

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: P629073

Luminaire Tested: GWS-SA1A-830-U-SL3-W

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P629073
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-31)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1A-830-U-SL3-W
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE III SPILL LIGHT ELIMINATOR OPTICS
Light Source: (16) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 2213.5 lumens
Efficiency: N/A
Efficacy: 112.4 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type III - Medium
BUG Rating: B1 - U0 - G1

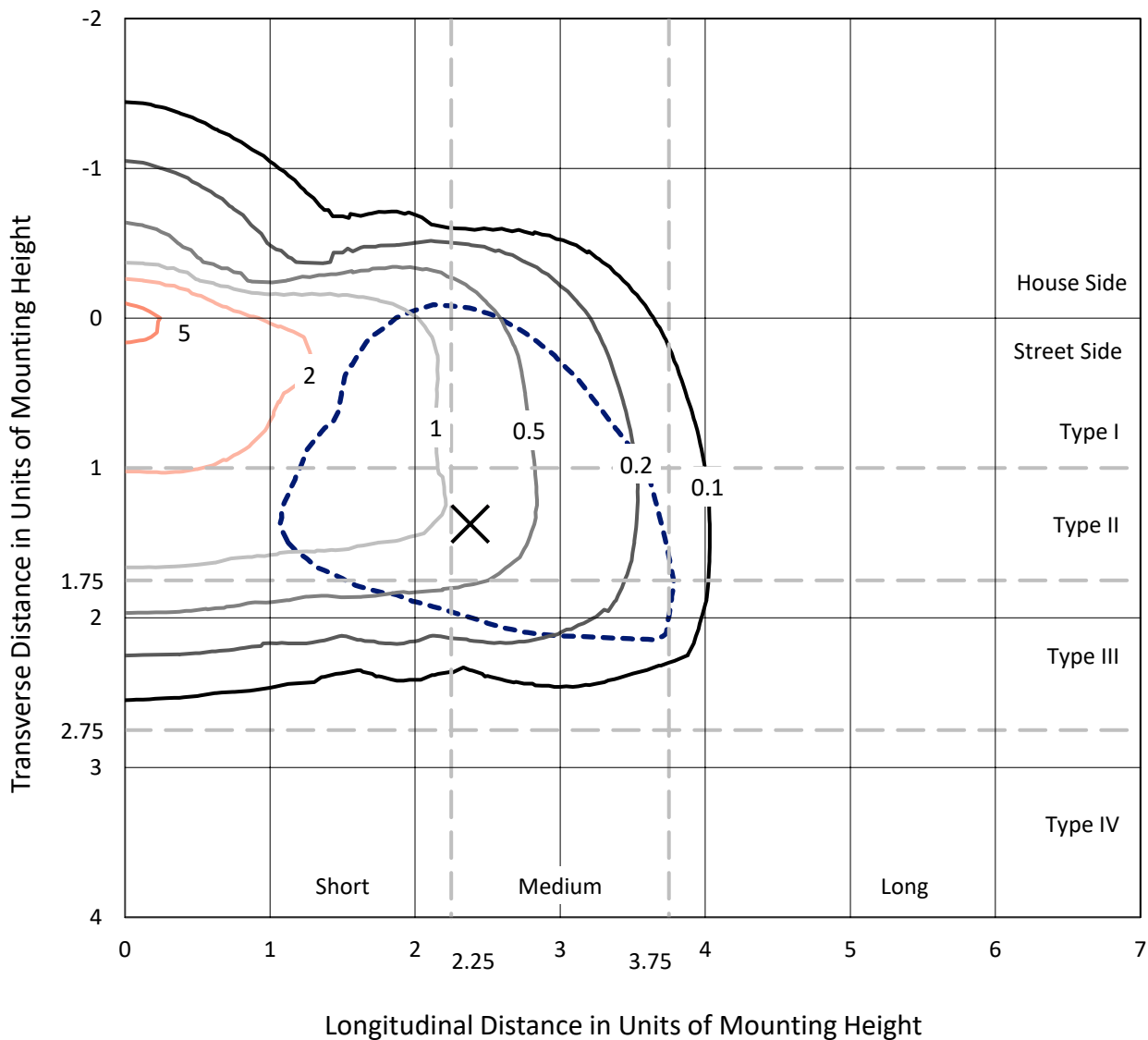
Input Watts (W): 19.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



