

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: P641959

Luminaire Tested: GWS-SA6B-830-U-T2R-W-HSS

Issue Date: 1/10/2023

Test Information

Test Method: LM-79-2019
Report Number: P641959
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-2209-782-14)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 1/10/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: McGRAW-EDISON
Catalog Number: GWS-SA6B-830-U-T2R-W-HSS
Description: GALLEON WALL SLIM LUMINAIRE. (6) LIGHTSQUARES WITH 16 LEDS EACH AND TYPE II ROADWAY OPTICS WITH HOUSE SIDE SHIELD
Light Source: (96) 3000K CCT, 80 CRI LEDS
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 13564.4 lumens
Efficiency: N/A
Efficacy: 97.7 lumens/watt
Luminous Opening: Rectangular (W 2' x L: 1' x H: 0')
IES Classification: Type II - Short
BUG Rating: B1 - U0 - G2

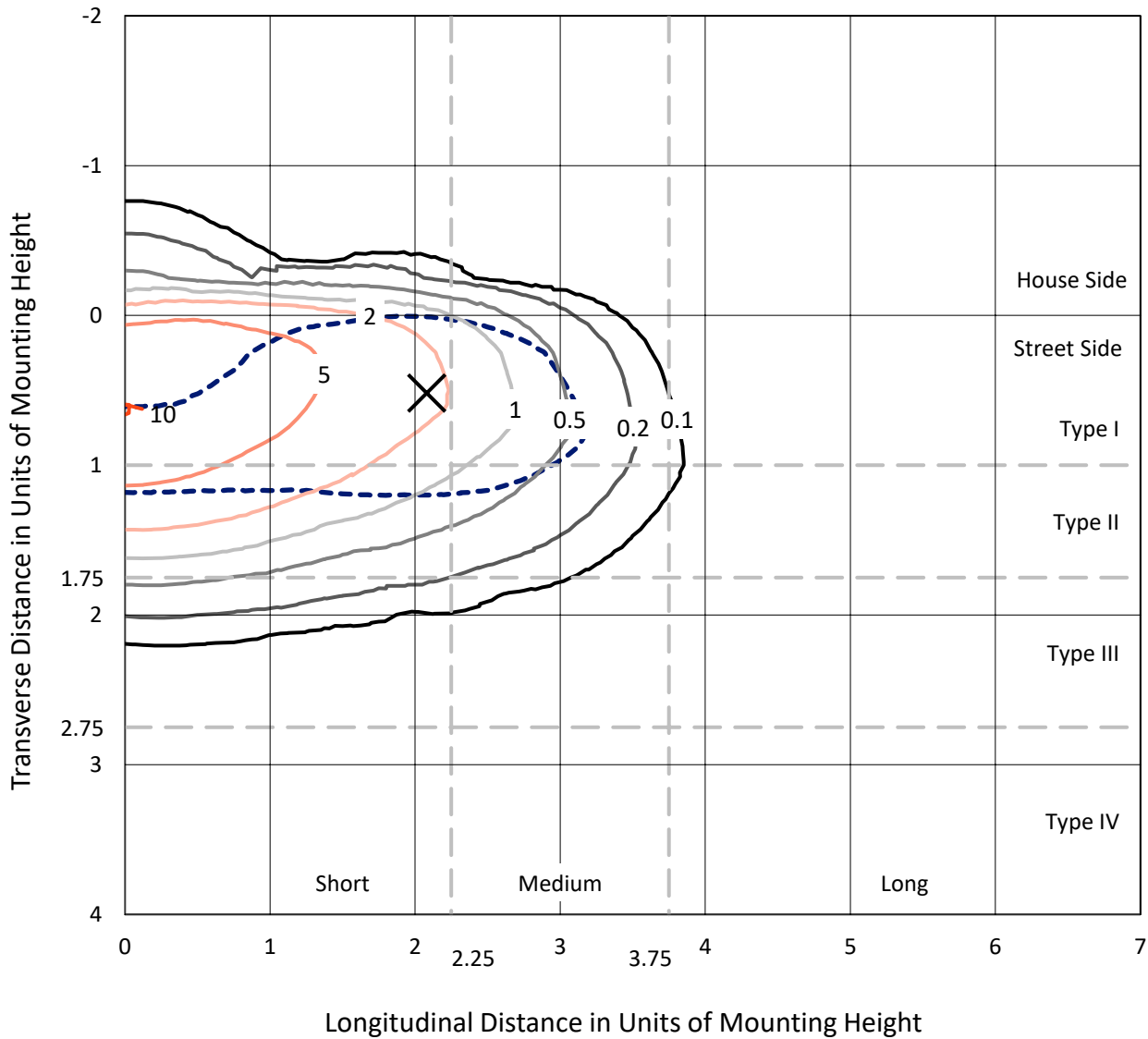
Input Watts (W): 138.9
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 0
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 28.75 FT



