

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: P634008

Luminaire Tested: GWS-SA2F-830-U-AFL-W-GRSWH

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P634008
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-47)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA2F-830-U-AFL-W-GRSWH
Description: GALLEON WALL SLIM LUMINAIRE. (2) LIGHTSQUARES WITH 16 LEDS EACH AND AUTOMOTIVE FRONTLINE OPTICS W/ FACTORY INSTALLED GLARE SHIELD, WH
Light Source: (32) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11691.1 lumens
Efficiency: N/A
Efficacy: 93.9 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 0.5' x H: 0')
IES Classification: Type II - Short
BUG Rating: B2 - U0 - G1

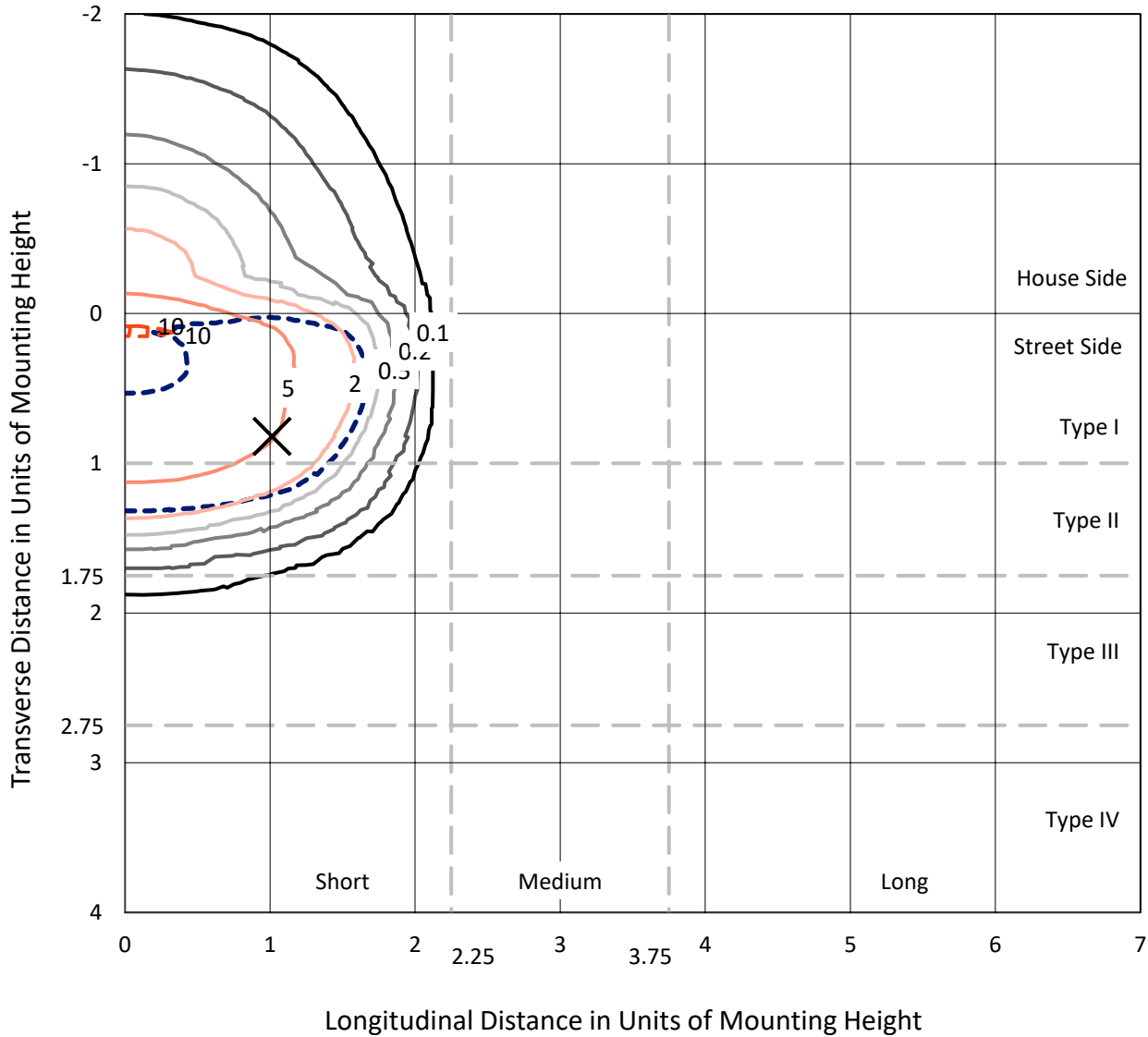
Input Watts (W): 124.5
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P634008
 CATALOG NUMBER: GWS-SA2F-830-U-AFL-W-GRSWH

