

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-08 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions
(formerly Eaton)

Brand: McGRAW-EDISON

Report Number: P319218

Luminaire Tested: **GLEON-SA4D-830-U-T4W**

Issue Date: 3/3/2020

Test Information

Test Method: LM-79-08
Report Number: P319218
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G2-1903-205-18)
Test Lab: INNOVATION CENTER
Issue Date: 3/3/2020
Manufacturer: COOPER LIGHTING SOLUTIONS (FORMERLY EATON)
Product Line: McGRAW-EDISON
Catalog Number: GLEON-SA4D-830-U-T4W
Description: GALLEON AREA AND ROADWAY LUMINAIRE
(4) 80 CRI, 3000K, 1200mA LIGHTSQUARES WITH 16 LEDS EACH AND TYPE IV WIDE OPTICS
Light Source: -
Ballast/Driver: ELECTRONIC DRIVER

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 24698 lumens
Efficiency: N/A
Efficacy: 95.7 lumens/watt
Luminous Opening: Rectangular (W 1' x L: 1' x H: 0')
IES Classification: Type IV - Short
BUG Rating: B3 - U0 - G4

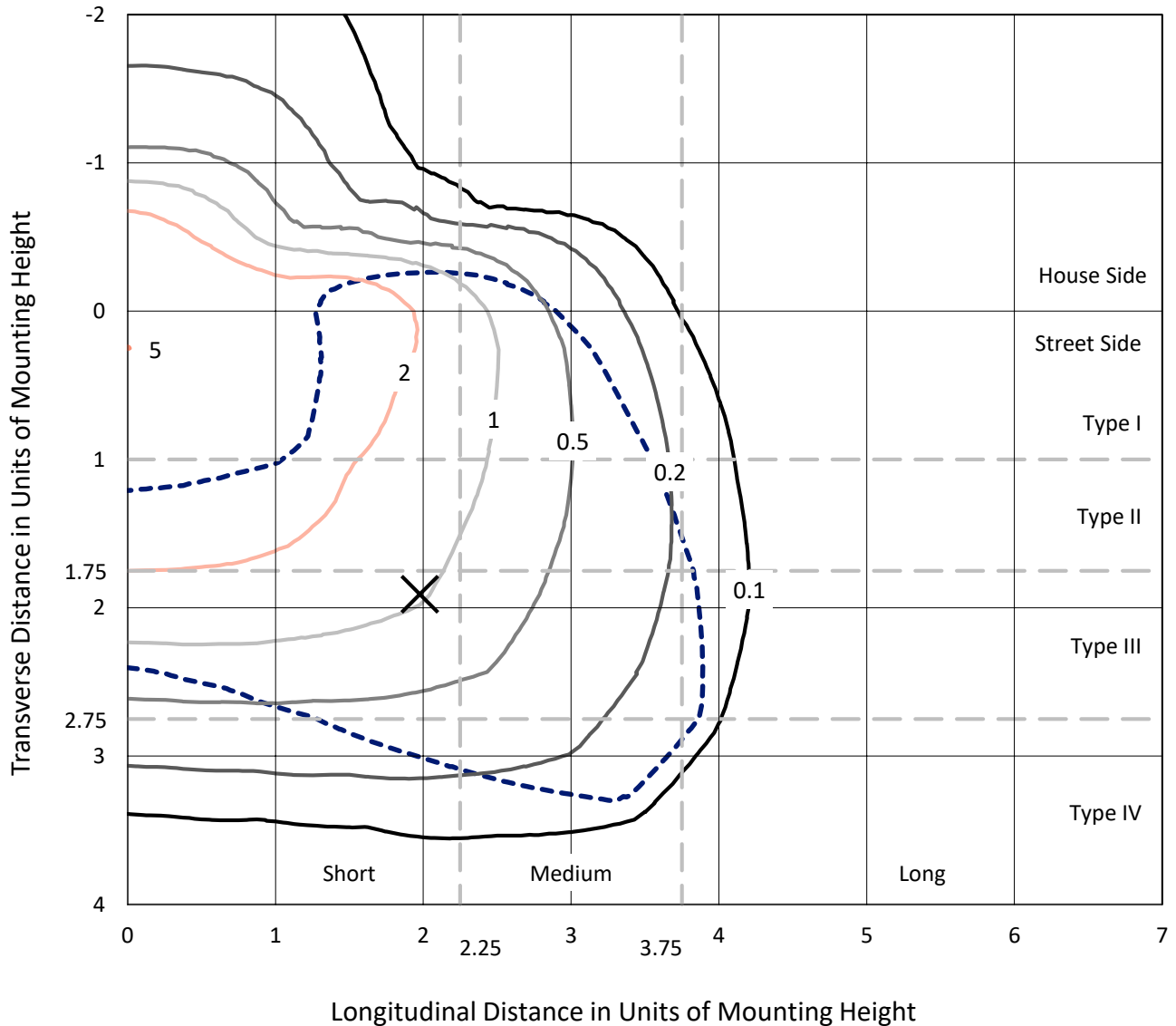
Input Watts (W): 258
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



