

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: P629085

Luminaire Tested: GWS-SA1A-830-U-T2-W-GRSBK

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P629085
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-20)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA1A-830-U-T2-W-GRSBK
Description: GALLEON WALL SLIM LUMINAIRE. (1) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II 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: 1341.9 lumens
Efficiency: N/A
Efficacy: 68.1 lumens/watt
Luminous Opening: Rectangular (W 0.5' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B0 - U0 - G0

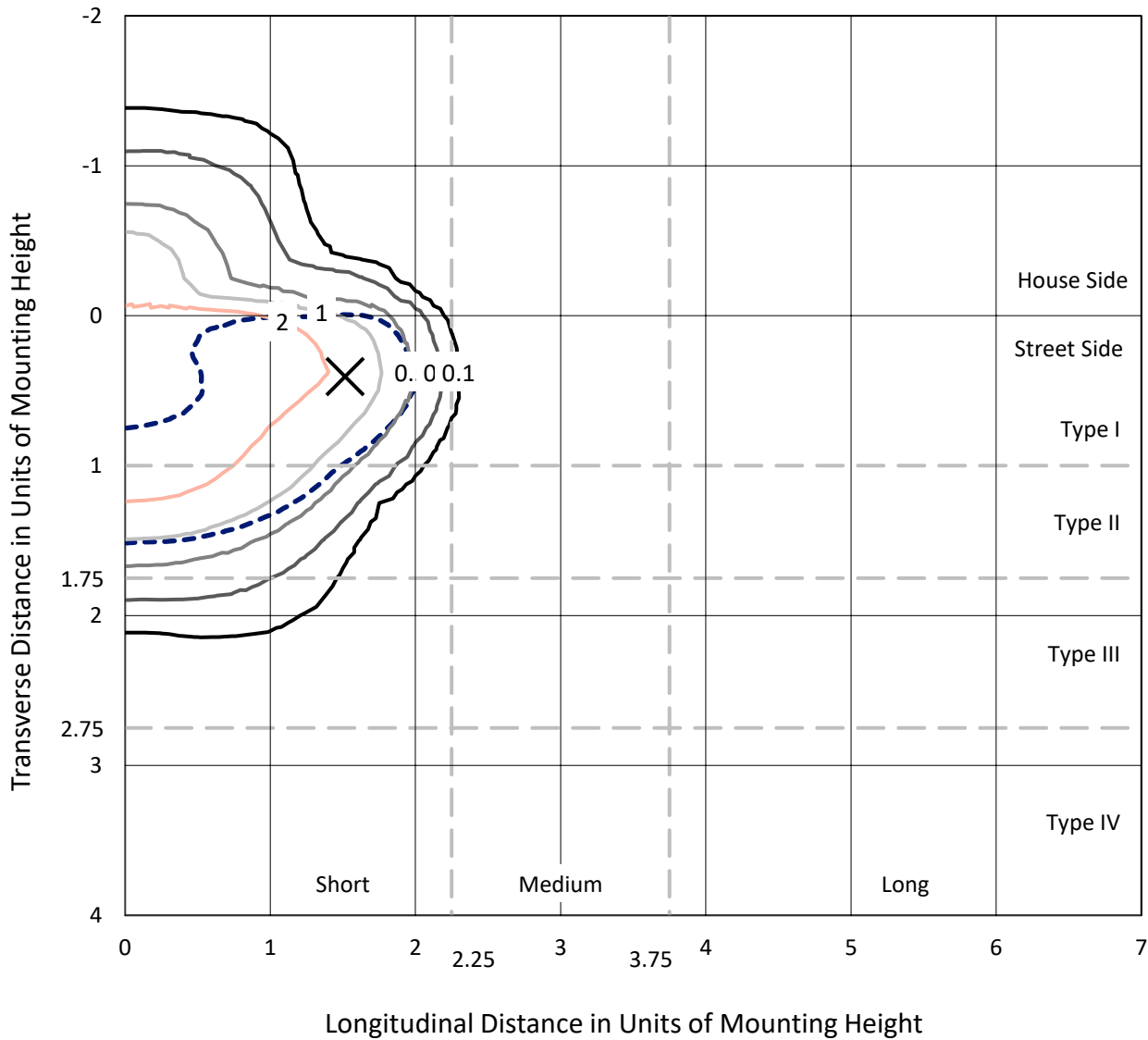
Input Watts (W): 19.7
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P629085
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Iso-Footcandle Lines of Horizontal Illumination

