5° | 430.9 | 432.0 | 433.7 | 436.8 | 440.6 | 444.4 | 447.2 | 453.4 | 456.8 | 462.4 | 464.4 |
| 7.5° | 433.4 | 434.7 | 436.8 | 441.6 | 447.5 | 453.4 | 456.5 | 466.5 | 473.4 | 483.8 | 489.6 |
| 10° | 441.3 | 442.7 | 446.1 | 454.4 | 462.0 | 470.3 | 474.1 | 486.9 | 497.9 | 512.1 | 520.4 |
| 12.5° | 450.3 | 452.0 | 458.9 | 471.3 | 484.5 | 495.5 | 500.7 | 514.8 | 526.2 | 542.1 | 555.2 |
| 15° | 459.6 | 462.4 | 473.1 | 491.4 | 510.0 | 524.9 | 530.4 | 545.6 | 557.0 | 573.9 | 588.7 |
| 17.5° | 481.3 | 484.5 | 496.5 | 516.2 | 541.8 | 559.0 | 563.9 | 579.8 | 588.4 | 599.8 | 615.3 |
| 20° | 508.6 | 514.5 | 529.3 | 553.2 | 581.1 | 597.7 | 601.2 | 616.7 | 616.0 | 620.8 | 634.3 |
| 22.5° | 542.5 | 546.6 | 562.8 | 591.2 | 622.6 | 640.9 | 648.8 | 655.4 | 646.7 | 642.6 | 651.2 |
| 25° | 577.7 | 582.5 | 600.1 | 631.2 | 666.4 | 687.5 | 694.1 | 699.2 | 685.4 | 669.9 | 670.9 |
| 27.5° | 623.3 | 626.7 | 644.0 | 677.1 | 712.4 | 736.2 | 742.0 | 751.0 | 732.7 | 707.9 | 701.0 |
| 30° | 677.5 | 680.9 | 699.2 | 734.1 | 769.0 | 789.4 | 798.3 | 809.4 | 789.4 | 758.3 | 750.3 |
| 32.5° | 741.0 | 744.5 | 767.9 | 803.9 | 832.5 | 854.6 | 863.2 | 875.0 | 859.1 | 824.2 | 815.3 |
| 35° | 817.0 | 819.1 | 846.7 | 885.7 | 916.1 | 937.5 | 943.4 | 957.2 | 939.6 | 904.7 | 899.9 |
| 37.5° | 905.0 | 907.4 | 937.5 | 982.7 | 1013.8 | 1037.6 | 1046.9 | 1050.7 | 1029.3 | 990.3 | 986.5 |
| 40° | 1001.7 | 1009.7 | 1039.0 | 1087.7 | 1122.6 | 1152.6 | 1160.9 | 1148.1 | 1118.1 | 1064.9 | 1058.0 |
| 42.5° | 1102.5 | 1109.4 | 1142.3 | 1195.1 | 1235.5 | 1266.2 | 1266.6 | 1238.9 | 1187.8 | 1114.3 | 1103.9 |
| 45° | 1186.4 | 1189.2 | 1231.7 | 1284.9 | 1334.6 | 1356.3 | 1358.4 | 1308.3 | 1231.3 | 1142.9 | 1120.8 |
| 47.5° | 1244.1 | 1248.6 | 1285.5 | 1336.7 | 1391.6 | 1411.2 | 1407.1 | 1344.6 | 1252.1 | 1161.6 | 1125.0 |
| 50° | 1244.8 | 1252.4 | 1292.5 | 1341.8 | 1395.0 | 1418.8 | 1413.0 | 1355.0 | 1263.8 | 1162.3 | 1115.0 |
| 52.5° | 1134.7 | 1147.1 | 1212.3 | 1283.8 | 1365.3 | 1406.1 | 1407.4 | 1368.4 | 1259.3 | 1151.2 | 1106.0 |
| 55° | 856.0 | 869.5 | 951.6 | 1073.5 | 1231.0 | 1344.6 | 1364.3 | 1352.5 | 1254.1 | 1156.1 | 1121.9 |
| 57.5° | 453.0 | 442.7 | 488.3 | 609.1 | 807.0 | 1007.9 | 1065.6 | 1159.5 | 1196.5 | 1161.9 | 1151.2 |
| 60° | 98.8 | 105.3 | 140.2 | 188.9 | 314.9 | 474.1 | 530.4 | 691.3 | 882.6 | 967.5 | 1029.0 |
| 62.5° | 42.5 | 41.8 | 43.5 | 49.4 | 72.2 | 120.2 | 146.8 | 239.6 | 378.1 | 519.3 | 615.0 |
| 65° | 34.9 | 35.2 | 36.6 | 36.6 | 34.2 | 34.5 | 36.3 | 54.9 | 88.4 | 124.0 | 166.4 |
| 67.5° | 26.2 | 26.6 | 29.0 | 29.7 | 28.0 | 24.9 | 24.5 | 20.7 | 21.8 | 27.3 | 28.3 |
| 70° | 16.6 | 16.6 | 18.0 | 18.6 | 18.6 | 17.3 | 16.9 | 14.8 | 14.5 | 16.6 | 18.6 |
| 72.5° | 9.0 | 9.0 | 9.7 | 10.0 | 9.7 | 9.3 | 9.3 | 9.0 | 8.6 | 10.0 | 12.8 |
| 75° | 3.8 | 3.8 | 4.1 | 4.1 | 3.8 | 3.8 | 3.8 | 3.8 | 3.8 | 4.5 | 6.9 |
| 77.5° | 0.7 | 1.0 | 1.4 | 1.0 | 0.7 | 0.7 | 0.7 | 1.0 | 1.0 | 1.4 | 2.1 |
| 80° | 0.3 | 0.3 | 0.7 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 |
| 82.5° | 0.3 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 0.0 | 0.0 | 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 |