REPORT NUMBER: P319218
 CATALOG NUMBER: GLEON-SA4D-830-U-T4W

Iso-Footcandle Lines of Horizontal Illumination

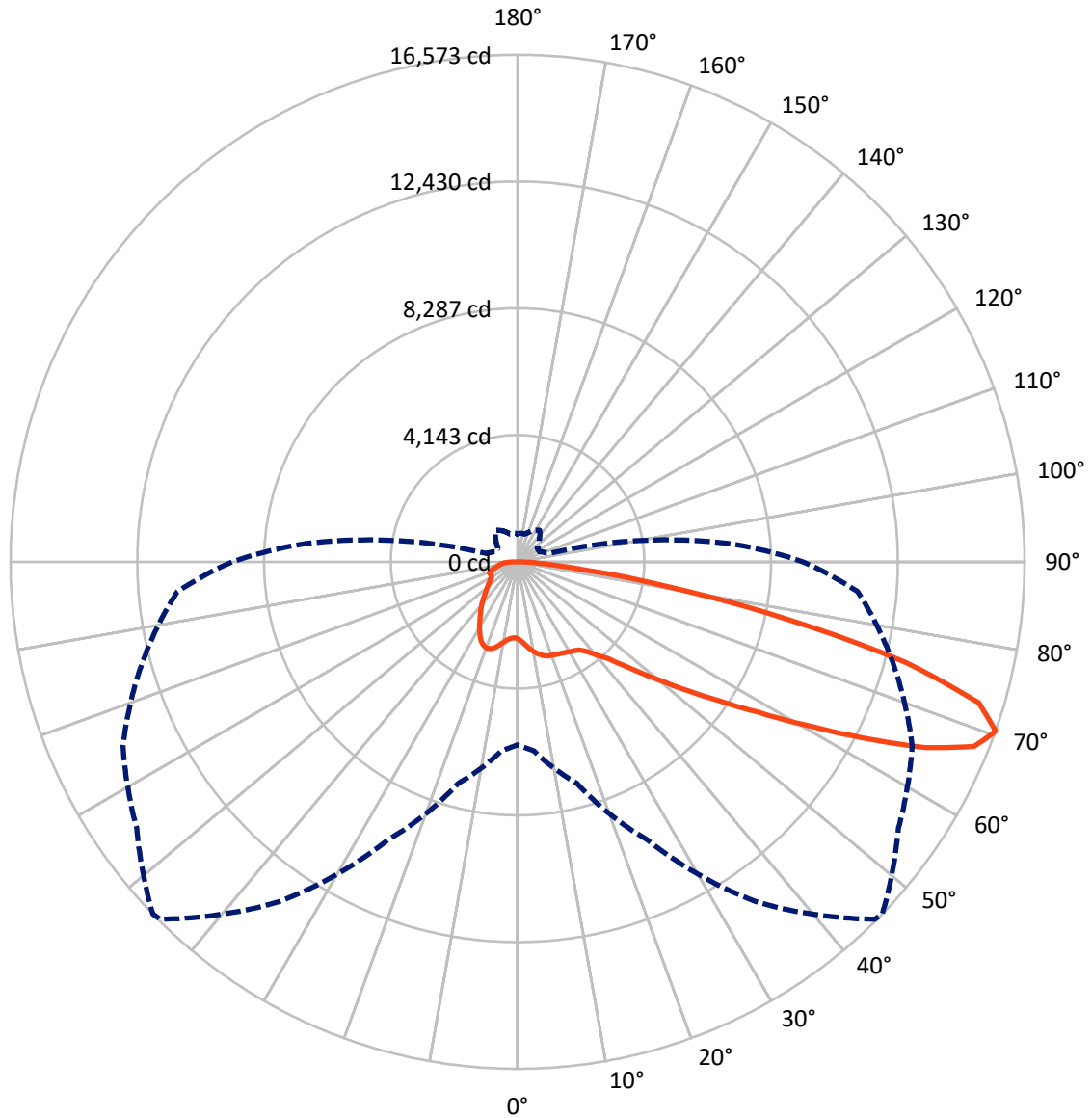
✕ Max cd
 - - - 1/2 Max cd



Based on 25 foot mounting height. Maximum calculated value = 5 fc
 Type IV - Short - N/A