Iso-Footcandle Lines of Horizontal Illumination

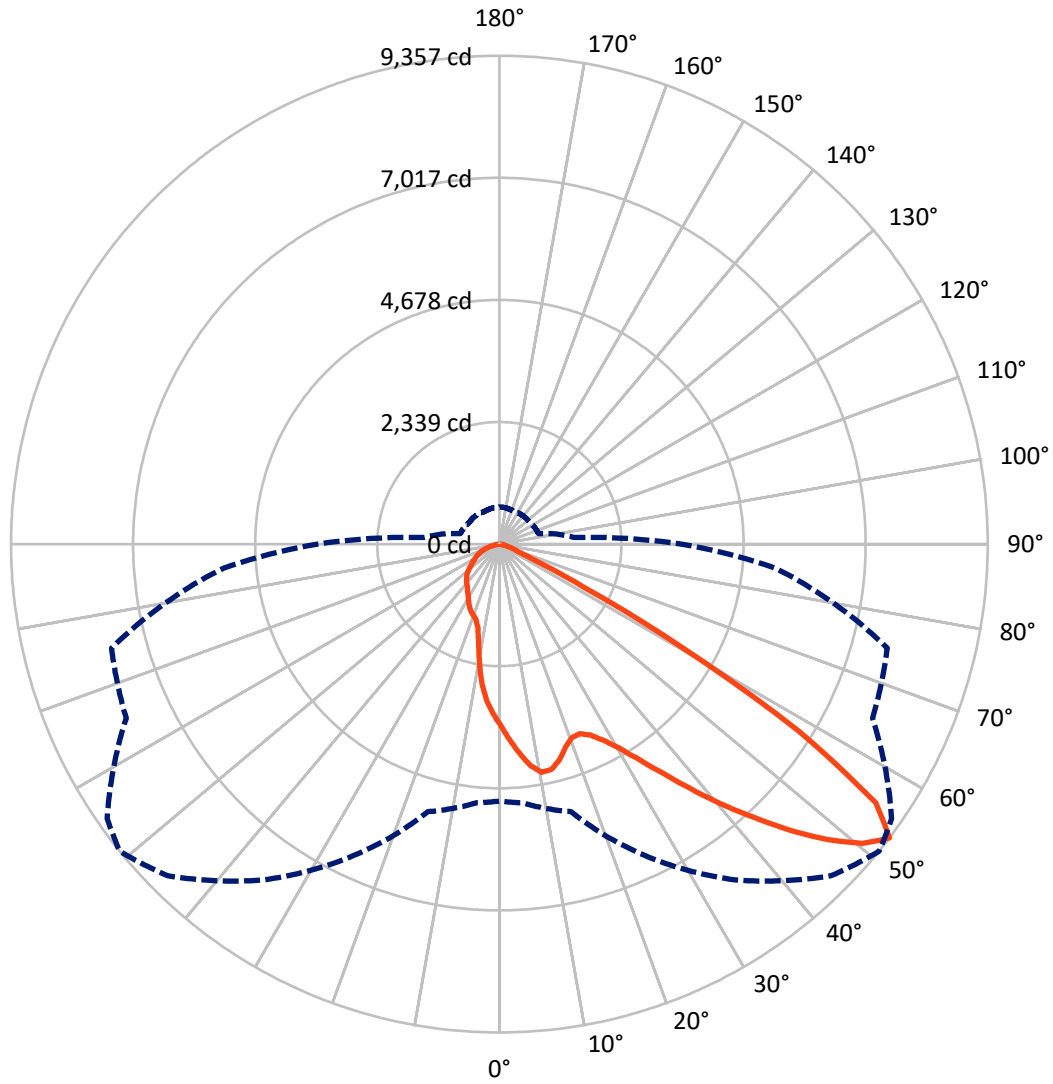
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 10.6 fc
 Type II - Short - N/A