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Iso-Footcandle Lines of Horizontal Illumination

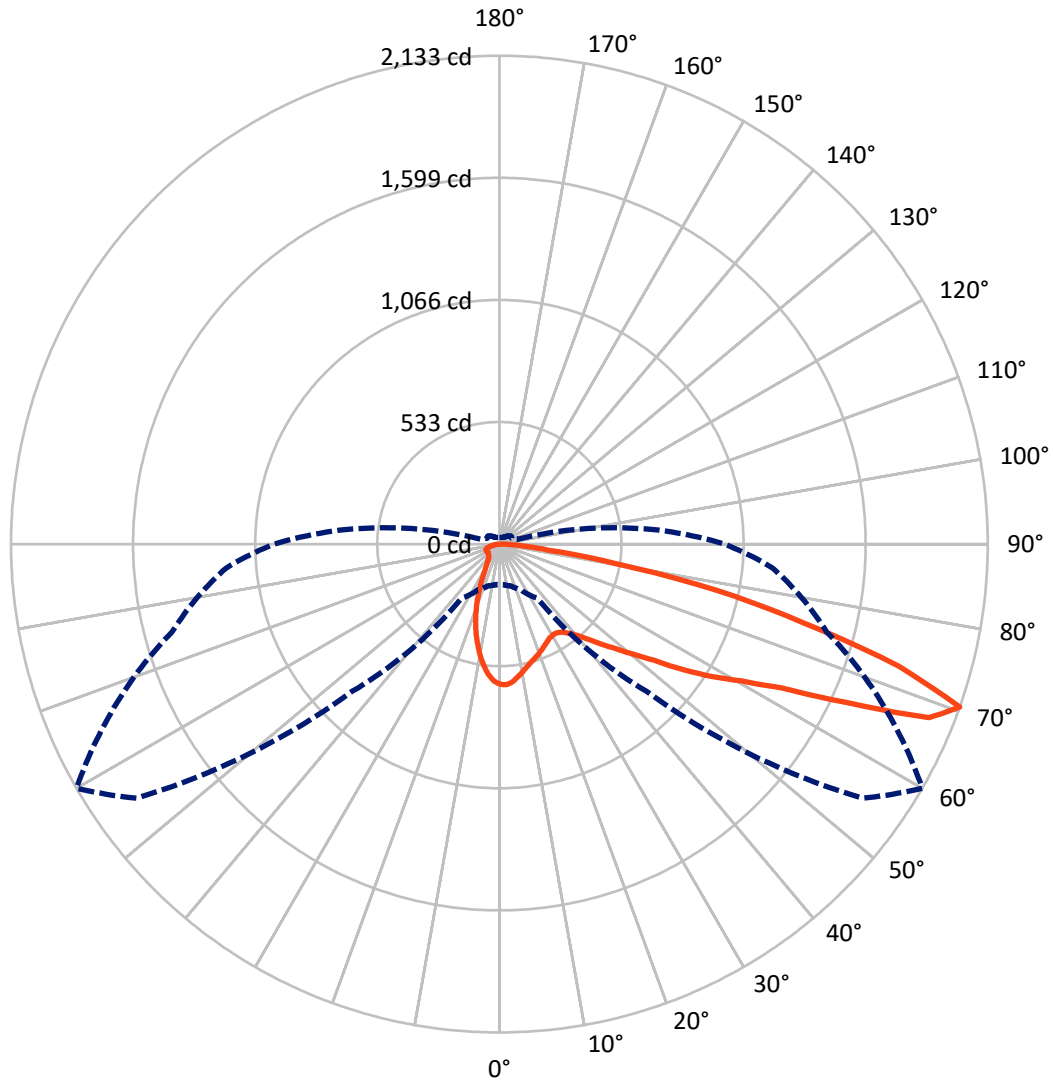
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 6.1 fc
 Type III - Medium - N/A