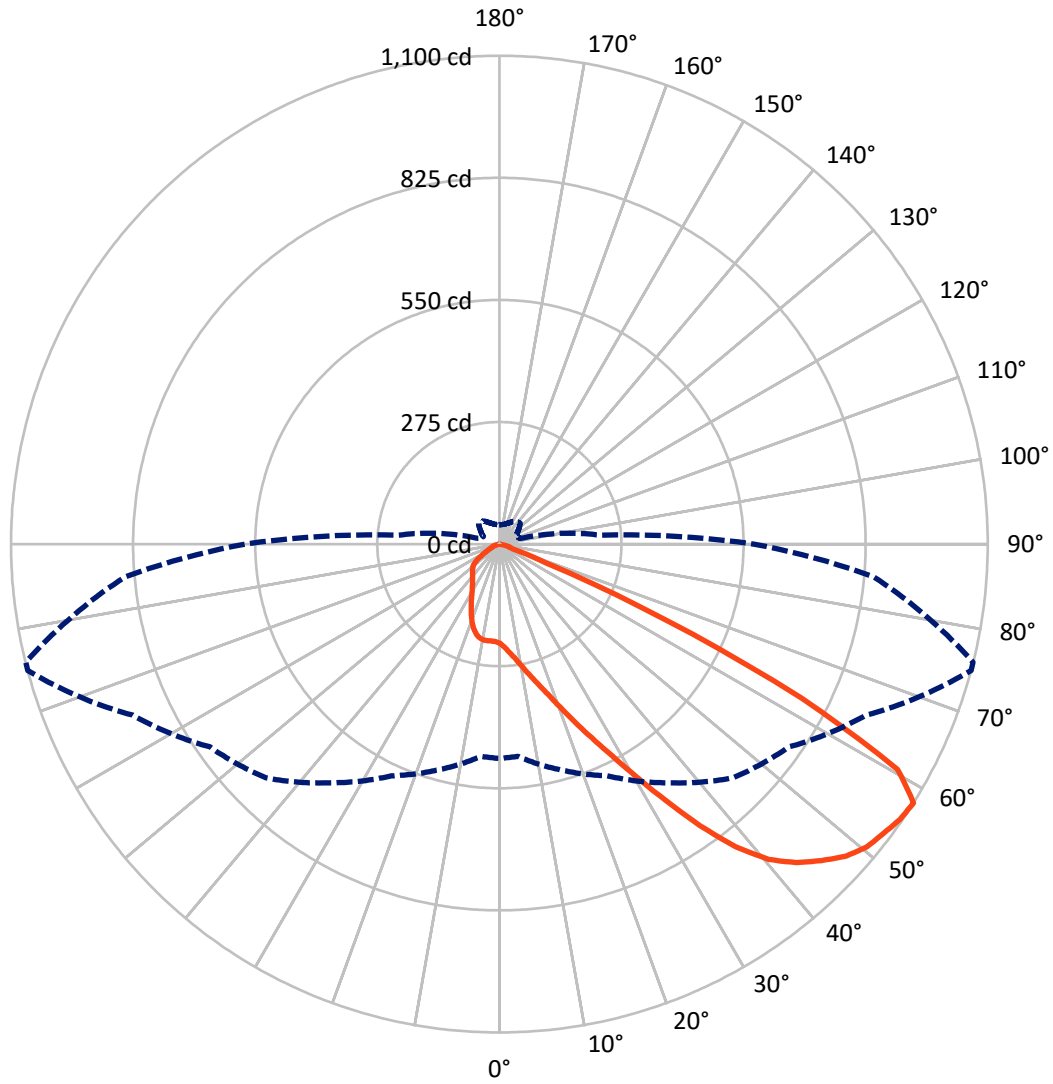
✕ Max cd
 - - - 1/2 Max cd



Based on 10 foot mounting height. Maximum calculated value = 4.2 fc
 Type II - Short - N/A