REPORT NUMBER: P634008
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Luminous Intensity Polar Plot



— Vertical Plane Through 51-Deg Lateral - - - Horizontal Cone Through 52.5-Deg Vertical

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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 2277.9 | 0.0 | 2277.9 |
| | % Fixture | 19.5 | 0.0 | 19.5 |
| Street Side | Lumens | 9413.2 | 0.0 | 9413.2 |
| | % Fixture | 80.5 | 0.0 | 80.5 |
| Total | Lumens | 11691.1 | 0.0 | 11691.1 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 324.8 | 2.8 |
| 10°-20° | 844.0 | 7.2 |
| 20°-30° | 1372.3 | 11.7 |
| 30°-40° | 2174.8 | 18.6 |
| 40°-50° | 3280.1 | 28.1 |
| 50°-60° | 2837.6 | 24.3 |
| 60°-70° | 643.3 | 5.5 |
| 70°-80° | 189.7 | 1.6 |
| 80°-90° | 24.4 | 0.2 |
| 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° | 11691.1 | 100.0 |
| 0°-180° | 11691.1 | 100.0 |

Coefficient of Utilization



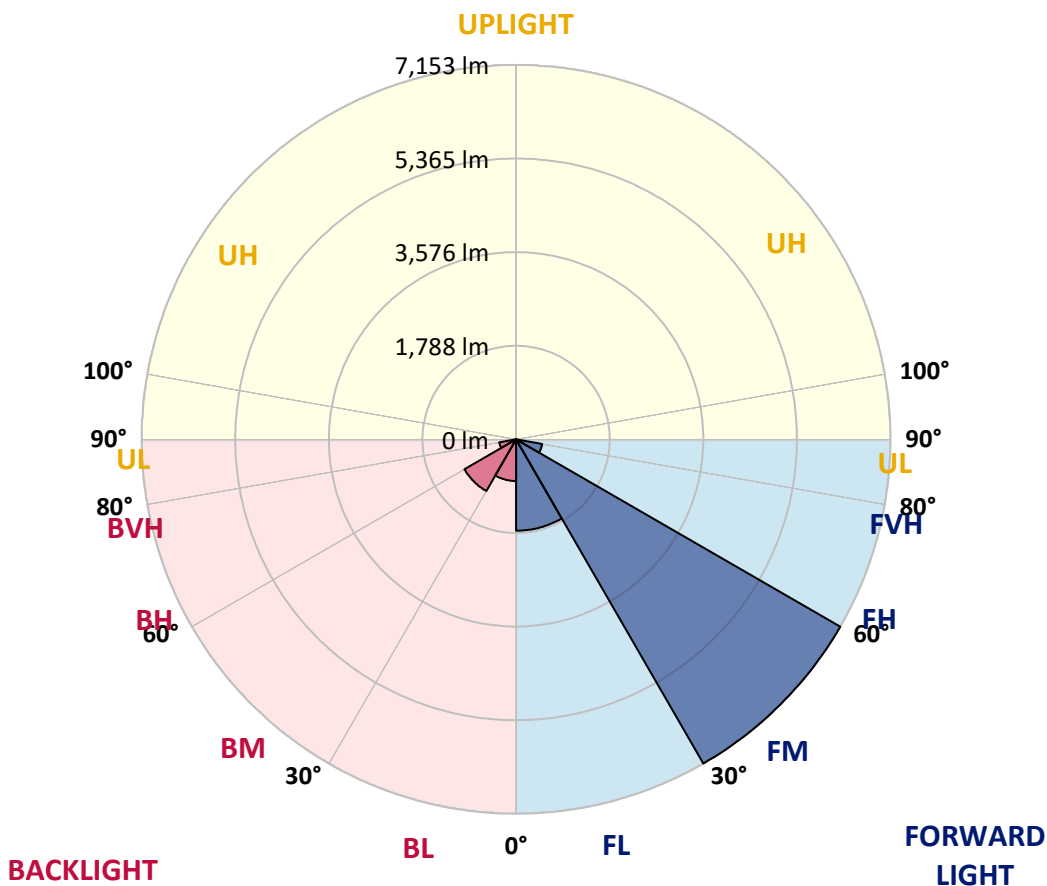
REPORT NUMBER: P634008

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LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|--------|
| | | | B | U | G |
| FL (0°-30°) | 1744.9 | 14.9 | | | |
| FM (30°-60°) | 7152.8 | 61.2 | | | |
| FH (60°-80°) | 506.3 | 4.3 | | | G0/660 |
| FVH (80°-90°) | 9.2 | 0.1 | | | G0/10 |
| BL (0°-30°) | 796.3 | 6.8 | B2/1000 | | |
| BM (30°-60°) | 1139.7 | 9.7 | B2/2500 | | |
| BH (60°-80°) | 326.7 | 2.8 | B1/500 | | G1/500 |
| BVH (80°-90°) | 15.2 | 0.1 | | | G1/100 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B2-U0-G1
 Type II Short