REPORT NUMBER: P641959
 CATALOG NUMBER: GWS-SA6B-830-U-T2R-W-HSS

Iso-Footcandle Lines of Horizontal Illumination

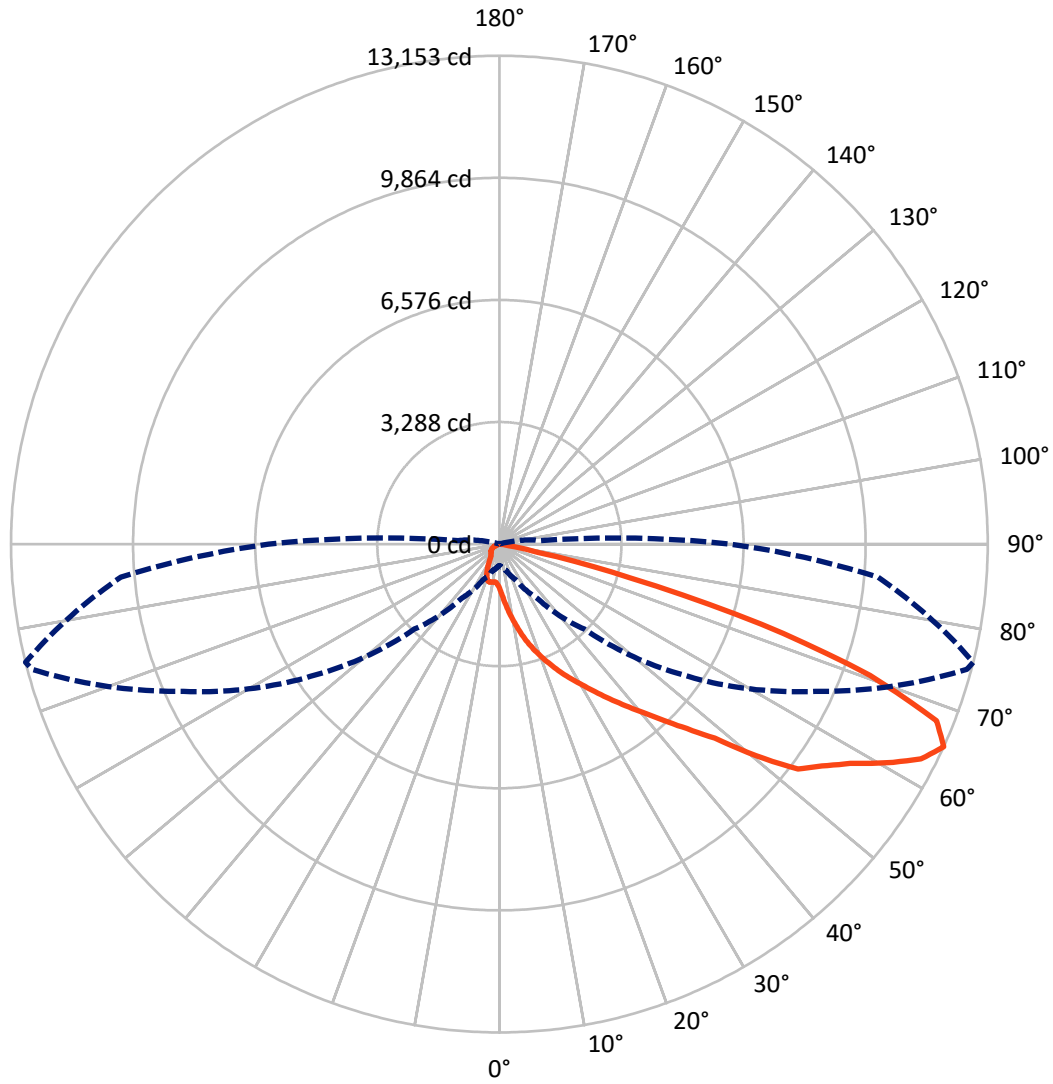
✕ Max cd
 - - - 1/2 Max cd



Based on 20 foot mounting height. Maximum calculated value = 10.2 fc
 Type II - Short - N/A

REPORT NUMBER: P641959
CATALOG NUMBER: GWS-SA6B-830-U-T2R-W-HSS

Luminous Intensity Polar Plot



— Vertical Plane Through 76-Deg Lateral - - - Horizontal Cone Through 65-Deg Vertical

REPORT NUMBER: P641959
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FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 750.0 | 0.0 | 750.0 |
| | % Fixture | 5.5 | 0.0 | 5.5 |