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Luminous Intensity Polar Plot



— Vertical Plane Through 75-Deg Lateral - - - Horizontal Cone Through 57.5-Deg Vertical

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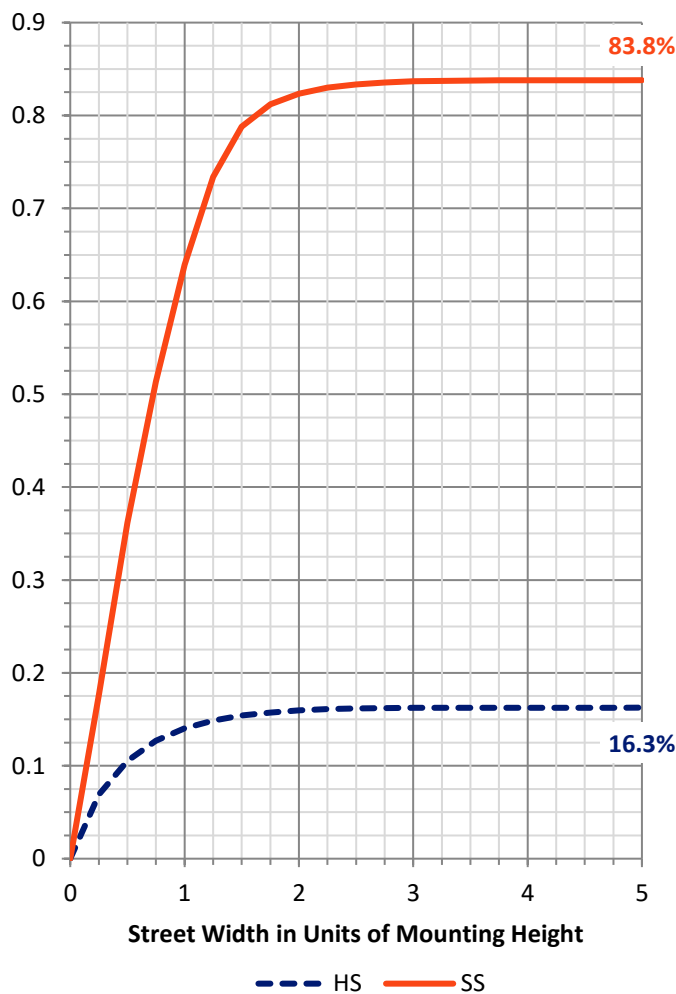
FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|--------|
| House Side | Lumens | 219.2 | 0.0 | 219.2 |
| | % Fixture | 16.3 | 0.0 | 16.3 |
| Street Side | Lumens | 1122.7 | 0.0 | 1122.7 |
| | % Fixture | 83.7 | 0.0 | 83.7 |
| Total | Lumens | 1341.9 | 0.0 | 1341.9 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|--------|-----------|
| 0°-10° | 22.8 | 1.7 |
| 10°-20° | 74.0 | 5.5 |
| 20°-30° | 135.5 | 10.1 |
| 30°-40° | 224.8 | 16.8 |
| 40°-50° | 343.3 | 25.6 |
| 50°-60° | 385.7 | 28.7 |
| 60°-70° | 142.3 | 10.6 |
| 70°-80° | 13.6 | 1.0 |
| 80°-90° | 0.0 | 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° | 1341.9 | 100.0 |
| 0°-180° | 1341.9 | 100.0 |