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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 51° | 55° | 65° | 75° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 |
| 2.5° | 3879.2 | 3901.4 | 3867.2 | 3854.3 | 3833.0 | 3796.1 | 3753.6 | 3741.5 | 3650.1 | 3590.0 | 3522.6 |
| 5° | 4269.1 | 4281.1 | 4253.4 | 4225.6 | 4173.0 | 4107.4 | 4025.2 | 4007.6 | 3841.3 | 3703.7 | 3560.5 |
| 7.5° | 4355.9 | 4351.3 | 4375.3 | 4391.0 | 4384.5 | 4358.7 | 4285.7 | 4251.5 | 4052.9 | 3834.9 | 3623.3 |
| 10° | 4012.2 | 3986.4 | 4075.1 | 4180.4 | 4306.9 | 4452.9 | 4444.6 | 4441.8 | 4269.1 | 4011.3 | 3703.7 |
| 12.5° | 3556.8 | 3543.8 | 3615.9 | 3748.0 | 3987.3 | 4310.6 | 4431.7 | 4525.9 | 4464.0 | 4179.4 | 3793.3 |
| 15° | 3296.3 | 3291.6 | 3340.6 | 3435.8 | 3626.1 | 4034.4 | 4293.1 | 4479.7 | 4631.2 | 4359.6 | 3888.4 |
| 17.5° | 3249.1 | 3251.9 | 3268.5 | 3323.0 | 3459.8 | 3796.1 | 4095.4 | 4355.9 | 4761.5 | 4557.3 | 4007.6 |
| 20° | 3386.8 | 3405.3 | 3376.6 | 3384.9 | 3458.9 | 3710.1 | 3960.5 | 4231.2 | 4844.6 | 4755.9 | 4136.0 |
| 22.5° | 3692.6 | 3686.1 | 3623.3 | 3586.3 | 3587.3 | 3762.8 | 3945.7 | 4173.0 | 4899.1 | 4949.0 | 4252.4 |
| 25° | 4039.0 | 4031.6 | 3956.8 | 3874.6 | 3822.8 | 3906.0 | 4052.0 | 4234.9 | 4948.1 | 5125.5 | 4345.7 |
| 27.5° | 4448.3 | 4425.2 | 4342.0 | 4236.7 | 4122.2 | 4158.2 | 4257.0 | 4402.1 | 5023.8 | 5299.1 | 4407.6 |
| 30° | 4844.6 | 4871.4 | 4752.2 | 4627.5 | 4506.5 | 4484.3 | 4541.6 | 4672.8 | 5178.1 | 5502.4 | 4481.5 |
| 32.5° | 5370.3 | 5361.0 | 5228.9 | 5066.3 | 4893.6 | 4876.9 | 4922.2 | 5042.3 | 5455.3 | 5783.2 | 4594.2 |
| 35° | 6006.8 | 6008.6 | 5821.1 | 5601.2 | 5355.5 | 5311.1 | 5386.9 | 5503.3 | 5868.2 | 6163.9 | 4772.6 |
| 37.5° | 6668.3 | 6665.5 | 6502.0 | 6252.5 | 5917.2 | 5854.4 | 5941.2 | 6028.0 | 6384.6 | 6682.1 | 5049.7 |
| 40° | 7132.0 | 7150.5 | 7073.8 | 6942.6 | 6624.8 | 6471.5 | 6548.2 | 6608.2 | 6946.3 | 7291.9 | 5414.6 |