| Street Side | Lumens | 12814.4 | 0.0 | 12814.4 |
| | % Fixture | 94.5 | 0.0 | 94.5 |
| Total | Lumens | 13564.4 | 0.0 | 13564.4 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 146.1 | 1.1 |
| 10°-20° | 554.4 | 4.1 |
| 20°-30° | 1131.0 | 8.3 |
| 30°-40° | 2011.5 | 14.8 |
| 40°-50° | 2973.5 | 21.9 |
| 50°-60° | 3404.5 | 25.1 |
| 60°-70° | 2597.5 | 19.1 |
| 70°-80° | 727.6 | 5.4 |
| 80°-90° | 18.3 | 0.1 |
| 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° | 13564.4 | 100.0 |
| 0°-180° | 13564.4 | 100.0 |

Coefficient of Utilization



REPORT NUMBER: P641959

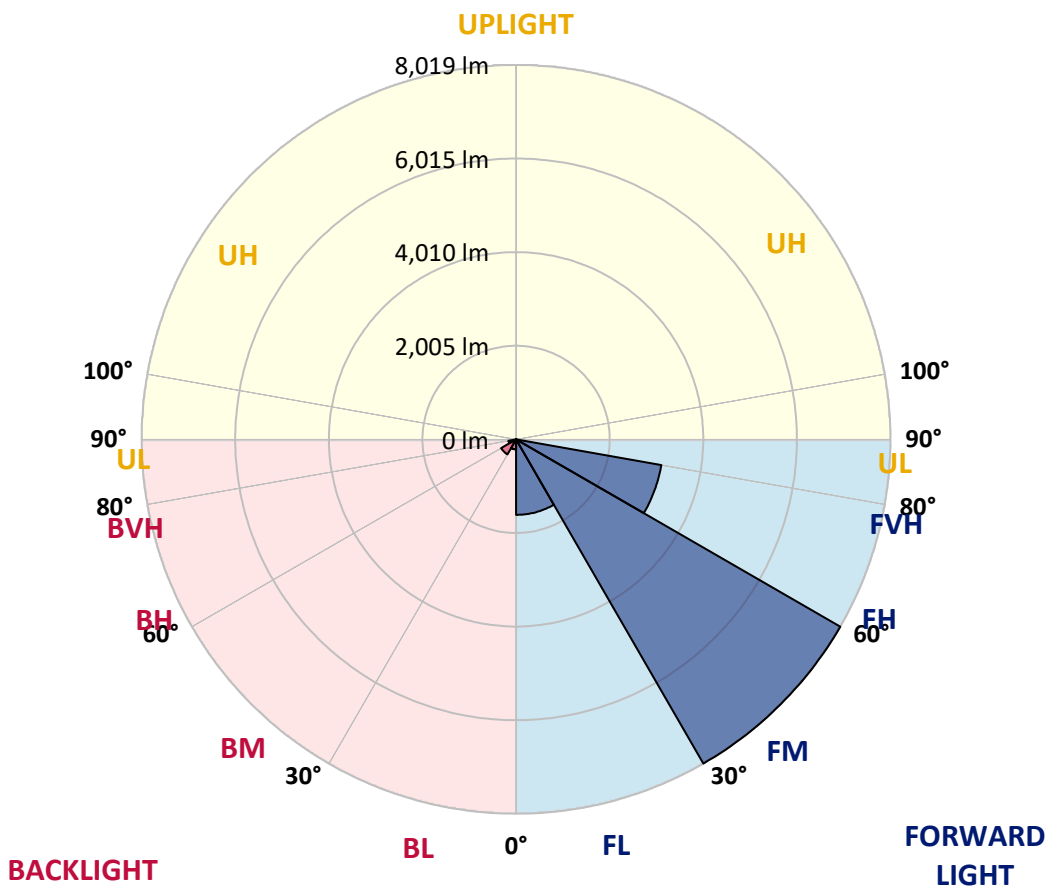
CATALOG NUMBER: GWS-SA6B-830-U-T2R-W-HSS