REPORT NUMBER: P630546

CATALOG NUMBER: GWS-SA1D-830-U-RW-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 | 444.1 |
| 2.5° | 451.7 | 447.9 | 449.2 | 449.9 | 448.9 | 448.2 | 444.4 | 443.4 | 441.6 | 438.9 | 438.2 |
| 5° | 466.8 | 463.7 | 463.4 | 461.3 | 456.5 | 450.6 | 443.4 | 440.3 | 436.8 | 433.4 | 432.7 |
| 7.5° | 492.4 | 488.6 | 486.2 | 479.3 | 468.2 | 458.9 | 446.8 | 440.3 | 435.8 | 431.3 | 430.2 |
| 10° | 525.2 | 520.7 | 513.8 | 501.0 | 486.2 | 472.7 | 458.6 | 449.9 | 443.0 | 436.8 | 436.5 |
| 12.5° | 560.1 | 555.2 | 542.8 | 526.6 | 508.6 | 496.2 | 478.2 | 466.2 | 455.8 | 446.5 | 445.4 |
| 15° | 596.7 | 590.8 | 573.9 | 554.6 | 538.0 | 525.2 | 505.5 | 486.2 | 470.3 | 456.8 | 455.5 |
| 17.5° | 624.6 | 617.4 | 597.4 | 582.9 | 569.4 | 556.3 | 534.2 | 508.6 | 487.6 | 471.3 | 467.5 |
| 20° | 642.3 | 635.4 | 616.4 | 608.4 | 602.2 | 592.9 | 566.6 | 540.0 | 516.6 | 496.5 | 493.1 |
| 22.5° | 659.2 | 650.9 | 634.3 | 634.3 | 639.1 | 635.4 | 607.0 | 576.7 | 549.0 | 525.9 | 520.7 |
| 25° | 678.2 | 671.6 | 659.9 | 669.5 | 681.6 | 681.3 | 652.3 | 614.3 | 582.5 | 556.6 | 551.4 |
| 27.5° | 705.8 | 699.2 | 695.1 | 713.4 | 728.6 | 727.5 | 695.8 | 654.7 | 621.2 | 595.6 | 590.8 |
| 30° | 754.5 | 748.3 | 743.8 | 765.9 | 785.2 | 778.0 | 743.1 | 703.4 | 669.5 | 640.5 | 637.1 |
| 32.5° | 819.4 | 812.8 | 807.0 | 829.1 | 846.3 | 837.0 | 803.9 | 766.6 | 727.5 | 699.2 | 692.3 |
| 35° | 904.7 | 890.9 | 885.0 | 911.2 | 918.5 | 908.1 | 876.4 | 843.6 | 802.1 | 769.7 | 765.2 |
| 37.5° | 992.7 | 976.5 | 972.4 | 995.2 | 1006.9 | 1003.1 | 965.8 | 931.6 | 886.7 | 850.8 | 845.6 |
| 40° | 1068.0 | 1053.2 | 1045.9 | 1081.5 | 1108.1 | 1110.5 | 1077.0 | 1035.2 | 982.4 | 945.1 | 935.8 |
| 42.5° | 1112.2 | 1099.4 | 1097.7 | 1153.0 | 1196.5 | 1227.5 | 1187.5 | 1144.3 | 1088.7 | 1046.6 | 1039.0 |