Coefficient of Utilization



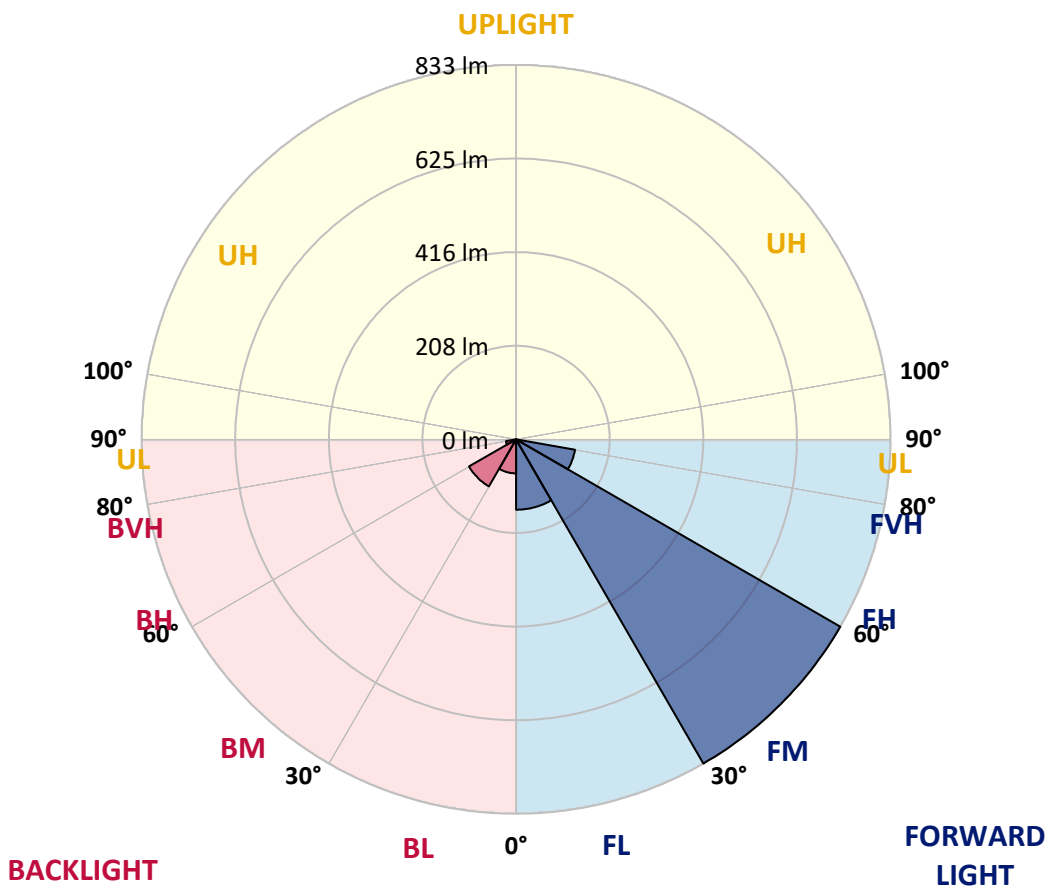
REPORT NUMBER: P629085

CATALOG NUMBER: GWS-SA1A-830-U-T2-W-GRSBK

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 156.6 | 11.7 | | | |
| FM (30°-60°) | 833.0 | 62.1 | | | |
| FH (60°-80°) | 133.1 | 9.9 | | | G0/660 |
| FVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| BL (0°-30°) | 75.6 | 5.6 | B0/110 | | |
| BM (30°-60°) | 120.8 | 9.0 | B0/220 | | |
| BH (60°-80°) | 22.8 | 1.7 | B0/110 | | G0/110 |
| BVH (80°-90°) | 0.0 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B0-U0-G0
 Type II Short