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|---------|
| | | | B | U | G |
| FL (0°-30°) | 1617.5 | 11.9 | | | |
| FM (30°-60°) | 8019.5 | 59.1 | | | |
| FH (60°-80°) | 3160.2 | 23.3 | | | G2/5000 |
| FVH (80°-90°) | 17.2 | 0.1 | | | G1/100 |
| BL (0°-30°) | 214.0 | 1.6 | B1/500 | | |
| BM (30°-60°) | 370.1 | 2.7 | B1/1000 | | |
| BH (60°-80°) | 164.9 | 1.2 | B1/500 | | G1/500 |
| BVH (80°-90°) | 1.1 | 0.0 | | | G0/10 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B1-U0-G2

Type II Short





REPORT NUMBER: P641959

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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 55° | 65° | 75° | 76° | 85° |
|-------|--------|--------|--------|--------|--------|--------|--------|---------|---------|---------|---------|
| 0° | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 |
| 2.5° | 1850.9 | 1878.6 | 1856.9 | 1820.7 | 1750.8 | 1683.3 | 1596.4 | 1477.1 | 1381.8 | 1369.8 | 1280.5 |
| 5° | 2499.6 | 2497.1 | 2450.1 | 2403.1 | 2329.5 | 2213.8 | 2039.0 | 1817.1 | 1603.7 | 1585.6 | 1385.4 |
| 7.5° | 2885.4 | 2889.0 | 2862.5 | 2826.3 | 2754.0 | 2634.6 | 2452.5 | 2184.9 | 1872.6 | 1836.4 | 1528.9 |
| 10° | 3209.8 | 3208.5 | 3189.3 | 3172.4 | 3107.3 | 3027.7 | 2832.3 | 2538.1 | 2161.9 | 2105.3 | 1689.3 |
| 12.5° | 3453.3 | 3461.8 | 3471.4 | 3488.3 | 3460.6 | 3382.2 | 3197.7 | 2877.0 | 2454.9 | 2392.2 | 1872.6 |
| 15° | 3646.2 | 3648.7 | 3684.8 | 3749.9 | 3772.8 | 3731.8 | 3564.2 | 3204.9 | 2744.3 | 2690.1 | 2083.6 |
| 17.5° | 3704.1 | 3708.9 | 3770.4 | 3889.8 | 4010.4 | 4033.3 | 3906.7 | 3535.3 | 3028.9 | 2971.0 | 2288.5 |
| 20° | 3825.9 | 3836.8 | 3882.6 | 3987.5 | 4139.4 | 4262.4 | 4213.0 | 3869.3 | 3313.4 | 3237.5 | 2498.3 |
| 22.5° | 4209.3 | 4215.4 | 4199.7 | 4213.0 | 4291.3 | 4433.6 | 4463.8 | 4192.5 | 3605.2 | 3524.5 | 2725.0 |
| 25° | 4868.9 | 4871.3 | 4761.6 | 4657.9 | 4598.8 | 4625.3 | 4691.6 | 4490.3 | 3894.6 | 3815.0 | 2936.0 |
| 27.5° | 5553.8 | 5562.2 | 5430.8 | 5254.7 | 5043.7 | 4923.1 | 4903.9 | 4762.8 | 4186.4 | 4098.4 | 3144.6 |
| 30° | 6198.8 | 6198.8 | 6060.2 | 5845.6 | 5563.4 | 5328.3 | 5189.6 | 5037.7 | 4498.7 | 4402.3 | 3358.1 |
| 32.5° | 6778.8 | 6774.0 | 6596.8 | 6364.0 | 6085.5 | 5827.5 | 5535.7 | 5324.7 | 4846.0 | 4738.7 | 3604.0 |