| 45° | 1122.2 | 1113.9 | 1128.4 | 1201.0 | 1268.6 | 1325.3 | 1291.1 | 1245.5 | 1185.4 | 1140.9 | 1133.6 |
| 47.5° | 1121.2 | 1118.4 | 1144.3 | 1225.8 | 1311.4 | 1381.2 | 1364.3 | 1312.8 | 1254.8 | 1208.2 | 1201.3 |
| 50° | 1106.3 | 1106.7 | 1149.8 | 1238.2 | 1328.7 | 1396.4 | 1379.5 | 1331.8 | 1280.0 | 1234.1 | 1228.6 |
| 52.5° | 1100.5 | 1098.4 | 1139.5 | 1234.4 | 1346.3 | 1389.5 | 1351.5 | 1298.0 | 1240.3 | 1183.7 | 1175.4 |
| 55° | 1121.2 | 1116.0 | 1140.9 | 1231.3 | 1348.4 | 1385.7 | 1285.5 | 1169.5 | 1051.4 | 984.4 | 978.9 |
| 57.5° | 1152.3 | 1146.7 | 1158.5 | 1208.5 | 1240.3 | 1152.3 | 946.1 | 759.0 | 637.4 | 586.0 | 563.5 |
| 60° | 1029.0 | 1025.2 | 1016.2 | 955.8 | 819.7 | 618.4 | 421.3 | 268.6 | 193.0 | 156.1 | 156.1 |
| 62.5° | 638.5 | 633.3 | 584.6 | 434.4 | 315.6 | 182.7 | 100.5 | 62.8 | 47.7 | 44.5 | 44.2 |
| 65° | 179.2 | 178.2 | 147.4 | 104.3 | 66.3 | 41.1 | 36.3 | 36.9 | 36.3 | 35.2 | 34.9 |
| 67.5° | 26.9 | 29.7 | 29.7 | 24.2 | 23.1 | 25.9 | 30.4 | 32.5 | 30.7 | 29.0 | 28.3 |
| 70° | 17.3 | 18.6 | 18.0 | 15.5 | 16.6 | 19.3 | 21.8 | 22.1 | 21.1 | 19.3 | 19.0 |
| 72.5° | 12.1 | 13.5 | 11.0 | 10.0 | 10.4 | 11.4 | 12.4 | 12.4 | 12.1 | 11.4 | 10.7 |
| 75° | 7.3 | 7.3 | 5.2 | 4.8 | 4.8 | 5.2 | 5.2 | 5.9 | 5.9 | 5.5 | 5.2 |
| 77.5° | 2.4 | 2.8 | 1.7 | 1.4 | 1.4 | 1.4 | 1.7 | 2.1 | 2.1 | 1.7 | 1.4 |
| 80° | 0.3 | 0.7 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.3 | 0.7 | 0.7 | 0.3 |
| 82.5° | 0.3 | 0.3 | 0.3 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 | 0.3 | 0.3 |
| 85° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 0.3 |
| 87.5° | 0.0 | 0.0 | 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



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

REPORT NUMBER: SP1-2408-195-9

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)