REPORT NUMBER: P629073
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Luminous Intensity Polar Plot



— Vertical Plane Through 60-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

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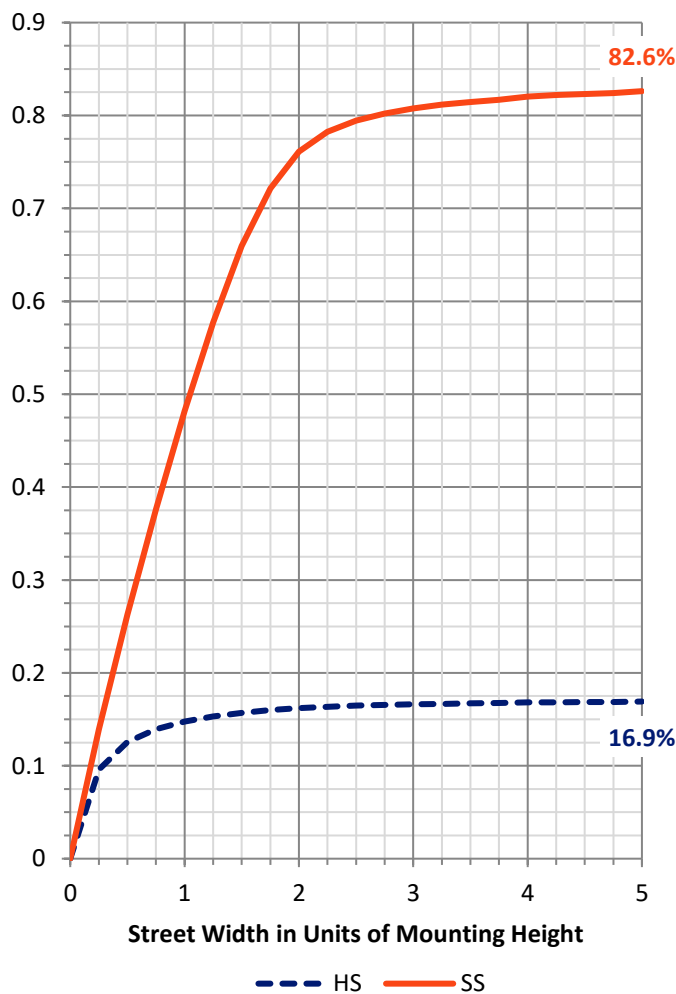
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 378.6 | 0.0 | 378.6 |
| | % Fixture | 17.1 | 0.0 | 17.1 |
| Street Side | Lumens | 1834.9 | 0.0 | 1834.9 |
| | % Fixture | 82.9 | 0.0 | 82.9 |
| Total | Lumens | 2213.5 | 0.0 | 2213.5 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 52.8 | 2.4 |
| 10°-20° | 118.3 | 5.3 |
| 20°-30° | 151.5 | 6.8 |
| 30°-40° | 199.1 | 9.0 |
| 40°-50° | 288.8 | 13.0 |
| 50°-60° | 450.6 | 20.4 |
| 60°-70° | 590.0 | 26.7 |
| 70°-80° | 326.2 | 14.7 |
| 80°-90° | 36.2 | 1.6 |
| 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° | 2213.5 | 100.0 |
| 0°-180° | 2213.5 | 100.0 |