| 35° | 7257.5 | 7245.5 | 7044.1 | 6821.0 | 6523.2 | 6331.5 | 6005.9 | 5633.3 | 5222.2 | 5114.9 | 3857.2 |
| 37.5° | 7619.2 | 7606.0 | 7421.5 | 7185.2 | 6909.0 | 6784.9 | 6512.3 | 6003.5 | 5618.9 | 5521.2 | 4138.2 |
| 40° | 7815.8 | 7789.3 | 7661.4 | 7485.4 | 7253.9 | 7145.4 | 7032.0 | 6462.9 | 6085.5 | 5963.7 | 4469.8 |
| 42.5° | 7873.7 | 7842.3 | 7757.9 | 7675.9 | 7536.0 | 7450.4 | 7572.2 | 6981.4 | 6598.0 | 6493.1 | 4848.4 |
| 45° | 7702.4 | 7684.4 | 7677.1 | 7736.2 | 7761.5 | 7785.6 | 8085.9 | 7555.3 | 7163.5 | 7083.9 | 5324.7 |
| 47.5° | 7290.1 | 7285.2 | 7349.2 | 7595.1 | 7862.8 | 8117.2 | 8644.1 | 8263.1 | 7896.6 | 7811.0 | 5990.3 |
| 50° | 6528.0 | 6577.5 | 6755.9 | 7187.6 | 7722.9 | 8305.3 | 9166.2 | 9244.6 | 9083.0 | 8957.6 | 6858.4 |
| 52.5° | 5336.7 | 5432.0 | 5832.3 | 6488.2 | 7257.5 | 8252.3 | 9407.4 | 10030.8 | 10196.0 | 10065.7 | 7480.6 |
| 55° | 4187.6 | 4276.9 | 4633.8 | 5465.7 | 6491.9 | 7848.3 | 9418.2 | 10302.1 | 10662.6 | 10542.0 | 7901.4 |
| 57.5° | 3119.3 | 3201.3 | 3525.7 | 4321.5 | 5450.1 | 7053.7 | 9160.2 | 10452.8 | 11216.0 | 11138.9 | 8565.8 |
| 60° | 2039.0 | 2119.7 | 2412.7 | 3108.5 | 4227.4 | 5896.2 | 8524.8 | 10421.4 | 11969.7 | 11962.4 | 9382.1 |
| 62.5° | 1131.0 | 1194.9 | 1407.1 | 1949.7 | 2950.5 | 4566.2 | 7526.4 | 10106.7 | 12699.1 | 12745.0 | 10054.9 |
| 65° | 578.8 | 619.8 | 748.8 | 1071.9 | 1785.7 | 3237.5 | 6213.3 | 9385.7 | 13036.8 | 13152.5 | 10232.1 |
| 67.5° | 378.6 | 391.9 | 423.2 | 557.1 | 956.2 | 2036.5 | 4676.0 | 8229.4 | 12561.7 | 12696.7 | 9637.7 |
| 70° | 307.5 | 318.3 | 336.4 | 371.4 | 493.2 | 1081.6 | 3071.1 | 6572.6 | 10496.2 | 10587.8 | 7674.7 |
| 72.5° | 225.5 | 239.9 | 274.9 | 297.8 | 355.7 | 593.2 | 1597.6 | 4314.2 | 7208.1 | 7369.6 | 4823.1 |
| 75° | 166.4 | 174.8 | 203.8 | 235.1 | 290.6 | 375.0 | 611.3 | 2268.0 | 3722.2 | 3628.2 | 2025.7 |
| 77.5° | 100.1 | 106.1 | 130.2 | 150.7 | 207.4 | 233.9 | 213.4 | 838.0 | 1132.2 | 1064.7 | 489.5 |
| 80° | 49.4 | 55.5 | 85.6 | 113.3 | 132.6 | 94.0 | 89.2 | 233.9 | 252.0 | 252.0 | 123.0 |
| 82.5° | 16.9 | 21.7 | 45.8 | 74.8 | 65.1 | 36.2 | 42.2 | 60.3 | 67.5 | 71.1 | 36.2 |
| 85° | 0.0 | 0.0 | 10.9 | 21.7 | 9.6 | 4.8 | 10.9 | 13.3 | 16.9 | 18.1 | 12.1 |
| 87.5° | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 1.2 | 3.6 | 4.8 | 4.8 |
| 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: P641959