| 42.5° | 7395.3 | 7423.0 | 7439.7 | 7518.2 | 7351.0 | 7187.5 | 7159.7 | 7191.2 | 7448.0 | 7858.2 | 5757.4 |
| 45° | 7451.7 | 7488.6 | 7609.7 | 7900.7 | 7965.3 | 7919.1 | 7828.6 | 7752.9 | 7822.1 | 8260.0 | 5981.9 |
| 47.5° | 7203.2 | 7267.8 | 7526.5 | 8035.5 | 8413.4 | 8558.4 | 8457.7 | 8342.3 | 8038.3 | 8363.5 | 5958.8 |
| 50° | 6218.4 | 6294.1 | 6877.1 | 7760.2 | 8477.1 | 9005.6 | 9014.8 | 8843.9 | 8012.5 | 8065.1 | 5668.7 |
| 52.5° | 4923.1 | 4974.9 | 5308.4 | 6578.7 | 7851.7 | 8987.1 | 9356.6 | 9173.7 | 7887.7 | 7691.9 | 5305.6 |
| 55° | 2942.4 | 3025.6 | 3336.9 | 4340.2 | 6116.7 | 7965.3 | 8752.4 | 8841.1 | 7826.8 | 7378.7 | 5058.0 |
| 57.5° | 993.1 | 1033.8 | 1331.3 | 1917.0 | 3604.8 | 5832.2 | 6762.5 | 7122.8 | 7105.2 | 6900.2 | 4574.8 |
| 60° | 473.0 | 482.2 | 542.3 | 727.1 | 1443.0 | 3047.7 | 4003.0 | 4418.7 | 4797.5 | 4835.4 | 2846.3 |
| 62.5° | 360.3 | 365.8 | 396.3 | 436.1 | 580.2 | 1284.1 | 1834.7 | 2152.5 | 2299.4 | 1973.3 | 1036.5 |
| 65° | 301.2 | 305.8 | 328.9 | 353.8 | 394.5 | 556.2 | 704.0 | 812.1 | 731.7 | 570.0 | 494.3 |
| 67.5° | 251.3 | 255.0 | 272.5 | 299.3 | 327.0 | 372.3 | 390.8 | 401.9 | 421.3 | 473.0 | 454.5 |
| 70° | 196.8 | 200.5 | 218.9 | 242.0 | 268.8 | 279.9 | 297.5 | 308.6 | 347.4 | 413.9 | 412.0 |
| 72.5° | 151.5 | 156.1 | 166.3 | 181.1 | 203.2 | 214.3 | 233.7 | 246.7 | 268.8 | 322.4 | 344.6 |
| 75° | 110.9 | 113.6 | 122.9 | 127.5 | 130.3 | 127.5 | 146.9 | 161.7 | 191.2 | 211.6 | 217.1 |
| 77.5° | 45.3 | 50.8 | 49.0 | 49.0 | 58.2 | 70.2 | 80.4 | 89.6 | 109.9 | 121.9 | 122.9 |
| 80° | 18.5 | 20.3 | 24.0 | 26.8 | 32.3 | 41.6 | 48.0 | 51.7 | 61.0 | 68.4 | 73.9 |
| 82.5° | 11.1 | 12.0 | 13.9 | 14.8 | 18.5 | 24.0 | 27.7 | 30.5 | 37.9 | 45.3 | 48.0 |
| 85° | 5.5 | 5.5 | 6.5 | 7.4 | 9.2 | 11.1 | 12.9 | 14.8 | 19.4 | 24.0 | 26.8 |
| 87.5° | 0.9 | 0.9 | 0.9 | 1.8 | 2.8 | 3.7 | 4.6 | 5.5 | 6.5 | 7.4 | 9.2 |
| 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: P634008