Coefficient of Utilization



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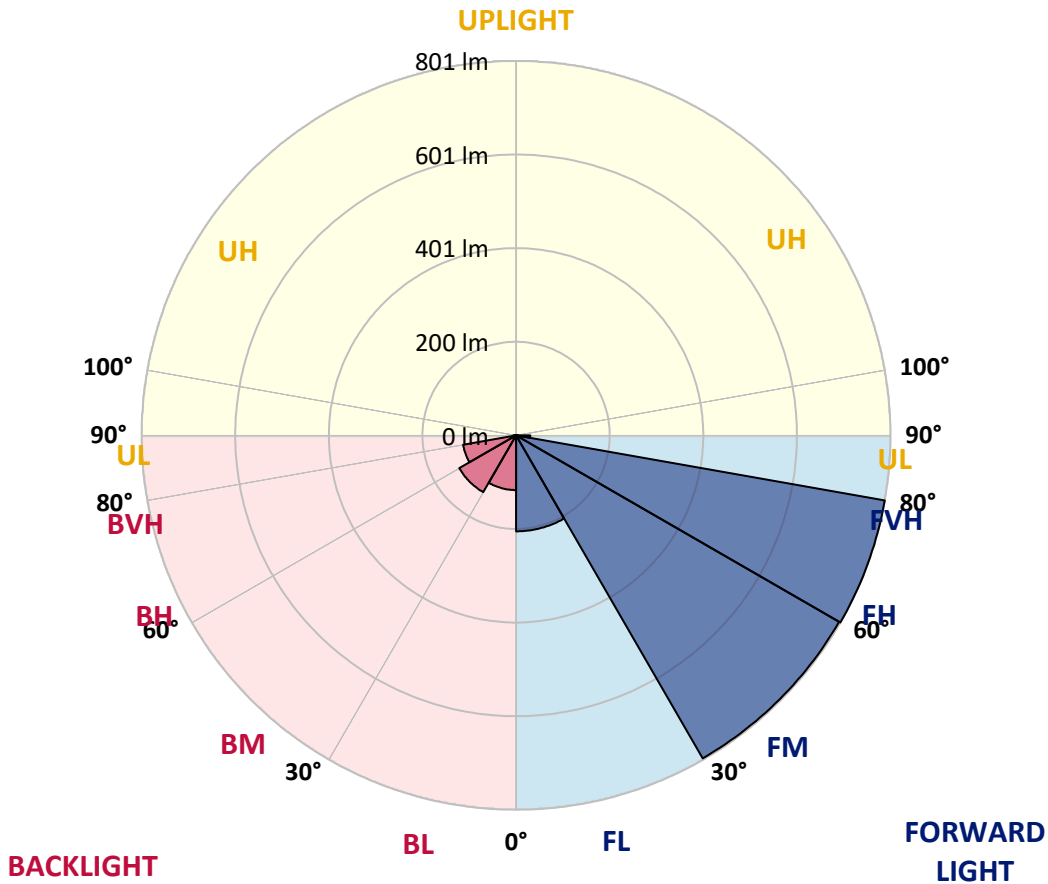
CATALOG NUMBER: GWS-SA1A-830-U-SL3-W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 205.4 | 9.3 | | | |
| FM (30°-60°) | 798.2 | 36.1 | | | |
| FH (60°-80°) | 801.2 | 36.2 | | | G1/1800 |
| FVH (80°-90°) | 30.2 | 1.4 | | | G1/100 |
| BL (0°-30°) | 117.1 | 5.3 | B1/500 | | |
| BM (30°-60°) | 140.4 | 6.3 | B0/220 | | |
| BH (60°-80°) | 115.0 | 5.2 | B1/500 | | G1/500 |
| BVH (80°-90°) | 6.0 | 0.3 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G1