REPORT NUMBER: P629085

CATALOG NUMBER: GWS-SA1A-830-U-T2-W-GRSBK

CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 76° | 85° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|-------|
| 0° | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 |
| 2.5° | 250.0 | 252.6 | 251.8 | 250.2 | 249.2 | 245.8 | 243.7 | 237.6 | 233.2 | 232.7 | 228.7 |
| 5° | 281.6 | 281.1 | 280.5 | 278.5 | 276.9 | 271.6 | 265.3 | 254.9 | 245.7 | 244.5 | 236.0 |
| 7.5° | 299.0 | 299.3 | 299.6 | 299.3 | 298.1 | 294.1 | 287.1 | 275.0 | 260.9 | 259.9 | 246.3 |
| 10° | 306.1 | 306.7 | 308.3 | 311.4 | 314.2 | 313.9 | 309.8 | 297.3 | 280.0 | 278.4 | 260.1 |
| 12.5° | 309.5 | 310.3 | 312.9 | 318.7 | 326.2 | 332.0 | 332.6 | 321.5 | 302.4 | 299.8 | 276.4 |
| 15° | 314.2 | 315.0 | 318.2 | 325.8 | 336.7 | 348.2 | 355.6 | 348.5 | 327.1 | 324.4 | 294.4 |
| 17.5° | 316.3 | 317.4 | 322.1 | 332.2 | 346.2 | 363.9 | 380.7 | 380.1 | 356.4 | 354.3 | 315.3 |
| 20° | 320.3 | 321.1 | 325.4 | 336.2 | 353.2 | 378.6 | 407.0 | 417.2 | 392.2 | 389.2 | 340.6 |
| 22.5° | 333.1 | 333.4 | 335.4 | 342.2 | 358.1 | 389.3 | 433.7 | 460.4 | 434.5 | 430.5 | 368.9 |
| 25° | 354.0 | 353.9 | 354.7 | 355.8 | 367.5 | 400.2 | 459.4 | 509.2 | 482.9 | 478.6 | 401.0 |
| 27.5° | 380.6 | 380.6 | 382.5 | 379.3 | 384.0 | 413.6 | 484.9 | 565.2 | 539.3 | 533.1 | 436.1 |
| 30° | 411.8 | 411.7 | 416.2 | 411.0 | 412.5 | 434.8 | 512.2 | 626.2 | 607.3 | 599.7 | 476.6 |
| 32.5° | 454.3 | 453.3 | 458.5 | 451.3 | 446.5 | 466.9 | 545.6 | 690.1 | 688.8 | 677.1 | 527.5 |
| 35° | 507.9 | 506.2 | 507.9 | 500.9 | 492.2 | 511.8 | 589.3 | 753.7 | 779.1 | 766.8 | 588.0 |
| 37.5° | 561.1 | 566.3 | 568.1 | 556.1 | 549.0 | 568.6 | 642.0 | 810.7 | 865.4 | 852.6 | 651.0 |