CATALOG NUMBER: GWS-SA2F-830-U-AFL-W-GRSWH

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 | 3481.0 |
| 2.5° | 3482.9 | 3433.0 | 3374.8 | 3328.6 | 3275.0 | 3235.3 | 3178.9 | 3143.8 | 3110.6 | 3082.8 | 3062.5 |
| 5° | 3486.6 | 3402.5 | 3281.5 | 3174.3 | 3063.4 | 2958.1 | 2850.0 | 2762.3 | 2683.8 | 2618.2 | 2612.6 |
| 7.5° | 3507.8 | 3386.8 | 3197.4 | 3009.9 | 2793.7 | 2584.9 | 2376.1 | 2206.1 | 2076.8 | 2009.3 | 1995.5 |
| 10° | 3543.8 | 3384.9 | 3111.5 | 2812.2 | 2443.6 | 2107.3 | 1859.7 | 1730.3 | 1655.5 | 1628.7 | 1619.5 |
| 12.5° | 3581.7 | 3380.3 | 3001.6 | 2533.2 | 2021.4 | 1726.7 | 1590.9 | 1575.1 | 1589.0 | 1590.9 | 1589.9 |
| 15° | 3627.9 | 3377.6 | 2863.0 | 2206.1 | 1712.8 | 1550.2 | 1559.4 | 1592.7 | 1625.0 | 1632.4 | 1632.4 |
| 17.5° | 3684.3 | 3371.1 | 2674.5 | 1886.5 | 1519.7 | 1516.0 | 1565.0 | 1609.3 | 1639.8 | 1645.4 | 1645.4 |
| 20° | 3743.4 | 3354.5 | 2442.6 | 1626.0 | 1441.2 | 1494.8 | 1547.4 | 1581.6 | 1602.9 | 1610.3 | 1611.2 |
| 22.5° | 3784.0 | 3310.1 | 2175.6 | 1432.9 | 1392.2 | 1454.1 | 1492.0 | 1527.1 | 1527.1 | 1508.6 | 1503.1 |
| 25° | 3792.4 | 3215.0 | 1886.5 | 1300.8 | 1334.0 | 1391.3 | 1430.1 | 1409.8 | 1371.9 | 1357.1 | 1356.2 |
| 27.5° | 3761.9 | 3076.4 | 1601.0 | 1206.5 | 1263.8 | 1321.1 | 1314.6 | 1285.1 | 1268.4 | 1253.6 | 1259.2 |
| 30° | 3724.9 | 2910.1 | 1353.4 | 1128.9 | 1182.5 | 1238.9 | 1216.7 | 1206.5 | 1194.5 | 1177.9 | 1181.6 |
| 32.5° | 3700.0 | 2724.4 | 1163.1 | 1068.9 | 1128.0 | 1137.2 | 1153.0 | 1152.0 | 1140.9 | 1109.5 | 1107.7 |
| 35° | 3707.4 | 2536.9 | 1035.6 | 1019.9 | 1082.7 | 1079.0 | 1108.6 | 1103.1 | 1026.4 | 983.0 | 980.2 |
| 37.5° | 3766.5 | 2356.7 | 960.8 | 981.1 | 1010.7 | 1033.8 | 1059.6 | 993.1 | 966.3 | 938.6 | 940.5 |
| 40° | 3879.2 | 2189.5 | 920.1 | 959.9 | 967.3 | 1001.4 | 941.4 | 940.5 | 928.5 | 903.5 | 902.6 |