CATALOG NUMBER: GWS-SA6B-830-U-T2R-W-HSS

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 | 1200.9 |
| 2.5° | 1232.3 | 1175.6 | 1090.0 | 1012.8 | 953.8 | 898.3 | 856.1 | 822.3 | 816.3 | 797.0 | 799.4 |
| 5° | 1287.8 | 1185.3 | 1027.3 | 905.5 | 819.9 | 762.0 | 713.8 | 677.6 | 662.0 | 646.3 | 634.2 |
| 7.5° | 1373.4 | 1225.1 | 1003.2 | 854.9 | 754.8 | 665.6 | 590.8 | 530.5 | 501.6 | 483.5 | 471.5 |
| 10° | 1478.3 | 1280.5 | 1004.4 | 824.7 | 676.4 | 540.2 | 437.7 | 371.4 | 340.0 | 330.4 | 329.2 |
| 12.5° | 1603.7 | 1350.5 | 1014.1 | 775.3 | 563.1 | 401.5 | 324.4 | 294.2 | 284.6 | 276.1 | 276.1 |
| 15° | 1736.3 | 1428.8 | 1014.1 | 684.9 | 429.3 | 313.5 | 280.9 | 261.7 | 249.6 | 244.8 | 242.4 |
| 17.5° | 1876.2 | 1502.4 | 989.9 | 560.7 | 329.2 | 276.1 | 249.6 | 231.5 | 221.9 | 214.6 | 212.2 |
| 20° | 2025.7 | 1572.3 | 929.6 | 429.3 | 282.1 | 247.2 | 221.9 | 203.8 | 194.1 | 186.9 | 186.9 |
| 22.5° | 2177.6 | 1637.4 | 832.0 | 330.4 | 249.6 | 219.4 | 195.3 | 178.5 | 168.8 | 161.6 | 161.6 |
| 25° | 2318.7 | 1680.8 | 706.6 | 272.5 | 225.5 | 195.3 | 173.6 | 156.7 | 145.9 | 141.1 | 138.7 |
| 27.5° | 2450.1 | 1708.6 | 567.9 | 239.9 | 202.6 | 174.8 | 151.9 | 136.3 | 127.8 | 124.2 | 121.8 |
| 30° | 2586.4 | 1715.8 | 434.1 | 218.2 | 183.3 | 154.3 | 132.6 | 120.6 | 113.3 | 108.5 | 108.5 |
| 32.5° | 2719.0 | 1707.4 | 331.6 | 200.2 | 166.4 | 136.3 | 118.2 | 107.3 | 101.3 | 97.7 | 96.5 |
| 35° | 2854.1 | 1668.8 | 268.9 | 184.5 | 149.5 | 119.4 | 104.9 | 96.5 | 92.8 | 88.0 | 88.0 |
| 37.5° | 3001.2 | 1616.9 | 233.9 | 168.8 | 132.6 | 107.3 | 94.0 | 88.0 | 83.2 | 79.6 | 78.4 |
| 40° | 3184.4 | 1556.6 | 214.6 | 155.5 | 117.0 | 96.5 | 84.4 | 78.4 | 74.8 | 71.1 | 69.9 |
| 42.5° | 3401.5 | 1497.6 | 205.0 | 141.1 | 104.9 | 85.6 | 76.0 | 68.7 | 65.1 | 60.3 | 59.1 |