| 40° | 624.0 | 622.4 | 628.5 | 615.1 | 610.5 | 632.2 | 693.5 | 853.1 | 933.8 | 921.6 | 707.1 |
| 42.5° | 670.3 | 673.2 | 680.8 | 673.4 | 669.8 | 690.2 | 736.7 | 877.9 | 981.2 | 969.3 | 747.1 |
| 45° | 725.8 | 728.0 | 730.9 | 724.7 | 721.0 | 741.1 | 768.0 | 888.8 | 1017.3 | 1004.4 | 773.9 |
| 47.5° | 785.9 | 787.5 | 787.5 | 774.9 | 762.9 | 771.2 | 788.8 | 894.9 | 1050.5 | 1038.1 | 793.9 |
| 50° | 829.0 | 829.8 | 836.9 | 828.0 | 802.0 | 789.2 | 798.4 | 900.9 | 1072.6 | 1060.9 | 800.3 |
| 52.5° | 790.8 | 789.8 | 813.3 | 831.8 | 838.7 | 813.3 | 814.9 | 909.7 | 1083.3 | 1073.2 | 805.5 |
| 55° | 665.9 | 664.3 | 697.3 | 742.2 | 803.6 | 836.1 | 834.8 | 914.8 | 1095.1 | 1088.9 | 824.3 |
| 57.5° | 482.8 | 480.0 | 526.0 | 575.9 | 656.4 | 744.6 | 796.5 | 911.9 | 1100.3 | 1099.8 | 846.2 |
| 60° | 290.2 | 287.9 | 331.3 | 383.8 | 446.0 | 534.7 | 620.7 | 816.9 | 1031.0 | 1031.9 | 789.3 |
| 62.5° | 178.6 | 180.7 | 219.9 | 246.6 | 269.8 | 296.5 | 346.2 | 549.5 | 763.7 | 770.1 | 554.7 |
| 65° | 120.2 | 121.8 | 158.1 | 191.7 | 191.7 | 156.8 | 134.6 | 262.7 | 407.5 | 396.8 | 262.4 |
| 67.5° | 80.6 | 82.4 | 111.1 | 150.4 | 156.1 | 109.3 | 54.6 | 78.4 | 113.5 | 110.1 | 64.9 |
| 70° | 47.5 | 49.4 | 74.0 | 103.2 | 113.7 | 76.1 | 36.4 | 33.2 | 32.2 | 31.3 | 25.3 |
| 72.5° | 21.2 | 22.0 | 37.7 | 52.5 | 47.9 | 32.1 | 25.7 | 26.6 | 25.1 | 24.6 | 20.6 |
| 75° | 6.5 | 6.8 | 9.7 | 11.3 | 11.5 | 11.5 | 15.5 | 20.9 | 19.8 | 19.9 | 15.9 |
| 77.5° | 1.6 | 1.6 | 2.6 | 2.4 | 1.3 | 1.1 | 2.9 | 4.7 | 4.9 | 4.4 | 3.2 |
| 80° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 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: P629085
 CATALOG NUMBER: GWS-SA1A-830-U-T2-W-GRSBK