Type III Medium





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 60° | 65° | 75° | 85° |
|-------|-------|-------|-------|-------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 |
| 2.5° | 603.9 | 604.6 | 606.3 | 608.9 | 611.5 | 612.8 | 616.1 | 615.1 | 614.4 | 613.2 | 611.5 |
| 5° | 577.2 | 578.5 | 580.1 | 585.1 | 590.8 | 595.3 | 602.6 | 603.4 | 603.8 | 604.4 | 601.8 |
| 7.5° | 543.2 | 543.5 | 547.4 | 554.0 | 561.5 | 569.3 | 581.4 | 584.8 | 587.7 | 591.0 | 588.9 |
| 10° | 505.6 | 506.4 | 509.3 | 518.9 | 531.7 | 543.2 | 559.5 | 565.2 | 571.4 | 578.5 | 575.6 |
| 12.5° | 474.8 | 475.0 | 479.7 | 489.9 | 503.8 | 519.4 | 539.8 | 546.6 | 554.7 | 565.9 | 563.3 |
| 15° | 450.4 | 450.4 | 454.8 | 463.5 | 479.5 | 497.8 | 522.1 | 530.9 | 541.9 | 557.0 | 552.4 |
| 17.5° | 431.0 | 431.1 | 433.9 | 443.1 | 457.4 | 477.6 | 506.4 | 518.2 | 530.4 | 550.3 | 543.5 |
| 20° | 420.8 | 419.9 | 420.4 | 426.1 | 438.2 | 457.8 | 490.7 | 504.5 | 520.8 | 545.8 | 535.4 |
| 22.5° | 420.3 | 418.8 | 416.7 | 417.2 | 424.3 | 440.5 | 473.9 | 490.6 | 511.1 | 542.1 | 527.2 |
| 25° | 428.5 | 426.9 | 423.2 | 419.0 | 418.3 | 428.0 | 458.0 | 476.9 | 501.1 | 540.4 | 519.2 |
| 27.5° | 442.5 | 441.3 | 436.5 | 430.1 | 423.5 | 423.2 | 446.0 | 465.8 | 493.8 | 542.1 | 513.6 |
| 30° | 460.9 | 459.0 | 455.9 | 447.8 | 437.8 | 427.4 | 441.3 | 459.8 | 488.9 | 547.2 | 511.1 |
| 32.5° | 481.8 | 480.7 | 477.8 | 469.7 | 459.0 | 442.5 | 445.0 | 461.1 | 488.9 | 556.3 | 511.6 |
| 35° | 504.0 | 503.8 | 503.8 | 498.5 | 486.7 | 466.1 | 459.8 | 472.1 | 496.4 | 570.9 | 516.8 |
| 37.5° | 525.5 | 525.4 | 530.6 | 532.5 | 519.1 | 496.9 | 484.9 | 494.1 | 512.7 | 592.4 | 529.6 |
| 40° | 543.0 | 543.7 | 555.0 | 564.7 | 557.3 | 536.7 | 519.9 | 524.6 | 539.3 | 623.0 | 551.9 |
| 42.5° | 560.7 | 562.5 | 579.5 | 596.6 | 599.5 | 581.7 | 564.7 | 567.5 | 577.4 | 663.5 | 585.3 |
| 45° | 580.0 | 580.8 | 604.6 | 628.5 | 642.6 | 632.1 | 618.2 | 621.9 | 624.2 | 713.6 | 635.0 |
| 47.5° | 598.6 | 600.7 | 631.5 | 664.3 | 691.1 | 690.1 | 682.3 | 681.2 | 681.7 | 774.5 | 693.8 |
| 50° | 624.0 | 627.1 | 663.2 | 702.9 | 742.1 | 760.0 | 762.3 | 753.7 | 750.2 | 842.2 | 767.0 |
| 52.5° | 672.3 | 672.3 | 704.7 | 743.7 | 796.3 | 840.9 | 856.1 | 842.0 | 830.7 | 913.7 | 844.7 |
| 55° | 732.7 | 735.3 | 761.0 | 792.6 | 859.3 | 925.9 | 977.4 | 961.8 | 929.8 | 991.6 | 926.2 |