REPORT NUMBER: P319218
CATALOG NUMBER: GLEON-SA4D-830-U-T4W

Luminous Intensity Polar Plot



— Vertical Plane Through 46-Deg Lateral - - - Horizontal Cone Through 70-Deg Vertical

REPORT NUMBER: P319218
 CATALOG NUMBER: GLEON-SA4D-830-U-T4W

FLUX DISTRIBUTION:

| | | Downward | Upward | Total |
|--------------------|-----------|----------|--------|---------|
| House Side | Lumens | 5660.7 | 0.0 | 5660.7 |
| | % Fixture | 22.9 | 0.0 | 22.9 |
| Street Side | Lumens | 19037.3 | 0.0 | 19037.3 |
| | % Fixture | 77.1 | 0.0 | 77.1 |
| Total | Lumens | 24698.0 | 0.0 | 24698.0 |
| | % Fixture | 100.0 | 0.0 | 100.0 |

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 256.5 | 1.0 |
| 10°-20° | 854.6 | 3.5 |
| 20°-30° | 1425.0 | 5.8 |
| 30°-40° | 2022.1 | 8.2 |
| 40°-50° | 2974.5 | 12.0 |
| 50°-60° | 5037.2 | 20.4 |
| 60°-70° | 7150.3 | 29.0 |
| 70°-80° | 4343.9 | 17.6 |
| 80°-90° | 633.9 | 2.6 |
| 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° | 24698.0 | 100.0 |
| 0°-180° | 24698.0 | 100.0 |