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| 0° | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 | 223.8 |
| 2.5° | 226.9 | 222.7 | 219.9 | 216.0 | 213.3 | 210.4 | 207.8 | 205.7 | 204.5 | 204.2 | 204.4 |
| 5° | 232.1 | 225.4 | 219.0 | 211.5 | 206.3 | 201.5 | 197.6 | 194.5 | 193.0 | 192.6 | 192.6 |
| 7.5° | 240.0 | 230.8 | 219.3 | 207.6 | 198.9 | 191.3 | 186.7 | 183.3 | 182.0 | 181.7 | 180.7 |
| 10° | 250.4 | 237.7 | 218.8 | 200.7 | 188.3 | 180.4 | 177.2 | 176.2 | 176.7 | 176.8 | 176.7 |
| 12.5° | 262.8 | 245.0 | 215.7 | 190.4 | 177.2 | 172.3 | 172.6 | 175.2 | 178.1 | 179.6 | 179.9 |
| 15° | 276.1 | 251.7 | 208.7 | 178.3 | 167.6 | 167.5 | 172.1 | 178.1 | 183.8 | 186.2 | 186.9 |
| 17.5° | 291.0 | 257.0 | 198.1 | 165.3 | 159.4 | 164.1 | 172.5 | 181.7 | 189.3 | 193.4 | 194.2 |
| 20° | 307.4 | 261.4 | 184.5 | 153.2 | 152.1 | 160.5 | 172.1 | 183.5 | 192.9 | 197.4 | 198.2 |
| 22.5° | 324.4 | 264.5 | 168.7 | 142.0 | 145.4 | 156.4 | 169.1 | 180.1 | 189.0 | 194.2 | 194.8 |
| 25° | 343.8 | 264.8 | 152.7 | 132.6 | 139.3 | 150.9 | 161.6 | 170.7 | 178.1 | 182.7 | 183.2 |
| 27.5° | 360.8 | 260.9 | 138.5 | 125.0 | 133.6 | 144.1 | 151.3 | 156.3 | 161.5 | 164.1 | 164.2 |
| 30° | 380.4 | 254.1 | 125.0 | 118.9 | 127.8 | 135.7 | 139.3 | 140.4 | 140.9 | 141.4 | 140.7 |
| 32.5° | 403.7 | 245.8 | 115.0 | 112.9 | 121.1 | 126.5 | 127.5 | 125.2 | 122.4 | 118.5 | 117.6 |
| 35° | 432.4 | 238.4 | 106.7 | 107.0 | 113.8 | 117.1 | 116.3 | 111.4 | 106.1 | 101.4 | 100.6 |
| 37.5° | 463.5 | 232.1 | 100.4 | 101.4 | 105.9 | 108.2 | 105.8 | 100.4 | 98.0 | 93.9 | 94.1 |
| 40° | 491.0 | 226.9 | 94.7 | 95.7 | 97.8 | 99.9 | 96.0 | 92.5 | 97.0 | 96.7 | 97.0 |
| 42.5° | 510.6 | 222.5 | 89.9 | 89.4 | 90.9 | 92.3 | 89.4 | 87.6 | 95.2 | 93.1 | 94.3 |
| 45° | 522.1 | 218.5 | 85.8 | 82.9 | 85.2 | 87.8 | 85.8 | 83.6 | 86.2 | 76.4 | 75.6 |
| 47.5° | 529.9 | 216.2 | 82.3 | 76.6 | 80.6 | 85.2 | 81.1 | 75.6 | 71.9 | 63.5 | 62.8 |
| 50° | 530.7 | 215.1 | 78.1 | 70.1 | 75.3 | 80.2 | 75.5 | 67.9 | 62.5 | 58.8 | 58.3 |
| 52.5° | 534.9 | 217.3 | 72.2 | 61.9 | 67.5 | 75.3 | 72.1 | 64.5 | 57.2 | 53.9 | 53.3 |
| 55° | 553.7 | 226.9 | 62.5 | 50.5 | 58.8 | 71.6 | 69.3 | 57.5 | 50.5 | 48.6 | 48.1 |
| 57.5° | 573.1 | 228.8 | 49.2 | 40.0 | 51.2 | 66.2 | 63.3 | 53.0 | 46.2 | 43.9 | 43.4 |
| 60° | 524.1 | 188.5 | 36.9 | 33.0 | 45.2 | 61.2 | 58.6 | 50.2 | 42.3 | 39.5 | 39.0 |
| 62.5° | 344.3 | 101.9 | 29.3 | 28.0 | 38.1 | 51.8 | 53.4 | 45.3 | 37.7 | 34.8 | 34.7 |
| 65° | 158.7 | 47.3 | 22.5 | 22.2 | 29.8 | 41.3 | 46.0 | 39.7 | 31.9 | 29.3 | 29.3 |
| 67.5° | 43.2 | 23.5 | 17.7 | 16.4 | 20.2 | 27.7 | 33.5 | 29.6 | 22.7 | 19.6 | 19.4 |
| 70° | 21.5 | 18.9 | 15.9 | 14.1 | 14.6 | 17.2 | 19.8 | 16.5 | 11.5 | 9.4 | 9.2 |
| 72.5° | 17.7 | 15.5 | 13.4 | 12.0 | 11.0 | 10.5 | 10.2 | 8.3 | 5.3 | 4.0 | 3.9 |
| 75° | 13.1 | 11.2 | 9.6 | 7.8 | 6.6 | 6.2 | 5.5 | 4.0 | 2.3 | 1.3 | 1.1 |
| 77.5° | 2.9 | 2.8 | 2.6 | 1.9 | 1.8 | 1.5 | 1.1 | 0.8 | 0.3 | 0.0 | 0.0 |
| 80° | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 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 |

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 | | | |

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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)