| 57.5° | 759.6 | 762.8 | 803.6 | 852.7 | 941.8 | 1022.6 | 1094.0 | 1088.5 | 1041.7 | 1072.6 | 1010.7 |
| 60° | 711.0 | 717.8 | 774.0 | 856.2 | 1016.4 | 1178.5 | 1228.9 | 1212.9 | 1146.0 | 1157.6 | 1102.4 |
| 62.5° | 593.1 | 600.5 | 662.9 | 777.7 | 1006.0 | 1347.1 | 1441.5 | 1382.4 | 1276.2 | 1265.0 | 1224.5 |
| 65° | 353.9 | 353.5 | 428.5 | 580.8 | 878.3 | 1393.9 | 1778.1 | 1667.8 | 1477.3 | 1412.4 | 1350.2 |
| 67.5° | 225.0 | 224.5 | 240.2 | 307.7 | 584.5 | 1279.3 | 1994.4 | 2023.1 | 1750.5 | 1520.7 | 1360.6 |
| 70° | 177.5 | 177.3 | 188.7 | 219.4 | 289.1 | 910.3 | 1934.2 | 2132.6 | 1915.6 | 1479.4 | 1198.0 |
| 72.5° | 129.4 | 129.7 | 147.2 | 183.8 | 223.0 | 457.0 | 1566.2 | 1824.7 | 1761.9 | 1306.0 | 972.5 |
| 75° | 93.0 | 93.4 | 104.0 | 140.7 | 205.7 | 249.9 | 1041.5 | 1372.1 | 1340.5 | 1046.9 | 669.0 |
| 77.5° | 59.1 | 59.8 | 69.0 | 98.6 | 166.2 | 201.8 | 631.5 | 968.6 | 891.9 | 589.8 | 237.9 |
| 80° | 36.1 | 38.2 | 46.0 | 73.5 | 132.8 | 151.4 | 315.6 | 510.3 | 446.7 | 161.8 | 80.0 |
| 82.5° | 18.6 | 20.2 | 27.7 | 45.5 | 91.5 | 133.0 | 178.6 | 214.4 | 138.3 | 67.7 | 42.6 |
| 85° | 5.8 | 6.8 | 9.7 | 18.5 | 43.6 | 82.4 | 118.2 | 106.6 | 63.5 | 31.9 | 19.8 |
| 87.5° | 1.5 | 1.5 | 1.6 | 1.6 | 1.8 | 3.7 | 22.8 | 24.1 | 16.8 | 10.0 | 8.1 |
| 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: P629073
 CATALOG NUMBER: GWS-SA1A-830-U-SL3-W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 | 612.5 |
| 2.5° | 608.3 | 604.4 | 602.8 | 602.6 | 598.6 | 592.7 | 588.9 | 586.1 | 584.5 | 584.2 | 584.2 |
| 5° | 597.4 | 592.4 | 585.8 | 580.8 | 569.9 | 558.9 | 549.7 | 544.5 | 538.5 | 537.7 | 537.5 |
| 7.5° | 583.0 | 575.7 | 563.1 | 549.0 | 530.1 | 511.8 | 496.2 | 485.7 | 475.2 | 473.2 | 472.6 |
| 10° | 567.5 | 557.6 | 536.1 | 511.3 | 482.9 | 455.6 | 431.8 | 413.1 | 400.8 | 392.1 | 390.5 |
| 12.5° | 552.1 | 539.0 | 507.4 | 470.5 | 431.6 | 394.2 | 358.4 | 328.0 | 305.9 | 293.1 | 290.9 |
| 15° | 537.7 | 519.4 | 476.1 | 429.0 | 378.5 | 327.3 | 276.6 | 237.1 | 206.2 | 195.2 | 192.6 |
| 17.5° | 524.6 | 501.7 | 445.9 | 386.1 | 323.1 | 256.2 | 198.6 | 163.4 | 145.3 | 139.8 | 138.5 |
| 20° | 511.4 | 483.6 | 415.1 | 340.9 | 264.3 | 189.3 | 145.1 | 128.6 | 121.8 | 119.7 | 119.0 |
| 22.5° | 497.4 | 463.7 | 381.6 | 296.4 | 204.9 | 141.7 | 118.7 | 111.4 | 109.3 | 109.5 | 109.3 |
| 25° | 483.3 | 443.4 | 346.4 | 247.9 | 152.6 | 115.0 | 103.6 | 100.9 | 101.4 | 102.8 | 103.2 |