Coefficient of Utilization

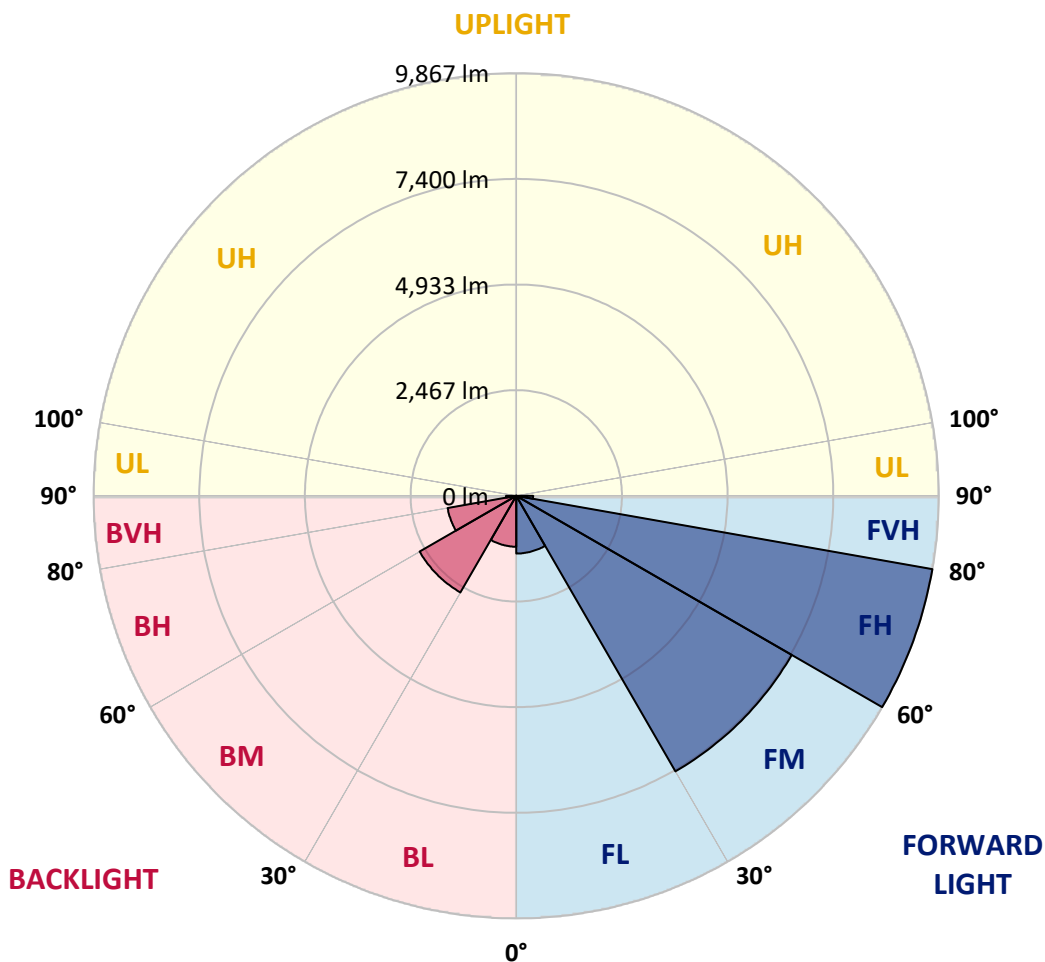


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 CATALOG NUMBER: GLEON-SA4D-830-U-T4W

LUMINAIRE CLASSIFICATION SYSTEM LUMEN TABLE AND BUG RATING:

| Zone | Lumens | % Fixture | Zone Rating/Lumen Limit | | |
|----------------|--------|-----------|-------------------------|------|----------|
| | | | B | U | G |
| FL (0°-30°) | 1347.6 | 5.5 | | | |
| FM (30°-60°) | 7428.1 | 30.1 | | | |
| FH (60°-80°) | 9866.7 | 39.9 | | | G4/12000 |
| FVH (80°-90°) | 394.9 | 1.6 | | | G3/500 |
| BL (0°-30°) | 1188.5 | 4.8 | B3/2500 | | |
| BM (30°-60°) | 2605.8 | 10.6 | B3/5000 | | |
| BH (60°-80°) | 1627.4 | 6.6 | B3/2500 | | G3/2500 |
| BVH (80°-90°) | 239.0 | 1.0 | | | G3/500 |
| UL (90°-100°) | 0.0 | 0.0 | | U0/0 | |
| UH (100°-180°) | 0.0 | 0.0 | | U0/0 | |

BUG Rating: B3-U0-G4
 Type IV Short





REPORT NUMBER: P319218
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CANDELA DISTRIBUTION (FULL):