| 42.5° | 4006.7 | 2048.2 | 892.4 | 949.7 | 939.5 | 946.0 | 882.3 | 889.7 | 888.7 | 873.0 | 868.4 |
| 45° | 4084.3 | 1917.9 | 870.3 | 911.8 | 914.6 | 849.9 | 830.5 | 838.8 | 843.5 | 835.2 | 834.2 |
| 47.5° | 4003.9 | 1768.2 | 847.2 | 853.6 | 877.6 | 806.5 | 782.5 | 783.4 | 791.7 | 792.7 | 789.0 |
| 50° | 3778.5 | 1601.0 | 819.4 | 803.7 | 788.0 | 761.2 | 739.1 | 734.5 | 742.8 | 751.1 | 753.9 |
| 52.5° | 3487.5 | 1441.2 | 773.3 | 749.2 | 712.3 | 712.3 | 702.1 | 687.3 | 698.4 | 709.5 | 713.2 |
| 55° | 3274.1 | 1322.9 | 707.7 | 680.9 | 640.2 | 654.1 | 652.2 | 639.3 | 654.1 | 662.4 | 665.2 |
| 57.5° | 2837.1 | 1063.3 | 622.7 | 614.4 | 580.2 | 596.8 | 600.5 | 583.9 | 576.5 | 578.3 | 581.1 |
| 60° | 1684.2 | 686.4 | 561.7 | 560.8 | 530.3 | 549.7 | 560.8 | 544.1 | 522.0 | 524.7 | 528.4 |
| 62.5° | 755.7 | 524.7 | 485.0 | 481.3 | 480.4 | 505.3 | 517.3 | 501.6 | 470.2 | 473.0 | 476.7 |
| 65° | 475.8 | 453.6 | 421.3 | 421.3 | 436.1 | 457.3 | 466.5 | 453.6 | 417.6 | 413.0 | 416.7 |
| 67.5° | 441.6 | 422.2 | 388.9 | 382.5 | 389.9 | 407.4 | 408.3 | 383.4 | 362.1 | 358.4 | 358.4 |
| 70° | 396.3 | 381.5 | 349.2 | 336.3 | 333.5 | 332.6 | 329.8 | 323.3 | 309.5 | 305.8 | 307.6 |
| 72.5° | 328.0 | 317.8 | 297.5 | 283.6 | 276.2 | 275.3 | 264.2 | 258.7 | 246.7 | 244.8 | 243.9 |
| 75° | 217.1 | 219.9 | 219.9 | 218.0 | 211.6 | 208.8 | 196.8 | 191.2 | 177.4 | 171.8 | 170.9 |
| 77.5° | 128.4 | 131.2 | 134.9 | 135.8 | 134.9 | 134.9 | 123.8 | 117.3 | 103.5 | 96.1 | 94.2 |
| 80° | 78.5 | 80.4 | 82.2 | 85.0 | 81.3 | 78.5 | 68.4 | 61.9 | 55.4 | 50.8 | 49.9 |
| 82.5° | 50.8 | 52.7 | 53.6 | 55.4 | 53.6 | 49.9 | 41.6 | 37.9 | 33.3 | 29.6 | 28.6 |
| 85° | 28.6 | 29.6 | 31.4 | 31.4 | 28.6 | 25.9 | 21.2 | 18.5 | 15.7 | 13.9 | 13.9 |
| 87.5° | 10.2 | 10.2 | 10.2 | 11.1 | 9.2 | 8.3 | 5.5 | 3.7 | 2.8 | 2.8 | 2.8 |
| 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)