| 45° | 3708.9 | 1484.3 | 194.1 | 125.4 | 94.0 | 77.2 | 66.3 | 59.1 | 54.3 | 50.6 | 49.4 |
| 47.5° | 4203.3 | 1521.7 | 176.0 | 108.5 | 83.2 | 67.5 | 56.7 | 50.6 | 44.6 | 41.0 | 38.6 |
| 50° | 4694.1 | 1512.0 | 158.0 | 94.0 | 73.6 | 57.9 | 48.2 | 42.2 | 36.2 | 32.6 | 31.3 |
| 52.5° | 4961.7 | 1466.2 | 141.1 | 83.2 | 63.9 | 49.4 | 41.0 | 33.8 | 30.1 | 26.5 | 25.3 |
| 55° | 5204.1 | 1448.1 | 124.2 | 72.3 | 54.3 | 43.4 | 33.8 | 27.7 | 25.3 | 21.7 | 20.5 |
| 57.5° | 5679.2 | 1490.3 | 109.7 | 62.7 | 47.0 | 37.4 | 28.9 | 22.9 | 20.5 | 16.9 | 15.7 |
| 60° | 6175.9 | 1495.2 | 94.0 | 54.3 | 41.0 | 31.3 | 22.9 | 18.1 | 15.7 | 12.1 | 10.9 |
| 62.5° | 6435.2 | 1373.4 | 77.2 | 45.8 | 33.8 | 26.5 | 19.3 | 14.5 | 12.1 | 7.2 | 7.2 |
| 65° | 6218.1 | 1110.5 | 65.1 | 37.4 | 26.5 | 20.5 | 14.5 | 10.9 | 7.2 | 3.6 | 1.2 |
| 67.5° | 5503.1 | 789.8 | 54.3 | 30.1 | 19.3 | 14.5 | 10.9 | 7.2 | 1.2 | 0.0 | 0.0 |
| 70° | 4029.7 | 451.0 | 42.2 | 21.7 | 14.5 | 9.6 | 7.2 | 3.6 | 0.0 | 0.0 | 0.0 |
| 72.5° | 2476.6 | 241.2 | 31.3 | 14.5 | 10.9 | 7.2 | 6.0 | 2.4 | 0.0 | 0.0 | 0.0 |
| 75° | 939.3 | 115.8 | 19.3 | 9.6 | 8.4 | 6.0 | 3.6 | 1.2 | 0.0 | 0.0 | 0.0 |
| 77.5° | 254.4 | 56.7 | 10.9 | 7.2 | 6.0 | 3.6 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| 80° | 66.3 | 26.5 | 7.2 | 4.8 | 3.6 | 2.4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 82.5° | 22.9 | 12.1 | 3.6 | 3.6 | 2.4 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 85° | 9.6 | 4.8 | 2.4 | 2.4 | 1.2 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 87.5° | 3.6 | 1.2 | 1.2 | 1.2 | 1.2 | 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 |

REPORT NUMBER: SP1-2408-195-9

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)