| | 0° | 5° | 15° | 25° | 35° | 45° | 46° | 55° | 65° | 75° | 85° |
|-------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 0° | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 |
| 2.5° | 2642.2 | 2643.9 | 2647.3 | 2638.8 | 2615.1 | 2608.4 | 2605.8 | 2581.3 | 2565.3 | 2541.6 | 2521.3 |
| 5° | 2853.5 | 2855.2 | 2850.1 | 2826.4 | 2774.0 | 2735.2 | 2731.8 | 2676.0 | 2625.3 | 2571.2 | 2530.6 |
| 7.5° | 3074.1 | 3076.6 | 3060.6 | 3015.8 | 2942.2 | 2874.6 | 2870.4 | 2794.3 | 2717.4 | 2635.4 | 2574.6 |
| 10° | 3269.3 | 3259.2 | 3233.0 | 3170.4 | 3083.4 | 3000.6 | 2997.2 | 2917.7 | 2829.0 | 2730.1 | 2648.9 |
| 12.5° | 3399.5 | 3391.1 | 3357.2 | 3281.2 | 3185.7 | 3109.6 | 3102.8 | 3029.3 | 2943.1 | 2834.9 | 2737.7 |
| 15° | 3471.4 | 3477.3 | 3431.6 | 3345.4 | 3252.4 | 3188.2 | 3182.3 | 3129.9 | 3053.0 | 2943.9 | 2832.4 |
| 17.5° | 3480.6 | 3485.7 | 3441.8 | 3356.4 | 3280.3 | 3236.4 | 3233.8 | 3199.2 | 3143.4 | 3038.6 | 2922.0 |
| 20° | 3426.6 | 3429.9 | 3393.6 | 3323.4 | 3273.6 | 3260.0 | 3259.2 | 3244.0 | 3202.6 | 3109.6 | 2996.3 |
| 22.5° | 3347.9 | 3350.5 | 3324.3 | 3273.6 | 3256.7 | 3277.8 | 3283.7 | 3277.8 | 3248.2 | 3161.2 | 3054.7 |
| 25° | 3328.5 | 3326.8 | 3299.8 | 3248.2 | 3262.6 | 3307.4 | 3315.0 | 3317.5 | 3297.2 | 3221.2 | 3129.0 |
| 27.5° | 3422.3 | 3416.4 | 3364.9 | 3282.0 | 3291.3 | 3345.4 | 3355.6 | 3380.1 | 3367.4 | 3300.6 | 3213.6 |
| 30° | 3693.6 | 3683.5 | 3577.8 | 3410.5 | 3364.9 | 3392.7 | 3405.4 | 3444.3 | 3446.8 | 3391.1 | 3326.0 |
| 32.5° | 4151.8 | 4139.1 | 3949.7 | 3650.5 | 3489.1 | 3440.9 | 3452.8 | 3511.1 | 3542.3 | 3499.2 | 3429.1 |
| 35° | 4730.7 | 4716.4 | 4467.9 | 4058.8 | 3697.0 | 3533.1 | 3541.5 | 3588.0 | 3650.5 | 3589.7 | 3496.7 |
| 37.5° | 5334.2 | 5299.6 | 5060.4 | 4538.9 | 4027.5 | 3730.0 | 3730.0 | 3735.9 | 3765.5 | 3638.7 | 3576.2 |
| 40° | 5934.3 | 5899.7 | 5683.3 | 5103.5 | 4455.2 | 4040.2 | 4020.7 | 3889.7 | 3866.1 | 3757.0 | 3735.9 |
| 42.5° | 6492.2 | 6482.1 | 6354.4 | 5741.6 | 4957.3 | 4345.3 | 4318.3 | 4096.0 | 4101.0 | 4033.4 | 4034.3 |