| 27.5° | 471.6 | 425.4 | 311.9 | 194.8 | 119.2 | 99.0 | 93.6 | 93.4 | 95.2 | 97.2 | 97.5 |
| 30° | 463.2 | 409.4 | 277.9 | 149.8 | 98.1 | 87.9 | 85.8 | 86.8 | 88.9 | 90.4 | 90.9 |
| 32.5° | 457.2 | 395.6 | 241.6 | 117.7 | 86.0 | 80.2 | 79.2 | 80.2 | 81.5 | 82.9 | 83.2 |
| 35° | 455.1 | 385.6 | 206.0 | 96.0 | 77.7 | 74.5 | 73.9 | 74.3 | 75.0 | 75.8 | 76.1 |
| 37.5° | 459.8 | 380.6 | 168.8 | 83.6 | 72.7 | 70.8 | 69.8 | 69.5 | 69.6 | 70.0 | 70.1 |
| 40° | 473.7 | 382.9 | 138.3 | 76.3 | 69.5 | 67.7 | 66.1 | 65.4 | 65.3 | 65.6 | 65.4 |
| 42.5° | 497.7 | 392.4 | 116.3 | 72.1 | 66.9 | 64.3 | 62.5 | 61.9 | 61.9 | 62.7 | 62.7 |
| 45° | 532.8 | 411.2 | 100.4 | 69.0 | 64.6 | 61.4 | 59.4 | 59.1 | 59.8 | 61.1 | 61.2 |
| 47.5° | 584.3 | 438.7 | 90.9 | 66.7 | 62.5 | 58.8 | 56.8 | 56.7 | 58.0 | 60.1 | 60.2 |
| 50° | 645.4 | 478.4 | 85.7 | 65.1 | 61.1 | 56.7 | 54.7 | 54.9 | 56.4 | 58.6 | 59.1 |
| 52.5° | 718.9 | 532.5 | 86.0 | 64.5 | 60.2 | 55.4 | 53.4 | 53.1 | 54.6 | 56.8 | 57.3 |
| 55° | 794.9 | 598.3 | 92.3 | 64.6 | 59.1 | 54.7 | 52.1 | 51.0 | 52.3 | 53.9 | 54.1 |
| 57.5° | 878.4 | 672.4 | 108.0 | 64.3 | 57.7 | 54.1 | 51.0 | 48.4 | 49.2 | 50.2 | 50.7 |
| 60° | 972.7 | 759.7 | 141.9 | 64.9 | 57.0 | 52.6 | 48.7 | 45.3 | 45.2 | 45.8 | 46.0 |
| 62.5° | 1098.7 | 878.4 | 179.9 | 66.1 | 58.5 | 50.9 | 45.3 | 41.8 | 41.1 | 41.5 | 41.6 |
| 65° | 1195.0 | 935.1 | 167.9 | 65.1 | 61.5 | 49.6 | 42.1 | 38.4 | 37.1 | 36.8 | 36.8 |
| 67.5° | 1155.9 | 860.1 | 116.9 | 62.5 | 63.0 | 49.7 | 39.5 | 34.8 | 33.2 | 32.4 | 32.2 |
| 70° | 983.5 | 698.7 | 81.3 | 59.9 | 61.4 | 49.4 | 36.8 | 31.9 | 29.8 | 28.7 | 28.5 |
| 72.5° | 777.0 | 533.5 | 65.8 | 54.7 | 55.7 | 44.5 | 32.7 | 28.7 | 26.9 | 25.4 | 25.4 |
| 75° | 500.1 | 325.5 | 54.9 | 48.7 | 45.5 | 34.7 | 28.3 | 25.6 | 23.8 | 22.3 | 22.3 |
| 77.5° | 168.3 | 120.8 | 42.6 | 41.3 | 34.0 | 26.1 | 23.8 | 22.0 | 20.6 | 19.3 | 19.1 |
| 80° | 68.3 | 57.3 | 31.3 | 31.3 | 23.8 | 19.9 | 18.6 | 17.8 | 16.8 | 15.2 | 15.2 |
| 82.5° | 39.7 | 34.8 | 21.9 | 18.9 | 15.9 | 13.8 | 13.0 | 12.1 | 12.1 | 11.0 | 11.0 |
| 85° | 19.1 | 19.3 | 13.1 | 11.7 | 9.1 | 7.9 | 7.6 | 7.1 | 7.0 | 6.3 | 6.2 |
| 87.5° | 10.4 | 10.5 | 6.6 | 5.2 | 3.6 | 3.1 | 2.6 | 2.4 | 2.3 | 2.1 | 2.1 |
| 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



CCT = 3050K
 CIE x = 0.4383
 CIE y = 0.4131
 Duv = 0.0034

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)