| 45° | 7085.5 | 7085.5 | 6981.6 | 6385.7 | 5542.2 | 4835.5 | 4808.5 | 4481.4 | 4532.1 | 4500.8 | 4576.1 |
| 47.5° | 7569.9 | 7585.1 | 7570.7 | 7056.8 | 6222.6 | 5458.5 | 5409.5 | 5015.6 | 5157.6 | 5264.9 | 5483.8 |
| 50° | 8064.3 | 8088.0 | 8090.5 | 7793.0 | 7045.0 | 6198.9 | 6143.1 | 5724.7 | 6041.7 | 6349.4 | 6779.6 |
| 52.5° | 8781.9 | 8835.2 | 8623.0 | 8527.5 | 8052.5 | 7077.9 | 7023.0 | 6636.7 | 7165.8 | 7597.8 | 8339.0 |
| 55° | 9447.1 | 9400.6 | 9249.3 | 9308.5 | 9131.0 | 8078.7 | 8037.3 | 7698.3 | 8418.5 | 8979.7 | 9942.4 |
| 57.5° | 9807.2 | 9803.8 | 9955.9 | 10209.5 | 10294.0 | 9312.7 | 9278.1 | 8948.4 | 9830.8 | 10252.6 | 11447.8 |
| 60° | 10229.8 | 10235.7 | 10612.7 | 11188.3 | 11536.5 | 10849.3 | 10834.1 | 10583.9 | 11202.6 | 11441.0 | 12628.5 |
| 62.5° | 10289.0 | 10395.5 | 11044.6 | 12035.2 | 12699.5 | 12644.6 | 12678.4 | 12057.2 | 12429.9 | 12389.3 | 13510.1 |
| 65° | 9608.5 | 9748.9 | 10923.7 | 12291.3 | 13855.8 | 14608.1 | 14639.3 | 13538.9 | 13397.7 | 13199.9 | 13825.4 |
| 67.5° | 8213.9 | 8421.8 | 9698.1 | 11734.3 | 14237.0 | 16059.3 | 16103.3 | 14687.5 | 14200.7 | 13474.6 | 13066.4 |
| 70° | 5977.5 | 6208.2 | 7492.9 | 10021.9 | 13557.5 | 16523.4 | 16573.2 | 15195.5 | 14231.1 | 12692.8 | 11154.5 |
| 72.5° | 3610.8 | 3791.7 | 4850.8 | 7378.0 | 11442.7 | 15678.1 | 15766.9 | 14551.4 | 12992.8 | 10751.3 | 8236.7 |
| 75° | 1585.6 | 1704.0 | 2345.5 | 4251.5 | 8191.9 | 12971.7 | 13082.4 | 12455.3 | 10556.9 | 7813.3 | 4868.5 |
| 77.5° | 675.3 | 709.1 | 961.9 | 1846.8 | 4631.0 | 8863.9 | 9016.0 | 9100.6 | 7162.5 | 4251.5 | 2057.3 |
| 80° | 420.9 | 434.4 | 544.3 | 835.9 | 2167.2 | 4978.4 | 5142.4 | 5354.5 | 3556.7 | 1562.8 | 718.4 |
| 82.5° | 256.1 | 271.3 | 361.8 | 505.4 | 1128.4 | 2256.8 | 2335.4 | 2485.0 | 1380.3 | 675.3 | 371.9 |
| 85° | 153.8 | 164.8 | 221.4 | 319.5 | 642.4 | 887.5 | 886.6 | 980.5 | 650.0 | 434.4 | 196.1 |
| 87.5° | 73.5 | 82.0 | 118.3 | 165.7 | 323.7 | 333.0 | 311.9 | 353.3 | 394.7 | 284.8 | 98.9 |
| 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: P319218
 CATALOG NUMBER: GLEON-SA4D-830-U-T4W

CANDELA DISTRIBUTION (continued):

| | 90° | 95° | 105° | 115° | 125° | 135° | 145° | 155° | 165° | 175° | 180° |
|-------|---------|---------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 0° | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 | 2516.2 |
| 2.5° | 2514.6 | 2511.2 | 2500.2 | 2491.7 | 2490.0 | 2485.0 | 2480.7 | 2483.3 | 2486.7 | 2487.5 | 2487.5 |
| 5° | 2513.7 | 2504.4 | 2490.0 | 2484.1 | 2491.7 | 2501.9 | 2514.6 | 2531.5 | 2541.6 | 2549.2 | 2554.3 |
| 7.5° | 2554.3 | 2536.5 | 2520.5 | 2517.1 | 2532.3 | 2559.3 | 2588.1 | 2623.6 | 2648.1 | 2665.0 | 2668.4 |
| 10° | 2621.9 | 2599.9 | 2583.9 | 2587.2 | 2614.3 | 2653.2 | 2693.7 | 2739.4 | 2776.6 | 2799.4 | 2801.1 |
| 12.5° | 2699.7 | 2678.5 | 2663.3 | 2677.7 | 2722.5 | 2769.8 | 2812.1 | 2851.8 | 2885.6 | 2908.4 | 2908.4 |
| 15° | 2789.3 | 2774.0 | 2756.3 | 2789.3 | 2850.1 | 2892.4 | 2910.1 | 2929.6 | 2948.2 | 2965.1 | 2961.7 |
| 17.5° | 2875.5 | 2861.1 | 2851.8 | 2890.7 | 2954.1 | 2973.5 | 2961.7 | 2947.3 | 2947.3 | 2956.6 | 2958.3 |
| 20° | 2949.8 | 2937.2 | 2943.1 | 2981.1 | 3014.1 | 2993.8 | 2949.8 | 2904.2 | 2885.6 | 2890.7 | 2895.8 |
| 22.5° | 3014.9 | 3009.0 | 3026.8 | 3044.5 | 3020.8 | 2949.8 | 2868.7 | 2807.0 | 2784.2 | 2782.5 | 2784.2 |
| 25° | 3091.0 | 3090.2 | 3112.1 | 3080.0 | 2975.2 | 2844.2 | 2735.2 | 2675.1 | 2662.5 | 2672.6 | 2689.5 |
| 27.5° | 3185.7 | 3195.0 | 3205.9 | 3088.5 | 2882.2 | 2684.4 | 2573.7 | 2532.3 | 2545.0 | 2569.5 | 2585.6 |
| 30° | 3306.5 | 3331.9 | 3308.2 | 3067.3 | 2748.7 | 2501.9 | 2396.2 | 2384.4 | 2419.0 | 2453.7 | 2470.6 |
| 32.5° | 3424.0 | 3463.7 | 3406.3 | 3012.4 | 2576.3 | 2308.3 | 2226.3 | 2222.9 | 2265.2 | 2299.0 | 2322.7 |
| 35° | 3518.7 | 3597.3 | 3479.8 | 2903.4 | 2376.8 | 2130.0 | 2070.0 | 2047.1 | 2062.4 | 2102.1 | 2129.1 |
| 37.5° | 3642.1 | 3773.1 | 3530.5 | 2736.8 | 2160.4 | 1982.9 | 1912.8 | 1860.3 | 1846.8 | 1862.9 | 1876.4 |
| 40° | 3867.8 | 4041.0 | 3554.2 | 2504.4 | 1949.1 | 1835.8 | 1764.8 | 1687.9 | 1634.7 | 1595.8 | 1596.6 |
| 42.5° | 4236.3 | 4390.1 | 3539.0 | 2222.1 | 1753.8 | 1692.1 | 1611.8 | 1523.1 | 1436.9 | 1349.0 | 1342.2 |
| 45° | 4834.7 | 4909.1 | 3493.3 | 1922.9 | 1582.3 | 1541.7 | 1466.5 | 1377.7 | 1262.8 | 1163.0 | 1153.7 |
| 47.5° | 5792.3 | 5627.5 | 3422.3 | 1661.7 | 1431.0 | 1414.1 | 1344.8 | 1242.5 | 1120.8 | 1040.5 | 1033.7 |
| 50° | 7098.2 | 6664.6 | 3387.7 | 1453.8 | 1297.4 | 1302.5 | 1245.9 | 1137.7 | 1022.7 | 963.6 | 956.8 |
| 52.5° | 8660.2 | 7872.5 | 3454.4 | 1293.2 | 1190.1 | 1207.8 | 1165.6 | 1064.1 | 967.8 | 921.3 | 914.5 |
| 55° | 10280.5 | 9123.4 | 3526.3 | 1176.6 | 1088.7 | 1123.3 | 1108.9 | 1025.3 | 938.2 | 895.1 | 889.2 |
| 57.5° | 11667.5 | 10057.4 | 3382.6 | 1081.9 | 998.2 | 1052.3 | 1065.0 | 1000.7 | 923.0 | 884.1 | 877.3 |
| 60° | 12540.6 | 10433.5 | 3005.6 | 993.1 | 926.4 | 995.7 | 1039.6 | 994.0 | 928.9 | 925.5 | 920.5 |
| 62.5° | 12954.8 | 10400.5 | 2440.2 | 923.0 | 881.6 | 971.2 | 1058.2 | 1032.0 | 996.5 | 1027.0 | 1029.5 |
| 65° | 12768.9 | 9903.5 | 1817.2 | 876.5 | 849.5 | 980.5 | 1114.0 | 1103.9 | 1016.0 | 1046.4 | 1050.6 |
| 67.5° | 11545.0 | 8717.7 | 1345.6 | 835.9 | 814.0 | 1006.7 | 1215.4 | 1127.5 | 977.9 | 999.9 | 986.4 |
| 70° | 9331.3 | 6911.4 | 1037.9 | 790.3 | 777.6 | 1003.3 | 1261.1 | 1113.2 | 936.5 | 941.6 | 905.2 |
| 72.5° | 6434.7 | 4713.0 | 844.4 | 748.0 | 725.2 | 914.5 | 1229.0 | 1077.7 | 901.9 | 863.0 | 814.8 |
| 75° | 3499.2 | 2529.8 | 717.6 | 704.1 | 633.1 | 803.0 | 1169.8 | 1052.3 | 870.6 | 819.0 | 792.0 |
| 77.5° | 1376.9 | 1049.8 | 622.9 | 644.1 | 553.6 | 709.1 | 1103.9 | 1004.1 | 827.5 | 759.9 | 746.3 |
| 80° | 562.1 | 535.9 | 516.4 | 557.0 | 475.9 | 620.4 | 1024.4 | 947.5 | 775.9 | 704.9 | 677.9 |
| 82.5° | 318.7 | 333.0 | 401.5 | 439.5 | 386.3 | 571.4 | 986.4 | 901.9 | 714.2 | 631.4 | 599.3 |
| 85° | 163.1 | 195.2 | 279.8 | 315.3 | 284.0 | 486.0 | 908.6 | 789.4 | 573.1 | 483.5 | 486.0 |
| 87.5° | 78.6 | 109.0 | 176.7 | 197.8 | 184.3 | 351.6 | 678.7 | 572.2 | 446.3 | 353.3 | 342.3 |
| 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)